



COVID-19

Post-COVID Conditions: Information for Healthcare Providers

Updated July 9, 2021

This page provides an overview for healthcare providers. For more detailed information, see the [interim guidance on evaluating and caring for patients with post-COVID conditions](#). Or, for the general public, see a [brief summary of the long-term effects](#).

Background

Some patients who have been infected with SARS-CoV-2, the virus that causes COVID-19, have new, recurring, or ongoing symptoms and clinical findings four or more weeks after infection, sometimes after initial symptom recovery. Post-COVID conditions can occur in patients who have had varying degrees of illness during acute infection, including those who had mild or asymptomatic infections. Medical and research communities are still learning about these post-acute symptoms and clinical findings.

Post-COVID conditions are being referred to by a wide range of names, including long COVID, post-acute COVID-19, long-term effects of COVID, post-acute COVID syndrome, chronic COVID, long-haul COVID, late sequelae, and others, as well as the research term [post-acute sequelae of SARS-CoV-2 infection \(PASC\)](#). [\[1\]](#) Although standardized case definitions are still being developed, in the broadest sense, post-COVID conditions can be considered a lack of return to a usual state of health following acute COVID-19 illness. Post-COVID conditions might also include development of new or recurrent symptoms that occur after the symptoms of acute illness have resolved.

Scientific knowledge is still limited about these effects, including what causes them and how often they occur. Interim terminology will be updated as more information becomes available.

Post-COVID Conditions

We use **post-COVID conditions** as an umbrella term for the wide range of health consequences that are present **four or more weeks** after infection with SARS-CoV-2. The time frame of four or more weeks provides a rough approximation of effects that occur beyond the acute period, but the timeframe might change as we learn more.

It can be difficult to distinguish symptoms caused by post-COVID conditions from symptoms that occur for other reasons. Patients experiencing the acute and post-acute effects of COVID-19, along with social isolation resulting from COVID-19 pandemic prevention measures, frequently suffer from symptoms of depression, anxiety, or mood changes. Alternative reasons for health problems need to be considered, such as other diagnoses, unmasking of pre-existing health conditions, or even SARS-CoV-2 reinfection. For clinicians considering whether new symptoms could be explained by reinfection, please refer to the [CDC guidance on investigating suspected reinfection](#).

It is also possible that some patients with post-COVID conditions will not have had positive tests for SARS-CoV-2 because of a lack of testing or inaccurate testing during the acute period, or because of waning antibody levels or false-negative antibody testing during follow up.

Multiorgan System Effects of COVID-19

Multiorgan system effects of COVID-19 have been documented in most, if not all, body systems including cardiovascular, pulmonary, renal, dermatologic, neurologic, and psychiatric. [Multisystem inflammatory syndrome \(MIS\)](#) and autoimmune conditions can also occur after COVID-19. MIS can lead to longer term symptoms due to unresolved complications from the illness. The nature and duration of potential post-MIS symptoms are currently under investigation. A wide variety of health effects can persist after the acute illness has resolved (e.g., pulmonary fibrosis, myocarditis). It is unknown how long multiorgan system effects might last and whether or not the effects could lead to chronic health conditions.

Effects of COVID-19 Illness or Hospitalization

Effects of COVID-19 illness or hospitalization can include tracheal stenosis from prolonged intubation, severe weakness, and deconditioning. Some of these effects are similar to those from hospitalization for other respiratory infections or other conditions. This category can also encompass post-intensive care syndrome (PICS), which includes a range of health effects that remain after a critical illness. These effects can include severe weakness and post-traumatic stress disorder. Though the effects of hospitalization may not be unique to COVID-19 illness, they are considered post-COVID conditions if they occur after a SARS-CoV-2 infection and persist for four or more weeks.

New or Ongoing Symptoms

There are a wide range of other new or ongoing symptoms and clinical findings that can occur in people with varying degrees of illness from acute SARS-CoV-2 infection, including patients who have had mild or asymptomatic SARS-CoV-2 infection. These effects can overlap with multiorgan complications, or with effects of treatment or hospitalization. This category is heterogeneous and will likely be modified in the future, as it can include patients who have clinically important but poorly understood symptoms (e.g., difficulty thinking or concentrating, post-exertional malaise) that can be persistent or intermittent after initial acute infection with SARS-CoV-2.

Clinicians and researchers are still in the early stages of understanding post-COVID conditions. Ways in which SARS-CoV-2 infection leads to reported symptoms are still being evaluated. To date, the most commonly reported persisting symptoms include:

- Dyspnea or increased respiratory effort
- Fatigue
- Post-exertional malaise and/or poor endurance
- "Brain fog," or cognitive impairment
- Cough
- Chest pain
- Headache
- Palpitations and/or tachycardia
- Arthralgia
- Myalgia
- Paresthesia
- Abdominal pain
- Diarrhea
- Insomnia and other sleep difficulties
- Fever
- Lightheadedness
- Impaired daily function and mobility
- Pain
- Rash (e.g., urticaria)
- Mood changes
- Anosmia or dysgeusia
- Menstrual cycle irregularities

* [Post-exertional malaise \(PEM\)](#) is the worsening of symptoms following even minor physical or mental exertion, with symptoms typically worsening 12 to 48 hours after activity and lasting for days or even weeks.

For more on patient history, see the [interim guidance on evaluating and caring for patients with post-COVID conditions](#).

Research on Post-COVID Conditions

The natural history of SARS-CoV-2 infection is currently being investigated. Researchers are actively studying the prevalence, mechanism, duration, and severity of symptoms following acute SARS-CoV-2 infection, as well as risk factors associated with post-COVID conditions. Whereas older patients and those with underlying health conditions might have an increased risk for severe disease, young people, including those who were physically fit before SARS-CoV-2 infection, have also reported symptoms lasting several months after acute illness.

Care clinics for post-COVID conditions are being established at medical centers across the United States, bringing together multidisciplinary teams to provide a comprehensive and coordinated treatment approach to COVID-19 aftercare. Survivor support groups are connecting people, providing support, and sharing resources with survivors and others affected by COVID-19. Multi-year studies will be crucial in understanding post-COVID conditions.

CDC continues to actively investigate the full spectrum of COVID-19 illness, from the acute phase to longer term effects and conditions. This work will help to establish a more complete understanding of the natural history of SARS-CoV-2 infection and COVID-19 related illnesses, which can inform healthcare strategies, clinical decision-making, and the public health response to this virus.

References

To view references used to inform this page, see the [interim guidance on evaluating and caring for patients with post-COVID conditions](#).

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