Post-COVID Syndrome in Outpatient and Nursing Home Settings

Awareness and Resources

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QIN–QIO
Quality Innovation Network - Quality Improvement Organizations
CENTERS FOR MEDICARE & MEDICAID SERVICES
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Objectives

At the end of this webinar the attendee will:

- Be able to understand the definition of post-COVID syndrome and its symptoms
- Recognize the individuals at risk of developing post-COVID syndromes as well as the prevalence
- Understand the lab tests and assessment tools that should be utilized when a patient presents with possible post-COVID syndrome
- Recognize the importance of the COVID vaccine in post-COVID syndrome

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Objectives Cont.

At the end of this webinar the attendee will:

- Be able to explain the general treatment approach of post-COVID syndrome
- Understand the role that health inequities play in post-COVID syndrome
- Recognize how cognitive biases can delay a diagnosis of post-COVID syndrome as well as play a role in vaccine hesitancy
- Understand the role that post-COVID syndrome has on health care workers and staffing stability

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Case 1

An 82-year-old male presents to the ER due to chills and dyspnea. He is diagnosed with COVID-19 and admitted to the hospital due to hypoxia. He is treated for 5 days with remdesivir and dexamethasone and discharged home with oxygen, which is eventually able to be weaned off. Over the next 6 months, his wife brings him to his PCP several times due to “memory issues.” Nine months after his hospitalization, he presents back to the ER due to slurred speech and left-sided weakness and his diagnosed with ischemic stroke.

Are We Out of the Woods Yet?

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COVID Numbers

Centers for Disease Control and Prevention (CDC). "COVID Data Tracker." https://COVID.cdc.gov/COVID-data-tracker/#datatracker-home.

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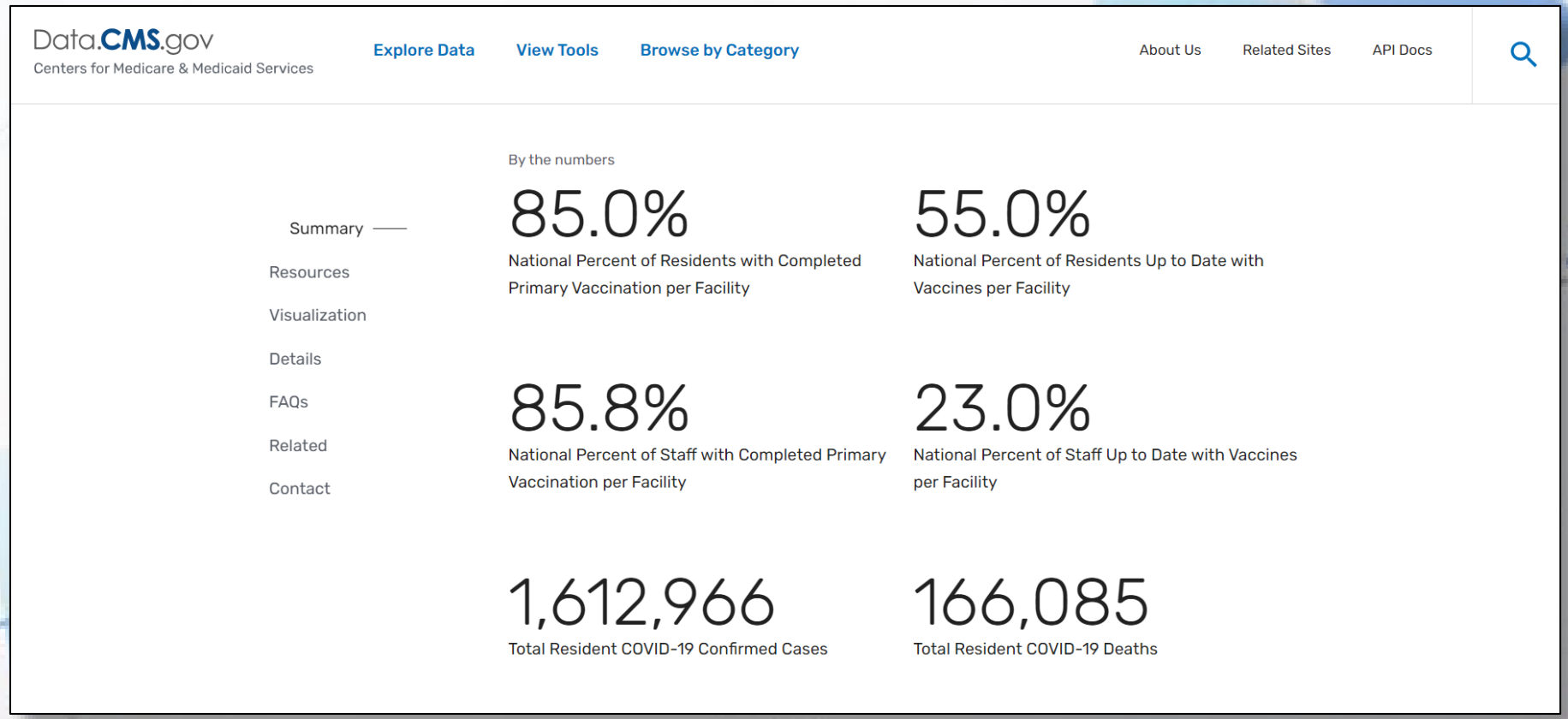
COVID Numbers in Nursing Homes



Submitted data as of the week ending 04/09/2023

Centers for Medicare & Medicaid Services (CMS). "COVID-19 Nursing Home Data." https://data.cms.gov/covid-19/covid-19-nursing-home-data.

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A Few Thoughts on Numbers

- States/territories track data in different ways.
- There has been some controversy as to what constitutes a death from COVID infection.
- Not all states reported on hospitalizations/intensive care unite (ICU) admissions for COVID.
- Are individuals with multiple positive tests being counted as multiple individuals testing positive?
- We need to look at each individual presenting with possible post-COVID symptoms.

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Case 2

An 89-year-old female long-term resident of a nursing home develops fever, chills, and cough. She is diagnosed with COVID, but is not requiring oxygen so she is treated symptomatically in the facility. She complains of fatigue, dyspnea, and depression 1 month after her COVID diagnosis. She continues to complain of these symptoms for the next 2 months and eventually becomes bedbound due to depression and fatigue. She is found to have a stage 3 decubitus on her sacrum 4 months after her COVID diagnosis.

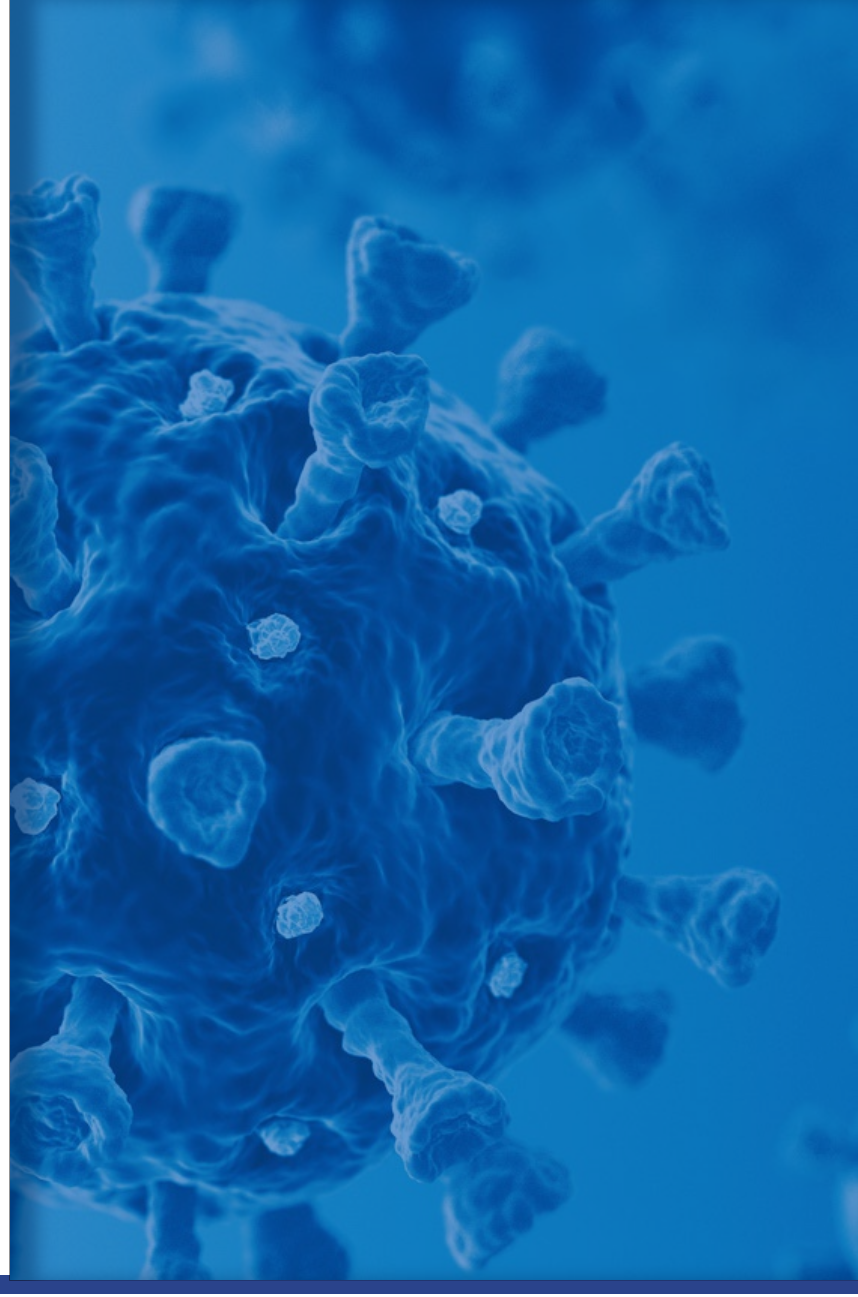
Further reading

Ed Yong, “Long COVID IS Being Erased – Again: What was once outright denial as morphed into subtler dismissal.”

The Atlantic

19 April 2023

https://www.theatlantic.com/health/archive/2023/04/long-COVID-symptoms-invisible-disability-chronic-illness/673773



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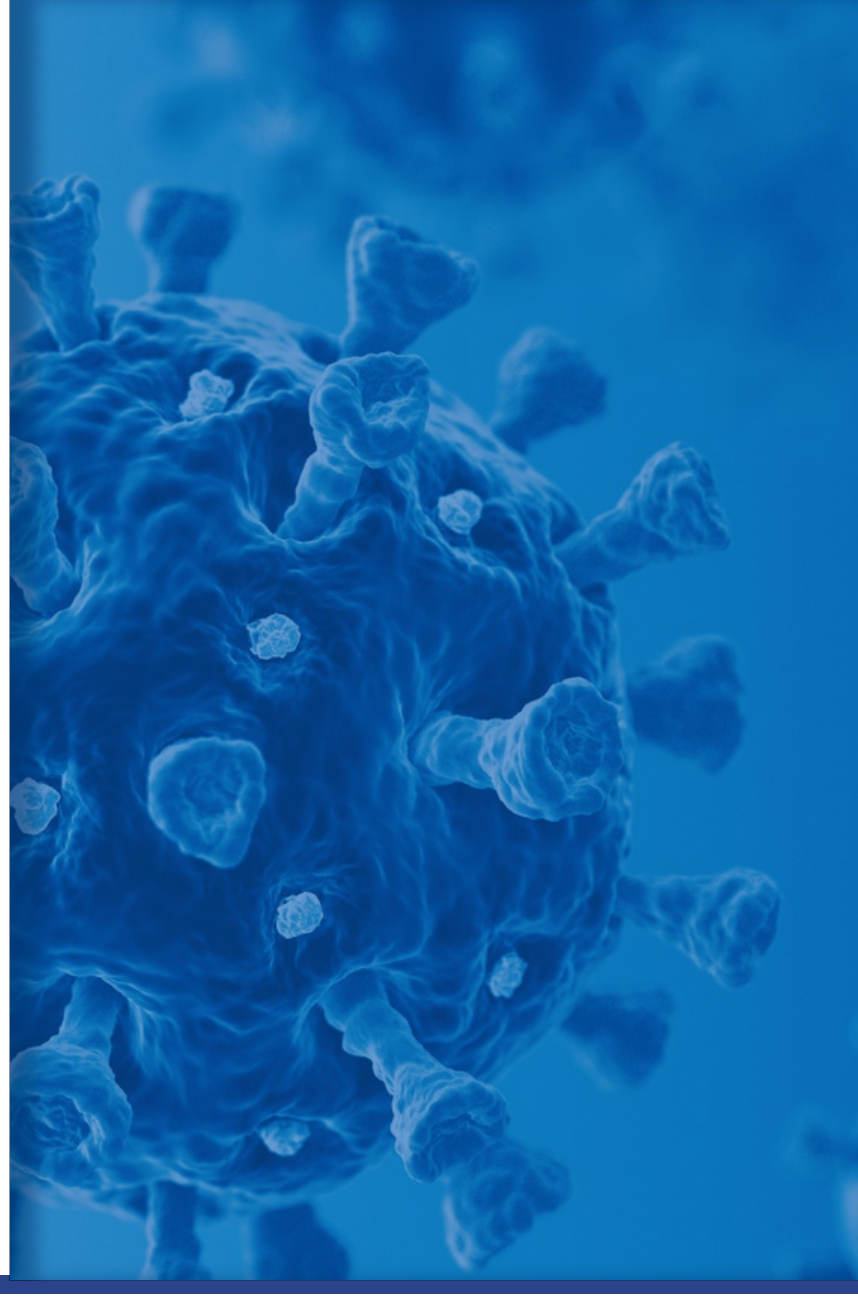
Post-COVID Syndrome Definition

- "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 COVID infection, including by patients who had initial mild or asymptomatic acute infection
- Post-acute sequelae of SARS-CoV-2 infection (PASC)
- Most people recover within 4 weeks, but some individuals continue to have symptoms or develop new or recurrent symptoms



CDC. "Post-COVID Conditions: Information for Healthcare Providers." https://www.cdc.gov/coronavirus/2019-ncov/hcp/clinical-care/post-COVID-conditions.html.

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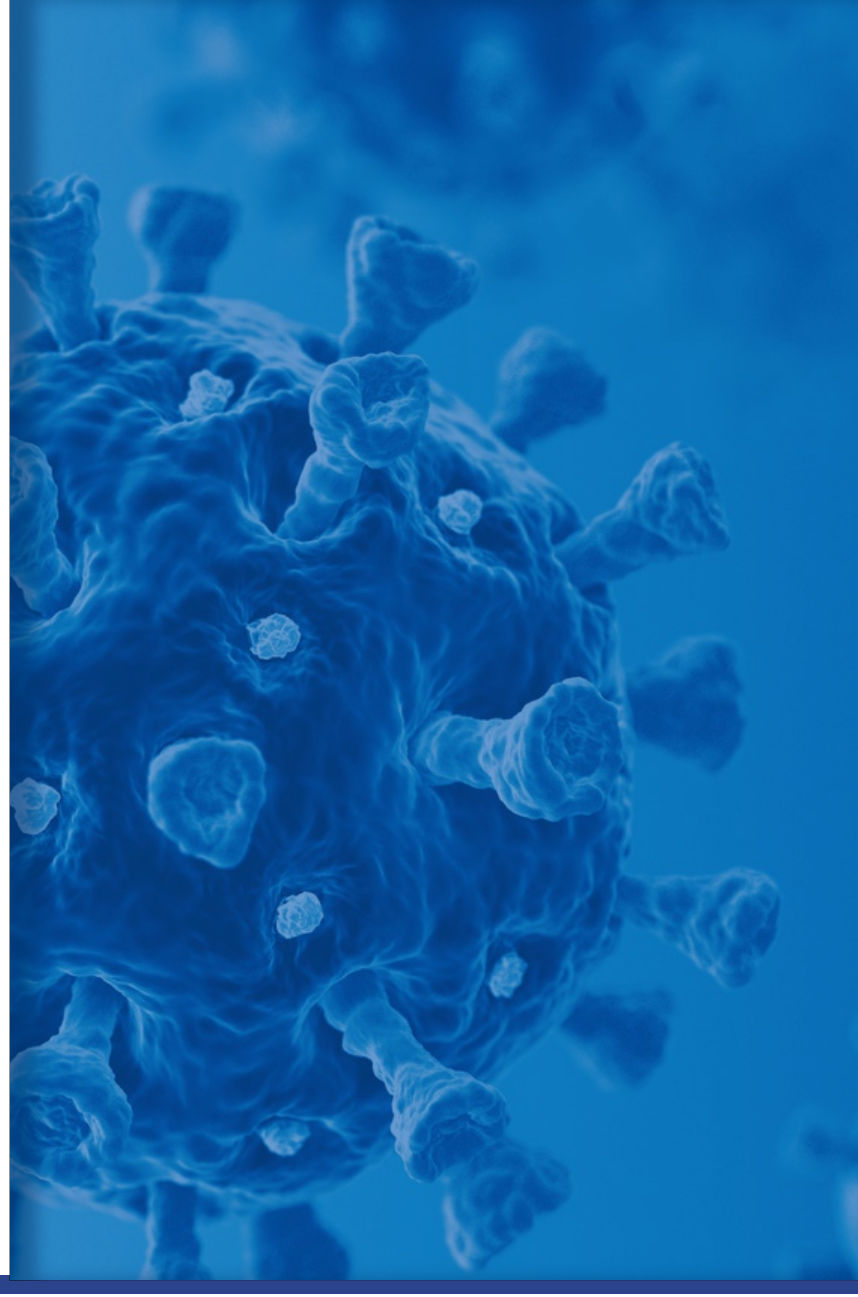
Case

A 51-year-old female presents to her PCP with a complaint of fatigue and headache for 2 months. She was diagnosed with acute COVID 3 months ago and was able to manage symptoms at home during her quarantine. She says she has missed several days of work due to fatigue and has had to stop her exercise program. She has been taking ibuprofen and acetaminophen for her headaches, but they have not been effective.

Labels

- Long COVID
- Post-acute COVID-19
- Long-term effects of COVID
- Post-acute COVID syndrome
- Chronic COVID
- Long-haul COVID
- Late sequelae
- Post-acute sequelae of SARS-CoV-2 infection (PASC)



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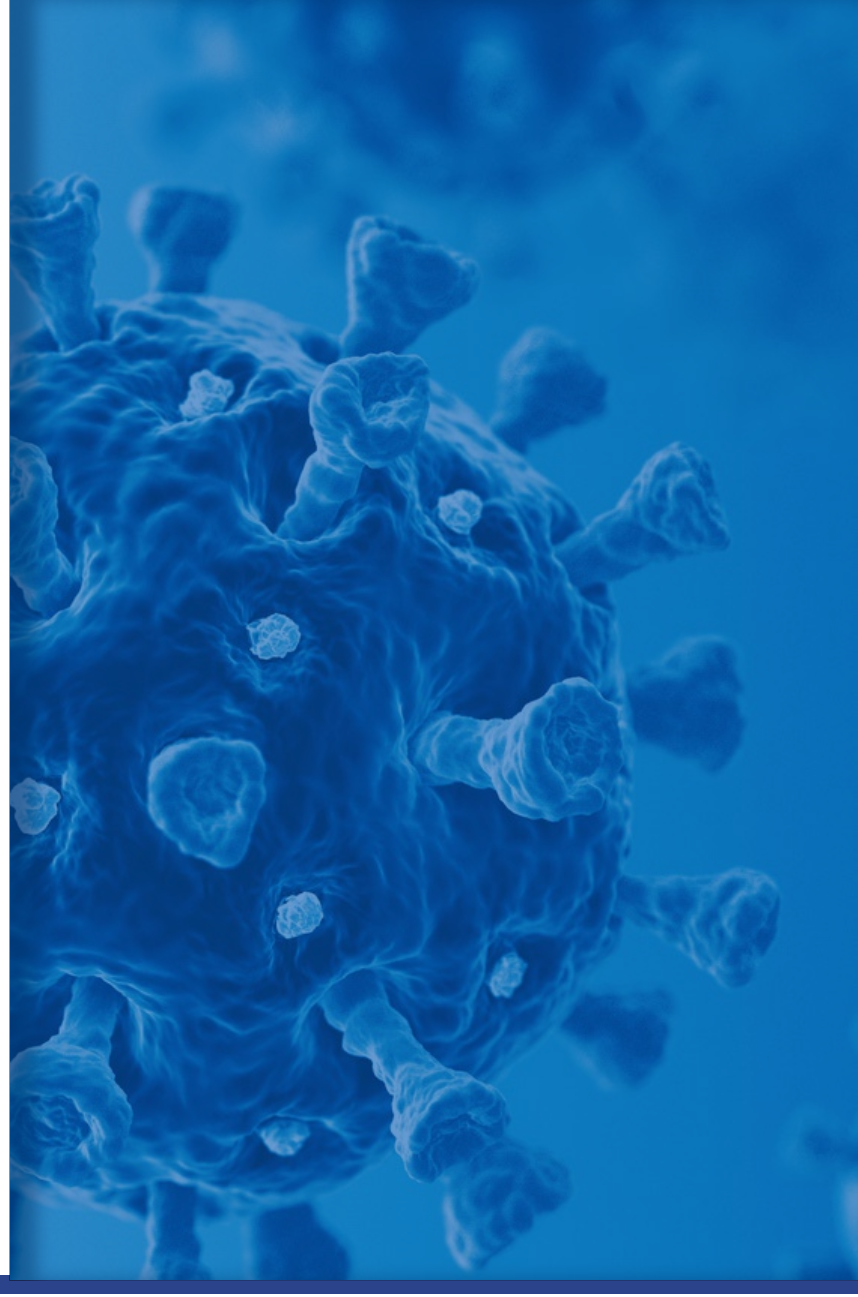
Numbers Affected

- Long COVID has been estimated to have affected 23 million Americans.
- Long COVID can follow both non-severe (i.e., mild, or asymptomatic) or severe acute COVID-19.
- Studies in the U.S. estimate that 10 to 30 percent of COVID-19 survivors develop long COVID.



U.S. Government Accountability Office. (2022). “Science & Tech Spotlight: Long COVID.” Retrieved from: https://www.gao.gov/products/gao-22-105666.

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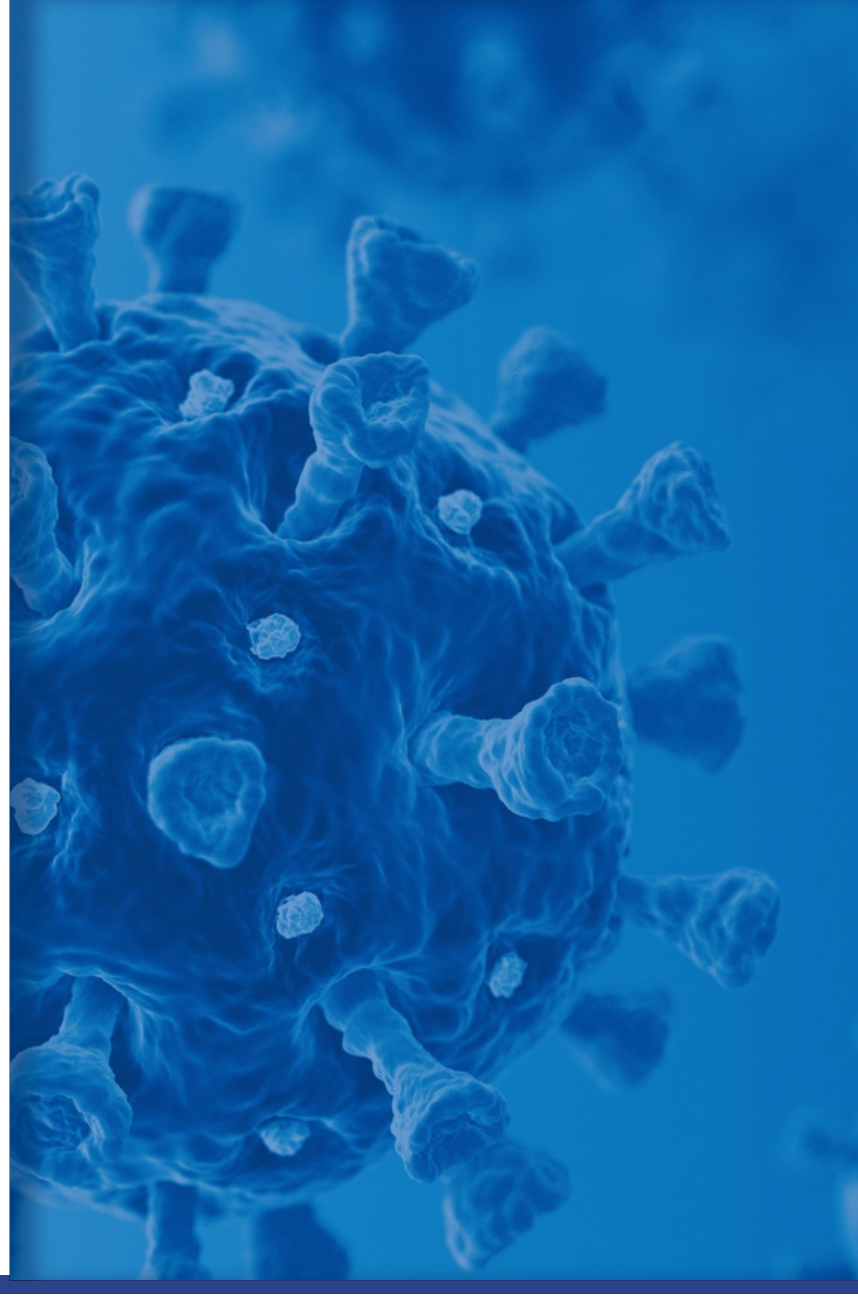
Prevalence Studies

A study of 410 individuals in Geneva, Switzerland, who tested positive for COVID in 2020:

- These individuals were reported to have “mild or moderate acute COVID-19”
- 39.0% reported some symptoms at 7-9 months after COVID diagnosis
- The most common reported symptoms were fatigue, loss of taste or smell, dyspnea, and headache



Nehme M, Braillard O, Chappuis F, Courvoisier DS, Guessous I; CoviCare Study Team. “Prevalence of Symptoms More Than Seven Months After Diagnosis of Symptomatic COVID-19 in an Outpatient Setting.” Ann Intern Med. 2021 Sep;174(9):1252-1260. doi: 10.7326/M21-0878. Epub 2021 Jul 6. PMID: 34224254; PMCID: PMC8280535.

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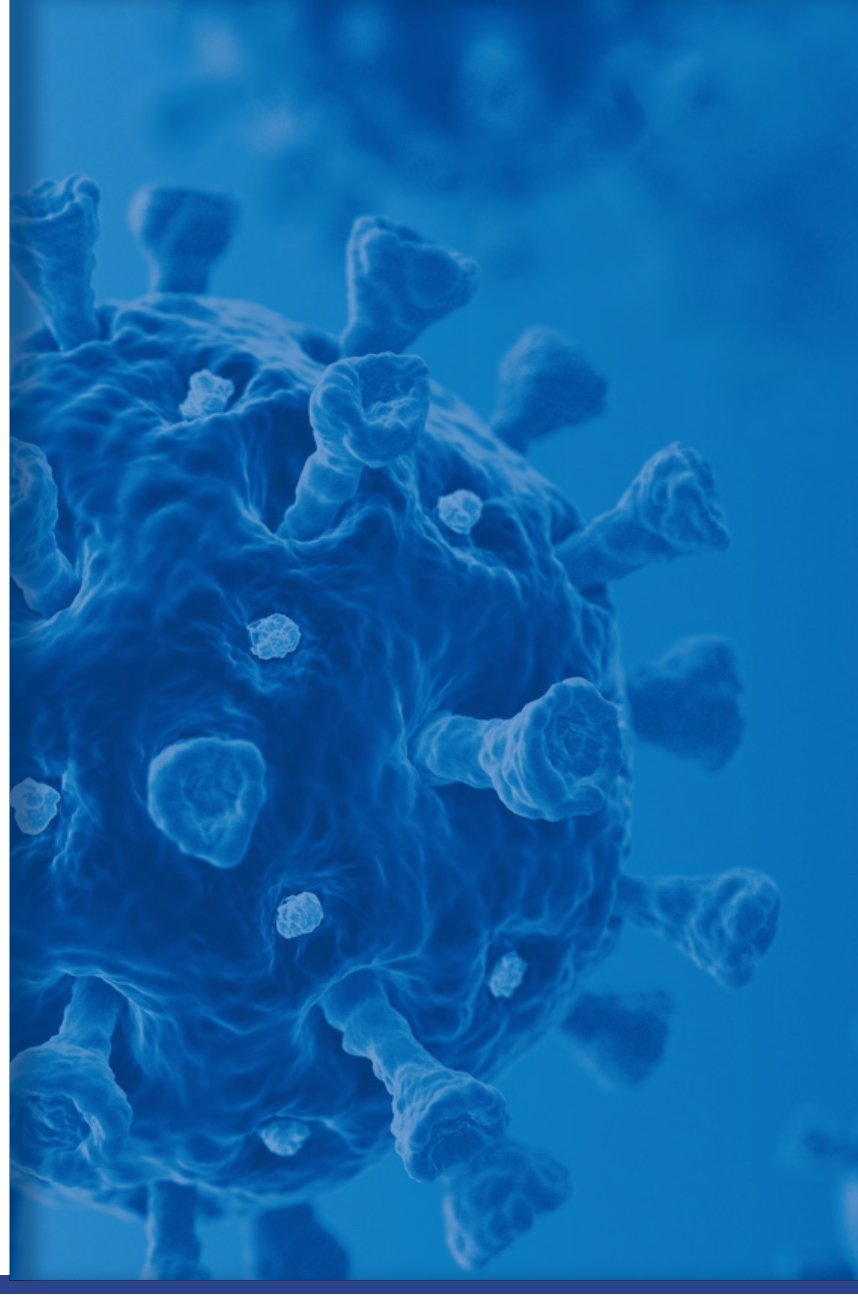
Prevalence Studies (Cont.)

The COVID Symptom Study is a mobile application launched in response to the COVID-19 pandemic.

- Data was analyzed from 4,182 incident cases of COVID-19 in which individuals self-reported their symptoms prospectively in the COVID Symptom Study app
- 13.3% participants reported symptoms lasting ≥28 days, 4.5% for ≥8 weeks and 2.3% for ≥12 weeks
- Long COVID was characterized by symptoms of fatigue, headache, dyspnea, and anosmia and was more likely with increasing age and body mass index and female sex



Sudre, C.H., Murray, B., Varsavsky, T. *et al.* "Attributes and predictors of long COVID." *Nat Med* 27, 626–631 (2021). https://doi.org/10.1038/s41591-021-01292-y.

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Study: Prevalence of Long COVID in Nursing Homes

Matteo Tosato, et. al., “Prevalence and Predictors of Persistence of COVID-19 Symptoms in Older Adults: A Single-Center Study”

Journal of the American Medical Directors Association

2021 Sep;22(9):1840-1844

doi: 10.1016/j.jamda.2021.07.003

Epub 2021 Jul 19. PMID: 34352201; PMCID: PMC8286874

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Nursing Home Prevalence

The Gemelli Against COVID-19 Post-Acute Care (GAC19-PAC) project in Rome, Italy:

- 165 individuals 65 years and older who were hospitalized for COVID
- More than 80% of patients reported persistence of at least one symptom at 90 days after hospital admission
- The most common symptoms were fatigue, dyspnea, joint pain, and cough

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Common Presentation

- Dyspnea
- Fatigue
- Post-exertional malaise
- Cough
- Chest pain
- Headache
- Abdominal pain
- Myalgia
- Diarrhea
- Insomnia
- Fever
- Pain
- Rash
- Mood changes
- Palpitations
- Tachycardia

CDC. “Post-COVID Conditions: Information for Healthcare Providers.” https://www.cdc.gov/coronavirus/2019-ncov/hcp/clinical-care/post-COVID-conditions.html

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Multi-System Manifestations of PASC

Neurologic

- Olfactory deficits
- Gustatory deficits
- Headache
- Cognitive impairment
- Hearing loss/earache/tinnitus
- Retinopathy (possible)

Gastrointestinal

- Loss of appetite
- Acid reflux
- Diarrhea & vomiting
- Abdominal distension & pain
- Possible change in gut microbiome

Pulmonary

- Dyspnea
- Cough
- Pulmonary fibrosis
- Impaired pulmonary function
- Pulmonary hypertension

Cardiac/cardiovascular

- Dyspnea
- Tachycardia/palpitations
- Myocarditis
- Cerebrovascular disease
- Postural tachycardia syndrome (POTS)

Psychiatric/mental health

- Insomnia
- Post-traumatic stress disorder
- Depression, anxiety
- Obsessive compulsive syndromes
- Secondary emotional stress (financial, social isolation)

Other complications

- Chronic fatigue
- Kidney injury/CKD
- Hyperglycemia/diabetes
- Pediatric inflammatory multisystemic syndrome
- Skin rash, Hair loss

Jiang DH, Roy DJ, Gu BJ, Hassett LC, McCoy RG. “Postacute Sequelae of Severe Acute Respiratory Syndrome Coronavirus 2 Infection: A State-of-the-Art Review.” JACC Basic Transl Sci. 2021 Sep-Oct;6(9):796-811. doi: 10.1016/j.jacbts.2021.07.002. Epub 2021 Sep 15. PMID: 34541421; PMCID: PMC8442719.

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Muscle Mass

- A study of 80 COVID survivors between the ages of 59 and 73
- Handgrip strength and vastus lateralis muscle cross-sectional area were evaluated at hospital admission, discharge, and 6 months after discharge
- High muscle loss group showed greater prevalence of fatigue and myalgia
- High muscle loss group demonstrated greater total COVID-19-related health care costs

Gil S, de Oliveira Júnior GN, Sarti FM, Filho WJ, Longobardi I, Turri JAO, Shinjo SK, Ferriolli E, Avelino-Silva TJ, Busse AL, Gualano B, Roschel H. “Acute Muscle Mass Loss Predicts Long-Term Fatigue, Myalgia, and Health Care Costs in COVID-19 Survivors.” J Am Med Dir Assoc. 2023 Jan;24(1):10-16. doi: 10.1016/j.jamda.2022.11.013. Epub 2022 Nov 23. PMID: 36493804; PMCID: PMC9682050.

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Postural Tachycardia Syndrome

- Some individuals may have symptoms of dyspnea, palpitations and chest discomfort in conjunction with orthostatic tachycardia post-COVID
- This combination of symptoms may be a manifestation of postural tachycardia syndrome (POTS)
- This disorder mainly affects women 15-50
- Obviously debilitating due to dizziness or lightheadedness associated with tachycardia upon standing

Jiang DH, Roy DJ, Gu BJ, Hassett LC, McCoy RG. “Postacute Sequelae of Severe Acute Respiratory Syndrome Coronavirus 2 Infection: A State-of-the-Art Review.” JACC Basic Transl Sci. 2021 Sep-Oct;6(9):796-811. doi: 10.1016/j.jacbts.2021.07.002. Epub 2021 Sep 15. PMID: 34541421; PMCID: PMC8442719.

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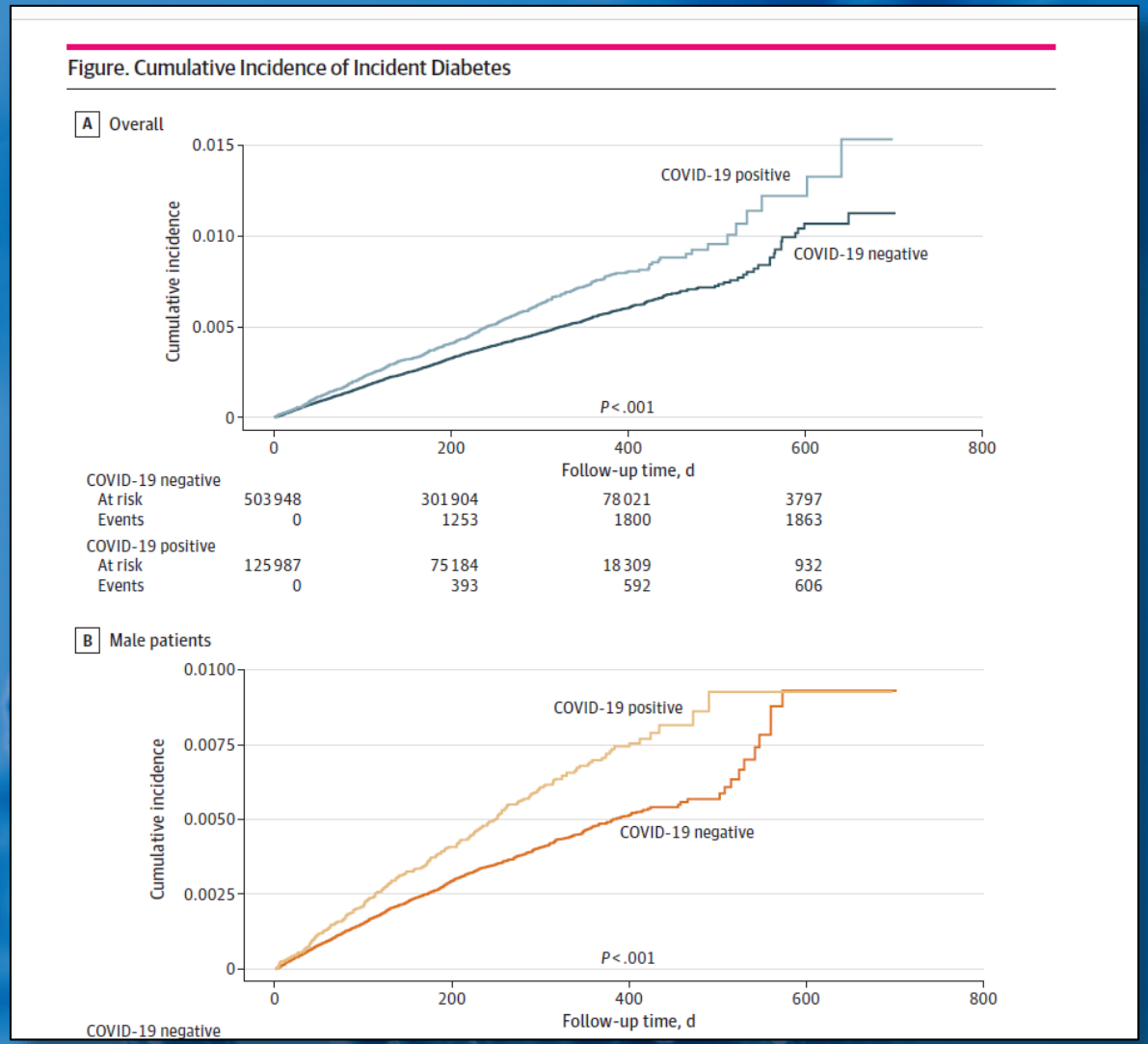
Diabetes Risk

- 125,987 individuals who were COVID positive
- Diabetes cases attributable to SARS-CoV-2 infection was 3.41%
- COVID positive males had a higher incidence of diabetes (4.75%)
- A greater proportion of individuals who were positive were not vaccinated
- “SARS-CoV-2 infection may be associated with a higher burden of diabetes at the population level.”



Naveed Z, Velásquez García HA, Wong S, Wilton J, McKee G, Mahmood B, Binka M, Rasali D, Janjua NZ. “Association of COVID-19 Infection With Incident Diabetes.” JAMA Netw Open. 2023 Apr 3;6(4):e238866. doi: 10.1001/jamanetworkopen.2023.8866. PMID: 37071420; PMCID: PMC10114057.

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Gastrointestinal

- A study utilized the U.S. Department of Veterans Affairs national health care database to build a cohort of 154,068 people with COVID-19.
- After the first 30 days of infection, people with COVID-19 exhibited increased risks and 1-year burdens of incident gastrointestinal disorders.
- Compared to controls, post-COVID patients had increased risk at 1 year of: cholangitis, peptic ulcer disease, pancreatitis, gastritis, and others.
- The risk of developing symptoms increased with COVID severity.

Xu E, Xie Y, Al-Aly Z. “Long-term gastrointestinal outcomes of COVID-19.” Nat Commun. 2023 Mar 7;14(1):983. doi: 10.1038/s41467-023-36223-7. PMID: 36882400; PMCID: PMC9992516.

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Psychiatric

- A meta-analysis of studies around the world showed that the overall prevalence of depression, anxiety, and sleep disturbances among COVID-19 survivors was 45%, 47%, and 34%, respectively.[1]
- A study of 236,379 adults with long COVID 0demonstrated that the estimated incidence of a psychiatric diagnosis after six months was approximately 34%, with approximately 13% receiving their first ever psychiatric diagnosis.
- Researchers concluded, "the psychiatric sequelae of COVID-19 appear widespread and to persist up to, and probably beyond, 6 months."[2]

1.Deng, J., Zhou, F., Hou, W., et al. (2020). "The prevalence of depression, anxiety, and sleep disturbances in COVID-19 patients: a meta-analysis." Annals of the New York Academy of Sciences 2021;1486(1):90-111. Retrieved from: https://doi.org/10.1111/nyas.14506.
2. Taquet, M., Geddes, J.R., Husain, M., Luciano, S., Harrison, P.J. (2021). "6-month neurological and psychiatric outcomes in 236379 survivors of COVID-19: a retrospective cohort study using electronic health records." The Lancet Psychiatry 2021;8(5):416-427. Retrieved from: https://doi.org/10.1016/s2215-0366(21)00084-5.

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COVID's Impact on the Brain

Article published September 22nd in Nature Medicine shared that:

Neurological conditions occurred **7%** more in patients who had been infected with COVID compared to those who had never been infected.

Translating to roughly 6.6 million people who have suffered brain impairments associated with the virus.

Article published August 17th in the Lancet Psychiatry found:

Long COVID patients had an increased risk of cognitive deficit (or brain fog), dementia, psychotic disorders, and epilepsy or seizures compared to other respiratory infections.

Sources: Taquet, et al. Neurological and psychiatric risk trajectories after SARS-CoV-2 infection: an analysis of 2-year retrospective cohort studies including 1 284 437 patients. The Lancet Psychiatry. (2022).; Long-term neurological sequelae of SARS-CoV-2 infection. Nat Med (2022).; COVID-19 infections increase risk of long-term brain problems, Washington University School of Medicine in St. Louis, News Release September 22, 2022

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Possible Cause

- Organ damage resulting from acute phase infection complications from a dysregulated inflammatory state
- Ongoing viral activity associated with an intra-host viral reservoir
- Autoimmunity
- Inadequate antibody response
- Other potential causes

CDC. “Post-COVID Conditions: Information for Healthcare Providers.” https://www.cdc.gov/coronavirus/2019-ncov/hcp/clinical-care/post-COVID-conditions.html.

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Individuals At Risk

- Female Sex
- Older age
- Individuals with pre-existing conditions at time of infection
- Severity of initial infection
- Infection without vaccination

Jiang DH, Roy DJ, Gu BJ, Hassett LC, McCoy RG. “Postacute Sequelae of Severe Acute Respiratory Syndrome Coronavirus 2 Infection: A State-of-the-Art Review.” JACC Basic Transl Sci. 2021 Sep-Oct;6(9):796-811. doi: 10.1016/j.jacbts.2021.07.002. Epub 2021 Sep 15. PMID: 34541421; PMCID: PMC8442719.

Drivers of Increased Susceptibility

Racial and Ethnic Minorities

- Increased risk for exposure and severe manifestation of COVID-19
- Socioeconomic factors prevent proper self-isolation
- Less access to primary & specialty care
- Distrust of medical institutions
- Higher rate of pre-existing conditions
- Multimorbidity

Older Population

- Increased risk for severe COVID-19
- Higher rate of pre-existing conditions
- Multimorbidity

Clinical Complexity

- Pre-existing conditions (obesity, diabetes, heart/lung disease, etc.)
- Multimorbidity
- Severe COVID-19 manifestation
- Prior mental health history
- Women

Rural Residents

- Increased risk for severe COVID-19
- Decreased healthcare infrastructure
- Older population
- Higher rate of pre-existing conditions
- Multimorbidity

Jiang DH, Roy DJ, Gu BJ, Hassett LC, McCoy RG. "Postacute Sequelae of Severe Acute Respiratory Syndrome Coronavirus 2 Infection: A State-of-the-Art Review." JACC Basic Transl Sci. 2021 Sep-Oct;6(9):796-811. doi: 10.1016/j.jacbts.2021.07.002. Epub 2021 Sep 15. PMID: 34541421; PMCID: PMC8442719.

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Case

A 48-year-old female presents to her PCP with fatigue and dyspnea on exertion for the last 4 months. She was diagnosed with acute COVID 5 months ago and required hospitalization due to hypoxia and respiratory failure as her asthma symptoms worsened with the infection. She is a single mother taking care of 4 children and her father who has dementia. She works a physical job and has been unable to work for the last month due to her symptoms. She states that she is “stressed and anxious” due to her current situation.

Economic Impact

- In January 2022, the Brookings Institution conducted a meta-analysis to suggest that long COVID may be responsible for over 1 million workers being out of the labor force at any given time.
- One study of nearly 4,000 long COVID patients found that 45 percent reduced their work hours.
- The Departments of Justice (DOJ) and Health and Human Services (HHS) issued guidance stating that the condition can be a disability under the Americans with Disabilities Act of 1990.

U.S. Government Accountability Office. (2022). “Science & Tech Spotlight: Long COVID.” Retrieved from: https://www.gao.gov/products/gao-22-105666.

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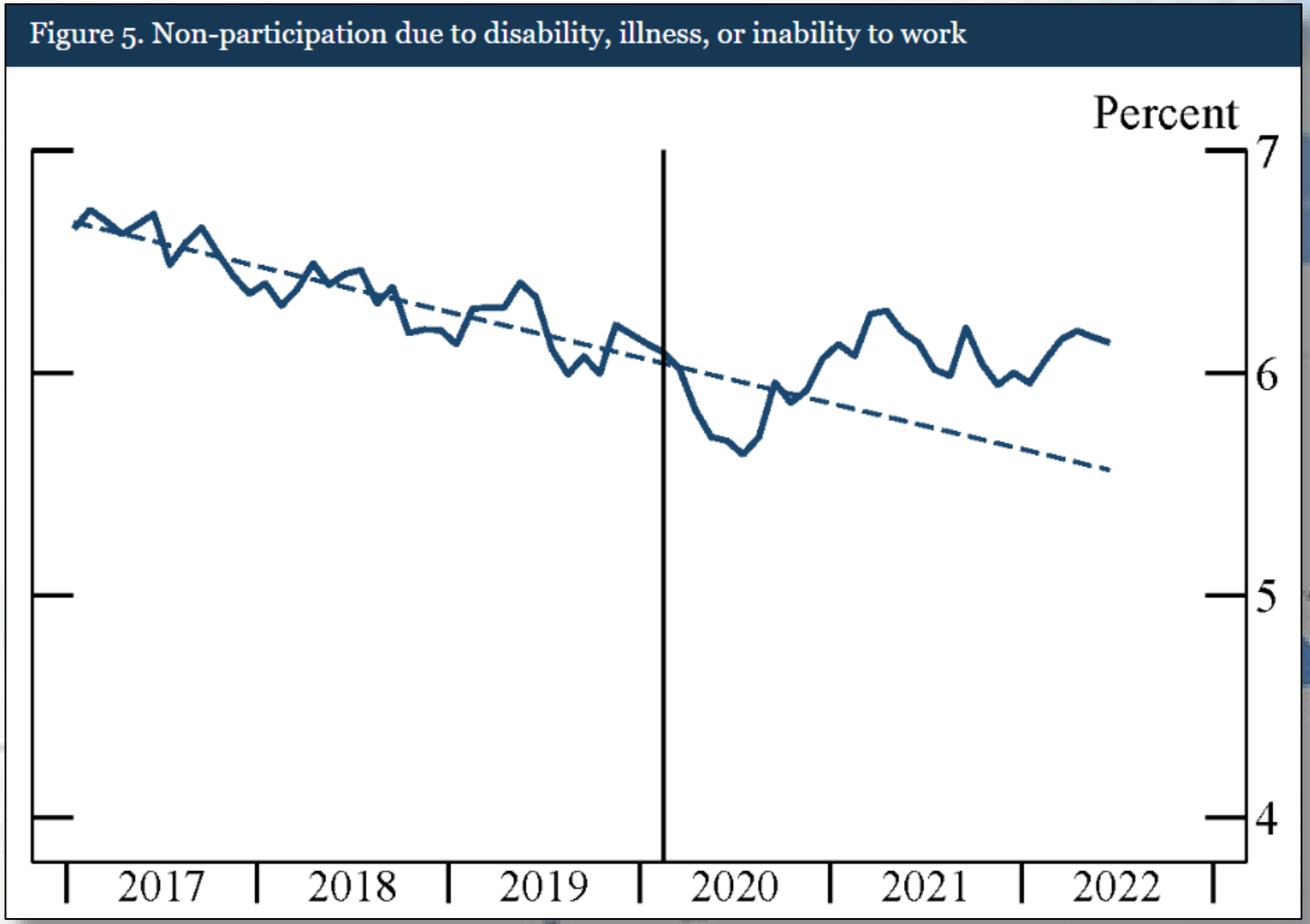
Figure 5. Non-participation due to disability, illness, or inability to work



Price, Brendan M. "Long COVID, Cognitive Impairment, and the Stalled Decline in Disability Rates." *FEDS Notes*. August 5, 2022. https://www.federalreserve.gov/econres/notes/feds-notes/long-COVID-cognitive-impairment-and-the-stalled-decline-in-disability-rates-20220805.html.

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Evaluation: Lab Tests

Category	Laboratory Tests
Blood count, electrolytes, and renal function	Complete blood count with possible iron studies to follow, basic metabolic panel, urinalysis
Liver function	Liver function tests or complete metabolic panel
Inflammatory markers	C-reactive protein, erythrocyte sedimentation rate, ferritin
Thyroid function	TSH and free T4
Vitamin deficiencies	Vitamin D, vitamin B12

CDC. “Post-COVID Conditions: Information for Healthcare Providers.” https://www.cdc.gov/coronavirus/2019-ncov/hcp/clinical-care/post-COVID-conditions.html

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Evaluation: Screening Tools

- Functional Status: Patient-Reported Outcomes Measurement Information System (PROMIS), Post-COVID-19 Functional Status Scale (PCFS), EuroQol-5D (EQ-5D)
- Neurologic: MOCA, MMSE
- Psychiatric conditions: GAD-7, PTSD screening (for ICU, hospitalized), PHQ-9
- Fatigue: Fatigue severity scale
- Other screening to test endurance and balance

CDC. “Post-COVID Conditions: Information for Healthcare Providers.” https://www.cdc.gov/coronavirus/2019-ncov/hcp/clinical-care/post-COVID-conditions.html

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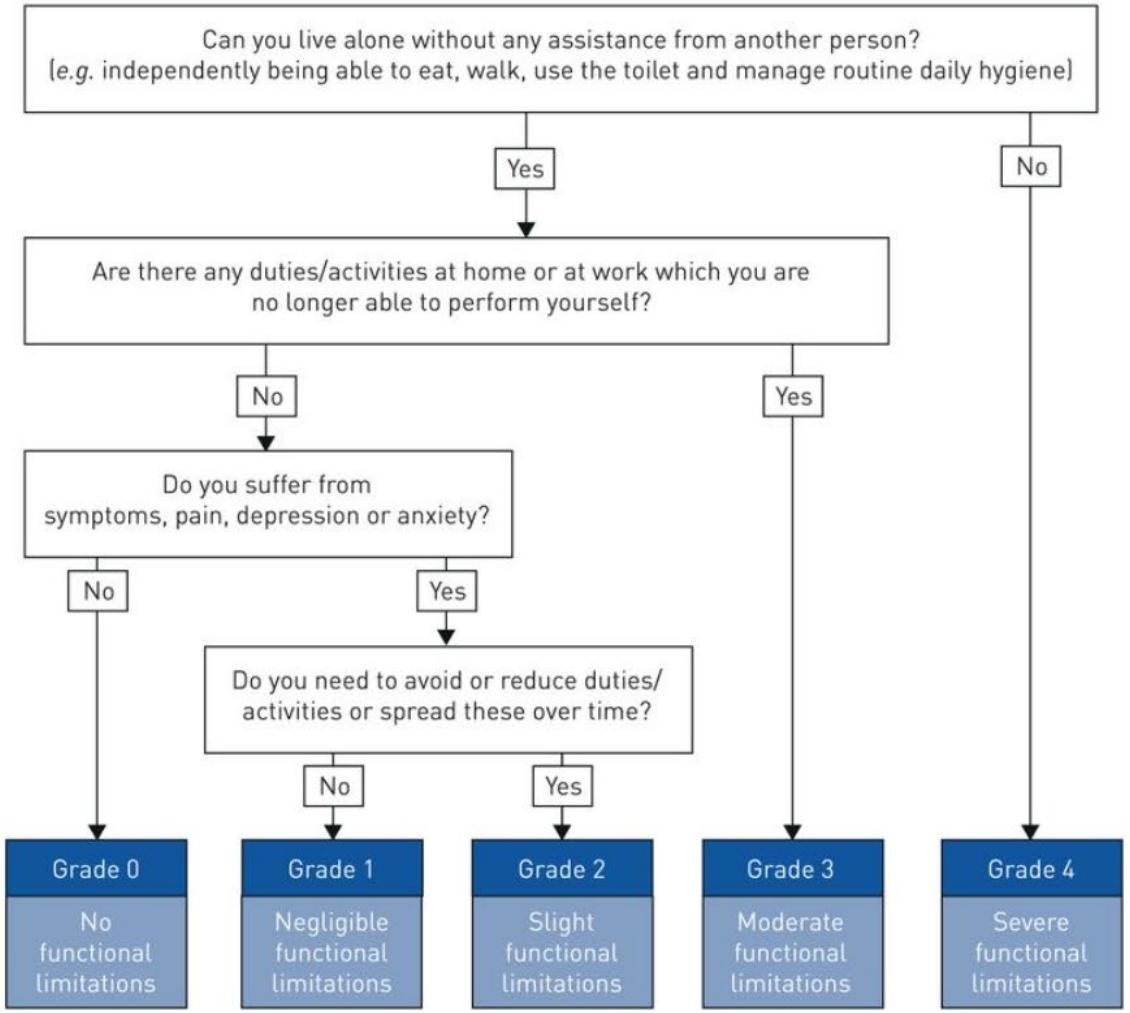
a)



b)

How much are you currently affected in your everyday life by COVID-19? (Please indicate which one of the following statements applies to you most)	Corresponding PCFS scale grade
I have no limitations in my everyday life and no symptoms, pain, depression or anxiety related to the infection.	0
I have negligible limitations in my everyday life as I can perform all usual duties/ activities, although I still have persistent symptoms, pain, depression or anxiety.	1
I suffer from limitations in my everyday life as I occasionally need to avoid or reduce usual duties/activities or need to spread these over time due to symptoms, pain, depression or anxiety. I am, however, able to perform all activities without any assistance.	2
I suffer from limitations in my everyday life as I am not able to perform all usual duties/ activities due to symptoms, pain, depression or anxiety. I am, however, able to take care of myself without any assistance.	3
I suffer from severe limitations in my everyday life: I am not able to take care of myself and therefore I am dependent on nursing care and/or assistance from another person due to symptoms, pain, depression or anxiety.	4

Frederikus A. Klok, et al. “The Post-COVID-19 Functional Status scale: a tool to measure functional status over time after COVID-19.” European Respiratory Journal. erj.ersjournals.com/content/56/1/2001494.

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Treatment

- Treatment should focus on goals of improving function and quality of life.
- Transparency is important and most post-COVID conditions are not well understood and this should be explained to patients.
- Symptoms not explained by objective findings should not be dismissed.
- Use shared decision-making in treatment decisions.

CDC. “Post-COVID Conditions: Information for Healthcare Providers.” https://www.cdc.gov/coronavirus/2019-ncov/hcp/clinical-care/post-COVID-conditions.html

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The SHARE Approach:
A Model for Shared Decision Making

The SHARE Approach is a five-step process for shared decision making that includes exploring and comparing the benefits, harms, and risks of each option through meaningful dialogue about what matters most to the patient.

STEP 1 — **S**eek your patient's participation.

STEP 2 — **H**elp your patient explore & compare treatment options.

STEP 3 — **A**ssess your patient's values and preferences.

STEP 4 — **R**each a decision with your patient.

STEP 5 — **E**valuate your patient's decision.

Shared decision making occurs when a health care provider and a patient work together to make a health care decision that is best for the patient. The optimal decision takes into account evidence-based information about available options, the provider's knowledge and experience, and the patient's values and preferences.

AHRQ Agency for Healthcare Research and Quality

Agency for Healthcare Research and Quality (AHRQ). "The Share Approach: A Model for Shared Decision Making." https://www.ahrq.gov/health-literacy/professional-training/shared-decision/index.html.

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Vaccination

In a study of 812 individuals experiencing long COVID symptoms:

- 72.4% had experienced their symptoms for more than 9 months
- Most patients had mild or moderate symptoms
- 10% of respondents required hospitalization for acute COVID infection
- Symptoms were measured by survey before and after vaccination

Strain WD, Sherwood O, Banerjee A, Van der Togt V, Hishmeh L, Rossman J. "The Impact of COVID Vaccination on Symptoms of Long COVID: An International Survey of People with Lived Experience of Long COVID." *Vaccines*. 2022; 10(5):652. https://doi.org/10.3390/vaccines10050652.

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Change in symptom scores

Improved – 56.7%

- AdV: 56%
- Moderna: 64.3%
- Pfizer: 55.8%

No Change – 24.6%

- AdV: 23.8%
- Moderna: 22.9%
- Pfizer: 26.1%

Worse – 18.7%

- AdV: 20.2%
- Moderna: 12.9%
- Pfizer: 18.1%

56.7% of individuals saw an overall improvement after vaccination.

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A Unique Perspective on Vaccine Hesitancy

In a study total of 11,270,763 individuals examined vaccination status and traffic crashes:

- Unvaccinated individuals had a 72% increased relative risk for traffic crash compared with those vaccinated individuals
- Individual adults who tend to resist public health recommendations might also neglect basic road safety guidelines
- This information is unusual and unexpected, but may be useful for education in some individuals resistant to vaccination

Redelmeier DA, Wang J, Thiruchelvam D. "COVID Vaccine Hesitancy and Risk of a Traffic Crash." Am J Med. 2023 Feb;136(2):153-162.e5. doi: 10.1016/j.amjmed.2022.11.002. Epub 2022 Dec 2. PMID: 36470796; PMCID: PMC9716428.

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Treatment Approach: Cognitive

- If cognitive screening is positive, consider referring to speech language pathologist, occupational therapist, or neuropsychologist
- Treat underlying medical conditions (mood disorders, insomnia, pain)
- Reinforce sleep hygiene techniques
- Review medication regimen and deprescribe as needed
- Once the individuals returns to baseline, encourage regular exercise

American Academy of Physical Medicine and Rehabilitation (AAPMR). “PASC Consensus Guidance.” https://www.aapmr.org/members-publications/COVID-19/pasc-guidance.

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Health Inequities

- Acute COVID-19 is associated with significant racial disparities
- Black, Latinx, American Indian, Alaska Native, Asian, Native Hawaiian and Pacific Islander, and other non-white racial groups in the United States are less likely to have access to testing, more likely to be infected, more likely to be hospitalized, and more likely to have an adverse clinical outcome
- The association between race/ethnicity and health inequity in acute COVID-19 is well established

Berger Z, Altiery DE Jesus V, Assoumou SA, Greenhalgh T. “Long COVID and Health Inequities: The Role of Primary Care.” Milbank Q. 2021 Jun;99(2):519-541. doi: 10.1111/1468-0009.12505. Epub 2021 Mar 30. PMID: 33783907; PMCID: PMC8241274.

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Structural Inequalities

Socioeconomic

- **Neighborhood**
  - Area deprivation
  - Access to healthy food
  - Access to green space, gyms, parks
  - Access to health services
  - Pollution
- **Employment**
  - Transportation
  - Health
  - Food services
- **Housing**
  - Crowding
  - Quality

COVID-19 Susceptibilities

Developmental & Life Course

- **Metabolic conditions**
  - Hypertension
  - Overweight and obesity
  - Cardiovascular diseases
  - Type 2 diabetes
- **Behavioral**
  - Smoking
  - Drinking
  - Drug abuse
- **Stress**

Bentley GR. “Don't blame the BAME: Ethnic and structural inequalities in susceptibilities to COVID-19.” Am J Hum Biol. 2020 Sep;32(5):e23478. doi: 10.1002/ajhb.23478. Epub 2020 Jul 16. PMID: 32677326; PMCID: PMC7404609.

Quality Insights

A Holistic Approach

- Must involve recognition and validation of the individual's experience (symptoms and life experiences)
- Person-focused, comprehensive, continuous and coordinated approach
- In order to develop a successful treatment plan, a provider must understand the barriers that a patient is facing in access to care

Berger Z, Altiery DE Jesus V, Assoumou SA, Greenhalgh T. "Long COVID and Health Inequities: The Role of Primary Care." Milbank Q. 2021 Jun;99(2):519-541. doi: 10.1111/1468-0009.12505. Epub 2021 Mar 30. PMID: 33783907; PMCID: PMC8241274.

Quality Insights

Health Care Workers

- The health care system lost 20% of its workforce during the pandemic.[1]
- A study from the United Kingdom states, “As a proportion of the UK population, prevalence of self-reported long COVID was greatest in people aged 35 to 69 years, females, people living in more deprived areas, those working in health care, social care, or teaching and education.”[2]
- Support is needed for health care workers experiencing long COVID symptoms.

1.Diamond, Frank. “Long COVID Might be Takin a Toll on Health Care Workforce.” *Infection Control Today*. February 9, 2022. https://www.infectioncontroltoday.com/view/long-COVID-might-be-taking-toll-on-health-care-workforce
2. Office for National Statistics. https://www.ons.gov.uk/peoplepopulationandcommunity/healthandsocialcare/conditionsanddiseases/bulletins/prevalenceofongoingsymptomsfollowingcoronavirusCOVID19infectionintheuk/6january202

Quality Insights

Nursing Home Unique Issues

- Post-COVID syndrome symptoms may not be recognized or thought of as other diagnoses
- Many residents may not be able to communicate symptoms
- Lack of resources
- Lack of support from outside services
- Lack of education on post-COVID syndrome

Quality Insights

Case

A 78-year-old female long-term resident of a nursing home is diagnosed with acute COVID during a facility outbreak. Her symptoms are managed in the facility. After her isolation, she is found to have cognitive impairment which is new. Her physician diagnoses her with dementia and orders donepezil. After the addition of the medication she develops decreased appetite and has a weight loss of 18 pounds over 2 months, and she sustains a fall while walking to the bathroom which results in a femur fracture.

Cognitive Bias

- Societal view of stigma and disbelief around the diagnosis impacts providers
- Providers might not take individuals with post-COVID syndrome seriously because routine testing does not provide the diagnosis
- Long COVID "challenges our belief in our institutions, because truly contending with what long-haulers go through means acknowledging how poorly the health-care system treats chronically ill patients, how inaccessible social support is to them, and how many callous indignities they suffer at the hands of even those closest to them. Long COVID is a mirror on our society, and the image it reflects is deeply unflattering."

Yong, Ed. "Long COVID IS Being Erased-Again." *The Atlantic*. 19 April 2023. https://www.theatlantic.com/health/archive/2023/04/long-COVID-symptoms-invisible-disability-chronic-illness/673773.

Quality Insights

Long COVID as a Reflection of Our Health System and Society

- The belief that disability is not “normal” or “expected” so there is a lack of support for individuals experiencing disability
- The individual patient’s story is not taken as valid against objective evidence in testing
- Blaming physical symptoms on “psychological issues”
- The emphasis on work ethic devalues individuals who cannot work due to illness

Yong, Ed. “Long COVID IS Being Erased-Again.” *The Atlantic*. 19 April 2023. https://www.theatlantic.com/health/archive/2023/04/long-COVID-symptoms-invisible-disability-chronic-illness/673773.

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Resources for Patients

- **US Department of Health and Human Services:** https://wecandothis.hhs.gov/resource/resources-about-long-COVID
- **CDC:** https://www.cdc.gov/coronavirus/2019-ncov/long-term-effects/care-post-COVID.html
- **Survivor Corps:** https://www.survivorcorps.com/resources-federal
- **Long COVID SOS:** https://www.longCOVIDsos.org/

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Take-Home Points

- Long COVID syndrome symptoms can present as a number of symptoms affecting several organ systems
- COVID vaccination can help prevent severe and acute COVID symptoms, and it can help mitigate post-COVID syndrome symptoms
- It is important for providers to recognize the role health inequities play in post-COVID syndrome to reduce barriers to care
- A person-centered approach which uses shared decision making is essential in diagnosing and treating individuals who may have post-COVID syndrome

Questions?

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