This Week in Virology

TWiV 1228 Clinical Update

Host: Vincent Racaniello

Guest: Daniel Griffin

Aired 20 June 2025

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 1228, recorded on June 18, 2025. I'm Vincent Racaniello, and you're listening to the podcast all about viruses. Joining me today from New York, Daniel Griffin.

Daniel Griffin: Hello, everyone.

VR: I can't see your bow tie. What's on it, Daniel?

DG: It's my bright yellow prion.

VR: Prions.

DG: Creutzfeldt-Jakob disease bow tie. I've got a yellow one. I've got an orange one.

VR: Nice. It's very, very colorful.

DG: [laughs] I think that's part of why I like them so much, all the color that we get. We've got a lot to cover. We're recording here on, what is it, a Wednesday evening right after your live stream. I expect you'll be all fired up, Vincent.

VR: Yes, live stream is always fun.

DG: Yes, it's a good crowd on the live stream. Let me start with our quotation. This line comes from a speech by Mon Mothma in the *Star Wars* series *Andor*. This is actually Season 2. Is there anyone out there who's not a *Star Wars* fan? I don't know. Perhaps not. Here we go. I was really taken by this. It really seemed appropriate for our times, but here we go. "The death of truth is the ultimate victory of evil. When truth leaves us, when we let it slip away, when it is ripped from our hands, we become vulnerable to the appetite of whatever monster screams the loudest."

VR: This is a character in a movie, but someone wrote it, and so that obviously reflects their viewpoint, right?

DG: I think they were using this scene to suggest something which might be timely. I think this is something we keep talking about, how you can't just say things that are not true. We're going to call you out. We're going to point out what's true, what's not true, because

that's the ultimate failure. It's the ultimate victory of evil is when we let people just say stuff that's not true, and it ends up with people getting hurt, people dying.

That'll bring us right into the attack on science. There was an opinion piece recently published in a *Washington Post.* What was nice, it actually was not just, isn't everything terrible, but what can you do? It's an opinion piece with the title, “RFK Jr. Is Sabotaging the Vaccine Program. Here's How to Stop Him.” I don't know if you had a chance to read this, Vincent, but the author here points out that Kennedy might argue that he's not taking away anyone's vaccines, but just giving people choices, but making vaccines costly and inaccessible produces the same result.

This author goes on to write, "For decades, major medical societies, such as the American Academy of Pediatrics and the Infectious Diseases Society of America, have automatically endorsed ACIP's recommendation, confident that they were grounded in rigorous evidence, but these societies must form their own expert panels and issue independent guidance. The American Academy of Pediatrics could recommend childhood immunizations. The American College of Obstetricians and Gynecologists could weigh in on vaccines for pregnant women. The American College of Physicians could issue guidance for adults and the elderly."

"The American Medical Association or the Infectious Disease Society of America could coordinate these efforts. States should then use the expert recommendations from these societies to shape their own vaccine policies. They could direct public health departments and clinicians to follow the guidance. If medical societies fail to organize quickly, states could create their own independent vaccine advisory boards, but suggesting that approach is far from ideal. 50 separate boards with varying recommendations would just add confusion," so sort of asking people to step up.

VR: Daniel, though, as you said before, the CDC used to generate the data that they would then use to make the recommendations. The states can't do that on their own.

DG: Yes, I think it's more complicated like, "This is nice. It's encouraging. It's optimistic. Here's a plan," but we need the data to start with. If we can't trust the CDC to give us that data, then on top of that, we have this issue with this body's recommendations. We're going to see next week, right? When you and I record next week, Vincent, when our listeners are listening, there will have just been an ACIP meeting, which I'll go through the agenda for.

We're going to hear what this new crew on ACIP is going to do. At least it'll give us some sort of a sense. If we don't actually have the data, we don't know who's getting sick, we don't know what's going on, it makes it even harder to make these recommendations. Maybe it goes beyond that. Maybe we're going to have to have our professional organizations start to actually get the data that we need.

I also wanted to let people know about CIDRAP's Vaccine Integrity Project. This is an initiative dedicated to safeguarding vaccine use in the U.S. so that it remains grounded in the best-available science, free from external influence, and focused on optimizing protection of individuals, families, and communities against vaccine-preventable diseases. Really in line with what the opinion piece was suggesting.

The nice thing is the Vaccine Integrity Project is actually supported by an unrestricted gift from an organization called Alumbra, leaving a link there. This is a foundation that was established by the philanthropist, Christy Walton, a widow of John T. Walton, one of the

sons of the Walmart founder Sam Walton. Actually, apparently, a very generous individual. I was looking a little bit of background on Christy Walton. There was a *Condé Nast Portfolio* magazine Giving Index profile.

She was actually ranked as the highest female philanthropist according to the amount she gives as a percentage of her wealth. You ready for this? At a then estimated $16.3 billion net worth, she contributed a total of $3.5 billion just between 2002 and 2006. I think we're going to need support from people like this to do all the work we're going to need to do if - Well, let's talk about ACIP. Let's see what's going to happen here.

Next week, it's going to be Wednesday, Thursday, we're going to have the June 25th, June 26th ACIP meeting. This is the advisory board that puts out recommendations for the different vaccines. I'm going to leave in a link because you can actually go to the web page. They'll post a link. You can actually watch the meeting. It's open to the public via a live webcast. There's three regular meetings each year.

Let's go through the draft agenda. I'm going to leave a link to that. I'm going to make some comments as we go through this. They don't start till ten o'clock on Wednesday. There's a welcome and a roll call. [laughs] Then 10:20, there's an update on work groups. OK. Eleven o'clock, it gets exciting. COVID-19 vaccines can be an introduction. They're going to talk about epidemiology. They're going to talk about vaccine effectiveness, safety, then COVID-19 vaccine coverage and implementation, and evidence to recommendations.

They're going to have some lunch, and they get some agency updates. In the afternoon, they're going to talk about RSV. That's going to be both the active and passive vaccine discussion. The active vaccinations, but they're also going to talk about nirsevimab. They're going to talk about clesrovimab, right? That's the new one on the street. Then there's actually going to be a vote. There's going to be this public comment at 4:15. It's always very interesting to watch the public comment.

Then at five o'clock, there's going to be some votes. Then Thursday, I'm going to say it gets interesting here if it wasn't interesting already. They're going to get up a little earlier. They're going to start talking about influenza vaccines at 8:15. There'll be an introduction. I don't know if people read closely. There's two things on the agenda. Presentation regarding thimerosal in vaccines.

Proposed recommendations regarding thimerosal-containing influenza vaccine, right? That's this small amount of preservative with mercury in it that they use in the multi-dose flu vaccines, right? You can get a single-dose flu shot or these multi-dose vials where there's still thimerosal in there. Apparently, they've got these two line items. They're going to spend a bunch of time talking about that.

VR: The person to present is to be determined.

DG: Yes, that's a little worrisome too. At least tell us who's going to be talking about this.

VR: I think they're going to probably recommend removing it.

DG: Yes, it's not the end of the world. Instead of having these multi-dose vials with a preservative, we just single-dose. Whatever the science is, there's concern. There's controversy here. Why not step back? I think that's fine. Then they're going to talk about

chikungunya vaccines, anthrax vaccine, and then MMRV vaccines. That's basically the MMR, plus the chicken pox in there. Interesting that they're going to be talking about that.

VR: The proposed recommendations of MMR under five. What's MMRV?

DG: We usually don't give the MMR anymore. We give the MMRV. The V is the varicella, right? We've got now four in there.

VR: That's also to be determined who's going to present that.

DG: Yes. Basically, these are things that already have recommendations, already pretty clear out there. Then you could see, again, they're going to be voting on influenza vaccines. There's going to be a vote about thimerosal-containing influenza vaccine recommendations. This can be very interesting. Basically, stay tuned. Next week, we're going to talk about this. I've tried to, as much as I can, adjust my schedule. I'll have the chance to spend many hours listening to the discussion.

VR: All these people are CDC people for the most part, right?

DG: At least here that you're seeing in the agenda, so discussing things, but then you're going to have this ACIP committee that's going to be actually the voting members.

VR: Yes.

DG: All right. A couple of *MMWR* reports, "West Nile Virus and Other Nationally Notifiable Arbovirus Diseases - United States, 2023." Basically, what's the big thing here is we have seen a pretty significant increase. This is a report summarizing 2023 data for viruses spread by arthropods. It's the arbopod-borne or the arboviruses. U.S. cases of arboviral diseases more than doubled in 2023. West Nile virus was the most common, but we also saw Powassan, La Crosse, Jamestown Canyon viruses. They've got a nice map here where you can see where things are clustering. Really, a lot of this is going on in that western region, Idaho, Montana, all the way down to New Mexico, Oklahoma, all the way back up to the Dakotas.

If you were thinking about getting on a cruise ship, we also have the *MMWR*, "Clade II Mpox Infections Among Cruise Ship Passengers and Crew Members - United States, 2024." CDC was notified of eight mpox cases on four cruise ships, four among crew members, four among passengers. Basically, they're suggesting that we should educate crews on symptoms, risks, preventive measures, talk about vaccination, but also talk to some of the folks that are the cruise passengers who are at risk as well, try to focus on prevention messaging, education, and again, vaccination.

All right, bird flu, right? Is it over? When I was in the Hebrides, they were really interested, I mentioned this, in bird flu, because bird flu has really had a tremendous impact up in the Hebrides, because the birds migrate through. There's really a tremendous number of birds, but it really negatively impacted their wild bird population. I think I should point that out. In the U.S., in the latest detections in animal section of the CDC bird flu update, 51 jurisdictions with bird flu in wild birds. Just about everywhere in the U.S., we've got bird flu in the wild birds. Just the amount of poultry affected, 174,804,048 poultry affected, over 1,000 dairy herds, 17 states with outbreaks in dairy cows. Even though it's not at the top of the news cycle, the bird flu is marching forward.

VR: That's a lot of poultry to be affected.

DG: It's amazing. I think we talked about it in the past that the majority of the poultry, the egg layers up in Canada have already died in the past 12 months, or been infected. There's a measles outbreak going on in the U.S. That's news to some people, depending on which news channel you listen to, but it's still going strong. As of June 12, 2025, a total of 1,197 confirmed measles cases reported by 35 jurisdictions.

It's spread into another jurisdiction. We've basically seen another 30 cases of measles. This continues to march on even though we're heading into the summer months. Canada is a little behind in week 23, so that's the first week of June, 202 new measles cases. They're up to 3,170 measles cases. You can really see, there's a nice map they have on the Canada website where you can just see all the cases. I'll leave in links for all the recommendations and dispelling the myths and all about MMR vaccine safety, but let's move into flu.

We may be out of the flu season, but one of the things I've tried to point out is the impact of flu on children, right? It's the whole idea, "Oh, healthy kids, they're just fine." Well, not always. One of the things we have is the unnecessary use of antibiotics when a kid gets the flu, right? They've got a febrile illness. People are not sure what it is. We have the article, “Pediatric Antibiotic Use Associated with Respiratory Syncytial Virus and Influenza in the United States, 2008-2018,” published in *JID*.

Here, they conduct a retrospective study of outpatient antibiotic prescriptions dispensed to children. This is in the Optum Clinformatics DataMart. They use this negative binomial time-series modeling, looking at weekly antibiotic prescriptions. Then they're comparing this to when RSV and influenza is circulating, trying to estimate the rates of antibiotic prescriptions and the presence, absence of RSV and influenza.

Then they're going to analyze this by age group and antibiotic class. Basically, what they're looking at is how many kids got unnecessary antibiotics for these viral infections. They estimated 6.3% and 3.4% of antibiotic prescriptions were associated with RSV and influenza, respectively. These estimates translate to 72.6 RSV-associated and 40 influenza-associated antibiotic prescriptions per 1,000 children each year.

That's quite a bit. The macrolides, the Z-Pak, was the antibiotic class for which RSV and influenza accounted for the greatest share of prescribing. Lots of kids having the harms of influenza. Over 200 children died this last season. Also, just all these unnecessary antibiotics messing with the microbiome, driving us closer and closer to the multidrug-resistant antibiotic apocalypse.

All right, got a few things here in RSV to update. Remember, we've got the nirsevimab, the passive monoclonal, but we've also got Merck's Enflonsia, or clesrovimab. Terrible naming there, by the way. We've got more data on the effectiveness of this monoclonal passive vaccination approach with nirsevimab, with the article, “Effectiveness and Impact of Nirsevimab in Chile During the First Season of a National Immunisation Strategy Against RSV: A Retrospective Observational Study.”

Nice to see something from south of the equator. Most of our stuff has been Europe and U.S.-based, but this was published in *The Lancet Infectious Disease*. Here, the rollout of the strategy began on April 1, ended on September 30, right? Their seasons are flipped down there. Data for 157,079 infants with complete records were extracted from the consolidated

database. Median age of the infants was 6.27 months.

After controlling for age, sex, geographic area, weeks of gestational age, combined effectiveness of nirsevimab, we're going to have different vaccine efficacy outcomes against lower RSV-related, lower respiratory tract infection hospitalizations, 76%. Against ICU admissions, 85%. Against all-cause lower respiratory tract hospitalizations, 66.5%. Interesting, it's even covering more. Against all-cause hospitalizations, 48%.

They estimated a relative reduction of 77.5% in RSV-related lower respiratory tract hospitalizations, 30 averted cases per 1,000 infants. They give us a number needed to immunize. Number needed to immunize to prevent one RSV-related lower respiratory tract hospitalization was only 35. Really quite effective, a good number needed to immunize here.

We also have an mRNA vaccine study here, if you can imagine that. “Safety, Tolerability, and Immunogenicity of mRNA-1345 in Adults at Increased Risk for RSV Disease Aged 18 to 59 Years,” published in *CID*, right? Using an mRNA vaccine against RSV in people under 60 actually. Oh, my gosh. These results come from a randomized double-blind Phase 3 trial that evaluated safety, immunogenicity of the RSV vaccine mRNA-1345 in adults aged 18 to 59 at increased risk of RSV-associated lower respiratory tract disease.

They either get a 50-microgram, that's a licensed dose, or a smaller 30-microgram dose. They're going to look at non-inferiority of neutralizing antibodies. A few comments right here. We're looking at two different doses of the vaccine, but the outcome is levels of neutralizing antibodies, and then we're going to use this as a correlate of immunity, right? This isn't a placebo-controlled efficacy trial. This is actually a good old-fashioned correlate of immunity. Let's see what the antibodies are.

In total, 999 participants received the mRNA-1345 vaccine. A little painful, right? 999, not 1,000, but you got some mild-to-moderate local reactions, injection-site pain, fatigue, headache, and then they look at neutralizing antibody, and basically non-inferiority. They've got some really nice, I guess, figures here where you can look at the immune responses. They met the primary outcome. They basically were getting really good antibody responses in this group.

Looking at RSV-A neutralizing antibody. Not only just non-inferior, but a little bit better. RSV-B neutralizing antibody. Again, a little bit better. Then they even show us, over time, the antibody geometric mean titer contraction that we see. The authors conclude, in adults aged 18 to 59, an increased risk for RSV, lower respiratory tract disease. This 50-microgram dose, well-tolerated. You get non-inferior antibody responses, really supporting an inference of efficacy in this population.

Then they even do a little bit more. They say, "Why try to make this vaccine available to more people?" They actually do a financial analysis. The authors share that in one economic model, they estimated $422 million in annual hospitalization costs for adults 50 to 59 with RSV, while younger adults, 18 to 49, had a per capita burden of $51,100 per 1,000 people. Really pointing out that this is potentially not only a great way to help people, but may actually be financially a smart move.

We then get the press release, which I was a little surprised by, from Moderna. “Moderna Receives U.S. FDA Approval for RSV Vaccine mRESVIA in Adults Aged 18 to 59 at Increased

Risk for RSV Disease." Really interesting, right? Based upon this, we call it bridging study, based upon this correlate of immunity, the FDA is actually approving this mRNA vaccine for 18 to 59-year-olds at increased risk for disease.

VR: These are new. There previously was not a vaccine for this age group?

DG: This is brand new. This is a brand-new FDA approval of an mRNA vaccine for RSV.

VR: Now, the next thing would be ACIP would have to recommend it, right?

DG: That's exactly what's happening next week, right? Now, ACIP gets a hold of this.

VR: Yes.

DG: Let's see what happens there. You've been listening. You've been following along, Vincent.

VR: [laughs] Of course.

DG: OK. COVID, this is interesting. At a local level, I have to say, we're seeing a fair number of folks in the hospital with COVID. Some of these individuals are actually quite sick as an individual who really is going the wrong direction. Still with CT values in the low 20s despite remdesivir and other interventions. If you look at nationally, our multicolored line, it still looks OK. We're not quite seeing the uptick in the wastewater. We'll see what happens there, Vincent.

VR: People on the stream tonight were asking, "Why is it bimodal?" Nothing else is. Flu and measles is not bimodal, but why COVID, right? [chuckles]

DG: Yes, we don't know. We have some ideas. There does seem to be something interesting about our ability to develop antibodies that don't contract quickly. The measles, right? For instance, you get either a vaccine or an infection with measles. What do they say? The half-life of the antibody levels is twice a human lifespan or something. Certain antibodies contract at different rates. That one's interesting. We have seen a quicker contraction of these antibodies, whether they're vaccine or exposure, infection-induced.

VR: Yes, that could do it. In the summer, people are getting together. That would be the driver.

DG: Yes. Yes, interesting. All right, so this is funny. I got email, "Dr. Griffin, why haven't you talked about this?" [chuckles] When I saw this article, of course, I'll talk about it. It's the article, "Spatiotemporal Association of Coronavirus Disease 2019 Cases and Deaths With Exposure to Wildfire Particulate Matter in 2020," published in *Open Forum Infectious Diseases*. Let's remedy my not discussing this right now.

For background, these authors start with, "Climate change is anticipated to have profound effects on human health, including in infectious diseases." They didn't say anthropomorphic. They're saying climate's changing, right? I think we all can agree on that, right? Maybe. Wildfires have been increasing in frequency and intensity due to climate change and have been linked to worsening respiratory disease outcomes.

Here, these authors aim to demonstrate whether there was an association between wildfire

smoke and COVID-19 in California during 2020, the first year of the pandemic. Basically, not surprising. They found that there was this one-month lag in the increase of the COVID-19 cases, and then a little bit of a lag, and then you see the increased deaths. They're really seeing this correlation, where it appears that wildfire smoke exposure may increase the spread of COVID-19 and may worsen the mortality rate. They've got this nice graphical abstract with pictures of fires and stuff.

VR: That's surprising. We know smoke is bad for respiratory illness, right?

DG: I remember every summer in Colorado when I was practicing in Fort Collins for about a decade there. Even before that, I was up in Montana. We would get into the wildfire season. It was a problem. You'd have to actually tell a lot of your folks who maybe had chronic obstructive pulmonary disease, other lung issues, spend more time inside in the air conditioning, where the particles are being filtered out. That was before we would be like, "Wear an N95 when you go out." Now, we can make suggestions like that. All right, I remember wearing a mask when I was working in Kathmandu, Nepal, just to go to and from work because they're just -

VR: The air quality was bad?

DG: The air quality was horrible. Oh, my gosh. Early in the morning, when I was heading to the hospital, you're just coughing. You have to take a break halfway there. All right, so the SARS-CoV-2 variants. The reason I bring this up is that, pretty soon, they're going to be talking about compositions. We've already got some recommendations here for the vaccines.

There was a discussion about LP.8.1 is really the prevalent one and thinking about the JN1 lineages. People should be thinking about possibly going with that, or even sticking with the ones from last year. Interesting enough, what we're really seeing is what looks like an explosion of the NB.1.8.1. It's about a third of the cases now is what they're saying here in the U.S. This is the one that correlated in Southeast Asia with the filling up of the pediatric hospitals. I don't know if it just happened to be there or what the story was. It's really interesting because it's the other end of the tree from the LP.8.1.

VR: Someone on the live stream asked, "Is it true that it gives you a horrible sore throat?" No?

DG: Every single variant, everyone's always had the idea that somehow the symptoms, somehow the severity are different. It's never really panned out that significantly.

VR: They call it "razor blade throat."

DG: Interesting. We've seen that with different - almost up to you.

VR: I think it depends on the patient, right?

DG: That's ultimately, and it could even be, "This time, it wasn't so bad," but, "Oh, my gosh. The next time, I felt like my throat had razor blades." Even the same person can have different presentations depending. All right. You get COVID early viral phase. You somehow not avoided this. You haven't maybe worn a mask. You haven't maybe had people test before they came and visited you. You haven't maybe done things with ventilation or

gathering outdoors, and all those things we've been talking about for many years.

Now, you get COVID. You're thinking about treating it. Maybe you're in Japan. We have, "Implementation of an Online Drug-Drug Interaction Screener for the STRIVE Ensitrelvir Trial for COVID-19," published in *Open Forum Infectious Diseases*. Ensitrelvir, or Xocova, is an antiviral for COVID approved in Japan. It's pretty similar to Paxlovid, except you don't have to do the combinations. It's a little easier dosing there. We've discussed some of the safety and efficacy data, but similar challenges with drug-drug interactions.

Here, they're using an ensitrelvir drug-drug interaction checker because you can have issues with CYP3A, P-gp, BCRP, and OAT-3 inhibition. You really need some kind of a tool. It's pretty impossible to have everything memorized. Here, the STRIVE network is conducting a randomized double-blind, placebo-controlled trial looking at ensitrelvir's efficacy and safety. DDI guidance was compiled into a database accessed via a web portal.

You've got prohibited medications, washout periods, start-restart criteria. After 18 months, a survey was conducted to assess this tool's usefulness for helping with the DDI management. There's a Version 1, and then this expands all the way up to Version 7. Basically, cut to the chase, most sites found that this DDI screener, drug-drug interaction screener, was helpful. Nice to have a tool to help with that. We've been, I think, leaving in a link to the Liverpool, covid-19-druginteractions.org/checker to help with Paxlovid interactions.

VR: This is just looking at the interaction. It's not a clinical trial of the drug, right?

DG: They just use the clinical trial to, "Hey, by the way, while you're doing this, here's a web portal to help you with drug-drug interactions. Was that helpful?" Then people let them know, yes or no.

VR: This is not likely to be trialed in the U.S., right?

DG: We don't know if ensitrelvir will ever get approval in the U.S., right? It would be nice to have a little competition for Paxlovid. Maybe drive those prices down.

VR: Right.

DG: During the early viral phase, still Paxlovid, remdesivir, molnupiravir. In some cases, convalescent plasma. Then during that second week, that early inflammatory phase, steroids, right time, right patient, anticoagulation, pulmonary support, remdesivir, still in the first 10 days. Yes, immunomodulation in the patient I was describing, they went on pretty significant inflammatory phase, ended up getting treated with tocilizumab.

There still are some times when we're looking at that as well. I just enjoyed the David Tuller, "ME/CFS" episode. We probably should leave a link into that. Discussion about ME/CFS as well as Long COVID and some of the potential overlap and potentially some of the learning that can go back and forth. It was a good episode. It's on YouTube. You can listen to it on audio as well. Always good to listen to David there.

Let's close it out before emails with, no one is safe until everyone is safe. I'm hoping everyone will pause recording here. Go to parasiteswithoutborders.com. Click on Donate. Every small amount helps. We really try to do everything we can to step in and help with

what's going on. May, June, and July, we're doing our Foundation International Medical Relief of Children fundraiser. Doubling your donations, hoping to get up to a maximum donation of $20,000.

VR: It's time for your questions for Daniel. You can send yours to daniel@microbe.tv. Jim writes, "Because we can no longer blindly trust communications from NIH and its agencies, it would be a great public service to provide your subject-matter expert comment on the *MMWR* each week as to whether the public can trust that edition or, if not, the areas we should be wary of. Since it is issued Thursday afternoon, hopefully, you can get something on either Clinical Update or with Dr. Dan on regular *TWiV*. It would be much appreciated." Jim is a retired NASA engineer and weekly watcher since 2019.

DG: All right. Well, Jim, as you probably caught from this episode, I always watch the *MMWR.* I will make a point of keeping an eye on that, and not only discussing the interesting and educational, but also pointing out when they are not so interesting and educational.

VR: Mary writes, "What should people do with regard to vaccinations and boosters if they are below the normal range in IgA, and does the severity of the deficiency matter? Would this status require insurances to cover vaccinations and boosters if and when CDC no longer recommends them, except for high-risk individuals? IgA deficiency is not uncommon and can be inherited. I appreciate recommendations for all ages in an infected family. Are there any clinical studies of vaccination in IgA-deficient people that demonstrate outcomes for common respiratory ailments, flu, RSV, COVID, pneumonia, et cetera? Could you provide links? Is this a good topic for a future podcast?"

DG: Yes. Mary, this is a good question. I feel like IgA deficiencies really are neglected, right? In a lot of the trials, we don't necessarily have enough numbers. The recommendations aren't necessarily customized or tailored specifically to folks that have different degrees of IgA deficiency. A lot of times, "Oh, it really isn't much of a difference." I think if you look closely, yes, people with IgA deficiencies do have an increased risk of certain, say, mucosal-type infections, such as respiratory, upper respiratory, which then can progress into lower respiratory infections. Yes, I think it's good that you're bringing this up. Actually, yes, at some point, it would be nice. Maybe this would be a good immune deep dive into IgA deficiency.

VR: Mary writes, "I'm a longtime listener and contributor. I love all your podcasts to the point where if I had my nursing career to do all over again, I might have wanted to be a virologist or immunologist. It's all fascinating, and I learn a lot with each podcast. My question regards the person who flew in and out of the Denver airport, picking up luggage, staying at a hotel, riding shuttles, all while infected with measles."

"Given the infectiousness of measles, I wonder how effective a proper mask would have been in preventing transmission to other passengers. If the person knew they had measles and wore a proper mask, N95 or equivalent, could they not have put their fellow travelers at risk of exposure? I'm 75 and had measles as a child, so I'm not worried about myself when I travel, always wearing a mask, but about babies who can't be vaccinated and unvaccinated children and adults. Thank you for keeping the faith."

DG: This is some good questions here, Mary, and I'll start with that, if a person with measles is properly wearing an N95. Yes, we would think that that would reduce their risk of others,

would reduce and help prevent transmission to other passengers. My whole family, I guess, other than Eloise, so my wife, Jessica, Daisy, and Barnaby were jumping a train to Cape Cod.

My mother-in-law's turning 81 Friday, the day right before this gets released. They're all up there for her birthday. Daisy in the back was, "Where's that N95 that I like? I don't like the ones that go over the ears. I want the one that goes all the way." I commend my daughter, Daisy, whose cough hygiene has improved and who, just like Mary, is still wearing a mask when she travels to try to stay safe.

VR: Jen writes, "I recall that during the first summers of this pandemic, you advised summer camps on how to operate safely. I have an avian flu question for you. My kid attends camp in a park with a lake that is thickly inhabited by waterfowl. There's goose poop underfoot everywhere the kids play. The beaches are sometimes closed for swimming due to fecal bacteria from the birds, and the geese use the concrete wading pool as a bathroom when it's empty overnight. A poor park worker picks it up as best she can with dog waste bags in the morning before the wading pool is filled with water, chlorinated, at least, thankfully, but you can't get every bit of poop out. Our kids basically drink the water as they play."

DG: Oh.

VR: "Our camp leader will, of course, try to make sure the kids wash their hands before eating, but inevitably, there will be waterfowl droppings that make their way onto clothes, shoes, backpacks, hands, and eventually, mouths, especially in that wading pool. Remember, your mnemonic device that D equals directly from a duck equals deadly. I have H5N1 questions. Should our camp counselor avoid the lake shore this summer? What about the wading pool? I know we may be flying completely blind with the guidance here. If you don't have data to make informed recommendations, what does your own judgment tell you? Would you send your own grade-school kids into grass water and wading pools with goose and duck poop everywhere?" A great letter.

DG: [laughs] It's a great letter. Very descriptive. Oh, my gosh. We have a park nearby, Manorhaven Park, where we would do soccer practice. The Canadian geese. Oh, my gosh, they just would cover the place with poo, and then the kids are playing soccer, and then they go down, tumble. They come up covered in goose poo. Oh, my gosh. You're describing these kids. Then this wading pool, it's like they try to clean out the duck poo. They don't really do such great job. Then you fill it with water and, yes, the kids are getting it in their mouths and their faces. I'm horrified.

My son Barnaby is planning on going to a waterpark next weekend. Just, I think, horrify me with stuff like this. Here's what I will say is that, still, at this point, we've only seen a few cases directly from ducks, so directly from the birds into people. As horrified as I am, as you described, just these exposures and getting waterfowl droppings onto clothes, shoes, backpacks, hands, and mouths. Still, at this point, the risk is on the lower side. Maybe they could do something creative like get dogs, and the dogs hang out at night so that the goose are not doing this stuff. It would be nice, too, even though I'm saying the risk is low, just not to have such a situation.

VR: I suspect a lot of places have this issue. When we get the first case in one of these kids, then that'll be the end of it.

DG: That's a problem.

VR: Carrie writes, "On the June 7, 2025 episode, a couple in their 80s asked about reducing their risk when their son visits after attending an unmasked conference, and she has more specific guidance. Many people have forgotten some of the basics from the early days of the pandemic. Here are some recommendations. NAAT COVID-19 testing, sequential testing. Tests like metrics would allow their son to test before visiting while also reducing false positives, personal event."

"Unfortunately, there's been a crackdown on importing PlusLife testing cards, making them unavailable under RFK Jr.'s FDA. This has been a major setback for the COVID-conscious community as we've lost a critical tool that allowed us to have fairly accurate and less expensive when compared to metrics testing before gathering. Two, ventilation improvements. Keeping windows open throughout the house, especially in areas where the son will sleep and where they'll spend time together."

"Three, air filtration. Installing MERV 13 filters in HVAC system and using a CR box or appropriately-sized air filter in the son's bedroom and shared spaces. Newer CR boxes with computer fans tend to be quieter. Four, alternative accommodations. If possible, have the son stay nearby to limit shared air exposure overnight and allow for morning testing, though this didn't seem to be an option. Thanks again. Keep up the great work. Carrie. PS, wishing you a great racing season. I started racing last year and loved being out on Lake Erie off the coast of Cleveland."

DG: Carrie, thank you. I think you're right. I think people forget all the things we've talked about, all the different things that you can do to reduce risk of exposure to a high-risk individual. I just described my family going to visit my mother-in-law. I shouldn't probably share her age, but it's over 65.

VR: [chuckles]

DG: Try to make sure you don't bring the COVID to your parents or your parents-in-law. It's a lot of great reminders here, so thanks, Carrie.

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

[music]

[00:45:12] [END OF AUDIO]