TWiV 1292 Clinical Update

Host: Vincent Racaniello

Guest: Daniel Griffin

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Vincent Racaniello: *This Week in Virology*, the podcast about viruses, the kind that make you sick.

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VR: For *MicrobeTV*, this is *TWiV*. *This Week in Virology*, Episode 1292, recorded on the 29th of January, 2026. I'm Vincent Racaniello, and you're listening to the podcast all about viruses. Joining me today from New York, Daniel Griffin.

Daniel Griffin: Hello, everyone.

VR: You're too far away for me to see your tie, but it looks purple and reddish.

DG: Yes, it's one that if you're beavers. Does that ring any bells?

VR: Beaver fever.

DG: Beaver fever.

VR: Is that Giardia?

DG: You got it. It's beaver fever. It's Giardia.

VR: I was raised with Giardia.

DG: I was watching that - What is it? A YouTube short about, "I was raised with STDs." [laughs] Your father was a surgeon.

[laughter]

DG: It reminds me of Colorado.

VR: You get a lot of snow out there, Daniel?

DG: For our listeners, I guess, around the entire world, it's been really cold. Our bay is frozen all the way across. We got about a foot of snow, and then the last hour or two, it was a freezing rain. If you did not dig yourself out, the freezing rain came down and turned into concrete. We've got a foot of concrete ice everywhere.

VR: I actually fired up my snowblower and cleared the driveway on Sunday morning. I haven't done that in years because I don't like doing it. I hired someone, but he wasn't going to come until the evening, and I said, "This is not good," and I got rid of most of the powder. It was very powdery in the morning, very interesting to see.

DG: In the morning, it was beautiful. It was just fluffy powder. I like it. It's very social. Everyone in the neighborhood, at least my neighborhood, everyone's out. I shovel the sidewalk of my neighbors on either side, and then one of my neighbors on one side shovels mine. Everyone takes turns taking care of each other. It's nice to see everyone out there, the bonding.

VR: I'll tell you, there's a guy walking around with a shovel offering to shovel. ICE picked him up.

DG: Oh, my gosh. Really?

VR: Yes. This is the country we're living in. I don't want it, Daniel. It also extends to public health. Did you know how screwed up it is?

DG: Yes, it really does. It's horrible. We've got a lot to talk about. Actually, maybe people can decide whether or not this quotation is a reflection of our view on what's going on. This is Immanuel Kant. “Out of the crooked timber of humanity, no straight thing was ever made.”

VR: You think humanity is basically crooked, Daniel?

DG: I just think there is some crooked timber among the humans.

VR: The crooked timber. There's some straight timber, too, then, right?

DG: I was relating. Most people in my neighborhood, they're just helping each other out. The people next door to me are a bit older than I am. I don't want to use the word "elderly" because at some point people will refer to me that way. They're a bit older, and they were out of town, and everyone took care of their driveway and their newspaper and their sidewalk. And, anonymously. What was it? Washington Irving, the best thing in life is to do something anonymous and have someone discover it. No, [laughs] this is just people being decent. In general, people are decent.

VR: I don't know, Daniel. Your neighbors, if you ask them, they might say they support ICE. I don't know. You can't tell about people.

DG: It's tough. All right. Speaking of impacts on health, first, we have, regarding the World Health Organization, the U.S. has finalized its withdrawal from the World Health Organization one year after President Donald Trump announced America was ending its 78-year-old commitment in classic style, still owing 160 million or something, but we're leaving. That is not just bad for the world. It's going to be bad for us.

VR: It's a really ignorant decision, and there's just no way around it. It would be better for everybody if we were there, including us. It's just stupid, and I can't wait to have it reversed one day.

DG: It will be reversed one day. It's just going to take time, and you have to try to figure out what's going on there. If you have an issue with the WHO, you don't just leave, you don't just grab your ball and go home. You work with the organization. You can reform. You can improve it. We live in a world where the parasites, the pathogens know no borders. This whole idea that we're going to just stay here and be fine without working together with the world is just disastrous.

It gets worse, Vincent. [chuckles] The next headline, “Rejecting Decades of Science, Vaccine Panel Chair Says Polio and Other Shots Should Be Optional.” Dr. Kirk Milhoan, a pediatric cardiologist who leads the Advisory Committee on Immunization Practices- I didn't really realize that training in pediatric cardiology would really be the credential for leading the Advisory Committee on Immunization Practices, but what world do we live in? This gentleman said, "A person's right to refuse vaccine outweighs concerns about illness or death from infectious diseases."

Dr. Kirk Milhoan, pediatric cardiologist, who's chair of the Advisory Committee on Immunization Practices said they did have concerns that some children might die of measles or become paralyzed with polio as a result of a choice not to vaccinate, but he said, "I'm also sad when people die of alcoholic diseases," adding, "Freedom of choice and bad health outcomes."

"In the case of an infectious disease, a personal choice to decline a vaccine may also affect others, including infants who are too young to be vaccinated or people who are immunocompromised, but a person's right to reject a vaccine supersedes these risks," Dr. Milhoan said.

VR: Another idiot cardiologist, Daniel. We saw lots of these during COVID, a couple of them, and now we have another one. I just don't understand how he can compare protecting kids against infectious disease with alcoholism. They're just not even close. Daniel, don't you think that for public health to work, you have to make sure that people are vaccinated, you have to lose a little bit of your rights? Don't you have to wear a seat belt? Don't you have to stop at a red light? There are lots of things like that in life, right?

DG: Apparently, I'm not allowed to drive drunk. They frown on me firing my handgun or rifle in the backyard of my suburban neighborhood. [laughs] This is living in a society. You, living in a society, are forced to do certain things that maybe you wouldn't want to do because you're not really supposed to kill your neighbor. No, and that's what he's saying. He's saying, "I'm sad to hear that the kids are going to die and get paralyzed, but I really just don't want people to lose their personal choice."

We were talking today about pertussis in the hospital and about those children down in Alabama that died. A number of children died down there in Alabama. Unfortunately, little babies, until they're about six months of age and then up to a year for polio, they can't necessarily be protected. We're really relying on our community. You should have the freedom to bring your baby out in public, not worrying that they're going to be killed by some disease that your neighbor just doesn't really want to help address.

VR: This is why we have vaccine requirements for getting in school in most states because otherwise, we would still have huge outbreaks of polio and measles and other infectious diseases.

DG: I'm glad you raised that because we're not talking about a country where they say everyone has to follow the vaccine schedule to the letter. We do say, if you're going to be in a communal situation, like a public school, where - Everyone's required to go to school, and so if people are there because they're required to get educated to go to school, then we are required as a society to make that a safe space. I think the risk of death or paralysis, you're saying, "Sorry, you are now going to be required to go to school. You might end up dead or paralyzed, but we don't want anyone else's freedoms to be compromised."

What comes next? Honestly, what is the argument? Can we now drive drunk? Can we now fire off our handgun in the backyard?

VR: No, it's just a non-illogical argument. That doesn't make any sense. The guy's an idiot to begin with. They can't think outside of a paper bag. By the way, there's a great piece on Paul Offit's Substack where he cites an interview that someone did with Milhoan. For example, the interviewer asked, "Do you think vaccines are appropriately studied for safety?" He says, "No, they haven't been. They're only studied for efficacy," which as we know is a lie.

DG: He's completely wrong.

VR: Then he says, "We don't need rubella vaccine. I've never seen a case of congenital rubella affecting a child in my career.

DG: As a pediatric cardiologist, because that's who you would call up if you saw congenital -

VR: It's because we vaccinate that he hasn't seen it. Is he really that dumb?

DG: I think it's even beyond that. He's not going to see that. When someone was like, "Hey, we've got a really severe COVID case, and they're hypoxic and we're thinking about starting remdesivir, let's call the pediatric cardiologist so he can come in and see this"?

VR: Then finally, he says, "We don't have to worry about polio. We have good sanitation now." Doesn't he know that polio became epidemic because of sanitation? This man, Daniel, is ignorant and he's allowed to head the ACIP. This is such a problem.

DG: These are problems because like the last one, for instance, on the surface, you're like, "Oh, gosh, is that true or not?" He fails to understand the history. We had brilliant people who understood that with sanitation, delayed timing of that initial exposure is when we started seeing all this paralysis. Paralytic polio can be a result of the sanitation levels that we have.

VR: I don't know if he's that ignorant or lying or both. It's just unbelievable.

DG: I think he's ignorant. One, he's never seen congenital rubella, so he's been living in whatever part of his world. This comment about polio and then, come on, vaccines have only been studied for efficacy? We have talked repeatedly about every single study on vaccines and the safety component. Not only do we follow that in the RCTs, the initial trials, but we then have post-marketing surveillance.

VR: Of course. That's how we pick up rare side effects like clots and myocarditis and so forth, Guillain–Barré. He's just ignorant of all this. He's also an anti-vaxxer, so that's why he's head of ACIP.

DG: Fortunately, the American Academy of Pediatrics, pediatricians, doctors, we've all basically have realized that this is some sort of a political anomaly. There currently is no reliable guidance coming out of the CDC. It's become basically a place for a bunch of anti-science, anti-vaccine people to push their agenda.

I don't know if it's worse, but it just keeps going. If we don't have the information, if we don't see what's going on, how do we respond? The article, “Unexplained Pauses in Centers for Disease Control and Prevention Surveillance: Erosion of the Public Evidence Base for

Health Policy," a big, long title, was published in *Annals of Internal Medicine*. This is getting a lot of attention. If you don't look, you do not see how big a disaster they're creating.

In 2025, some U.S. CDC databases seem to have unexplained pauses and ceased or delayed updates. The CDC public data catalog was audited to identify paused databases that had previously been updated at least monthly, evaluated their characteristics. Of the 1,358 catalog records examined, they do this on the 20th of October, 82 were previously updated at least monthly on the basis of each database's stated periodicity, allowing for a 30-day grace period. They classify them as current or paused. Fifty-four percent were current, 46% were paused. Almost half of them were paused.

I actually like this table. They have a table because you can see which of these databases are they going after? All the vaccination ones are paused. Infectious disease stuff is paused. Injury and behavioral mental health, we're seeing a number of those paused. They really seem to be going after infectious disease and vaccines here.

VR: Really, the CDC is finished as a trustable source.

DG: It's paused. [laughs] For the moment, it's on pause. For the moment, we're not looking to the CDC for guidance until political winds change.

VR: The problem is they fired so many people, it's hard to just switch the switch and turn them back on again. It's going to take some time.

DG: It really is. Are people going to want to go back? People are going to have a little bit of PTSD, be a little gun shy to take a job after this, wondering that, "Is this a every four-year changing of the guards?"

VR: Daniel, it used to be that we depended on the government to protect us, and so people working for the government were secure, and now they're not anymore. It's quite clear that a cowboy can come to office and just fire everyone at will. Even though it's unconstitutional, it's been found by courts that it's unconstitutional, you can't do anything because the bloody Supreme Court gave him immunity. It's all screwed up.

DG: I apologize to all cowboys out there because when we did actually have a cowboy in the presidency, it was a little different. We don't have a cowboy. We have some flat-footed dodge drafter.

VR: Who is the cowboy you're talking about?

DG: Reagan.

VR: He started all this nonsense, the nonsense about the government being too big and it can't help people. This is the culmination of his nonsense.

DG: He played a cowboy on the big screen - .

VR: He wasn't really a cowboy. He was an actor.

DG: [laughs] All right. Moving into measles. Oh, my gosh. Nice headline here. Bad headline here. "UK Among Six European Countries Losing Measles Elimination Status." This is everyone. Six countries in the WHO European region have re-established endemic measles

transmission according to 2024 reporting reviewed by the European Regional Verification Commission for Measles and Rubella Elimination.

Countries that have re-established endemic measles transmission included Armenia, Austria, Azerbaijan, Spain, the UK, Uzbekistan. We already have a bunch that are classified as endemic before we add these new ones on: France, Georgia, Germany, Italy, Kazakhstan, Kyrgyzstan, Poland, Romania, the Russian Federation, Serbia.

VR: What's with Italy? For gosh sakes, come on. All the countries, I can understand some of them may not have the immunization programs, but come on, Italy. France? This is crazy. The U.S. - I can't really cast stones, can I?

DG: Germany, right?

VR: Germany is surprising.

DG: All right. Here in the U.S., we have the *MMWR,* "Measles Outbreak Associated with an Infectious Traveler - Colorado, May, June 2025." This is one of those where you got to read past the headline because you hear this, you're like, "Oh, those travelers bringing it in to our country." This is not a traveler bringing it into the country. Let's go through this story. This is a guy in the U.S. who got it in the U.S. traveling around.

May 20, 2025, CDC notified the Colorado Department of Public Health and Environment of a measles case that an unvaccinated non-Colorado resident who had arrived in Denver Airport on an international flight and traveled through the Denver International Airport while infectious. Now, the patient acquired measles in the U.S. before traveling international. This is a disaster. He gets measles, travels around the world, comes back, spreads it around Colorado. Nine secondary cases and one tertiary case. He gives it to someone, they give it to someone else.

Associated with this traveler were confirmed among the Colorado residents. Seven additional cases reported by other jurisdictions, so not just Colorado. Four of the nine secondary cases occurred among persons who had received two doses of the MMR before the exposure. Three unvaccinated patients and one with unknown vaccination status were hospitalized. All the patients had a rash, but the vaccinated patients reported fewer and milder symptoms overall.

Now, a little pearl here that they throw out is that when they're doing the diagnosis, routinely collecting urine specimens for measles testing actually improved the identification of cases. Think about not only the other test, but setting off that urine for the measles virus.

VR: Normally, you would do a nasal swab?

DG: You might do a nasal. Yes, that would be OK. All right. Big news; South Carolina measles cases hit 789 this week, surpassing Texas. This is more than the Texas 2025 outbreak total. They reported a surge up to 789 on this past Tuesday. Texas, they peaked at 762. Here we are at 789. Biggest state-level outbreak in the country. The latest count includes 89 new cases since Friday. This is Friday to Tuesday, 89 new cases in three days.

VR: This is all preventable if the head of HHS, the head of CDC, encouraged vaccination.

DG: Yes. Just to compare these numbers, I'm telling you, we already have 789 in measles in

South Carolina. The CDC, and this is data only up to January 22, a little bit of wiggle I'll give you, but they're saying 416 confirmed. By next week, we better see that number much higher, or we're going to be a little suspicious about how the CDC is taking its time counting these cases.

VR: It's a good bet, but the Johns Hopkins measles tracker is really nice. You can see these are scattered all over the country.

DG: It's endemic again. We're going to lose our elimination status, unless they can somehow find some technical loophole to avoid that. We'll leave the link into the Hopkins. It's always a little bit behind the CDC as far as days, but it's great to have multiple sources.

Mexico's confirmed its first measles death of 2026. They're up to almost a thousand cases just this month. We're not even through January. Like the U.S., Mexico will lose its elimination status when the Pan American Health Organization meets this April.

All right. Flu. Maybe a little bit better. We're still at high levels. You can start to see a little bit of, I don't know, limey green, a little bit of things dropping to moderate and low in certain parts of the country. We're still in the high area here in most of the Northeast. We are seeing that the epidemic trend is that - a couple areas in the Northeast, like Maine and New York. New Jersey, we'll throw that in there, we're actually seeing likely declining. The rest of the country, it's interesting, it's still growing.

VR: Flu persists until really March, April, right?

DG: It can drag a little bit. It is interesting though. We're going to talk about a couple of things. One, just do want to mention before we talk about the incidence peak. We're already up to 44 pediatric influenza deaths so far this year.

VR: Forty-four in one month?

DG: Yes. Twelve just in the last week. We're not even into the end of January yet. By the time this drops, it's going to be right at the end of the month. All right. Let's talk about what happens with flu. I've got this graph that maybe David will have up for everyone where you can see each season. We get a flu peak every season. It's just death and taxes. We get flu every winter.

Sometimes it peaks really early, like 2022. It's a really early peak. Usually right about December is when we see it peak. That's what we've seen for multiple seasons. Then it can come down, and then the Super Bowl occurs, and [laughs] you've got a 50-50 chance. It depends where you are when this happens. Either it'll drop down, which it's done about 50% of the time, or if it's still above that threshold, we often see a second peak or a second plateau. You are right, it can last out in some seasons to end of March. It's often like this three, four months. Every so often, we do get these short periods.

VR: When is this Super Bowl thing?

DG: It's a week from this Sunday.

VR: It's the first week of February, right?

DG: It's usually the first Sunday in February, something like that. I don't know. I'm rooting

for Seattle if that -

VR: Are you going to have a party and introduce infectious diseases into your home?

DG: As long as the party doesn't start until I finish working, which will be about eight or nine o'clock at night. [laughs] Vaccination, there are things you can do. We have the article, *"*Influenza Vaccine Effectiveness Among Children With and Without Underlying Conditions," published in *Pediatrics*. U.S. study. They enrolled U.S. children aged 6 months to 17 years at seven pediatric medical centers. This is within the New Vaccine Surveillance Network during five influenza seasons, so 2015 to 2020, right up until the COVID pandemic.

They're going to look basically at 2,821 kids that tested positive among 15,875 children that were included. The vaccine efficacy, we're going to go through against which different things. Vaccine effectiveness against influenza-associated emergency department visits or hospitalizations, as a combined endpoint, was 43% for children with underlying conditions and 53% for those without. That was interesting. It works even a little bit better on the kids without underlying conditions.

VR: It's a good number.

DG: It's about 50% either way for all the kids, about 50%. You give your kid the flu shot and you've reduced their chance of either ending up in the emergency department or the hospital by about half. It's a no-brainer.

VR: How can you not want that? I don't get it.

DG: There's nothing safer than safe. Do you remember who said that?

VR: I don't.

DG: I think that was Sabin.

VR: Nothing's safer than safe?

DG: One of those polio guys.

VR: Let me look it up.

DG: Check, "Nothing's safer than safe." Dramatic pause.

VR: I don't know. Who said it?

DG: All right. While you're looking, I'm going to do another article. We talked about vaccines. Everyone should be getting them. It makes sense.

VR: Helen Keller.

DG: That's Helen Keller. Nothing's safer than safe. All right. I like that. We have the Helen Keller Institute just down the road. We always - We. My wife and I, our kids, I guess we, we all run in that every year. It's a fundraiser run. This is the one. I don't know if you remember this story where my wife was complaining. She was like, "Oh, I'm getting older. I'm not as fit as I used to be. I just can't run as fast," and I was like, "Jessica, you just won. You just won the race. You're going to upset everyone."

The article, “Influenza Antiviral Use in Hospitalized Children Before and During the COVID-19 Pandemic,” was published in *Pediatrics*. These results come from active surveillance among U.S. children with acute respiratory illness at seven sites in the New Vaccine Surveillance Network before the COVID-19 pandemic. Again, similar, 2016 to 2020. Then they're also going to look at what they've termed "The late pandemic period," so 2021 to 2023.

They reported that among 1,560 children hospitalized with influenza, antiviral use ranged between 48.3% and 56.8% pre-pandemic. Then it drops down to 38% in 2021 and 2022, but then we saw it increase back up to 46.1% in 2022, 2023. Really interesting that we saw that.

VR: I guess people weren't able to get a prescription during the pandemic.

DG: Might have been an access issue. All right. RSV levels are still high. It's a mix. Some of the country, we're seeing that it's still growing out West. In New York, we're on a plateau. Some other areas, we're seeing that it's likely declining. It's still out there. COVID, maybe I have good news here. Levels are still high when you look across the country, but if we look at our multicolored curves, it looks like things are on the way down.

VR: It's pretty behind. It's only January 17th, and today's the 29th.

DG: That's a problem. The data's old. It's not being updated as regularly as we would like.

VR: If you look at the previous year, there were some up and downs. It was going down, then there was a little peak, and then it goes down, then there's another peak. I don't think it's all the way down. We'll see.

DG: The Midwest, if you look at this, it's still just right at the very high area. The Northeast, it's still in the high area. What to do? You can get a vaccine. We keep mentioning that. Get some of those. Wonderful comments. Again, when I discuss vaccines, it's footnoted. I'm discussing the science, the data.

The article, “Effectiveness and Durability of the BNT162b2 KP.2,” that's the Pfizer-BioNTech vaccine,” Against COVID-19 Hospitalization and Emergency Department or Urgent Care Encounters in U.S. Adults.” This is published in *Open Forum Infectious Diseases*. The vaccine effectiveness against COVID-19 hospital admissions, 49%, 45% against ED and urgent care encounters. Pretty impressive, about a 50% reduction in ending up in the hospital, about a 50% reduction in ending up in urgent care or an emergency department.

VR: Is there any age group here, or is this just everyone?

DG: Let me take a look. I'm trying to remember what was the -

VR: It said older adults.

DG: Older adults. OK.

VR: That's why it's not higher because it's hard to protect an older adult, even with a good vaccine.

DG: It's really interesting because the older adults don't respond quite as well, but they have a higher risk, so the absolute benefit tends to be more significant. Younger people, and as we've seen in children, they get great protection, but they already have a lower risk, so the

absolute numbers are lower.

What happens if you get COVID? Is there effective antiviral therapy? Here is a study out of Xiamen University, "Association of Nirmatrelvir-ritonavir," that's Paxlovid, "With Intubation or Mortality Risks in Severe COVID-19 Patients: A Comparative Study," published in *BMC Infectious Diseases*. These are results of an analysis of a retrospective cohort from the first affiliated hospital of Xiamen University, ranging from December 15, 2022 to February 15, 2023. They were looking at the association between the use of Paxlovid, so nirmatrelvir-ritonavir, and the risk of intubation or in-hospital mortality among severe COVID-19 patients using real-world data.

A total of 1,436 consecutive patients with COVID-19 were included; 265 were included in the final analysis, of whom, 169 received treatment, 96 did not. They found that getting Paxlovid was associated with a reduced risk of this composite endpoint, 0.52. Really about a 42% reduction in your risk of ending up on a ventilator or dying.

VR: Also, not bad.

DG: It's not bad. What I thought was nice was, they have a nice table where you can actually see what was the absolute. Basically, it had almost 40% of the folks that did not get Paxlovid either ended up intubated or dead, and you drop that to 20% by treating with Paxlovid. People are still getting intubated, people are still dying, people are still ending up in the hospital, the urgent care, the emergency room with COVID, so it still hasn't really reached that just-a-bit-of-sniffles level.

VR: Why don't we have more uptake? I think that price is one of the problems, right?

DG: I think that price is a huge problem. Price is a huge problem, but also, I think education.

VR: I think even a lot of physicians think it doesn't work, or there are side effects, and it's just not right.

DG: They're worried about the side effects. "Oh, you might have a bad taste in your mouth." I say, "You know what tastes really bad? That plastic ET tube in your mouth." That was what this study was demonstrating. Don't give them steroids. Give them antivirals for the viral infection.

All right. That will wrap up, a little bit shorter- I say a little bit shorter, here we are half an hour in, a bit shorter, half an hour than our usual, no one is safe until everyone is safe. I think this is going to be the last chance, right, for the *MicrobeTV* fundraiser. We're trying to get up to that maximum donation of $20,000 or matching your contributions. I think we're going to get there between you and me, Vincent. Maybe a little last push by people donating. Go to parasiteswithoutborders.com and click Donate.

VR: It's time for your questions for Daniel. You can send yours to daniel@microbe.tv. Gail writes, "Daniel, I was told that Pemgarda is no longer thought to be protective against current variants of COVID and that while it's still available now, it won't be available in the future. Is that correct? Even if it's only partially correct, would you recommend getting another infusion for someone who barely mounted an antibody response to the last vaccine they had and who has a T-cell count in the 80s?"

DG: All right. First off, Gail, who told you that? You should name them. "I was told by whom. Someone who was not in the know." No, there may be some decrease in the efficacy of Pemgarda from when it was first released, but we've done post-marketing. We're still seeing a significant reduction in people ending up in the hospital and dying. We've shared some of those studies on our prior podcasts, *This Week in Virology* clinical updates.

No, Pemgarda looks to still be effective. Remember, it's really important to follow the efficacy of the product because as we've talked about, there could be some Fc-mediated benefits even if you're starting to see a lack of neutralization in some of those pseudo-viral assays that we use. No, I think it still makes sense to continue to use this product.

VR: Bad information really spreads readily and good information doesn't. Why is that, Daniel?

DG: It's amazing that when someone doesn't know something, the level of confidence they can bring to the table.

VR: It's often a relative. "I heard that Pemgarda doesn't work," and then maybe Gail hears that and say, "I heard -" but you didn't hear. It's just someone passed on bad information to you. You have to go into the journals. You have to go to Dr. Daniel Griffin's clinical update to hear the right stuff.

DG: It's interesting. Let's say you did that. Let's say you told someone, you said, "I don't think that stuff works," then they decided not to get Pemgarda and then they ended up dying of COVID. Would you feel bad that you're giving bad medical advice to people that you're interacting with? You should.

VR: Jason writes, "Thank you so much for all your great work. I remember you discussing Xofluza several weeks ago and the advantages it has over Tamiflu. Recently, my infant tested positive with flu and the pediatrician prescribed Tamiflu. I believe Xofluza is only approved for over 5 years old. My wife went to urgent care to inquire about taking Xofluza as a PEP."

DG: Post-exposure prophylaxis.

VR: "The urgent care doctors were happy to prescribe it for both of us. As an aside, we saw different doctors and neither was familiar with Xofluza, though they looked it up and were then comfortable with it, which is a credit to the doctors who were willing to educate themselves. The cost of Xofluza was $187 at the New York City pharmacy we got it from. I stupidly forgot that you had posted a coupon. That said, the coupon only reduces the cost by a maximum of $70. We can afford the medication and it's worth it to us because we're trying to miss as little work as possible while taking care of a baby with the flu.

That said, not everyone can afford this, even with the coupon. Just wanted to report to you on how much this actually costs in some places, which may be a barrier for some people, and to remind people to use the coupon and even educate your doctor about the availability of Xofluza if you find yourself with the flu."

DG: All right. Jason, I'm going to leave in the link to xofluza.com. If you click on that, are you ready? Cash pay price of $50 and they will send the Xofluza to your home. It's still $50, you $50, your wife $50.

VR: It adds up.

DG: It does start to add up. Xofluza, again, a barrier to people getting it can be price, also, really some crummy marketing. You're doing great marketing, Jason. They should have given it to you for free after educating these doctors.

VR: [laughs] Tracy writes, "My primary care doctor will not write a script for the HPV vaccination for me because I'm older than 45. Is there a downside to getting vaccinated in my early 50s, or is it just because clinical trials have not been conducted in adults over 45? I've had HPV before, which cleared, and I have also had cryosurgery in my 20s for cervical dysplasia. Any information is appreciated."

DG: Tracy, we actually discussed, and Vincent, you guys did a deeper dive into this study where you take someone who's had HPV, who's actually developed dysplasia like you did, and getting the vaccine can actually have a curative effect. You're using it in a different manner. You're using it, you would say, off-license, but it's been studied in adults over 45 in that study that we talked about.

There might be someone else that you can discuss. Maybe it's not the primary care doctor. Maybe it's the gynecologist or a gynecological oncologist that you can talk to. Clinical trials have been conducted in adults. This would be an off-label indication in the United States. I don't see a downside.

VR: I put a link to that discussion in the paper. Maybe you can show it to your primary care doctor. Liping writes, "Recently I received the Shingrix vaccine as a 40-year-old. I want to let you know that it is very doable and the reaction is not too bad. The second day, my entire body is aching, particularly my head, but the symptoms are mostly gone by the third day. I'm very glad I received the vaccine at 40 instead of 50. If there are audiences of yours that are considering that, just go for it. I wish they had the study of the vaccine on 40-year-olds."

DG: Interesting. You know what's going to be interesting, is this next generation that isn't getting infected with the chickenpox virus. I say that, and then I realize those days, that was the trajectory we were heading in. Chickenpox was going to be gone. People are only going to get vaccines. Pretty soon, everyone who had gotten chickenpox would be over the age of 50, but now all that is on its head.

VR: It's within our reach to really make a substantial decrease in dementias by immunizing people with Shingrix earlier, I presume.

DG: It really looks like it, and it might be too late after the fact. There was that study at Columbia where we put people on antivirals for periods of time. Maybe we didn't do it on enough people, but you do the vaccine, and the vaccine really can decrease your risk of dementia, the vaccine can really decrease your risk of cognitive decline.

VR: Carmen writes, "I'm a longtime listener, curious to hear your thoughts. I'm a middle-age science educator in good health with no evidence of previous COVID infection. Early on in the pandemic, I was part of a clinical vaccine trial, so I was tested for COVID regularly for two years. Since then, I've been part of other studies which have also tested for COVID, though not as regularly and only using rapid tests.

I live in New York City, ride public transit, and work with hundreds of people on a weekly

basis. Because of this, I wear a mask regularly and test for COVID as needed. I know for a fact I've been exposed to COVID at least three times, not including the household cases which I directly managed. Is it really possible that I have never contracted COVID before? Although there's been no evidence of infection, I'm starting to wonder if it's possible that I'm just one of those asymptomatic people who never gets sick, never tests positive, and whose viral load stays just below the threshold. What's your hypothesis? Thanks for your time and everything you do in the name of science."

DG: There's definitely people out there who have been exposed to COVID who had an asymptomatic case. Maybe they spread it on to others or they didn't. My one episode is, I'm hanging out with you, Vincent, and Dickson, and some other folks, Chuck Knirsch, and we're at the American Society of Tropical Medicine and Hygiene meeting. I come home and I'm about to go for a run. I got a little bit of scratch in my throat. I'm obviously feeling good because I'm about to go for a run in November. I'm like, "Before I go, I should just do a test." I did the test and it was a faint line. I'm like, "Oh my gosh, I got COVID," and I spent a week working on the eighth edition of *Parasitic Diseases*.

I tested again the next day. It was negative. I actually felt 100% fine after that. Just don't tell my wife. She doesn't listen to *TWiV* anymore. I was, of course, worried that I would spread it to her. That's why I was in the room working on the book. I could have missed that if I had just said, "I'll test tomorrow and go for my run now." There probably are some people that have had, minimally, symptomatic COVID. I guess that's why I'm telling that story. There are people that have asymptomatic, minimally symptomatic, and then there probably are some people out there who, despite exposures, have just been lucky so far.

At this point, I'm not sure. You might be just one of those folks who remains asymptomatic, doesn't get sick. You may end up ever missing when you had a threshold positivity. We even saw in the serology studies that, particularly, people who've been vaccinated, some of them never even seroconvert. Even if you did daily tests of PCRs, it picked up that there was some viral replication going on. I don't know.

VR: She could look for antibodies to nucleoprotein, right?

DG: That's interesting. We thought early on that, "Hey, that you'll know for sure," but that was the vaccine study where people who have been vaccinated sometimes never even mount the - It's like 25% of people who never have symptoms never even convert.

VR: Mrs. Carmen, we don't know. That's *TWiV* weekly clinical update with Dr. Daniel Griffin. Thank you, Daniel.

DG: Thank you, and everyone, be safe.

[music]

[00:45:07] [END OF AUDIO]