TWiV 1342 Clinical Update

Host: Vincent Racaniello

Guest: Daniel Griffin

Aired 25 July 2026

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 1342, recorded on July 22, 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 can't see your tie because I'm home, and the monitor's really small. All I see is red.

DG: Is this one of those little 12-inch black and white TV monitors?

VR: Yes. It's not black and white, but it's 12 inches.

DG: All right. Let's see here. I believe it's influenza.

VR: Oh, very good. Little particles of influenza?

DG: We have a few flu things to discuss. I know it's not that time of year, but that's OK. I have a George Eliot quote. I just go through it. Every so often, I find something and say, you know what? I don't know how much that connects with the stuff we're talking about, but this made me think of a lot of those emails we get, people who say, "Oh, I should have done X, I should have done Y."

The quotation from George Eliot, "It is never too late to be what you might have been."

VR: I like that very much.

DG: Just as an example, I was in private practice out in rural Colorado, then I became a graduate student, got a PhD. You could reinvent yourself. Your wife may want to kill you, but if they love you, at the end of the day, they'll still tolerate you.

VR: I think it doesn't matter how old you are either. You can do it at any age.

DG: When I was in medical school, Caleb, one of my fellow medical students, are you ready for this? He was a professor at Cooper Union, and then he went back to medical school and became a surgeon.

VR: It's great. No, I think you should not be discouraged. You should pursue it. It may not work, but you can't give up. You always have to dream.

DG: All those people that say, "Oh, I should have become a virologist." Become a virologist, become a parasitologist. All right. We've got a lot to talk about. We're going to start with *Cyclospora*, the explosion of the explosive diarrhea. Really funny. I don't know. I find this entertaining. If you don't laugh, you cry, right? Big news here is this "potential" "putative" connection to Taylor Farms shredded lettuce imported from Mexico, primarily served at Taco Bell restaurants.

Now, according to Bloomberg News, and don't worry, there's going to be a follow-up, and just about everyone else, Taylor Farms said its Mexican subsidiary is voluntarily removing the product based on information provided by the U.S. FDA. Yes, but then the FDA retracts its PCR result, but then the FDA says that's OK. FDA retracts test result, but still links Taylor Farms lettuce to cyclosporiasis. The FDA said there was overwhelming epidemiological data to support the voluntary recall.

I'm going to leave a link. This is now a *Washington Post* article. "The FDA said Sunday that a lab finding showing *Cyclospora* contamination in a sample of shredded iceberg lettuce supplied by Taylor Farms de Mexico was a false positive, but the agency did not back away from its conclusion that the company remains linked to a multi-state outbreak of cyclosporiasis through its traceback investigation. FDA's traceback investigation and outbreak data continue to converge on shredded iceberg lettuce from Taylor Farms located in Central Mexico, the agency said on social media." "Monday afternoon, it said, 'There was overwhelming epidemiological data to support the voluntary recall.'"

VR: This is an indictment of our food supply chain because we have big farms supplying a lot of individuals, and this is going to happen from time to time.

DG: It's a challenge, too, because, as we know, maybe on a good day, 50% of the food coming into the country actually gets tested. It's a monumental task, and you may imagine there may even be some corruption on who gets tested and who doesn't.

VR: It's not just things like lettuce. It could be beef. It could be many different things.

DG: I think that's the challenge is that when you live in this interconnected web, there's all kinds of things coming from other places, whether it's raspberries or lettuce or basil or cilantro or grapes or avocado, right?

VR: That's the way the world is now. It's not going to change. We're not going to go back to little farms supplying locally, right?

DG: Yes. Did you watch the FIFA final, Vincent?

VR: No, I did not.

DG: They tried to make it into the Super Bowl. We now have quarters instead of two halves. There's a half-time show. The only difference was people weren't eating the guacamole avocado dips. That's the way you could tell that it was - Sorry about that. All right. Michigan, *Cyclospora*, we are up to over 7,000 cases.

VR: Wow.

DG: Unfortunately, 102 reported cases indicated they'd been hospitalized. People can get really sick with this explosive diarrhea. It's really horrible. Then we now have New York City up to 374. You can actually see. We're still seeing cases. Not so great. People keep asking me. We got a text today from this woman. Speaking of FIFA, she works on the Bend It Like Beckham account. David Beckham is a person who does a lot of ads. She wanted to know if she could start eating lettuce again.

My advice to people, and I've done some interviews on this, is you can, but if it says it's pre-washed, you just wash it again. It's the reason you sing, what is it? Twinkle, twinkle little star that second time when you're washing your hands, just because you thought you got them washed the first time.

All right. *Legionella*. Unfortunately, a fifth person has now died in connection with this disease cluster on the Upper East Side. Eighty-two cases, eight people remain hospitalized, 56 have gotten out of the hospital. No new cases in the last six days as of this recording.

VR: This is the summer of infectious diseases, isn't it? We have *Cyclospora*, we have *Legionella*, we have Ebola, we have Marburg, we have Lassa.

DG: There's a lot. There's so much, and I just sort of say, "It's so much; I don't cover it at all." I apologize for not covering everything, but I'm trying to cover the top ones. With *Legionella*, I noticed a bunch of comments. We were talking about the cooling towers. I'm going to leave a link into actually what is going on. People mentioning cooling towers, what are these things? There actually is a link that I'm going to leave in. It's a nyc.gov. “Cooling Towers: Information for Owners and Operators.”

I think we're all interested. We talked about this concept of using UV or a biocide. Here you have it. From a physician's standpoint, this is an area that can involve infectious disease physicians, occupational health physicians, but also other specialists. Here we read, "Cooling tower management requires a team of trained professionals and staff, each with specific roles and qualifications to ensure safe and compliant system operation. Qualified person and MPP preparer."

Here, a qualified person is someone with expertise in water quality management, planning, and operations. They may be a New York State-licensed professional engineer, a certified industrial hygienist, a certified water technology or a certified environmental consultant with two years of experience in water quality management. Apparently, I was hearing that we have a shortage of these trained individuals.

Building owners must comply with New York City Health Department regulations for operating a cooling tower. There's a PDF. I'll leave a link into that. It's detailed in Chapter 8 of Title 24 of the Rules of the City of New York. Each cooling tower system must have a maintenance program and plan, biocide treatment of the cooling tower water loop. We talked about that. Water quality monitoring and testing, records of all actions taken.

Chemicals and biocides. Chemicals and biocides must be used in quantities and combinations sufficient to control the presence of *Legionella*, minimize biofilms, and prevent scaling and corrosion that may facilitate microbial growth.

VR: It's a really well-developed system, isn't it?

DG: It is. What we hear in some of the discussions is that maybe there's a failing on some individuals to follow the rules.

VR: That's when you have an outbreak.

DG: All right. Screwworm. I'm going to say still a trickle. I keep seeing new cases. Last week, 37. Now, we're up to 41. We keep seeing cases. I'm going to be a little optimistic. Hopefully, it's a little bit of a late wake-up. Already woke up an hour after our job started, but we're awake. All right. We mentioned Ebola. I just want to point this out. Really, I thought this was a great figure on the CDC update on Ebola. Ebola cases in the first 100 days are five Ebola outbreaks. Look at the current DRC 2026. Hopefully, this will be up for people watching on YouTube, or follow the link and you can look at this yourself. Just compare that slope.

Just to give people who are listening. You've got Guinea 2014, Liberia 2014, Sierra Leone 2014. You've got DRC in 2018. I basically see a relatively flat line with a little bit of a slope. Then basically, you see right angle, 45 degrees, shooting up, DRC 2026.

VR: This is a little bit misleading because the West African outbreak really shot up after three months.

DG: This is first 100 days.

VR: This one clearly is different. That's fine. The other one, if we look three months down, it may be just as steep a slope. I don't know.

DG: I think that'll be interesting. Two months from now, we're going to start having that data where we see when this goes out far enough. Unfortunately, we're already confirmed cases 2,423. Confirmed deaths, we're approaching 1,000. We're already at 967 in the DRC.

VR: It's bad. 1,000 deaths is really bad.

DG: They're horrible deaths.

VR: One is bad, but this is now substantial, and it looks like it's out of control, right?

DG: Yes. It really looks like it's out of control. All right. Measles. Another, speaking about out of control, the Johns Hopkins measles tracker, up to 2,295. If we look at the areas, we've got an outbreak in Pennsylvania, 114 cases this year already, 10 cases over the last week. We now have a state dashboard. I like the dashboard. I'm going to leave a link in to it. Measles cases by county. You can guess. Where do you think you're going to see the measles cases by county? It's going to be in a population that's undervaccinated.

VR: Lancaster County.

DG: There's a certain group that lives there which has a low vaccination rate. Lancaster and Lebanon.

VR: This whole outbreak is entirely ascribable to RFK Jr. not emphasizing vaccination.

DG: It really is amazing. We were struggling with the challenges here. This is like whack-a-mole. Every time there will start to be issues, clear messaging, "Hey, here's what's going on. Let's get some vaccinations in here." Two years ago, that messaging changed. It became,

"Oh, you did the right thing by not vaccinating your child. They may have died, but hey, that's OK." Last year, full year, a total of 2,242 confirmed cases. If you look at the CDC data, 2,260; we're past that. It's July.

VR: Incredible. I thought measles was seasonal and that the season is over.

DG: Paul Offit says that. It could be one of those things where, as time goes by, will it become seasonal? Will we have thousands and thousands of cases peaking at certain times of the year? Influenza. A couple of things. I promised I would talk about influenza with my bow tie on. We're actually going to be talking about influenza vaccine effectiveness and a couple of things.

First is just in general. The article "Influenza Vaccine Effectiveness Against Outpatient Acute Respiratory Illness with Lab-confirmed Influenza, United States, 2024–2025 season," published in *CID*. As far as influenza A(H1N1)pdm09 and influenza A(H3N2), these viruses predominated during the last season. These investigators estimated the influenza vaccine effectiveness in the United States against mild-to-moderate outpatient influenza illness by influenza type and subtype during that season.

They looked at outpatients aged 8 months or older with acute respiratory illness. They looked at seven states. Upper respiratory specimens were tested for influenza type/subtype by RT-PCR. They used a test-negative design. Among 6,793 enrolled patients, 30% tested positive for flu, including 961 for H3N2, 770 for H1N1, 183 for Flu B. Overall vaccine effectiveness against any influenza illness was 33%. Then they break it down.

Interesting. They did not detect statistically significant interaction between current and prior season vaccination.

VR: This is very low.

DG: It's crummy, right?

VR: Horrible. 33% is like placebo effect.

DG: It's pretty crummy.

VR: I don't know why it's so low, but people, you should not get it. You should get it because it will stop you from dying.

DG: We're going to talk about that in a second. Interesting. It's going to keep you out of the hospital. It should keep you from dying. There are ways to use more effective. This is 33%, but then we have that new approved licensed mRNA, which is 25% better. We do need better flu vaccines. One of the approaches we've done is to try to use high-dose versus standard dose in the higher-risk seniors.

We looked at that, but before we go, I want to talk about this last line, which I think is important. They're looking at, "Oh, I got a flu shot last year. Do I really need to get it every year?" Even though this is crummy, you did not see protection from the year before. Unfortunately, these flu shots, they only last a year. Just to point that out. The reason I bring that up is I was involved in a discussion today where we talked about the COVID vaccines.

Unfortunately, my wife is annoyed by this because we would like to just get our COVID shot

once a year, particularly everybody, all the high-risk, everyone, just keep it simple. Unfortunately, we'll get into this in a little bit, when we see these double seasons, the data on the COVID shots is that protection tends to go away at six months. Sort of a problem. You've got to follow the science, not the calendar.

All right. "The Effect of High-dose versus Standard-dose Flu Vaccines on Hospitalization Outcomes and Mortality in Older Adults: A Systematic Review and Meta-analysis," published in, this is a journal, *The Lancet Healthy Longevity*.

VR: Not just longevity, but healthy longevity.

DG: Healthy longevity. They do a systematic review and meta-analysis. They look at the usual suspects: MEDLINE, Embase, Cochrane Central Register of Controlled Trials, Global Health, ClinicalTrials.gov, all the way - they say from inception, which reminds me of that really cool movie - to September 3, 2025. Basically, they're looking at randomized trials, comparing the high-dose with 60 micrograms of the hemagglutinin and the standard dose with 15 micrograms. It's high-dose. It's four times as much hemagglutinin in there.

They're looking at that targeted population, so adults age 65 and over. Total of 1,422 records identified. After screening 813 titles and abstracts, which 84 full texts were assessed for eligibility, they end up with 14 unique RCTs with 581,845 participants. Of the 49 outcome results assessed, 32 are rated as low risk of bias, 17 as having some concerns. Here is the cut to the chase. Compared with standard dose, the high dose reduced hospitalization for influenza by about 39%. The absolute risk difference, four events per 10,000 vaccinated individuals. Not really a huge return on your investment, is it?

VR: No, but we have done other studies that paint a better picture than this, I think.

DG: I think that's one of the problems. They also talk about they're not able to show here in this, remember, systematic review and meta-analysis, mortality impact, looking at high-dose versus standard-dose. What did Mark Crislip say about the cow pies when you pile them high? The problem with a meta-analysis like this is: do you really take the time to look at each individual study? As they're pointing out here, there were a lot of issues with how much you could rely on these: risk of bias concerns, 32 were low risk of bias, 17 is having some concerns. Which ones do you look at, et cetera?

We still recommend it. This is not as rosy a picture as we would have liked. We need better flu shots.

VR: This is a meta-analysis. That's the problem. You can find studies that show a better effect and a worse effect. This is just lumping them all together, and you get this average, if not great. We need better--

DG: It didn't turn into gold. It turned into like -

VR: Yes, no gold. We need better flu vaccines. There's no question about it.

DG: All right. COVID. You ready for COVID?

VR: I am.

DG: Well, it's not here yet.

VR: Pretty flat. July 11.

DG: We're up to July 11, week ending July 11t Still flat. I did take a little deeper dive. Are we seeing any activity anywhere? Because now's the time, right? It's the season. We are seeing some activity in Texas, but really kind of an outlier. Very low, just about everywhere else. Low in California, Nevada, and Florida, but really very low pretty much everywhere else.

VR: Very interesting. It's very flat on the wastewater. Not even a hint of uptick yet.

DG: Kind of interesting. All right. I threw this in probably, I think, right after we recorded last week. This is an article published in *JID*. It is "Randomized, Double-Blind, Placebo-Controlled First-in-Human Trial of a First-in-Class AI-," artificial intelligence, "-designed Monoclonal Antibody (GB-0669) Against the Conserved SARS-CoV-2 Spike S2 Stem Helix." Quite a title. We got first-in-human, first-in-class, AI-designed. This is fun.

Now here we read that antibodies against the SARS-CoV-2 spike receptor-binding domain provided effective COVID-19 treatment until resistant variants emerged. I think we all remember the days of bamlanivimab and the Regeneron. GB-0669 is a half-life-extended monoclonal antibody optimized using artificial intelligence. It targets the conserved spike S2 stem helix, a region subject to limited selective pressure from antibody responses induced by infection or vaccination. Do I leave natural out?

Pre-clinical safety studies were conducted in cynomolgus monkeys. Did I get that right?

VR: You got it. Very good.

DG: All right. In the first-in-human trial, healthy adults aged 18 to 55 received single intravenous doses of GB-0669 or placebo in five ascending cohorts. We've got different doses. Participants were monitored for 43 weeks. They're going to look at safety, yes, pharmacokinetics, pharmacodynamics; serum live virus neutralization. In vitro studies assessed neutralization combined with antiviral drugs. We're going to do remdesivir, nirmatrelvir, molnupiravir.

Here's what we got. Pre-clinical studies revealed no safety concerns. In the clinical trial, this was well-tolerated without dose-limiting toxicities. All adverse reactions were mild. PK showed dose-proportionality up to 2,400 milligrams with a half-life of 54 days. Dose-dependent increases in serum live virus neutralization occurred at 600 and 1,200 milligrams, with separation from placebo. Basically, really good stuff.

Finally, in vitro experiments proved improved neutralization profiles in combination with antivirals. You could use this with the antivirals. It can be an add-on.

VR: Of course, we don't know anything about efficacy yet because -

DG: No.

VR: - it's just safety. What I wonder if there are people who just don't like GMO, right? There are people who may not like AI-designed therapeutics either.

DG: I have to admit, I was thinking about that. Will there be labels in the future?

VR: AI-designed.

DG: Yes. I have to put a label on there, "This therapeutic is AI-designed." I don't know.

VR: I don't think it's a problem as long as you test it properly in the end, right?

DG: All right. I'm going to wrap us up here. We're actually recording on a Wednesday night, because I'm going to be in another sailing race tomorrow.

VR: Where are you going?

DG: This is the Around Long Island race. We start at the Statue of Liberty, out under the Verrazano Bridge, all the way out around Montauk, and all the way back.

VR: You can't go actually all the way around because it's connected, right?

DG: You can actually go all the way around Long Island. You go under the bridges.

VR: Oh, so there's a waterway that goes all the way around Long Island?

DG: Yes. It is actually an island.

VR: Oh, I didn't know that. It's like, what is it, the Whitestone or something bridge that you go under?

DG: There's a bunch of bridges you're going to go under. The Throgs Neck -

VR: Throgs Neck.

DG: - the Whitestone. There's a bridge at Hell's Gate. You've got the Manhattan Bridge, the Williamsburg Bridge, the Brooklyn Bridge.

VR: Cool.

DG: All under these bridges. Actually, the trip down to the start of the race is pretty cool. Then the start of the race, Statue of Liberty, out through the Verrazano-Narrows.

VR: It's you and one other person or just you?

DG: No, it's 11 of us this time. I think that two-person, 700-mile race from Bermuda, that was a lot.

VR: How many miles is Around Long Island?

DG: Two hundred. This'll be a day trip.

VR: All right. Good luck.

DG: All right. No one is safe until everyone is safe. I'm leaving in links to the House folks, the senators. If something is important to you, reach out, let them know. I do want everyone to pause the recording right here and go to parasiteswithoutborders.com. Click the Donate button. Even a small amount helps. Every bit helps. For all the people that have donated so far, thank you so much. We are nearing the end of our Foundation International Medical Relief of Children fundraiser. We're doubling those donations. Going to send that donation, hopefully, up to $10,000, which really will go a ways there in Uganda.

VR: It's time for your questions for Daniel. You can send yours to daniel@microbe.tv. Delia writes, "I'm a recent graduate from Binghamton University with a BS in global public health. I'm a big fan of your work and love listening to your clinical update every other week on *TWiV*." What do you mean every other week? It's every week.

DG: [laughs]

VR: "My friend, Tea, introduced me to it. I was wondering if you had any advice to give on how to break into the public health world as a post-grad student. There are so many different sides to public health that it can sometimes feel a little daunting while I am still figuring out what I want to do. I really respect and appreciate your work. Thank you for spreading legitimate public health information in a time where it's hard to find, and doing so in a digestible way. I look forward to hearing your response and listening to your next clinical update," which is every week, Delia, every week.

DG: I guess I'm trying to figure out. Maybe there's an issue with your subscription thing because, Delia, every week, we got two. We got my clinical update. We got the deep dive. It's great that you know Tea Sweeney. This might be a plug for one of the ways. Figure out what part of public health are you excited about. Is it global public health? Maybe you want to take a trip down to Floating Doctors down there in Panama and see what that's like. Maybe you want to reach out to FIMRC and volunteer with them.

Sometimes the first things are these internships, these volunteer opportunities. Then you start meeting people, and that opens the doors. The big thing is get in there, start getting some experience. It can be daunting, but just keep putting one foot in front of the other.

VR: Lana writes, "Hello and happy belated birthday, Dr. Griffin. First, thank you for your contributions to science education, keeping us all informed. I hope you enjoyed your birthday and wish you many more fulfilling years. In terms of the recent outbreak of *Cyclospora*, I can't be the only person wondering why the parasitic infection is treated with an antibiotic. What is the underlying mechanism or logic that underpins this particular treatment? Also, what is the life cycle of the parasite like? Are there any effective controls that an individual can apply in terms of washing produce in such a way to limit exposure, or is this really something that has to be tackled at the source?"

Why don't we take those first?

DG: First, thank you for the birthday wishes. Yes, I'm getting older. As far as the outbreak, it's a really interesting history. There was an outbreak in Nepal, in Kathmandu, is my understanding. Grab off-the-shelf, backroom, inexpensive sulfa antibiotic that messes with the metabolism of this animal, this parasite. That's actually the underlying mechanism. It turned out that worked, and that still is our first-line treatment to this day.

As far as the life cycle, the really important thing is that the *Cyclospora cayetanensis*, named after Heredia Cayetanensis, that Peruvian hospital where I got some time to work at one point, is person-to-person. The *Cyclospora cayetanensis*, somebody has it, somebody is having diarrhea, that diarrhea gets on stuff that's going to ultimately end up in someone else's mouth. Fecal contamination, maybe that's raspberries, maybe that's lettuce, maybe that's basil, maybe that's cilantro, et cetera, and it's not washed off. That really is the big thing to break this cycle. Next person gets it, next person has diarrhea, goes on.

It really is pretty chlorine-bleach resistant, so that's hard to do that. It doesn't have to be tackled at the source. We get this bagged lettuce, "Hey, this is great. It's pre-washed," as we've said, as I've suggested, wash it again, rinse it off. Even those raspberries with all the nooks and crannies, you can rinse the fecal contamination off, and then you can enjoy those raspberries.

VR: Lana also wants to know why the CDC page refers to food potentially contaminated with feces, when many sources point to contaminated water.

DG: It's the feces in the water. It's that thing when you go swimming, and they say, "Oh, the coliform count." Basically, they're talking about fecal bacteria count. Yes, it's feces, contaminated feces, feces with microbes getting in your water, you drinking or swimming in it.

VR: She also wants to know about this connection between iceberg lettuce from Mexico and Taco Bell. She wants to know, is there only one source or could there be others?

DG: There probably is more than one. The big, over 7,000, hundreds of quadrupling, what we're seeing here in New York - There's always a certain number of cases we see, because people in the U.S., people in Mexico, people in other parts of the world, I mentioned Kathmandu in Nepal, people have *Cyclospora*, they get diarrhea; there's a transmission cycle. When you get a big outbreak, there's usually some source like this.

In the past, it was the raspberry. I think we mentioned basil at one point. Now the smoking gun, all the epidemiology seems to be suggesting this big increase is the iceberg lettuce in Taco Bell.

VR: Niklas writes, "I am on safari in Tanzania with my two children at the moment. We are quite well prepared with vaccinations in advance, repellents and malaria prophylaxis. Today in Serengeti National Park, my children, 12 and 17, were bitten by tsetse flies, my son through his sock. As a medical microbiologist and specialist in laboratory medicine, I know they can transmit *Trypanosoma brucei rhodesiense* here in Tanzania, but I have no idea how frequent transmission is in real life. Can you help? Do we have to worry? My daughter is crying now because she fears African sleeping sickness. Do you have any hints for the next days or weeks?"

DG: All right, Niklas. Your daughter can listen to this. Your other child can listen to this. I'm not that worried. Very low risk. There's two sides to this. As someone who likes to see really interesting diseases, we just really don't see a lot of sleeping sickness anymore, but that's the good thing because it's a horrible disease. It is treatable. The treatments have gotten better, but I have to say it is really rare. It hurts. You really do get bitten by these. They're amazing animals, these tsetse flies, but it hurts. I will reassure you: very low risk. Tell your daughter she can go ahead, not worry, and get a good night's sleep. That could be your dad joke.

VR: PS. Oh, yes, right? "I'm a constant *TWiV* listener for years and don't miss any clinical update. Keep up the good work."

Anonymous writes, "Based on the brief pneumonia discussion and Senator McConnell's hospitalization on Episode 1340, I thought I would try my luck with this question regarding the pneumonia vaccine. I'm in my mid-40s, had a recent mild to moderate pneumonia

diagnosis. In my mid-20s, I was diagnosed with *Mycobacterium abscessus*. Treated with 10 months on IV antibiotics and a lingulectomy, I also have asthma. I had a pneumococcal vaccine in 2007, and my PCP recommended I get the newer Prevnar 20 vaccine.

How often should I be getting a pneumococcal vaccine? Do I get another one when I'm over 50? Do I get one whenever there's a new one developed? I had been getting a COVID vaccine annually, but should I be getting it every six months, given my history? I definitely do not want to go through feeling as terrible as I did three weeks ago anytime soon, and I want to be sure I'm protected as much as possible. Thank you for all your dedication to science and education and truth. Sincerely, no longer as short of breath in California, 31C and sunny."

DG: The conjugate, the Prevnar, there's also a 21-conjugate vaccine; at this point, we're recommending you get it once. We're not recommending boosters. Now, the polysaccharide, the Pneumovax that we used before, those actually were associated with boosting going on. This is, at this point, the one recommendation, and then we'll go ahead and see what that does.

Now, you brought up the COVID vaccination as well. I talked about the challenge here. When we look at the data, the protection we see, you could talk about T cell, you could talk about antibodies, we can make believe we understand the mechanism, but when we look at the studies, kind of six months in the high-risk folks, and then it goes away. That's still the science there.

VR: Rona writes, "Happy birthday. I know you've been talking about shingles lately. I have a question about immunity for someone who has gotten shingles before. My 52-year-old friend had chickenpox as a youngster. She got shingles in her late 40s and shingles for a second time while fighting cancer in 2023. Do people get shingles multiple times until they get the Shingrix? In other words, does prior infection not provide immunity?

DG: This is a challenge. We'll walk through this because I think this is important. An individual gets chickenpox; they get the chickenpox virus, the varicella-zoster virus. We should have made this all complicated like we did with SARS-CoV-2 and COVID-19, like which is the virus and which is the disease? Chickenpox is the disease; varicella-zoster virus is the virus. The challenge here is that chickenpox virus stays dormant; then, in this case, you get a reactivation in your late 40s. Some individuals, not just once, but as we see here, some individuals will get another reactivation.

Sometimes there's something like cancer or stress, immunosuppression. Sometimes there's just something about that person's genetics. People can get it multiple times. We do recommend that someone who gets shingles, or also anyone 50 and over, go ahead and get the Shingrix vaccine. Unfortunately, people who get shingles can get it again. That's why we're making this recommendation to get that reduction even if you've already had the shingles.

VR: Charles writes, "The FDA recently reversed a PCR test result for *Cyclospora* on Taylor Farms lettuce. The skeptic in me wonders whether the reversal was influenced by political pressure, given that Taylor Farms donated $1 million to a pro-Trump super PAC, and their executives met with White House and FDA officials the day before the initial recall. My guess as a computer programmer, however, is that the CT value was close to the cutoff of 38, that Taylor Farms challenged the result, and that the FDA reconsidered, caved into

political pressure. *Cyclospora* is notoriously difficult to detect and confirm by PCR, which may make the false positive more technically plausible.

I've not been able to find any reporting that addresses the specific laboratory methodology behind the reversal. I'm hoping you or one of your colleagues might have insight. PS, if you're a Pink Floyd fan, may I suggest an obscure one, Obscured by Clouds from 1972, their soundtrack to the film *La Vallée*. *Free Four* is my favorite track, though I should warn you, it is not a cheerful listen."

DG: All right. I am a Pink Floyd fan. I'll have to put this on my list. Thank you. I don't know the details. I'd love to know the details. Was it an issue? Was there a borderline CT value? There's a lot going on social media about the timing of that $1 million donation. [laughter] Not that that would influence the president of the United States, by the way, because isn't he so rich, this wouldn't really be a big deal. I wish I knew a little bit more.

VR: Nonetheless, it's been epidemiologically linked to the farm.

DG: It's linked. I think it's great that you bring up the fact that this can be difficult to detect. Having the PCR, that's great, but without the PCR, the epidemiology is usually how we sort these things out.

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

DG: Oh, thank you. Everyone, be safe.

[music]

[00:39:48] [END OF AUDIO]