CDC/IDSA COVID-19 Clinician Call

Outpatient Therapeutics: Addressing Operational Barriers to Delivery & Access; Plus Omicron Update

February 5, 2022

Q&A

Below the Q&A transcript from the February 5, 2022, Clinician Call. The views and opinions expressed here are those of the presenters and do not necessarily reflect the official policy or position of the CDC or IDSA. Involvement of CDC and IDSA should not be viewed as endorsement of any entity or individual involved.

1. **Are throat swab specimens more sensitive than nasal or N/P for in office molecular testing?**

   Omicron replicates better in the posterior o/p. Due to this many swab the o/p followed by the nares. (Dr. Heath)

2. **Should anterior nares only be replaced with OP+AN? Any data on differences in sensitivity?**

   From local experience with home antigen testing, yes, throat swab then nares (same swab ok) seem to increase yield, especially earlier in disease (within first 2 days or so). (Dr. McCreary)

3. **With same swab? We can only use one**

   Same swab (Dr. Heath)

4. **For immunocompromised patients, is there evidence or experience with using remdesivir beyond the typical 7-10 days of symptom onset for progressive pulmonary infiltrate and hypoxia on the basis of ongoing viral replication? Any role for using a rapid antigen test or CT to arrive at such decisions?**

   At our center, we rarely initiate remdesivir for immunocompromised patients presenting beyond 7-10 days from onset of symptoms, given the limited evidence to support benefit. Some case reports suggest that remdesivir may shorten duration of viral shedding or alleviate symptoms in immunocompromised patients with prolonged COVID course or persistently positive PCR. Therefore, we have occasionally used remdesivir beyond 10 days of symptom onset for such patients. However, I am not aware of large-scale trials on this approach. Additionally, at least one preprint abstract has reported development of remdesivir resistance in an immunocompromised patient with severe B cell deficiency, suggesting that judicious use of antivirals may be warranted in this population.

   References:

   Helleberg M, et al. Persistent COVID-19 in an Immunocompromised Patient Temporarily Responsive to Two Courses of Remdesivir Therapy. J Infect Dis. 2020 Sep 1;222(7):1103-1107.

   Baang JH, et al. Prolonged Severe Acute Respiratory Syndrome Coro. (Dr. McCort)

5. **Does anyone have a workflow that includes covid vaccination after illness has resolved?**

   Vaccination is typical recommended after symptom resolution or 1 month post infection. Only receipt of mAb would change that. In that case- wait 90 days as the mAb will circulate for 90 days and then wane. Recommendation is to get vaccinated after mAb wanes ~ after 90 days. (Dr. Heath)

   Attendee: Details available in the section "COVID-19 vaccination and SARS-CoV-2 infection" of the CDC website: https://www.cdc.gov/vaccines/covid-19/clinical-considerations/covid-19-vaccines-us.html

6. **Is there any data that shows mortality rates after booster shots?**

   Data from the UK highlight that the booster shot significantly decreases risk of hospitalization. Vaccine Efficacy 88%. See this link: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1044481/Technical-Briefing-31-Dec-2021-Omicron_severity_update.pdf (Dr. Overton)

7. **At yesterday's CDC ACIP meeting, there was discussion about increasing interval between the first and second shots in the primary series. How does Omicron fit into this data? If someone got the primary series at 3 to 4 weeks interval, is there any extrapolation on how they might time the booster in order to optimize protection and minimize the AE of myocarditis? Is there anything that might be extrapolated or surmised in regard to effects of timing of booster to be 8 mos. instead of 5, for example?**

   We hope to bring discussion of vaccine dosing and intervals for immune compromised and the general population to a vaccine-focused call in the near future, once CDC has come out with additional guidance. (Dana Wollins)

8. **Is the 5 day quarantine period enough for omicron?**

   In my experience, it is enough for individuals with normal immune function whose fever and symptoms have resolved. Ideally, a negative Ag test would confirm that the person is not shedding virus although that is not always practical. If a person is having ongoing symptoms, then I extend their period of isolation as they often have a reactive Ag test. (Dr. Overton)

9. **Are the deaths exclusively in unvaccinated or partially vaccinated (boosted/unboosted)?**

   In our hospital, ICU patients tend to fall into 2 categories: unvaccinated persons with high risk comorbidities and immunocompromised persons with 2 doses of vaccine or less. (Dr. Overton)

10. **How does Omicron severity compare to ancestral strain among unvaccinated or immune naive?**

    Well, the notion that the Omicron variant causes mild disease is very misleading. While vaccinated and boosted individuals have a significantly reduced risk for hospitalization, the disease manifestations are not truly “mild." Many people experience a pretty significant head cold with fevers for 4-5 days. Sore throat and GI symptoms are common. Maintaining hydration status for many patients is challenging with the sore through and N/V/D. (Dr. Overton)

11. **Are Alpha, Beta and Delta variants dying?**

    The current variant has out competed the prior variants- so Omicron now represents nearly 100% of the circulating virus. (Dr. Heath)

12. **For omicron patients: how many were vaccinated or had Covid prior? was it that the host is now more stronger or is it that the virus is weaker?**

    Data from South Africa where prior infection rates were extremely high (with delta virus) demonstrate little protection against infection with Omicron in unvaccinated. Even though there is a decline in vaccine efficacy with Omicron, it is still 70% vaccine efficacy against hospitalizations even after adjusting for prior infection. See the following paper:

    Collie, S., Champion, J., Moultrie, H., Bekker, L.-G., & Gray, G. (2021). Effectiveness of BNT162b2 Vaccine against Omicron Variant in South Africa. New England Journal of Medicine. https://doi.org/10.1056/NEJMc2119270 (Dr. Overton)

13. **As Omicron is overall milder and already dominant, are booster vaccines still warranted? Do we need individualized vaccination strategy instead?**

    Booster vaccination is critical. Data from UK, South Africa, and Denmark all highlight the VE of a booster vaccine. (Dr. Overton)

14. **Why Omicron variant has less severity than Beta and Delta variants? Because of much of vaccination?**

    Less replication in the lung resulting in less inflammation in the lung likely drives much of the difference in the clinical presentation and severity. Certainly vaccination and immunity also contribute to that. (Dr. Heath)

15. **If only 20% of those admitted with COVID required Oxygen, what were they admitted for?**

    At our hospital, about 45% of hospitalized COVID patients were admitted for another reason and identified incidentally as we test all patients who are admitted. The rate is extremely high among patients admitted for trauma. (Dr. Overton)

16. **'@McClung, slide 4. How did clinical outcomes vary by vaccination and prior infection status?**

    Data from Denmark: 31% reinfection rates with Omicron but marked reduction in boosted people: Take home message: Get 3 doses to prevent reinfection; previous infection failed to protect!
    See this:
    Lyngse, F. P., Mortensen, L. H., Denwood, M. J., Christiansen, L. E., Møller, C. H., Skov, R. L., Spiess, K., Fomsgaard, A., Lassauniere, R., Rasmussen, M., Stegger, M., Nielsen, C., Sieber, R. N., Cohen, A. S., Møller, F. T., Overvad, M., Mølbak, K., Krause, T. G., & Kirkeby, C. T. (2021). SARS-CoV-2 Omicron VOC Transmission in Danish Households. MedRxiv, 2021.12.27.21268278. https://doi.org/10.1101/2021.12.27.21268278 (Dr. Overton)

17. **If BA.2 household transmission rate is still rising at day 7, should duration of isolation of 5 days be reconsidered?**
    Good question. Transmission to those household contacts who tested positive by day seven likely occurred in the first few days of illness, given the median incubation period for Omicron has been reported at 3-4 days. The authors did not report SAR beyond 7 days which would be needed to get insight into transmission on day 5 and beyond.

18. **Are CME's offered with these webinars?**

    Not at this time. (Dana Wollins)

19. **Any data on reinfection with BA.2 after being infected with BA.1?**

    None yet! It's an important question, and we hope to learn more about it in the coming weeks, will likely come from countries that have already seen high levels of BA.1 and BA.2 transmission.

20. **We have found that PCR and rapid testing are turning positive later than with other variants - sometimes 4 or 5 days post onset of symptoms - or they test negative throughout their illness. With the late flip of the test to positive, we sometimes have difficulty qualifying patients into therapy where a positive test result is required. Has there been discussion regarding allowing high risk symptomatic patients with a documented exposure risk the ability to receive therapy such as orals or remdesivir?**

    The wide availability of Ag tests has led to many people testing too early after exposure and gaining a false sense of security based on a negative Ag test when they are asymptomatic. Patient need to retest when symptoms emerge and also consider deferring testing till day 3 after exposure rather than on the day of exposure. (Dr. Overton)

    Attendee Reply: Thank you very much for this information. My question was meant to address those who flipped their test positive late into their symptomatic illness, or never test positive despite symptoms and a clear exposure.

    Attendee Reply: We too have seen cases of patients (from families where "everyone got sick) whose SARS-CoV 2PCR did not turn positive or turned positive AFTER they recovered. I don't know why.

    Attendee Reply: Thank you for this validation - we have identified this even with our staff administered testing, so we feel comfortable with the testing procedure. This has led to frustration with inability to provide access to high-risk patients who clearly have Covid, but who test negative. Hopefully this access issue will be addressed.

21. **Where are we with shot number 4 (or booster 2) with otherwise healthy over 65 y/o? Thanks.**

    We hope to address this on a future call. (Dana Wollins)

22. **What's your recommendation on testing after 10 days of isolation to be released from isolation?**

    For persons with intact immune systems who are greater than 10 days out from symptoms onset, I do not recommend testing. PCR may remain negative for an extended period of time. The Ag test is useful if available between day 5-7 to confirm that a person is no longer shedding infectious virus. (Turner Overton)

    Attendee Reply: You must mean may remain positive

23. **CAN YOU CLARIFY THE SUBLINEAGE BA.3 THAT YOU MENTIONED IN ONE SLIDE. HOW IS DIFFERENT TO BA2, BA1. did IT HAVE GEN S DROPOUT AS ba1?**

    BA.1 and BA.3 have S gene target failure, but not BA.2

24. **Impact of anti-Covid meds on pregnancy and fetus and newborn?**

    Monoclonal antibodies are safe and well tolerated. Paxlovid is also endorsed by ACOG. Many centers have safely given remdesivir as well (Dr. Nori)

25. **Also, at the meeting yesterday, it was mentioned that 9 percent of those patients with myocarditis after mRNA vaccination had asthma among their previous medical history. Asthma was mentioned at last IDSA clinical call aa risk factor COVID if considered moderate. Has there been anything more substantive in terms of a link with asthma and myocarditis post vaccination?**

    We hope to bring discussion of vaccine in high risk and the general population to a vaccine-focused call in the near future, once CDC has come out with additional guidance. (Dana Wollins)

26. **'@Dr.Wiley - Thank you so much for your excellent presentation! Have bioethicists played a role in the process development for use of therapies such as Evusheld?**

    At Grady we have a similar prioritization protocol but not a lottery - we dud include our ethicist. (Dr. Kandiah)

27. **Dr. Wiley, are you checking antibodies for every patient who otherwise qualifies for Evusheld? Which antibody assay are you using? Is the decision to administer based on the results of the antibody test? Thank you!**

    Yes, given our very limited supply, we are recommending COVID-19 antibody testing. We use the RBD spike protein. Yes, the decision to place patients in the lottery is based on these results. This may change based on supply. (Dr. Wiley)

28. **Dr. Wiley, you mentioned about antibody testing before Evusheld . Can you elaborate on that? Which antibody you measure and which lab you use? How do you interpret the results?**

    We measure the RBD spike protein COVID-19 antibody test. The results are interpreted as positive or negative (we are not looking at particular levels). I do not know the exact platform, but reaching out to some of my lab colleagues. (Dr. Wiley)

29. **68yr/F BreastCA(HER2+, BRCAneg, ER/PRneg)currently being treated q3weeks with 2 HER2 targeted infusions (recently completed Chemo,Surg,&6weeks daily Radiation) also w/ Typ2 DM on multiple meds, also obesity: is she a Candidate for Evusheld (she had 2 dose Moderna, plus Moderna booster Oct2021)**

    Good question! I will talk more about expected vaccine response among cancer patients, but any patient who is "moderately to severely immunocompromised" does meet criteria for Evusheld - https://www.covid19treatmentguidelines.nih.gov/overview/prevention-of-sars-cov-2/

    However, due to limited supply, most institutions have developed local criteria or lottery systems to triage doses. A good first step might be to see if she has detectable spike IgG at this time. (Dr. McCort)

30. **Any adverse side effects, especially cardiac complications, with Evusheld so far? Do you include patients with extensive cardiac disease?**

    In the PROVENT trial, it was reported that "Rare, serious cardiac adverse events occurred in 0.6% of participants in the tixagevimab plus cilgavimab arm and in 0.2% of participants in the placebo arm. All participants who experienced a cardiac event had cardiac risk factors or a history of cardiac disease at baseline."

    In the STORM CHASER trial, which looked at Evusheld for post-exposure prophylaxis, they reported no serious adverse cardiac events.

    We have not seen any cardiac complications among our patients. The EUA states that providers should counsel patients with cardiac disease on the results of the Provent trial regarding increased risk of cardiac events from Evusheld compared to placebo. (Dr. McCort)

    Reference: https://www.fda.gov/media/154701/download

31. **Why high mortality in USA?**

    Because we have low vaccination rates. Also, emergency rooms are overwhelmed and unable to triage patients effectively. (Dr. Overton)

32. **Is there a site to learn about progress towards nasal boosters and/or prophylactic nasal sprays, given we are already at at least 3 im injections for covid?**

    https://www.nytimes.com/2022/02/02/health/covid-vaccine-nasal.html (Dr. Nori)

33. **Any updated data on "converting" those who are vaccine hesitant? (e.g., time needed, discussion points that are most effective, conversion rates)**

    There are different types of vaccine hesitancy: watchful patients who are waiting to see what is coming; cost-anxious people who are interested in vaccine but don't have time or fear the cost/side effects of vaccine; system distrusters who are uncomfortable with medical system, and true skeptics who don't believe covid is a threat. The top two groups can be encouraged to get vaccinated. The latter two groups will require significant resources to convince to receive vaccination. We should focus our efforts on the first two groups. (Dr. Overton)

34. **If a patient gets Evusheld and then gets COVID, would they be able to get Sotrovimab?**

    Yes, they should get either sotrov or paxlovid given how high risk they are. (Dr. Nori)

35. **Can you address the timing intervals for COVID vaccines and Evusheld and how to manage? How long after a COVID vaccine can a patient get Evusheld and how long after the Evusheld should they wait to receive a dose/booster? Are there any other vaccines that should be timed differently around Evusheld?**

    CDC/ACIP currently recommending Evusheld 2 weeks after vaccine. (Dr. Nori)

36. **Can IDSA/CDC consider making these (and prior) updates CME eligible? I have been participating for nearly 2 years...CME credits would be of value. Happy to take a quiz, etc. to quality. Thanks for considering.**

    Thanks very much for this input. We will take this suggestion forward for consideration. (Dana Wollins)

37. **'@Dr.Kandiah - Superb talk, thank you! Your clinical decision support efforts are truly impressive! Have you considered sharing your CDS solutions, particularly the tools you've built into Epic, with other medical centers around the country?**

    I would be happy to do that. Please feel free to email me skandia@emory.edu if you are interested and I'm happy to share screen shots. (Dr. Kandiah)

38. **Can we trust apple watch O2 sat measurement? Has anyone tried to compare with standard oximeter?**

    It has not been validated. To get home oxygen for a patient, insurance companies will not accept a reading from an apple watch. (Dr. Overton)

39. **In a diabetic patient does wild out of control glucose indicate COVID severity?**

    WE have seen many diabetics require hospitalization for DKA and found to have COVID. COVID appears to exacerbate glucose control in some diabetics, likely related to consequences of inflammation. (Dr. Overton)

40. **What % of COVID-19+ patients are actually admitted to the hospital?**

    The percentage of persons with SARS-CoV-2 infection who require hospitalization is actually quite low (thankfully), around 2% in data from the ACTIV-2 trial. However, with such a high case rate, the absolute number has overwhelmed many community and rural hospitals. (Dr. Overton)

41. **'@dr McClung, can you please discuss other respiratory viruses currently circulating in USA? We have seen several cases in South Florida of young adult patients who are negative for influenza, SARS-CoV2 PCR negative (repeatedly), but with significant respiratory symptoms**

    Yes, human metapneumovirus and RSV have also been circulating in the U.S. in the past few weeks. More details on those trends here: https://www.cdc.gov/surveillance/nrevss/index.html (Dr. McClung)

42. **Dr. McClung: Are we seeing Omicron reinfection one month after an omicron infection?**

    Not beyond a few reports of individual cases; otherwise, data for Omicron reinfection after Omicron are really limited (for BA.1 or BA.2). Since early in the pandemic, there have been reports of reinfection within 90 days of a prior infection, but available evidence has suggested most reinfections occur later. (Dr. McClung)

43. **Can someone comment on early treatment for a transplant patient with early, symptomatic covid? Sotrovimab is hard to get and orals have such serious interactions with calcineurin inhibitors, etc. Is there a formula for reducing of anti-rejection drugs (calcineurin inhibitors etc.) prior to administration of Paxlovid or??**

    Our transplant team has developed an algorithm for dose reduction in setting of COVID and use of paxlovid. Happy to share. (Dr. Overton)

Attendee: The American Society of Transplantation has a good reference for this https://www.myast.org/sites/default/files/AST%20Statement%20on%20Oral%20Antiviral%20Therapy%20for%20COVID%20Jan%204%20%282%29.pdf

44. Do we have any idea of the NNT for vaccinated people, boosted people, for molnupiravir, Paxlovid, and sotrovimab with omicron? Thanks

There was a study recently re: NNT. Not sure if this was vax or unvax. Will look for the reference and send. I think it was OFID or CID. (Dr. Nori)

45. Were the cancer patients achieving neutralizing antibodies of presumably clinically relevant levels?

We only checked spike IgG antibody levels in our studies of cancer patients - logistically this is much easier and less labor intensive than neutralizing antibody titer measurements. We did also check T cell assays among cohorts in each study, with similar findings to the spike IgG seropositivity/negativity.
The clinical relevance of spike IgG titer levels remains unclear. However, our institution did internally validate the Abbott spike IgG assay, and consider "positive" to be a level >50. It's still unclear whether differences in levels of 1000 or 200 mean anything clinically. (Dr. McCort)

46. Is the Spike IgG antibody test commercially available?

Yes this is commercially available but there are not clear cut points established across different platforms. So best to use this more of a qualitative test until we get more data. (Dr. Heath)

47. '@Dr McCort - which brand of test did you do to detect spike antibody? Also, did you look for antibodies to "spike" in general or did you look for antibodies to receptor binding domain (in the spike) in your cancer patients?

Attendee: Forgive my butting in, but I'm a participant in the early Johns Hopkins studies in antibody levels - a LOT of people are using the following:
Roche/Elecsys - Labcorp: #164090 SARS-CoV-2 Semi-Quantitative Total Antibody, Spike Test
Labcorp reports 0.8 U/mL to >2500
Quest does it too but only reports 0.8 - >250 u/mL
I'm curious to know if others are using the Siemens test Euroimmune (which JH also uses some times) OR?

Attendee: In addition to the above, my Graduate student also used Thermo Fisher Scientific OmniPATH COVID-19 Total Antibody ELISA Test

Margaret McCort: We used the Abbott spike IgG assay for all studies, done in-house. These studies also included T cell assays.

48. I note Sotrovimab indicated for patients less than 10 days of symptoms. We have a cut off of 7 or less days of symptoms. Can we prolong to 10 days?

Yes, this can be given within 10 days of onset of symptoms based on the EUA. (Dr. Heath)

49. **Is there data, other than the original data out of south Africa with a skewed younger and healthier patient population, that addresses severity of omicron in unvaccinated patients as compared to wild type or other variants? I would like to understand better severity of omicron amongst the unvaccinated population.**

    Based on the data on hospitalization from the Southeastern US, we will see that Omicron variant in unvaccinated populations once we are able to effectively summarize US data. (Dr. Overton)

    Attendee: Thank you so much for confirming that we really don't have data that Omicron is “milder". I think it is very important that we message correctly to patients correctly the risk of infection. Currently, because the messaging is that omicron is a lesser severity infection, we have patients expressing a lack of concern regarding infecting and a lack of urgency regarding vaccination. Messaging the correct threat level regarding severity of omicron will be so helpful for clinicians facing patients who don't feel the need to vaccinate because they have heard that omicron is "no big deal"

50. **Do your clinicians give guidance on what immunosuppressed patients should be doing to protect themselves AFTER getting Evusheld? Same risk mitigation strategies as BEFORE Evusheld?**

    I generally tell my immunosuppressed patients that given the limited data on efficacy of Evusheld against Omicron variant, they need to remain cautious regarding mask use, avoiding indoor dining and crowded public spaces, handwashing, vaccinating household members, etc. that they were doing before. However, most feel a little less anxiety overall after Evusheld. (Dr. McCort)

51. **'@Dr McCort, for those that do not develop Spike antibodies, would you then use EVUSHELD (tixagevimab co-packaged with cilgavimab)?**

    Yes! We have actually given more Evusheld to oncology patients than other groups because we have already identified the vaccine non-responders who were either involved in these studies or are in one of these identified high-risk groups for poor vaccine response. (Dr. McCort)

52. **How does cardiovascular history figure into use of prep?**

    In the PROVENT trial there was a small but higher incidence of cardiac events - MI and heart failure in the treated patients but not temporally related to the treatment. (Dr. Nori)

53. **What about the cost of outpatient Remdesivir? Expensive!**

    Yes. Must get PA first which is another hoop to jump through. We are only using in the highest risk patients. (Dr. Heath)

54. **Has there been an update on timing of COVID-19 vaccine following MAB infusion? Any recommendations in re: to Tixagevimab-cilgavimab?**

    Vaccines should be given 90 days after mAb infusion. For those receiving Tix/Cil (Eusheld)- this is given in repeated doses as it wanes. Will need to closely follow viral variants and its efficacy in coming months to determine if recs come down to repeat Evusheld if still effective vs vaccination. This recommendation will also likely be based on the degree of immunosuppression and the likelihood of generating an Ab response. (Dr. Heath)

    90 days is gone! https://www.cdc.gov/vaccines/acip/meetings/downloads/slides-2022-02-04/08-COVID-Hall-508.pdf (Dr. Nori)

Attendee: Does that mean for those who are due for a booster shouldn't receive it and may just get Evusheld repeatedly? Specifically our new transplant population.

A recent publication indicated that there is no "antibody interference" in persons given vaccine < 40 days after administration of mAb. See : PMID: 34557558
Check it out! (Dr. Overton)

55. **Do any of you routinely use multiple modalities of treatment for infected severely immune compromised patients (on anti. CD20) .mab+paxlovid or mab+ remidisivir?**

    when they're admitted, we've certainly used a multifaceted approach - remdesivir, steroids, sometimes passive Ab therapy (compassionate use). But at present, no clinical trial data on paxlovid + mAb or molnupiravir + mab (Dr. Nori)

56. **68yr/F BreastCA (HER2+, ER/PRneg) currently being treated q3weeks with 2 HER2 targeted infusions (recently completed Chemo, Surg,&6weeks daily Radiation) also w/ Typ2 DM on multiple meds, also obesity:(had 2 dose Moderna, plus Moderna booster Oct2021)- speaker mentioned re: risk of MI&CHF w/ Evusheld— do you think she should just "wait" for 4th mRNA Vaccine rather than start Evusheld**

    In our opinion, vaccine dose if patient not fully up to date for their immune status is always the priority since there is so much more to vaccines than just antibody. (Priya Nori)

    Also, ACIP just updated timing on 4th dose for "moderately-severely immunocompromised patients" from 5 months after the 3rd dose to 3 months, so your patient is currently eligible for 4th dose. See : https://www.cdc.gov/vaccines/acip/meetings/downloads/slides-2022-02-04/08-COVID-Hall-508.pdf (Dr. McCort)

57. **how's the side effect profile of 4th Moderna vaccine? are there any "cumulative" adverse effects, or any worrisome effect because of "too much" (patient is a Cancer patient, hence had full dose for 3rd Moderna back in Oct2021)**

    Israel Study: The study included 154 health care workers who were given a fourth dose of the Pfizer/BioNTech vaccine, 120 who were given a fourth dose of the Moderna vaccine and a control group of workers who were not given fourth doses. Increased Ab level but not enough to protect against Omicron. No new safety signals.

58. **In all the discussion, there is never a mention of the correctional healthcare systems.**
    You're so right. There is excellent work being done in this area. Dr. Matt Akiyama from Einstein in the Bronx is a leader in this area (Priya Nori)

    https://www.youtube.com/watch?v=kG85KRp-9AI

59. **37 yr. old no comorbidity: had Omicron Jan1, had 2 Pfizer vaccine: should he get booster? now, or may wait since maybe still protected?**

    There is no deferral period recommended officially- ok to get booster dose as soon as out of isolation. However, we generally recommend waiting about 4 weeks from infection until booster, especially for healthy patient who can afford to wait, based on what we know about antibody levels after natural infection.