

# But Why: A Podcast for Curious Kids

## [Vaccines, Masks and Handwashing: A Coronavirus Update](#)

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[Jane] This is “But Why: A Podcast for Curious Kids” from Vermont Public Radio. I'm Jane Lindholm. On this show, we take questions from curious kids just like you. And we find answers. Sometimes we talk about things that are happening in the world around us right now.

And this is one of those episodes. You have probably been hearing about a virus, a sickness that's been going around the world. We did an episode about it back in March, five months ago now when we were all still just starting to learn about it. And now, although we're still learning new things about this virus, we've also had some time to experience the way our lives have changed because of it. Some people have gotten very sick, but even people who haven't been made ill have been affected by this worldwide situation. Many of you probably had to stop going to school in the spring or it would have been the fall if you live in the southern hemisphere. And some of you aren't going back to your school buildings at all as school starts up again in many countries. Others of you will be going back, but maybe not full time. Or you might have to wear a mask when you're in your school. Or maybe your family is trying to find a different kind of arrangement to make sure you can learn new things and stay healthy at the same time.

Today, we're going to get an update on this virus called COVID-19 . And we're going to answer some of your questions about what's called a vaccine, a medicine that can help people not get a sickness. Now, I want to say, if talking or hearing about this topic makes you feel nervous or anxious or scared and listening to an episode about it is not going to make you feel better, it's okay to skip this episode or to ask your adults to listen first to see if they think this would be good for you to hear. For some people, it's really helpful to get as much information about something as possible. That actually makes them feel better about something that's on their mind. But for others, it doesn't feel better and it's OK to listen to a different episode instead, if that's the case for you. Like maybe our episode about unicorns and other mythical creatures or our recent episode about making ice cream. For those of you sticking around, let me introduce you to our guest. She might sound familiar.

[Krutika] Hi, my name's Krutika Kuppalli. I am a doctor that takes care of people that get infections from each other and also they get rare diseases.

[Jane] Krutika Kuppalli's official title is assistant clinical professor of Infectious Diseases at the Medical University of South Carolina. I said she might sound familiar because we actually spoke with Dr. Kuppalli in our first episode about COVID-19 , the virus that's making some people sick all over the world. Because it's making people sick in lots of different countries, it's often called a global pandemic. You might also be hearing the word corona virus a lot. COVID-19 is one type of coronavirus. So sometimes people refer to COVID-19 as the novel coronavirus. Novel just means new. Or sometimes people just shorten it and say the corona virus. But the official name is more technically called COVID-19 . We asked Dr. Kuppalli to come back to talk with us about some updates to our

understanding of this virus and the work scientists and health officials are doing to try to keep us safe, including working on a vaccine.

[Krutika] I can't believe that it's only been since March since we've talked. It feels like it's been a very long time. So we've learned a lot about COVID-19 since March. We have learned that this disease can make people quite ill. I think when we were first talking, we spoke a lot about how it really was elderly people we were most worried about. And while those are the people that we think about being at greatest risk for this disease, we do know that really all people can get quite ill from COVID-19. We primarily worry about people getting a very bad infection or pneumonia in their lungs. But we are now learning so much about how this can cause so many other problems. It can cause problems with your heart, it can cause long-term problems with your central nervous system - that's your brain and some of your coordination and things like that, your ability to smell and taste - we see people who develop things like blood clots. And overall, it seems that it causes a lot of inflammation in people. So that is something we are still continuing to learn about.

[Jane] Now, I want to stop here and check in with you, because that was a lot of scary things that she was saying that can happen to people who get this virus. But I want to also let you know that most people who get this virus don't get that sick. In fact, some people don't even realize they have the virus. So although it sounds scary, the vast majority of people who get it are going to be okay. And the more steps we take to protect ourselves and everyone around us, the fewer people are going to have to get COVID-19 at all and the more people we can protect from getting really, really sick. Back in March, we talked a lot about the importance of washing our hands to protect the spread of this and lots of other illnesses. You should still try to wash your hands every time you think of it. Plus, before and after you eat, after you go to the bathroom and after you've been playing or touching other people's toys and things like that. But now we also know other ways we can try to help slow down the spread of this virus.

[Krutika] Washing your hands and practicing good hand hygiene is still number one and extremely important. But yes, there are other interventions out there - we call them nonmedical interventions - that we know work. And if we could all take them up, we would be able to contain this virus. One that we have talked about a lot over the last few months is wearing cloth face masks or face coverings. The reason for this is what we've learned over the last few months with this particular virus is that you can transmit it when you're not having symptoms. And that is a really important thing to remember. So up to three days before you have symptoms, your virus level can be high and you can transmit this virus. And so because of that, we don't want you to be able to spread the virus even if you're feeling well. So we've recommended now that everybody wears a cloth face covering or a face mask. And what that does is that will prevent you from spreading potentially infectious droplets to other people. And also, if somebody else is wearing a face mask or cloth face covering, that will prevent them from spreading their potentially infectious droplets to you.

[Jane] Can you describe what droplets are? Because when I think about when I'm speaking or breathing, I don't see any water coming out of my mouth. So how are there droplets coming out when I breathe?

[Krutika] Droplets are not anything you can see, but they are little particles, I guess is the best way to say it, that come out of your mouth when you talk, when you cough, when you sing. And the more forcefully you talk, you cough, you sing, you breathe, the further those droplets are going to go. We have learned that it's very important for people to maintain their physical distance from each other. And I use the word physical distance because we

still want people to remain socially connected during this time. That's very important. But maintaining physical distance of at least six feet is going to help you from spreading those invisible droplets that you cannot see. There've been modeling studies that have shown that if we could get everyone to wear a cloth face covering or a mask, maintain their physical distance, wash their hands, we would be doing a lot better in this country at containing the coronavirus pandemic.

[Jane] By this country, Dr. Kuppalli means the United States, where she lives and works. We know that many of you live in other countries and the governments in different countries have made different policies to try to do what's best for the people who live in them. So everyone's experience might be a little different here. I want to make sure you know a little bit more about masks, too, while we're talking about them. Have you tried wearing one yet? Maybe some of you are going to have to wear a facial covering or a mask when you go to school or you wear one now, if you go with your adults into a grocery store or something. You should always keep the mask over both your nose and your mouth because that helps to make sure those tiny droplets in your breath don't go out into the air. If your nose is outside the mask, you can still breathe nose droplets out into the air, so keep your nose and your mouth inside the mask. And if your mask isn't comfortable, talk to your adults about ways to fix it. There are different styles of masks or different things that people can do to try to make it a little more comfortable. You should also be aware that some children and adults can't wear masks. But if all of us who can wear a mask do it, we'll be helping to protect those who can't as well. I wanted to ask Dr. Kuppalli to talk a little bit about what we know about this virus and how it affects kids. What people who are researching this illness understand right now is that a lot of kids who get the virus don't get sick at all or get only very mild symptoms. Like maybe when you eat your food, you can't really taste all the flavors as strongly as normal or you feel a little tired or achy. Researchers are still trying to work very hard to understand how much kids can pass the virus on to other people if they have it. Some studies suggest that young kids under the age of about 10 might be less likely to pass the virus on to someone else than older people are, but that older kids can pass the virus on as much as adults do. That's a really big question. And doctors and scientists and people who study public health are trying to understand better right now how this virus is passed from one person to another, especially among kids, because it's important to understand, as some of us head back to school, where there are lots of kids in one place and adult teachers and staff members. I interviewed Krutika Kuppalli for this episode on July 30th, and I mentioned that because this virus is still so new that people learn new things about it all the time. So if you are listening to this episode in maybe September or October, you should ask your adults to help you find the latest information and updates. Speaking of information and updates, here's a question we got from Amelia, who's six and lives in Maine, after our first coronavirus episode.

[Amelia] My question is, why is the corona virus better for older people to get than for younger people?

[Jane] I think I may know where Amelia's question is coming from. In that first episode about this virus, we said it was lucky that kids don't seem to get this virus as much as adults and often don't get as sick as adults. Now, I didn't mean to make you think that it's better for older people to get the virus, but I can understand how you might have heard it that way, Amelia. It's not good for anyone to get sick. And we especially want to protect people who are older or whose bodies might have trouble fighting off a virus like this. But you probably know that the adults who care about you want to do everything they can to keep you safe. And so a lot of us adults are really relieved that most kids don't seem to get

too sick from this virus because we love you and we want you to be healthy. Zander, who's 10 and lives in Vermont, wants to know when we can see our friends again without having to worry about the virus. Some of you might also be wondering when life can get back to normal. One of the ways that doctors and public health officials tried to prevent the spread of a disease and get everybody back to normal is by using something called a vaccine.

[Cora] My name is Cora, and I'm three-and-a-half years old, and I live in Montpelier, Vermont, and my question is how does vaccination work?

[Jane] Let's break this down. Vaccination is when you are given a medicine, a vaccine, that can help make sure you don't get an illness. Here's Dr. Kuppalli again.

[Krutika] A vaccine is a type of medicine that helps to train your body's immune system so it can fight a disease that it may not have come into contact with before. They are designed to prevent people from getting a disease. Certain diseases that used to be big problems in the past, but are not anymore because we have developed vaccines are things like the chicken pox, meningitis, and polio. The vaccine works by training the body's immune system to recognize and fight that pathogen, which is usually a virus or a bacteria. A vaccine is made up of either the dead weakened or altered version of the pathogen, which is then given to the body. The body's immune system triggers a response, and then your immune system is what protects you when exposed to the infection and then will destroy the pathogen in a future infection.

[Jane] OK, so let me make sure I understand what you're saying. So a vaccine is kind of an altered version of what the virus or the illness might be. And you put that into your body and sometimes a vaccine can make you feel a little bit sick.

But for most people, the vaccine won't give you that virus. But my body reacts to it to try to kill off this thing that has come into my body. And then if I ever come into contact with the real virus, the real bad guy, my body would already have the stuff in there, the antibodies to fight off this virus, right?

[Krutika] Yeah, that's absolutely right. And actually, a very good point is, is that when you get the vaccine, sometimes you don't feel so good. But that's actually a really good thing because that means that your body's immune system is working hard to make those antibodies that would help make you develop a immune response if your body ever got in contact with the actual bad germ.

[Jane] Yeah, it's kind of like that bad germ would try to come into my body and my body would say, nope, I know exactly who you are and you are not getting in. Out of there, right now!

[Krutika] Right. 100 percent accurate.

[Jane] So when you get a vaccine, it introduces your body to a version of a germ that could make you sick. And it's almost like your body makes a bunch of soldiers who can recognize that stronger germ if the real one ever gets into your body and they can fight it off so you don't get sick. Now that we know a little bit about what vaccines are in general, let's learn about how people are working on a vaccine for COVID-19.

This is "But Why: A Podcast for Curious Kids". I'm Jane Lindholm. And today we're talking with Dr. Krutika Kuppalli. Her special focus as a doctor is on infectious diseases, illnesses

that can spread from one person to another. She's helping us understand what we've learned over the last few months about the novel corona virus, COVID-19. We were just learning about vaccines, medicines people can take to help make sure they never get a specific kind of sickness. Lots of scientists are trying to make a vaccine for COVID-19. Dr. Kuppalli says there are more than 165 different medicines that are being developed to see if they'll work as a vaccine against COVID-19. About 30 of those are already in what are called human trials, where some people are given this medicine to see if it can prevent them from getting the illness. Vaccines have to go through a lot of testing before they can be used on all of us because doctors want to make sure that it actually does prevent the virus and also that it doesn't make you sick in some other way they didn't know about. Usually that process takes years and years. Dr. Kuppalli says that because the corona virus is all over the world and it's preventing us from going to school and going about our daily lives, there are lots of people working as hard and as fast as possible to get a vaccine out to the public.

[Krutika] In the case of the corona virus vaccine, the U.S. Food and Drug Administration, they are the people who will be overseeing the approval of the vaccine, has said that they would like to see a vaccine be at least 50 percent protective to be considered effective.

[Jane] To be 50 percent protective would mean what? That any person is protected halfway or that half the people will be protected and half the people won't?

[Krutika] At least half of the people would be protected.

[Jane] So it doesn't mean you'll get a milder version. It means half the people won't get anything. But that means maybe up to half the people wouldn't be protected. That doesn't sound very effective.

[Krutika] Well, considering what's going on right now, if we can decrease the number of people who are getting infected, that would be a huge win.

And again, we have numerous vaccines that are being studied, so it's quite possible that we will get more than one vaccine. There are six studies that are in phase three of clinical trials right now. So it is quite conceivable that we will get a number of different vaccines.

[Jane] Dr. Kuppalli mentioned the U.S. Food and Drug Administration, the FDA. They're the government agency that will decide if a vaccine is safe for use in the United States. For those of you in other countries, your country probably has its own agency that will make those decisions. There are also groups of countries working together in an organization called the World Health Organization. Once a vaccine is ready, there needs to be a plan to distribute the vaccine to get it out to everyone who needs it. There may not be enough of the vaccine right at the beginning for everyone to get it at the same time. So there will probably be some people who get it before others. Dr. Kuppalli thinks it's likely that any vaccine will go first to health care workers and other folks who are at high risk of getting COVID-19 because of their jobs. Then it could go to the people who have the highest risk of getting very sick if they were to get COVID-19. That's not the only way it could be done. Another way of doing it would be to give the vaccine early on to the types of people who are most likely to spread the virus to lots of other people. The idea there would be that if it's less likely to spread, that could also help protect people who are more likely to get sick. The decisions about who will get the vaccine when depend on what the vaccine is and when it arrives and how much of it there is. Governments will make those decisions. And health officials will help them come to the right ones.

[Nina] My name is Nina and I'm from Riverdale, Maryland and I'm six and I want to know why they use needles for a shot.

[Al] My name is Al. I am six years old. I live in Charleston, West Virginia. And my question is, why do vaccines have to be needles.

[Krutika] Oh, I wish vaccines didn't have to be in needles as well. I totally feel your pain there.

There are different ways that vaccines can be given. Things like patches...

[Jane] A patch is like a sticker on your skin.

[Krutika] Yes. Yes. A patch is like a sticker on your skin. And unfortunately, I don't know that we'll be ready to go with that for the corona virus vaccine, but hopefully one day. I will tell you that not all vaccines right now that we give are given by needle. We do have a couple that we can give by mouth. One of them is for a virus called rotavirus that we see in kids. It can cause a bad diarrhea and also for a bad infection called typhoid. That's a disease we see more commonly in resource-limited settings

[Jane] By resource-limited settings Dr. Kuppalli means places where it's harder to have clean water and there might be fewer health care facilities like hospitals and doctors' clinics. You actually probably got your rotavirus vaccine in the form of a drink when you were too young to remember it. Some vaccines are drinks. Some are actually sprayed up your nose. But you probably do remember getting shots because they can hurt a little bit. And sometimes kids feel scared about shots. By the way, you should know, not a lot of adults like them either. The reasons needles are used is because they're really good at getting the medicine directly where it needs to go.

[Krutika] It needs to get into your blood, right? So it needs to get into your blood. So, again, we can develop those good antibodies that we've been talking about.

[Jane] So once a vaccine has been developed and lots of us are getting them, like lots of the kids who are listening have had vaccines. And so you've had maybe a shot in your thigh or a shot in your arm or maybe even a shot in your rear end, depending on what kinds of shots you're getting and how old you are.

Not everybody, though, can get every vaccine. In some cases, people can't get a vaccine because they have a medical condition that makes it dangerous for them to get that vaccine. So can you describe why some people can't get vaccines and then we can talk about why it's so important for the rest of us to get them.

[Krutika] Depending on the type of vaccine, it is possible that somebody might not be able to get it. The most common scenario when a person is unable to get a vaccine is they have a weakened immune system. And when I say weakened immune system, they have something like cancer. And so getting a vaccine, particularly something that is made from a live virus, that would put them at risk, because if they were to get that vaccine, their body wouldn't just make the antibody to that vaccine. They actually could get the infection because their body is not able to make the antibody to that vaccine. And that would be very dangerous for them. We wouldn't want to give somebody a vaccine that could make them sick like that. The other less common reason why somebody may not be able to get

a vaccine is if they previously had a vaccine and they develop the very, very significant bad reaction to a component of the vaccine. That's extremely, extremely rare. That being said, because those people may not be able to get a vaccine, they can't be protected. They can't protect themselves. So it's incumbent on the rest of us in society to make sure we get our vaccines so we cannot get sick from those viruses or bacterias. So we can't then pass those on to people who can't get vaccines.

[Jane] You used a vocabulary word that I just want to highlight. You said it's incumbent upon all of us. Incumbent is a really great word. And so I'm glad that you said it because we can all learn it. Incumbent means it's your responsibility. It's your job. So when you say, Krutika, it's incumbent upon all of us to protect our community, you mean it's the responsibility of all of us to do what is necessary to make sure that all of us are protected, not just ourselves, but all of the people we care about, all of the people who make our communities run, and all the people we don't even know, but who also deserve to be able to be healthy and safe.

[Krutika] Yes, that is the thing about this particular pandemic that I think is really important, is that we all need to think about everybody in our community. This is a time for us to think about the words "we" and not "I". "We" is what will get us through this. "We" is very important. You need to think about your brother, your sister, your mother, your grandmother, your father, your next door neighbor, your teachers, your pastors, your ministers.

We need to think about everybody in our community. And that's why it's important to wash your hands. That's why it's important to wear your mask. That's why it's important to physically distance. That's why it's important that when we do have a vaccine to go and get it, because we need to protect everybody. And so that's why if we change our thinking and think about doing this collectively as a "we," as a community, we'll get through this.

[Jane] It's OK to ask questions when there are things that you don't understand or even when you don't want to do certain things like wear a mask, get a shot, or stay six feet away from people you want to be close to, because understanding why you're supposed to do those things might make it a little easier to live with them. We all need to work together to get through this. And as we all continue to live through this global pandemic, let us know if there are other questions you would like our show to talk to you about. You can have your adult help you record your question about that or anything else on a smartphone.

Tell us your first name, where you live and how old you are. By the way, try to do it in a nice, quiet setting. So maybe not riding in your car or while the dishwasher or vacuum cleaner is running. Then have your adult send the file to [questions@butwhykids.org](mailto:questions@butwhykids.org). We listen to all of them. I'd like to thank Dr. Krutika Kuppalli for joining us again to help us understand the corona virus.

Dr. Kuppalli is assistant clinical professor of infectious diseases at the Medical University of South Carolina. "But Why" is produced by Melody Bodette and me, Jane Lindholm, at Vermont Public Radio. And we're distributed by PRX. Our theme music is by Luke Reynolds. We'll be back in two weeks. Until then, stay curious.