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Expert Interviews

National HIV Curriculum Podcast

Priority Immunizations for People with HIV

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Dr. Shireesha Dhanireddy, an expert in HIV prevention and treatment, joins National HIV Curriculum Podcast Lead Editor Dr. Brian Wood to discuss challenging clinical questions about vaccinations for adults with HIV. This case-based discussion will focus on how to select and prioritize immunizations for individuals with advanced HIV.

Topics:

- Immunizations
- Pneumococcus
- Varicella
- Zoster
- meningitis
- Live Vaccines
- Contraindications

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Transcript

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introduction**[00:00] Introduction**

Hello, everyone. I'm Dr. Brian Wood from the University of Washington in Seattle. Welcome to the National HIV Curriculum Podcast. This podcast is intended for health care professionals who are interested in learning more about the diagnosis, management, and prevention of HIV.

Well, I am honored to be joined for these episodes by Dr. Shireesha Dhanireddy. Dr. Dhanireddy is Professor of Medicine in the Division of Allergy and Infectious Diseases here at University of Washington (UW). Dr. Dhanireddy serves as Associate Chief Medical Officer for UW Medicine and also as Section Head for the Division of Allergy and Infectious Diseases. She also helps lead the Department of Health and Human Services Opportunistic Infection Guideline Panel and is a member of the group that develops vaccine recommendations for those guidelines. She also has been a mentor of mine for many, many years and I'm honored to be joined by Dr. Dhanireddy today. Welcome, Shireesha.

Dr. Dhanireddy

Thank you so much, Brian, for having me.

Dr. Wood

Absolutely. So, the focus today will be on vaccinations, choice of vaccines, and really how you prioritize vaccinations. We are going to start with a case. This case was based on someone I saw in clinic without a lot of the demographic details included, but enough that I think this will be very educational. This is a 36-year-old woman. Her CD4 T-cell count is 60. Her HIV RNA or viral load is 700,000. She does not have any medical comorbidities, and she is open to whatever treatment or preventative measures you recommend. Obviously, there's a lot to consider here in terms of other baseline labs, ART [antiretroviral therapy], and other things, but we really are going to focus on vaccinations today.

vaccine-prioritization**[01:46] Vaccine Prioritization**

Dr. Wood

Let me start, Shireesha, with this question. For a patient like I described here, new diagnosis of HIV, low CD4 count entering care for the first time, which vaccinations would you prioritize in the first several visits? And maybe as a corollary, what other information would you want to know to help with that prioritization?

Dr. Dhanireddy

Yeah, those are great questions. And this thankfully doesn't come up as often anymore as we're seeing

people with higher CD4 counts, but we certainly do see people with low CD4 counts and advanced HIV upon presentation. I think our goal is to try to prevent illness in these patients and try to get them as healthy as possible, and obviously, antiretroviral therapy, immediate initiation is the key to that. Because it takes some time for the CD4 count recovery to happen, longer than probably viral suppression, which can happen in months with the integrase inhibitor-based regimens, what we can do in the immediate term is to really think about what can we offer protection with. And what's going to have a better chance of offering protection even with lower CD4 counts? And then what should we really wait for to make sure that they have robust CD4 counts? And then, the other thing that I think about is what is safe and what isn't in the setting of a low CD4 count.

respiratory-viral-season**[03:09] Respiratory Viral Season**

I think the things that I would want to think about in this woman of childbearing age is pregnancy intent, and does she have any immediate plans for pregnancy that might alter what you might want to do? And so, in terms of vaccinations, what I offer, if it's respiratory viral season, I'm going to offer those respiratory viral vaccines, specifically influenza. And because it's an annual vaccine, there's not really much loss in giving it again at a different time, right. The safety is there.

Also, COVID-19 vaccine entering our respiratory viral season that would be if we're seeing her this time of the year, I would also offer that. And then repeat dosing for this individual given her low CD4 count and higher risk of a potential more severe disease with COVID-19. I think about starting with that. I often also give pneumococcal vaccine, and that's a decision, sometimes patients don't want to have multiple vaccines at that first visit, it can be very overwhelming starting ART.

If it's respiratory viral season, I'll say, “Hey, let's just stop there and let's give you the things that are going to provide immediate benefit right now.” And we'll get data on serologies for other things like viral hepatitides to offer those at subsequent visits, and hopefully she'll have some virologic suppression quickly so that we can offer those at subsequent visits.

nonseasonal-vaccines**[04:37] Nonseasonal Vaccines**

Dr. Wood

Absolutely. Let's say it's not respiratory viral season, it's a different part of the year. How does that change your recommendations?

Dr. Dhanireddy

I'd probably start with a pneumococcal vaccine and provide that. Patients with advanced HIV we know have higher risks of invasive pneumococcal disease. It's a safe vaccine to give in patients who are immunocompromised, so I'd start there. There are other vaccines that are probably safe, but they require multiple-dose series, and so sometimes I'll wait for those. For instance, zoster vaccine. That one, it has a high percentage of site reactions and symptoms that develop. I don't want to put people off to vaccines, so sometimes I'll wait on that one. That is my personal thing that I'll do just because it isn't comfortable sometimes for patients, but it is important, and so you can give it in patients with lower CD4 counts, but I often wait.

Dr. Wood

And what others might you wait for? I'm thinking about the list, that checkbox in my mind, that I go through of vaccines I think are important, so meningitis vaccine, HPV [human papillomavirus] vaccine. What are the others that you might not emphasize right away but want to come back to?

Dr. Dhanireddy

Meningitis vaccine is a good one to talk about. That one is something that I'll usually wait. In adults with HIV, it is recommended to give another two-dose series, and then booster every five years, and that's because the incidence of more invasive meningococcal disease is higher in people with HIV. That being said, the absolute incidence is still pretty low, and so that's something I'll often wait for, not because it is unsafe to do in people with low CD4 counts, but because it's a lower priority for me.

HPV vaccine is a good one. In her situation, she's 36, so it's shared decision-making. Anyway, it's not a blanket recommendation. For the most part, if she doesn't have any current sexual partners or new sexual partners, I often will wait and talk about that shared decision-making process at a subsequent visit and not the first visit.

Dr. Wood

Got it.

Dr. Dhanireddy

The other thing I would say is Tdap [tetanus, diphtheria, and pertussis]. That's a good one to give early on, and especially because if we don't know her prior vaccine status, it's an easy one to give. It's safe to give in people with any CD4 count and it offers protection against pertussis and tetanus.

Dr. Wood

Perfect. Thanks. Thanks for reminding me of that one too. So, it sounds like if it's respiratory viral season, absolutely prioritizing certain respiratory viral vaccines, and then what I'm hearing you say is pneumococcus is generally one of the first vaccines you recommend. Tdap, you remind me very important, initially as well, or early on, if you will. And then there's some others you wait for. And viral hepatitis, we're going to come back too, so I'm not emphasizing that right now.

pneumococcal-vaccines**[07:38] Pneumococcal Vaccines**

Dr. Wood

Circling back to pneumococcus, which vaccine would you choose if you're working in a place where you have options or which vaccine would you really advocate that your clinic stocks?

Dr. Dhanireddy

It's become much more simple in the last year than it used to be. We essentially have gone away from polysaccharide vaccines in adults for prevention of pneumococcal disease. And, our pediatric colleagues have known the benefits of conjugate vaccines for a long time in terms of efficacy, and we were slow to catch up, but now we have fully converted in the adult world to switch to conjugate vaccines. Currently, there are two that are predominantly available, the 20-valent and the 21-valent. There was also a 15-valent, but that's sort of moved aside given that we have the 20 and the 21. I think either one is fine.

One caveat I have about the 21 is that the serogroup 4 is missing from that one, and there are areas where that one can be more prevalent than others. We don't have a lot of epi data to know, so in your local area, we may not know which one is more prevalent. It can be challenging. I think certain institutions have gone with 21, certain institutions have gone with 20. We, in our area here at University of Washington, carry the 20-valent one, but I think it's really either/or. And now, the simplification is that any adult with preexisting conditions, medical issues that confer a higher risk to invasive pneumococcal disease should just get a one-time dose of the conjugate vaccine making it a lot simpler.

And I will remind people that take care of people more than just with HIV that the list is pretty long, and many

of our patients with chronic medical diseases or in medical care meet those conditions: smoking, diabetes, heart disease, lung disease, liver disease. The list is pretty huge, and so many of our adult patients would be getting this vaccine.

Dr. Wood

Such a great point, and it is a vaccine that can prevent very devastating illness, so I'm really glad you are underscoring the importance of that.

vaccines-pregnancy**[10:03] Vaccines and Pregnancy**

Dr. Wood

Circling back, if I can, Shireesha, you mentioned considering pregnancy and pregnancy wishes or pregnancy efforts. If I change the scenario and say you're sick and you're talking with this woman and she really does want to get pregnant soon, how would that change your recommendations?

Dr. Dhanireddy

So, some of our vaccines are not recommended in pregnancy and are actually contraindicated, so MMR [measles, mumps, rubella] vaccine is one of those. She's already got a contraindication I'll point out because her CD4 count is below 200. And so, for that one, we'd really not give until she has CD4 count recovery. The other one, if you do have a shared decision-making conversation about HPV, it's a three-dose series over six months, and that is contraindicated in pregnancy. It's not recommended in pregnancy to use, and so if you start that series, then you will have to stop that series. So, I would wait on that if that's not something that is really important to her, and if she doesn't have new partners at this time.

live-vaccine-issues**[11:11] Live Vaccine Issues**

Dr. Wood

So, you mentioned contraindications. You mentioned the MMR vaccine is contraindicated when the CD4 count is below 200. What other vaccines do you consider contraindicated with a low CD4 count? Let's say CD4 below 200.

Dr. Dhanireddy

So, any live vaccine we typically do not want to give. Varicella vaccine is another one, so if we check immune status to varicella and she is immune negative, antibody-negative, then we would not give the live varicella vaccine. I often get questions about, “Well, can we use the recombinant zoster vaccine in that situation?” And, I would say the official answer is “no” because it has not been studied as a primary vaccine, so what that means is that the varicella vaccine is for someone who's nonimmune. We know that zoster is a reactivation of varicella, and the zoster vaccine has really been studied in the prevention of incident herpes zoster and it's highly effective, the recombinant vaccine, even in older individuals.

And it is, really, honestly, a much better vaccine than the prior vaccine, which was similar; the zoster vaccine was very similar to the varicella vaccine, a live vaccine based on the same strain of virus, but it was not as immunogenic. And so, we were seeing rates of more like 50% to 60% prevention rather than the 90+ percent prevention of incident herpes zoster. So, we know it's a better vaccine, and I think there's a lot of interest in using it in people for primary prevention. And I would dare say that people are probably already using it for primary prevention. As you may recall, you actually don't need to get a titer or have a history of zoster or chickenpox to be able to give the recombinant zoster vaccine. So, I'll leave that there. The official answer is to not use the recombinant zoster vaccine. The official answer is in someone who is nonimmune to varicella and low CD4 count to *not* give varicella vaccine, so that is a contraindication.

Dr. Wood

I'm glad you're giving the official answer. I think take-home point, the varicella vaccine is a live virus vaccine, absolutely should not be given with CD4 below 200, correct?

Dr. Dhanireddy

Correct.

Dr. Wood

But the recombinant zoster vaccine is not a live virus.

Dr. Dhanireddy

That's correct.

Dr. Wood

And so, there's a lot to consider here. You gave the official answer, I think it's okay, too, to give the unofficial answer and what you do in practice.

recombinant-zoster-vaccine**[14:10] Recombinant Zoster Vaccine**

Dr. Wood

Two follow-up questions, if I can push you on this a little bit. One, when do you check a varicella IgG? You mentioned that potential test for immunity. And then two, what are you doing in practice? If someone has a negative varicella IgG, or they say they have no memory of ever having chickenpox, they're an adult and maybe they have a low CD4 count. What would you do in clinical practice?

Dr. Dhanireddy

For someone new to care, I have been doing it. I have been checking it if we don't have an immunization record. We have a lot of immigrant patients, but again, the seroprevalence is pretty high, and so I do question my practice around that. Should we just be giving people the zoster, recombinant zoster vaccine? We may see a practice change. I know that there was one study in pediatrics that was ongoing, and it may have completed, but I haven't seen the results of using recombinant zoster vaccine as primary vaccine. So, I'm really curious if we'll start to see some data around that.

I do get questions from other physicians who take care of *really* immunocompromised individuals on heavy-dose immunosuppression about using off-label recombinant zoster vaccine. In those situations, I do think it's appropriate. These individuals are high risk of reactivation, so I will say in people with HIV, incident herpes zoster is much higher than in the general population and that's actually regardless of CD4 count and regardless of age. In the general population, we really see higher rates as people get older, predominantly 60s, 70s, even 80s, and so that's why the zoster vaccine recommendation in people who are not immunocompromised starts at age 50. But in people with HIV, it starts at age 18, and so really important to note that incident zoster is higher rates in people with HIV.

Dr. Wood

Sounds like it's an area where more study would be helpful, more data would be helpful, some more firm guidance on what to do in that situation would be helpful. But, I appreciate hearing your considerations and maybe it's an area for shared decision-making and counseling about pros and cons.

vaccine-tolerability**[16:29] Vaccine Tolerability**

Before we wrap up this episode, let me ask you, which vaccines do you find have the most tolerability issues, side effects? If patients are wary and asking how bad their shoulder's going to hurt, are they going to get sick? What does your counseling look like, and are there specific vaccines you worry about more with tolerability issues?

Dr. Dhanireddy

Yeah, there are. I do spend a little bit more time counseling, and so people aren't surprised and that they are not put off by this experience of getting vaccines in general. That's what we don't want. We don't want people to be like, “Oh, well, then all vaccines are going to make me feel bad.” And so, I do spend a fair amount of time talking about recombinant zoster vaccine in particular, because in the randomized controlled trials, the rates of adverse effects were pretty high, mostly site reactions and pain, but people did have some systemic symptoms as well.

Similar to COVID, the mRNA vaccines also have similar symptoms, so I let people know. I let people know sometimes the second shot could be a little bit worse, and so just plan to get it on a day where you're not going to be doing much the next day or you can just lay low, and not all vaccines are like this. It's a sign that your immune system is really kicking in and that the vaccine is effective and it's going to prevent you from getting sick down the road. And that's how I couch it, so that people aren't wary of things in general, vaccines in general.

Dr. Wood

Clarifying when you said, “the second dose may be worse,” you meant the second dose of the recombinant zoster vaccine, correct?

Dr. Dhanireddy

Yeah, recombinant zoster vaccine. Yes. And then HPV vaccine can also be really painful, so I let people know that too, but it doesn't tend to have the systemic side effects.

And then a lot of people are like, “Well, I feel like I have the flu when I get the flu vaccine.” I remind people that it's not a live vaccine, that it's important to get to protect themselves, to protect their loved ones around them. And so, I really try to do counseling about their own personal benefit, but also the benefit of the others immediately around them.

in-closing**[18:44] In Closing**

Dr. Wood

Shireesha, thank you. I think these are such great take-home messages. We will have conversations focusing on viral hepatitis vaccine, measles vaccine, and a few other topics coming up. I also want to make a note for listeners; we are not focusing on travel vaccines in this episode. That would be a topic for a separate future episode, so maybe we will come back to that. But for now, Shireesha, I want to say thank you for taking your time for this episode, and I look forward to future conversations.

Dr. Dhanireddy

Thank you so much.

credits**[19:16] Credits**

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