

CDC/IDSA COVID-19 Clinician Call: Post-COVID Conditions: What's the Latest?

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Q&A

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1. Has the use of monoclonal antibodies altered the post-COVID picture?

I don't know the answer to this and have not seen any data evaluating the effectiveness of monoclonal Ab in the prevalence of post COVID conditions.

2. How long Post COVID19 Syndrome can last?

There are studies that have found symptoms lasting anywhere from weeks to months or longer. The presentation of post-COVID conditions is heterogeneous. There is evidence that some patients may experience symptom improvement or resolution between 4 and 12 weeks, though some patients may continue to have symptoms after that.

3. I've seen one patient complain of dysphagia with difficulty swallowing solid foods post-COVID. Has this been reported in some patients?

A study I led did find dysphagia more commonly in patients following diagnosis with COVID than in a control group: <https://academic.oup.com/cid/advance-article/doi/10.1093/cid/ciab338/6257082>.

I can echo Dr. Chevinsky's findings. In our study examining post-COVID-19 rehabilitation, we've started looking at reasons for referral and this has shown up in multiple patients.

4. Are there known long-covid like syndromes/symptoms with SARS-1 and MERS? If yes, what can we learn from them and if not, what might be the reason this one is different?

There is data on prolonged symptoms among persons with SARS and MERS.

Among 233 SARS survivors 41 months after infection:

- 40% had active psychiatric illness
- 40% reported a chronic fatigue problem
- Among 52 MERS survivors 18 months after infection
- 33% reported clinically significant fatigue

Lam MH, Wing YK, Yu MW, Leung CM, Ma RC, Kong AP, So WY, Fong SY, Lam SP. 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.

Lee SH, Shin HS, Park HY, Kim JL, Lee JJ, Lee H, Won SD, Han W. 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.

There is still a lot to learn about the full spectrum of post COVID conditions. Many of prior post-viral illnesses and post-infectious conditions overlap.

5. Are some of the long -haul symptoms related to unknown effects of drugs that are being used? How can we tease these symptoms from Covid infection, per se?

This is a great question. I have not seen any data about this. Some of CDC's natural history studies are looking at this aspect as predictors of development of long-term symptoms and conditions.

6. Any specific ways to monitor/ follow “brain fog” in patients? Some report subjectively they are “doing better” with time, but some are reporting “worsening brain fog”.

There may be multiple possible ways to monitor/follow brain fog in patients. Our colleagues in ME/CFS have suggested one way may be through using "Patient-Reported Outcomes Measurement Information System (PROMIS) - Cognitive Function 4a." Other options may be the Montreal Cognitive Assessment (MoCA) or Mini Mental Status Examination (MMSE).

7. Any evaluation/ management tips for “brain fog”?

The pending interim guidance does discuss possible evaluation and management tips. A possible evaluation may include specific assessment tools (e.g., MMSE among others) and management may include components of neurological rehabilitation.

8. Any information about memory loss?

We are starting to see some data on this in our rehabilitation studies; however, it's very limited at present.

9. Is the long COVID another form of aberrant immune response as we see in many other presentations and evolution of acute COVID?

Post-COVID conditions are heterogenous and may be attributable to different underlying pathophysiologic processes. Efforts are underway to characterize and differentiate the multiple possible etiologies (for example, organ damage resulting from acute phase infection, complications from a persistent hyperinflammatory state, ongoing viral activity associated with an intra-host viral reservoir, inadequate antibody response, and other potential causes).

10. Any comparison to symptoms post severe flu years?

Taquet M, Geddes J, Husain M, Luciano S, Harrison P. 6-month neurological and psychiatric outcomes in 236 379 survivors of COVID-19: a retrospective cohort study using electronic health records. Lancet Psychiatry. 2021, April 6.

This study looks at incidence of neurological and psychiatric symptoms and found a higher incidence among COVID-19 patients relative to influenza and other respiratory viruses. I am not sure if they adjusted for severity of infection, but it is a good starting point.

- 11. From Mike Oxman to Mike Saag: Mike, were your auditory symptoms, and those of your friend who committed suicide, correlated with small vascular lesions? Such lesions have been observed by imaging and in autopsy studies in the CNS, Lung, Heart, and every other organ and tissue examined in other patients infected with SARS-CoV-2. With best regards!!**

Hi Mike: My symptoms were exacerbation of initial (older age) hearing loss I was beginning to experience pre-COVID. It got much worse. Tinnitus was not a component. My high school classmate had (mostly) isolated tinnitus...I did not talk with him about it; just heard about his symptoms after he died. Agree, small vessel disease makes sense. The question is why / how it happens and whether interventions can change severity of symptoms and long-term outcomes

- 12. Any data on persistent hypoxemia, dyspnea, and persistent chest CT abnormalities?**

We are underway with two studies that will address these; 1) a longitudinal study of patients in rehabilitation programs that will look at time to event from acute COVID-19 infection to referral and symptom resolution; 2) we also have a retrospective study that will be a deep dive into chart abstraction of this patient population with a strong focus on symptomatology and duration.

- 13. Were these Covid patients with physical and mental difficulties the ones who has required hospitalization for Covid infection?**

This is a limitation of this study. However, we are already underway with a longitudinal study that will account for this. Once published we will share with IDSA for dissemination.

- 14. These comparisons with cancer rehab patients are fascinating. Can you please provide more details on the types of cancer patients in your study?**

Dr. Marty, thank you so much. Here is a short breakdown of the most common overarching ICD-10 codes:

Neoplasms (C-Codes, D-Codes, I89.0, I97.2) 2,767 (100%)

Malignant neoplasms (C-Codes) 2,146

In situ, benign, uncertain and unspecified nature neoplasms (D-Codes) 161

Lymphedema, not elsewhere classified (I89.0) 320

Postmastectomy lymphedema syndrome (I97.2) 140

Our longitudinal study will characterize both patients as well as look at rehabilitation outcomes and differences among the groups.

- 15. How frequent and how long can blood clotting problems persist with long-covid how frequent and how long can blood clotting problems persist with long-covid?**

I do not know the answer to that but in this study - <https://pubmed.ncbi.nlm.nih.gov/33909072/> - led by Dr. Chevinsky, pulmonary embolism occurred among SARS-CoV-2 positive patients up to 60 days after diagnosis.

16. Do you have pediatric long-covid patients too?

I cannot speak to care for children with long COVID but there is some data emerging regarding persistence of symptoms among children. The most comprehensive one can be found here (pre-print): <https://www.medrxiv.org/content/10.1101/2021.04.26.21256110v1>.

17. Please discuss post-covid symptoms in pediatric patients.

Evidence suggests that post-COVID conditions occur in children and adolescents, see the following studies:

Buonsenso D, Munblit D, De Rose C, et al. Preliminary evidence on long COVID in children. Acta Paediatr. 2021 Apr

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.

Osmanov I, Spiridonova E, Bobkova P, et al. Risk factors for long covid in previously hospitalized children using the ISARIC Global follow-up protocol: A prospective cohort study. Accessed at: <https://www.medrxiv.org/content/10.1101/2021.04.26.21256110v1>.

18. For post COVID conditions we need to create multispecialty hub/centers, what is your opinion about?

This is a strong, key point. Patients with Post-COVID Conditions (PCC) will likely need care from multiple specialties, not limited to primary care coordination, pulmonary, cardiology, and more. A multi-specialized hub would be helpful for clinical management and models like the ECHO model would be a significant gain for healthcare systems.

19. Is there a consideration of a perception bias towards the “famous” disease? Particularly regarding “not specific” symptoms after asymptomatic or mild COVID.

This is a good point. I think that is why studies that include controls who were not infected with SARS-CoV-2 should be crucial. The CDC has several cohorts, electronic health record studies, and patients' surveys that include these controls. This will help better understand which symptoms and conditions are truly related to SARS-CoV-2 infection.

20. Dr. Saag: You have had a hard time recovering and I am not aware you were hospitalized. What should we expect from those with mild symptoms and did not need monoclonals or hospitalization? Is it predictable? Also, is there information about sequelae from those who had long term symptoms of COVID-19 from an infection acquired after vaccination?

Hi Rick. I was not hospitalized...but was concerned nightly about having to go to the hospital (!). O2 sats would drop to ~ 89% but I was able to hold tight until the next morning. Monoclonals work extremely well...esp. if given in the first 3-5 days. It was not available to me in Mar 2020.

21. How will post-COVID conditions be classified and added to public health reporting? Thank you for sharing these important findings and recommendations.

This is a question that really must be addressed in case definitions for myriad of reasons.

22. You noted that non-Hispanic black adults are at higher risk...what do we know about Hispanics and long COVID?

Excellent question. Unfortunately, most studies have not had diverse samples with regards to race/ethnicity. Some of the projects we are working on at CDC will examine disparities in PASC among different race/ethnic groups.

23. Could you speak to the presence of post-exertional malaise and how to manage it?

This was a VERY common occurrence in our PCC patients presenting for rehabilitation. I'll defer to colleagues on recommendations of clinical management. We expect to have more results in the near future about what specific characteristics of patients or program predict better outcomes in patients.

24. Is insurance paying for post-covid rehab?

In this network, we did find that the payment mechanism was overwhelming insurance, be it federally funded, commercial, and in some cases, workers compensation insurance.

25. So sorry you went through it. I was curious if long term covid occurs in those who were not hospitalized or developed Covid after vaccination.

YES! Definitely. In fact, I suspect Long-COVID is more common in non-hospitalized folks.

26. It seems you were sick enough to get monoclonals (if they had been available) and possibly admitted at least for observation due to the low O2 sats.

Yes. I definitely would have been first in line for the MC Ab Rx!!! I attend in our MC Ab clinic...1000 Rx folks...very few hospitalized.