COVID-19 Remote Monitoring Pathway

Q&A Document

Version 4, 3 December 2020

Background

Emerging evidence indicates that late presentation with COVID-19 is associated with increased mortality and that early and strong intervention to prevent the progression of the disease reduces mortality. Some patients have relatively few symptoms despite very low oxygen saturation levels and some do not recognise the need for early presentation with serious symptoms. Telemonitored supported self-monitoring has the potential to both identify deterioration in COVID-19 and encourage earlier presentation to health services.

Because of this the Chief Medical Officer has recommended the use of telemonitored supported self-management for all COVID-19 patients identified to be at risk of deterioration.

The implementation of a COVID-19 Remote Monitoring Pathway is supported by The Scottish Government in the Programme for Government, published on 1st September 2020, specifically through the commitment to "roll- out a new digital monitoring solution to support people who are dealing with a diagnosis of and the longer-term effects of COVID- 19".

What is the COVID-19 Remote Monitoring Pathway?

- It is a simple, interactive service where patients at home submit readings using a communication method that suits them. This can include SMS, app, online or automated phone call. Health care professionals can use a tablet or desktop computer to access the app.
- The service monitors twice daily reported clinical signs and symptoms and alerts patients to seek assistance if deterioration risk levels are triggered.
- Patients are registered using the Inhealthcare platform (national license secured for use across Scotland), which is used to support people with a wide range of health conditions.
- The Inhealthcare platform will be integrated at health board level with e.g., SCI lookup for patient registration and reporting purposes.

The following is a link to video demonstrations of the COVID19 pathway on the Inhealthcare service. https://tec.scot/resources-2/

Version 1.0
– 12 November 2020

Why choose it to monitor COVID-19?

Although the vast majority of patients will gradually improve, some are at risk of relatively rapid deterioration. The Covid monitoring service is being introduced as it is clear that some patients were leaving it too late to seek advice and treatment, putting up with increasing breathlessness for too long, and some were developing severe hypoxaemia with few symptoms. It is now clear that early treatment can be lifesaving.

Who is it for?

Initially the service can be offered to patients considered to have COVID and identified as at risk of deterioration, who have been assessed at a COVID Assessment Centre or there setting. Based on their calculated risk, they would be given access to the COVID monitoring pathway with a pulse oximeter.

The COVID monitoring service has potential to be initiated by a wider range of clinical services, such as Emergency Department, General Practice or Scottish Ambulance Service, to help patient's self-monitor acute COVID symptoms at home or in care homes, with or without Oxygen saturation monitoring devices.

What about people with underlying respiratory disease?

Initially the oximeters will be given to people who do not have severe underlying respiratory disease because of the difficulty in interpreting oxygen saturations in this group. Pathway guidance for people with COPD is under review.

Where did the pathway rationale come from?

The Inhealthcare Covid 19 Remote Health Monitoring pathway specification, design and delivery has been directed by a national Clinical Advisory Group approach (CAG). Using available evidence and clinical consensus, the CAG (see appendix) has developed and agreed the pathway content. This includes the wording and flow of questions, the clinical measurement parameters, alert triggers, and advice notes. The group tested the COVID19 remote health pathway ensuring that the clinical design principals are working as per the design specification. The service was tested and demonstrated to the membership of the group who in turn provided signed off on 16 October 2020.

Why not just use oximetry?

Some patients can maintain reasonable oxygen saturation through rapid respiration but are at risk of exhaustion and dehydration. Both symptoms and saturations therefore need to be considered when deciding further management.

What is the Pathway?

The clinical pathway can be found here https://tec.scot/resources-2/

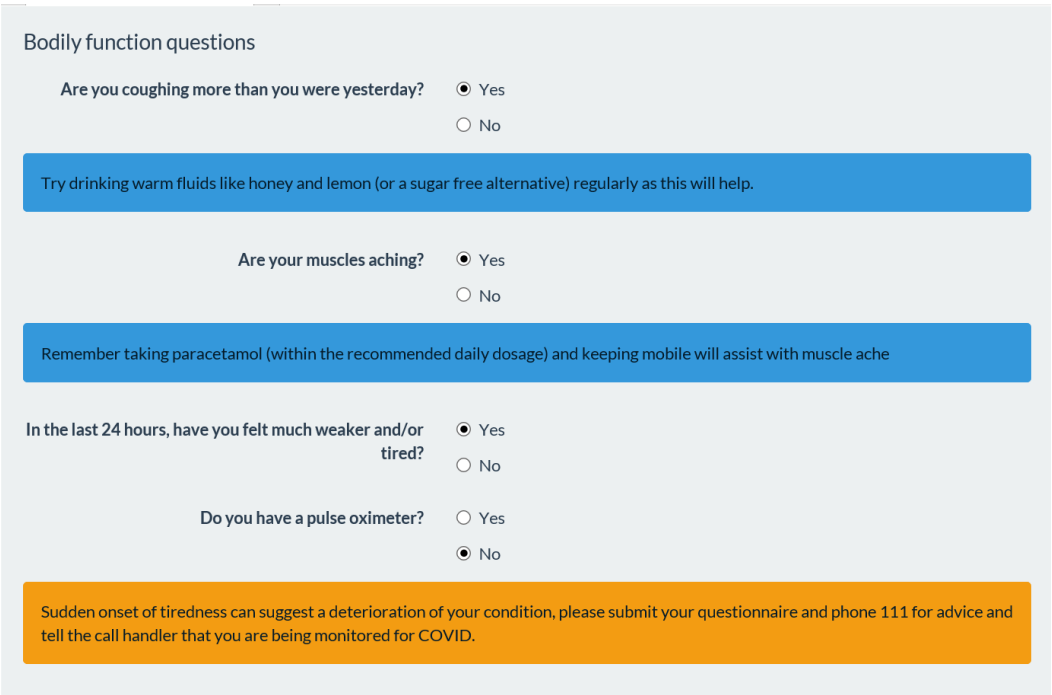
How does it work?

- This service is primarily to help patients self-manage COVID19 at home.
- All patients require to be registered on the Inhealthcare COVID19 remote monitoring pathway after clinical assessment (see clinician view video; https://tec.scot/resources-2/).
- Once registered on the InHealth care COVID=19 remote monitoring pathway, patients access the service through their preferred method: an app or web browser on a smart device, through texted questions on a standard mobile phone, or pre-recorded questions to be answered on a touch tone landline.
- The service prompts patients to answer questions on clinical signs and symptoms twice daily (see patient view video https://tec.scot/resources-2/). For those who have oximeters, they enter their resting pulse rate, oxygen saturation, and temperature.

Patients whose symptoms or physiological readings breach pathway triggers are directed to:

1. Self-management advice (blue advice alert)
2. Call 111 for advice (amber alert). If preferred, a local response message can be set for amber alerts (e.g. to call a local direct line or "we will call you to discuss your symptoms within x timescale)
3. If very severe then will be advised to contact 999 services (red alert).

For example:



Monitoring is largely by exception; however, amber alerts require to be responded to appropriately by clinicians through appropriate covid assessment / flow centre pathways.

What are patients advised and why?

Patient Alerts: Below is a list of automated warnings patients are given, their rationale and suggested consideration for the clinician responding to the call

ALERT: Symptom or physiological reading	Advice to patient	Rationale	Considerations for clinician
Breathless to level where speaking is difficult	You seem very breathless Phone 999	Suggests severe illness, but may be anxiety	Normally managed by the Scottish Ambulance Service
Worsening breathless **Breathless on minimal exertion**	You seem to be getting more breathless please phone for advice	Worsening breathlessness is an early sign of severe COVID.	Telephone or near me with patient to confirm general status or decline, does patient sound breathless at rest, are they drinking and eating. If patient has oximeter and saturation is ≥ 94 after 1 min exercise and otherwise OK, consider continuing observation with safety-netting. If patient does not have pulse oximeter consider further assessment to measure saturation and assess respiratory rate to measure saturation and assess respiratory rate
Oxygen saturation <94 either at rest or after exercise	Your oxygen level is very low please phone 999	Low oxygen saturation may require oxygen therapy. Desaturation after exercise is very indicative	Normally managed by the Scottish Ambulance Service

		of poor outcome	
Oxygen saturation 94 or 95 at rest: only when previously higher	Your oxygen level is a little low please phone for advice	May be important if a falling level particularly if associated with increased breathlessness	Speak to patient to confirm general status, check for increasing breathlessness. If level has fallen from previously high level, particularly in the presence of breathlessness, suggests worrying deterioration and therefore consideration of admission
Resting pulse rate >100	Your pulse rate is higher than expected, please repeat after resting and if still over 100 or more please phone for advice	Resting tachycardia suggestive of serious illness.	Speak to patient to confirm general status, increasing breathlessness, compare with previous heart rate measures if relatively stable and close to 100 consider observing. If rising consider worsening COVID, pulmonary embolus or arrhythmia (atrial fibrillation is a common complication of COVID-19)
Severe tiredness/exhaustion in last 24 hours	Sudden onset of tiredness can suggest a deterioration in your condition please phone for advice	Severe tiredness is associated with hypoxia	Speak with patient to confirm decline, have they become more breathless, are they drinking and eating, is there evidence of secondary infection. Consider seeing to check oxygen saturation
Persistent fever of > 38 for more than 5 days	Your temperature has been high for 5 days or more please phone for advice,	Raises concerns about potential secondary infection. Increased risk of serious outcome.	Speak to patient to confirm general status, increasing breathlessness, chest pain, coloured spit, and symptoms of other infections like UTI. Consider further examination/investigation
One off fever of > 38.5	Your temperature is higher than expected, please phone for advice.	Raises concerns of severe illness	Speak to patient to confirm general status, increasing breathlessness, chest pain, coloured spit, and symptoms of other infections like UTI. Consider further

			examination/investigation

What additional work will this mean for Covid Assessment / Flow centres?

This pathway facilitates a safeguarding approach for patients who have been assessed through community covid pathways and who are identified by clinicians as at risk of deterioration. The proportion of patients who fall into this category will vary from centre to centre. Centres already have strong safeguarding processes, many with follow up models. The place for the covid monitoring service in local pathways should be reviewed locally.

Registration of patients is a brief administrative process but does require a small amount of additional information to be gathered at assessment as well as issue of brief information and issue of oximeter.

The amount of time involved in monitoring the COVID remote monitoring pathway will depend on the number of patient alerts and the local operating process for monitoring and responding to patient alerts. In similar international implementations of telemonitoring the average number of alerts was a mean of 1.5 per patient over a 10 day period (0.15/day). This should be considered in comparison with the re-contacts which occur from currently unmonitored patients

Two key considerations will be

- How the monitoring pathway will integrate with the current Covid Assessment Centre (or other) Pathway; both in terms of initiating the service for new patients within the assessment process, and how the service will monitor and action any alerts.

- Prior to deploying the service each service will require to decide on the routing of the amber alert to the local service (a 24hour telephone number)

Both of these may vary depending on triage and assessment models at a local level.

- All alerts, non-responses, and daily data can be seen on the Inhealthcare web browser system by any registered “care centre” clinical user.

Where do we get equipment?

- A supply of pulse oximeters has been procured nationally and each health board will be consulted regarding level of supply.
- At time of issue, it is not expected that the oximeters will be returned from patients.
- At time of issue, it is not envisaged that thermometers will supplied
- Digital Integration of the Inhealthcare system is essential, license and pathway costs are funded at a national level for this pathway.

What are the pathway implementation timescales?

- October 2020: The COVID Monitoring Service pathway was signed off for by CAG.
- Test of Change initiation with a board COVID assessment centre: by mid Dec.
- Guidance materials, readiness checklist – end of November
- Early Lessons - mid December.
- Board interest/readiness assessed – mid-December.
- Available to scale to other boards from mid-December as requested.

What do we need to do at a local level in preparation?

- This service will be available to Boards from December
- Confirm executive lead who is providing strategic leadership for Inhealthcare remote health monitoring.
- Confirm eHealth leadership.
- Consider eHealth technical readiness for Inhealthcare
- Form a project team which includes
    - COVID assessment pathway/flow centre key stakeholders with a view of local implementation plan for COVID RHM.
    - COVID Assessment Pathway clinical leads (Medical, Nursing, OOH)
    - COVID Assessment Pathway managerial and administrative lead (service manager, pathway administrator)
    - E-Health Inhealthcare (RHM) "organisational administration" lead for managing log ins, training key staff etc
- Consider operational value and readiness for COVID RHM pathway
- Contact nss.tec@nhs.scot to express your interest in implementing the COVID Monitoring Pathway.

(Appendix)
Clinical Assessment Group Membership

Name	Role	Organisation
Professor Brian McKinstry	Professor of Primary Care eHealth	University of Edinburgh
Morag Hearty	TEC National Strategic Lead	Scottish Government
Jim Docherty	Clinical Lead for Endoscopy	NHS Highland
Daniel Beckett	Unscheduled Care Clinical Lead and Interim CD for Acute Medicine	NHS Forth Valley
Johnny Will	Medical Director - SAS	Scottish Ambulance Service
Elizabeth Payne	Carer Service Development Manager	NHS Lothian
Mark Darroch	Strategic Development & Programmes Manager	NHS Greater Glasgow & Clyde
Lin Calderwood	National Portfolio Programme Manager	NHS Greater Glasgow & Clyde
Sam Patel	Clinical Lead	NHS Lanarkshire
Oliver Koch	Consultant Physician	NHS Lothian
Kevin Dhaliwal	Consultant in Respiratory Medicine	University of Edinburgh
Khyber Alam	Associate Medical Director	NHS 24
Claire Mackintosh	Consultant Physician	NHS Lothian
Jon Miles	Consultant Physician	NHS Lothian
Dawn Orr	Nurse Consultant, Telehealth and Telecare	NHS 24
John Sandbach	Head of Clinical Systems Development	NHS 24
Nigel Williams	Medical Director	NHS Lothian
Michelle Watts	Senior Medical Advisor	Scottish Government
Alice Carmichael	Policy Officer	Scottish Government
Paul Deehan	GP	NHS Lanarkshire
Jennifer Graham	Team Leader in Realistic Medicine Policy	Scottish Government
Dr Laura Ryan	Medical Director	NHS 24