



Royal College of  
General Practitioners

*The***AHSN***Network*

## **COVID Oximetry @home: an overview for primary care**

**Prof Maureen Baker**, former Chair of the Royal College of General Practitioners

**Dr Gail Allsopp**, Clinical lead for Clinical Policy, RCGP, and Medical Director for East Midlands AHSN

**Dr Matt Inada-Kim**, National Clinical Director for Infection, Antimicrobial Resistance & Deterioration

**Dr Karen Kirkham**, National Clinical Advisor, System Development and Population Health Management, NHS England and NHS Improvement, and Clinical Lead for Dorset Integrated Care System

**Dr Alison Tavaré**, Clinical Lead for West of England AHSN and Regional Clinical Lead, CO@home

**Tim Straughan**, Director of NHS @home (joining for the Q&A)

**#CovidOximetry**



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## Oximetry resources

Visit [www.ahsnnetwork.com/covid-oximetry](http://www.ahsnnetwork.com/covid-oximetry) for more information:

- Sign up to the National Learning Network.
- Find tools and resources to help implementation.
- Contact your local Patient Safety Collaborative, who are supporting COVID Oximetry @home and virtual wards.

**#CovidOximetry**



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## COVID-19 resources

- Watch more of our joint webinars and find resources for primary care at:  
[www.ahsnnetwork.com/patient-safety-resources-for-primary-care](http://www.ahsnnetwork.com/patient-safety-resources-for-primary-care).  
Topics include care homes and children.
- Visit the RCGP COVID resource hub at:  
[elearning.rcgp.org.uk/course/view.php?id=373%20](http://elearning.rcgp.org.uk/course/view.php?id=373%20).
- The NHS guidance on pulse oximetry is at:  
[www.england.nhs.uk/coronavirus/publication/pulse-oximetry-to-detect-early-deterioration-of-patients-with-covid-19-in-primary-and-community-care-settings/](http://www.england.nhs.uk/coronavirus/publication/pulse-oximetry-to-detect-early-deterioration-of-patients-with-covid-19-in-primary-and-community-care-settings/).

**#CovidOximetry**

# Prof Maureen Baker

Former Chair of the Royal College of General Practitioners

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Twitter: [@maureenprsb](https://twitter.com/maureenprsb)

# Overview of webinar

- COVID: the challenges, including CCAS
- Silent hypoxia
- Oxygen saturations and the link to outcomes
- The COVID Oximetry @home model and making it operational
- Evaluation: how to be involved
- Vulnerable groups, e.g. care home residents and people with a learning disability
- Resources and signposting

# Gail Allsopp

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Medical Director, East Midlands AHSN

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# COVID Oximetry @home



## STEP UP

### Primary care model

| Patient   | Primary care<br>STEP UP MODEL  |
|-----------|--|
| Who       | Community diagnosed<br>Self (test), 111, CCAS, GP, red hub   |
| Where     | Primary/ community care  |
| What      | Supervised patient self monitoring   |
| Aim       | Recognize early deterioration and admit early<br>Safe admission avoidance<br>Right care at right time in right place |
| Treatment | Supportive only, no oxygen, dex, LMWH, trial drugs   |

# Now two systems being developed

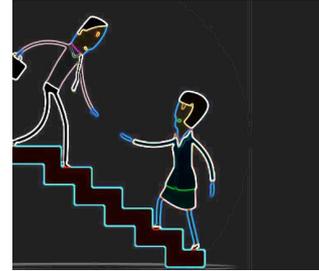


STEP UP

Primary care model

Covid Oximetry @home  
“Virtual ward”

DETECT SILENT HYPOXIA  
IDENTIFY EARLY DETERIORATION



STEP DOWN

Secondary care model

Secondary care follow up NOT primary care  
“Virtual ward”

ALLOW SAFE SUPERVISED EARLY DISCHARGE  
MAY BE ON TREATMENT (O<sub>2</sub>, Dex, LMWH etc)

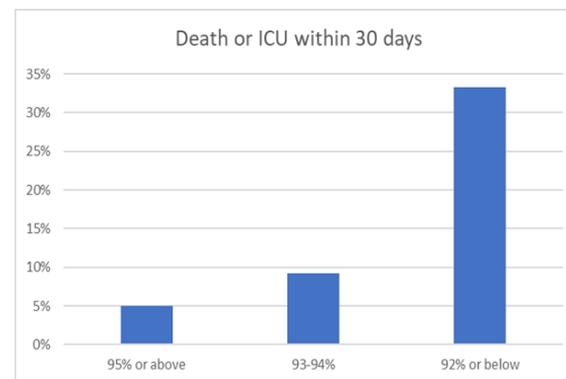
# Why is this important?

## Clinical presentation

| Day     | Symptoms             | Behaviour change   |
|---------|----------------------|--|
| Day 1-4 | Cough and SOB        |  |
| Day 5   | Anosmia and fatigue  | Stopped walking up stairs  |
| Day 9   | Chest pain (burning) | Stopped moving around<br>Sat all day<br>Camera off on remote meetings  |
| Day 11  | Worsening SOB        | Aware of need for further investigations but bank holiday<br>Felt too well to attend A&E (ok if sitting still)<br>Felt far too well to call 999<br>Only 24 hours till own GP open...<br>Planning for remote webinar on deterioration in care homes<br>Met with Alison Tavaré over teams. |

# Patient disbelief ... 'Am I really that unwell?'

|                | Observations               |
|----------------|----------------------------|
| Temperature    | 35.8                       |
| RR (R rate ap) | 30 (rest) 38 (post stairs) |
| HR             | 90 (rest)                  |
| O2 Saturations | 86%                        |



Patients may need empowering to seek further help

## Silent hypoxia

- is not obvious and patients *will not always have insight*
- is very frightening
- can affect your cognition and behaviour

# Matt Inada-Kim

National Clinical Director for Infection, Antimicrobial Resistance & Deterioration  
NHS England and NHS Improvement

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Twitter: [@mattinadakim](https://twitter.com/mattinadakim)

# WHY?

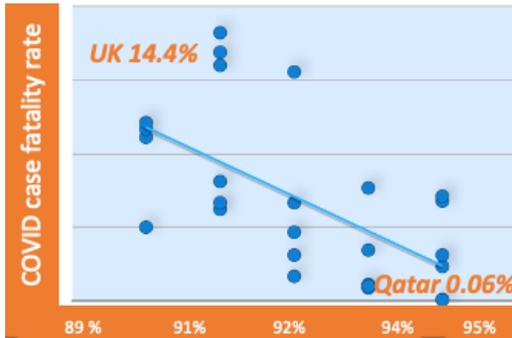
## Late-Early presentations

## Silent hypoxia

- 56 year-old, usually well man with a PMH of hypertension/asthma
- 14.4 first symptoms -> isolation, partner worked in care home
- 21.4 1<sup>st</sup> NHS call
- 23.4 2<sup>nd</sup> NHS call Terrible cough, joint pains
- 24.4 3<sup>rd</sup> NHS call Asked if he was breathless and if he could walk upstairs
- 24.4 partner was admitted with hypoxia via ambulance
- 28.4 He died

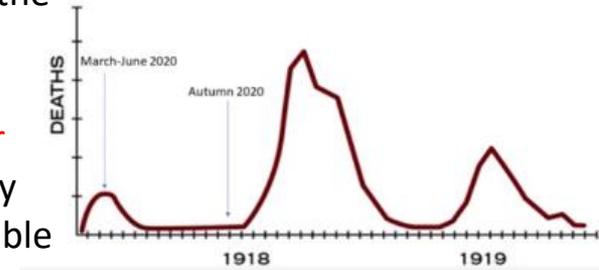
*“A characteristic of this virus that causes oxygen saturation levels of some sufferers to fall to dangerously low levels without them suffering conspicuous difficulties when breathing.”*

## The battle for lives will be won in the community



It is GPs, paramedics and ED staff who will shift the balance and save most lives.

It will be **clear, sound triage systems and clear clinical guidelines** that will determine mortality more than the total number of ventilators available



**Empowering COVID-19 patients with pulse oximetry @home to Self-monitor, Spot & Act on early deterioration**

Matt Inada-Kim, consultant acute physician, HHFT, Clinical Director Patient Safety/Digital innovation, Wessex AHSN  
National Clinical Director Infection & Deterioration, Chair COVID pathways, NHS England & NHS Improvement

every household should have an oximeter as well as a thermometer, suggests new study. I ordered one yesterday... #COVID19 Thanks for help from @mattinadakim and @trishgreenhalgh

# Validation of home oxygen saturations as a marker of clinical deterioration in patients with suspected COVID-19

19 Matthew Inada-Kim, Francis P Chmiel, Michael J Boniface, Helen Pocock, John J. M. Black, Charles D Deakin

[www.medrxiv.org/content/10.1101/2020.11.06.20225938v1](https://www.medrxiv.org/content/10.1101/2020.11.06.20225938v1)



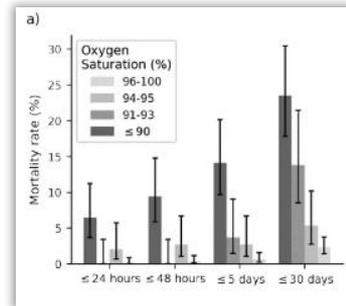
**The Telegraph**  
Covid patients should seek early treatment, as study warns of danger in even a slight...  
The findings suggest current NHS guidelines on blood oxygen levels may be set too high  
telegraph.co.uk



**Covid-19 patients whose oxygen levels drop even slightly below 96% may face a greater risk of dying and current NHS guidelines aren't sensitive enough, study warns**

- British researchers said the current NHS guidelines may be too relaxed
- They say blood oxygen levels between 94 and 95 per cent are "normal"
- But the study found drops below 95 per cent correlated with death
- It suggests Covid-19 patients told to stay at home needed early treatment

**Keeping it simple**  
The first study examining home oxygen saturations as a trigger for initial hospital assessment



**Even patients with presenting oxygen saturations of 94-95%, values regarded as within this normal range, had a significantly ( $p=0.045$ ) higher 30-day mortality rate (5.3 %) than those presenting with oxygen saturations higher than 95% (30-day mortality rate 2.3%)**

\*BREAKING\* First paper examining home oxygen saturation in COVID confirmed cases as a trigger for initial hospital assessment. We need to rapidly implement a hybrid community-hospital COVID Oximetry@home #COVIDvirtualward @richardhorton1 @bmj\_latest  
[medrxiv.org/content/10.1101/2020.11.06.20225938v1](https://www.medrxiv.org/content/10.1101/2020.11.06.20225938v1)

**The Urgent Need for SDEC COVID virtual wards**

**COVID Oximetry @home (Virtual Ward) DETERIORATION**

0,945% < 95%  
0,945% 91-93%  
0,945% < 90%

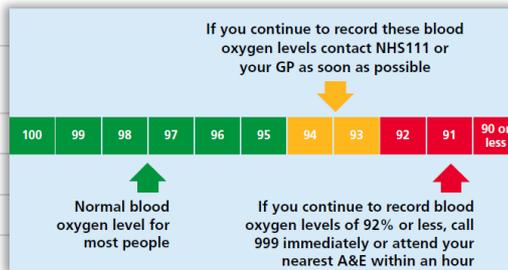
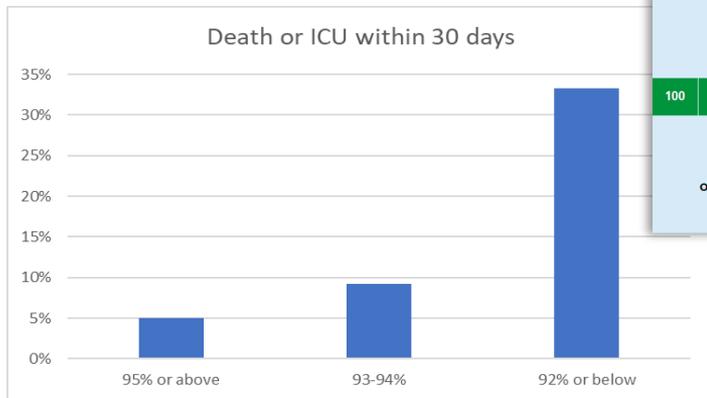
**The battle for lives will be won in the community**

Empowering COVID-19 patients with Pulse oximetry @home to self-monitor & report & seek an early assessment.

DRAFT

“A lower threshold for hospital conveyance may be necessary for patients who traditionally would be considered to have only minor physiological derangement and otherwise have been left at home.”

# The importance of oxygen measurement



[www.england.nhs.uk/coronavirus/publication/suspected-coronavirus-covid-19-important-information-to-keep-you-safe-while-isolating-at-home/](https://www.england.nhs.uk/coronavirus/publication/suspected-coronavirus-covid-19-important-information-to-keep-you-safe-while-isolating-at-home/)

## When and where to seek medical advice

### Contact NHS111

If you experience any the following COVID-19 symptoms, you should contact 111 as soon as possible.

- Feeling breathless or difficulty breathing, especially when standing up or moving
- Severe muscle aches or tiredness
- Shakes or shivers
- If you use a pulse oximeter, your blood oxygen level is 94% or 93% or continues to be lower than your usual reading
- Sense that something is wrong (general weakness, severe tiredness, loss of appetite, peeing much less than normal, unable to care for yourself – simple tasks like washing and dressing or making food).

You can access 111:

### Attend your nearest A&E within an hour or call 999

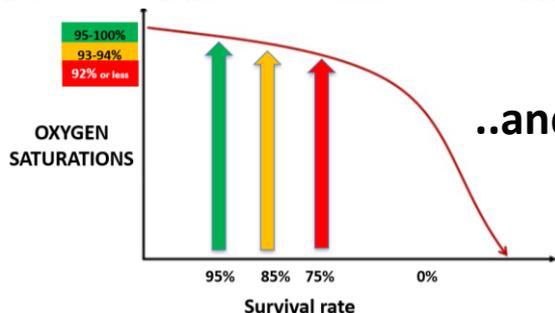
A minority of people with COVID-19 will suffer more severe symptoms. You should attend A&E as quickly as possible or call 999 immediately if you experience the following:

- Your blood oxygen levels are 92% or less
- You are unable to complete short sentences when at rest due to breathlessness
- Your breathing gets worse suddenly.

OR if you develop these more general signs of serious illness:

- Cough up blood
- Feel cold and sweaty with pale or blotchy skin
- Collapse or faint
- Develop a rash that doesn't fade when you roll a glass over it
- Become agitated, confused or very drowsy
- Stopped passing urine or are

## COVID Oximetry@home Deterioration Recognition system



..and early admission

Retrospective cohort study of admission timing and mortality following COVID-19 infection in England

Ahmed Alaa<sup>1</sup>, Zhaozhi Qian<sup>2</sup>, Jem Rashbass<sup>3</sup>, Jonathan Benger<sup>2</sup>, Mihaela van der Schaar<sup>2</sup>

Conclusion The timing of hospital admission is associated with mortality in patients with COVID-19. Healthcare workers and individuals from a BAME background are at greater risk of later admission, which may contribute to reports of poorer outcomes in these groups. Strategies to identify and admit patients with high-risk and those showing signs of deterioration in a timely way may reduce the consequent mortality from COVID-19, and should be explored.

# HOW?

# COVID clinical strategy

To improve outcomes/LOS/ICU admission rate through earlier recognition of deterioration

## 1. Establishing the optimal clinical model in all settings

### Aligned pathways

- Consensus formed through National COVID Clinical Reference Groups

### Remote assessments

- Remote consultations where possible with reduced face-to-face appointments.
- For COVID and all other conditions

### COVID virtual ward

- Monitoring suspected COVID patients at home for 'silent hypoxia' and early deterioration at home
- Enabled with pulse oximetry monitoring

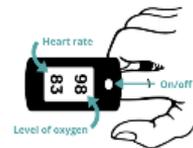
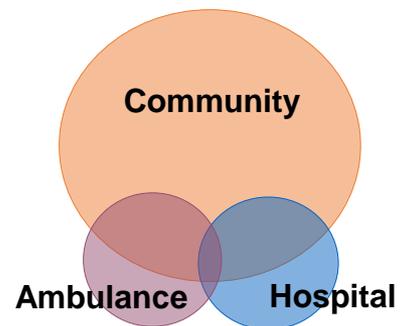
### Safety netting

- Sent/kept at home from all settings (e.g. hospital, community, care home, ambulance)

## 2. Digital supporting innovations (that are interoperable and bridge all settings)

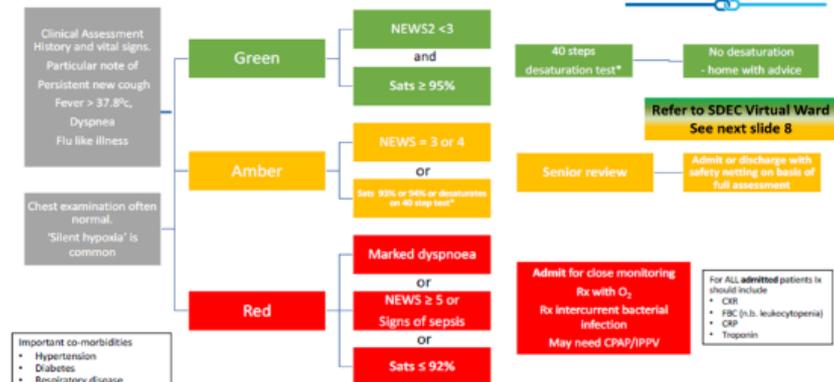
## 3. Evaluation (NHS Digital, Ara Darzi (IChP), UCL, NIHR, PHE, Nuffield Trust)

## 4. Scale & Spread

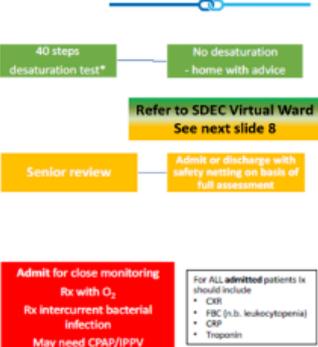


# Aligned national pathways across all settings

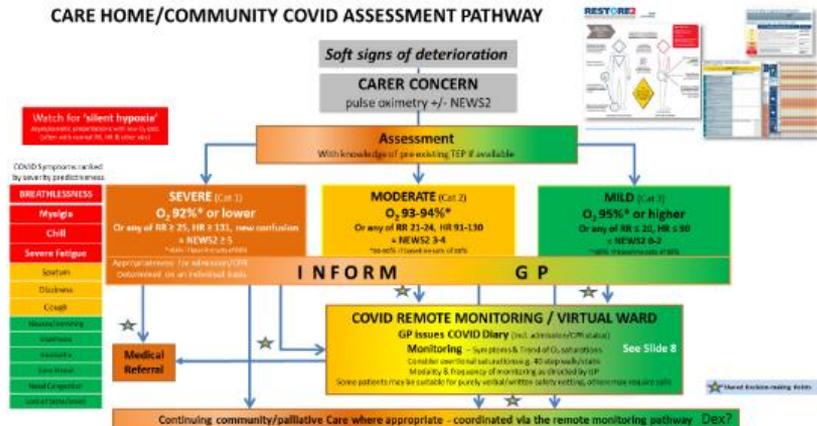
## ED/AMU coronavirus assessment tool



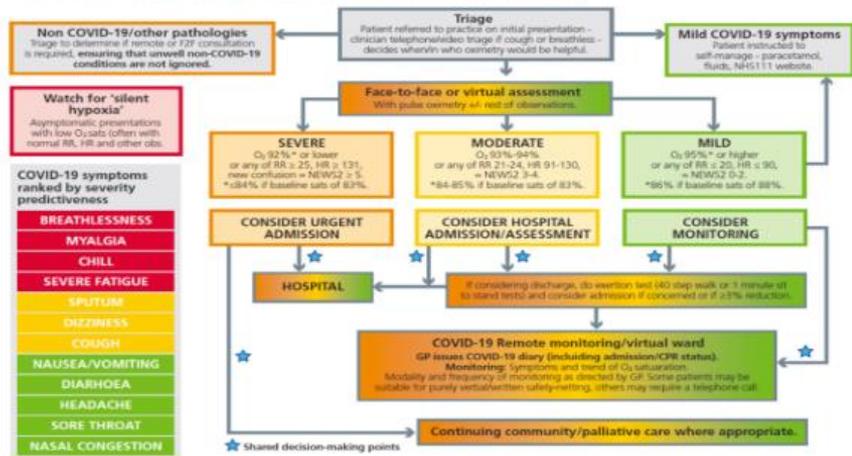
## NHS England and NHS Improvement



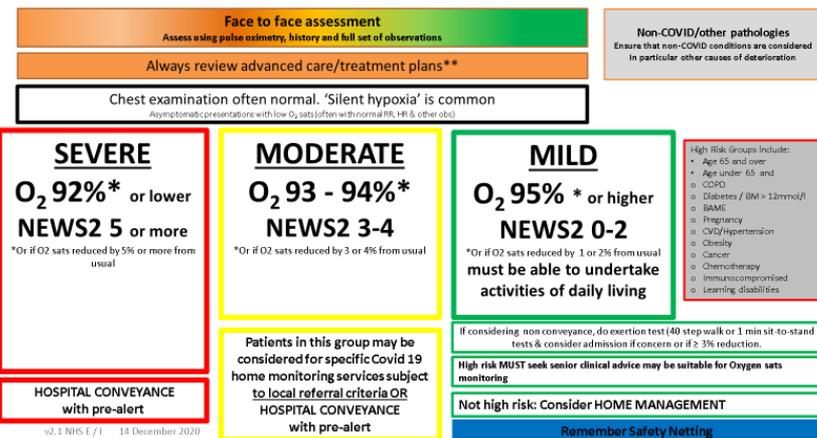
## CARE HOME/COMMUNITY COVID ASSESSMENT PATHWAY



## Annex 1: Adult primary care COVID-19 assessment pathway\*



## DECISION SUPPORT TOOL for ADULTS WITH CONFIRMED / SUSPECTED COVID (AMBULANCE)



\*See also: <https://www.ccmn.net/covid-19/what-is-the-efficacy-and-safety-of-rapid-exercise-tests-for-exertional-desaturation-in-covid-19/>

Low Acuity/Community pt - COVID Oximetry @home, High Acuity non-admitted patients are 'placed' on the COVID virtual ward

# ADULT PRIMARY CARE COVID ASSESSMENT PATHWAY

**TRIAGE**  
 Patient referred to practice on initial presentation  
 Clinician telephone/video triage if cough or breathless  
 Decides when/in whom oximetry would be helpful

**Non-COVID/other pathologies**  
 Triage to determine if remote or F2F consultation is required  
 Ensuring that unwell non-COVID conditions are not ignored

**Mild COVID symptoms**  
 Patient instructed to self manage –  
 paracetamol, fluids,  
 NHS 111 website

**Watch for 'silent hypoxia'**  
 Asymptomatic presentations with low O<sub>2</sub> sats  
 (often with normal RR, HR & other obs)

**Face to face or Virtual Assessment**  
 With pulse oximetry +/- rest of observations

COVID symptoms ranked by severity predictiveness

**SEVERE**  
 O<sub>2</sub> 92% \* or lower  
 ≈ NEWS2 ≥ 5  
 \*Or if O<sub>2</sub> sats >4% less than usual

**MODERATE**  
 O<sub>2</sub> 93 - 94% \*  
 ≈ NEWS2 3-4  
 \*Or if O<sub>2</sub> sats 3-4% less than usual

**MILD**  
 O<sub>2</sub> 95% \* or higher  
 ≈ NEWS2 0-2  
 \*Or if O<sub>2</sub> sats are 1-2% less than usual

**BREATHLESSNESS**

- Myalgia
- Chill
- Severe Fatigue
- Delirium

Sputum

Dizziness

Cough

Nausea/vomiting

Diarrhoea

Headache

Sore throat

Nasal Congestion

**CONSIDER URGENT ADMISSION**

**HOSPITAL ASSESSMENT**  
 (if new for patient)

**CONSIDER MONITORING**

**Hospital**

if considering discharge, do exertion test (40 step walk or 1 min sit-to-stand tests & consider admission if concern or if ≥ 3% reduction)

**COVID REMOTE MONITORING / VIRTUAL WARD**  
 GP issues COVID diary (inc. admission/CPR status)  
**Monitoring:** symptoms & trend of O<sub>2</sub> saturation  
 Modality & frequency of monitoring as directed by GP  
 Some patients may be suitable for purely verbal/written safety-netting, others may require call

**Shared Decision-making points**

**Continuing community/palliative Care where appropriate**



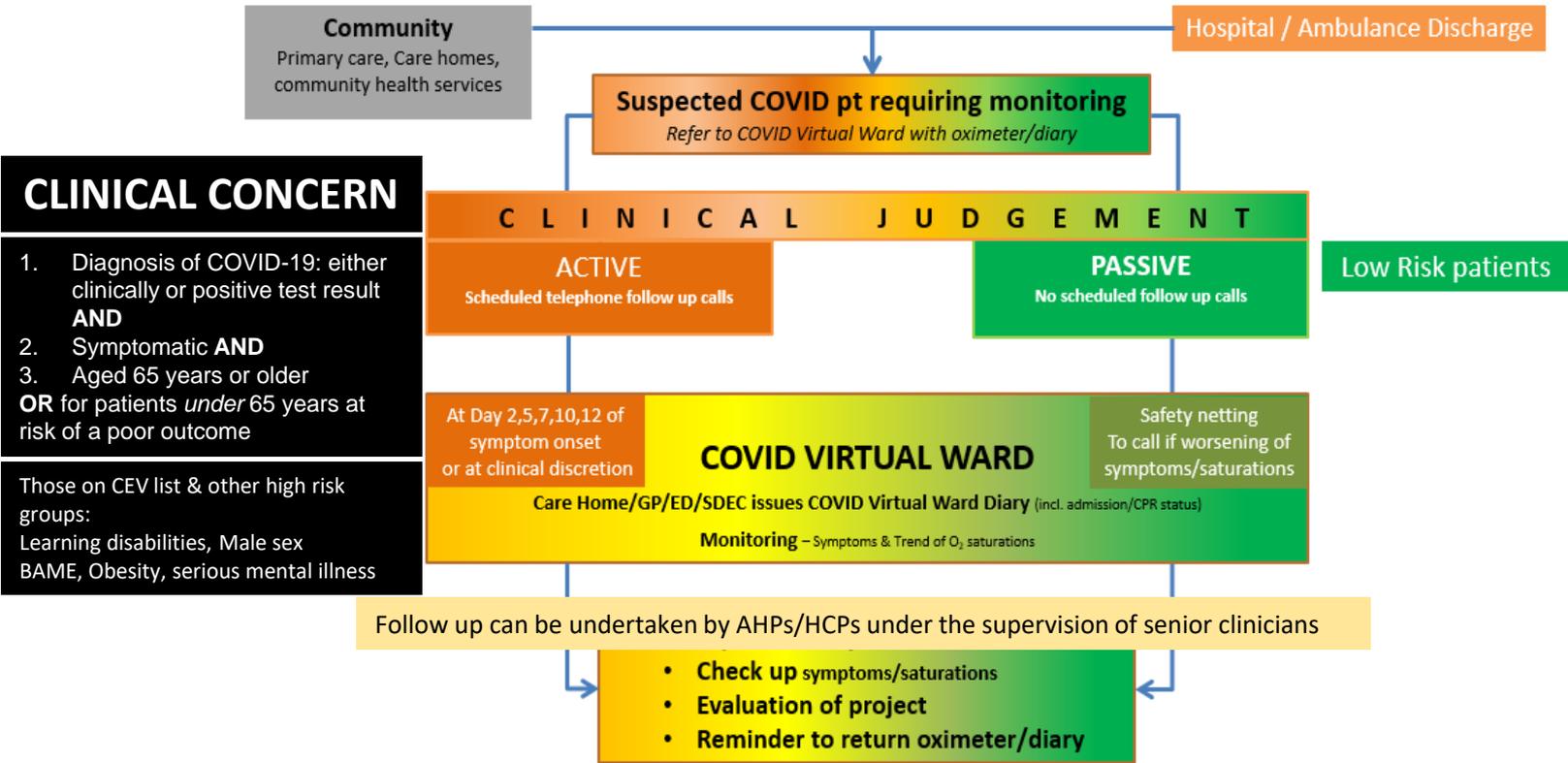
<https://vimeo.com/486820611>

*Courtesy of BBC South Today, 3 December 2020*

# WHAT?

## COVID Virtual Ward PATHWAY

Inclusion criteria



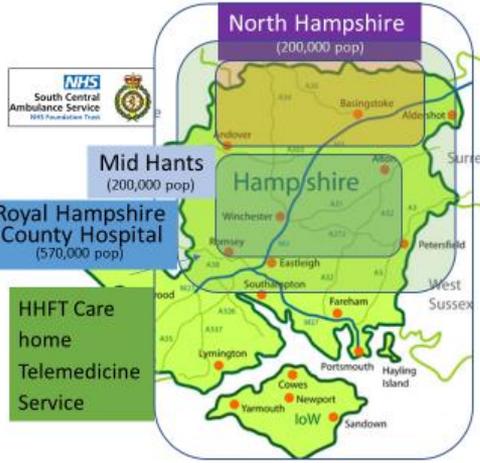
Follow up of suspected or confirmed COVID-19 patients @home

Patient self-monitoring (TDS) oxygen sats/symptoms @home

Early escalation (desaturation +/-symptoms) to admit patients as soon as they deteriorate



# SCALE & SPREAD regions and time



**NOW**

- 2 Community hot hubs
- 1 Hospital SDEC
- 100 Care homes
- 1 Ambulance trust
- Covering 600k people

**FUTURE**

- 9 Community hot hubs
- 5 Hospital SDEC
- 600 Care homes
- 1 Ambulance trust
- Covering 2 million people

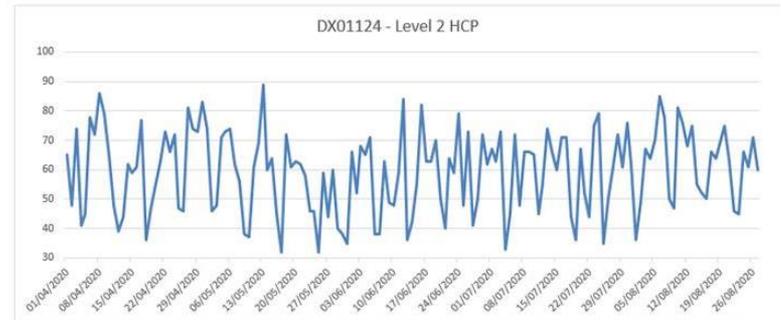
NHS 111 IUC / EOC DIRECTIVE

SILENT HYPOXIA

Date: 25 June 2020

Issue No: 9/2020

## No change in SCAS calls/Cat2/111/999 activity since implementation



2,000 COVID/non COVID patients managed so far  
0 deaths (!) from 130 SDEC/Winchester city COVID virtual ward pt  
COVID virtual wards- 1,800 patients- 1690 discharges (110 admissions)  
Care home Telemedicine avoided conveyance in 138/269 cases  
Enabled remote prescriptions in 84/269 cases

### ROI

- > 10% Reduction in COVID mortality
- > 35% Reduction in ED COVID admissions
- > 20% Reduction in hospital admissions from care homes
- 5 hour Reduction in clinician time / day / virtual ward

## STAGE 1

Referral via 111/999/GP Practice,  
Hospital or Community  
Registered Professional

## STAGE 2

Triage at hot hub or by phone  
Registered Professional

## STAGE 3

Onboarding to COVID  
Oximetry@home  
HCSW & Volunteer

## STAGE 4

Patient monitored for up to 14  
days by a HCSW  
Clinical 'check-in' phone calls on  
days 2, 5, 7, 10 and 12  
HCSW with supervision

## STAGE 5

Recovery and discharge  
Registered Professional

# COVID Virtual Ward Staffing Competencies



With thanks to Helene Irvine  
Sam Sherrington & team

### Stage 1

Registered Professional competent in assessment of COVID-19 respiratory conditions and uses clinical judgement to diagnose and assesses against COVID pulse oximetry

### Stage 2 referral to Primary care Hot hub or other.

The Registered Professional will be capable and competent in:

- understanding the process and entry criteria for the Covid-19 pathway

### Stage 3

#### Role of the HCSW

Involved in monitoring of the individual  
Liaises with designated volunteers to deliver oximeter equipment  
Competent in the ability to record and monitor an

### Stage 4

- HCSW contacts the individual following the agreed proforma to check compliance
- Checks that the individual is safely and accurately using the equipment
- Is able to answer any questions eliciting support from a health care professional as necessary

### Stage 5

Registered Professional competent in clinical assessment and decision making to have the confidence and capabilities to discharge the individual from the care pathway  
HCSW  
Liaises with volunteers to arrange and return oximeter adhering to IPC measures

HSJ TRAINING

With thanks to Susannah Benady

[training.hsj.co.uk/covid-early-warning-system-saves-lives](https://training.hsj.co.uk/covid-early-warning-system-saves-lives)

## Covid Early Warning System



ADVICE FOR HEALTH CARE PRACTITIONERS

1: Empowering patients to watch out for silent hypoxia

20 OCT 2020



VIDEO

2: Community must lead the battle to save lives

20 OCT 2020



WEBINAR

3: Higher oxygen levels predict better recovery

21 OCT 2020



VIDEO

4: Patients now separated into 'hot' and 'cold'

21 OCT 2020



VIDEO

5: Virtual wards will protect patients in the 2nd peak

21 OCT 2020



VIDEO

6: Following up patients in the covid virtual ward

21 OCT 2020



VIDEO

7: Monitoring patients in virtual ward with pulse oximetry

04 NOV 2020



VIDEO

8: We can treat hypoxia once it is identified

21 OCT 2020



VIDEO

9: Warning signs and symptoms in the virtual ward



VIDEO

10: Care home assistants play important role in detecting deterioration



VIDEO

11: 'Soft' signs, a crucial first step in spotting deterioration



WEBINAR

12: Virtual ward resources: covid diary and advice for patients



1. Admission avoidance
2. Supported discharge
3. Alternative assessment areas

We no longer have the luxury of COVID Oximetry @home being considered optional

## Integrated community and hospital COVID solutions

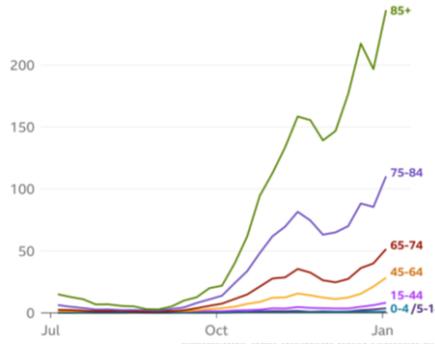
### SAFE COVID @home CARE

thebmj covid-19 Research · Education · News & Views · Campaigns · Jobs · News · EXCLUSIVE Covid-19: Patients to use pulse oximetry at home to spot deterioration

https://dx.doi.org/10.1136/bmj.n1751  
Published 27 October 2020

### Covid-19: Patients to use pulse oximetry at home to spot deterioration

Weekly hospital admission rate per 100,000 by age group



immediate developing oximeters to s  
ised around, which ngland will  
s the country by Matthew prior and found  
t of u  
Necessary if but during patients turation symptoms, ry unwell. respiratory  
Local to be one of ing at home was now ll to 94% and nd 13%, and increase to

### Ambulance COVID study 617/1080 had Sats 95-100%

I was at work today and again tomorrow .. it's all hands on deck .. we are overwhelmed and ran out of ITU capacity last night Patients ventilated in theatre recovery  
We managed to get more patients out on the CVW pathway  
Every little helps and more and more patients being added to the CVW pathway → this



### EARLY DISCHARGE

### ADMISSION AVOIDANCE

Just to let you know. COVID virtual ward started this week in [redacted] (mobilised within 2 weeks [redacted] been nudging for months [redacted] things lined up for a decision). 48 patients admitted to it in 1 week! I am doing the MDT for it twice a week (it happens daily Monday to Friday within GP, AP and community nurses) from Monday.

This is absolutely amazing team work this morning 🙌 AED full and no space on unit shows what is necessary to create capacity and discharge patients safely. Amazing dedication 🙌🙌  
@JanChristian66 @skimmingstones1 @mattinadakin

EAU @ SRFT @NEWSEAU - Oct 28  
Covid Virtual Ward set up in less than an hour and first person discharged. Special thanks to @bushra\_alam1, @EprSrt and all the EAU team for making this happen. Looking forward to collaborative work with the community to progress and expand this initiative ❤️

Well done that's fantastic. Really hope it helps improve outcomes and helps keep the flow going

Now 108 patients on COVID VW in 2 weeks and another 52 discharged from it

'Flow' is critical to patient safety



# To keep safety and flow of the emergency integrated COVID pathways

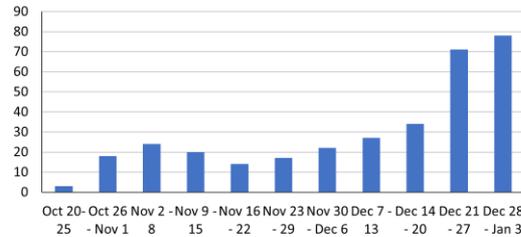
## 1. Admission avoidance

We MUST step up COVID Oximetry @home / virtual wards  
Fully operationalise the model across the UK

In one city, October- Dec 1<sup>st</sup> 2020 - 1,000 prevented COVID admissions

- Average inpatient length of stay for COVID-19 patients has sustained at an average of 10 days since the introduction of the virtual ward. This is compared to an average of 17 days in the 8 weeks prior to the service commencing.

Weekly referrals to AMU Virtual Ward  
Oct 20 - Jan 3

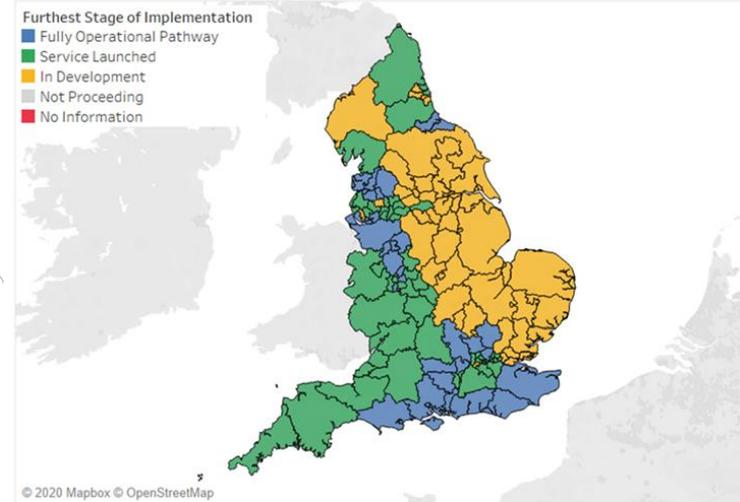


## Stages of Implementation

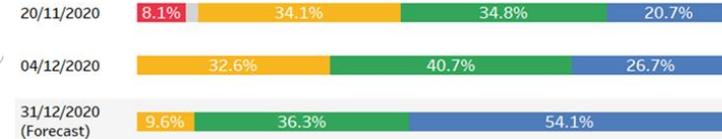
Data up to 04/12/2020

Furthest Stage of Implementation

- Fully Operational Pathway
- Service Launched
- In Development
- Not Proceeding
- No Information



Progress (% of CCGs)



## 2. Supported discharge

## 3. Alternative assessment areas for COVID+/- Nightingales

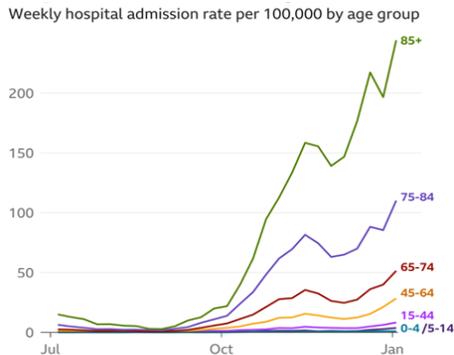
# We can (and must) do this

## 1. Admission avoidance

We MUST step up COVID Oximetry @home / virtual wards  
Fully operationalise the model across the UK

In one city, October- Dec 1<sup>st</sup> 2020 - 1,000 prevented COVID admissions

- Average inpatient length of stay for COVID-19 patients has sustained at an average of 10 days since the introduction of the virtual ward. This is compared to an average of 17 days in the 8 weeks prior to the service commencing.

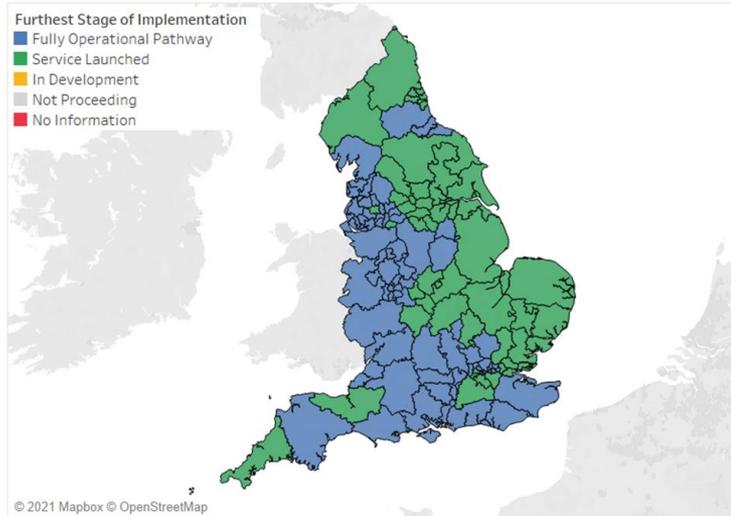


## Stages of Implementation

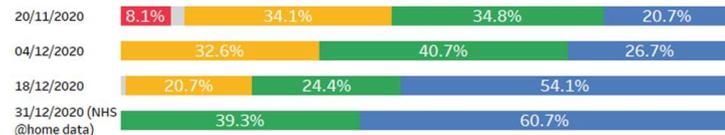
Data up to 31/12/2020 (NHS @home data)

### Furthest Stage of Implementation

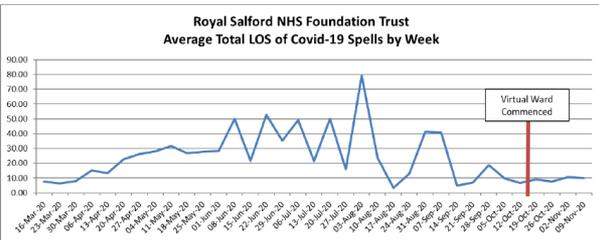
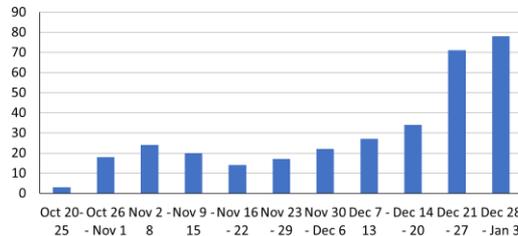
- Fully Operational Pathway
- Service Launched
- In Development
- Not Proceeding
- No Information



### Progress (% of CCGs)



## Weekly referrals to AMU Virtual Ward Oct 20 - Jan 3



## 2. Supported discharge

## 3. Alternative assessment areas for COVID+/- Nightingales

# Karen Kirkham

National Clinical Advisor, System Development and Population Health Management,  
NHS England and NHS Improvement

Clinical Lead for Dorset Integrated Care System

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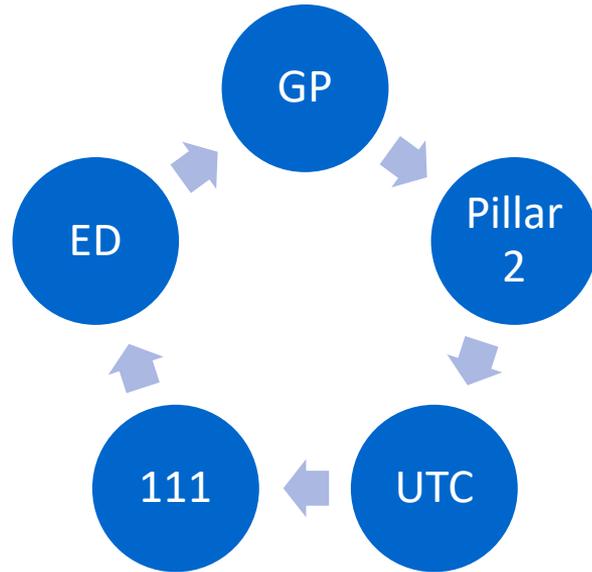
Twitter: [@Karen\\_kirkham2](https://twitter.com/Karen_kirkham2)

# Operationalising Oximetry @home for COVID-19 monitoring and what does the early research tell us?

Dr Karen Kirkham  
NHS Dorset  
Senior clinical advisor NHSE/I



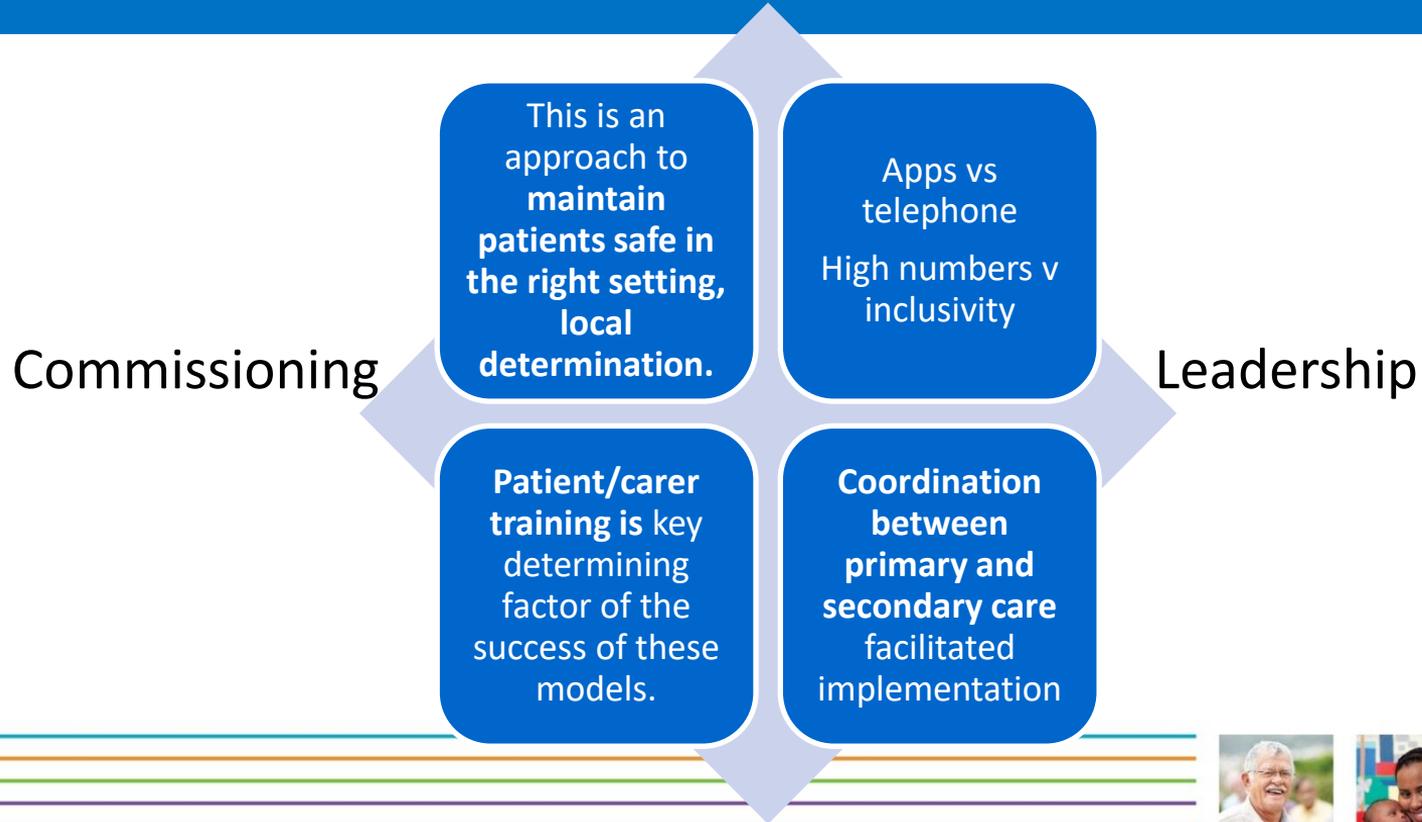
# Patients can be on boarded from multiple points in the system



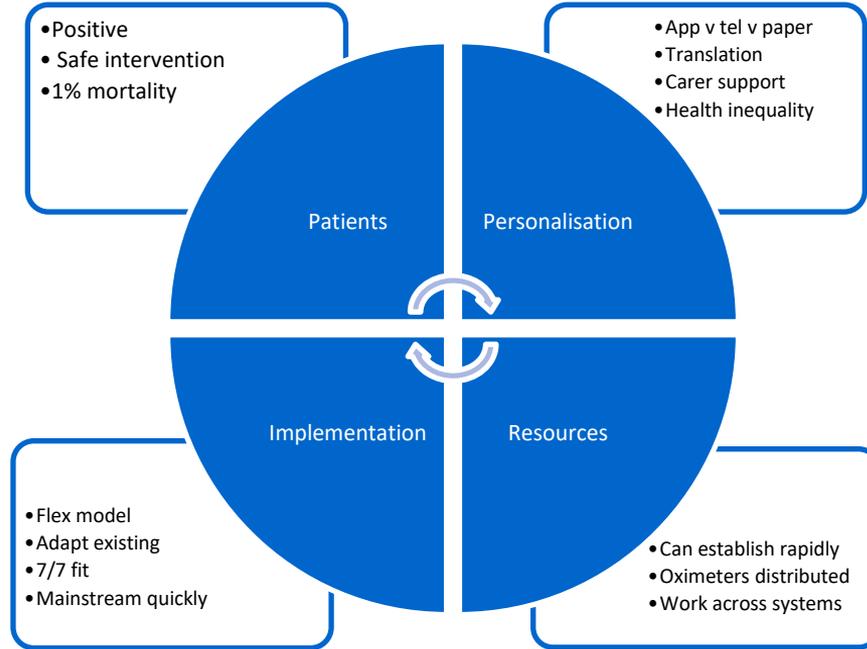
|  |   |   |
|--|---|---|
|  |  |  |
| Standard onboarding<br>Oximeters multiple sites                                    | Clear safety netting  | Clear pathways for escalation   |



# Rapid systematic review: findings from UCLP research



# Lessons learnt from wave 1



## Ongoing research

medRxiv

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BMJ Yale

HOME

Sei

[Comment on this](#)  
**Assessing the Safety of Home Oximetry for Covid-19: A multi-site retrospective observational study**

Jonathan Clarke, Kelsey Flott, Roberto Crespo, Hutan Ashrafian, Gianluca Fontana, Jonathan Benger, Ara Darzi, Sarah Elkin

doi: <https://doi.org/10.1101/2020.12.16.20248302>

**Conclusions** *This study find that home oximetry monitoring can be a safe pathway for Covid-19 patients; and indicates increases in risk to vulnerable groups and patients with oxygen saturations < 95% at enrolment, and in those enrolled on discharge from hospital.*

Remote home monitoring (virtual wards) during the COVID-19 pandemic: a living systematic review

Cecilia Vindrola-Padros (0000-0001-7859-1646), Kelly E Singh (0000-0002-4513-1026), Manbinder S Sidhu (0000-0001-5663-107X), Theo Georghiou (0000-0001-9532-876X), Chris Sherlaw-Johnson (0000-0002-4851-6060), Sonila M Tomini (0000-0002-4241-2121), Matthew Inada-Kim (0000-0001-6026-2246), Karen Kirkham, Allison Streetly (0000-00027588-9276), Naomi J Fulop (0000-0001-5306-6140)



# Alison Tavaré

GP and Clinical Lead, West of England AHSN  
Regional Clinical Lead COVID Oximetry @home

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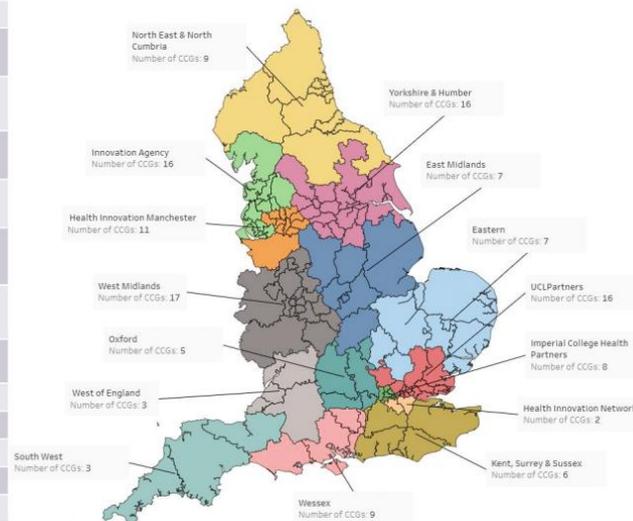
# AHSNs Patient Safety Collaboratives

National network of 15 Patient Safety Collaboratives

[www.ahsnnetwork.com/covid-oximetry-home](http://www.ahsnnetwork.com/covid-oximetry-home)

| AHSN                         | Lead              | Email  |
|------------------------------|-------------------|--|
| East Midlands                | Eddie Alder       | <a href="mailto:eddie.alder@nottingham.ac.uk">eddie.alder@nottingham.ac.uk</a>                                   |
| Eastern                      | Caroline Angel    | <a href="mailto:caroline.angel@eahsn.org">caroline.angel@eahsn.org</a>   |
| Greater Manchester           | Jay Hamilton      | <a href="mailto:jay.hamilton@healthinnovationmanchester.com">jay.hamilton@healthinnovationmanchester.com</a>     |
| Health Innovation Network    | Catherine Dale    | <a href="mailto:catherine.dale3@nhs.net">catherine.dale3@nhs.net</a>   |
| Imperial College             | Kenny Ajayi       | <a href="mailto:Kenny.Ajayi@imperialcollegehealthpartners.com">Kenny.Ajayi@imperialcollegehealthpartners.com</a> |
| Kent Surrey & Sussex         | Ursula Clarke     | <a href="mailto:ursula.clarke@nhs.net">ursula.clarke@nhs.net</a>   |
| North East and North Cumbria | Tony Roberts      | <a href="mailto:T.roberts@nhs.net">T.roberts@nhs.net</a>   |
| Innovation Agency (NWC)      | Andrew Cooper     | <a href="mailto:andrew.cooper@innovationagencynwc.nhs.uk">andrew.cooper@innovationagencynwc.nhs.uk</a>           |
| Oxford                       | Katherine Edwards | <a href="mailto:Katherine.edwards@oxfordahsn.org">Katherine.edwards@oxfordahsn.org</a>                           |
| South West                   | Rebecca Whitting  | <a href="mailto:Rebecca.whitting@swahsn.com">Rebecca.whitting@swahsn.com</a>                                     |
| UCL Partners                 | John Illingworth  | <a href="mailto:john.illingworth@uclpartners.com">john.illingworth@uclpartners.com</a>                           |
| Wessex                       | Kathy Wallis      | <a href="mailto:Kathy.Wallis@wessexahsn.net">Kathy.Wallis@wessexahsn.net</a>                                     |
| West Midlands                | Jodie Mazur       | <a href="mailto:jodie.mazur@wmahsn.org">jodie.mazur@wmahsn.org</a>   |
| West of England              | Kevin Hunter      | <a href="mailto:kevin.hunter@weahsn.net">kevin.hunter@weahsn.net</a>   |
| Yorkshire and Humber         | Mel Johnson       | <a href="mailto:Melanie.johnson@yhia.nhs.uk">Melanie.johnson@yhia.nhs.uk</a>                                     |

## The AHSN Network



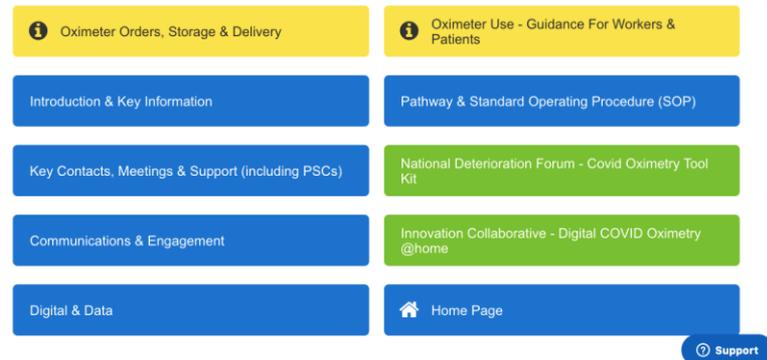
[www.ahsnnetwork.com/covid-oximetry](http://www.ahsnnetwork.com/covid-oximetry)

[www.ahsnnetwork.com/about-academic-health-science-networks/patient-safety](http://www.ahsnnetwork.com/about-academic-health-science-networks/patient-safety)

# AHSN Network support

- FutureNHS collaboration platform
  - Toolkit
  - National guidance and information
  - Resources e.g. CO@H models, call scripts
  - National discussion forum
  - Order oximeters
  - To register: <https://future.nhs.uk/system/home>
  - Contact the COVID Oximetry @home team at [england.home@nhs.net](mailto:england.home@nhs.net)
- National Learning Network
  - Monthly meetings with chance to learn and discuss
  - Recordings on Futures Platform
- Regional Clinical Leads

## COVID Oximetry @home



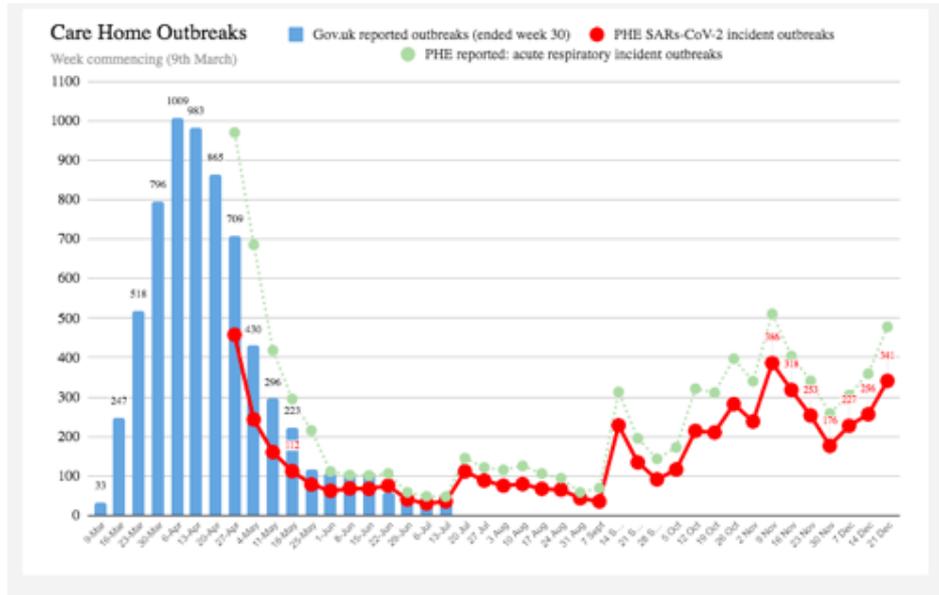
## NHS Volunteer Responders and Pulse Oximetry

NHS Volunteer Responders referral process  
*Process for requesting an NHS Volunteer Responder for a task*



To refer a patient, visit [goodsamapp.org/NHSreferral](https://goodsamapp.org/NHSreferral) or call 0800 196 3382

# Care homes



- Pulse oximetry training and escalation protocols being developed
- RESTORE2 and videos to improve communication
  - Soft signs, i.e. ‘something not right’
  - SBARD (situation, background, assessment, recommendation and decision)
- [www.bgs.org.uk/resources/covid-19-managing-the-covid-19-pandemic-in-care-homes](http://www.bgs.org.uk/resources/covid-19-managing-the-covid-19-pandemic-in-care-homes)

[www.cebm.net/covid-19/covid-19-care-homes](http://www.cebm.net/covid-19/covid-19-care-homes)

# Learning disabilities

## Deaths of people identified as having learning disabilities with COVID-19 in England in the spring of 2020

- Estimated more than six times more likely to die from COVID (PHE, Nov 2020)
  - Younger age group than general population
  - People with Downs at particular risk
  - Co-morbidities
- Why?
  - Could this be linked to underlying conditions e.g. respiratory problems?
  - Diagnostic overshadowing
  - Communication, e.g. accessing NHS111

[assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment\\_data/file/933612/COVID-19\\_learning\\_disabilities\\_mortality\\_report.pdf](https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/933612/COVID-19_learning_disabilities_mortality_report.pdf)

# Learning disabilities



[www.getcheckedoutleeds.nhs.uk](http://www.getcheckedoutleeds.nhs.uk)

[www.keepsafe.org.uk](http://www.keepsafe.org.uk)

- Sharing easy read information on COVID-19
- Recommendations CO@H should be 'offered' to people with Downs and considered for others with a learning disability
- Reasonable adjustments: consider making more frequent calls and not using apps. May need to speak to clinician
- Training: 'Signs someone may be unwell and what should I do? (RESTORE2 Mini)' to support families and carers when someone is unwell and how to share concerns
  - [england.lederprogramme@nhs.net](mailto:england.lederprogramme@nhs.net)

# Key messages

- Silent hypoxia may be missed.
- Hypoxia is linked to worse outcomes.
- COVID Oximetry @home: a collaborative approach to manage patients in the community.
- COVID Oximetry @home models may be step up, step down or combined models.
- COVID Oximetry virtual wards are being developed to support hospital discharge, but clinical responsibility remains with secondary care.
- The AHSN Network can support implementation.

# Oximetry resources

Visit [www.ahsnnetwork.com/covid-oximetry](http://www.ahsnnetwork.com/covid-oximetry) for more information:

- Sign up to the National Learning Network.
- Find tools and resources to help implementation.
- Contact your local Patient Safety Collaborative, who are supporting COVID Oximetry @home and virtual wards.