

# Making Connections

A transatlantic exchange to support the adoption of digital health between the US VHA and England's NHS

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## About this publication

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In January 2012 2020health published a short report ‘Telehealth: What can the NHS learn from experience at the US Veterans Health Administration?’ which looked at what the NHS could learn from the largest implementation of telehealth anywhere in the world. Our research found that telehealth represents a vital element in the shift towards more home-based care and benefits patients with long term conditions as it enables the coordination of care services.

A year later in England, we are at a crossroads in the delivery of healthcare. New technologies mean that we have the potential to deliver complex care in patients’ homes, which the rising number of those living longer, with long term conditions requires. At the same time, the current economic climate means there is virtually no budget growth. It is important that action to remodel health services in England is taken soon, before the quality of care is jeopardized and funds are wasted through current inefficient and inadequate services.

This second report builds on the first, adding much greater depth to our findings and recommendations. It not only reflects on the impressive use of technology currently provided by the VHA, but also draws on the innovative progress that has been made in the NHS through their experience of telehealth. We draw lessons learnt from both sides of the Atlantic and make recommendations for both organisations.

The VA and the NHS have a history of working together to share learning and experiences with the aim of driving continuous improvement, and this report also marks the launch of a three year Exchange Programme.

It will provide the foundation needed for those in the VHA and the NHS to make the most of the Exchange Programme and we hope that it will act as a trigger for the implementation of digital health in mainstream services throughout England as well as contribute to the development of specialised telehealth services in the VHA.

During the course of this work we benefitted from interviews and discussions with many of these working in the Department of Veterans’ Affairs and the NHS. We would like to thank all those who contributed to this piece of work and informed our thinking. Grateful thanks are also due to the Cisco IBSG Health & Life Sciences team for their project workshop.

This report was funded by an unrestricted educational grant from NHS 3millionlives and Robert Bosch, which gave us the freedom to draw our own conclusions. We are indebted to all our sponsors. As well as driving our ongoing work, involving frontline professionals in policy development, sponsorship enables us to communicate with and engage officials and policy makers in the work that we do. Involvement in the work of 2020health is never conditional on being a sponsor

**Julia Manning**  
**Chief Executive**  
**March 2013**



**U.S. Department of Veterans Affairs**  
Veterans Health Administration

## About the authors

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### **John Cruickshank**

John is a Consultant Director at 2020health and an independent strategic expert in health IT and telehealth, operating at the complex interface between government, NHS and industry. Since 2010, John has been responsible for launching and authoring a series of influential and authoritative reports published by 2020health. These reports have covered a spectrum of nationally significant issues across IT, telehealth and electronic health records. His 30-year career has included leadership roles in the healthcare practices of major systems integrators and consultancies. In addition to his work with 2020health, he advises public and private sector organisations committed to the strategic use of information and telehealth technologies in healthcare. John is a graduate in economics and management science from St John's College, Cambridge.

### **Joanne Harding**

Joanne has 30 years' experience in the NHS, with her main interests including systematic change management to support improvement of quality of care for people with long term conditions. Joanne is a steering group member of the Department of Health's 3millionlives Health and Social Care Working group as part of the overall 3ML Programme Board. Her special interests are in online tools to support self-management, mobile apps and innovative service redesign to support large scale change. Joanne leads an international partnership with the Veterans Health Administration which has supported clinical leadership and engagement across the service transformation agenda for the last 10 years.

### **Jon Paxman**

Jon joined 2020health in 2011, transferring his writing, editing and research skills from the worlds of film, television and classical music. Jon contributed to our recent report on Personal Health Records, and was the research associate on 2020health's independent evaluation of the 'Yorkshire and the Humber Regional Telehealth Hub'. Jon is Project Lead on 2020health's report into Personal Health Budgets.

### **Charlotte Morris**

Charlotte is a research assistant at 2020health, having recently graduated from University College London (UCL) where she studied French and Philosophy. As part of her Bachelors, she spent a year studying at La Sorbonne, Paris IV in France. Her studies have mainly focused on ethical and political philosophy, in particular surrounding current debates in the UK and abroad in areas such as euthanasia, abortion, the legalisation of drugs and the Human Right to Health. She has previously volunteered in the Policy Department at Marie Curie Cancer Care and has a particular interest in end of life care.

# Foreword

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**Dr Robert Petzel, VA  
Under Secretary for Health**

In the future, the use of E-technologies will be routine practice in all aspects of healthcare, from digital referrals, follow-up appointments, tele-diagnostics to monitoring and supporting patients in their own homes while sharing clinical information with those that need to see it. Intensivists will monitor Intensive Care Units (ICU) from remote locations bringing those services to small rural hospitals. The majority of consultation will be done by video conferencing technology.

We will be making use of the latest mobile technology and “apps” to help people look after themselves and find the support they need to improve or maintain their health. We believe mobile apps will transform the electronic medical record from a single monolithic desktop application to a suite of mobile apps, with each app designed around discrete workflows.

I believe using E-technologies in this way will improve quality of life for those who need our services while making the best use of the valuable resources we offer from our hospitals, clinics and staff. These technologies will lead to better connectivity and therefore, better health.

In five years’ time we will wonder how we ever managed without them...



**Dr Adam Darkins,  
Chief Consultant for  
Telehealth Services, Office  
of Patient Care Services, VHA**

The US Veterans Health Administration (VHA) and the UK National Health Service (NHS) are integrated health care systems that face the common challenge of caring for the health needs of aging populations of people with an increasing burden of chronic conditions e.g. diabetes, chronic heart failure etc.

Telehealth technologies which connect patient and provider, at a distance, using information and telecommunication technologies have the potential to increase access to care, reduce the costs of care and raise the quality of care, when used appropriately for the right patients, in the right place at the right time. Large integrated health care systems such as VHA and NHS are uniquely placed to develop and refine new models of care that use innovative new technologies to provide care virtually to patients; and in doing so offer the timeliness and convenience of access to care; benefits we have come to expect in other areas of our lives with on-line banking and shopping. This said, virtual care is not a panacea for all the challenges facing health care systems.

Telehealth-based services that provide solutions to some of these challenges are not created by health care systems, they are created by enthusiastic clinicians and managers seeking new ways support the people they serve. These “early adopters” of telehealth are still in relatively short supply; and initiatives that exchange learning, enthusiasm and expertise about telehealth between health systems promulgate learning, and hasten the development of services that provide the right care in the right place at the right time.



## Foreword

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**Miles Ayling,  
Director of Innovation,  
NHS Commissioning Board**

I believe we are at a juncture where innovation and technology are set to change the face of healthcare in the UK.

We have the potential to transform the health and healthcare of millions of people, but we need to change the way healthcare is delivered, where it is delivered, who delivers it and how patients access services. But it is more than just recognising that change has to happen. It's about creating the right culture and the right environment for innovation to flourish. We need to accept and encourage experimentation. We need to make the use of assistive technology the norm rather than the exception, and we need to develop partnerships with industry based on trust not transaction. This is at the heart of 3millionlives, which will improve the health and life chances of three million people over the next five years.

Success will reap benefits for both patients and the NHS. It will also put UK plc at the leading edge of the development and use of these technologies globally. The time for action is now.



**Stephen Johnson,  
Deputy Director, Head of Long  
Term Conditions and Urgent  
& Emergency Care,  
Department of Health**

In five years' time we should be able to look back and wonder what the fuss was all about. People will be cared for, services will continue and using telehealth will be second nature. So what will change? I believe there will be a light bulb moment, a moment when all of us, patients, carers, clinicians and industry will come together at the same time, eager to reap the benefits of telehealth technology that can free people from the need for routine appointments and give people their lives back. What will cause this light bulb moment? Information. Give people the information and they will want it, demand it and expect it.

We stand on the verge of something truly remarkable, the time to make that step into the future is now. We need to lead this change not follow. Be bold, turn on that light bulb now.

# 1 Executive Summary

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As two of the largest publicly funded whole healthcare systems globally, the US Veterans Health Administration (VHA) and the English National Health Service (NHS) face a number of parallel challenges to deliver improved outcomes within cash-limited budgets. The populations that they serve are ageing, with a growing proportion of patients with long-term conditions. As integral commitments in their long-term plans, both are increasingly using digital technologies to transform the way they maintain health and deliver care.

The organisations have a history of working together to share learning and experiences to drive continuous improvement. As part of the NHS commitment placing telehealth at the heart of service transformation through the 3millionlives initiative, and more widely to adopt digital health for mainstream services, the two organisations have agreed to an Exchange Programme for three years starting from 2013. The aim of the Programme is to improve clinical engagement, developing confidence that new technologies work, and so increase clinical leadership to drive digital health into everyday use for the majority of patients. As a result it is envisaged that there will be a measurable increase in adoption of technologies to support management of long-term conditions, towards the 3millionlives aspiration.

Integral to the Programme's foundation is this report which aims to strengthen and build the partnership by outlining best practice in the planning and use of digital health technology in both organisations, and to capture key lessons for transferable learning. Core 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 has led to the significant reduction in the demand on acute care facilities and the commensurate expansion of outpatient clinics. 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 this has been a major digital health programme 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' and addressing the 'mismatch between where expertise is and where it needs to be'. The VHA is on track to meet its aim that 50% of patients benefit from one or more elements of digital healthcare by 2014. While successful use of technology has been a key enabler to success in making digital health a primary route for delivering service, it is the underlying culture, leadership, processes and training

that have been paramount, with strategy set nationally while implementation is driven locally.

Turning to the NHS, its reform agenda has had a core intent of being a 'patient-centred' healthcare system. Recent reforms have also led to increasing separation of commissioning functions from provision, and commissioning will shortly be in the hands of local clinicians working under mandate from the new NHS Commissioning Board. In keeping with a goal of devolving operational responsibilities within a nationally agreed outcomes framework, innovation adoption is being incentivised around key impact areas.

If the NHS is to meet public expectations for quality, access and efficiency, then it must recognise it needs new ubiquitous capabilities to collaborate, transact, access information, knowledge and expertise on demand, and deliver advice and care in non-traditional settings including the home and workplace. The government now regards digital health as a core element in the plans to transform the NHS. Digital Health must move from being a series of interesting pilots and experiments, to become a first-response option to deliver health and care. The NHS has learnt that information and technology strategies, at all levels from national to local, cannot be isolated from management, clinical, process and organisational change, since all evidence points to failure when this is the case.

The main learning points both at a strategic level and for the four main digital health technology modalities addressed in the report are shown in Figure 1.1:

# 1 Executive Summary

Figure 1.1 – Key Learning Points

| What the NHS can learn from the VHA  | What the VHA can learn from the NHS  |
|--|--|
| <b>Transformation and digital health journeys</b> – how technology strategies are enabling improved patient care and service effectiveness   |  |
| <ul style="list-style-type: none"> <li>• Creating a digital health-enabled service needs senior leadership commitment to 'care at a distance' as a core service, continuity and consistency of vision, considerable investment in reusable technology platforms and substantial change over a protracted period.</li> <li>• Adopting digital health technology must work hand in hand with redesigning pathways. It needs to involve a creative approach to organisational design, workforce development, incentivisation and performance management.</li> </ul>   | <ul style="list-style-type: none"> <li>• The NHS is proactive in trying to reduce longer-term population health risks through risk profiling, and uses digital health to promote healthy living and self-management through on-line groups and social media.</li> <li>• The design of digital health-enabled services may be enhanced through incorporating patients' opinion and feedback.</li> <li>• The wide range of digital health channels promoted and used across the NHS may also have relevance to the VHA.</li> </ul>   |
| <b>Home telehealth</b> – remote patient monitoring of a patient's physiological status and health conditions for chronic care management and improved self-care  |  |
| <ul style="list-style-type: none"> <li>• As well as long term conditions, standardised telehealth protocols can also be applied to mental health groups and to broader populations for prevention and wellness programmes.</li> <li>• To achieve the staffing and logistical efficiencies seen in the VHA, the NHS needs to find ways to move telehealth to become the default delivery channel for services.</li> <li>• System capacity can be provided through a staffing model of nurse care coordinators and programme support workers.</li> <li>• The core competencies for telehealth need embedding into the curricula of doctors, nurses and allied health professionals, and relevant local authority staff.</li> </ul> | <ul style="list-style-type: none"> <li>• Service planning for telehealth needs embedding around three principles: effective service design; appropriate use of risk stratification to accurately identify patient cohorts; and the encouragement of self-care.</li> <li>• The NHS has found value in considering a menu of appropriate interventions to meet different health and social care needs beyond telehealth, e.g. telecoaching and telecare.</li> <li>• It is helpful to include patients and carers in the initial assessment of equipment needs, the consideration of different suppliers during procurement and in the evaluation of the effectiveness of the equipment and services once installed.</li> <li>• Realism is needed about the time to achieve deployment at scale.</li> </ul> |



# 1 Executive Summary

Figure 1.1 – Key Learning Points (continued)

| What the NHS can learn from the VHA   | What the VHA can learn from the NHS  |
|---|--|
| <b>Telemedicine or Clinical Video Teleconference</b> – real-time video conferencing between clinicians and patients to replicate face-face consultations  |  |
| <ul style="list-style-type: none"> <li>• Telemedicine-based clinics can be highly effective for specific types of interventions and patient groups, provided relevant pathways are redesigned to take full use of the clinical and management capabilities that technology provides.</li> <li>• There is value in taking incremental steps with clinical providers to introduce and bed-in the technology and its use as “the new normal”.</li> <li>• Common technology platforms should be used wherever feasible in terms of equipment, infrastructure and support arrangements.</li> </ul> | <ul style="list-style-type: none"> <li>• Telemedicine can be highly effective in: streamlining primary care assessments; supporting heart &amp; stroke and other regional disease-based networks; in tertiary centres and prisons; and health promotion campaigns such as for smoking cessation.</li> <li>• Telemedicine represents an early way for clinicians to get enthused by the potential of digital health.</li> </ul>   |
| <b>Mobile health</b> – using a range of mobile devices to empower individuals with the information needed to improve healthcare delivery  |  |
| <ul style="list-style-type: none"> <li>• Build on pilots and established good practice to co-create apps with users – whether patients, carers or clinicians – rapidly evaluating them to assess effectiveness.</li> <li>• Use recognised infrastructure for the systematic development of apps as part of an overarching e-technology framework to ensure a seamless experience for users.</li> </ul>  | <ul style="list-style-type: none"> <li>• Appraise the opportunities from on-line and mobile platforms offering a single point of access for the public to find out about patient services.</li> <li>• It is valuable to incorporate patient feedback and choice into on-line and mobile directories of services, e.g. what’s available nearby, social media tools.</li> <li>• Consider the potential applicability of NHS-oriented mobile health approaches to the needs of VHA patients – ranging from SMS texting services for low-level telehealth needs and appointment reminders through to dedicated mobile platforms for higher need patients.</li> </ul> |

# 1 Executive Summary

Figure 1.1 – Key Learning Points (continued)

| What the NHS can learn from the VHA  | What the VHA can learn from the NHS  |
|--|--|
| <b>Secure Messaging and Personal Health Records</b> – an online record accessed or owned by the patient, integrated with clinical providers' health records, and supporting secure text-based communications between patient and clinician                         |  |
| <ul style="list-style-type: none"> <li>Secure messaging and PHRs are essential tools in empowering patients and improving self-care.</li> <li>A single record accessible to both clinician and patient supports integration and a co-created care plan.</li> </ul> | <ul style="list-style-type: none"> <li>Patients overwhelmingly value on-line transactional support rather than record access on its own.</li> <li>Specialised PHRs can be highly valued for patient groups with specific health needs (e.g. renal patients).</li> <li>There is value to putting patients in control of their own record, allowing them to set personalised goals that matter to them rather than just being clinically orientated, and letting them decide who sees what.</li> </ul> |

## 2 Introduction

### 2.1 Background

In January 2012, the government launched the national 3millionlives (3ML) initiative<sup>1</sup> to drive the widespread NHS adoption of telehealth. In support of this, the think tank 2020health published a white paper ‘Telehealth – What can the NHS learn from experience at the US Veteran Health Administration?’.<sup>2</sup> This report was an initial introduction to an NHS audience of the VHA’s transformation from a hospital-centric model towards one based on the delivery of integrated care supported by assistive technologies. The VHA forms the largest part of the US Department of Veteran Affairs (VA) which provides patient care and federal benefits to Veterans and their dependents.

Building on a prior clinical leadership exchange programme between the VHA and NHS West Midlands dating back to 2002, there is now a top level commitment from the VHA and NHS to create a Leadership Exchange Programme to include senior leaders from the clinical, managerial and informatics communities. The Programme is intended to start from 2013, focusing on clinical engagement, leadership and transformational system change needed to support people with long term conditions using digital health.

As plans for the Programme are being formed, integral to its foundation is to prepare a second edition of the 2020health report to act as a catalyst to the exchange with an emphasis on implementation of learning from both organisations. This new report also addresses the wider scope of the telehealth and digital health programme adopted by the VHA, including the five technology modalities of home telehealth, mobile health, clinical video conferencing and secure messaging, and the adoption of electronic / personal health records.<sup>3</sup> The report does not address the role and use of telecare, which is widely deployed in the UK to support independent living at home, nor the underlying information technology supporting the modalities.

The aim of this publication is to strengthen the partnership by drawing out lessons learnt and recommendations on both sides, based on best practice and case studies, which leads to:

- Increased awareness of benefits of telehealth amongst clinicians and managers responsible for adoption and spread of assistive technologies
- Practical support for implementation at scale and pace
- Understanding of challenges, including technical, organisational and evaluation matters, and how these can be overcome using practical examples
- Increased international awareness of the VHA transformation story and transferrable learning for the wider NHS
- Becoming an invaluable resource for NHS 3ML Pathfinders and local commissioners
- Increased engagement and leadership at a local level in the 3ML initiative, including a raised international profile

The report has been prepared by a small team from 2020health working with Ms Joanne Harding, Programme Lead - Long Term Conditions & Telehealth-care. Governance was provided on the VHA side through the Undersecretary for Health, Dr Robert Petzel MD, and from the NHS Commissioning Board through the Director of Innovation, Mr Miles Ayling. The report structure is mirrored for the VA and NHS sections and is as follows:

- The initial chapters are designed to provide an orientation to those unfamiliar with the respective VHA / NHS health models, transformation challenges and initiatives, and digital health strategies, namely:
  - o 3 - Overview of the health systems
  - o 4 - Transformation journeys
  - o 5 - Digital Health Strategy

1. 3millionlives, Homepage [Internet] 2012, [Accessed February 2013] Available from [www.3millionlives.co.uk](http://www.3millionlives.co.uk)

2. 2020health, What can the NHS learn from experience at the US Veterans Health Administration? [Internet] 2012, [Accessed February 2013] Available from <http://www.2020health.org/2020health/Publication/NHSit/Telehealth.html>

3. Note that the additional digital health modalities of Store & Forward of images and teleradiology are not within the scope of this report.

## 2 Introduction

- 
- Chapters 6-9 cover particular the four featured digital health modalities:
    - o 6 - Home Telehealth
    - o 7 - Telemedicine
    - o 8 - Mobile health
    - o 9 - Personal health records
  - Chapter 10 introduces the aims of the Leadership Exchange Programme

Each chapter features relevant material to compare and contrast the VHA and NHS best practice, with overall learning points highlighted, not only for the NHS and VHA sides to learn from each other, but to encourage scale and pace in the NHS. In the VHA's case, the strategies and approaches adopted are generally developed and coordinated centrally whereas on the NHS side, the approach is more diffuse with policy set nationally but innovation and implementation driven locally. For this reason, the NHS sections describe exemplar projects of some of the most innovative initiatives, in addition to a description of the general policy and strategy towards each digital health modality.

The report was constructed through structured interviews in late 2012 with VHA leaders and clinicians, and on the NHS side, through desk research and interviews with leaders of exemplar projects. A full list of interviewees is provided in Appendix A with a glossary of terms used in Appendix B.

### 3 Comparing the VHA and NHS as health systems

This section introduces the VHA and NHS health systems and is intended to be a brief guide of the health systems for those involved in the exchange.

#### 3.1 Overview of the VHA

##### Patient population

As a large integrated healthcare system, the Veterans Health Administration offers services to a population of 23 million eligible Veterans, with around 8.3m currently enrolled.<sup>4</sup> Of these, some 5.2m have been assigned to Patient Aligned Care Teams, multidisciplinary groups who work in an integrated way to monitor higher risk patients.<sup>5</sup> Women make up just 8% of patients, although that proportion is slowly rising. Dependents of Veterans are not generally covered under VA healthcare, although some are entitled to other VA benefits. Approximately 3.4 million enrolled Veterans (41% of the total) live in rural areas.<sup>6</sup> Destitution is comparatively high among Veterans: more than 100,000 homeless Veterans receive VA health care and benefits each year. In contrast to the NHS, the VHA is not required to provide accident & emergency services.

##### Age & disease profiles

Many Veterans in civilian employment have private insurance provided by their employer. Patients who therefore rely on VHA care tend to be 'sicker, older, and have lower incomes than the population generally'.<sup>7</sup> The average age of an enrolled VA patient is 62 and over 40% are aged 65 and over. Figure 3.1 below, compiled by the Commonwealth Fund in 2011,<sup>8</sup> demonstrates the high concentration of conditions managed by the VHA as compared with US averages.

##### Eligibility

VA health benefits and services are available to those who have served in the US military and have not received a dishonourable discharge. Eligibility rules require a minimum service period of 24 months for those who have signed up since 1980. VA guidelines state: 'This minimum duty requirement may not apply to Veterans who were discharged for a disability incurred or aggravated in the line of duty, for a hardship or "early out," or those who served prior to September 7, 1980.' Veterans, once enrolled, will usually remain with the VHA for the rest of their lives.

Figure 3.1 – Prevalence of chronic conditions amongst VHA patients

| Chronic condition                     | VHA primary care patients | US national average |
|---------------------------------------|---------------------------|---------------------|
| Hypertension                          | 52.3%                     | 26.0%               |
| Obesity                               | 36.5%                     | 26.9%               |
| Diabetes mellitus                     | 24.4%                     | 8.3%                |
| Depression                            | 18.5%                     | 6.8%                |
| Ischemic heart disease                | 16.1%                     | 12.0%               |
| Post-traumatic stress disorder        | 10.4%                     | 3.5%                |
| Chronic obstructive pulmonary disease | 8.4%                      | 6.0%                |
| Chronic renal failure                 | 4.1%                      | 15.1%               |
| Congestive heart failure              | 3.1%                      | 2.5%                |

4. Department of Veterans Affairs, Mid-Atlantic Health Care Network [Internet] 2013, [Accessed February 2013] Available at <http://www.vsn6.va.gov/>

5. Department of Veterans Affairs, Statistics at a Glance, [Internet] 2012 [Accessed February 2013] Available at <http://www.va.gov/vetdata/docs/quickfacts/Homepage-slideshow.pdf>

6. Department of Veterans Affairs, Reaching Out to Three Million 'rural' Veterans [Internet] 2012, [Accessed February 2013] <http://www.va.gov/health/NewsFeatures/20120816a.asp>

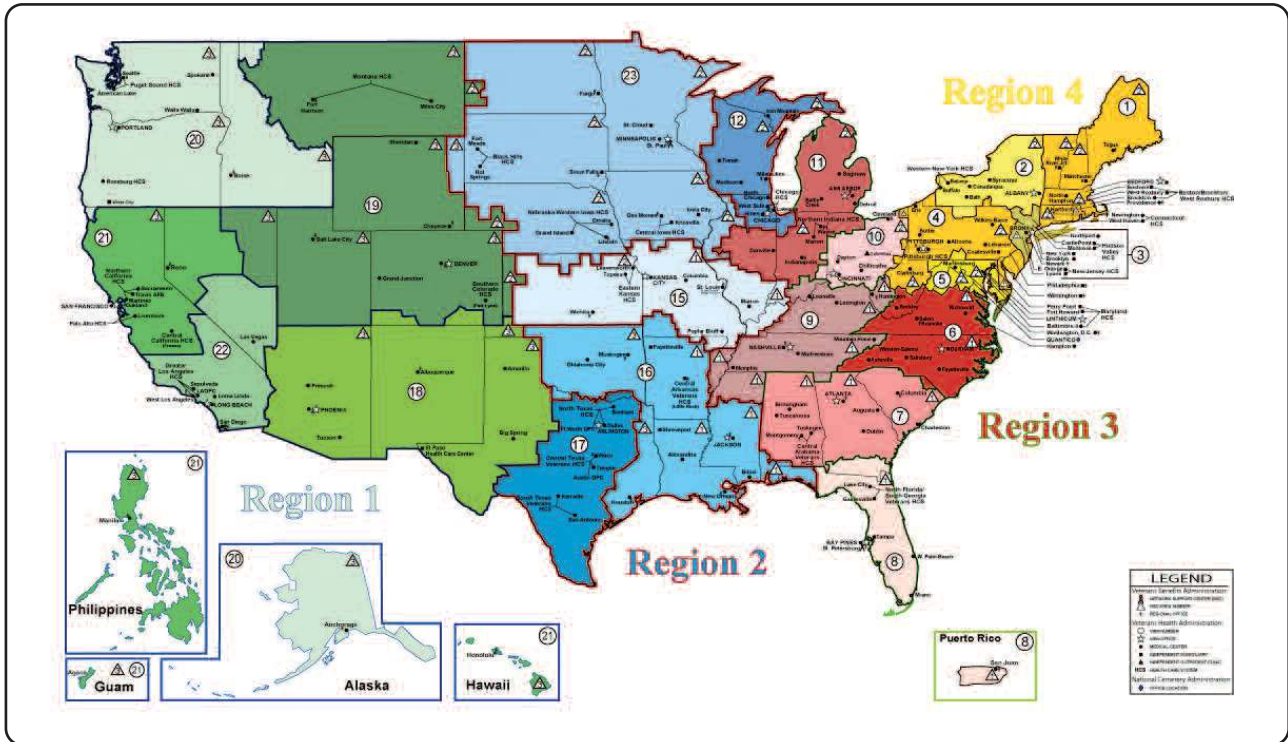
7. Commonwealth Fund, The Veterans Health Administration: Implementing Patient-Centered Medical Homes in the Nation's Largest Integrated Delivery System [Internet] 2011 [Accessed February 2013] Available at [http://www.commonwealthfund.org/~media/Files/Publications/Case%20Study/2011/Sep/1537\\_Klein\\_veterans\\_hlt\\_admin\\_case%20study.pdf](http://www.commonwealthfund.org/~media/Files/Publications/Case%20Study/2011/Sep/1537_Klein_veterans_hlt_admin_case%20study.pdf)

8. Ibid

### 3 Comparing the VHA and NHS as health systems

#### Geographical spread and facilities

Figure 3.2 Regional Structure of the VHA





### 3 Comparing the VHA and NHS as health systems

In 1996 the VHA reorganised its regional healthcare service by the formation of 21 Veterans Integrated Service Networks (VISNs) – see figure 3.2 above.<sup>9</sup> VISNs 13 and 14 were merged in 2002, forming VISN 23. The VHA lists and describes its nationwide health and social care facilities as follows:<sup>10</sup>

- 152 hospitals, or Medical Centres, all providing traditional hospital-based services, with most offering additional medical and surgical specialty services. Some medical centres have facilities for organ transplants and plastic surgery.
- 817 Community Based Outpatient Clinics (CBOCs), providing the most common outpatient services, including health and wellness visits, without the hassle of visiting a larger medical centre. The VHA continues to expand the network of CBOCs to include more rural locations, putting access to care closer to home.
- 135 Community Living Centres (CLCs) providing skilled nursing facilities, often referred to as nursing homes, to Veterans with chronic stable conditions such as dementia, those requiring rehabilitation or those who need comfort and care at the end of life.
- 48 Domiciliaries, providing a variety of care to Veterans who suffer from a wide range of medical, psychiatric, vocational, educational, or social problems and illnesses in a safe, secure homelike environment.
- 278 Vet Centres, providing readjustment counselling and outreach services to all Veterans who served in any combat zone. Services are also available for family members dealing with military related issues.

#### Commissioning and funding

The VHA is a closed health system, with its nationwide provider hospitals and clinics funded through a single payer, the US Government. The 2012 VHA budget has been estimated at \$53 billion<sup>11</sup> (around one third of NHS England's), representing a 4% increase on 2011. There are no plans to freeze healthcare spend, as is currently the case in the NHS, but rising patient need in times of

austerity means that the VHA has similarly to find smarter ways to improve healthcare without any significant growth in expenditure.

Total funds are divided between General Purpose funding and Specific Purpose funding. Representing around 80% of the total VHA budget, General Purpose funding is distributed among the 21 VISNs through the Veterans Equitable Resource Allocation model (VERA), allocated proportionally to each region based on patient population and health needs. VISN directors are responsible for the delivery of integrated health and social care within their network. There is no one resource allocation model; the system accommodates flexibility to allow appropriate response to local requirements.

The Specific Purpose funds are controlled centrally by the VHA and used for national programmes, quality improvement initiatives and administration.

#### Management Structure

The VA operates three principal lines of business: the Veterans Health Administration (VHA), the Veterans Benefits Administration (VBA) and the National Cemetery Administration (NCA).

#### Clinical Workforce

The VHA employs around 239,000 staff, deployed across 1,400 sites. The 'full-time equivalent' workforce includes:

- 18,000 medical officers
- over 77,000 nurses and nursing assistants
- over 10,000 social workers

As compared with the NHS, the VHA workforce is distinctive for its physician assistants and integrated social workers. The primary care physician assistant (PA) is licensed to practice medicine under physician management. Responsibilities vary largely according to training, but the PA might 'take medical histories, perform physical exams, order and interpret laboratory tests, diagnose and treat illnesses, counsel patients, assist in surgery, and set fractures.' Many PAs are employed in remote regions where VA healthcare professionals are in

9. Department of Veterans Affairs, Interactive US Map, [Internet] 2010, [Accessed February 2013] Available from <http://www2.va.gov/directory/guide/map.asp?dnum=1>

10. Department of Veterans Affairs, About VHA, [Internet] 2011, [Accessed October 2012] Available at <http://www.va.gov/health/aboutVHA.asp> Accessed

11. Department of Veterans Affairs, Volume II Medical Programs & Information Technology Programs [Internet] 2013, [Accessed February 2013] [http://www.va.gov/budget/docs/summary/Fy2013\\_Volume\\_II-Medical\\_Programs\\_Information\\_Technology.pdf](http://www.va.gov/budget/docs/summary/Fy2013_Volume_II-Medical_Programs_Information_Technology.pdf)

# 3 Comparing the VHA and NHS as health systems

short supply. Their role extends to patient advocacy and health education, enabling Veterans to use the health service more effectively.

*“The VA manages the largest medical education and health professions training program in the United States. VA facilities are affiliated with 107 medical schools, 55 dental schools and more than 1,200 other schools across the country. Each year, about 90,000 health professionals are trained in VA medical centres. More than half of the physicians practicing in the United States had some of their professional education in the VA health care system.”<sup>12</sup>*

VA social workers are to be found in all Medical Centres and Vet Centres, and in many Community Based Clinics. Pivotal to integrated care, the social worker is usually the first point of contact for a Veteran who enrolls in VA healthcare. They are responsible for completing an initial assessment of the individual’s social and healthcare needs, which informs the VA healthcare team in the making of treatment plans. The social worker will typically have involvement in long-term case management services with high-risk Veterans with complex medical problems. They are also an important point of contact for hospitalised patients, since it is they who implement plans and provisions for discharge back home or into community settings.

## Relationships to other health systems and social care

The organisation works collaboratively with several community groups, including the Veteran Service Organization, State Offices of Veterans Affairs, County Veteran Service Agencies, and non-profit Service Providers. Beyond this there are National membership groups, such as the American Legion and Disabled American Veterans, who will advocate on national issues, support Veterans through local programmes, and participate in voluntary service events. For services needed

by a Veteran that are not provided locally, contracts are in place to support individual needs with other providers as required.

## 3.2 Overview of the current NHS

### Patient Population

The English National Health Service (NHS) provides universal healthcare to a population of 53,107,200 (2011).<sup>13</sup> Around 52 million individuals are registered with an NHS general practitioner (GP), with females representing nearly 51%. Registered children (under 18s) number just over 11 million. The average number of registered patients per GP in England is 1,500<sup>14</sup> with health expenditure per head stood at £1,900 (\$3,000) in 2010/11.<sup>15</sup> Healthcare in Scotland, Wales and Northern Ireland is provided by their own NHS; all are managed through their respective devolved governments.

### Age and disease profile

Life expectancy in England stands at 78.4 years for men, 82.4 years for women.<sup>16</sup> It is estimated that 15.4 million people in England (around 30% of the population) live with one or more long term conditions. The country’s ageing population is likely to push this figure up to 18 million by 2025, owing to a projected 42% increase in the over-65 age group. The treatment and care of people with LTCs accounts for around 70% of all health and social care spend in England.<sup>17</sup> Figure 3.3 below highlights the estimated prevalence of various LTC groups in England, as compared with US Veterans registered with the Veteran’s Health Administration:

12. Department of Veteran Affairs, Fact Sheet, [Internet] 2009, [Accessed February 2013]

Available at [http://www.va.gov/opa/publications/factsheets/fs\\_department\\_of\\_veterans\\_affairs.pdf](http://www.va.gov/opa/publications/factsheets/fs_department_of_veterans_affairs.pdf)

13. Office for National Statistics (ONS), Population Estimates for England and Wales, Mid-2011 (2011 Census-based), [Internet] 2012, [Accessed February 2013]

Available at <http://www.ons.gov.uk/ons/rel/pop-estimate/population-estimates-for-england-and-wales/mid-2011--2011-census-based-/index.html>

14. NHS The Information Centre, [Internet], 2011 [Accessed February 2013] Available at

[http://www.ic.nhs.uk/webfiles/publications/010\\_Workforce/NHS%20STAFF%20ANNUAL%202001-11/NHS\\_Workforce\\_Census\\_Bulletin\\_2001\\_2011.pdf](http://www.ic.nhs.uk/webfiles/publications/010_Workforce/NHS%20STAFF%20ANNUAL%202001-11/NHS_Workforce_Census_Bulletin_2001_2011.pdf)

15. Harker R, NHS funding and expenditure. [Internet] 2012 [Accessed February 2013] Available from <http://www.parliament.uk/briefing-papers/SN00724>

16. ONS, Health Expectancies at Birth and at Age 65 in the United Kingdom 2008-2010, [Internet] 2012, [Accessed February 2013]

Available at [http://www.ons.gov.uk/ons/dcp171778\\_277684.pdf](http://www.ons.gov.uk/ons/dcp171778_277684.pdf)

17. Department of Health (DH), Improving the health and well-being of people with long term conditions [Internet] 2010 [Accessed February 2013]

Available at [http://www.dh.gov.uk/prod\\_consum\\_dh/groups/dh\\_digitalassets/@dh/@en/@ps/documents/digitalasset/dh\\_111187.pdf](http://www.dh.gov.uk/prod_consum_dh/groups/dh_digitalassets/@dh/@en/@ps/documents/digitalasset/dh_111187.pdf)

### 3 Comparing the VHA and NHS as health systems

Figure 3.3 – Comparison of chronic disease conditions

| Chronic condition        | England average       | US VHA average |
|--------------------------|-----------------------|----------------|
| Hypertension             | 31% <sup>18</sup>     | 52%            |
| Obesity, Adults (16+)    | 26% <sup>19</sup>     | 36.5%          |
| Obesity, Children        | 16% <sup>20</sup>     | N/A            |
| Diabetes (Type I & II)   | 5.5% <sup>21</sup>    | 24.4%          |
| COPD                     | 4% – 5% <sup>22</sup> | 8.4%           |
| Congestive heart failure | 4.4% <sup>23</sup>    | 3.1%           |
| Chronic renal failure    | 8.5% <sup>24</sup>    | 4.1%           |

#### Eligibility

The NHS prides itself on the fact that any ordinary resident of the United Kingdom is entitled to NHS care ‘free at the point of delivery’, irrespective of personal wealth. Exceptions to this rule apply in the areas of prescriptions, dental care and eye care, which typically levy charges subject to means testing. However, children, pregnant women, cancer and renal dialysis patients, and some with specific other medical conditions are exempt from all charges.

Many visitors to England are also able to obtain free or partially free healthcare, in particular European Economic Area (EEA) nationals. All foreign visitors are entitled to free emergency care, and also free ‘immediately necessary treatment’ from a GP.

#### Geographical spread and facilities

The NHS has extensive reach throughout England and has invested significantly in recent years to increase access. There are currently 164 acute and specialist trusts, 54 mental health trusts, 27 care trusts (offering varying degrees of integrated health and social care) and 11

ambulance trusts. 21 Community trusts provide more localised NHS facilities, such as hospital outpatient clinics, children’s centres, rehab centres and maternity clinics.

The NHS also operates around 225 minor injury units and 92 walk in centres to deal with minor injuries and other services such as smoking cessation. Since 1997, NHS Direct has operated a nationwide telephone-based service for health advice and basic interventions. More recently they now have a significant on-line presence and this is discussed more in Chapter 8. The NHS Direct service is now being superseded by locally run non-emergency services called NHS 111.

#### Structure, funding and commissioning

Healthcare policy is directed by central government and implemented through the Department of Health. The NHS is accountable to Parliament through the Secretary of State for Health, supported by four ministers of state; all are MPs or members of the House of Lords. The NHS is funded through general taxation, and Parliament votes annually on its overall budget. Currently, approximately 80% of England’s NHS budget of £102

18. British Heart Foundation, Blood Pressure, [Internet] undated, [Accessed February 2013] Available at <http://www.bhf.org.uk/research/statistics/risk-factors/blood-pressure.aspx>

19. NHS The Information Centre, Statistics on Obesity, Physical Activity and Diet in England 2012, [Internet] 2012, [Accessed February 2013] Available at [http://www.ic.nhs.uk/webfiles/publications/003\\_Health\\_Lifestyles/OPAD12/Statistics\\_on\\_Obesity\\_Physical\\_Activity\\_and\\_Diet\\_England\\_2012.pdf](http://www.ic.nhs.uk/webfiles/publications/003_Health_Lifestyles/OPAD12/Statistics_on_Obesity_Physical_Activity_and_Diet_England_2012.pdf)

20. Ibid

21. Diabetes UK, Diabetes in the UK Key Statistics on Diabetes, [Internet] 2012, [Accessed February 2013] Available at <http://www.diabetes.org.uk/Documents/Reports/Diabetes-in-the-UK-2012.pdf> (2011 figure)

22. Costing Report, Chronic Obstructive Pulmonary Disease, [Internet] 2012, [Accessed February 2013] Available at <http://www.nice.org.uk/nicemedia/live/13029/53292/53292.pdf> (p.8)

23. British Heart Foundation, Coronary Heart Disease statistics in England 2012, 2012, London: British Heart Foundation NB: their quoted estimate relates to data from 2006

24. Royal College of Physicians, Chronic Kidney Disease, [Internet] 2008, [Accessed February 2013] Available at <http://www.nice.org.uk/nicemedia/live/12069/42116/42116.pdf> (p.6: estimate for stage 3–5 CKD)

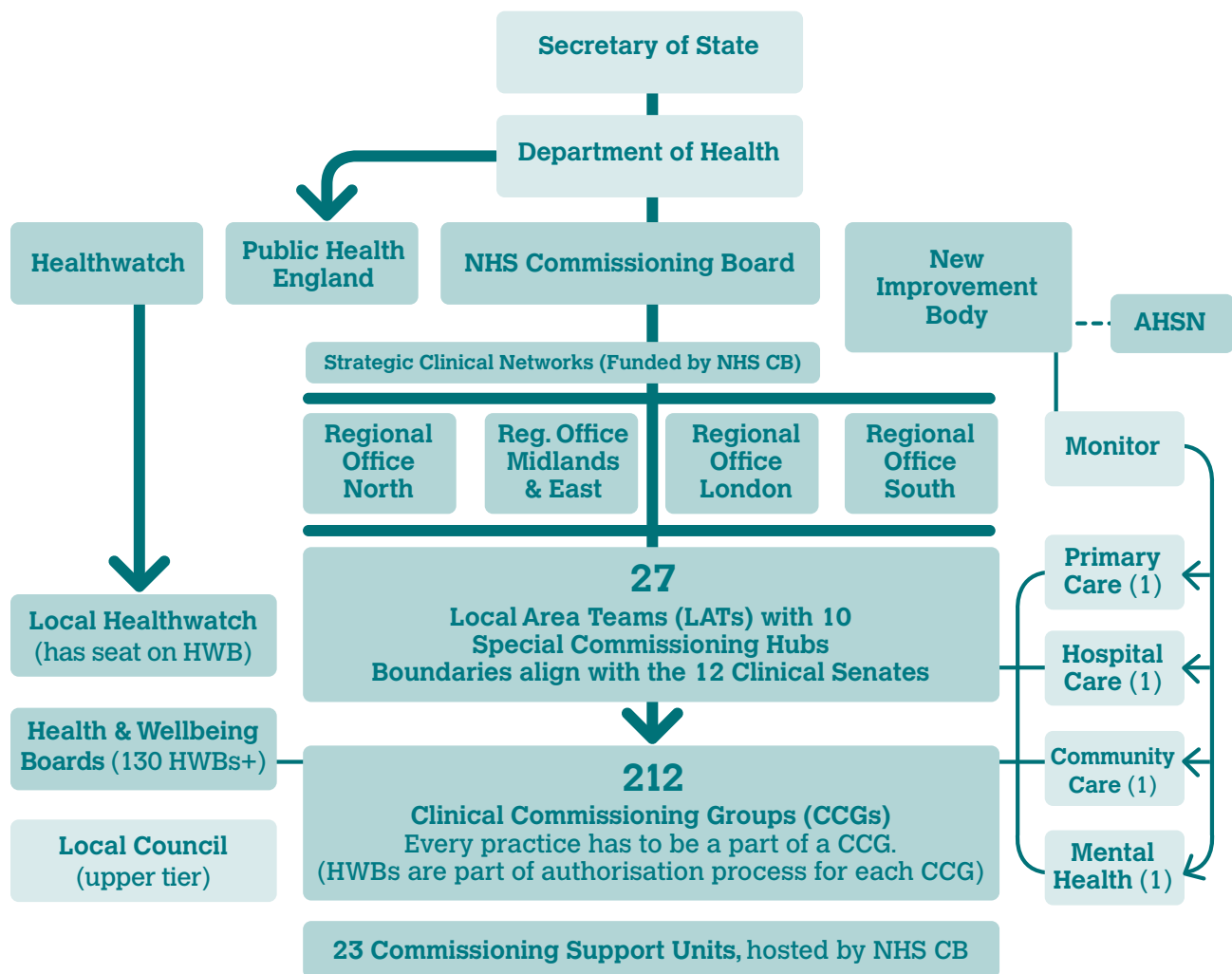
### 3 Comparing the VHA and NHS as health systems

(\$160) billion is controlled by regional Primary Care Trusts (PCTs). PCTs are allocated their share of resources through a weighted capitation formula based on ‘population, the local cost of health services provision, the level of healthcare need and health inequality’.<sup>25</sup>

PCTs are shortly to be abolished, making way for clinician-led Clinical Commissioning Groups (CCGs) by April 2013. The new structure is depicted at figure 3.4 below. The argument behind this power-shift was simple: no one understands patient need better than frontline clinicians, so let GPs more control over commissioning. As largely autonomous bodies, CCG will be free to identify, target and prioritise areas of greatest need in their locality.

The transfer of commissioning power, from PCTs to CCGs, is to take full effect from April 2013. CCGs are currently operating in shadow form and undergoing rigorous authorisation processes, undertaken by the NHS Commissioning Board (NCB). CCGs will be supported by Local Area Teams (LATs) and Health and Wellbeing Boards; a further layer of support will come from 23 Commissioning Support Units, providing back office and business intelligence services locally to CCGs.

Figure 3.4 – NHS structure from April 2013



25. Harker R, Primary Care Trusts: funding and expenditure, [Internet] 2010 [Accessed February 2013] Available at [www.parliament.uk/briefing-papers/sn00724.pdf](http://www.parliament.uk/briefing-papers/sn00724.pdf)

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From April 2013, the NHS Commissioning Board will become responsible for overall strategic direction and coordination, working to a mandate directed by the Secretary of State for Health. In announcing the new NHS Mandate to the NHS Commissioning Board on 13 November 2012,<sup>26</sup> the Secretary of State for Health identified priorities structured around five key areas. These include: preventing people from dying prematurely; enhancing the quality of life for people with long-term conditions; helping people to recover from episodes of ill health or following injury.

#### Clinical Workforce

As of 2011 the NHS workforce stood at 1,350,000, with 1,149,000 full-time equivalents (FTE). There were 604,000 FTE Professionally qualified clinical staff, including:<sup>27</sup>

- 37,000 FTE consultants
- 35,300 FTE GPs
- 320,000 FTE nurses (including practice nurses)
- 131,700 FTE scientific, therapeutic and technical staff
- 18,700 FTE ambulance staff

#### Relationships with other health systems and social care

The NHS works closely with adult social care services to providing personal and practical support to help people live their lives. Operated by local councils, social care supports individuals to maintain their independence and dignity, and to make sure they have choice and control.

The voluntary sector also operates as an essential partner to the NHS. The sector is flexible and diverse, and services are often developed to help tackle health inequalities across England, as they provide “greater access to services for marginalised groups and people with complex needs.” Further, because voluntary and community organisations are often based around local communities, they are a rich source of knowledge about local needs and gaps in services.<sup>28</sup> Services undertaken by the voluntary sector cover specialist clinical provision, hospices, disease-specific advice and general wellness support.

Worth an estimated £30bn (\$50bn) in 2010,<sup>29</sup> the UK private healthcare sector provides a range of services that complement and in places compete with the NHS. These range from privately run hospitals (for non-emergency work), independent sector treatment centres (servicing NHS patients), long term care including nursing homes and psychiatric care. Approximately 16% of the UK population currently has private health insurance, generally amongst those belonging to upper income groups.

26. DH, What does the Mandate mean for the use of technology to help people manage their health? [Internet] 2012 [Accessed at February 2013] Available at <http://man.date.dh.gov.uk/technology/>

27. NHS, 2011, NHS Workforce Census Bulletin Available at [http://www.ic.nhs.uk/webfiles/publications/010\\_Workforce/NHS%20STAFF%20ANNUAL%202001-11/NHS\\_Workforce\\_Census\\_Bulletin\\_2001\\_2011.pdf](http://www.ic.nhs.uk/webfiles/publications/010_Workforce/NHS%20STAFF%20ANNUAL%202001-11/NHS_Workforce_Census_Bulletin_2001_2011.pdf)

28. Curry et al, The voluntary and community sector in health Implications of the proposed NHS reforms, [Internet] 2011, London: The Kings Fund. Available at [http://www.kingsfund.org.uk/sites/files/kf/Voluntary-and-community-sector-in-health-implications-NHS-reforms-The-Kings-Fund-june-2011\\_0.pdf](http://www.kingsfund.org.uk/sites/files/kf/Voluntary-and-community-sector-in-health-implications-NHS-reforms-The-Kings-Fund-june-2011_0.pdf)

29. Keynote, Private Healthcare Market Report 2011, [Internet] 2011, [Accessed February 2013] Available at <http://www.keynote.co.uk/market-intelligence/view/product/10476/private-healthcare/chapter/1>



## 4 Transformation

This section provides a summary account of the past and current transformation of the VHA and NHS health systems respectively.

### 4.1 The Transformation of the VHA

*“The VHA offers more equitable care, of higher quality at comparable or lower cost, than private sector alternatives”.*

**British Medical Journal, 2007**

The VHA's rank as a world-leading healthcare service has been recognised for several years now. But many still remember a time, some 20 years ago, when some US politicians were lambasting the VHA as ‘socialised medicine gone predictably amok’,<sup>30</sup> with poor access, long waiting times, fragmented care and unpredictable quality. The organisation experienced remarkable transformation under the leadership of Dr Kenneth W. Kizer, appointed by President Bill Clinton as the VHA's Under Secretary for Health in 1994. Aiming for consistent, high quality, patient-centred care, Kizer switched from a fragmented hospital-based care model to focus more directly on health promotion, disease prevention and the careful management of chronic conditions. Critical also was the concept of ‘best value care’, a shift to the systematic measurement and improvement of outcomes, and routine public reporting of all medical errors and omissions of care.

Backed by senior VHA team members, Dr Kizer decentralised the VHA in part with the formation of 22 (now 21) Veterans Integrated Service Networks (VISNs), some covering vast regional areas, but each able to respond with greater autonomy to local needs. Budgets were realigned to better correspond to the number of users, therefore demand, in each region. Devolution was accompanied by a strong focus on performance management, innovation and healthcare efficiencies, with the objective of increased access and fewer hospitalisations for a rising patient base. The downscaling of hospital care was supported by a rapid growth of community-based outpatient clinics (CBOCs)—from under 200 in 1994 to more than 800 in 2012<sup>31</sup>—enabling more care to be delivered closer to patients' homes.<sup>32</sup> Close collaboration

with Veterans Service Organizations (private non-profit Veteran support groups) proved invaluable to the expansion of outpatient care. And with over 40% of Veterans in rural areas with access difficulties, the delivery of virtual healthcare became an important element of the new strategy. Between 1995 and 2012, the number of VHA hospital beds reduced from 53,200<sup>33</sup> to 16,900. Operating beds elsewhere (most situated in Community Living Centres) now total 22,665.<sup>34</sup>

The VHA sought to maximise advancements in information technology. In the mid-90s it began evolving its ‘Decentralized Hospital Computer Program’ into the ‘Veterans health information systems and technology Architecture’ (VistA). This platform supports the VHA's Electronic Health Record (EHR), which was developed in close consultation with ‘physician champions’ to allow health professionals instant and remote access to a patient's medical files, whether at clinic or hospital bedside. By 1999 the VHA's EHR had been fully implemented<sup>35</sup>—no more lost medical notes, no more unnecessary repeated clinical tests. On the back of this success, in 2003, the organisation launched MyHealtheVet, allowing patients remote access to their electronic Personal Health Record (PHR). And it was around this same time that the VHA began the Care Coordination/Home Telehealth (CCHT) programme. This is now called ‘Home Telehealth’ and is the largest single telehealth programme in existence worldwide, providing care to more than 90,000 patients in 2012.<sup>36</sup>

Infrastructural change has operated on many levels in the VHA. Important levers have included performance-related bonuses for VISN and facility managers, as well as the publicising of performance levels of each VISN and its facilities throughout the VHA. Transparency and accountability, the incentive of not appearing to be a poor performer, remain key drivers, even if ‘many physicians found the sudden increase in expectations and accountability demoralising’.<sup>37</sup>

The VHA's transformation story has recently been captured by the journalist Philip Longman in his provocatively titled book ‘Best Care Anywhere—Why VA Healthcare is better than yours’. Supporting evidence

30. Longman P. Best Care Anywhere – why VHA Healthcare is better than yours. 2010. Polipoint press, p.21

31. Department of Veteran Affairs, Welcome to NCVAS, [Internet], 2010, [Accessed October 2012] Available at <http://www.va.gov/vetdata/> Accessed

32. The programme to increase CBOCs was already underway in 1994, so Dr Kizer and his team were building on an earlier mandate.

33. VHA update to 2020health, November 2012

34. Ibid

35. Brown, S.H, Lincoln, M.J., Groen, P.J. and Kolodner, R.M. VistA – U.S. Department of Veterans Affairs National-Scale HIS. 2003. International Journal of Medical Informatics. 69: 135–156.

36. VHA update to 2020health, November 2012

37. Oliver, A. The Veterans Health Administration: An American Success Story? 2007 The Milbank Quarterly, Vol. 85, No. 1



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includes a RAND corporation study, which in 2004 concluded that while the VHA was broadly on level pegging in acute services, it was outperforming all other sectors of American healthcare in 294 measures of quality.<sup>38</sup> At the same time, the scale of reduction of hospital-based care has not gone without criticism. The Paralyzed Veterans of America have condemned cutbacks in acute care for spinal injuries and severe neurological conditions, though they have nothing but praise for the standard of care itself.<sup>39</sup>

A dramatic increase in funding has played an important part in the VHA's transformation, even in more recent years, with healthcare spending rising from \$23b in 2003 to over \$50bn in 2012. If this seems generous in proportion to NHS funding, it is important to recognise the greater health needs of VHA patients as a whole (see VHA disease profile, figure 3.3 above); the budget also covers an integrated social care element.

Of recent developments, one of the most important is the formation of interdisciplinary Patient Aligned Care Teams (PACTs), providing coordinated primary care services to patients in their localities. PACTs are furthering the personalisation agenda by focusing on patient wellbeing, improved access, continuity of care and better care-coordination between VHA and non-VHA providers. The PACT model represents a further swing away from reactive hospital-based care; it is also an ideal mechanism for the expansion of telehealth.

The VHA has summed up its guiding principles as 'people-centric, results driven, forward-looking'.<sup>40</sup> With its primary Veteran demographic, the organisation faces a concentration of challenges unlike the NHS and other large healthcare systems. But other key challenges are shared, such as those brought by an ageing population, higher rates of morbidities and co-morbidities (deriving from obesity especially), and more expensive types of treatment. The VHA recognises the need to adapt and change in response to an 'increasingly challenging operating environment'. PACTs and the multi-faceted telehealth programme are among the integrated and innovative responses to rising 21st century demands.

### 4.2 NHS Transformation

During its 65 years, the UK's NHS has seen its funding rise at a rate well beyond that of both GDP and public expenditure. Growth rates peaked between 1999/2000 and 2009/2010, when net government expenditure on England's NHS rose from £51bn to £102bn. Under the darkening skies of austerity, the NHS then found its budget capped in real-terms in 2010, resulting in the need for some £20bn (\$30bn) of efficiency savings by 2015 to produce more capacity in the system to meet the demands of an ageing population.

The transformation journey of the NHS over recent years and in the immediate future has covered many aspects. The following paragraphs focus on areas perhaps of greatest interest to the VHA, in particular around: personalisation and choice; the management of people with long term conditions; accountability and transparency; commissioning; and the development of integrated care.

#### 2000–2012 and the personalisation agenda

Some 12 years ago the NHS began shifting towards a new strategy based around a 'patient-led' healthcare system. In 2000, the Labour Government issued the NHS Plan to mobilise patient-centred care. Two years later in a major review of future NHS funding needs, the Wanless Report (Department of Health, 2002)<sup>41</sup> promoted a fully engaged scenario for the NHS in which 'patients would play an active role in decisions about their care'.

Subsequent reforms gave patients the opportunity of treatment in any hospital of their choice, while the 'Choose and Book' service (2006) supported patients by offering them a choice of hospitals for first outpatient visits and online (or phone) outpatient booking for these appointments. 'NHS Choices' was set up in 2007, an empowering digital resource enabling the public to compare hospital performance levels, review doctor profiles, and access a wide range of health information to assist self-management. NHS Choices is discussed more in Chapter 8.

38. RAND Corporation, Comparison of care for patients in the VHA and patients in a national sample. 2004 Annals of Internal Medicine

39. Oliver, A. Ibid

40. Department of Veterans Affairs, Strategic Plan Refresh 2011-2015, 2011, Available at [http://www.va.gov/VA\\_2011-2015\\_Strategic\\_Plan\\_Refresh\\_vw.pdf](http://www.va.gov/VA_2011-2015_Strategic_Plan_Refresh_vw.pdf)

41. Wanless D, Securing our Future Health: Taking a Long-Term View. 2002, London: HM Treasury, Available at [http://www.hm-treasury.gov.uk/d/letter\\_to\\_chex.pdf](http://www.hm-treasury.gov.uk/d/letter_to_chex.pdf)

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The Coalition Government's 2010 white paper *Equity and Excellence: Liberating the NHS*<sup>42</sup> took the personalisation theme further, with statements including:

- Shared decision making will become the norm: 'no decision about me without me'.
- Patients will have choice of any provider, choice of consultant-led team, choice of GP practice and choice of treatment.
- The system will focus on personalised care that reflects individuals' health and care needs, supports carers and encourages strong joint arrangements and local partnerships.

Many improvement mechanisms around personalisation and efficiency are being tested out under the Quality, Innovation, Productivity and Prevention (QIPP) programme. Launched at the end of 2009, QIPP's purpose is to 'improve the quality and delivery of NHS care while reducing costs to make £20bn (\$30bn) efficiency savings by 2014/15'.<sup>43</sup> There is a wide variety of QIPP initiatives, some 100 separate ones have been tested out and evaluated within the NHS during the last three years.<sup>44</sup> In particular, and of most relevance to this report, is the National QIPP LTC Workstream led by Sir John Oldham, which has delivered a national support and improvement programme across the country to help local communities improve their services to patients living with LTCs covering the three strands of risk profiling, integrated working and self-care. Key initiatives in each of these strands are shown below in figure 4.1.

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42. DH, *Equity and Excellence: Liberating the NHS* [Internet], 2010, Available at [http://www.dh.gov.uk/en/Publicationsandstatistics/Publications/PublicationsPolicyAndGuidance/DH\\_117353](http://www.dh.gov.uk/en/Publicationsandstatistics/Publications/PublicationsPolicyAndGuidance/DH_117353)

43. NHS Improvement, Homepage, [Internet] 2013, [Accessed February 2013] Available at <http://www.improvement.nhs.uk/Default.aspx?alias=www.improvement.nhs.uk/qipp>

44. NHS Evidence, homepage, [Internet] 2013, [Accessed February 2013, Available at <http://www.evidence.nhs.uk/qipp/> NB published case studies available for download

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## 4 Transformation

*Figure 4.1 - Examples of QIPP initiatives around personalisation and Long Term Conditions*

### Strand 1 - Risk Profiling

**Risk stratification:** The use of risk stratification, or risk profiling, is one of the three key drivers for the QIPP LTC workstream. The workstream is delivering a national support and improvement programme that is enabling local geographic areas to implement an evidence-based system for supporting patients with LTCs.<sup>45</sup>

### Strand 2 - Integrated Working

**Personalised care plans:** Initiated in 2008, personalised care plans offer people with long-term conditions the 'opportunity for a systematic and planned assessment of their current overall care, and their ongoing needs and goals, and to plan their forthcoming period of care'.<sup>46</sup> The patient becomes the principal owner of the personalised care plan, which gives clear guidance on LTC self-management and available support, and identifies desired outcomes. Reviewed at least once a year, the care plan is intended to help the individual accept and better understand their health condition(s). A number of pilots have tested out personalised care plans, including Diabetes Year of Care and the Co-Creating Health Initiative. Care planning is also a fundamental starting point of the Personal Health Budget (see following page).

**Year of Care:** The Year of Care (YOC) tariff strategy targets patients with long term conditions who require an integrated approach to care. Core features of YOC include:

- Collaborative care planning
- Shared decision making and self-management support
- Holistic approach to patient care
- Integrated support and commissioning

Individuals are placed within a tariff band that reflects their approximate service usage costs for a 12-month period. The YOC programme has used risk profiling (low, medium and high) in tariff-setting deriving from a holistic approach to assessment, identifying goals and outcomes rather than breaking down costs associated with each specific long term condition.

45. An overview of NHS risk stratification tools is at Quality MK, Risk Stratification Tools, [Internet] 2012,[ Accessed February 2013] Available at <http://www.qualitymk.nhs.uk/default.asp?ContentID=6664> and more details can be found at NHS Networks, Commissioning for Long Term Conditions, [Internet], 2013, [Accessed February 2013] Available at <http://www.networks.nhs.uk/nhs-networks/commissioning-for-long-term-conditions>

46. NHS Networks, Ibid

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### Strand 3 - Self Care

**Systematising self-care support for LTCs:** An initiative to redesign services to embed self-care support as an integral part of patient pathways, and raise public awareness of the self-care support available to people with long term conditions. This agenda is being implemented through local advertising of self-care support, signposting to self-help groups, regional self-management courses, and telehealth/telecare programmes to keep more people independent at home. Providing further support is an online Information Prescription Service (IPS), made available by NHS Choices and various charity partners. The service enables users to specify a condition or concern (e.g. 'loss of vision') and have instant access to general and specialist information, and details of local support organisations. Selected information is collected on a 'prescription' (typically running to several pages) and may be stored electronically or printed out.

**Personal Health Budgets (PHBs):** Intended to 'improve patient outcomes by placing patients at the centre of decisions about their care'. The system offers greater choice and control to NHS patients by allowing them to direct healthcare expenditure according to their personal needs and timetable. Most PHBs are allocated either as a notional budget (held by the NHS) or a direct payment (controlled by patient or suitable representative). Some budgets are handled by third party trusts, a particularly useful arrangement for patients with very complex needs. A PHB is entirely optional – all individuals are fully entitled to conventional NHS-provided care if they so choose.

PHB funds are largely spent on the employment of personal assistants, as an alternative to traditional provision through care agencies. Following a successful pilot programme (2009–12), PHBs have been green-lighted for roll out, with patients eligible for NHS continuing care prioritised. The pilot identified cost-efficiencies in the areas of continuing healthcare and mental health LTCs; some disease-specific cohorts were too small for the pilot to identify benefits, but more work is underway.

### Accountability & transparency

A culture of increased transparency and accountability has been fostered during recent years. The previous Labour Government brought in the 'Freedom of Information Act' (2000) to give public (and therefore media) access to information held by any public authority or public owned company. The Coalition Government has sought to give patients the opportunity to rate hospitals and clinical departments to bring greater transparency to the system. Hospitals, they argue, have to 'be open about mistakes and always tell patients if something has gone wrong'.<sup>47</sup> NHS Choices, referred to above, and several other local NHS sites<sup>48</sup> allow patients to feedback online their views and concerns about provider services.

### Towards integrated care?

England faces a key infrastructural opportunity and challenge with the closer integration of social care and health care. This widely-supported agenda is only slowly finding direction despite the Health Act of 1999, which gave local authorities social and health care budget pooling flexibility to tackle the inefficiencies of divided systems of care. Since that time 11 official NHS Care Trusts have been instituted around England, with the intention of increasing continuity of care and reducing administration.

47. DH, *Equity and Excellence: Liberating the NHS*, 2010, Available at [http://www.dh.gov.uk/en/Publicationsandstatistics/Publications/PublicationsPolicyAndGuidance/DH\\_117353](http://www.dh.gov.uk/en/Publicationsandstatistics/Publications/PublicationsPolicyAndGuidance/DH_117353)

48. I Want Great Care, Homepage [Internet] 2013, [Accessed February 2013] Available at <https://www.iwantgreatcare.org>

## 4 Transformation

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The Coalition Government intends that the reforms in place will greatly benefit integration, particularly with councils and Health and Wellbeing Boards working together to meet the challenges of efficiency savings through the promotion of health and social care partnerships. Initiatives include the creation of social and health care teams who provide a joined up approach to the rehabilitation of patients following hospital treatment.

### **NHS improvement and change model**

In an organisation as large and diffuse as the NHS, striving towards consistent best practice remains a major challenge. The NCB has recognised this and a key directorate will be NHS Improvement – tasked with innovation and change, health inequalities and promoting equalities. Sir David Nicholson (CEO, NCB) has commented: “NHS Improvement working with and through clinical networks has been proven as an effective and productive model and it ensures that positive learning is spread more widely across the system.” Accompanying this is a NHS Change model, created to support the NHS to adopt a shared approach to leading change and transformation.<sup>49</sup>

The role of technology is seen as crucial here and is strongly supported by the government. In announcing the new NHS Mandate to the NCB on 13 November 2012,<sup>50</sup> the Secretary of State for Health reaffirmed his commitment concerning “better use of technology to help people to manage their health and control their care”. The next chapter explores the NHS’s digital health strategy in more detail.

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49. NHS Change Model, Welcome to the NHS Change Model, [Internet] 2012, [Accessed February 2013] Available at <http://www.changemodel.nhs.uk/pg/dashboard>

50. DH, What does the Mandate mean for the use of technology to help people manage their health? [Internet] 2012, [Accessed February 2013] Available at <http://mandate.dh.gov.uk/technology/>

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## 5 Digital Health Strategies

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This section provides a summary account of the digital health strategies of the VHA and NHS health systems respectively.

### 5.1 Digital Health in the VHA

The VHA has placed the effective use of digital health technologies at the heart of its programme to address the ‘mismatch between where expertise is and where it needs to be’.<sup>51</sup> Health informatics and telehealth technologies are being used to improve chronic disease management while maximising Veterans’ access to care, benefitting not just those living in remote regions but urban populations also.

The VHA sees telehealth as a comprehensive digital health proposition for relationship building and effective care-planning. The preferred site of care becomes the home or local community; monitoring and preventative measures are improved, while reduced travel time benefits both patients and healthcare professionals. Many elderly patients living with chronic conditions are able to stay living at home, rather than move into care: at the start of 2012 it was estimated that as many as 41,000 home-monitored patients were otherwise at risk of going into institutional care.<sup>52</sup> Now expanding in capacity through mobile applications, telehealth is greatly supporting the personalisation programme, as patients become more involved in self-management and shared decision-making. The VHA has seen both a significant benefit to patient wellbeing and a marked reduction in the utilisation of healthcare resources.<sup>53</sup>

The VHA summarises its extensive and evolving digital health programme under the following modalities shown in figure 5.1:

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51. Darkins A, Kings Fund lecture, [Internet] 2012 [Accessed February 2013] Available at <https://www.youtube.com/watch?v=LcZxBkglLBU>

52. VHA Office of Telehealth Services, VHA Telehealth Quarterly, Feb 2012 (Vol 11 issue 1) Available at: [http://www.telehealth.va.gov/newsletter/2012/021312-Newsletter\\_Vol11Iss01.pdf](http://www.telehealth.va.gov/newsletter/2012/021312-Newsletter_Vol11Iss01.pdf)

53. Darkins et al, Care Coordination/Home Telehealth: The Systematic Implementation of Health Informatics, Home Telehealth, and Disease Management to Support the Care of Veteran Patients with Chronic Conditions. 2008 Telemedicine and eHealth p1118-1126

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## 5 Digital Health Strategies

Figure 5.1 – List of VHA digital health modalities

1. **Home Telehealth (HT):** Monitors patients and manages diseases through portable devices connected in patients' homes that enable the remote measurement and recording of vital signs for acute and chronic care management and health promotion/disease prevention. This programme emphasises patient self-management.
2. **Clinical Video Teleconference (CVT):** Real-time videoconferencing between VHA medical centres and CBOCs that replicates face-to-face consultations between patient and provider, or provider and provider. Uses include speciality consultations and delivery of mental health services. CVT is also being extended into patient homes through desktop technology and encrypted webcam links, a valuable development for those with restricted mobility. A subset of CVT, one that includes real-time patient monitoring of critical care patients in hospitals, is Tele-ICU.
3. **Mobile health:** Uses the pervasiveness of mobile technology to empower individuals with the information needed to improve healthcare delivery. VA's mobile health apps are designed to expand access to VA healthcare for Veterans and their caregivers, and to improve the efficiency and quality of the clinical care delivered by VA providers. VA apps will be made available to Veterans and carers through a public-facing App Library and to VA staff through an internal enterprise App Library.
4. **Secure messaging:** Secure text-based communication between Veterans and VHA health team, via computer or mobile device. Uses include arranging prescription refills, asking medical advice, and requesting, changing or cancelling appointments.
5. **Store and Forward (SFT):** Acquisition, storage and forwarding of clinical images to experts for review. Currently extensively used for tele-retinal imaging and tele-dermatology.
6. **Teleradiology:** Remote analysis of radiology and nuclear medicine images.<sup>54</sup>

In fiscal year (FY) 2012, 497,342 Veterans received care through one or more of the above modalities. CVT encounters are rapidly increasing, rising from 170,000 in (FY) 2010 to more than 225,000 in (FY) 2011, with over 370,200 in (FY) 2012. Veterans on home telehealth programmes currently number around 100,000. The VHA's goal is to ensure that 50% of patients are benefitting from one or more elements of virtual care by October (FY) 2014.<sup>55</sup>

Supporting this programme is the strategy to employ one Telehealth Clinical Technician at every community-based outpatient clinic, and two at every medical centre. This vital job includes performing a variety of telehealth imaging actions (involving tele-retinal screening, tele-

dermatology and tele-wound care) and staff training on video-conferencing technologies and other telehealth peripherals. The VHA is proud to see many Veterans themselves among those being hired and trained to fill more than 970 posts.

A fundamental prerequisite to the entire VHA digital health strategy is the computerised patient record VistA (Veterans health information systems and technology Architecture), which supports a comprehensive electronic health record (EHR). This is discussed further in section 5.3 below, in the context of its possible applicability to the NHS.

54. Note that the modalities of Store and Forward of images and teleradiology are not within the scope of this report.

55. VHA White Paper, 'Identification of Patients Who Are Candidates for Referral to Home Telehealth: Guidance for Patient Aligned Care Teams (PACT)' May 2012, unpublished

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The VHA regards flexibility, interoperability, adaptation and evolution as key themes to the success of a digital health strategy. It is from this progressive mind-set that open-source VistA evolved from the VHA's Decentralized Hospital Computer Program, that MyHealtheVet (the ePHR) has been developed to empower Veterans in self-care management, and that the VHA is engineering open source health apps in consultation with users, with apposite consideration of context management and interoperability.

*“Given the Veteran population we serve and their constantly changing health needs, no vision is set in stone, it can only be a work in progress—one that must evolve and update over time.”<sup>56</sup>*

Figure 5.2 – Opportunity for transferable learning for the NHS – Digital Health Strategy

- Creating a digital health-enabled service needs senior leadership commitment to ‘care at a distance’ as a core service, continuity and consistency of vision, considerable investment in reusable technology platforms and substantial change over a protracted period.
- The opportunities afforded by digital health to reach and work with patients with different needs must be considered through a whole system approach.
- The NHS as a whole needs to embrace digital health, not just the pioneers and pathfinders.
- Adopting digital health technology must work hand in hand with redesigning pathways. It needs to involve a creative approach to organisational design, workforce development, incentivisation and performance management.
- It should become every-day business for NHS clinicians to assess how the patient's needs can be met through digital health – e.g. to support improved self-care.
- An integrated patient record is an essential foundation for the effective delivery of digital health services.

56. VHA Office of Telehealth Services, VHA Telehealth Quarterly, Feb 2012 (Vol 11 issue 1) Available at: [http://www.telehealth.va.gov/newsletter/2012/021312-Newsletter\\_Vol11Iss01.pdf](http://www.telehealth.va.gov/newsletter/2012/021312-Newsletter_Vol11Iss01.pdf)

## 5 Digital Health Strategies

### 5.2 Digital Health in the NHS

Like the VHA, the NHS is being driven by ever growing demand from an ageing population and increasingly sophisticated, complex and costly treatments, within flat or relatively reducing resource levels. To meet public expectations for quality, access and efficiency, the NHS of the future aims to have available new capabilities to collaborate, transact, access information, knowledge and expertise on demand, and deliver advice and care in non-traditional settings including the home and workplace.

However, unlike the VHA, the NHS digital health strategy is driven by a range of policy initiatives (and strategy) documents. Moreover, it appears that under the new structure in the NHS Commissioning Board, responsibilities for the different initiatives will continue to fall under different directorates.

A significant backdrop to the uptake of digital health concerns the National Programme for Information Technology (NPfIT). Established in 2002, NPfIT was conceived to deliver modern computer systems and services and address the problems of a highly fragmented IT situation across the country. In so doing, it sought both to specify and direct the central infrastructure and EHR applications (to support joined-up care across the NHS) and to improve the level of local operational IT. The achievements and difficulties associated with NPfIT have been widely documented elsewhere, for example our March 2010 report 'Fixing NHS IT – a plan of action for a new government'.<sup>57</sup>

"In retrospect it is clear that the Programme tried to do too much, too quickly, with a limited focus on early winners to gain credibility and acceptance with the NHS. There was a collective failure to get the Programme positioned as an enabler for transforming healthcare services, and gain full clinical engagement and local ownership.... the Programme has had some success, especially in delivering infrastructure, defining standards and some local care records."

While matters concerning the application of IT in the NHS are not addressed further in this report, the cultural

legacy is an important context to today's drive for the application of digital health to support remote care. In particular, government policy explicitly recognises that many of the technology-related innovation initiatives need driving locally, with the centre's role limited to defining common standards, best practices and, where appropriate, national procurement frameworks.

NHS initiatives concerning digital health and the use of ICT are now closely coordinated across government, led by the Cabinet Office. In addition, the Technology Strategy Board (TSB)<sup>58</sup> is a cross-government body established to stimulate technology-enabled innovation in the areas which offer the greatest scope for boosting UK growth and productivity. In particular, in March 2012 the TSB announced a £37m (\$55m) national programme to transform the lives of nearly 170,000 older people across the UK, named DALLAS (Delivering Assisted Living Lifestyles At Scale).<sup>59</sup> It intends to explore ways of using innovative products, systems and services to create more independent lifestyles. Four schemes have been chosen to work with local communities, of which two (Year Zero and the Feel Good Factory) are referenced in the remaining chapters.

Turning to the current NHS policy framework, strategies build on the government premise of 'no decision about me without me', with the intent being for patients to be much more in control of their own care. The May 2012 document 'the Power of Information'<sup>60</sup> develops on the aspiration to drive much greater information and more transactional services to patients through new digital media.

"If we can access, contribute to and choose to share our health and care records, it will support a culture of 'no decision about me without me'. Better use of information and innovative technology can help professional teams to prioritise more face-to-face support where that is needed, and can also enable local areas to design integrated health and care services, and improvement strategies that reflect local need." (p6)

"Providers are encouraged to make wider use of innovative alternatives to face-to-face in health and care

57. Cruickshank J, Fixing NHS IT: A plan of action for a new Government, 2010, Available at <http://www.2020health.org/2020health/Publication/NHSit/nhsit->

58. Technology Strategy Board, Homepage [Internet] 2013, [Accessed February 2013] Available at <http://www.innovateuk.org/>

59. Technology Strategy Board, Delivering assisted living lifestyles at scale, [Internet] 2013, [Accessed February 2013] Available at <https://connect.innovateuk.org/web/dallas/overview>

60. DH, The power of information: putting all of us in control of the health and care information we need, [Internet] 2012, [Accessed February 2013] Available at: [http://www.dh.gov.uk/en/Publicationsandstatistics/Publications/PublicationsPolicyAndGuidance/DH\\_134181](http://www.dh.gov.uk/en/Publicationsandstatistics/Publications/PublicationsPolicyAndGuidance/DH_134181) report.html

61. DH, Innovation, health and wealth, [Internet] 2011, [Accessed February 2013] Available at: [http://www.dh.gov.uk/en/Publicationsandstatistics/Publications/PublicationsPolicyAndGuidance/DH\\_131299](http://www.dh.gov.uk/en/Publicationsandstatistics/Publications/PublicationsPolicyAndGuidance/DH_131299)

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consultations where this improves value for money and patient experience.” (p. 97)

In 2011 Sir David Nicholson (NHS CEO) commissioned a major review of how the NHS could improve its adoption of innovation, particularly around the use of technology. The resulting report ‘Innovation, Health and Wealth’<sup>61</sup> identified six high impact areas of innovation which NHS organisation were tasked to implement:

- 3millionlives
- Digital by Default (now remained Digital First)
- Oesophageal Doppler monitoring
- Child in a chair in a day
- International and commercial activity
- Carers for people with dementia

From April 2013, compliance with the high impact innovations will become a pre-qualification requirement for CQUIN (Commissioning for Quality and Innovation), a payment framework to reward excellence, by linking income to the achievement of local improvement goals. The first two of the high impact innovations are specifically related to the application of digital health to support remote care:

### 3millionlives initiative

In December 2011, the Prime Minister announced the initiative for the widespread adoption of telehealth and telecare, with the aim of three million people in England using such home and mobile-based services by 2017. This is described further in Chapter 6.

### Digital First

In line with other government departments and as directed by the Cabinet Office’s digital efficiency review of November 2012,<sup>62</sup> DH commissioned a report ‘Digital by Default’ (now ‘Digital First’) which identified ten ‘easy win’ initiatives to be taken forward by all NHS organisations.<sup>63</sup> These are already in use in parts of the NHS but could be extended readily to other communities; they are being driven forward through the informatics community, and some of them are referred to later in

chapters 7 and 9. The overall list includes the following:

- On-line assessment for minor ailments in primary care
- On-line appointment booking in primary care
- Digital appointment reminders via SMS messaging
- Pre-operative screening using electronic patient assessment questionnaires
- Remote follow-up appointments in secondary care
- Using SMS messaging to report negative test results

*Figure 5.3 - Opportunity for transferable learning for the VHA: Digital Health Strategy*

**The NHS’s strategy and ethos is distinctive to the VHA’s in three key respects: population-wide health risk management; innovation adoption; and the active inclusion of patient opinion:**

- **The NHS is proactive in trying to reduce longer term population health risks through risk profiling, and uses digital health to support healthy living and self-management through on-line groups and social media.**
- **The variety of means that the NHS uses to promote technology-related innovation and encourage its widespread adoption may have significance to the VHA.**
- **The design of digital health-enabled services may be enhanced through incorporating patients’ opinion and feedback.**
- **The range of digital health channels promoted and used across the NHS may also have relevance to the VHA, such as those suggested in the Digital First report.**

61. DH, Innovation, health and wealth, [Internet] 2011, [Accessed February 2013] Available at, [http://www.dh.gov.uk/en/Publicationsandstatistics/Publications/PublicationsPolicyAndGuidance/DH\\_131299](http://www.dh.gov.uk/en/Publicationsandstatistics/Publications/PublicationsPolicyAndGuidance/DH_131299)

62. Cabinet Office, Digital Efficiency Report, [Internet] 2012, [Accessed February 2013] Available at <http://publications.cabinetoffice.gov.uk/digital/efficiency/>

63. Digital First, Homepage [Internet] 2012, [Accessed February 2013] Available at <http://digital.innovation.nhs.uk/pg/dashboard>

## 5 Digital Health Strategies

### 5.3 NHS VistA – an opportunity for the NHS to exploit VA technology?

As noted in 5.1 above, the use of an integrated patient record is foundational to the effective adoption of digital health.

VistA is the comprehensive electronic health record system used by the VHA. VistA was developed collaboratively by doctors and programmers working for the VHA, and is entirely open-source.<sup>64</sup> Independent assessments rank VistA as one of the world's most sophisticated and comprehensive EHRs<sup>65</sup> and it forms the patient record backbone to the digital health architecture now enjoyed by the VHA. According to Dr Darkins, “the computerised patient record is a fundamental prerequisite to establishing a viable Care Coordination/Home Telehealth programme at an enterprise level”.<sup>66</sup>

Inspired by the quality and cost-effectiveness of care provided by the VHA using VistA, an informal group of volunteers have set up a ‘Campaign for NHS VistA’<sup>67</sup> which is calling for and helping facilitate the adoption of VistA by the NHS. This campaign is loosely associated with the ‘World VistA’ campaign, a not-for-profit organisation which has already encouraged an interest in VistA in many countries including Egypt, Ireland and Malaysia. World VistA has assisted with the implementation of VistA in Mexico and Jordan, where it is currently being implemented in all hospitals and clinics.<sup>68</sup>

VistA incorporates a standardised care record that is shared by VHA professionals across primary care, social care and hospitals nationwide, and which is also accessible to patients. In England, due to the failure of NPfIT to deliver a meaningful secondary care EHR (see section 5.2 above), NHS hospitals still rely on paper records. As a result, NHS patients’ notes are fragmented between their GP practice and every different clinic and hospital that they attend. This fragmentation can lead to the twin problems of duplication (where more than one health care provider delivers the same care or orders the same investigations unnecessarily) and to gaps-in-care (where one provider wrongly assumes that another provider has

delivered the care required). As well as being wasteful, such errors can have serious adverse consequences for patients. Moreover, the fragmentation of IT within the health service has prevented the NHS from establishing the kinds of feedback loops that are used by the VHA to gather and disseminate evidence as part of its continuous improvement processes.

The ‘Campaign for NHS VistA’ argues that VistA would improve patient outcomes in the NHS by avoiding gaps-in-care and duplication, and also because VistA includes proven technologies such as computerised ordering of tests and viewing of results; barcoded medicines administration; electronic prescribing; point-of-care clinical guidelines; and clinical reminders that are available nationwide. Taken together, these functions ensure that there is less room for human error, meaning that the VHA has one of the world's best patient safety records. Furthermore, VistA monitors how a health system is performing across a broad range of quality measures, from the point of care up to regional and national levels.

The ‘Campaign for NHS VistA’ identifies an eight step process to enable the software to be adapted to NHS requirements that allow VistA to become a reality in the NHS. In particular, the campaign advocates a grassroots ‘bottom-up’ process, through iterative developments made by small teams with a strong clinical involvement.

Because of this grassroots approach and VistA's open-source basis, proponents believe that the implementation costs of VistA would be less than a third the cost of leading commercial EHRs.

Critics have argued that VistA only works in the context of the U.S. Department of Veterans’ Affairs (VA), partly because of its unusual patient profile of Veterans. However, the successful implementation of VistA in Jordan has put an end to some of these criticisms. Further, in 2005 and 2007, VistA was adapted for use outside of the VA as other processes, such as paediatric support, were added to reflect a more typical patient population. The open-source nature of the VistA software means it is a continuously developing and is highly adaptable programme.

64. The Department for Veterans Affairs, Veterans Health Information Systems and Technology Architecture (VISTA). [Internet] 2011, [Accessed February 2013] Available at [http://www.va.gov/vista\\_monograph/](http://www.va.gov/vista_monograph/)

65. News Medical, One of the world's most sophisticated systems for keeping electronic health records, [Internet] 2004, [Accessed February 2013] Available at <http://www.news-medical.net/news/2004/07/23/3526.aspx>

66. Darkins et al, Care Coordination/Home Telehealth: The Systematic Implementation of Health Informatics, Home Telehealth, and Disease Management to Support the Care of Veteran Patients with Chronic Conditions. 2008. Telemedicine and eHealth pp1118-1126

67. Campaign for NHS VistA, Homepage [Internet] 2013, [Accessed February 2013] Available at <http://nhsvista.net/>

68. Campaign for the NHS VistA, Introduction to VistA, [Internet] undated, [Accessed February 2013] Available at <http://nhsvista.net/background-2/>

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The ‘Campaign for NHS VistA’ understand that implementing VistA in the NHS will be challenging, not least because rigid, proprietary systems are so firmly embedded in the structure and culture of the NHS. However, campaign members believe that the move to open-source is essential if the NHS is to provide safer, higher quality and more affordable care in the future.



## 6 Home Telehealth

This section describes the development and use of home telehealth in the VHA and NHS health systems respectively.

### 6.1 The development of home telehealth in the VHA

The goal of home telehealth (HT) is to improve clinical outcomes and access to care while reducing complications, hospitalisations, and clinic or emergency room visits for Veterans. Its focus is on patients with complex chronic conditions at risk of long-term institutional care and high-risk patients with chronic disease, with the specific intent of providing the right care in the right place at the right time. 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.

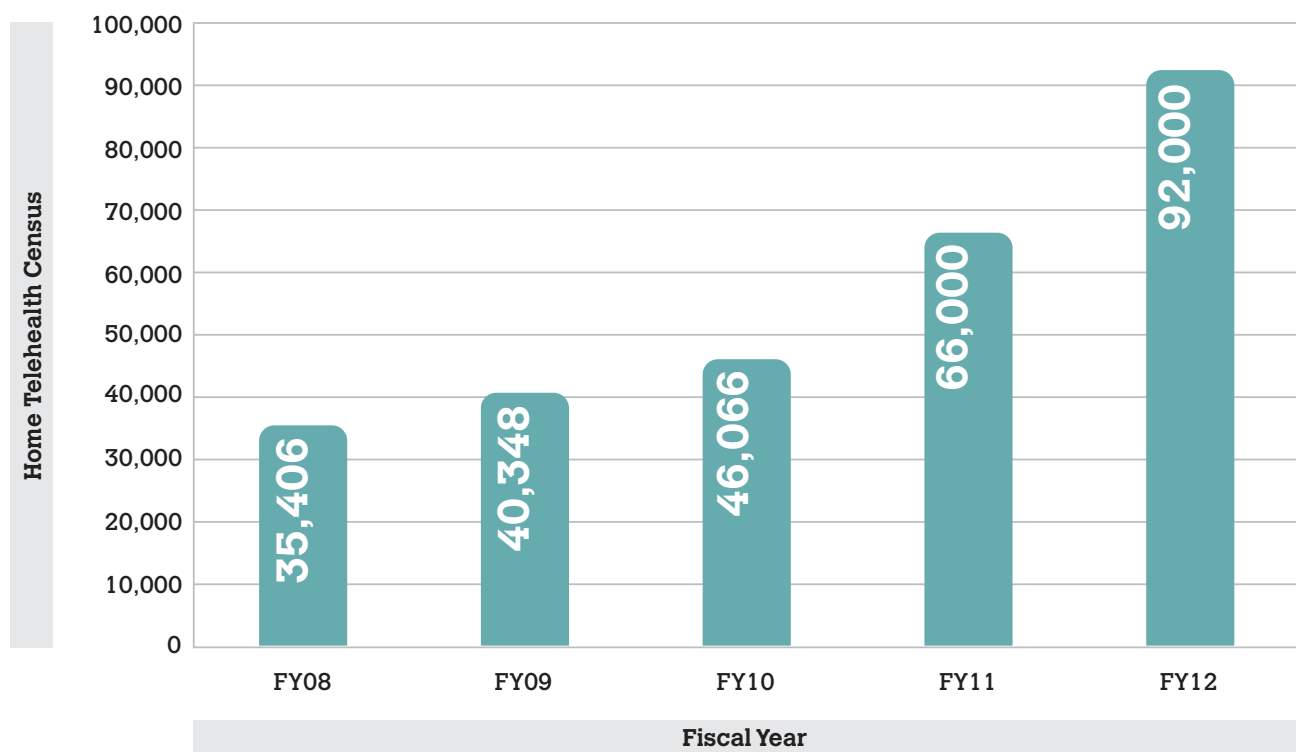
The national use of Home Telehealth in the VHA developed from a specific programme to coordinate the care of patients at risk of repeated hospital admissions. Pilot projects were carried out from 1999-2003 and found considerable cost savings and high levels of patient

satisfaction. The learning from these pilots was developed into a national implementation programme which was launched in 2003-4.

The model for telehealth provision was defined nationally and involved a team of hospital-based care coordinators who managed the telehealth patients in surrounding geographic area. National contracts for home telehealth technologies and an associated technology algorithm were linked to care pathways and care management models that were defined at a national level. Standardised business processes are now in place with systematic capture of clinical workload and coding of activity that provide routine outcomes data that is available at a national, regional and local level.

The growth in home telehealth is illustrated in figure 6.1 below. In the short term, the VHA has set aggressive goals in term of asking each PACT to enrol at least 1.5% of their panel into telehealth during 2012, although many could - and are already - achieving more than this (up to 8%). The highest proportions are found with PACT teams that focus on geriatrics who see the value of offering support to the patient at home rather than institutionalising the patient.

Figure 6.1 - Growth of Home Telehealth



## 6 Home Telehealth

Figure 6.2 - Opportunity for transferable learning for the NHS – Home Telehealth

- As part of an overall redesign of care and one component of an integral approach to digital health, home telehealth represents a vital element in the shift towards more preventive care. It can lead to reducing the imbalance between hospital and primary care provision and making better use of scarce clinical resources.
- Creating a telehealth-enabled service needs considerable investment and time to generate results by building up an integrated service. 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 and endorsement at a national level – e.g. by the National Institute of Health and Clinical Excellence.

Figure 6.3- Published Home Telehealth Outcomes to 2008

| Condition             | Potential hospital utilisation % decrease after Home Telehealth based on VHA experience |
|-----------------------|---|
| Diabetes              | 20.4%   |
| Hypertension          | 30.3%   |
| Chronic heart failure | 25.9%   |
| COPD                  | 20.7%   |
| Depression            | 56.4%   |

### Outcomes achieved

As shown in Figure 6.3 below, based on a major evaluation paper published by Darkins et al in 2008,<sup>69</sup> the VHA 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 and these are shown above in the table.

69. Darkins et al Care Coordination/Home Telehealth: The Systematic Implementation of Health Informatics, Home Telehealth, and Disease Management to Support the Care of Veteran Patients with Chronic Conditions. 2008 Telemedicine and eHealth pp1118-1126

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### Reductions in Utilisation

Furthermore, VHA Telehealth Services has tracked reductions in admissions and reductions in bed days of care (BDOC) for patients enrolled in Home Telehealth over the last five years. Figure 6.4 below provides VHA Home Telehealth aggregate outcome data from OTS from FY 2007 through FY 2011.

Figure 6.4 - Reductions in utilisation to 2011 for HT patients

|                                   | 2007 | 2008 | 2009 | 2010 | 2011 |
|-----------------------------------|------|------|------|------|------|
| Reductions in hospital admissions | 18 % | 19 % | 26 % | 34 % | 39 % |
| Reductions in BDOC                | 19 % | 25 % | 47 % | 53 % | 61 % |

### Patient Satisfaction:

Patient Satisfaction Surveys from 2011 indicate a high rate of patient satisfaction of 85%.

### Home Telehealth Savings:

Between \$1,238 and \$1,999 per annum per patient.<sup>70</sup>

### Patient profiles and targeting Home Telehealth

When the national Home Telehealth (HT) 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: chronic heart failure, chronic obstructive pulmonary disease (COPD), hypertension, diabetes mellitus, and post-traumatic stress disorder (PTSD). These conditions were chosen as these patients are those who consume the largest proportion of the healthcare resource.

Patients in home telehealth in the VHA fall in to one of four of categories of care and the proportions of patients using Home Telehealth by category are as follows:

1. Non-institutional care (55%): the most fragile patients. Through the use of Home Telehealth, patients are able to be kept out of nursing homes.
2. Chronic care management (24%).
3. Acute care management (1%): often those who have just been discharged from hospital

4. Health promotion – disease prevention (20%): to target behaviours that might lead to chronic illness later.

Over time the VHA has moved to a more preventive approach; however it remains the case that most patients are at the sickest end of the pyramid. As the Home Telehealth service has matured, the use of telehealth has expanded to other areas beyond the five initial chronic conditions. Figure 6.5 lists the current disease management protocols available for HT (some protocols can be combined):

Figure 6.5 – Disease Management Protocols Used for Home Telehealth

|                         |                             |
|-------------------------|-----------------------------|
| Diabetes                | Substance Use Disorder      |
| Heart Failure           | Bipolar Disorder            |
| COPD                    | Schizophrenia               |
| Coronary Artery Disease | Mild Traumatic Brain Injury |
| Hypertension            | Weight Management           |
| Pain Management         | Palliative Care             |
| Depression              | Dementia                    |
| PTSD                    |                             |

70. Department of Veteran Affairs, FY2008-FY2011 VHA Allocation Resource Center Data, unpublished

## 6 Home Telehealth

Future protocols that are under consideration or development include spinal chord injury, smoking cessation, chronic kidney disease, hepatitis C and multiple sclerosis.

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, even indefinitely. Conversely, patients on the palliative care, acute heart disease and dementia programmes may be on HT for much shorter periods. The VHA is focusing now on ensuring a clear set of discharge criteria is in place to manage the panel size and ensure those patients most in need of HT can benefit from it.

*“For example, Home Telehealth has been wonderful in terms of managing uncontrolled diabetic patients since glucoses, blood pressure, weight can be monitored daily via home telehealth compared to requiring multiple face-to-face clinic visits. Telehealth delivers this type of care and management into the patient’s home, where they spend most of their time. We can also identify patients at higher future risk (e.g. for a patient who weighs 300 pounds) and instead of waiting for them to develop fully-fledged diabetes, the VHA has implemented programmes around weight control to forestall the onset or prevent diabetes.”*

**Dr Kathy Corrigan, National Lead in Primary Care Services for Telehealth**

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. For patients who are discharged from hospital with a high likelihood of readmission (such as those with heart failure), it can take a considerable amount of time to stabilise patients after they leave hospital during which they remain

on HT. In such cases, the aim is to have their HT operational that day.

The formal criteria now used to identify Veterans most likely to benefit from HT are shown in Figure 6.6.

Figure 6.6 – Selection criteria for HT patients

- **High risk/high cost patients:**
  - Patients with multiple admissions/readmissions in the past year
  - Patients with frequent emergency visits (e.g., 2 or more per year) for care of chronic diseases
  - Patients at risk for institutional care
  - Patients with frequent face-to-face visits to control chronic diseases
- **Homebound Veterans with chronic or complex conditions**
- **Rural Veterans with chronic or complex conditions**
- **Patients at higher risk (higher CAN scores) from one or more uncontrolled chronic conditions and co-morbidities who would benefit from a case management approach for complex health and/or psychosocial conditions. Includes patients with:**
  - Need for frequent biometric monitoring
  - Distance/travel problems
  - Medication compliance issues
  - Caregiver support needs
  - Educational gaps

And

- **Patients agreeable and able to participate in daily HT monitoring. It is highly desirable for the patient to be motivated to improve self-management skills.**

## 6 Home Telehealth

Recently developed, the VHA now have a 'Care Assessment Needs Score' (CAN) tool for primary care teams to determine who is at risk, and who needs care management. This means a primary care provider can pull up his/her entire panel, perhaps some 1200 patients, and look at their CAN score. This score is based on a sophisticated statistical prediction model and data from multiple sources to determine the probability of a future event such as admission or death within a specified time frame. Patient characteristics that are included in this model include: demographics, age, priority level; co-existing conditions; vital signs; inpatient and outpatient utilization; medications; lab values.

In the past the VHA have used registries where they have studied one disease at a time and tried to identify which patients need care management. CAN is a significant improvement in that it allows an holistic view of the patient, including what care the patient is already enrolled in. Registries are still in use as a helpful way to target one condition.

*"The process of identifying patients for Home Telehealth is on-going and we aim to identify the patients at multiple points in their care. One method which has been successful has been to identify people who are frequently seen in the emergency room and then to look at why they're being seen and then identify why they are being seen so frequently. In other cases, we may identify the patient as the disease progresses or as the patient becomes less controlled."*

**Mary Walker, VISN-25 Home Telehealth Lead**

*Figure 6.7 - Opportunity for transferable learning for the NHS – Patient Selection*

- Core long term conditions found to benefit from standardised telehealth protocols include a wide range of diseases including CHF, COPD, hypertension and diabetes, and co-morbid combinations. Telehealth can also be applied to mental health groups and to broader populations for prevention and 'wellness' programmes.
- To achieve the staffing and logistical efficiencies seen in the VHA, the NHS needs to move telehealth to become the default delivery channel for services.
- 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.
- Patient self-selection improves adherence and acceptance of the service, although not all patients will be right for telehealth.
- Proving the evidence base around innovative new services such as telehealth requires a rigorous but realistic up-front approach to study design, data collection and evaluation.

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### **PACT and the Home Telehealth team**

Patient Aligned Care Team (PACT) is the VHA's version of primary care delivered through a patient centred medical home mode, with every patient is assigned to a PACT team. The idea of PACT is to 'replace episodic care based on illness and patient complaints with coordinated team care and a long term healing relationship'. The emphasis is shifted from systems and processes based on the needs of the healthcare system to one based on the needs of the patient.

The PACT team model is considered as a smarter way of working by leveraging the power and talents of each team member working to the top of their licensure and competency to support the primary care provider in meeting the needs of the patient. PACT teams are composed of a clerical assistant, an administrative assistant (LPN, medical assistant, health technician), RN care manager and provider (physician, physician assistant or nurse practitioner). A social worker, clinical pharmacist and nutritionist are available as extended PACT team members and generally cover several teams. Primary Care Mental Health and behaviouralists are also integrated into PACT teams and may cover several teams.

PACT teams are encouraged to work closely with the Home Telehealth teams since HT is regarded as an effective resource for the management of high risk patients, because it:

- improves access by use of virtual care to shaping demand
- increases the supply of available appointments through increased inter-visit interval
- reduces demand by reducing admission/discharges
- allows the PACT care managers additional time to manage other panel patients

Based on the CAN score, the PACT team does a brief screening to determine if the patient is appropriate for and interested in HT and then initiates a referral to HT as per local protocols and processes.

The local Home Telehealth team consists of CCs and programme support workers. CCs are healthcare professionals, generally nurses but sometimes dieticians 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 (PACT).

The CC will 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, the 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 which best meets the patient's needs using a technology algorithm tool, trains the patient and caregiver, reviews telehealth monitoring data (both vital sign 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. By contrast, the average PACT nurse care manager has a panel of 1,200 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 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 three or more days. They send out information requested and provide assistance if the device is not working. Support workers are also used for helping to market home telehealth programme, educating patients in the technology, helping in the data mining, and helping to re-engage Veterans if they choose not to respond every day to the questions. The VHA's experience is that for a CC to manage 100-150 patients, one programme support worker is needed for every three CCs. Without support, the CC typically manages a panel size of 75-100 patients.

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



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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 provision of information on their condition and how they can modify their lifestyle to improve their condition, this helps to make the patient more responsible for managing their condition.

*Figure 6.8 - Opportunity for transferable learning for the NHS: Primary Health Care Team*

- **The effective use of telehealth requires a different type of nursing support to traditional community services.**
- **Telehealth needs establishing as a centralised triage service on a local/regional basis rather than expecting it to be additive to existing Community Matron, District or Practice Nurse workloads.**
- **System capacity can be provided through a staffing model of nurse care coordinators and programme support workers (who can provide invaluable first-level support for technical triage).**
- **The care coordinator position works best when dedicated to the role, with a caseload of 100-150 patients if full time.**

### Changing the culture

The introduction of a new way of working, such as providing care management using home telehealth requires the acceptance of all stakeholders. Those most involved in the VHA's Home Telehealth programme fall into three 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 the beneficial impact on their patient population. CCs generally 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 in the UK, those working as VHA CC's 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 service. 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 leads in each locality also put considerable effort into the education of clinicians and try to encourage them to make use of telehealth.

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, if they can see a benefit to their patients. As the evidence base has built up, showing that patients receiving telehealth achieve consistently better health measures and lower usage of health services than those not on the telehealth programme, most physicians have come to accept the use of telehealth. This is more the case in rural than urban regions, due to access and transport issues associated with delivering face-face care.

*"In VISN-23, our experience has been that the number of visits to stakeholders to market home telehealth directly correlates to the number of primary care providers that buy into home telehealth and want to involve their patients in this process. In some sites, panels are only ⅓ full and by working on providers, we have been able to recruit more people. Once people realise that they can improve patient care and take on more patients through home telehealth they are really enthusiastic about it, and try to get their patients on the service."*

**Pauline Anderson, VISN-23 Home Telehealth Programme Manager**

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.

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*“Many providers in primary care still feel that the value in health care is with face to face visit with physician and they are still on a journey to team care. More forward thinking teams have realised they can open up space in their clinics if they put their energies into virtual care and proactive care and the patient might do better. The transition from typical provider to state of care in VHA, is one which from the literature looks like it’s a three to five year programme. They are about two years into the programme at the moment so there is still work to do.”*

**Dr Kathy Corrigan, National Lead in Primary Care Services for Telehealth**

*“I know someone is looking out for me... it gives me peace of mind”*

*“Without this program I might be dead! It has really helped me get healthier.”*

*“I feel more secure in knowing that someone is helping me manage my health problems.”*

*“This program has helped me be able to stay home with my wife.”*

**Patients on VHA Home Telehealth Programme**

Figure 6.9 - Opportunity for transferable learning for the NHS: Changing the Culture

### Patients

Patient acceptance of the technology and commitment to the programme is essential. Patients have to agree to participate, to respond every day to dialogue questions and 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.

There are some patients who do not respond well to HT; nationally around 4% of patients refuse HT. Responding on a daily basis is not an absolute requirement but it needs to be clear in advance which days they will respond. The biggest negative feedback received from patients is that they get tired of being asked the same questions each day.

On occasions, when patients are allowed to enter data manually, they may enter data that looks more like what they think the Care Coordinator wants to see than the true data. The Care Coordinator needs to know the patient sufficiently well to be able to spot when this is happening.

- As part of project scoping and design, a realistic approach is needed to benefits management with clarity on the implications and gains for key stakeholders, in particular patients, GPs and community nursing, with proactive, regular follow-up with all stakeholders as the project progresses.
- Each locality needs a clinician to champion telehealth and share success stories with others.
- 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.
- Tracking measures are needed to monitor which patients respond frequently or infrequently so that one can target the intervention appropriately.
- It is also essential to have variability in the daily questions asked to patients by the telehealth solutions.

## 6 Home Telehealth

### 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 both hands-on training at the local site, working with an experienced CC who acts as their mentor, and also attend online education delivered by the centre. The basic curriculum consists of two to four 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 which is 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 including training in motivational interviewing and coaching of patients, in how to do assessments and reassessments, and on how to develop and review treatment plans. The training centre also provides on-going mentoring, consultation and performance support to help with organisational change.<sup>71</sup>

### Physician training

There are optional courses in telehealth provided for physicians but little formal training. However telehealth leads in each locality often convene meetings to train physicians, setting up group settings where physicians can see the equipment, understand how it works, and 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 two to three years to enable all those working in VHA telehealth to meet up and develop evolving practice.

*Figure 6.10 - Opportunity for transferable learning for the NHS: Training*

- **Training is instrumental to get an effective, stable and consistent level of service with appropriate audit data to inform service delivery and decision making.**
- **There is a need to invest enough time to help build confidence in the telehealth services.**
- **The core competencies for telehealth need embedding into the curricula of doctors, nurses and allied health professionals, and relevant local authority staff, possibly through national or regional competency centres, with access to suitable on-line training facilities.**

### Funding and reimbursement

As a federal body, funds for the VHA are centrally provided through the Veterans Equitable Resource Allocation and passed onto each network depending upon the number and type of patients catered for. 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.

*Figure 6.11 - Opportunity for transferable learning for the NHS - Funding*

- **Technology is best acquired through central frameworks 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, aligning the interests of commissioners, providers and patients.**

71. Darkins et al Care Coordination/Home Telehealth: The Systematic Implementation of Health Informatics, Home Telehealth, and Disease Management to Support the Care of Veteran Patients with Chronic Conditions. 2008 Telemedicine and eHealth pp1118-1126

72. Ibid

## 6 Home Telehealth

### 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 but it is useful to have a variety of equipment as not all patients respond well to the same user interfaces and programme options. In addition it is useful to have a back-up choice of equipment if one fails.

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. More recently, equipment has been introduced that is GSM based and is enabled through Interactive Voice Response (IVR) using standard protocols and the patient's own cell phone. IVR is rapidly expanding the number of patients who can benefit from HT by obviating the need for the old fashioned "land-line" telephone.

Generally, once the decision is made for the patient to be enrolled on Home Telehealth, they visit the clinic and are shown the equipment and how to use it. The selected equipment is then 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, who self-installs it in the home. Generally, the patient receives a phone call to walk 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 is discharged from home telehealth, the Denver centre sends a retrieval kit to the patient with instructions as to how to package up and return the equipment. The centre then cleans and reuses it.

The VHA is further integrating and mainstreaming procurement through the transfer of procurement and purchasing to the Denver Acquisitions Centre.<sup>73</sup>

*Figure 6.12 - Opportunity for transferable learning for the NHS: Equipment*

- **Centralisation of solution procurement provides some guarantee of sufficient scale to the supplier, and acts as an incentive to private sector investment.**
- **The VHA deployment model demonstrates that home telehealth equipment can be sent directly to the patient to install it themselves, rather than relying on third party installers.**

### 6.2 The development of telehealth in the NHS

Telehealth is not new to the NHS. In 2006 DH issued a white paper which included a focus on the health and social care for people with long term needs, with assistive technologies an enabler to drive whole system redesign.<sup>74</sup> During the 2000s, many NHS organisations piloted it but its widespread rollout-out was limited by a lack of robust NHS-based evidence around the use of telehealth at scale. As a result, in 2008, the Department of Health launched a large randomised control trial, the 'Whole System Demonstrator programme', with a view also to learn lessons for implementing telehealth and telecare at scale. Evaluation commenced in late 2010, and as a result data is available on everyone for a minimum of 12 months.

73. Department of Veterans Affairs, Health Subcommittee Hearing on VA Contracting and Procurement Practices, September 23, 2010.

74. BMJ, Effect of telehealth on use of secondary care and mortality: findings from the Whole System Demonstrator cluster randomised trial [Internet] 2012 [Accessed February 2013] Available at <http://www.bmj.com/content/344/bmj.e3874>

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2020health's influential 2010 report 'HealthCare without walls: a framework for delivering telehealth at scale'<sup>75</sup> described the potential cost and quality impact of telehealth-enabled services in the NHS. On the expectation of convincing evidence from the WSD results, the report set out a series of recommendations to drive deployment, notably for the following stakeholders:

- the local NHS - local CCGs, NHS Trusts and social care organisations will drive the telehealth-enabled services that their patients require, using telehealth as a catalyst for whole systems redesign around the treatment of long term conditions.
- the national NHS – the NHS Commissioning Board will provide a crucial strategic framework for local action.
- industry - large scale exploitation of telehealth will need a vibrant supplier community, inspired by the potential of telehealth and incentivised to invest, take risk and become fully engaged.

As a result of the positive WSD headline results, the Prime Minister announced in December 2011 the creation of the 3millionlives initiative for the widespread adoption of telehealth and telecare<sup>76</sup> by 2017. In announcing it, the government commented:

“The Department of Health believes that at least three million people with long term conditions and/or social care needs could benefit from the use of telehealth and telecare services. Implemented effectively as part of a whole system redesign of care, telehealth and telecare can alleviate pressure on long term NHS costs and improve people's quality of life through better self-care in the home setting.”<sup>77</sup>

“3millionlives is about transformational change, building services for people with long term conditions, supporting with technology where needed and building new business models. The collaboration intends to increase co-operation between industry, government and other stakeholders to help make the widespread adoption of telehealth and telecare a reality.”

The initiative is based on a unique concordat<sup>78</sup> between government and industry to work together to:

- create the right environment to support the uptake of telehealth and telecare;
- ensure that the technology industry works with the NHS, social care and others to simplify the procurement and commissioning processes for telehealth and telecare services at scale;
- promote the benefits that telehealth and telecare services can offer people in managing their health and care.

The challenges facing the 3millionlives initiative are significant. A recent report by a group of influential academics from the Health and Care Infrastructure Research and Innovation Centre<sup>79</sup> highlighted key challenges both on the demand- and supply-side for the NHS market to scale up. In particular they remarked on:

“Demand-side: inadequate evidence for the benefits of remote care; fragmentation of purchasing and silo-based behaviour; poor integration across health and social care services; weak leadership in the NHS to overcome general resistance and drive developments; lack of expertise among NHS purchasers, hampering collaborative relationships; problems with the procurement framework for public sector organisations; lack of suitable models for reimbursing the costs of remote care”

“Supply-side: the small-scale and fragmented nature of the industry; difficulties in identifying suitable business models, compounded by a lack of evidence for the benefits; immaturity of products and continuous innovation hampering purchasing; low levels of interoperability between remote care devices discouraging investment and making it difficult to establish standards.”

75. Cruickshank J, What can the NHS learn from experience at the US Veterans Health Administration? 2012. 2020health: London Available at <http://www.2020health.org/2020health/Publication/NHSit/telehealth.html>

76. 3ML, Homepage, [Internet] 2013, [Accessed February 2013] Available at <http://3millionlives.co.uk/>

77. Consideration of telecare is outside the scope of this report. In places such as Birmingham City Council, large scale telecare programmes have also been used to drive telehealth uptake

78. DH, A Concordat between the Department of Health and the telehealth and telecare industry, [Internet] 2012 [Accessed February 2013] Available at <http://3millionlives.co.uk/wp-content/uploads/2012/03/Concordat-FINAL.pdf>

79. Barlow J, Curry R, Chrysanthaki R, Hendy J and Taher N, Remote Care plc Developing the capacity of the remote care industry to supply Britain's future needs, [Internet] 2012, [Accessed February 2013] Available at [http://www.hacirc.org/static/pdf/publications/A4\\_Remote\\_Care\\_ReportFINAL3\\_12\\_12.pdf](http://www.hacirc.org/static/pdf/publications/A4_Remote_Care_ReportFINAL3_12_12.pdf)



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Returning to the evidence base, during 2012 a series of academic papers were released evaluating different aspects of the WSD and the main findings are summarised in Figure 6.13.<sup>80</sup>

*Figure 6.13 – Whole System Demonstrator Results Overview*

The Whole System Demonstrator (WSD) programme launched by DH in 2008<sup>81</sup> aimed to gather evidence to answer the question “Does the use of technology as a remote intervention make a difference?”.

It formed the largest randomised control trial of telehealth and tele-care in the world, involving 6,191 patients, 3,033 of which were diagnosed with heart failure, COPD or diabetes. It also involved 238 GP practices across three WSD programme sites, with making their own decisions about what equipment which related to the needs of their differing populations.<sup>82</sup> As an urban borough Newham has high levels of economic, social and educational deprivation; Kent covers both urban and rural environments; and Cornwall is a large, sparsely populated rural area with poor transport links and a predominantly elderly population.<sup>83</sup>

Five major academic institutions are analysing the data from WSD.<sup>84</sup> To date, three of these reports have been published, and the results are summarised below.

Early indications from this programme show that if used correctly telehealth can deliver a 14% reduction in bed days and a 14% reduction in elective admissions. Notably they also demonstrate a 45% reduction in mortality rates.<sup>85</sup> These trends were confirmed by the first report from The Nuffield Trust, who found that during the trial, there were a significantly lower number of patient bed days

among the patients using telehealth, compared to the control group.<sup>86</sup> DH also announced a 15% reduction in A&E visits, a 20% reduction in emergency admissions and an 8% reduction in tariff costs.

In the second published report, Sanders et al (2012: 6) analysed the outcomes of WSD from a patient experience perspective.<sup>87</sup> They emphasise the importance of tailoring interventions to ensure they will fit in with life circumstances and individual approaches to self-management.

The third report<sup>88</sup> analysed organisational factors influencing the implementation of the programme. Whilst the question “Does the use of technology as a remote intervention make a difference?” can be answered with a positive ‘yes’ (BMJ, 2012), Sanders et al (2012) highlight the need for a cultural change to ensure that patients get the most out of the improvements that telehealth and telecare can bring them.

The Department of Health believes that to turn reductions in unplanned emergency admissions, elective admissions, A&E visits and mortality into savings, telehealth needs to be delivered at scale, with lower up front costs and integrating the technology into a service offering. It is this philosophy that is driving the 3millionlives initiative.

80. A wider review of the evidence base is available at: The Kings Fund, The impact of telehealth a review of the Evidence, [Internet] undated, [Accessed February 2013] Available at <http://www.kingsfund.org.uk/topics/telecare-and-telehealth/impact-telehealth-review-evidence>

81. DH, Whole System Demonstrator Programme: Headline Findings – December 2011, [Internet] 2011, [Accessed February 2013] Available at [http://www.dh.gov.uk/en/Publicationsandstatistics/Publications/PublicationsPolicyAndGuidance/DH\\_131684](http://www.dh.gov.uk/en/Publicationsandstatistics/Publications/PublicationsPolicyAndGuidance/DH_131684)

82. DH, Whole System Demonstrator Programme: Headline Findings – December 2011, [Internet] 2011, [Accessed February 2013] Available at [http://www.dh.gov.uk/en/Publicationsandstatistics/Publications/PublicationsPolicyAndGuidance/DH\\_131684](http://www.dh.gov.uk/en/Publicationsandstatistics/Publications/PublicationsPolicyAndGuidance/DH_131684)

83. Hendy et al, An organisational analysis of the implementation of telecare and telehealth: the whole systems demonstrator 2012. BMC Health Services Research, Vol 12 No 403 Available at <http://www.biomedcentral.com/1472-6963/12/403/abstract>

84. DH Whole System Demonstrator Programme: Headline Findings – December 2011, [Internet] 2011, [Accessed February 2013] Available at [http://www.dh.gov.uk/en/Publicationsandstatistics/Publications/PublicationsPolicyAndGuidance/DH\\_131684](http://www.dh.gov.uk/en/Publicationsandstatistics/Publications/PublicationsPolicyAndGuidance/DH_131684)

85. DH Ibid

86. BMJ, Effect of telehealth on use of secondary care and mortality: findings from the Whole System Demonstrator cluster randomised trial [Internet] 2012 [Accessed February 2013] Available at <http://www.bmj.com/content/344/bmj.c3874>

87. Sanders et al, Exploring barriers to participation and adoption of telehealth and telecare within the Whole System Demonstrator trial: a qualitative study, [Internet] 2012, BMC Health Services Research, Vol 12 No 220. Available at <http://www.biomedcentral.com/1472-6963/12/220>

88. Hendy et al, Op cit



## 6 Home Telehealth

### NHS 3ML Pathfinders

In November 2012, the government announced that seven ‘pathfinders’ for 3millionlives - NHS and local authority organisations including clinical commissioning groups - were to agree contracts with industry suppliers that will mean that up to an additional 100,000 people will be able to benefit from telehealth in the course of 2013.

*“The seven pathfinders that are offering this new technology to patients will give the NHS Commissioning Board important insight into how best to extend this option to any patient managing prolonged ill health or a chronic condition”*

**Sir David Nicholson, CEO NHS  
Commissioning Board**

Figure 6.14 – List of 3ML Pathfinder communities

Worcestershire County Council + 3 CCGs

NHS Merseyside

North Yorkshire & York and Humber Cluster

NHS South Yorkshire and Bassetlaw

Kernow CCG and Cornwall & Isles of Scilly PCT

NHS Kent & Medway

Camden CCG, University College London  
Partners, National Institute for Cardiovascular  
Outcomes Research (NICOR)

The pathfinders are aiming to deploy at scale a range of tele-technologies, for which we use the term telehealthcare (THC).<sup>89</sup> An overview of the pathfinders is provided at figure 6.14 below. In support of the process, the industry members have developed a key requirements document to assist with the commissioning of these services.<sup>90</sup>

89. By ‘telehealthcare’, we mean ‘an intelligent, proactive, integrated and holistic solution for health care and social care, available to everyone’, covering both telehealth, telecare and telemedicine

90. 3millionlives, Recommendations from Industry on Key Requirements for Building Scalable Managed Services Involving Telehealth, Telecare and Telecoaching, [Internet] undated, [Accessed February 2013] Available at <http://3millionlives.co.uk/wp-content/uploads/2012/11/3millionlives-Industry-Recommendations-for-Scalable-Services.pdf>

## 6 Home Telehealth

### 6.3 NHS Best Practice Exemplars around telehealth

In this section, we outline examples of best practice of potential interest to the VHA. Those covered and their rationale for inclusion are shown in figure 6.15 below.

Figure 6.15 - NHS Best Practice Exemplars around telehealth

| Aspect   | Exemplar  |
|--|---|
| Telehealth Toolkits – supporting commissioning and implementation          | 6.A NHS Midlands and East Telehealthcare Commissioning and Evaluation Toolkit<br><br>6.B South Yorkshire CLARHC 'Ready, Steady, Go' Toolkit |
| Telehealth Hub - to support health & social care needs of elderly patients | 6.C NHS Yorkshire & the Humber Telehealth Hub   |
| Telehealthcare including telecoaching                                      | 6.D NHS Barnsley / South West Yorkshire Partnership FT  |
| Learning lab for telehealth technologies and their application             | 6.E Institute of Digital Health, University of Warwick  |
| Use of telehealth within NHS 111 services                                  | 6.F Local Care Direct, Leeds  |

#### 6.A NHS Midlands & East Telehealthcare Toolkit

In 2010, NHS West Midlands developed an online resource 'toolkit',<sup>90</sup> to help and encourage members of staff to introduce new technology to assist with the provision of healthcare in the home. Its key function is to provide a specific, eight step guideline on how staff can develop business cases for telehealthcare. The steps start with identifying the telehealthcare needs; establishing buy in and identifying stakeholders; technology and workforce requirements; and sharing best practice.

Other tools include checklists, templates and models for analysis. The toolkit also provides easy access to an extensive list of relevant resources, such as policy documents relating to telehealth, summaries of evidence on the economic and clinical case for telehealth, past telehealth case studies and lists to THC resources.

The toolkit has been designed to support and encourage staff, not as a rigid set of rules to be followed but rather a foundation from which to work. In some cases methods will need to be tailored to local cases. An interactive version of the tool is being developed by the NHS Institute for Innovation & Improvement.

#### 6.B CLAHRC for South Yorkshire 'Ready, Steady, Go' Toolkit

The Collaboration for Leadership in Applied Health Research and Care for South Yorkshire (CLAHRC SY) is a five year pilot programme to translate healthcare research into healthcare practice. One of nine national CLAHRC's, they were introduced after recognition that there were gaps in the translation of health research into new products and treatment approaches as well as in the implementation of new approaches to clinical practice. The CLAHRC SY's aim is to improve patient outcomes through the self-management of long-term conditions as well as to address health inequalities.

91. 3millionlives, Implementation guides and toolkits, [Internet], 2012, [Accessed February 2013], Available at [http://3millionlives.innovation.nhs.uk/pg/cv\\_blog/content/view/8441/network](http://3millionlives.innovation.nhs.uk/pg/cv_blog/content/view/8441/network) Also at NHS West Midlands, Telehealthcare Commissioning & Evaluation Toolkit, [Internet] 2011, [Accessed December 2012] Available at <http://www.slideshare.net/joind/telehealthcare-toolkit>

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CLAHRC have observed the complexity of implementing and integrating telehealth into clinical practice and see poor planning as a key reason why certain telehealth cases have had negative outcomes in the past.

As part of this research, they collaborated with an EU-funded project called 'Regional Information and Communication Technology based Clusters for Health Care Applications and R&D integration' (RICHARD) to develop a toolkit which will help organisations implement telehealth successfully.<sup>92</sup> Particular emphasis is placed on the importance of early planning and preparation in order to avoid a poor patient and staff experience.

The 'Ready, Steady, Go' toolkit provides a five phase framework which can be used by organisations as they implement telehealth. It is detailed but information is easily accessible, structured around the analogy of preparations for undertaking, and reviewing, a race.

### 6.C NHS Yorkshire and the Humber Telehealth Hub

In 2011, NHS Yorkshire and the Humber Strategic Health Authority (SHA) conceived the 'Telehealth Hub'<sup>93</sup> which aimed to demonstrate the benefits from delivering telehealth at scale to patients with chronic conditions. The intent was to accelerate the adoption of telehealth and related technologies across the region, by providing a single point of access service for a range of telehealth services. This single 'Hub' was made of three partner organisations, each with a significant background in the field: Airedale NHS Foundation Trust, The University of Hull and NHS Barnsley/ South West Yorkshire Partnership Foundation Trust (SWYPFT). These sites provided telemedicine, tele-monitoring and telecoaching services respectively.

The aim for the Hub was to support care closer to home and deliver services to 2,100 patients, leading to fewer unnecessary admissions to hospital, healthier outcomes and lifestyles, and cost savings. They hoped that telehealth would provide an efficient way to work in a truly integrated manner which will support the reablement of their patients.

2020health has recently published a major evaluation of the Hub.<sup>94</sup> The evaluation confirmed that at a high level, the aims were fulfilled with all three services

demonstrating some reduction in secondary care usage. In particular, outcomes from NHS Barnsley/ SWYPFT's telecoaching service were on the whole positive (see Case Study 6.D), as were results from Airedale NHS Foundation Trust, although this service is still new and data are still being collected (see Case Study 7.A). The telemonitoring service from Hull, which provided remote care for heart failure patients, helped nurture, protect and expand existing services in nearby communities and avoided them ceasing existing telemonitoring services through a lack of triage and support.

Several useful lessons were learnt of relevance to the 3millionlives initiative, notably the length of time and commitment needed to introduce new telehealth-enabled services, and the importance of clinical and GP engagement from the outset.

### 6.D NHS Barnsley/SWYPFT telecoaching service

Barnsley is ranked the 43rd most deprived local authority and life expectancy is significantly lower than the national average. There are high levels of smoking and binge drinking, evidence of poor diet and low take up of exercise. The development of telehealthcare in Barnsley is therefore part of Barnsley's 'People in Control' personalisation strategy, which aims to encourage people to take greater control of their health and well-being as part of a wider strategy to improve the quality of life for people in Barnsley.

As part of the broader Yorkshire and the Humber Telehealth Hub, NHS Barnsley, Barnsley Council and SWYPFT have established the Barnsley Telehealthcare Centre from which they can deliver a telephone based coaching service.<sup>95</sup>

The centre offers a range of interchangeable services aimed at promoting independent living across integrated health & social care pathways, including: Careline, telecare, care navigation, telecoaching and telehealth monitoring supported by telehealthcare logistical support with regard to installation, service user training and stock management.

Telecoaching uses professional audio, visual and/or interactive communication to set up a one to one interaction between a patient and a trained healthcare

92. CLAHRC for South Yorkshire, Toolkits, [Internet] 2012, [Accessed December 2012] Available at <http://clahrc-sy.nihr.ac.uk/resources-toolkits.html>

93. Brownell S & Ellis, T, Ready, Steady, Go: A telehealth implementation tool kit [Internet] , 2012 Available at <http://www.telehealthhub.com/>

94. 2020health, Yorkshire & the Humber Telehealth Hub Project Evaluation, 2013, London: 2020health, Available at <http://www.2020health.org/2020health/Publication-2012/NHSit/Yorkshire-Telehealth.html>

95. Telehealth Hub, Telecoaching, [Internet] undated, [Accessed December 2012] Available at <http://www.telehealthhub.com/Telecoaching/>

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professional. This service is provided by specialist ‘Care Navigators’ who are trained in motivational interviewing techniques. They work with patients over the phone to develop a detailed care plan with agreed goals. They also support patient self-care and risk reduction, by encouraging patients to make lifestyle changes and lead healthier lives.

In general, patient feedback so far has been positive. There have been an increased number of people living independently, 20% fewer hospital admissions, a 30% reduction in length of stay (LOS) in hospitals and increased patient compliance with guidelines set by professionals. Further, evidence suggests that there has been an existing service delivering overall 32% cost reduction. That means an average saving of £1,000 (\$1,600) per patient per annum.

Within Barnsley the service has now been successfully rolled out at all GP practices and SWYPFT intends to continue to develop and enhance the telecoaching service both locally for Barnsley and for the region.

### 6.E Institute for Digital Health, University of Warwick

Aimed at creating more robust digital and innovative healthcare programmes for people living with life-threatening and chronic illnesses, a major new research facility<sup>96</sup> was launched by the Institute of Digital Healthcare at the University of Warwick in October 2012.

This new resource is aimed at understanding and evaluating effectiveness of digital programmes in the health service, as well as trialling novel digital healthcare technologies. Founded through a unique partnership between the University’s WMG, the Institute of Digital Healthcare (IDH) and Bosch Healthcare, the IDH Learning Lab will design new technologies and evaluate existing ones to improve the lives of thousands of people in the UK.

Initially, the focus will be on two large telehealth studies that could benefit up to 3,000 patients:

- The first will examine a large number of patients with cancer and will look to assess how telehealth improves quality of life, behaviour modification, acceptance, compliance, cost effectiveness and mortality rates.

- The second project will set out to understand how telehealth can monitor and help patients with vascular diseases as part of a wider study into chronic diseases. This is a multi-system, multi-specialist approach in order to implement a novel monitoring intervention from which we learn and adapt, so that patients can actively participate in their health improvement.

### 6.F Telehealth as an integral feature of NHS 111 service

As mentioned in Section 4, the current NHS Direct is now being superseded by locally run non-emergency services called NHS 111, due to go live in April 2013, providing the opportunity for significant innovation around technology and call centre services. In Leeds, the NHS 111 service will be run by a local out of hours (OOH) GP cooperative, Local Care Direct, which is also involved in the delivery of innovative telehealth services elsewhere in the city. Dr Mutaz Aldawoud, General Practitioner and Clinical Lead for Service Innovation in Local Care Direct, explains some of the philosophy involved:

“As clinicians, we recognise that disease progression, flare-ups and remission requires ‘step-up’ and ‘step-down’ of treatments and approaches, adjusted according to need. Patients therefore require a personalised ‘technology prescription’ which caters for their specific health needs. Generally, the sicker the patient, the more expensive automated monitoring equipment is required. However, this can be an inappropriate use of resources for some patients who are able to utilise more basic technologies such as their own telephone landline and mobile phone. Technology should wrap around the patients’ requirements and not the reverse. Inevitably, conflicts of interest arise when industry supplies and provides the managed service.

“To make the step towards the proactive, planned approach in healthcare, more patients must be able to benefit from telehealth. We need to be able to identify those who are expected to rapidly progress in disease severity in the near future. This involves utilising risk stratification tools together with data and learning from telehealth studies to place timely interventions to slow disease progression, deliver improved quality of life and provide capacity releasing savings to the health economy. The majority of these LTC patients are not yet on the radar of community teams. Rather, GPs and practice

96. Institute of Digital Healthcare, Pioneering “Learning Lab” launched to improve effectiveness and uptake of Digital Technologies in the NHS, [Internet] 2012, [Accessed February 2013] Available at, <http://www2.warwick.ac.uk/fac/sci/wmg/idh/idhnews/?newsItem=094d43a23a89176d013a8d83fdb67be>

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nurses look after these patients, however they are also stretched to capacity in dealing with the reactive overwhelmed current situation.

“Directing proactive alerts as un-resourced additional workload for primary care is not a sustainable model for telehealth and so providing clinical triage and early clinical interventions such as rescue medications (antibiotics/steroids/bronchodilators in COPD) and telecoaching (such as medication concordance) could be delivered by an appropriate clinical service provider to mitigate this issue.

“With the NHS 111 service due to launch in early 2013, out-of-hours providers are ideally placed to integrate telehealth into their organisations. With NHS 111 built and driven using information technology, opportunities exist for multiple monitoring and input devices to be used by patients.

“It is these very same LTC patients who are the highest OOH service-users and those identified as most suitable for telehealth interventions. The OOH service is inherently a risk-averse system which typically involves a healthcare professional working within unfamiliar settings, teams and patients. This inevitably leads to more patients being admitted to hospital for further assessment.

“If OOH providers were able to provide frontline clinicians with track and trend data utilising telehealth, then a much richer clinical picture would enable more effective decision making with respect to providing care to the right person, place and time. Telehealth could also provide more confidence to treat patients in their own home as monitoring of vital signs and relevant question-sets could link back to experienced telehealth clinicians who can monitor regular observations, thereby escalating or de-escalating interventions as appropriate.

“In summary, the real scope of telehealth can be achieved through effective integration of existing health services (such as OOH), communications through unified electronic patient records and genuine re-design of care pathways. As the saying goes, ‘if you always do what you’ve always done then you’ll always get what you always got’.”

*Figure: 6.16 - Opportunity for transferable learning for the VHA: Telehealth*

- **The NHS has found value in considering a menu of appropriate interventions to meet different health and social care needs beyond telehealth, e.g. telecoaching and telecare.**
- **It is helpful to include patients and carers in the initial assessment of equipment needs, the consideration of different suppliers during procurement and in the evaluation of the effectiveness of the equipment and services once installed.**

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*Figure 6.17 - Opportunity for scale and spread in the NHS:  
Telehealth*

- Acknowledgement is needed of the fundamental notion that service design/ redesign comes first, with consideration of the integration of appropriate telehealth technologies a contribution to the service design, not a driver.
- The service planning for telehealth needs embedding around the three principles of the QIPP LTC approach: effective service design; appropriate use of risk stratification to accurately identify patient cohorts; and the encouragement of self-care.
- There is a need to develop effective strategies in ensuring clinical engagement with the benefits of telehealth, addressing and removing perceived barriers to adoption amongst clinicians.
- The engagement and commitment of other key stakeholders from across the local health communities is critical – e.g. CCGs, Clinical Senates, Health & Wellbeing Boards, perhaps Clinical Support Units (CSU). This is especially so as projects are formed, change management planned, expected outcomes defined, requirements clarified and business cases developed.
- Projects are best started on a small basis but with a clear commitment to and plan for up-scaling. This up-scaling needs to be demanded, avoiding building more capacity unnecessarily.
- Realism is needed about the time to achieve deployment at scale, including risk stratification, patient recruitment, securing patient consent and infrastructure management issues. These can take many months.
- There is a need nationally to share best practice and publicise success stories.



## 7 Telemedicine

This section describes the development and use of telemedicine in the VHA and NHS health systems respectively. In the VHA, the term applied is Clinical Video Telehealth and this is used in section 7.1 below.

### 7.1 The Development of Clinical Video Telehealth in the VHA



*Figure 7.1 A nurse assists a Veteran with medical exam equipment while a physician tunes in via video to offer her expertise.*

Source: Department of Veterans Affairs, VA's Telehealth: Wherever You Are, You're Not Too Far, [Internet] 2010, Available at <http://www.va.gov/health/NewsFeatures/20100129b.asp>

*“In the future...specialty consultation will begin with CVT from the General Practitioner to the specialist while the patient is in the room, whether the specialist is two floors or 200 miles away”.*

**Dr Robert Petzel, M.D., VA Undersecretary for Health, November 2012**

Clinical Video Telehealth (CVT) enables video-based consultation between patients in community clinics and medical specialists based at VHA Medical Centres. Patients using the service are therefore saved the inconvenience of having to travel often substantial distances to a VHA hospital. Not surprisingly, CVT is particularly valued by Veterans living in remote and rural regions, although its use can save time and expense even

in suburban environments. The reassurance CVT can give to the primary care team is substantial, with wide access to specialists in their own region (VISN) and beyond. The service helps tackle the challenge of clinician recruitment in rural areas, addressing inequalities of patient access and workload distribution.

#### Workflow

CVT consultation generally follows well defined protocols. After arriving at a primary care centre or similar location, a patient checks in the same way as for a face-to-face appointment. Typically a Licensed Practice Nurse (LPN) begins by taking vital signs and collecting basic health information. At the scheduled time the patient is taken into the telehealth suite, where the LPN can act as the hands of the specialist, operating peripheral medical equipment as requested. The LPN and provider have additional contact through instant messaging, enabling accurate documentation of specialist advice and decisions.

Following the session, clinical staff at the centre discuss with the patient the results, making clear any decisions that have been made about follow-up care or procedures. CVT encounters are fully documented and finalised by the fact that each party has to sign off on completion of a medical visit—even if the specialist has more patients to see in the same session. The VHA has observed that this latter protocol has not always been strictly followed.

#### Patient Groups

To date CVT take up is highest among mental health and cancer patients, and also those on weight-loss programmes, both individuals and groups. Over the last five years more than 100,000 Veterans have received mental health services through CVT.<sup>97</sup> While virtual consultation is inappropriate for in-depth physical examination, the VHA claims that outcomes via CVT otherwise replicate or even exceed those of face-to-face appointments, especially in such sensitive areas as post-traumatic stress disorders and sexual traumas (where distance from human contact may be preferable).<sup>98</sup> Significant success is also claimed for weight-loss programmes. The full range of specialities that can be assisted by a CVT session is growing and currently includes audiology, chronic heart failure, gynaecology and traumatic brain injury.

97. VHA Office of Rural Health, Message from the Director of the VHA Office of Rural Affairs, [Internet]

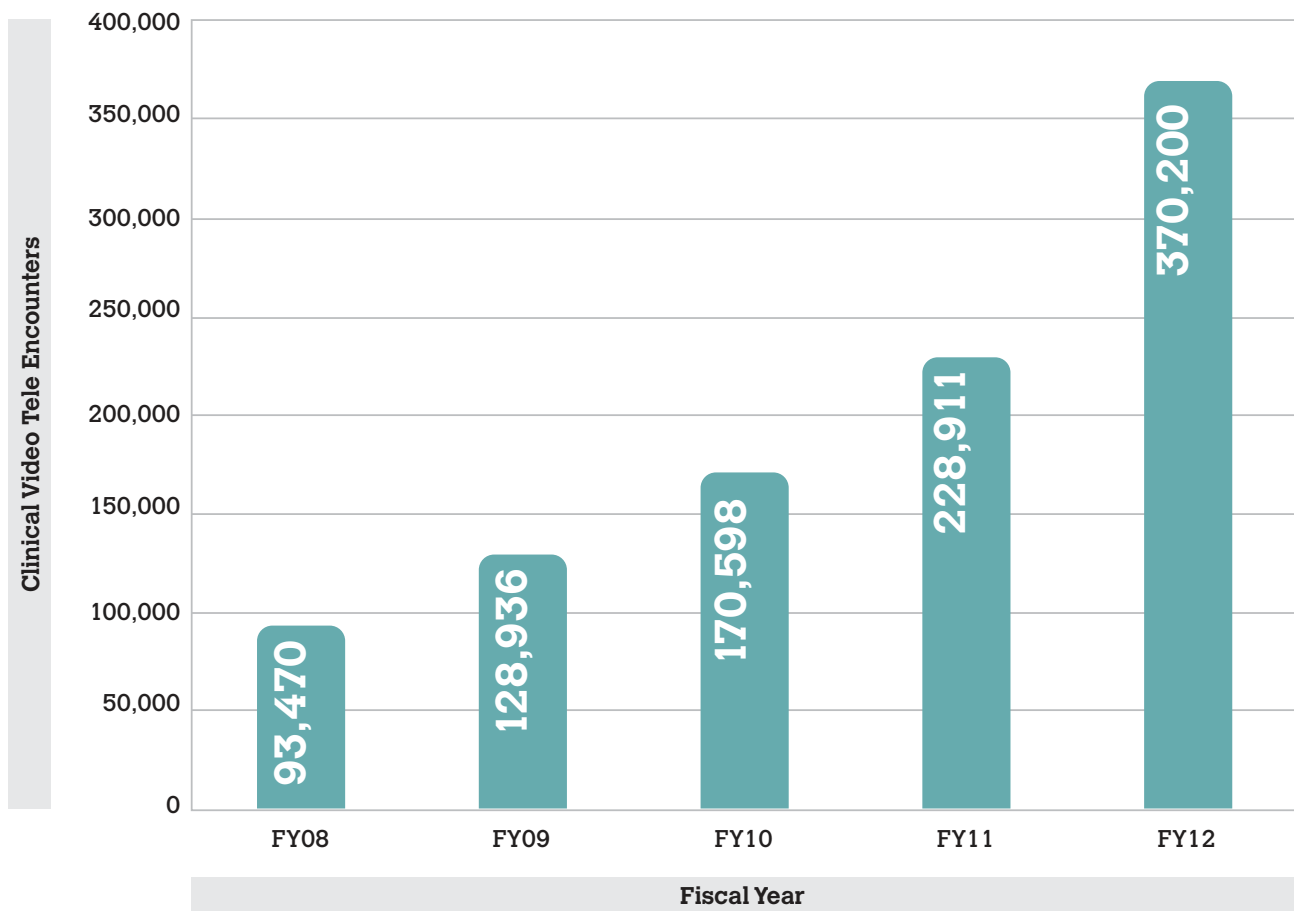
98. 2020health VHA Interview: modality 4: CVT in VISN 23, 5th September 2012

## 7 Telemedicine

### Growth and resistance

The table below demonstrates the rapid growth of the VHA's CVT programme since its structured implementation in 2008:

Figure 7.2: Growth of Clinical Video Tele Encounters Programme



The VHA has put the 30+% year-on-year rise of CVT encounters down to patient satisfaction. Such remarkable uptake seems to substantiate Dr Robert Petzel's prediction that in the future, "the majority of consultation will be done by V-Tel."<sup>100</sup>

Even so, some VHA clinicians remain resistant to CVT, not least because it represents a dramatic culture-shift to their traditional way of working. A typical concern is how telehealth fits into their already busy schedules. But the VHA presses the point that CVT is not creating new work, rather it is replacing previous patterns of care delivery. The main emphasis is on making the patient's life more comfortable. CVT can also hold an advantage from the point of supporting a team-based approach.

Because the service is relatively new, robust evidence on the cost-effectiveness of CVT for given populations is still emerging. Already, amongst mental health patients, CVT was found to reduce bed days of care by 28% based on FY 2010 figures.<sup>101</sup> Deployment to date has been largely promoted through logical reasoning, current providers' perceived efficiency gains and advocacy, and extensive patient approval.

100. Electronic communication from Dr Robert Petzel M.D. to 2020health, 9th November 2012

101. Dr Adam Darkins, unpublished presentation to Mayo Clinic Transform conference, 10th September 2012

Figure 7.3 – CVT Case Study – North Florida / South Georgia

North Florida/South Georgia is one of the leading VISNs in the promotion and application of CVT.<sup>102</sup> Operating out of two medical centres (Gainesville and Lake City), three satellite outpatient clinics and several CBOCs, they list the following as typical examples of CVT usage.

#### CVT clinics (with hospital-based specialists)

- **Speech therapy** – speech therapists provide service to Veterans at CBOC closest to home
- **Nutrition counselling, individual** – nutritionists provide counselling to patients at CBOCs
- **Infectious disease** – ID specialists provide follow-up care to Veterans in remote outpatient facilities
- **Tele-rehab** – rehabilitation specialists (Physical, Occupational and Recreation therapists) provide care/services to selected patients at rural CBOCs
- **Tele-neurology consultations** – neurologists provide consultations for Veterans at rural CBOCs

#### CVT Clinical Education (with specialists located either at a hospital or main CBOC)

- **Diabetes education group** – an ADA certified diabetes educator and nutritionist collaborate to provide diabetes education at CBOCs
- **Nutrition** – a dietician collaborates with psychologists and social workers at CBOCs to facilitate weight-loss education sessions
- **Hypertension/Lipid group** – a nutritionist provides education to groups of patients at one of two CBOCs (some CBOCs have in-house nutritionists)
- **Diabetic healthy eating** – a group education session offered to patients at CBOCs
- **Substance abuse group** – members of the Substance Abuse Treatment Team collaborate to provide group education to patients at selected CBOCs

#### Wider benefits of CVT

The potential benefits of CVT extend across the whole patient-provider spectrum, as outlined in table 7.4 below. Clearly, the main beneficiary is the patient, who can simply visit their local clinic and have real-time access to any medical specialist. The VHA in turn saves money on travel costs (its own, and those that would otherwise be reimbursed to the patient), while care coordination is enhanced by direct contact and information exchange between PACTs and specialists. Hospital-based consultation will in time become less frequent for many conditions, realising yet another level of cost-savings with reduced demand for city hospital outpatient services.

102. Department of Veteran Affairs, North Florida/South Georgia Veterans Health System, [Internet] 2012, [Accessed February 2013] Available at <http://www.northflorida.va.gov/NORTHFLORIDA/services/telehealth/telehealthClinicExamples.asp>

Figure 7.4 – Benefits of CVT to stakeholder groups

| Veterans   | PACT (Patient Aligned Care Team)  | Specialty   |
|--|---|---|
| <ul style="list-style-type: none"> <li>• Convenient access to specialty care in local community and rural areas</li> <li>• Makes specialty care available to Veterans unable to travel long distances</li> <li>• Reduces and/or eliminates travel time for Veterans</li> <li>• Increases patient satisfaction</li> </ul> | <ul style="list-style-type: none"> <li>• Extends PACT services by remotely connecting to extended staff team</li> <li>• Improves care coordination and handoffs</li> <li>• Can support ‘virtual’ huddles between CBOCs and medical facilities, and PACTS and specialists</li> <li>• Makes resources available for shared medical appointments and group visits</li> </ul> | <ul style="list-style-type: none"> <li>• Extends PACT services by remotely connecting to extended staff team</li> <li>• Improves care coordination and handoffs</li> <li>• Can support ‘virtual’ huddles between CBOCs and medical facilities, and PACTS and specialists</li> <li>• Makes resources available for shared medical appointments and group visits</li> </ul> |

### Technical challenges and solutions

In the early stages of the programme the VHA purchased a wide variety of equipment and technologies, leading to complications around compatibility and data transmission. The VHA then decided to purchase equipment on a national basis with single contracts, which solved many problems. VHA has standardised its clinical videoconferencing technologies to ensure interoperability. The standardisation of technology and equipment is ongoing and key to the success of the programme.

Current broadband limitations are presenting challenges to activity levels, since only two concurrent sessions can be supported at any one time from a CBOC. But new work is underway to increase levels of audio and visual quality. Higher resolution would allow clinicians to evaluate skin colour and eye conditions. A CVT stethoscope is being implemented throughout VHA.

A national telehealth call centre has been established to help providers with CVT technology issues.

### Home-based video consultations

The technology involved in standard CVT is not usually applicable for routine use in patients’ homes. But expanding use of broadband in the US population is enabling Veterans to link into VHA services using their own laptops and personal computers on secure encrypted technology. In 2012 the VHA is commencing a system-wide implementation CVT into the home initiative to make this virtual consultation a reality for appropriately selected Veterans using a commercial off-the-shelf application that only requires patients with broadband connections to download a software application onto their own laptop or PC.

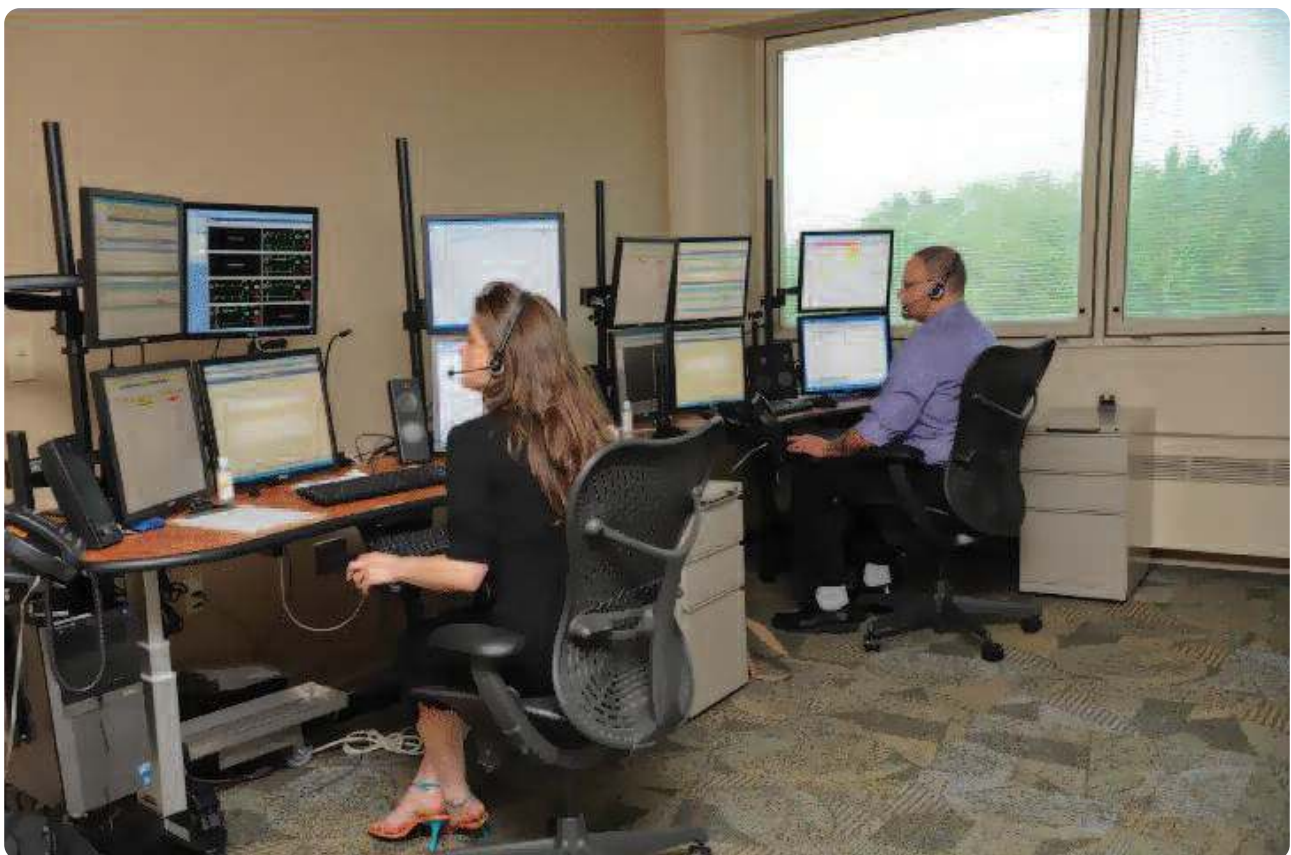
Encrypted and secure, the web-based service works around scheduled appointments. Patients have a specific time-slot to dial in for the appointment with the clinician, after which the link expires and access to the system is closed until the next ‘visit’. Patients who might benefit from this service would include those with spinal cord injuries or severe traumatic brain injury—indeed any who find it difficult to attend a local outreach clinic. It may also be of interest to those who have suffered sexual trauma and are nervous of close human contact.

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This home-based CVT service can allow a clinician to consult with five or six patients within two hours, depending on the patient casemix, leading to productivity savings. From the provider end, the technology is the same, so with microphone and webcam the computer becomes a clinician's web-telehealth unit. This provides some physicians with the capability to see their patients when working from home.

### Tele-ICU

Providing high quality intensive care is extremely complex. Through the use of specialised CVT, in particular a two-way camera and additional technology called Tele-ICU, VHA intensivists have found they can provide higher quality care and ease the burden on staff. The Tele-ICU in Minneapolis VA Hospital, VISN 23, is a small room equipped with banks of large monitoring screens that show vital signs (heart rate and blood pressure) and lab values<sup>103</sup> for the ICUs across the region and beyond.



*Figure 7.5 Minnesota VA Medical Center*

Source: Bonello, R. Presentation to 2020health, 2012, unpublished

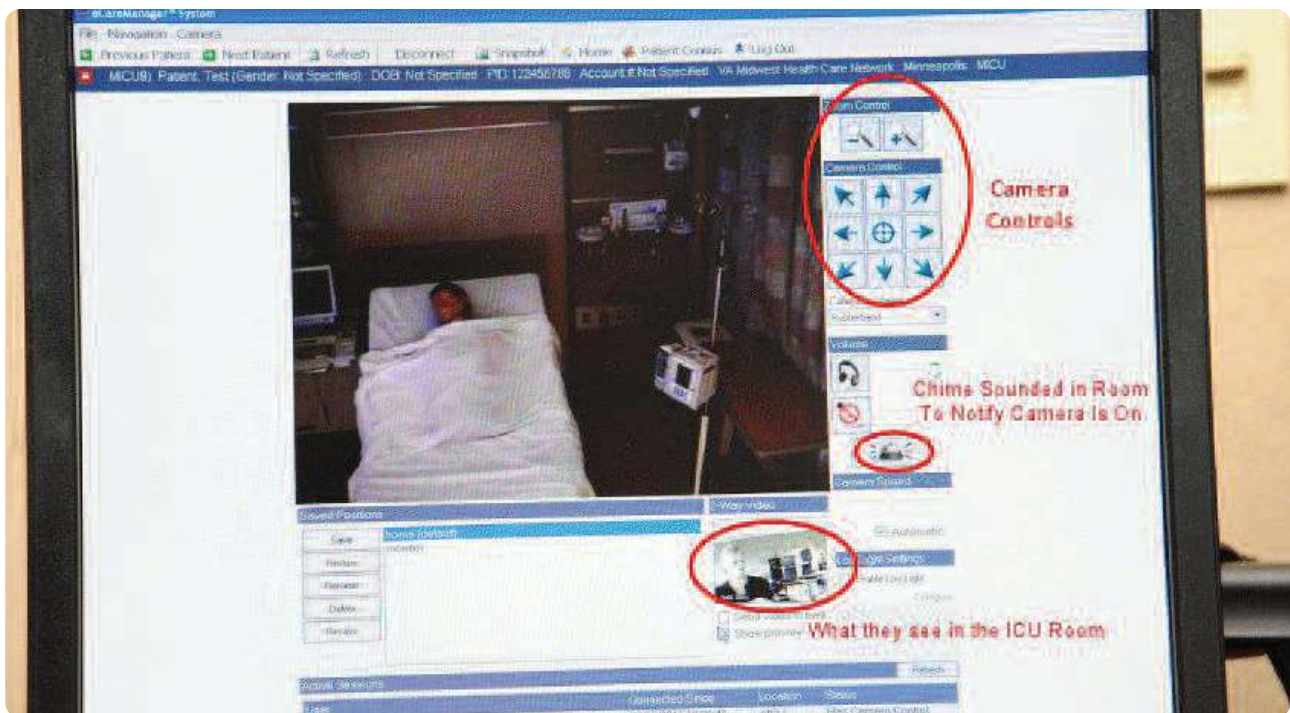
Tele-ICU units have proved to be a successful way across the VHA of making sure high quality intensive care is available for 24 hours a day. Karen Rafter, a senior nurse who works day shifts at a Tele-ICU unite in the VA, describes how “intensivists can monitor patients remotely who otherwise wouldn’t have easily been able to access such specialist care. In the case of VISN 23, difficult access is often due to the fact that patients live in remote areas where small hospitals cannot afford to have their own intensivists, or certainly not at all hours. Through telehealth, a greater consistency of care can be provided around the country and at all times of day”.

103. Department of Veterans Affairs, Minneapolis VA Health Care System, [Internet] 2011 [Accessed February 2013] Available at [http://www.minneapolis.va.gov/features/Tele\\_ICU.asp](http://www.minneapolis.va.gov/features/Tele_ICU.asp)



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There is a live two-way audio-video feed which instantly connects the patient, the bedside provider, the team of critical care nurses and an intensivist. Clinicians can see the data and the patient simultaneously, which is extremely important during a critical consultation. PACS digital imaging can also be made available at any site and Tele-ICU software automatically alerts staff to changes in vital signs.<sup>104</sup>



*Figure 7.6 Two way audio-visual link in Tele- ICU unit (not a real patient, mannequin)*

Source: Bonello, R. Presentation to 2020health, 2012, unpublished

The Tele-ICU unit has also added an extra layer of support for the bedside staff (interviewee comment). The VHA are clear that the use of telehealth in intensive care is not a way of replacing bedside staff, but is an addition. In a small or even medium ICU, one critical patient can take up to eight hours a day of staff time. The workload can also change abruptly and so it is difficult to predict which days will need more staff on site. Through the use of Tele-ICU staff can be brought in to help virtually, as they can monitor other patients while on-site staff look after critical patients.

The VHA has however faced several important challenges in implementing this highly complex process. One is gaining clarity over which clinician is ultimately responsible for the patient, the model now used is that it is the physician who is physically with the patient has the final say. Another key challenge to overcome is that staff working at the site may feel that the cameras are intrusive. Patients may be self-conscious too. To address this issue, VISN-23 has arranged it so that when the camera is not activated it faces the wall, not the patient, and patients are often phoned before the camera is turned on. Two way cameras are also used, so that people on-site can see and hear who is monitoring and providing their care.

104. Bonello, R, VA Midwest Healthcare Network Tele ICU Program, 2012, unpublished slideshow.



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*Figure 7.7 - Opportunity for transferable learning for the NHS: Telemedicine*

- **Telemedicine-based clinics can be highly effective for specific types of interventions and patient groups, provided relevant pathways are redesigned to take full use of the clinical and management capabilities that technology provides.**
- **There is value in taking incremental steps with clinical providers to introduce and bed-in the technology and its use as “the new normal”.**
- **It is desirable to use common technology platforms and approaches wherever feasible in terms of equipment, infrastructure and support arrangements.**

### 7.2 The Development of Telemedicine in the NHS

2020health’s earlier report ‘Healthcare without Walls’<sup>105</sup> provided an overview with case examples on the use of video-conferencing technology for NHS teleconsultations. The report described how when, well implemented, telemedicine technology could allow patients or clinicians to communicate with remote clinicians through a video conference link. This development in access to expertise improves equality, access and clinical outcomes through:

- facilitating rapid consultation;
- overcoming challenges of distance;
- reducing unnecessary travel;
- accessing managed clinical networks;
- delivering education and training for staff and the citizen.

In the long term, and with the appropriate common infrastructure, telemedicine could bring about a model that matches up demand and supply of clinical services, in an ‘ask the next available expert’ mode. The report identified a range of examples where teleconsultation is of major benefit:

- where patients are limited in their ability to travel – e.g. in prisons, nursing homes;
- where specialist acute opinion is needed urgently for medical diagnosis but may not be readily physically available, such as out of hours stroke care and burns management;
- where specialists cover a wide geographic area;
- for patient convenience and confidentiality (e.g. consultations in mental health).

With greater specialisation of services, patients are increasingly being drawn to centres of excellence. The development of teleconferencing capabilities by such Trusts provides one way of avoiding large amounts of travel by patients or specialists, as illustrated below by Great Ormond Street Hospital for children. This also shows the importance of a sound technical infrastructure in place across the enterprise.

As with telehealth, it has been found that project success goes well beyond simply installing and making best use of the equipment. It also requires expertise in service/care pathway design, change management, procurement, business case development, evaluation and technical interoperability. As the service gets main-streamed, there is a need to integrate technology into workflow management, realigning rewards/incentives and addressing clinical governance issues.

In the long term, telemedicine approaches are extending beyond a traditional medical specialist model to one where video conferencing takes place from GP practices or other community hubs and potentially into patient homes. In identifying its easy win initiatives, the NHS ‘Digital by Default’ report<sup>106</sup> introduced in chapter 4 outlined several areas where some form of video consultation service would reap benefits:

105. Cruickshank, J. What can the NHS learn from experience at the US Veterans Health Administration? 2012, London: 2020health Available at <http://www.2020health.org/2020health/Publication-2012/NHSit/Telehealth.html>

106. Digital First, What is digital first? [Internet] 2012, [Accessed February 2013] Available at <http://digital.innovation.nhs.uk/pg/dashboard>

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- “On-line assessment for minor ailments in primary care - by directing patients with minor ailments and long-term conditions to an on-line interactive triage service, augmented with video consultation for some functionality, an estimated 1 appointment per day per 1,000 patients can be conservatively saved”. (p.12-13)
  - “Remote follow-up appointments in secondary care – of the 22M follow-up appointments held every year, up to 75% could be held remotely by telephone or by Skype (p. 22)”
- The NHS exemplars described below cover the following case studies:

Figure 7.8 – List of NHS Exemplars: telemedicine

| Area   | Exemplar                                      |
|--|---|
| Telemedicine to prisons, nursing and care homes                      | 7.A Airedale NHS Foundation Trust             |
| Telemedicine for national virtual consultations                      | 7.B Great Ormond Street Hospital for Children |
| Heart & stroke telemedicine network supporting 24/7 emergency triage | 7.C North West Heart & Stroke Network         |
| Telemedicine for primary care consultations                          | 7.D Hurley Group                              |



Figure 7.9 Patient using video conference technology at Airedale NHS Foundation trust

## 7 Telemedicine

### 7.A Airedale NHS Foundation Trust

Airedale has a well-established commitment to the delivery of healthcare remotely through video conferencing technology. Notably, since 2006, the Trust has delivered a telemedicine service to over 20 UK Prisons, providing a range of outpatient and emergency care services. Through the use of video conferencing they have been able to: improve the range and scope of care delivered to the prison; improve access to specialist opinions for the onsite medical team; reduce bed watch and escort costs; reduce the health care pathway from multiple visits to single visits to hospital; as well as improve the quality of the healthcare provided. Moreover, the fact that prisoners need to leave the site less often for health care needs means there has been a reduced risk of disruption to the wider community.

In 2011, Airedale set up a new telemedicine infrastructure,<sup>107</sup> with funding support from the Yorkshire & the Humber Telehealth Hub (see case study 6.C). It is an innovative, unique and secure video-conference based service with NHS clinical response. This allows two way video consultations between healthcare professionals, patients and carers to support the delivery of clinical care outside of hospital. The systems are mainly deployed into patient homes or nursing and residential care homes and have largely been designed for those with long term conditions. This service is used to reduce length of stay, support early discharge and avoid unnecessary admission to hospital providing 24/7 responsive care to patients.

Whilst this service is still new, which means the use cases and evidence base is still emerging, there has, to date, been generally high levels of patient satisfaction, with some reduction in hospital admissions through transformed urgent care pathways.

This scheme has also highlighted obstacles that will need to be overcome to secure the successful implementation of video-teleconferencing in the UK. Services were in some cases difficult to get off the ground due to reluctance to change working practices as well as GP concern about displacing their own role in the delivery of some services. It has also proved challenging for the Trust to build the service up to a sufficient scale yet to reduce the bed base and free up resource for investment in community services.

### 7.B Great Ormond Street Hospital for Children, telemedicine for national virtual consultations

Great Ormond Street Hospital (GOSH) is an international tertiary centre of excellence concentrating on children, half of whose patients travel from outside London. They strive to deliver excellent patient service and continually improve outcomes with “no waits, no waste and no harm”. There are many factors which contribute to their success, key technology contributors being mobility and communication. They have been enabled by effective data, voice and video infrastructure.

For instance, a few years ago, e-prescribing was launched at the hospital using mobile computers and a basic wireless network. The signal was often too weak, or non-existent, which caused problems, making the service unreliable.<sup>108</sup> In short, the network challenges that GOSH faced were preventing them from adopting new technologies for improving care and efficiency.<sup>109</sup>

GOSH then underwent a fundamental overhaul of their IT infrastructure and e-prescribing now works effectively. The setting up of this fundamental infrastructure has also enabled GOSH to introduce a high quality video conferencing service throughout the hospital. The video-conferencing service can also be used to save patient and clinician journeys, as appointments can be held via video link. This is particularly useful for GOSH as they have many patients who travel long distances to receive their specialist care.

Using the video-enabled network,<sup>110</sup> longer term patients with parents staying in the patient hotel can talk to each other over a video link, particularly useful in cases of isolation. Not only is video transforming the patient experience but also the clinician experience as it is increasingly used for multidisciplinary team meetings. Clinicians will be able to join remotely using the same high quality video links and management technology, and the same technology can also be used to monitor theatre sessions from whichever desk you are at and also to deliver assistance or training.

107. Airedale Digital Healthcare Centre, Homepage [Internet] undated [Accessed February 2013] Available at <http://www.airedaledigitalhealthcarecentre.nhs.uk/>

108. Read C, Open Roads: The traffic on NHS computing systems is surging – and needs infrastructure that can cope, 2012, The Health Service Journal, 27th September 2012. Available at [http://www.hsj.co.uk/Journals/2012/09/26/m/i/r/LO-RES\\_HSJEFF\\_120927.pdf](http://www.hsj.co.uk/Journals/2012/09/26/m/i/r/LO-RES_HSJEFF_120927.pdf)

109. CISCO Hospital Accelerates Digital Transformation [Internet], 2012, [Accessed February 2013] Available at [http://www.cisco.com/en/US/prod/collateral/video/ps9339/ps6682/great\\_ormond\\_sh\\_ecds\\_cs.pdf](http://www.cisco.com/en/US/prod/collateral/video/ps9339/ps6682/great_ormond_sh_ecds_cs.pdf)

110. Ibid

## 7 Telemedicine

The rehauling of their IT infrastructure has also meant that electronic notes can be taken at the bedside and a radio frequency identification (RFID) system has been developed allowing assets to be tracked within a close range, such as wheelchairs.<sup>111</sup>

### 7.C North West Heart & Stroke Network

Telemedicine has been implemented both nationally and internationally to improve patient access to recommended treatments. National guidance<sup>112</sup> around the governance for the use of telemedicine in acute stroke has been developed and is utilised to support 24 hour stroke specialist advice either at a single site, or across multiple organisations.

Telemedicine, when used in stroke care, provides a real-time audio-visual conferencing system that allows specialists in stroke to remotely assess patients, to view their CT brain images and recommend appropriate treatment. This enables the stroke consultant to remotely provide their expert clinical opinion and advice to the local clinical teams on the patient's suitability for thrombolysis.

The use of telemedicine technology for the care of stroke has been successfully established in networks across the country, most notably in Lancashire and Cumbria.<sup>113</sup>

The National Stroke Strategy in 2008 recommended that stroke thrombolysis should be delivered 24/7. Within Lancashire and Cumbria, only one of the eight local hospitals offered a limited stroke thrombolysis service. By 2010, stroke thrombolysis was provided in all the other sites, but only during core hours of 9am-5pm, Monday to Friday, due to a shortage of suitably experienced stroke clinicians.

Time factors and the rural nature of parts of Lancashire and Cumbria ruled out the possibility of establishing a hub and spoke model to provide an equitable service, so an out of hours solution utilising Telemedicine was developed. This means that those patients who have suffered from strokes can have access to expert advice and stroke thrombolysis 24/7. This allows patients to receive local bedside care in small District Hospitals, ruling out the necessity of having to be transferred to specialist centres. The service went live July 2011.

Lancashire and Cumbria have developed a strong integrated IT and technology Network service. Across eight hospitals sites, they have installed High Definition (HD) Telecarts, cameras and screens which allow audio/visual conferencing between clinicians and patients for advice calls, telestroke assessments and thrombolysis. CT scans, vital signs and clinical triage information can also be sent online to the specialist clinicians.

Lancashire and Cumbria have estimated that the NHS and social care savings are modelled at over £8m (\$13m) due to a reduction in long-term disability costs. Moreover, services can be delivered by the existing workforce, with a shared rota across the eight hospitals. The Telestroke service has proven a success with 182 patients thrombolysed and 460 patients assessed since the beginning of the service. The success of the service has been nationally recognised and is being expanded to include another hospital site from January 2013.

Furthermore, the telemedicine service has now been developed as "video as a managed service" across 450 sites in the region connecting some 90,000 users, capable of being extended into the home. It is now being used, for example, in speech and language therapy and renal home dialysis.

111. Reed, Op Cit

112. NHS Improvement, Stroke Improvement, [Internet] 2013, [Accessed February 2013] Available at <http://www.improvement.nhs.uk/stroke/> and NICE, Diagnosis and initial management of acute stroke and transient ischaemic attack (TIA), [Internet] 2008, [Accessed February 2013] Available at <http://www.nice.org.uk/CG68> specifies that "Assurance that the telemedicine facility, and its usage in the delivery of thrombolysis for eligible patients, is fully integrated within a comprehensive, effective and safe stroke service".

113. Blacker, K and Hartley, G, Telestroke: How to Save a Life. Undated, Unpublished slideshow.

114. ???



## 7 Telemedicine

### 7.D The Hurley Group, Telemedicine for primary care consultations

The Hurley Group is an NHS Partnership led by practising GPs and is the largest provider of GP services in London. They already offer on-line registration, appointment booking, repeat prescription and access to medical records. Through the effective use of technology, the group intends to radically change the relationship between patient and GP, increase the take up of self-care by patients and so transform access to GP services.<sup>115</sup>

This desire for change was prompted by a belief that today's GP provision focused around a predominantly face-to-face consultation model, which is unsustainable. Rather, many people, particularly those who are younger and are IT literate, would often prefer to be managed remotely.

In addition to providing information rich websites including videos to help promote better self-care, the group is developing three types of services to patients:

- For 72 of the most predictable minor conditions, questionnaires and templates are being developed for patients to complete on-line. In this way, history taking is streamlined and potentially reduces a 10 minute face-to-face consultation to a one minute e-consultation.
- Conduct GP appointments via webcam, integrated in with local practice systems so that patients can queue in a virtual waiting room. A high proportion of GP consults result in a diagnosis without a physical examination and can therefore easily and effectively be carried out using a webcam.
- Clinician to clinician telemedicine – to avoid unnecessary secondary referrals, GPs can connect to and tap into the expertise of their GP colleagues, and where appropriate pull in secondary care consultants. In time, this could be extended to social services, virtual wards and mental health services. This will assist in standardising referral thresholds through consensus, directing the local GP educational agenda and help CCGs fine tune care pathways.

*“With increasing patient expectations, we are evaluating elements of what happens today in a GP consulting room and developing ways to deliver this safely on-line. This will be preferable to many of our patients and more efficient for GP practices.”*

**Dr Arvind Madan, Hurley Group GP Partner**

*Figure 7.10 - Opportunity for transferable learning for the VHA: Telemedicine*

- The VHA could consider the applicability of the different NHS exemplars and their relevance to the needs of VHA patients – e.g. streamlining primary care assessments, the role of heart & stroke networks, the use of telemedicine in tertiary centres and prisons, smoking cessation campaigns.

*Figure 7.11 - Opportunity for scale and spread in the NHS: Telemedicine*

- Telemedicine represents an early way for clinicians to get enthused by the potential of digital health.
- NHS organisations should aim to adopt the examples in the Digital First report – e.g. around the streamlining of primary care assessments.
- There is a need to look at a range of video-conferencing approaches for telemedicine according to need and cost envelope, reusing where possible existing video conferencing facilities used for staff training and management.
- Other heart & stroke networks should aim to replicate the success of the North West and develop a 'video as a service'.

115. Hurley Group, Telchealth Strategy, [Internet] 2011, [Accessed February 2013] Available at <http://www.hurleygroup.co.uk/telchealth-strategy/>

## 8 Mobile Health

This section describes the strategy and development of mobile health in the VHA and NHS health systems respectively.

### 8.1 The VHA's development of mobile health

The VHA considers mobile health to be one of the most important of recent developments in healthcare. VA's mobile health activities aim to improve the health of Veteran patients by providing technologies that will expand clinical care beyond the traditional office visit, engaging with and empowering Veterans and family caregivers in the management of and behaviours that affect their health and well-being. The initiative underscores VA's commitment to transforming the way care is delivered and improving health care coordination between Veterans and their health care team.

As part of VA Mobile Health, the Department will release a series of secure applications (apps), which will leverage the popularity of wireless technologies to support for three distinct groups: Veterans, family caregivers and VA clinicians. Each set of apps focuses on empowering users with the set of tools they need to facilitate, manage and organize their health care information. The tools are designed to improve data sharing and increase the value of communication between Veteran patients and VA clinicians.

The organisation leads US federal initiatives in this field, recognising that for both patients and providers, mobile technology has the capacity to revolutionise health management while enhancing care coordination at all levels. Wireless technologies are promising efficiency gains and long-term cost reductions. Moreover, the pervasiveness of mobile technology with internet access is only set to increase. There are over 1 billion 3G subscribers worldwide today, and the figure is predicted to rise to 2.8bn by 2014.<sup>116</sup>

### Patient-Centred Care

Because mobile devices can be accessed anywhere, anytime by Veterans, they provide a means to extend VA healthcare beyond the traditional office visits and so have the potential improve patient care by:

- Improving access to care and improving communication between patients and their health care teams
- Proactively engaging patients in healthcare prevention, education and self-management through patient activation<sup>117</sup>

The Robert Wood Johnson Foundation's (RWJF) ProjectHealthDesign<sup>118</sup> study demonstrated that when patients used technologies such as mobile health apps are used to collect information and share it with their healthcare team, clinical care is improved. VA is employing multiple modalities to engage patients and will deploy these technologies across multiple platforms including mobile platforms. The RWJF study also found that providers were willing to use the data if it was properly filtered and presented. The transformation in healthcare will likely occur when consumer and clinician health apps connect – see figure 8.1 below. Computer-based algorithms, represented by the solid blue line in the figure, will be needed to assist in personalising patient disease self-management as well as support healthcare teams in managing the incoming stream of data from patients.

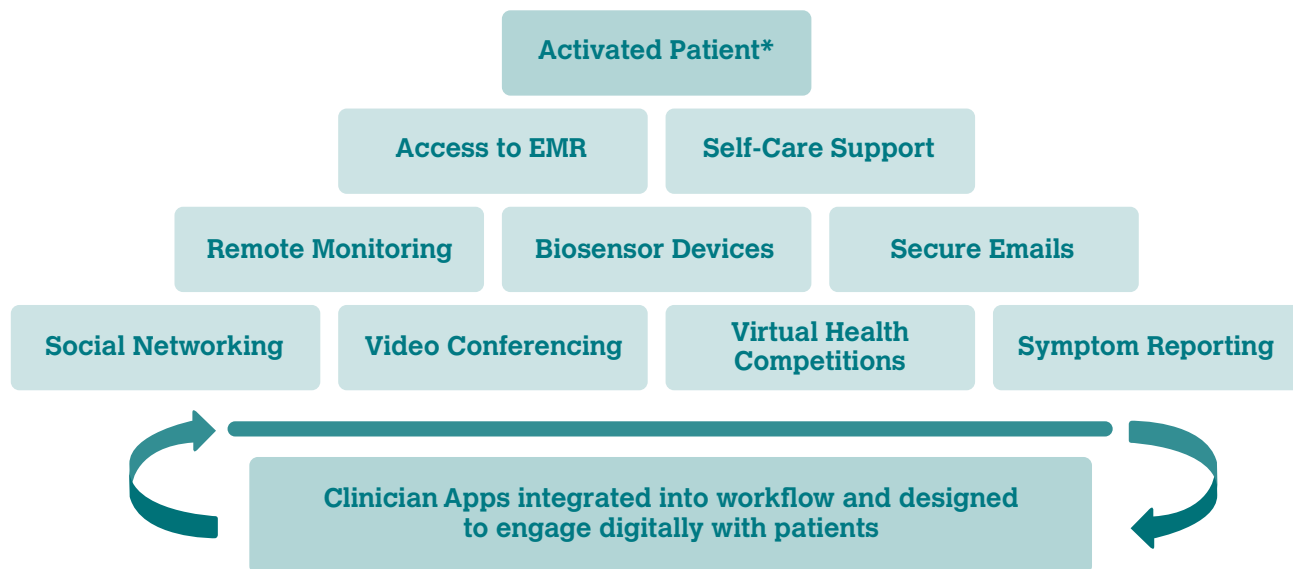
116. Research2Guidance, Homepage [Internet] 2010, [Accessed February 2013] Available at <http://www.research2guidance.com/>

117. Hibbard J et al, Development of the Patient Activation Measure (PAM): Conceptualizing and Measuring Activation in Patients and Consumers, 2004, Journal of Health Services Research. Available at <http://www.ncbi.nlm.nih.gov/pmc/articles/PMC1361049/>

118. Project Health Design, Homepage [Internet] 2012, [Accessed February 2013] Available at <http://www.projecthealthdesign.org/>



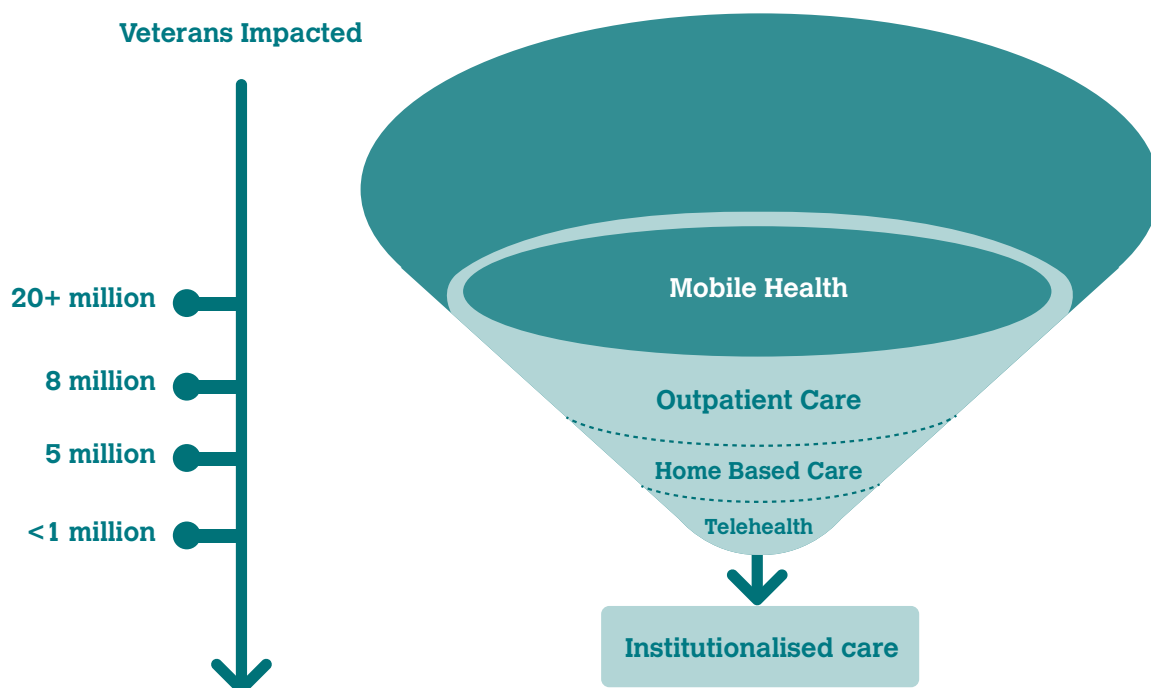
Figure 8.1 – The Activated Patient.



VA's mobile health programme is designed to engage the broad VA patient population expanding beyond the VA's Home Telehealth programme which targets patients at high risk for institutionalisation. VA depicts this using the funnel diagram in figure 8.2 below. The funnel represents the treatment system. At the top of the funnel are low-risk individuals, infrequent users of the treatment system;

further down the funnel are patients at higher risk, through to those at the bottom who have entered expensive institutionalised care. Mobile health is an engagement model that seeks to expand healthcare access to a broad range of individuals, even before they enter the treatment model, through preventative health initiatives.

Figure 8.2 – The Patient Funnel



## 8 Mobile Health

One of the biggest challenges of mobile health is dealing with the patient-generated data (PGD) being sent from patient's mobile devices to VA healthcare teams. Unlike Telehealth where incoming data is managed by a single care coordinator with a panel size ranging between 100 - 150, mobile health data will be transmitted by patients on provider / PACT panels of approximately 1,200. Overcoming this challenge requires:

- Standardising ways in which PGD is collected, stored, modeled and displayed.
- Standardising decision support algorithms that process PGD (both for patient problem solving and clinician decision support).
- Developing mechanism(s) to filter and review data types for integration into clinical systems.

### Provider benefits

For providers themselves, mobile technology is already being used as a portable tool for EHR access. Clinicians are often on the move: instant access to online records expedites medical decisions, and those decisions are more informed because patient medication and health history are immediately available. VHA clinicians will in time be routinely using health apps to meet their clinical work needs; such technology offers new ways of interpreting information and can increase the efficiency of workflow and support.

### Patient benefits

Health activated, app-savvy individuals are more inclined to take responsibility for self-care, but the technology they use has to integrate with that of the provider to ensure maximum benefit. The VHA wants to see enhanced patient-centred care, but they do not want their healthcare teams overloaded with patient data. Providers require efficiency and notification of problems as they occur; and they need to be able to send information back to patients where appropriate.

Figure 8.3 – PTSD Case Study



One of the most recent health-specific patient apps is the Post Traumatic Stress Disorder (PTSD) coach [request higher res picture], which has already been downloaded over 70,000 times world-wide. This award-winning app is an education and symptom management tool for those suffering the effects of trauma. Free to download, it contains clinically reliable information on PTSD and treatments, tools for symptom screening, tracking and stress management, and direct links to online support and help. The PTSD coach does not link into any VHA database and is designed as a complement to, not replacement of, professional care.

Source: Department of Veterans Affairs, Mobile App: PTSD, [Internet], 2012, [Accessed February 2013] Available at <http://www.ptsd.va.gov/public/pages/ptsdcoach.asp>

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### VHA mHealth strategy and vision

The VHA's Mobile Strategy has been designed to meet four major goals:

1. To produce a secure environment for deploying mobile apps which is accomplished through the mobile architecture that allows Veterans to access their health data from outside of the VHA through secure tunnels.
2. To create the infrastructure that supports collaborative, mobile applications development with shared services to foster standardization. The development of VHA mobile health apps is open source, and during 2013 the VHA will launch app libraries to give both staff and Veterans easy access to free approved apps.
3. To design apps, not as discrete entities but as suites of apps that work together to meet the objective of delivering better healthcare to our Veterans.
4. To assure quality control, all VA apps must undergo a certification review before they can be published using the VA license or to the VA App library.

***"We don't want to create the 'amplification of medical care'; if everyone builds apps in discrete silos, we end up with the fragmentation of care. What we're trying to do in the VHA is build up apps that will work together. When an app is created, it is created by thinking about the larger suite of apps."***<sup>119</sup>

**Kathleen Frisbee, VHA Director of Web and Mobile Solutions**

An important element to the approach has been to develop apps with the involvement of patients, caregivers and providers. While users may not know what they want until they see it, consultation has helped the VHA identify the priority apps and keep user-friendliness at the forefront of design. The VHA has worked closely with the contracting firm AgileX in the development of mobile apps. One of AgileX's initiatives was the 'Launch Pad' concept, which begins with the automatic housing of downloaded VHA apps into a single folder. The apps are able to 'recognise' each other, allowing single-sign-on capability across the entire suite held in the folder. From the provider perspective, the Launch Pad enables context management between apps, so that a clinician viewing a patient in a pharmacy app can jump across to the lab app with the same patient. Launch Pad also allows for a quit and resume function, so that any operation begun within the app is stored for continuation next time.

VA Mobile Health is driven by a series of pilots to assess the technologies designed to increase the convenience of health care management and strengthen communication among Veteran patients, family caregivers and VA clinicians. The pilots support a range of health care management tools, facilitate day-to-day administrative needs and expand education and communication. Figure 8.4 summarises the key pilots:

119. Hasson, J. A Bets On iPad Pilot To Track Veteran Care, [Internet] 2012, [Accessed February 2013] Aol Government, 7th June 2012 Available at <http://gov.aol.com/2012/06/07/va-bets-on-ipad-pilot-to-track-veteran-care/>

## Making Connections

# 8 Mobile Health

Figure 8.4 – Key VHA Mobile Health Pilots

| Pilot and timing  | Description   |
|---|---|
| <b>VHA Mobile Health Clinician pilot:</b><br>Completed late 2011            | Delivered mobile solutions to VA clinicians, making critical information from a patient's electronic health record available in real-time and on-the-go. It successfully provided mobile access to patient information, improved accessibility, productivity and workflow for pilot participants, and analyzed security related issues. The pilot formed the basis for VA to move forward with an enterprise-wide deployment of Mobile Health Apps for clinicians.  |
| <b>VHA Mobile Health Family Caregiver pilot:</b><br>Beginning in early 2013 | During the pilot, VA will loan to over 1,000 interested Family Caregivers iPads pre-loaded with VA Mobile Health Apps designed and created to support their needs and the needs of the Veterans for whom they care. It will allow for secure, two-way exchange of health-related data between clinicians, patients and caregivers, including key clinical information, disease management support, and management of care (such as prescription refills). Based on an evaluation of the pilot in terms of the impact on caregiver burden levels and Veteran health care utilisation, VA plans to make the suite of apps available so all Veterans and caregivers have access to them. |
| <b>VA Mobile Health Browser pilot</b>                                       | Pilots to develop apps that run on mobile browsers across multiple mobile platforms in several locations will be run, empowering clinicians, caregivers and Veterans with the tools they need to better manage their healthcare information. The pilot will allow Veterans to export their data and make online requests for primary care and mental health appointments.   |
| <b>VHA Mobile Display of Patient Data:</b><br>Beginning in late 2012        | The VHA began developing apps for enterprise deployment to both VHA clinicians and Veterans and their caregivers, complement the functionality available in the EHR. Some apps are designed around the concept of consolidating the tasks associated with discrete workflows, such as wound care or immunizations into a single app. The pilot also involves developing new apps for Veterans that support transmitting data from devices such as glucose meters, and weight scales back to the VA healthcare team. The VA will also roll out its first app that employs virtual games to improve health status indicators.   |
| <b>VHA Mobile Scheduling Apps</b><br>Beginning in late 2012                 | The VHA began developing mobile apps for scheduling of appointments by Veterans and VHA scheduling personnel. These apps will provide text messages to remind patients of upcoming appointments and allow scheduling personnel to securely email patients about appointment requests as well scheduling incoming appointment requests. These apps are designed to work across mobile and desktop browsers.  |
| <b>VHA Mobile Imaging</b><br>Later part of 2013                             | The VHA plans to launch a mobile imaging initiative which will allow clinicians to provide diagnostic quality reviews of radiology images on their mobile devices.  |

## Making Connections

# 8 Mobile Health

Further information on the overall roadmap for the mobile application development is available from the VHA's Director of Mobile Health Solutions, Kathy Frisbee.

*Figure 8.5 - Opportunity for transferable learning for the NHS: Mobile Health*

- Apply the principles of the 'patient funnel' to promote innovative ideas for mobile health and apps, and develop test beds to trial ideas.
- Build on pilots and established good practice to co-create apps with users – whether patients, carers and clinicians – rapidly evaluating them to assess effectiveness.
- Use recognised infrastructure for the systematic development of apps as part of an overarching e-technology framework to ensure a seamless experience for users, e.g. use of 'launch pad', common security arrangements.

### 8.2 The NHS's development of mobile health

The NHS considers mobile health to be one of the most important of recent developments in healthcare. The NHS Information Strategy 'The Power of Information' described an ambitious plan to make much more use of

mobile technology. It provided useful background on the sale of mobile usage in the UK:<sup>120</sup>

"There are now more active mobile phone subscriptions (80m) than people in the country, with over 90% of us having at least one mobile phone. Over a quarter of UK adults now have a smartphone, and 23% of our online surfing is now via a mobile device."

As part of orienting future healthcare services around individuals, the Information Strategy commented that: "We will be offered online and mobile access to records, electronic communication with our professional teams, health and care transactions online, and the ability to rate services and provide feedback in ways which are convenient to us."

As well as the document describing a strategic direction to enable mobility for patient, it also encouraged the development of further solutions to support mobile working especially in community care, which has been the subject of several projects over recent years.<sup>121</sup> In the same vein, the NHS Digital by Default report drew attention to the significant improvements in productivity possible through mobile-enabled community care.<sup>122</sup>

In the remainder of this section we look at how major NHS on-line services designed for patients have developed to support mobile usage and their future strategy, and then look at a number of exemplars where mobile-enabled telehealth solutions are making a material impact:

*Figure 8.6 - NHS Best Practice Exemplars around mobile health*

| Area  | Exemplar                                       |
|---|--|
| On-line health checker / apps                     | 8.A NHS Direct                                 |
| Health & wellness apps                            | 8.B NHS Choices                                |
| NHS apps initiatives                              | 8.C NHS Customer Service Platform and NHS apps |
| mHealth supporting patients with early stage LTCs | 8.D Simple Telehealth                          |
| Mobile solutions supporting telehealth            | 8.E Safe Mobile Care                           |
| Supporting care planning through digital media    | 8.F NHS Local                                  |

120. Ofcom, Communications Market Reports, [Internet] 2012, [Accessed February 2013] Available at <http://stakeholders.ofcom.org.uk/market-data-research/market-data/communications-market-reports/>

121. NHS Connecting For Health, NHS Mobile Working Knowledge Centre, [Internet] 2013, [Accessed February 2013] Available at <http://www.connectingforhealth.nhs.uk/systemsandservices/qipp/mobile>

122. Digital First, Op Cit pp18-20

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### 8.A On-line Health Checker / Apps - NHS Direct

The NHS Direct service was launched nationally in 1997 and provides a national health line, providing health advice, information and reassurance, using telephone and digital services.<sup>123</sup> NHS Direct also acted as the lead agency in providing call centre and web service support for the swine flu pandemic of 2009-10<sup>124</sup> with 2.7m people using its on-line checker for swine flu. The on-line services have now grown to support 10m users per year<sup>125</sup> and NHS Direct claim the following benefit in terms of channel shift: “Of the web users receiving self-care advice, 33% would have gone to see their GP, and 4% would have gone to A&E if NHS Direct had not been available”. Based on statistics for 2011,<sup>126</sup> the 10m annual uses of its on-line health and symptom checkers included 15% from smart phone devices. The report noted that it had led to a corresponding drop in telephone activity of about 15% to around 4m calls a year.



Figure 8.7 NHS Direct app

Source: Alamy from Dillner, Should I use health apps? [Internet] 2013, The Guardian [Accessed February 2013] Available at <http://www.guardian.lifeandstyle/2013/jan/20/should-i-use-health-apps>

“NHS Direct has developed a suite of 40 on-line health and symptom checkers (H&SC). The H&SCs provide self-care advice, so that patients can manage their symptoms at home, get advice on the most appropriate health service to contact, or the option to ‘click’ to get a call back from an NHS Direct nurse advisor (click-to-call back). It has

launched a free mobile app for iPhone® and Android™ smartphones so people can access trusted health advice wherever they are. It also offers an on-line enquiry service, providing personalised responses to non-symptomatic health information requests. This service handles around 35,000 requests a year.”<sup>127</sup>

### 8.B Health And Wellness - NHS Choices

NHS Choices is the on-line 'front door' to the NHS through its health website and gives information to enable patients to make choices about their health.<sup>128</sup> Its service started in 2007 and has been continually enhanced since then, for example more than 100 interactive tools or apps are now offered.

The October 2012 website statistics make impressive reading:<sup>129</sup>

- Total Visits 19.7M – month-on-month growth of 20.48%
- Total Visitors 13.8M - month-on-month growth of 17.01%
- 17% market share of health on-line, with NHS Direct c.1%
- Site satisfaction rates at 89%<sup>130</sup>

Furthermore, based on other published statistics for 2011,<sup>131</sup> more than 60% of the UK population search for health information on-line, and almost 50% of those people are looking to self-diagnose. NHS Choices accounts for over 50% of all traffic to nearly 500 on-line health and wellbeing sites accessed by UK citizens.

An important feature of NHS Choices is its ability to support on-line communities of people with specific diseases. Working with a third party information intermediary, HealthUnlocked,<sup>132</sup> and also with trusted patient groups and charities to provide a high degree of

123. NHS Direct, Homepage [Internet] 2013, [Accessed February 2013] Available at <http://www.nhsdirect.nhs.uk/>

124. NHS Direct, Swine Flu and NPFS, [Internet] 2013, [Accessed February 2013] Available at <http://www.nhsdirect.nhs.uk/members/membersmagazinearchive/togetherautumn09/swinefluandthenpfs>

125. NHS Direct, Facts and Figures, [Internet] 2013, [Accessed February 2013] Available at <http://www.nhsdirect.nhs.uk/news/factsandfigures>

126. Digital First, Op Cit p7

127. NHS Direct, Facts and Figures, [Internet] 2013, [Accessed February 2013] Available at <http://www.nhsdirect.nhs.uk/news/factsandfigures>

128. NHS Choices, Homepage, [Internet] 2013, [Accessed February 2013] Available at <http://www.nhs.uk/Pages/HomePage.aspx>

129. NHS Choices, Performance Report, [Internet] 2012, [Accessed February 2013] Available at <http://www.nhs.uk/aboutNHSChoices/professionals/developments/Documents/2012/performance-report-october2012.pdf>

130. NHS Choices, Improving health, improving lives, NHS Choices annual report 2011, [Internet] 2011, [Accessed February 2013] Available at [http://www.nhs.uk/aboutNHSChoices/professionals/developments/Documents/annual-report/Annual\\_report\\_2011\\_digital.pdf](http://www.nhs.uk/aboutNHSChoices/professionals/developments/Documents/annual-report/Annual_report_2011_digital.pdf)

131. Digital First, Op Cit p7

132. Health Unlocked, Find Your Community [Internet], 2013, [Accessed February 2013] Available at <http://www.healthunlocked.com/nhschoices/>



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moderation, “web-based tools help gather the knowledge and experience of patients and share it with a wider patient audience. The information and sense of support can reduce the isolation and fear of people facing chronic conditions.”<sup>133</sup>

The NHS Information Strategy ‘Power of Information - Impact Analysis’<sup>134</sup> comments on the benefits for patients from NHS Choices:

“In an on-line survey carried out on NHS Choices in March 2011, with 1,851 respondents, nearly two thirds of these said that they used NHS Choices in conjunction with a GP visit – before, during or after. Visiting NHS Choices led to 27% of respondents claiming to have made fewer trips to their GP – increasing to 36% for those who use the site solely before an intended appointment.”

There are a wide range of other NHS developments which allow patients to access information around the quality of care through on-line and mobile apps. For example, the award winning ‘myhealthlondon’ website<sup>135</sup> was launched in 2011 allowing patients to easily find and compare the quality of health across the capital and to participate and provide feedback through a range of apps. Both those providing and those receiving the care now have objective information about how good of their care is, including other people’s opinions.

### 8.C NHS customer service platform and NHS Apps

The Information Strategy also outlined plans to move from the current range of NHS on-line services towards a single on-line patient portal:

“As a patient or service user – I will be able to find the information I need through a single trusted place. I will be able to use the national information portal on the internet to understand my symptoms and what I can do to manage them, and also to identify services that I may want to approach. I will be able to access information relating to different services or clinical teams to make an informed choice about my care.” (p. 50)

“In future there will be just three main ways for patients and service users to access help and information at the national level...(including) a comprehensive on-line

‘portal’ – bringing together the best of the relevant information and on-line services currently provided by the existing national web services: NHS Choices, NHS Direct on-line, NHS 111 on-line content and HealthSpace. This will act as a ‘front door’ to the best information on health and care available on the internet”. (Para 4.37)

Plans for a new customer service platform, bringing together the new online portal with the NHS111 telephone service were set out by NHS Commissioning Board Director for Patients & Information, Tim Kelsey, in September 2012:<sup>136</sup> “Existing services will be consolidated into a contact portal which would allow patients to relay feedback on services via the phone, web, email and social media. The portal will bring together NHS choices, NHS Direct and NHS111”.

Furthermore the NHS Commissioning Board is proposing that the NHS might develop an online tools and apps platform for health and care. The purpose of the tools platform would be to:

- To make it easier for UK citizens to find appropriate health and care apps, particularly to help people manage long term conditions
- To provide a degree of quality assurance
- To help app developers promote their apps

As plans develop around future NHS apps stores or catalogues, important grass roots initiatives are emerge. For example, the recently established HANDI<sup>137</sup> initiative seeks to put health and care professionals, patients and careers with good ideas in touch with developers and others who can make their ideas a reality. In so doing, HANDI aims to ensure the technical, regulatory and cultural barriers to app development and implementation are removed and an ecosystem to support healthcare apps developed.

133. DH, The power of information: putting all of us in control of the health and care information we need [Internet], 2012 Para 4.47 [Accessed February 2013] Available at [http://www.dh.gov.uk/en/Publicationsandstatistics/Publications/PublicationsPolicyAndGuidance/DH\\_134181](http://www.dh.gov.uk/en/Publicationsandstatistics/Publications/PublicationsPolicyAndGuidance/DH_134181)

134. Ibid p49

135. Myhealthlondon, Homepage [Internet], 2013, [Accessed February 2013] Available at <http://www.myhealth.london.nhs.uk/>

136. Ilman, J, NHS info chief predicts US-style revolution [Internet] 2012, [Accessed February 2013] Health Service Journal, 27th September 2012

137. HANDI, Homepage [Internet] 2013 [Accessed February 2013] Available at <http://www.handihealth.org/>

## 8 Mobile Health

### 8.D Simple Telehealth<sup>138</sup>

Developed by NHS Stoke as a mHealth solution supporting patients with early stage LTCs or other co-management plans, Simple Telehealth (STH) quickly gained local buy-in and its use has grown throughout the West Midlands area and well beyond.

STH is a low level of tele-healthcare designed to support patients to be better able to maintain or improve their health by using their own mobile phone to improve adherence and participation in their healthcare with a combination of reporting various parameters, reminders for medications and other actions or reinforcing patient education. The overall aim is to increase the patients understanding of their health, enabling them to take control and act appropriately when required, that may mean altering their treatment as previously advised or seeking professional help at the appropriate time.

STH works by a secure server 'Florence' texting out periodic reminders to patients to text their readings. A patient, with hypertension for example, would read their blood pressure from home using an electronic sphygmomanometer. They then text their results to Florence, which can be reviewed by GPs and nurses locally or at a central location. Using SMS text, Florence reminds patients to take action and provides instant advice and instructions in line with existing clinical pathways and protocols.

According to two recently published studies<sup>139</sup> of 124 patients in Stoke, it was found that:

- "Simple, interactive telehealth intervention was found to be an effective and acceptable way of quickly gaining control of blood pressure (BP) in hypertensive individuals — even among those who had been previously difficult to engage.
- This simple telehealth strategy for managing hypertension in the community was met with high levels of patient satisfaction and feelings of control and support.

- This management approach should thus be considered for widespread implementation for clinical management of hypertension and other long-term conditions involving monitoring of patients' bodily measurements and symptoms as a large number of meaningful readings can be obtained from many patients in a prompt, efficient, interactive and acceptable way."

In this way, the approach is also being used as a prevention method for promoting good lifestyle habits, for example smoking cessation. Furthermore, it has also been used successfully to support mental health patients in terms of medication compliance and emotional / psychological support.

*"Flo is actively supporting the need to look holistically at patients in line with the QIPP LTC workstream."*

**Sir John Oldham, National Clinical Lead – Quality and Productivity, Department of Health**

### 8.E Safe Mobile Care

One of the pioneers in this space is 'Safe Patient Systems' Ltd, an independent company which span out of the Heart of England NHS Foundation Trust's Research & Development department. Their telehealth solution 'Safe Mobile Care' is a mobile solution that empowers patients to manage their condition at home while allowing healthcare professionals to safely monitor and prescribe for their condition remotely.<sup>140</sup> The company has successfully won some of the larger NHS telehealth contracts, including in Bristol (3,000 patients) and Somerset (4,000 patients).

Reflecting their clinical roots, the solution aims to be patient-centric, covering a range of patients across the disease spectrum, including the sickest 20%.

138. NHS Networks, About Us [Internet], 2013 [Accessed February 2013] Available at <http://www.networks.nhs.uk/nhs-networks/simple-telehealth/about>

139. Cottrell, E, Chambers R and O'Connell Phil, Using Simple Telehealth in Primary Care to reduce blood pressure a service evaluation [Internet], 2012 [Accessed February 2013] Available at <http://bmjopen.bmj.com/content/2/6/e001391.full> and Cottrell, E, Chambers R and O'Connell Phil, A Cross Sectional Survey and service evaluation of simple telehealth in primary care: what do patients think? [Internet], 2012 [Accessed February 2013] Available at <http://bmjopen.bmj.com/content/2/6/e001392.full>

140. Safe Patient System, Homepage [Internet], 2013 [Accessed February 2013] Available at <http://www.safepatientsystems.com/>

## 8 Mobile Health

Safe Mobile Care provides a low cost, rapidly scaleable solution based around a mobile device, making it familiar to use for patients. Each patient's mobile phone is configured with their personalised care plan. Every day the medically accredited phones prompt patients to complete clinically validated questionnaires and automatically capture relevant vital signs using wirelessly connected monitoring devices.

Responses are triaged and, where appropriate, alerts generated and sent to the appropriate nurse or doctor by text message, email or a web site alert. They will then call the patient on the smartphone device or arrange a visit to advise what course of action should be taken and capture this intervention as part of the patient record.

The system also supports medication reminders, instructions, information and motivational messages, including the ability to embed or forward educational video content that can support coaching towards increased independent living.

A study in 2011 into its effectiveness at South Birmingham with 50 COPD patients showed a reduction in emergency hospital admissions of 58% and a substantial cost saving. The study also showed the benefits clinicians derive from basing decisions on much more regular information feeds; in some cases, these have facilitated earlier intervention.<sup>141</sup>

### 8.F NHS Local

NHS Local offers a range of digital services for NHS staff and the public in the West Midlands. It aims to increase awareness amongst the public about what a care plan means and how they themselves can be part of their care planning.

The idea of using a web platform to support people understand their health and make choices in order to improve or maintain their health is gaining momentum. Both the wider public and clinicians are realising the power of the web to inform, signpost and support people either with an LTC or at risk of developing an LTC to make positive behaviour changes to their lifestyle. Patients are targeted through risk stratification, given the ability to login, create a personalised care planning profile and be guided through signposting and information to better understand their health and what they can do for themselves to maintain or improve their health and well-being.

Through providing apps to the public, and with intent to offer a PHR integrated with the clinical record in the future, so it is hoped that patients and their carers will naturally start to interact with their clinicians.

*Figure 8.8 - Opportunity for transferable learning for the VHA: Mobile Health*

- **The VHA could appraise the opportunities from on-line and mobile platforms offering a single point of access for the public (not just registered users) to find out about patient services.**
- **It is valuable to incorporate patient feedback and choice into on-line and mobile directories of services, e.g. what's available nearby, social media tools.**
- **The VHA could consider the applicability of NHS-oriented mobile health approaches to the needs of VHA patients – ranging from SMS texting services for low-level telehealth needs and appointment reminders through to dedicated mobile platforms for higher need patients.**

*Figure 8.9 - Opportunity for scale and spread in the NHS: Mobile health*

- **Where services/solutions are at a relatively early stage in their innovation evolution, enough time and space needs to be allowed to let them reach maturity and be sustainable.**

141. Safe Patient Systems, Case Study: COPD, South Birmingham PCT & Safe Mobile Care, [Internet] 2011, [Accessed February 2013]  
Available at [http://www.chi.co.uk/img/resources0347/sbpct\\_case\\_study-v3.pdf](http://www.chi.co.uk/img/resources0347/sbpct_case_study-v3.pdf)

## 9 Personal health records and secure messaging

This section describes the strategy and development of personal health records, secure messaging between patients and their clinicians, and record access in the VHA and NHS health systems respectively.

### 9.1 Overview of VHA activities

MyHealtheVet is the patient's secure gateway to VHA health benefits and services. Its core function is that of an online Personal Health Record (PHR), allowing patients to create a personal health journal, and offering such facilities as secure messaging, prescription refill and appointment viewing.

Patient control of the sharing of personal health information is a central element of the PHR (see case study). The VHA have provided a 'blue-button' download service so that Veterans can keep digital copies or print-outs of their personal medical information. A 'basic' account holder can only download self-entered information; the 'advanced' account allows medical history download, whereas the 'premium' account offers the additions of past and future appointments, immunisations, lab results, allergies and reactions list, and wellness reminders.

### Secure Messaging

One of the most useful features of MyHealtheVet is secure messaging. This is more secure than standard email (see figure 9.1) and allows patients to make contact with appropriate staff members, whether requesting medical advice (e.g. about symptoms/side effects), blood test or imaging results, or requesting an appointment. At present, direct appointment booking is not possible through VHA secure messaging due to technical complications, even though this is the priority additional facility patients would like implemented. Secure messaging allows staff members to contact the patient also, but regardless of the direction of traffic, the service is reserved for non-urgent communication. The VHA's experience is that not every patient exercises good judgement in this matter, even if most do.

Figure 9.1 – VHA Secure Messaging vs Email

| Secure Messaging  | E-Mail   |
|---|--|
| Can only be sent to other Secure Messaging participants   | Can be sent to anyone with an e-mail address, on purpose or accidentally   |
| Messages are reputable because authorship is guaranteed   | Messages are not always reputable because authorship can be faked  |
| Messages can be made part of the patient's EHR  | Totally separate from patient health records   |
| Launched from MyHealthevet and Computerised Patient Record System (CPRS); requires no special software          | Requires the launch of a separate application or browser   |
| Does not require the user to have e-mail service<br>Automated escalation process to facilitate timely responses | Specific e-mail service required   |
| Self-contained within the MyHealtheVet system which resides behind VHA firewalls                                | By default, messages can sit in an inbox indefinitely<br>Requires an e-mail server that is usually shared with other systems |

## 9 Personal health records and secure messaging

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One of the initial concerns of secure messaging was that patients might inundate their local staff team with requests. This has not proved to be the case: generally no one uses secure messaging any more than they would use a phone service for the same ends. Typically, messages are read and triaged by an administrator, who may then forward the communication to a team member, whether pharmacist, nurse case manager or clinician. Staff are required to respond to the patient in no more than three business days.

improves accessibility and patient-provider collaboration; promotes patient self-management; and increases the efficiency of information sharing. Too often with phone systems, patients are required to repeat information as they are passed from clerk to nurse to clinician (often exposed to dreadful looped music in between times, no doubt exacerbating a range of health conditions!). Secure messaging ensures that one message finds the appropriate recipient, who deals with it in an efficient and timely manner.

### Scale of Uptake and In-Person Authentication

The portal is highly secure, since enrolment for the comprehensive PHR entails ‘in-person authentication’ (IPA). This requires a patient to visit a VHA centre in person with photo ID. Some Veterans will already have obtained an IPA pass during the course of a regular clinical visit.

Nationally, 455,000 patients with IPA have actively opted in to use MyHealtheVet. However, well over half a million more Veterans have lower-grade online accounts (‘basic’ or ‘advanced’, as opposed to ‘premium’) which do not require IPA; these patients are not, for instance, able to use secure messaging.

There is intention to move toward virtual authentication in the future to avoid the need for those Veterans in remote regions having to travel 100 miles or more to sign up in person for a PHR. Another plan is to grant MyHealtheVet access to identified surrogates, such as a spouse/caregiver. Presently, a caregiver has to log in using the Veteran’s own IPA codes, which technically is not allowed.

### Impact

The VHA’s target is for 15% of Veterans to be enrolled into the service, with an expectation that about one half of this number will seek authentication and become active users.

While some facilities have claimed a 30% reduction in face to face visits in primary care due to secure messaging, robust evidence is still emerging to substantiate claims of increased efficiency. This is partly because such information was not systematically collected by the VHA prior to the launch of secure messaging.

In terms of patient satisfaction, the service is highly rated. The VHA claim that MyHealthevet’s secure messaging

## 9 Personal health records and secure messaging

Figure 9.2 - Personal Health Record: VHA overview of patient preferences

A core value of the PHR lies in the ability of patients to choose those with whom they would like to share personal health information.

In a MyHealtheVet survey of 2011,<sup>142</sup> 79% of participants expressed interest in sharing some or all of their PHR with a family member, caregiver, or non-VHA health care provider.

Well over half of respondents (62%) indicated that they would share information with a spouse or partner. Two thirds of these were willing to share all components of their PHR, with equal or greater interest in sharing the single components of medication lists, schedule appointments and lab/study results.

A quarter of respondents expressed interest in sharing their PHR with an outside health care provider. Nearly half (49%) of these would want share all components of the PHR, while 57% would share the specifics of medication lists and/or laboratory (or study) results.

Most respondents registered interest in delegating specific PHR responsibilities, such as requesting prescription refills, scheduling appointments, entering health information and communicating with the care provider.

Users expressed less interest in sharing personally-entered health information, while the majority of respondents wanted their personal correspondence with the provider to remain confidential.

Patients also indicated that they thought it important that information they uploaded into their PHR, such as blood sugar or blood pressure levels over time, be downloadable as graphs that they could print and bring to a future doctor's visit.

Satisfaction with the MyHealtheVet system has been rated as high, with the overwhelming majority of users happy to recommend the service to other Veterans.

Figure 9.3 - Opportunity for transferable learning for the NHS: Secure Messaging and PHRS

- Secure messaging and PHRs are essential tools in empowering patients and improving self-care.
- A single record accessible to both clinician and patient supports integration and a co-created care plan.
- Patients overwhelmingly value transactional support rather than record access on its own.
- Authentication processes need to strike the right balance between security, governance and patient convenience.
- Careful attention is needed to back-end processes within practices and clinics, e.g. around response protocols to secure messages.

### 9.2 Overview of NHS activities

As introduced in section four, a central premise of the government's health reforms is to bring about a change in culture towards one of 'no decision about me without me'.

During 2011, the Government announced that by the end of this parliament (2015) all NHS patients will have online access to their personal GP records. So-called 'Record Access' is a key objective for enabling the individual greater involvement in the management of their health. In a small number of cases around the NHS, individuals are already managing their own 'Personal Health Record' (PHR) – an online record owned by the patient, allowing them to add and organise personal health information, as well as to integrate health records from different providers, and share this with other individuals and institutions at will. In this manner, PHRs represent an extension of the record access commitment introduced above.

The remainder of this section provides further context and case studies around NHS record access and PHRs. It draws extensively on material from 2020health's 2012 report 'Personal Health Records – Putting Patients in Control?'<sup>143</sup> and is structured as follows:

142. Donna M. Zulman, MD, MS; Kim M. Nazi, MA; Carolyn L. Turvey, PhD, MS; Todd H. Wagner, PhD; Susan S. Woods, MD, MPH; and Larry C. An, MD. Patient Interest in Sharing Personal Health Record Information. A web-based survey of 18,471 My HealtheVet users, 2011, *Annals of Internal Medicine*; 155 (12)pp805–810.

143. Cruickshank J, Packman C and Paxman J, *Personal Health Records: Putting Patients in Control?* 2012, London: 2020health, Available at <http://www.2020health.org/2020health/Publication/NHSit/Public-Health-Records.html>



## 9 Personal health records and secure messaging

Figure 9.4 - NHS Best Practice Exemplars around PHRs

| Area  | Exemplar  |
|---|---|
| Record Access - policy context and NHS exemplars  | 9.A Haughton Thornley GP Practice<br>9.B Renal Patient View |
| Personal Health Records exemplars - supporting shared care  | 9.C South London & the Maudsley<br>9.D eRedbook             |
| Integrated Care record owned by patient, that supports mobile health, secure messaging, care coordination | 9. E West Mercia Digital Portal - Health Fabric             |

### Record Access - policy context and NHS exemplars

In announcing on 13 November 2012 the new NHS Mandate to the NHS Commissioning Board, the Secretary of State for Health reaffirmed expectations from the Government concerning “better use of technology to help people to manage their health and control their care”.<sup>144</sup> He reaffirmed the goal that by March 2015:

- “everyone will be able to get on-line access to their own health records held by their GP
- everyone will be able to book GP appointments and order repeat prescriptions on-line
- everyone will be able to access their GP practice by email, with the option of e-consultations becoming much more widely available”

The earlier NHS Information Strategy had summarised the current situation around Record Access:<sup>145</sup>

“Currently, although over half of general practices use IT systems with the technical capability to provide us with electronic access to our own records, less than 1% offer this service. The picture is more advanced for practical on-line services that can make interacting with the health and care services simpler. Around 70% of general practices currently use IT systems that include options for booking appointments and ordering repeat medication on-line, and around 30% already offer these services.” (p20)

“The Government has engaged with the Royal College of General Practitioners (RCGP), to work in partnership with patient groups and other professional organisations to lead development of a plan to support people to access services and their records electronically. The NHS Commissioning Board will be asked to work with the RCGP and other partners to promote this work from 2013 onwards.” (Para 2.25)

### 9.A The Haughton Thornley practice<sup>146</sup>

The Haughton Thornley Medical Centre near Manchester believe that access for patients to GP health records is crucial for improving patient care, educating patients and ensuring that they are involved in their own healthcare as much as possible. The ultimate aim is the empowerment of their patients, who will be sufficiently equipped to participate further in the decision making processes within their own healthcare.

Since 2006 the practice has pioneered access for patients to GP health records. As of March 2012, 1,917 patients have on-line access to their GP electronic health records (16% of their patients).

Not only can patients book appointments on-line, order repeat prescriptions, and see their own medical information but the practice has put particular focus on educating patients through their on-line portal. On signing in, patients can access information about the types of services supplied by the surgery, carers’ rights as well as different types of anaesthetic and how they affect the patient’s body. In part, their services are aimed at the elderly, with emphasis on making sure their on-line

144. DH, What does the mandate mean for the use of technology to help people manage their health? [Internet], 2012 [Accessed February 2013] Available at <http://mandate.dh.gov.uk/technology/>

145. Examples of existing record services include Patient.co.uk, Homepage [Internet], 2013 [Accessed February 2013] Available at <http://www.patient.co.uk/>

146. Haughton Thornley Medical Centre, Homepage [Internet], 2013 [Accessed February 2013] Available at [www.htmc.co.uk](http://www.htmc.co.uk)

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services are easy to use, but there is also a section for teenagers, who are less likely to visit a GP surgery but may be more inclined to look up information on-line.

The practice hopes that, with this extra information readily available, patients will have sufficient understanding and confidence to check the accuracy of their own health record as well as to add relevant information to it. For example, blood pressure readings, blood glucose readings and other details about their own health that clinicians can perhaps read before a consultation.

*“Every time I went to hospital the records went with me online. The doctors and nurses were really pleased as the information came with me. I went in for pre-op and they couldn’t find my hospital records. I said: ‘Don’t worry I have my own records...which meant I didn’t have to come back another day. So you can see why I prefer to do everything online.’”<sup>147</sup>*

**Margaret Rickson, patient aged 84**

### 9.B - Renal Patient View

Renal Patient View is designed to help empower kidney patients. It provides a secure on-line portal for patients to view test results, find out more about their diagnosis, engage in discussion forums, and to enter their own readings.<sup>148</sup> The system is available to 43 out of 52 kidney units in England and has 17,000 current registered users.

In a survey<sup>149</sup> published in February 2012, detailing attitudes towards the RPV, patients found having an on-line access point valuable and were not concerned about privacy issues. The study was based on feedback from 257 users registered in 10 kidney units. Patients reported that RPV “helps me feel involved in my wellbeing” and that “it’s part of how I make sense of this awful disease”. Healthcare staff commented, “RPV helps patients take control of their health and make decisions themselves”.

Patients and professionals expressed overwhelmingly positive opinions about the empowering outcomes that have followed from use of RPV; for example with patients being more prepared for hospital visits, and helping them communicate with their doctor and follow recommendations.

Health professionals are supportive of their patients using RPV, for example in making patients more aware of their results and the relevance of the tests done at the hospital, and in providing useful information that expanded patients’ knowledge.

Patients commented that the most important feature of RPV was access to test results, particularly after a visit to their hospital or GP. It was also found that RPV increased a patient’s sense of self control, enhanced self-care, aided shared decision-making and improved patient-professional communication. It also facilitated a sense of online community which also encouraged learning.

### Personal Health Records

The 2020health report ‘Personal Health Records – Putting Patients in Control?’<sup>150</sup> described best practice around the NHS and beyond in their use:

“The uptake of PHRs in the UK remains embryonic around predominantly healthy populations. Interest will only be captured where PHRs are demonstrably useful, fitting well into people’s daily lives, particularly if they are remote to available services. Other prerequisite features are that the PHR must be secure, reliable and easy to use.” (from p.41)

“An ideal use of PHRs amongst the healthy population is where shared care arrangements demand continuity of information around that held by the patient. Maternity and child health represent two good examples and work is underway.” (from p.30)

“PHR usage is most likely to take off amongst engaged groups of patients, committed to self-management. Those with complex, chronic conditions, often with more than one long term condition, are most likely to find a PHR useful and have the most to gain initially”. (from p.34)

147. Hocksma J, Record Takers [Internet], 2012, [Accessed February 2013] Health Service Journal, 17th December 2012 Available at <http://www.chi.co.uk/insight/analysis/1002/record-takers>

148. Renal Patient View, Homepage [Internet], 2013 [Accessed February 2013] Available at <https://www.renalphatientview.org/>

149. Mukoro F, Renal Patient View: A system which provides patients on-line access to their test results, 2012 London: Better Kidney Care for All Available at [http://www.kidneycare.nhs.uk/resources\\_old/reports/](http://www.kidneycare.nhs.uk/resources_old/reports/)

150. Cruickshank J, Packman C and Paxman J, Personal Health Records: Putting Patients in Control? London: 2002health Available at <http://www.2020health.org/2020health/Publication/NHSit/Public-Health-Records.html>

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“Most of the existing case studies relate to specific occurrences of complex shared care arrangements around the management of particular long term conditions. Some of these have been driven by tertiary hospitals wishing to provide remote patient access to their record. On a wider basis, where the patient cohort can be precisely identified and targeted on a regional or national basis, PHRs can also be a success. PHRs rely on the ready integration of technology with underlying clinical record systems. However, achieving significant uptake depends most on a change in culture and mind-set around shared care and self-management.” (from p.41)

The following illustrate some leading NHS PHR exemplars:

### 9.C South London and the Maudsley – myHealthLocker<sup>151</sup>

South London & the Maudsley (SLaM) Hospital provides the widest range of NHS mental health services in the UK, as well as substance misuse services for people who are addicted to drugs and / or alcohol.

They have created an electronic Personal Health Record (ePHR) which allows patients to access and control aspects of their health information, held by SLaM and their GP, from their computer, laptop or mobile phone. SLaM is piloting the ePHR (known as myhealthlocker™) in two adult psychosis teams and three child and adolescent teams, which is due to finish at the end of March 2013.

The aim of allowing patients’ access to their own PHR is to enable and to encourage them to become more involved in their own healthcare, placing them at the heart of clinical decision making. They hoped to show patients that through empowerment comes a wider share of responsibility and control over their own health care. SLaM tends to have long term relations with its patients, so the Trust wanted to accommodate an ecosystem where information from the patient, the researcher, the clinician and the commissioner could all work in harmony. Clinicians are also heavily involved, as they must equally be enthused by changing the culture, dialogue and relationship between patient and health professional.

Information which can be accessed includes a copy of the patient’s care plan, current medication, physical observations from the GP system including blood pressure and cholesterol levels and some core contact details. The site also allows service users to feedback to their care team through patient rated outcome measures and provides a space to enter their own data on how they are feeling, complete pre-set or personally defined metrics, and generate health reports that they can share with their care team.<sup>152</sup>

### 9.D - eRedbook

One of the DALLAS schemes (‘Year Zero’)<sup>153</sup> introduced in section four intends to use a version of the eRedBook, as part of a wider initiative to empower individuals to actively manage their health information from cradle to grave.

The UK’s first electronic Personal Child Health Record (ePCHR), or ‘eRedBook’ is currently in development and testing, with the aim to get greater parental engagement, to improve data sharing and hence improve outcomes for children. Building upon the success of the paper version of the PCHR (Redbook) which has been successfully used nationally over the last 20 years, the ePCHR will provide parents and clinicians with the additional digital tools they need to effectively manage a child’s healthcare.

Other devices which will access the record include mobile phones, digital pens, and tablets. The eRedBook will be designed to interoperate with a wide range of other systems, including GP systems, child health systems and the National Screening Programme.

“Having the Redbook online with the right information and advice should encourage parents to use it in a much more interactive way and put in more things than they do at the moment...this has to be something that parents want and can use. We can see in the future that your PHR will be an amalgamation of the information that an individual has entered plus the information that you have either requested from professionals or has been entered by them,” said Dr David Low, Chair of the Royal College of Paediatrics and Child Health Informatics for Quality Committee.<sup>154</sup>

151. Myhealthlocker, Homepage [Internet], 2013 [Accessed February 2013] Available at <https://www.myhealthlockerlondon.nhs.uk/>

152. SLaM, SLaM Electronic Personal Health Records. [Internet] undated, [Accessed February 2013] Available at <http://www.slam.nhs.uk/media/254920/microsoft-maudsley%20faq.pdf>

153. \_Connect, delivering assisted living lifestyles at scale [Internet], undated [Accessed February 2013] Available at <https://connect.innovateuk.org/web/dallas/year-zero?sessionId=0837EBEB714B630277072E7750036597.9OphEwv4>

154. Todd R, Redbook goes digital [Internet], 2012 [Accessed February 2013] E-health insider, 17th December 2012 Available at <http://www.chi.co.uk/news/mobile/8267/redbook-goes-digital>

## 9 Personal health records and secure messaging

### 9.E Health Fabric, The West Mercia Digital Portal

Resulting from a joint venture with NHS Midlands & East, the West Mercia Digital project involves the creation of a shared record between health and social care, accessible to nominated carers and family. Its aim is to increase quality and productivity, keeping people out of hospital whilst giving control to those that are able to better manage their own LTCs.



Figure 9.5 Health Fabric

Source: Health Fabric, Successful Implementation of Health Fabric for Better Patient Outcomes, undated.

The project has resulted in the development of a mHealth solution ‘Health Fabric’.<sup>155</sup> It provides: personalised care planning (through digitalisation of the West Midlands developed PCP booklet); integration of telehealthcare devices; access to medical records by patients including prescriptions, appointments, letters, results, ability to set goals and share aspects of care; personalised external information linkage relating to condition (e.g. to NHS Choices and medications advice); and access to social media for peer group support.

The solution which is tablet-based has a patient facing app and a staff facing app that communicate using the NHS ITK framework, so giving a seamless integrated solution, with GP systems and telehealth products. The solution was initially developed in 2011 with the Gnosall Surgery in Staffordshire as an initiative to develop an anticipatory care model for patients with dementia. After an initial assessment, a consultant geriatrician holds sessions in primary care to develop full care plans which are then held by the families on the ‘Health Fabric’ solution. This enables patients and family to hold and own a digital record of the relevant health and social care

information, and manage the services they receive around their own personalised needs.

The results from the initial pilot showed a dramatic drop in the need for mental health services and acute medical care. Building on the success in Staffordshire, several other local health communities in the West Midlands are looking to follow suit and use it for other LTCs.

Figure 9.6

*Health Fabric, Feeling Better By Working Together, Connecting Patient to People Who Care, Undated*



Source: Health Fabric, Connecting Patients to People who care, undated.

*“This technology underpins our vision of delivering personalised care to the frail elderly, enabling the family to monitor and performance manage care from afar. We aim to define safe care plans to set out the inputs and expected outcomes for the patient. We piloted the frail elderly system, improving the patient journey and quality of service. For a practice list size of 8,000 with a budget of £8 million, we moved from a £300,000 overspend to £1.5 million underspend in one year”*

**Dr Ian Greaves, GP Gnosall Surgery**

155. Health Fabric, Homepage [Internet], 2013 [Accessed February 2013] Available at <http://www.healthfabric.co.uk/index.html>

## 9 Personal health records and secure messaging

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*Figure 9.7 - Opportunity for transferable learning for the VHA: PHRs*

- Specialised PHRs can be highly valued for patient groups with specific health needs (e.g. renal patients).
- There is value to putting patients in control of their own record, allowing them to set personalised goals that matter to them rather than just being clinically orientated, and letting them decide who sees what.

*Figure 9.8 - Opportunity for scale and spread in the NHS: PHRs*

- NHS organisations should adopt PHR approaches in successful use elsewhere and avoid starting from scratch.

## 10 The Leadership Exchange Programme

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The NHS and VHA have benefited from an Exchange Programme dating back to 2002, with sharing of knowledge and expertise around performance measurements, clinical pathways, imaging, information technology and chronic disease management. Previous exchanges between the NHS and VHA have led to numerous service improvements projects that have implemented transferable learning. An area recognised to have had impact in how we redesign and improve services has been commitment to clinical engagement, leadership and cultural shift within organisations to embrace change.

As we are recognising the increasing role technology has in maintaining and improving health, we are looking for increasingly efficient ways to support patients manage their health and well-being. This is a priority for both the NHS and VHA and has resulted in the current focus around digital health across both organisations.

### Joint Objectives

The objectives of the Exchange Programme are as follows:-

1. Increase clinical engagement with regard to clinical confidence that new technologies work.
2. Increase clinical leadership to drive the digital health agenda forward.
3. Improve communication and sharing of what works to support implementation both locally and nationally.
4. Support innovative approaches to implementation of new technologies and new ways of working.
5. Build a cohort of enthusiastic clinical champions that can share their experience and thus raise awareness of digital health.
6. Provide a network site to share experiences, best practice and discussion.
7. Lead to a measurable increase in adoption of technologies to support management of long term conditions.

### Expectations from NHS participants

A cohort of participants has been identified from within each of the NHS CB regions and expectations from each participant are:-

- To be open to new ideas and new ways of working.
- To consider how what they see in the VHA Healthcare system can be deployed in the NHS.
- To share learning with colleagues in their region and nationally through seminars, workshops and network meetings.
- To act as a point of contact with the national 3millionlives programme office.
- To develop ideas into implementation plans that can be shared and adopted outside their individual organisation.
- To become a recognised leader who can influence their peers to adopt new technologies / ways of working at scale.

### Expectations from VHA participants

Specific expectations will be developed following the initial exchange of ideas.

### How to get involved and further information

An NHS Networks site has been set up to share learning, if you would like to get involved or find out more, please join at <http://www.networks.nhs.uk/nhs-networks/nhs-vha-network/?searchterm=vha>

As the Exchange Programme becomes established further information capturing the implementation of ideas will be released through [www.2020health.org](http://www.2020health.org).



# Appendix: A

## List of Contributors

This appendix lists the contributors to the work:

### VHA Contributors

| Area                            | Attendees  | Organisation  | Role   |
|---------------------------------|--|---|--|
| Strategy                        | Dr Robert Petzel<br>Robert Jesse<br>Dr Adam Darkins<br>Gail Graham<br><br>Jan Murphy                     | VHA HQ<br>VHA HQ<br>VHA HQ<br>VHA HQ<br><br>VISN 23           | Under-Secretary for Health<br>Deputy Under-Secretary for Health<br>Chief Consultant, Telehealth Services<br>Ass't Deputy Under Sec Informatics & Analytics<br>Network Director |
| Home Telehealth                 | Mary Walker<br>Pauline Anderson<br>Mary Haagenson<br>Susan Willette<br>Connie Jaenicke<br>Kathy Corrigan | VISN 23<br>VISN 23<br>VISN 23<br>VISN 23<br>VISN 23<br>VHA HQ | Telehealth Programme Manager<br>Operational TH Coordinator<br>Nurse, Multiple Conditions<br>Telehealth Nurse<br>Heart Failure Nurse<br>Lead for Primary Care for Telehealth    |
| Clinical Video Teleconferencing | Dr Ahsan Naseem<br>Pauline Anderson<br>Mary Walker   | VISN 23<br>VISN 23<br>VISN 23                                 | Physican Telehealth Lead<br>Operational TH Coordinator<br>Telehealth Programme Manager   |
| Tele-ICU                        | Dr Robert Bonello<br>Sue Shade<br>Jane Spain   | VISN 23<br>VISN 23<br>VISN 23                                 | Medical Director, Tele-ICU<br>Psychopharmacology<br>Home Telehealth Master Preceptor   |
| Mobile Health                   | Kathy Frisbee<br>Neil Evans<br>Dr Wyatt Smith  | VHA HQ<br>VHA HQ<br>Agilex                                    | Director, Mobile Health & Voice Solutions<br>Ass't Chief of Staff Informatics<br>Director of Healthcare Strategies & Programmes  |
| Secure messaging                | Dr Brian Neil<br>Dr Steven Julius  | VISN 23<br>VISN 23  | Chief, Clinical Informatics<br>Chief Medical Officer   |
| Technical Challenges            | Stan Bush<br>Shelly Crisler  | VISN 23<br>VISN 23  | IT lead<br>Bio Medical Engineering   |

### Other Contributors

| Area               | Attendees  |
|--------------------|--|
| NHS Vista Campaign | Geraint Lewis<br>Colin Smith<br>Joseph Dal Molin |

# Appendix: A

## List of Contributors

### NHS Contributors

| Modality        | Area  | Exemplars  | Contributor     | Organisation               |
|-----------------|---|--|-----------------|----------------------------|
| Home Telehealth | Telehealth Toolkits – supporting commissioning and implementation                         | 6.A NHS Midlands & East Telehealth Care Commissioning and Evaluation Toolkit<br>6.B South Yorkshire CLARHC ‘Ready Steady Go’ Toolkit | Joanne Harding  | NHS Midlands & East        |
|                 | Telehealth Hub – to support health and social care needs of elderly patients              | 6.C NHS Yorkshire & the Humber   | Julia Coletta   | NHS Yorkshire & the Humber |
|                 | Telehealth Care, including learning lab for telehealth technologies and their application | 6.D NHS Barnsley/ SW Yorkshire Partnership FT  | Sue Barton      | SWYPFT                     |
|                 | Learning Lab for Telehealth technologies and their application                            | 6.E Institute of Digital Health, University of Warwick   | Ileane Welte    | Robert Bosch Healthcare    |
|                 | Use of telehealth within NHS 111 service  | 6.F Local Care Direct, Leeds   | Dr Taz Aldawoud | LCD                        |
| Telemedicine    | Telemedicine to prisons, nursing homes and care homes                                     | 7.A Airedale NHS Foundation Trust  | Ann Wagner      | Airedale                   |
|                 | Telemedicine for national virtual consultations   | 7.B Great Ormond Street Hospital for Children  | Mark Large      | GOSH                       |
|                 | Heart & stroke telemedicine network supporting 24/7 emergency triage                      | 7.C North West Heart & Stroke Network  | Gus Hartley     | NHS North West             |
|                 | consultations   | 7.E Hurley Group   | Dr Arvind Madan | Hurley Group               |

# Appendix: A

## List of Contributors

### NHS Contributors (continued)

| Modality                                     | Area  | Exemplars                                       | Contributor                    | Organisation                     |
|--|---|---|--------------------------------|----------------------------------|
| Mobile Health                                | On-line health checker / apps   | 8.A NHS Direct                                  | Bob Gann                       | NHS Choices                      |
|  | Health & Wellness apps  | 8.B NHS Choices                                 | Bob Gann                       | NHS Choices                      |
|  | NHS apps initiatives  | 8.C NHS Customer Service Platform and NHS Apps  | Bob Gann                       | NHS Choices                      |
|  | Mhealth supporting patients with early stage LTCs   | 8.D Simple Telehealth                           | Phil O'Connell                 | NHS Stroke                       |
|  | Mobile solutions supporting telehealth  | 8.E Safe Mobile Care                            | Mark Doorbar                   | Safe Patient Systems             |
|  | Supporting care planning through digital media  | 8.F NHS Local                                   | Rob Vickers                    | NHS Local                        |
| Personal Health Records and Secure Messaging | Personal Health records, supporting shared care   | 9.C South London & the Maudsley                 | Nin Pandit                     | NHS London                       |
|  | Integrated Care record owned by patient, that supports mobile health, secure messaging, care coordination | 9. E West Mercia Digital Portal - Health Fabric | Satnam Bains<br>Dr Ian Greaves | Health Fabric<br>Gnosall Surgery |

## Appendix: B

### Glossary and definitions

#### UK terms

|              |  |
|--------------|--|
| 3ML          | <b>3millionlives.</b> An initiative to drive the widespread NHS adoption of telehealth. It was launched in January 2012 by Care Services Minister Paul Burstow.  |
| A&E          | <b>Accident &amp; Emergency.</b> A medical treatment facility which specialises in the acute care of patients. There is no need to book an appointment. The emergency department is located in a hospital or other primary care centre.  |
| ALIP         | <b>Assisted Living Innovation Platform.</b> A programme launched by The Technology Strategy Board which promotes independent living and aims to improve quality of life by making technology “better, cheaper and more desirable.” The Technology Strategy Board is an executive non-departmental public body established by the Government in 2007.   |
| CCG          | <b>Clinical Commissioning Group.</b> A group of General Practitioners who are responsible for commissioning local health services in England. They work with patients, healthcare professionals and local communities. This role was outlined in the 2010 White paper and from April 2013 they will be fully operational and take over from the old commissioning bodies, Primary Care Trusts. |
| CQUIN        | <b>Commissioning for Quality and Innovation.</b> A payment framework which rewards excellence by linking income to the achievement of local improvement goals. It was launched in 2009.  |
| DH           | <b>Department of Health.</b> A department of the United Kingdom Government which provides strategic leadership for public health, the NHS and social care in England.  |
| (NHS) FT     | <b>(NHS) Foundation Trust.</b> Bodies of the NHS which have earned a significant amount of independence from the DH and local regulating bodies, SHAs. The purpose of their independence is to create a more locally, and patient, led NHS. In 2013 there are 145 FTs, including acute, mental health, community and ambulance trusts.   |
| GOSH         | <b>Great Ormond Street Hospital.</b> One of the world's leading children's hospitals located in central London.  |
| GP           | <b>General Practitioner.</b> A primary care provider who provides on-going care to cover a variety of medical problems in all patients. Their work includes referrals to specialists.  |
| HANDI Health | <b>The Healthcare App Network for Development and Innovation.</b> A not-for-profit venture which aims to ensure the technical, regulatory and cultural barriers to app development and implementation are removed and an ecosystem to support healthcare apps developed.   |
| HWB          | <b>Health and Wellbeing Boards.</b> As part of the local authorities, they lead discussions about how their ring-fenced money should be spent to improve outcomes for people's health and well-being locally. Their aim is to ensure that public health is always considered when local authorities, CCGs and the NHS make decisions.  |
| LAT          | <b>Local Area Team.</b> Local offices of the NHS Commissioning Board, there are 27 offices. They develop the local response to HWB and CCG strategies. They also engage and consult with patients, carers and the public regarding priority areas for improvement, undertake service reviews and agree procurement plans.  |

# Appendix: B

## Glossary and definitions

### UK terms (continued)

|             |  |
|-------------|--|
| N3          | <b>Network 3.</b> The NHS national broadband network.  |
| NPFIT       | <b>NHS National Programme for Information Technology.</b> An initiative established by the DH in 2002 to move the NHS in England towards a single, centrally-mandated electronic care record for patients.   |
| NHS         | <b>National Health Service.</b> The umbrella term for three or four publically funded health care systems in the UK which provide services free at the point of use. These are NHS England, Health and Social Care in Northern Ireland (HSENI), NHS Scotland, NHS Wales.   |
| NHS CB      | <b>NHS Commissioning Board.</b> An executive non departmental body, independent to the Government, whose main aim is to improve the health outcomes for people in England. oversee the planning, delivery and day-to-day operation of the NHS from 1 April 2013 as set out in the Health and Social Care Act 2012.   |
| PHB         | <b>Personal Health Budget.</b> Most PHBs are allocated either as a notional budget (held by the NHS) or a direct payment (controlled by patient or suitable representative). The system offers greater choice and control to NHS patients by allowing them to direct healthcare expenditure according to their personal needs and timetable.   |
| NHS Choices | <b>NHS Choices.</b> Set up in 2007, an empowering digital resource enabling the public to compare hospital performance levels, review doctor profiles, and access a wide range of health information to assist self-management.  |
| OOH         | <b>Out of hours service.</b> Services provided by the NHS outside of normal GP surgery hours. Out of hours services run from 6.30-8.30pm on weekdays and all days at the weekend and on bank holidays.   |
| PCT         | <b>Primary Care Trust.</b> A type of trust which is part of the NHS. They commission primary, community and secondary care. They have their own budgets, which collectively make up approximately 80% of the NHS's budget. They are responsible for setting their own priorities within the framework of priorities given to them from the local SHA. As of April 2014 they will no longer be in operation and CCGs will take over the commissioning role. |
| QIPP        | <b>Quality, Innovation, Productivity and Prevention.</b> Launched at the end of 2009, QIPP's purpose is to improve the quality and delivery of NHS care while reducing costs to make £20bn (\$30bn) efficiency savings by 2014/15. There is a wide variety of QIPP initiatives, some 100 separate ones have been tested out and evaluated within the NHS during the last three years.  |
| SCR         | <b>Summary Care Record.</b> Clinical component of the patient's record held on the NHS Spine.  |
| SHA         | <b>Strategic Health Authority.</b> As part of the structure of the NHS they are responsible for implementing fiscal policy at a regional level as directed by the Department of Health. SHAs are also responsible for overseeing the running of NHS trusts within their locality.  |
| Spine       | <b>Spine.</b> Single NHS-wide reference point for patient information.   |

## Appendix: B

### Glossary and definitions

#### UK terms (continued)

|          |   |
|----------|---|
| Telecare | <b>Telecare.</b> Enables people, especially older and more vulnerable individuals, to live independently and securely in their own home. It includes services that incorporate personal and environmental sensors in the home, and remotely, that enable people to remain safe and independent in their own home for longer.  |
| WSD      | <b>Whole System Demonstrator.</b> The Whole System Demonstrator (WSD) programme set up by DH in 2007 aimed to gather evidence to answer the question “Does the use of technology as a remote intervention make a difference?”. It formed the largest randomised control trial of telehealth and tele-care in the world, involving 6,191 patients, 3,033 of which were diagnosed with heart failure, COPD or diabetes. |
| UK Plc   | <b>United Kingdom public limited company.</b> The entirety of British business, considered as a single organisation.  |
| YOC      | <b>Year of Care.</b> A tariff strategy to target patients with long term conditions who require an integrated approach to care. The YOC programme has used risk profiling (low, medium and high) in tariff-setting deriving from a holistic approach to assessment, identifying goals and outcomes rather than breaking down costs associated with each specific long term condition.                                 |

#### US Terms

|           |   |
|-----------|---|
| CBOC      | <b>Community Based Outpatient Clinics.</b> A VA-operated, funded or reimbursed health care facility that is located at a different site from the parent medical facility.   |
| CAN Score | <b>Care Assessment Needs Score.</b> A tool for primary care teams to determine from a holistic point of view whether a is at risk, and who needs care management. This score is based on a sophisticated statistical prediction model and data from multiple sources to determine the probability of a future event such as admission or death within a specified time frame. |
| CC        | <b>Care Coordinators.</b> Usually nurses or social care workers who actively coordinate the provision of health services from a central facility to patients living at home through the use of technology.  |
| CCHT      | <b>Care Coordination/Home Telehealth.</b> A national home telehealth program first introduced in 2003. Its purpose is to coordinate the care of Veteran patients with chronic conditions and avoid their unnecessary admission to long-term institutional care. It is now called Home Telehealth (HT).  |
| CLCs      | <b>Community Living Centres.</b> Skilled nursing facilities, often referred to as nursing homes, to Veterans with chronic stable conditions such as dementia, those requiring rehabilitation or those who need comfort and care at the end of life.   |
| CVT       | <b>Clinical Video Teleconferencing.</b> Real-time videoconferencing between VHA medical centres and CBOCs that replicates face-to-face consultations between patient and provider, or provider and provider.  |
| HT        | <b>Home Telehealth.</b> See CC/HT.  |



# Appendix: B

## Glossary and definitions

### US terms (continued)

|                            |  |
|----------------------------|--|
| IPA                        | <b>In Person Authentication.</b> A highly secure log in system used 'My HealtheVet'. It requires a patient to visit a VHA centre in person with photo ID in order to access their Personal Health Record.  |
| SFT                        | <b>Store and Forward.</b> Acquisition, storage and forwarding of clinical images to experts for review. Currently extensively used for teleretinal imaging and teledermatology.  |
| PACT                       | <b>Patient Aligned Care Team.</b> The VHA's version of primary care delivered through a patient centered medical home mode, with every patient is assigned to a PACT team.   |
| VISTA Campaign for the NHS | <b>VISTA Campaign for the NHS.</b> An informal group of volunteers inspired by the quality and cost-effectiveness of care provided by the VHA using VistA who have set up a 'Campaign for NHS VistA' which is calling for and helping facilitate the adoption of VistA by the NHS.   |
| TH                         | <b>Telehealth.</b> Uses various point-of-care technologies to monitor a patient's physiological status and health conditions. When combined with personalised health education within a chronic disease management programme, it can significantly improve an individual's health and quality of life.   |
| Tele - ICU                 | <b>Tele- Intensive Care Unit.</b> The provision of high quality intensive care through the use of specialised CVT, in particular a two- way camera as well as additional technology. VHA intensivists have found they can provide higher quality intensive care and eases the burden on staff.   |
| PA                         | <b>Primary Care Physician Assistant.</b> A healthcare assistant who is licensed to practice medicine under physician management. Their responsibilities vary largely according to training, but they vary from taking medical histories, perform physical exams, assisting in surgery and patient advocacy. Many PAs are employed in remote regions where VA healthcare professionals are in short supply. |
| PHR                        | <b>Personal Health Record.</b> An online record owned by the patient, allowing them to add and organise personal health information, as well as to integrate health records from different providers, and share this with other individuals and institutions at will.  |
| VA                         | <b>VA.</b> US Department of Veterans Affairs, provides health care, benefits and burial services to Veterans, and in some instances their dependents   |
| VHA                        | <b>VHA.</b> US Veterans Health Administration, responsible for health care services within the VA.   |
| VistA                      | <b>Veterans health information systems and technology Architecture.</b> This platform supports the VHA's Electronic Health Record (EHR), which was developed in close consultation with 'physician champions' to allow health professionals instant and remote access to a patient's medical files, whether at clinic or hospital bedside.   |
| VISN                       | <b>Veterans Integrated Service Networks.</b> Some covering vast regional areas, but each able to respond with greater autonomy to local needs.   |

## Appendix: B

### Glossary and definitions

#### General

|      |   |
|------|---|
| BDOC | <b>Bed days of care.</b> The number of days a patient is confined to a bed and in which the patient stays over night in hospital.   |
| CHF  | <b>Congestive Heart Failure.</b> When the heart fails to pump blood around the body to a sufficient level. Main symptoms include breathlessness, extreme tiredness and weakness, swelling in the legs, ankles and feet.   |
| CIO  | <b>Chief Information Officer.</b> Within healthcare settings, the CIO provides technology vision and leadership in the development and implementation of the health information technology programme.   |
| COPD | <b>Chronic Obstructive Pulmonary Disease.</b> A collection of lung diseases including chronic bronchitis, emphysema and chronic obstructive airways diseases, increasing breathlessness, a persistent cough with phlegm and frequent chest infections.  |
| EC   | <b>European Commission.</b> The executive body of the European Union (EU). It is responsible for overseeing the day to day running of the EU as well as proposing legislation, implementing decisions and upholding the treaties.   |
| EHR  | <b>Electronic Health Record.</b> A digital record, sometimes referred to as an Electronic Patient Record (EPR), which is a systematic collection of information about an individual patient. They can include medical history, allergies, prescribed medicines, test results and radiology images amongst other data. |
| EPR  | <b>See EHR</b>  |
| EU   | <b>European Union.</b> An economic and political union which is made up of 27 member states that are mainly located on the continent of Europe.   |
| FTE  | <b>Full-Time Equivalent.</b> A measurement of the workload of an employed person, or student, and allows workloads to be comparable.  |
| HL7  | <b>Health Level 7 interoperability standard.</b> The global authority on standards for interoperability for health information technology.  |
| ICT  | <b>Information and Communications Technology.</b> Technology that provides access to information through telecommunications, including the Internet, wireless networks, telephones and mobile phones.   |
| ICU  | <b>Intensive Care Units.</b> A specialised department in a hospital which provides intensive care to patients with the life threatening injuries and illnesses and which need constant monitoring, specialist equipment and medical staff specialised in providing intensive care.                                    |
| LTC  | <b>Long term condition.</b> A condition that cannot be cured but can be managed through medication and/or therapy. These include, diabetes, asthma and coronary heart disease.  |
| LPN  | <b>Licensed Practice Nurse.</b> A nurse who cares for people who are ill, injured, or disabled under the direction of registered nurses and physicians.   |

# Appendix: B

## Glossary and definitions

### General (continued)

|                |  |
|----------------|--|
| PTSD           | <b>Post Traumatic Stress Disorder.</b> A severe anxiety disorder which can occur after exposure to an event which causes psychological trauma. Symptoms include re-experiencing the original trauma through nightmares or flashbacks, difficulty sleeping or staying asleep and feelings of anger. |
| SCR            | <b>Summary Care Record.</b> An electronic patient record, which is a summary of patient data held by the National Health Service , held on a central database covering England.  |
| SNOMED         | <b>Systematized Nomenclature of Medicine.</b> A digital collection of data, including codes, synonyms and terms, relating to medical terms covering diseases, findings, procedures, microorganisms and substances.   |
| THC            | <b>Telehealthcare.</b> An intelligent, proactive, integrated and holistic solution for health care and social care covering both telehealth, telecare and telemedicine.  |
| Tele-radiology | <b>Tele-radiology.</b> Remote analysis of radiology and nuclear medicine images.   |

# Making Connections

## A transatlantic exchange to support the adoption of digital health between the US VHA and England's NHS

"For the past 10 years the NHS & VHA have supported and encouraged sharing of innovative ideas and best practice. This has resulted in adoption and spread of things we know work in both organisations. We face similar issues around an aging population, increasing costs and reducing resources all at a time when technology is advancing. The biggest challenge is not recognising what needs to happen but "making it happen", I believe this can be achieved with effective leadership, engagement and robust change management.

The adoption of e-health is key to both our organisations and I am pleased that the focus of the enduring partnership between the VHA and the NHS has resulted in the publication of **Making Connections**.

I am sure this will prove a valuable resource for both the NHS & VHA in supporting scale and pace of e-health to support 3 Million Lives."

**Joanne Harding**  
**Programme Lead - Long Term Conditions & Telehealthcare**

"Our mission is to transform service delivery for people with health and care needs and those involved in their care, by utilising technology within service. This will enable millions to benefit from enhanced independence, reduced hospital admissions and improved self-management. This new report demonstrates some excellent learning points between the two countries, whether related to leadership, protocols, technology or pathways, but one thing remains constant. That is the needs of the patient and I think one patient sums it up perfectly "Without this program I might be dead! It has really helped me get healthier."

**Angela Single**  
**Chair, NHS 3ML Industry Group**

"2020health remain convinced that we will only be able to provide high quality and efficient services to people with Long Term Conditions if we embed technologies in new models of health care. This report gives diverse examples of how and where this is happening already, and patients are reaping the rewards of both better outcomes and greater knowledge and management of their condition. We hope that through reading this report, people involved in delivering health systems will be enthused and inspired by the opportunities to integrate, inform and improve that telehealth technologies facilitate."

**Julia Manning,**  
**Chief Executive, 2020health**



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