Primary Care Resilience Webinar Series

Connect, rebuild and move forward

Healthcare Improvement Scotland | ihub

Scottish Government
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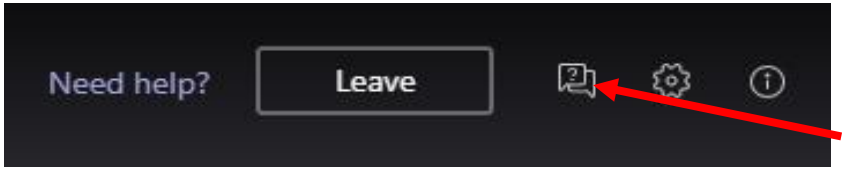
RCGP SCOTLAND

NHS Education for Scotland

Housekeeping

As this session is taking place via MS Teams Live Event, you will not be able to use your video or microphone.
Instead use the Q&A panel to:

- introduce yourself
- raise any questions for the speakers
- post comments, and
- upvote for a question/comment someone else has posted by liking it.

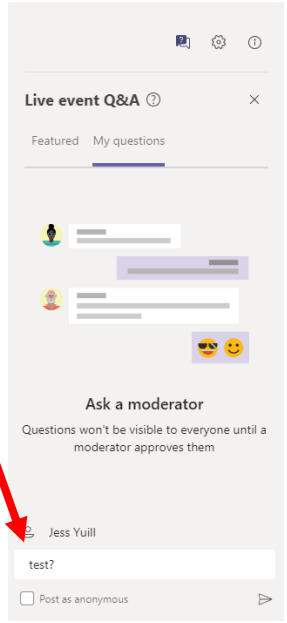


The Q&A Panel shows up when you click on the icon shown on the top right-hand side of your screen

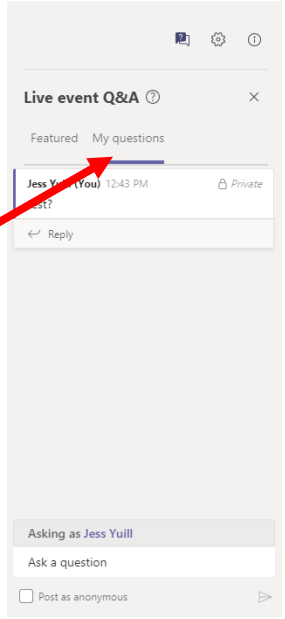
Housekeeping

Questions in the Q&A are moderated. Please allow a few minutes for questions to appear.

1. Submit your question using the text box shown



2. Submitted questions show up in your **My Questions** tab here. Once approved, it will show up in the Featured panel.



The session will be recorded. By taking part you consent to this.

Introduction and Scene Setting – Session 1

Dr Michelle Watts
Medical Advisor (Primary Care Division),
Scottish Government

Aims of the Webinar Series

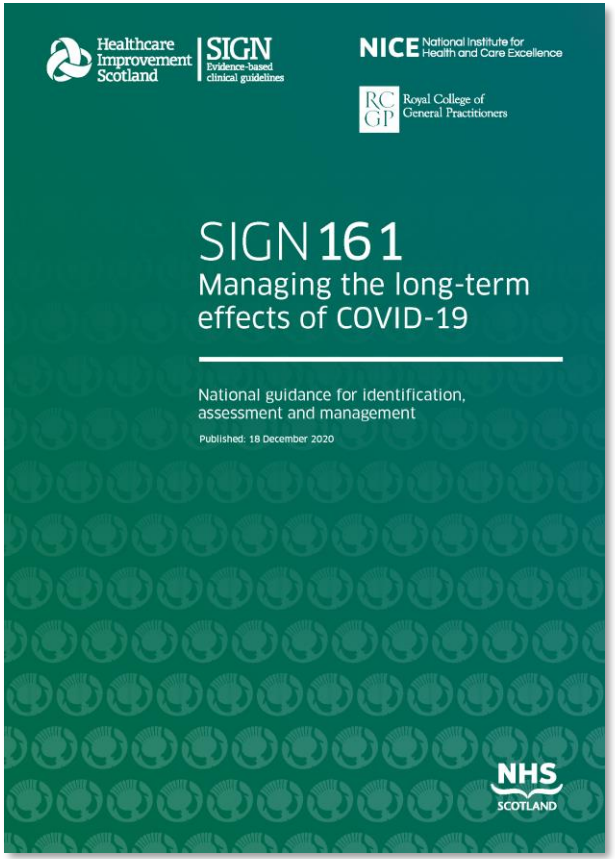
- Reflect on what we have learnt from the response to COVID-19
- Explore what changes we have made and what we need as we move forward
- Connect and learn from each other

TODAY –
Long COVID

SIGN 161 – Managing the long-term effects of COVID-19

Dr Moray Nairn, Programme Manager,
Scottish Intercollegiate Guidelines Network (SIGN)

SIGN 161 and NICE NG188



Single guideline development process led by NICE and SIGN with input from RCGP.

Living guideline approach using NICE's interim process and methods for guidelines developed in response to health and social care emergencies.

Expert panel membership from NHS England, NHS Scotland, NHS Wales and lay representation from individuals with lived experience.

Consultation by invitation to registered stakeholders.

Published in Dec 2020 by NICE and SIGN as two guidelines with the same recommendations.* Patient version developed by SIGN.

Update began summer 2021 – consultation in Sep, publication in Nov.

Sections and 2021 updates

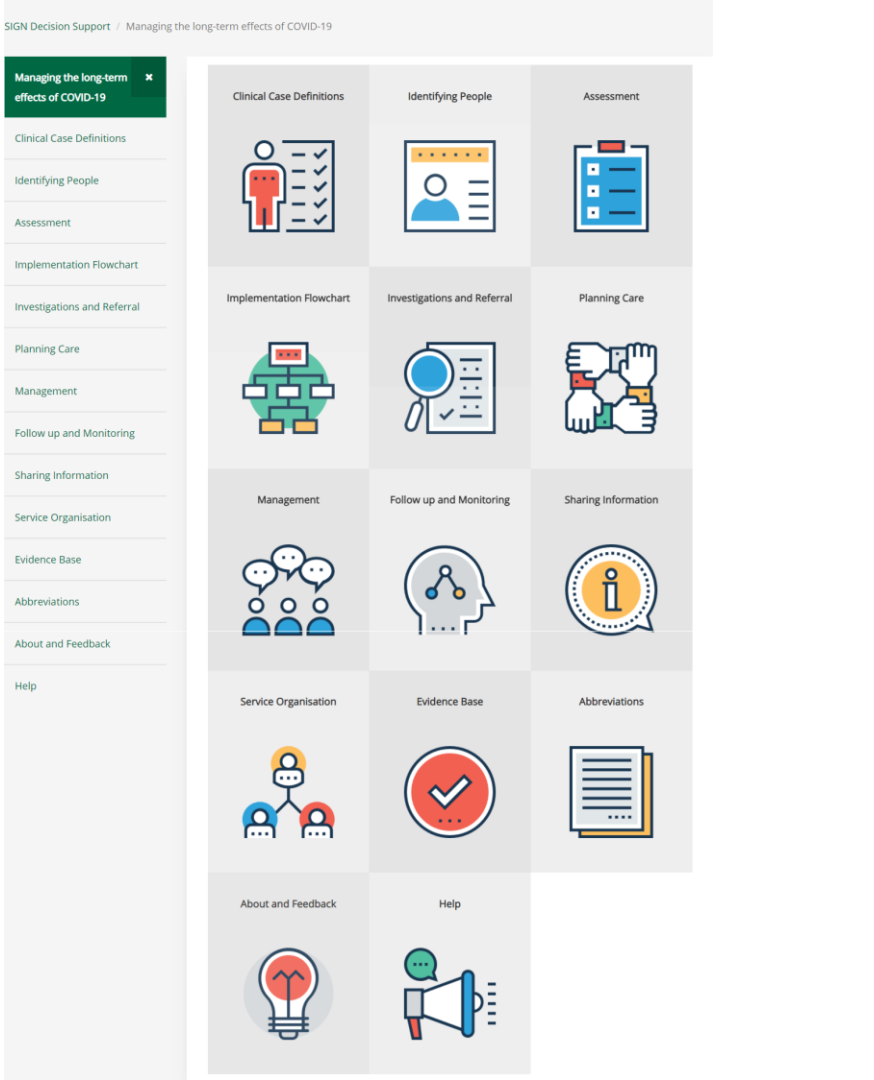
Minor updates / Not significantly changed:

- Introduction / case definitions
- Identifying people with ongoing symptomatic COVID-19 or post-COVID-19 syndrome
- Assessing people with new or ongoing symptoms after acute COVID-19
- Investigations and referral
- Planning care
- Management
- Follow up and monitoring
- Sharing information and continuity of care
- Service organisation

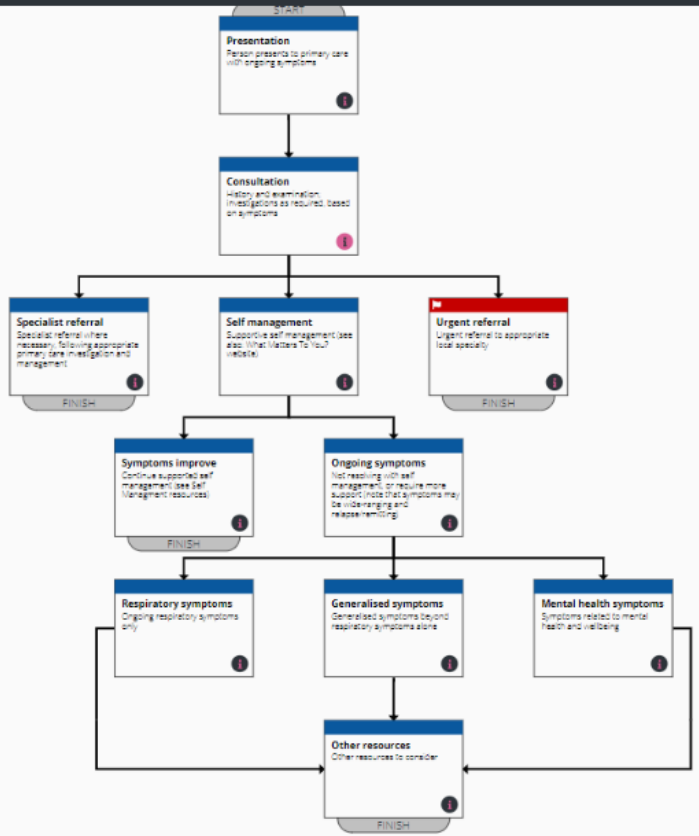
What's new?

- List of common symptoms (some less common in children / YP)
- Encourage vaccination, but effects on symptoms are unknown
- Absence or reduced performance at work/education may signal long-term effects (may be helpful to prioritise further assessment)
- Follow current national and local guidance for managing common symptoms, using established treatments.

www.signdecisionsupport.uk



Flowchart from the Implementation Support Note



Consultation

SHORT DESCRIPTION

History and examination; investigations as required, based on symptoms

LONG DESCRIPTION

Consider:

- Blood tests which may include FBC, LFTs, U+Es, CRP, ferritin (assessing inflammatory response), BNP and TFTs
- Chest X-ray, ECG
- Exercise tolerance: e.g. 1 minute sit to stand (RR, HR and SpO_2)
- Lying and standing BP
- Person-centred assessment to reflect impact on their day-to-day life pre and post COVID-19
- Screening tools (alongside clinical assessment) to capture symptoms and functional impact
- Care planning according to shared decision making

Healthcare Improvement Scotland | SIGN

SIGN long COVID Patient Information

Search...

Feedback About

Symptom diary

Do I have long COVID?

Assessment & tests

Planning care

What can help?

Follow up

Who will be involved in my care?

More information

About this app

Future developments

NICE and SIGN are in contact with NIHR- and CSO-funded research groups to request access to interim results of qualitative and clinical research. Some will become available in the next 6 months, with most studies returning full results in 2023.

Managing the long-term effects of COVID-19

Implementation support note for clinicians to support the management of long-term effects of COVID-19 in primary and community care

Nafees Ahmad

Scottish Clinical Leadership Fellow (2020-2021)

Scottish Government Healthcare Quality & Improvement

Urology SpR – Queen Elizabeth University Hospital, Glasgow

NHS Education for Scotland

Scottish Government
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@SCLF_

Scottish Clinical Leadership Fellow (SCLF)

- 1 year fellowship
- Open to medical trainees (including GPST)

Where will I be based as a SCLF?

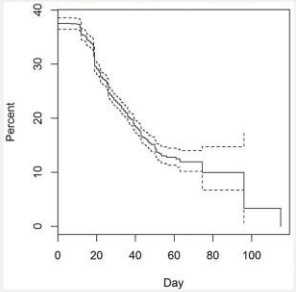
Fellows are hosted in a number of host organisations in Scotland, eitherwithin a single organisation, or more commonly co-hosted between either NES or Scottish Government and one of the partner organisations. Host organisations over the last few years have included:

- Scottish Government Health & Social Care Directorates
- Health Workforce
- Chief Medical Officer
- Chief Dental Officer
- Quality and Improvement Directorate
- NHS Education for Scotland
- National Services Scotland
- Royal College of Anaesthetists
- Royal College of Physicians & Surgeons of Glasgow
- Royal College of Surgeons of Edinburgh
- Royal College of Physicians of Edinburgh
- General Medical Council
- Scottish Deans' Medical Education Group
- Healthcare Improvement Scotland
- Medical and Dental Defence Union of Scotland
- North of Scotland Planning Group

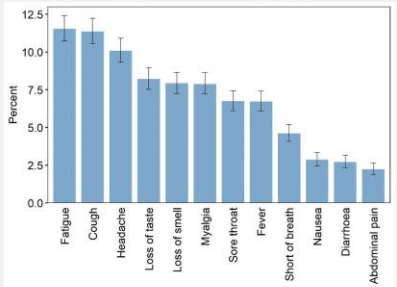
1 in 5 respondents have symptoms at 5 weeks

- Percentage with any symptom = 21.0% at 5 weeks from infection; 9.9% at 12 weeks
- Median duration among those with symptoms = 39.5 days

Day-by-day percentage with any symptom

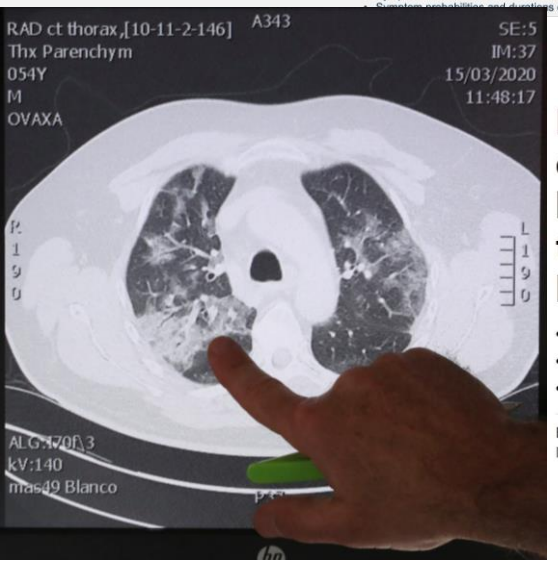


Percentage with symptoms at 5 weeks, by symptom



Office for National Statistics

- Source: ONS Coronavirus Infection Survey data to 07-12-2020
- Unweighted sample of 8,193 respondents who tested positive for COVID-19 during follow-up
- Symptoms at or within 5 weeks of infection are tracked until first observed discontinuation
- Symptom probabilities and durations obtained from Kaplan-Meier estimation



ICU nurse, 33, in remission from breast cancer was 'told her shortness of breath was long Covid despite never testing positive for the virus' - only to learn it was lung cancer

- **Brogan Williams, 33, Wolverhampton, diagnosed with lung metastasis this year**
- **The nurse was in remission from breast cancer when she noticed symptoms**
- **She was diagnosed with Covid Lung, a symptom associated with Long Covid**

By MONICA GREEP FOR MAILONLINE
PUBLISHED: 16:54, 16 August 2021 | **UPDATED:** 18:23, 16 August 2021

Mental Health
- Anxiety
- Depression
- Sleep problems
- Substance abuse

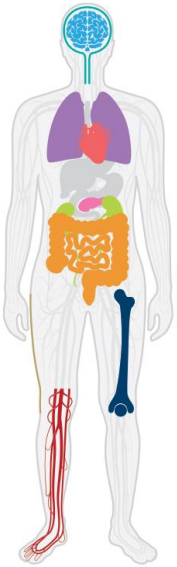
Respiratory System
- Cough
- Low blood oxygen
- Shortness of breath

Kidney
- Acute kidney injury
- Chronic kidney disease

Gastrointestinal
- Diarrhea
- Acid reflux
- Constipation

Skin Disorders
- Rash
- Hair loss

Blood Disorders
- Anemia
- Blood clots



Nervous System
- Stroke
- Headaches
- Memory problems
- Loss of smell and taste

Cardiovascular
- Arrhythmia
- Palpitations
- Heart failure
- Acute coronary disease

Metabolic/Endocrine
- Obesity
- Diabetes
- High cholesterol

Musculoskeletal
- Joint pain
- Muscle weakness

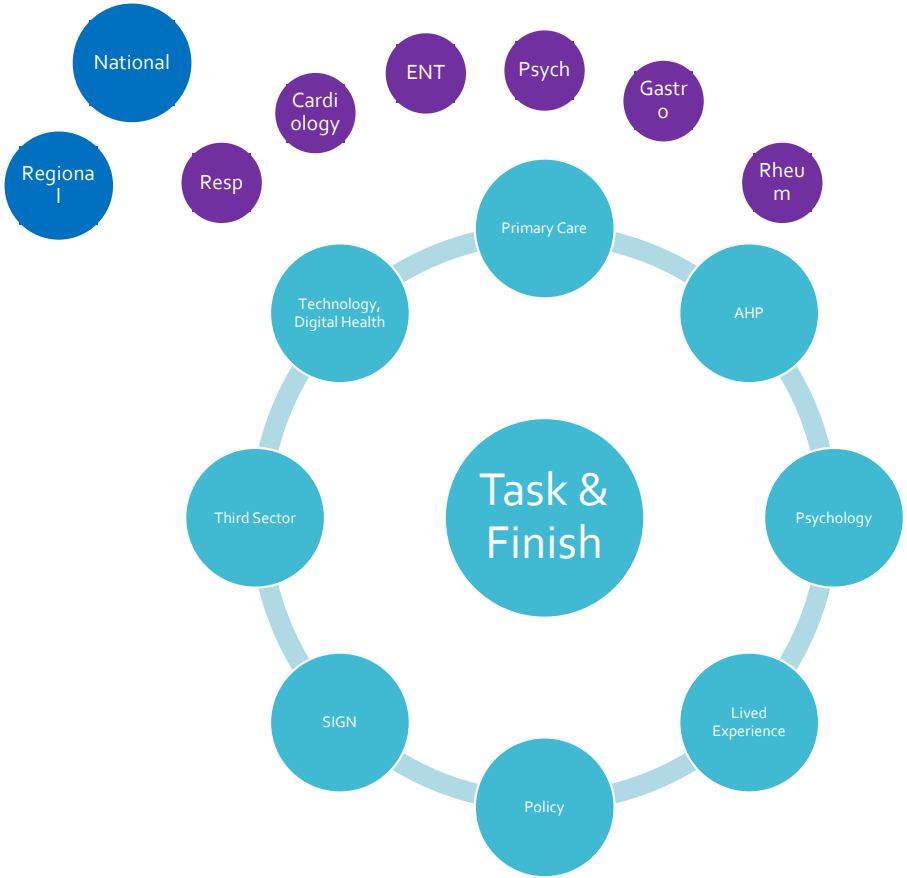
General
- Fatigue
- Malaise
- Mitochondrial dysfunction

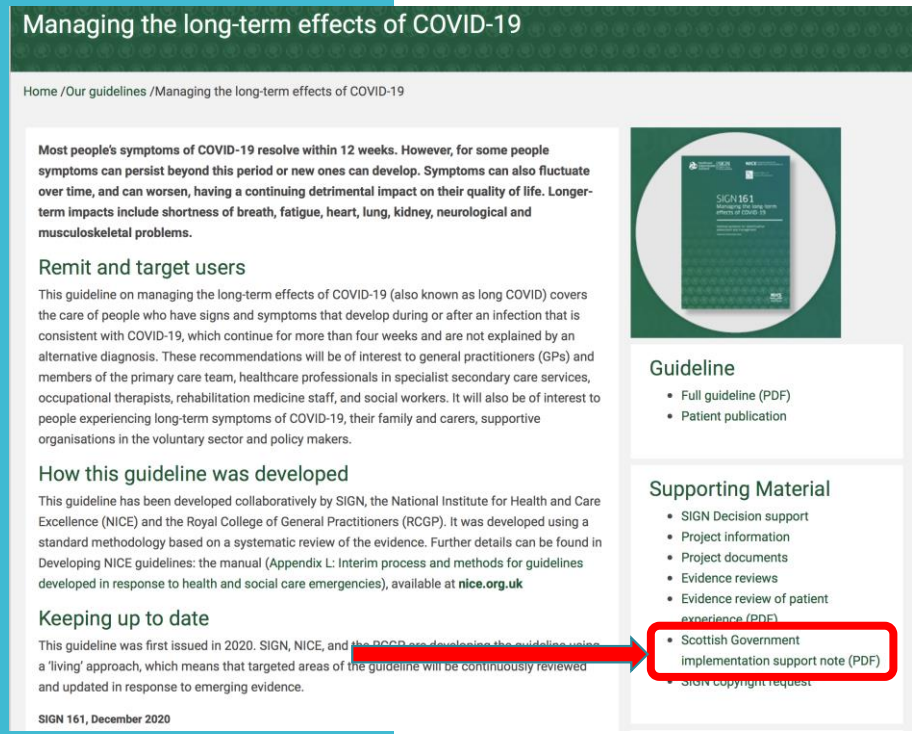
Prof. Azeem Majeed @Azeem_Maj... · 4d

Things that NHS GPs are responsible for. A thread (1/365).

1. The fall of Kabul to the Taliban
2. England's defeat in the EURO 2020 final
3. The wet summer we had this year
4. Problems with food deliveries to supermarkets
5. Political disputes with the EU
6. Rising energy prices

15 43 384


National
Regional
Resp
Cardiology
ENT
Psych
Gastro
Rheum
Primary Care
AHP
Psychology
Lived Experience
Policy
SIGN
Third Sector
Technology, Digital Health
Task & Finish



Managing the long-term effects of COVID-19

Home /Our guidelines /Managing the long-term effects of COVID-19

Most people's symptoms of COVID-19 resolve within 12 weeks. However, for some people symptoms can persist beyond this period or new ones can develop. Symptoms can also fluctuate over time, and can worsen, having a continuing detrimental impact on their quality of life. Longer-term impacts include shortness of breath, fatigue, heart, lung, kidney, neurological and musculoskeletal problems.

Remit and target users

This guideline on managing the long-term effects of COVID-19 (also known as long COVID) covers the care of people who have signs and symptoms that develop during or after an infection that is consistent with COVID-19, which continue for more than four weeks and are not explained by an alternative diagnosis. These recommendations will be of interest to general practitioners (GPs) and members of the primary care team, healthcare professionals in specialist secondary care services, occupational therapists, rehabilitation medicine staff, and social workers. It will also be of interest to people experiencing long-term symptoms of COVID-19, their family and carers, supportive organisations in the voluntary sector and policy makers.

How this guideline was developed

This guideline has been developed collaboratively by SIGN, the National Institute for Health and Care Excellence (NICE) and the Royal College of General Practitioners (RCGP). It was developed using a standard methodology based on a systematic review of the evidence. Further details can be found in Developing NICE guidelines: the manual (Appendix L: Interim process and methods for guidelines developed in response to health and social care emergencies), available at **nice.org.uk**

Keeping up to date

This guideline was first issued in 2020. SIGN, NICE, and the RCGP are developing the guideline using a 'living' approach, which means that targeted areas of the guideline will be continuously reviewed and updated in response to emerging evidence.

SIGN 161, December 2020

Guideline

- Full guideline (PDF)
- Patient publication

Supporting Material

- SIGN Decision support
- Project information
- Project documents
- Evidence reviews
- Evidence review of patient experience (PDF)
- Scottish Government implementation support note (PDF)
- SIGN copyright request

Managing the long-term effects of COVID-19

Implementation support note for clinicians to support the management of long-term effects of COVID-19 in primary and community care

Version history

Version	Date	Summary of changes
1.0	05/05/21	First version of document

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3. Recording within primary care information systems

The following table summarises the appropriate EMIS and Vision codes:

Table 1: Coding for primary care systems

System	Term	Search keyword	Code
EMIS PCS	Acute COVID-19 infection	Acute COV	^ESCT1348646
EMIS PCS	Ongoing symptomatic COVID-19	Ongoing cov	^ESCT1348648
EMIS PCS	Post-COVID-19 syndrome	Post-COV	^ESCT1348645
Vision	Acute diseas caused SARS-CoV-2	CORONA	A795400
Vision	Ongoing symptomatic COVID-19	CORONA	A7955
Vision	Post-COVID-19 syndrome	POSTCOVID	AyuJC

- 'Acute COVID-19' - Signs and symptoms of COVID-19 for up to 4 weeks.
- 'Ongoing symptomatic COVID-19' - Signs and symptoms of COVID-19 from 4 weeks up to 12 weeks.
- 'Post-COVID-19 syndrome' - Signs and symptoms that develop during or after an infection consistent with COVID-19, continue for more than 12 weeks and are not explained by an alternative diagnosis.

Table 4: Further resources for support

Theme	Further information
Sources of direct advice and support [including psychosocial recovery support]	Chest Heart & Stroke Scotland: Long COVID Support Service and Advice Line - 0808 801 0899
Peer support (patient led and independent views expressed are their own)	Long Covid Scotland – signposts people with long-term effects of COVID-19 to support, advocacy, resources and opportunities to actively participate in research
Employment and return to work	Faculty of Occupational Medicine – 'Guidance for healthcare professionals on return to work for patients with long-COVID' Society of Occupational Medicine – COVID-19 Return to work guide for recovering workers
Finding local community resources	ALISS (A Local Information System for Scotland) is a service to help you find services, groups and activities which can support health and wellbeing.

Figure 1: Initial assessment and management

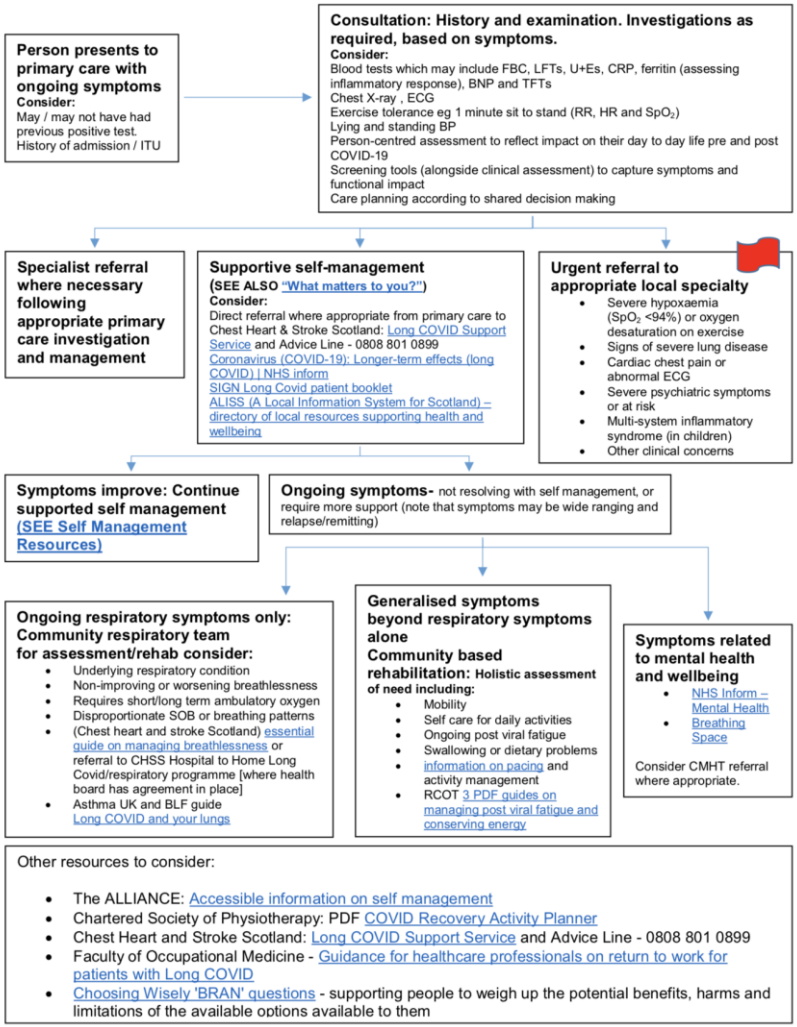
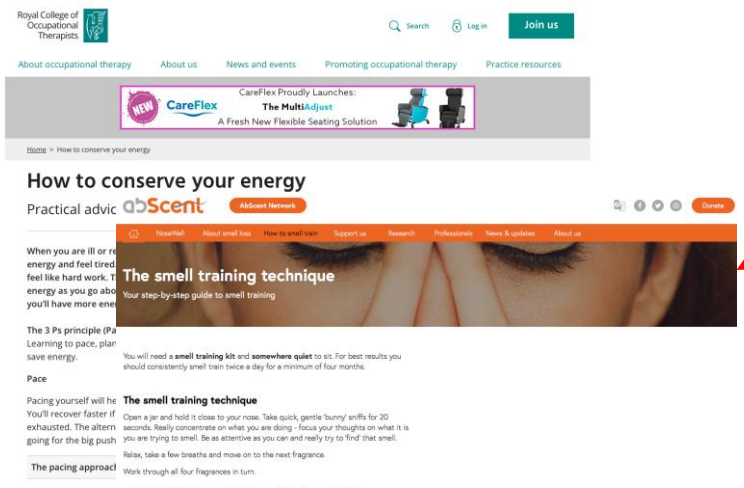


Table 2: Symptom specific management

Long-term COVID-19 symptom or sign	Considerations specific to COVID-19	Initial investigations to consider / resources to support	Red flags
Fatigue	• Consider impact on role-e.g. carer, time off work and phased return • Reassure that with time and self management, fatigue usually improves gradually • Consider local support groups, referral to community based services or CHSS Long COVID Service • Advice on pacing and energy management	• Consider bloods as part of clinical assessment • Modified Fatigue Impact Scale	• Consider underlying cardio/respiratory disease
Breathlessness	• On exertion – may persist for many weeks	• Consider CXR • Patients discharged from hospital may	



Long-term COVID-19 symptom or sign	Considerations specific to COVID-19	Initial investigations to consider / resources to support	Red flags
	to months, usually with a gradual recovery • Consider increased risk of VTE/PE post COVID-19 infection • Intermitting chest pain not unusual	have ongoing respiratory rehab requirements • Consider BNP as part of any blood samples • O_2 sats, and access to oxygen saturation remote monitoring pathway	
Cough	• Can persist for some weeks	• Consider sputum culture if productive • Any antibiotic treatment should follow current guidelines • Follow local guidelines for suspected asthma/COPD	• Be mindful of national criteria for suspicion of lung cancer
Palpitations/ tachycardia	• May need to exclude eg infection	• Bloods (incl TFTs) • Lying and standing BP • ECG • Consider orthostatic hypotension- NICE guidance	• Urgent and non-urgent referral criteria for palpitations
Neurological symptoms	• Cognitive impairment, migraine, dizziness commonly reported • Concentration and memory impairment can be linked to structural damage in more severe initial infections. In milder community managed cases ("brain fog") appears to be commonly caused by functional cognitive	• 4AT tool and SIGN guideline if delirium • Information on functional cognitive disorders from neurosymptoms.org and BMJ • Full guidance on assessment and management below	• Focal neurological symptoms or stroke should be referred as per local pathways

GAD-7

Over the last 2 weeks, how often have you been bothered by the following problems? (Use "✔" to indicate your answer)	Not at all	Several days	More than half the days	Nearly every day
1. Feeling nervous, anxious or on edge	0	1	2	3
2. Not being able to stop or control worrying	0	1	2	3
3. Worrying too much about different things	0	1	2	3
4. Having trouble relaxing	0	1	2	3
5. Being so restless that it is hard to sit still	0	1	2	3
6. Becoming easily annoyed or irritable	0	1	2	3
7. Feeling afraid, as if something awful might happen	0	1	2	3

(For office coding: Total Score T____ = ____ + ____ + ____)

Anosmia	• Very common – up to 50% • Commonly improves over a few weeks	• Associated nasal symptoms • Neurological symptoms • 'NoseWell' – guide created by abScent and British Rhinological Society	• Consider MRI / ENT referral if uncertainty or neurological finding
Pain	• Commonly encountered symptoms of	• Guided by clinical assessment, exclude	

Long-term COVID-19 symptom or sign	Considerations specific to COVID-19	Initial investigations to consider / resources to support	Red flags
	headache, abdominal pain, musculoskeletal pains • Recovery may be prolonged • Consider impacts on activities as well as personal and professional roles	alternative or treatable causes • See Rheumatology advice regarding inflammatory conditions • Pain Concern and Pain Association provide useful resources around guidance and management	
Dysautonomia	• Can persist for weeks to months but should resolve • May cause ongoing pyrexia, tachycardia and breathlessness • Respond well to conservative measures • Some may need medication for a short period • Respond well to pulmonary rehab	• PUO work up should be considered	• Unexplained weight loss • Persistent lymphadenopathy
Mental health including low mood, PTSD, anxiety.	• Common features post COVID-19 infection • PTSD may be as a result of hospital admission / ITU –ask about intrusive thoughts, nightmares, avoiding behaviours	• Consider screening tools such as: CORE10 for psychological distress, PHQ9 for depression, GAD7 for anxiety, PCL5 for PTSD. • HDU/ITU patients may also be followed up through specialist services • Multiple factors- carer strain,	• Immediate risk of self harm • Neurocognitive problems in presence of new or pre-existing neurological diagnosis

Respiratory symptoms

The pathways below demonstrate suggested management strategies for those discharged following Covid pneumonia (Figure 2) and those who present to primary care with persisting respiratory symptoms (Figure 3). Further resources are available from the Primary Care Respiratory Society.

Figure 2: COVID-19 Pneumonia follow-up following discharge from secondary care

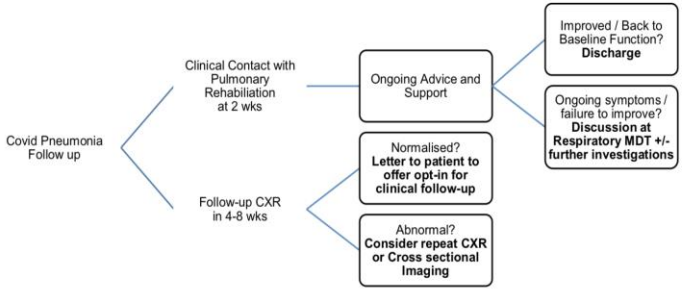
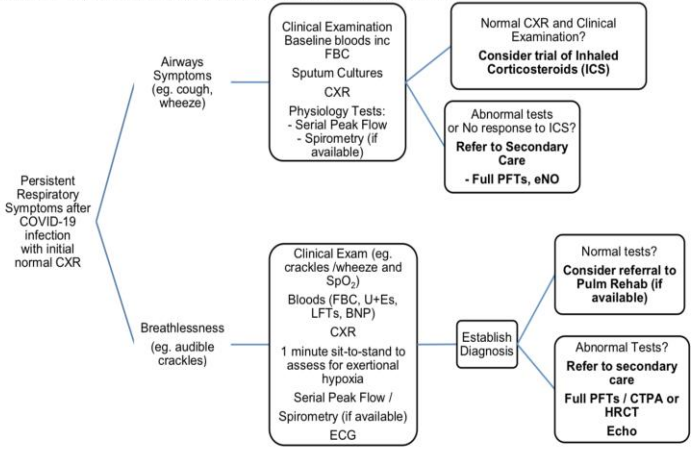
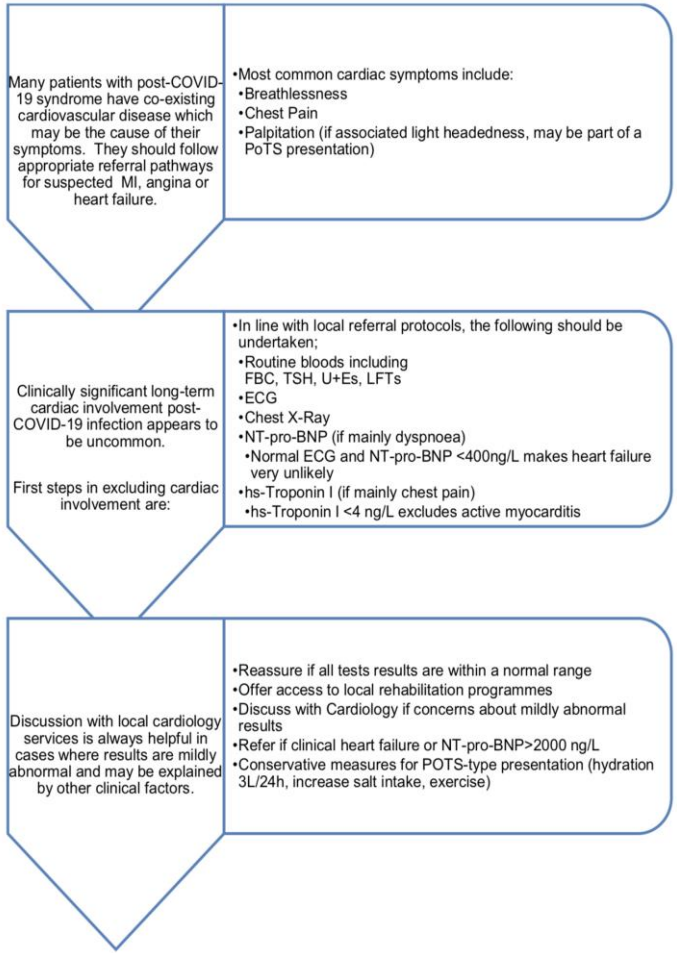


Figure 3: Presenting to primary care with persisting respiratory symptoms



Cardiology symptoms and tests

Figure 4: Assessment and referral for cardiology symptoms



Thank you

nafees.ahmad@doctors.org.uk

- **GUIDELINE**

https://www.sign.ac.uk/media/1833/sign161-long-term-effects-of-covid19-11.pdf

- **IMPLEMENTATION SUPPORT NOTE**

https://www.sign.ac.uk/media/1840/implementation-support-note-managing-the-long-term-effects-of-covid-19-5-may-2021-corrected.pdf

- Feedback (*please*)

https://www.surveymonkey.co.uk/r/ZV5YHSF

Discussion

Introduction into session 2

Dr Scott Jamieson
Royal College of
General Practitioners Scotland (RCGP)

Dr Tom Fardon

Respiratory Consultant, NHS Tayside.

Clinical Lead, Respiratory Care Action Plan for Scotland Implementation Group.

Respiratory Lead, Modernising Patient Pathways Program.

Associate Post Graduate Dean, NHS Education Scotland.

NHS Tayside

AHSP
Academic Health Science Partnership in Tayside

Long COVID Presentations

Who is being referred?

- Acute COVID
  - Older age
  - Male sex
  - BAME
  - Obesity
  - Cardiovascular disease
  - Diabetes
  - Hypertension
  - Being disabled

- Long COVID
  - Having protracted COVID-19
  - Age 35-70
  - Female sex
  - Multi-morbidity
  - Hypertension
  - Obesity
  - Psychiatric condition
  - Immunosuppressive disorders
  - Asthma

Commonest Presenting Complaints

- Fatigue
  - 90% hospitalised patients
  - 11% all patients
- Breathlessness
  - 43% hospitalised patients
  - 4.6% all patients
- Cardiovascular Abnormalities
  - Chest pain in around 20% all patients
  - Autonomic dysfunction very common
  - Residual myocarditis is very rare
- Cognition and Mental health
  - Brain fog
  - PTSD, depression, anxiety
  - Higher risk post critical illness
- Poor quality sleep
- Neurological disturbance
  - Numbness
  - Weakness
  - Dizziness
- Tinnitus

Do not miss important differentials

- Resting and inducible hypoxaemia
  - Pulmonary embolus
  - Interstitial lung disease
  - COPD
- Chest pain
  - IHD (if inducible)
  - Pericarditis (if positional)
- Numbness/weakness
  - MS
  - Peripheral neuropathies
  - Mononeuritis multiplex
  - GBS (early, usually < 6 weeks)
- Headache
  - Raised intra-cranial pressure

Common Stories in Clinic

- Exhaustion, tiredness, lethargy.
  - Leads to exercise avoidance, weight gain, deconditioning, cycle
- High heart rate, palpitations, exercise intolerance
  - Fitbits! Leads to exercise avoidance, anxiety
- Chest pain, anxiety, breathlessness
  - Pre-existing anxiety, fibromyalgia, CFS, functional neurological disorder

My experience in clinic

NOTE: This slide was omitted in error but the speaker talked through it

- Rule out serious diagnoses
  - PE most commonly
  - AF in a small number
  - Interstitial lung disease only in critical care patients
- Work with AHPs to develop a holistic rehab program
- The majority of symptoms settle with time
- Graded return to exercise has been key to improvement

COVID-19 & Primary Care Occupational Therapy Service

PRIMARY CARE OCCUPATIONAL THERAPY SERVICE
A LOT TO OFFER

NHS Lanarkshire

Shonaid McCabe

Care Lead –
Primary Care Occupational Therapy Service
NHS Lanarkshire

Health&Social Care North Lanarkshire

South Lanarkshire Health and Social Care Partnership

For further information please contact:
shonaid.mccabe@lanarkshire.scot.nhs.uk or lisa.greer@lanarkshire.scot.nhs.uk

COVID-19 & Primary Care Occupational Therapy Service

PRIMARY CARE OCCUPATIONAL THERAPY SERVICE
A LOT TO OFFER

NHS Lanarkshire

Occupational Therapy support:-

- Onset of COVID pandemic
- Emergence of Long COVID

Definition of Long COVID and patient journey

Presentation / Challenges experienced

- Fatigue- deconditioning issues, reduced activity levels & routine affecting engagement in daily tasks
- Struggling with sleep,
- Cognitive fog
- Pain
- Changes in mood, anxiety
- Breathlessness
- Disrupted work/life balance
- Vocational challenges

Biopsychosocial approach | Physical Needs | Mental Health Needs | Vocational Needs | Environmental Needs | Social Needs | Cultural Needs

Health&Social Care North Lanarkshire

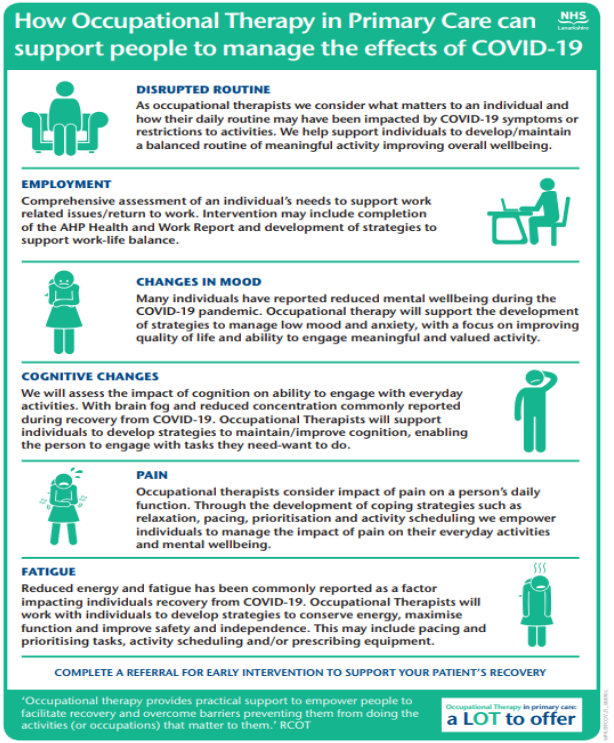
South Lanarkshire Health and Social Care Partnership

For further information please contact:
shonaid.mccabe@lanarkshire.scot.nhs.uk or lisa.greer@lanarkshire.scot.nhs.uk

COVID-19 & Primary Care Occupational Therapy Service

PRIMARY CARE OCCUPATIONAL THERAPY SERVICE
A LOT TO OFFER

NHS Lanarkshire



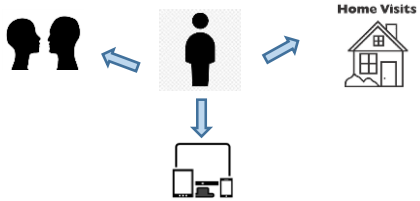
Occupational Therapy assessment

- What matters to you, collaborative approach,
- self-rating occupational performance measure (COPM) scoring performance & satisfaction in chosen everyday roles,
- WEMWBS – mental wellbeing score

Interventions included

- Activity & fatigue management approach
- Managing stress- relaxation techniques
- Strategies to maintain /improve cognition
- Environmental aids/ adaptations
- Sleep hygiene
- Supporting mental health and well- being – exploring coping strategies, thinking styles, management of expectations, acceptance and loss
- Re-establishing roles, routines
- Vocational Rehabilitation, using AHP Health and Work Report, reasonable adjustments
- Addressing social-economic aspects- finances, relationships
- Carer support

Service model
New ways of working



Biopsychosocial approach | Physical Needs | Mental Health Needs | Vocational Needs | Environmental Needs | Social Needs | Cultural Needs

Health&Social Care North Lanarkshire

South Lanarkshire Health and Social Care Partnership

For further information please contact:
shonaid.mccabe@lanarkshire.scot.nhs.uk or lisa.greer@lanarkshire.scot.nhs.uk

What is working well for patients?

- Team approach with GP
- Responsive, ease of access within primary care
- Holistic approach, addressing the whole person- Physical & mental health, environmental & social needs
- Person centred, individual approach

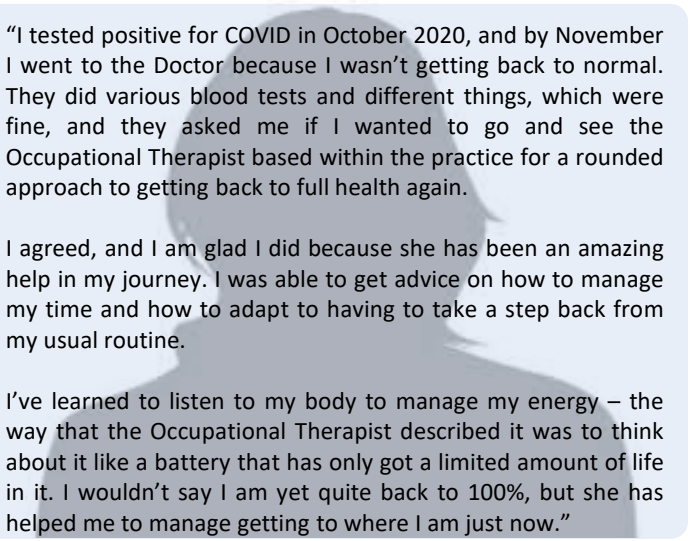
Leading to good patient outcomes

- Increased use of self-management strategies to improve
  - activity management
  - thinking styles, managing stress and anxiety
  - cognitive difficulties

And this is leading to
- a return to normal and healthier routines.
- A gradual re-engagement in interests & social networks
- improved sleep
- often a decrease in pain
- return to work - phased return, reasonable adjustments

Patient Story adapted from Audio interview

PCOT Evaluation



"I tested positive for COVID in October 2020, and by November I went to the Doctor because I wasn't getting back to normal. They did various blood tests and different things, which were fine, and they asked me if I wanted to go and see the Occupational Therapist based within the practice for a rounded approach to getting back to full health again.

I agreed, and I am glad I did because she has been an amazing help in my journey. I was able to get advice on how to manage my time and how to adapt to having to take a step back from my usual routine.

I've learned to listen to my body to manage my energy – the way that the Occupational Therapist described it was to think about it like a battery that has only got a limited amount of life in it. I wouldn't say I am yet quite back to 100%, but she has helped me to manage getting to where I am just now."

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What is working well for GPs?

Having an OT in our practice has been transformative. It is improving patient outcomes and reducing GP stress. Long COVID, increasingly, is now causing increased disability threatening people's abilities to work and function so the public health role for early upstream access to OT support in primary care has never been more needed.

Dr Kieran Dinwoodie, GP, Calderside Practice

"I think you will be needed to help with the mental health and organic fallout after COVID.

GP Quote

For further information please contact:
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Acute/Primary Care Interface
- What helps to support positive patient outcomes

- referral pathways and processes that are easy to navigate
- effective communication channels including IT
- MDT approach – promote timely efficient care and eliminating other potential medical issues
- person – central to MDT
- opportunity for shared learning and skills development across disciplines and services.

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The neuropsychiatry of long COVID

Alan Carson,
Professor of Neuropsychiatry
@alancarson15 a.carson@ed.ac.uk

What do we know about direct early neuropsychiatric effects of COVID 19?

Neurological and neuropsychiatric complications of COVID-19 in 153 patients: a UK-wide surveillance study

Aravinthan Varatharaj, Naomi Thomas, Mark A Ellul, Nicholas W S Davies, Thomas A Pollak, Elizabeth L Tenorio, Mustafa Sultan, Ava Easton, Gerome Breen, Michael Zandi, Jonathan P Coles, Hadi Manji, Rustam Al-Shahi Salman, David K Menon, Timothy R Nicholson, Laura A Benjamin, Alan Carson, Craig Smith, Martin R Turner, Tom Solomon, Rachel Kneen, Sarah L Pett, Ian Galea*, Rhys H Thomas*, Benedict D Michael*, on behalf of the CoroNerve Study Group†

Summary

Background Concerns regarding potential neurological complications of COVID-19 are being increasingly reported, primarily in small series. Larger studies have been limited by both geography and specialty. Comprehensive

Lancet Psychiatry 2020; 7: 875–82

	All cases (n=153)	Cerebrovascular (n=77)	Altered mental status (n=39)	Peripheral (n=6)	Other (n=3)
Sex at birth					
Male	73 (48%)	44 (57%)	23 (59%)	5 (83%)	1 (33%)
Female	44 (29%)	30 (39%)	14 (36%)	0	0
Not reported	36 (24%)	3 (4%)	2 (5%)	1 (17%)	2 (67%)
Age, years					
≤20	0	0	0	0	0
21–30	4 (3%)	1 (1%)	3 (8%)	0	0
31–40	4 (3%)	1 (1%)	3 (8%)	0	0
41–50	10 (7%)	5 (6%)	4 (10%)	1 (17%)	0
51–60	17 (11%)	6 (8%)	8 (21%)	2 (33%)	1 (33%)
61–70	23 (15%)	16 (21%)	5 (13%)	2 (33%)	0
71–80	31 (20%)	23 (30%)	8 (21%)	0	0
81–90	23 (15%)	18 (23%)	5 (13%)	0	0
≥91	5 (3%)	4 (5%)	1 (3%)	0	0
Missing	36 (24%)	3 (4%)	2 (5%)	1 (17%)	2 (67%)
Median (range; IQR)	71 (23–94; 58–79)	73·5 (25–94; 64–83)	71 (23–91; 48–75)	59 (44–63; 50–62)	54 (54–54)

Data are n (%), unless otherwise indicated.

Table: **Sex and age data for notified patients**

6-month neurological and psychiatric outcomes in 236 379 survivors of COVID-19: a retrospective cohort study using electronic health records

Maxime Taquet, John R Geddes, Masud Husain, Sierra Luciano, Paul J Harrison

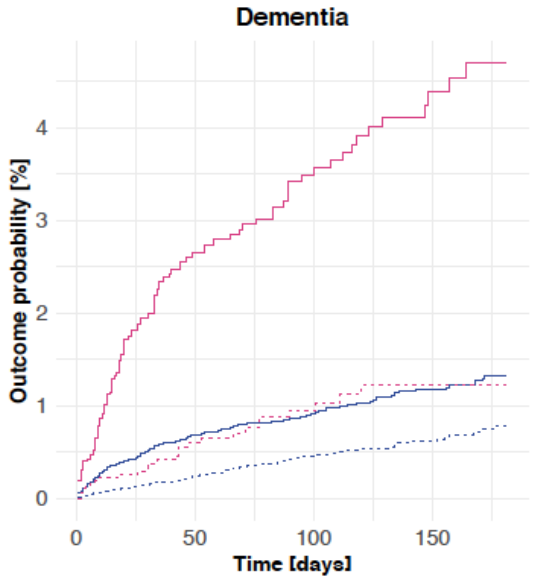
Lancet Psychiatry 2021
Published Online
April 6, 2021
https://doi.org/10.1016/
S2215-0366(21)00084-5

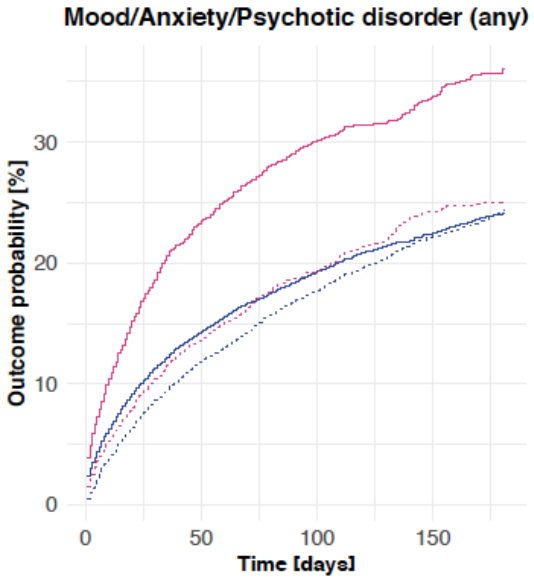
Summary

Background Neurological and psychiatric sequelae of COVID-19 have been reported, but more data are needed to adequately assess the effects of COVID-19 on brain health. We aimed to provide robust estimates of incidence rates and relative risks of neurological and psychiatric diagnoses in patients in the 6 months following a COVID-19 diagnosis.

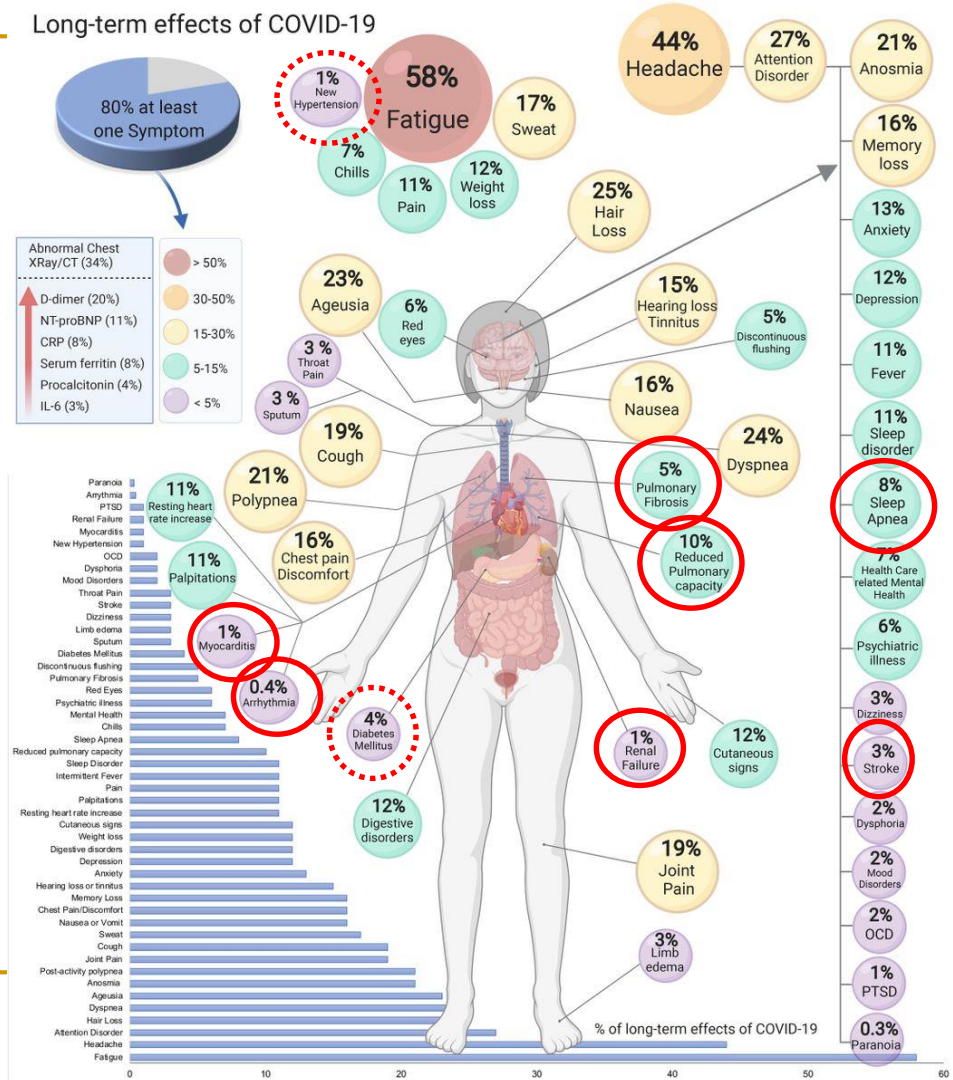
	All patients	Patients without hospitalisation	Patients with hospitalisation	Patients with ITU admission	Patients with encephalopathy
Intracranial haemorrhage (any)	0·56% (0·50–0·63)	0·31% (0·25–0·39)	1·31% (1·14–1·52)	2·66% (2·24–3·16)	3·61% (2·97–4·39)
Intracranial haemorrhage (first)	0·28% (0·23–0·33)	0·14% (0·10–0·20)	0·63% (0·50–0·80)	1·05% (0·79–1·40)	1·19% (0·82–1·70)
Ischaemic stroke (any)	2·10% (1·97–2·23)	1·33% (1·22–1·46)	4·38% (4·05–4·74)	6·92% (6·17–7·76)	9·35% (8·23–10·62)
Ischaemic stroke (first)	0·76% (0·68–0·85)	0·43% (0·36–0·52)	1·60% (1·37–1·86)	2·82% (2·29–3·47)	3·28% (2·51–4·27)
Parkinsonism	0·11% (0·08–0·14)	0·07% (0·05–0·12)	0·20% (0·15–0·28)	0·26% (0·15–0·45)	0·46% (0·28–0·78)
Guillain-Barré syndrome	0·08% (0·06–0·11)	0·05% (0·03–0·07)	0·22% (0·15–0·32)	0·33% (0·21–0·54)	0·48% (0·20–1·14)
Nerve, nerve root, or plexus disorders	2·85% (2·69–3·03)	2·69% (2·51–2·89)	3·35% (3·02–3·72)	4·24% (3·58–5·03)	4·69% (3·81–5·77)
Myoneural junction or muscle disease	0·45% (0·40–0·52)	0·16% (0·12–0·20)	1·24% (1·05–1·46)	3·35% (2·76–4·05)	3·27% (2·54–4·21)
Encephalitis	0·10% (0·08–0·13)	0·05% (0·03–0·08)	0·24% (0·17–0·33)	0·35% (0·19–0·64)	0·64% (0·39–1·07)
Dementia	0·67% (0·59–0·75)	0·35% (0·29–0·43)	1·46% (1·26–1·71)	1·74% (1·31–2·30)	4·72% (3·80–5·85)
Mood, anxiety, or psychotic disorder (any)	23·98% (23·58–24·38)	23·59% (23·12–24·07)	24·50% (23·76–25·26)	27·78% (26·33–29·29)	36·25% (34·16–38·43)

Figure 2: Kaplan-Meier estimates for the incidence of major outcomes after COVID-19 comparing patients requiring hospitalization (solid blue line) with matched patients not requiring hospitalization (dashed blue line), and comparing those who had encephalopathy (solid red line) with matched patients who did not have encephalopathy (dashed red line). For





What about ‘long COVID’?


Long-term effects of COVID-19
80% at least one Symptom
Abnormal Chest XRay/CT (34%)
D-dimer (20%)
NT-proBNP (11%)
CRP (8%)
Serum ferritin (8%)
Procalcitonin (4%)
IL-6 (3%)
> 50%
30-50%
15-30%
5-15%
< 5%
1% New Hypertension
58% Fatigue
17% Sweat
7% Chills
11% Pain
12% Weight loss
44% Headache
27% Attention Disorder
21% Anosmia
16% Memory loss
13% Anxiety
12% Depression
11% Fever
11% Sleep disorder
8% Sleep Apnea
7% Health Care related Mental Health
6% Psychiatric illness
3% Dizziness
3% Stroke
2% Dysphoria
2% Mood Disorders
2% OCD
1% PTSD
0.3% Paranoia
25% Hair Loss
23% Ageusia
6% Red eyes
15% Hearing loss Tinnitus
5% Discontinuous flushing
3 % Throat Pain
3 % Sputum
16% Nausea
19% Cough
24% Dyspnea
21% Polypnea
5% Pulmonary Fibrosis
10% Reduced Pulmonary capacity
16% Chest pain Discomfort
11% Resting heart rate increase
11% Palpitations
1% Myocarditis
0.4% Arrhythmia
4% Diabetes Mellitus
1% Renal Failure
12% Cutaneous signs
12% Digestive disorders
19% Joint Pain
3% Limb edema
Paranoia
Arrythmia
PTSD
Renal Failure
Myocarditis
New Hypertension
OCD
Dysphoria
Mood Disorders
Throat Pain
Stroke
Dizziness
Limb edema
Sputum
Diabetes Mellitus
Discontinuous flushing
Pulmonary Fibrosis
Red Eyes
Psychiatric illness
Mental Health
Chills
Sleep Apnea
Reduced pulmonary capacity
Sleep Disorder
Intermittent Fever
Pain
Palpitations
Resting heart rate increase
Cutaneous signs
Weight loss
Digestive disorders
Depression
Anxiety
Hearing loss or tinnitus
Memory Loss
Chest Pain/Discomfort
Nausea or Vomit
Sweat
Cough
Joint Pain
Post-activity polypnea
Anosmia
Ageusia
Dyspnea
Hair Loss
Attention Disorder
Headache
Fatigue
0
10
20
30
40
50
60
% of long-term effects of COVID-19

frontiers in Psychiatry

BRIEF RESEARCH REPORT
published: 03 September 2021
doi: 10.3389/fpsyt.2021.725861

Association Between Psychological Distress, Cognitive Complaints, and Neuropsychological Status After a Severe COVID-19 Episode: A Cross-Sectional Study

TABLE 2 | Variables associated with cognitive complaints at 1-month follow-up in logistic regression models.

	Univariable analyses		Multivariable analysis ($n = 96$)	
	Crude OR (CI 95%)	***p***	**Adjusted OR (CI 95%)**	***p***
HADS	**1.94 (1.15–3.27)**	**0.014**	**1.96 (1.08–3.57)**	**0.028**
Age	**1.04 (1.01–1.08)**	**0.015**	**1.05 (1.01–1.09)**	**0.026**
Female sex	1.80 (0.72–4.52)	0.211	0.99 (0.33–3.05)	0.99
ICU admission	**0.18 (0.05-0.64)**	**0.008**	**0.22 (0.05-0.90)**	**0.035**
SVFT	0.95 (0.88–1.02)	0.176	0.93 (0.84–1.03)	0.152
DSST	0.98 (0.96–1.01)	0.163	1.01 (0.97–1.05)	0.611

OR, odd ratio; CI, Confidence interval; HADS, Hospital Anxiety and Depression Scale; SVFT, Semantic Verbal Fluency Test; DSST, Digit Symbol Substitution Test; ICU, Intensive Care Unit. Odds ratios for HADS are given for an increment of one interquartile range (IQr). The SVFT score is the number of correct generated words in 60 s and the DSST score is the number of correctly matched symbols in 120 s. Bold values indicate statistically significant associations.

doi:10.1093/brain/awaa224 BRAIN 2020: 143; 2895–2903 | 2895

BRAIN
A JOURNAL OF NEUROLOGY

UPDATE

Functional cognitive disorder: dementia's blind spot

Harriet A. Ball,[1] Laura McWhirter,[2] Clive Ballard,[3] Rohan Bhome,[4] Daniel J. Blackburn,[5] Mark J. Edwards,[6] Stephen M. Fleming,[7] Nick C. Fox,[8] Robert Howard,[4] Jonathan Huntley,[4] Jeremy D. Isaacs,[6,9] Andrew J. Larner,[10] Timothy R. Nicholson,[11] Catherine M. Pennington,[2] Norman Poole,[9] Gary Price,[12] Jason P. Price,[13] Markus Reuber,[5] Craig Ritchie,[2] Martin N. Rossor,[8] Jonathan M. Schott,[8] Tiago Teodoro,[6,14] Annalena Venneri,[5] Jon Stone[2] and Alan J. Carson[2]

Box 2 Diagnostic criteria for functional neurological disorder: cognitive subtype

(i) One or more symptoms of impaired cognitive function.

(ii) Clinical evidence of internal inconsistency[a].

(iii) Symptoms or deficit that are not better explained by another medical or psychiatric disorder[b].

(iv) Symptoms or deficit that cause clinically significant distress or impairment[c] in social, occupational, or other important areas of functioning, or warrants medical evaluation.

[a]Box 1.

[b]Patients may have co-morbid medical or psychiatric disorders as well as FCD.

[c]To aid reliability for neurodegenerative research purposes, a minimum of 6 months duration should be considered (refer to text).

Specify if: with/without a linked co-morbidity (refer to text).

Box 1. “Tell me about the problems you have been having?”

Participants without FCD reference diagnoses:

“I don't know. I have a bad memory. I always check with [my husband]”

77-year-old woman

“My daughter says I don't remember her shifts. Other than that, my memory's fine.”

79-year-old woman

Participants with FCD reference diagnoses:

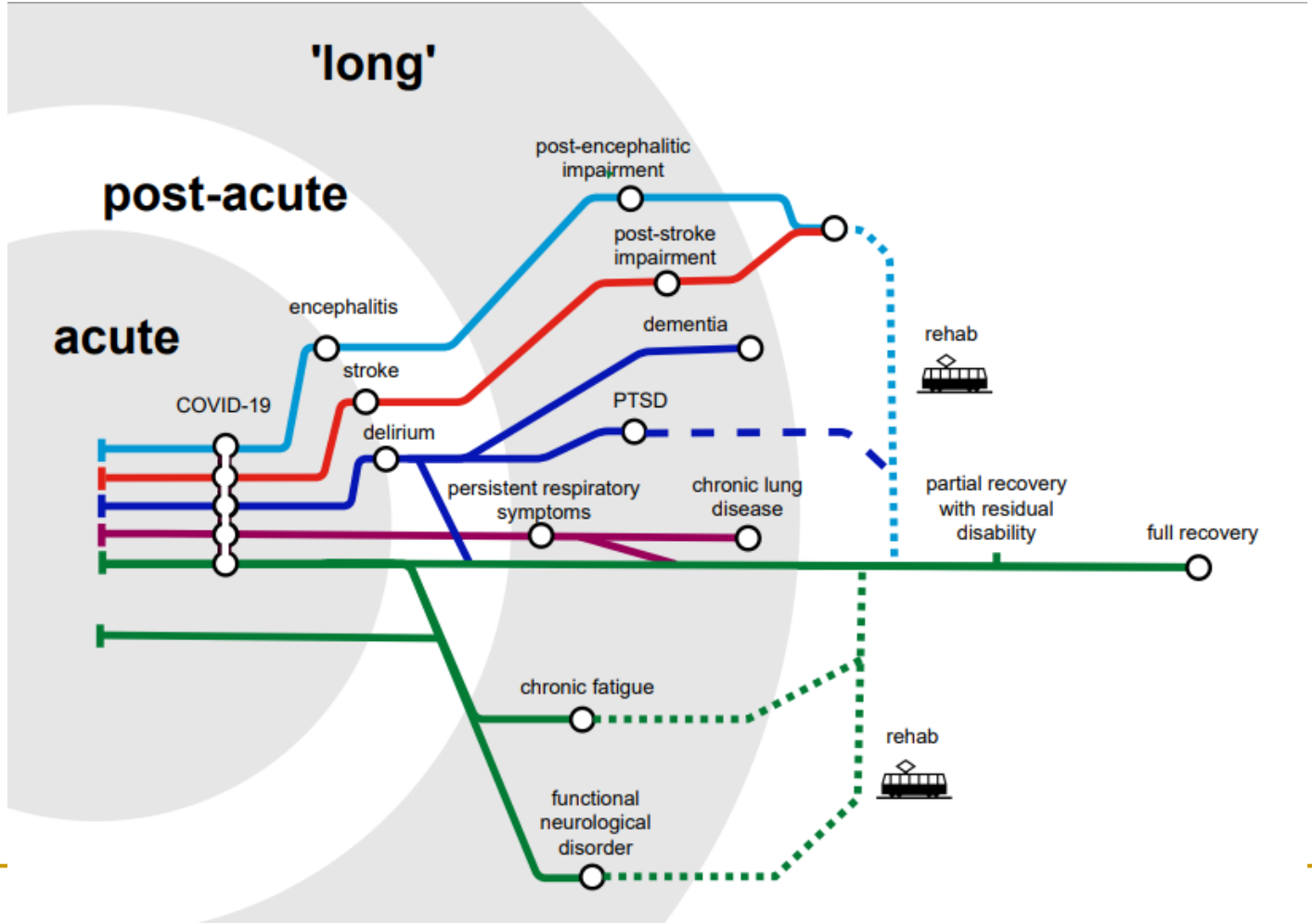
“It’s forgetfulness. For example, I forgot the name of the doctor I saw in clinic - Dr [X] - I had to check his name. It is frustrating. I will watch a film and think 'who is that actor?’. For example, I was watching a film called ‘Pimpernel Smith’ and I couldn't remember the actor in it – it’s Lesley Howard of course! I can remember things from 40-50 years ago or even 4-5 years ago. Sometimes I struggle with finding words. The other day I went out to meet a pal - I took my jacket off and thought I had lost my wallet - but I had just put it on the side.”

74-year-old man

“I wonder around the house trying to remember what I'm looking for. I'm bad on names, even with people I know well. I have difficulty calculating in recipes eg to make a recipe for 4 for 8 people. And yesterday my son asked where the nearest ATM and I couldn't remember but it came back to me later. Things often come back later on. I went to collect the Christmas tree at Christmas time and when I reached a fork in the road I couldn't visualise which way to go…”

80-year-old woman

Degenerative brain disease	Functional cognitive disorder
Attends with someone	Attends alone
Accompanying person more concerned	Patient more concerned
Short answers	Longer ‘turns’ in conversation
Impoverished account	Detailed account, elaboration
Cannot give examples of memory failures	Gives examples of memory failures
Repetitive	Not repetitive, or repetition ‘ marked’
No evidence of episodic memory during consultation	Evidence of episodic memory during consultation
Unable to answer compound questions	Answers compound questions
Humour and ‘face saving’	


'long'
post-acute
acute
post-encephalitic impairment
post-stroke impairment
encephalitis
dementia
rehab
stroke
COVID-19
PTSD
delirium
persistent respiratory symptoms
chronic lung disease
partial recovery with residual disability
full recovery
chronic fatigue
rehab
functional neurological disorder

Conclusions

- People are still people, and the same risks still apply- not everything is COVID
- Rates of all neuropsychiatric disorder go up following COVID with encephalopathy
- Absent encephalopathy, picture much less clear
- Up to 20-25% of patients report persistent cognitive problems 3 months after COVID 19. We don't know why but functional cognitive disorder seems common cause with vascular disease and neurodegeneration distant seconds; encephalitis rates are negligible.
- New CSO funded clinic in DCN, RIE. We're happy to assess and investigate cognitive disorder patients- see REFHelp- will take from anywhere in Scotland if serologically confirmed

Discussion

Closing remarks

Dr Scott Jamieson
Royal College of General Practitioners Scotland

Next steps

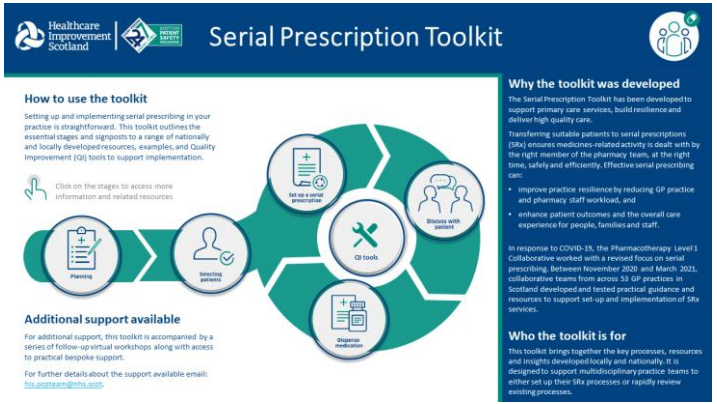
Evaluation survey – link in the chat box

Follow up email circulated soon

Next webinar date

Serial Prescription Toolkit and introductory webinars

A step-by-step guide to support primary care teams safely introduce serial prescriptions.



Visit our web page to access the toolkit:
ihub.scot/pharmacotherapy

Introductory webinars

Join one of our introductory webinars this October to explore the toolkit and access implementation support. A range of dates and times are available:

- **19 October** 11:30 – 12:30
- **21 October:** 15:30 – 16:30
- **26 October:** 11:30 – 12:30
- **28 October:** 15:30 – 16:30

Register here: https://www.eventbrite.co.uk/e/a-toolkit-for-serial-prescriptions-tickets-162544867073?aff=PCwebinar

Keep in touch

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THANK
YOU