TWiV 1350 Clinical Update

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pdf of this transcript available (link)

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 1,350, recorded on August 20, 2026. I'm Vincent Racaniello, and you're listening to the podcast all about viruses. Joining me today from New York, Daniel Griffin.

DG: Hello, everyone.

VR: Daniel Griffin, New York, without a bow tie.

DG: [chuckles] I am Upstate New York at a lake, taking a little bit of a break. When you said August 20th, I was just, "Oh my gosh. Where does time go?"

VR: That's it.

DG: That's it. All right. I'm not ready to give up summer, so I'm going to try to enjoy it a little bit longer. I have a - It's a poem. The first part is a poem. I think there's a very similar quotation from somewhere else, but no one in my family seemed to remember this poem. I even tried AI. Can you imagine I checked with AI? Like, "No." Here it is. I think it's appropriate for all the things that are going on.

“It is easy enough to be pleasant when life flows by like a song,

but the man worthwhile is one who will smile when everything goes dead wrong.

For the test of the heart is trouble, and it always comes with the years.

And the smile that is worth the praises of Earth is the smile that shines through the tears.”

VR: It's a good one.

DG: Yes, for all the things that are going on. I will start off with some news. I don't know if I put everything that was disheartening in here, but I try to cover some of the things that are going on in the world. Cholera outbreak sickens over 90 in Myanmar's biggest city, Burma, depending how you call that. At least 93 patients have tested positive for cholera at a single hospital in Myanmar's biggest city, officials said.

It was an outbreak that began last week, spread across the region. There are more than 180 people in the city, Yangon, who have been hospitalized with diarrhea, common symptom disease. Dr. Nanda Win, the head of the Yangon Region Public Health and Medical Services Department, said on Friday. One 92-year-old man had died, he said. The outbreak is the largest strain on Myanmar's faltering medical system, which has been neglected under a junta rule that has prioritized weapons over health budgets. I didn't put this in. I wonder what people were thinking when they put this in. Do you know of any other countries that are prioritizing weapons over health budgets?

VR: Yes, I do.

DG: [laughs] OK. This is the next one that really has me maybe think of the poem, trying to somehow keep a positive attitude here. This is basically defund the CDC. In the AP, we have the article, "The CDC has zombie programs. Congress funds them, but few people are left to do the work." CDC still has an Alzheimer's disease program. Congress appropriated $41 million to it this year. There's just no one staffing it. Isn't that crazy? People, make sure you get the word out there. I can't imagine there's really people in our voting public who are OK with that.

Then there's the agency's Office on Smoking and Health. Congress allocated $246 million for that. Its staffers were cut too. Same for the epilepsy program, its sickle cell disease data collection operation, its rape prevention unit. Think of them as the CDC's zombie programs. They appear to be alive, at least according to legislation and congressional appropriations, but functionally, they are dead or nearly dead because the CDC experts who did the work were laid off by President Donald Trump's administration or remain on leave, paid, but not allowed to do their jobs.

This is a little bit of good news. Pushing against the tide of the anti-mRNA vaccine tide, Merck, Moderna's personalized cancer vaccine, slows recurrence in phase 3, setting up approval push. Merck and Company and Moderna, their personalized mRNA cancer vaccine has successfully lengthened recurrence-free survival when paired with Keytruda for patients with high-risk skin cancer. The phase 3 win sets up the partners to potentially seek accelerated approval.

The INTerpath-001 trial enrolled 1,137 patients who had previously had their cutaneous melanoma surgically removed. The patients end up getting this treatment compared to others, along with Keytruda or Keytruda alone. I'll leave a link into that because this is exciting stuff.

It's interesting. A lot of people thought that really was going to be where the big wins in the mRNA vaccine arena was going to come, but we're seeing it in other infectious disease vaccine technology or have. I'm going to touch on the mRNA flu vaccine stuff.

Cyclospora cayetanensis, remember when we were told that it's all over, it's all good now? We're up to 15,716 confirmed cases, 11,841 additional cases still requiring confirmation. Where does that put us? 27,000 cases. This is compared to last summer, 1,180. A 26-fold increase. Something's not going right. Those are the CDC numbers. Look at Michigan alone, we're at 13,909. Missouri is 1,950; 614 in New York City alone.

We'll leave in a link. We keep doing this. It's quite popular, the *TWiP, "*Why Is *Cyclospora* So Hard to Contain?" We talk about how sticky those oocysts and just how you really got to

prevent the lettuce and other things from getting contaminated. It's really near impossible to get this stuff off despite my wife's best efforts.

Screwworm. In *CIDRAP*, I'm going to leave a link, there's a nice article, "FDA Grants Emergency Use Authorization for Another New World Screwworm Treatment." The FDA granted emergency use authorization for Simparica Trio as another potential treatment for New World screwworm. This is for puppies and dogs. This is the latest medication with emergency approval in canines. The FDA noted the scientific evidence indicates the benefits of Simparica Trio outweighs its risk.

Simparica Trio has been around since 2020. Simparica Trio has been FDA approved to treat heartworms, fleas, and ticks in dogs, is available only through a prescription from a veterinarian. An active ingredient in the medication, sarolaner, is an antiparasitic drug that has been associated with neurological complications, including muscle tremors, loss of coordination, seizures. Really, you do this with your veterinarian. I'll leave in a link to the FDA link where they have this approval.

What is in this trio? There is sarolaner, which kills fleas and ticks by blocking invertebrate gamma-aminobutyric acid, or GABA-gated and glutamate-gated chloride channels. In the parasite, this action stops chloride ion flow, causing uncontrolled nerve firing, muscle spasm, paralysis, and death in the target parasite.

Moxidectin. I think we've talked about that before. This is a macrocyclic lactone antiparasitic drug. It binds to glutamate-gated, again, and GABA-gated chloride channels in the nerve and muscle cells of parasites. Same effects, killing the parasites.

Pyrantel, our favorite from pinworm. This acts by depolarizing the neuromuscular blocking agent. It mimics the neurotransmitter acetylcholine. It stimulates the worm's nicotinic receptors. It inhibits cholinesterase, and so you end up with a sudden continuous muscle contraction. You get this spastic paralysis. The worm loses its grip and passes in the stool. In the case of, I would say, the maggots, the larvae, they're paralyzed in rigor, basically. I like killing screwworm maggots. I don't feel bad in any way that they're paralyzed.

All right. Ebola. Not going well. From the Africa CDC, we have the press release three months into the Bundibugyo Ebola. Did I do that?

VR: Bundibugyo.

DG: Bundibugyo?

VR: Yes.

DG: I'm going to have to keep working on that. Bundibugyo Ebola outbreak. Now is the time for decisive action. I think we've talked about it. We're farther. We're probably eight months in, actually. We're seven or eight months, not just three.

VR: Yes, I think so.

DG: I'll read the last couple of paragraphs from this Africa CDC. "The current outbreak is already the deadliest Ebola outbreak in the history of the DRC, the fastest-growing Ebola outbreak on record with a case fatality rate approaching 50%. It's now taking approximately one life every 30 minutes. Unless its trajectory is urgently reversed, it risks becoming the

deadliest Ebola outbreak ever recorded globally, the world cannot wait for that project to become reality. Behind every number is a person, a family, a community living with fear and loss. These deaths are not inevitable."

"We call for a humanitarian ceasefire and safe, sustained access for healthcare workers, humanitarian responders, and essential supplies. We call on governments to lift blanket travel and trade restrictions that are not grounded in science. Such measures push people and goods through unmonitored crossings, disrupt supply chains, and make containment more difficult. This crisis is also a stark reminder that Africa must accelerate the local manufacturing of diagnostics, therapeutics, vaccines, and other essential health commodities." I'll leave a link into that.

We're up to, confirmed cases, 5,105, confirmed deaths, about half that number, 2,420. I put in a little map just so you can see. The DRC is really huge. It's really this - right in the heart, center of Africa there.

All right. Measles. Basically, we added another 100 cases just this last week. We're up to 2,632. I always go through this map every week, but I'm going to actually point out this time, you can actually not only look at how many cases are local spread, how many are imported. You can see not too many are imported. That rhetoric that, "Oh, it's a worldwide problem and they're just coming into our U.S.--" that's a lie. That's dishonest. This is our problem. These are mostly local cases. You can see looking at the map.

You can also click at another button, the MMR rates. You get basically, red's bad, blue's good. You can see what the different vaccination rates are in the country relative to a lot of these outbreaks. I can see places like Utah, New Mexico, not great. You got a lot of cases going on there. It is interesting. You really have to zoom in because this is really a granular issue. If you have a local community, even if you're surrounded with all this good MMR vaccination rate, if your local pocket doesn't have high enough vaccination rates, you're going to get yourself into trouble here.

VT: Big blue dots there.

DG: Big blue dots, because we're now in thousands of these cases.

VR: These are confirmed cases. Carolina's are the most.

DG: South Carolina has a huge amount going on there, our big area at the moment. We have a couple of interesting things in the measles section. Part of it, I think, is hopefully this is us educating, this message we send. Vaccines. "Do Vaccinated Cases Transmit Measles? A Systematic Review and Meta-analysis," was published in *Expert Review of Vaccines.*

I think our listeners know the answer. Here, this group reviewed evidence on whether vaccinated individuals can transmit measles and conducted a meta-analysis to understand transmission characteristics. I love this because they're going to look at the peer-reviewed and the gray literature, and included studies reporting measles transmission events from vaccinated individuals. They meta-analyzed the data to calculate the median number of transmissions from vaccinated cases by measles burden, number of doses, and time since first and last dose. They identified 11,911 peer-reviewed, 22 gray literature records, and included 33 articles in this review.

Seventy individuals received one or more doses of measles-containing vaccine-transmitted measles viruses, resulting in 237 secondary cases. Vaccinated transmitters in eliminated areas were older than those in non-eliminated areas. Additionally, 91% of studies provided data on subsequent transmission generation, leading to 812 measles cases traced back to vaccinated individuals.

There's a couple of things here. One is that measles transmission from vaccinated cases, although relatively uncommon, must be considered because these can contribute. We've talked about the numbers. On average, one person, unvaccinated, gets measles, transmits it to 20 people. It probably takes 20 vaccinated people before you get one onward, so about a 400-fold reduction in transmission by getting vaccinated. As we've said many times, vaccines prevent severe disease, but they don't prevent infection, and they do not prevent all transmission.

The article, “County, District and Community-level Measles Transmission in the United States in 2013-2025,” was published in *Nature Communications*. I think our listeners are well aware that about 26 years ago, so back in 2000, the United States declared measles eliminated. In 2025, 2026, more than 3,500 cases have placed that status under formal review. As these authors point out, vaccine hesitancy accelerated by COVID-19 disruption and misinformation has eroded the immunological buffers sustaining elimination.

What they're going to say here is current surveillance compounds this threat because county-level vaccination aggregates structurally obscure the fine-scale susceptibility clustering where outbreaks originate.

They go through this really robust analysis. They assemble a nationwide, multiscale vaccination database, look at 45 U.S. states and Washington, DC, 2013-2025, 50,000 schools, 13,000 districts, 3,000 counties. They developed this transmission model to quantify epidemic risk across different spatial scales. Basically what we're seeing is the way we currently aggregate, you're really losing the fine details. Instead, what we're seeing with this boundary misalignment, you've got well-vaccinated counties above threshold, but then you've got less vaccinated populations.

The spatial architecture of the U.S. measles vulnerability has fundamentally shifted. Transmission potential is super critical in schools, but invisible at the scale monitored by surveillance.

Preventing measles re-endemnicity requires surveillance and interventions operating at school and district levels where imported cases can be intercepted before igniting sustained transmission. I want to point out, when they say "imported," they're not talking about coming in from Mexico. They're talking about cases being brought into that school.

All right. We read this article in *The New York Times*. “More U.S. Parents Opting Children Out of Vaccine Requirements, CDC. Reports.” At a time when measles and other potentially deadly diseases are spreading, more American children are receiving exemptions allowing them to attend school without the routine childhood shots that can protect against these illnesses.

Roughly 4% of kindergartners in the U.S. were given a non-medical exemption for at least one vaccine during the 2025-2026 school year, an 18% jump from the previous year. This rise is the largest annual increase recorded in more than a decade. This comes as a growing

number of states look to loosen vaccine mandates or even do away with them entirely. They've got some nice graphs where you can really see going from this less than 2%, this is non-medical exemptions, really rising to 4%.

VR: This is very concerning because measles is not a trivial disease. I don't understand why parents are letting their kids be susceptible.

DD: They've got a second. It's not just measles that we're losing. Look at polio dropping down below the target. Whooping cough is dropping down as well. That's pertussis.

VR: Daniel, what are people thinking?

DG: It's tough because clearly parents love their children, they want to do what they think is best for their children, but there is a group out there that is misinforming, really preying on them for political and economic advantage. They're being scared. We keep covering this. They're being told that the vaccines are dangerous, that 82% of women that get the vaccine end up with an abortion. That's not true.

We need to keep actually educating and sharing the truth because this billion-dollar industry that's basically misinforming these parents. They feel like they're doing the right thing by their kids, but unfortunately, they've been misinformed.

VR: They have to start listening to other sources like this one, right?

DG: Yes. It's really funny. I remember when we were spending all this time trying to get people to stop smoking. As an infectious disease doctor, it's bad for business if I can get people to get vaccinated. I see less sick people. I earn less. It's really funny. Here we are basically trying to put ourselves out of business. There's a *CIDRAP* piece, "The Threat of More, Expanded Measles Outbreaks Looms with Start of School." For the much older clinicians than I, this was always a problem. You had measles, but then you put all these kids together in the school. They point out here that schools are high-risk settings. Schools are high-risk for measles. This is from Zack Moore, the North Carolina state epidemiologist and president-elect of the Council of State and Territorial Epidemiologists. Kids tend to have more physical contact with each other than adults do. Classrooms are confined spaces. Also, particles of the measles virus can remain in the air for up to two hours after an infected person leaves an area. As students move from room to room throughout the day, they can become infected, even if everyone in their own class is healthy.

A pernicious aspect of measles is that its first symptoms resemble other respiratory illnesses, and people are infectious up to four days before you get that characteristic rash. That puts the onus on school nurses to know which students are unvaccinated or immunocompromised and to work with other public health officials to identify exposures in the event of an outbreak.

Unfortunately, a percentage of the people who get measles will die, suffer life-altering complications including blindness, hearing loss, permanent scarring of the lungs, intellectual disabilities, and other lasting neurological deficits. Additionally, the virus can erase preexisting antibody cells and leave people vulnerable to other viruses and bacteria for years. That's the risk of measles as opposed to these incredibly safe vaccines.

Flu. Let's talk a little bit about flu. I'm going to start off with the mRNA flu vaccine. In *JAMA*

Medical News, we have the article, “What to Know About the mRNA Flu Vaccine, Newly Approved by the FDA.” Actually, people are already getting their little alerts, "Hey, time to schedule your flu vaccine." The FDA granted Moderna's mRNA-1010, the mFLUSIVA influenza vaccine.

I'm going to break this down. If you're 50 to 64, you've got traditional approval. If you're 65 or older, they have this accelerated approval. What is the story? Why the difference here? It's based upon the study. They've got this, and we've talked about the study, phase 3 trial of this Moderna mRNA flu vaccine. They gave it to volunteers 50 years or older. They compared this to standard doses. If you're 50 to 65, normally, you would get the standard dose; 65 and older, you get the high dose.

Here, they looked at those folks, 27% more effective than the standard dose. They also looked at older folks, but the issue is, how does this compare to the high dose? We know from this trial, mRNA vaccine was as effective in participants 65 years or older, although we just don't know if it's superior to the high dose. I'm going to put that out there.

I think there's an optimism. 27% seems better than the high doses done to standard in the past. We're anticipating, as we get the ongoing phase 3 trial data, that we're going to actually find out whether or not it's superior. What do you think, Vincent? What are you going to look for this fall? I know as a 50- to 65-year-old individual, I'm going with the mRNA flu shot. You?

VR: Yes, I would like to get the mRNA flu shot because I think it's likely to have greater antibody breadth like the COVID vaccine does. I don't know if it's going to be available this season. It's not available so far.

DG: Actually, Moderna says it will be available. It'll be out there. We're still in August. Summer's not quite over yet. We really talk about end of September, early October as a target date. They say it's going to be available, so we'll have to keep everyone up to date.

VR: I'm going to Europe at the end of September, so I need to get one in the beginning of September, so I'll have to get the traditional.

DG: Fingers crossed. We'll see what happens. Got a couple weeks to go. All right. This one is a preprint, and I wanted to discuss it because people are going to be a little surprised and try to figure out what's going on here. “Oseltamivir for Critically Ill Patients with Influenza: A Randomized Trial.” This is a *Lancet* preprint. I read that first, and initially, I'm like, "Boy, critically ill patients. This sounds like when they were trying the monoclonal antibodies and waiting until people had been sick for a week or two and basically giving people an antiviral during the inflammatory phase." I'm not going into this with a lot of optimism, by the way, but let's see what they find.

This group evaluated oseltamivir for five days, oseltamivir for 10 days, so Tamiflu for five days or 10 days versus you don't get any antiviral treatment. They're looking at critically ill patients aged 12 years or older with confirmed influenza severe respiratory infection. The primary outcome is going to be 90-day mortality. Between March 1, 2020 and March 13, 2026, that's quite a stretch here, 442 participants were randomized to receive five days, 162 in that group, 10 days, 156 in that group, or no antiviral, 124.

They stopped. They've got a scheduled adaptive analysis where they basically five versus 10.

What is an adaptive analysis? You stop, and then what you find at this point is going to predict what you do in the future. They're basically five versus 10. There's this predefined inferiority threshold. They say, "OK, at this point, what we find in our interim adaptive analysis, we're going to trigger cessation of recruitment," and then they're going to follow them at this point.

By day 90, 13.7% in the no antiviral group, 19.8% in the five-day, 19.4% in the 10-day Tamiflu group had died. That's quite a bit higher. The median adjusted odds ratio for 90-day mortality was twice as high, so 2.13 for five days of Tamiflu, 2.17, twice as high for 10 days of oseltamivir. Basically, you were better off not getting any antiviral. For the five and 10-day oseltamivir treatments, the posterior probabilities for harm were actually 98% and 98.2% respectively. They basically say, "Hey, treatment with Tamiflu in critical patients is not effective, and it's actually highly likely that it increases the 90-day mortality."

What's the story? I think a lot of people are surprised. One is, it's too late, so I appreciate that maybe it's ineffective, but doubling your risk of dying? What happened there? This data is from the REMAP-CAP. This is this ongoing trial looking at upper respiratory and lower respiratory tract infections. There's even an ongoing evaluation of baloxavir, and when we get that data. Xofluza, we'll let people know.

The first thing I noticed, you can go through the tables and look at my first issue. Is it too late? They enrolled patients that had about five days of symptoms prior to even being recruited into the study. We're past what most of us think as the viral phase. Yes, the majority were already on high-flow nasal cannula or intubated. Subgroup analysis suggested higher probabilities of harm in patients with more severe illness at baseline, such as shock or proven bacterial infection.

I was concerned about the antivirals being started too late, but the authors also pointed out something that really resonates with some of our discussions. They point out that observational studies of oseltamivir typically report only in-hospital mortality. Now, the short-term mortality impact of critical illness actually continues to manifest after hospital discharge. Remember all those clapping everybody out, and like, "Now, it's all good"? They point out that this is why all-cause mortality after 90 days or out to 90 days is really the preferred endpoint for randomized trials in this patient population. What were your thoughts, Vincent?

VR: First of all, if the viral phase is over, how could this have any effect at all? I don't understand.

DG: It shouldn't help. It shouldn't have any benefit. Why did it harm? What was the harm issue?

VR: I don't know what the harm would be. That doesn't make much sense to me, because both populations are treated the same with the exception of the antiviral. I just don't understand that at all.

DG: Somehow Tamiflu is having some negative effect on these folks. That raises-

VR: Has this ever been seen before? Has this been seen before?

DG: No. Actually, I think that was what has surprised people, because usually you're treating

earlier. Usually you're just looking at in-hospital mortality or progression to the ICU, so you're trying to target in the first 48, 72 hours. They're actually saying maybe timing isn't even as critical. Maybe you need to look long-term. Maybe there's some long-term effect. I think it'll be interesting to see, this also what we see with baloxavir. I would think so. I think not. I think there's probably something about a Tamiflu side effect.

VR: I hope so because we do need to have at least one antiviral for influenza.

DG: I think you need to use it early. That's always been what we've seen in the past. Get it within the first 48 hours, you see a decrease in people ending up in the hospital, et cetera. People, they're a bit sick five days before they even get randomized, probably day six before they get their first pill. A week is too late.

VR: I don't understand why you'd do this trial at all if you're going to treat them so late because that's just going to muddy the whole interpretation. You should give it early, but then you don't know who's going in the hospital. That's the problem.

DG: It's interesting because this is actually considered standard of care. If somebody is in the hospital, they get Tamiflu. If they're critically ill, they get Tamiflu. This is the WHO list of meds. I think this is good to do the study to say, "Is that good advice?"

VR: I think if you give it earlier, it has a positive effect. Do you treat patients in the hospital with flu, with oseltamivir?

DG: We certainly, if they're within the first 72 hours, definitely do it. Actually, it has been pretty standard if they're sick enough to go to the ICU to get Tamiflu. This would actually impact what people are doing.

VR: Do we know how long after infection these patients are?

DG: Yes, they're at least five days after symptom onset before they even get recruited. It's a nice Table 1.

VR: It's late, right?

DG: I initially saw they're already in the ICU. You don't end up in the ICU in the first 48 hours. They're already advanced to high-flow nasal cannula there. It definitely was too late to start treatment as we saw.

VR: It seems to me that if you have an over-a-certain-age population who tests positive, you should just give them Tamiflu without waiting.

DG: I think that's the whole issue. We actually successfully did this with the Medicare Advantage population. You've got it home. You've got the ability to test. You've got the flu. You've got a little box, Tamiflu's in there. Bluetooth, it opens. You want to start as soon as possible. What we're seeing here is if you wait, clearly, five, six days after your symptoms start, it's not helpful, and actually looked like, in this context, harmful.

VR: Maybe the outcome is you do not give it to hospitalized patients.

DG: You don't give it to maybe critically ill when it's been that long. If someone gets sick, ends up in the hospital, they've only been sick for two or three days, we have good data on

that. They're going to say, "Your good data didn't look at 90 days. If you go out to 90 days, maybe you'll start to see this signal."

VR: What does critically ill mean? Is that ICU or intubated?

DG: ICU.

VR: OK.

DG: All right. RSV. We've got some more good data on nirsevimab. This is, “First and Second-year Outcomes after Nirsevimab Immunization,” published in *JAMA Pediatrics*. Just to give people context, RSV has historically been a huge problem. It hospitalizes 1.4 million babies around the world each year, making it the most common cause of hospital admissions for respiratory disease in infants. The virus kills nearly 46,000 babies under 6 months of age every year. Here in the U.S., historically, it's been the number one thing filling our pediatric, our children's hospitals in the winters.

Here is a cohort study where they analyzed two nationwide match cohorts using the French National Health Data System, including infants born in metro France before the 2023 and 2024 immunization campaigns. Infants receiving nirsevimab were matched one-to-one to un-immunized infants. Both cohorts were followed for a year afterwards with an additional second year of follow-up.

This cohort study included 74,672 infants in 2023, 175,526 in 2024. These are little kids, so at baseline, the mean age was 4.5 months in the 2023 cohort; 50-50, a little more male than female. The mean age in the next year, the 2024, also 4.8 months, so pretty young kids among 37,366 infant pairs in 2023 and 87,763 pairs in 2024. The RSV, lower respiratory tract infection-related hospitalizations during the first year of follow-up occurred in 0.8% in the immunized, 2.4% in the un-immunized, and then follow 2023, 0.5%, and 1.9%. Clearly, nirsevimab was associated with a lower rate of the RSV, lower respiratory tract infection-related hospitalization, both in 2023 and 2024, with effectiveness estimates of 66% and 72%, respectively. Associated with higher rates of hospitalization for ear, nose, and throat bacterial infections was observed. No significant association was observed for other outcomes. During the second year of follow-up, no protective association. Really, it's that first year that you're getting your benefit.

That's the monoclonal for the babies. What about vaccination for mom? “A National Program of Bivalent Prefusion F Vaccination in Pregnancy and Protection against Respiratory Syncytial Virus Hospitalization in Infants Until Age 6 Months in the UK: A Multicenter, Prospective, Test-negative, Case-control Study,” was published in *The Lancet Child and Adolescent Health.* Here, we're looking at mom getting vaccinated during pregnancy to protect the infants.

In late summer 2024, the UK introduced the maternal bivalent RSV prefusion vaccine for all pregnant individuals at a gestation of 28 weeks or more. After an initial catch-up phase, the maternal RSVpreF program transitioned into year-round delivery. Between September 2, 2025, January 1, 2026, 1,356 infants were admitted to participating sites and screened for eligibility, 694 of whom were included in the primary analysis. We end up with 429 RSV positive infants, 256 RSV negative infants. Median age was 2 months, so little babies here.

Ethnicity data was available for 693 mothers, of whom 78% identified as being of white

ethnicity. The mothers of 161, so 38% RSV-positive infants, and 66% of RSV-negative infants had received the vaccine before delivery. We end up doing a calculation. Basically, the adjusted vaccine effectiveness for preventing infant hospitalization admission was 61%. Not bad.

VR: 76% for 3 months?

DG: Yes. All right. I was talking to my daughter, Daisy, who's a pediatric ICU nurse, that this coming winter, I'm really hoping that this is going to transform her experience of what they're seeing in the children's hospitals. Particularly in New York, I think we're going to have good uptake. Vincent, our COVID multicolored curves, what do you see in there?

VR: I see little bumps now.

DG: They're little. They're still in the very low. They have not even quite entered the low. Interesting. We're end of August.

VR: All the lines for the different regions have not continued to rise, right?

DG: Yes. Unfortunately, this data is a little old. 8/8 is where we are. We'll have to see.

VR: People are reporting COVID now. You're seeing it?

DG: Yes, we're starting to see a few cases. This data is a little behind. We have some issue about how reliable this data is that we've talked about. Unfortunately, we're having all this misinformation about the vaccines, which is not going to help this winter.

We have this article here, which I will share in *The New York Times*. "Trump Officials Falsely Connect COVID Vaccines to Miscarriage." Prominent Republicans and others have claimed this week that the shots aren't safe for pregnant women, but years of data show otherwise, seizing misleadingly on old text messages of Dr. Anthony Fauci that were recently released by Republican senators.

Regardless of vaccination status, 10% to 20% of known pregnancies end in miscarriage. It's important as a baseline. This was true long before the pandemic. Rigorously conducted studies use these figures as a baseline to compare miscarriage rates after COVID vaccination.

A British meta-analysis in 2022 reviewed 23 studies on COVID vaccination that cumulatively included about 118,000 people vaccinated during pregnancy. Another in 2023 reviewed 21 studies with about 150,000 pregnant women. Neither found an association with miscarriage. The 2022 analysis found that vaccination was associated with a decreased risk of stillbirth. A more recent study published by the CDC and other researchers reviewed some 23,000 pregnancies among women vaccinated between December 2020 and June 2021 who participated in the agency's COVID-19 vaccine pregnancy registry. The study found that the vaccinated pregnant women did not have more preterm births and perinatal deaths compared with the general population in 2019 before the pandemic.

Now, important to put this in context, right? They're scaring pregnant women, ultimately trying to get them not to get vaccinated. Now, nearly one-third of pregnant women who had COVID from January to June 2020 had to be hospitalized compared with 6% of non-pregnant women of the same age. Pregnant women with symptomatic COVID were more

likely to require ICU, mechanical ventilation, and specialized heart-lung bypass than non-pregnant women with symptoms. They also faced a 70% higher risk of death.

VR: It's huge. This is malevolent on the part of the Trump administration.

DG: I think the tough thing is they don't see it that way. They believe, they are misinformed. I don't think these prominent Republicans actually realize, or knowingly, are trying to put these pregnant ladies in harm's way. There is this really vocal misinformation going on. They hear all this stuff. They look at Fauci's - Actually, I looked at these text messages. They actually were reasonable. I hate when people say data-free because nothing's really data-free. Basically, talked about early on, before we've done these studies, which we're now talking about, if you're asked a question like, "Should a pregnant individual get vaccinated? Is it safe?" You've got to do these risk calculations and say, "Well, we do know that during pregnancy, people are at higher risk. Vaccines historically have been safe." I'm not sure it's data-free; I think going into it, you would be surprised to not see that vaccination against a serious respiratory illness was not going to result in protection.

VR: Why is it just Republicans that are doing this? The Democrats don't do this. It's a political thing. On top of that, the Republicans don't even understand the data. They're not qualified to make a statement on this. It's up to public health officials.

DG: I think that's really what's probably the most upsetting. We used to live in a country where there was the humility to defer to experts in a field. Here we have, basically, politicians giving health advice, thinking they can look at the data, thinking they can look at the information. It used to be we would say, "Let's get an expert who knows about this. Let's defer to them." Now it's, "Oh, if you're an expert, you probably have your own political agenda." No. Those of us in medicine and science, with rare exception, we try to be honest. We try to follow what the evidence dictates.

VR: The only outcome of this is bad, in that people are going to get sick. In this case, pregnant women are going to get sick. 70% get hospitalized, higher risk of death. This is just a ridiculous outcome.

DG: It's terrible. It really is. All right. Well, I'm going to wrap us up with: this was a viewpoint published in *JID (Journal of Infectious Diseases)*, "Beyond the Acute Illness: Three Myths About Viral Respiratory Infection." I liked this. I'm going to leave in a link. They start off with this introduction:

"A trained marathon runner can't run more than three miles weeks after SARS-CoV-2 infection. An elementary school teacher struggles through the school day for months due to fatigue after catching a bad cold floating around. A septuagenarian is unable to return to her home and garden after a short influenza-related hospitalization. While these stories used to be seen in isolation, the COVID-19 pandemic highlighted potential long-lasting consequences of viral acute respiratory infection. Despite increasing attention, critical gaps in understanding what these effects look like in real-world settings, who is impacted, and how clinicians may best help patients fully remain. Here, these gaps are highlighted by exploring three common misconceptions."

Myth #1: "It's just an acute respiratory illness." One widely held misconception is that these infections affect only the respiratory system. Some patients can develop long-lasting systemic consequences such as fatigue, cognitive impairment, and brain fog, or worsening

physical functioning.

I would go on and say or have heart attacks or have strokes.

Myth #2: "Severe acute respiratory illnesses and long-term morbidity only occur in young children, older adults, or the immunocompromised." They go through pointing out. We saw this introduction. We had marathon runners who couldn't do this. My wife was a runner. She had trouble going up a flight of stairs for weeks after getting COVID.

Myth #3: "We're providing needed care after the acute infection phase." Unfortunately, that's not true. We're falling down. We've got so many people, just to use Long COVID as an example, really struggling for months to get into these specialty clinics. A lot of them have closed down because it just didn't allow them to make money in our capitalist model. I'll leave in a link, but this is a good article. I think it resonates with that we should be looking at 90-day outcomes in our interventions because it isn't just getting out of the hospital, it isn't just the 30 days. We see increased risks out 90 days, and even farther in some settings.

No one is safe until everyone is safe. We are in our ASTMH fundraiser. We're actually trying to do something special this year. We're going to create an ongoing Dickson Despommier One Health Lecture Series. We're going to announce this at the American Society of Tropical Medicine and Hygiene fundraiser. We're going to continue to support our scholarships for women from low- and middle-income countries to come to this annual meeting; we're going to sponsor the president's dinner where they're going to announce. It's really more of a reception. I don't think you get dinner, by the way.

We're hoping to actually get up to a maximum donation of $100,000. Go to parasiteswithoutborders.com. Click on Donate. Those of you that remember Dickson Despommier, I think this is really going to be a special way of remembering all that he did.

VR: It's time for your questions for Daniel. You can send yours to daniel@microbe.tv. Mary writes: "I'm a longtime listener to clinical update. I always look forward to Friday night or Saturday morning when the update comes out and again to *TWiV* on Sunday. I also listen to as many as I have time for of the *TWiP*s, *TWiEVO*s, and all the others. I'm attaching a PDF of the backs of the two vaccination records my mother kept for us kids. I thought you might be interested in how recommendations in Oregon changed over the decades, especially the ones for polio.

The top form is from 1961 when I was 11. The bottom is, when I was 27 in 1977. My polio vaccination notes on the other side showed that I had a booster in 1961 when I was 11 and a cube in 1962 when I was 12. I remember having injections as well as does my older brother, but it's not in the record, so my memory might be faulty. My mother was a nurse, so she ensured we got whatever vaccinations were available, but I wonder if my record is missing injections or other boosters.

I was motivated to check into my vaccination record because of the question another listener had with concerns about measles: immune amnesia. I don't remember when I had measles, if it was before or after the polio vaccine. I checked with my older brother. He thinks he was about 10, so I would have been 8 plus or minus if we had measles at the same time, which would be very likely. If that's the case, then the OPV at least would have been taken after I had measles. If these two OPV doses were all that I received, and if I had measles before OPV, is it reasonable to still consider myself protected?"

DG: One, this is great. Let's take a look at these cards. These are just neat. I would go to a museum where you can see stuff like this, just the history of our public health.

VR: What's interesting is the first one, which is 1961; there's no measles vaccine there. It didn't come out until later. Then the next one, which is '77, then you have the measles, which are still the individual. It says you could get MMR, but they also still have the individual doses.

DG: Yes, that's neat, right? Measles, mumps, rubella. Yes, so Mary, you're good. Did you have any comments? Because this is right up your - Basically asking about polio. She got two of the - I like the fact that they say the sugar cube, right? Because that's going to be your sugar cube with the big stuff on there, the oral polio.

VR: Yes, you got the doses after measles. As is pointed out here, polio circulated in the U.S. until '79. It's likely you got boosted as well by that community circulation. I'm sure you're OK.

DG: All right. Mary, good deal.

VR: Gina writes: "Thanks to you and Vincent for your weekly reports. I've been listening since a friend at UC Santa Cruz, who is a professor of MCD bio, recommended the podcast to me near the beginning of the pandemic. You have been a strong voice of facts and reason. I am grateful. My question is this. My sweetie and I-" I think that's cute, isn't it?

DG: [laughs]

VR: "My sweetie and I provide some care for his mother, who is 86 years old and about eight months ago finished chemo after radiation and brain surgery for brain cancer. She had been getting treatment for brain cancer for about two and a half years. We masked the entire time to ensure we did not get her sick and create even more work for her already-depressed immune system. We were so happy once she was six months out from her last chemo and was declared cancer-free. We stopped masking given COVID-19 levels have been so low.

This week, you said COVID was starting to climb again. Sure enough, I checked our wastewater data, and this is the case in Santa , too. What is a good decision point for us to start masking indoors again to protect my mother-in-law? Our decision to stop masking six months post her last chemo was a little arbitrary. To make this question even more stark, as I was walking my dog this morning, I ran into a friend whose husband just tested positive for COVID this week. The K-12 school has just started up 10 days ago, so I imagine we're about to see more cases here rather than this being a really small blip."

DG: The timing issue. If you're out there and you run into your friend and your friend's husband just tested positive, well, I would worry about your friend testing positive or even being asymptomatic and you then having this exposure if you chat for too long. Schools, as we mentioned, that's always a concern as we go into the school season, we often see these rises.

Also, in the link I leave in, not only can you look at nationally and regionally, but you can actually zoom into state level, or as you mentioned, you can actually zoom in even more. It's your threshold. When are you willing to take the extra precautions? Someone who's older,

someone who has cancer, someone who's been through chemo, we're looking at a higher-risk situation than just someone in the middle of their life for pretty bad outcomes. People still end up in hospital. We still lose tens of thousands of people each winter.

VR: Maria writes: "I have a different perspective, Dr. Griffin. I've been listening to your clinical updates since COVID. At the time, I was the rehab doctor for our COVID unit. The information I learned from you during that time helped me answer tough questions from scared family members and the team I'd worked with. I took care of patients who tried really hard to die." Not to die, maybe. "I saw many of them continue to struggle, unable to go home, instead going to skilled nursing facilities.

While listening to you over the years, I've gotten the impression that you feel we, as doctors, are in part to blame for the current grievances of the public toward the medical community. Do you think doctors' communication skills are truly to blame? I apologize if I misunderstood and for getting defensive. I am just so demoralized from blaming myself for something that appears to be a systemic issue in healthcare. It's incredibly tough to continue absorbing the anger of patients. After that anger materialized into a threat to my life, I actually decided to quit patient care altogether.

I share all of this to explain why I feel so passionate about this and where my bias may lie. Putting the blame on doctors' communication skills may miss the bigger picture. We've been witnessing a systematic destruction of trust in scientific institutions over the past decade. It's fueled by widespread and pervasive propaganda that's driven by forces greater than one individual or country. How can we possibly compete with an entire machinery of misinformation?

Perfect communication skills won't allay the fears of a patient who refuses Tylenol because a politician said it causes autism. It won't help with someone who insists the COVID vaccine is the root cause of their laundry list of chronic medical problems. Taking the blame for our patient's skepticism is a bit of a savior complex. It ultimately does both ourselves and patients a disservice. If you made it this far, thank you for listening to my ramblings, and thank you and Vincent for everything you do."

DG: Maria, this is great. I'm glad that we read this on the show because there's a lot in here. One is I think it's terrible. This is a physician who is no longer practicing because of how horrible this became. Basically, the anger that patients are having turned up by political and misinformation people. Yes, you're right. This is one of the things we're trying to combat. There is a widespread, pervasive propaganda campaign that is anti-science, it's anti-medicine. It's aimed to undermine so much of what we've built over time.

It was interesting when that first email, where it was, "My mom was a nurse, so of course I got all the vaccinations," we're actually seeing, even in the nursing community, growth in the anti-vaccine, anti-science. That's really disturbing. It may be that there's a lot of changes that are even more than, forget about the propaganda, forget about the fact that physicians are now mostly employees of these large companies. There's a reason why I'm independent from UHG and Optum. It's because they don't want the exposure of promoting science when that might have a negative political exposure for them.

Maria, you should personally not feel as though you've fallen down on the job. I think we all need to work on science communication, but not everyone wants to do that. We have a lot of people; we try to get them on the show. They don't enjoy this, and they don't enjoy the

death threats and all the anger that gets targeted at them. I think it's really a shame that anger has made it unpleasant for you to continue to be a provider. Vincent, before we go on, what are your thoughts? We try to get everyone out there to do science communication, but it can be unpleasant at times, right?

VR: I think she's right that it's not all a failure of doctors to communicate; it is a failure in the healthcare system, right, which has been ongoing and now is getting worse and worse. I do think that doctors have some role to play in communicating, at least with their patients, right? They have to learn what to communicate properly. That's part of being a doctor, I think. I think you can't not have that. I do think the bigger problem is the disruption of healthcare, but that's also part of it.

John writes: "Thank you, Vincent and Daniel, for your important, credible public health information. I live with my partner who has suffered from Long COVID for almost four years. It is discouraging for both of us. She contracted Long COVID about four weeks after we both had a bout of acute COVID despite having three Pfizer RNA vaccinations. We've tried all the various suggestions to ameliorate the symptoms that include PEM, brain fog, and some mast cell activation. Now we are attempting a trial of microdosing a GLP-1 agonist with some easy success, but it's too early to gauge the results. She's not in the current Scripps trial as we live in BC.

I'm aware there is a current trial in Canada using two medications separately: upadacitinib and pirfenidone, with their usual therapeutic suggested dose. Do you have any current information about medication that may be effective, and do you have any update on the Canadian trial using upadacitinib and pirfenidone? Thank you for the weekly updates. I look forward to your podcast each week."

DG: John, I appreciate your writing in, and I'm sorry to hear about all the different symptoms, the post-exertional malaise, the brain fog, the mast cell activation. There are a number of ongoing trials that took a while to get going. There was a lot of early on just classifying. As there are trials that come out that show there are particular benefits, we will certainly include those in that last Long COVID section.

VR: Michelle writes: "My daughter is pregnant with her first child due early November. We're trying to figure out a couple of vaccine questions. First, she needs to get a COVID booster in this third trimester, but the full ones are not yet available. She has only had COVID once, and that was in April 2025, and no booster since. Is she better off waiting until the full ones become available or getting last spring's booster now, as COVID rates in New York City are slowly rising?

A second question: She's wondering whether to get a maternal RSV vaccine or wait until the baby is born to receive monoclonals. Any thoughts or recommendations? Thanks for all you do. As you probably can tell, my daughter and I have been listening to *TWiV* since March 2020."

DG: [chuckles] This is great. Yes, let's walk through. The first is COVID, what to do with the COVID booster. She's going to deliver early November. I think you're going to be able to get the COVID booster in September. I think that's going to be good timing. You'll probably start seeing availability in the next week or two here. COVID booster in September is great.

Flu shot, right? You want to get that during the third trimester, so that's going to be great

too. Probably they're already coming out now, so you're going to get that early September. Now here comes the question: What's better? Part of this might be a preference, and the other, it would make sense to do both if that was an option. The maternal RSV vaccine: We've talked about data where that's about a 60%, 70% reduction in the child ending up - Also, you get protection. Mom gets protection. There's a lot to be said for Mom getting the RSV vaccination. Then also, if potential, I don't see why—this will be an access and a financial issue—why can't the baby also get RSV monoclonals as well? I would start off now. Go ahead in September. Flu shot, COVID shot, RSV vaccine.

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

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

[outro]

[01:01:02] [END OF AUDIO]