

**Kendal Williams, MD (Host):** Welcome to the Penn Primary Care Podcast. I'm your host, Dr. Kendal Williams. In this podcast, we have discussions with members of the Penn community on issues that are relevant to frontline providers across the health system and the greater world; drawing on the wealth of expertise and knowledge within our community to do that. In this episode, we decided to return to the topic of the COVID and address some of the common questions everyone is asking about the pandemic and our response to it. So, this podcast is a little different in that we usually consider our audience to be people with medical training, but we want this particular episode to be for patients as well. Providers are getting more questions than we can reasonably answer in a typical office visit. But a podcast really gives us an opportunity to go a little deeper on a broader range of questions that people may have. So, you know, I had thought of this is if you get a lot of questions, you could just refer to the podcast, and have people listen to this. That may be a, a high standard, but, hopefully they will find it valuable in that way. So, with me are two members of the Infectious Disease Division at Penn. We welcome back, Dr. Steve Gluckman, a Professor of Medicine at Penn with a storied history here. Steve, you just got back into the country. I think I heard you were doing something fun.

**Stephen J. Gluckman, MD (Guest):** Yeah, I was biking from Prague to Budapest dodging COVID all the way.

**Host:** That sounds, how far is it?

**Dr. Gluckman:** A little over 200 miles.

**Host:** That's probably wonderful. I spent some time in Romania and through Hungary quite a bit. So I know it's beautiful countryside. It must've been beautiful.

**Dr. Gluckman:** Yeah. It really was gorgeous. Yeah.

**Host:** So we also have Dr. Kathleen Degnan, an Assistant Professor of Medicine at Penn and the Associate Director of the Antimicrobial Stewardship Program at HUP. Kathleen, welcome to the podcast.

**Kathleen Degnan, MD (Guest):** Thanks so much for having me Kendal. Excited to be here.

**Host:** Yeah. So let me set this up. From my perspective, there's still a lot of confusion about COVID in our communities. We could argue how much help or

harm the media is doing, but the reality is that people are really confused. And in many ways, I think it comes down to the fact that people are confused about risk and how to place the COVID risk within the context of the other risks they experience. So in some cases, I think people are underestimating the risk of COVID and maybe overestimating the risk associated with vaccination. But I also hear a lot of folks that I think are now overestimating their COVID risk, especially now that they've been vaccinated and that also needs to be addressed. So, let me just start by saying, at, baseline, we know there was baseline risk of COVID before there was a vaccine. When COVID hit our communities in the winter going into spring of 2020, it was causing mild disease in most people, but severe disease in some. We were seeing mortality rates that were ranging one to 2%, and that varied by age. It was hitting older populations, particularly hard, 85% plus of the deaths in patients from COVID were in patients over age 65. Rates of hospitalization were a little harder to pin down, but I saw rates that are as high as 20% in some populations as low as 4% as well. And they varied by age group.

So, then we got the vaccine in early winter and spring and mass vaccination programs started. We saw rates of hospitalization in highly vaccinated areas drop through the summer and we saw increased rates in mostly the Southern and Western communities where the vaccination rates were low. That gave us the sense that the vaccination program was working. But I want to start with that question because that's obviously a question of great interest right now. How effective is the vaccine? So Steve, I'm going to punt this to you. How effective is the COVID vaccine?

**Dr. Gluckman:** Okay, ready patients. It's great. Next question. No, I could be a little more specific if you like. It's been well studied in over a hundred thousand people, well over and it's very effective. It depends on which vaccine you get, but if you kept in mind, maybe 90% effective. That's a good ballpark number. And as important, it's almost a hundred percent, call it 98%. Cause we're not supposed to say a hundred percent, effective in preventing severe disease. So, they are excellent vaccines and they prevent a serious, serious disease.

And it compares favorably to almost all the other vaccines we use. Some are a little less effective. Flu for instance, which most people don't have any trouble with getting, is averages, maybe 70% and in a bad year, which we did have relatively recently, it was at 13%. The efficacy, by the way, doesn't vary a lot, with epidemiological groups, in terms of its protection. It's a very effective vaccine.

**Host:** So, I guess the other question that comes up and you hear and I think actually this has some legitimacy, is that people say, okay, we hear that. But the Pfizer and Moderna vaccines are built off this new platform, this mRNA platform, which is really a new way of doing it. And many people had concerns that we don't know the long-term risk of that new approach.

Now, honestly, to me, having studied and seen drugs come on the market, in the past that were taken off, it came on, they had a new pharmacological mechanism, and then they were taken off. I, I think there was some legitimacy to this concern. But what are your thoughts? That actually, let me punt this to Kathleen.

**Dr. Degnan:** Yeah, I can totally understand people being a bit afraid of a new technology, but in reality it's been around for decades. So, it's really not a new technology. We're just now adopting it for vaccine use. The reality is that the science has been there for decades and this has been studied for decades.

But now we're adopting it into using it in vaccines. So I think thinking about it from a scientific standpoint, and how the vaccine actually works, it's really something that can't integrate into your DNA. It can't incorporate itself into your body and so it shouldn't have lasting effects on the body.

So I personally don't have any concerns about long lasting, side effects from this type of vaccine. Really what it does is it directs your cells to produce the protein that it's giving these genetic instructions for. And then once the protein is made, the mRNA platform is degraded and eliminated from the body. So, there really shouldn't be any long lasting effects from the vaccine.

**Host:** I gave an example to a patient. I said, imagine you have an engineering library that has all the designs on specific things. And you go to the library, you make a copy of something from a book, you take your copy home, you make whatever it is and then you throw away the instructions. And I think that that's similar, but you don't change the library because you're actually, mRNA is simply a copy, but we're giving the copy into the cell. And yet, the engineering company's making the product.

**Dr. Degnan:** Yeah, I love that analogy, Kendal. I think that's an excellent analogy.

**Host:** And, you know, I think that the other thing that we can say now that maybe we couldn't say in January of 2021, is that hundreds of millions of people have received this vaccine. And we're just not seeing any problems. I'm

not getting any calls from patients except for some short term symptoms, but long-term, we're not seeing any problems. And we'll go over that in a little bit of detail. There are some, actually some issues that are coming out, but I know in my primary care environment, I'm not seeing anything. I don't know about the two of you.

**Dr. Gluckman:** No. And in every other vaccine, if people are going to have side effects, they have it relatively early. They have it a couple of days, maybe a week, not months to years down the road. So, there's no scientific validity to be concerned about this vaccine in terms of significant long-term side effects, as opposed of course, to the disease, for which there's significant long-term side effects, including death, which is fairly long-term.

**Host:** So, one of the things that I think that really brought a lot of this home with us, the CDC data that came out a few weeks ago, and to me, the numbers are quite striking. So the risks of death and hospitalization in vaccinated individuals were very low. So they listed them for each state. Pennsylvania didn't have data, unfortunately, but New Jersey did. And in the state of New Jersey, if you were fully vaccinated, the risk of death from COVID was one in 410,000. So, California's risk was one in 235,000. I just went around and I sort of scoped out various states to kind of get these numbers and to give context to this risk, I wanted to see, what are some of the risks that we all face every day. So just to give context to those numbers. So, in every year, the risk of a person dying in a car accident is one in 8,000. And the risk of an alcohol related death is one in 143,000. Okay. So one in 410,000 is a significant decrease in risk relative to simply driving a car. Kathleen, does that sound right to you?

**Dr. Degnan:** Yeah, I think that does sound right Kendal. It's amazing when you hear these numbers, how rare it is to die after being vaccinated against COVID. And I think it's really helpful to put into context, like your risk of dying in a car accident is much higher than your risk of dying from COVID after you've been vaccinated. Those numbers are incredibly striking, so, thank you for looking those up.

**Host:** Yeah, I was very struck. You know, the rates of hospitalization also, were pretty striking. It was one in 10,000, one in 15,000. If you were under age 65, it was one in 40,000, the risk of being hospitalized. That really struck me because if you could imagine, a city, like Allentown, for instance, it's about a 120,000 people. So, if everybody in the city of Allentown were vaccinated and everybody got COVID, you'd have less than a dozen people that would go to the emergency department with COVID symptoms. So, those are very striking numbers, that brought things home for me. And so, for this perspective, I think

we're seeing an issue a little bit, that people are overestimating the risk now that they are fully vaccinated.

**Dr. Gluckman:** You know, if you put those numbers next to each other and you hit, you said the others before. So the risk of dying from COVID is one to 2%, one or two in a hundred. The risk of dying from COVID if you've been vaccinated is one in 400,000. It's no comparison.

**Host:** And I think it speaks to what 90% effective vaccine really means or a hundred or nearly a hundred percent and

**Dr. Gluckman:** Nearly a hundred percent in terms of dying. Yeah.

**Host:** In terms of dying, I mean, frankly, I was surprised with how good those numbers were. And those are real world numbers. Those are the CDC's numbers that they're pulling off the states and what's being reported to them. So, I have had number of patients who are fully vaccinated and some have even received a booster vaccine. And they're worried about getting on a plane to visit their grandchildren or going to a family wedding. And I find myself in a different position because I used to be talking up the risk of COVID and in these folks, I'm always trying to tell them, listen, you don't need to worry about these things anymore. Steve, how would you advise somebody who's been fully vaccinated? Maybe you have patients who have had boosters as well. What are you telling you these folks?

**Dr. Gluckman:** Yeah. Well, I tell them that like everything in life, there's a risk benefit and you have to look at the two, but in this case, if you've been fully vaccinated, the risks are very, very low. So unless you are going to be paralyzed by the concept of being at a wedding with other people, go, I think your risks are that low.

So I, think the risk is more of a, this point of a anxiety, psychological risk than a risk of actually getting serious COVID. There are breakthroughs. You might get sick, but the likelihood of getting really sick is almost zero. So, important events I would go to. I wouldn't necessarily go to an Eagles game. Oh, I shouldn't have said that. I should go to a wedding, or you know, a trip from Prague and Budapest, that's been postponed for over a year. So I try to reassure them, but they have to balance in their own mind, the risks and benefits.

**Dr. Degnan:** Yeah, I agree with Steve. I think, if you're vaccinated, you should have a lot of reassurance in going and doing these activities. You do have to think about your own personal risk. And so we've still been cautious with our

immunocompromised patients who don't respond as well to the vaccines, knowing that they're not as well protected by them, that they still need to be, relatively more cautious. But for somebody who has a normal immune system and has been fully vaccinated, they can have a little bit more leeway with the activities that they pursue, obviously taking into account things like the transmission rates in the areas that they're going to and what kinds of activities that they're doing when they're there.

**Host:** And by immunocompromised, just to be clear, you mean patients who are on immunosuppressive drugs? Those are more common nowadays as we're using biologics more, but, but that's what you mean, right?

**Dr. Degnan:** Right. Yeah. And it's a spectrum immunocompromised. But either being on immunocompromising medications, like rituximab, chemotherapies, steroids, or having an immunocompromising condition like hematologic like a blood malignancy or an organ transplant.

**Host:** So I think we can confidently say that these vaccines work, that they're very effective at reducing people's risk of COVID infection and its consequences. But you often hear questions of safety and this is a legitimate thing. I mean, we all balance risk and benefit every day. We've now vaccinated hundreds of millions of people worldwide. And I think we have pretty good answers to these questions. We addressed this a moment ago, Kathleen, but is there anything more to be said about the safety of the vaccine from your perspective?

**Dr. Degnan:** Yeah. I would say they're incredibly safe, and certainly much safer than getting COVID-19 infection. In all of the trials, the rates of serious events was incredibly low. The major side effect that was reported were these allergic reactions, which were really two to five people per million vaccinated who had an allergic reaction. But, we know that there are certainly reactogenicity to the vaccine. People have a sore arm or some people have fevers or myalgias, muscle aches as their body is ramping up the immune system. But those are to be expected. But the rates of actual side effects and serious side effects is very low.

**Host:** You know, I've been interested in this data that's coming out of Israel, because you know, Israel was a little bit ahead of us in terms of vaccinating its population. And they also have nationwide electronic health records. So, they're able to actually provide a lot of good data. And these studies have been published in the New England Journal. Recently there was a study that showed that amongst a million people vaccinated, there was actually an increased risk of

four problems. Myocarditis, lymphadenopathy, appendicitis and shingles. So myocarditis is probably the most significant of those.

It's inflammation of the cardiac muscle. And that was a 3.24 times increased risk of myocarditis, but that needs to be kept in context. I mean, I, as a primary care physician, I haven't seen a case of myocarditis in 20 years. Now the Penn Cardiologists have seen more, but, in a general population level, we don't see this very often.

So three times the risk is still not a high number. Nevertheless, when you looked at COVID itself, COVID infection without vaccination. And I think this gets to your point, Steve, the risk of myocarditis was 18 times what it was otherwise. So, even though risk was mildly increased with the vaccine, it was actually a much greater risk if you got COVID. And COVID itself was associated with other complications that were not seen with the vaccine, like arrhythmias, thrombotic events, heart attacks, strokes, and so I think this helps drive home the point that doing nothing is actually doing something, you're making an active decision to expose yourself to something that might be at higher risk.

**Dr. Gluckman:** I totally agree. Well put. There's no guarantees in anything, but we have data now, a lot of data that shows the expected consequences of getting COVID and the expected consequences of getting the vaccine and the vaccine wins in every way, we should get vaccinated. It also incidentally protects those near and dear to you. Which some of us like to do, because if you get infected, you are at risk for giving it to other people.

**Host:** And even though you can potentially give it to other people, even if you're vaccinated, that risk is much reduced compared to what it is if you're unvaccinated. So now we have this whole discussion of boosters, and this is probably most of the questions I'm getting around about boosters, who should get a booster, when they should get a booster and so forth. Steve, I'll ask you, where are we at with that?

**Dr. Gluckman:** The official pronouncements on boosting just came out about a week or so ago and there seems to be the usual tripping over themselves when they do these things. So, there was a little confusion, but in reality, it's not difficult to summarize. The present official recommendations and the official recommendations are that anybody over 65 should get a booster. Anybody in the healthcare business, seeing patient type and not to say administrators, should get a booster. And that was the confusing thing between the FDA and the CDC, and then people who are at high risk for having severe complications of COVID

and that fundamentally are immunosuppressed people of any age, although, officially, in terms of these recommendations, 18 or over.

So it, it's not an unlimited number of lists to remember. It's basically just three, over 65, health care, immunosuppressed to get a booster. And the only other comment related to that is this advice only at the moment applies to the Pfizer vaccine. That's the only one that's been approved. At the moment, it does not apply to the Moderna vaccine, the other mRNA vaccine, nor to the other, vaccines, such as J and J. The Moderna one, I think everybody believes will have the same recommendations very shortly.

J and J, I don't think it's clear not to me, when and what the boosting recommendations will be. There is a side issue with that, which is, what should you be boosted with? And the official recommendation is you should be boosted with whatever you got. Although there are increasing data that, if you get boosted with one of the other types and that would include J and J by the way, people have a very nice antibody response with the understanding that we don't really know the correlative protection. We're using antibodies as a surrogate marker for that, but we don't really know. So, at the moment, the only one that the recommendations apply to is Pfizer, but Moderna very soon. And I don't know what the recs going to be or when they're going to be for J and J.

**Host:** How do we make the decision when to boost a vaccine? Or if a vaccine needs a booster? How was that decision historically made and how has it being made now?

**Dr. Degnan:** It's an excellent question. We know from the initial people that were enrolled in these vaccine studies, when they started last year in 2020, they look at the rates of infection in those groups and see when the rates of infection go up. And so we have seen an increasing rate of breakthrough infections over the past several. And I think that has really been the driving force behind the asking for booster shots. There's really not a great answer as to when is it best to boost? We know that these vaccines are still incredibly effective against severe disease and death, like in the 98 to 99% range. But the thought behind boosters is that we have been seeing some waning antibody levels and breakthrough infections. And the hope is that with the booster shots, we can decrease these rates.

**Host:** And we're really trying to get ahead of it, right? I mean, we really haven't seen an uptick in the real complications, but we're projecting that the antibody levels dropping, increased breakthrough infections is probably ultimately going



to lead to the hospitalization and potentially death. So, you know, let's get a jump on it and start boosting now. Right? Is that how you're reading this?

**Dr. Degnan:** I think so. It's a good question. I think, some people would argue you really don't necessarily need to boost right now because we still have the efficacy for the thing that we care about the most, which is preventing severe disease and death. And so if it's still working from that respect, really like, do we actually need a booster right now? And people have varying thoughts on this. And certainly I would want to see boosters once we're seeing increased rates of hospitalization in the vaccinated group. Right now, we're not seeing that. I would be interested in your thoughts on boosting Steve.

**Dr. Gluckman:** Yeah. And the boosting also although, as I said before, we don't really know that we measure antibodies, but clearly there's a T-cell response. We don't really know what the right thing to measure is. And what the real threshold is for being concerned about antibody levels. What's really too low. The other thing I think that boosting probably has some impact on is by decreasing disease, it does decrease spread. And although it's not perfect, there's a certainly a sizeable percentage of people who get asymptomatic disease and could spread it, but it does decrease the spread. And that's one of the battles we're having here, trying to control this still ongoing pandemic. So, there's a reason to boost, to protect other people too.

**Host:** Well, speaking of protecting other people, I think what a lot of folks are concerned about are their children, cause many adults have been vaccinated. You know, it's interesting. Cause I was looking at data today and 200 million people have been vaccinated in this country. So I think it works out to be about 60 some% have received at least one shot. I don't know how many kids are in the country, but I imagine a sizable proportion of the remainder of the unvaccinated community are actually kids. And that's the question that I think a lot of people are worried about. You have this large group of unvaccinated folks that we really care about a lot. So I'm going to throw this to both of you and you can take turns. How do you think about the risk of COVID in children?

**Dr. Degnan:** What we've seen is that the overall risk of children developing severe disease or dying from COVID is very low. We have seen recently a rise in cases due to the Delta variant because of it being so much more infectious, and more quickly spread. Most kids have still had mild disease though some do become severely ill and we were seeing increased rates of hospitalization, especially in the south. So, it's still unclear why kids don't get as sick, but we're all happy that they in general don't get as sick, fortunately.

**Dr. Gluckman:** I agree. Although they can also carry it home.

**Dr. Degnan:** That's true.

**Dr. Gluckman:** And put people at risk. Yeah. They're an obvious sizable cohort that needs to be vaccinated. They need to be vaccinated to protect their teachers, they need to be vaccinated to protect their parents and anybody else at home particularly those that may not have a strong immune system and are at a higher risk.

**Dr. Degnan:** I totally agree. And I mean, we're lucky now that kids over 12 can be vaccinated. And I know that the expectation is that we'll soon be able to vaccinate the five to 12 year olds. Hopefully even younger, very soon.

**Host:** When do you expect that to come out? The approval is coming at the end of October, I believe. Right?

**Dr. Degnan:** That's what I had heard is for the five to 12 year old groups, that it should come in the next month or so.

**Host:** So, by the winter, we're going to be vaccinating our kids. I would imagine.

**Dr. Gluckman:** Yeah, and that's good timing. And it gets basically everybody in school.

**Host:** Let me ask you the question. So if you can envision where we'll be in four to six months, most of the kids will be vaccinated, I would assume, most of the adults will be vaccinated. Those who aren't will probably have had COVID, I mean, or, there won't be that many people around who have no immunity to this virus. So where are we at with this? How much longer do you think we'll be at this?

**Dr. Gluckman:** I just want to define at. I think COVID has made a permanent change in our social and public health system. And not necessarily all for the good. I think it's undermined the public health department a bit, but I think it has made a permanent change. So that's going to stick around as will COVID. COVID is not going to be eliminated, but hopefully it'll be much, much less and it would be a virus that people get occasionally. And it'll be relatively mild because they're vaccinated. My guess is, when I've been asked this, you know, with actually no information or data whatsoever, I'm thinking that we at least

have another year or so of having significant issues with it. But, I'm happy to be wrong. It could be a little shorter, but

**Host:** Kathleen. What's your thinking on this?

**Dr. Degnan:** I agree with Steve. There's not really hope that we'll eradicate this, but at this point, it's going to be with us for a long time. But my hope is that it will become something that's much more benign over time. And sort of like the common cold or the flu, which is not benign, but that we'll have a vaccine for that will significantly decrease the mortality and morbidity from the disease. So, I predict that this is going to be in the current state, probably for another year or two. And then my hope is that with increased vaccination rates, both in the US and around the world that this will decrease to a much more manageable level.

**Dr. Gluckman:** If you needed another reason to get vaccinated, there is this demon out there, which is the concern that there will be more variants that may be more difficult, or maybe even not as affected by vaccines. The ones we have. So, the less multiplying virus there is, the less likely that is to happen. Hence everybody should be vaccinated.

**Host:** Steve, what about this issue that happened with the early 20th century flu pandemic? That from what I understand, it seemingly mutated into a less virulent form, more transmissible, less virulent, and sort of faded away and became one of the viruses that we see. Might we see that with COVID?

**Dr. Gluckman:** We might. But the flu predictably changes its outer antigens. And that affects how contagious it is. Actually less than how virulent it is actually, just how contagious it is. So, there was a significant shift in those antigens in those years. And there was nobody had any protection at all. So, that's fairly analogous to present COVID issue. So it may be something, but with flu, since then, we've had multiple epidemics and occasional pandemics still, as it changes its coding. So there's, no good reason that COVID couldn't do that also.

It's not been around long enough to know how it's going to evolve. But we all know about the outbreak in the early 20th century, but flu was having such pandemics, the one can identify in, save serology and other things well into the 1800s.

**Host:** I'm gonna switch gears because we can't have Kathleen on, without talking about monoclonal antibody therapy, because she's been involved in that program at Penn and we are getting a lot of questions. I'm getting a lot of

patients who have COVID, who were vaccinated, with COVID, and want antibody therapy. So, it's still coming up in our practices. Kathleen, can you update us both on the evidence supporting monoclonal antibody therapy? Cause I know that's evolved, it's evolving every few weeks, and how we can still access it at Penn.

**Dr. Degnan:** I think we've all been encouraged that the data has been showing more and more of the benefits of monoclonal antibodies and that this is really a helpful therapy for people who are not needing to be hospitalized with COVID-19, that are having mild to moderate symptoms of COVID-19 and are outside of the hospital.

So, just looking at the data and what the studies have been showing is that, these monoclonal antibodies, with the primary thing that these studies are looking at being hospitalization or death from COVID, that comparing people who got monoclonal antibodies versus placebo, 1% of patients in the monoclonal antibody arm, were needing to be hospitalized or dying from COVID, versus three to 4% in the placebo arm. So, you know, a 2.2% absolute reduction, but a 70% relative reduction in hospitalization or death among the monoclonal antibody patients compared to placebo. So, we know that these are really good therapies, for people who have COVID-19 and don't require hospitalization and they've been shown to be quite safe.

The major thing that we look for is allergic reaction. But it's quite rare, less than 1% of patients. And I tell people when I offer this therapy to them, that it's basically mimicking our own immune system, giving them these preformed lab made antibodies to specifically target the virus, to help your body clear the virus out faster than it could just by your own immune system itself.

So, right now it's really our only approved option for outpatient therapy for COVID-19. And so what I encourage people to do is if they do become infected to contact their primary care provider, and that here at Penn, their primary care provider can put an order into EPIC. It's called the consult to SARS COV 2 monoclonal antibody. And then our clinic would contact the patient to discuss the therapy with them, consent them, and then schedule them for the therapy. We have a good process going in the outpatient setting. We really want to stress to people that we're not able to offer this and unfortunately in the ER, and so they really shouldn't be going to the ER, just with the intent of getting monoclonal antibody.

And we shouldn't be telling our patients to go to the ER to get monoclonal antibody, but that we can coordinate this in the outpatient setting. So, we've

been lucky enough set that up, here at Penn under the direction of Keith Hamilton and David Horowitz.

**Host:** Does it matter if you're vaccinated?

**Dr. Degnan:** So right now that does not exclude people from getting it. We don't know what the additional benefit of monoclonal antibodies is above just having had the vaccine because theoretically your body should have formed an immune response and antibodies and the cellular immune response to COVID if you were vaccinated. When these monoclonal antibodies started being studied, the vaccine wasn't around, we don't know what additional benefit it provides above the vaccine. But we're still offering it right now until we have that data. I would say that because the rates of COVID have been higher recently, there's been a lot more demand for this therapy. And the demand sometimes exceeding our capacity to infuse patients on the outpatient setting. And so we've had to at times, go to a lottery system to distribute the monoclonal antibody. So, one more reason to get vaccinated, because you really can't guarantee that you'll be able to access monoclonal antibodies if you get infected.

**Host:** In the conversations I've had with patients about this, more often than not, I've been talking them out of it actually, because a lot of patients know about it now. But these patients have been vaccinated. They're having very mild symptoms, basically the equivalent of a cold, and I'm really discouraging them because I know that there are others that may need it. And, you know, given the rates that we described earlier of death from COVID and hospitalization from COVID if you're vaccinated and so forth, they're so low that I've actually been discouraging patients. Don't know if that's universal.

**Dr. Degnan:** Because we know that the vaccine is so effective in preventing hospitalization and death, I'm much less worried about those patients and getting the monoclonal antibody. The people that I would really try to encourage to get it if they got sick would be the unvaccinated group or the immunocompromised group, who's not expected to respond well to the vaccine.

**Host:** Well, thank you both for joining. This is a very good discussion. I think very topical to a lot of the questions that we're getting in our practices. Stephen, Kathleen, any final thoughts?

**Dr. Gluckman:** Everybody should be vaccinated.

**Host:** I mean, it makes such a difference that I think that that's basically the take home message, isn't it?

**Dr. Degnan:** Yeah. These are amazing lifesaving vaccines, and they're safe. They've been shown to be incredibly safe. So everyone's should get it.

**Host:** No downside. All right. Well, thank you everyone for joining the Penn Primary Care podcast. We look forward to having you back soon. Take care.

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