COVID-19 Updates and Insights with Dr. Zieg – December 3, 2020 Questions

Based on observation, it appears that many people are testing positive but remaining asymptomatic. What are your thoughts on this? Do you think there is a strain of covid that yields more asymptomatic cases?
Nothing to indicate a different strain, just differences in how people's immune system manages the virus.

It seems that the majority of cases are asymptomatic or mild. Do they track the percentage of case severity: asymptomatic, mild, hospitalized, or fatal?
Yes, case severity is tracked as best as possible - but numbers are nuanced so take with a grain of salt. Asymptomatic cases likely fall around 40%; of those who have symptoms, mild disease has been reported in about 81% of cases (this likely represents a good portion of "asymptomatic" cases as well), severe disease (with shortness of breath, low oxygen etc who may be hospitalized) was reported in 14%, critical disease was reported in 5%, and fatality rate is somewhere around 2.3% (all in the critical cases group).

Will the presentation deck be available for us (awesome info to share with our families)? When will the recording also be available that we can relisten as again so much info to absorb?
Mercury will provide.

Is this CRISPR technology?
CRISPR technology is being explored for testing but is not commercially available that I am aware of. RT-PCR, the gold standard and what Mercury is current using in its testing strategy, does not use CRISPR.

If both vaccines use the same technology, where does the difference in stability come from?
The difference is likely in the other components of the vaccines, not the mRNA segment itself. These vaccines use lipid nanoparticles to stabilize the mRNA, and the properties of these structures likely differ between the two vaccines.

Do we know what the side effects of these vaccines may be?
Most common side effects reported in the Pfizer and Moderna trials have been fatigue, muscle soreness and aches, joint pain, and headache, plus pain, redness or swelling at the injection site. Significant side effects were reported in less than 10% of participants. Side effects like this are expected with vaccines (an indication of immune response) and typically last just a day or two.

What is the timeline for shipping vaccine after this first wave in the next few weeks? I've seen varying estimated timelines and seems to change day to day. Given the logistics and unknowns, it's still unclear. In general, it is expected that vaccines will be widely available to the general public by mid-2021. Priority groups will get theirs first.

Can you talk about the AstraZeneca vaccine? It seems to have lower efficacy. Is it planned to be distributed in the US?
Phase 3 clinical trial is still ongoing. Initial data was peculiar in that a group that received a low dose then a standard dose saw higher efficacy (90%) than the group that received two standard doses. This may have been driven by other factors (age span in the groups) or chance. Results are being discussed

and reviewed, but it's unclear what the efficacy or dosing regimen might be. Unclear if it will be distributed in the US at this point, but if their final phase 3 data show reasonable efficacy (and safety), it's likely that it will.

Can you still spread the virus even after you've been vaccinated? Is it a worry that Moderna has no track record of manufacturing vaccines in the past? My understanding is that this is the first product they have ever launched. Just wondering if there are quality concerns.
It's unknown if someone can still catch and spread the virus after being vaccinated, but it's possible. You are correct, this is the first vaccine Moderna has produced that will be (likely) approved for human use. It's also the first mRNA vaccine (along with the Pfizer vaccine) that will be approved for human use. I've read a lot about these mRNA vaccines, and I've yet to see any good arguments that there should be concern because it's a new approach. Regarding it being Moderna's first vaccine, I haven't seen that this is a concern voiced in the literature.

Information released from the World Health Org stated that as of 11/16, there has been a total of 4 cases of reinfection out for the sample size of 53 million total infected. Based on this scientific reporting, are there any data-driven updates related to both business operations and personal lifestyle decisions that should be revisited from when first implemented?
Yes, reinfection seems to be rare, which bodes well for natural immunity (immunity that is achieved through infection with the virus itself, not a vaccine). However, more recent surveillance data published shows that the US as a whole likely has less than 10% of people immune. Given that we will likely need to see 50-70% of people immune before any sort of herd immunity is reached, we shouldn't change how we are approaching mitigating spread of the virus...i.e. we should continue to distance, wear masks etc etc.

Why do the mRNA vaccines require 2 doses and what is the significance of the 21-28 days between doses? Also, what is the likelihood of allergic reactions or complications?
Many vaccines require multiple doses to achieve immunity…this is not new. One dose starts the immune reaction, a second dose "boosts" the immune response…hence the name "booster shot". I haven't seen any data on allergic reactions to the COVID vaccines, but true allergic reactions to any vaccine is unusual these days. Adverse reactions (short term fever, aches etc) are relatively common.

Besides the lack of a mass-produced availability for a vaccine, why is Coronavirus perceived scarier than the flu when the symptoms are commonly milder than those experienced with the influenza virus?
This being a novel virus, we're still learning about the impacts and characteristics. We know some experience long-term symptoms (commonly known as long-haulers), permanent lung damage, heart damage, blood clots, and the mortality rate is higher than influenza as well. It's not a good virus to get and as I've said before, "it's tricky".

If immunity does not last in people who got sick with COVID, how long do we expect the vaccine to provide immunity? We don't know how long immunity lasts when people get sick with COVID-19. It's possible that those with mild or asymptomatic infection have immunity only for a few months, but it's also possible that those with moderate symptoms have long-term immunity. The vaccines are designed specifically to create a robust immune response and we know some vaccines induce longer-term

immunity to infection than when getting the actual disease. Time will tell, but initial data is suggesting the vaccines may provide at least a year of immunity (possibly longer).

How does vitamin D3, Zinc, and Baby Aspirin reduce COVID symptoms, and what is the recommended dosage? I have not seen any medical literature on this so I can't speak to it. I don't believe these have been studied and that what is out there is anecdotal only.

Is it hypothesized that a possible and likely scenario is that likely everyone will eventually catch coronavirus? It is possible but very unlikely that everyone would catch the virus. Vaccination is expected to induce immunity.

Is the COVID-19 vaccine expected be a "one and done" vaccine, or more like an annual flu shot? More likely will need repeat immunization "boosters" - possibly once a year, but still unclear at this time.

Do we know how long the immunity of the vaccine lasts? We do not, but preliminary data suggests it may last a year or more.

What is the current information regarding reinfection for those that have had the Virus? Very few cases of reinfection have been reported relative to the number of confirmed cases. This bodes well for the immune response.

Do you still have to practice BANDIT after you get vaccinated? YES! It will take some time before we, as a community and nation, reach a point of herd immunity. The virus will continue to circulate until we reach that point, and it will be important to continue to use all mitigation measures to limit spread. Vaccine is only one effort to stop the spread, not a magic wand (unfortunately).

Can you speak about the side effects of vaccination? See above

Do you have concerns about the safety or side effects of the vaccines? The side effects reported in the studies were expected as all vaccines have some level of common side effects (short term fever, aches etc). The vaccines to be used in the US are studied and overseen by third parties to assess safety (and efficacy).

Are you aware of any impact/side effects for the vaccinations on people with pre-existing conditions such as lupus or MS? I am not aware of any data regarding use of the COVID vaccines in such groups. Studies were limited in this regard. I would suggest that those with such underlying conditions talk to their physician about getting the vaccine and potential side effects etc.

When is it safe to take long haul (20 hours) flights?
Safety of flying is still being debated, but such a long flight would represent some risk. So I would say when we've reached a level of herd immunity (50-70% immune) relating to the group flying.

Should you still get tested if you feel unwell but don’t have the main Covid symptoms (dry cough and fever)?
I would recommend that you talk to a physician if you have concerns. There's a lot that "depends" relative to your question…risk of exposure, symptoms, your risk of developing more severe illness.

If the antibodies wane quickly, what is the timeline on the vaccine? Does it last longer?
See above

If a person has had the virus, should they still get vaccinated?
At this point, the CDC and others are suggesting that even those who had infection in the past may benefit from getting a COVID vaccine once available. Official recommendations are not offered yet, but once a vaccine is approved for use, we'll likely see these shared. I think it's likely that the recommendation will be to get vaccinated even if you had COVID-19 in the past.

Any truth to the news that the red cross tested samples between Sept - Dec 2019 and found antibodies?
I believe the information is factual and was published in a reputable journal. What I recall is that they found antibodies dating back to early December 2019 in blood from donors.

Some of us work on defense projects that are critical to national defense. Would Mercury be able to get those people to a fast track vaccine?
Mercury Systems is considered part of critical infrastructure as you note. However, each state will be prioritizing vaccination based on their own interpretation and needs. The Mercury team is looking at a variety of options to support vaccination, but options may be limited at least in the earlier phases of vaccination.

Is there any evidence that COVID-19 can cause lingering, long-lasting health problems after an individual recover from the illness?
Yes…and the literature continues to illustrate this. Physicians and scientists are still learning about what is currently called, "long-haulers" syndrome.

Is the Covid vaccine going to be an annual vaccination just like the flu shot?
See above

Assuming one has contracted COVID19; what is the recovery rate percentage?
I think I answered this before…but "recovery" is subjective. See above answer regarding % asymptomatic, mild, severe, and critical cases.

Will we need to take the 2 doses of vaccine every year?
It is unclear at this time, but I do think it is likely until we know more about the immunity that the vaccines induce.

Is there any information available regarding pregnant women getting vaccinated?
Derived from the CDC: "Currently, there are no data on the safety and efficacy of COVID-19 vaccines in these populations to inform vaccine recommendations. Further considerations around use of COVID-19 vaccines in pregnant or breastfeeding women will be provided once data from phase III clinical trials and conditions of FDA Emergency Use Authorization are reviewed." Trials are beginning to expand the study populations, but it may be later 2021 before we see recommendations for this group.

Which tests are the most problematic with respect to false positives? Rapid antigen tests commonly see more false positives than molecular or PCR in practice, but all tests can potentially result in a false positive (especially as prevalence decreases in a population).

How many people are usually used to determine the efficacy of a vaccine? Are the participant numbers for the vaccines that will be available typical to determine efficacy?
Yes, the numbers in the current trials are commonly used in phase III vaccine studies to determine efficacy, even despite the shortened time frame. Historical enrollment in phase III vaccine trials is reported as mean = 29,844 and median = 22,938

Does the data show that there are "super spreaders" that have the virus and others are unlikely to spread it even though infected?
Yes, there have been many case series showing "super spreader" events. There's a lot of theory around this, but no scientific data that suggests why one person would be a super spreader where another person spreads very little.

Is there anyone who should not get the vaccine?
Recommendations in this regard have not yet been published. Expect to see such recommendations once a vaccine has been approved.

Do we have any additional information on getting the virus from surfaces? Is it necessary to wipe down items?
I have not seen reports of case clusters but it is certainly plausible that surface to hand to mouth/nose/eyes is occurring. It is recommended that sanitizing surfaces continue even though it's not a "main mode of transmission". We still wipe down our groceries in my house!

How safe are the MRNA Vaccine? were they tested before for a different virus?
The safety data on mRNA vaccines is reported to be very good and is reviewed by 3rd parties. This is the first time mRNA vaccines have been used in human trials.

What about healing mentally after isolation for 18 months? I get anxious being around groups of people, even if all are masked and properly distanced.
Understand. Mercury offers a variety of confidential options including EAP and medical benefits that can provide resources to help. In addition, you might consider exploring the app Headspace that is available to you through Mercury. No one should hesitate to reach out for help!

Has the timeline to begin testing those who tested positive previously been looked at to see if the testing should begin again before the current 90 days?
There has been nothing in the literature that I have seen that would suggest a need to test again before 90 days. This recommendation still stands.

When you mention multiple doses ... are you implying that immunization is going to be more than one shot. For instance, I would need to go to CVS and get a shot, then do it again a week later?
Yes, many of the vaccines will require two shots spread 21 to 28 days apart, including the Pfizer and Moderna vaccines which will likely be the first two available.

Will you be able to choose which manufacturer you get your vaccine from when it's available to the general public?

Eventually this may be possible but given the limited supply and how this is shaping up, it's likely we'll need to take what we can get initially.