



Centers for Disease Control and Prevention  
CDC 24/7: Saving Lives, Protecting People™



## COVID-19

# Public Health Recommendations

Evaluating and Caring for Patients with Post-COVID Conditions: Interim Guidance

Updated June 14, 2021 [Print](#)

PAGE 7 of 8

[< View Table of Contents](#)

Documentation of SARS-CoV-2 infection and post-COVID conditions is critical for accurate public health surveillance. The World Health Organization (WHO) has developed coding guidance for health care encounters related to post-COVID conditions based on the International Classification of Diseases, Tenth Edition Clinical Modification (ICD-10-CM).<sup>(2)</sup> WHO has recommended the following ICD-10 code be used:

- **U09.9 Post COVID-19 condition, unspecified** – to allow the establishment of a link with COVID-19; not to be used in cases that still are presenting with acute COVID-19

The ICD-10 code **U09.9 Post COVID-19 condition** code is not currently available in the United States and is under review by the U.S. ICD-10 Coordination and Maintenance Committee. In the meantime, CDC recommends the following ICD-10-CM code be used for post-COVID conditions:

- **B94.8 Sequelae of other specified infectious and parasitic diseases**

## Public Health Recommendations

People with post-COVID conditions should continue to follow CDC's recommended [COVID-19 prevention measures](#), including wearing a mask when and where indicated, maintaining the appropriate physical distance from people who are not from their household, avoiding crowds and poorly ventilated indoor spaces, washing hands, and when vaccinated following the [general recommendations for vaccinated people](#).

## COVID-19 Vaccination and Other Vaccinations

[COVID-19 vaccination](#) should be offered to all eligible people, regardless of their history of SARS-CoV-2 infection. Although anecdotal reports indicate that some patients with post-COVID conditions have experienced improvements in their symptoms after COVID-19 vaccination, research is ongoing to establish the extent of this effect, if verified.<sup>(53)</sup> Healthcare professionals should also emphasize the importance of [annual vaccination against influenza](#) for all people aged ≥6 months, including patients with a history of COVID-19. In addition, [vaccination against pneumococcal disease](#) should be considered according to current ACIP guidelines.

During the pandemic, fewer routine childhood vaccine doses were administered<sup>(54)</sup> [leaving children at risk for vaccine-preventable diseases](#). **Healthcare professionals should work with families to keep children and adolescents up to date with well-child visits and all recommended vaccinations, including children and adolescents experiencing post-COVID conditions.** For more information on immunization services and vaccination recommendations during the pandemic, visit "[Vaccination Guidance](#)." Developmental surveillance and early childhood screenings, including developmental and autism screening, should continue along with referrals for [early intervention services](#), and further evaluation if concerns are identified.

## Preventive Care

Patients with post-COVID conditions might additionally benefit from a review of their current preventive care practices, including [age-appropriate preventive health screenings](#) [🔗](#) and [vaccinations](#) that may have been delayed due to the pandemic and other discussions regarding nutrition, physical activity, sleep, stress management, interpersonal relationships, and chronic disease management.

# Table of Contents

Key Points

Background

General Clinical Considerations

Patient History and Physical Exam

Assessment and Testing

Management of Post-COVID Conditions

› **Public Health Recommendations**

Future Directions and Resources

## References

See All References



1. Nalbandian A, Sehgal K, Gupta A, Madhavan MV, et al. Post-acute COVID-19 syndrome. *Nat Med*. 2021 Apr;27(4):601-615. doi:10.1038/s41591-021-01283-z [↗](#)
2. Policy Brief 39 – In the Wake of the Pandemic Preparing for Long COVID. Accessed at: <https://apps.who.int/iris/bitstream/handle/10665/339629/Policy-brief-39-1997-8073-eng.pdf> [↗](#)
3. Huang Y, Pinto MD, Borelli JL, et al. COVID Symptoms, Symptom Clusters, and Predictors for Becoming a Long-Hauler: Looking for Clarity in the Haze of the Pandemic. *medRxiv*. 2021 Mar 5. doi: 10.1101/2021.03.03.21252086 [↗](#)
4. Havervall S, Rosell A, Phillipson M, Mangsbo SM, Nilsson P, Hober S, Thålin C. Symptoms and Functional Impairment Assessed 8 Months After Mild COVID-19 Among Health Care Workers. *JAMA*. 2021 Apr 7. doi:10.1001/jama.2021.5612 [↗](#)
5. Office of National Statistics. Prevalence of ongoing symptoms following coronavirus (COVID-19) infection in the UK: 1 April 2021. Accessed at: <https://www.ons.gov.uk/peoplepopulationandcommunity/healthandsocialcare/conditionsanddiseases/bulletins/prevalenceofongoingsymptomsfollowingcoronaviruscovid19infectionintheuk/1april2021> [↗](#)
6. Chevinsky JR, Tao G, Lavery AM, et al. Late conditions diagnosed 1-4 months following an initial COVID-19

- encounter: a matched cohort study using inpatient and outpatient administrative data - United States, March 1- June 30, 2020. *Clin Infect Dis*. 2021 Apr 28. doi: 10.1093/cid/ciab338 [↗](#)
7. Hernandez-Romieu AC, Leung S, Mbatya A, et al. Health Care Utilization and Clinical Characteristics of Nonhospitalized Adults in an Integrated Health Care System 28-180 Days After COVID-19 Diagnosis - Georgia, May 2020-March 2021. *MMWR Morb Mortal Wkly Rep*. 2021 Apr 30;70(17):644-650. doi: 10.15585/mmwr.mm7017e3 [↗](#)
  8. Lund LC, Hallas J, Nielsen H, Koch A, Mogensen SH, Brun NC, Christiansen CF, Thomsen RW, Pottegård A. Post-acute effects of SARS-CoV-2 infection in individuals not requiring hospital admission: a Danish population-based cohort study. *Lancet Infect Dis*. 2021 May 10. doi:10.1016/S1473-3099(21)00211-5 [↗](#)
  9. Huang C, Huang L, Wang Y, et al. 6-month consequences of COVID-19 in patients discharged from hospital: a cohort study. *Lancet*. 2021 Jan 16;397(10270):220-232. doi:10.1016/S0140-6736(20)32656-8 [↗](#)
  10. Pavli A, Theodoridou M, Maltezou HC. Post-COVID syndrome: Incidence, clinical spectrum, and challenges for primary healthcare professionals. *Arch Med Res*. 2021 May 4. doi:10.1016/j.arcmed.2021.03.010 [↗](#)
  11. Cabrera Martimbianco AL, Pacheco RL, Bagattini ÂM, et al. Frequency, signs and symptoms, and criteria adopted for long COVID: a systematic review. *Int J Clin Pract*. 2021 May 11:e14357. doi:10.1111/ijcp.14357 [↗](#)
  12. Rando HM, Bennett TD, Byrd JB, et al. Challenges in defining Long COVID: Striking differences across literature, Electronic Health Records, and patient-reported information. *medRxiv*. 2021 Mar 26. doi:10.1101/2021.03.20.21253896 [↗](#)
  13. Office of National Statistics. Update on long COVID prevalence estimate. Accessed at: [https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment\\_data/file/962830/s1079-ons-update-on-long-covid-prevalence-estimate.pdf](https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/962830/s1079-ons-update-on-long-covid-prevalence-estimate.pdf) [↗](#)
  14. Buonsenso D, Munblit D, De Rose C, et al. Preliminary evidence on long COVID in children. *Acta Paediatr*. 2021 Apr 9. doi:10.1111/apa.15870 [↗](#)
  15. Say D, Crawford N, McNab S, et al. Post-acute COVID-19 outcomes in children with mild and asymptomatic disease. *Lancet Child Adolesc Health*. 2021 Apr 20. doi:10.1016/S2352-4642(21)00124-3 [↗](#)
  16. Osmanov I, Spiridonova E, Bobkova P, et al. Risk factors for long covid in previously hospitalised children using the ISARIC Global follow-up protocol: A prospective cohort study. *medRxiv*. 2021 Apr 26. doi:10.1101/2021.04.26.21256110 [↗](#)
  17. Assaf G, Davis H, McCorkell L, et al. What does COVID-19 recovery actually look like? An analysis of the prolonged COVID-19 symptoms survey by Patient-Led Research Team. *Patient Led Research for COVID-19*, 2020. [↗](#)
  18. Lam MH, Wing YK, Yu MW, et al. Mental morbidities and chronic fatigue in severe acute respiratory syndrome survivors: long-term follow-up. *Arch Intern Med*. 2009 Dec 14;169(22):2142-7. doi:10.1001/archinternmed.2009.384 [↗](#)
  19. Lee SH, Shin HS, Park HY, et al. Depression as a Mediator of Chronic Fatigue and Post-Traumatic Stress Symptoms in Middle East Respiratory Syndrome Survivors. *Psychiatry Investig*. 2019 Jan;16(1):59-64. doi:10.30773/pi.2018.10.22.3. [↗](#)
  20. Lambert N, Survivor Corps, El-Azab SA, et al. COVID-19 Survivors' Reports of the Timing, Duration, and Health Impacts of Post-Acute Sequelae of SARS-CoV-2 (PASC) Infection. *medRxiv* 2021.03.22.21254026; doi:10.1101/2021.03.22.21254026 [↗](#)
  21. Colbenson GA, Johnson A, Wilson ME. Post-intensive care syndrome: impact, prevention, and management. *Breathe (Sheff)*. 2019 Jun;15(2):98-101. doi:10.1183/20734735.0013-2019 [↗](#)

22. Lavery AM, Preston LE, Ko JY, et al. Characteristics of Hospitalized COVID-19 Patients Discharged and Experiencing Same-Hospital Readmission - United States, March-August 2020. *MMWR Morb Mortal Wkly Rep*. 2020 Nov 13;69(45):1695-1699. doi: 10.15585/mmwr.mm6945e2
23. Chopra V, Flanders SA, O'Malley M, et al. Sixty-Day Outcomes Among Patients Hospitalized With COVID-19. *Ann Intern Med*. 2020 Nov 11. doi: 10.7326/M20-5661 [↗](#)
24. Ayoubkhani D, Khunti K, Nafilyan V, et al. Post-covid syndrome in individuals admitted to hospital with covid-19: retrospective cohort study. *BMJ*. 2021 Mar 31;372:n693. doi:10.1136/bmj.n693 [↗](#)
25. Atalla E, Kalligeros M, Giampaolo G, et al. Readmissions among patients with COVID-19. *Int J Clin Pract*. 2020 Sep 7:e13700. doi:10.1111/ijcp.13700 [↗](#)
26. Donnelly JP, Wang XQ, Iwashyna TJ, et al. Readmission and Death After Initial Hospital Discharge Among Patients With COVID-19 in a Large Multihospital System. *JAMA*. 2021 Jan 19;325(3):304-306. doi:10.1001/jama.2020.21465 [↗](#)
27. Somani SS, Richter F, Fuster V, et al. Characterization of Patients Who Return to Hospital Following Discharge from Hospitalization for COVID-19. *J Gen Intern Med*. 2020 Oct;35(10):2838-2844. doi:10.1007/s11606-020-06120-6 [↗](#)
28. Jeon WH, Seon JY, Park SY, et al. Analysis of Risk Factors on Readmission Cases of COVID-19 in the Republic of Korea: Using Nationwide Health Claims Data. *Int J Environ Res Public Health*. 2020 Aug 12;17(16). doi:10.3390/ijerph17165844 [↗](#)
29. Akinbami LJ, Petersen LR, Sami S, et al. COVID-19 symptoms and SARS-CoV-2 antibody positivity in a large survey of first responders and healthcare personnel, May-July 2020. *Clin Infect Dis*. 2021 Jan 30. doi:10.1093/cid/ciab080 [↗](#)
30. Petersen LR, Sami S, Vuong N, et al. Lack of antibodies to SARS-CoV-2 in a large cohort of previously infected persons. *Clin Infect Dis*. 2020 Nov 4.
31. American Academy of Pediatrics. COVID-19 Interim Guidance: Return to Sports and Physical Activity. Accessed at: <https://services.aap.org/en/pages/2019-novel-coronavirus-covid-19-infections/clinical-guidance/covid-19-interim-guidance-return-to-sports/> [↗](#)
32. Greenhalgh T, Knight M, A'Court C, et al. Management of post-acute covid-19 in primary care. *BMJ*. 2020;370:m3026. doi:10.1136/bmj.m3026 [↗](#)
33. COVID-19 Rapid Guideline: Managing the Long-Term Effects of COVID-19. Accessed at: <https://www.nice.org.uk/guidance/NG188> [↗](#)
34. Sisó-Almirall A, Brito-Zerón P, Conangla Ferrín L, et al. Long Covid-19: Proposed Primary Care Clinical Guidelines for Diagnosis and Disease Management. *Int J Environ Res Public Health*. 2021 Apr 20;18(8). doi:10.3390/ijerph18084350 [↗](#)
35. Parkin A, Davison J, Tarrant R, et al. A Multidisciplinary NHS COVID-19 Service to Manage Post-COVID-19 Syndrome in the Community. *J Prim Care Community Health*. 2021 Jan-Dec;12:21501327211010994. doi:10.1177/21501327211010994 [↗](#)
36. Brigham E, O'Toole J, Kim SY, et al. The Johns Hopkins Post-Acute COVID-19 Team (PACT): A Multidisciplinary, Collaborative, Ambulatory Framework Supporting COVID-19 Survivors. *Am J Med*. 2021 Apr;134(4):462-467.e1. doi:10.1016/j.amjmed.2020.12.009 [↗](#)
37. Santhosh L, Block B, Kim SY, Raju S, Shah RJ, Thakur N, Brigham EP, Parker AM. How I Do It: Rapid Design and Implementation of Post-COVID-19 Clinics. *Chest*. 2021 Mar 31. doi:10.1016/j.chest.2021.03.044 [↗](#)
38. O'Brien H, Tracey MJ, Ottewill C, et al. An integrated multidisciplinary model of COVID-19 recovery care. *Ir J Med*

- Sci. 2021 May;190(2):461-468. doi:10.1007/s11845-020-02354-9 [↗](#)
39. Lopez-Leon S, Wegman-Ostrosky T, Perelman C, et al. More Than 50 Long-Term Effects of COVID-19: A Systematic Review and Meta-Analysis. *Res Sq*. 2021 Mar 1. doi:10.2139/ssrn.3769978 [↗](#)
  40. Al-Aly Z, Xie Y, Bowe B. High-dimensional characterization of post-acute sequelae of COVID-19. *Nature*. 2021 Apr 22. doi:10.1038/s41586-021-03553-9 [↗](#)
  41. Sudre CH, Murray B, Varsavsky T, et al. Attributes and predictors of long COVID. *Nat Med*. 2021 Apr;27(4):626-631. doi:10.1038/s41591-021-01292-y [↗](#)
  42. Lund LC, Hallas J, Nielsen H, et al. Post-acute effects of SARS-CoV-2 infection in individuals not requiring hospital admission: a Danish population-based cohort study. *Lancet Infect Dis*. 2021 May 10. doi:10.1016/S1473-3099(21)00211-5 [↗](#)
  43. Carfi A, Bernabei R, Landi F, et al. Persistent Symptoms in Patients After Acute COVID-19. *JAMA*. 2020 Aug 11;324(6):603-605. doi:10.1001/jama.2020.12603 [↗](#)
  44. Cellai M, O'Keefe JB. Characterization of Prolonged COVID-19 Symptoms in an Outpatient Telemedicine Clinic. *Open Forum Infect Dis*. 2020 Oct;7(10):ofaa420. doi:10.1093/ofid/ofaa420 [↗](#)
  45. Logue JK, Franko NM, McCulloch DJ, et al. Sequelae in Adults at 6 Months After COVID-19 Infection. *JAMA Netw Open*. 2021 Feb 1;4(2):e210830. doi:10.1001/jamanetworkopen.2021.0830 [↗](#)
  46. del Rio C, Collins LF, Malani P. Long-term health consequences of COVID-19. *JAMA*. 2020. doi:10.1001/jama.2020.19719 [↗](#)
  47. Taquet M, Geddes JR, Husain M, et al. 6-month neurological and psychiatric outcomes in 236379 survivors of COVID-19: a retrospective cohort study using electronic health records. *Lancet Psychiatry*. 2021 May;8(5):416-427. doi:10.1016/S2215-0366(21)00084-5 [↗](#)
  48. Barker-Davies RM, O'Sullivan O, Senaratne KPP, et al. The Stanford Hall consensus statement for post-COVID-19 rehabilitation. *Br J Sports Med*. 2020 Aug;54(16):949-959. doi:10.1136/bjsports-2020-102596 [↗](#)
  49. Li Z, Zheng C, Duan C, et al. Rehabilitation needs of the first cohort of post-acute COVID-19 patients in Hubei, China. *Eur J Phys Rehabil Med*. 2020 Jun;56(3):339-344. doi: 10.23736/S1973-9087.20.06298-X. PMID: 32672029. doi:10.23736/s1973-9087.20.06298-x [↗](#)
  50. Daynes E, Gerlis C, Chaplin E, et al. Early experiences of rehabilitation for individuals post-COVID to improve fatigue, breathlessness exercise capacity and cognition - A cohort study. *Chron Respir Dis*. 2021 Jan-Dec;18:14799731211015691. doi:10.1177%2F14799731211015691 [↗](#)
  51. Berger Z, Altieri DE, Jesus V, Assoumou SA, et al. Long COVID and Health Inequities: The Role of Primary Care. *Milbank Q*. 2021 Mar 30. doi:10.1111/1468-0009.12505 [↗](#)
  52. Waltenburg MA, Victoroff T, Rose CE, et al. Update: COVID-19 Among Workers in Meat and Poultry Processing Facilities — United States, April–May 2020. *MMWR Morb Mortal Wkly Rep* 2020;69:887-892. Accessed at: <https://www.cdc.gov/mmwr/volumes/69/wr/mm6927e2.htm>
  53. DT Arnold, A Milne, E Samms, et al. Are vaccines safe in patients with Long COVID? A prospective observational study. *medRxiv*. 2021 March 11; 21253225. Accessed at: <https://www.medrxiv.org/content/10.1101/2021.03.11.21253225v2> [↗](#)
  54. Santoli JM, Lindley MC, DeSilva MB, et al. Effects of the COVID-19 Pandemic on Routine Pediatric Vaccine Ordering and Administration - United States, 2020. *MMWR Morb Mortal Wkly Rep*. 2020 May 15;69(19):591-593.
-

Last Updated June 14, 2021

Content source: [National Center for Immunization and Respiratory Diseases \(NCIRD\), Division of Viral Diseases](#)