Mayo Clinic Q & A - Dr. Gregory Poland - 11 29 21

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SPEAKERS

Dr. Halena Gazelka, Dr. Gregory Poland, Narrator

N **Narrator** 00:01

Coming up on Mayo Clinic Q&A: New COVID-19 variants are constantly emerging, and the latest one to appear on the radar is the Omicron variant.

D **Dr. Gregory Poland** 00:10

The question is, is this virus, this variant, more transmissible? The early data, this is really early, suggests that it may be two to six times more transmissible than Delta. Does that necessarily mean that it's more virulent? Does it have more ability to cause disease? We don't know.

N **Narrator** 00:36

As experts scramble to learn more about the Omicron variant and try to answer questions about its transmissibility and severity, there are precautions that you can take.

D **Dr. Gregory Poland** 00:45

So, my personal feeling is treat this like a fire alarm. We see some smoke. We don't yet know how big the fire is going to be. But it's a reminder, it's a warning, particularly during the holidays now. Get your primary series. Get your booster. Wear a mask when you're indoors, and travel is probably not a good idea.

D **Dr. Halena Gazelka** 01:08

Welcome, everyone to Mayo Clinic Q&A. I'm your host, Dr. Halena Gazelka. We are recording this podcast on Monday, November the 29th, 2021. I had to glance at my calendar to make sure that was the right date. Well, it is wonderful to welcome back Greg Poland today. As you know, Dr. Poland is a virologist and

vaccine expert at Mayo Clinic, and we're going to get some updates on COVID-19. Welcome, Greg.

D **Dr. Gregory Poland** 01:37

Thank you. Welcome to you too after Thanksgiving.

D **Dr. Halena Gazelka** 01:40

Yes, I hope your Thanksgiving was lovely.

D **Dr. Gregory Poland** 01:43

I had two turkeys. So, I was in, you know, Thanksgiving heaven.

D **Dr. Halena Gazelka** 01:47

I'm jealous. I love turkey. Greg, there's so much in the news right now. And we're going to get to much of it. But the first thing I want to ask you about is what in the world is Omicron. It sounds like something my six-year-old grandson might ask for Christmas, but not, so tell us about it.

D **Dr. Gregory Poland** 02:04

It sounds like a transformer toy or something like that. It's actually a new variant of concern. And this one really is of concern. We've seen some of them come and go, and it's early yet. But this was first identified November 9th in Botswana, and now has become the dominant variant in South Africa. This contains mutations that both evade antibody and the ability to increase infectivity. So, I decided to use sort of an illustration of a key and a lock. So, let's look at the ACE receptor using this model of a lock and the spike protein, the key of this virus. That spike protein can enter in and like a lock open it. And once that happens, the virus can get into the cell. What happens with Omicron and variants of concern like that, is it has about 30 mutations. Now remember, Alpha had two, Beta had six, Gamma had eight, Delta had 10. This one has 30 known mutations, 26 of them on this receptor binding domain of the S protein. So, what happens is the antibody that is circulating doesn't cover over this so that it can easily get into this lock, open it, and infect. The question is, is this virus, this variant, more transmissible? The early data, this is really early, suggests that it may be two to six times more transmissible than Delta. Does that necessarily mean that it's more virulent? Does it have more ability to cause disease? We don't know. But what is of concern is the genetic distance between the ancestral Wuhan strain, and this new variant is larger than any other variant we've seen. We've seen it rapidly take over South Africa. And early evidence suggests that it's more transmissible. Those things together mean a potentially really bad actor. Last night WHO rated the risk of this variant of concern as "very high". So, what do we do about it? Well, the sense, the early sense, is that the higher and broader your antibody B cell and T cell response, the better. How do you get that? Get your primary series and a booster of vaccine. Wear masks when you're indoors and social distancing. Those are key factors in reducing the risk that this virus will infect you. So far, in every major region of the world, this variant has been detected. As of yesterday, it was detected in Canada. It is almost certainly here in the U.S. It's just that we don't know it yet.

D Dr. Halena Gazelka 05:24

I had seen that many countries were beginning to close their borders to visitors on account of Omicron, and it may be too late for that.

D Dr. Gregory Poland 05:35

I think that's right Halena. You know, by the time you recognize a variant that has the potential for exponentiality, by the time you recognize that the cat's already out of the bag. So, my personal feeling is treat this like a fire alarm. We see some smoke. We don't yet know how big the fire is going to be. But it's a reminder, it's a warning particularly during the holidays now. Get your primary series. Get your booster. Wear a mask when you're indoors, and travel is probably not a good idea.

D Dr. Halena Gazelka 06:13

Greg, one of our listeners emailed over the weekend and asked if companies like Pfizer would be able to alter their vaccine to accommodate or to, you know, prohibit the entry of Omicron into cells, as you said.

D Dr. Gregory Poland 06:29

Yes. So, as you know, we're we are very transparent on this podcast, and I do give consultative advice to virtually all of the Western vaccine makers. Last night I was texting with these companies, and indeed confirmed that they are moving forward in a strategy, in particular Moderna is embarking on a three-pronged strategy. One is might they give a booster dose that's the same dose as the primary series, 100 micrograms. Right now, that booster dose for Moderna is 50 micrograms. The second would be to develop a variant focused vaccine. The third would be more of a pan Coronavirus vaccine. Both companies that I've talked to have indicated that within about three months they can have not only changed the synthetic mRNA code for the vaccine but begin producing it. What kind of hurdles we might see based on supply chain, how FDA would handle a vaccine like that are currently unknown, but it is within our technological ability to develop a variant focused vaccine. I hope that won't be necessary. I hope our listeners getting the information that we strive to give them can help to expand that message by talking to friends and family and saying, look the answer here appears to be masking and boosters. Let's do it.

D Dr. Halena Gazelka 08:08

So, for now, get the booster when you are eligible to get it

D Dr. Gregory Poland 08:11

Correct. It also, Halena, raises questions about, you know, will the antivirals be equally as effective?

D Dr. Halena Gazelka 08:20

Yes.

D Dr. Gregory Poland 08:21

Will it change anything about our therapy for more severe COVID? All of that is unknown right now.

D Dr. Halena Gazelka 08:28

Where are we with those antivirals?

D Dr. Gregory Poland 08:31

That's a great question because, you know, we need we need an expanded therapeutic armamentarium. So, earlier today there was released a brief article suggesting that on re-examination of the Merck antiviral Molnupiravir, that its efficacy to prevent severe disease and hospitalization could be as low as 30%. So, somewhere in that 30 to 50%. The Paxlovid and Ritonavir combination of Pfizer, their antiviral, looks to be almost 90% effective in preventing severe infection and hospitalization. So, those would be game changers if we could get those approved for the treatment of people who are at high risk for COVID-19 disease.

D Dr. Halena Gazelka 09:26

Yeah, they certainly would. Greg, you just spoke about boosters briefly a little bit ago. What is the state of boosters within the United States?

D Dr. Gregory Poland 09:36

Yeah, you know, we've done reasonably well. I know a lot of people are pessimistic about it. I see it the other way around. Remember that these were just approved for everybody age 18 and over. That's a key point, because remember Pfizer has gotten approval down to age 12. But the boosters are for people aged 18 and older. That may move down as we have more data. But in this relatively short period of time, about 36% of adults that are eligible have indeed gotten a booster. Now there's plenty of vaccine available, so in the strongest possible terms I would recommend getting that booster. One other comment about that, I know some people may be concerned because there's relatively little side-effects from the first dose, more side-effects from the second dose. I, myself had side-effects from the second dose. And so, there's concern, well gee, what would a third dose be? My third dose was nothing, a little soreness in the arm. Halena never has any side-effects, she had virtually nothing. Am I right about that?

D Dr. Halena Gazelka 10:53

That's right, I hope I'm getting the real thing.

D Dr. Gregory Poland 10:55

And so, the research thus far suggests that the rate of reactogenicity, or side-effects, to that third or booster dose of an mRNA vaccine is in fact less than or equal to the second. So, for all those reasons, I would definitely recommend that

would definitely recommend that.

D Dr. Halena Gazelka 11:15

Okay. Greg, we have a couple of listener questions for you. And the first one particularly interests me. This person wants to know, they state that they were fully vaccinated, they've had their booster, they've relaxed their personal precautions just a little bit, and then we're very surprised to find out that they had tested positive for COVID 19. Do you think that people are walking around with a false sense of security? And how likely is it that people could still test positive after a booster? And I'm interested in this because I have known multiple co-workers who have been in this situation, that they and their spouse, etc., are vaccinated and have had their booster and still turned up positive for COVID.

D Dr. Gregory Poland 12:00

No, I think the same experience that I've had, and the research shows the same thing. So, this is not an easy one to give a black and white answer. There are nuances, and these nuances make a big difference. So, let's take somebody with a healthy immune system, okay, and not, you know, quite aged. These vaccines work extraordinarily well in preventing severe disease, hospitalization, and death. They drop down a notch when we talk about mild breakthrough disease, drop down a little notch lower when we talk about preventing asymptomatic infection. And that's why, you know, a vaccine alone is not an impenetrable shield. That's why on this podcast we have consistently said to people, you know, appropriate physical distancing, wearing a mask indoors outside of your home, and getting the primary series and the booster. That combination is the best possible protection you have while leading as much of a normal life as possible. The problem comes in when you either have a genetic variant that causes you to not respond well, or your immune system is not healthy, or you're very aged or have a lot of medical, concomitant problems. Those people often do have a misperception of their safety, and I would urge them continue to take precautions. And again, another reminder for the booster. Now, when that breakthrough disease occurs, it's generally mild. In older people and people who are immunocompromised, it can be severe. There's no question about it. Have you reduced your chances greatly by getting vaccine? Yes. But again, it's not an impenetrable shield.

D Dr. Halena Gazelka 13:59

So, Greg, a couple of listeners have written in and asked us what is the status of the Novavax vaccine that we've mentioned before? And might it have fewer side-effects than the mRNA vaccines?

D Dr. Gregory Poland 14:13

Yeah, good question Halena. And the answer is yes. The data suggests that it's much less reactogenic, that is causing side-effects. It looks to be very immunogenic, that is raising high levels of antibody. So, the platform is a little different than the current COVID vaccines we have, but very familiar to people who know about vaccines. It is a recombinant protein nanoparticle paired with an adjuvant. An adjuvant is just a substance that increases stimulation of the immune system. They have had some purity problems in the manufacturing phase, and that has delayed it. We thought, all of us in the vaccine field, really thought we would have this vaccine prior to the end of 2021. That's looking more doubtful, and it will probably be early 2022.

D Dr. Halena Gazelka 15:14

Now, here's an interesting one, Greg. We've toyed with this topic a little bit before, but this individual wrote in and asked, What is the risk of a subsequent COVID infection for someone who has been fully vaccinated versus someone who had a past COVID infection and then declined vaccination?

D Dr. Gregory Poland 15:36

Yeah. So, this comes up an awful lot. I would say that the answer is not crystal clear. But most of the data that we have suggests that if you have gotten previously infected, you are better off if you get a booster dose. In fact, for those people previously infected who got a booster dose, their risk of breakthrough disease is 2.3 fold less than people previously infected who didn't get a booster. So, you're broadening and deepening your immune response by having gotten both previous infection and a booster dose of vaccine. I think sometimes people are under the illusion that, well, I've gotten infected, I am protected forever. And that's just not the case. We know that from seasonal Corona viruses, the viruses that cause the common cold. The reason we get that cold over, and over, and over again, is that immunity doesn't last. And the same is true for COVID-19. So, I would definitely take advantage of getting a booster even if you've had previous infection. And remember that these variants keep changing. So, your immunity against one of the previous variants that you got, will likely be lower against the newer variants. And it reminds me Halena, that if we could kind of do something where we said, look, everybody take a two week vacation staycation at home, wear a mask if you go out, and get your vaccine and your booster, and we could magically do that worldwide, I think we would see rapid control of this and only low level disease. Instead, we are now headed toward two full years of this. And there's no end in sight at this point.

D Dr. Halena Gazelka 17:44

Interesting. Yeah, it is sobering when you think about how long this has been going on. And I've thought sometimes about the all the things that I thought would be normal again by now, and they're not normal again.

D Dr. Gregory Poland 17:56

It's kind of frightening and a little bit depressing frankly, to think that if we estimate that the daily death rate in the U.S. due to COVID continues through the end of the year, I think it will actually be higher, but if we say that it's the same, roughly 70,000 Americans alive now will not be alive by the end of this year. And that's a real shame, because the vast majority of those, if we could just get the message through to them would be prevented or at least, not only not die but not have severe disease by wearing a mask and getting a booster. It's that simple. A mask is about 25 cents, the vaccine is absolutely free.

D Dr. Halena Gazelka 18:45

I, as I'm sure you, have been extremely careful about always masking, washing hands in, you know, any store that I go into, anywhere that I go no matter how much distance is between you and others.

D Dr. Gregory Poland 19:00

I have had only one break in the last two years. Not thinking, I got out of my car, walked into an auto repair place realized, whoa, I don't have my mask and back out.

D Dr. Halena Gazelka 19:12

Well, you have a better memory than I do. Because that's happened to me a couple of times where I've almost gotten to the door at the establishment and then had to go back to my car and get my mask.

D Dr. Gregory Poland 19:22

Well that one doesn't count as long as you remember to go back.

D Dr. Halena Gazelka 19:25

Excellent. Greg, I have one last listener question for you. Do you have to retake the first dose of a vaccine if you did not get a subsequent dose? So, it's been a long time between doses or if it was taken late? Or just get your second dose, and then how do you know when to get a booster?

D Dr. Gregory Poland 19:49

Yeah, here we have really good news, and this one makes it easy. For those of you that may be in that position, and you haven't gotten infected, rejoice. All you have to do is go get your next dose of vaccine. The longer the interval, now this is interesting, and I'll try to explain it carefully. It appears that the longer the interval, the better the immune response. Balanced against that is that until you're fully immunized, you remain at risk. So, we tried to pick the best points in a vaccine development, three weeks, four weeks. Remember in England with the AstraZeneca vaccine, they had an interval of 12 weeks. So, it is certainly not too late. Do not despair of that. If you've gotten a dose of vaccine, it doesn't matter when that was. Go and get your second dose now, or your booster regardless of how long it's been.

D Dr. Halena Gazelka 20:49

Just keep going.

D Dr. Gregory Poland 20:51

Just keep going. Now there is a minimum, right? We don't want to give them sooner than they're supposed to be given.

D Dr. Halena Gazelka 20:58

Right. Okay. That's wonderful. Well, that finishes up our questions today, Greg. Thank you very much. Any last words you'd like to add?

D Dr. Gregory Poland 21:06

You know, as we get near to two years here, I just personally want to thank the number of individuals, so Halena, you and I both get these emails, we share cards and notices that we get some really lovely gestures of thanks that our listeners have done. And I want to thank you for that. That's been very motivating during these difficult and sometimes really dark months where we had surge after surge. So, I just want to wish everybody a Merry Christmas, Happy Hanukkah, Happy Holidays for whatever tradition you celebrate. And thank you for listening. And we will continue to strive to give you the most transparent and best information we possibly can. So, thank you all.

D Dr. Halena Gazelka 21:57

That was great, Greg. I agree. I have to just thank our listeners for participating because it is such a boon and gives us so much energy to keep going and doing this, and also helps us to affirm that we are giving out the information that people want to hear. So, that's wonderful.

D Dr. Gregory Poland 22:17

I think we should sing We Wish You a Merry Christmas.

D Dr. Halena Gazelka 22:24

You don't want to hear me sing anything. But thank you very much for being here today.

D Dr. Gregory Poland 22:29

My pleasure. Be safe.

D Dr. Halena Gazelka 22:32

Thank you, everyone for joining us for Q&A COVID updates today. We thank Dr. Greg Poland for being with us again. I hope that you learned something. I know that I did, as always, and we wish each of you a very wonderful day.

N Narrator 22:47

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