

Apoorva Mandavilli:

When the pandemic began, I don't think any of us imagined that so many Americans would fight against some of the things that best protect them. I don't think anybody imagined that people would resist masks, that they would resist vaccines, that they would resist every kind of prevention measure against having the virus spread through their community. That has been the most confusing, perplexing part of this pandemic, and I think the one that long-term really needs the most attention to, and it will be the most difficult to address because it gets to psychological, political, sociological divides that I don't think we fully appreciated have become so entrenched in our country.

LuAnn Heinen:

That's Apoorva Mandavilli, a health and science journalist at *The New York Times* where she writes about infectious disease, notably the coronavirus pandemic. Before joining *The Times*, she was the founding editor of *Spectrum*, the leading source of autism research news. She's the recipient of many awards, including the 2019 Victor Cohn Prize for science reporting, recognizing a five-year body of work. Apoorva is a member of the National Association of Science Writers, where she founded and co-chaired the diversity committee.

I'm LuAnn Heinen and this is the Business Group on Health podcast, conversations with experts on the most important health and well-being issues facing employers. My guest is Apoorva Mandavilli and we'll be talking about progress versus the pandemic, the Biden administration vaccine mandate, boosters, and lessons learned to date.

Welcome, Apoorva, to the podcast. So excited to have you today.

Apoorva Mandavilli:

Thank you for having me.

LuAnn Heinen:

The coronavirus story, unfortunately, is not going away. Did you ever think you'd spend what will almost certainly be more than two years reporting on a worldwide pandemic?

Apoorva Mandavilli:

I really didn't. When I started reporting on this pandemic, I didn't have a very good sense of how long it would last. I don't think any of us did. But early on, I was just so engaged in writing as much as I could about the virus itself and what we were learning. Once we realized that the vaccines would become available, my colleagues and I really thought that after December, after January, we would really slow down, that the vaccines would be rolled out, that we would see a drop in infections, and things would move on to maybe global vaccination, but that in the U.S. at least things would calm down. Of course, that did not turn out to be the case. Again, before Delta, when the CDC said vaccinated people can stop wearing masks, that seemed like another turning point and a signal that the pandemic was winding down. Again, we were wrong. Now I'm at a point where I really can't even begin to predict how much longer I'm going to be doing this.

LuAnn Heinen:

Yes, I can understand that. Such scale and impact, and so many narratives, conflicting narratives and plot twists. Let's start with recent developments. In early August, Dr. Fauci predicted that the earliest reasonable date for the pandemic to be under control in the U.S. would be Spring of 2022, and achieving that would depend on continued progress with the vaccination. Then the Pfizer vaccine got full FDA approval in late August, and big headline on September 9th, President Biden came out with new vaccine mandates affecting nearly two-thirds of the U.S. workforce. What's your take on this?

Apoorva Mandavilli:

You know, every expert I've spoken with has been full of praise for the vaccine mandate. I think partly because it's become very clear that without mandates we are not going to get to all of the people who have decided to remain unvaccinated, for whatever reason. We might make progress in the people who still for some reason

have not had access to the vaccine, but the people who don't want to be vaccinated, it seems like a mandate is the only way to get to them. Apart from the Biden administration mandate, it will also spark similar mandates in private businesses, in states, and localities. It's a really important step. I think that Dr. Fauci's prediction is one that's shared by other experts as well, because even with the mandates, it will take us time to really get to everybody. We're still at just about half the population vaccinated. We still have to get to kids. We still have to get to unvaccinated adults who don't want it. So it's probably going to take us several more months to get to a point where we stop seeing significant outbreaks.

LuAnn Heinen:

In the meantime, from a science perspective, what are some of the things that employers should consider as they set up testing programs? Let's say absent any guidance, because we don't have official OSHA guidance yet, it's new, but they're starting to think about how to get going on testing.

Apoorva Mandavilli:

I think the guidance is going to say businesses can require either vaccination or weekly testing. That's better than no testing, but a couple of the experts that I've spoken with have pointed out that with Delta packing such a big punch so early in infection, weekly tests are really not going to be all that effective, because somebody could get infected and infect other people well before the next test comes along. At a minimum, employers might want to consider two tests a week, that might at least give them a better sense of who is infected and who's likely to be contagious. If that's rapid tests, the more frequent the better. If it's PCR, it's more reliable, it takes more time, but in a situation like this, the frequency might be more important than reliability.

LuAnn Heinen:

That's good insight, because I think people are really confused and the rapid tests are considerably cheaper.

Apoorva Mandavilli:

Considerably cheaper and while they're not as reliable as PCR, if you do enough of them, their accuracy goes way up and the chances of a false result goes down. It's really a matter of doing them often enough and having enough of them in each round as well. If you double up to two rapid tests, for example, that's much better than using one.

LuAnn Heinen:

We didn't hear much about masks from the President last week. Given the anticipated lag while this gets organized and the rise in breakthrough infections, people are wondering again about masks. Some of us don't want to think about masks. Others of us are wondering what kind of masks should we be wearing. We've heard the mask you will wear is the best one, but is that really end of story? Isn't there more data on masks?

Apoorva Mandavilli:

Yes, that's definitely one of the criticisms of the plan that President Biden rolled out, is that it makes a lot of vaccinations and doesn't make enough of other things that employers and private citizens could be doing. Masking is just such a more immediate solution than vaccines, because by the time you give people two doses, and by the time they build up immunity, which takes a few weeks after the second dose, we're really talking about a pretty delayed impact, even if we start vaccinating people now. Masks can pretty immediately cut down the chances of transmission. Delta is more contagious than the other versions of the virus that we've seen, and so it might require, instead of the thinner sort of cloth face coverings we were all using, it might require surgical masks or N95s, especially when people are going to be closer together or when the ventilation in the buildings are not that great. If people don't want to wear N95s, South Korea makes a more wearable alternative called KF94, that's easily available from Amazon. Those are a little more comfortable, but again are very protective, and so those might be what's required. I think ventilation is a very important piece of it as well. Masking plus good air circulation can go a long way.

LuAnn Heinen:

Absolutely. I'm waiting for *Wirecutter* or *Consumer Reports* or someone to really kind of dive into ventilation systems, even ones that people can buy for their own workspaces, as well as mask comparisons and information.

Apoorva Mandavilli:

My colleague, Tara Parker-Pope, just did a piece about what workers can ask of their employers, but I'm sure that if you flip it, that has some good information for employers looking to make their workplaces safe for their employees as well.

LuAnn Heinen:

That's fantastic. Can you chat a little bit about the outdoor mask mandate? Is there a scientific basis for that? I think a lot of us wonder when isn't it safe to be outside without a mask.

Apoorva Mandavilli:

Certainly in earlier parts of this pandemic, outdoor masking just seemed like overkill. It still is when people are spaced far enough apart, but outdoors, masks might still be required if you're going to be in close contact with somebody where you're going to spend a significant amount of time with people. You don't want to go to any crowded areas, crowded outdoor concerts, or parties where people are going to be standing very close and talking to each other. All of those are more risky with Delta than they were with previous versions of the virus. It really is a matter of what you'll be doing when you're outdoors and how many other people are around you.

LuAnn Heinen:

Let's pivot to the boosters. We expect FDA to announce something on the mRNA booster shots. Do you have any line of sight to that?

Apoorva Mandavilli:

This one's going to be very interesting to watch. The Biden administration came out early and said that we're going to roll out boosters starting September 20th, but the FDA and the CDC had not reviewed all the evidence yet. What is actually seeming apparent, from my conversations with various scientists, is that there is a pretty big divide between what the Biden administration and some Federal health officials think, which is that boosters are necessary, and what a lot of scientists that I've spoken to think, which is that boosters are not needed for most people. Maybe for the elderly, maybe for people over 65 or 75, but certainly not for the vast majority of the general population. It'll be really interesting to see what happens at this meeting where the scientific advisors to the FDA will evaluate all of the evidence and then recommend to the FDA what they should do. Leaders at the FDA are also divided. Peter Marks, who is very high up in the agency, has said that he's in support of the boosters, but meanwhile, the two top vaccine experts at the FDA have actually resigned, in part apparently, because they are unhappy with how this conversation about boosters has gone. The two of them co-authored a paper earlier this week saying they don't think boosters are required. It's going to be a bit of a fight and it'll be interesting to see where it ends up.

LuAnn Heinen:

Do you have a feeling for how much of the booster recommendations are impacted by global equity and global access to the vaccination and how much it's just about the science?

Apoorva Mandavilli:

I think if everybody in the world had already been protected, even if scientists thought that boosters weren't entirely necessary, they would probably still say that, but I don't think they would be quite as vocal in their opposition. But because the vast majority of the world is not protected, and because we're leaving the door wide open for the virus to keep evolving, potentially into variants that are much more dangerous than Delta, it just becomes really urgent to focus on the unvaccinated before we start talking about boosters for people in the U.S. and other countries. That's what I keep hearing from these scientists is, you're going to get a much

bigger benefit from vaccinating people who haven't had any at all, rather than from giving a third dose to people who are already quite well-protected from severe illness.

LuAnn Heinen:

Absolutely. Variants can break out anywhere and we are one world. It's also flu season, so certainly employers are now promoting annual flu shots, and according to the CDC, everyone six months and older should get a flu vaccine. For adults, this can be given simultaneously with a booster if the boosters are indicated and available, and no doubt the Biden administration is trying to catch the flu season, flu shot, wave.

Apoorva Mandavilli:

Right. Last year was very unusual in that we did not see very big flu numbers at all. We were worried about a twindemic of flu and coronavirus and that never materialized, but this year doctors are seeing cases of RSV, respiratory syncytial virus, and are likely to see some flu cases. People are really emphasizing the benefits of vaccinating for flu. The last thing we need in these hospitals that are already overloaded are people who are coming in with influenza or influenza and COVID. It's really important that people are at least protected from flu, especially the elderly and kids under five, who are generally at higher risk from the flu virus. There is some talk of offering both vaccines together, which would be a good way to reach people who don't want to have to make multiple trips. Either way, I think employers will definitely need to think about how to make sure that their workers are protected for both viruses.

LuAnn Heinen:

One of the challenges our companies, our member companies, face is to communicate clearly and effectively with their employees while also combating misinformation that exists, certainly about the vaccination and other aspects of the pandemic. What advice would you give?

Apoorva Mandavilli:

This is a very tricky one and has become particularly tricky during this pandemic, in part because of the role that social media has played in amplifying voices that are not actually credible. At *The Times* we are really fortunate in having a desk of reporters that are focused just on combating misinformation, they monitor social media to look at what kind of myths are coming up and address that very directly. I think that a key is to be very clear about what the myth is and that it is wrong and to say it in sort of no uncertain terms. At the same time, you want to make sure that you're not amplifying that message simply by repeating it. One, I think, good way that we have found of making sure that we keep the truth front and center is just to repeat the truth often and as clearly as possible, and to not give equal weight to whatever opposing side might be saying. It's not a he said, he said, or a she said, she said kind of situation where you give equal voice to both parties. The communication has to be very clear that this is where the bulk of the evidence lies, and you might hear this other thing, but that is wrong.

LuAnn Heinen:

Good advice. I've noticed in your reporting, a clear emphasis on rare and very rare when it comes to certain low probability events, including vaccine side effects, for example. I imagine that a challenge in science reporting is communicating probabilities, because even if we understand biostats or studied probability, it's so easy to be swayed by a personal story, or just an individual narrative. How do you combine sort of the persuasive power of individual stories, narratives, case studies, with conveying a sense of relative risk.

Apoorva Mandavilli:

This is something we've grappled with a lot, especially when reporting on vaccines, for example as you mentioned, the side effects of vaccines. Early on there were reports of vaccine side effects and we did not want to be jumping on those prematurely and writing about things that didn't actually turn out to be linked to the vaccine. Even if it meant waiting and having somebody else be first, we took the tack of waiting to make sure that something was actually genuinely because of the vaccine before writing about it. You mentioned the words rare and very rare. Those can sometimes be the way that you can get it across, because risk communication is a skill of its own. It's actually a field discipline that experts spend time on. There's a

difference in how people perceive risk. When you say 99.9% of people are protected versus 0.01% of people get sick, for example, some people process that very differently. People's brains can only take so many numbers and so many percentages. It becomes important to illustrate in multiple ways that something is really uncommon or that people are not really at risk, because those headlines about the odd case can really grab them and stick with them in a way that's damaging long-term. There were a lot of headlines when the vaccines were being rolled out about, you know, a woman gets vaccine and dies. Then two weeks later it turns out it had nothing to do with the vaccine, but by then the damage has already been done. We have tried very hard not to go down that path.

LuAnn Heinen:

All of us need to make personal health decisions and we have often population level data, but stories are what resonate. Maybe we need better science education.

Apoorva Mandavilli:

That's been a recurring theme throughout this pandemic as well, just that we as a society have not done a great job of communicating science to people on a regular basis. When we were talking about flu vaccines and about half of the adult population in the U.S. does not get vaccinated for the flu every year, even though there is good evidence that vaccinating everybody contributes, not just to their individual protection, but everyone's protection. Those kinds of concepts have just really not been communicated to the public often enough to really make a difference. Once we are in this pandemic, it's a little unreasonable to expect that people are now suddenly going to understand what statistics mean or how to look at risk and think about their own individual risk.

When it comes to a life and death situation like this, it is also really hard to separate the personal from the statistics. If you talk to parents, for example, I'm a mom, I have two kids, it's one thing to hear kids are at very low risk or only 0.01% of kids who are infected end up in the hospital or things like that. When it's your own kid, you still feel a little twinge of anxiety and that I think it's where the information is most required, both from scientists and from science reporters, to be very clear on the fact that, now, for example, there are all these numbers about kids being more likely to end up in the hospital than before. But to point out that that still keeps the hospitalization rate very, very low. It's still only at about 0.01%. We haven't suddenly gone up in huge numbers in terms of the rest of kids. That kind of context, I think, is very important when presenting numbers to people.

LuAnn Heinen:

Continuing a little bit on that theme, in the wake of reports on blood clots associated with the J&J vaccine, you called out a women's health issue that's important and really too long overlooked, which is the fact that millions of women in their reproductive years are taking hormonal contraceptives, the pill and others, that increase the risk of blood clots "hundreds of times more" than the vaccine. This relative risk idea is important and really hard to internalize, and you've got to think that we're worrying so much about the vaccine, what about the people who are on these contraceptive methods for years and years?

Apoorva Mandavilli:

This was really interesting, actually, how that unfolded. A lot of it came about because when the blood clot risk from the vaccines was being talked about, some experts stepped in and said, you know, women who are taking birth control pills have a much higher risk of blood clots. We've been okay with that and so the vaccines should be fine. That's kind of where they were coming from and they were also pointing out that the blood clots from the vaccines are of a different, more dangerous variety, than the blood clots from birth control pills. What that ended up doing was reminding a lot of women that we are subject to these risks, that there aren't safer alternatives for contraception, and somehow that's been okay all this time and it really shouldn't be. The other thing that really came up in my reporting was women talking about how doctors had not really brought up these risks to them. There's all this conversation about the risks from vaccines, but when women are prescribed birth control pills, there is some mention sometimes of risks, and the inserts that come with the pills go into great detail, but who reads those inserts? Really no one. Even if you have a pretty good

background, it's hard to read them and come away with a clear understanding of what your actual risk is. So all of these women are out there taking birth control pills, and a lot of them have never had a clear conversation with a health care provider about the blood clot risk, or what it might look like or feel like, when should they call the doctor, when should they go to the ER, there's just not a lot of conversation about that. The discussion about blood clot risk from vaccines really prompted these women to speak up and say, we need to talk about safer alternatives for birth control.

LuAnn Heinen:

Are there other health issues related to SARS-CoV-2 variants or the pandemic that haven't gotten the attention they deserve, or that have come out in this period and that should be reported on more broadly?

Apoorva Mandavilli:

I think one of the most interesting and understudied and understood phenomena in this pandemic is long COVID. I think we still have a very sketchy idea of what long COVID is, everybody defines it differently. Is it lingering symptoms after six weeks? Is it lingering symptoms up to three months or six months? What kinds of symptoms are we talking about? They had run a really wide range. It's clear now that some percent of people experience them, but studies have been all over the place. Even with that, is it 10%, is it 50%? What about the risk of long COVID after breakthrough infections in vaccinated people? There's just a lot we don't know. Some experts I've spoken with have said that long-term after the immediate crisis is over, that is really the thing that we're all going to be talking about and focusing on is the long-term effects on some subset of people of this virus and how long they will need to grapple with those symptoms and also what effect that will have on the workforce, on disability policies, on health care for people with long COVID, all kinds of issues.

LuAnn Heinen:

We're hoping to do a podcast episode on long COVID, too. Any scientific experts you'd recommend?

Apoorva Mandavilli:

I would definitely recommend speaking with Akiko Iwasaki, who's an immunologist at Yale. She's doing some very interesting work, working with people who have long COVID, trying to understand the phenomenon on a biological level.

LuAnn Heinen:

Let's talk about other lessons for the future that you might call out. The CEO of the de Beaumont Foundation, Brian Castrucci, made it a really strong case on this podcast for reinvesting in public health infrastructure and rebuilding capabilities at the local and state level. When you think about preparedness for the future, Bill Gates and organizations like WHO are talking about infrastructure and surveillance, but any thoughts on that topic?

Apoorva Mandavilli:

Where to begin, right? I think this pandemic really showed us that we, as a world, are completely unprepared for a virus like this. In some ways we actually got lucky because this could have been a virus that killed lot more people than it actually ended up doing damage to. It turned out to have a very good sort of age gradient that was clear to see from very early on, but what if that wasn't the case? What if it actually affected kids really severely? I wrote an article, I think in very early February or the end of January, when the first data started coming out of Wuhan, that it didn't seem like kids under 15 were really ending up very sick. It was a very hopeful sort of article in a way. I think it said something like why the virus mostly spares children. I was so happy to see that that continued to be the case. We didn't know, of course, how much that would continue to be true and we were sort of waiting to really see the data. I don't think it became fully clear until early Fall or so that even opening schools would not have a big impact. But honestly, as a parent, I cannot imagine a virus that would have decimated kids in this world. I think that would have been so much harder to deal with psychologically. There are a lot of ways in which it could have been extremely bad in ways that are even worse than actually unfolded. Yes, I think there's a lot of conversation right now among a lot of organizations about how do we better prepare. We need a full overhaul of the public health system in the United States on multiple levels: better data systems, better reporting systems, better surveillance on a genetic level of what

variants are emerging, better communication between private labs and public health labs on what the tests are showing, a lot more communication between the CDC and the states that's faster and more digital and more responsive.

A lot of these systems are outdated and there aren't enough even personnel who understand how the newer data systems work. So we're talking also about people being trained. I will also make a shout out for communication. I think risk communication, public health communication in this pandemic has left a lot to be desired. It's clear that these public health agencies at every level were stripped down to such basic requirements. Just two public health nurses for an entire county and things like that. People just did not have the bandwidth to be thinking about protecting their residents and communicating risks. It doesn't help when agencies like the CDC and the FDA are having to change their guidance, for good reasons because the virus is changing, but that does put the onus on everyone at every level of government to communicate very clearly about what is changing and why. I think we also need some investment into that: how agencies communicate with the public, how responsive they are, how much they can answer people's questions about how the scientific developments affect their lives.

LuAnn Heinen:

Yes, and for so long there's been talk in the public sector. We hear from public health authorities how much they'd like to connect to and relate to the private sector and private employers. The observation is that they speak really different languages. They've got very different orientations, so there really isn't the kind of collaboration, historically, that we'd like to see going forward.

Apoorva Mandavilli:

I think that's definitely a valid criticism of some of the public health guidance that has come about in this pandemic too, is that some of it appears to be made, and I don't know enough about it to say that that was the case, but some of it some experts have pointed out, for example, that it seems like some of it was made without really taking economic conditions into account. That some of them were made purely from a public health perspective and not by taking people's psychology or the economy or other sociological factors into account. I think that's another arena in which things could really improve and in terms of communication between all of those different parts of society.

LuAnn Heinen:

Let me ask you, what are you thinking about when you do have a little open space in your reporting, any idea of where you'd like to go next, and once the pandemic wanes, where you might be devoting your energy?

Apoorva Mandavilli:

One thing that I've been thinking about a lot and have not had enough time or energy to devote to is the impact of the pandemic on other things. For example, before this virus came along, TB was the biggest infectious disease killer, tuberculosis, something we don't talk about a lot in this country and don't think about very much, but it kills about a million and a half people a year. Once this pandemic is over, that is going to continue and probably be worse. We've seen that, for example, in multiple parts of the world where TB is a problem, diagnosis really dropped off sharply, because people were afraid to go to the clinics or because they confuse their symptoms with those of COVID or because the health care providers didn't want to treat them because they confuse the symptoms or simply because of lockdowns. All of those people, all of those late diagnosis, will have a long-term impact. We'll probably see more deaths. That's true also of other diseases like malaria and HIV and polio. This pandemic is going to have really a lasting impact on public health across the world. That's something that I would really like to spend some time looking at.

LuAnn Heinen:

Yes, just the impact on quality of life and life span, as well as, I don't know if the economic impacts will be as long lasting.

Apoorva Mandavilli:

Right. It has pushed record numbers of people into poverty. That will also have a huge impact on lifespans, on health, on the economy of those countries where the people live. This is going to unfold in multiple levels across many, many years.

LuAnn Heinen:

To lighten things up a little bit, I'm a fan of your articles and also of many of the headlines, which whether or not you're able to take credit for those. "Let's Say Some People Should Get Antibody Tests After Vaccination. You're Probably Not One of Them." That's an attention grabber. Also, I really liked, "The C.D.C.'s New Leader Follows the Science. Is That Enough?" They seem a bit cheeky and really spot on. How did these get written?

Apoorva Mandavilli:

I cannot take any credit for them. I give full credit to my editor, Mike Mason, who is wonderful and is cheeky. He has a very good sense of humor. He is an excellent editor. Overall, he really helps keep me focused and thinking about whatever science I might be geeking out on, actually means to the average person. He's very good at the top line, the big picture meaning of something that we're writing about. That's where the headlines come from. I really am not good at writing headlines and I don't enjoy doing it, so I leave that entirely up to him.

LuAnn Heinen:

Those are awesome. They draw the reader for sure.

Apoorva Mandavilli:

I will let him know.

LuAnn Heinen:

Let's say it's 2024. Looking back on the pandemic, what do you imagine will be the most significant lesson or takeaway for the country?

Apoorva Mandavilli:

When the pandemic began, I don't think any of us imagined that so many Americans would fight against some of the things that best protect them. I don't think anybody imagined that people would resist masks, that they would resist vaccines, that they would resist every kind of prevention measure against having the virus spread through their community. That has been the most confusing, perplexing part of this pandemic and I think the one that long-term really needs the most attention to, and it will be the most difficult to address, because it gets to psychological, political, sociological divides that I don't think we fully appreciated, have become so entrenched in our country.

LuAnn Heinen:

I've been speaking with Apoorva Mandavilli about her impactful work as a science journalist covering the COVID-19 pandemic. To learn more, you can go to her website where she's got some amazing stories on other topics, for example, the second person ever to be cured of H.I.V., a neuroscientist who's teaching blind Indian children to see, and women with autism.

I'm LuAnn Heinen. This podcast is produced by Business Group on Health, with Connected Social Media. If you're listening on Apple podcasts and like what you heard, please rate us today and leave a review.