

Dr. Eric Topol

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Marianne O'Hare: This week on Conversations on Health Care, Mark Masselli and Margaret Flinter welcome Dr. Eric Topol, fleeing-analyst during the COVID-19 pandemic, he says we need to do more to generate new vaccine discovery as these variants continue to evolve.

Dr. Eric Topol: The virus has not finished its evolutionary arc. The variant BA.5 is the worst variant, there is more to come.

Marianne O'Hare: Saturdays and Sundays morning at 8:30 on the Federal News Network, our production community health center, chcradio.com.

Mark Masselli: Our guest recently wrote the following "it's frankly sickening to watch this virus continue to outrun us knowing we are so damn capable of getting ahead of it." We're going to learn more from the writer himself. Dr. Eric Topol is one of the most prominent and prolific COVID experts, as well as one of the top 10 most cited medical researchers.

Margaret Flinter: Dr. Topol is the founder and the Director of the Scripps Research Translational Institute. And we've always learned a lot from his visits, including the last one, which was in December when the Delta surge was occurring.

Mark Masselli: Dr. Topol, well I thank you for returning to Conversations on Health Care.

Dr. Eric Topol: Thank you. All right. Good to be with you both.

Mark Masselli: That's great. Well, let's start with the COVID Omicron variant, BA.5 and its, has three key mutations in its spike protein, and that makes it better at infecting cells and better at slipping past our immune system. What more can you tell us? And what keeps you up at night about BA.5 and other offshoots that could be on their way?

Dr. Eric Topol: Yeah, well, I think the key here is that although there's reluctance to accept it, the virus is getting worse. The variant BA.5 is the worst variant and I don't say that because it's causing the most deaths or hospitalizations. I say it because if you look at its biology, that you just mentioned, the immune escape, the ability to have growth and fitness advantage that we haven't seen before. If you're looking at the properties of the virus, it's getting worse.

Also, parenthetically, it's lasting longer contagiousness, so instead of what might have been seven days or eight days, it's clearly longer now. I don't know anyone in my network now at the moment, who isn't either infected or re-infected almost, it's just extraordinary. So, it's spread potential we're seeing and the most re-infections that we've seen since the beginning of the pandemic. So, these are

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qualities that should raise concern, because the virus is not finished its evolutionary arc. There's more to come, unfortunately and so rather than being complacent and capitulating, we should be arming up for how we can get ahead of the virus, which we've never done since the pandemic began.

Margaret Flinter: I couldn't agree with you more about what we're seeing in our social networks. I'm going to go off a little bit to the side on the issue of COVID for a moment and speak about a person, because we just learned recently that Dr. Anthony Fauci has announced that he's going to step down from his post by the end of President Biden's first term, he played a very forward and prominent role, certainly, in this first couple of years of the COVID vaccine. What do you think about the role that he played? How effective was he as a communicator? And do you think he helped America to better understand what they needed to do? Any thoughts on what might have been done differently?

Dr. Eric Topol: Well, I think he's been extraordinary in his ability to try to communicate and just work tirelessly. He really is indefatigable, an extraordinary person and scientist and physician. So he's done his absolute best, but he's been under profound attack. I don't know how he's withstood this. I don't know how he can go on for a couple more years with all the things that have been done to personally ad hominem go after him just as a reflection of the anti-science anti-vax organized efforts that we have right now. And he's been, you know, right in the middle of it and bearing a lot of the brunt like so many other people, but especially him because he's been in it for much of the pandemic center stage.

Mark Masselli: You know, I want to pick up on the threat of anti-science, anti vaccine, you issued a clarion call that we need to apply money pressure and government strength to create a variant proof COVID vaccine. And you wrote in the LA Times that I quote, that nasal sprays deserve an operation warp speed like program to accelerate their success. I'm just wondering what the hurdles are and are part of the hurdles that anti-vax anti-science effort that's going on. I don't think we have the attention of our government in terms of the investments that they need to make. And I guess as part of that, are there other drugs in the pipeline in addition to the nasal spray we need, or should be keeping an eye on?

Dr. Eric Topol: Well, you're making some important points there. Lot to go over. You know, firstly, you know, back in January 2021, in nature, Dennis Burton, who Chairs Immunology at Scripps Research, and I wrote about the need to pursue a variant proof vaccine. And here it is a year and a half later, and we still haven't done it, we have no shortage of candidates, that is ways that we can induce broad neutralizing

antibodies that, at least theoretically, if not, in practice, would knock out any variant that this virus could present to us. But we haven't yet developed a program, because it's been politically not supported with funding, and so basically, all these great discoveries sit in academic labs all around the country in the world. And there's no organized effort to develop a variant proof vaccine that has great promise.

And the nasal vaccines are a somewhat similar category, there's three that are in phase three trials, but there's no operation warp speed, like initiative. Remember, that was a \$10 billion, which is a small amount these days, considering we spent trillions. \$10 billion to basically de risk and accelerate the first vaccines, which worked really well. But we've never done something like that again. And we and many others have been calling for that. That is we shouldn't be at all discouraged, we can get ahead of this virus, we can do this, we're just not doing it. And then add to the woes, concerns that I have is that we likely will develop Paxlovid resistance over time. Millions of the blister packs are going out, you know, every week or month, here and we're going to see the virus in Empro, the main protease, it's going to find a way to resist Paxlovid, and where is our backup. And again, we have a long list of really good candidate backup pills, but we're not, you know, pursuing those in the accelerated way we could. So, the point is the potential to get ahead of the virus is vast, but we're just doing like variant chasing and not putting in the aggressive pursuit that we need to do.

Margaret Flinter: Well, I understand that we do have another vaccine, probably joining what's available. Now CDC is about to review Novavax's COVID-19 vaccine, at least for emergency use in adults and the FDA already gave its okay. I understand there is some concern about severe allergic reactions as a potential side effect. And then there was a poll by Morning Consult that said that 77% of unvaccinated U.S. adults, probably or definitely would not get a protein based vaccine, such as this one for Novavax, which kind of leaves us with the question, is there any vaccine that today's unvaccinated adults are likely to be willing to get? And is there anything particular you would say about this one in terms of advice for people who, maybe until now have said no, anything that would be inclined to change their mind?

Dr. Eric Topol: Well, I've already touched on this entrenchment the anti-vax, anti-science has been profound and it's never been adequately countered. An aggressive strategy to deal with this and misinformation, unfortunately, and we are ranked 67th in the world, behind Rwanda, Iran, Sri Lanka, and many countries on the list, you would never have imagined that for boosters, no less primary vaccination. There's no reason why Novavax wouldn't be one of the good vaccines to take and hopefully it also be shown to be useful as a booster. There are new data out today to show it works well against Omicron variants

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like mRNAs with boosting. So, I'm not optimistic given the entrenchment. Now, we can break this vaccine at this point, this vaccine resistance. It's really unimaginable how profound that is. And it's the same thing that's holding back our aggressive get ahead plans. It's the same problem. People say Oh, it's over, the pandemic is over, wrong. But that's the same group that are anti-vax that are, and anti-science, the science here is what's so exciting to get ahead of the virus, and we're just ignoring it or not giving it any priority.

Mark Masselli: You know, you said the CDC has failed to warn Americans about the sub variant spread. But as you said, it seems like the public is tuned us out. And I'm wondering what that prescription might be for the public health community, in terms of trying to right the ship, if you will, and get us headed true North, in terms of following the science and following the data, we simply haven't been able to engage the larger public. Are they just worn out? Or do we have to really adopt a new message to reach them?

Dr. Eric Topol: Well we're all tired. I mean, nobody can say that they think this pandemic is a good place to be still in it, and it's not at it, I would consider an endemic steady state phase whatsoever. So, the problem is our CDC has been a profound disappointment. Rather than getting the message out a year ago, when we knew about how boosters were life saving. They resisted that for months, and there was infighting with other agencies. And still today, that's why our boosters among age 50 and older, four shots, only one in four Americans have had that which is amazing, actually. And that's where we are basically so vulnerable. But beyond that, how can you possibly recommend a five day isolation still, when we know the virus lasts 10 days or not longer for contagiousness? It's unfathomable, and so the lack of a warning until last week, when finally, there was a public, and basically the message is we got this. No, we don't have this because they haven't gotten the boosters, right. They haven't gotten the isolation, right. They haven't gotten a plan right, to get ahead of the virus. Until that happens they don't have this. And it's an illusion. So, we look to the CDC to provide leadership to prevent disease. But if anything, they're spreading it, which is extraordinary, by not having appropriate isolation guidelines and messaging.

Margaret Flinter: Well, we could spend the rest of our time talking about that issue. I couldn't agree with you more on that length of time that people should be quarantining. But I wonder if I can ask you about this issue of COVID and children, and really everywhere, slower than I would have hoped uptake, particularly some states in the southeast. Parents are so slow to inoculate their children that we're seeing fewer vaccine doses even ordered from the state supply what's going on there? And are you seeing any data around adverse effects in children from not taking advantage of the vaccine of this youngest group of kids?

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Dr. Eric Topol: It's really discouraging, again, that the whole anti-vax influence also being felt with children. First, we saw it in the 5-to-11 group. And there's really no risk there that are beyond the local, you know, the usual things that we see from as far as like myocarditis, pericarditis, it's just, it basically is not an issue. And then we may have the six months to five year olds, it's even worse. So, here we have such a large population of children that are at risk. And a lot of them did have BA.1 infections in early part of this year. But that doesn't protect them BA.5 or subsequent infections. So here, we have a great way to keep them insulated from getting very sick, from spreading their infections, from you know the Long COVID that can occur in children. And we're not doing it. And it's a shame because so much work went into getting pediatric vaccines validated, and it's all part of that same continuum. And we're one of the few countries now that have gotten down to, you know, the six month level, but we don't have it being implemented at any scale in the country, because of the anti-vax movement.

Mark Masselli: I'm trying to figure out what the practical suggestions are to people around their daily life and talking more about adults. In terms of masking up, how effective are those KN95s, and the N95s It seems that part of the strategy here or, you know, the results have been that the government and the like are trying to keep businesses open and they haven't figured out any sort of nuanced conversation with people. How important are mask care so that you can continue to engage in social conversations with your friends and your neighbors and your families. What's the fine line for people in terms of that they may be able to follow, so they're not getting infected?

Dr. Eric Topol: Well, of course, it's not just masks, like you said, the good mask, high quality KN95, N95, which helped. It's also distancing. It's also filtration, and ventilation, all those things that we're not doing largely right? If we did all those things, like how can we not have masking in public transport? It's incredible. If you go on a plane now, rarely, we'll see people with masks. And that's in the airport, and all kinds of, you know, you name the type of public transport. I mean, if you go to Mexico, they use masks. I mean, we're distinct deniers, denialism of the benefit of the mask. But it goes beyond that we're not doing the simple things that would help, they're not foolproof by any means. This is a hyper infectious version of the virus. So, none of these things are going to be a 100%. but they help.

In the meantime, we use this as a chance to get ahead of the virus, so that our vaccines work better in the future, that we have other backup drugs, that we have nasal sprays, that will protect us from infection and transmission, because basically, we've lost that edge, largely. So it's just you know, these are temporizing measures to help us get through to when we, when we have something better to offer

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people, and we're not using them.

Margaret Flinter: Yeah and although I hate to raise the specter of a new threat to health, as we talk, the World Health Organization, Monkeypox committee is getting ready to meet and decide if it reaches the definition of a pandemic, but we're certainly reading a lot about it in the press. How do you see this viral disease? What's likely to be the pathway in the coming months with monkeypox?

Dr. Eric Topol: Well, you know, I'm concerned about it, but I don't look at it in anywhere near the issue that we're facing with SARS-CoV-2 which obviously has caused millions of deaths and worldwide turmoil. I mean, monkeypox is a serious virus, and it's spreading. And it's very concerning, and we aren't keeping up in terms of vaccines, and you know, sure, but it's in a different, you know, order magnitude of concern that, you know, what we don't want to do is get distracted, which is what's happened.

We can't afford to be strict. We got so many things going on between, you know, a book banning abortions and the war in Ukraine and monkeypox. I mean, you can add a long list that we -- inflation, that we were missing, what's really critical, which is we still have COVID, and we haven't done anything to contain it. And that's what we really need to do. And I see these things, unfortunately, as distractions from the main agenda.

Mark Masselli: You know, we had Dr. Fauci on in February 2020, just as the virus was making its way from China over to the United States and around the globe. And one thing he told us was Coronavirus is mutate, and you've been talking about the evolution of the virus itself. Walk us through where are we headed? You know, obviously, it's transmissibility has been high, will its lethality get higher? I mean, what do we know? Are we able to track the evolution of a virus like this? Or are we sort of waiting for it to play its own hand?

Dr. Eric Topol: Yeah, I don't think we're ever going to see like the lethality get higher, because we have this immunity wall, right. I mean, we have parts of our immune response that have been primed by vaccines and boosters and infections, right. So, that's the point is that the virus keeps evading our immune system more. And there's now signs as of Friday from the new CDC report that we're losing some of that protection against hospitalization that we had just from going from BA.1 to BA.2.12.1. So that trend, it's not like an on off switch. It's just like, this attrition of protection. We'll see probably more of that over time with whether it's Sigma or Pi, whatever the new Greek letter or family, eventually we're going to get out of the sub variants. And we're going to get into a new family, and who knows what the name of that is going to be, but it's going to happen. And it's just, you know, when? Whether it's before the end of the year or early next year, and

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we're not at all prepared for that because it's not -- the virus still has room to evolve.

Margaret Flinter: Well Perhaps a final question it's almost flu vaccination time. Hard to believe we're into July, but in August, I'm sure we'll be back out there. Share your thoughts on the importance of everyone getting a flu vaccine this year and how that preventative step fits into everything else that we've been discussing?

Dr. Eric Topol: Well, yeah, flu vaccines, they're good. And they do help raise your immunity across the board, and so that's good. But I'm glad you asked me that as a final note, and that is, flu vaccines don't work very well. You know, their effectiveness doesn't get to 50%. We've had vaccines against this virus at 95%. There's never been a flu vaccine at that level, actually give us optimism that this virus can be squashed that we can get ahead of this virus. We were in terms of a great effective vaccine, but then the virus evolves. So, this is a different virus, we can do much better. We just have to do it.

Mark Masselli: We've been speaking with Dr. Eric Topol, Director of the Scripps Research Translational Institute. Thank you, Dr. Topol for the clarion call and vision that you've had all during the course of this pandemic. And thanks to our audience for joining us. You can learn more about the Conversations on Health Care, and sign up for our e-mail updates at [www.chcradio.com](http://www.chcradio.com) . Thank you again, Dr. Topol.

Dr. Eric Topol: Thank you. Thanks for having me. Take care. Bye-bye.

Margaret Flinter: Thanks Dr. Topol.

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: Children under five, including those as young as six months of age, are now able to be vaccinated against COVID-19. There are two vaccine options authorized by the FDA on June 17th, one from Pfizer-BioNTech for kids six months through four years of age, and another for Moderna for kids six months through five years of age.

The FDA concluded that the known and potential benefits of the vaccines outweigh the known and potential risks. An independent panel of experts advising the agency agreed in unanimous 21 to zero votes, backing both vaccines. The littlest kid vaccines are essentially identical to their older counterparts, except they contain smaller amounts of mRNA. That's the active ingredient in the shots that the immune system recognizes and responds to generating immunity.

The other big difference for the Pfizer-BioNTech vaccine is that the primary series includes three doses instead of two. The little kid Moderna vaccine is still a two dose vaccine. Both vaccines are expected to primarily protect young children from getting seriously ill with COVID-19. Similar to how the adult and older kid vaccines have been faring against the Omicron variant.

The shots are also likely to provide some limited and temporary protection against infection and milder illness and may reduce your child's symptoms if infected. As with the Pfizer vaccine for older kids, the primary way the two vaccines for younger kids were evaluated for effectiveness was by comparing the antibody immune responses of children who had been vaccinated with those of young adults who had received the adult dose and for whom clinical trials already established efficacy

In this so called immune-bridging approach. If the neutralizing antibody levels against the virus are similar, and a similar proportion of children mount an antibody response, then it is inferred that the vaccine works in younger children. The clinical trials for the vaccines did not reveal any serious safety concerns. The Moderna trial included around 4800 vaccinated children who were followed for a median of two and a half months after the second dose. The Pfizer-BioNTech trial included about 3000 vaccinated children, about a third of whom were followed for at least two months following the third dose.

Similar to the vaccines for older kids and adults. The most common side effects in young children were pain, redness and swelling at the injection site, along with fatigue, headache, fever, loss of appetite or irritability. Most of these symptoms were mild and resolved within two days for the Pfizer vaccine or three days for the Moderna vaccine. Many experts, the Centers for Disease Control and Prevention and the American Academy of Pediatrics recommends that all children six months of age and older get vaccinated unless they have a medical reason not to such as an allergy to a vaccine ingredient. You can find about the vaccines for the youngest children on our website. I'm Lori Robertson, Managing Editor of FactCheck.org.

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Marianne O'Hare: FactCheck.org is committed to factual accuracy from the country's major political players and as 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 [chcradio.com](mailto:chcradio.com). We'll have FactCheck.org's Lori Robertson check it out for you here on Conversations on Health Care.

Each week conversations highlights a bright idea about how to make wellness a part of our communities and everyday lives. Around the

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world there are some 300,000 health facilities that do not have adequate electricity or lighting. And in these clinics and hospitals in the third world, many women give birth in near or total darkness. When Berkeley California OB GYN Dr. Laura Stachel changed careers after a life altering back injury, she decided to focus her attention on confronting this global health issue, which is one of the factors in the high rate of maternal infant deaths in the world.

Dr. Laura Stachel: You lost the light and the only way to get light was to burn the calendar,

Female: Yeah burned the calendar.

Dr. Laura Stachel: So you could see and then cut the cord. Okay, you get the prize for the most amazing story.

Marianne O'Hare: In Nigeria where the problem is particularly pronounced tens of thousands of women and newborns die during childbirth.

Dr. Laura Stachel: So much of what we do requires electricity, the monitors, the lights, the machinery for helping with deliveries. It never occurred to me that in other parts of the world, that the things that we assume to be completely fundamental to medical care would be absent.

Marianne O'Hare: Dr. Stachel's husband Hal Aronson is a solar power engineer. And together they formed We Care Solar, they developed a portable solar power and lighting kit that could charge via solar panels by day and be installed in clinics to provide power at night.

Hal Aronson: What was remarkable was that when they saw that they wanted to keep it,

Marianne O'Hare: And they said, please leave it here because this will help us save lives even right now.

Hal Aronson: And that was the lightbulb moment for us. Even a little bit of power could go a long way towards saving a life.

Marianne O'Hare: The kids come equipped with everything a clinician would need for communication and a medical emergency, electricity for walkie-talkies and cell phone powering and power enough for a variety of lights and enough power to run some diagnostic equipment in the event of a surgical emergency.

Dr. Laura Stachel: We had a doctor who requested a solar suitcase last Thanksgiving. He called us five weeks later and he said I want to tell you what happened. The night that I came, I was able to save a woman with twins using the light. And I would have called you the next day but there was an outbreak of cholera, the next day. And for the next 30 days, every man, woman and child that had cholera came to our clinic and we used the Solar Suitcase every night. He said for the first time

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in the history of this village, no one died of cholera. We saved 122 patients. And he said in the past 50% of these people would have died.

Marianne O'Hare: We Care Solar has grown from a backyard manufacturing operation with friends pitching in to a full scale manufacturing plant in Berkeley, California. They've provided kits to hundreds of clinics around the world and are hoping to scale up their operation to meet the pressing need not just in remote clinics, but also during disasters as well. We Care Solar -- providing power and light for clinics around the world, improving the outcomes of the patients being served. Now that's a bright idea.

Mark Masselli: I'm Mark Masselli.

Margaret Flinter: And I'm Margaret Flinter.

Mark Masselli: Peace and health.

Marianne O'Hare: Conversations on Health Care is recorded in the Knowledge and Technology Center Studios in Middletown, Connecticut, and is brought to you by the Community Health Center now celebrating 50 years of providing quality care to the underserved where health care is a right, not a privilege [chc1.com](http://chc1.com) and [chcradio.com](http://chcradio.com).