

Dr. Eric Topol

[Music]

Marianne O'Hare: Welcome to Conversations on Health Care with Mark Masselli and Margaret Flinter, a show where we speak to the top thought leaders in health innovation, health policy, care delivery, and the great minds who are shaping the healthcare of the future.

This week, Mark and Margaret welcome Dr. Eric Topol, renowned pioneer in personalized medicine, once dubbed the most influential physician leader in America by Modern Healthcare. Dr. Topol has been using his team at the Scripps Translational Institute to analyze and drill down on all the data emerging around the pandemic. He talks about concerns around the Omicron variant, how booster data is showing this to be a 3-dose vaccine and what holiday travel plans should look like as the Delta cases continue to rise.

Lori Robertson checks in, Managing Editor of FactCheck.org, looks at misstatements spoken about health policy in the public domain, separating the fake from the facts. We end with a bright idea that's improving health and well being in everyday lives.

If you have comments, please email us at chcradio@chc1.com or find us on Facebook, Twitter, or wherever you listen to podcast. You can also hear us by asking Alexa to play the program.

Now stay tuned for our interview with Dr. Eric Topol here on Conversations on Health Care.

[Music]

Mark Masselli: We're speaking today with Dr. Eric Topol, Founder and Director of the Scripps Research Translational Institute, renowned for his work in advancing digital health in personalized medicine. He previously led the Cleveland Clinic to the number one ranking for cardiac care.

Margaret Flinter: Dr. Topol continues to lend significant support to the National Institute of Health's All of Us Precision Medicine Program, program of great national significance. He's the author of more than 1,200 papers, several books, including The Patient will See You Now and he was once ranked by Modern Healthcare as the most influential physician executive in the United States. Dr. Topol, welcome back to Conversations on Health Care today.

Dr. Eric Topol: Thanks very much, Margaret and Mark, to be with you again.

Mark Masselli: And Dr. Topol, Omicron is dominating the pandemic news right now, and there's a lots of unknowns. But last week, you said there were lots of reasons for optimism that this is not some horrible situation that we're in. We know the data will drive our perceptions. But what do you say now?

Dr. Eric Topol

Dr. Eric Topol: Well, it's not the doomsday variant fortunately. I mean, we do know that there have been many people who've been vaccinated exposed, infected with Omicron, and they're holding up well. We don't know of any yet actually, who have been very ill. That's good. But the fact that it's getting into people who have been vaccinated even with a booster third shot is, of course, disconcerting. I think the main property of Omicron that is disturbing and very concerning is that it has marked immune evasion that it gets – it works around our recognition from the prior virus versions, and from our vaccine immunity to some degree. Okay, and so that gives it an enhanced ability to spread, and that's what we're seeing, of course, now we're seeing it with many super spreader events in Norway, in the UK, and a lot more to come. So it may well be on its way to becoming the dominant strain taking over displacing Delta, we'll have to see over time, but you know, there is good and bad here. We have a new very challenging variant. That's mutation Leiden like we've not seen before. On the other hand, the vaccines we have, for the most part, are holding up reasonably well, and that's a good sign.

Margaret Flinter: Well, you know, it's interesting, even in states with fairly robust vaccination rates, we're seeing increases in hospitalization, increases in deaths associated with the Delta variant. And yet, you know, the reports of Omicron seem to have spurred some more impetus on people's part to go get vaccinated in the first place. Do you think people are beginning to see that this is just something we're in for the long haul, and maybe some of the resistors are moving a little bit more towards accepting a vaccine?

Dr. Eric Topol: I hope so. We are dreadfully low in our vaccination rate ranking somewhere around 50th in the world as far as countries. Our 60% of the total population vaccine is not going to get us very far. We've seen the likes of countries like Czech Republic and Hungary, which are at the same levels that are in desperate shape right now. We've left ourselves terribly vulnerable. Also, because of the waning we need to get our boosters up much higher than they are. We are lagging in many other countries. So we have a lot of work to do, and maybe the good part of Omicron if there's any other good part would be to help us get our immunity well built more, number one, getting more vaccinations, and number two, getting those who have been vaccinated to maintain their full effectiveness.

Mark Masselli: And we're still waiting on Omicron data to come in over the next couple of weeks to really sort of solidify scientists' view of this. Is this a good time for Americans to be traveling internationally, and I'm thinking about the holidays that are coming up. How should people deal with this? And what safeguards might they take? I'm wondering, would you – would you travel internationally right now? Or would you wait this out until we get more information?

Dr. Eric Topol

Dr. Eric Topol: I wouldn't want to be in any long flights right now. You know, we don't really have the systems in place to get maximize safety. Let me just expand a little bit. First of all, Delta is out of control here. We have about 100,000 cases a day, and we're on the way up – back up a second Delta surge in the U.S. So in this country, we have a lot of circulating Delta virus, which is, as you well know, hyper transmissible, it's really been a formidable foe. You add to that we don't have a rapid testing program, such that if you go on a plane, and even if you knew everyone was fully vaccinated, which should be three shots, if you're out by six months, you don't know at that moment in time, whether they're a carrier, that is they're going to have symptoms later in the flight or in the next day. So you don't, if we had those things, that is the rapid testing that was done at the airport, the results were done in five minutes, systematically, and we, you know, had everybody who got on a plane that was vaccinated and masked and all those, yeah, we could do it safely. But we just don't have those systems in place. We know what to do. We just don't do it repeatedly.

Margaret Flinter: Well, I'm hoping that we're beginning to as a country move closer to that widespread availability of rapid testing, and certainly in the Community Health Center world that seems to be happening punished in the medicine just of people at home to test. But I want to ask you about a tweet that you posted in August, it certainly caught my attention, and I think I'm quoting this accurately when you say there needs to be some truth telling about the reduced effectiveness of the messenger RNA vaccines versus symptomatic Delta infections. What were your meaning? What was your message there?

Dr. Eric Topol: Well, it caught a lot of people off guard, and I got a lot of backlash about it. But frankly, it was the denial, case of denial. So by August, we already had clear signs that the mRNA vaccines, particularly Pfizer, but also some data with Moderna, were losing their efficacy by four to six months, and that was against not just infections, but symptomatic infection, which is a bad sign, which you know, is going to turn out in people who have increased risk like over age 60 as it turned out to be over age 40, to have more hospitalizations and deaths. You knew it was going to happen. But there was denial because of two reasons. Number one, there was the issue that, oh, we're trying to get our vaccines up, vaccinations up. So keep quiet because this is going to undermine the success of the campaign. Well, that's really stupid because you can do both get the truth out saying, You know what you need to get vaccinated, and you're probably going to need another shot once you get beyond six months. Just tell the truth from the get go. So you don't have to make stuff up later, and look like you didn't tell the truth.

The second thing is about global equity. We all want the entire

species, you know, near a billion people to get vaccinated. But we don't have enough vaccines in low and middle income countries yet, like we should, particularly the continent of Africa. That doesn't mean we shouldn't press on and get that up to scale. We need to do both. But don't let the people who are protected become unprotected. That's not going to help anyone, and that's not going to help get control of the pandemic in the United States where we've underutilized vaccines grossly. So I laid it out there, turned out it was true, the signal was obvious, and it took months for some of these public health experts to now using Omicron as the excuse for why they are now recommending boosters for all adults. But sorry, the data was unequivocal. And we had a randomized trial by the way of over 10,000 people who got the Pfizer vaccine with two shots and got a Placebo versus two shots and a booster, and it showed very substantial restoration of efficacy over 95%. That's fantastic. But that could have been predicted back in August. And by the way, that's why President Biden made an announcement in August, okay, all adults are going to be able to get a booster shot and should get a booster shot.

Then he had to walk it back because all the infighting at the CDC and FDA, with the rogue scientists at the FDA and you know, this is crazy stuff. We should all be looking at the data and we have a single voice, consistent voice and we haven't had that in this country. We've got divisiveness even within our leadership.

Mark Masselli:

Well, you're so right that data should be driving our policy and we look forward to more transparency on the data that's out there and it's great for you sharing that randomized clinical trial, those are really the acid test for so much. You know, I want to focus a little bit about the mRNA platform, the vaccine technology is being evaluated as a way to treat cancer, autoimmune diseases and other conditions. I'm wondering if you're doing any research on this, and how do you see the mRNA technology advancing healthcare, it obviously had a long history of the last couple of decades and its development now it seems to be really ripe, lots of investments going in. What are you excited about this technology?

Dr. Eric Topol:

Well, to be clear, it's been a work in progress for three decades, right, and CareCo and Weissman out of University of Pennsylvania deserve really the credit for that persistent work there. They figured out what needs to be done so it didn't evoke inflammation, preventing the mRNA from being able to be effective. So now, as you say, it opens up lots of possibilities. Our group at Scripps Research is particularly interested in of getting this for Pan-Sarbecovirus Vaccines. So we won't have to worry about each Greek letter as they come along, and that we have a vaccine that works against all variants, all future variants in this family. That would be ideal, and I believe we'll get

there. We could have gotten there potentially by now had we had a global consortium that was given number one priority and the resources that were necessary. We have lots of different labs around the world that are working on this kind of in a redundant, isolated fashion.

So as you say, though, other groups are working on it for heart disease, for all sorts of other conditions, including suppressing the immune system and autoimmune diseases, and in cancer. So we'll see. I mean, there already is a triple vaccine, working to get RSV, flu, and COVID, all in one with mRNA. Lots of diverse potential, but obviously a lot of that excitement has to be validated in large clinical trials, and we haven't seen those yet.

Mark Masselli: Now, just to follow up on that, the vaccines efficacy, as you said, waned after a number of months. Are people working on just, I assume on the modifications of the underlying structure of the vaccine, so it will have longer effect. I assume that that's going on as well.

Dr. Eric Topol: Well, there are some things that can be done like the adjuvant and other ways part of the package of the vaccine, but it's predominantly the result of the virus itself. The fact that the virus when you are getting exposed to such a hyper contagious virus like Delta, it really was a combination of time plus Delta, and we were still dealing with the ancestral stream, probably our vaccines were held up much better, we didn't see her be any breakthroughs until we had time plus Delta. So you know, what we're dealing with is, as the virus evolves, it gets even more challenging. It's this double hit of waning plus the evolving virus.

Margaret Flinter: Dr. Topol, I think this is such an important point, I'm going to stay on it for just a moment, if you don't mind. Are we really saying to people that we're talking about a three part series like, if you have to get Hepatitis B, or the DTaP that you give your kids, you just know, it's a three part series standing up. And I think people kind of get one, two, got it six months later, get that third one, and then I might be good. Is that what you're saying? And who do we need to have come out with this? Is it CDC that really needs to weigh in on this at this point?

Dr. Eric Topol: I do think that, you know, as I've posted fully vaccinated should be three shots, three shots of all vaccines, except we don't have any data for J&J, whether a third shot will be useful. There aren't just our data. And for people who have prior COVID, even one shot maybe enough, certainly not three is necessary. But for the rest of the vaccines and the rest of people who are relying on vaccination for their immunity, three shots is fully vaccinated. Already we have Israel that's recognized that for months, no less other countries that are coming to that conclusion. We knew when the COVID vaccines were developed

that two shots weren't going to be a lifetime vaccine. The only question that was right from the get go was would it be one year, two years, how much time can we eke out, especially remember that these were done, the trials and the rollout with very short spacing, you know, three weeks for Pfizer, four weeks for Moderna because we were in a crisis, and that's not ideal. I mean, everyone recognized that if they were spaced longer, this would be better and we now have data to substantiate that.

So the only thing that was a surprise was that we wound up at six months rather than, you know, one or two years, but this is a three shot vaccine. And the question what really is how durable that's that package is going to be over the years ahead.

Mark Masselli:

You know, I want to go back to your statement about this is a worldwide pandemic, and we need to, we're Spaceship Earth, we're all on the same plane, if you will, and thinking that we've gone through a number of variants, but what's out there waiting. I mean, I, you know, don't want to be a downer here in terms of this conversation. But in a fairly short time, we've got to something called Omicron that could be dangerous. But it was in part because we really haven't done this effort of vaccinating the whole world, and it doesn't look like if I look out the next 12 months, there's the political will or united effort, what do we have to worry about out there? And are there things that might be things that we can solve that arises in this era of pandemics?

Dr. Eric Topol:

Well, you know, I think we do need to get cohesive in our efforts. And, you know, I mentioned, we could have had potentially a Pan-Sarbecovirus Vaccine, done already in clinical trials had we had this real coalescence of our work, but we don't, and in so many things that we haven't yet gotten our act together. You know, I mentioned the rapid test as another example, we just can do better. We've had two years to get our act together, and we still don't do it and it's frustrating, really, because by now, what we're seeing with Omicron is like deja vu, you know, remember back in February 2020. It's been found in this state. Oh, now it's found in that state. How many cases in this? We have the same thing. We know it's in every state now, Omicron. But where's our contact tracing? Where's our quarantine and isolation capabilities? No less our systematic sequencing for breakthroughs, hospitalizations, people coming from international who are coming in with an infection. There's so many things we could do better. And you wonder, you know, for at least the United States, is this a bureaucratic issue of our country. You know, why can't we move in the right direction, obviously, we have a plague of misinformation and disinformation that's holding us back. But there again, we haven't had an aggressive counter, to take that on and call these bad actors in organizations, call them out and put them in the

Dr. Eric Topol

Hall of shame for the country to see, we've been letting them just run amok, and that's really diminished our chance of getting these very high vaccination rates that we need.

Margaret Flinter: Well, Dr. Topol, in All of Us, there's a group of sufferers right now, which is the folks who are really suffering with this long COVID syndrome and suffering greatly. I think we all agree and I know that at Scripps, you've got a new research initiative underway, looking at whether wearable devices might make a contribution to improving long term symptom management giving patients and other tool to work with. Tell us a little bit about that. I think we all probably know somebody that are suffering from long COVID.

Dr. Eric Topol: Well, thanks for bringing this out because I think long COVID is one important area that's missed in the pandemic. It doesn't get nearly as much attention, and it may be as many as 10% of people who get infections are suffering in some way or other for some duration, some now from the early times of the origin of the pandemic. And I've had colleagues still today that are suffering with profound fatigue and lots of other symptoms, of course, including difficulty of breathing or exercising. So we are generally more vocal and our group is heading up a trial to try to coach people, it is time to post oneself to, to have using up energy in a way that's more efficient. That's one tool that the various patient groups have found to be useful trying to get some valid data. We also know things like that are out there, like whether vaccination helps in people who had long COVID or to prevent long COVID or other things that are out there dangling, and we don't have any therapies yet. We don't have anything that can help squash this symptom complex, and of course, we know it's a mosaic of many different symptoms, you know, different in any given individual. So we have a lot of work to do for long COVID, and, you know, fortunately, we're starting to see some trials prospective work getting done, but we can't do enough because these people too many of them are really substantially being affected adversely.

Mark Masselli: That's great. You know, you talked about a sort of little reservation about maybe traveling on a plane long distance. I'm just thinking about the day to day work, that the effectiveness of mask, obviously people should get vaccinated but what have we learned about properly fitted mask indoors where somebody else may have had the virus but you don't, what's the – what precautions should people be taking and how important is just masking and washing your hands?

Dr. Eric Topol: Well, the mask story is really important, and what we haven't done is getting medical grade masks to everybody, which we really helped a lot. Obviously, you know, we might not be able to get N-95 masks, you know, for use throughout the pandemic to every American, but we certainly could do far better, we have never given out masks. In

fact, I actually think that could help promote some unity by having, you know, U.S.A. flag on the mask and it's a high grade high quality, but as you say, needs to be tight fitting. They have tremendous help and protection, no less our other maneuvers, like physical distancing, ventilation, air filtration, all these things that we don't necessarily do but could do. And we may need to do more to help counter not just the Delta surge that we're experiencing right now, who knows where that's going to take us but also, when Omicron starts to get into the exponential phase, which obviously is still in the very early days now. So we have the tools to keep Omicron and any variant in check, we have them. But masks are an important part. Again, we have the people out there who are anti-science, anti-masks, anti-vaccines, you know, trying to have mandates about not having masks, mandates about not having vaccine, this is incredible stuff. You can't just – you can't believe this is happening in a civilized country. You know, it's amazing to me.

Mark Masselli: And just today is December 6th, when will we have the definitive word on Omicron in terms of the work that has to be done by the scientist?

Dr. Eric Topol: Well, I think the two biggest questions are not just if it's more immune, evasive, but how much more, you know, Beta was the variant with the most before it's worse than Beta. We just don't know how bad because when we see the lab test hopefully late this week or early next week, there'll be coming from multiple labs, we will quantify and that would give us an idea about whether how well our vaccines are going to hold up for neutralizing antibodies, and soon after that, we'll get the same kind of data for T cells. The other big question is how contagious is it? How much more contagious is it than Delta? We don't know that yet. That's going to take epidemiologic studies. We're going to know that in the weeks ahead as well. So we'll get a much better readout on Omicron, you know, gradually over the next few weeks. But you know, it certainly doesn't look encouraging except for the fact that the vaccines are holding up reasonably well against severe illness and that that's a very important sign.

Margaret Flinter: We've been speaking today with Dr. Eric Topol, Director of the Scripps Research Translational Institute, follow his work@scripps.edu/translation or follow him on Twitter at Eric Topol. Dr. Topol, we want to thank you again for your dedicated quest together and share reliable data and insights on this pandemic and for us again on Conversations on Health Care.

Dr. Eric Topol: Thanks so much for having me again, Margaret and Mark.

[Music]

Mark Masselli: At Conversations on Health Care, we want our audience to be truly in the know when it comes to the facts about health care reform and

policy. Lori Robertson is an award winning journalist and Managing Editor of FactCheck.org, a nonpartisan, nonprofit consumer advocate for voters that aim to reduce the level of deception in U.S. politics. Lori, what have you got for us this week?

Lori Robertson: With the release of its pediatric COVID-19 vaccine, Pfizer switched the buffer used in its formulation to increase the stability of the product to remain at refrigerator temperatures for longer. The Food and Drug Administration okayed the change and the change is also being made to some doses for teens and adults. Social media posts however, have misleadingly suggested that the ingredient swap is dangerous or was added to prevent heart attacks in children. There's no evidence to support that. The ingredient in question is Tris or Trimethylamine, which is used as a buffer in the children's vaccine and will soon be available in some adult and teen formulations as well. A buffer keeps doses at the correct pH, neither too acidic or too basic. The original iteration of the Pfizer-BioNtech vaccine used phosphate buffered saline or PBS. Pfizer and the FDA have said the switch was made to improve the stability of its mRNA vaccine, which previously had to be kept ultra cold for long term storage and lasted a month in a refrigerator once thawed. The newer version can last in the fridge for up to 10 weeks. Tris has safely been used in other vaccines and other products. Less stringent cold chain requirements are especially helpful for the pediatric vaccine, which is being administered more in doctors' offices. As for social media posts claims about Tris being dangerous or a drug for heart attacks. In large quantities, Tris can be used as a drug, but here as another vaccines and medicines, the compound is present in only a very small amount as an inactive ingredient to keep the vaccine stable.

Dr. Kawsar Talaat, an Infectious Disease Physician at the Johns Hopkins Bloomberg School of Public Health told us the infinitesimal amount of Tris in vaccines has absolutely nothing to do with the much larger volumes and higher concentrations of Tris being given to people who are having heart attacks. The Pfizer-BioNtech COVID-19 vaccine is not known to increase the risk of a heart attack in any population. That's my FactCheck for this week. I'm Lori Robertson, Managing Editor of FactCheck.org.

Margaret Flinter: FactCheck.org is committed to factual accuracy from the country's major political players and is a project of the Annenberg Public Policy Center at the University of Pennsylvania. If you have a fact that you'd like checked, email us at www.chcradio.com. We'll have FactCheck.org's Lori Robertson check it out for you here on Conversations on Health Care.

[Music]

Margaret Flinter: Each week, Conversations highlights a bright idea about how to make

wellness a part of our communities and everyday lives. If Music soothes the savage beast, the question they want to answer at the Sync Project is how exactly? There are lots of anecdotal studies supporting music's ability to trigger memory or boost endurance or focus. But virtually nothing is known about how music truly impacts our physiological and neurological state. This is the question that intrigued scientist Ketaki Karanam [PH] a systems biology PhD from Harvard, who wondered how could music be scientifically harnessed as a powerful precision medicine tool, they formed the Sync Project with a cross section of neuroscientists, biologists, audio engineers and some rock stars like Peter Gabriel, and started by using Artificial Intelligence systems to analyze existing playlists that purport to promote relaxation and do sleep, enhance focus or athletic performance.

Ketaki Karanam: And once we have this set of songs that Machine Learning algorithms predict to be effective for a specific activity, we can then run studies using these devices like your Heart Rate Monitors, your Smart Watches, your Activity Trackers, and actually look at how effective indeed is that song for that purpose.

Margaret Flinter: Karanam and her colleagues note that most of us self medicate with music already. So why not harness this ubiquitous tool that's available to all of us and develop strategies and systems that might replace pharmacological interventions with musical ones. The Sync Project is seeking a million volunteers to offer their music suggestions as well as any information they can share on why these songs seemed to work for them.

Ketaki Karanam: So we're literally walking around with, you know, 14 million songs in our pocket every single day. So we saw a great opportunity on really being able to understand how music was affecting us to measure how different types of music to fight both our psychological health as well as our physiologies.

Margaret Flinter: Karanam and her team see vast potential for reducing reliance on drugs by crafting personalized music interventions in the management of a variety of complex conditions such as pain management, PTSD, even Parkinson's disease.

Ketaki Karanam: In Parkinson's disease, patients have trouble coordinating movements. So by playing them the right kind of music, it can be an external auditory support they have that's going to help them walk more smoothly.

Margaret Flinter: The Sync Project, combining computer technology and neuroscience physiology and musicology to harness the healing powers inherent in music to help manage a variety of human ills. Now that is a bright idea.

Dr. Eric Topol

[Music]

Mark Masselli: You've been listening to Conversations on Health Care. I'm Mark Masselli.

Margaret Flinter: And I'm Margaret Flinter.

Mark Masselli: Peace and Health.

[Music]

Marianne O'Hare: Conversations on Health Care is recorded at WESU at Wesleyan University, streaming live at www.chcradio.com, iTunes, or wherever you listen to podcasts. If you have comments, please email us at www.chcradio@chc1.com or find us on Facebook or Twitter. We love hearing from you. This show is brought to you by the Community Health Center.

[Music]