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### Debunking Myths & Misconceptions on mRNA Vaccines

Announcer:

You're listening to *VacciNation* on ReachMD, sponsored by Moderna. Here's your host, Dr. Charles Turck.

Dr. Turck:

The widespread distribution of COVID-19 vaccinations has led to a steep decline in infection rates. However, circulating myths and concerns about the safety of these vaccines have prevented hesitant patients from receiving them. So how can we as clinicians talk to our patients about those concerns that have no validity behind them, as well as those that do?

Welcome to *VacciNation* on ReachMD. I'm Dr. Charles Turck, and joining me today to address common concerns surrounding the COVID-19 vaccines is Dr. René Najera, an epidemiologist and editor of [HistoryofVaccines.org](http://HistoryofVaccines.org), an educational website created by the College of Physicians at Philadelphia. Dr. Najera, thanks for being here today.

Dr. Najera:

Hi. Thank you for having me.

Dr. Turck:

To start us off, Dr. Najera, what are some of the most common myths surrounding the COVID-19 vaccines?

Dr. Najera:

One of the most common one, and one of the biggest ones that I've heard, even from people who are healthcare providers, nurses, physicians, physician assistants, is that the vaccine was too new. And that we had the pandemic declared at the beginning of 2020 and by the end of 2020, we had a vaccine against the coronavirus that was causing the COVID-19 pandemic. And so when I explain to them that the mRNA vaccine technology has been in the development since the 1990s, that kind of changes their mind a little bit.

The vaccine was initially used to try to address some issues with glandular problems with cancer and there's been a lot of research into that with this type of vaccine technology. However, when the pandemic came around, both the urgency from the pandemic, from needing to deal with it, as well as the money that was put into it through Operation Warp Speed from the Trump administration, through the World Health Organization funding, etc. it sped things up and it allowed for this vaccine to be used for the coronavirus. And so you had a situation in which phase 1, 2, and 3 of vaccine trials were done concurrently and the vaccine was also in production at the same time on this gamble that those phase 1, 2, and 3 studies would come out favorable, and they did and that you would have the vaccine readily available as soon as the data was in. And so this is different from other vaccine trials that it's a gamble to take a vaccine to market. But it wasn't very fast. There were no shortcuts, the same number of people were used for the trials, the same background information was gathered, and like I said, the vaccine has been in development since the 1990s for other things, it's just that now it was used for an infectious disease. And once I have that kind of conversation with my colleagues, they do for the most part change their minds. Others still remain a little bit skeptical, but they also say that, you know, they did not know that and that has some weight on their decision.

Dr. Turck:

And with those myths in mind, what are some strategies clinicians can use to address vaccine misinformation with their patients?

Dr. Najera:

Well, number one, it needs to be a discussion that is frank and open and more of a conversation than kind of a lecturing of the patient about the vaccine. We see it all the time with other conditions, right? A patient who is obese is not going to change their mind right away when they get talked to about their weight or their eating habits. A patient who is using substances is also not going to go into immediate

rehabilitation. And so it's a conversation that needs to be had maybe two, maybe three, maybe four times, as many times as necessary so that the patients can have an understanding about the vaccines, their benefits, any expected side effects, anything that worries them because at the end of the day, patients did not go to medical school, for the most part they may not have taken biology in college, if they're college-educated, and if they're not college educated, it might be a while since they had their last biology class in high school. So these things that are happening with the relation to the vaccines in COVID-19, they may be new. And so they need to have these conversations over several sit-downs with the patient, but it needs also to be very respectful of the patient's skepticism and they need to be aware of who they're dealing with as far as understanding the patient as a whole and where they may be coming with this. And then just having those conversations over and over again as much as necessary with the understanding, of course, that many providers, many healthcare providers are now exhausted after having to deal with the pandemic for well over a year now, almost two years and they might be a little bit frustrated at patients who refuse to get vaccinated or are still skeptical about the vaccination. That is perfectly understandable. Nevertheless, we find in public health in the research that we've done and how to deal with vaccine-skeptical people that conversations that are honest and open and are two-way conversations are more of the conversations that lead towards somebody changing their mind and actually accepting the vaccine and getting vaccinated.

Dr. Turck:

For those just tuning in, you're listening to *VacciNation* on ReachMD. I'm Dr. Charles Turck, and today I'm speaking with Dr. René Najera about some of the myths and concerns surrounding COVID-19 vaccines and how we can address them.

So Dr. Najera, now that we've covered some common myths, let's switch gears a bit and focus on those concerns that do have some validity behind them, such as the unknown long-term effects of these newly developed vaccines. What are some of those common concerns you're hearing from patients?

Dr. Najera:

So I'm hearing from some of them that, you know, because the vaccine was "very new," how do we know that five years from now, ten years from now it's not going to do something to them such as like cancer or some sort of new disease? And they get this from hearing that the mRNA vaccine has a genetic component to it. They hear 'RNA' and they think 'DNA' and they think 'DNA' and they think 'genetics,' and genetics is something that is very obscure, very difficult to understand. And when we hear of things like cancer affects, it, you know, it affects your genetics, people tend to associate these two. And so then we need to have that conversation of mRNA doesn't get into your DNA. It doesn't alter it in any way, it just produces these little proteins that are then introduced into your immune system. But not all of us went to school to understand immunology. And so that's where you have this misinformation that kind of creeps in and makes something that has a kernel of truth to it and you twist in a way that could lead people to not understand this.

In the history of vaccines, if a vaccine has been introduced, we follow it up for months or years and there have not been any cases where years later, something bad had happened. If there is to be an adverse event from a vaccine, it usually happens within weeks to months after the vaccine, certainly not years. Whatever vaccine component you get through the vaccination process is eliminated by your body in a few weeks to months. And so with this vaccine, again, it dates back to the 1990s, the mRNA vaccine, the vector vaccine, there are others like it, that date back several years as well and so they're not new and they have been followed up. And when I tell people that it's not just big pharma that is looking at the safety of these vaccines, and it's not just the federal government, it's also state and local governments, it's also academic institutions. And then within big pharma, you know, they're competing with each other and they want to look at the other guy's product and see if there's anything wrong with it so that their own product can be introduced as being better. And so there's a lot of surveillance about this. And when you have more than half of the population of the United States, well over 150 million people vaccinated, followed for months now, and you don't see anything long-term months later, then it's a safe, safe bet that there is a very low possibility of something happening later on. Is it possible? Yes. But very highly improbable.

Dr. Turck:

There've been some concerns, including from healthcare professionals about how in the early days of mRNA vaccine research that the vaccine was associated with a large number of deaths in laboratory animals. Is there any validity behind that?

Dr. Najera:

So that is one of those myths that has a kernel of truth to it that gets twisted around. So yes, there was a large number of laboratory animals that had to be euthanized after being given the mRNA vaccine, and this is in the studies before the human trials. Before human trials are done, vaccines and other pharmaceuticals are given to animals, lab animals, such as mice and rats, to see if there are any safety concerns. And so these animals, after they serve their purpose, they were given the vaccine, they cannot be used for anything else because that would confound the findings of some other research being done on them. And so they were humanely euthanized. And so yes, there are papers out there from pharmaceutical companies that have done experiments on animals for vaccinations, for the mRNA vaccines, for the vector vaccines, and once those animals are used, they are humanely euthanized, there's a whole process that involves federal law and how to properly and humanely euthanize these animals. So yes, that did happen, and there is that association

with vaccination. But it wasn't because the vaccine did anything bad to them; it was just that their service was done and it was time to move on to the human trials and so those animals were euthanized.

Dr. Turck:

Now with all that being said, Dr. Najera, patient education plays a critical role in all of this, so how can we better educate patients during their visits, and what sort of tools and resources can clinicians point them to?

Dr. Najera:

So you have the official sources, right? CDC, World Health Organization, the state health departments, the local health departments, but I think also the not-so-official but still credible sources, organizations that are out there promoting vaccination, not just for COVID-19 but for other, remember, the other childhood diseases did not magically go away because of COVID, they're still there. We're seeing a drop in the number of parents who are vaccinating children for those other diseases, so that needs to be kept up. And for that you have organization like Voices for Vaccines, you have organizations that are parent-led or patient-led organizations to educate people about vaccinations, so you can point them to those organizations as well.

There is a lot of involvement in social media now by parents right? We all check in on our Facebook groups or our Twitter feed. So there are certain people who are putting out there quality information. Guide them towards those, if that's how they get their information. But like I said, it's going to be an effort that's not going to be one and done. One visit is not going to be enough. You may require other visits with all the complications of there being a crunch in time, or the insurance, doesn't cover just coming in to talk about vaccines.

At the end of the day, we all listen to people who are like us, that's what makes us human, and so a parent might be more open to listen to a physician, a healthcare provider who is also a parent and who has done the walk themselves and has vaccinated their own children and follow those experiences. And so it's just a multi-pronged approach to people who are hesitant about the vaccine and it all again goes back to multiple conversations, honest, open, and nuanced conversations.

Dr. Turck:

Before we close, Dr. Najera, do you have any final takeaways with regard to vaccine myths and concerns for our healthcare professional listeners?

Dr. Najera:

Yeah, from the point of view of the history of vaccines, we've been here before. Every single vaccine beginning with Jenner's smallpox vaccine at the end of the 1700s to the more recent HPV vaccines and the nasal flu vaccines, every single vaccine has been met with skepticism, it has been met with fear, it has been met with misinformation, and even outright lies because there are people out there that do not understand how vaccines work. They don't understand the history of vaccines. They don't understand the science. And so one of the natural reactions that we have to not understanding something that scares us is to lash out against it. And so this has happened over and over again. It's going to happen with the next vaccine technology that comes after this one. I think public health professionals, as healthcare providers, we all need to be very patient with this. I know it's very exhausting because of the pandemic that is going on, but in that patience, we will find that we will change more minds than in being frustrated and acting out against people who refuse to get vaccinated or have some doubts. If we continue to have those nuanced conversations, point them to credible sources, and then also educate them that this has happened before, it's going to happen again, we might as well get it over with and have that conversation now, then we might be able to change more minds and help everybody on what is really a personal choice that affects everybody, right? And so go back, look at the history, look at the science, have those conversations, be very patient, and let's move forward.

Dr. Turck:

Well with those final thoughts in mind, I want to thank Dr. René Najera for being on the program. Dr. Najera, it was great speaking with you, today.

Dr. Najera:

It was a pleasure, thank you.

Announcer:

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