May 2021

Rapid national roll-out of home-based safety net benefits thousands of patients with COVID-19

Overall summary

Academic Health Science Networks (AHSNs) responded at pace to a request from NHS England/Improvement for rapid roll-out of two pathways based on remote monitoring which are now safely and effectively providing an early warning system for thousands of COVID-19 patients at home, saving lives and easing pressure on the acute sector. Signs of deterioration are identified early and escalated quickly. This approach, recommended by the World Health Organisation, was rolled out rapidly nationally following initial regional success in the South East. This is an example of a whole health system approach, led by clinical experts, working collaboratively to successfully deliver new services to patients.

What is the challenge?

Detecting the early signs of deterioration in patients with confirmed or suspected COVID-19 is a significant challenge for health and social care teams. One of the early breakthroughs in the treatment of COVID-19 was the identification of silent hypoxia – the presence of low blood oxygen levels in a patient who might not otherwise seem unwell – as a symptom requiring urgent medical attention. As patients at risk of poorer outcomes can be identified by reduced oxygen saturation levels, the ability to recognise early decreases in blood oxygen levels before the patient becomes symptomatic is vital. A simple monitoring device called a pulse oximeter does this.

In autumn 2020 the NHS medical director for the South East approached AHSNs to lead rapid regional roll-out of COVID Oximetry @home.

In January 2021 NHS England recommended that all integrated care systems (ICSs) immediately establish a second related pathway - COVID virtual wards - to support the earlier and safe discharge of COVID-19 inpatients.

What did we do?

Two pathways relating to early identification of silent hypoxia through pulse oximetry monitoring have been rolled out at pace and scale building on already strong relationships with systems across the South East:

- COVID Oximetry @home (CO@h) – safe admission avoidance (step up)
- COVID Virtual Wards (CVW) – early supported hospital discharge and safe admission avoidance (step down)

The initial focus was on CO@h services. This is an enhanced package of remote monitoring for patients with confirmed/suspected COVID-19, who are at risk of future deterioration/admission, provided within a patient's own home overseen by a multidisciplinary team (MDT). It was successfully rolled out in under three months.

The Oxford AHSN hosted an initial webinar in September 2020: 'Innovations in Covid-19 Patient Pathways' which showcased examples from around our region of innovative ways of assessing and managing patients with suspected COVID-19 in the community. A recording is available here. Further webinars followed in January, February and March, some with other regional and national partners.

In October 2020 the Kent Surrey Sussex, Oxford and Wessex AHSNs were directly commissioned by NHS England and Improvement to work with integrated care systems (ICSs), primary care, key clinical leaders and others to codevelop CO@h services. This was achieved in all six ICSs across the South East by the end of November.

The joint programme board's membership includes Matt Inada-Kim, the national deterioration lead.

Patient safety teams supported the rapid spread of these solutions across the South East. They used a variety of methods and techniques including understanding the baseline for adoption and reviewing clinical pathways, producing and curating materials, supporting with the production of metrics and evaluation. Their experience informed the roll-out of the programmes in other regions.

They also facilitated a national learning network (registration required). This workspace also includes an active discussion forum where evaluation reports from pilot sites are shared. These include Slough and Reading in our region and this evaluation from University College London.

In November 2020 NHS England/Improvement wrote to all clinical commissioning groups and trusts to encourage the development of local CO@h projects, following the publication of national guidance. This included the advice to follow the South East region approach to achieve rapid spread for this project.

In January 2021 the World Health Organisation recommended pulse oximetry monitoring at home as part of a package of care.

The CVW model was rolled out in under a month from January 2021. A national toolkit, learning networks and national guidance were rapidly developed, building on the success of the CO@h approach. Led by secondary care it supports step-down care for COVID patients leaving hospital, helping to mitigate pressure on beds and enable acute services to focus on sicker patients.

Both models use pulse oximeters for patients to safely self-monitor their condition at home, providing an opportunity to detect a decline in their condition that might require hospital review and admission.

What has been achieved?

Effective engagement has been achieved across secondary care, primary care and CCGs, with all partners involved in the many detailed conversations supporting development of the services. This included working with NHSX to support systems to identify, procure, test and integrate digital solutions to support this new model of care.

All of the South East of England now has digital platforms to support remote monitoring of patients for other conditions and pathways.

Early experiences of CO@h have been linked to reductions in mortality, hospital length of stay and pressure on intensive care/critical care beds.[i]

By March 2021, CO@h coverage was at 100%, with CVW live in 21 sites and some blended services. In total 17,000 patients have been onboarded to these pathways so far in the south east. The peak for inpatient treatment was 5,577 in January, while for patients on CO@h/blended services it was 2,500 in January.

The CO@h toolkit has been viewed or downloaded almost 8,000 times.

Patient information has been produced including translation into several languages.

What people said

"The care was very good. Knowing someone was monitoring the responses and answering queries was reassuring. Thank you."

Patient

"The implementation of Covid Oximetry @home, across all six system footprints that make up the SE region, would not have been possible without the support of the three regional AHSNs. From the outset, they have collaborated as one: drawing on their combined skills and expertise, working hand-in-glove with the regional digital team – and other partners – to deliver a comprehensive service, from scratch, to achieve impressive population of this innovative model of care to promptly identify patients who need hospital admission, and to monitor those who can be safely managed at home."

Vaughan Lewis, South East Regional Medical Director, NHS England & NHS Improvement

"For me, what's particularly exciting is how clinicians have been inspired to lead and create local networks for change, and how we've come together… as a growing collective of clinicians, healthcare managers and system leaders to create a way of working which is now arguably world leading."

Matt Inada-Kim, National Deterioration Lead

"From our early data, patients with non-severe COVID-19 can be safely managed in the community instead of being admitted to hospital. A virtual ward provides a safety net for this cohort of patients."
Joseph Nunan, ultrasound fellow in the acute medical unit, Royal Berks

"The Oxford AHSN was one of the key driving forces behind the setting up of the CO@h pathway at Bucks Healthcare and they are in the process of achieving the same feat in primary care. They had huge expertise in this sector, experience of having worked in other centres and, most importantly, a keen interest in getting it to work and work well. They were instrumental in the structure of the pathway, guided us through latest developments on this ever-changing topic and even provided expert administrative support. Further continued support in future is very welcome."
Dr Raghu Raju, Consultant Respiratory Physician at Buckinghamshire Healthcare NHS Trust

"The Oxford AHSN team has been incredible to work with. It is not often commissioners are offered proactive human resource and we have certainly welcomed the support. [Jo Murray](#) and her team have shared practical examples of successful delivery of virtual wards from elsewhere, they have been facilitative and allowed the Buckinghamshire team to develop a pathway that is bespoke for our population. Having the pre-existing project knowledge, experience, and hands-on admin, as well as strategic support, has ensured the prompt delivery of this national requirement. They have demonstrated the importance of shared system learning to improve and disseminate best practice. Thank you and we look forward to continued collaborative efforts."

Dr Dal Sahota, Clinical Director for Unplanned Acute Care, Buckinghamshire Clinical Commissioning Group

What next?

The intensive AHSN-led support to implement these pathways began to wind down from April 2021. AHSNs are continuing to support systems to embed models, in particular capturing lessons learned, exploring ways to sustain the two COVID Oximetry pathways and investigating further opportunities for remote monitoring.

Next steps include data analysis to help close any gaps in service provision as well as exploring if this approach to remote monitoring and self-care could be applied effectively for other conditions and pathways eg long-term conditions including respiratory disease and mental health.

At inception it was unclear if these were temporary fixes or sustainable for the longer term. The transition to business as usual was not planned at the start and it was assumed that the peak would end in March 2020. In fact the peak came in early 2021. All parts of the system are now working with NHS/I colleagues to transition from start-up/improvement stage to business as usual and assurance.

Key learning

The ability to feed learning and concerns up to the national team, discuss at regional and national level with pilot sites and get quick responses that could be fed back at pace via AHSN networks was vital to the speed and success of this project.

The learning network events were free from hierarchy, featuring primary and secondary care colleagues, as well as commissioners, with a range of knowledge - including clinical, digital, IT - and all sites nationally have been exceptionally generous with sharing their materials. These were curated into toolkits to support other sites to develop their local models.

Patient surveys and case studies have been a strong part of the learning from the outset, recognising that both digital and paper-based services would be required as well as phone calls for reassurance and advice above and beyond the scope of the pulse oximetry work, e.g. signposting/referring on to additional support services.

Flexibility in the models allowed local adoption and adaptation to suit the availability of services.

This work made full use of wide-ranging clinical expertise including community respiratory teams, acute medical unit physicians' assistants, GP hubs and staff who were shielding.

Contact

Jo Murray, Patient Safety Programme Manager jo.murray@oxfordahsn.org

---

i https://acutemedjournal.co.uk/wp-content/uploads/2020/11/p183-191-1.pdf