

Mayo Clinic Q & A - Dr. Gregory Poland - COVID-19 Update - ...


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SUMMARY KEYWORDS


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SPEAKERS

Dr. Halena Gazelka, Dr. Gregory Poland, Narrator

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-  **Narrator** 00:01

Coming up on Mayo Clinic Q&A. August 23rd, the Food and Drug Administration granted full approval to the Pfizer COVID-19 vaccine for people 16 years of age and older, making it the first to move beyond emergency use status in the United States.
 -  **Dr. Gregory Poland** 00:16

What will happen here now is three things that the BLA has been granted. Now what will happen is this will go to the FDA for approval on this booster dose. After that happens, then the ACIP committee of the CDC will then look at it and presumably approve that. The target date for implementing that is likely to be in that mid to late September timeframe.
 -  **Narrator** 00:46

But what does Pfizer's approval mean for the unvaccinated, and how could this affect vaccination rates?
 -  **Dr. Gregory Poland** 00:52

I think it will have a number of effects. Once a BLA, or full license, is granted to Pfizer, many, many businesses, schools, hospitals, etc. are saying our way out of this is tougher mask mandates and mandates for vaccination. Once we do that, then I think we'll find our way out of this terrible, terrible surge.

D Dr. Halena Gazelka 01:19

Welcome, everyone to Mayo Clinic Q&A. I'm Dr. Halena Gazelka. We're recording this podcast on Monday, August the 23rd, 2021. I'm back again with Dr. Greg Poland. We're going to talk today about updates on COVID-19 including vaccinations and the status of infections in the United States. Welcome back, Greg.

D Dr. Gregory Poland 01:39

Thank you Halena.

D Dr. Halena Gazelka 01:41

Well, you're in a different spot today.

D Dr. Gregory Poland 01:43

Yes, I'm driving to another location. And so, this is my set for the day.

D Dr. Halena Gazelka 01:50

We just received news this Monday morning that the FDA is granting full approval of the Pfizer COVID-19 vaccine.

D Dr. Gregory Poland 01:58

Yeah, finally. What will happen here now is three things. So, the BLA has been granted now what will happen is this will go to the FDA for approval on this booster dose, a third dose if it's the mRNA vaccine, after that happens, then the ACIP committee of the CDC will then look at it and presumably approve that. And the target date, this could change, this could waffle, the target date for implementing that is likely to be in that mid to late September timeframe.

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Dr. Halena Gazelka 02:38

Well, Greg, jump right in. We have a bunch of listener questions that I've got for you later. But right now, give us an update on what's going on with infections in the United States.

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Dr. Gregory Poland 02:49

Yeah, you know, just as we have talked about with this highly contagious Delta variant, we really are seeing what we thought would be a major jump in infections. And I thought I'd illustrate it, because a paper was just published this past week that I thought did a great job of it. Some of my colleagues actually did the calculation. So, we've talked about the reproductive rate of the virus. In other words, when the Wu Han strain first became obvious that had a reproductive rate of about two to two and a half, so let's just say it was two and a half. What that means is that if I got infected, I would spread it on average to two and a half people, each of which would spread it to two and a half. So, after 10 cycles of transmission, you'd have about 9,500 infections. Alright, but now let's move that reproductive rate to what we, and this would be a conservative estimate for the Delta variant, to more like six. So, in other words, if I got infected, I would spread it to six people and so on. After 10 cycles of transmission, you don't have 9,500 new cases, you have 60,500,000 more cases. Now the reason that's important is it'll help you make sense of what we've seen this past week. On average, we have identified 150,000 new cases a day, that has led to over 90,000 COVID hospitalizations in this past week with about 800 COVID deaths unfortunately, each day. And when you look at the distribution of those hospitalizations, so many more people over the age of 50 have gotten immunized and that's why they've been relatively protected. But if you look at the largest number of hospitalizations, it's occurring in people in their 30's and those under age 18, something we did not see a year ago with this virus. That is the infectiousness of this. In fact, if you look in Florida, which has been really an epicenter of disease, unfortunately, and you look at their largest school districts, they've only been in school, what a week, maybe up to 10 days, something like that. They already have 20,000 students and staff quarantined and 6,000 new cases identified in those students and staff. So, I mention all that just to illustrate, nobody's kidding about this Delta variant. This is exactly as infectious as we thought it would be, and highly transmissible.

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Dr. Halena Gazelka 05:45

Wow, those numbers are really just staggering, Greg. It wasn't that long ago that you were telling me we were having 100,000 new cases a day.

D Dr. Gregory Poland 05:53
Yeah, now we're up to 150,000, and many are thinking that we will probably hit about 200,000 new cases a day.

D Dr. Halena Gazelka 06:02
Greg, I have to chuckle because my mind as you were describing this to me, and I was trying to picture those numbers. I went back to a Christmas when my girls were very young, and I gave them each a dwarf hamster for Christmas. I had been told that those dwarf hamsters were both female, but they were not, and they began to reproduce logarithmically. I was not, I was trying to find boxes and cages and people to take these hamsters and it wasn't till I could isolate each one, that we could really get the population under control, and it reminded me of COVID.

D Dr. Gregory Poland 06:35
You know what Halena, that may actually be a very good illustration, particularly for school kids, to understand that the exponential increase as you have more and more hamsters, and the way that it was solved was by isolating them, or socially distancing.

D Dr. Halena Gazelka 06:55
Each hamster had to live alone.

D Dr. Gregory Poland 06:57
Yeah, it worked.

D Dr. Halena Gazelka 06:59
It did work. Now that full approval of vaccines is underway. Greg, what effect do you think this will have on vaccination rates? Do you think that it will have an effect on those who are vaccine hesitant for instance?

D Dr. Gregory Poland 07:12
I think it will have a number of effects. Once a BLA or full license is granted to Pfizer, many, many businesses, schools, hospitals, etc., are saying our way out of this, and it really is true, our way out of this is tougher mask mandates and mandates for vaccination. Once

we do that, then I think we'll find our way out of this terrible, terrible surge from Delta. But there's no way out of it short of that. I can see, I know, it's not popular to say, I can see no way out of this unless we just let this run rampant and have 1,000 people a day die, and many, many more harmed, the only way to protect people is masking and mandates for the vaccine. And as I say, once there's full approval, I think that's very likely that businesses will start doing that.

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Dr. Halena Gazelka 08:13

Interesting. This weekend, I walked into a restaurant planning to grab some lunch when I was out running errands. And I noted there is no mask mandate anymore in Minnesota. But the CDC has recommended, and I noted that no one was wearing any masks, including the people preparing the food or taking the orders. And I just said Thank you, have a nice day and walked out.

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Dr. Gregory Poland 08:34

You know, it's very discouraging. I mean, you know, there are a lot of nuances in the science that would be very difficult for a lay person who's not steeped in studying this the way we are to understand the why and wherefore of masking and a vaccination. And instead, we also have a pandemic of misconceptions and misperceptions, and a sort of dogmatic digging in, where when you ask them, just a couple of basic questions, they wouldn't be able to answer that because no one expects them to know that kind of data. And yet, when the experts weigh in, it gets ignored.

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Dr. Halena Gazelka 09:20

Greg, I have a little devil's advocate question for you. Israel is a highly vaccinated country, yet they're having quite a surge in COVID. But why would that be?

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Dr. Gregory Poland 09:30

So, this is again, one of those nuances. So, there is a breakthrough rate of infection for every infectious disease for which we give a vaccine. That can be because of genetic susceptibility. I published many papers on that. It can be due to the fact that somebody didn't respond well because they have illnesses or treatments or medications that they're taking that would affect their ability to develop a protective immune response. So, you take that, now you take a variant like Delta, and have many, many more people infected, i.e., exposing the vaccinated people, and you make it a variant that's highly infectious. You put those factors together, and whereas we normally see a little small breakthrough

rate, you start seeing a larger and larger breakthrough rate. So, Israel decided they would go ahead and give a third dose to people aged 60 and older, they just moved it incidentally down to people aged 40 and older.

D Dr. Halena Gazelka 10:42
Oh, interesting.

D Dr. Gregory Poland 10:43
Those data are controversial. They have not been borne out by other countries studies. Is it study design? Is it that they tend to have an older population? Nobody's quite sure, however, a study did get released in a preliminary way and then published this past week. So, they looked at breakthrough infections and people who have gotten two doses versus people who got three Pfizer doses. This was in people aged 60 and older. If they got three doses, the breakthrough infection rate was point 0.02%. If they got two doses, it was 10% higher at 0.2. Now those are still small numbers, though across an entire population in the face of a highly infectious variant, it adds up to a number of cases. So, in that retrospective study, that third dose provided about five- to six-fold increased protection against serious illness and hospitalization. Weighed against that have been data suggesting that a third dose may increase antibody level, but is it increasing the quality of the antibody you need to neutralize the Delta variant of the virus? And that's where the tension and controversy comes in. Some studies showing benefit. Other studies, not so sure that there's benefit. And that's why you're hearing the pros and cons of this debated in the media.

D Dr. Halena Gazelka 12:24
That's a really interesting, a little bit confusing even to me concept of the quality of the antibody. I'm going to jump into listener questions because I think I have one that might fit right here. This person is wondering about a comment that you made about being over immunized.

D Dr. Gregory Poland 12:40
Oh sure.

D Dr. Halena Gazelka 12:41
What does that mean?

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Dr. Gregory Poland 12:43

So, you know, I was speaking about things that have more than a theoretical basis with other vaccines and speculating these are the kinds of things that we worry about before we make public policy of adding additional doses. So, with solid organ transplants, for example, over a week ago, the recommendation was made to give a third dose. Many of them have complied with that, had no problem at all. In other vaccines, for example, pneumococcal vaccine, or tetanus diphtheria vaccine, it is possible to "over vaccinate" in other words, raise antibody levels so high that you develop what's called serum sickness. You have so much antibody that you start depositing that antibody in the skin, in the kidneys and other places, people develop symptoms and sort of hyper reactions to it. So, you have to be careful about just how much vaccine you're giving against a specific disease and not over immunizing with that. So far, no data that suggests that's happening with a third dose. The other thing that we mentioned last week, was the possibility of what's called immune training. The idea that when you give a vaccine, you're training your immune system, that this is what SARS-CoV-2 looks like. It looks like this spike protein that we're giving you. The question becomes, and sometimes it's more an academic than a real question is, as that spike protein mutates more and more and more and more and looks different from the original one, what would be the value to protect against the variant over here, giving a vaccine that comes from the ancestral strain from the Wu Han strain over here? And that's part of the academic debate over the benefit or lack of benefit of giving a third dose routinely to people.

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Dr. Halena Gazelka 14:56

Interesting. Another listener, there's a lot for me to digest there myself. Greg, another listener says that they received the Johnson & Johnson vaccine and are feeling a bit unprotected. And should they be able to have an mRNA vaccine, especially now if Pfizer is going to be approved?

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Dr. Gregory Poland 15:17

Yeah. So, you know, the reason you might wonder, why all this talk about a third dose of mRNA, rather than a second notes of the J&J. And the reason for it is Pfizer was out first. I think the first Pfizer doses were given the 14th of December, about a week later Moderna, and some time later, J&J. So, each of them is delayed by that same interval in trying to collect data as to antibody level X number of months after people were immunized with it. Almost certainly, this is my speculation. almost certainly, people who got J&J, if we're going to give booster doses will also get a booster dose. And in fact, the FDA is preparing for that possibility, but waiting for Johnson & Johnson to give them those data of antibody after you know, five months, six months, etc.

D Dr. Halena Gazelka 16:19
Okay, and is it possible that booster dose will not be a Johnson & Johnson?

D Dr. Gregory Poland 16:22
Certainly possible.

D Dr. Halena Gazelka 16:24
Okay. Next question. This is a good question. We've talked about this previously when we were talking about the initial vaccine and the second vaccine. This individual is immune compromised, receiving a third vaccine now and wants to know, how long does it take before that boost to their immune system brings it back up to the level that is adequate? 14 days? What is it?

D Dr. Gregory Poland 16:48
Yeah, we know for sure, let me let me just correct one thing. By giving that third dose, we can't say unequivocally, you're protected now. What we're doing with the third dose is increasing the chance that they can be protected.

D Dr. Halena Gazelka 17:06
We are not measuring antibody levels right here/

D Dr. Gregory Poland 17:09
Right, so just one nuance there. So, for example, with solid organ transplant patients, after three doses, the data suggests that maybe about 60 plus percent of them would be protected rather than 40%. So, you know, there's still room there to say there's a number of them that may not be protected. In terms of when that would happen, certainly after 14 days after that late additional dose, but probably with the third dose, in fact, even quicker. And some of the Israeli data shows that within seven to 10 days, many of them popped up to the highest level of antibody that they ever did get to, but certainly by 14 days.

D Dr. Halena Gazelka 17:58

And Greg, that sounds to me, there's still a significant risk of not being covered, essentially, if you are that immune compromised. And so, using care, I'm sure with masking,

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Dr. Gregory Poland 18:11

Absolutely Halena. We want them to mask. We want them to take the social distancing precaution. And I think the key thing, and let me just mention this, because there was a recent news article about this. It turns out, when you look in this past week, the number of people, only 30% of the people eligible to receive monoclonal antibody infusion, have actually gotten it after exposure. So, one thing for our listeners to understand is that if they are at high risk, if they have any comorbidities, if they're starting to develop, or have risk factors for serious disease, they are candidates, or at least potential candidates for monoclonal antibodies. These are very effective, very helpful, but you have a certain time interval, or window, within which you have to give them. You don't wait until they're on oxygen in the hospital and seriously ill. You give it beforehand. So, if that were to be the case, and I hope not for any of our listeners, but particularly solid organ transplant and highly immunocompromised individuals, they are candidates, by definition, for monoclonal antibodies if they get exposed. We'll talk about this later when the final approval comes. But there's even work looking at prophylactic administration of monoclonal, and the early data bear it out. In other words, people getting an injection of monoclonal antibodies and being protected for the next 90 plus days.

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Dr. Halena Gazelka 19:52

How interesting. Well, I look forward to hearing more about that.

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Dr. Gregory Poland 19:55

Yeah.

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Dr. Halena Gazelka 19:56

Greg, our next listener, wrote an email and is a nurse in Portland, Oregon, states that what they're hearing from patients is a lot about, well, I'm going to wait till there's more data on those vaccines, I'm going to wait till the FDA, you know, really decides whether to approve that or not. And this nurse is wondering about, are there any simple talking points to use to address those concerns with individuals?

D Dr. Gregory Poland 20:23
Yeah, you know, that's a very difficult question, because it's so hard for me to understand or imagine that anybody who's looking at the data, even the news, it's hard for me to understand how they could be confused by this. I'm just admitting that it's just that of course, I'm steeped in this.

D Dr. Halena Gazelka 20:45
Right.

D Dr. Gregory Poland 20:45
But you know, no vaccine has ever been studied to the degree this one has and received the amount of scrutiny that these vaccines have had. In the U.S. now, well over 150, in fact, it may be even closer to 200 million now, doses of these vaccines have been given with an incredibly robust safety surveillance system. In the face of that, would you really take the risks that we talked about at the beginning of our program today, in terms of getting hospitalized, dying, or having significant complications from COVID? It's inconceivable, you know, what can I say other than to say, these vaccines are safe and highly effective. Again, perfectly effective? No, nothing made by man is. Perfectly safe? No, nothing made by man is. Safe for us to use and highly efficacious? Absolutely, the data bear that out. That's why so many, I mean, I think it's about nationwide 98.5% of all physicians have gotten the vaccine. Do you think they would get the vaccine if they didn't believe it was studied, safe and effective? Of course not.

D Dr. Halena Gazelka 22:16
Greg, you and I have talked in the past how this is very similar to the risk/benefit discussions that we have for patients, I in the pain clinic when I'm referring people for procedures for their pain, managing pain for instance, that, you know, there are risks with anything we do. These are elective procedures that I'm ordering for you. However, I wouldn't ask you to consider having this procedure if I did not believe that the benefits to you far outweigh the risk that you might be put through to have the actual procedure and not dissimilar to the vaccination.

D Dr. Gregory Poland 22:50
Yeah, I mean, one of my colleagues was telling me about a patient who was, you know, kind of anti-science, anti-mask, anti-vaccine. Of course, he got infected, admitted to the

hospital, deteriorated, had to be moved to the unit. On the way to the unit, he says to my colleague, a physician, I want you to do everything science knows to do to save me. Okay, so he rejected the initial recommendation, get a vaccine, the inevitable happened, as it will to the unvaccinated in the face of these variants. And now, once everything that science has, and you know, it's a way of leveraging into or bridging into, you know, the plea that I make all the time. I cannot tell you the emotional toll this has taken on us as physicians and nurses and respiratory therapists, and many, many others to see, you know. At another hospital I teach at, they intubated a young, beautiful, otherwise healthy, 18-year-old. It never needed to happen. And to watch that happen time, after time, after time, one of my colleagues said, I walk around now and I can see people without masks and morbidities, and I can tell you what size endotracheal tube they're going to need. We don't normally think like that. And it's just illustrative of the kind of, you know, 18 months of steady drumbeat of seeing people sick and dying of something we can prevent so easily.

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Dr. Halena Gazelka 24:36

It really is a fascinating study to me, Greg in how perspective changes. So, what is interesting to me is that gentleman on the cart going to the intensive care unit was not interrogating the physician about all the data regarding whatever therapies he would get in the hospital to keep him alive, as he had been over a simple vaccine when he was feeling well, but perspective changes, I guess. And what is it about human behavior that we believe that we are invincible, or I won't be the one that it will happen to.

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Dr. Gregory Poland 25:07

We probably all do that in some areas of our life. But you know, I guess what I would say is, I hope on this program, I hope in other physicians and hospital systems that you know, that you find one that you believe is credible and trustworthy and listen to them. I mean, we take a vow as part of becoming a physician. That doesn't mean that there aren't physicians that have violated that. But we take a vow, and I take that vow seriously you do, I'm proud to say Mayo Clinic does. We have a motto, in fact, seven simple words, "The needs of the patient come first". And none of us are going to make any recommendation that we don't believe is absolutely in the best interest of that patient.

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Dr. Halena Gazelka 26:02

And I would say to those individuals, if you won't do it for you, do it for someone you love. Think about someone that you love, who you do not want to see on a ventilator.

D Dr. Gregory Poland 26:13
I'm laughing when you said that Halena because, as any of us age 50 and older know, when you get a routine colonoscopy, the preparation for that is for me horrible. There's a sign along Highway 52 in Rochester that said do it for your loved ones. And as I am gagging this stuff down, I am saying, okay, I'm doing this for my wife and kids. I'm doing this for my wife.

D Dr. Halena Gazelka 26:44
All right, our next listener question. My sister states that she has an allergy to the flu vaccine, and therefore is unable to receive a COVID vaccination. Is there any kind of COVID vaccination that individuals who have had allergies to prior vaccines can receive? Or how does that work?

D Dr. Gregory Poland 27:04
So, this is a really great example. This is, I think you said a woman who is concerned about her sister and asked the question, fantastic. Now, what we can do as physicians is say, okay, the data say that an allergy to flu vaccine has no bearing on allergy to other vaccines. Now, it is true that people who have anaphylactic type allergies are more prone, but not destined to those kinds of allergic reactions. So, I would have no problem with a person like that getting any of the three COVID vaccines available. If she feels more comfortable doing it at a site where if there were any allergic reactions, it could be treated right away, which pretty much all of them are like that, no matter where they're given. But this is no reason for her sister to not be immunized. Good question.

D Dr. Halena Gazelka 28:07
Great news for the sister today.

D Dr. Gregory Poland 28:08
Yeah.

D Dr. Halena Gazelka 28:09
The next question comes from a family who has a newborn in the home, as well as a toddler. The toddler goes out to daycare, and this individual is saying that they have preferred that people who come into their home to visit with them, and the newborn, be

vaccinated. And they've been given a little bit of hassle about that. Sometimes people think that's unfair, that they should be vaccinated, and they're struggling with how to explain that to others and keep their family safe.

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Dr. Gregory Poland 28:36

Yeah, I have a lot of a lot of sympathy for this. I don't think there's a family, my own included, where these kinds of issues and discussions haven't arisen. We're, hopefully in the next couple of weeks, going to be welcoming a newborn to our family, our first grandchild. I think the key is, again, what we've talked about is how do you mitigate risk? How do you lower risk as low as you reasonably can? Well, it starts within the daycare being sure that any kid who's symptomatic is not going to be present. And the rest of the kids notified if somebody is symptomatic, getting the staff vaccinated and wearing masks, having the adults in that newborn or that toddler's life vaccinated and taking precautions in regards to being indoors, in crowded areas, etc. Not much you can otherwise do to protect a toddler. It's a situation that we would call cocooning. In other words, you try to develop a cocoon around that newborn, around that toddler to keep them as safe as you can. I have no problem at all defending the idea. And it's true in our household, if you're not vaccinated, you're not coming into our home. I'm sorry. You made a choice, and you have the accountability for that. But we're not going to run the risk of getting infected, and God forbid spreading that infection to somebody else, even though we're healthy and fully vaccinated. So, I absolutely agree with them and cheer them on. They are thinking exactly the right way.

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Dr. Halena Gazelka 30:18

And congratulations on your new baby.

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Dr. Gregory Poland 30:20

Yeah.

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Dr. Halena Gazelka 30:22

Wonderful. You know, one of the other questions that we see a lot, stems from this as well, Greg, around kids being vaccinated. So, as the age decreases, for children to receive vaccinations, there seems to be a lot of fear of parents of getting their kids vaccinated. Whereas I look forward to my two and six-year-old grandson's being able to be vaccinated. I almost feel like I'm holding my breath, that they don't get infected. before that happens. What would you say to parents to reassure them as the age changes?

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Dr. Gregory Poland 30:58

Yeah, so a couple of things. Number one, the reason that it is taking so long to get approval to use the vaccine down to age five, is that appropriately, the FDA asked for a doubling of the number of kids in those safety studies and asked that they not be followed for two months, but six months, and the FDA wants to see those data before granting an EUA. So, I think that's very reassuring, particularly on top of the mountain of data that we have down to age 12 and above. The second thing would be, I could see reason for hesitating until you really saw all the data when the original strain was circulating. Kids tended to not get sick, and if they got sick, really not very seriously. There were exceptions, of course, in the face of these new variants, and it's not just Delta variant, we're watching Lambda variant. And we're watching the development of a new variant we talked about last week that doesn't even have a Greek letter name yet. In the face of those, it adds urgency. As I said, what we're seeing is an explosion of cases and subsequent hospitalizations. Thankfully, they tend not to die among even toddlers and young children. In the face of that, that makes it all the more urgent that these mitigation procedures of masking, of immunization be carried out. So, we'll see what the safety data looks like. You know, you don't want to trade one side-effect for another side-effect in the face of these. But let's see what those data look like. We'll comment on them very transparently, in our Q&A session when they're available. For example, and why am I saying this? There's some new data suggesting that in younger kids, particularly males, there might be yet an even more elevated risk of myocarditis. So, we need to see what those numbers look like to see if that actually bared up when they do this safety study. And if it does, then have a very transparent discussion about the risks of the vaccine versus the risk of getting infected by the virus.

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Dr. Halena Gazelka 33:36

Greg, it has occurred to me that we live in a time where many of the generations have not experienced anything akin to an epidemic. I remember I was reminiscing with a friend about how we would line up in the school gym when I was a child, and you just march through and we're given immunizations. My parents weren't there signing anything. I don't know how the agreement was made, but you took the vaccinations that were given to you. Now, my parents have lived through the polio epidemic, and, you know, everyone recalled that and had a great deal of respect for medical care, and particularly vaccinations and the progress that had been made with them. Kind of interesting.

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Dr. Gregory Poland 34:16

You know, you're very right, Halena. I think historians in fact, will just in the next few years look back and really struggle to explain our response as a culture to this, what I hope will

be a once in a lifetime threat. This pandemic is unlike anything seen in modern times. And we have the best of science available to us and yet, people hesitant to accept it, conflating it with conflicts of interest, political and otherwise, that materially and detrimentally impact their lives and the lives of their loved ones and communities. It's very hard to understand, but it is a fact of human nature.



Dr. Halena Gazelka 35:10

Last question of the day, Greg. Are at home COVID tests reliable?



Dr. Gregory Poland 35:15

Good, really good question, because the data are really uneven in this regard. So, I would say that there is reason for some skepticism with a lot of the early release studies that were done. They do not demonstrate the degree of what we call sensitivity and specificity that you would want to have in a diagnostic test for an infection of this consequence. So, it's still the case that the best assay is the PCR nose swab. We often routinely have to do them. I've had it done eight times or so. It's annoying, but it's not painful or, you know, uncomfortable. It makes you want to rub your nose afterwards. But that's the best assay done. Now, having said that, there are some that are going through FDA approval, that I think will meet the bar of very high sensitivity and specificity. I just don't think we're quite there yet.



Dr. Halena Gazelka 36:24

Any last words for us today, Greg?



Dr. Gregory Poland 36:25

And one other thing, by the way, because I know some professional sports teams and others use them, you can improve their performance by using them frequently. In other words, a one-time test could mislead you. But that test done every two days in sequence is less likely to mislead you. So, I think that, again, I hope talking about that reproductive number was helpful, because it really illustrates when you go from a reproductive number of two and a half, and after 10 cycles, get 9,500 infections versus a reproductive number more along the lines of six, like we have now and end up with some 60 million infections. That explains, that says everything really, in terms of why this is happening, why we're seeing the number of deaths, hospitalizations, and illnesses. And again, you know, we're we are finally left in our own humanity with saying, this is really important, and I am staking my own integrity as a physician to say, as best any of us know and understand

these data, in regards to vaccine and the virus, please get vaccinated. Please get vaccinated, wear a mask and be careful. We don't want anybody to suffer what we have watched happen over, and over again the last 18 months.

D Dr. Halena Gazelka 36:26
Thank you, Greg for being here.

D Dr. Gregory Poland 36:28
My pleasure.

D Dr. Halena Gazelka 36:31
We all wish you safe travels as well. Thanks to you too, for listening in today. I hope that you learned something. I know that I did. We appreciate Dr. Greg Poland, infectious disease expert, vaccine expert, and virologist for being here again with us today to discuss our updates and COVID-19. We ask that you mask up and that you vaccinate, and we wish each of you a very wonderful day.

N Narrator 38:31
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