

WHY?

~~Late~~ Early presentations

Silent hypoxia

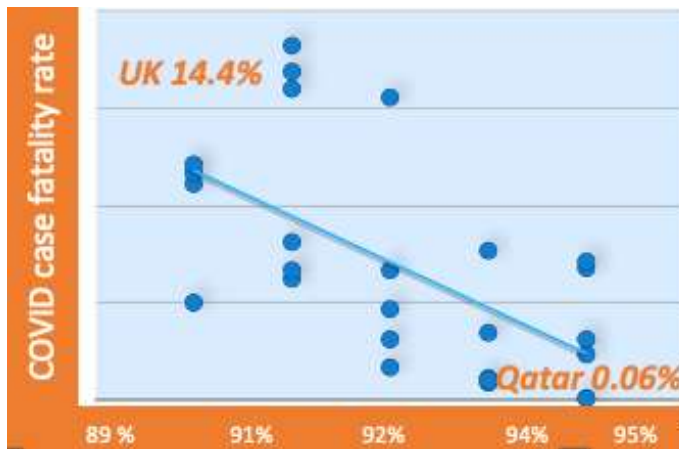
56 year old, usually well man with a PMH of hypertension/asthma
14.4 first symptoms -> isolation, partner worked in care home
21.4 1st NHS call
23.4 2nd NHS call Terrible cough, joint pains
24.4 3rd NHS call asked if he was breathless & if he could walk upstairs
24.4 partner was admitted with hypoxia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



The tragic case of Damian Holland

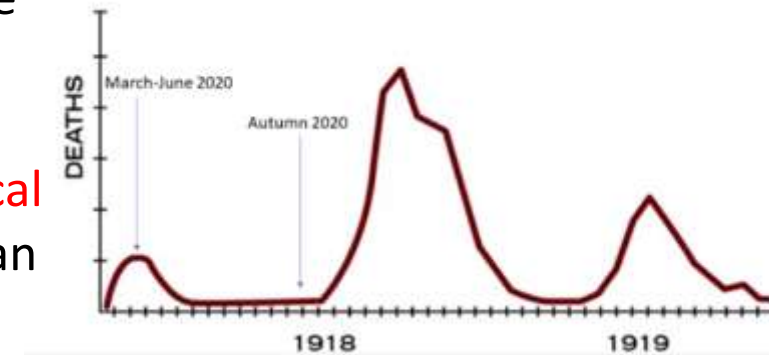
“a characteristic of this virus that causes oxygen saturation levels of some sufferers to fall to dangerously low levels without them suffering conspicuous difficulties when breathing.”

The battle for lives will be won in the community



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

It will be **clear, sound triage systems & 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, Wessex AHSN
National Clinical Lead Deterioration/Sepsis, COVID Clinical Reference groups- primary care, care homes, secondary care

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



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 96 per cent are 'normal'
- But the study found drops below 96 per cent correlated with death
- It suggests Covid-19 patients told to stay at home needed early treatment



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

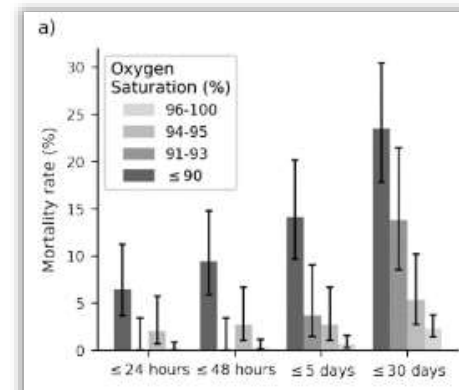
Matthew Inada-Kim, Francis P Chmiel, Michael J Boniface, Helen Pocock, John J. M. Black, Charles D Deakin

<https://www.medrxiv.org/content/10.1101/2020.11.06.20225938v1>

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/10.110...



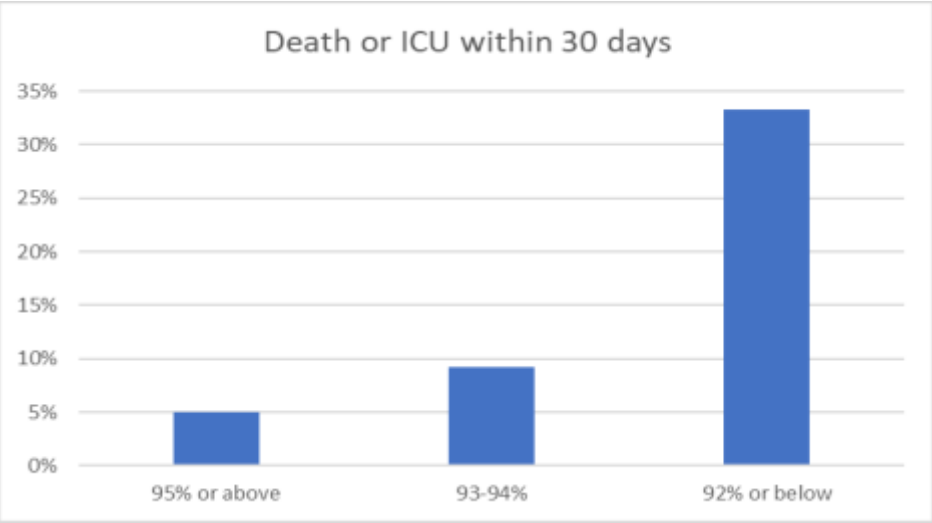
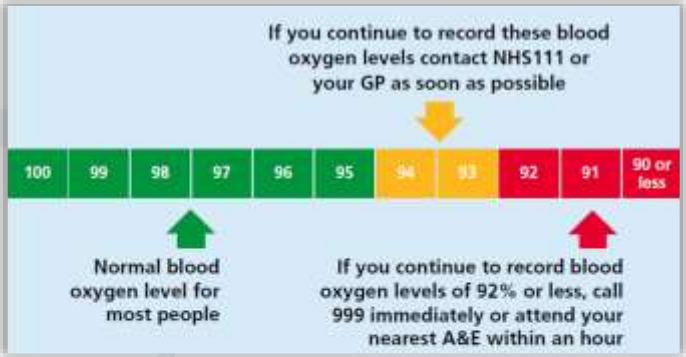
“a lower threshold for hospital conveyance may be necessary for patients who traditionally would be considered to have only minor physiological derangement and otherwise have been left at home”

the importance of oxygen measurement

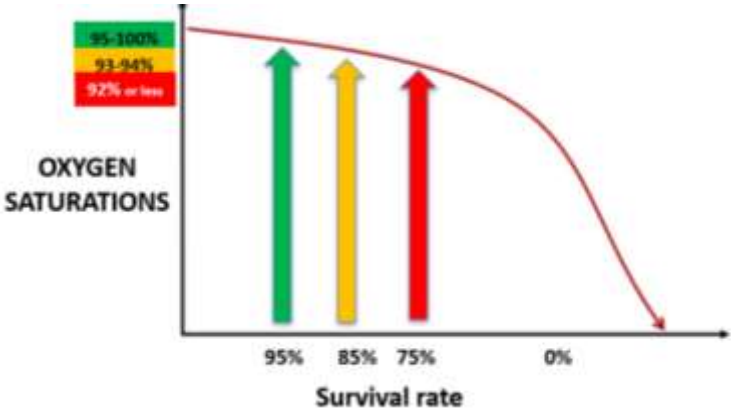
When to get medical help

Blood oxygen level

- | Blood oxygen level | What to do |
|--------------------|---|
| 95 to 100 | Stay at home and continue to check your blood oxygen level regularly |
| 93 or 94 | Check your blood oxygen level again within an hour – if it's still 93 or 94, call 111 or your GP surgery for advice |
| 92 or below | Check your blood oxygen level again straight away – if it's still 92 or below, go to A&E immediately or call 999 |



COVID Oximetry@home Deterioration Recognition system



..and early admission

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

Ahmed Alaa¹, Zhaozhi Qian², Jem Rashbass³, Jonathan Benger³, Mihaela van der Schaar²

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

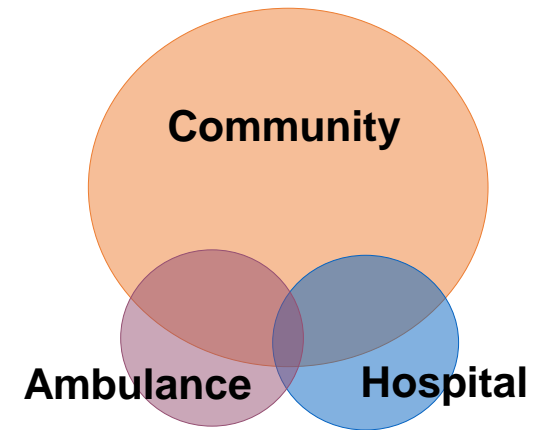
- remote consultations where possible with reduced face to face appointments.
- For COVID and all other conditions

COVID Virtual Ward

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

Safety Netting

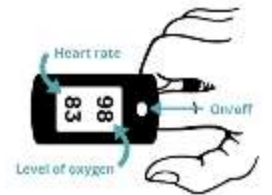
- Sent/kept at home from all settings (e.g. hospital, community, care home, ambulance)



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

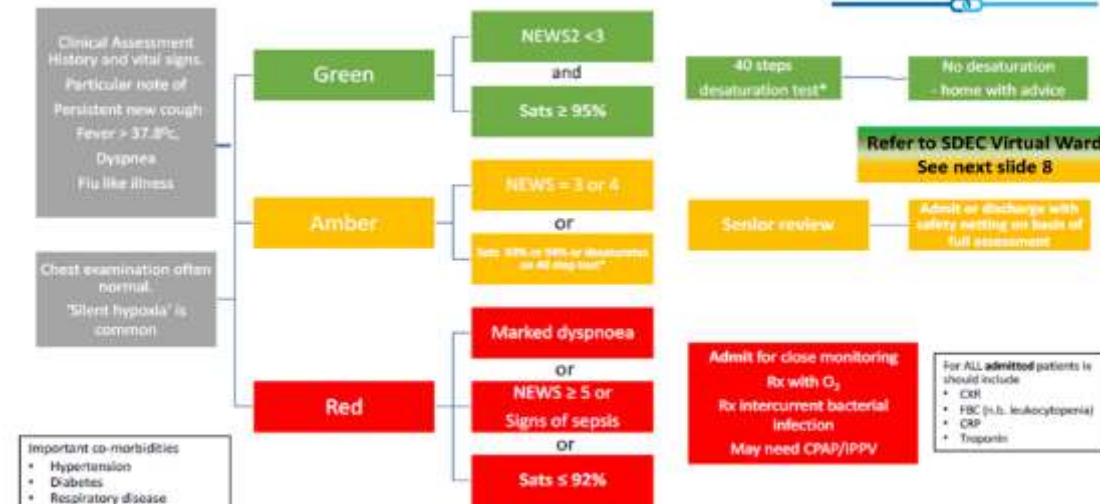
3. Evaluation (NHS Digital, Ara Darzi (IChP), UCL, NIHR, PHE, Nuffield Trust)

4. Scale & Spread Very strong clinical/patient support

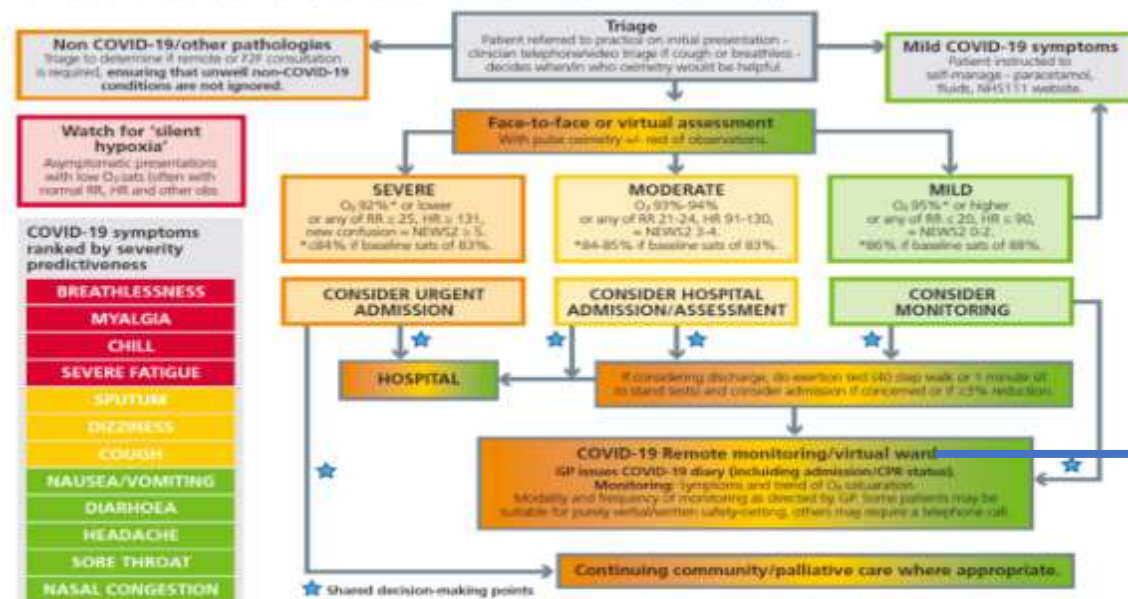


Aligned national pathways across all settings

ED/AMU coronavirus assessment tool

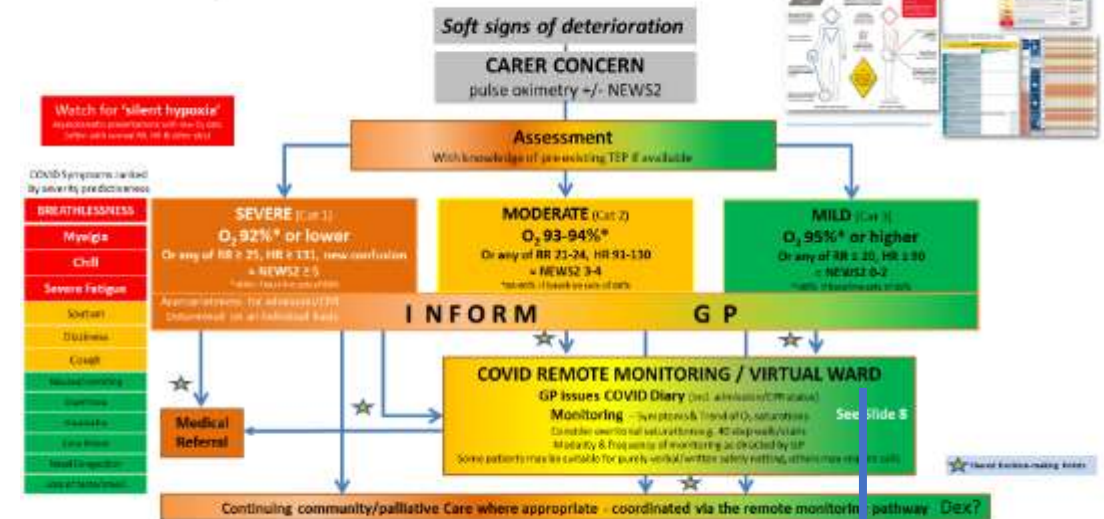


Annex 1: Adult primary care COVID-19 assessment pathway?

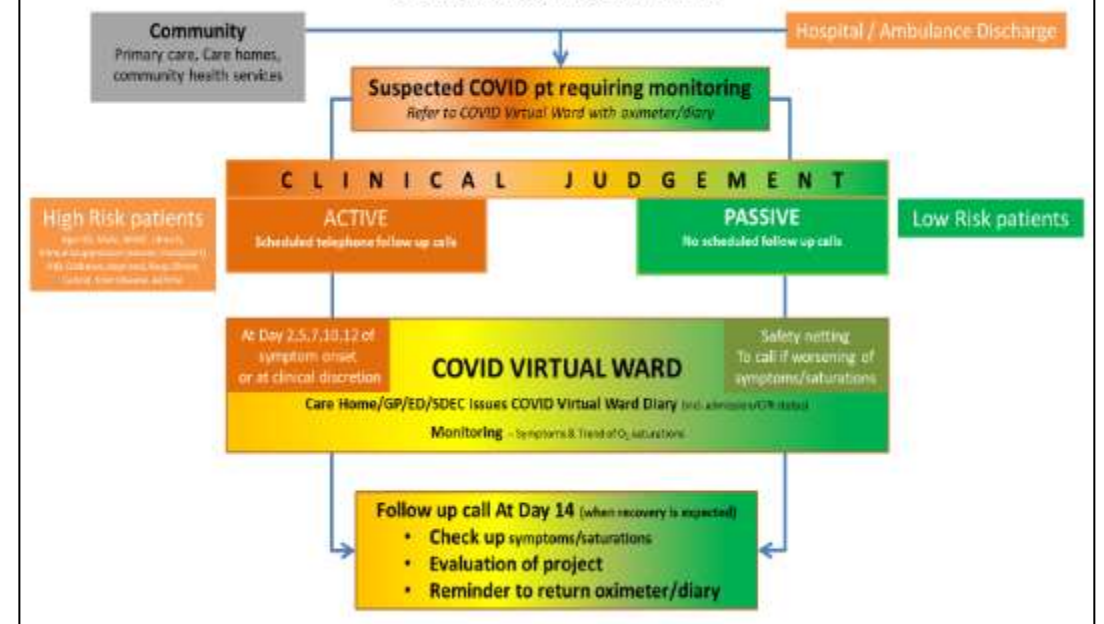


*See also: <https://www.cobm.net/covid-19/what-is-the-efficacy-and-safety-of-rapid-exercise-tests-for-exertional-desaturation-in-covid-19/>

CARE HOME/COMMUNITY COVID ASSESSMENT PATHWAY



COVID Virtual Ward PATHWAY



High Risk non-admitted patients are ‘placed’ on the COVID virtual ward

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

Face to face assessment

Assess using pulse oximetry, history and full set of observations

Always review advanced care/treatment plans**

Chest examination often normal. 'Silent hypoxia' is common

Asymptomatic presentations with low O₂ sats (often with normal RR, HR & other obs)

Non-COVID/other pathologies

Ensure that non-COVID conditions are considered
In particular other causes of deterioration

SEVERE

O₂ 92%* or lower

Or any of RR ≥ 25,
HR ≥ 131 ≈ NEWS2
≥ 5

*Or if O₂ sats >4% less than usual

**HOSPITAL CONVEYANCE
with pre-alert**

MODERATE

O₂ 93 - 94%*
Or any of RR 21-
24, HR 91-130
≈ NEWS2 3-4

*Or if O₂ sats 3-4% less than usual

**HOSPITAL CONVEYANCE
with pre-alert**

MILD – must be able
to undertake activities
of daily living
O₂ 95%* or higher
RR ≤ 20 AND HR ≤ 90
≈ NEWS2 0-2

*Or if O₂ sats are 1-2% less than usual

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

High risk **MUST** seek senior clinical advice may be suitable for virtual ward

Not high risk: Consider HOME MANAGEMENT

Remember Safety Netting

High Risk Groups include:

- Age 65 and over
- Age under 65 and
 - COPD
 - Diabetes / BM > 12mmol/l
 - BAME
 - Pregnancy
 - CVD/Hypertension
 - Obesity
 - Cancer
 - Chemotherapy
 - Immunocompromised

WHAT?

COVID Virtual Ward PATHWAY

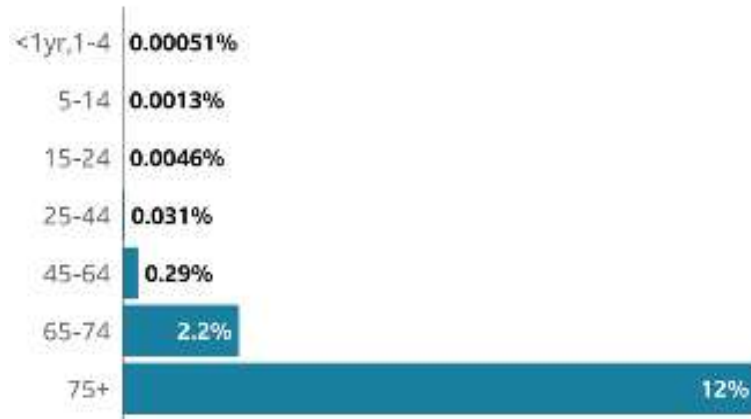
1. Diagnosis of COVID-19: either clinically or positive test result **AND**
 2. Symptomatic **AND**
 3. Aged 65 years or older
- OR** for patients *under* 65 years at risk of a poor outcome

OR Clinical concern

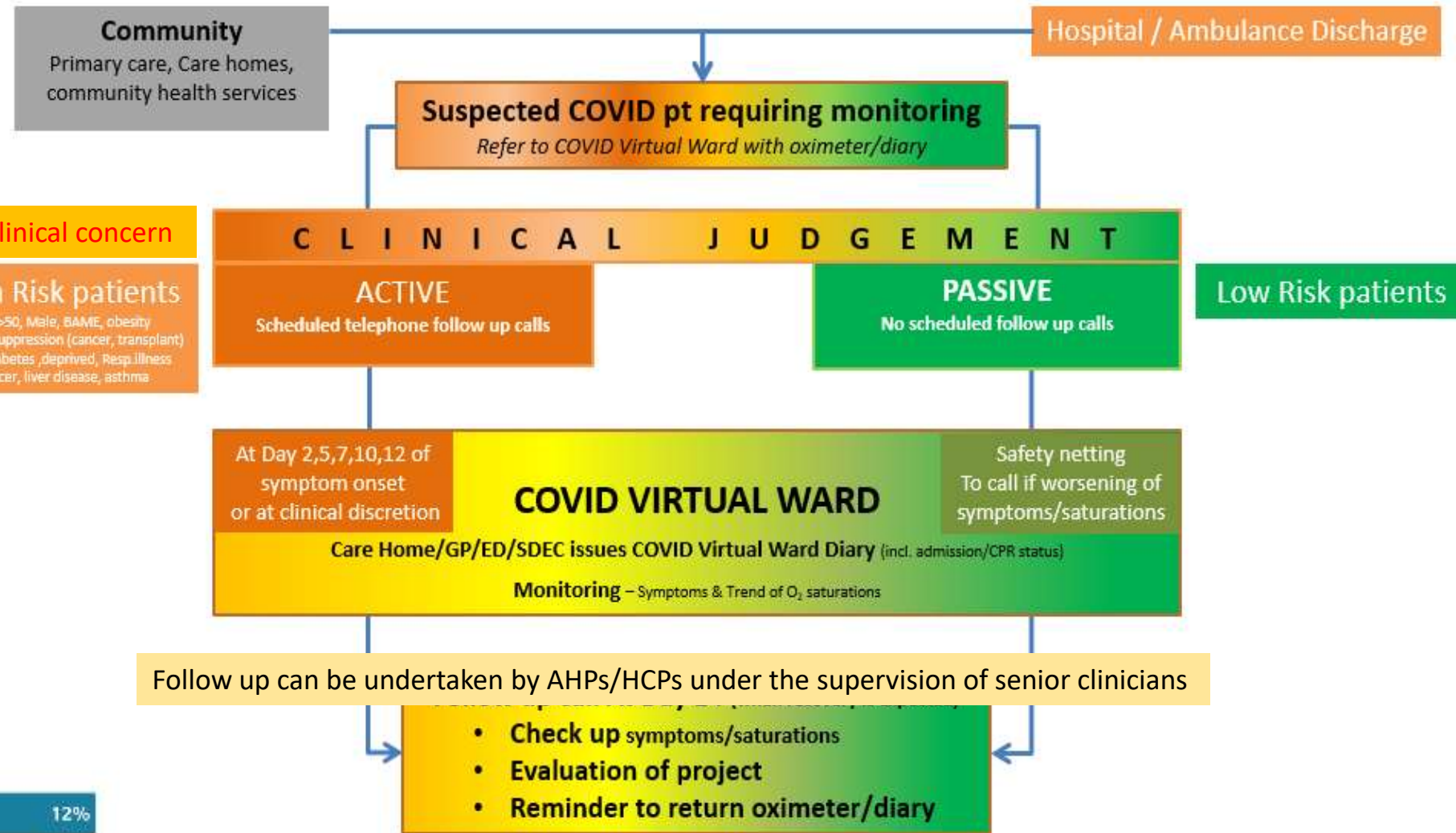
High Risk patients

Ages 50, Male, BAME, obesity
Immunosuppression (cancer, transplant)
IHD, Diabetes, deprived, Resp. illness
Cancer, liver disease, asthma

Over-75s remain the most at-risk
Infection-fatality rate by age group in England



Source: MRC Biostatistics Unit, University of Cambridge (12 October)



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

Safety netting

Blood Oxygen and Pulse Oximeters

Oxygen levels in the blood can be measured by using a pulse oximeter, a small device that you attach to your finger to take a reading. For more information on how to use a pulse oximeter please [click here](#). Even if you do not feel breathless, your oxygen levels may be low. If you have access to a pulse oximeter and your blood oxygen level becomes lower follow the guidance in this leaflet on where to seek advice.



if you continue to record these blood oxygen levels contact NHS111 or your GP as soon as possible

100 99 98 97 96 95 94 93 92 91 90 or less

Normal blood oxygen level for most people

If you continue to record blood oxygen levels of 92% or less, call 999 immediately or attend your nearest A&E within an hour

It is important to seek help if you feel more unwell with any of the above symptoms. If your condition worsens, do not wait but act immediately.

Contact NHS 111

If you experience any the following COVID-19 symptoms, you should contact 111 as soon as possible. You can access 111 online at [www.111.nhs.uk](#) by telephoning 111 or via your GP.

- 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 and your blood oxygen level is 94% or 93% or consistently lower than your usual reading and you feel unwell
- Sense that something is wrong (general weakness, severe tiredness, loss of appetite, passing much less than normal, unable to care for yourself - simple tasks like washing and dressing or making food)

You should tell the operator you have recently been seen in A&E and have been told you might have coronavirus. **ATTEND YOUR NEAREST A&E WITHIN AN HOUR OR CALL 999**

You should call 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
- 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 passing much less than usual

You should tell the operator you have recently been seen in A&E and have been told you might have coronavirus. A minority of people with COVID-19 will experience these more severe symptoms. These require urgent medical attention.

Multilingual translations in progress

COVID virtual ward apps

Dear Mr Mickey,

I'd like you to complete some questions about your symptoms via the link below. Please respond as soon as possible. The link will expire in 24 hours.

Many thanks, Dr O'Keeffe

Please follow this link: <https://www.accuRx.com/d7myaefese>

You'll need internet on your phone (or you can open the link on a computer). If you cannot open it, please contact us.

Camrose, Gillies & Hackwood Partnership

Delivered 12:12pm

12:17

MESSAGES

GPSurgery

Thank you for completing your GP's questions. Your answers should be reviewed today (if you have responded within your practice).

I thank you for completing your COVID-19 health survey.

Your answers should be reviewed today (if you have responded within your practice's usual working hours). Please seek urgent medical attention if your symptoms worsen (e.g. call 111 if your practice is closed).

Please seek urgent medical attention if you develop any of the following:

- Severe shortness of breath at rest

6. Please enter your oxygen saturation reading (SpO2%)

91

Back Continue

3. Can you complete a full sentence without having to take a breath?

Yes No

Back Continue

COVID Diary

Remote monitoring COVID-19 diary

First name: _____ Surname: _____ NHS number: _____

Date of birth: _____ Date of onset: _____

Location: _____

Please record these times times a day

Time	Date	Pulse	Oxygen level (%)	Temperature	Feeling	Breathless	Breathing
08:00							
12:00							
16:00							
20:00							

Thank you for completing your COVID-19 diary. Your answers will be reviewed by a healthcare professional. If you have any questions, please contact your GP or NHS 111.

Pt instruction

How to use a pulse oximeter?

Step 1: Turn on the pulse oximeter.

Step 2: Insert your finger into the pulse oximeter.

Step 3: Wait for the reading to appear on the screen.

Step 4: Read the oxygen level on the screen.

Step 5: Remove your finger from the pulse oximeter.

Step 6: Turn off the pulse oximeter.

How to use a pulse oximeter?

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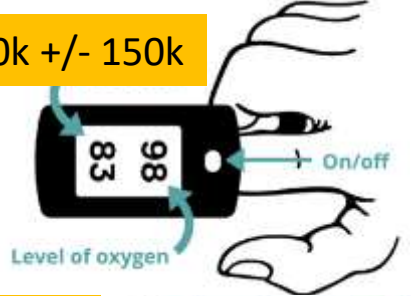
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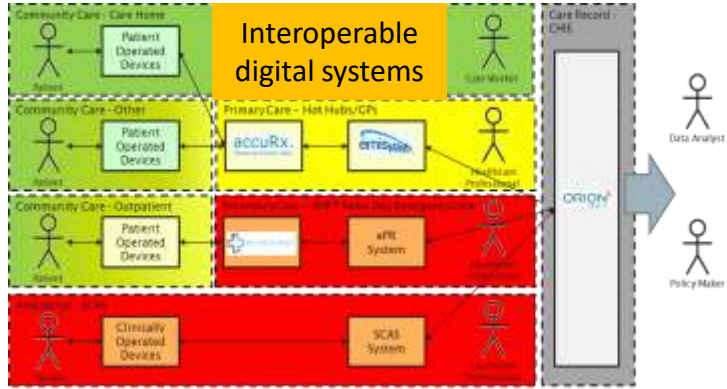
Step 5: Remove your finger from the pulse oximeter.

Step 6: Turn off the pulse oximeter.

210k +/- 150k



<https://www.youtube.com/watch?v=ifnYjD4IKus&feature=youtu.be>



analogue

COVID virtual ward resources

digital

<https://www.england.nhs.uk/coronavirus/wp-content/uploads/sites/52/2020/06/C0445-remote-monitoring-in-primary-care-annex-2-diary.pdf>

The Need for Community & SDEC COVID virtual wards

'Flow' is critical to Patient Safety

thebmj covid-19 Research ▾ Education ▾ News & Views ▾ Campaigns ▾ Jobs ▾

News » EXCLUSIVE

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

SAFE COVID @home CARE

One and six any 2020/21/22/23
<https://doi.org/10.1136/bmj.m1151>
Published: 27 October 2020

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

Ingrid Torjesen

Patients with covid-19 who don't need immediate hospital attention but are at high risk of developing serious symptoms are to be given pulse oximeters to use at home to reduce the risk of serious deterioration, *The BMJ* has learnt.

NHS England is believed to have purchased around 200 000 pulse oximeters for the scheme, which clinical commissioning groups across England will be able to access.

The initiative is set to be rolled out across the country over the next six weeks and is being led by Matthew Inada-Kim, national clinical lead for deterioration in NHS England and a consultant in acute and medicine at Hampshire Hospitals NHS Foundation Trust.

NHS England has advised since the start of the pandemic that medical intervention is necessary if oxygen saturation levels began to fall.¹ But during the first wave it became clear that some patients developed "silent hypoxia," where desaturation occurred but they exhibited no obvious symptoms, such as shortness of breath or feeling very unwell. These patients tended to require invasive respiratory support and had poor outcomes.

Nigel Watson, chief executive of Wessex Local Medical Committees, which is expected to be one of the first areas to implement the monitoring at home scheme, told *The BMJ* that the evidence was now fairly strong that if oxygen saturation fell to 94% or 93% the mortality risk increased to around 13%, and if it fell below that level the risk would increase to

to make the recovery almost impossible." But he pointed out that this would put more pressure on the hospital system.

"As we monitor more patients in the community, we will know what the tipping point is for them to get into hospital, which is likely to be earlier than we might do if we weren't monitoring them at all," he said. "So, the recovery will be better, but actually I think it inadvertently means we're going to have even more patients in the hospital."

NHS England and Inada-Kim were asked for comment

**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 after I had been nudging for months and finally 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.

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

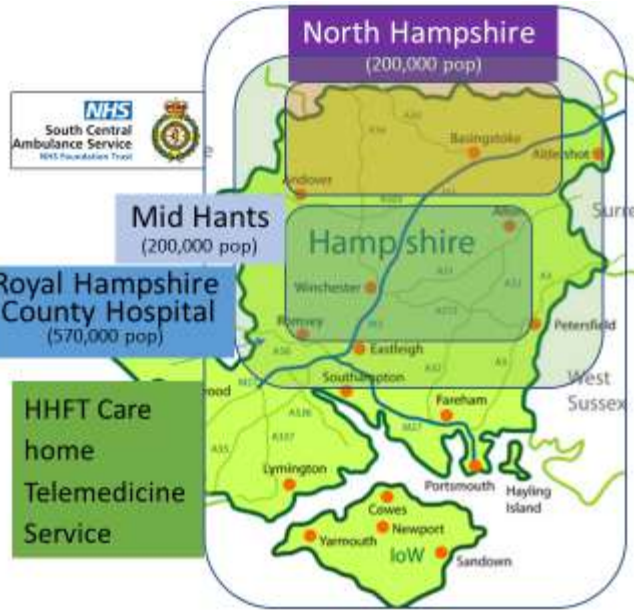
This is absolutely amazing team work this morning 🙌 AED full and no space on unit shows what is necessary to create capacity and discharge patients safely. Amazing dedication 🙌
@JanChristian66 @skimmingstones1 @mattinadakim

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 ❤️



SCALE & SPREAD - Share monitoring for all settings



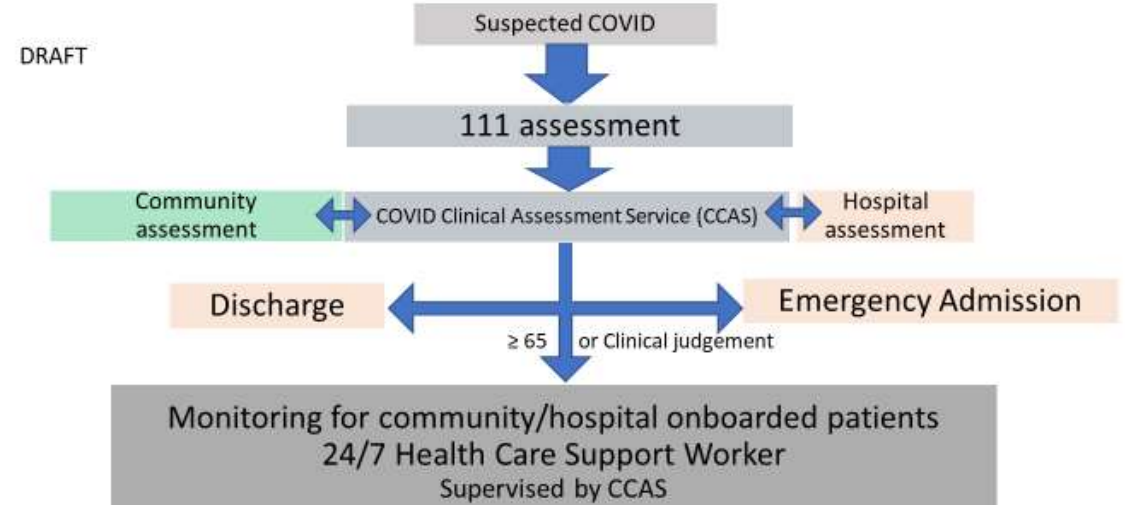
NOW
 2 Community hot hubs
 1 hospital SDEC
 100 Care homes
 1 Ambulance trust
 Covering 600k people

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

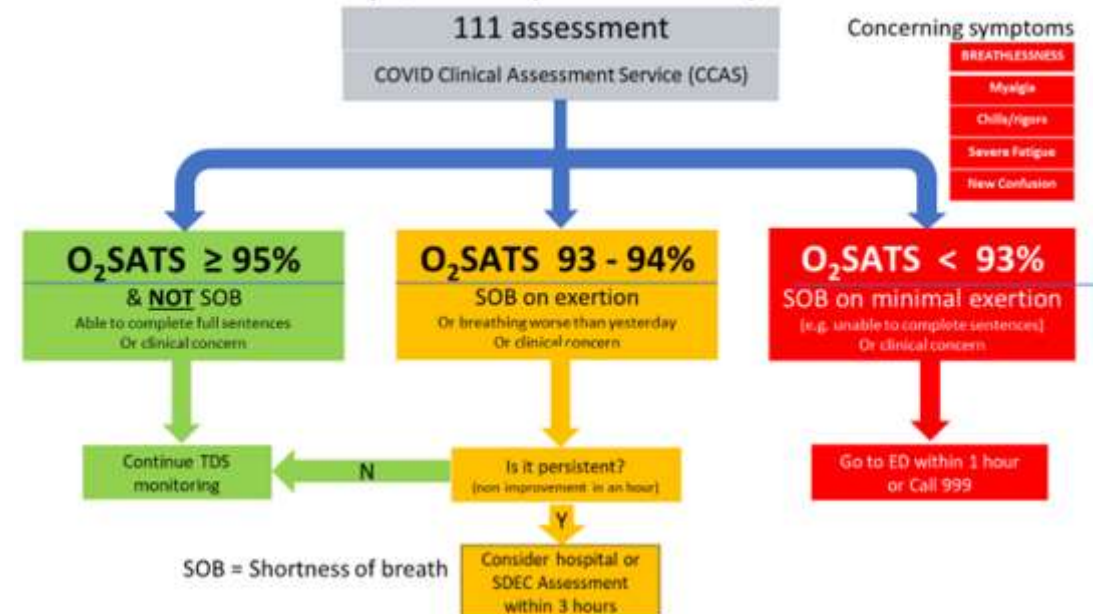
2,000 COVID/non COVID patients managed so far
0 deaths (!) from 130 SDEC/Winchester city COVID virtual ward pt
 COVID virtual wards- 1,800 patients- 1690 discharges (110 admissions)
 Care home Telemedicine avoided conveyance in 138/269 cases
 Enabled remote prescriptions in 84/269 cases

- 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

COVID Oximetry @home (Virtual Ward) onboarding and monitoring



COVID Oximetry @home (Virtual Ward) DETERIORATION



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/Training



With thanks to Helene Irvine
Sam Sherrington & team

HSJ TRAINING

With thanks to Susannah Benady

<https://training.hsj.co.uk/covid-early-warning-system-saves-lives>

Stage 1

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

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

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 & return oximeter adhering to IPC measures

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

National deterioration & COVID Forum

Adaptive work

Front line- central engagement

600 members, 25 new posts/day, 250 views/day **Come join us !**

Where is the stress in the system?

Bidirectional flows of information

Collaborative solutions

The screenshot displays the National Deterioration Forum website, which is a hub for COVID-19 resources and virtual ward toolkits. The main navigation bar includes links to 'Virtual Ward/Pulse Oximetry Programme', 'C0445 - Remote monitoring in primary care Annex 2_diary FINAL v2', 'C0445 - Remote monitoring in primary care Final v2', and 'COVID Virtual ward'. The central content area features a 'Virtual Ward Oximetry Meeting Notes' section with a thank you message for user feedback and a 'Got it!' button. To the right, there is a 'COVID Virtual Ward' section with a thank you message for user feedback and a 'Got it!' button. Below this, a 'COVID Virtual ward assessment & monitoring using Pulse oximetry and diary webinar' is listed, along with a 'How to use pulse oximeters in multiple languages youtubes' section. The bottom section, 'COVID-19 Resources', provides a comprehensive list of links to various resources, including 'APIO guidelines - Managing the', 'PSC guidance for Care homes', 'COVID-19 - Specific Guidance for', 'COVID-19 Dashboard', 'COVID-19 Radiology Decision Support', 'COVID-19 standard operating', 'COVID-19 Evidence Summary', 'COVID-19: Managing the COVID-19', 'Global MedExchange for Connecting', 'National Secondary Care Specialist', 'Online video training for Care', 'Deliver COVID-19 Evidence Service', 'Specialty guides for patient management', 'Specialty guides for Secondary Care', and 'VIDEO CONSULTATIONS: A GUIDE FOR PRACTICE'.

Virtual Ward Oximetry Meeting Notes

Thank you for sharing your views in the annual FutureNHS user survey. Following your feedback, we are now starting to make improvements to the platform. [View the results](#)

COVID Virtual Ward

Thank you for sharing your views in the annual FutureNHS user survey. Following your feedback, we are now starting to make improvements to the platform. [View the results here and find out how to get involved](#)

COVID Virtual ward assessment & monitoring using Pulse oximetry and diary webinar

<https://future.nhs.uk/NEWS2CN/view?objectId=76487589>

A recorded webinar for community virtual wards

Started by [matthew inada-kim](#) 2 weeks ago.

[Read this discussion](#) and [10](#) replies

How to use pulse oximeters in multiple languages youtubes

With thanks to Lalitha Iyer and the Slough team

How to use a pulse oximeter youtubes

Hindi: <https://www.youtube.com/watch?v=e1giJY-zwK>

Punjab: <https://www.youtube.com/watch?v=wU5V6wVEHoM>

Urdu: <https://www.youtube.com/watch?v=rkGRRLumW4>

Polish: <https://www.youtube.com/watch?v=Lkd-BNeMYs>

English: <https://www.youtube.com/watch?v=nx27Ck7xOgo>

Started by [matthew inada-kim](#) 2 weeks ago. Last reply Yesterday at 14:14

[Read this discussion](#) and [10](#) replies

Pulse oximetry and remote monitoring national policy documents approved today 11.01

COVID-19 Resources

[APIO guidelines - Managing the](#)

[PSC guidance for Care homes](#)

[COVID-19 - Specific Guidance for](#)

[COVID-19 Dashboard](#)

[COVID-19 Radiology Decision Support](#)

[COVID-19 standard operating](#)

[COVID-19 Evidence Summary](#)

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[Global MedExchange for Connecting](#)

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[Online video training for Care](#)

[Deliver COVID-19 Evidence Service](#)

[Specialty guides for patient management](#)

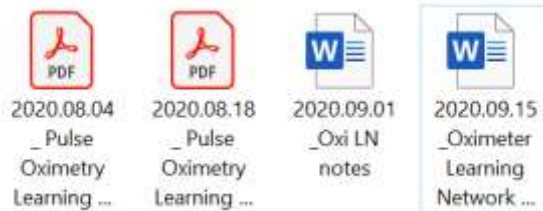
[Specialty guides for Secondary Care](#)

[VIDEO CONSULTATIONS: A GUIDE FOR PRACTICE](#)

Fortnightly COVID Oximetry@home learning network

Come join us !







- is a tool that uses social media and technology to collect, communicate, collaborate and create with connected colleagues anywhere at any time
- Members make requests and share resources
- An opportunity to openly collaborate/share ideas, **resources**, and learning materials with educators anywhere in the world.
- A way to gain perspective on practice/ideas for future innovations
- 7 meetings so far, fortnightly led by Catherine, Tony, Jo, Tara, Samson, Jo, Leoni & matt. 70-150 attendees.

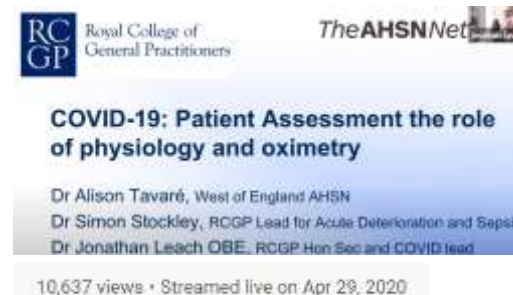


4. NHS@Home Pulse Oximetry Learning Network

Agendas, notes and links shared at the bi-weekly NHS@Home Pulse Oximetry Learning Network webinars. These webinars are open to anyone interested in or currently setting up a Covid Virtual Ward service. Please email leonilde.yahyaoui1@nhs.net to be added to the invite list. Webinars every other Tuesdays 3.30pm-4.30pm and recordings in this folder.

Sort by Name ▾

-  **1st meeting 04.08.2020**
Updates from National, North Hants CCG, Slough, Hillingdon, Tees Valley
 -  **2nd meeting 18.08.2020**
Updates from Leicester, Manchester & Tees Valley Discussion topics: -Messaging for the public about 'virtual wards' – working with patients and the public -Digital tools: -what are people finding useful? -Resource requirements: - how are you staffing your service? -Temperature devices -Funding models
 -  **3rd meeting 01.09.2020**
Implementing pulse oximetry and Restore mini in an LD setting, Michael Hammond Page Implementing pulse oximetry NHS Hampstead CCG, Dr Tara Sood Out of Hours GP/Patient Covid-19 Experience, John Caldwell
 -  **4th meeting 15.09.20**
Open meeting to poll users, raise some of the discussion points from the discussion forum and gain an understanding of what the Covid Virtual Ward community would like from this learning network.
 -  **5th meeting 29.09.2020**
Southampton Primary Care UCL/NIHR virtual ward evaluation findings Digital support from NHSX
 -  **6th meeting 13.10.20**
Sandwell COVID virtual ward, Kelly Redden-Rowley, Sandwell and West Birmingham Hospitals NHS Trust; How to set up a COVID virtual ward Jo Murray, Patient Safety Programme Manager, Oxford Patient Safety Collaborative;The logistics of virtual wards: Part 1) How volunteers can (and can't) support – Emma Easton, Head of Voluntary Partnerships, NHSE/I; Part 2) Bike Shed COVID Crisis Rescue – Dr Sharon Raymond, COVID Crisis Rescue.



Early data suggests potential for large improvements in admissions / LOS and Flow

Unpublished, encouraging early data from colleagues, since implementing the COVID Oximetry@home (virtual ward) at a single site secondary care hospital in October.

COVID Average of Total LOS			
Month	No ICU Bed Days	ICU Bed Days within Spell	Total Avg LC
Apr-20	14.89	27.41	16.72
May-20	26.22	33.00	27.06
Jun-20	31.24	41.20	34.67
Jul-20	34.93	15.50	32.50
Aug-20	18.33	82.50	27.50
Sep-20	5.59	75.44	18.16
Oct-20	7.16	14.79	8.40
Nov-20	9.82	13.67	10.12
Total Avg LOS	13.91	30.43	16.27

Raj Jain NCA Chief executive broadcasts his view and impact of COVID virtual wards. Well done team NCA 🙌🔥 @JanChristian66 @skimmingstones1 @EprSrft @CTIDEmmy @ktefoster @andylewy @carolineyan19 @HampsonBeth @NEWSEAU @notquiteup @jacqui_burrow @mattinadakim



Our first patient readmitted from hospital stepdown COVID virtual ward 'my son called for an ambulance because my saturations were 83%'. Now doing well on o2/dex 🙌🔥 Well done team! A life saved 🙌🔥 @JanChristian66 @skimmingstones1 @CTIDEmmy @SFHMagee @EprSrft @NEWSEAU @mattinadakim

https://twitter.com/bushra_alam1/status/1327354628640530432?s=20

Next steps... Come join us ! @mattinadakim

1. Clinical Model

Pathways (111/999/CCAS)
safety netting
CO@h referral pathway/ Inclusion criteria
Training/competencies

2. Implementation (AHSNs)

Engagement, Forming, collaboration
Strategise, Comms, consensus

3. Funding

Oximeters
staffing (CCG funding agreed to start up)

4. Evaluation

https://www.england.nhs.uk/coronavirus/wp-content/uploads/sites/52/2020/03/C0828_GP-funding-letter-second-wave_9nov.pdf
<https://www.nuffieldtrust.org.uk/files/vw-evaluation-final-slideset-for-dissemination-12th-oct-2020.pdf>

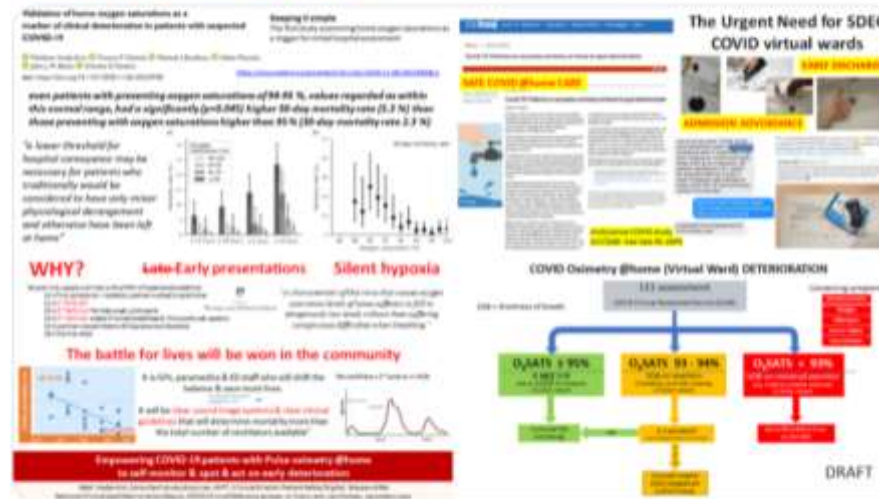
5. Pathways group

Evidence
Safety
Alignment
Development
24/7



Matt Inada-Kim
@mattinadakim

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/10.110...



1:27 PM · Nov 8, 2020 ·

Request oximeters from england.home@nhs.net

- 30 per GP practice (8,000 pop)
- 300 per acute trust (600k pop)
- 1 per 25 care home residents (2 per home)

View Tweet activity

249 Retweets 103 Quote Tweets 631 Likes



Region	AHSNs
North West	IA, HIM
South East	Oxford, Wessex, KSS
London	ICHP, UCLP, HIN
Midlands	E and WMAHSN
North East	NENC, YH
East of England	EoE
South West	SWAHSN WEAHSN

Pan pathway Collaboration

No one size fits all
(Primary/secondary/step down)
Don't wait for perfection
Can be rapidly set up
Monitoring by lower bands
There are lots of resources

Minimise:

Admissions/LOS/ICU

Mortality

Optimise:

Patient & Staff safety/quality

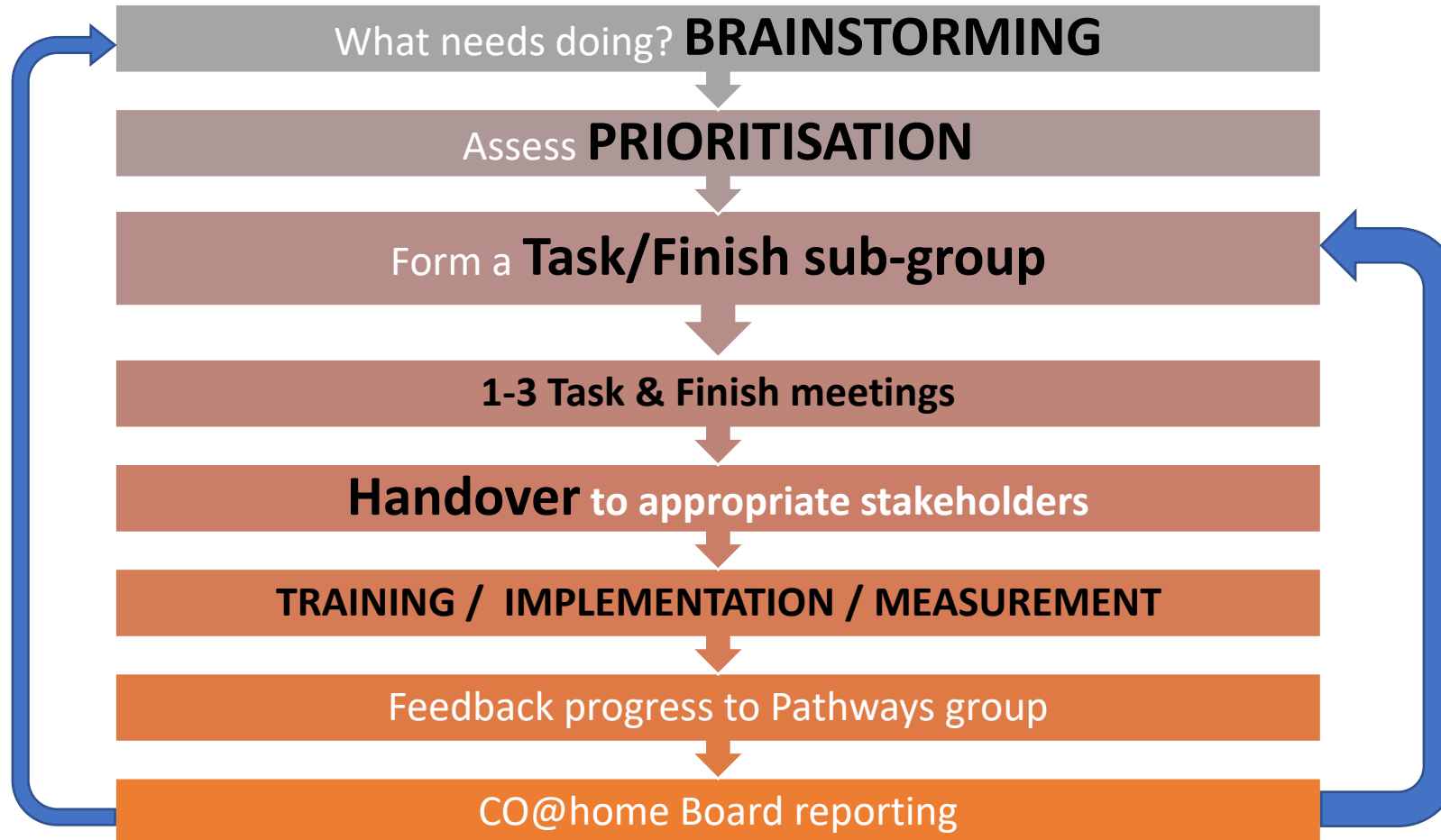
Early results
1% mortality
N=1,800 COVID patients

Purpose

NHS COVID Oximetry @home Pathways



oversight of the COVID Oximetry @home pathways, inclusion criteria, development and modifications where evolving evidence, safety and need suggests and alignment with all other interrelated pathways.



Program Management	Philip Salter, Kevin McKenna
Chair	Matt Inada-Kim
Director	Tim Straughan
Deputy Director	David Bramley
Waz Baqir	Pharmacy/care homes/Community
Karen Storey	Primary Care Nursing
James Ray	Ambulance/111/call handler/Covid clinical assessment service (CCAS)
Gareth Thomas	NHSx
Karen Kirkham	GP
Adrian Hayter	GP / Care homes
Stephen Hodges	Strategy and Transformation NW
Clare Duggan	
Rob Moriarty	Lived Experience
Ali Smith	
Rachel Snow-Miller	Learning disabilities
Jonathan Benger	NHSD

Matt Inada-Kim, Consultant Acute physician, HHFT, Clinical Director Patient Safety/Digital, Wessex AHSN
National Clinical Lead Deterioration/Sepsis, COVID Clinical Reference groups- primary care, care homes, secondary care

CO@h pathways group

Learning and adapting as we go
What needs fixing?

Consensus, Collaborative solutions
Every solution comes with more questions

Evolving evidence

COMMENTARY

High COVID-19 mortality in the UK: lessons to be learnt from Hubei province: are under-detected 'silent hypoxia' and subsequently low admission rate to blame?

J. Deng¹, Z.Y. Peng², Z.X. Wen³, G.Q. Dong⁴, M.X. Xie⁵ and G.G. Xu⁶

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

Alioum Siss¹, Thangaki Nisan², Jani Barchiger³, Jonathan Barchiger³, Michaela von der Goltz⁴

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

Matthew Inada-Kim¹, Francis R. Chmiel², Michael J. Boniface³, Helen Pocock⁴, John J. M. Black⁵, Charles D. Deskin⁶

doi: <https://doi.org/10.1101/2020.11.06.20235938>

Inclusion criteria

24/7 CO@h

- Referral
- Testing
- Onboarding
- Monitoring
- Escalation

**Needs urgent top office sign off*

Safety netting*

testing



Requirements



Analysis & Design

ambulance

111 pathways

Planning



Initial Planning



EOL care

SDEC

Evaluation



Iterative Process

Implementation



Development



Testing



Poverty

Escalation

BAME

obesity

LeD

"Half of those who died received care that fell short of good practice"

43% lived in supported living settings
Or with their families
64% lived in a residential/nursing home

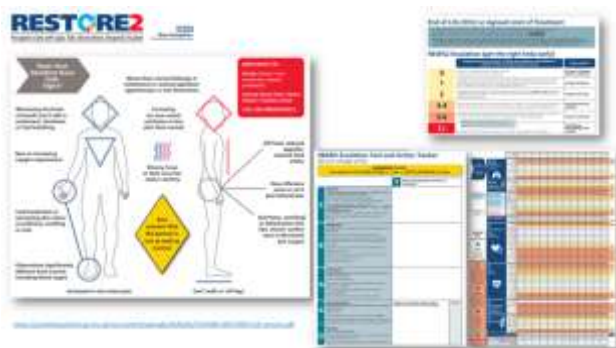
Of those dying
20% had Downs
14% had Autism

Death from
confirmed or
suspected
COVID-19

**All had at least one
long-term health
condition**

39% had lethargy
37% had cough, fever & SOB
None reported Loss of
taste/smell

Age group	
18-49	21%
50-69	48%
70-84	27%
85 and over	4%
Total number*	161



Recommendation made by reviewer

'Develop clear protocols during pandemics for care providers and GPs concerning management of infections for people with learning disabilities who may be compromised due to co-morbidities and/or lower physical baselines'.

Table 3: The most commonly reported long-term health conditions (ordered by prevalence in COVID-19 patients) of those included in the sample						
	COVID19		Other Causes of Death		Total	
Long Term Condition	People with this condition (No.)	People with this condition (%)	People with this condition (No.)	People with this condition (%)	People with this condition (No.)	People with this condition (%)
Mobility impairment	121	74%	32	74%	153	74%
Respiratory conditions	117	72%	26	60%	143	69%
Incontinence	101	62%	31	72%	132	64%
Skin conditions	99	61%	32	74%	131	64%
Mental health needs	96	59%	25	58%	121	59%

Recommendations

Deterioration tools for carers

Pay attention to concerns from families/carers

Soft signs of deterioration tools

Pulse oximeters

WE MUST

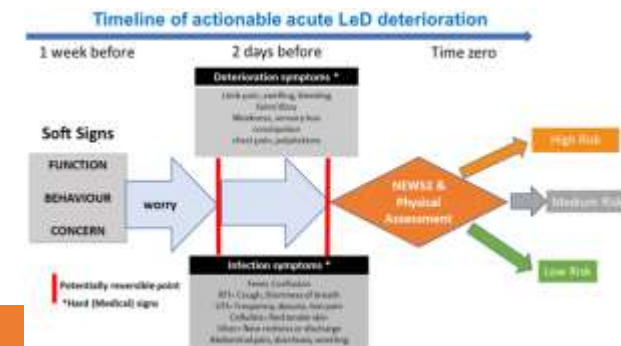
- Include ALL ADULTS (18 or above) with a LeD in CO@h
- Develop all cause LeD Deterioration pathway
- Develop how to spot/escalate deterioration e-learning for all Carers



Deaths of people with learning disabilities from COVID-19

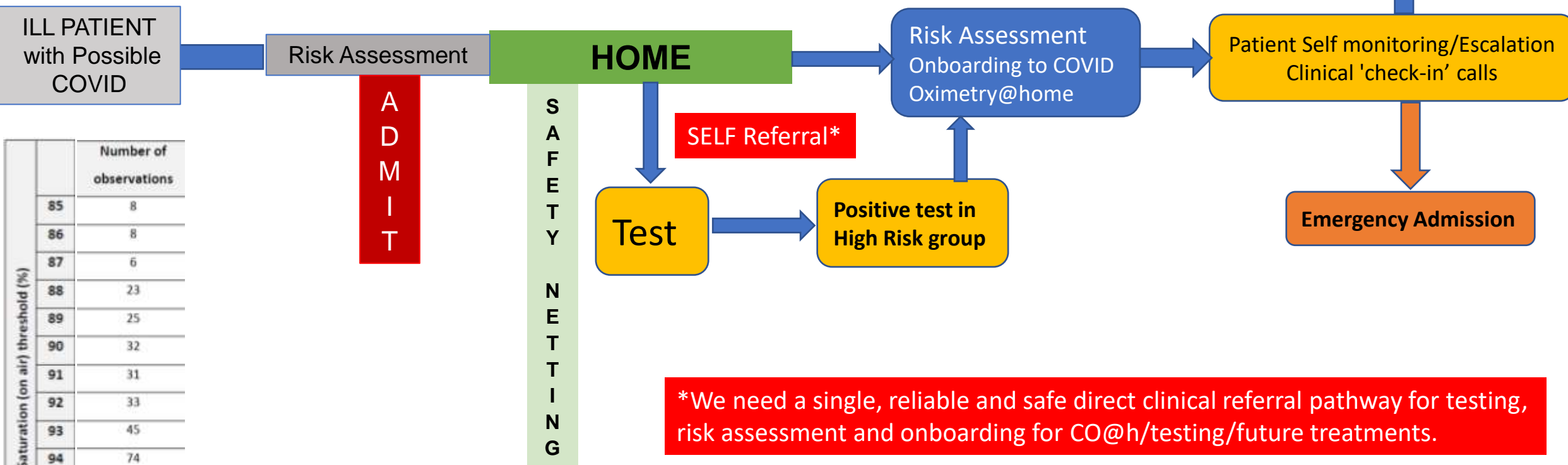


Challenges cited:
Raising alarm
Access to NHS111
Access to COVID tests
Absence of oximeters



24/7 Clinician referral for testing and CO@h onboarding

Patients seen by clinicians currently
self refer for COVID tests



Tests are not ordered by clinicians at the referring end; leading to concerns over the systems reliability.

Non conveyed urgent care COVID patients need a direct referral system from the roadside to give reassurance over rapid follow up and assure clinicians that patients will be reliably and quickly onboarded

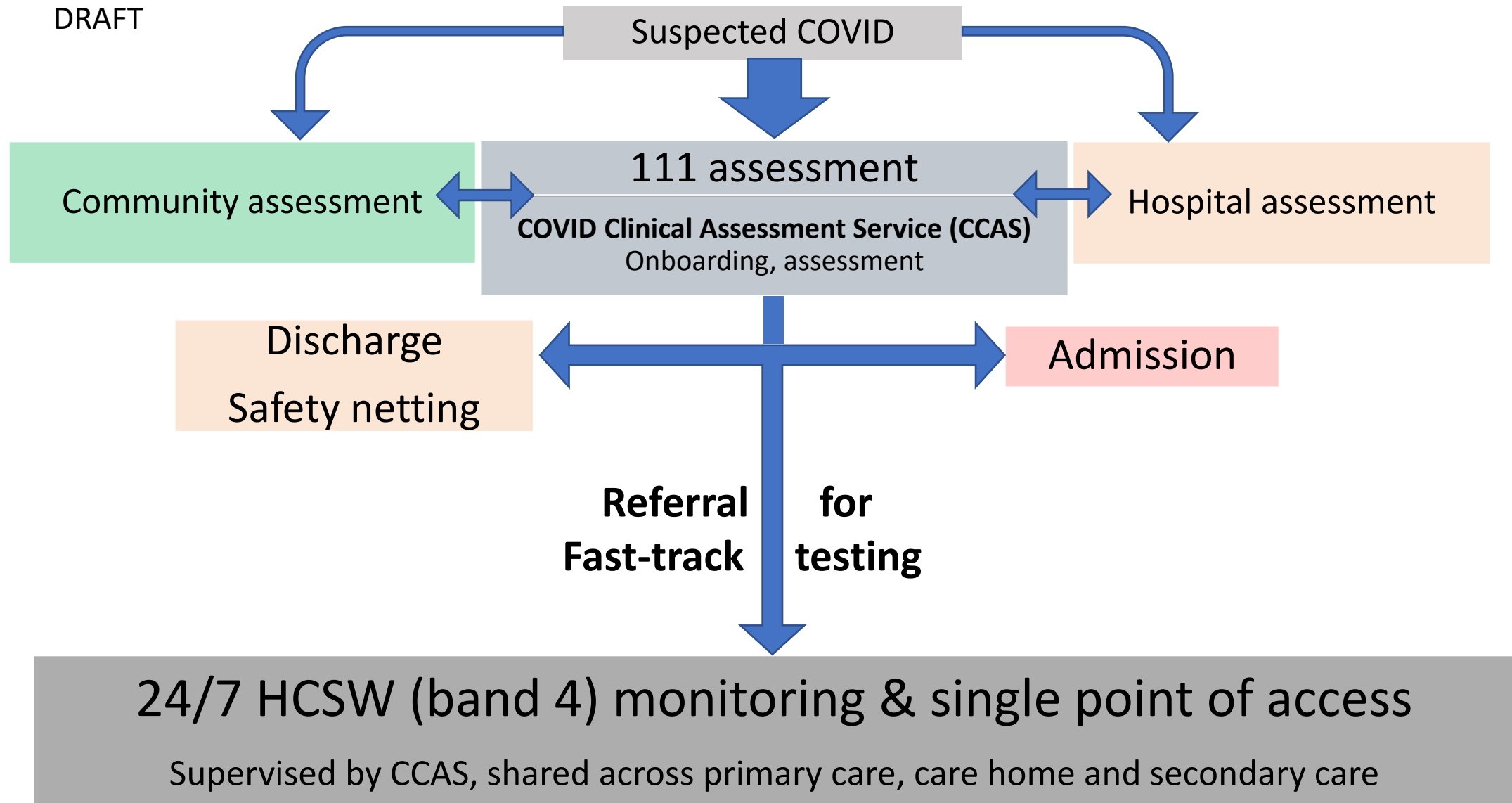
Without this, potentially more patients will be conveyed and admitted than is necessary.

<- Data from first peak showed that 2/3rd of ambulance conveyed and admitted patients had normal oxygen saturations (95-100%)

Oxygen Saturation (on air) threshold (%)	Number of observations
85	8
86	8
87	6
88	23
89	25
90	32
91	31
92	33
93	45
94	74
95	76
96	129
97	156
98	132
99	139
100	95

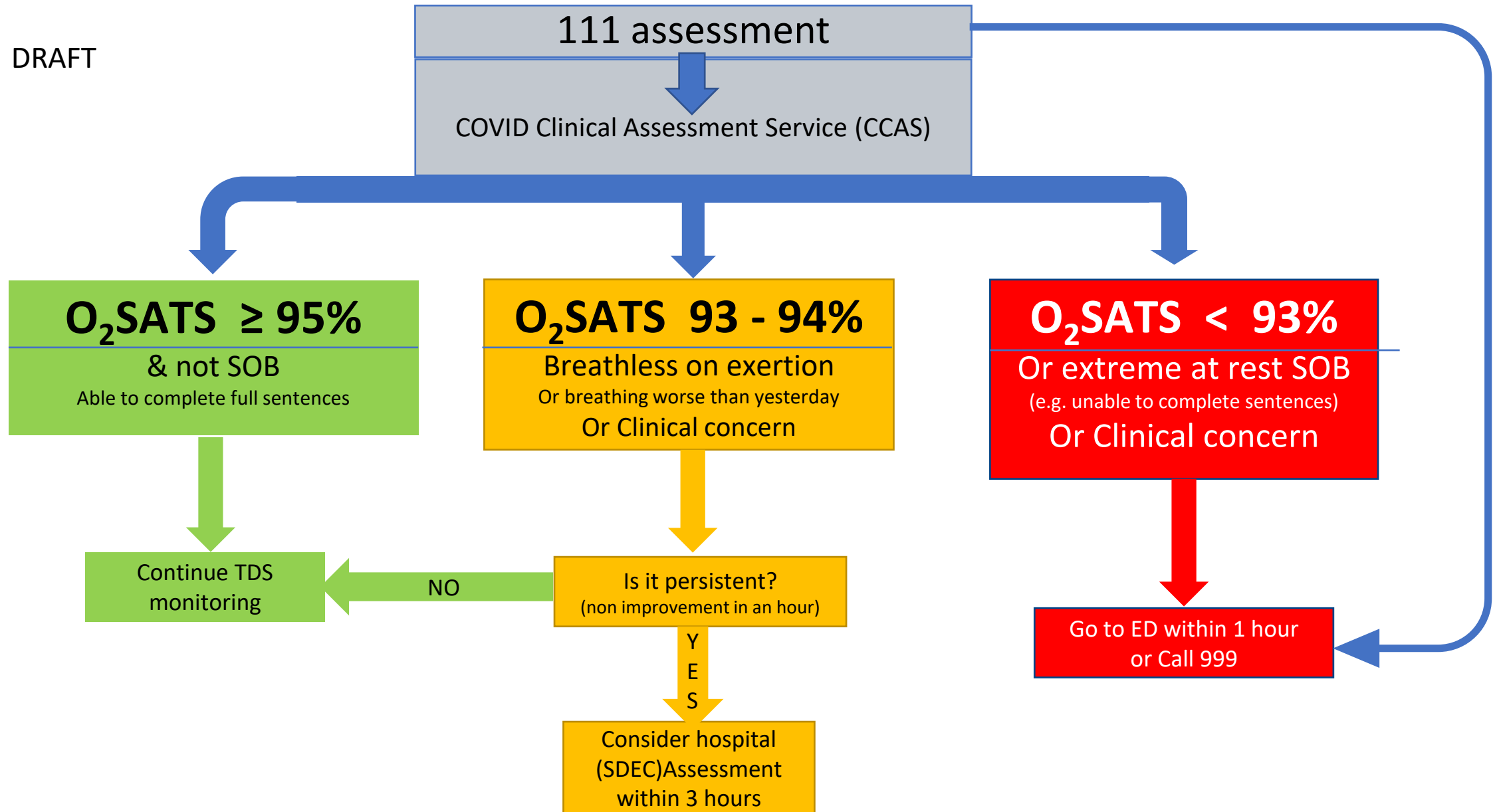
Appendices

COVID Oximetry @home 24/7 single point of access via 111/CCAS



24/7 COVID Oximetry @home DETERIORATION pathway via 111 CCAS



DRAFT



Complete Safety netting awaiting sign off And then urgent multilingual translation

Consistent with already published NHS England Public facing COVID diary resources

<https://www.england.nhs.uk/coronavirus/wp-content/uploads/sites/52/2020/06/C0445-Remote-monitoring-in-primary-care-Annex-2-diary.pdf>



Suspected coronavirus (COVID-19): Important information to keep you safe while isolating at home

This leaflet is for patients with suspected coronavirus who have not been admitted to hospital and will be isolating at home.

Recovering from COVID-19

Mild COVID-19 symptoms

These are common symptoms. You may not have all of these but still feel unwell.

- High temperature: you feel hot to touch on your chest and back. If you have access to a thermometer, a reading of 38 degrees celsius or higher.
- Cough
- Muscle ache or tiredness
- Mild chest pain
- Dizziness or headache
- Loss of taste or sense of smell
- Diarrhoea and vomiting
- Rashes.

Supporting your recovery

- Most people recover from coronavirus within three weeks.
- You may have mild symptoms and feel unwell for a short time before slowly starting to feel better.
- To help you recover, you may wish to try:
 - Rest
 - Paracetamol or ibuprofen
 - Regular fluids
- In some cases, the effects of having coronavirus may be more prolonged.

Visit yourcovidrecovery.nhs.uk for further support and advice.

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, feeling much less than normal, unable to care for yourself – simple tasks like washing and dressing or making food).

You can access 111:

- Online at www.111.nhs.uk
- By phone 111
- Via your GP.

You should tell the operator you may have coronavirus.

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 passing urine much less than usual.

You should tell the operator you may have coronavirus. These symptoms require urgent medical attention.

Blood Oxygen and Pulse Oximeters

Oxygen levels in the blood can be measured by using a pulse oximeter, a small device that you attach to your finger to take a reading. For more information on how to use a pulse oximeter please [click here](#). Even if you do not feel breathless, your oxygen levels may be low. If you have access to a pulse oximeter and your blood oxygen level becomes lower follow the guidance in this leaflet on where to seek advice.



If you continue to record these blood oxygen levels contact NHS111 or your GP as soon as possible

100	99	98	97	96	95	94	93	92	91	90 or less
-----	----	----	----	----	----	----	----	----	----	------------

Normal blood oxygen level for most people

If you continue to record blood oxygen levels of 92% or less, call 999 immediately or attend your nearest A&E within an hour

It is important to seek help if you feel more unwell with any of the above symptoms. If your condition worsens, do not wait but act immediately.



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

Ahmed Alaa¹, Zhaozhi Qian², Jem Rashbass³,  Jonathan Benger³, Mihaela van der Schaar²

[Author affiliations](#) +

Abstract

Objectives We investigated whether the timing of hospital admission is associated with the risk of mortality for patients with COVID-19 in England, and the factors associated with a longer interval between symptom onset and hospital admission.

Design Retrospective observational cohort study of data collected by the COVID-19 Hospitalisation in England Surveillance System (CHESS). Data were analysed using multivariate regression analysis.

Setting Acute hospital trusts in England that submit data to CHESS routinely.

Participants Of 14 150 patients included in CHESS until 13 May 2020, 401 lacked a confirmed diagnosis of COVID-19 and 7666 lacked a recorded date of symptom onset. This left 6083 individuals, of whom 15 were excluded because the time between symptom onset and hospital admission exceeded 3 months. The study cohort therefore comprised 6068 unique individuals.

Main outcome measures All-cause mortality during the study period.

Results Timing of hospital admission was an independent predictor of mortality following adjustment for age, sex, comorbidities, ethnicity and obesity. Each additional day between symptom onset and hospital admission was associated with a 1% increase in mortality risk (HR 1.01; $p < 0.005$). Healthcare workers were most likely to have an increased interval between symptom onset and hospital admission, as were people from Black, Asian and minority ethnic (BAME) backgrounds, and patients with obesity.

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.

U65 and mortality/ICU by oxygen sats

sats%	patient numbers	Died in 30	Died in 5	Crit care 30	Composite mortality or critical care	30 day mortality rate	5 day mortality rate	crit care 30 rate	Composite mortality or crit care rate
100	51	0	0	2	2	0.00%	0.00%	3.92%	3.92%
99	66	0	0	0	0	0.00%	0.00%	0.00%	0.00%
98	55	0	0	2	2	0.00%	0.00%	3.64%	3.64%
97	60	0	0	1	1	0.00%	0.00%	1.67%	1.67%
96	46	0	0	3	3	0.00%	0.00%	6.52%	6.52%
95	24	0	0	1	1	0.00%	0.00%	4.17%	4.17%
94	19	0	0	3	3	0.00%	0.00%	15.79%	15.79%
93	12	0	0	1	1	0.00%	0.00%	8.33%	8.33%
92	11	2	1	4	5	18.18%	9.09%	36.36%	45.45%
91	8	2	0	3	4	25.00%	0.00%	37.50%	50.00%
90	15	1	1	3	4	6.67%	6.67%	20.00%	26.67%
89	4	0	0	2	2	0.00%	0.00%	50.00%	50.00%
88	6	1	0	2	2	16.67%	0.00%	33.33%	33.33%
87	1	0	0	0	0	0.00%	0.00%	0.00%	0.00%
86	1	1	1	1	1	100.00%	100.00%	100.00%	100.00%
85	5	1	0	3	4	20.00%	0.00%	60.00%	80.00%
<85	33	5	0	14	15	15.15%	0.00%	42.42%	45.45%

65 or above mortality/ICU by oxygen sats

Should ambulances leave
An oximeter pack with non conveyed
High risk patients?

sats%	patient numbers	Died in 30	Died in 5	Crit care 30	Composite mortality or critical care	30 day mortality rate	5 day mortality rate	crit care 30 rate	Composite mortality or crit care rate
100	51	8	3	1	8	15.69%	5.88%	1.96%	15.69%
99	84	7	3	1	8	8.33%	3.57%	1.19%	9.52%
98	89	9	2	3	11	10.11%	2.25%	3.37%	12.36%
97	103	8	0	1	9	7.77%	0.00%	0.97%	8.74%
96	88	6	2	5	10	6.82%	2.27%	5.68%	11.36%
95	61	9	3	0	9	14.75%	4.92%	0.00%	14.75%
94	67	12	1	0	12	17.91%	1.49%	0.00%	17.91%
93	36	6	2	0	6	16.67%	5.56%	0.00%	16.67%
92	28	7	2	1	8	25.00%	7.14%	3.57%	28.57%
91	28	6	0	1	7	21.43%	0.00%	3.57%	25.00%
90	25	10	5	0	10	40.00%	20.00%	0.00%	40.00%
89	24	6	1	0	6	25.00%	4.17%	0.00%	25.00%
88	22	6	3	1	6	27.27%	13.64%	4.55%	27.27%
87	6	1	1	0	1	16.67%	16.67%	0.00%	16.67%
86	8	2	2	1	3	25.00%	25.00%	12.50%	37.50%
85	4	4	3	0	4	100.00%	75.00%	0.00%	100.00%
<85	71	30	23	5	33	42.25%	32.39%	7.04%	46.48%

Oxygen Saturation (on air) threshold (%)		Sensitivity (95 % CI)	Specificity (95 % CI)	Number of observations	Cumulative sum of number of observations
	85	0.287 (0.240-0.334)	0.958 (0.952-0.964)	8	76
	86	0.312 (0.269-0.356)	0.953 (0.947-0.958)	8	84
	87	0.312 (0.269-0.356)	0.947 (0.938-0.955)	6	90
	88	0.353 (0.314-0.393)	0.928 (0.915-0.941)	23	113
	89	0.392 (0.354-0.431)	0.907 (0.893-0.912)	25	138
	90	0.481 (0.445-0.516)	0.885 (0.870-0.899)	32	170
	91	0.553 (0.510-0.597)	0.862 (0.845-0.879)	31	201
	92	0.624 (0.584-0.664)	0.836 (0.818-0.854)	33	234
	93	0.664 (0.633-0.695)	0.795 (0.777-0.812)	45	279
	94	0.713 (0.686-0.739)	0.723 (0.705-0.742)	74	353
	95	0.760 (0.724-0.796)	0.650 (0.648-0.662)	76	429
	96	0.841 (0.807-0.875)	0.526 (0.513-0.538)	129	558
	97	0.880 (0.857-0.904)	0.368 (0.355-0.380)	156	714
	98	0.921 (0.901-0.940)	0.235 (0.255-0.245)	132	846
	99	0.96 (0.942-0.977)	0.094 (0.085-0.104)	139	985
	100	1	0	95	1080

Table 2: Evaluation of initial oxygen saturation measured by paramedics in COVID-19 patients in the community used as a binary classifier for predicting 30-day mortality or ICU admission. Each row denotes a different threshold for determining those at risk of death. We display the sensitivity and specificity for each threshold, equivalent to all possible intersections of the receiving operator curve using thresholds between 85 % and 100 %. In total 68 patients had an oxygen saturation of 84 % or less (not shown). The column on the far right denotes the cumulative sum of the number of observations of the given oxygen saturation (row) or below. For example, 76 patients had an oxygen saturation of 85 % or less recorded (top row) and 429 patients had an oxygen saturation of 95 % or less recorded.

NHS Volunteer Responders referral process

Process for requesting an NHS Volunteer Responder for a task

Referrers

Health and social
care practitioners

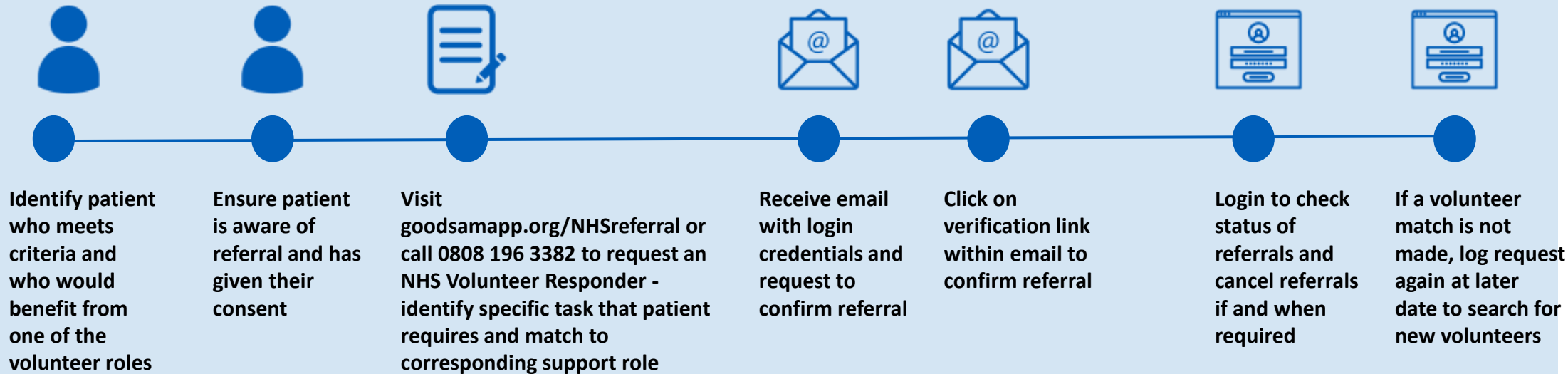
Pharmacists

Local authorities

VCSE
organisations

GoodSAM approves your
account
(first time users only)

Automatic search for on duty
volunteers to make a
volunteer match



To refer a patient, visit goodsamapp.org/NHSreferral or call 0808 196 3382

Classification: Official

Publications approval reference: 001559

To: CCG AOs, CCG Chairs, Community Provider CEOs

Copy: ICS CEOs, Acute Provider CEOs and Medical Directors, 111 and Ambulance CEOs, AHSN MDs, PCN Clinical Directors

12 November 2020

Dear Colleagues

ESTABLISHMENT OF COVID OXIMETRY @HOME

As treatment of COVID improves, earlier detection of (silent) hypoxia at home could help further reduce mortality and morbidity.

Following successful testing in various parts of the NHS, we are now recommending that CCGs put in place a COVID Oximetry @home model during November, as part of the ongoing response to the pandemic.

Sometimes called a COVID 'virtual ward', the recommended model is based on patient self-monitoring. Designed for adoption at scale, the Standard Operating Procedure draws from learning to date and from pilots completed over the summer and early autumn.

What is the model?

As patients present at NHS services with COVID-19, defined cohorts are offered an NHS oximeter, for their own self-monitoring, three times a day, for up to a fortnight.

They are given advice: go to hospital or call 999 if their oxygen level is 92% or lower, or call your GP surgery or 111 if it's 94% or 93%.

Through a shared decision-making conversation, they are also given the option of a regular prompt at days 2, 5, 7, 10 and 12, either by (a) text message or (b) by e-mail; or instead (c) a non-clinician led phone call.

The work to date suggests patients on this pathway are well motivated to self-monitor effectively for the short period involved.

Typically, a friend or family member, or an NHS Volunteer Responder, can collect and then return the oximeter for decontamination and reuse.

Who are the defined cohorts?

Existing evidence suggests the cohorts that will benefit most are those with:

1. A diagnosis of COVID-19: either clinically, or positive test result **and are also**
2. Symptomatic **and are either**
 - a. *Aged 65 years or older or*
 - b. *Under 65 years and clinically extremely vulnerable to COVID.*¹

Colleagues are advised to consider carefully the implications before extending the pathway more widely.

How is it implemented?

As an out-of-hospital based model, we are asking CCGs to take the lead responsibility for implementation, drawing on the Standard Operating Procedure.

The default assumption is that the model is primarily implemented in general practice, e.g. including in hot hubs, working with community teams. £150 million of additional funding for General Practice to increase capacity between now and March has been allocated to CCGs this week. This fund can be used for General Practice-specific costs of COVID Oximetry@home. CCGs will separately need to provide clinical leadership and any other necessary additional support. Referrals of the defined cohorts will also come via 111 Covid Clinical Assessment Service (CCAS), Test and Trace and hospital Emergency Departments.

Local systems will need to ensure reliable arrangements are in place for same day oximeter distribution to patients, and their subsequent decontamination and reuse. A supply of pulse oximeters is available to CCGs. If local systems wish to extend the service beyond the above defined cohort, they will need to resource this locally, including provision of additional oximeters.

Practical guidance is available including a national learning network, implementation support from local Academic Health Science Networks (AHSNs), infection prevention and control and patient leaflets in a range of languages (see [here](#) for further details). NHSX will also be supporting a selection of sites across the country with implementing and evaluating the costs and benefits of additional technology.

SNOMED codes specific to home monitoring of COVID-19 patients do not yet exist. We therefore encourage primary care and community teams to use existing remote monitoring codes. NHS Digital will advise which codes to use for each stage of the monitoring, and a new data set will be implemented to support this initiative.

¹ The Clinically Extremely Vulnerable (CEV) to COVID list should be used as the primary guide. Clinical judgement can apply and take into account multiple additional COVID risk factors. The CEV list continues to be updated in the light of the latest evidence.

Who is this for ?

Diagnosis of COVID-19: either clinically or positive test result **AND**

Symptomatic AND EITHER

1. ***Aged 65 years or older OR***
2. ***Under 65 years and clinically extremely vulnerable to COVID.***
(The Clinically Extremely Vulnerable to COVID list should be used as the primary guide. Clinical judgement can apply and take into account multiple additional COVID risk factors; for the most part, we anticipate this will already have led to inclusion on the CEV list.)

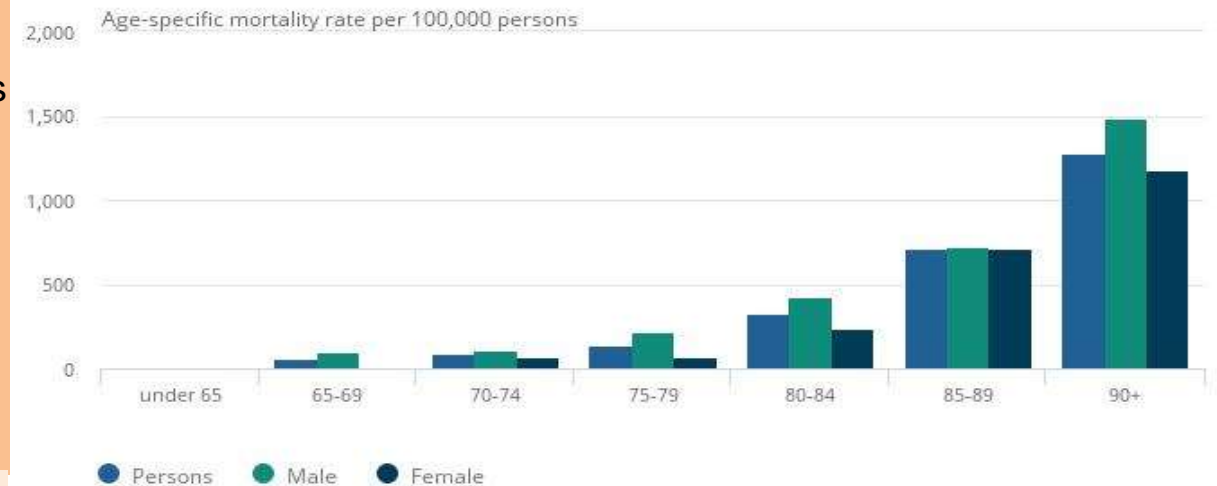
[Note we are finalising the precise wording of this second group: there is a real and significant risk that far too many people are entered into the scheme]

Clinical judgement should be used outside of these parameters but for limited groups and only those who have major risk factors for a poor outcome or late presentation. Considerations could include:

- Members of a minority ethnic group
- Obesity (BMI >35)
- Patients with significant comorbidities (eg active cancer treatment, significant immunosuppression, diabetes/chronic lung disease)
- LeD/Severe Mental health

Figure 6: Across all age groups in Wales, males had a higher rate of COVID-19 deaths than females

Age-specific mortality rates due to COVID-19, per 100,000 persons, Wales, deaths occurring in June 2020



Source: Office for National Statistics – Deaths involving COVID-19

What to do if your oxygen saturation is not normally 95-100%

SEVERE

O₂ 92%* or lower

Or any of RR ≥ 25 , HR ≥ 131 , new confusion
 \approx NEWS2 ≥ 5

*Or if O₂ sats $>4\%$ less than usual

**CONSIDER URGENT
ADMISSION**

MODERATE

O₂ 93 - 94%*

Or any of RR 21-24, HR 91-130
 \approx NEWS2 3-4

*Or if O₂ sats 3-4% less than usual

**CONSIDER Hospital
ADMISSION /
ASSESSMENT**

MILD

O₂ 95% or higher

Or any of RR ≤ 20 , HR ≤ 90
 \approx NEWS2 0-2

*Or if O₂ sats are 1-2% less than usual

**CONSIDER
MONITORING**