TWiV 1276 Clinical Update

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Guest: Daniel Griffin

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

[music]

VR: From *MicrobeTV*, this is *TWiV, This Week in Virology*, Episode 1276, recorded on December 4, 2025. 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've got a bow tie with green and red. What is this? A holiday bow tie, Daniel?

DG: Yes. I think you must be getting some of that low-quality video that will be fixed in the final recording. It is my anthrax; [chuckles] gram-positive, gram-variable rods. I'm trying to bring out the red with the pocket square. We'll see. Let's jump right in because, oh, my gosh, Vincent.

VR: Oh, my gosh. Every week, it gets worse. Doesn't it?

DG: [chuckles] I have to admit. This was one of those weeks where I actually felt sick. I was like, "I feel sick." I can't believe what's going on. It seemed appropriate to quote Hunter S. Thompson. It probably dates us, Vincent, that you and I know Hunter S. Thompson. He actually used to live in Colorado, where I'm headed tomorrow night. He lived up the valley from where I lived. I was being a ski bum in Aspen. They were talking about how they needed to get the riffraff off the mountain, and we realized that they were referring to us.

You could go up the valley, head west towards Glenwood Springs, and then you took a road off. There was a bar there where Hunter would occasionally just show up. Here, we'll quote, "There is no such thing as paranoia. Your worst fears can come true at any moment."

VR: It's true. It's happening right now.

DG: Oh, my gosh. [chuckles] I'm going to start off with just a little bit of actual science before we talk about why that seemed appropriate. This was actually something I was talking with a couple of the hospitalists today, this whole connection between dementia and the chickenpox virus. I like to call it varicella-zoster virus. The shingles virus, you could call it as well.

We've been following this story, and it only gets better. We're really learning a lot about this. This whole connection, does the chickenpox virus reactivation and varicella zoster virus reactivation maybe explain a lot of the dementia we see. This is another article. This was

published in *Cell*, "The Effect of Shingles Vaccination at Different Stages of the Dementia Disease Course."

This study took advantage of something that we've discussed before. This is the fact that individuals who had their 80th birthday just after the date of the herpes zoster vaccination program, folks in Wales, you'd be eligible if you were younger, but if that was your birthday cutoff, you never got it, and you stayed ineligible for life. See, you had this midnight bifurcation of the two groups, and you could look at the two groups, those who just didn't make the cutoff versus those who just barely made the cutoff.

Previously, this situation allowed us to see that the herpes zoster vaccination, they're using the attenuated vaccine, reduced the new dementia diagnosis, but here, they're looking at mild cognitive impairment diagnosis. Actually, the folks that have dementia, they're looking at deaths due to dementia. Just to give context, we've seen similar data here in the U.S. where we use the protein-based Zostavax. This is more -

VR Shingrix.

DG: Yes. Shingrix. I guess this is Zostavax-

VR: That's right.

DG: - and we moved on to Shingrix.

VR: That's right.

DG: OK. Perfect. This data set consisted of 304,940 individuals born between September 1, 1925, September 1, 1942, who are alive and residing in Wales as of September 1, 2013. Of these individuals, 282,557 did not have a record of any cognitive impairment prior to September 1, 2013. They're included in this study as the cohort for analyzing the effect of the shingles vaccine on getting MCI, so Mild Cognitive Impairment.

The study cohort for analyzing the effect of the shingles vaccine on deaths due to dementia, here we had 14,350 individuals who had a diagnosis of dementia prior to September 1, 2013. Among the individuals without any record of cognitive impairment prior to the start of the vaccination program, being born one week before and thus being eligible compared to those folks that were ineligible because they're just a little bit older, they saw an abrupt increase in the probability of ever receiving the vaccine.

If you're eligible, you're more likely to actually get it, but only about 45.9%. Only about half of the eligible people actually got the vaccine. That's going to dilute to some effect the effect, if we're just looking at the age cutoff. The corresponding abrupt increase among patients living with dementia, we're also seeing that. If you were eligible but had dementia before this vaccination program, we saw that initially, no one was getting it. Now we have eligibility, 28.7%.

Unfortunately, a little more than a quarter, only about a third of the folks with dementia get the vaccine. No dementia, you're eligible, no cognitive impairment, about half of them get it. People with dementia, quarter or third get it. Then they're going to actually look at the diagnosis, this mild cognitive impairment over nine years, and they actually see that those eligible for vaccination had a decreased occurrence of new diagnoses.

Actually getting the vaccine was where you really saw the reduction. Just being eligible, you can't really expect to get you any benefit from the vaccine if you don't actually get it. They also saw the occurrence of deaths due to dementia over this nine-year period again was reduced, but really, you were seeing the benefit in folks that actually got the vaccine. They have these nice figures where it becomes much more clear. I assume you're looking at the figures there, Vincent, but it is sort of-

VR: Yes. I am.

DG: - funny. You look at eligibility and there's this wide confidence interval, but then you actually look at folks that got the vaccine and then you see the reduction and the narrow confidence interval.

VR: Yes. It's a good reduction.

DG: Yes. Kind of nice. Encouraging everyone to get the shingles vaccine. It's really interesting. The people with dementia, the fact that you can actually reduce their risk of dying, it looks like they were sort of being neglected. Only about a quarter, a third of them were getting it.

VR: If you know someone who has dementia, make sure they get this vaccine.

DG: If you know someone with mild cognitive impairment, make sure they get it. If you know someone just over the age of 50 who doesn't want to become cognitively impaired or demented.

VR: I got Shingrix, so hopefully, I'm set.

DG: It's really interesting. I was talking to some folks the other day, and maybe I have odd conversations, Vincent. We talk about, oh, there's sort of an age-expected decrease in memory, sort of an age-expected cognitive impairment that we see, but that's not true. Not everyone. I run into patients in their late 90s who are just sharp as tacks. I'm beginning to wonder how much of, "Oh, well -"

It used to be, "Oh, well, everyone sort of has a stroke in their 70s. That's kind of expected." Now we're like, "No. No. You can actually prevent that." "Oh, everyone starts having a little bit of memory and other issues. That's just sort of what happens with aging." Maybe not. Maybe we can prevent a lot of that.

VR: How do you prevent strokes, Daniel?

DG: Blood pressure control actually prevents strokes more than it prevents heart attacks. Also, we realize a lot of atherosclerotic disease. You can actually impact that with cholesterol control, medications, diet, and exercise.

VR: My cholesterol is 140.

DG: Is that your total cholesterol?

VR: Yes.

DG: Man, that's awesome.

VR: It's been like that my whole life.

DG: That's awesome. The last time I had my LDL checked, I think it was 37. I'm also hoping to just live forever. [chuckles] I just don't want to be cognitively impaired.

VR: We keep doing this podcast. We'll use our minds, so we'll be good.

DG: We'll have to study that. I think that that's going to be - People who podcast into their 90s. Right? [laughs] You think they had -

VR: I think you can't just ramble on a podcast. You have to do what we do. We read papers. We think about them. We talk about the outcomes and so forth.

DG: Yes. I do think there needs to be some sort of intellectual rigor. You have to actually use your mind, not just your vocal cords.

VR: Yes. Now, that will not apply to this following story.

DG: Yes. Actually, I found this really upsetting.

VR: Incredibly upsetting.

DG: Yes. You've got this group of people that they're out there, I don't know, basically as if they made some great revelation, like, "Hey, I discovered that if you go to McDonald's and eat ultra-processed foods, it's bad for you. No one knew." I'm like, "Oh, my gosh. What?" We've been saying [chuckles] that forever. Like, "Oh, and by the way, now that I've got your attention and you think I'm brilliant," then they come in with stuff like this.

Dr. Vinay Prasad, who is not an immunologist, he's not a vaccine specialist, he basically sent out a memo, and I don't know if they meant for this to be leaked or it was leaked accidentally, but basically, he sent out a memo last Friday, about a week ago, so when this drops, it'll be like eight days before the Saturday morning that this drops, claiming that a new review of records linked 10 children deaths to the COVID vaccine.

Then, the verbiage, these deaths are related to vaccination, and then puts in quotes, "Likely," "Probable," "Possible." Which of those? Is it possible? OK. That says nothing. Is it probable? That means something. Is it likely? If this is actually true and there's evidence, I think a lot of - all of us would want to know this. The idea that there's -

VR: He presented no evidence?

DG: Yes. Well, I guess it's this leak to memo, just to - where there's smoke, there's fire, I guess.

VR: Even the memo doesn't give you any evidence except to say they discovered something in the VAERS database, which, as you know, can mean nothing. It's an association. I don't even know what they looked at. I don't know what vaccines. They say COVID vaccines, but which one? We don't know the interval. We don't know if an autopsy was done. We don't know if the kids have any other infection. This is the worst science of all to make conclusions from the VAERS database. Right?

DG: Yes. The letter doesn't seem like it's written by someone who has any kind of academic

rigor. I'll leave in a link. You can actually read this memo.

VR: This is a horrible example of the misuse of the VAERS database. What it is, it's an open database run by the CDC and FDA. You can write in and say, "I got the COVID vaccine, and the next day, I turned into Hulk Hogan." You can put that in there because someone has done it.

DG: Yes. You could actually. Yes. You could actually.

VR: It's full of drivel. They say they pored through it and found 10 kids who died from the COVID vaccines. Ten kids died, who knows whether the vaccine had anything to do with it? You need to do those studies, and they haven't done it. He is saying, "For the first time, the FDA will admit that COVID vaccines have killed children." This is a wrong statement to make. It is completely disingenuous. I'm sorry I took over your narrative.

DG: No. No. I'm glad you did. You always get a little more riled up than I do.

VR: Well, because you're a doctor, and you're meant to be calm. The letter is just so smarmy and disingenuous. Then, at the end, he says, "This has to be discussed within the FDA, but if you don't agree with me, you need to quit."

DG: Yes. We'll start with that because that was really - the conclusion is terrible. He starts off with, "Anyway, this is how I feel. By the way, if you're not on board with my agenda, you should quit." That's not what the FDA is supposed to be about. It's actually supposed to be trying to find the truth. There should be dialogue. You don't want - This is not like, "If you don't agree with my regime, you need to leave." This is not, "If you don't support the party line, then go."

VR: Daniel, if you don't agree with me, should I fire you?

DG: It's crazy.

VR: It's ridiculous. It's complete - and then he -

DG: "Please submit your resignation letters to your supervisor and CC my deputy, Catherine."

VR: Then he says, "If you want to remain, let's help elevate vaccine science to 21st-century evidence-based medicine." There is no evidence whatsoever in this letter that he's written to thousands of FDA employees. He's saying, "We need evidence-based medicine." There's nothing in here. It's a mining of the VAERS database, by the way, by this woman, Dr. Hoeg, who is a sports medicine physician, knows nothing about immunology or vaccines. Another example of how this administration puts people who are unqualified in roles of importance.

In fact, Makary hired her or put her on a task earlier this year to find people who were killed by the COVID vaccine. He said, "Find people in the VAERS database who were killed by the COVID vaccine." We don't even know what the deaths are. We don't know if it's myocarditis. Myocarditis from COVID vaccines doesn't usually kill you, does it?

DG: Those are some of the interesting flaws. He does talk about myocarditis. We've talked about the data on myocarditis. When we initially saw it, it was then recommended that we space them out. We really have not seen myocarditis. Then we compared the myocarditis

that you get from vaccination to the much higher incidence and much more severe myocarditis that you get if you get COVID without the protection of a vaccine.

When it comes to myocarditis, if you want to protect the heart, you're safer getting the vaccine. They just glossed right over that. If anything, they are squirmy about it. It's a very accusatory letter. It really is basically like, "You knew this. You have this data." They named names of their, I guess, political enemies that they're going to go after. This is not written like we really want to protect children and find out the truth.

VR: He said, "Now, we're going to change vaccine procedures. We're not going to grant marketing authorization to vaccines in pregnant women. We're not going to use antibody titers. We're going to look at multiple vaccines." He says it's a concern of everyone that multiple vaccines are bad, so we're going to move away from this. Vaccines will be treated like all other medication classes. It's just reflecting a person who knows nothing about vaccines and their safety testing. Nothing.

DG: Yes. I'm preaching to the choir, maybe, but maybe our choir needs to share the message.

VR: Well, this man and any other administration would never have this job because he's unqualified. He should be fired.

DG: This is an orchestrated attack on the health of Americans, orchestrated attack on vaccines, and all done for personal, political, and monetary gain from what we're seeing. This is an anti-science lawyer leading the charge. Then they basically put people willing to do their bidding under them.

We've seen seven children die of pertussis just in the last year. We've seen children die of measles. I had a woman here in the local area who died of pertussis in her 50s. I have a woman now in the hospital, and she's got haemophilus influenzae; another vaccine-preventable disease, because she runs a daycare, and the kids are not getting vaccinated anymore.

Diseases that I hadn't seen since my training that had been cleared out by vaccinations are now coming back, and people are dying. People are getting sick. By the way, he thinks we should stop eating at McDonald's until they start deep-frying the fries and lard again or something. I don't get it.

VR: I don't understand what he says. I'm open to vigorous discussions and debate on this. Then he says, "If you don't agree with me, you're fired."

DG: Yes. He's not - [chuckles]

VR: This guy is, he's got a problem. He really has a problem.

DG: Yes. That's not a vigorous debate. If you want to basically kowtow in front of me and tell me that you agree with me with vigor, then we're happy to have that discussion. If you actually want to point out something, now, go away.

VR: As of today, there is no evidence that COVID vaccines killed 10 children in the U.S. There's no evidence that it's been covered up. There's nothing. This letter is irrelevant. They have not released anything, and they're not going to because there is no evidence.

DG: He even writes up. He goes, "You know what? Don't talk to me about the over 1,000 children that died of COVID." That shouldn't even be in the discussion. The over 1,000 kids that died, as we knew, dozens died this last year from COVID. Children are still dying from COVID. We have tens of thousands of children in the U.S. who got COVID and who are still disabled with post-COVID conditions.

VR: It's just a person who doesn't want that to be part of the equation. He says, "No, don't mention it," but it should be. Of course, it should be.

DG: "Don't mention that." That should be. That's one of the biggest reasons we vaccinate children, not only to prevent them from dying, not only to prevent them from ending up in the hospital, but clear evidence that this decreases their risk of these long-term sequelae. All right. Another thing, and this actually dovetails onto this because this should have been something that was being discussed at the CDC, the ACIP meetings. This is this movement to, do you really need multiple doses of the HPV vaccine, or can you just get one and be covered? That would also increase the ability to get this protection out there.

We'll discuss this. This is the article, “Noninferiority of One HPV Vaccine Dose to Two Doses.” This was recently published in *The New England Journal of Medicine*. Why am I talking about this in our clinical update when it seems more like a specialty article? Well, unfortunately, it is because this is also an issue related to our loss of the U.S. CDC as a source of evidence-based guidance.

Here, these investigators assessed whether one dose of an HPV vaccine was non-inferior to two doses. They've got girls 12 to 16 years of age randomly assigned in this one-to-one-to-one-to-one ratio. They're going to receive either one or two doses of the bivalent HPV vaccine or one or two doses of a nonavalent HPV vaccine. The primary endpoint was new HPV type 16 or 18 infection occurring from month 12 to month 60, persisting for at least 6 months.

The pre-specified noninferiority margin was 1.25 infections per 100 participants. They assessed vaccine effectiveness. Really, just to cut to the chase, the vaccine effectiveness was at least 97% in each of the four trial groups. Among 20,330 participants, no safety concerns, one shot looked like it was doing the job.

VR: That's very good.

DG: It's amazing. This vaccine, we've discussed multiple studies where it prevents cancer, it prevents genital warts. This is a cancer vaccine. If we can get our kids all vaccinated, if we can reduce the circulation of HPV in our population, we can not only reduce all the cancers for these young women, but as we've talked about before, significant impact on head and neck cancers.

All right. They're going after the HPV vaccine because, again, there's money. There's money there for Kennedy and his cronies. All right. Marburg in Ethiopia. We have an update. Ethiopia's Ministry of Health has reported 13 lab-confirmed illnesses, including eight deaths from Marburg virus. That's the cousin of Ebola here. Additional illnesses are under investigation, so we'll keep people updated. Actually, the DRC Ebola outbreak is over, so they made it past that. That's great. I forgot to mention this last week, but I will mention it this week; bird flu, that gentleman in Washington who got the H5N5; he actually died from that.

All right. Measles, still going strong. I guess it's part of making America great again. As of December 2, a total of 1,828 confirmed measles cases. I keep seeing more measles cases. Up there in Canada, another 40 new measles cases. We're up to 5,262 there. I'm still seeing more measles cases down south of us in Mexico. All right. Flu's here, Vincent. It's here in the New York area. We're starting to see the admissions in the hospital, had some more consultations. We're seeing a lot of the H3 influenza A. Some of these folks are getting really, really sick.

VR: They come to the hospital because they have trouble breathing. Is that right?

DG: Yes. They have trouble breathing. They require supplemental oxygen. They're not doing well at home. Some of them are falling down, being found on the ground. Yes.

VR: Are they generally older?

DG: Generally older. Yes. Oh, my gosh. If we look at our map, it looks like Colorado and Louisiana are not the places to go visit. Where am I going to go to Colorado?

VR: Yes. Colorado.

DG: They got high activity there. I'm going to just -

VR: Yes. Louisiana is very high. That's interesting. I wonder it's because so many people travel there. Right?

DG: I wonder. Yes. I don't want to go to New Orleans. They started off with some early activity. Now, yes, everyone's got it in Colorado. We're starting to see plenty of activity. New York City, actually, is already moving into the moderate level. Yes. If you look at the percentage of those tests that are positive, we're seeing a nice uptick.

It's really interesting to compare. Flu, in general, once it starts to go up, it goes up. It peaks. We usually get a couple months of really bad flu activity. Then, it comes down. Usually, we get a break. As you see, COVID bounces around. It goes up, maybe not as high, it comes back down, a couple peaks a year. We had a nice-- This last summer was more than last winter.

As I want to keep reminding people, because of the reduction in flu vaccinations of the little kids, we had over 280 influenza-associated pediatric deaths last season. Not great. It's still not too late to get those flu shots. All right. RSV is ramping up as well. One of our local hospitals got a couple adults on the ventilator with pretty a severe RSV, severe enough to require being on a ventilator. We're starting to see some pediatric ICU admissions with RSV as well. It's just starting to pick up. The ER epidemic trend is really moving in the wrong direction. Looking at an early December increase in all this activity.

VR: There's still time to get vaccinated. Right?

DG: Yes. For the RSV, what are the vaccine recommendations? The CDC recommends everyone 75 and older get the RSV vaccine. We've talked about the one to two cases per million vaccines of getting the Guillain-Barré syndrome, but the quadrupling of that baseline risk of thousands of people getting Guillain-Barré from RSV vaccine and from RSV disease itself.

Actually, an interesting calculation. The CDC recommends adults 50 to 74 at increased risk of severe RSV disease get the RSV vaccine. We recommend women in the 32 to 36 weeks gestational age get the RSV vaccine. We recommend the little kids who are going to be in the first year of life go ahead and get the monocloncls, the passive vaccination. That's the nirsevimab and the Clesrovimab.

Yes. There's still time to do all those things. Do they work? We have the nice article; "Maternal and Neonatal Outcomes After Respiratory Syncytial Virus Prefusion F Protein Vaccination During Pregnancy: Analysis From the 2024-2025 Immunization Campaign in France," published in the journal *Obstetrics & Gynecology*. This is the professional organization journal.

They use this national healthcare database, which covers almost 99% of the population in France. They included all women who gave birth after 22 weeks of gestation between September 16 and December 31, 2024. This is data from last year. Women vaccinated with the RSVpreF were matched one-to-one with unvaccinated women. Then they're going to go ahead, and they're going to look at these outcomes.

Among 29,032 women vaccinated, 24,891 were successfully matched. 24,891 unvaccinated. No significant increase in any of the bad outcomes. We're looking here at safety issues. They looked at preterm birth, delivery within one week or within three weeks, stillbirth, C-sections, small for gestational age, postpartum hemorrhage, preeclampsia, major adverse cardiovascular events, which actually were significantly lower, but not statistically significant lower. No increased risk of any of these bad outcomes, so great safety profiles.

VR: This was the safety -

DG: The SAFE study.

VR SAFE study.

DG: Yes. This is the Pfizer ABRYSVO. That's the RSVpreF.

VR: Now, just to put things in perspective. They're talking about 30,000 people or so in this study. In his letter, Prasad says these studies are too small to find signatures of side effects. Well, you know, you can't do millions of people. You have to start small, and then you license, and then you look and see what happens. You do post-licensing monitoring. That's the only way you can do it. Otherwise, you won't have any vaccines.

DG: This is a post-licensing study in France. They're looking at 99%, [chuckles] basically the tens of thousands of eligible women, and they're not seeing any issues. They're looking. We're looking.

VR: Obviously, if something is 20 per million, you're not going to see it here.

DG: Yes. Maybe over years, you might start to pick up, but what we are seeing is this 30%, 40% reduction, and the little kids ending up in the hospital, ending up dying, ending up having a lifetime of asthma. I was talking to a pulmonologist last night, actually, about this. One of the things we don't think about is you get a bad RSV infection that lands you in the hospital, and you think, "OK. We got through that, but now your kid might end up with asthma for the rest of their life." We can do stuff. We can do stuff about that.

VR: It's always about weighing risks versus benefits. There's no other way because everything has an inherent risk.

DG: The whole idea that "Oh, but you'll get RSV. What doesn't kill you makes you stronger." No. What doesn't kill you might leave you a little bit crippled with lifelong asthma or some other issue.

VR: The chances of that happening are too great. They're much greater than the one in a million side effects.

DG: You might turn into a heroin addict or become addicted to nicotine and tanning beds. Bad things can happen.

VR: OK. [crosstalk]

DG: Even if you avoid ultra-processed foods. [chuckles] Oh, you thought I was talking about someone? [laughs]

VR: I thought you were talking about someone.

DG: [laughs] All right. COVID. We've got our multicolored lines back. We might be seeing a little bit of an uptick in activity, but still, things are in the low.

VR: If you have an imagination, you can see a little bit of an uptick. We're at the high end of the very low, just crossing into low.

DG: We'll say we'll follow that over. I was talking to an ER doc. It was actually a hospital event. That's why I was talking to all these doctors. Usually, I try to avoid them. Well, I work in a hospital, so I talk to these doctors all the time, I guess. [chuckles] No. They were wondering about is it going to be all three at once? "We're starting to see flu. Are we going to see RSV and COVID? Is it going to be all three at once?" We'll see.

There are certain areas where the epidemic trend is going in the wrong direction. Colorado, again, where I happen to be heading, Pennsylvania, Jersey, some of the local areas. We'll see what happens over the next little bit. Those vaccines, which they claim we don't keep an eye on, we are still keeping an eye. We got another article. This is, “Effectiveness of COVID-19 Vaccines Against Post-COVID-19 Condition/Long COVID: Systematic Review and Meta-Analysis,” published in *CMI*.

I put it here because I want to put it in our vaccine section. The aim of this review was to evaluate the effectiveness of these vaccines in preventing post-COVID conditions, or Long COVID. We're going to get data for just any vaccine at all. Then we're also going to get broken down for if you got one dose, two dose, three doses. If you just got any at all, one or more vaccine dose, 41% reduction in post-COVID conditions.

That's huge. For most of us, right? Most of us are not going to die from COVID. Most of us won't end up in the hospital, but probably the biggest issue is you get COVID, and then, you're just not better for months and months.

VR: They have less than 18 years of age, 26% efficacy. Then over 60, 41%. You still can get Long COVID over 60.

DG: Oh, yes. We see it in all the ranges. We see it. Young kids can't go to school. We see older folks, they're just miserable.

VR: Last night on the stream, a guy asked, "I have a young 20-something son who got the original three COVID shots. Should he be getting boosters?" I said, "Well, I can't give you medical advice, but Daniel would probably say there's a reduction of Long COVID. Maybe for a young person, that's the thing you would vaccinate for." What do you think?

DG: I'd say yes. If you break this down. If you get just one dose, that's about a 19% reduction. You get two doses, that's 43%. You get three, that's 70%. We're really seeing that the more doses of vaccine, we're seeing an escalation in the reduction. Folks that have gotten all the vaccines, that have been getting yearly boosters, really protected against Long COVID. Yes. Every time you get COVID, you are at risk. If you can even reduce your chance of symptomatic COVID, you're going to reduce your risk. Even asymptomatic COVID can give you Long COVID.

All right. I keep criticizing. What about looking at infection, SARS-CoV-2 infection versus vaccination during pregnancy? This is implications for placental antibody transfer published in the *Pediatric Infectious Disease Journal*. Here we've got prospective multicenter observational study of SARS-CoV-2 infected and/or vaccinated pregnant people and their infants.

They collected maternal and cord blood samples at delivery and neonatal infant samples at delivery, 1, 2, 6, and 12 months of age. They're going to look at all the different antibody titers. They collected blood samples from 193 pregnant people, 96 are infected, 60 vaccinated, and then 37 infected and vaccinated, so that hybrid. Then they're going to look at 154 infants, and then 76, 47, 31, respectively, associated with the ladies.

Now at birth, they're going to look at the titers of the RBD median from infected-vaccinated. They're going to compare it across. Basically, what we're going to see is the hybrid. Being vaccinated is better than being infected. Being infected and vaccinated is going to give you the best transfer of those antibodies. Then, actually, you're going to see, if you adjust for a trimester of infection and vaccination, that last trimester is going to give you the most transfer.

All right. Moving through. We're not seeing a lot of COVID activity, but when we are, still remember that we end up with people dying, we end up with people in the hospital, we end up with people with Long COVID, so still recommending early antiviral therapy. Moving into the inflammatory period, we're still using steroids and immunomodulators in the right people.

Really, the big thing we're struggling with is all these growing crowd of folks who have Long COVID, that refractory to a lot of the technique. Sort of an exciting publication this week sent to me by the authors who I actually know because Columbia, we're setting up to do a stellate ganglion block study there that's funded from the RECOVERY funds.

Here's this article. “Case Report: Celiac Plexus Block Improves Gastrointestinal Long COVID Symptoms,” published in *Frontiers in Neuroscience*. What do they do here? They do this block using a posterior approach, and they have this - the great figures. I love the figures. What you have is this idea that an imbalance between the amount of sympathetic activity, so increased sympathetic activity, and not enough parasympathetic activity, so this

autonomic nervous system imbalance, might be driving a lot of Long COVID symptoms. In this case, maybe driving epigastric pain, this diarrhea that we're seeing.

What they're going to do, instead of doing the block of the sympathetic ganglion in the neck, they're actually going to go in. They're going to skirt the side of the spine with these needles. They're going to get into the celiac plexus, and they're going to do a nerve block there to try to decrease the sympathetic tone or really shut down the sympathetic tone in the gut. This case report of three individuals where they do this with great figures of seeing exactly how they do this. In these three individuals, one of them had complete recovery, and the other two had near complete recovery after going through this.

VR: How do you do a block? Do you inject something?

DG: Yes. You're going to actually, from the person's behind. You're behind the person. It's the lower -

VR: L1.

DG: Yes. It's L1. It's right there below the thoracic, so lumbar one. You're going to go right in along the lateral side of L1 from the person's back. You're going to skirt, and then you're going to get just in front of the vertebrae there. That's where the celiac plexus is. You're going to actually inject into that area.

VR: You have to avoid the kidney. [chuckles]

DG: Yes. You're going between. Yes. That's why you're hugging the vertebrae. You're doing this. They actually show you the fluoroscopy-guided images. You get right in there. You don't poke the kidney. You're going to skirt right along the bone. You get just in deep enough. You don't want to keep going, end up in the guts. Then you put it in there.

VR: People felt better. Do we know how long it will persist? Maybe after the treatment wears off, it comes back.

DG: Yes. This is a preliminary. How long is this going to last? Three is a case study. It's interesting, but we really need to do studies. Again, they need to be done right. We talked about the sham where they did the stellate ganglion in the neck. Some people were getting a lidocaine, a long-acting. Then other people were getting these saline put in there. They seem like you were probably getting some degree of a block by just putting a massive pressure of saline in the area. You need to somehow do a sham, which isn't actually getting any kind of sympathetic block.

VR: This is often done for abdominal pain. Right?

DG: Yes. We're starting to see the same group that was doing stellate ganglion blocks doing it now for abdominal pain. We certainly see a lot of this. Interesting. We'll have to follow that, but really preliminary case study at this point.

All right. Another article. This will be our last Long COVID article this week. “Distinct Brain Alterations and Neurodegenerative Processes in Cognitive Impairment Associated with Post-Acute Sequelae of COVID-19.” Now, this was published in *Nature Communications*. You can imagine this is quite a handful to get through this paper. This will be a brief overview.

What these investigators did is they analyzed blood proteins and brain MRIs from individuals approximately one year after mild COVID-19 categorized. We're going to have to remember these acronyms. COGPASC. That's Cognitive Impairment PASC, and then other PASC, so without cognitive impairment. Let's just call them the COGs and the non-COGs. Right?

VR: Mm-hmm.

[laughter]

DG: Or maybe the non-COGs would be the people who are having cognitive issues, so maybe it gets confusing. This is an exploration cohort. They looked at those with COGPASC, so the cognitive impairment PASC. They had elevated astroglial damage-associated proteins, structural and microstructural alternations across various regions. They mentioned those regions. I won't, because I think you need the people this week in neuro to go through.

They're matching age, sex, education. They're seeing cortical thinning. Blood proteomics reveals these different patterns, with oxidative stress responses and synaptic function being different in the people with COGPASC linked to neurodegenerative pathways. Really, I think the biggest thing I take away from this really complex, challenging study is they're actually seeing reproducible neurodegenerative-associated alterations, objective evidence that something is going on in these folks that have COGPASC that is not going on in other PASC subtypes. This is after just mild COVID-19 infection.

VR: Could this be the basis of a diagnostic test, perhaps?

DG: Potentially. Actually. When these people are having issues where insurance is not helping them, when they're not getting disability, they'll say, "No. No." They have objective findings of these neurodegenerative processes. Maybe we can figure out ways to intervene. Why is this going on? Is this because of herpes zoster reactivation or some other viral reactivation, or is it just an ongoing inflammatory process that we can target?

All right. No one is safe until everyone is safe. We are in the middle of our *MicrobeTV* fundraiser. I want to thank everyone that's really stepped up because, yes, Vincent, as you keep saying every week, we only do this with your support. We don't take Big Pharma dollars. We don't take advertising. It's really our listeners sending in whatever you want to send in. Go to parasiteswithoutborders.com. Click on the donate button. We're going to get up to that maximum donation of $20,000. We're going to double things to get to that level to support *MicrobeTV*.

VR: It's time for your questions for Daniel. You can send yours to daniel@microbe.tv. Ingrid writes, "I got hooked on *TWiV* during the pandemic and have continued to enjoy the clinical updates you provide. I'm currently 37 weeks pregnant with our third child and navigating a different world in terms of vaccines and exposure compared to the first two. Just last week, my stepmother-in-law was hospitalized with H. influenzae type B, (Hib). She had a pretty serious case, was in the ICU for a few days. Thankfully, she's doing better."

"My father-in-law was around her while she was sick. He lives in Ohio, and we live in Colorado, and he's scheduled to come out in 10 days to be here for our older two kids for when I go into labor. We're questioning whether that's wise given his recent exposure to Hib and the fact that we will have a newborn who can't be vaccinated against Hib arriving

sometime during his stay. We've contacted our pediatrician, midwives, and even local public health and gotten conflicting responses as to whether it's safe for him to come out, if he should do prophylactic antibiotics since he was exposed and could be asymptomatic, or if the most prudent approach is for him not to come."

"While this would be inconvenient, we will, of course, do this if the risk is too high. With that in mind, a few questions. One, it sounds like prophylactic antibiotics for my father-in-law would be our safest bet, that still allows him to come out and help. Are there any guidelines as to which antibiotic for how long and whether he needs to complete the treatment course before being around our newborn, or would you recommend he not come out at all until the baby can be vaccinated? He will contact his PCP, but we want to be armed with good info, as this is a unique situation." Let's do that one first.

DG: Yes. Wow, this is very similar to the woman that I was consulting on today. *Haemophilus influenzae* type B, bacteremic, sick in the hospital. We're trying to figure out if it may have gone to the spine, whether or not this woman now has spinal osteomyelitis. I was talking a little bit about *Haemophilus influenzae. Actually, this'll be a good primer, I guess, we say?*

People get confused. *Haemophilus influenzae*, why do we call this influenza? I don't know if you know this history, Vincent. I don't know. I think it's interesting. There was, what was his name? Pfeiffer or Pfeffer? What was his name? This doctor who thought that this bacteria was what was causing the 1918 flu pandemic. They called it Pfeiffer's bacilli.

There were some studies, "Hey, we're isolating this in about 20% of these kids in the military barracks that are dying of flu." They thought of it as a smoking gun. It probably was just a bacterial secondary infection of people with viral flu. That's why it's called influenza. *Haemophilus influenzae.*

VR: It used to be bacillus influenza, actually. [chuckles]

DG: Yes. Was it Pfeiffer? Was that his name?

VR: Yes. Pfeiffer was his name.

DG: Yes. Dr. Pfeiffer. Time goes by. This continues to be an issue. It causes ear infections, causes meningitis. Then the *Haemophilus influenzae* type B vaccine gets introduced. During my career from last century to now, we really stopped seeing *Haemophilus influenzae*. It used to be very common. Now, as we're seeing decreased vaccinations across the board and delayed vaccination, we're starting to see cases. This is not the only case that I've seen in the last few months. We're seeing bacteremia again. We're seeing ear infections again. We're seeing meningitis again.

It's uncharted waters. It used to be super common. There wasn't really a concept of prophylactic antibiotics because it was during sometimes maybe 20% of the pneumonia is a chunk of the meningitis would get this. Really, you're in these uncharted waters. The woman that I talked about that I took care of today in the hospital, she's working in a preschool daycare situation. Some of those kids are unvaccinated. We had discussion with her and her husband about that. In this situation, there probably was some exposure now that we're seeing it more in the population. If the mother-in-law is hospitalized, was the father-in-law also colonized? Is he also colonized?

We're in an age group where we didn't really get the *Haemophilus influenzae* vaccine because it wasn't part of the schedule, because it really was the youngest kids that were having the issues. Then, we, as adults, were getting the benefit of a bystander from that.

These bacteria are pretty susceptible to our cephalosporins. A cefuroxime 500 milligrams twice a day for a week would be a potential way to do a prophylactic antibiotic treatment. Again, really uncharted waters. We don't have any really good evidence-based studies or guidelines to go with on this.

I think all the things you're thinking about are true. This is an individual who's been exposed with someone who was hospitalized. They may be colonized. We're entering this world of little kids who are not old enough to be protected themselves. The world around us has just said, "Too bad. We're not willing to do what it takes to keep the little babies safe."

VR: All right. Second question is, "I was immunized against Hib in the late '80s when I was 18 months old. It looks like I received just one dose. Should I consider getting Hib vaccine while still pregnant to try to transfer some immunity to the baby? I'm 37 weeks plus three days today, so my window is closing."

DG: Wow. Scientifically, it makes sense. If you get vaccinated, there's enough of a period of time for some passive transfer to the baby. That potentially can provide some protection. Again, this isn't something we've studied. It's really thinking through the science on this. We may have to actually start really doing these studies and thinking these through because, as I mentioned, the world around us is not embracing vaccination. As we see dropping rates, we could have more and more babies born into a world where until they're old enough to get their own vaccinations, they're potentially getting exposed to other folks who didn't do their part.

VR: Michael writes, "My wife and I had a baby in mid-January 2024. During that pregnancy, she received ABRYSVO to protect the baby against RSV once he was born. She's now pregnant again, due at the end of January. She was told by her OB that it isn't recommended to get ABRYSVO during pregnancy if you've previously received it."

"We checked the CDC and ACOG recommendations, and both agree that in this case, the baby should receive a monoclonal, either nirsevimab or clesrovimab. Why would the RSV vaccine not be recommended? For instance, is there some reason to think that the mother wouldn't produce enough antibodies to protect the baby, or is there some other reason not to give it?"

DG: Yes. This is interesting. We've talked a little bit about the data that can drive this decision. Adults. You are an adult, but we're talking about older adults. I think when we're talking about RSV studies, they get their initial shot, and then it was, "Should you get another shot a year later? Should you get another shot two years later? If you do get that shot, what happens?"

We weren't really seeing a boost in those antibody levels that we expected because we thought, "OK. Well, looks like you're still protected into that second year, but maybe now it's time to get a boost and see those antibodies come up." We didn't really see those antibodies come up. That sort of translating here, it's not clear if you got that nice boost in that transfer during the first pregnancy, if going ahead and getting another RSV vaccine is going to get you that boost.

It's OK because the passive antibodies, the monoclonal antibodies that you give to the baby, nirsevimab and clesrovimab are very effective. That is an excellent option. I would say go ahead with this pregnancy. When this baby is born, the baby should receive a monoclonal.

VR: Carl writes, "A study in Canada suggests that Paxlovid is very helpful for unvaccinated individuals with COVID, but not nearly as helpful for fully vaccinated individuals. I'm 70 and in decent shape, and chose not to take it when infected in October. I did OK with no rebound. Shouldn't this conflicting evidence about Paxlovid be more widely discussed on *TWiV*?"

DG: Carl, we talked about that study [laughs] and all its many flaws. The thing, even to this day, up in Canada, we're trying to save money, you're over 70. I remember when my dad got admitted to the hospital in France. It was after 2:30 in the afternoon. The doctor explained to me, he goes, "Your dad's in his 70s. People in their 70s die. It's already after 2:30 in the afternoon. I'm not going to have a doctor come back this late in the day to see your dad if he's still alive tomorrow." [chuckles] I'm like, "Oh my gosh."

Then, there was a pause. He goes, "You do realize people in their 70s die." I said, "Yes, but I would like if my dad, in his 70s, did not die." [laughs] Yes. I don't know if I could say, "Welcome to the public health system." "Yes. You're over 70, Carl. Come on. You've lived long enough." Paxlovid, yes, it's going to reduce your chance of dying, of ending up in the hospital. "You're over 70. It's a lot of money for that Paxlovid, Carl." [chuckles]

We talked about this study. Yes. The percent decreased, but then the numbers needed to treat, you probably have to treat a bunch of people because you've been vaccinated, you've been infected before, your chance of getting into the hospital is low, but you can make that even lower.

VR: Basically, it was a flawed study.

DG: I think of it as a flawed study.

VR: Robin writes, "I've been a listener of *MicrobeTV* since the pandemic, and so grateful for the work of all you do to present science and education to us. I am a 79-year-old retired RN in generally good health. I exercise a lot, have a healthy lifestyle. I've had rheumatoid arthritis for 20 years, well-controlled with Rituxan. I had two doses of Evusheld when it was available, and in April 2025, a dose of PEMGARDA."

"In May, I had a short episode of atrial fibrillation. In July, August, and October, three more severe episodes that required cardioversion. I've since had a pulse field ablation and seem to be fine. Other than being oldish, [chuckles] I have no risk factors. After quite a bit of digging, I found an article that mentioned a correlation, not causation, I know, with arrhythmias and PEMGARDA."

"I talked with my rheumatologist recently about revisiting taking PEMGARDA again, as I'm at increased risk for severe disease and never had COVID. She advised against it, stating she had heard of cardiac problems associated with both Evusheld and PEMGARDA. What do you think?"

DG: All right, Robin. [laughs] This is a good one because we're balancing things here. We're saying if you get the PEMGARDA, maybe there's some correlation with arrhythmias. You

know what there's a clear correlation with? Getting COVID. COVID certainly increases your risk of arrhythmia, it certainly increases your risk of cardiovascular issues. It's really a risk-benefit. Is there a connection? You're oldish, as you point out, and that can actually be when we start seeing more atrial fibrillation. You require the cardio version. Let's see what you've also done here.

VR She had an ablation, too.

DG: Yes. An ablation. That's great. It's really going to be a risk-benefit. Have that discussion, but think about the issue that you look at this two ways. If you get PEMGARDA, you have another issue of AFib. You're going to regret that decision. If you don't get PEMGARDA, you get COVID, and then you end up with AFib or another issue because of the COVID, you then have that. You've got to weigh the risks of - Every choice is a choice. Deciding to get PEMGARDA is a choice, deciding not to get PEMGARDA is a choice.

VR: Even with an ablation, you could have another AFib. Right?

DG: You could. You could. Yes.

VR: That's TWiV weekly clinical update with Dr. Daniel Griffin. Thank you, Daniel.

DG: Thank you. Everyone, be safe.

[music]