TWiV 1296 Clinical Update

Host: Vincent Racaniello

Guest: Daniel Griffin

Aired 14 February 2026

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

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VR: From *MicrobeTV*, this is *TWiV*. *This Week in Virology*, Episode 1296, recorded on February 12, 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: I know what's on your tie, but I can't admit to getting it, so I'll ask you. What's on your tie, Daniel?

DG: Well, it's hard because it's multiple things. It's waterborne pathogens. I have a fecal-borne pathogen one, and this is waterborne. Some gram negatives, some coccidia, a bunch of different things. It seems appropriate because we're going to talk about, basically, a big way that you get sick is either by breathing or letting things go into your mouth.

VR: Which are two activities we need to do, right?

DG: Yes, pretty much air and other things end up going into our mouth, and kind of what happens. All right, well, I'm going to try not to cough. I just went for a run, and even though it's warmer, it's still not that warm out there. I need to probably jog at a slower pace or somehow pre-warm the air in my environment. I am going to start off with a quote from Helen Keller. I know I've quoted Helen Keller before. If you're just feeling down, go just read a bunch of Helen Keller quotations. Brilliant woman. Really just said a lot of profound things. This one just seemed like a nice one in these divisive times. "Alone, we can do so little. Together, we can do so much." I see you shaking your head.

VR: Working together is how humanity functions best, and it's very difficult to get people on a global sense to work together. Sometimes it happens, but more often it doesn't, and we have wars, and we have all kinds of issues. I just don't understand what the problem is. Well, the problem is power, money, and religion. Those are the most divisive things that cause people not to get along. It's really unfortunate. The human race is amazing. It's amazing. We can do so many things, and we screw it up, and we're screwing up the planet on top of it. People don't want to admit it because they want their money.

DG: It is tough. We've got a few upsetting things to talk about, but then some good things. We've got a mix. What was this thing about this measles vaccination?

VR: All right. Dr. Oz, the charlatan from Columbia University who just will peddle anything,

finally encouraged people to get measles vaccines in a statement that differs from everybody else in the Trump administration. He's the head of Centers for Medicare and Medicaid Services. On CNN, he said, "Take the vaccine, please. We have a solution for our problem. Not all illnesses are equally dangerous, and not all people are equally susceptible to those illnesses, but measles is one where you should get your vaccines." I think at face value, that's a good thing, don't you think?

DG: I'm glad. It might be a little bit too late. I'm going to make sure we circle back this. I'm going to talk about what is going on with measles, why it's going on. I love the analogy of what happens when the dog catches the car. I feel like that's what's been happening. Why is this a little bit too late? What have we done before? We've had these eroding vaccination numbers. Why haven't we had these outbreaks? What suddenly changed in January of 2025? Definitely want to talk about that. I think we also have some anti-vaccine stuff going on that the FDA - what's happening there?

VR: Oh, my gosh. Now, Moderna has carried out a clinical trial of an mRNA flu vaccine. They presented the data to the FDA. Now, you don't just go ahead and do a clinical trial without saying to FDA, "Hey, we're going to do this. Is this OK?" This is last year before Prasad came on. The FDA said, "Yes, it's great. Do it." They did the clinical trial, 40,000 people. They compared the mRNA vaccine to the regular inactivated flu vaccine.

DG: I think they spent $750 million. This was nuts.

VR: Oh, my gosh. That's not trivial. It was better than the old flu vaccine. Prasad said, "No, we're not going to review it," which is incredibly unprecedented. They rarely not review clinical data. You have these volumes and volumes of data. Why wouldn't you review it? He said, "Oh, you should have compared it to the high-dose flu vaccine, which is the standard of care." Daniel, is high-dose standard of care for flu vaccine?

DG: It's not. We encourage it. We recommend for the elderly, but most people in the United States get the standard flu vaccines. You've seen, Vincent, you're over 65. Can I say that on the air?

VR: Yes, yes, of course.

DG: How often are you ever able to even get the high-dose?

VR: Well, I never get it. They're always out of it, so I get the regular dose. It's fine. In Europe, where they also tested the vaccine, and they're going to go for licensure there as well, they don't use the high-dose vaccine in many countries, because it's more expensive. This was the right trial to do. Prasad does not know what he's talking about, and is just using this as an excuse to nix mRNA vaccines in general because he doesn't like it. One person who knows very little about vaccines makes a decision that may block the whole United States from getting mRNA vaccines for the future. It's just unacceptable.

DG: We talked a little bit, and Vincent, you mentioned it. When we've gone through, and I've been involved in this with the monoclonal antibodies. Also, when I was involved with developing denosumab when I was working for Amgen, there's a dialogue. You talk to the FDA, you tell them what you're thinking, you come to an agreement, OK, we'll provide the data that the FDA is asking. It's done ahead of time. Then you spend your $750 million. You say we have the data that you advised us to collect. We did our trial the way you advised us

to do it.

The FDA is looking over the details of how you're going to get this data, how you're going to run your trial. Then they come back, and they say, "All right, we've done everything you asked us to do. We have this great, compelling data. Here it is for you to review." He says, no, changed my mind. Changed my mind. Almost $1 billion spent. Tens of thousands of people were involved as participants in this trial. The option of having a flu vaccine technology that we can rapidly bring to market if we need to.

What a disaster. Aren't we supposed to be trying to make America great and help the economy? This is devastating to the industry. It's supposed to be an industry-friendly regime. I'm going to say regime. What are we doing? Trying to destroy companies after basically changing the rules in the middle of the game. Actually, at the end of the game. It's like the eleventh hour. Oh, no, I have the red piece of monopoly. I'm allowed to go all the way around the board whenever I want.

VR: There's an editorial in *The Wall Street Journal* I just read. Conservative publication. They're just lambasting him. They say, he can't make this decision for the entire United States. It's ridiculous. We're jeopardizing the future of vaccines in general. What company wants to deal with this kind of garbage?

DG: That's the tough thing. I think we've talked about this. In general, vaccines are not a great way to make money. A lot of it is a public health benefit.

VR: Sure.

DG: It's disastrous. Well, speaking, I don't know, this is good and bad. This is good. Moving to hepatitis B vaccination at birth. We have a really nice article published in the journal *Pediatrics*, “Hepatitis B Vaccination at Birth: Safety, Effectiveness, and Public Health Benefit.” Open access, which is great. Comprehensive review of the evidence regarding the safety, immunogenicity, efficacy, and effectiveness of the birth dose and a delayed first dose, and of the potential role of serology for clinical decision-making.

They analyze studies of the epidemiology of HBV, so hepatitis B virus infection, clinical trials, systematic reviews, vaccine safety from surveillance and clinical studies, and the potential impact of this revised, restricted, I may have added restricted, ACIP, CDC guidance on individual and public health. They go through the history of ACIP recommendations and resulting trends in hepatitis B virus incidence. The review found strong evidence for the safety and effectiveness of the birth dose. No improved safety or effectiveness with a delayed first dose.

They found no evidence to support use of post-vaccination serology.

Infant vaccination has resulted in a 99% reduction in pediatric hepatitis B virus infections. No evidence to support a change in vaccine recommendations, but they did identify potential health consequences. It's an interesting author list. It's open access. People can look and see, even look at the address, the corresponding author right out there at CIDRAP at University of Minnesota. It's Eve Lackritz. Why do we care so much, Vincent? Why do we get all fired up, you and I?

Well, it's summed up in the introduction. We read, “Acute hepatitis B viral infection in

infants carries a high risk of chronic infection and progression to severe disease and death. Approximately 90% of newborns infected perinatal will develop chronic hepatitis B infection, and 25% of these will die prematurely from chronic liver disease and hepatocellular carcinoma." I want to point out, they cite the studies. You can look at the study. You can follow the link. You can see why they say this.

I just want to mention because when I mention these numbers, maybe they're bots or people write comments, "Dr. Griffin, you liar." I'm like, "Not lying. I'm actually sharing the truth and the evidence." If you want, you can look at that evidence. Chronic hepatitis B remains an incurable disease. If you get this, you can't cure it, underscoring the importance of primary prevention of infection. Just those numbers again: 90% of these newborns will develop chronic hepatitis B, and a quarter of them are going to die prematurely. You're killing kids when you make this change.

Now, the most recent CDC recommendation seems ignorant of the fact that in 2023, approximately 660,000 people in the U.S. were living with hepatitis B infection. An estimated half of them didn't even know that they had this. Nearly a third of the people had no risk factors. This whole idea that, oh, it's those dirty people. We know who they are. If you miss this, if you don't follow the recommended approach that we've been doing, you're going to miss many kids. You're going to let them get infected.

This whole idea that you're going to know what is a risk group of kids, all kids are at risk because they live in this world, and they interact with human beings, and half of those human beings who have hepatitis B viral infection don't even know it. They do a great job of point-by-point explaining the ignorance behind this most recent ACIP decision. It is ignorance. You listen to them talk. You listen to their ideas. "Oh, we'll do this. We'll do that. Doesn't sound like a good idea." Yes, it would be great if they actually let some adults in the room. OK, right. Why do I get fired up? Because we're talking about permanently harming children.

All right. Who's been watching the Olympics? Have you been watching the Olympics, Vincent?

VR: Not really. No. [chuckles]

DG: I haven't really been watching much. I had to go to the dentist the other day, a joy in everyone's life, and they had curling on.

VR: Oh, yes.

DG: Afterwards, I was asking AI, how does that work? What are the rules in that game? [laughs] I don't know. They're throwing stones down the ice, and it's very interesting. This is what caught my attention: "U.S. Olympic Committee Remains Dialed in to Prevent Spread of Stomach Illness at Winter Games." Let's see. Winter, vomiting, yes. The U.S. Olympic and Paralympic Committee is continuing measures to protect athletes from infections like norovirus, says Carrie Aprik, winter sports dietitian for the committee.

Cases of norovirus were identified among Team Finland, the International Olympic Committee said. We've got this picture from CNN Health. You can see the team. They're all huddled together, and people can put in the caption. I put in the caption, "I don't feel so well. How about you?"

VR: Looks like they're all throwing up.

DG: That's what they're doing. They even got the ref in there, too. He's like, "I don't feel well either."

VR: All right. Daniel, I don't mean to be mean, but why is a dietitian dealing with infectious diseases? They should have an infectious disease physician on staff to deal with this, don't you think?

DG: I thought it was interesting that they quoted Carrie, the winter sports dietitian, instead of, you know. I think you and I have talked about it. It's really important to understand this virus, the fact that the alcohol doesn't work. You really got to do soap and water. It would have been nice even in the piece to just really explain that.

VR: I'm not convinced that they're dialed in, Daniel.

DG: Yes, it didn't seem like dialed in. It didn't. All right, screwworm. This is important. We talked a little bit about this before. I think we did a little bit of a deep dive on my clinical update, you and I. Mexican health officials are reporting six new human cases of myiasis caused by New World screwworm over the past week. We're up to 141 cases, human cases in Mexico. They say it's rare, but over 100 cases, and this is just expanding, so not great.

All right, measles. We're going to get back to measles. I want to talk a little bit about measles this time. We're going to circle back to this whole issue of vaccines and who's to blame and what's going on. If you go to the South Carolina Department of Health page, and I'm going to leave a link into that, dph.sc.gov, and then the whole spelled-out link, we're approaching 1,000 confirmed cases. This was updated on February 10, so 933 cases. You can really see it rising. You can see it clustered in, they call it upstate South Carolina. Everyone has their upstate. We have upstate New York. You've got upstate South Carolina. It's right near the border of some other state that sits right above South Carolina. Is that Virginia, maybe?

VR: Wait, it's above? No, no, South Carolina.

DG: It's above. North Carolina.

VR: Above south is North Carolina. Of course, it's North Carolina. Then you have Virginia above that.

DG: Trick question. South Carolina right there. We've got North Carolina right above the border. As you mentioned this last time, Vincent, it's all unvaccinated. This is 850 unvaccinated. It's also little kids, really clustered into 5 to 11. These are kids who should have been vaccinated. I also want to point out, 5 to 11, when should they have been vaccinated? Years ago.

VR: When they hit one year of age, roughly.

DG: Yes, so four years ago. Who's president four years ago? It was Biden.

VR: Biden.

DG: I was talking to my wife about this, and she's a dyed-in-the-wool Democrat. We have

some interesting discussions about this. This was back in the West when they didn't let the fires go. Every time there'd be a fire, and you send in those people. They parachute in, and they'd put the fire out. Meanwhile, you just had this growing amount of basically unburned timber until finally you had these massive fires. Over the last number of years, this isn't just in the U.S., throughout the world, those measles vaccination statuses have been dropping.

We've been basically waiting for this disaster to come. Now, what was the difference? What happened about a year ago? What happened is when you started having these outbreaks, you no longer sent in the CDC to say, "You really got to vaccinate. I know you were misinformed. I know you have these crazy ideas that it's better to get the disease than the vaccine. That's not true." They were able to educate people, were able to address these things. Now, for the last year, we're not doing that. If anything, we've got people going down saying, "Listen, I know your daughter died, but I think you did the right thing because look, your son is still OK."

What's happening, and we know it's more than 933 cases, because what we're hearing is that there are actually a number of these little children with irreversible neurological damage. We're actually starting to see, not only are we seeing about 20% of that 876, 933, so we're seeing about two dozen, these little kids ending up in the hospital struggling to breathe. We're also seeing measles encephalitis.

If we're seeing measles encephalitis, which is a one-in-a-thousand complication, we've got thousands of cases of measles. We already had kids die in Texas. Now we have kids. What is worse, the child dying or the child being permanently harmed, and now they're going to go through the rest of their life neurologically compromised with everything that comes from that?

VR: Why doesn't the state take the initiative and get people vaccinated? The CDC is dysfunctional. Fine. North Carolina can do it, but they're not apparently. Why?

DG: I think it's tough. Look at the power of the misinformation. Everywhere we look, the confidence in the safety and effectiveness of vaccines is falling. This messaging at the highest level it's working. This is a billion-dollar, big wellness industry-driven initiative. They're making money hand over fist. The more measles cases they see, the more of their nutraceuticals, of their ineffective vitamin packs they sell. Then they've got more money to just feed right back into the misinformation.

VR: Whose fault is it in the end? Is it the parents or is it the physician who cannot convince the parents to vaccinate their child?

DG: It's not the parents. The parents, the children, they're the victims of the misinformation campaign. It's our responsibility, as difficult as those conversations are becoming, we've got to keep having those because patients, they do listen to us. If we take the time, if we talk to them, if we explain, and I think we need to be having those conversations. We've got to be making the time.

Yes, it's not the parents' fault. It's not the kids' fault. It's the fault of those people that are basically willing to lie for their own economic and personal gain. Unfortunately, I think as physicians, we need to have these tough conversations every time they come up. Dr. Oz, right, he finally says, as you put up early on, "Hey, by the way, you should get vaccinated, please."

VR: This is good. In fact, they quote Peter Hotez in the article as saying it's really good. Why not a long time ago, when we first had the outbreak in Texas? Maybe Oz felt that others should do that, and now he's realizing they're not going to do it, but all physicians of prominence like he is and Hotez should be saying, get measles vaccine, for sure.

DG: The disease is so much worse than anything you could attribute to the vaccine. The disease, right, I mean, kids dead already, and actually, we read in Reuters from just yesterday, from us recording, so February 11, we've already got at least 28 people who've died of measles in Mexico. They're up to almost 10,000 confirmed cases down there in Mexico, which means even more.

When we start getting to those cases, you say 28 people dead, well, how many children are permanently neurologically impaired, and we're already starting to see that here in the United States. Maybe those are going to be the kids that people will see and say, "Oh my gosh, this child for the rest of their life is going to be neurologically compromised, is harmed. We really need to turn this around."

VR: That's what you get for your medical freedom.

DG: Yes, you get dead, and compromised, and sick children. All right, flu, Vincent, a little bit better here in New York. We've gotten down to sort of the, well, maybe the low moderate to the low area, at least in New York, it looks a little bit better. Out there in California, maybe it's down to sort of middle of the high. Down there in Texas, it's still raging on the middle of the country, still quite a bit. It does look like it's declining in a lot of parts of the country if you look at the epidemic trend.

There's still a few areas, like growing in Florida, Washington, Arizona, a few others. We did see, and this would be interesting to follow forward, I love this cdc.gov flu view surveillance graph where you see, and we got this little kind of bump in the road. We're going to see if that's a plateau, but it didn't just continue straight down. That data is just from - I think it's from the fifth of February is when that was updated on February 6th. We'll see what happens there. We're still up a little too high.

VR: It looks like we've passed the peak, though. If you look at the graph, influenza-positive tests reported by clinical laboratories, it did peak back in Week 52.

DG: It's right at the end of the year, there. What I'm hoping is we don't see, like we saw last year, it came down, and then we had a second peak that was higher than the first.

VR: Yes, we hope that doesn't happen.

DG: We'll keep people updated on that. We're already up to 60 pediatric deaths from flu already this season. Part of that is not just, oh, more kids are going to keep dying, but even just counting all the children that have died. Those are the 60 adjudicated, confirmed pediatric deaths from flu.

VR: Daniel, what state is south of South Carolina?

DG: Say that in South Carolina?

VR: What state is south of South Carolina?

DG: Georgia, right?

VR: There you go. Right. This week, Georgia is not reporting flu data.

DG: Oh, that's interesting.

VR: Along with Wyoming.

DG: Yes. At least we're not in the crowd. We're sharing some data, so that's good.

VR: Actually, New York is not sharing this week either. [chuckle]

DG: Oh, no. All right, let's talk a little bit about flu vaccines. We've brought up this, and I think this was missed in the early education. Why do we get vaccinated? You get vaccinated, you could still get the flu. People say, "Oh my gosh, I got the vaccine, but I still got the flu, Dr. Griffin. It was useless." I'm like, "But did you die?" The other thing which I think we've brought up several times is that what happens when you get the flu?

One of the big things is if you get the flu, you increase your risk of ending up having a heart attack, a stroke, a lot of other things. It isn't just like, oh, I had a really bad headache and myalgia and stuff. This was a study, the article, “Influenza Vaccination and the Risk of Myocardial Infarction: A Meta-epidemiology Study,” published in *BMC Public Health*. They do this open-access review. They go through all the usual suspects.

From inception to July 16, 2025. They went all the way back. They ultimately include 15 studies, seven cohort studies, seven case control studies, one self-controlled case series involving 23 thousand -

VR: Million.

DG: Million.

VR: Huge.

DG: 23,484,167 individuals. Influenza vaccination was associated with a lower odds of having a heart attack compared with no vaccination, about a 20%. Getting a flu shot reduces your chance of having a heart attack by about 20%. Now, I love the disclaimer. While causal inference, which I sort of suggested there, while causal inference cannot be established, these findings support the potential role of influenza vaccination and cardiovascular risk prevention and highlight the need for further well-designed studies to clarify the nature and durability of this association.

VR: It's an association. It's an observatory, observational study, so you can't prove anything. If you do enough of them in different populations, you can get some confidence that this is correct.

DG: Yes. All right, nice association there. All right, RSV. I want to talk a little bit about RSV because we're still at high levels of RSV when we look at the wastewater, but one of the things I want to point out is having some bit of a strange RSV epidemiology this year, but maybe not so strange. One of the things, and I'm going to leave in a link to the Yale School of Public Health data on this, and what it is if you look at it, there's different points in time when we see the trends in the RSV positive tests. Some years it comes up earlier, some

years a little bit later.

This year, compared to the last several years, was really kind of a later rise. I want to point out it's actually only about maybe a third or a quarter of some of these peaks that we've seen at the time, so it still is at high level. It still is above that trigger threshold, and it's sort of sitting at a plateau, but that plateau is quite a bit lower. It is interesting when you think about this epidemic trend; they're like, oh, it's growing in the entire West. Again, no data from Georgia, Wyoming, or New York this time, but it's declining in other areas, but it really it's not shooting up. It's not at a high level, so just sort of point that out to people.

VR: We do have vaccines now, which we didn't have in previous years, so that could make an impact.

DG: We have vaccines. We have vaccines for the adults, and we have some choices there. We also have the monoclonal antibody for the kids, so let's talk about that. More data on the efficacy of the RSV monoclonals for the kids. The article, "Long-term Impact of Nirsevimab on Prevention of Respiratory Syncytial Virus Infection Using a Real-World Global Database," published in the *Journal of Infection*. Results from a multicenter retrospective study using a global database.

The participants were children under 24 months of age who required nucleic acid testing for RSV between July 2023 and June 2025. Children who received the last dose of nirsevimab within 6 months, between 6 and 11 months, and beyond 12 months were compared with those who didn't get any nirsevimab. Here's what we end up. We end up with a total of 4,627 children aged less than 24 months who received nirsevimab within 6 months. A smaller number, only 86 children received it in the 6- to 11-month window. 532, it was beyond 12 months.

210,626 children did not receive any nirsevimab. That's a huge number of kids that didn't get this. It should be hard to find those folks. Compare with those who did not receive nirsevimab. The odds ratio, OR, of a positive RSV test was within 6 months, 0.49, about a 51% reduction,;6 to 11 months, 0.67, 6.7, so 6.7, just for the people watching. What's the math on that? About a 33% reduction, and then beyond 12 months, it wasn't really providing any benefit, and a nice figure there.

VR: Yes, it's very clear.

DG: Really, that within 6 months. I really want to time it to give you coverage during the RSV season.

All right, COVID, so levels are still high. Sort of interesting what's going on in different parts of the country. Out in the Midwest, they're on the way up again. Came down, and they're just rocketing upwards. They're back into the very high level. In the Northeast, we were doing really well and a little bit of a bump upwards, so nationwide, we're having a little bit of an increase, but that's really driven by what's going on out there in the Midwest. Kind of see what's happening, but unfortunately, in the Midwest, it actually looks like it's likely growing again.

All right, well, I'm going to wrap us up with a little bit on Long COVID. I guess I'm always drawn when there's an issue with Long COVID and neurological compromise. I don't know where my cup of coffee is, but I'm trying to increase my coffee consumption. There's a

recent article about preventing dementia with drinking a lot of coffee.

VR: I saw that.

DG: Yes, good stuff.

VR: Actually, moderate coffee consumption.

DG: I think it's got to be more than two to three cups a day. If you only have zero to one, then you know.

VR: Oh, so good. I only have one cup a day. I guess I'm right.

DG: You've got to pick up the pace there, Vincent. Can't have you going -

All right, the article, "Choroid Plexus Alterations in Long COVID and Their Associations with Alzheimer's Disease Risk," published in the journal *Alzheimer's and Dementia*. For background, helpful here. Choroid plexus enlargement is a neuroimaging biomarker of neuroinflammation and neurodegeneration. Enlargement, marker that things aren't looking good. This study is going to look at 86 Long COVID, 67 recovered COVID, 26 COVID-negative healthy controls. Where do they find those people? Those are the "novids."

Now, they're going to look at this CHP, so choroid plexus volume, and they're going to look at cerebral blood flow, so CBF. Then their associations with Alzheimer's disease symptoms and plasma biomarkers were examined. Both the Long COVID and the recovered patient groups showed higher CHP volume and lower cerebral blood flow than the healthy controls. Not really good. Relative to recovered COVID, the Long COVID patients had a larger choroid plexus volume, but they didn't really see any difference in the cerebral blood flow. They both had it reduced about the same, but the Long COVIDs had this larger CHP volume.

Now, the CHP volume correlated positively with glial fibrillary acidic protein and phosphorylated tau217, while the cerebral blood flow correlated negatively with the p-tau217. Both the CHP volume and the cerebral blood flow were associated with cognitive decline, measured with the Mini-Mental State Examination and Clinical Dementia Rating.

For those asking, what is this tau217 or the p-tau217? The 217 is where the phosphorylation on the tau is occurring. P-217 is a phosphorylated tau at 3-anine 217 and actually is considered a highly accurate blood-based biomarker for detecting Alzheimer's disease pathology. This is, say, a better correlate than a p-tau181 or a p-tau235, for instance, where it's phosphorylated on 181 or 235.

VR: These are people who have Long COVID, and they don't have Alzheimer's yet, but they're starting to have some of these biomarkers.

DG: Starting to get some of these changes that we see.

VR: I guess it's been too soon to see. Maybe it could be that the Long COVID population is going to have a higher frequency of dementias compared to everybody else.

DG: I'm even worried that the people without Long COVID who just got COVID is this natural infection with COVID can be driving more dementia.

VR: That would be very scary.

DG: Yes, that's what makes me concerned here. All right, no one is safe until everyone is safe. I'm hoping everyone will pause the recording right here, go to parasiteswithoutborders.com, click the Donate button. Every bit helps. If you like what we're doing or you just want us to keep doing it. Now, for February through April, we'll be doing our Floating Doctors fundraiser. Again, doubling your donations to a maximum donation being sent to them of $20,000.

VR: It's time for your questions for Daniel. You can send yours to daniel@microbe.tv. Marie writes, "I love listening to you and Vincent. In the UK, the NHS are reducing the age they offer shingles vaccination. They now use Shingrix. However, at age 59, I won't be eligible until I am 65. In your opinion, and looking at recent studies showing reduction in dementia risk, should I pay for it and have it now?"

DG: Marie, it makes sense. Here in the U.S., we do it at 50. We've talked about the fact that particularly in women, and that's really what you see. Us men, we're just forget about it. It really looks like it reduces your dementia risk. Also looks like it reduces the cognitive decline that we used to just chalk up to, oh, you're getting old, and you're just not as bright anymore. Yes, it would make sense. I guess, how much are they going to charge you, unless it's exorbitant. It's probably some price point that your mind, and memory, and cognitive function is worth to you.

VR: I agree. I would do it. I'd skip the pub for a couple of weeks just to do it, Marie.

DG: Yes, drink two to three cups of coffee a day and get that shingles shot.

VR: Jan writes, "Dear Daniel, I have just received my first dose of Shingrix. In Germany where I live, vaccination against shingles is recommended for individuals 60 and older and is then covered by general health insurance."

Look at that, just across the channel there, and you have a different age. It's crazy.

"I'm in my mid-50s but decided to get vaccinated ahead of schedule even though I had to cover the cost myself. I'm very happy with this decision. Side effects are minimal. Thank you for your excellent coverage of this topic."

Daniel, I have to hope that we really highlighted this between this *TWiV* and the deep dive *TWiV*. We've talked a lot about vaccinations against herpes viruses and dementia. I really hope that people have got it above and beyond what they get from the press.

DG: They're writing in. Obviously, people are making decisions. They're listening. As we've talked about, the data keeps growing. Multiple studies. This isn't just one random study.

VR: Continuing with Jan, "I would like to ask for your insights on the interaction between vaccination and physical activity. In the past, after receiving a vaccination, I avoided intensive exercise for several days, assuming my body would need some rest to generate an optimal immune response. However, I recently read that physical activity post-vaccination could potentially even enhance the benefits without increasing unwanted side effects. I'm curious if this is true and if this applies to all types of vaccinations, including mRNA and protein-based ones. Thank you for sharing your expertise."

DG: Yes. In general, we don't recommend reducing exercise. This continues to be positive benefits to physical activity, and I would just keep going strong.

VR: Doesn't exercise induce inflammation, which would be good for an immune response?

DG: Almost like boosting it a little bit. Yes, it does. It does.

VR: Cathy writes, "I'm a Brit living in the UK and have been watching *TWiV* clinical update with Daniel Griffin since 2020. Thank you so much for the great evidence-based information. It's not only in the USA that childhood vaccination rates are falling. Sadly, the UK has also recently lost its measles elimination status.

I have a question about repeat vaccinations after measles infection. I was given all available vaccines as a small child except for the measles vaccine due to an administrative error. I contracted measles at age 11 and was seriously ill for months. Thereafter, unsurprisingly, due to immune amnesia, I picked up every infection around, including a second dose of chickenpox, for the next few years.

Please, can you advise whether age 60 would be worth getting revaccinated against polio and TB? I had these vaccines prior to measles infection and am concerned that measles may have wiped out my immune memory to these diseases."

DG: Wow. Thank you for writing this because I think, as I mentioned, a lot of physicians even, certainly a lot of non-physicians, are not aware of this immune amnesia. This is a great example. Here you are, age 11, someone messes up, you get measles, and now suddenly you're susceptible to getting chickenpox again, even though you've gone through that the first time.

As you point out, you were vaccinated against polio before you got the measles. Yes, I would be concerned. The standard recommendation is to repeat those vaccines after measles with this concern, as you described.

TB, interesting. This has been a little controversy lately about studies on the BCG, which is the TB vaccination, basically at birth or thereabouts. Actually, reduction in mortality in the little kids.

That's really, I think, where we see the BCG or the TB vaccination is really the young kids. Age 60, polio would make sense, redoing that. The measles infection, probably have the measles protection. Unfortunately, hard-earned from that with, as you mentioned, much worse than having gotten that from a vaccine. Yes, polio makes sense. BCG does not seem to be something you need to do.

VR: All these cases of measles now, we're going to see increased number of infections in these kids.

DG: All this other stuff now. Even if they had chickenpox before, they'll get chickenpox again. Yes, it's really for the - that's also, along with this immune amnesia. For the next three years, all these kids who have measles, their risk of death triples.

VR: That includes polio, because they've all had polio vaccines, and that immunity is wiped out.

Deborah writes, "Again, thanks for your weekly update and fierce defense of science and common sense. As a pediatric infectious disease specialist, I must agree with your outrage after the comments by Dr. Kirk Milhoan, the newly appointed head of ACIP. For those of us who have cared for children with measles and bacterial meningitis, his casual mention of children being paralyzed or dying are abhorrent.

However, I do think that a pediatric cardiologist should know about the impact of rubella. No, he's never seen a child or adult with rubella, and that is thanks to an effective vaccine. Rubella was eliminated from the U.S. over 20 years ago, thanks to a vaccine and high vaccine coverage. He should know that prior to routine vaccination, congenital rubella syndrome was a leading cause of congenital heart disease, typically patent ductus arteriosus, pulmonary artery stenosis, and ventricular atrial septal defects.

It is estimated that up to 75% of infants with congenital rubella syndrome have congenital heart disease. This physician should be aware of the impact of CRS. What a shame. He has no insight into his chosen area of expertise. We should all expect more from physicians tasked to keep us all healthy. Keep up the good work and the rage."

DG: Yes, thanks, Deb. This really was shocking and abhorrent. Yes, I think we should be upset. We should properly channel that emotion. We shouldn't just let people say this. This whole idea that, listen, hey, people's right to choose is so important, if a few children end up dead, paralyzed, or permanently harmed, don't compromise my personal freedoms. We live in a society where actually we value the life and the well-being of our children. When someone says these outrageous things, yes, we should be upset.

VR: I can't imagine. It's just amazing that nobody and no politician is objecting to this. Even the guy in Louisiana-

DG: Cassidy is not up in arms.

VR: - doesn't say a thing. It's just unbelievable. This Milhoan, he's all about medical freedom. I've railed about this before: how you have to put on a seat belt, you have to stop at a stop sign, you don't smoke indoors. I thought of another one today. They want medical freedom, yet they do not want people to express the gender that they want. You're either male or female in this administration, and that's it. Everybody else is ignored. Why is that? Why do you need medical freedom, but they can't have gender freedom?

DG: Interesting. Yes.

VR: We should not expect this administration to be consistent because they don't even think.

This is from Blair, our last one in New Zealand. "A friend in her 70s has giant cell arteritis, which has not been consistently well-controlled. She is currently treated with prednisone and has previously been treated with methotrexate. She never received the COVID vaccination. She has had COVID-19 once. She is not opposed to vaccination as a whole; however, believes that, given her age and autoimmune condition, she faces a higher risk from vaccine adverse events than from COVID-19 infection itself." There's a belief for you.

DG: It's wrong, but it's a belief.

VR: "I am not seeking to persuade her directly, but I would like to better understand whether there is evidence that would support or contradict this belief, particularly in patients with GCA or related vasculitides, long-term corticosteroid exposure, prior or current DMARD use. Specifically, I'm interested in documented incidents of serious adverse events from COVID-19 vaccination in other adults with autoimmune disease and/or immunosuppression. Comparative risk of severe COVID outcomes versus vaccination in this population. Evidence regarding vaccine-triggered disease flares in GCA, and any data distinguishing risk by vaccine type, if relevant?"

DG: Yes. Blair, this is, we keep, whenever the data, when everything is published, we go through this. These vaccines have all been studied in people who have giant cell arteritis. People have different autoimmune diseases who are on different treatments. The vaccination response is usually not as robust. I think we mentioned last time, sometimes you end up getting like a fourth dose in that initial series before you finally see that serological response. It can take a little bit more to get the serological and the T-cell response.

Across the board, the risk of disease is always worse than any risk that we might see with vaccination. These are the people that are still dying. In the U.S., tens of thousands of people die each winter from COVID, and it's people with autoimmune disease. It's people who are on these immunosuppressive medications. It really is a very clear, black and white. Vaccination is a much safer alternative than the risk of death and all these other issues that come with not being protected.

VR: Vaccination in an immunocompromised population, these are inactivated, non-infectious vaccines. It shouldn't be a problem.

DG: It shouldn't be a problem. If you have an issue with the mRNA technology, then we have the protein-based Novavax option.

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

DG: Thank you, and everybody, be safe.

[00:47:15] [END OF AUDIO]