

Management of adults with COVID-19 in the post-acute phase

A model of care for NSW health clinicians

This document outlines a model of care to guide acute care clinicians in planning and delivering care to patients with COVID-19 in the post-acute phase.

Operationalisation of this model at the local level will vary depending on location and demographics, leadership, governance, resources and local policies.

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Background

Adult patients aged 16 years and older who have tested positive to COVID-19 may be managed in the acute inpatient environment or in the community.

Assessment and planning for post-acute management should commence while a patient is still being treated in the acute environment. It is crucial that management of these patients occurs in the most appropriate environment to support their recovery.¹ This improves patient outcomes and patient experience; ensures appropriate length of stay; and supports patient flow from the acute inpatient environment.

The team responsible for the care of a person with COVID-19 in the acute care environment should be multi-specialty and multidisciplinary. Teams and service models should include medical, nursing and allied health staff, but will vary according to the acuity of the patient, presenting symptoms, local resourcing, geographic location and service models.

The goal is for safe and appropriate discharge of the patient and transition of care to the primary care provider, with specialist follow-up, as required.

COVID-19 post-acute phase

The post-acute phase of COVID-19 commences once a patient is:

- considered clinically stable
- being managed outside of the intensive care unit (ICU)
- ready for discharge from the acute care environment.

This should be informed by the clinical judgement of the senior clinician treating the patient. The immediate post-acute phase of COVID-19 continues for approximately three months from diagnosis, but this may vary for patients with a prolonged length of stay in the acute care environment.

COVID-19 is an acute illness with an undefined length of recovery.² A patient who continues to have ongoing symptoms after three months is considered to meet the definition of long-COVID.³

Long-COVID is defined as 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.⁴

The scope of this model of care is limited to the immediate post-acute phase of COVID-19. Further work is planned to provide guidance for the management of patients with long-COVID.

Purpose of this model of care

This document outlines a model of care to guide acute clinicians in planning for, and delivering, care to patients in the post-acute period. The aim is to improve patient outcomes and patient flow from the acute environment.

Key elements of this model of care

- Proposed pathways for patients being discharged or transferred from the acute setting; noting the importance of the role of the primary care provider.
- Regular assessment of patient clinical and functional status; risk of deterioration; and determination of ongoing care needs to ensure safe and appropriate discharge.
- Description of a post-acute care coordinator role to support patient follow-up for those who have been diagnosed with moderate to severe COVID-19, or

those in vulnerable groups with mild-moderate disease as listed under key element 1 below:

[Clinical and functional status of a patient is assessed at each transition of care](#)

- An outline of the role of multi-specialty and multidisciplinary post-COVID clinics.
- An outline of existing services that may be used to contribute to the care of patients in the post-acute COVID phase.

This model of care should be read in conjunction with the following state and national documents addressing clinical care of people with COVID-19 and virtual care:

- Communicable Disease Network of Australia (CDNA): [Coronavirus Disease 2019 \(COVID-19\) National Guidelines for Public Health Units](#)
- Clinical Excellence Commission: [COVID-19 Infection Prevention and Control Manual](#)
- National COVID-19 Clinical Evidence Taskforce [Living Guidelines](#)
- COVID-19 Respiratory Community of Practice: [Care of adult patients with COVID-19 in acute inpatient wards](#)
- Agency for Clinical Innovation (ACI): [Virtual care resources](#)
- NSW Health: [COVID-19 Virtual Care Community of Practice resources](#)
- COVID-19 Respiratory Community of Practice: [Delivering pulmonary rehabilitation via telehealth during COVID-19](#)
- ACI Respiratory Network: [Rehabilitation following COVID-19 in the pulmonary rehabilitation setting](#)
- COVID-19 Care in the Home Community of Practice: [Caring for adults with COVID-19 in the community](#) and [Quick reference guide](#)
- COVID-19 Rehabilitation Community of Practice: [Multidisciplinary rehabilitation communication and referral: information for acute care physicians and allied health](#)
- Royal Australian College of General Practitioners: [Supporting patients after acute COVID-19 illness](#)

Governance

Use of this guideline and other policy documents will be underpinned by local factors, such as location and demographics; and service factors, such as leadership, governance, resources and policies/procedures.

Methodology

This model of care is based on current evidence which includes reference to models of post-acute care in other jurisdictions. The evidence check from the NSW Health COVID-19 Critical Intelligence Unit, [Post-acute and sub-acute COVID-19 care](#), provided the basis for development of this model of care.⁵

It is supported by expert clinical consensus of a multi-specialty, multidisciplinary group and was developed in consultation with representatives from the COVID-19 Communities of Practice (intensive care, respiratory, rehabilitation, primary care, community health, COVID care in the home and palliative care), allied health representatives and the Ministry of Health Chief Allied Health Officer and Integrated Care team.

Scope of this model of care

The scope of this model of care is to support adult patients with signs and symptoms of post-acute COVID-19, which may be experienced in the first three months (approx.) from diagnosis, regardless of severity of disease.

Possible signs and symptoms of post-acute COVID-19

	Symptoms / signs
Pulmonary symptoms	Breathlessness Cough Chest pain
Neurological symptoms	Fatigue Headache Cognitive dysfunction Sleep disturbance Loss of smell or taste Paraesthesia Dizziness
Renal disease	Acute kidney injury during admission with evidence of persistent micro-proteinuria, elevated creatinine and/or impaired eGFR
Thromboembolism	Confirmed on CTPA, V/Q scan or ultrasound/doppler during admission <i>Note: May also include central nervous system or gastrointestinal thromboembolic disease.</i>
Psychological symptoms	Anxiety Depression Mood swings <i>Note: fatigue and sleep disturbance may also indicate the emergence of a mental health condition.</i>
Cardiovascular symptoms	Chest pain Arrhythmia Syncope Orthostatic hypotension Shortness of breath on exertion with evidence of ECG changes or raised troponin during admission COVID-19-related cardiomyopathy
Musculoskeletal symptoms	Non-specific pain Myalgia Joint pain
Reduced activity and functional level	Fatigue Assistance required with activities of daily living Reduced mobility Increased frailty score
Reduced nutritional status and weight loss	Fatigue Muscle wasting Weight loss
Post-intensive care syndrome (PICS)	One or more of the following symptoms that people experience following intensive care admission: anxiety, depression, cognitive impairment, memory loss, muscle weakness, ongoing pain, dysphagia and reduced quality of life

Source: National COVID-19 Clinical Evidence Taskforce. Care of People with Post-Acute COVID-19.⁶

Key elements of care

Providing care for patients with COVID-19 as they move from critical and acute care environments back into the community is complex. A range of models are available to support this care.

The disease burden experienced by patients in the post-acute phase varies. It is considerable in some patients; particularly those who have experienced a prolonged stay in the ICU, and those who acquire complications and/or have underlying chronic illness. Functional status and biological parameters are affected, which requires increased monitoring and close follow-up in the post-acute phase.⁷

Patients should be managed with an emphasis on holistic support while avoiding over-investigation and over-treatment. Models of care encompass clinical assessment, investigations, managing comorbidities, improvement of functional status, medical-management, self-management, safety-netting and referral; and social, mental health and cultural support.⁸

The following key elements are recommended as the basis for this model of care.

1. Clinical and functional status of a patient is assessed at each transition of care

The patient should receive the following assessments at each transition of care, including in preparation for discharge:

- Clinical assessments, which may include (but are not limited to):
 - oxygen saturation measurements and ongoing oxygen requirements
 - evidence of persistent respiratory failure requiring continuous positive airway pressure (CPAP) or non-invasive ventilation (NIV) during acute admission
 - co-existing obstructive sleep apnoea
 - evidence of respiratory muscle compromise, requiring CPAP or NIV during acute admission
 - baseline respiratory function tests (when patient is well enough for these to be performed)
 - risk of deterioration (based on clinician expertise and judgement)
 - neuro-cognitive assessment
 - psychosocial assessment
 - mental health assessment.

Additional suggested guidance for clinicians performing respiratory assessment is contained in the British Medical Journal Thorax [Respiratory follow-up of patients with COVID-19 pneumonia](#).⁹

- Functional assessment, including the need for multidisciplinary rehabilitation assessment and referral; referral to geriatric medicine; and/or referral to pulmonary rehabilitation. Refer to Appendix 1 for a list of criteria indicating appropriateness of referral to multidisciplinary rehabilitation services. This functional assessment should also indicate whether the patient requires services upon discharge (for example, aged health, assistive technology, home modifications, etc).
- Review of existing advanced care directive (where applicable).
- For patients returning or discharged to a residential aged care facility or a disability residential facility, the treating team should consider the care and services available upon discharge. There are some factors that may impact upon a patient's readiness for discharge or need for referral to multidisciplinary rehabilitation, aged health services or home modifications. Some considerations for the treating team include:
 - older patients admitted under a respiratory team should be assessed by geriatric medicine prior to discharge
 - some patients living in a residential aged care facility or disability residential facility have limited access to GPs or allied health
 - those with a disability may not be eligible for National Disability Insurance Scheme (NDIS) funding for post-acute COVID-19 care.

The treating team should assume responsibility for ensuring each of these assessments is completed and documented in the patient's medical record prior to transfer, along with the contact details of the patient's usual GP.

The rehabilitation referral checklist in Appendix 1 may be completed by nursing or allied health staff; provided these clinicians can trigger the appropriate referral to a rehabilitation physician or pulmonary rehabilitation team.

Tools that may be used for the purposes of patient assessment will depend on patient presentation and ongoing symptoms. The assessment tools included in this model of care are not intended to be prescriptive, nor are they an exhaustive list of all tools available.

2. Post-acute care coordinator is assigned to each patient with moderate to severe COVID-19

COVID-19 is an acute illness with a recovery phase.²

For the purposes of this model of care, we refer to the definition of moderate to severe COVID-19 outlined in the [Australian Guidelines for the clinical care of people with COVID-19](#). Patients who have been treated in ICU and/or those who have required respiratory supports beyond standard oxygen therapy are included in the moderate to severe COVID-19 category.¹

Those who have experienced significant functional deterioration due to COVID-19 may also fall into the moderate to severe category.

There are several vulnerable groups who are at high risk of deterioration post-discharge, including:

- pregnant women (particularly those 20 weeks gestation or later)
- people with a significant comorbid chronic disease
- people with a developmental disability or pre-existing disability (e.g. brain injury)
- Aboriginal or Torres Strait Islander people
- those with a body mass index greater than 35
- those with significant psychosocial factors, such as mental illness or homelessness.

Patients who have experienced significant functional deterioration and/or any patient in these vulnerable groups should be allocated a post-acute care coordinator, regardless of the severity of disease – this includes those being treated in the community.

The care coordinator role has been established on a time-limited basis to support identified and emerging patient needs, and to assist with managing patient flow.

The role of the care coordinator

The care coordinator works across multidisciplinary and multi-specialty areas. They ensure the patient is regularly assessed along the patient journey with appropriate clinical handover of care to the primary care provider.

The care coordinator organises any necessary referrals, as required. The duration required for care coordination will vary between patients.

The clinician(s) allocated to the post-acute care coordinator role will vary between facilities and local health districts (LHDs), depending on local resources, the patient cohort and number of patients who require care coordination at any one time.

Where possible, LHDs should aim to use existing care coordinator type-roles; provided these clinicians have knowledge in the assessment and care of post-acute COVID-19 patients. The clinician should be experienced (i.e. it is suggested a Clinical Nurse Specialist or Allied Health Level 3 or above), depending on local resources.

Capacity of the care coordinator should be monitored to ensure a manageable patient load. Facilities with large numbers of patients will likely need several coordinators.

Virtual care may be appropriate for the purposes of care coordination, particularly in LHDs with small numbers of patients over a large geographic area or in districts with large numbers of patients.

Transition of care to the primary care provider

- Once a patient has been assessed; transition to primary care has been established; and services are in place to deal with the physical, social and psychological aspects of recovery, involvement of the care coordinator is no longer required.
- Local primary care providers who request specialty review, or require assistance with locating suitable local services for their patients, may refer into the post-acute care coordinator service.
- Similarly, emergency department clinicians can refer patients who present with post-acute symptoms back to their allocated care-coordinator for follow-up where admission is not required.

3. Post-COVID multidisciplinary outpatient clinics for follow-up

Post-COVID care services have been successfully used in other jurisdictions (outside of NSW) for the purposes of follow-up, referral to specialists and provision of individual treatment plans.¹⁰

Pre-discharge review

Prior to discharge, all patients with moderate to severe COVID-19 should be reviewed by the treating team with a full assessment of their clinical and functional status, as outlined in key element 1: [Clinical and functional status of a patient is assessed at each transition of care](#).

Appropriate referrals should be initiated prior to discharge, as required. Upon discharge from the acute environment, patients are transferred to sub-acute and/or primary care; or to sub-acute care initially, then primary care for ongoing management.

Three-month follow-up

Ideally, patients who have been treated in the ICU and those who have required respiratory supports beyond standard oxygen therapy should receive a follow-up at/after three months from diagnosis to assess ongoing (or new) symptoms. Patients flagged as needing specialist follow-up by their primary care provider or allocated post-acute care coordinator should also receive follow-up after three months.

To manage this locally, it is suggested a post-acute multidisciplinary clinic could be established to provide this service. This clinic could include respiratory, rehabilitation, infectious diseases and allied health clinicians, as locally appropriate. These clinics may be run virtually or via a case conferencing model, depending on local capacity and resources.

In addition to respiratory and rehabilitation assessments, a neurocognitive assessment is recommended as patients can experience post-COVID-19 'brain fog' as a result of critical illness.¹

Psychological assessment is also recommended as some patients experience depression, anxiety or post-traumatic stress disorder (PTSD) post-hospitalisation; particularly post-ICU admission.¹¹

At the three-month review, patients may receive the following assessments, including (but not limited to):

- lung function testing
- diffusing capacity of the lungs for carbon monoxide (DLCO)
- chest x-ray (and repeat CT if indicated)
- repeat V/Q scan for those diagnosed with thromboembolic disease during admission
- COVID-19 Yorkshire Rehabilitation Screen (CY-YRS) to measure patient symptoms, functioning and disability¹²
- functional assessments (e.g. six-minute walk test, one-minute sit-to-stand, Berg Balance Scale, etc.)

- neurocognitive assessment (e.g. Mini-Mental State Examination (MMSE), Montreal Cognitive Assessment (MoCA) or Rowland Universal Dementia Assessment Scale (RUDAS))
- Depression Anxiety Stress Scale (DASS-21)¹³ or Hospital Anxiety and Depression Scale (HADS)¹⁴
- Post-Traumatic Stress Disorder Checklist (PSL-5)¹⁵

Other assessments may be required depending on ongoing symptoms.

Follow-up by local infectious disease services

There are a number of patients who have been found to have other infectious organisms during their acute admission; for example, tuberculosis, hepatitis B, strongyloides and carbapenemase-producing enterobacteriales (CPE). These patients should be followed up by local infectious disease services post-discharge.

Communication to the primary care provider

Results of the three-month follow-up visit, and any ongoing management plans/recommended referrals, should be immediately communicated to the patient's primary care provider. This may include referral to ambulatory multidisciplinary rehabilitation services and/or pulmonary rehabilitation.

4. Timely return to patient's LHD of residence

At present, there are a significant number of patients being treated in the acute care environment outside their LHD of residence. The location of treatment for the immediate post-acute phase will depend on the patient's need; rehabilitation bed (where required); patient flow demand; and service and transport availability.

Suggested clinical pathways

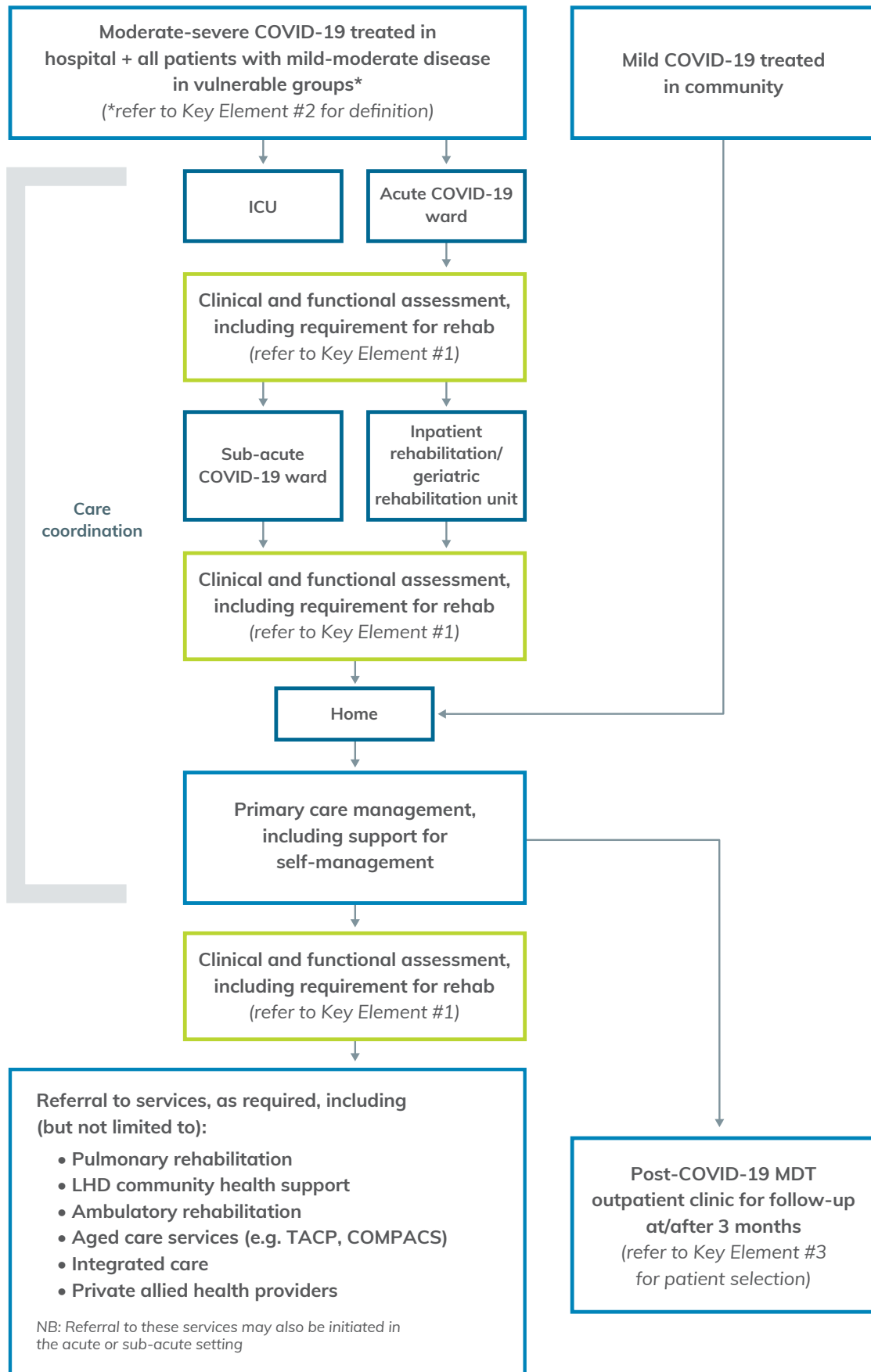
The relevant pathway for a patient will depend on patient-centred need, local capacity and capability. The pathways demonstrated below are not intended to be prescriptive but provide guidance for clinicians in establishing models of care delivery. These include discharge or transfer to:

- a sub-acute COVID-19 ward
- inpatient rehabilitation unit
- inpatient geriatric medicine units (both acute and sub-acute)
- primary care
- ambulatory rehabilitation services, including rehabilitation in the home, outreach and telerehabilitation
- pulmonary rehabilitation
- multidisciplinary community care coordinated by LHDs
- integrated care
- residential aged care facility or disability residential facility
- end-of-life or palliative care.

In some cases, the patient may require management via a **combination** of these pathways over the course of their recovery. This may be particularly relevant for those patients being discharged to a residential aged care facility or disability residential facility where access to primary care and allied health support may be limited.

The clinical aspects of the various pathways available to aid in clinician decision-making for transfer and discharge options are outlined in the diagram below.

Clinical pathways for transition from the acute care environment



Suggested clinical pathways for discharge or transfer of COVID-19 patients treated in the acute care environment.

Description	Services provided
Sub-acute COVID-19 ward	
<p>Sub-acute COVID-19 wards may be established to assist with patient flow by providing suitable patients with a step-down from an acute COVID-19 ward.¹⁶</p> <p>Patients suitable for transfer to a sub-acute COVID-19 ward may include the following:</p> <ul style="list-style-type: none"> • Those awaiting transfer to an inpatient rehabilitation facility or residential aged care facility that will only accept de-isolated patients. • Those who are considered clinically stable; however, are not suitable for discharge due to isolation status, deconditioning or complications. • Those residing in an area without a dedicated inpatient rehabilitation facility who have identified rehabilitation needs and goals. • Those experiencing homelessness or are unable to return home. <p>For hospitals that have small numbers of COVID-19 patients, it may be appropriate for a district-wide sub-acute virtual support service to be established to care for patients from multiple facilities.</p>	<ul style="list-style-type: none"> • Dual management by respiratory and rehabilitation physicians with input from other medical specialties, including infectious diseases, geriatric medicine and allied health, as required (e.g. physiotherapy, occupational therapy, dietetics, psychology, social work and speech pathology). • Multidisciplinary rehabilitation assessment and management (see Appendix 1). • In-reach, virtual or face-to-face mobile rehabilitation teams of medical, nursing and allied health clinicians providing physiotherapy, occupational therapy and social work support; in addition to acute allied health clinicians. • Discharge planning services to other rehabilitation pathways and community care.
Inpatient rehabilitation	
<p>Inpatient rehabilitation, led by rehabilitation physicians, offers patients a thorough assessment and an individualised, progressive treatment plan which focuses on function, ability and return to participation in society.¹⁷ It is suitable for those recovering from COVID-19 with physical and psychosocial barriers to discharge; and those with multiple comorbidities that require coordination of medical and surgical services, such as neurology and respiratory, vascular and renal medicine.</p> <p>For older patients, referral to specific inpatient geriatric ‘slow-stream’ rehabilitation may be appropriate.</p> <p>Those with PICS and extra-pulmonary complications (such as significant deconditioning, mobility issues, cognitive impairment, pain and critical illness neuropathy) will likely require inpatient rehabilitation.¹⁸</p>	<ul style="list-style-type: none"> • Medical liaison coordination with other specialist teams (including respiratory, infectious diseases, vascular, cardiac, geriatric medicine, etc) and ongoing management of comorbidities. • Interventions led by a multidisciplinary team, including medicine, allied health and nursing, are designed to help each patient maximise their function and quality of life by setting patient-centred goals. This will include interventions to assist in the areas of mobility and independence with activities of daily living, malnutrition, swallowing or communication impairment, support for post-traumatic stress disorder, critical illness neuropathy and persisting cognitive impairment.¹⁹ • Appendix 1 includes a list of criteria which indicate referral to multidisciplinary rehabilitation is required.

Description	Services provided
Primary care	
<p>Primary care plays a critical role in the ongoing management of post-acute COVID-19 patients. General practitioners (GPs) and their teams are in a unique position to collaborate closely with the patient to develop an individualised management plan to support their recovery.²⁰</p> <p>GPs can provide intervention and referral to specialists (if required) for patients experiencing post-acute COVID-19 symptoms. Several HealthPathways have been developed by NSW primary health networks to support GP assessment and decision-making.</p> <p>Depending on the region, these may include HealthPathways to assist with symptom management, rehabilitation referral, social and community supports and mental health referral and supports.</p> <p>Ideally, the GP will be included in any community care arrangements to ensure the smooth transition of care once the need for other specialty teams has ceased.</p> <p>Note: Those patients with ongoing respiratory symptoms, including those discharged on home oxygen, should be referred to respiratory medicine earlier than the three-month follow-up clinic, if required.</p>	<ul style="list-style-type: none"> • Management of non-specific post-viral symptoms, particularly joint pain, fatigue, insomnia and breathlessness. • Mental health support, particularly depression, anxiety, bereavement and post-traumatic stress disorder. • Referral to other medical disciplines where further investigation or management is required (e.g. respiratory, cardiac, rehabilitation, etc). • Optimisation of comorbid conditions that may have been exacerbated as a result of COVID-19 infection. • Collaboration with allied health, including pulmonary rehabilitation, exercise physiologists and physiotherapists.
Ambulatory multidisciplinary rehabilitation	
<p>As listed above for 'Inpatient rehabilitation', ambulatory multidisciplinary rehabilitation can provide post-acute COVID-19 patient assessment, management and interventions designed to improve function and quality of life.</p> <p>Ambulatory multidisciplinary rehabilitation, provided either face-to-face or via virtual care, may be appropriate for those who do not require high level nursing care; particularly those able to mobilise short distances independently; or for those who have a carer to assist them in the home.</p>	<ul style="list-style-type: none"> • Virtual or face-to-face allied health, nursing and medical services are provided, either in the outpatient setting or in the patient's home ('rehabilitation in the home'). • This service is suitable for patients who can mobilise and transfer in and out of public transport, with or without the assistance of a carer.

Description	Services provided
Pulmonary rehabilitation	
<p>Pulmonary rehabilitation (PR) for people recovering from COVID-19 provides supervised exercise training, breathlessness management, advice on pacing activities and managing fatigue, and support. Programs of six weeks have been shown to improve exercise capacity, health-related quality of life and cognition.²¹</p> <p>PR may be delivered face-to-face or virtually, depending on local resources.</p> <p>Patients suitable for referral to pulmonary rehabilitation include:</p> <ul style="list-style-type: none"> those with symptoms post-acute COVID-19 that can be managed in pulmonary rehabilitation (i.e. symptoms including fatigue, breathlessness, and exercise intolerance, as well as measured oxygen de-saturation) those with pre-existing lung disease and ongoing symptoms as a result of COVID-19 infection. <p>A patient may be referred to pulmonary rehabilitation upon discharge from the acute care environment or after inpatient general rehabilitation. The patient may also be referred once discharged home by the care coordinator, GP, respiratory or rehabilitation teams.</p> <p><i>Note: Some patients may require initial optimisation with general rehabilitation before progressing to pulmonary rehabilitation.</i></p>	<ul style="list-style-type: none"> Individually designed exercise training, education and support. Multidisciplinary education, which includes the management of fatigue, breathlessness, smoking cessation, cough and sputum, nutrition and psychological support. Advice on graduated return to exercise and physical activity.
Multidisciplinary community care	
<p>Multidisciplinary community care includes services and models to support the provision of care in the community to meet the clinical and social care needs of post-acute COVID patients once they are discharged from the acute care environment.</p>	<p>In partnership with GPs, allied health, specialist services, aged care providers, non-government organisations and social care providers, provide and support:</p> <ul style="list-style-type: none"> care in the community following hospitalisation development and promotion of self-management capabilities education, training and clinical interventions to maximise function and wellbeing. <p>These services include (but are not limited to):</p> <ul style="list-style-type: none"> Hospital in the Home acute Post-Acute Care community rehabilitation programs palliative care Commonwealth-funded aged care services chronic and complex nursing and allied health services counselling services prescription for home modifications or assistive technology.

Description	Services provided
Integrated care	
<p>Integrated care involves the provision of seamless, effective and efficient care that reflects the whole of a person's health needs. This includes utilisation of involvement from the primary care provider as well as specialty/hospital-based teams.</p> <p>Patients with chronic disease (e.g. chronic heart failure) may be known to their local integrated care service. Patients who experience an exacerbation of their chronic disease due to their COVID-19 infection should continue to be managed by their usual service, with additional input sought from other medical specialties and allied health, as required.</p> <p>Patients who are readmitted to hospital following discharge from their acute COVID-19 admission may benefit from referral to the local integrated care service.</p>	<ul style="list-style-type: none"> • Patients are identified by the LHD's Integrated Care team or referral by GP or acute services. • Holistic assessment of COVID history, chronic disease, health and psychosocial needs. • Enrol into Planned Care for Better Health for integrated care interventions, health coaching, care navigation, care coordination, shared care planning, remote monitoring and referral pathways, as required. • Care coordination with multidisciplinary and interdisciplinary specialists, GP, social services and community programs.
Palliative care	
<p>There are small numbers of patients who have pre-existing non-reversible or progressive disease, either as a result or worsened by COVID-19 infection. Recovery may be uncertain with a high risk of deterioration towards death in the near future.</p> <p>Examples include patients with advanced progressive metastatic cancer (despite treatment), or elderly patients with end-stage kidney or heart disease. In some instances, this may not be evident until three months post-discharge.²²</p> <p>Patients with advanced pre-existing conditions (e.g. the frail older person with multiple comorbidities) may become increasingly deconditioned as a result of COVID-19 infection. Advance care planning and clarifying goals of care is essential.</p> <p>Patients may require:</p> <ul style="list-style-type: none"> • parallel planning to optimise management of comorbidities and plan for likely deterioration towards end of life • psychosocial support when recovery is uncertain and unlikely • symptom management to improve quality of life where symptoms persist, despite general measures. <p>There may also be people receiving acute care who reach limits of care and require optimisation of comfort and dignity. Referral to a palliative care service, based on the patient and family/carers needs, may be appropriate.</p>	<ul style="list-style-type: none"> • Multidisciplinary assessment of patient and family/carers needs: physical, social, psychological and spiritual. • Assistance with advance care planning. • Together with patient, family/carers, GP, primary health and community services assessment of capacity to meet needs. • Identification of resources, services and supports required to meet these needs (i.e. equipment, carer packages). • Management of symptoms not responding to general measures (e.g. breathlessness). • Bereavement services.

Appendix 1: Referrals to rehabilitation, geriatric medicine rehabilitation and pulmonary rehabilitation

Patients who are recovering from COVID-19 should be referred for multidisciplinary rehabilitation assessment and management as early as possible; preferably in the ICU or acute ward environment. Early rehabilitation intervention has been shown to decrease patient length of stay and improve patient outcomes.²³

Under this post-acute model of care, an assessment of patient clinical and functional status (including requirement for rehabilitation) should take place at every care transition.

The following checklist may be used for the purposes of assessing the need for rehabilitation medicine referral. This checklist can be completed by nursing or allied health staff; provided they can initiate referral to the appropriate team.

Depending on ongoing symptoms, some patients may require reconditioning and optimisation via general multidisciplinary rehabilitation prior to commencing pulmonary rehabilitation. Other patients may be suitable for direct referral to pulmonary rehabilitation.

Indicators for referral to pulmonary rehabilitation

- 7 or more days of invasive or non-invasive ventilation
- Oxygen desaturation $\geq 3\%$ on exertion (e.g. one-minute sit to stand test)²⁴
- Evidence of deconditioning, but able to mobilise independently and safe for discharge home
- Breathlessness at rest
- Cough and sputum production
- People on home oxygen

* Where a patient has respiratory-only indicators present, ongoing management by the respiratory team should be maintained and the patient referred to pulmonary rehabilitation, where appropriate. Referral for general rehabilitation assessment and management may be sought by the team if indicated.

A patient should be referred to rehabilitation medicine for assessment and management if they have:

- respiratory **AND** two or more extra-pulmonary indicators

OR

- two or more extra-pulmonary indicators

Indicators for referral to multidisciplinary rehabilitation²⁵

- Inability to mobilise independently (may require inpatient rehabilitation)
- Weight loss > 10% from admission
- Dysphagia/dysphonia
- Intercurrent illness (including stroke, venous thromboembolism, acute kidney injury)
- Critical illness myopathy or neuropathy
- Persistent new cognitive impairment (not delirium)
- Pain affecting function > 4 out of 10 visual analogue scale
- Pre-existing disability (e.g. previous stroke, brain injury, developmental disability)
- Request by single discipline therapist for additional therapy support
- Request by intensivist/acute care physician for rehabilitation assessment
- Respiratory indicator: 7 or more days of invasive or non-invasive ventilation*
- Respiratory indicator: Oxygen desaturation $\geq 3\%$ on exertion (e.g. one-minute sit to stand test)²⁶ *

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Scope	The scope of this model of care is to support the transition of adult patients with COVID-19 from the acute care environment to the community. Suggested clinical pathways for discharge and follow-up care are included to support patients in the first three months (approx.) from diagnosis, regardless of severity of disease.
Consultation	Collaboration: A subject matter expert group, comprised of the following individuals and COPs provided input in the development of this document. ICU: Dr Sean Kelly, Dr Nhi Nguyen and A/Prof Stuart Lane; Respiratory: Prof David Joffe, Mary Roberts, Prof Peter Wark; Rehab: Prof Steven Faux, Dr Tuan-Anh Nguyen; Primary Care: Dr Charlotte Hespe, Dr Louise Delaney, Dr Catherine George; Pulmonary rehab: Prof Jenny Alison, A/Prof Lissa Spencer; End of life/palliative care: Dr Anthoulla Mohamudally; Community health: Kylie Burke; COVID care in the community: Dr Amith Shetty; Integrated care: Shireen Martin (MOH); Allied health: Andrew Davison, Chief Allied Health Officer, Clinical Lead - Disability Community of Practice; Physiotherapy: Yasmin Silva Consultation: The Respiratory and Rehabilitation COP Executive Groups
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For use by	Clinicians working with adults with COVID-19 transitioning from the acute care environment to the community
Feedback	Feedback on this document can be provided to aci-rehab@health.nsw.gov.au or aci-respiratory@health.nsw.gov.au



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