

Cambridge Healthcare, partnership with the NHS East of England, is creating the e-Health portal for patients and healthcare professionals. The portal, which will pilot in two regions, will integrate with the NHS IT infrastructure and provide the platform for an unlimited number of healthcare applications, enabling patients to better manage their health, clinicians to more effectively manage their patients and the NHS to make its healthcare budget to go further.

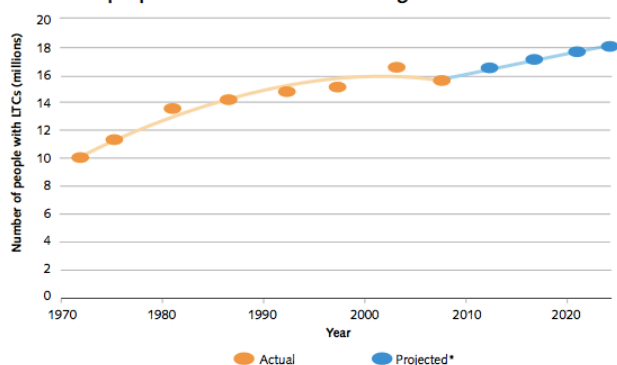
BACKGROUND

Long Term Conditions and the healthcare burden

There are currently 15.4 million people in England with one or more Long Term Conditions (LTCs), which are incurable but require on-going management, such as diabetes, coronary heart disease and asthma. Due to an ageing population, by 2025 there will be an estimated 42% more people in England aged 65+, and 3 million more people with one or more LTC. People with LTCs account for a significant and growing proportion of health and social care resources, including 50% of all GP appointments, 65% of outpatients appointments and over 70% of all inpatient bed days. The Department of Health estimates that the treatment and care of people with LTCs account for 70% of the total health and social care spend in England, i.e. £77bn for 2010-11.

“No decision about me without me”

Number of people with at least one LTC in England



Source: General Household Survey 2005 for England.
* The projected figures take into account the ageing of the population but not increases in risk factors such as obesity.

The Government’s aim is to put people at the centre of decision-making about the care they receive, part of an overall drive to embed personalisation across all public services. Personal health budgets are being piloted across the country, giving people more say and control over how the money for their healthcare is spent. Supporting people to take a more active role in decisions about their health and well-being means that the NHS has to change fundamentally the way in which it both delivers and commissions services for people with LTCs. The NHS.info portal will be well-placed to meet this need.

OUR SOLUTION

NHS.info

Your personal health manager

NHS.info

By creating a user account at NHS.info, patients will be able to interact with their Personal Health Plan, importing their medical history, monitoring disease parameters, setting personal health goals and much more. They can then share this information with their doctors and carers, enabling improved coordination of care. They can personalise their portal with disease or drug-specific information sources, applications, devices and support groups.

Healthcare “App-Store”

A premium API service will encourage service providers, institutions and device companies to develop additional applications for patients and clinicians, creating a dynamic Healthcare “App-Store” stocked with an increasing number of innovative, useful and high-quality apps that are refined and updated continuously through the demands and feedback of users.

Application potential



The application potential is huge. Examples include:

- Apps linked to devices that capture health data – such as blood pressure, heart rate, ECG, activity levels – and enter information directly into the portal
- Service apps such as an e-prescriptions service and online appointment-booking service
- Apps that generate news alerts or warnings based on the patient’s health information or inform them of eligibility for a clinical trial
- A Clinical Dashboard that facilitates patient management by organising workflow, lab results, procedures and patient history.

Case study

Mr Jones is 58 and works as an accountant in London. He has several risk factors for coronary heart disease, including a BMI of 30, hypertension and a family history of heart disease. It is not always easy for Mr Jones to get an appointment with his GP, especially one that fits around work.

Now however, Mr Jones has a blood pressure meter at home. He can upload the readings to his NHS.info dashboard, document his diet and exercise regime. Mr

Jones has read about how to lower his blood cholesterol by eating the right foods and connected with other patients who have shared their tips on getting fit. He has also started an online cognitive behavioural therapy course to help cope with stress at work and to quit smoking. His GP can monitor his progress and is alerted to any unusual symptoms and change in frequency of his chest pain. The online appointment-booking system also means Mr Jones and his GP can find a mutually convenient time to meet.

Benefits

Capturing health data in this way has several important consequences.

- **For patients**, it will inform clinical decision-making, enabling better and more personalised patient management. It will alert clinicians early to imminent exacerbations or decompensation, allowing rapid intervention and preventative treatment. Combined with education resources, feedback and support, patients would be encouraged to actively participate in their self-care.
- **At a local and regional level**, it will inform commissioning, resource allocation and logistics, improving efficiency.
- **At a population level**, it will inform public health policies and measure their outcomes

Securing patient data

In such a portal, security is paramount. Encryption is used to secure sensitive data such as medical records, clinical and patient data. Supported at several levels, it protects from disclosure due to database server theft, unscrupulous administrators, and insecure networks. We are building the following precautions into our portal:

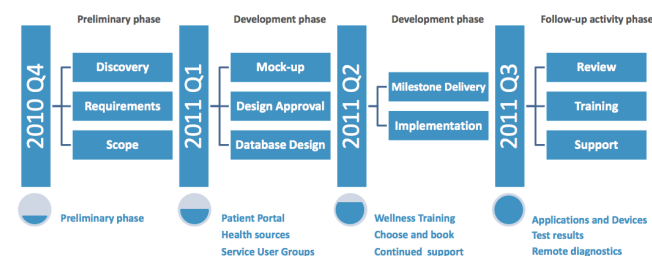
- **Password Storage Encryption:** Database user passwords are stored as MD5 hashes and encrypted before being sent across the network.
- **Encrypting Data Across A Network:** SSL connections encrypt all data sent across the network: the password, the queries, and the data returned.
- **SSL Host Authentication:** The client and server provide SSL keys and certificates providing stronger verification of identity than passwords.
- **Encryption For Specific Columns:** Sensitive clinical and patient data is encrypted using a cryptographic technique of asymmetric key algorithms.
- **Data Partition Encryption:** System partitions are encrypted on disk, and decrypted by the operating system using EOM Based Disk Encryption.
- **Encrypting Passwords Across A Network:** MD5 authentication method double-encrypts the password using a random salt, preventing network discovery.

Business Model and Interest from Industry

The NHS will have a lifetime license of the NHS.info portal. Access will be free to patient and GP users, encouraging rapid uptake.

Revenue will be generated through third-party application developers and secondary care users. There is substantial interest from industry – several large companies, including Philips Healthcare, have already approached us with interest in developing applications for the portal, describing it as the healthcare solution they had long anticipated.

Development roadmap



CAMBRIDGE HEALTHCARE

Cambridge Healthcare is a Cambridge-based company, working in partnership with the NHS East of England to develop the e-Health portal and pilot it in two regions.

Team

Dawson King, CEO, is a serial entrepreneur who has started and sold 5 companies. Dawson sits on the NHS Innovation Council and is the UKTI representative for e-Health. Previously he was CTO and co-founder of one of the first companies to successfully integrate into the NHS Connecting for Health network and to offer secure tools for patients to work with clinicians.

Allan Wenham, CTO, has over 12 years' experience as a software and web developer. Allan has worked closely with compliance officers and network, infrastructure and security managers on UK and EU legal obligations regarding data and transactions with Venture-Finance. Previously he was Group Web Development Manager and Web Data Protection Compliance Officer for the largest EU publishing group (Hachette Livre). Allan has worked at a number of elevated security companies (Providian National Bank/Venture Finance) and with high profile clients (Adidas, Coke Cola, Adecco, Patek-Philippe and Vodafone).

Professor Alan Barrell, Chairman of the NHS Innovation Council, Chairman of Health Enterprise East and former CEO of Baxter Healthcare

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SUMMARY

- Cambridge Healthcare is working in partnership with the NHS East of England to develop NHS.info, an e-health portal for patients and healthcare professionals
- NHS.info will provide a framework and premium API service for a range of healthcare applications which can be developed both in-house by the NHS and by third parties
- The service will be free for patients and GPs and a marketing budget has already been allocated by the NHS East of England to promote it
- The portal will be self-sustaining via revenue from third party application developers, several of whom have already shown interest in producing apps
- Benefits to the patient include more control over their management, access to educational resources and self-care support and access to a greater range of healthcare services
- Benefits to GPs include more detailed and complete patient data to inform clinical decisions, population health data to inform resource allocation and commissioning and commissioning tools
- Benefits to the NHS include population data to inform public health decisions and policies, and better management of patients with LTCs, making the national healthcare budget go further.

WHAT OTHERS SAY ABOUT US

“I believe this project is the logical next step in providing a better health care service for patients in the UK, by establishing a communications platform for them to become more involved in their health and ultimately the decisions made about their care in partnership with clinicians. A portal allowing providers to offer services to improve self-management will allow healthcare services to take advantage of technology that has already transformed many aspects of our daily life.”

Robert Blake, Senior Scientist, Philips Research UK

“I am fully supportive of the Cambridge Healthcare-NHS East of England patient portal project and have been engaged with it since its inception. I also regard Dawson

King as a most appropriate person to lead this programme – he has all the necessary technical and managerial experience and a track record of getting such things done successfully. The project is of very great importance in our region and will benefit patients and health practitioners enormously.”

Professor Alan Barrell DBA, FRSA, Chairman, Health Enterprise East Ltd; Chairman, NHS Innovation Council; Entrepreneur in Residence, Cambridge University

“I have met with Dawson, together with my Long Term Conditions colleagues from East of England which included my co-chair of the LTC programme Board and former CEO of Diabetes UK, Douglas Smallwood, to discuss Personal Health Planning and supported self care. Both I and my colleagues quickly got the impression that Dawson had completely “got” what we are trying to achieve, both in technical terms (a web based patient portal and personal health planning platform) and paradigm terms (rebalancing the professional and service user power bases and ensuring service user control and empowerment in health and health care).

I have met Dawson since and in my opinion he has relevant and impressive experience, knowledge and the drive to make a patient portal, and most importantly, service user control and empowerment, a reality in the NHS East of England and nationally. I look forward to working with him.”

Dr Steven Laitner, Associate Medical Director, NHS East of England, National Clinical Lead for Shared Decision Making (Quality and Productivity, Department of Health), Clinical Advisor to Elective Care and Diagnostics, Department of Health

“The NHS is in the process of transformational change. The increasing incidence of Long Term Conditions is leading to a crisis of capacity in the NHS. Cambridge Healthcare’s solution of a patient portal to enable patients to manage their Long Term Conditions is both practical and innovative. It has the full support of the Long term Conditions Programme Board of NHS East of England as an effective model of delivery, in a format that is modular in concept, allowing future growth and development of the portal as necessary.”

Julie Yaxley, Programme Manager for Electronic Personal Health Planning for NHS East of England