



## COVID-19

# Ending Isolation and Precautions for People with COVID-19: Interim Guidance

Updated Dec. 28, 2021

CDC has updated isolation and quarantine recommendations for the public. These recommendations do not supersede state, local, tribal, or territorial laws, rules, and regulations. Read [CDC's media statement](#).

This page is for healthcare professionals caring for people under isolation with laboratory-confirmed COVID-19. For the general public, see [Quarantine and Isolation](#).

## Summary of Recent Changes

Updates as of September 14, 2021

### As of September 14, 2021

- Combined guidance on ending isolation and precautions for adults with COVID-19 and ending home isolation webpages.
- Included evidence for expanding recommendations to include children.
- Edited to improve readability

[View Previous Updates](#)

## Key Points

- For most children and adults with symptomatic SARS-CoV-2, the virus that causes COVID-19, infection, isolation, and precautions can be discontinued 10 days after symptom onset and after resolution of fever for at least 24 hours and improvement of other symptoms.
- For people who are severely ill (i.e., those requiring hospitalization, intensive care, or ventilation support) or severely immunocompromised, extending the duration of isolation and precautions up to 20 days after symptom onset and after resolution of fever and improvement of other symptoms may be warranted.
- For people who are infected but asymptomatic (never develop symptoms), isolation and precautions can be discontinued 10 days after the first positive test.
- Patients who have recovered from COVID-19 can continue to have detectable SARS-CoV-2 RNA in upper respiratory specimens for up to 3 months after illness onset. However, replication-competent virus has not been reliably recovered and infectiousness is unlikely.

To prevent SARS-CoV-2 transmission, see CDC's recommended [prevention strategies](#). For people who might be exposed, see CDC's [Quarantine and Isolation](#) webpage and CDC's [Test for Current Infection](#) webpage which provides details on when to get testing for COVID-19.

## Recommendations for Ending Isolation

For most **people with a current laboratory-confirmed SARS-CoV-2 infection**, isolation and precautions can be discontinued 10 days after symptom onset and after resolution of fever for at least 24 hours, without the use of fever-reducing medications, and with improvement of other symptoms.

**For people who are severely ill or severely immunocompromised:**

- A test-based strategy can be considered in consultation with infectious disease experts.
- Some people with severe illness (e.g., requiring hospitalization, intensive care, or ventilation support) may produce replication-competent virus beyond 10 days that may warrant extending the duration of isolation and precautions for up to 20 days after symptom onset.
- Severely immunocompromised patients\* may produce replication-competent virus beyond 20 days and require additional testing and consultation with infectious disease specialist to determine the appropriate duration of isolation and precautions.

**For people who are asymptomatic (never develop symptoms):**

- Isolation and precautions can be discontinued 10 days *after the first positive viral test*.

\* For the purposes of this guidance, moderate to severely immunocompromising conditions include, but might not be limited to, those defined in the interim clinical considerations for people with [moderate to severe immunocompromise due to a medical condition or receipt of immunosuppressive medications or treatments](#).

Other factors, such as end-stage renal disease, likely pose a lower degree of immunocompromise and there might not be a need to follow the recommendations for those with moderate to severe immunocompromise. Ultimately, the degree of immunocompromise for the patient is determined by the treating provider, and preventive actions should be tailored to each patient and situation.

## Assessment for Duration of Isolation

Available data suggest that **patients with mild-to-moderate COVID-19** remain infectious no longer than 10 days after symptom onset.

Most **patients with more severe-to-critical illness or those who are severely immunocompromised** likely remain infectious no longer than 20 days after symptom onset; however, there have been several reports of severely immunocompromised people shedding replication-competent virus beyond 20 days.<sup>(1-5)</sup>


**Patients who have recovered from COVID-19** can continue to have detectable SARS-CoV-2 RNA in upper respiratory specimens for up to 3 months after illness onset in concentrations considerably lower than during illness; however, replication-competent virus has not been reliably recovered and infectiousness is unlikely. The circumstances that result in persistently detectable SARS-CoV-2 RNA have yet to be determined. Studies have not found evidence that clinically recovered adults with persistence of viral RNA have transmitted SARS-CoV-2 to others. These findings strengthen the justification for relying on a symptom-based rather than test-based strategy for ending isolation of most patients.

## Key Findings from Transmission Literature

1. **Concentrations of SARS-CoV-2 RNA** in upper respiratory specimens decline after onset of symptoms.<sup>(6-11)</sup>

2. Several studies have found **similar concentrations of SARS-CoV-2 RNA** in upper respiratory specimens from **children and adults**.<sup>(12-18)</sup>
  - To date, most studies of SARS-CoV-2 transmission have found that children and adults have a similar risk of transmitting SARS-CoV-2 to others.
  - One study reported that children were more likely to transmit SARS-CoV-2 than adults >60 years old.<sup>(19)</sup>
3. Certain **SARS-CoV-2 variants of concern** are more transmissible than the wild type virus or other variants, resulting in higher rates of infection. People infected with the **Delta variant**, including fully vaccinated people with symptomatic breakthrough infections, can transmit infection to others. However, like other variants, the amount of virus produced by Delta breakthrough infections in fully vaccinated people decreases faster than in unvaccinated people. This means **fully vaccinated people are likely infectious for less time** than unvaccinated people.
4. The likelihood of **recovering replication-competent (infectious) virus** is very low after 10 days from onset of symptoms, except in severely ill or immunocompromised people.
  - **For patients with mild-to-moderate COVID-19**, replication-competent virus has not been recovered after 10 days following symptom onset for most patients.<sup>(8, 9, 20- 24)</sup> Outliers exist; in one case report, an adult with mild illness provided specimens that yielded replication-competent virus for up to 18 days after symptom onset.<sup>(25)</sup>
  - Recovery of replication-competent virus between 10 and 20 days after symptom onset has been reported in some **adults with severe COVID-19**; some of these individuals were **immunocompromised**.<sup>(7)</sup> However, in this series of patients, it was estimated that 88% and 95% of their specimens no longer yielded replication-competent virus after 10 and 15 days, respectively, following symptom onset.
  - Detection of sub-genomic SARS-CoV-2 RNA or recovery of replication-competent virus has been reported in **severely ill or severely immunocompromised patients** beyond 20 days, and as long as 144 days after a positive SARS-CoV-2 test result.<sup>(1-5)</sup>
  - **Prolonged detection** of replication-competent virus may be associated with other factors. For example, a 13-year-old immunocompetent male was hospitalized for injuries received in a motor vehicle crash. He required intubation, developed pulmonary infiltrates, and tested positive for SARS-CoV-2. Viral cultures of upper and lower respiratory tract specimens were positive for SARS-CoV-2 on days 47 and 54 of his hospitalization.<sup>(26)</sup>
5. The **risk of SARS-CoV-2 transmission** to others varies based upon several factors including time after symptom onset, **virus variant**, virus levels in the upper respiratory tract, and disease status (asymptomatic, pre-symptomatic, or symptomatic).
  - In a large contact tracing study, no contacts developed SARS-CoV-2 infection if their exposure to a COVID-19 case patient occurred 6 days or more after the case patient's symptom onset.<sup>(27)</sup>
  - One study published in January 2021 reported that 59% of SARS-CoV-2 transmission originated from index cases that were asymptomatic or pre-symptomatic.<sup>(28)</sup>
  - A meta-analysis published in February 2021 found that the secondary attack rate for asymptomatic (never develop symptoms) index cases was 1.9%, but was 9.3% for pre-symptomatic and 13.6% for symptomatic index cases.<sup>29</sup> Therefore, individuals with SARS-CoV-2 infection without symptoms pose a transmission risk and should isolate based upon CDC's **quarantine and isolation recommendations**.
6. People who have recovered from COVID-19 may have **prolonged detection of SARS-CoV-2 RNA**.<sup>(30)</sup> However, prolonged detection of viral RNA does not necessarily mean that such people are a transmission risk. Studies of patients who were hospitalized and recovered indicate that SARS-CoV-2 RNA can be detected in upper respiratory tract specimens for up to 3 months (12 weeks) after symptom onset.<sup>(19, 24, 25)</sup>
  - Investigation of 285 "persistently SARS-CoV-2 RNA positive" adults, which included 126 adults who had developed recurrent symptoms, found no secondary infections among 790 contacts. Efforts to isolate replication-competent virus were attempted for 108 of these 285 case patients, and SARS-CoV-2 was not recovered in viral culture from any of the 108 specimens."<sup>(24)</sup>
7. The **probability of SARS-CoV-2 reinfection** may increase with time after recovery, consistent with other human coronaviruses, because of waning immunity and the possibility of exposure to viral variants.<sup>(31-39)</sup> The risk of reinfection also depends on host susceptibility, vaccination status, and the likelihood of re-exposure to infectious cases of COVID-19. Continued widespread transmission makes it more likely that reinfections will occur.
8. **Loss of taste and smell** may continue for weeks or months after recovery.<sup>(40)</sup> The presence of these symptoms does not mean that the isolation period must be extended.

## Limitations of Current Evidence

- Studies referenced in this document may have differences compared to the current epidemiology of COVID-19 in the United States. Specifically, many of these references involve non-US populations, homogenous populations, virus transmission prior to the availability of vaccination for COVID-19, and infection prior to the known circulation of SARS-CoV-2 current [variants of concern](#), such as the Delta variant. More studies are needed to fully understand virus transmission related to the Delta variant and other SARS-CoV-2 variants among the fully vaccinated.
- Studies have used viral culture to attempt to grow SARS-CoV-2 from clinical samples from patients who tested positive for SARS-CoV-2 to determine infectiousness. Because viral culture must be done in very specialized laboratories, there is a limited number of these studies currently available.
- Many studies that assessed the duration of SARS-CoV-2 infectiousness have been conducted in adults. More studies are needed, especially in children with SARS-CoV-2 infection.
- More data are needed to understand the frequency and duration of infectious SARS-CoV-2 shedding among the spectrum of mild to severely immunocompromised people, including both asymptomatic and symptomatic people.
- More data are needed to fully understand the risk of recovery of replication-competent virus in individuals with severe COVID-19. There was variation in how studies defined severe illness with COVID-19. Some studies defined severe disease as cases requiring hospitalization or mechanical ventilation while other researchers used the [definition of severity](#)  from the COVID-19 Treatment Guidelines published by National Institutes of Health (NIH).

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## Previous Updates

### Updates from Previous Content: Ending Isolation and Precautions Webpage [↗](#)

#### As of February 13, 2021

- Added new evidence and recommendations for duration of isolation and precautions for severely immunocompromised adults.
- Added information on recent reports in adults of reinfection with SARS-CoV-2 variant viruses.

### Updates from Previous Ending Home Isolation Webpage Content [↗](#)

#### As of February 18, 2021

- Some severely immunocompromised persons with COVID-19 may remain infectious beyond 20 days after their symptoms began and require additional SARS-CoV-2 testing and consultation with infectious diseases specialists and infection control experts.

#### Updates as of July 20, 2020

- A test-based strategy is no longer recommended to determine when to discontinue home isolation, except in certain circumstances.
- Symptom-based criteria were modified as follows:
  - Changed from “at least 72 hours” to “at least 24 hours” have passed *since last* fever without the use of fever-reducing medications.
  - Changed from “improvement in respiratory symptoms” to “improvement in symptoms” to address expanding list of symptoms associated with COVID-19.
- For patients with severe illness, duration of isolation for up to 20 days after symptom onset may be warranted. Consider consultation with infection control experts.
- For persons who never develop symptoms, isolation and other precautions can be discontinued 10 days after the date of their first positive RT-PCR test for SARS-CoV-2 RNA

date of their first positive RT-PCR test for SARS-CoV-2 RNA.

### Updates as of July 17, 2020

- Symptom-based criteria were modified as follows:
  - Changed from “at least 72 hours” to “at least 24 hours” have passed *since last* fever without the use of fever-reducing medications
  - Changed from “improvement in respiratory symptoms” to “improvement in symptoms” to address expanding list of symptoms associated with COVID-19

### Updates as of May 29, 2020

Added information around the management of persons who may have prolonged viral shedding after recovery.

### Updates as of May 3, 2020

- Changed the name of the ‘non-test-based strategy’ to the ‘symptom-based strategy’ for those with symptoms. Added a ‘time-based strategy’ and named the ‘test-based strategy’ for asymptomatic persons with laboratory-confirmed COVID-19. Extended the home isolation period from 7 to 10 days *since symptoms first appeared* for the symptom-based strategy in persons with COVID-19 who have symptoms and from 7 to 10 days after the date of their first positive test for the time-based strategy in asymptomatic persons with laboratory-confirmed COVID-19. This update was made based on evidence suggesting a longer duration of viral shedding and will be revised as additional evidence becomes available. This time period will capture a greater proportion of contagious patients; however, it will not capture everyone.
- Removed specifying use of nasopharyngeal swab collection for the test-based strategy and linked to the [Interim Guidelines for Collecting, Handling, and Testing Clinical Specimens for Coronavirus Disease 2019 \(COVID-19\)](#), so that the most current specimen collection strategies are recommended.

### Updates as of April 4, 2020

- Revised title to include isolation in all settings other than health settings, not just home.