This transcript has been edited for clarity.

Neha Pathak, MD: Welcome, everyone, to Medscape Masters. We are excited to have you here for our event: "COVID, Flu, and RSV: How the 'Tripledemic' Impacts Your Practice."

We're joined by Dr Eric Topol, Medscape's editor-in-chief, and Dr Manisha "Mo" Patel of the Centers for Disease Control and Prevention (CDC). I'm Dr Neha Pathak, your moderator for the evening and WebMD's chief physician editor for health and lifestyle medicine.

I'd like to start by introducing our experts. In addition to being Medscape's editor-in-chief, Dr Eric Topol is a professor of molecular medicine and executive vice president of Scripps Research, and founder and director of its Scripps Research Translational Institute in La Jolla, California. He has published over 1300 peer-reviewed articles, with more than 300,000 citations. He's been elected to the National Academy of Medicine and is one of the top 10 most cited researchers in medicine. His principal scientific focus has been on the use of genomic and digital data, along with artificial intelligence, to individualize medicine. Beyond all this, he's a practicing cardiologist.

Dr Topol and I are joined by Dr Manisha "Mo" Patel, who currently serves as chief medical officer of CDC's National Center for Immunization and Respiratory Diseases, and is a captain in the US Public Health Service. In this role, she directs and oversees cross-cutting and multifunctional program activities involving a broad and complex range of public health programs that are operated domestically and abroad. Dr Patel joined the CDC as an Epidemic Intelligence Service officer in 2005 and brings more than 15 years of leadership and technical experience in surveillance, study design and implementation, emergency response, policy, and health communication for childhood vaccine-preventable diseases. She's double board certified in pediatrics and pediatric infectious diseases, and provides part-time clinical care to children in Georgia who are medically underserved. Welcome and thank you to both of you.

Eric Topol, MD: Thank you.

Pathak: Let's start with what's on everyone's mind and what our patients have been having a lot of questions about: COVID. The media has been reporting on increased rates of COVID transmission in our communities. There's a new variant under monitoring, BA.2.86. And we'll get into this a little later — the CDC recently approved updated COVID-19 vaccines. So, first, Eric, set the stage for us on the current COVID landscape and in particular the BA.2.86 variant.

COVID-19: New Variants, and Vaccine Coverage and Availability

Topol: It's a bit complicated, partly because we don't have good data. We don't have case data like we used to have. And we don't even have hospitalization data that are complete on a daily basis. So, what we're mainly using is wastewater surveillance. That

shows us that there's been a bump — maybe not a surge, but certainly an increase that's pretty much spread throughout the country. It's not as bad as prior waste, but it hasn't clearly plateaued either and it certainly could get worse. BA.2.86 variant, which some have named Pirola, looked really bad when we first saw it some weeks ago because it had over 35 mutations in the spike protein that weren't there in previous versions of the virus. And that signaled the potential of an Omicron event, which was like what we had in November 2021, where we had a whole new strain of virus and it just spread like wildfire throughout the world.

Fortunately, although this has a growth advantage, it seems to be modest. And what should be reassuring is that the immune function studies and the booster that we're going to talk about more, the new booster — although they are not calling it a booster; they're calling it an annual shot, but I still call it a booster — at least in the lab and in the small randomized trial, has done well against BA.2.86.

So, just to be clear, Neha, that particular variant is not at high circulating levels right now. The ones that are at high circulating levels are known as EG.5.1 and FL1.5.1. They don't really have names, but they're the ones that are basically part of the cause of the trouble right now. The bump that we're seeing in cases, though, is not really so much variant driven; that's part of it. It's also because we have waning immunity as a population. And we also haven't used mitigation practices that we know about, like high-quality masks and avoiding indoor, crowded gatherings, particularly without ventilation and air filtration. So, we're set up for the variants to continue and the virus to evolve further. And that, of course, could make for a tougher October, November, and wintertime in the months ahead. But it's hard to predict.

Pathak: That's really helpful for setting the stage and giving us context of what we're seeing right now and what we may need to be anticipating in our practices. Mo, I'd love to turn it to you. As we talked about, the CDC recently approved the latest updated COVID vaccine, and there's definitely talk about the fact that we're not necessarily using the term "boosters," but some of us are, and the updated guidance around vaccination. Can you give us an overview of this guidance?

Manisha Patel, MD: Yes, and honestly, getting rid of the word "booster" is hard for everyone, but it's a really exciting place to be — to have these additional new and updated immunizations available for the public and our patients, and not just for COVID-19 but for flu and respiratory syncytial virus (RSV) as well. And so, especially for pediatricians like myself, [it's exciting] that there are immunization products available for young babies against RSV, which is one of the leading causes of hospitalizations in infants every year. So it's just a really great place to be, to have all of these tools available to us as healthcare providers. You're right — there are a lot of recommendations. I'm going to try to simplify it. And I'll also encourage our viewers to go to the CDC website. The new COVID-19 vaccine guidance, clinical guidance, was just posted on Friday. So, simply, we are recommending that everyone age 6 months or older get their flu and their COVID-19 vaccines. We know that these vaccines protect

against hundreds of thousands of hospitalizations and thousands of deaths every year during the fall and winter season.

There are a couple of nuances. Specifically for flu, for older adults 65 or older, they want to get a different formulation — either adjuvanted, a recombinant vaccine, or a high-dose inactivated vaccine, so that their immune response is better to protect them against flu this upcoming season. Then, for COVID-19, the asterisk there is that for children 6 months through 4 years and for persons with weakened immune systems, we have a couple of different recommendations where they can get some additional doses of that updated COVID-19 vaccine, for them to be able to complete their series.

And a little note to the providers here who take care of immunocompromised patients: We know that those patients have very complex medical care plans. And so that tool is also flexible for them in case they want to give additional COVID-19 vaccines. I'll pause there so that we can talk about RSV because, again, I'm just so excited about those two products.

Pathak: It's definitely exciting. It's practice-changing for a lot of us with the addition of the RSV vaccines in our arsenal. So, just to close the loop and finish up on COVID, I'm curious about your thoughts on the Novavax vaccine. How does that fit in? What's the nuance there in terms of the wait for the potential ability for us to even think about Novavax as another tool in our arsenal? Should we be waiting? I have lots of patients saying, "Well, I'd like to wait for this other one because that's what I've had before and I'm comfortable with that." How do we counsel our patients? How are we talking to our patients around that?

Topol: I'm just going to say that we were supposed to see all three of these vaccines — Moderna, Pfizer, and Novavax — coming out at the same time. Unfortunately, though, because they went through the FDA in what's called a product licensing application, there were some bumps in the road for Novavax,. So right now, we don't know when that's going to be ready. It could be a couple of weeks; it could be a month or two. We just don't know. It's imminent but it's hard to know for sure when. I think the attractiveness for me was that, having gotten mRNA vaccines all along, having another mix-and-match approach — so-called "heterologous" — might give an extra immune response kick. So, for me, that was the appeal. But also, timing, not knowing when it's going to be available, is a little tricky. Right now, I think it's clear that in a lot of places, like San Diego, the boosters aren't widely available yet. They are in some places, but we're still in the early days of the CDC approval last week. Hopefully, in the next week or two, the boosters will be widely available. As you know, there's just Moderna and Pfizer right now. I don't know that it's worth the wait. But all three of these vaccines are directed against a variant called XBB.1.5. They're not bivalent; that is, there is only one thing they are directed against. So it's not the original Wuhan ancestral strain. That's good because it gets a pure response. And, it turns out, we're very lucky because that particular target was picked in June. There was further evolution of the virus to those variants that I mentioned earlier; it turns out that they're really quite closely matched up with this particular XBB.1.5. So, we're lucky because the booster has held up nicely. For

example, if BA.2.86 had been as bad as we had envisioned, the booster wouldn't have helped much, but it turns out that it does help against that variant, even if it does start to really catch on. So we're lucky.

Pathak: Mo, I wanted to give you a chance to add to Eric's comments.

Patel: I completely agree with Eric that waiting, given that we had this uptick in hospitalizations — I'm not sure that's the best idea, and the fact that we're matching our vaccine to the currently circulating strains. It seems like the time to get the vaccine is now, and certainly CDC is working hard to make sure that the COVID-19 vaccine is available for adults who don't have insurance or are underinsured, through our Bridge Access program. Lots of people are working on the ground to make sure that COVID-19 vaccine gets into arms soon.

Topol: Neha, if I could just touch on one thing that Mo mentioned that I think is extraordinarily important: There's been a lot of confusion about who should get this booster. There are even physicians out there saying, "If you're not over 65," or there's one that says, "I'm 72 and I'm not going to get it," who has some links with the FDA advisory committee. What I want to say is there's really good rationale, as Dr Patel mentioned, for everyone over 6 months to at least be considered for this. First of all, in the first couple of months after the booster, there is protection from infection and transmission. Second, what's missed a lot is long COVID. One of the best ways we have to protect against long COVID is not to get an infection. And moreover, since we can't predict who's going to get it, re-infections are a risk. In every study, and we're talking about many studies, they have had about a 35%-40% reduction of getting long COVID. So being up-to-date with your boosters, vaccination series, is going to help to reduce the chance of long COVID. I think that's been missed. And then finally, severe COVID can happen to anyone with waned immunity. It isn't just like "if you're 66 you're in and if you're 56 you're not." That's just crazy, people partitioning each by age. We're very lucky; we're the only country in the world that has put these boosters out for young people all the way through the age gamut. If you go to Europe or Asia, they're not being provided for everyone or at least as an option. So again, we're fortunate, and I hate to see the mixed messages that have been put out there. The CDC and the FDA were right to approve for 6 months and older, but there is confusion out there that is unnecessary.

Pathak: I think what your point is, and such a crucial one, is that what we, I'm hoping that public health clinicians on the ground, what we're doing in tandem is really uniting behind a message. Because that's the most helpful thing in the face of so much confusion. The key message that I'm taking away from our conversation is that this updated COVID vaccine, though it's not for this particular variant or the variants that are dominant right now, is still doing a really good job at protecting people and giving a good antibody response to the current strains that are out there. Please correct me if I'm wrong. I think this is really helpful when we're counseling our patients, because they're wondering, *Am I going to get it or am I not going to get it?*

There are so many other points that we can pitch around long COVID. So, if we are counseling around the uptake for this vaccine, there is the long COVID argument as well — decreasing significantly the risk for long COVID. Are there any other key points that you think we should be highlighting in our counseling sessions?

Patel: I think Eric said this, and this was presented last week at the Advisory Committee on Immunization Practices (ACIP) meeting: No matter which way you slice the groups, whether that's by age, underlying medical conditions, or no underlying medical conditions, there's no group that's completely risk-free of severe disease, hospitalization, or death. Even in children younger than 19 years of age, there have been several hundred deaths. And again, as a pediatrician, kids should not be dying. So, this recommendation is intended to make sure that everyone who wants a COVID-19 vaccine can get it, and that we are recommending based on the epidemiologic data and circulating variants, and [also addressed are] access issues for underserved communities — that everyone should be getting this vaccine.

We really appreciate the viewership here — our group of healthcare providers, and I include nurses and pharmacists in this as well — to help get that message out so that we can make sure patients are safe this respiratory season.

Topol: One other point that was brought up at the CDC ACIP meeting last week, which I think was noteworthy that a lot of people don't realize: One of the concerns of the vaccines has been myocarditis. Myocarditis was mainly in men from their late teens to age 40. It turns out that, with boosters, with the bivalent booster, out of 550,000 people who were dosed, there were only two cases of myocarditis, which is really extraordinary. So it turns out that that risk, while it's not zero, is markedly reduced from what had been seen. It's still rare from the initial series of vaccines. But it appears that the timing, when there's extended time in between dosing, that risk is getting close to zero. So, that should give better confidence of avoidance of any risk for that one complication or adverse effect that people are concerned about, particularly males in that age group.

Pathak: That's great. That is really helpful. I'm getting a lot of questions from patients around the fact that they've just had COVID in this recent uptick. What is the counseling we should be giving them about the timing of their updated COVID vaccine this fall?

Patel: I'll take that one. We are saying that you can wait up to 3 months, and there are a couple of reasons for that. Obviously, the infection itself confers immunity for that individual. But again, it wanes; immunity wanes even after infection. There are also some data that suggest that the longer you wait from your infection to vaccination, it can actually have an enhanced response to that vaccine. It's a "may," and I say "may" because, again, healthcare providers might have certain reasons for wanting to vaccinate their patients earlier — immunocompromised hosts — so that's the general guidance. But you have to know your patient.

Pathak: That's really helpful. So, we've had the summer, going into fall, and an uptick of COVID cases. And now our practices are also gearing up for cold and flu season and RSV season, as we talked about. So, Mo, can you set the scene for us for RSV and flu activity right now? What are we seeing and what can we anticipate?

Patel: It's been very complicated over the pandemic because the pandemic really shifted the seasonality of a lot of these pathogens. We saw flu earlier last year, RSV earlier last year, although the peak seemed to be similar to what we would normally see pre-pandemic. I heard one of our ACIP experts say this on a call that all these viruses are misbehaving. It's yet to be determined when that seasonality is going to come back to the way it was pre-pandemic. I think we can expect that all three viruses will be circulating this season. We just don't know exactly when, and we don't know how severe disease is going to be. Right now, flu is still at pretty low levels in the Northern Hemisphere, and we are starting to see RSV in the Southeastern region of the United States, which, again, is where it typically starts. So it looks like these two viruses are coming back to how they were pre-pandemic, but yet to be determined.

Pathak: I don't know that viruses ever do behave, but that is a very good point about how we anticipate viruses and how we can time our preventive tactics like vaccines. So this is the first year, to your point, Mo; we'll have vaccines available for RSV, and I would love it if you could share an overview of the guidance around RSV vaccination.

RSV Vaccination Guidance for Children and Adults

Patel: Yes. Let's start with the pediatric immunization product, which is nirsevimab. It is a long-acting monoclonal antibody, and this is huge. This is just huge for pediatricians to have a product available for infants in the first week of life. Nirsevimab is recommended for all infants younger than 8 months when they're either entering the RSV season or during the RSV season. For a small proportion of infants who are at higher risk for RSV — premature babies who are on oxygen or diuretics — those infants, 8-19 months of age, can get a dose of nirsevimab in their second season. So that's a recap of the recommendation for nirsevimab for infants this coming fall.

Now I'll talk about adults as well. We have a recommendation for adults 16 years or older, and those adults may get RSV vaccine. This is under shared clinical decision-making. What does that mean? Shared clinical decision-making is a conversation that a provider would have with their patient. A piece of that conversation is: Is that particular patient at increased risk for RSV that the provider would recommend an immunization for them? So, patients such as COPD patients or patients with congestive heart failure or other risk factors, like residents of long-term care facilities or nursing homes. The second piece of the conversation is really a conversation we all have with our patients when we're talking about vaccines, and that's what to expect in terms of side effects. In RSV, they are similar to other vaccines': some erythema at the injection site, soreness, some swelling, and then symptoms like fatigue and myalgia and those kinds of things, and they last 1-2 days. And then the third part of that conversation is around preference:

What does the patient want to do? That includes a conversation around co-administration, which is a question that's been coming up a lot.

Pathak: That was my next question. Definitely feel free to jump into that point. So we've got three shots. We've got for some, those over 60, the potential to receive all three. How should we be counseling and talking to our patients about the timing of these shots?

Three Shots at Once: Flu, COVID-19, RSV

Topol: I'll just say one thing before the timing, just to frame it. What Dr Patel emphasized about RSV: This is a virus that we didn't have a vaccine for, for several decades. It's actually extraordinary to have a vaccine, and there's one in the hopper for pregnant women, too. But this is a one-shot vaccine, not two shots, with high efficacy. As Mo laid it out, it's still an option. It's a shared decision, but I don't want to miss the science advance here. There are so many pathogens that are serious that take lives and get people in the hospital really sick, for which we still don't have a vaccine, but this year is a really big year to take on RSV, and, of course, with the monoclonal antibody as well. So I just wanted to put that in there, because a lot of people think, *So what, RSV?* Well, it's a big, big deal.

Pathak: That's a great point, because by some estimates and for some populations, the toll of RSV in terms of hospitalizations and deaths is similar to that of the flu. So, that's a major, major point that we have this tool available to us. Thank you for that, Eric. They say that a delayed vaccine is a missed vaccine for a lot of people. I know for myself, in the clinical setting, if I have someone in front of me, I definitely am trying to think how best to counsel to get agreement on the maximum amount. Because especially for seasonal vaccines, it's very hard to get people to come back. I know that personally as someone in an intergenerational household, with someone over 85 in the house and someone younger than 3. So, how should we be talking to our patients about the uptake of these three shots?

Patel: There are these three major respiratory diseases that cause hundreds of thousands of hospitalizations and thousands of deaths every year. And we are in our strongest position ever to be able to offer these new and updated tools to our patients. I just hope, in forums like this, that we are arming our viewers and our healthcare professionals to remember that this is a priority in terms of preparing the public, preparing our patients, for the respiratory season at CDC across the federal government — and even with our partner organizations, including professional societies, which many of your viewers are members of. So I really appreciate that we're having this conversation today.

Now when we're talking about all three vaccines administered together, I just love what you said about that patient being right in front of you. The most important thing is that the patients get all their recommended vaccines, for flu, COVID-19, and RSV. That time is starting now. Co-administration means, in our guidance, that we can administer all

three of those vaccines together. That is considered acceptable. Like you alluded to, Neha, there are some providers who recognize that they're not going to see their patients again this season, and that if they let them walk out the door, it is a missed opportunity. On the patient side, we should also remember that some patients actually prefer to get them all at once, a "one-and-done and then I'm good to go."

Let's dig into the science a little bit. A substantial number of studies have looked at co-administration of COVID-19 and influenza vaccines and found that co-administration is safe and effective. A smaller number of studies are looking at RSV vaccine and influenza vaccines being administered together. In those studies, we didn't see any safety signals, and the immunogenicity — or the immune response of the vaccines — when they were given together was comparable to when they were given about a month apart. We don't yet have data for co-administration of RSV and COVID-19 vaccines, and so some providers are recommending for their patients that they prefer that they get the COVID-19 and flu vaccines together and delay the RSV vaccine. And that is also reasonable. We just have to make sure that healthcare providers truly understand the context of their patient, just like you are saying, Neha — that you're worried that you're not going to see them again. So, I want to be careful that we are not denying patients and providers the opportunity to get all three vaccines together if they choose to do so.

Patients' Financial Costs for Vaccines

Pathak: That gets me to a question around costs. There have been several recent news stories around patients who were signed up for their COVID shots and then they received notifications that they would be billed close to $200 for them. What should patients anticipate in terms of cost? How can we, as healthcare professionals and providers, help our patients navigate this question around the costs of these vaccines?

Topol: I can address the COVID vaccine story because it's really one that is sobering. Up until now, I think everyone knows that the government purchased at about $25 each for each shot and supplied them free of charge to all-comers. So no one had to worry about paying for COVID vaccines, and that was great. And by the way, the vaccine manufacturers didn't do poorly with this. They made billions and billions of dollars throughout the pandemic from the vaccines and the booster. Now, because there's no longer an emergency state of the pandemic and also there are only so many billions of dollars if the government has to buy vaccines, this is now a company story of charging over $110 per dose. Many insurers will cover that because it's considered part of preventive care and a very good investment of an insurer for a patient. However, some don't. And that's what I think you're referring to now, that we've got a problem here, that when people go in and get the shots — this is what I'm very worried about. I'm not worried about whether they're going to provide protection. I'm much more concerned about whether people are going to get them because of this real, unexpected new thing of potentially having some financial liability. Now, CDC, thanks to all the efforts there, is getting a good supply — which I know Mo can speak to — for uninsured people, but it's the pseudo-insured people that say, "Oh, you have to pay for it." "It goes toward your deductible," or things like that. So, it's still in the early days. We'd like to see insurers

cover this, but unfortunately, the companies, namely Moderna and Pfizer, have increased the price more than fivefold of what they were charging the government. And that's atrocious, in my view, just simply because that's what's putting at risk the number of people who go ahead and get the booster shot for COVID.

Pathak: That's such an important point. There are already so many hurdles for patients: time, access. So to have overcome those and then have cost be another barrier is just — it's very difficult as a provider to see that. It's very hard to help your patients navigate that hurdle sometimes. I'm really curious about the programs that you mentioned for the uninsured. How do we operationalize that? How would one who doesn't have insurance access some of these programs?

Patel: I do want to clarify one thing about insurance: Most insurance plans are required by law to cover CDC-recommended vaccines. This is a regulation that was put in place earlier this year, and it does include COVID-19 vaccines. And there's no cost sharing associated with this. I will recognize that the practical implementation, about how this actually rolls out, is very convoluted, and I know that CDC and the Centers for Medicare & Medicaid Services and others are working to better make sure that this is smoother than what it's looking like now for patients when we did that transition to commercialization.

To your question about uninsured and underinsured — and this is adults and children — there are programs in place to remove those barriers. So, for example, nirsevimab is going to be included as part of the Vaccines for Children Program, which provides vaccines and immunizations at no cost to about half of the nation's children. So for children, we are in a good place. For adults, it's different. We don't have a similar program, like a Vaccines for Adults Program, in the United States. What CDC did for COVID-19 vaccines is launch a program called the Bride Access Program to ensure that we have access and improve vaccine confidence. And in terms of access, it's no cost but it's also at a location that's near them. Certainly, in certain parts of the country, like in rural parts of the country, access is a difficult thing. Those patients and providers can go to vaccines.gov. I looked on there earlier today, and you can find your way to a location where there's a Bridge Access site for you.

Pathak: That's really helpful. Beyond vaccinations, what else should we be talking to our patients about regarding mitigating their risk for infection or major illness this fall from these respiratory viruses?

Mitigating Risk for Infection During Respiratory Virus Season

Topol: There are many different things that I think everybody's heard about now to the nth degree, right? I mean, these are respiratory viruses, so K95 and N95 masks are good against all respiratory viruses and all strains of viruses, so that's one thing. It's been interesting how a lot of health systems have really loosened the criteria for requiring masks, and here we are moving into respiratory virus season. The second thing, and I think everyone is well aware, is that the CDC did something historic in

recent months when they said, "We've got to really fix the air — that air quality is critical." Not enough attention has been paid to air filtration and ventilation. If you're here, like me, in San Diego, you can keep the windows open and be outside a lot, but as we get closer to winter, a lot of countries are socked in indoors mainly. This lack of attention to that and getting that into our schools and all our buildings, we haven't put enough effort and priority into that. But in the meantime, congregating and crowding indoors, particularly in places that are not well ventilated, is a risk and unfortunately a lot of people think the pandemic is over. Well, maybe the emergency phase is over, but we still have this virus, and we'll have this virus, unfortunately — I never thought it would be the case — for many years to come. So the wakeup here is that we should be using these tactics. There's been a serious letdown of them. And that's when people typically get hit because, you know, we were anthropomorphizing earlier about the virus — it y "misbehaving." But the virus is seeking host — us, human host; it's relentless. It needs to find hosts and repeat posts. We basically play into that when we don't use any mitigation, particularly when we see a bump in cases in any region where we are, when we're traveling. So, these are things we can do that we're not doing. When I go to the airport or get on a plane, I don't see many people anymore who are using the precautions that we have, unfortunately. Like the bad information that's been put out about vaccines and boosters, we have a lot of really bad information out there about these mitigation measures that work.

Pathak: One way to talk about it with your patients is with a respiratory disease toolkit. Your general tools are vaccines, antivirals, testing, masking, physical distancing, washing hands, and, like Eric said, ventilation or air flow and improving that in the places where our patients live and work. And then you take that toolkit and you tailor it to your individual patients. One way to do this in two steps. The first step happens before your patient even walks through the door: You open up the toolkit and you see what's in there already. What's missing, what's recommended for your patient based on age, underlying medical conditions, other risk factors? And then when your patient walks through the door, you have that conversation with your patient to describe what these tools are, how to use them, and how they can protect themselves and their families and friends through the respiratory season.

Topol: Neha, I'd like to come back to one critical point that Mo made, and that's for everyone who's listening this insurance thing. The fact that CDC approved it, that vaccines have to be covered by insurers, that gives us ammunition — all of us — that we need. Those stories that are coming out now in the early days of the booster, hopefully, are just bumps in the road. And I hope that these big insurers who are also profit-making entities will follow the rules. But if they don't, we have some information here, that if it's approved, it has to be provided free of charge. And that's really helpful.; the last thing we need is a financial barrier to getting protected.

Pathak: Yes, that is an absolutely critical message. Often in the clinic, when you are seeing patients, there are so many issues that you're talking about. And when they ask you about insurance, I know I'm guilty of not knowing the correct answer. I just don't know. So, I think it's really critical to understand that, by law, these are covered. If you're

dealing with an uninsured patient, we have access to these vaccines for the uninsured. That has really been a key takeaway for me. Are there other ways, Mo, in terms of the partnership between public health and the clinical workforce — what else should we be doing in our clinics to support the work of our public health colleagues?

Patel: I just love this question. The main thing is that we are all fighting the same fight and we're all part of this healthcare system of protecting patients this year. The key message is to make sure patients are prepared for this respiratory season, and there are a couple of messages that you can give to patients. One is that COVID-19 vaccines are safe. Almost 700 million doses of COVID-19 vaccine have been administered in the United States under the most intense safety monitoring program in this country's history. Number two, COVID-19 vaccines are effective against severe disease, death, and hospitalization, and that's not just for people with underlying medical conditions. And the third is what Eric said earlier: Immunity wanes and variants emerge. We want to keep our patients in this race to beat the virus, and the best way to do that is by making sure they get their recommended vaccines, including COVID-19, influenza, and, if it's recommended for them, the RSV vaccines. The last thing I'll say is that we can give those messages in all different ways, but I'm sure you know that patients are being bombarded with so much health information, and they need providers to help them unpack that information and help them prioritize. So, really, the messages that we're talking about today on this webinar need to come from the provider. There's so much data and so many studies that show that healthcare providers are the most trusted source of information for patients.

Questions From the Audience

Pathak: It looks like we have some questions coming in from the audience, so I'll ask you a few here. If a patient would prefer a delay and not do all three vaccinations at the same time, then what would be the recommended delay time between administration?

Patel: There is none. Patients can get those vaccines at any interval that they like; they're not live vaccines and so there's no interval.

Topol: Someday we will have them all rolled into one shot; it's coming, but unfortunately not in 2023.

Pathak: Looking beyond this current cold and flu season, what is the latest on the mucosal COVID-19 vaccine?

Topol: That's something I'm really into; we have been pushing hard. There is a project, Project NextGen, that the White House got launched with $5 billion, and its goals are threefold: One is to get a nasal vaccine fully assessed and hopefully out there; another is monoclonal antibodies, since we don't have one now for COVID that works; and the third is better pan-variant vaccines that are more durable, that don't last only x number of months — hopefully years — and are variant proof. That program is now off and running. We have many nasal vaccine candidates out there. There are a couple that are

already commercialized in other parts of the world that, came from American sciences, you know, universities here that were out-licensed. So I'm confident that we will see a mucosal vaccine/nasal vaccine, I hope next year. There have already been some phase 3 completed studies. The data looked really quite good. And remember that this is an approach that would help block infections. As the virus evolved when it got to Omicron, it really blew through the vaccines for transmission. It isn't like the notion that "Oh, the vaccines don't work." No, they work really well, as Mo emphasized; severe COVID deaths and hospitalizations are remarkably reduced, by about 90%. The issue here is that we need a better way to block infection so that all of us can go about our lives. And the best shot for that is nasal vaccines. That's how the virus gets into our body. And that gives us that extra layer of protection that we haven't had yet.

As the virus has gotten to where it is now in its evolution, it's clear that this is something we're going to need, so it's just a matter of time, I hope. Since we're talking about flu, there's only one nasal vaccine that's ever been approved in this country, FluMist, and it doesn't work any better than flu shots. In fact, it's approved only for certain populations. That has tainted the view of people toward nasal vaccines, the companies that might develop them. However, the difference is that we've never had potent flu shots like we have had for COVID; we've never had a pill like Paxlovid that worked so well for flu. So for this virus, we've come up with far better pills, antivirals, and vaccine efficacy that make flu shots look anemic. The chance of us conquering this virus with a nasal vaccine is something that we should be very optimistic about. And since we've already seen some nasal vaccines that work, I hope we'll see one next year sometime. I wish it was even sooner.

Pathak: There's another question. How do we stress that COVID isn't necessarily a seasonal threat? We saw COVID cases increasing over the summer, but our COVID vaccines, boosters, seem to be coming out in the fall with flu and RSV. So, how do we inform patients that essentially they're at risk for COVID year round?

Topol: People are trying to make it into a seasonal virus out of convenience, but it doesn't behave — if that's the word — like that, because if you look at the two hemispheres, we've had outbreaks, major surges, simultaneously in both hemispheres. That tells you it's not seasonality, right? And we've had summer, winter in this country with major, major waves. So I think the problem here is that we'd like to make it a seasonal virus. Maybe someday it might turn out to be that, but it isn't that right now. And that's one of the reasons why I'm not keen on this annual-shot idea for COVID, because the booster lasts about 6 months before the waning of the neutralizing antibody response, so trying to stretch it like for RSV and flu, where there is a much more defined time when the risk is there, we don't have that luxury for COVID at this point.

Patel: I would agree. We just don't know the epidemiology fully yet to understand what COVID-19 is going to look like in the future. Even just this year, we had an uptick in the summer. So, there's a lot more to learn about COVID-19, the epidemiology and the impact of immunity at the population level. How fast are variants going to emerge? And

like Eric was saying, the broader the immunity we have at the population level, where is the height of the immune response, creates these bumpers for the virus to dig in and grab a toehold and take off. So, diverse immunity as well as strong immunity are really critical, and they maybe can shape the epidemiology of COVID-19, but we just have a lot more to learn.

Pathak: There's another question: How do we educate patients on appropriate testing? I think this may be for COVID-19. When to test, how long to isolate, what kind of test, and should you test for all three viruses?

Patel: I can start. Certainly, if you have medical conditions that are going to put you at risk for severe COVID-19 infection, and it might warrant you getting Paxlovid, then you should test. You should know what you have. I would say this for flu too. We don't have an antiviral for RSV. But if you're at risk and you know that you're going to be at risk for these diseases, you need to know what you have so that your provider can make sure you're getting the correct treatment. For most people, again, we do have tests available; COVID-19 antigen tests are available widely. We don't have point-of-care tests for influenza yet, making testing a little bit more tricky. And similarly for RSV, we don't have these rapid tests, like Group A strep like you would get in an urgent care, available for RSV. So it really is a composite of what your provider thinks is best for you. Are you going to need antivirals or other sorts of management?

Topol: Let me just weigh in on the tests. The rapid tests work for COVID still. And the good thing about them is that a lot of people have rapid tests lying around. Maybe they think they're expired, but if you check the FDA website, a lot of them have had a 1-year extension for shelf life. So don't throw them out; they still work. You have to check the lot numbers. But I would always implore people to do more — if it's negative, do at least a repeat, and ideally a third test, to make sure. If you want to say you don't have COVID, it ought to be on 3 separate days that you don't have a positive rapid test. Obviously, a PCR test would be another good way to find out. But the problem is that they are not easily obtainable, like they used to be. But if you can do that, that's great; that adds another layer, a way to get an accurate diagnosis. Now, the other question you asked, Neha, is about how long to isolate. Again, using the tests, this is where, in the prior CDC recommendation, you could go out after you're feeling all right, after 5 days; you could go to work or back to your usual activities. I had always thought that that was premature, and that you should ideally use rapid tests and show that you're at least 2 days consecutively negative. For the average person, it could be 7 or 8 days, and for some people that could be too much. So, this is why testing to make sure you're not exposing others to COVID is helpful. One really interesting thing is that — this goes along with what Mo has mentioned about the immunity that's developed in the population — people are having negative rapid tests even though they've been exposed to COVID, but the levels are so low and the immunity is so high. So, do you call that a false positive? Or do you call that a negative test? Because it's below the detection level of the tests. So, just because you've been exposed and you have a negative test, it doesn't mean you truly haven't had that exposure. Your negative test, is repeated, ideally at least a couple of times, to be sure you're not showing signs of infection.

Pathak: That's really helpful. And I think that brings us to the end of our Q&A time. This has really been such a wonderful discussion. It has helped me in so many ways with my clinical practice, and I hope for all of our listeners as well. Thank you so much, Dr Topol and Dr Patel, and thank you to our audience for attending. We would love to invite everyone to our next Medscape Masters event on October 18. The topic will be: "Should Patients Have Immediate Access to Cancer Test Results?" We're putting the link in the chat so you can click and register today. Have a great night, everyone, and thank you again to our panelists.