



COVID-19

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

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This content offers detailed interim guidance for healthcare providers. For a general introduction to post-COVID conditions, see the [overview for healthcare providers](#). Or, for the general public, see a [brief summary of the long-term effects](#).

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Key Points

- The term “Post-COVID Conditions” is an umbrella term for the wide range of physical and mental health consequences experienced by some patients that are present four or more weeks after SARS-CoV-2 infection, including by patients who had initial mild or asymptomatic acute infection.
- Based on current information, many post-COVID conditions can be managed by primary care providers, with the incorporation of patient-centered approaches to optimize the quality of life and function in affected patients.
- Objective laboratory or imaging findings should not be used as the only measure or assessment of a patient’s well-being; lack of laboratory or imaging abnormalities does not invalidate the existence, severity, or importance of a patient’s symptoms or conditions.
- Healthcare professionals and patients are encouraged to set achievable goals through shared decision-making and to approach treatment by focusing on specific symptoms (e.g., headache) or conditions (e.g., dysautonomia); a comprehensive management plan focusing on improving physical, mental, and social wellbeing may be helpful for some patients.
- Understanding of post-COVID conditions remains incomplete and guidance for healthcare professionals will likely change over time as the evidence evolves.

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, Mbanya 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 [📄](#) [↗](#)
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 236 379 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, Altiery 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.