TWiV 1306 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 1306, recorded on March 19, 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: That's a nice tie, black and white. Is that what it is, black and white, or is it another color?

DG: Well, it's sort of a gold, and there are these symmetrical circular particles with like a corona of spikes around the outside.

VR: Gee, a coronavirus. He gave it away.

DG: Oh, yes.

VR: He gave it away.

DG: You got it.

VR: It's a very nice-looking tie. Does anyone ever say, is that coronavirus?

DG: They usually don't do that, but I think I was actually doing one of those expert appearances, and I wore this, and since it's predated 2019, it was very suspicious. Like, Dr. Griffin, what were you doing with coronavirus bow ties before?

VR: Oh, you must have made it in your lab, Daniel.

DG: [laughs]

VR: Obviously, that points to it all. That's the evidence. That's all we need.

DG: Yes, very suspicious, right? What are you doing? All right, we got a lot to cover, Vincent. I'm going to start with a quote from Carl Sagan. Did you know Carl Sagan?

VR: No, I never met him. I don't know if he even was at Columbia. I was there from '70 to '74. I don't know if he was there.

DG: He was at Cornell, right, Carl was?

VR: Yes, he was. Ithaca, New York, yes.

DG: All right, well, the quotation, and people will maybe realize soon why I picked him this week, but "science is far from a perfect instrument of knowledge. It's just the best we have."

VR: I thought lies are the best instrument of knowledge, Daniel.

DG: Oh, my gosh. Oh, my gosh. This is often what people say about democracy. They say it's not a great form of government, but it's just the best we have because it's interesting what happens when you get a whole bunch of people together and say, "Oh, who do you think should be in charge?" Ok, let's not. [chuckles] This first one was actually triggered by personal experience. Maybe this photo will be up on the YouTube screen. Last weekend, my wife and I were going for a walk on the beach, the north shore of Long Island here, and oh, my gosh, there were dead geese everywhere.

Now, fortunately, we had one of the service dogs with us, one of the ones that listened because, oh, my gosh, if this was our dog, Hattie, it just would have been a disaster, but there are dead geese everywhere. I said, "What is going on?" There is a number of articles I'll leave in links to this, but there's really a pretty massive die-off going on of the Canadian geese from bird flu.

VR: It's Trump's fault.

DG: Is it Trump's fault? Tell me.

VR: He doesn't like Canada. He's just killing the geese.

DG: [laughs] We're poisoning the geese, and we'll send them back across the border?

VR: It's too bad.

DG: No, really, it is actually. It's quite amazing. These are large animals and just a beach. As you'll see in the photo, just bird after bird. It's just this huge cleanup issue, and it's an issue with all the birds dying. OK. I was listening critically the other day to the Friday recorded *TWiV*, and we'll talk a little bit about what's going on, but then we'll jump into some articles, the actual science here. One of the ways that we decide what studies to do is if there's some medication, it might be a medication or substance, or a vaccine out there. We are always, despite what the bots or the other people say, we're always looking for adverse events. We're always monitoring.

It appears now there's going to be a new system, so FDA Adverse Event Monitoring Systems, formerly the FDA Adverse Event Reporting System, so FAERS is becoming AEMS. The FDA is implementing this adverse event monitoring system to consolidate multiple reporting system currently used. This is going to include really a lot of stuff, so medical products, vaccines, devices, tobacco, food, cosmetics, veterinary medicines, and the existing VAERS, Vaccine Adverse Event Reporting System, is actually going to fall under this new system.

It's actually going to replace all these systems, including VAERS, will fall under this. In May, the FDA will expand this AEMS to analyze reports on human food, dietary supplements, medical devices, tobacco products, nicotine delivery systems. The FDA's previous adverse

event reporting system was considered outdated and fragmented, and made important data difficult to assess. These clunky systems wasted millions of taxpayer dollars, created blind spots. This is all coming from FDA Commissioner Marty Makary. That's who's making these claims.

VR: I don't believe it. I don't believe that they've lost millions of dollars with a reporting system. This is BS.

DG: Yes. If anything, I think you want to spend millions of dollars in a country with hundreds of millions of people, making sure that if there are things going on, we pick up a signal, and then we can do those targeted studies. We'll see what happens with this. Apparently, this new platform is going to be powered by artificial intelligence.

VR: Yes, of course. Because there's none in the FDA anyway, at least at the top.

DG: [laughs] OK. All right.

VR: What do you think about this combining all these different systems? Is that good?

DG: I'm a little worried about it, actually. One of the things, and we're going to get into Kennedy here in a moment, is one of the things that he ran on that I think some people with rational thought were excited about, is he said, "Listen, there's a lot of toxins and chemicals in our foods," and we've got this highly processed food issue in the U.S. I'm worried if you don't have the data on what's going on, it's very hard to pick up signal about issues. If anything, we're hearing a lot of lip service about stuff.

Then, if anything, we're seeing legislation, it's OK to get more chemicals and toxins in the food supply and in the water. I'm concerned. All right. Part of public health is actually finding out if there's a problem. It's the monitoring systems, not just vaccines and prevention.

VR: One of the things, the VAERS, the Vaccine Adverse Event Reporting System, is going to be folded into this. I'm just worried it's going to get lost.

DG: Not only will it get lost, but will it continue to be misused? Better accessible AI? What exactly is going to happen here?

VR: No, the AI is going to comb through and look for signals of some problem with whatever the product is they're looking at, I presume.

DG: Yes. I was listening to the latest immune booster. I don't know if you listened to it yet, but it was about a mom who used to be anti-vaccine. Then she was actually educated, EMT, and over time started to realize, "Wait a second." She was talking about when she was part of these groups of your sort of Moms Against Vaccination, how there was this idea that there was a syndrome that identified where your baby gets their tetanus, diphtheria, pertussis vaccine. Then, if they get fussy and cry, it was this post-tetanus crying syndrome.

They were all encouraged to report all this to VAERS. I remember, I was like, "Yes, my kids got vaccines. Yes, I'm sure they cried afterwards." That's also worrisome too. If you get large groups saying, we've got to send all this stuff in as a complaint, post-tussis vaccination crying syndrome. We'll see what happens. I am concerned if we don't actually get the information we need because you do not want to have something out there that's causing harm.

VR: Bottom line, Daniel, is I don't trust Makary. I don't trust anybody in charge in this administration because they're not trustable. They're all liars, and they don't know what they're doing.

DG: All right. Let's talk about this. This is a big thing. I think this is important from science to lay this. The U.S. judge upends Kennedy's overhaul of childhood vaccine policies. This is Judge Murphy. The judge here, Murphy, is going to give this 45-page decision. I'll leave a link into it. I actually read the whole decision. It's really well written. They say, what is it, the last branch standing, where you can disagree without being disagreeable.

Here we get this ruling from the courts where Judge Murphy says that "for decades, the U.S. has focused on the eradication and reduction of diseases using vaccines, which were developed through a method scientific in nature and codified into law through procedural requirements."

“Under Kennedy," Murphy said, "the government has disregarded these methods and thereby undermined the integrity of its actions."

The plaintiffs had argued that the U.S. CDC acted unlawfully on January 5th when it cut the number of routinely recommended childhood vaccinations, downgraded immunization recommendations, and Murphy agreed, saying the CDC lacked authority to unilaterally change the immunization schedule without consulting ASIP, which makes recommendations that shape U.S. vaccine policies and insurance coverage.”

He then said that the committee itself, under Kennedy, was unlawfully constituted and no longer complied with the Federal Advisory Committee's Act requirement for balance after Kennedy last year removed and replaced all 17 independent experts who previously served on the panel.

The plaintiffs said the panel was now dominated by people aligned with Kennedy's anti-vaccine views, and Murphy said that of the 15 current ASIP members, most appear distinctly unqualified.

VR: Haven't we been saying this for a long time, Daniel?

DG: Well, the problem is, and I think it's just sort of intuitive, it's obvious, it's really clear in this ruling, is that we are supposed to have a panel of experts that guide the CDC. What is it to be an expert? You can't just claim you're an expert. You actually have to have expertise in the field of vaccinology. You have to be an expert in vaccines and infectious disease. You can't just basically agree that if you put me on this committee, I will toe the party line.

VR: Also, RFK can't make unilateral decisions.

DG: That's true. There's legal and other precedent here that that's not the way this works.

VR: This is a good decision. Of course, it will be appealed, and who knows what the SCOTUS will do because most of them are bozos.

DG: I'm not sure I'm going to agree with that, Vincent. [laughs]

VR: Most of them are bozos. They think the president can have any - They give him immunity to anything he does. How screwed up is that? The Constitution doesn't even say

that, Daniel. This is screwed up.

DG: I am concerned about that ruling. I'll have to leave in a link if we get a SCOTUS ruling in this to a discussion of the Supreme Court's decisions on things. What does this ultimately do? We have here an injunction. The court stays, basically, the CDC's childhood immunization schedule that was replaced the proper evidence-based, expert-guided. It also stays the appointment of 13 ASIP members appointed by Kennedy. The court stays all votes taken by the now stayed ASIP.

Basically, they said, you put together a bunch of people that are not experts. It was not a legally constituted committee. That committee needs to be constituted in a legal way. It needs to have experts. Then once you have that in place, then they can make recommendations, and then the CDC can update this. Everything basically Kennedy has done on the vaccine front has now been basically undone. What's going to happen now? I've been suggesting this for a while, but now we have it in writing. Now we have it in writing.

The article, “White House Puts RFK Jr.'s HHS on Tighter Leash after MAHA Setbacks,” and this appears in *The Wall Street Journal*. I've been talking about the fact that being anti-vaccine, being anti-public health, advancing this anti-vaccine, anti-science agenda is not popular. The majority of people in America do not want sick kids. We don't want measles outbreaks. We don't want kids ending up in the hospital. This is really going to hurt the Republican Party in the upcoming midterm.

The White House is more tightly controlling the messaging and policies, including, I'm going to say, particularly around vaccines, coming from Department of Health and Human Services ahead of the midterm elections. Aides close to President Trump decided to take a more active role in managing RFK Jr.'s department in the face of polling that shows his vaccine moves are unpopular.

It goes on to basically say, although Trump brought Kennedy into his administration with the promise that the vaccine skeptic and ultra-processed food critic could go wild on health, administration officials grew increasingly frustrated with what they viewed as foul-ups inside Kennedy's department. Aides close to Trump grew worried that perceived disorganization and a focus on vaccines could damage the president's party in November.

VR: What do you expect when you appoint someone who has no expertise to be head of HHS? Do you really think all these things that you're doing are not going to affect popularity? This is absurd.

DG: Yes. I think it's important, Vincent. The anti-vaccine crowd is so vocal, you start to think like, "Oh, is this what everyone thinks?" The loudest person in the room is only the loudest person in the room.

VR: In fact, most people support vaccination here in the U.S. This is not a popular stance to be anti-vaccine and to have measles outbreaks and other outbreaks going on. The thing is, Daniel, is he now going to get up and say, "OK, all the vaccine schedule is reinstated?" Do you think he's going to do that? No, he's not.

DG: Basically, according to this law, you can basically go back to where we were before he showed up and before the committee was reconstituted, which is interesting. Are they

going to update the web pages? How is this going to work out?

VR: Yes, it has to be done because otherwise people are still going to be confused, and vaccine rates are dropping because of that. This has to be reversed immediately.

DG: Yes, it really does. We live in a country where there's a rule of law. As we'll see, we're having issues here. I think that a lot of this is ill-informed people profiteering for "big wellness," and the rest trying to sell their products and their friends sell their products and get speaking engagements and all the other money that flows to Kennedy and his cronies. We're seeing measles continuing to be an issue. Just to give some update on numbers, South Carolina measles outbreak, total confirmed cases almost at 1,000. We have 997. If you look at Utah, current outbreak, we're up to 443.

I looked at a couple of the trackers. Hopkins tracker has us at 1,513. If you look at the CDC, that has us only at 1,362. That's the first time where I've actually seen we're getting a little bit higher numbers with the Hopkins, which usually was a little bit behind. The Hopkins tracker was updated on March 13, same date actually that the CDC updated theirs. CDC is not counting all the measles cases. Does that shock you, Vincent?

VR: No, I expect them to hide things. They have to because he hasn't said anything about vaccines lately, because we're having a problem. They're going to hide the number of infections as well.

DG: Yes, that is the problem. It's really critical that we have this information because, otherwise, people don't know it's a problem until it gets to be just so out of control. All right, moving into flu. Things seem like they're getting a little bit better, a little bit. It's slowly. It's coming down. Some of the areas, like here in New York, we're getting down into moderate. We're starting to see some greens, some lower activity in a lot of parts of the country. Still, some parts of the country, like Missouri, is still super high. Some of the other states in there in the Midwest and out West, we're still seeing some pretty high numbers.

The trend is good. We had that same experience that we have in some years. We talked about this. Sometimes we can have a single solitary peak, shoots up, drops down. Sometimes we see a double peak, and then sometimes we see a peak followed by a plateau. We're in that plateau, but the plateau is coming down. We're coming out of the flu season, but we already have over 100 children died this winter from influenza.

VR: Probably all preventable.

DG: As we're seeing, 85%, 90% of these kids were not fully vaccinated. In the majority of cases, completely healthy kids before they show up, and then they end up in the ICU. A lot of them don't survive. It's really been interesting getting an insight, talking to my daughter, who's a pediatric ICU nurse, and all the kids that end up in the pediatric ICU with respiratory illnesses. She has yet to tell me a story of one who actually had a vaccine. These are vaccine-preventable by and large.

Vaccines, right? The WHO made some recommendations, and VRBPAC, the Vaccine and Related Biological Products Advisory Committee, basically said, yes, unanimously, let's do what the WHO is recommending. It's one of those where we're going to get all the benefits, but we're not going to support the WHO financially. Just think about the impact on human lives, the impact of wellness of our citizens, just the impact that the vaccine and the proper

selection can have ,human suffering as well as financial. It seems to me silly, shortsighted that we're not supporting the WHO.

All right. RSV. RSV is weird this year, Vincent. I have this trend, and hopefully, from the Yale School of Public Health, and hopefully, this can be up on the YouTube screen. Normally, what do we see? Normally, we see a single peak with RSV. It starts in the Southeast. It starts in Florida, usually in October, rises up. We count weeks from July. Usually, we get about 10 weeks from July, so it gets us into early fall. We start to see the rise. We see a peak, and then it comes down.

The question has always been just sort of when is it going to peak? When are we going to start to see those cases? How wide is the peak? Here we are, 36th week from July, and actually, it's still rising. RSV is still on the way up. Isn't that extraordinary? Something weird is going on. I was again consulting on this woman with RSV, came in through the emergency room today. We're seeing a lot of RSV.

VR: In previous years, they'd also had peaks, but moving further to the right in time, right? It's time since July. This is just another manifestation, I think, but it is weird. It's unusual. It hasn't happened before.

DG: All right, so let's move a little bit down. We actually have a little news on the RSV vaccine front. We've got three different vaccine options as far as active vaccines, and we also have the passive vaccinations, so the monoclonal approach. On the active vaccination approach, we have GSK's Arexvy. We have Pfizer's Abrysvo, and we have Moderna's mRESVIA. The FDA has expanded approval for the RSV vaccine to include younger adults at high risk. This is for Arexvy, produced by GSK. You got to look at each one and see which one fits you because we have indications for people 75 and over across the board, people 50 up to 75 with at-risk.

Now, we're seeing at-risk all the way down to 18 to 49. These would be people like chronic lung disease, issues like that. Also, we have the beginning of that third trimester to protect the babies, and then the babies, when they're born, can get the monoclonal. We really should see lower numbers with RSV going forward if we can actually just really work on uptake and education here.

VR: It's great. It's good news.

DG: OK. All right, COVID. Good news. Good news on COVID. Across the country, we're really moving low, medium. I think we're really getting down into low. It really looks like we had a longer peak this season, sort of a longer duration. It started early on December. Here we are in March, and it's coming down. I think we're going to get our spring break. When we say spring break, we're not going to Fort Lauderdale and hanging on the beach drinking too much beer. We're just going to get a little less respiratory infections.

Why do we care? Well, this is a fascinating article, and I think it's really important to put this into this discussion. This is this article, and it's an article. It's, “Respiratory Viral Infections Prime Accelerated Lung Cancer Growth,” published in Cell. Here, these investigators look at patients previously hospitalized with severe COVID-19, and they actually are going to demonstrate, they're going to show that these individuals have an increased risk of subsequent lung cancer. Then they're going to look at multiple murine models and show that severe respiratory viral infections accelerate lung cancer growth, whereas vaccination

mitigated infection-enhanced tumor progression.

Now, mechanistically, they demonstrate. I say this is quite an article, because, oh my gosh, these are like these 12-panel figures that cover a whole page, and you need a microscope, and you have to blow up each section. There's a lot of data in here. In this data, they show mechanistically prior viral pneumonia reprogrammed the lung into a pro-tumor microenvironment marked by the sustained accumulation of tumor-associated neutrophils and heightened immunosuppression. Somehow, it's shutting down that tumor surveillance in the local environment of the lung.

They observe persistent chromatin remodeling at key cytokine loci in immune and structural cells, linking inflammatory memory to tumor-promoting signals. Good news, therapeutically, combined blockade of neutrophil recruitment and programmed death-ligand 1, (PD-L1), restored the CD8 positive T-cell function and suppressed tumor growth. Together, these findings establish a causal link between prior viral pneumonia, lung tumorigenesis, and really underscored the need for enhanced surveillance and targeted interventions to reduce post-COVID cancer risk.

VR: Yes, it is a good paper. We'll be doing this next week on *TWiV*.

DG: There's a lot in there.

VR: Yes, it's really an interesting study.

DG: The reason I think it's so important is there's a lot of this discussion of, oh my gosh, have you noticed that we seem to be seeing all these cancers? Then the next step is they want to blame it on the vaccines. Here's a really nice study showing that actually, it's the opposite.

VR: Yes. Many people weren't even vaccinated.

DG: Yes.

VR: In fact, the vaccine will mitigate this effect.

DG: Exactly. The vaccine protects you against the post-COVID cancers.

VR: There's still this misinformation that the COVID vaccines have a lot of side effect based on that crappy study that wasn't published from that John Henry Foundation or Henry Ford Foundation. It's just wrong. There isn't any horrible side effect. People say, "Oh, all the excess deaths during COVID." Yes, COVID in non-vaccinated people and other things.

DG: Yes. There's a paper we'll talk about next week. It looks like maybe there's an extra one or 200,000 COVID-related deaths that weren't even counted in the million-plus during the first few years. This, right? If you get severe COVID, and then you end up getting a lung cancer, we're seeing here that may have been a lung cancer you were going to get, but it was accelerated and developed because of the viral infection.

We need to keep discussing this because this keeps coming up. It's interesting. People are like, "Oh, I don't know. Should I still be getting that COVID vaccine? Should I be getting my yearly COVID vaccine?" For some folks, a twice-a-year COVID vaccine. The answer is yes, because as we see here, '24, 2025, COVID-19 mRNA vaccine effectiveness against severe

disease. They should just say is effective against severe disease. It was published in *JID*. They used electronic health records from a large South Carolina health system.

They emulated a target trial comparing adults 18 years and older who did not receive the COVID vaccine, and they're going to compare them to vaccinated individuals. This would be a one-to-two match here. The final matched cohort included 30,080 individuals. We had 10,029 vaccinated participants. Then the two-to-one match with non-vaccinated, median age 65. 85.6% had a preexisting condition. Vaccine effectiveness against ED, emergency department, or more severe care was 41%, and 46% against hospitalization. Dropping those numbers almost in half. You really actually see really nice Kaplan-Meier curves, basically, cumulative incidence.

VR: It's a good result. It's a great separation of the two. Yes, I like it very much.

DG: Would you like to reduce your chance of ending up in the hospital by half? Yes, just get your yearly COVID shot.

VR: The average age here was 65 and a half.

DG: 65, so it's the older, the higher-risk population.

VR: Yes, so if you're 65 and older, you should be getting this. Yes.

DG: All right. A couple here in our late phase, Long COVID. I think you also considered the fact that getting COVID can lead to increased cancer, and vaccines reduce that. That would be a post-COVID condition. Thinking more of the syndrome of Long COVID. Here's the article. “Effectiveness of COVID-19 Vaccination and Prior Infections to Reduce Long COVID Risk During the pre-Omicron and Omicron Periods.” It was published in *CID*.

This is up in Quebec. Investigators combined survey information from a cohort of healthcare workers in Quebec, Canada, with immunization registry and lab administration data. They defined COVID-19 here as symptomatic lab-confirmed infections. Then long COVID here is going to be that equal to or greater than 12 weeks of those reported symptoms. We're going to look at vaccine effectiveness against COVID-19 and long COVID.

Analysis included 8,230 COVID-19 participants, 43,361 tested specimens. During the pre-Omicron period, one- and two-dose vaccine efficacy was 75% and 95% against COVID-19, respectively, and 91% and 87% against Long COVID. Pretty impressive, and this continues during the Omicron period. Booster dose vaccine efficacy was 41% against COVID-19 and 57% against Long COVID. Hybrid vaccine efficacy in vaccinated, previously infected individuals, pretty broad range, but coming in around 81% to 92%, regardless of the number of doses. Even if you've had COVID before, you can still get a boost, a benefit from getting a vaccine. Really, the best way to prevent Long COVID is with vaccination.

This is an interesting one. “A Randomized Trial of Vitamin D Supplementation and COVID-19 Clinical Outcomes and Long COVID: The Vitamin D for COVID-19 Trial.” Here are the results published in *The Journal of Nutrition*. Parallel two-group, randomized, controlled double-blind trial. This was conducted in the U.S. and Mongolia. Index participants newly diagnosed COVID-19. Their cluster randomized with one of their co-habitating contacts, either to an oral vitamin D3 loading dose, followed by a certain per day. It's a loading dose of 9,600 IU per day for two days, and then you get 3,200 IU per day for four weeks or placebo.

These are higher doses, I think, than most folks are taking. Participants completed weekly questionnaires on healthcare utilization, disease severity, Long COVID, or new SARS-CoV-2 infection. Index participants, so an N of 1747. We end up with 44.9% were vitamin D deficient or insufficient, so I think it's important. This is a number less than 20 nanograms per milliliter. Baseline characteristics for the household contacts were really similar. Four-week cumulative incidence of healthcare utilization really did not differ between the vitamin D3 folks and placebo.

Really, impact of vitamin D on the prevalence of Long COVID, really not seeing a statistically significant impact here. Important to look at. I know a lot of people are interested in that, so I'm glad this study was done.

Now, I'm going to leave a link into this next webpage, but really, I'm going to make a comment here about it too. There is a RTMH, so rhythm. This is a resource for Long COVID guide. It's actually pretty extensive, and it goes into low-dose naltrexone, beta blockers, midodrine, cromalin sodium, antivirals. What I have to say is a list of things that people are trying. I was a little taken because it seems to only show the positive studies. It presents a little rosier picture.

It would be great if there was just such one-sided positive studies, but it is a resource for people to look at what are different things that are being tried, and it does link to some of the studies as well. I'm just going to leave that in, in resources for people with Long COVID, people caring for folks with long COVID. As we've been saying for, oh my gosh, years now, no one is safe until everyone is safe, I'm going to leave in a couple of links here. One is, I know we've gotten some emails where people say, "Well, what can I do?" I'm going to give you things that you can do in these times. One is I'm going to leave a link for our U.S. citizens. You can reach out to your representatives and let them know what you have to say.

You can email them. You can call them. Apparently, calling is one of the most effective things. You want them to hear from our audience, people that listen to *TWiV*, not just people that write negative things about us. Also, Vincent and I are going to keep doing this. We're going to keep recording. We're going to keep educating and pre-inoculating people to defend and protect them against the anti-science and misinformation. You can go to parasiteswithoutborders.com, click on Donate.

We're in the middle of our Floating Doctor's fundraiser, and we're going to be doubling those donations. I'm hoping to get up to that maximum donation of $10,000. They're doing some exciting stuff down there in Panama. I was just on the phone the other day with my daughter Daisy, with Ben LaBrot, with Jolie LaBrot. Just talking about all the exciting things that they're doing, really making a difference down there.

VR: It's time for your questions for Daniel. You can send yours to daniel@microbe.tv. Lindsey writes, "I recently wrote to you about my son's experience with Xofluza. Now we are dealing with a measles outbreak in our church. This is in Michigan and homeschool community. Two known cases so far brought to us from the Florida outbreak, but when are there ever just two cases of measles? I'm not worried for my older kids who have completed their MMR. However, my two youngest have received only one dose. While that is 93% effective at preventing symptomatic infection, what an incredible vaccine.

I wondered about getting their second doses before their four-year appointment. I asked the pediatrician, and he agreed that our exposure risk was likely to be high, and we should

bring in the 18-month and 3-year-old ASAP. Well, look at that, shared clinical decision-making. I mention this because while I've heard you mention getting the first dose earlier at 6 months, I'm not sure I've heard about moving up the second dose. I'm pretty frustrated by this situation because our parish and homeschool community has many pregnant women, newborns, and people with cancer.

These vulnerable people are at significant risk from measles complications and death. A friend of ours had a medically fragile 3-year-old, the same age as our girl, but he cannot receive MMR because he's a total stranger. He cannot receive MMR because he's a total heart transplant. They're having to make difficult choices about staying home from church and school. The church should be a wall of vaccine protection around the little boy instead of being a place they have to avoid. Thanks again for keeping us informed and saying I'm doing my best to spread the facts you shared."

DG: Now, Lindsey, thanks for writing in. This is difficult, right? We're supposed to live in a community, and we think of our church communities as being areas where we really think about the values that we hold and looking out for each other. That's one of the tough things. I will say, listen to this most recent immune booster, where it's this interview talking about some of these communities where you get surrounded by people that echo these anti-vaccine messages.

They want to live in this world where you have no vaccines and no disease. That world just doesn't really exist. Some of us got the benefit of no disease because there was such a broad vaccination coverage, and then the couple percent or so that couldn't get vaccinated could be safe in these situations. You're describing this fragile 3-year-old who is one of those individuals who was benefiting from that umbrella that we had all worked to create. Now, as that umbrella is disappearing, you can't have a world without disease if you have a world without vaccination.

VR: It just shows how the anti-vaccines are so selfish. They're not considering other people. Like you say, it's a community. They're only thinking about themselves, and that's really not the right way to look at this. Bob writes, "The influenza vaccine is currently being updated for next fall winter in the Northern Hemisphere. Is the same process done again six months later for the Southern Hemisphere's fall-winter? If not, do you know why those living in the Southern Hemisphere have to make do with the flu vaccine, which has not been optimized for their region?"

DG: Bob, this is an interesting issue, like how we track and how we have, and how this has changed over time, sort of predictions of what goes into the vaccine. Part of the predictions being so far ahead of time have to do with the fact that over 80%, so the majority of flu vaccines are egg-based, and it requires a lead time to have that happen. There's a lot of pressure to move towards recombinant and non-egg-based vaccine technologies that allow a quicker response time so you can actually do a better match because matching properly really improves things.

There's definitely a lot of discussions, and there's a lot of ideas. I'm hoping that it is not many years before we really switch over to those quicker response platforms.

VR: Currently, the Northern Hemisphere vaccines are announced by WHO, the compositions, in February, and the Southern is in September to match the seasons. You don't have to make do with a non-optimized vaccine. It is optimized for Northern or

Southern Hemisphere. Janet writes, "Because of your show in the fall, I ordered a box of five three-way rapid kits for COVID, flu A and B. Last month, on a Monday, my 4-year-old grandson woke up with a high fever. Tuesday, mom was a bit sick. Wednesday, 7-year-old had a high fever. Dad, who has MS, started feeling sick. He had a negative COVID test.

I suggested he take a flu test, and mom picked up the test from me. I picked them up that evening, it was negative. The next morning, it was positive for flu A. In the afternoon, he had a phone appointment with his family doctor requesting a Tamiflu prescription, which he started that evening. Had I not learned about viruses from you and the *TWiV* team, I would not have had the flu test kits on hand, along with the certainty that it would be a good idea for my immunocompromised son to take Tamiflu. Thank you for all the good information, knowledge, and wisdom you have been sharing."

DG: Oh, thanks for the story, Janet. That's great.

VR: I'm glad we are getting the information out there, Daniel. It sometimes seems that nobody's listening, but I guess they are.

DG: No, they're listening, and they're listening up in Halifax. I'm hoping maybe next spring to sail up to Halifax. They have a sailboat race from Boston, from Marblehead to Halifax. I'll go visit Janet.

VR: Judy writes, "I'm in my 70s and healthy. At the pharmacy yesterday, the woman said because over six months have passed since my last flu shot, I qualify for another one. I didn't know this was an option. If I take her up on that, I presume I should wait another six months before getting the fall vaccine. I've never had bad side effects from the shot other than a sore arm. I do plan to travel a lot this summer. Any thoughts on whether to repeat this vaccine? If so, should I get it now or closer to summer travel? Flu is not prevalent here in the Pacific Northwest. Thank you for your podcast. It's been very helpful for me and my family."

DG: Judy, it's not a bad cadence if you think about you get your flu shot, end of October, early November, then you get another shot in the spring, particularly if you're traveling because you might be going to areas where there is flu prevalence. That's the problem with some of the flu shots is the durability. That's why we're doing it on a regular basis.

VR: Christine writes, "An acquaintance had a particularly bad shingles that left him unable to swallow and required G-tube feedings for several years. This prompted me to get two shots of the old shingles vaccine around age 50 and two doses of Shingrix at age 60. Unfortunately, I still got a mild case of shingles at age 61, post-COVID. I was quickly started on an antiviral, having been in my physician's office as the rash first appeared, seeking evaluation for an ice pick headache.

I understand that the shingles vaccine is associated with a lower risk of Alzheimer's. Is this likely because it prevents the shingles illness from occurring, or is there an association from having had the vaccine regardless of whether you get shingles? Thank you so much for educating me and all your listeners for so long."

DG: Yes, Christine. We have a lot of studies showing, and particularly, you're a woman, so that's going to work for you, where it's particularly in the female population, there's an association with getting the vaccine and a lower risk for dementia. These are large population studies, so it isn't necessarily people that have had shingles, but they would be

under the umbrella of folks that benefit.

Boy, if you've had shingles despite all this vaccination, I think it's really good that you've had the vaccination, and you worry about how severe it might have been. Oh my gosh, to describe an individual that got it so bad that they actually had to have G-tube feedings. For our listeners that may not know what that is, that's actually where they basically make a hole through the front of your belly into your stomach. They leave in a hole and a tube, and then you are fed through this tube instead of being able to eat through your mouth.

VR: We don't really know the mechanism by which the vaccine reduces dementia risk, but it may be because it reduces shingles reactivations, right?

DG: Yes. I'm trying to think of how to do the study. Well, now that we have all these kids that are being vaccinated and not getting, it would be interesting to know, in that population, is there something, I mean, are we really protecting against reactivation, and that's what prevents the dementia, or is there some kind of immune modulation that occurs? I think in the future, we'll be able to potentially look at that.

VR: That's *TWiV Weekly Clinical Update* with Dr. Daniel Griffin. Thank you, Daniel.

DG: Oh, thank you, and everyone, be safe.

[music]

[00:44:10] [END OF AUDIO]