

Isabel Valdez ([00:01](#)):

Hello and welcome to Optimizing Immunization Practices, your Role, your Impact, a podcast series brought to you by the American Academy of Physician Associates and the France Foundation. This activity is supported by independent educational grants from Pfizer and GSK. This podcast series focuses on how you can optimize adult immunizations in your practice. In this episode, we'll focus on diphtheria, tetanus, and pertussis, and discuss the burden of disease, current immunization rates, recommendations and strategies to increase vaccine update. As always, we will share resources that you can use in your practice. My name is Isabelle Valdez. I am assistant professor in the Department of Medicine at Baylor College of Medicine in Houston, Texas. And today I am delighted to say that we are again welcoming and joined by Sarah McQueen, who is our subject expert in all things vaccine. Sarah, thank you for being here. Welcome, welcome. How are you?

Sarah McQueen ([00:58](#)):

Isabelle, thank you so much. I am so glad to talk about our subject today too. I'm a family medicine PA. I also am the AAPA representative to the combination vaccine schedule work group. And so I am ready to dive in and let's talk about some tetanus, right? That's what we're going to talk about today.

Isabel Valdez ([01:20](#)):

All day long that pertussis diphtheria try saying that seven times in a row. Yes. I'm excited about this because when I think of tetanus, my usual go-to is when I have patients who have course have a cut. They've been working out in their yard. My very sweet neighbor who volunteers at a cat shelter has two cats of her own, and she is my own personal cat sitter. Anytime she gets a cut, if it's pretty deep, if it's a pretty bad cut, she ends up in the ER and they always ask her, when was your last tetanus? Because apparently these cats are, I don't know what these cats are doing, but they're outside. I guess they're vectors for all things tetanus. So I guess what is our usual spiel for diphtheria, tetanus, and pertussis? We know it's a bacterial infection caused by three different bacteria's. Diphtheria specifically, it can affect the respiratory system and it sometimes affects the skin and it's transmitted by droplets, so it can be passed around pretty easily.

([02:15](#)):

But I think we all remember from our studying our guides, all of our study guides for pants or the pany, this bacteria can cause a pseudo membrane in the throat, which then makes it difficult for us to breathe. I remember that pseudo membrane word, right? That's the key operative word in the sentence in the questions. And we also know about tetanus, tetanus, everybody's favorite lock jaw, bi clostridium tetani, which that one specifically affects the nervous system. We know that it can cause muscle stiffness and spasms. And the vehicle for this bacteria is that contaminated soil. The rust animal droplets, animal feces, apparently cat scratches can do it too. And we know that once it enters our system through an open wound, an open cut, or some kind of puncture or wound, then there's that risk that it can get into our bloodstream and thereby into our nervous system, triggering that muscle spasm that can affect the jaw in particular causing that locked jaw problem.

([03:14](#)):

And of course, odello pertussis is something that we've talked about and all the classes that we were taught in PA school, and probably as well where you teach, we have whooping cough or pertussis caused by briella pertussis, and it's another one that's transmitted by droplets and gets into our respiratory system. And this is the one that we want to be really careful about with children because children afflicted by this infection can have pretty severe uncontrollable and coughing fits that have that

characteristic whooping sound that we've all seen videos of and hopefully not have had to see it in children. But I know when I was a brand new baby pa, back in my training days, we had had a whooping cough outbreak. And so we were actually hearing it and seeing it in the er, so something that can really affect our children. So are these three, what have you noticed in your practice, in your neck of the woods? Have you seen this yourself?

Sarah McQueen (04:08):

So I think it's one of those things where it's like you said, we learned about this pseudo membrane for the exams, but I don't know that any of us has seen it besides the photos. And so part of it is remembering the illnesses that we don't see very often because we're doing vaccination campaigns, because I think that's important, especially when we forget, we forget how bad these things can be. So I have never seen a case of tetanus, thank goodness, and I haven't seen diphtheria that I know of. Pertussis is one that I've seen, and I was actually about 34 weeks pregnant when there was an outbreak in our community. And even we had seen them, I had seen them in the clinic, I didn't have a mask on, they didn't have a mask on. And so it was one of those of like, ah.

(04:57):

And so I had done my diligence and received my Tdap vaccine pretty recently in that time zone, but I actually had to take antibiotics prophylactically so that the newborn was protected. And so it's something that happens and it's real. And we even had notices at our local school systems that came home with my kids of, Hey, there's been a case of pertussis. And so just kind of a heads up. So it's probably more of what we see, but I think people do recognize tetanus dip theory is the forgotten one. I think it sounds like medieval, right? I don't know the sweating sickness of diphtheria. So that's one that I like to remember.

Isabel Valdez (05:43):

Yeah, I won't lie. In truth, while doing our research and our revamping, I was like, wasn't there something about this? And yes, there was pseudo membrane, that one key word. So yes, you're right. I've never seen it. And I guess you've heard and seen the whooping cough that classic, whoop, when I teach my students, I give them the pneumonia talk and I have a recording of what it sounds like just so that they can catch it because once you hear it, once you never forget. And hopefully we'll be seeing less and less of these infections as we use more and more vaccines. So what is the burden of disease right now for these three infections for diphtheria, pertussis, tetanus? What kind of risk factors and hospitalizations or lost wages? What can be tied into that that we can use when we're talked to patients and educate our patients about the importance of this vaccine?

Sarah McQueen (06:35):

So definitely with risk factors, you look at age. So definitely the younger you are for all of these conditions, the more dangerous it is. But then also there's the flip side of the elderly as well. And so the biggest risk factor now are the pockets of low in vaccination rates. And so if we're not meeting herd immunity, we are going to see some of these coming back. And so that is the biggest issue is making sure that folks are up to date pertussis especially, is when the kids are too young to be vaccinated. And that's why we've seen the recommendation for Tdap in pregnancy. And you want to give that every pregnancy. So even if you plan to have babies back to back, you have another pregnancy right away. And so you may get two in one year if that is you and the time works, right?

(07:27):

And so that's one thing definitely to remember. And when you look at these rates from 2009, there was a study that showed the mortality rate for children is high, especially under 12 months. You were looking at about 3.8 for every 1 million life births and then 13.1 per every 1 million life births for infants aged two months. And what's interesting is that information we have for pertussis 2009, we think, oh, that's old data. But the reason for that is, is because in 2012 is when we started the push to vaccinate during pregnancy. And so we've seen a huge decline. And so sometimes we have to go back to realize the true mortality of these diseases to back when it was more widespread. And the complications of pertussis, we see these just terrible whoop the terrible cough pertussis is a long acting respiratory infection. And so you may be weeks of kind this slow buildup.

[\(08:27\)](#):

A lot of times in some of our viral infections, it's a quick sudden, you're fine, one minute sick, the next pertussis is this kind of long drawn out, and then you get this cough that just does not end. And then either you get treated or you enter the phase where you're starting to feel better. The recovery phase, that still lasts weeks too. And so you have this cough that lasts forever. And so talking to any woman that has issues with bladder and you go, you could cough for three months and you're like, nah, I'm out. Give me that vaccine. That's not for me or not doing that. And so it's just to realize that this is a severe illness. Even for healthy adults, you have a loss of wages when your child is sick or when you are sick. Daycares don't want sick babies to spread to the other babies, so you're going to miss out for wages from work.

[\(09:20\)](#):

And then also you still have to pay for the daycare that you didn't take your child to. And nebulizer machines, those are not cheap and a lot of insurances, you don't get to keep them sometimes you have to rent them. And so that can be very frustrating, just the cost of the treatments and even from this. And then you look at some of the complications, we remember diphtheria and the pseudo membrane, but it can also cause myocarditis and some neuralgic palsies. And of course all these things can cause respiratory distress. And so it really is, these three are just very severe issues that there's a reason we vaccinate for 'em. And I like that we're talking about today. Do you have some recent CDC studies of how well are we doing vaccinating against these theory?

Isabel Valdez [\(10:09\)](#):

You're right. Actually the current immunization rates based on a study that I found in the CDC, now this is dated in 2022, about 59% of the US adults have received either the TD or the TDAP vaccine in about 10 years. And I like this number. I wonder if this number also includes the very good point that you just made because in 2012, so from 2012 to 2022, those was an extra good 10 years where we had the new recommendation for a vaccinating around pregnancy. And around that time too, I was getting a lot of would be or kind of be mom, grandmas and grandpas and daddies coming to clinic and saying, I need to get vaccinated because of the herd immunity, the home herd immunity. Also, I'm wondering this played a part into this number because 59% still not as high of a number that we would like to create good herd immunity.

[\(10:59\)](#):

I think we've talked about wanting anything above 70 or above 90% to have good quality herd immunity against an infection. But even just in the home, if you're getting a hundred percent herd immunity in the home, that's going to help that infant that's going to come home to a home where God forbid they're getting exposed to this. So yeah, so 59 2%, that's a good again number and we're going to do better. I'm going to be very confident that after this series we're going to improve that. So now there's a couple of

changes with the vaccine availability. There's td, there's tdap. So what's the current recommendations with respect to TDAP versus td? What can you tell us about that, Sarah?

Sarah McQueen ([11:41](#)):

So for a while we were giving, everyone needed a TDAP booster. And what we realized were, or was this waning immunity for pertussis and diphtheria. And so we to do, TDAP was recommended around in the age 11 to 12 range. And so we found that these folks were getting coverage, but the parents and those of us of older age, we didn't get that tdap. We were getting just plain TD or whatever it was at the time. And so about 10 years ago, there's a big push of everybody needs a tdap. And so we were on it, different providers in our clinic, we were holding our own little fun, well, we thought we were fun games of who can vaccinate the most. And you see the nurses roll their eyes of like, oh my God, you're killing me. And so everybody got a tdap. And then after that, whether it was five years with a nasty dirty wound or 10 years just preventative, you could choose, you could do TD or T dap kind of depending on your insurance.

([12:44](#)):

And then also just your choice, your preference, what's available at the clinic. And so loosely now it's once that everybody has had that TDAP booster, which I think at our clinic we're pretty good. We really hit that pretty hard. So now we're at the point of 10 year boosters just for prevention. And that can be in TDAP or td, but then if it's been five years since your last vaccination and you have a dirty wound, and I think that's the thing is, so your cat example is perfect. I even think of everybody associates tetanus with rust, but it's not just rust, it's dirty. And so it should be the rust out in the field. So my example is my husband was doing some construction in a recording studio that he has and he wasn't paying attention and stepped on a board with a little rusty nail and this board had come out of a ceiling beam and he was like, do I need a tetanus?

([13:43](#)):

And I said, no. And he said, but it's rusty. And I said, but it's not dirty. It's been in other walls, it's been in wood. It's fine, you're fine. Everything's fine. But then I grew up on a farm and so I remember mean lots of years my dad would say, don't play in this one barn because it was not good. It was falling down, we didn't use it and it was my great grandparents' barn, but of course you tell a 10-year-old not to play in a barn and I'm going to play in the barn. And so I stepped on a big rusty nail in the middle of feces and mud and all of that. And so that is tetanus worthy. And so it's not necessarily rust, it's just a dirty wound. And so a lot of folks with the cat scratch with a burn, even just because you have a break in your skin doesn't mean you need an updated tetanus.

([14:37](#)):

It really needs to be dirty. And so that's one of those things. The next recommendation is we still recommend, and I said this earlier, is a teed up during pregnancy and you want that sweet spot's about 27 to 36 weeks gestation. And part of that is we really want it to be active and producing those antibodies to then pass on to the infant to get to offer some protection until those infants can then get vaccinated with, they use the DTaP. And so every pregnancy, we want to make sure that we're making sure that our pregnant folks know that that's available, and it is very important that they get that vaccine.

Isabel Valdez ([15:16](#)):

Yeah, I love how you mentioned it, right? It's what brings patients in. So we're integrating into our clinical workflow when to vaccinate patients. So if you go to the er, it's almost second nature, they get

into the er, it's in their workflow already, check their status. If the patient doesn't remember, I think they still get it. It's happened to me where then the patient follows up with me to get their stitches removed or something. And I say, well, we gave you this vaccine seven years ago. I'm like, well, they gave it to me again, I didn't remember. I'm like, that's okay. We, that's okay. And we just update the date. So it must've been a pretty dirty accident. So I trust the judgment from our ER folks who saw the infection, who saw the cut, who saw the injury, and it's okay if you got that revaccinated.

[\(16:02\)](#):

I reassure patients because that's how I run into it as well. So they integrate it into the workflow in the er. We also do it in clinic as well at the once a year annual visit. But as soon as I hear, oh, I'm so excited I'm going to have a grand baby, I'm like, yeah, you're getting your shot and you're getting it now. So adding that into our routine may help us close in on some of these, close in on this gap of vaccination that we have. So it doesn't have to be just every 10 years, but like clockwork included into the conversation as well. And again, the education that we're getting from you today is going to help us with that as well. So at this point, we know that we have patients that come in, we're like, I don't want to get vaccinated. I don't remember when I got it, or I think it's been their time. So sometimes I get into this barrier with patients and how in getting them to get revaccinated and sometimes I never work outside. I don't need to, I don't have kids around me. So what are the barriers that you face and dealing with this vaccine and what are some of your strategies, some of your pearls to getting patients that vaccination that all of us desperately need?

Sarah McQueen [\(17:10\)](#):

So yes, we definitely have those folks of I don't need it. I don't have those risk factors that you're mentioning. And that happens and you just keep swimming. You just do your best and you just keep offering. I think the biggest barrier I hear of is always time and it's provider clinic time, but also patient time. They have waited in the waiting room, filling out their online paperwork that they didn't do ahead of time because maybe they don't have access at home to internet to do the online check-in. And then they're waiting on the nurse to bring 'em back and then the nurse brings 'em back and then they're put a room. But say I'm doing a toenail removal and it ends up being gnarly and it's taken me way too long. And so that patient is then sitting waiting on me, and then I go in and we do our spiel, take care of their chronic conditions.

[\(18:02\)](#):

The last thing they want to do is then wait again for the nurse to go and get the vaccine and come back and they already know they have to go wait on the lab after that. And so one thing that we've kind of adopted at our clinic is we call it the morning huddle. And we didn't come up with that, I'm sure we didn't. And so we just in the morning or whenever your day is starting, even if it's the afternoon, we get together with our nurses and our nurse team MAs. They go through and that's part of their checklist on each patient that we have scheduled for the day is are they due any vaccines? And if so, what is it? And so then once that's triggered, they automatically tell our front desk. And so we have them run these BFCs on the adults so that if we're able to get them to say yes, we already know which vaccine they need, whether it's private stock or the VFC stock.

[\(18:51\)](#):

And so that's one way that we cut down a little bit on that. Plus we have a standing order, which I think is phenomenal. There are papers that you can get from the CDC, but also immunized.org and lots of other resources that you get these standing orders for your clinic, which means your nurse, whoever can go ahead and give the vaccine that's needed without waiting on an okay from you. And it's phenomenal.

So then when I come out of my to now removal, my patients already got their TDAP vaccine and then we start and there's no extra waiting. Plus when you fill a gap, that would just be sitting with an action. So getting the vaccine in their mind, they haven't really waited that long on you. And so sometimes your surveys are a little bit better and so things just kind of flow better.

[\(19:41\)](#):

So that's kind of what we've organized as a standing order and any MA can give it, it's with any visit. And so kind of having that teamwork with your front desk as far as insurance with your nursing staff. So that's how we do the time barriers. So Isabel, what are some of the things and resources that you use for your population that doesn't have vaccine coverage? I know in my state we have a program that we call the VFC for adults, even though we know VFC stands for Vaccines for Children, and that comes from the three 17 funding. Do you have anything like that where you practice?

Isabel Valdez [\(20:18\)](#):

I'm probably going to have to search for that because I don't think I've even heard of the VFC for kids. So you just reminded me that we have a wealth of information through [apa.org](#) and of course checking online to look for resources where our patients are adult patients can get vaccination at low cost if not free. So this is a good resource to know, check your community for resources for a free vaccination. But also when I have patients who are like, I'm about to change insurance and they're turning the beautiful age of 65, and that insurance may be a government insurance like Medicare, that's the one that I struggled with. And I've heard, again, our listeners, please fact check me, I appreciate that and reach out. But if there is some limitations with coverage, with preventive coverage, with the new insurance that they're going to get, I tell them, well, before you change to the view one right now you still have this one.

[\(21:11\)](#):

You're paying for it. I'm going to give you a shot. I'm giving it to you now why I know you're going to be doing two years, but it's being covered now as a preventive service. Let's go ahead and do it before you change your insurance where a new insurance might not cover it. So adding that to our workflow, because now you're addressing the barrier of coverage, which maybe some patients will lose and you're addressing it with a workflow. It's part of my every day, as soon as if it comes up, I look at their age, I have that best practice alert on my electronic medical record that tells me what's due and I address it right there. So part of my, it's not just at the annual visit, it's at the everyday visit. And especially if it comes up that I'm about to change your insurances well before you do, so let's make sure you get it now because it's covered under this insurance that we have this policy.

[\(22:00\)](#):

So that's been my approach until I find out of another one. And I also just tell patients, if you can't get into clinic because we are far from you, your local pharmacy is there, lots of pharmacies have it for you available, and they run it through your insurance too. I jokingly tell patients, we can get your shot now, or I can give you a big gaping cut, make it dirty and I can give it to you, whichever you prefer. That doesn't usually get them to do their shot. They kind of giggle a little bit and they say, okay, we'll get the shot now. It's a lot easier than a big cut. And once my patients loosen up and we get a little happy and their nerves are calmed about getting a needle, because I made them laugh a little bit, they get the shot and things are great.

[\(22:41\)](#):

But I think another important thing to mention with the tetanus vaccine, I've had patients who tell me, why didn't you tell me my arm was going to hurt? And I forget that sometimes, right? So getting another

way to mitigate that barriers, right? They'll remember there was that one time I got the tennis vaccine, it was so painful. Remembering like yes, and it can be. And giving them tools at home, giving them some ideas that they can have at the ready to help themselves if their arm does get sore, trying to anticipate some of their concerns. And yes, your arm might be sore if it's uncomfortable, you can do the cool compress. You can take some acetaminophen if you're uncomfortable. Or of course assuming they can take it and just watch it, it's going to be a better in a few days. And if it doesn't come back and see me in a week, but just setting that expectation that yes, it may hurt, here are some steps you can take.

[\(23:36\)](#):

It's completely normal that way. Should they have the side effect, that reaction, it's an expected reaction and they know not to worry. Flip out and you get less phone calls and less nasty grams in your inbox. So I think those are some ideas of how we help with the barriers. I love your ideas of checking with what's available at the state level as far as resources and funding, making it part of the everyday, not just the annual visit. So what are some of the key vaccination takeaways that we can leave our listeners with as we get ready to part?

Sarah McQueen [\(24:14\)](#):

So I think part of it is we really need to reeducate ourselves of the complications that happen from these three conditions so that when we're asked, we can sometimes shoot down some of those that doesn't fit me. I don't have to worry about that. And so we really can focus on, listen, this illness may have pretty severe complications for you and we're just doing this vaccine to try to prevent that. We just don't want you to end up in the hospital. We don't want you to end up out of work for a week or two or even longer. I mean, obviously we don't want them to die from any of these illnesses. And it's also part of a come join the community, as cheesy as it sounds, join the join herd immunity. So we're protecting each other. Join the movement of making sure we're all doing our part and protecting the hospitals from getting overrun and all those things that happen in an outbreak.

[\(25:11\)](#):

And I think the main thing is offering these visits during annual wellness visits, PAP smear visits, your annual wellness exams. We love those, right? Those are easy. We want our whole day filled with annual wellness exams. Those are the visits where we should be talking about them and really getting them back. Really make sure that we're remembering 27 weeks and after, during pregnancy, each pregnancy, whether it's two in the same year. And then of course following up with wound care when it's severe, when it's dirty, those types of things. And so really SS PAs, we have this opportunity to take a look at our patient's situation. How many of our patients we see at the local big box store as a greeter or they handle money all day, they're in people's faces. And so we have so many of our patients that are in the public. And so just making sure that we stay in tuned to those little nuances of what our patients are exposed to, just so that we can speak their language and make sure that they understand that they need to get vaccinated.

Isabel Valdez [\(26:16\)](#):

I love how you did that with join the movement of herd immunity for everybody, not just in your home because the baby's coming, but also in their community because of the larger impact. So Sarah, as always, so good to have you and you were great in giving us so much information and education today that I think it's going to help us be those vaccine stewards. So being a champion of TDAP and TD vaccination as routine practice can and will protect not just our patients but their communities. Thank you for listening to this episode of Optimizing Immunization Practices, your Role, your Impact. Please

tune in to the other episodes in this series where we provide an overview of adult vaccinations and discuss vaccination specific information for covid influenza, the respiratory syncytial virus, or RSV and shingles. You can find the full list of the podcast episodes at aapa.org.