COVID Virtual Wards briefing

20 October 2020

This briefing outlines key information about the COVID Virtual Ward, including links to relevant resources. It also highlights the support available from the West of England AHSN with a local offer making use of our existing expertise, infrastructure and resources.

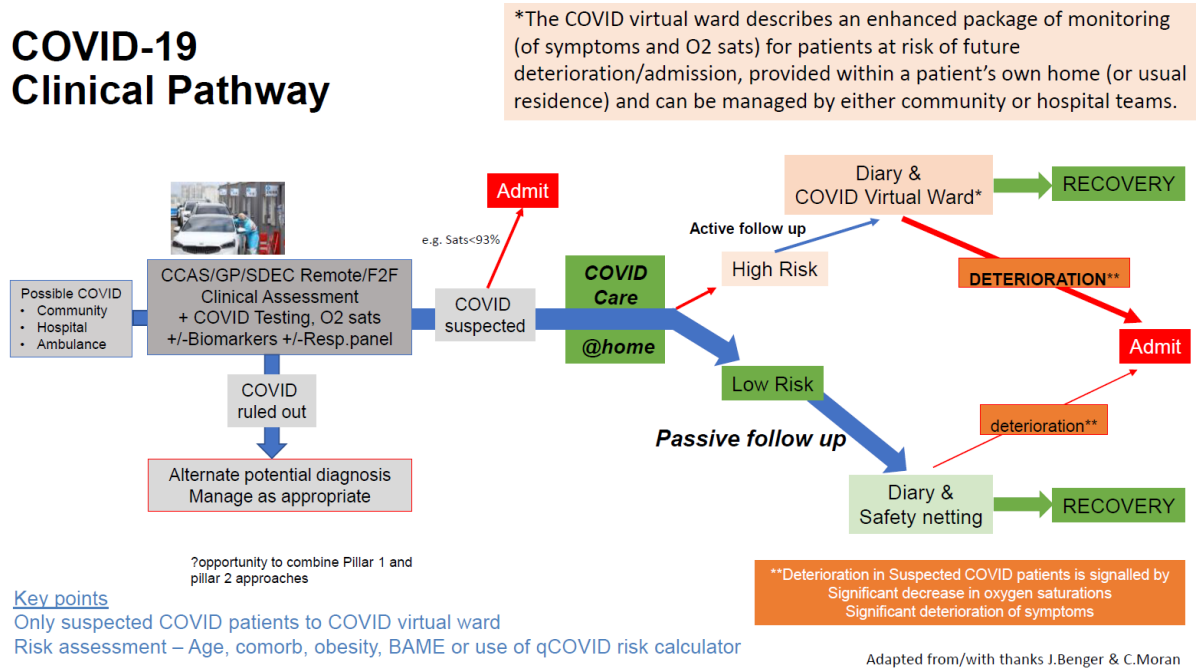
Initially, we will support a rapid diagnostic / scoping exercise to understand the prevalence and uptake of virtual ward based models across the region. This will swiftly lead us to work with individual systems as scoping is completed, and support will be provided tailored to both the findings of the rapid diagnostics and local ambitions.

The West of England AHSN is also in the process of developing a web page to support sharing information, which can be found at www.weahsn.net/virtual-wards.

Contents

What is a COVID virtual ward?

The COVID virtual ward describes an enhanced package of monitoring (of symptoms and oxygen saturations) for patients with confirmed / suspected COVID-19 who are at risk of future deterioration / admission, provided within a patient's own home (or usual residence) overseen by a multidisciplinary team (MDT) from either the community or hospital.



Dr Matt Inada Kim, National Clinical Advisor on Sepsis and Deterioration, gave a presentation on virtual wards at the West of England Patient Safety Board on 20 October, and a recording is available to watch here.

Is there national guidance available?

Information from NHS England on the use of pulse oximetry and a patient held diary is available on their website here.

What is the national AHSN Network response?

There are several pilot sites across England utilising centrally-funded pulse oximeters to test out models of local adoption and adaptation of a virtual ward process. The AHSN Network have convened a rapid learning and sharing network to support the pilot sites.

A COVID virtual ward toolkit is in development, with the current draft version available on the FutureNHS collaboration platform.

Note – a national decision has been made to restrict access to this toolkit to those with an NHS.net email address. You can sign up via the link above and by requesting access to the National Patient Safety Deterioration Forum. Once access is granted, click on the link in the forum for the COVID 19 Virtual Ward Toolkit.

Further advice on how to register for the toolkit is on our website at www.weahsn.net/virtual-wards.

Although the model and structure of the COVID virtual wards (including operational delivery) is still the responsibility of individual CCG/STP/ICSs, the Patient Safety Collaboratives have been commissioned to support learning from the pilot implementation. As at 20 October, a decision is pending as to the role of the Patient Safety Collaboratives in wider adoption and spread.

What does the toolkit contain?

There are six sections to enable you to start setting up a virtual COVID ward:

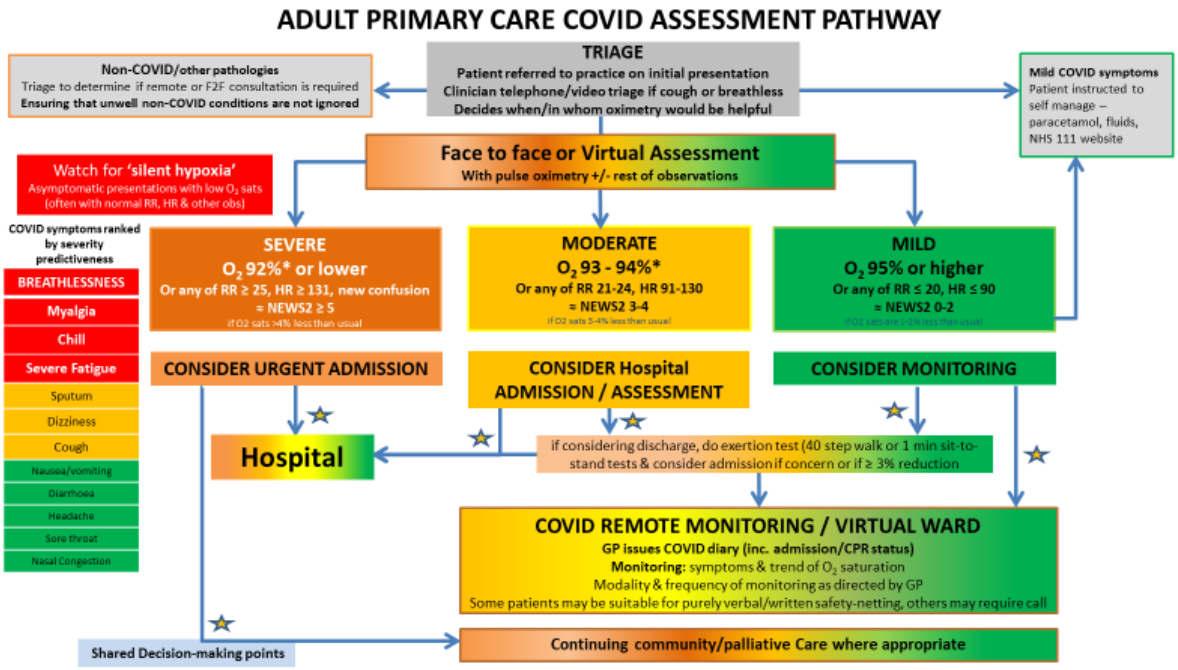
1. What is a COVID virtual ward and why should I set one up?
2. Six steps to setting up a COVID virtual ward (see below);
3. How will I know if my COVID virtual ward is a success?
4. How do I engage patients in my COVID virtual ward?
5. Additional resources including top tips, case stories, training videos and e-learning.
6. NHSX Innovation Collaborative – digital health workspace to support digital enablers.

Steps to setting up a COVID virtual ward as outlined in the toolkit

1. Engage the local pathway through Patient Safety Collaboratives
2. Form a stakeholder delivery group
3. Design and agree your model
4. Develop your implementation strategy and implement it
5. Request pulse oximeters early
6. Develop a local learning system.

Summary of the concept and how it relates to other virtual ward approaches

The diagram below shows a summary of a COVID virtual ward pathway:



On the back of the pilots, some rapid learning and evaluation has been shared on FutureNHS, along with examples models adopted. Further details of the evaluations can be found below.

Typology of models

COVID virtual ward patients are managed by either the community or hospital:

1. **Community**
   Those diagnosed as suspected COVID and identified as being at risk at home, to be closely monitored for deterioration by the community MDT (generally via a GP hot hub or community team).
2. **Hospital**
   Those discharged with COVID from the hospital to home, who are closely monitored for deterioration by the hospital MDT (generally via Emergency Department or Respiratory teams).
3. **Blended**
   Step down from acute and refer in from community.

Differences between primary care and secondary models:

- Greater data linkage in secondary models with existing patient systems within hospitals; data integration not well established in primary care models.
- Lower patient referrals in primary care models early on during the pandemic; readmission in secondary models varied across sites.
- Greater range of senior staff involved in providing clinical oversight in secondary care models, such as cardiology, respiratory, geriatrician (although many questioned whether this was necessary).

Emerging benefits

The overall aim is to reduce morbidity and mortality from COVID-19 by supporting patients to self-monitor, spot and act on early deterioration.

A literature review looked at 17 published models to analyse outcome data and key findings. Models included both primary and secondary care led models, and a mixture of acute (~ 6 weeks from initial contact) and chronic / step-down care. The results are below:

> *The aim of the models was to maintain patient safety in the right setting. Most models were led by secondary care and confirmation of COVID-19 was not required (in most cases). Monitoring was carried out via online platforms, paper-based systems with telephone calls or (less frequently) through wearable sensors. Models based on phone calls were considered more inclusive. Patient / carer training was identified as a determining factor of success. We could not reach conclusions regarding patient safety and the identification of early deterioration due to lack of standardised reporting and missing data. Economic analysis was not reported beyond how the resources were used.*

NIHR research[1] also summarised the available data on impact, noting that data was collected for implementation rather than evaluation purposes.

The benefits reported from the North Hampshire pilot were:

[1] Rapid evaluation of remote home monitoring models during COVID-19 pandemic in England. Draft findings from RSET/BRACE (National Institute for Health Research, Health Services & Delivery Research programme (RSET Project no. 16/138/17; BRACE Project no. 16/138/31). Presentation available on FutureNHS platform.

- 2,000 COVID / non-COVID patients managed (based on 600,000 patient population with two community hubs);
- > 10 % reduction in COVID mortality and acuity of presentation;
- > 35 % reduction in ED COVID admissions;
- > 20 % reduction in hospital admissions from care homes;
- 5 hour reduction in clinician time / day / virtual ward through using digital solutions.

Source: Dr Matt Inada-Kim presentation on Wessex model [3].

Resources required for roll out

This is still an area of development and depends on the model adopted along with capacity to redeploy current staff as required and / or the underpinning infrastructure to manage the COVID virtual ward.

Considerations for the virtual ward that can affect scope include:

- Primary or acute / secondary care based;
- Pre-hospital only, and / or step-down (and whether this includes chronic / long COVID care);
- Patient demographics including age;
- Risk stratification levels used to determine active/ passive monitoring;
- Threshold for admission (symptomatic / clinical suspicion / COVID positive test);
- Utilisation of existing infrastructure, particularly around patient record systems;
- Operational hours (in hours/ out of hours / 24-7);
- Footprint (GP practice/ primary care network/ acute care footprint / countywide).

There are dependencies with interfaces around 111, GP, out-of-hours, and ambulance services. Some areas are using NHS Volunteer Responders, particularly around logistical distribution of pulse oximeters.

FAQs around pulse oximeters collated from pilot sites and learning webinars by Oxford AHSN *

How many pulse oximeters do we need?

As a rough guide and suggestions from pilot sites

- 30 per GP practice (8,000 population)
- 300 per acute trust (600,000 population)
- 1 per 25 care home residents

Care homes may have already been supplied with pulse oximeters during the initial pandemic so it is worth checking with your system.

Can patients use their own?

Yes. All products, provided they are CE kite marked, are safe to use in the 90%+ range (they may be less accurate below 90), but don't use *smartphones* as oximeters https://www.cebm.net/covid-19/question-should-smartphone-appsbe-used-as-oximeters-answer-no/

Make sure you provide education information with any device – see patient information videos and leaflets within the Covid-19 Virtual Ward toolkit.

Can paediatrics use the devices?

No. Most devices are suitable for people aged 16 and over. Specialist equipment designed for paediatrics and specialist team assessment should be considered. Covid-19 cases requiring escalation are rare in children, but it is important to consider other conditions such

as sepsis that require immediate support.

Availability of pulse oximeters

NHS England and NHS Improvement has purchased a limited supply of pulse oximeters that can be transferred to CCGs free of charge for their local areas when there is an urgent need such as increased local infection rate, existing intention to purchase pulse oximeters, or care homes with insufficient oximeters. CCGs will need to provide assurance that:

- oximeters will be used under general practice supervision
- people at greatest risk from COVID-19 will be prioritised and supported
- reasonable efforts will be made to safely reallocate oximeters if required, for example, because of evolving COVID-19 infection profiles and clinical pathways
- reasonable efforts will be made to supply relevant information on oximeter use to inform future use of oximetry for COVID-19 patients.

For more information and to submit a request for oximeters please contact england.home@nhs.net. This information has also been shared with general practice colleagues, with a recommendation for primary care networks (PCNs) to contact CCGs if they feel they have an urgent requirement which their CCG is not already aware.

** FAQ are evolving as we learn, this guidance is dated 13 October 2020.*

Resources can be divided into:

- Set up / implementation support;
- Ongoing delivery.

Example staffing delivery models from pilot sites are summarised below:

	Staff's band/function	Pre-hospital Model		Step-down Model	
		Number of staff	Number of hours	Number of staff	Number of hours
The total number of staff involved in setting up the pilot					
Tees Valley	band 5, band 8b, band 9	12	770	-	-
Manchester University FT	-	-	-	0	0
West Herts (Watford)	-	0	0	-	-
Winchester City	GP, ANP, band 5	4	27	-	-
Royal Hampshire	ANP, band 5, band 7, band 9	6	46	-	-
Royal Berkshire	PA student, ST3, band 9	3	240	1	58
The total number of staff involved in running the pilot					
Tees Valley	band 7	1	1,064	-	-
Manchester University FT	band 5, band 8, band 9	-	-	4	2,904
West Herts (Watford)	band 3, band 4, band 8a, band 8d	22	13,577	-	-
Winchester City	GP/ANP	9	633	-	-
Royal Hampshire	ANP band 7, band 9	22	2,199	-	-
Royal Berkshire	PA student, band 6 (nurse), ED specialist, ST3, band 2	9	21,467	2	5,148

Note: Data available from 6/8 sites for the period March-August 2020. 4 sites pre-hospital model only; 1 site step-down model only; 1 site both pre-hospital and step-down.

RSET BRACE Rapid Evaluation Centre

FUNDED BY NIHR National Institute for Health Research 13

Example stakeholder lists are available in the toolkit.

Learning on implementation

Summary of learning from the pilot sites to date:

Facilitators	**Barriers**
Key stakeholders • Role of influential, dedicated clinical leaders in establishing • Significant support and 'buy in' from senior management within acute trusts and across CCGs to set up virtual wards • Some acute hospitals had pathways in place (i.e. ambulatory care) which supported the set-up of virtual wards more quickly Patients • Developing paper and video patient information (as well as using digital platforms) was very useful to explain the concept of virtual wards and how to take measurements • Positive engagement from patients and trust in clinical staff	Appropriateness of referrals • Early on, referral criteria and processes were unclear, which led to unsuitable patients being referred to virtual wards. In part, this was caused by an evolving criteria for patient referrals Monitoring • Difficult to do non-verbal assessment using telephone and video consultation alone • Some patient groups are difficult to monitor remotely e.g. homeless community; monitoring using an app only model is not sufficient for all populations • Availability of culturally appropriate patient information in different community languages Resourcing • Lack of administrative/project management support and resources, especially equipment e.g. difficulty obtaining pulse oximeters quickly • Challenging to deliver seven day service due to workforce availability; requires flexible, skilled, and trained staff • Evidence and data • Linking data from apps/spreadsheets to existing primary and secondary care datasets proved difficult (especially when buying "off the shelf" app products e.g. Medopad) • Linking data with NHS Test and Trace • Lack of published evidence to support design of virtual wards • Can be difficult and time consuming to collect desired data even when using apps/wearable technology

Top tips and insights from pilot sites in the learning and sharing network:

- This is a system-wide multidisciplinary team effort
- Make use of existing networks and relationships, especially when building stakeholder group
- Set up regular communication routes – daily initially such as short huddle-style meetings and/or bulletins to keep all informed
- Create a governance structure from the outset – creates a safe space to report, share and early identification of challenges – “air grievances and resolve” and to celebrate milestones however small
- Have several workstreams with a lead for each running in parallel to cover off logistics, clinical pathways, data and information governance, communications, patient information, etc. Again, regular communication to bring all workstreams together in short focussed meetings. Include frontline staff to empower.
- This is about a different way of working and so consider change management at every level of the system – consider this as a sustainable care model rather than a short-term project for the pandemic, e.g. the model can be used to support people with long term conditions
- Develop a process to gather patient and staff feedback – this has been overwhelmingly positive from the pilot sites and helps with messaging to other colleagues
- Keep measurement simple and useful for your local model
- Start small and build – this is complex!
- Match service to your own local geography – consider number of services required
- Strong system-level leadership is a key enabler
- Other enablers include single platform for video consultations and documentation e.g. EMIS, Teams, AccuRX, share care records – but remember basic model is pulse oximeters and regular telephone follow up
- Consider patient cohort – those with long term conditions, mental health conditions or pregnant women for example may be better served by a pre-existing specialist service and input from the COVID Virtual Ward team.
- Junior clinicians and appropriately skilled nurses and AHPS can take on the assessment and follow up roles with GPs / Consultants able to oversee (initial pilots were top heavy and delegated as confidence grew)
- During wave 1 weather allowed drive through and outdoor venues – wave 2 may need to consider safe indoor venues and move to keeping people at usual place of residence even for initial assessments.
- Proactive monitoring of temperature and oxygen saturations helpful for people with learning disabilities – establishes individual baseline, desensitises person to the equipment and allows for early detection & escalation of symptoms
- Do make use of the resources available on the FutureNHS workspace, including the biweekly learning network meetings and share your own resources so that others can build on your great efforts!

Collaborative working with the West of England AHSN and system partners

Based on the experience of the Sandwell and West Birmingham pilot, here are some example areas where AHSNs can support system partners:

1. **Insight**
   This would include the toolkit, learning on effective measurement to understand the quality of care, benefits realisation, and rapid tests of change, and support to operationalise data collection, measurement for improvement, and evaluation.
2. **Guidance**
   Connecting into the national learning and sharing network and AHSN leads to enable rapid learning and sharing of best practice and guidance across the country; support for local pathway mapping and rapid tests of change;
3. **Acting as a sounding board**
   Coaching to implementing teams; connect via existing networks and experts who are members of existing faculty.
4. **Signposting**
   Recommended relevant resources and supporting local adaptation (e.g. SOPs, safety netting, training materials), and making connections with other stakeholders, including linking with the NHSX digital workstreams around remote monitoring.
5. **Networking**
   Supplying local and national networking infrastructure to enable system-wide implementation, including hosting webinars and workshops as needed.

Our local support offer includes the elements above and makes use of our existing infrastructure and resources. We will initially undertake a rapid diagnostic / scoping exercise to understand use of virtual ward based models across the region. This will swiftly lead us to work with individual systems as scoping is completed, tailoring our support based on both the findings of the rapid diagnostics and local ambitions.

We are keen to share the learning from the good work already happening in our region, for example Dr Hein Le Roux shared progress from the Gloucestershire pilot please do get in touch if you have resources or learning to share.

Previous AHSN resources

The following examples of work have been carried out in the West of England and may be useful to consider in the context of the virtual ward roll-out.

- **Short videos**
  The West of England AHSN (in partnership with Health Education England and Wessex AHSN) have produced a series of short videos to support staff working in care providers to measure observations available to watch on YouTube here. We are exploring how to adapt these videos for use in virtual wards.

- **Free RESTORE2 training**
  Our programme of free training for care providers in the region in RESTORE2 mini and RESTORE2 will continue, as these form part of the clinical pathway for residents in care homes. We are able to supply tailored training for providers or settings where this is useful.

- **Local coaching and expertise**
  The West of England AHSN have identified local team members who can provide coaching to implementing teams. We can also connect via our existing networks (e.g. West of England Learning Disabilities Collaborative, Mental Health Collaborative) to

access experts by experience and to test out local resources (e.g. safety netting advice and patient facing materials).

- Throughout the pandemic response, the West of England AHSN have hosted webinars for local partners to learn and share from each other, and we can host webinars to support COVID virtual ward implementation. We have also been involved in AHSN Network / RCGP joint national webinars on various topics relating to COVID, including physiological observations, care homes, and most recently on COVID-19 and children.

- NHSX is also supporting a programme of work to increase use of remote monitoring across the South West region. The West of England AHSN will work across this programme and the COVID virtual ward implementation to ensure clear and consistent messaging.

Other resources that the West of England AHSN can draw upon include our Academy (with expertise and access to expert speakers around Quality Improvement topics if the need is identified), connections into industry and digital partners, and a grey literature evidence repository.

Key references and other resources

1. Rapid evaluation of remote home monitoring models during COVID-19 pandemic in England. Draft findings from RSET/BRACE (National Institute for Health Research, Health Services & Delivery Research programme (RSET Project no. 16/138/17; BRACE Project no. 16/138/31). Presentation available on FutureNHS platform.
2. Pre-print publication: Remote home monitoring (virtual wards) during the COVID-19 pandemic: a systematic review
3. FutureNHS toolkit and presentations at the national pulse oximeter network webinars.
4. Oxford AHSN hosted a recent webinar (23 September) sharing examples of innovative ways to assess and manage patients with suspected COVID-19 in the community
5. NHSX presentations on the technology aspects: Tech-enabled Virtual Ward Model – the West Herts experience, led by Dr Matthew Knight and Alex Newland-Smith and The primary care hot hub – the West London experience, led by Dr Tony Willis and Dr Kuldhir Johal

A national AHSN Network COVID Virtual Ward web page is in development to provide consistent and easy to use public facing communications to supplement the resources available on the NHS-secure FutureNHS platform.

For further information, contact the West of England AHSN team via Nathalie.Delaney@weahsn.net