

## **Dr. Ari Ciment Q&A**

What Happens Next – 01.30.2022

Larry Bernstein:

Ari, what's new in the hospital's Covid Ward this week?

Ari Ciment:

All across Florida hospitals. Looks like case counts are coming down, and because of that, hospitalizations are coming down.

Larry Bernstein:

Last week you mentioned that week over week, cases fell in Florida from 85,000 infections to 65,000 a week. Infections were falling by 3,000 cases a day. What do you see this week?

Ari Ciment:

IHME COVID data for all of Florida is on a decline including hospital resource use.

Larry Bernstein:

I understand that hospitalization is a lagging indicator of COVID infection.

Ari Ciment:

There is a tracker if you go to [MiamiDade.gov](https://miamidade.gov) and you look up the COVID-19 dashboard, it gives you the seven-day percentage is 22% today. I think last time we spoke it was 28%. The day before, it was 34%. That's local positivity rate.

There's a six percent change-

Larry Bernstein:

Ok, so the percentage of COVID tests that are positive is falling in Miami. What is the mix of delta and omicron variants currently in Florida?

Ari Ciment:

Yeah, the cases that we see are almost all Omicron. Omicron variant has superseded the Delta.

The hospitalization change is 33% less in the last seven days than it was the prior seven days.

Larry Bernstein:

Fantastic.

Why are there COVID mutations? Has the virus mutated in response to the vaccines or treatments? I heard a discussion that the mutations likely take place in immunocompromised patients because they cannot kill the virus successfully. What is driving the mutation process?

Ari Ciment:

It's worthwhile understanding a little terminology. This is an RNA virus, so a DNA virus has a self-checking mechanism that could correct itself more readily and easily. So you're going to have more mutations with an RNA virus. That's number one.

Do you know the difference between a variant of interest, variant being monitored, variant of high consequence? Do you know that?

Larry Bernstein:

I do not.

Ari Ciment:

It starts out as a variant of interest that has potential impact. So, when they first heard of Omicron this is something that has potential impact. Based on the mutations in the spike protein this could have potential impact. Then eventually, when it actually does have impact, it becomes a variant of concern. So right now the two variants of concern that have already demonstrated impact is Delta and Omicron. So, one of your listeners last week asked about BA.2, which is a lineage of the Omicron that is showing more propensity to be more transmissible.

The CDC, NIH, FDA, BARDA, and Department of Defense, every week or so, they study, what is the variant of interest? What's the variant of concern? Let's look at the lineages. And they say, what's on the horizon?

But as for your specific question, why is COVID mutating? There is a very good article which might be worthwhile reading by Sara Otto, in Current Biology, and she goes over the processes occurring within individuals, among individuals, and possibly among species. But the most common accepted reason for mutations is within individuals, immunocompromised patients.

Somebody has the disease, you're a factory, right. Because you can't defeat it, the immunocompromised person has the virus and you're hitting it with monoclonal antibodies, convalescent plasma, but it's selecting out mutations in the body for a variant. In the New England Journal of Medicine, look up this article. It was actually written before Omicron, in August. It's called "SARS-CoV-2 in Patients with Immuno Suppression."

And they go over some of the case reports. Adaptive evolution is one form a virus will evolve certain mutations on its own in an immunosuppressed person to make sure that it continues to survive. Then there's convergent evolution, which is seeing those mutations in all different

types of variants, meaning the Omicron variant, the Delta variant, the Alpha variant, all had similar mutations because they realized that's the best way for them to survive.

And then they mention this other type of evolution called saltational evolution, which is really the evolution in the Omicron, it goes multi mutational jumps. It went from Point A to Point F, right away. And that's really what happened with Omicron. So, Omicron was thought to have developed in somebody who was really immunocompromised and had COVID and maybe got convalescent plasma, monoclonal antibody over time, and then developed these mutations so that it could survive, and then it got out. I thought that was a very interesting way to look at it. There's also some literature by Dr. Darren Martin, talks specifically about Omicron.

Larry Bernstein:

Some scientists expect the virus to become less virulent over time. You hear, "Oh, Ebola, it kills its host too quickly so it will not spread. Delta was killing some of its hosts, but not that many like a fraction of one percent and it was contagious before killing its host. Do you expect COVID to become less virulent?"

Ari Ciment:

In an article today in the New York Times about Omicron and about COVID in general, that we should not expect the further variations to necessarily be less lethal. So that was a theory by Theobald Smith, who was a bacteriologist back in the 1800s, but that these viruses and pathogens will just evolve to maintain their own health and, and not die out, so they'll become less virulent, but more transmissible.

We discussed this earlier, about the, the influenza, the Spanish Flu?

It wasn't really so bad. It was a regular flu season. And then the summer of 1918, they had a second wave that was the very deadly wave. They have autopsy studies, they actually sequenced out the virus from the earlier wave and they compared it to lungs that had influenza to the later wave and they saw that they were different variations. So now, if it was true that it should mutate to a lesser variant or strain, you wouldn't have expected the second one to be deadlier.

Larry Bernstein:

Alfred Crosby wrote one of the definitive histories of the 1918 flu. In his book, Crosby describes the journey across the Atlantic by the Navy ship the USS Leviathan that transported US troops from the East Coast to the European battlefields. 2500 soldiers left Boston and half died from influenza during the voyage. Everyone got the flu, and it was only contagious for a week, but when the sailors arrived in France, they spread the flu to the local population. Scientists think that the flu jumped from the navy men to ducks, chickens and live fowl held in the ship's hold, and the flu mutated and jumped back to the men.

The men got the flu twice and then infected the local population with a more lethal variant. Do you think that lesson of the Spanish flu mutation process has any applicability to us now?

Ari Ciment:

That's very fascinating that you mentioned the possible catching it from... That was one of the, the, um, origins that we discussed with that article from Dr. Otto, Processes Occurring Among Species in Denmark, they had the infected mink animals.

That the mink was infected with COVID and then mutated within the mink. And then it came back and it infected the humans living next to the farms. They killed like 4 million minks.

That may be the South Asian mutation that we saw with Omicron was actually because there was some possible transmission to an animal and back. It's not uncommon. I've had patients come to me and they say, uh, "Oh, my whole family was sick. My husband, my two kids and not my dog, my cat. (laughs) I never had a dog infected, but that's interesting." So apparently, it's more likely to, to send it to an animal, but not back from an animal to a human, but I guess it's possible. And it's possible for that mutation to occur.

Larry Bernstein:

The historical scientific analysis of 1918 flu is dated. Science has changed dramatically over the century. Is there any new learning about the Spanish Flu given our Covid experience?

Ari Ciment:

I think you're going to learn more about the 1918 flu from COVID than the other way around. Like, we're not going to learn anything new from that, because they have limited anatomy still from that. You know, they have these-

... case reports that they just did six autopsies on lungs and it's not great. It's amazing that they were able to, to look at the flu virus from back then and, see the RNA, but it's very limited. And they actually did discuss that they saw, because they had the lungs, that they saw ARDS and they died from cytokine storm, but they still had some RNA virus within their lungs at the time of death.

Larry Bernstein:

New topic: quackery. At the beginning in March 2020, nobody knew nothing about anything. Doctors were doing their best. They threw the kitchen sink at their patients and some things worked and some things didn't. Randomized studies take time. But still even with randomized studies their conclusions may be wrong.

Ari Ciment:

Research takes a long time. I think we have to figure out a way to push forward the research and making clear what it is that we should be reading. because all these articles are coming out on ResearchGate you don't know what you can trust.

I think the personalities, you follow on Twitter, you're going to follow what they post, but remember all these articles are not peer reviewed. So, I think we have to develop a system where we could peer review things faster. I think that's one big thing that's going to come out of the, of the pandemic. It's going to be a non-peer reviewed, but this is trustworthy. because how do I know who to trust? That's the big problem that we've uncovered from the pandemic. So just to give you an example, I used ivermectin tons before when it first came out when we didn't have any other options, but when you have Paxlovid and molnupiravir and other things, should we use ivermectin? While according to Dr. Kory and the ivermectin people, they quote this article that was just published in Cureus. Itajaí is a city in Brazil and they showed that the regular use ivermectin led to a mortality decrease in a crazy amount, but it was 2.6% in ivermectin non-users and 0.8% in the ivermectin users.

Larry Bernstein:

Oh wow!

Ari Ciment:

There are 113,000 plus regular ivermectin users in the city, there are certain cities that didn't have access to medicines, so they used-

Larry Bernstein:

What they got.

Ari Ciment:

"Hey, you could use this." So now the caveat is, do you believe Dr. Kory? I'm not in a place to judge doctors. Here's the big take away from a regular, pulmonary critical care doctor who's pretty much apolitical when it comes to science. If it's a good study, I'll trust it. If it comes from a good source.

So, the universally recognized processes up to now was a reliance on the NIH, CDC, journals like New England Journal of Medicine, Lancet, Chest, Critical Care, American Journal of Respiratory and Critical Care. So, when I see the heads of those bodies talk about studies positively, or, "Hey, look, what's on the runway," then I'm going to trust them. But when I see sort of Renegade Doctors fixating on one medicine, I'm not as enthusiastic. Like, if that same doctor

was as enthusiastic as he is for ivermectin than he is for the monoclonals, which we're clearly having an effect, then I might believe that person more. You get it?

Larry Bernstein:

I do. We hear that some medical studies can't be replicated. That's fundamental to science. And there are certain countries where the problem is more common than others.

Ari how do you adjust your Bayesian Priors to evaluate the efficacy of a study that has an unexpected result?

Ari Ciment:

It's not the same evidence, depends on and where it's coming from, but also the inclusion exclusion criteria. So, if you look at the new studies, the Paxlovid and molnupiravir, those are unvaccinated populations. you'll see positive studies, in, in a certain population, you'll see negative studies with the same drug in a different population. So, a lot of it has to do with the inclusion, exclusion criteria, but I will say that these other scientists who I might have just been critical of, they will say that they've been marginalized and discriminated against. I do think that the New England Journal made a huge mistake when, this is my own personal opinion, when it was the week of the election when all of the editors came out decrying President Trump's dangerous COVID policies. Not because I disagree with their point that if that it is dangerous at that time to say that masks don't work. But the point that they took a political side just made it harder for somebody like me to believe that they didn't have any bias if there was any pro Ivermectin and pro Plaquenil study at that time. Again, we have much better therapeutics now, and I'm not even pushing for those drugs, but it made it harder for, for the run-of-the-mill doctor to really look and say, "Hey, there's no bias here. We want to say that there's no bias in the medical publication."

So, you really have to tease out the politics. And it's impossible every hardcore Democrat that, that we shouldn't have vaccine mandates and that every hardcore Republican believes in the Ivermectin and Plaquenil, it's impossible. The fact that they do, pretty much, all the hard cores on each side, shows you that there's a big political bias and you can't really use that to sway your own opinion. You really have to try to stay in the middle and try to be honest with what you're reading and see if it's scientifically sound.

Larry Bernstein:

Masks: certain people have mask religion and some people don't. I'll just give you an example of the public being ridiculous, and I include myself in this. We're outside, we get to a restaurant, we put on our masks and then we sit down and we take off our mask. Now there was no difference in health risk, as far as I can tell, between the period of time where we were wearing a mask and when we're not wearing our mask. Behavior Norms are established, "This is what we do. This is how we wear our masks." And yet there doesn't seem to be any scientific basis,

we're just following norms. I don't want to be a jerk. I, want to behave like everybody else. I'm not a mask Nazi or a mask dove. I'm just going to go along with the flow. Ari, does this make any sense?

Ari Ciment:

Right. It's hilarious because it's so true. I can't tell you how many times I had the same conversation with patients that have COVID and I say, "Oh, how do you think you got it?" "Oh yeah. I, I wear my mask a hundred percent of the time. I had a, a wedding the other night and of course, during the meal I took it off and, we were talking of course, only during the meal. You're right."

The best summary article is actually by the... You could Google him, Darrell Austin. I think he did a very good job of just looking at the current evidence that's out there because there's really, believe it or not, not a lot of hardcore evidence that masks work, in terms of rigorous evidence, talking about randomized controlled trials and, and even observational studies, believe it or not, there aren't that many, but he does a good job of listing some of them.

One of them is the most recent BMJ article. It's a global study showing 53% risk in COVID incidents, but cloth masks are only 30% effective, they're 40% effective, versus surgical masks that are 95% effective. But I think in general, just makes sense that you're blocking the airway and blocking the variants. a certain behavior. You're going to be more careful if you're wearing masks, you're not going to speak in people's faces.

Besides being a COVID doctor I'm actually a respiratory doctor, and we saw vast decrease in all respiratory infections when people wore masks during the winter months last year and the year before, and clearly it was decreasing the transmission of regular other RNA viruses.

So that stands to reason that it would work for COVID too. So, I don't really know where the mask shaming became but I think at some point like now we have to start living life and realizing that it's time to take off the mask, not all the time, but it, it... There is a time to take off the mask as well.

Larry Bernstein:

We're both in Miami Beach, we're not in Maine in January. We are outside in the fresh air and we can take off our masks. What is the relative danger of being inside versus outside?

Ari Ciment:

If I really was worried about this variant like I was with the other ones I would be strict as possible. I would say, "Wear it outside too if it doesn't bother you," But the reality is that not only is there a protective factor being outside, it's like being in a negative pressure room.

But masks, especially in, in children, I think it, it affects learning. So-

... I do think it's time to, to take it off, um, and, maximize life at this point and then... But be willing to put it back on should another variant... That's the big fear is that, you start letting go of everything, then boom, another variant comes in, how are you going to convince people to put masks on again?

Yeah. I think it's ridiculous, but-

... that's the reality.

Larry Bernstein:

You have to be so impressed with our society that in March of 2020 we adjusted our behavior en masse from a normal world to a secluded world overnight. There was an immediate recognition that COVID was a, "Oh my God, this is a catastrophic contagious disease and we need to change our behavior pronto" And, I don't understand why today we can't be more realistic about COVID's current morbidity and adopt norms of behavior that's consistent with its threats. And, the medical establishment is disingenuous as they seem unwilling to recommend changes to behavioral norms for fear that these norms cannot be reversed if the COVID threat changes to be more deadly.

Ari Ciment:

I think that's a beautiful point and it was beautifully said, but the reality is I think the politicians got in the way and really polarized the issue so much that it would be very hard to reinstitute, not only lockdowns, but-

mandatory mask wearing later on if, if something happens within the next year or two. It just would be harder.

Larry Bernstein:

When should you get a COVID vaccine booster if you just had Omicron?

Ari Ciment:

it's a hot topic, obviously. First, I'll mentioned that the literature is just out in Israel. First, they showed in terms of when you should you get the fourth vaccine?

Sheba Hospital, looked at 270 workers and they showed that there were increased antibodies, but it didn't prevent breakthrough in infections. And then the health ministry, came out and they looked at a much greater number of something like 400,000-

Israelis. And they saw that there was a tripling of protection against serious illness and doubling of protection against infections. So, they basically recommended for anybody over 60 years old and they, they expanded it for healthcare workers. There was also from Israel, just came out in



terms of kids, 12 to 15 years old, the risk estimates of myocarditis were actually pretty significant in boys and-

... not in girls, interestingly, right?

It was like eight per a hundred thousand, which is, which is a high number and it makes you wonder what is the case morbidity rate of kids 12 to 15 per a hundred thousand. And is it worth risking myocarditis for males between 12 and 15. For females, for some reason, they're protected. Not quite sure why, but it's like very-

Larry Bernstein:

And if kids have this inflammation of the heart, is it deadly?

Ari Ciment:

I'm pretty sure there were no deaths.

A couple days, at least in the hospital, typically they'll treat with something like IVIG and steroids and calm things down. The question is, what is the long-term effect of a young, 13-year-old who just had myocardial inflammation at, at a young age? Will he develop, uh, cardiomyopathy later on?

Larry Bernstein:

We give the vaccine to 100,000 kids. Eight kids come in with a heart inflammation. Maybe one or two have long-term problems. But 100,000 kids won't get the virus. There must be long-term consequences of getting COVID for kids. We don't know or appreciate it the extent of the pathology but we do suspect that the virus is a problem. These kids' conditions weren't so horrible.

Ari Ciment:

Right.

Larry Bernstein:

They didn't die. They got hospitalized for a couple of days. But, what would exposure to COVID do to these kids. Would it harm their heart, lungs, kidneys, brains, who knows what in the long run?

Ari Ciment:

I personally am a proponent of vaccines. My kids got it, despite knowing that there was a risk. Actually, my son who had it, he had an inflammatory reaction of some sort, like five days later.

I mean, we actually went into the hospital and he was okay. I knew this risk of some inflammatory issue., but you're right. If 100,000 people had COVID at that age, I bet you that the incident of myocarditis would be higher in that. But that's speculation.

That's a great point.

Your question was, your question was more of Omicron, if you had Omicron, should you- ... be vaccinated? So that is the topic of the article by Dr. Makary, who's at Johns Hopkins Public Health.

And he's a big proponent of natural immunity.

Larry Bernstein:

Define natural immunity?

Ari Ciment:

Natural immunity basically means you had a prior infection, so you have T-cells that are primed and B-cells making antibodies already towards the infection. So if you're infected again, you have naturally, innate, you don't need a vaccine to great those T-cells and B-cells to act against the further infection.

Larry Bernstein:

There are some people who never got any COVID. Can I use the term natural immunity in two ways, I am naturally immune without any exposure to COVID or immune after COVID exposure?

Ari Ciment:

That's a great question. I think that the definition of natural immunity is specific for that infection, but you're right, the coronavirus has a lot of different forms. I believe that at some point maybe I was somewhat protected because I probably had the other respiratory coronavirus, which was about 10% of all respiratory infections prior to COVID hitting. The other coronaviruses. So there probably is some cross-reactivity, but I believe when we talk about natural immunity, we're really talking about-

... specific to the COVID. But in the MMWR, which is January 28th, which is here now they mention that before Delta became predominant, the case rates were higher in, in people who survived the previous infection than people who were vaccinated. But by October, once Delta really hit-

... people that had a previous infection, that actually had lower case rates than people who were vaccinated alone. So, you were less likely to get COVID if you had a prior infection more than if you were vaccinated. if you had COVID, why are we pushing vaccines on those patients if

they're more likely to be protected from the fact that they had a previous infection? So, I personally never push a patient who's had a previous infection to get a full vaccine regimen. I do suggest one other vaccine, because studies have shown that you get much more rigorous antibodies after at least one other vaccine, but I personally don't see a need to do the two vaccines after having an infection already.

Larry Bernstein:

President Biden has made executive orders that terminate workers who are unvaccinated. But you are saying that many patients who have been sick with COVID now have the antibodies, and you're saying that these unvaccinated individuals are actually better protected than someone who has been vaccinated but has not had COVID. Do you think as a political matter, it makes sense to forbid unvaccinated people from certain occupations, even if they have antibodies and are at less risk to themselves and others? Or is this topic just too hot to touch?

Ari Ciment:

No, I, I don't think it's too hot. I think that the evidence, I think they're being forthright. I think this is a, a step in the right direction, that the CDC is acknowledge natural immunity. It's still, even in that article, the MMRWR, they mention, the implications are that vaccination is still the safest strategy. It still is the safest strategy. But, if you've already been infected, do you absolutely need to have another one? You know, what I, what I would suggest, if somebody had the infection in early ... when it started out, yes, I would get a booster,

But Dr. Makary from Johns Hopkins actually studied the antibody responses two years after the initial COVID, and he saw robust antibodies in the people with previous infection. However, in practice, I would still recommend that they would get a booster shot later on. At least one. I'm just saying you don't probably need the full two shots after having an infection. And I think the CDC will come around. I think it's still too early to make a change in their policy based on that one study.

Larry Bernstein:

I want to apply a military analogy to our war against Covid. Colonel John Boyd was part of the US Air Force F-16 design team. Boyd wanted to design the F-16s, so that the pilot could make faster decisions than the Russian MIGs pilots, and that decision making process would allow the Americans F-16s to win in a dog fight. The basis for his theory was a faster OODA loop, which was an acronym for *observe–orient–decide–act*

I want to use this OODA loop as a metaphor for how quickly we as a society can build new vaccines faster than COVID can create new variants? Operation Warp Speed is trying to find a variant, build a vaccine, study its efficacy, produce it, and get it into arms before it kills the population. We need to get inside the virus's loop just as Boyd wanted to get faster in the loop

against the MGS. But it seems the virus is mutating faster than we can adjust our vaccine loop. It seems to take us at least 9 months and the virus is already onto the next variant.

Ari Ciment:

That's a great question. It's like the flu vaccine. They don't do a study every year when they change the flu vaccine. The CEO of Pfizer said that he was going to have the variant out within 30 to 90 days of the Omicron, but it's still not out yet-But he doesn't have to have another study. All they have to do is build it, because it's already demonstrated-

the overall safety. It is interesting that it hasn't been produced yet.

Larry Bernstein:

Ari, it's a new week. What are you optimistic about now?

Ari Ciment:

I'm just optimistic that the numbers continue to go down.

I see a light on the horizon.

Larry Bernstein:

Ari thanks as always for joining us