



Guideline Statement for Management of Post-acute COVID-19 in General Medicine Services

September 20, 2022

Purpose statement

The purpose of this document is to highlight the potential ongoing medical sequelae experienced by adult COVID-19 positive patients beyond the acute phase of the illness, and to summarise emerging evidence to guide management within general medicine services.

The role of General Medicine Services in post-COVID-19 treatment

General Medicine Services care for patients with diverse, complex and often multi-morbid care needs. It is highly likely that patients experiencing post-COVID-19 conditions will present to General Medicine Services for acute care, or require referral from primary care, for investigation and management of sequelae.

Clinical practice guidelines already exist for clinicians delivering care to patients diagnosed with post-COVID-19 conditions:

- Clinical practice guide for assessment and management of adults with post-acute sequelae of COVID-19 (NSW Health Agency for Clinical Innovation)¹
- Caring for patients with post-COVID-19 conditions (Royal Australian College of General Practitioners)²

The purpose of this guideline is to assist clinicians to care for patients with post-COVID-19 conditions within the acute care environment.

The management of post-COVID-19 conditions continues to be an area of active research with emergent treatment options. As new evidence becomes available this guideline will be updated to reflect contemporary practice.

Defining post-COVID-19 condition

The World Health Organisation (WHO) currently defines the post COVID-19 condition as “a condition occurring in individuals with a history of probable or confirmed SARS CoV-2 infection, usually three months from the onset of COVID-19 with symptoms that last for at least two months and cannot be explained by an alternative diagnosis. Common symptoms include fatigue, shortness of breath, cognitive dysfunction but also others and generally have an impact on everyday functioning.”³ The original WHO definition indicates that symptoms may be new onset following initial recovery from an acute COVID-19 episode or persist from

¹ [Clinical practice guide for assessment and management of adults with post-acute sequelae of COVID-19 \(nsw.gov.au\)](https://www.nsw.gov.au/health-and-care-services/clinical-practice-guidelines/clinical-practice-guide-for-assessment-and-management-of-adults-with-post-acute-sequelae-of-covid-19)

² The Royal Australian College of General Practitioners. Caring for patients with post-COVID-19 conditions. East Melbourne, Vic: RACGP, 2021

³ [A clinical case definition of post COVID-19 condition by a Delphi consensus, 6 October 2021 \(who.int\)](https://www.who.int/news/item/6-10-2021-a-clinical-case-definition-of-post-covid-19-condition-by-a-delphi-consensus)



the initial illness. However, in the context of the now-dominant Omicron variant and associated increased incidence of rapid reinfection, patients should test for a new infection where new symptoms arise 35 days or more after a previous positive test.

Long COVID prevalence is likely to be very low in jurisdictions whose populations were largely exposed to the milder Omicron variant when vaccinated. Research on long COVID is frequently low quality and not relevant to Queensland's context of high vaccination rates and recent milder variants. As a result, these publications and reports risk inflating estimates of prevalence, health impacts, and community anxiety

It is not known why some people experience ongoing symptoms after their acute COVID-19 infection. Persistent viraemia due to weak or absent antibody response, relapse or reinfection, inflammatory and other immune reactions, deconditioning, and mental factors such as post-traumatic stress may all contribute.⁴ Long term respiratory, musculoskeletal, and neuropsychiatric sequelae have been described for other coronaviruses (SARS and MERS), and these have pathophysiological parallels with post-COVID-19.

Symptoms of post-COVID-19 condition

Post-COVID-19 symptoms vary widely in aetiology and severity. Reported symptoms include^{2,5}

- Cough
- Low grade fever
- Fatigue
- Shortness of breath
- Chest pain
- Headache
- Neurocognitive difficulties
- Muscle pain, joint pain and weakness
- Gastrointestinal upset
- Metabolic disruption
- Thromboembolic conditions
- Depression and other mental health conditions
- Skin rashes (vesicular, maculopapular, urticarial and chilblain-like lesions on extremities, have all been reported)
- Change in sense of smell or taste
- Cognitive disturbances
- Hoarse voice
- Insomnia

Specific complications of COVID-19 infection

When assessing patients after COVID-19 infection it is important to be cognisant of the

⁴ Greenhalgh T, Knight M, A'Court C, Buxton M, Husain L. Management of post-acute covid-19 in primary care. *BMJ* 2020;370:m3026

⁵ Deeble Institute. Managing the long term health consequences of COVID-19 in Australia. 2021. [deeble_issues_brief_no_40_managing_the_long_term_health_consequence_of_covid-19_in_australia.pdf \(ahha.asn.au\)](https://www.ahha.asn.au/deeble_issues_brief_no_40_managing_the_long_term_health_consequence_of_covid-19_in_australia.pdf)

known significant sequelae (summarised in Table 1).

Table 1: Significant COVID-19-specific sequelae^{1,2,5}

<p>Pulmonary:</p> <ul style="list-style-type: none"> • Persisting interstitial lung disease • Impaired lung function • Pulmonary fibrosis • Pneumonia/lung cavitation • Dyspnoea • Complications of intubation/ventilation, including chronic cough, hoarse voice 	<p>Endocrine:</p> <ul style="list-style-type: none"> • Deterioration of diabetic control • Osteoporosis due to prolonged immobilisation • Diabetic ketoacidosis without known diabetes mellitus • Thyroiditis
<p>Cardiovascular:</p> <ul style="list-style-type: none"> • Myocardial infarction • Myocarditis • Pericarditis • Arrhythmia • Heart failure • Venous thromboembolism (VTE) • Dysautonomia including postural orthostatic tachycardia syndrome 	<p>Mental Health:</p> <ul style="list-style-type: none"> • Worsening cognitive decline • Depression • Anxiety • Post-traumatic stress disorder following severe illness • Insomnia/sleep disturbances
<p>Neurological:</p> <ul style="list-style-type: none"> • Stroke • Cognitive impairment • Encephalopathy • Epilepsy • Myelitis • Critical care neuropathy/myopathy • Chronic malaise • Loss of taste and smell • Paraesthesia • Cognitive blunting (brain fog) 	<p>Post-intensive care syndrome:</p> <ul style="list-style-type: none"> • Dyspnoea • Anxiety • Depression • Prolonged pain • Reduced physical function
<p>Haematological:</p> <ul style="list-style-type: none"> • Hypercoagulable state • Anaemia • VTE 	<p>Musculoskeletal:</p> <ul style="list-style-type: none"> • Diffuse myalgia • Muscle/joint pain
<p>Rheumatological:</p> <ul style="list-style-type: none"> • Post-viral syndrome similar to chronic fatigue syndrome 	<p>Paediatric:</p> <ul style="list-style-type: none"> • Paediatric inflammatory multisystem syndrome temporally associated with SARS-CoV-2

<p>Dermatological:</p> <ul style="list-style-type: none"> • Hair loss • Skin rash 	<p>General:</p> <ul style="list-style-type: none"> • Cardiac/respiratory/musculoskeletal deconditioning • Fatigue • Reduced nutritional status and weight loss • Low-grade fevers • Renal impairment/acute kidney injury • Pancreatic impairment • Splenomegaly • Gastrointestinal disturbances • Liver dysfunction • Pressure sores • Reduced quality of life
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Investigations for patients experiencing post-COVID-19 condition

Blood tests should be ordered selectively and for specific clinical indications after a careful history and examination. By the time a patient presents to an acute service many of these investigations will have been performed in primary care and clinicians should be cautious not to duplicate investigations.

Table 2: Tests/investigations to consider for patients experiencing post-COVID condition

Test/investigation	Rationale
Full blood count	To exclude anaemia in the breathless patient ⁵ To detect infection ⁵ To assess inflammatory response ⁵
C reactive protein	To detect acute infection ⁵
Natriuretic peptides	To detect heart failure ⁵
Ferritin	To assess inflammatory response and continuing prothrombotic state ⁵
Troponin	To detect/exclude acute coronary syndrome or myocarditis ⁵
D-dimer	To detect/exclude thromboembolic disease ⁵
Chest x ray	Perform at 12 weeks post-acute disease and in the event of new, persistent, or progressive symptoms to detect ongoing/new infection and/or lung damage ⁵
Urine tests	To detect/exclude other causes of symptoms e.g. infection ⁵
12-lead electrocardiogram +/- echocardiogram	To detect/exclude cardiac sequelae ⁵
Vitamin D, vitamin B12, folate, iron studies	Screen for malnutrition, particularly in older patients ²
Urea and electrolytes	Detect dehydration, electrolyte disturbances and acute kidney injury ²

Nasopharyngeal and/or oropharyngeal Polymerase Chain Reaction (PCR) test	Use prior PCR results to confirm diagnosis and onset of past COVID-19 infection ⁵ Consider repeat PCR if suspicious of acute COVID-19 infection ⁵
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Care of patients experiencing post-COVID-19 condition^{2,5,6}

1. Validate the patient's experience and offer information about the symptoms that they are experiencing, including management options.
 - a. Develop a management plan in collaboration with the patient/carers that considers their concerns, functioning and wishes, that will address the main symptoms, problems and/or risk factors.
2. Where possible, frame discussions around recovery (rather than "long COVID"). Acknowledge that people recover differently, a longer-than-expected recovery is not unusual following viruses, and the natural recovery over time is expected.
3. Support patients to maximise personal wellbeing through appropriate lifestyle changes i.e. advice on diet, physical activity, sleep, alcohol, smoking and other drug use.
4. Consider and exclude serious complications and possible alternative causes of ongoing symptoms such as anaemia. Investigate new or worsening symptoms that could indicate delayed sequelae, such as venous thromboembolism (VTE), cardiac complications or pneumonia.
5. Optimise the management of the patient's other chronic conditions.
6. Identify psychosocial factors that could impact on health and wellbeing:
 - a. Risk of mental health issues
 - b. Risk of family and intimate partner violence
 - c. Risk of social isolation
7. Use local and regional protocols or health pathways to determine optimal referral pathways.
8. Manage specific symptoms as per the current evidence and undertake specialist referral as required (see Table 3: Management of common post-COVID symptoms)
9. Allied health referrals should be made where appropriate to support post-COVID management. This might include physiotherapy, exercise physiology, occupational therapy, dietetics, speech pathology, social work, psychology and neuropsychology. Use case conferences to facilitate coordinated care and include consumers and care partners where possible. Consider the financial implications of in-hospital referral to community-based allied health and maximise access to subsidised private allied health care where possible.
10. Begin rehabilitation during the acute illness and consider referral to specialist rehabilitation services as appropriate.
11. Consider the implications and support required for returning to pre-injury work or education.

⁶ [National COVID-19 Clinical Evidence Taskforce. Management in patients with continuing symptoms after COVID-19.](#)

Table 3: Management of common post-COVID symptoms^{2,6}

Symptom	Treatment
Breathlessness	<ul style="list-style-type: none"> • Optimise management of pre-existing respiratory conditions • Recommend respiratory muscle conditioning (pulmonary rehabilitation) where available • Consider chest X-ray at 12 weeks for patients who have had significant respiratory illness • Corticosteroids should be considered for inflammatory lung disease • Recommend gradual commencement or return to symptom-limited exercise guided by tertiary-trained exercise professionals • Referral to speech pathologist for management of chronic cough, hoarse voice, or dysphagia • Consider home pulse oximetry measurement • Referral to an accredited practising dietitian if symptoms interfere with nutrition, and speech pathology if dysphagia is present
Fatigue	<ul style="list-style-type: none"> • Maximise self-care, sleep, relaxation and nutrition • Recommend that patients pace and be selective when prioritising daily activities • Recommend a graduated return to exercise that does not exacerbate symptoms. Consider input from exercise physiology, physiotherapy or rehabilitation specialist where appropriate • Consider occupational therapy input, or rehabilitation services if fatigue is causing difficulty with activities of daily living (ADLs)
Chest pain	<ul style="list-style-type: none"> • Investigations as appropriate to exclude acute coronary syndrome, myocarditis, pericarditis, pulmonary effusion or pulmonary embolism, and arrhythmia • Provide education regarding symptoms of concern and what to do in the event of these symptoms (i.e. GP consultation vs hospital presentation) • Patients who have had myocarditis or pericarditis as a component of their acute illness should abstain from vigorous exercise for 3-6 months, and athletes should have cardiology supervision for return to training • Refer for graded increase in low-to-moderate activity to increase mobility, exercise capacity and quality of life; this should be facilitated by a physiotherapist or exercise physiologist, or cardiac rehabilitation program
Headaches, low-grade fevers and myalgia	<ul style="list-style-type: none"> • Exclude COVID-19 reinfection or recrudescence • Prescribe simple supportive measures and analgesia or antipyretics, as needed

	<ul style="list-style-type: none"> Assess for and manage any secondary infections
Neurocognitive difficulty	<ul style="list-style-type: none"> Provide supportive management If severe enough to cause difficulty with activities of daily living (ADLs), consider cognitive testing, occupational therapy support and / or speech pathology support for cognitive communication impairment Refer to specialist Rehabilitation Services for further assessment and management if severe enough to impact on driving, return to work or other complex life roles. Refer to clinical neuropsychology for assessment and management of cognitive, emotional and behavioural symptoms.
Depression/anxiety	<ul style="list-style-type: none"> Provide information about post-COVID-19 recovery Use existing standardised screening tools Address multifactorial contributors that might require additional support, such as pain management, independence with ADLs, financial and other social supports, and loneliness Facilitate access to mental health services or support either face to face, telehealth or online. Encourage individualised moderate-intensity exercise initiated and supervised by a tertiary-trained exercise professional Refer to an accredited practising dietitian for nutrition support and access to food services Consider pharmacological intervention where appropriate, in conjunction with above-mentioned non-pharmacological strategies
Thrombosis risk and contraception	<ul style="list-style-type: none"> COVID-19 causes a hypercoagulable state in some people, which might worsen the thromboembolic risk associated with combined hormonal contraception. The incidence of VTE in biological females of reproductive age with COVID-19 infection is currently not known. Patients should be advised of this risk to allow informed choice of contraceptive option.

Specialist post-COVID-19 condition clinics

Queensland's experience of the milder Omicron variant in a highly vaccinated population has, at the time of writing, not warranted the widespread establishment of specialist clinics to manage patients experiencing post-COVID-19 condition. It is currently appropriately managed in primary care, with patients subsequently referred to relevant specialist services for further symptom management if required. This strategy has been informed by a GP Long COVID Focus Group, advice from other clinical bodies and services, and analysis of health system data. However, Queensland Health will continue to monitor this situation for any changes across the health system.

Consumer resources

The following web-based and downloadable/printable PDF resources are available for patient use:

- [Recovering from COVID-19 and long COVID](#) (QLD Health)
- [Steps to recovery after COVID-19](#) (QLD Health)
- [Breathing exercises and physical activity](#) (QLD Health)
- [Managing post-COVID-19 symptoms](#) (RACGP)
- [Support for rehabilitation: self-management after COVID-19 related illness](#) (WHO)
- [Your COVID Recovery](#) (National Health Service)
- [Recovering from COVID-19: Post viral fatigue and conserving energy](#) (Royal College of Occupational Therapists)

Implications for general medical services

Evidence continues to emerge regarding the prevalence and management of post-COVID-19 condition in Australia. However epidemiological studies predict that there will be short and long-term consequences for health systems.

As COVID-19 becomes endemic throughout Australia, general practitioners will see greater numbers of patients with symptoms attributed to prior COVID-19 infection. Whilst the majority of these will likely be managed within primary care, a proportion of patients will require specialist general medicine input.

Older patients, those with multiple comorbidities or chronic diseases are more likely to present with prolonged sequelae from post-COVID-19 condition,^{3,4} hence general medical services will be required to facilitate high-quality, value-based, patient-centred care for this cohort.

Primary prevention of COVID-19 should be prioritised as the most effective means of mitigating the long-term health consequence of infection. Thus, appropriate use of personal protective equipment and support for ongoing immunisation programs will continue to impact on the prevalence of post-COVID-19 conditions.