Special Report

Meeting the requirements of virtual wards

inhealthcare

Introduction

The pandemic turbocharged the take-up of digital health and the use of remote monitoring of patients in their own homes instead of hospital. Digital services were no longer a 'nice to have' for some parts of the health service but essential for providing care in a time of social distancing.

Pre-pandemic, the majority of remote monitoring was for long term conditions. However, the introduction of the Covid Oximetry@Home (CO@H) service which allowed COVID-19 patients to be looked after safely at home and only be admitted to hospital when necessary, changed this.

Although CO@H was a direct response to hospitals becoming quickly overrun by COVID-19 patients, over subsequent months, NHS organisations began to support people at home with other health conditions. Increasingly, virtual care is being expanded and used to monitor patients with short term conditions, including hypertension and respiratory illnesses.

"Virtual wards" are also being developed to deliver care for patients at home who would otherwise have to be treated in hospital, by enabling earlier supported discharge and providing alternatives to admission.

By December 2023, NHSE expects ICSs to have completed the development of virtual wards towards a national ambition of 40-50 virtual beds per 100,000 population - equivalent to 24,000 virtual ward beds. At a minimum, each system is expected to implement virtual wards for two pathways: acute respiratory infection and frailty.

Read on to find out how you can meet some of the requirements set out by NHSE to support the roll out of virtual wards.

1. Virtual ward services will be tech enabled and should be developed across systems and provider collaboratives

Technology helps to break down barriers between organisations by making the right information available to the right people at the right time.

A digital care service designed, built and deployed by one trust can quickly and efficiently be made available to other trusts in the collaboration, as our work with Health Call and City Health Care Partnership Hull (CHCP) demonstrates.

Health Call is a collaboration of seven NHS trusts and provides a wide range of digital health and remote monitoring services for a population area of three million people across the North East of England. Inhealthcare provides the software infrastructure to the partnership.

By bringing together clinical, technological and commercial expertise, Health Call can provide the best technical and clinical solution, at the best price for the region. The region no longer consumes resources by carrying out the same task multiple times.

Our joint work with County Durham and Darlington Foundation Trust (CDDFT) also demonstrates how individual pathways developed and deployed by one trust can quickly and efficiently be rolled out to other organisations within the region.

Our NHSX-backed self-testing service for patients who take anticoagulation medication was introduced in CDDFT and has now been deployed from Newcastle to Bradford.

In addition, our undernutrition service was piloted in CDDFT and then rolled out to Northern Ireland. Subsequently it has also been introduced by Health Call to Northumbria and South Tees.

2. Virtual wards must create an integrated care model by working across secondary, community, primary, social care and mental health services

Virtual wards will be the first test of ICSs to deliver a multi-agency approach to supporting people to be cared for in their own homes.

Clinical and non-registered professionals across care settings and providers will need to work together to deliver virtual wards.

Developing services in collaboration is essential as it allows all service users to shape the service to their requirements, their ways of working and their local population. It also achieves buy-in and avoids wasting time and effort in building something which is not fit for purpose.

At the start of the pandemic, Inhealthcare worked with Hampshire and the Isle of Wight CCG and Wessex AHSN to develop and launch a digitally-enabled remote COVID Oximetry@Home service (CO@H) across seven ICS areas in southern England.

This service is the biggest O@H service in the UK and has already supported more than 22,000 patients.

The service is an excellent example of the power of collaboration and demonstrates how patient care can be transformed in a short space of time, without compromising safety, with team work and targeted funding.

Another fine example of the power of the integrated care model is the COVID-19 Remote Health Pathway (RHP) we launched in Scotland.

Throughout the development of the pathway, a clinical advisory group of experts from general practice, infectious diseases, respiratory medicine, intensive care, emergency medicine, the Scottish Ambulance Service and NHS24 worked closely.

"We knew we needed to bring different professionals together to make this work – and because we had such an engaged group, we found we could quickly create a strong 'one team' ethos around the project, built on a common desire to deliver the best possible service for patients.

The result, we believe, is a really strong, bespoke product that successfully meets our clinicians' and patients' needs – and ultimately improves the care we can provide."

Dr Barbara Rushton, GP, Clinical Chair - South Eastern Hampshire and Chair of HIOW ICS CO@H/CVW Steering Group

3. Practical, user-led testing ahead of roll-out

Providing teams with early visibility of how the product will look and work allows for service users to contribute and buy into the concept at the start of a project.

At Inhealthcare, all services are published in our Sandpit test environment throughout their development. Sandpit is a replica of our live environment, uses dummy patient data and enables customers to test the service functionality.

"The remote monitoring service was built with clinical input every step of the way. For us to meet the aim of ensuring the dashboard data integrated into existing systems we made sure that a key project milestone involved pushing out a beta version of the solution for testing in what we called 'sandpit mode'.

By this we mean that all potential users from GPs, to hospital clinicians, through to the ambulance services had an opportunity to test out the platform dashboard to make sure it worked for them. Getting this user perspective early on enabled the solution to be improved as necessary and made sure it worked with a full range of systems."

Rachel Dominey, Associate Director Primary Care Innovation, Wessex AHSN

4. Integration

As virtual wards will be delivered by teams from different organisations across the ICS, integration is key. Patient information will need to be available to all those involved.

The Standards and Interoperability Guidance produced by the NHS in April 2022 identifies "must haves" to enable data flows between systems and to standardise the data exchange between systems in technology enabled virtual wards.

Digital services should be fully interoperable, with open APIs. They should be compatible with existing NHS systems, including third party wearables, self-testing devices and apps, and clinical IT systems.

Inhealthcare provides unparalleled integration with national GP and hospital systems, including GP Connect, MESH, SCI Store, NHS Spine, EMIS Web, SystmOne.

We also integrate with industry standards such as HL7 v2/v3/FHIR for the exchange of data between systems and we comply with SNOMED CT.

Our technology platform integrates with NHS login, making it even quicker and easier for patients to use our digital health services.

5. Virtual wards must provide the tools to support people to manage their health in their own homes

Our digital health services are all digitally inclusive and offer the full choice of communication channels so that all patients are able to access them, no matter what their circumstances.

They are supported by a number of devices to enable patients to manage their health at home. For example, oximeters to measure oxygen saturation levels, blood pressure monitors and INR self-testing devices.

What's more, our technology is constantly evolving to meet the changing needs of the NHS and now includes a disposable skin patch to support virtual wards. The patch can be used in a number of ways according to your needs. It can support continuous monitoring by capturing a variety of different vital sign measurements so patients who have been discharged from hospital can recover at home rather than in hospital.

It can also be used to support more frail patients who have been discharged from hospital by detecting falls.

As patient needs become more complex, the virtual ward model changes to include more face-to-face care at home to allow ICSs to maintain quality and manage risk effectively.

6. Technology must support workforce productivity and provide flexibility to blend roles of face-to-face and virtual care

Virtual wards will require the input of multi-disciplinary teams and support from consultants.

As with all digital health services, they are not a replacement for face-to-face services and some pathways may require some face-to-face activities.

Clinicians view patient readings on a web-based dashboard and are alerted if thresholds are breached, enabling them to see who might need intervention, supervision or support, including face-to-face care where necessary.

Enabling patients to be monitored in their own homes instead of in hospital until their treatment is complete, means that virtual wards can support the safe and earlier discharge of patients from hospital, freeing up inpatient capacity, reducing admissions from A&E and ultimately easing waiting list pressures.

7. Virtual wards aspire to improve healthcare for all through ensuring equitable access and excellent experience

Patients should have a choice about how they would like to interact with their healthcare professional. Nobody should be excluded from digital health because of the access they have to technology.

We have worked hard to make our remote monitoring services as accessible as possible and offer the full choice of communication channels for patients.

These include smartphones, tablets and Amazon Alexa for the digitally savvy but also SMS, telephone landlines and the ability to speak to someone on the phone and give staff readings to input manually. This means many of the people in the greatest need of healthcare can easily access our services, whatever their circumstances.

"Our rural location means clinics can be hard to reach for some, so delivering rapid results to patients in their homes makes all the difference. On top of this, we've helped to ease waiting room pressures and reduce paperwork for our anticoagulation team. Everybody wins with the benefits health tech can deliver for patients, clinicians and the NHS alike."

Dr Mark French, Lead GP for the warfarin monitoring service at Ilkley Moor

Evaluation of the our COVID-19 Remote Health Pathway (RHP) in Scotland indicated that the service contributed to reducing health inequalities with more than twice as many people from disadvantaged areas using the system than those from affluent areas.

There was no evidence to suggest that being less digitally included was a barrier.

For remote monitoring to succeed it must improve the way the patient accesses care and improve their quality of life by providing convenient, easy-to-use healthcare solutions.

It can also improve health outcomes by enabling patients to take a more active role in the management of their health, whilst remaining under the remote supervision of their care team.

"Joining the BP@Home service means I can monitor my blood pressure without having to go to see my GP every two or three days and I have become more aware of what the blood pressure readings mean.

As a result of monitoring and submitting my results, my medication has been changed, and I have also made some lifestyle changes to help manage my blood pressure better. I feel supported and encouraged to make the right decisions, and I know that there's help at the end of the phone if I need it."

Mr. Gurmit Bhamra, Surrey Heartlands patient

Clinicians using our remote monitoring services are reassured by and confident about the level of care patients receive and patients report feeling cared for, safe, reassured and empowered.

"Having the ability to view all of our COVID-19 patients on a single dashboard has meant patients are safer, they are receiving the right care at the right time and the burden on our clinical teams has reduced; physically and emotionally.

We know our patients are receiving optimum remote care 24/7."

Sarah Kearney - Lead Respiratory Clinical Nurse Specialist & Covid Lead, Isle of Wight NHS Trust

9. Virtual wards aspire to improve healthcare for all through ensuring optimal outcomes

Results from our remote monitoring services show that digital health can improve outcomes:

COVID Oximetry@Home (CO@H)

Inhealthcare's CO@H service is the largest CO@H service in the country. To date it has supported more than 22,000 patients. The technology is tired and tested, and is now being expanded to include respiratory.

Research on the CO@H service shared by Dr Matt Inada-Kim, national clinical director for deterioration at NHSE, shows:

- Hospital length of stay was reduced by an average of **6.3** days for CO@H patients in comparison to non-CO@H patients.

- Only **3.6%** of CO@H patients were admitted to ICU compared with **8.2%** for non-CO@H, and **5.8%** of CO@H patients died within 30 days compared to **20.5%** of non-CO@H patients.

NEWS2 and SBAR in care homes across Darlington and Durham

The introduction of a digital assessment form for care home workers to complete with patient observations and the central triaging of patients and their symptoms enabled nurses to direct the right care to the right patient at the right time.

It achieved excellent outcomes:

- **45%** reduction in specialist nurse visits
- **18%** reduction in overall unplanned admissions
- **13%** reduction in out-of-hours unplanned admissions
- **24%** reduction in in-hours unplanned admissions

Heart and lung disease, Norfolk Community Health and Care Trust

The service allows patients to monitor their vital signs at home and relay readings directly to a clinician. The service enables clinicians to monitor trends and intervene if readings move outside individual thresholds.

Analysis of the six months before and after the service revealed the following:

- **88%** reduction in bed days
- **89%** reduction in A&E visits
- **65%** reduction in GP visits
- **45%** reduction in Out of Hours appointments

Blood Pressure @ Home, Surrey Heartlands ICS

A local trial involving 69 patients from four GP practices in Surrey Heartlands demonstrates how giving patients a more active role in their healthcare can help improve outcomes:

- **53%** of users move from high to normal threshold blood pressure within five months.

- **56%** of these achieved this through adopting lifestyle changes such as increasing exercise or changing their diet.

Surrey Heartlands ICS believes that expanding the service could help thousands of patients to manage their conditions, improve their health, reduce the incidence of clinical events such as death, heart attack or stroke, over five years and save millions of pounds in reduced use of NHS services.

10. Carbon reduction

NHS England expects Trusts and ICBs to have a board-level net zero lead and a Green Plan, and are being asked to deliver carbon reductions against this, throughout 2022/23.

Providing virtual care and caring for patients at home, in virtual wards, has great potential for carbon reduction as our INR self-testing service with CDDFT demonstrates.

Since going live in 2013, more than 72,000 INR measurements have been taken by patients remotely, with each measurement representing what would have been a face-to-face appointment.

11. Secure data storage

Vast volumes of confidential data will be created by both continuous and spot monitoring on virtual wards. This will need to be stored and used securely.

Virtual wards will require a technology solution that can handle this data and integrate it into key clinical systems so that healthcare professionals have access to the information at their fingertips.

In addition, to ensure that the virtual ward programme meets its objectives, it is important that key metrics, including number of virtual ward beds and number of patients admitted, are monitored to measure success.

Since April 2022, lead providers of virtual wards are required to submit a fortnightly 'SitRep' with a minimum data set of aggregate information relating to usage, type and configuration of the virtual ward itself and data on patients' ethnicity, gender and age.

Our reporting and analysis is industry-leading and enables informed decisions about operational and clinical improvements for patients. Our 'data lake' enables new views into the growing amounts of data generated by NHS remote patient monitoring services and to help NHS providers and commissioners to analyse data to boost operational and strategic decision-making.

About Inhealthcare

Inhealthcare is a UK market leader in digital health and remote patient monitoring. More than 20 million people across the UK can now access technologies developed by the company in partnership with the NHS.

The underlying technology platform and its associated patient and clinician-facing applications are registered with the Medicines and Healthcare products Regulatory Agency as a Medical Device. Inhealthcare has integrated the platform with NHS login, making it even quicker and easier for patients to use its digital health services.

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