

Podcast Transcript

UNMC Chancellor Jeffrey P. Gold, MD: Today my guest is Dr. Kari Simonsen. Dr. Simonsen serves as our Chair of Pediatrics and the professor of infectious diseases here at the University of Nebraska Medical Center. Dr. Simonsen, thanks so much for joining me and joining our audience today.

Kari Simonsen, MD: Thank you, Dr. Gold. Pleasure to be here.

Dr. Gold: Well as some of our audience may know, but I'll bet many don't, that August is National Immunization Awareness Month, and as a physician and particularly as a pediatrician, what would you want parents, families, and kiddos to know about this special August recognition of immunization awareness?

Dr. Simonsen: Well, thanks. You know, I think that August is a great time for immunization awareness because we're really in the thick of the back-to-school season in August. And so, we would like to encourage kids and their families to check in with their pediatricians, get ready for that school year. And then one of the things that will be talked about at those visits is being up to date on immunizations. You know, nationally, we had a trend during the pandemic where kids got behind or their vaccines were delayed because some of this routine preventive care was delayed during that time. So, I would really encourage folks to get into their pediatrician's office and have those vaccines reviewed together to make sure your child is up to date as you send them back to school.

Dr. Gold: You know, as I've studied this a little bit over the years, and please correct me if I'm wrong, that there's really a very, very long history, you know, going back hundreds and hundreds, if not even a thousand years, of people trying to prevent infection as a result of immunization or vaccination. But if I recall history correctly, it was in the 1790s that (Edward) Jenner first began to immunize early on children against smallpox. And since that time, it has been quite successful in being able to use the concept of immunization with vaccination-type treatments to prevent serious diseases. And, you know, since those, you know, several hundred years have passed, even today, people have a number of myths and concerns about vaccination, about getting their children or even themselves immunized. So, let me just start off by asking a very simple question, are vaccinations and immunizations safe? Because people talk about all different types of concerns.

Dr. Simonsen: Yes. You know, vaccines are one of the safest medical advancements that humanity has seen. It's truly incredible. Over hundreds of years, you know, we've had billions of humans vaccinated against various infections. And so over time, you know, the vaccine products themselves and the science behind them continues to evolve and become more safe. And we continue to see that with the modern recommendations of vaccines for children. You know, I think one of the myths that we hear as pediatricians is that we don't need some of these vaccines anymore because those infections are sort of not circulating in our community now. And that is also something that we need to guard against. We may not see them day to

day in cities like Omaha, Nebraska, and that's because of vaccines, the safety of vaccines and the relatively low numbers of these infections that are still around nationally and globally. So again, you know, we continue to encourage the vaccines that remain relevant and important for our children today. And, you know, happily as you mentioned, smallpox was a vaccination that was given to all children and started hundreds of years ago. And today, smallpox is not circulating globally, and we don't use that vaccine. So, as time evolves, and we continue to monitor trends and infections, there is a possibility of future eradication of other infections, but today we're using the vaccines that are necessary for what's circulating in our communities and across the globe.

Dr. Gold: You know, another question that comes up pretty often that I've wondered about myself, is there are some vaccines that it's essentially one dose or two doses, either in childhood or early adulthood, and you're done. And then there are others like the influenza vaccine, the common flu vaccine, which is pretty much an annual cycle. And what determines that? Is it the vaccine itself? Is the disease you're treating? Or a combination of both?

Dr. Simonsen: That's a great question, and I do think that it is a little bit of both. There are some vaccine technologies that do a great job of helping our immune system be trained to have long-term memory of that potential infection. And so only one or two doses is required, and then we can sort of recall that information from our immune system later if the infection is present in our community and we're exposed. An example of that really would be the measles vaccine, which is still a live, attenuated virus. And our immune system is trained after that vaccination really to recall what measles virus looks like and remember it forever. As we think about the pathogens themselves, and that potential need for new vaccines over time, influenza is a really good example of why updated vaccines are needed. And that's because influenza viruses really change pretty quickly. So, they evolve different what we call antigens or kind of projections from that viral surface that our immune system responds to. And they do that in ways that help evade or avoid detection by the immune system. So, our vaccine technology needs to evolve in time as that virus changes, so that we can stay a step ahead and have our bodies prepared through vaccination to respond to the circulating virus.

Dr. Gold: Another question that I get asked all the time relates to the synergy or the effectiveness of multiple vaccines, because in childhood, of course, many of the vaccines are combined to a single dose. Whereas, later in life, such as in this case of influenza or others, it's usually a single vaccine. So, is there more efficacy or less efficacy if we combine the vaccines? I know the Food and Drug Administration and others are talking about possibly combining a COVID vaccine with an influenza vaccine this fall. So that might produce convenience, but does it change the efficacy at all?

Dr. Simonsen: You know, our bodies are well prepared to handle multiple vaccine doses at a time. And in fact, any vaccination only represents a tiny fraction of what the immune system can sort of respond to at once. And so, there's not really a concern of sort of "overwhelm" or "too much antigen" from multiple potential infections being combined into one vaccine product. But we do need to make sure that each of them individually is tested so that there's

good responsiveness before we would work on a combination. And then those combinations are also tested together just to make sure there aren't any increased potential adverse effects or any decreased effectiveness by putting the antigens into one product. But in the end, when we can reduce the number of doses that a person needs, as far as injections or the number of trips to a doctor to get a vaccine, it's always helpful when we can put those combinations together. And so, we'll continue working toward that, especially in the pediatric series where there are a number of vaccines that we need to deliver to kids in a relatively short amount of time.

Dr. Gold: You know, clearly over the last three years, we've seen probably more coverage discussion debate around efficacy and safety of vaccines, at least as it's related to SARS-CoV-2, the etiologic agent of COVID-19, then probably we've seen since smallpox vaccines and polio vaccines first came out. And I'm guessing that in your offices and in the offices of our pediatricians, there's probably as much or more conversation with parents, families, and even with kiddos themselves, about "Why do I need this vaccine?" and "What happens if I don't do this, and what happens if I do do it?" What do you advise families who come in and, I don't want to say they're skeptical, but raise these types of concerns given the amount of attention around something that, certainly when my family was growing up, it wasn't even being debated, it was just a routine part well child care.

Dr. Simonsen: Yeah. You know, I think those conversations have changed over time. When I was a child and when vaccines for children were a bit newer to the routine schedule, many of our parents, grandparents, had a lot of recollection, personal understanding of what some of these diseases, particularly things like polio, looked like in the community and the impact that they had on friends and family members. And so, the conversations were very different when the diseases were visible. And I think that as the benefit of vaccine has really emerged, and we don't see the detrimental effects of the infections themselves, those conversations have become more abstract for families. They don't understand what the infection truly looks like. So, I would encourage individualized conversations; you know, pediatricians will help families walk through what are the main concerns that they have, and different families approach it with very different sets concerns. And so, I do think that pediatricians are well prepared to handle exactly what a family member might have as a concern. Some of the ones that we see most often are concerns about side effects from vaccines. And so, that's something that we do address with everyone. And in fact, everyone gets both written communication about the vaccine that they've been given today, or their child has been given, as well as that verbal conversation about vaccine safety. And again, some of the vaccines that you and I received when we were kids are not the products that we're using today. Because over time, we've been able to improve the engineering of those vaccines to have less reaction. And so, the diphtheria/tetanus/pertussis vaccine is one example where the vaccine that was given 30 years ago or so is not what we're doing now. And the reactions are much less fever and things like that related to those vaccines.

Dr. Gold: Well, I really appreciate your taking time to unpack some of the myths and, and some of the concerns about vaccines. And this August of course, National Immunization Awareness

Month, is a time for all families to have an opportunity to catch up. Thank you so much for all that you do, and thanks so much for being with us on our podcast today.

Dr. Simonsen: Thanks again, Dr. Gold.