Katie Johnson: Good morning and welcome to Apple a Day Lake Region Healthcare's Health and Wellness Program, where we feature news and information you can use to live a healthier life. I'm Katie Johnson, your host, and my guest today is Sarah Brunn. She's our Infection Prevention Coordinator and here to talk with us about August as National Immunization Awareness month. Good morning Sarah.

Sarah Brunn: Good morning Katie. I'm happy to be here.

Katie Johnson: I'm glad that we could sneak you in here at the end of August, because this is a great time to talk about our role as individuals and as parents when it comes to protecting against vaccine preventable diseases. So, as we kind of set up this important topic, let's start with a discussion about the impact moms can have in protecting themselves and their babies from serious disease. There's lots of different groups of people we want to talk about, but let's start with moms and babies. What do you tell women who are pregnant or planning to get pregnant when they have questions about vaccinations?

Sarah Brunn: So, I will start out by saying that it's always important to check with your own medical provider, your OB provider before you get any medications in pregnancy, and that includes vaccinations. But that aside, some vaccinations really are given routinely in pregnancy, including the influenza vaccine and the Tdap vaccine, which is tetanus, diptheria and pertussis. And we give that in pregnancy primarily because it does protect against pertussis, which is an illness that's really ... Can be quite dangerous for babies. So, these vaccines protect both the pregnant mom and her baby. The mom creates antibodies when they get these vaccines and some of those antibodies are passed along to the baby prior to delivery. And then additionally it protects the baby after they're born in that it decreases the likelihood that the mom would transmit those illnesses along to the baby. So looking more specifically at each of those two vaccines, the Tdap is recommended during each pregnancy to help with passing the antibodies to the baby. Pertussis itself is very, very common and it's carried in a lot of adults, which is what makes it kind of scary, because adults don't typically have significant symptoms with pertussis, so they can carry it without getting sick with it, but if you transmit it to a baby, it can be very dangerous to that little one.

Katie Johnson: And pertussis is more commonly known as whooping cough, right?

Sarah Brunn: Whooping cough. Yeah. Yeah. So, whooping cough. And for babies less than a year old who contract pertussis or whooping cough, about half of those babies will need to be hospitalized. And in the United States, around 20 babies die every year from pertussis. So I mean that just shows us how really dangerous it is for those little ones. So that vaccine is recommended to be given during the third trimester of pregnancy, between the 27th and 36th week. We want to make sure that you have it prior to delivery, if possible, to provide the most protection to the baby prior to birth. The second vaccine that we routinely give

during pregnancy is the flu shot. That flu, that vaccination is recommended for every individual once every flu season. Contracting influenza during pregnancy can be very dangerous to the mom and to her baby and can result in serious complications for them both. And really the flu shot is the best way to protect yourself and your child from the flu.

Sarah Brunn: So both of these vaccines have been studied extensively and they're held to really high safety standards, so they feel very secure that they're safe during pregnancy. There is one other vaccine that you should consider making sure you're up to date on prior to pregnancy and that is the MMR. The MMR vaccine protects against measles, mumps, and rubella, and we would recommend that it be given prior to pregnancy, because it is a live vaccine. So there's always a very, very small risk that you could have mild symptoms of the illness with a live vaccine, so we do recommend that it be given prior to pregnancy, but the reason that we recommend that is rubella, which is one of those illnesses that the MMR protects you from can be really dangerous if you contract it during pregnancy. Can result in death of your baby with a miscarriage or it can also cause serious birth defects. So, we do recommend that you have that before you get pregnant and they recommend that it be given at least a month prior to becoming pregnant, although research shows that the risk is very, very low if you were to find out later that you were pregnant when you got the vaccine. It is considered generally safe, but most providers would avoid giving that vaccine during pregnancy just because it's a live vaccine.

Katie Johnson: Those are great to know, what you need to have in mind before and what's safe and actually really important when you're pregnant, both for you and for the baby. As we move on to children, once you have kids, it's up to parents and caregivers to ensure that they get the vaccine needed to protect against serious diseases as well. How many diseases are we talking about here? It seems like as a parent that that list is really long, but what are the really important vaccines for children and adolescents to make sure that they have?

Sarah Brunn: Right. So that list is long.

Katie Johnson: Yeah.

Sarah Brunn: The immunization schedule includes vaccinations against 14 vaccine preventable diseases by the age of two and then an additional two after the age of two. So, I mean we're looking at 16 different illnesses that are vaccine preventable. All of those illnesses can result in serious complications if they're contracted. Most of these vaccines are available in combination, so if you're concerned about the number of pokes that is ... They're available combined to decrease the number of pokes your child has to get, but they are also all available separately as well. So if there were say an allergy to one of the components of the vaccine, they can split them up as well.

Katie Johnson: That's good to know.

Sarah Brunn: There's the long list. I can go through the whole list of vaccine preventable illnesses, but they're really, most of them are common illnesses. So, they're ... Either people are carriers or they're spread through [inaudible 00:06:29] communities. There are some like the polio vaccine, which polio is obviously very uncommon in the United States. Has been eradicated in the United States and that is only a result of vaccinations. So, we've gotten to this point of being able to say that the U.S. is free of this illness because of consistent vaccinations with the polio vaccine. So we have those long lists. And then when you get a little bit older, around middle school age, they do add in a couple of more vaccines. So the HPV vaccine and the meningococcal vaccines, and each of those are important as you get a little bit older and you're thinking about moving into different activities in your life, living in dorm type situations, live ... Being in close quarters, they protect against illnesses that might be contracted in that way.

Sarah Brunn: So, because of vaccinations, we don't see a lot of these illnesses, which is great. And we sometimes forget about how scary these diseases really are, because we've never seen it. Me, I can say I've never seen somebody firsthand who had polio. I don't, I can't witness that, but when I talked to my grandparents, they could tell me about their friends that had polio and either died or had lifelong complications as a result of this illness. So, you just have to really think about the importance of it from that perspective.

Katie Johnson: Absolutely. And I think that's why it's important we have an immunization awareness month, because without that awareness, without the diligence of continuing with our vaccines, we run the risk of not living in that safety, that piece of mind that we have with eradicating some of these scary diseases. And we have to remember too, that vaccinations aren't just for kids. Adults can protect against several serious diseases too. Which ones should we be seeking and at what age as adults?

Sarah Brunn: So, for adults, you're going to continue getting boosters of tetanus, diptheria every 10 years. They would recommend one dose of a Tdap, that one that contains pertussis after you're an adult and with every pregnancy, but aside from that, you would generally get just the tetanus, diptheria every 10 years. Depending on when you were born, your provider might also recommend a booster of the MMR vaccine. If you were born after 1957 and before 1994, so in this kind of big time span, you probably only received one MMR unless you were maybe in an area that had an outbreak or something like that. So, to be fully protected, they would recommend that you would have a second dose of that vaccine.

Sarah Brunn: So that's one you might be talking to your provider about. Also, as we get a little bit older, there are two different vaccines that we would add in. So generally

one of the two different kinds of shingles vaccines and then a pneumonia vaccine or pneumococcal vaccine. There are two different types of shingles vaccine. The newest one is called a recombinant zoster vaccine, or the brand name that we would generally know is called Shingrix. And that vaccine is preferred. It generally provides better protection than the ZOSTAVAX or the live zoster vaccine. So, Shingrix is given in two doses. It's spaced generally two to six months apart, and they wouldn't generally give that vaccine until you're over the age of 50.

Katie Johnson: Okay.

Sarah Brunn: So, we're thinking about that once we get past 50. And then the pneumococcal vaccine, the PNEUMOVAX 23 and PREVANAR 13 for healthy individuals, they would receive one dose of both of those vaccines spaced about a year apart after the age of 65. There are some indications when we would give them before the age of 65, but that would be really dependent on different health conditions where you might get them closer together and you might get them at an earlier age. So, there are more vaccines that might be given depending on your specific health needs or if you're going to be traveling internationally.

Katie Johnson: Sure.

Sarah Brunn: There's other things that they would look at. And again, as with any medication, talk to your doctor. They're really your best resource in providing recommendations for vaccines you need.

Katie Johnson: Absolutely, but it's really great to be armed with the knowledge of what you should be asking about and what ... And being proactive in that way. One question that is very commonly associated with vaccines is how safe they are. We've talked about that a little bit, but can you give us a little bit more background on how vaccines are tested to ensure that they are safe both for kids and adults?

Sarah Brunn: Yeah, there is a lot of testing that's done on every vaccine prior to them actually being available to patients. We don't really hear about vaccines until they're available in our doctor's office, so we might not be aware of really the extensive testing that goes into vaccinations and all of the trials that they move through. So we'll just talk about that a little bit. So, they do start with lab testing. Often that takes many years. Many times that's the longest portion of this is just testing in a lab. Sometimes on animals, just working with the vaccine. And then once they get past that stage, they'll move into clinical trials. With clinical trials, there are three different phases that need to be completed prior to the vaccine being licensed. And each phase is completed with volunteers who enroll in a clinical trial. So, phase one is the first phase that we would go through. It's completed with 20 to 100 healthy individuals. In this phase, they're really looking at if the vaccine works at all. Does it work on people? Is it safe? What is

the proper dosing that we need to use to get the desired response? And what the side effects are. So the really basic side effects. This phase usually takes a couple of months to complete and once that's done they'll move into phase two, where they really increase the number of individuals to ... In a trial to several hundred.

Sarah Brunn: At this point, they're looking more closely at the short term side effects and how well the immune system is responding to the vaccine. Essentially they want to know, does it work? And does it work well enough, and is it important enough to overlook the side effects that are there?

Katie Johnson: Sure.

Sarah Brunn: This phase usually lasts at least a few months and generally up to two years. So, if ... This one takes a little bit longer. In phase three clinical trials, they again increase the number of participating individuals to hundreds or thousands of people. And the primary goal in that phase is to know if the vaccine is safe and effective. In this phase, they compare the vaccine to other vaccines or to individuals who have not received the vaccine. So, when you're looking at double blind trials, this is what you're looking at it, that ... At that phase. So, in this phase they continue to watch for side effects and they look at longer term side effects. And this phase always lasts several years. I mean, it's a longer process, the phase three. And then if the vaccine makes it all the way through all three phases of the clinical trial, it moves onto the FDA who looks at all of the information and decides whether to license the vaccine or not. And if it is licensed, it can move onto manufacturing.

Sarah Brunn: And even after licensing, they continue to look at every vaccine. There's a national vaccine adverse reporting system where you can self-report vaccine related side effects either by phone or online. And that's available if you search in Google VAERS. That reporting form is available. Also, providers and nurses report to that line as well. So if we become aware that somebody had a significant side effect to a vaccine, we would report that. And then the FDA utilizes that information to continue to determine the vaccine safety. So, if you've ever heard of a medication that's been pulled because of something that would be why. Because people are reporting consistent problems with the vaccine. So, they do really continue to look at the safety even after it is out on the market.

Katie Johnson: We're really fortunate that we have that kind of rigorous testing process in our country. I'm curious too, once it gets to that point that it's been determined safe, who makes the determination whether or not a vaccine actually makes it onto the recommended immunization schedule for children or adults?

Sarah Brunn: Right. So again, this is a really big process to get there. Once the vaccine is licensed, it's reviewed by a big committee, which is called the Advisory

Committee on Immunization Practices or ACIP. This committee membership includes individuals from the American Academy of Pediatrics, the American Academy of Family Physicians, the American College of Nurse Midwives, the American College of Obstetrics and Gynecologists, and many, many other educational and professional organizations. So, it's a very large committee representing all different types of medical professions and also medical educational institutions, places where they're doing lots of research, and this committee looks at the need for the vaccine. They want to know how serious the disease that the vaccine prevents is and how many individuals would be affected if they didn't have access to the vaccine. So, how many people would get sick if there wasn't this vaccine available? And then the committee then decides if it should be a part of the vaccine schedule or not.

Katie Johnson: Interesting. The CDC has some great tools, I noticed in researching this topic to help you keep track of when you as an adult or your children need various vaccines. Could you share that resource and any other resources you're aware of that can kind of help us stay on top of recommended vaccinations and immunizations?

Sarah Brunn: Yeah. I would say the CDC is really your best resource out there. If you go to cdc.gov/vaccines, tons of resources will come up. There's lots of videos available, lots of information on specific vaccines, but also broader information on vaccines in general. How does your immune system respond to vaccines? There's just a lot of resources out there with ... From the CDC. One great CDC resource is the adult vaccine assessment tool. This tool allows you just to enter some basic demographic information like your birth sex, your year of birth, your potential upcoming international travel, and then some basic medical history questions. Do you smoke cigarettes? Do you drink alcohol? Do you have cancer? Those types of things. And then it will provide you with a list of suggested vaccines for people that meet your specific criteria. And you can print right from that screen, so it takes you to a printable screen and you can take that list to your healthcare provider and they can help you ensure that you've had all the necessary vaccines that are on there.

Katie Johnson: Very cool.

Sarah Brunn: And then also if you're not about your vaccination history, your healthcare providers a really great place to start. They have access to your medical records and if, say you've moved and have multiple different places that you've been to, they can access those with your consent. They can get your historical medical records from other facilities to compile that information. And then your healthcare provider also has access to the Minnesota Immunization Information Connection, which is our statewide registry for vaccinations. So, that's also a good resource for what vaccines you've received. Another option that's available to our patients is our new patient portal, FollowMyHealth, which allows you to look at your medical record, including your immunization history,

so you can just go in once you've signed up for the portal and have access to see yourself what vaccines are recorded in your medical history.

Katie Johnson: Which also comes in very handy when you have to prove for sports or camp which vaccines your kids have had, right?

Sarah Brunn: Right. Absolutely. You can just go in there and print them off and take them to your school, yep.

Katie Johnson: Yep. Love that tool as well. A lot of great information today Sarah. Anything else that you want to share that we may have missed as we've talked about August as National Immunization Awareness month?

Sarah Brunn: No. I think we really covered it. Just a reminder to talk to your provider about this information and vaccines are really a great way to protect yourself against these illnesses.

Katie Johnson: Absolutely. Sarah Brunn, Infection Prevention Coordinator, my guest today on Apple a Day reminding you that August is National Immunization Awareness month. Check out the resources on cdc.gov and talk to your provider about vaccines that are recommended for you and for your children. Thanks again, Sarah. Sarah Brunn and Katie Johnson reminding you there is so much to do here. Stay healthy for it. Have a great day.