COVID-19

Social media Q&A
9 November 2021

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AK Good morning, good afternoon and good evening to everyone joining us today. It's Tuesday and we are answering your questions about COVID-19. Today's subject will be vaccines and science and I'm pleased to be joined by Dr Soumya Swaminathan, WHO Chief Scientist, and also Lisa Menning, who is a social scientist working on vaccine confidence and uptake. Good afternoon, Soumya. Good afternoon, Lisa. Thank you for your time.

Before I give the floor to you I will just remind our viewers if they're watching us on Twitter to use the hashtag #askWHO if they have questions about vaccine science or if they're watching us on other comments to use the comments section to submit their questions.

Maybe we can start, Dr Soumya, with you if you can tell us, what's the current scientific landscape of COVID-19 vaccines and are there any new technologies being explored to produce new vaccines?

SS Thank you for that question, Aleks. It's really quite unprecedented, I think, to have this number of vaccines in development for one infection. You won't believe this but we have 129 different vaccine candidates in some phase of clinical development, which humans they've entered into testing in humans, and another 194 which are in preclinical development so over 300 but 129 of them more advanced.

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This covers the entire range of technologies from the older technologies like inactivated vaccines and live attenuated vaccines to the new technologies like MRNA, DNA, viral vector, virus-like particles and so on, also the sub-unit protein vaccines which come with an adjuvant.

So that's something very new this time, that we have so many different platforms being used to develop vaccines.

Secondly we've also seen a number of different adjuvants. Adjuvants are materials which are added, usually viral vaccines to stimulate the immune response better. A number of vaccines have used different adjuvants like matrix M and imitive quinilines [?] which have been used in Covaxin for example.

The third is that different delivery techniques are being tried so not just the regular intramuscular injection but we have intradermal, subcutaneous - that's under the skin - but also intranasal and oral vaccines.

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So we have a bunch. All of these are what we call second-generation vaccines. They're still in development. I'm sure some of them will prove to be very safe and efficacious and others may not so they do need to go through the phases of clinical trials before we know which of them is going to work better.

Some of them may have advantages. Clearly if you have an oral vaccine or an intranasal vaccine this is easier to deliver than an injectable. If you have a single-dose vaccine that's definitely preferable to multi-dose, if you have a vaccine that can be stored at room temperature or in an ordinary fridge that's better than having a vaccine that requires -20 or -70.

So ultimately we'll be able to choose the ones that are most appropriate.

AK Thank you so much, Dr Soumya. We're already receiving some follow-up questions and one of the LinkedIn viewers is asking, why do we need new vaccines, are current ones not good enough? So maybe we can clarify, why do we still have science advancing vaccines against COVID-19?

SS A very good question actually because it's very different from the response we see to other infections, where we wish we had more different vaccines available. I think there are a number of reasons for this.

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Obviously there was huge interest, there was huge investment. Many companies, many biotechs, academics, started working on COVID vaccines which is why I think we see so many. It's going to pay off because if not for COVID we're going to use these platforms for other infections in the future so I think all of the science that's going on now is really going to be very useful.

It's not as if the current vaccines are not good or not effective but, as I said, there could be advantages to some of the second-generation vaccines and we might also find that the mix-and-match approach or heterologous approach where you take a booster for example with one of the newer vaccines that's been developed, maybe an intra-nasal one or some other vaccine may come up.

So I think this is a very positive development, to see so much research going on. This is fantastic and I think ultimately we will have a range of vaccines to choose from and different ones will suit different country contexts as well so I think it'll be good to have that choice and cost still will be a factor. Hopefully some of them will be really, really affordable.

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AK Thank you so much, Dr Soumya. Lisa, good afternoon to you and thank you for your time today. As we are seeing from questions - and we've been talking about COVID vaccines now for almost a year, definitely for a year. We started talking about these products before they were used and it's a lot of complex engineering that we are learning about every day.

But if we step back for a moment it's not just about medical research and getting the product. It's also getting this product to people first to ensure access but also for them to be motivated and actually confident that these vaccines are safe.

So what have you done in this regard and what is the motivation for people to get vaccinated?

LM Thank you, Aleks. It's a really good place to start the conversation. What motivates people to vaccinate? There are a lot of different reasons and these are often quite context-specific but it really starts firstly with people wanting to be protected from the risk of getting COVID so there's that individual protection factor.

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But then there's also that desire to protect people in their family or community, other vulnerable people that they're close to. There's also having confidence in the effectiveness and the benefits and safety of vaccination.

Then there's also the consideration that their provider, their doctor or a nurse might recommend vaccination to them and they might trust the health system. They would trust their relationship, their interactions with the health system and there might be also role models in their community who also demonstrate the importance of getting vaccinated.

Lastly there's also the consideration that vaccination can just be simple and easy and convenient to get and I think that also helps to motivate people because they know they don't really have to go too far out of their way to get this important intervention that would potentially save their health and their life.

So those are the main considerations that we think about when we're designing programmes and strategies to be able to work on these different kinds of motivating factors.

AK Thank you so much, Lisa. When people have questions and concerns how do we address this and what is the right way to talk to people who are having concerns?

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LM It's normal in a context where there's a lot of new science around COVID and COVID vaccines, it's normal to want to have more information and to really understand and to make an informed choice about deciding to get vaccinated. So we want to help people to weigh up the risks and benefits and we'd like to be able to guide their decision.

So we are aiming to create a space where people can ask these questions and raise their concerns and that we can respond to them in a way that matches their needs and also really takes them through a conversation where we elicit any other questions they might have about the experience of getting vaccinated.

So it really starts by asking open questions to fully understand where they're coming from and the underlying considerations behind their questions and from there we can acknowledge and not judge. It's really important that we are kind and considerate in having these conversations and that we share knowledge, share our thinking and really find out about what's important, our values and our priorities in life.

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From there we can make a recommendation and in going through these conversations, in responding to these questions and concerns we can affirm that people would like to make the best choice for their health, for their family.

But we can also recommend getting vaccinated so it's possible to say things like, well, I would like you to get the vaccine so let's go through these options. In that way we can really explore people's questions, concerns and make sure we're fully addressing where they're at and even finding ways to continue the conversation so that when they're ready we can move them through to vaccination.

So this can be a very respectful and considerate conversation that elicits and enables us to respond so that we can empower people to make these informed choices.

AK Thank you so much, Lisa. I'm also grateful to you, to Dr Soumya, to Dr Kate O'Brien and all our other experts who are taking time to answer the questions from the general public around the world who have their concerns not just about COVID vaccines but about COVID in general or other health subjects.

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So we are also doing that part, to create a space for conversation and help respond to some concerns. Speaking for concerns, Dr Soumya, we are receiving several questions about variants as this virus is mutating and changing. What are the scientists doing to make the current vaccines that we know are safe and effective to a certain extent remain effective against the new variant?

SS That's a great question too. What happens is that when vaccines are being developed they go through clinical trials and at that time whatever variant is circulating in those populations is what you get the results against so this happened for several of the early vaccines that were tested when alpha was circulating around the world, the alpha variant.

But other vaccines which were tested later actually had data on the delta variant. So what happens is that once a vaccine is approved and put out for use then we also collect what is called the vaccine effectiveness data so once it's been used in larger populations governments are actually collecting data both on effectiveness - that is how much do they prevent infection, how much do they prevent hospitalisation and death - and they're also collecting obviously safety information which also they're interested in collecting on larger numbers of people.

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Because the initial trails are done on 20, 30,000 people but then when it's given to millions of people we can really find out if there are some rare side-effects.

So both are important and in that process we generate information on vaccine effectiveness against different variants so that's how we know now that the delta variant - that most to the vaccines are still very effective in preventing events of severe disease, hospitalisation and death but are less effective in preventing somebody from getting infected.

I think this sometimes confuses people because they say, why should we get vaccinated if we're then going to get infected? Well, you may still get infected through there is protection against infection but not as high. But if you get infected the chances of your getting sick are much, much, much lower if you're vaccinated. and many studies around the world have confirmed this.

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The other thing we're doing and vaccine developers are doing is to see if they can tweak their vaccines - can they modify their vaccines to face the threat of a future variant? Luckily for us so far whatever variants we've seen, the vaccines are still working against them, the currently approved vaccines but we don't know in the future if there'll be a variant which becomes not responsive to this vaccine.

So the companies, the developers are already working, scientists are working to make sure that they can quickly change their vaccines to incorporate a new variant and WHO is working with developers and scientists but also with regulators to see how such a new, modified vaccine could be quickly approved.

So I think the world is ready and gearing up. We've done this for influenza in the past because, as you know, we have a new influenza vaccine every year based on the composition of circulating strains of flu so something like that may be needed for COVID.

We have to be prepared. We're not sure at this point if we will need it or not. If we're lucky then the same vaccines will continue to work against all variants.

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AK Thank you so much, Dr Soumya. Lisa, maybe looking back could you update - because these are all the questions that people have. Why should I be vaccinated if the vaccine is not 100% effective not only against infection but also against severe disease?

How has social science evolved throughout the pandemic to follow this medical science evolution and do we have any evidence of what are the strategies that are working to increase the uptake?

LM Thank you, Aleks. It's a great question as well. We know that absolutely, we need social and behavioural sciences to be able to beat this pandemic but we cannot rely alone on medical measures, whether it's about the measures we need to take related to hand-washing, wearing masks but now also for the vaccination.

What have we learnt? We've learnt a lot and it's really affirmed our pre-existing knowledge about the kinds of strategies that help us to achieve high confidence and uptake of vaccination. Firstly when we communicate or communicate about the risks and benefits of vaccination we've really learnt a lot about how to be doing that in an effective way that sustains trust and sustains credibility and reaches people in a way that's reliable and timely.

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We've got a lot of knowledge now about the kinds of communications or risk communication strategies that are particularly effective in helping to inform people's decision-making progress and retain trust in the scientific process and in authorities who are working to deliver the vaccines.

We've also learnt a huge amount about how to address inequities in vaccine access and delivery and we've seen in many settings locally where there are disadvantaged or vulnerable populations, often they're being left behind and there are challenges in ensuring that those groups are able to access

vaccination services and that there are community members who are also part of that journey in bringing them towards vaccination.

So we've also learnt a huge amount about how to engage with these communities and empower them, involve them in planning so they're really part of the process and contributing to the design of these strategies in such a way as to help ensure that they're responsive to their local needs and local cultural considerations, their local languages and other considerations that really help to ensure that the services and the design of the programme there is really responsive to their needs.

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So there's a huge amount that has built on pre-existing knowledge about how to design these strategies and it's really been an essential pillar of the work that we've been undertaking with all of our partners to really ensure that we're considering the full range of programmatic strategies that need to be in place to help achieve high uptake. I think that's it in a nutshell.

AK Thank you, Lisa. Here's the next question from a viewer. What would you say to someone who is hesitant to get vaccinated. because of the unknown long-term effects of the vaccine?

LM Absolutely. That's a question we hear occasionally. It's true that we're still learning a lot about the COVID vaccines. Some of the things we've discussed today about effectiveness against variants, the duration of protection and so on but there's really so much that we know about vaccines and the COVID vaccines that gives us, that gives experts and scientists a lot of confidence and reassurance about the long-term safety of the vaccine.

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So we know that severe side-effects are very rare and usually happen perhaps in the first two to three months of the vaccine becoming available and we know that the vaccine technologies, the MRNA technology and the andetavirus [?], these have been studied for decades, for years without any issue, perhaps for other vaccine technologies like Zika, Ebola and rabies.

So there's always continuous monitoring but experts and scientists absolutely do have the confidence to know that these vaccines will be safe in the long term and at the same time we do continue monitoring our surveillance processes in countries to be tracking any unexpected events that could occur later on.

AK Thank you so much, Lisa. Dr Soumya, speaking of long-term effects of vaccines, we are receiving quite a lot of questions on, how do we know that the current vaccines won't have any negative long-term effects and how are these studies done?

There are questions in particular speaking of pregnant women or breast-feeding mothers as approved COVID vaccines are recommended for these groups as well.

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SS Yes, I can understand why people have so many questions. They think, how do these things get developed so quickly? That's one question and so there's always a doubt. Have they been tested and studied properly?

This is why WHO has a very rigorous system to assess the data for each vaccine before we provide emergency use listing and the same thing is done by regulatory agencies like FDA and the European Medicines Agency and all the country regulators really look at the data on safety and efficacy.

Particularly for vaccines safety is very important because you're giving a vaccine to a healthy person to prevent a disease so it has to have a very high safety barrier and that's what we look at.

Nothing in life is without risk, correct, and there's always, even if it's very rare, one in a million, two in a million risk of some kind of side-effect. Everything in life has that so what you have to do is to balance the benefits versus the risks.

In every action we take in life we always weigh up the pros and cons, the benefits and the risks. In this case you have to weigh the risks of getting infected with SARS-CoV-2 and getting potentially very seriously ill or even dying - and we know it's not only the elderly. Younger people, people in middle age can also get very ill and then also suffer from long COVID and all its complications.

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So that's the downside and then you have to balance the risk of taking a vaccine which could be, yes, one in a million cases which might have - in the case of some vaccines it could be a blood clot. In some other vaccines, in the MRNA vaccines you have this heart inflammation - extremely rare and most of time it's detected, then people recover from these side-effects.

So knowing about the side-effects helps the doctors and nurses to be able to pick up those events, to be able to pick up those problems and be able to treat them.

So WHO has global advisory committee on vaccine safety that's constantly reviewing the data on all vaccines and whenever there is a signal we inform, we put out a report and we also change the guidelines so that people who are using the vaccine are aware.

But I can say that until now with the vaccine that we have approved there has not been any signal which has been so worrying that we need to say, well, we need to rethink this vaccine.

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So it's an ongoing process and it's something... because in a pandemic we cannot wait. Normally it takes five to ten years to test a vaccine and then to roll it out but in a pandemic every day people are dying. You cannot wait and that is why the best assessments are done before it's approved but then you continue to monitor, you continue to look at efficacy and safety and you can always change that if you find anything concerning.

AK Thank you so much, Dr Soumya. There are a few questions coming in on scientific work on new vaccines and you mentioned nasal vaccines at the beginning of this conversation so maybe you can elaborate a little bit more on this technology. Can we expect a product in use any time soon?

SS The nasal vaccine that we do have now currently that's used in some countries is for influenza. The advantages of a nasal vaccine are that first of all you can deliver it more easily than giving it as an injection. It could even be self-administered for example, just as you take other puffs, inhalers.

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Secondly, there is a chance that it stimulate the mucosal immunity. As you know, we have the mucous membrane of the respiratory tract or of the gastrointestinal tract and there are some vaccines that stimulate local mucosal immunity.

The advantage is that when you breathe in obviously the viruses that we see in the air and around us, we're breathing it in. If there's a local immune response then it will take care of the virus before it even goes and establishes itself in your lungs and starts causing a problem.

So that's the other advantage but as I mentioned, these are still under development. We have oral vaccines also, like polio for example, that has to be a live, a generated vaccine really in the case of polio which stimulates a local immunity in the gastrointestinal tract and this helps the individual but it also helps in our population immunity.

So yes, very interesting and exciting science that's still happening in this field.

AK Thank you, Dr Soumya. The next question is on those new vaccines that are still in trials. Are they using new variants, new strains of the COVID virus to test them or using the original ones?

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SS The majority are still using the original strain and one of the reasons is that, as I mentioned, we've found that the immunity against that strain is still protective against all the variants, at least against severe disease.

So while developers are looking to see how they can modify the vaccines I think most of them had started work early on in the pandemic in developing

the vaccine and therefore they're still using the original but there could be many now who have multiple versions of the vaccine as well.

It's easier to do with some technologies than others, changing the variant that we want to use so I think we may see variant-specific vaccines but again this is evolving the information on whether we need that kind of... because obviously it takes a little more time.

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Then you have to develop a new vaccine, you have to do some testing to prove that it's equally safe and efficacious before you can roll it out but it definitely takes a few months to get that done.

AK Thank you so much. Here's a comment from Anselm, watching us from Nigeria. I have been reading a lot of negative comment about the vaccines, especially the part where I read the vaccine will affect the immune system, leading to future lack of resistance to many sicknesses and diseases.

Maybe we can clarify that this is not really the case for the COVID vaccines, Dr Soumya, and then maybe, Lisa, we can also approach this from a social science and communications perspective on how to differentiate what is the scientific evidence or who to talk to.

SS Yes, unfortunately we see a lot of misinformation and myths about vaccines which are being spread. When you take a vaccine for a particular disease what it does is it stimulates the immune system to develop immunity both in terms of antibodies and in terms of the cellular immune responses to that particular infection.

Some vaccines, especially the live vaccines, can also boost your immune response in general but there isn't any vaccine that suppresses your immune system or that makes you less able to react against other diseases.

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So certainly I can reassure you that there's no vaccine that does that. It protects you against the particular disease for which the vaccine has been made and will not have much impact or any impact on any other infection but it certainly doesn't harm the immune system in any way.

AK Thank you so much, Dr Soumya. Lisa, over to you.

LM Yes, thank you, Aleks. It's an interesting dimension to this question as well. Absolutely, in the early stages of the pandemic we saw a lot of misinformation and rumours on various topics and it was a time when there were so many unknowns and people were trying to fill these information gaps and try to make sense of the changing world.

At that time there were perhaps information gaps as the science was evolving and building in our knowledge of COVID and as the vaccines were being developed.

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What we've really learnt is the importance not only of ensuring we can anticipate and fill those information gaps but also making sure that information that's accurate and clear and credible comes from trusted sources.

Hence we're working through partners and helping to help partners work with other groups, other local representatives from civil society or NGOs to make sure that there's accurate, available information through these various sources.

What we also know that we need to do is make some of this information a little bit emotive so that it resonates with people's desire to be healthy and to be living long and healthy lives and to be protecting their families and their communities.

So as part of the communication work we've been doing it's also been about how we personalise and make this information relatable so that it resonates and can help people to respond to the questions and concerns that they have but can also perhaps build on the knowledge that they have as well about the safety and importance of vaccination.

AK Thank you, Lisa. We have the question coming from Nigeria, what should be done to build confidence in administering the vaccines in Africa?

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LM Absolutely, there's a lot that we can be doing to build confidence in vaccination in any local setting really and it requires a few different ingredients coming together. There's no single solution here, there's no magic bullet that's really going to ensure people become confident in vaccination.

What we're trying to do as well is not persuade people, not change how they feel, not change their experience, we don't want to force anything on people. We're really trying to build on people's existing good intention and their existing good motivations to want to be healthy and, as I said, to protect people around them as well.

Firstly we know that there's an important dimension in the information that needs to be available about the safety and benefits and importance of vaccines and when and where to get them as well.

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We then also need to create the local community setting to build those social norms and we saw in the early stages of the pandemic that when vaccines

initially became available there were no real norms to accept COVID vaccines and those have gradually been built.

Now we've seen billions of people around the world who've received COVID vaccines and those norms to accept a COVID vaccine or to seek a vaccine are now, I think, firmly in place.

So we're building the social influences, the social structures so that role models, community influencer are demonstrating that they're getting vaccinated and it's the norm, that we all will, at some point when the vaccines are available, have the opportunity to get vaccinated.

The last important dimension that contributes to confidence in uptake of vaccination is the convenience of access, the ease of access, the availability, the affordability and really knowing that you don't have to go too far out of your way to get the vaccine.

Creating these opportunities in a way that's convenient for people who, in a time like the pandemic... Over the last 18 months people have had a lot of stresses and other priorities in their lives and even concerns about going out into certain places and we've really had to create spaces and quality health services that are really close to communities and make it as easy as possible for people to get vaccinated.

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If anything in fact that's the most important determinant of vaccination, having those services that are so quality, convenient, accessible that people barely need to go out of their way to get vaccinated.

Those are some of the conditions that we need to create, whether it's in Africa or any setting anywhere in the world. These conditions need to come together.

AK Thank you, Lisa. One of our viewers said they want to have a choice in getting vaccinated. but feel trapped because of requirements. What do you have to say about requirements or mandatory vaccination?

LM Yes, that's a really good question. In some countries where there's a lot of vaccine supply available there has been consideration of mandates or requirements to ensure that people are vaccinated.

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They might be justified and there may be the necessity of a requirement or mandate to promote a public good but we do need to balance rights and the ethical considerations and even consequences for non-compliance with these mandates.

So there's a range of considerations that need to be in place first or a set of conditions that need to be met first before we consider these coercive

measures because we do want to give people the choice and the opportunity to make their own decisions.

So first we need to think about other strategies that can first enable us to achieve high uptake of vaccines and this is about giving people ample opportunity to access and get vaccinated.

So some of these other conditions that need to be met before we might consider mandates. In addition to having enough supply of the vaccine and a high burden of disease we then need to ensure the vaccines are safe and effective and we see that already with the COVID vaccines that are in use.

But we need to be ensuring that service delivery obligations are met so the considerations I described around the ease and convenience of access, that absolutely needs to be in place, those obligations for equality of services need to be met.

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We need to have these opportunities for people to raise their questions and concerns so that they can be addressed and that we are establishing trust in authorities and the scientific processes that have led us to have these vaccines available.

Lastly it's really important that we do not compound disadvantages by introducing these mandates, that we should not be penalising people who might be poor or disadvantaged just because they haven't been able to go and get vaccinated.

So this whole implementation plan needs to be considered before we move towards mandates and we know that it needs to be done very well because there is a risk of a possible backlash if mandates are not implemented well.

So there needs to be a lot of good communication and other strategies in place if we do go down this path but it really needs to be a last resort.

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AK Thank you so much, Lisa. I know we are running out of time but, Dr Soumya, maybe we can take this question for the end from Abdul Susande, watching us on Facebook. What are the health benefits of vaccines?

SS I think I could confidently describe vaccines as the greatest innovation of the 20th century. You know that before we had vaccines a huge percentage of children who were born would die before their fifth birthday due to some disease to the other. Could be polio, could be smallpox or it could be measles or diphtheria.

In fact I remember growing up in India and seeing a lot of children at time with polio in my school and in my neighbourhood. Today people who live in

developed countries, in countries where these vaccines are commonly available, many countries now vaccinate for these diseases.

In fact smallpox has been eradicated. We don't see smallpox today and hopefully we never will. That was only because of vaccination. Polio is almost eliminated. We have very few cases occurring in just one or two countries in the world. In the rest of the world polio's been wiped out. It was a huge cause of mortality even in the United States in the 1950s and 60s until the vaccines were developed.

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Think of any disease - diphtheria, measles. We don't see today the kind of suffering and death that we used to see decades ago all because of vaccines. So I cannot think of a better product that has done more for public health than vaccines but somebody once remarked saying, you have adults because of vaccines, if you didn't have a vaccine then seven or eight out of every ten children would die in childhood of diseases.

So having made a vaccine for SARS-CoV-2, I think, is an incredible achievement, in such a short period of time and I it's only possible because of all the technological advances that have happened and the investments that countries have made in supporting research on various platforms.

So it is actually amazing to think that in a year we could have so many safe and effective vaccines and that there are so many more in development today so it's a real tribute to the scientists and also we've been lucky because not all disease have vaccines.

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We still don't have vaccines for TB, for malaria. We don't have very good vaccines for influenza. They're about 40 to 60% effective. Here we have vaccines generally which are over 85, 90% effective, at least against severe disease, the majority of vaccines that we have for COVID.

So we're incredibly lucky and we should make full use of them so that we can bring this pandemic to an end, we can stop people dying. We still have 50,000 people a week dying unfortunately and the majority of them are unvaccinated.

I saw some comments that vaccinated people are also in the hospital and they're also dying. Yes, when the majority of people in a country are vaccinated some of them will get the infection, some of them...

None of the vaccines are 100%. Nobody's ever claimed that the vaccines are going to be 100% protective but 90% is a wonderful amount of protection to have compared to zero and that's why we need to make sure that as soon as you have access to a COVID vaccine any of the currently approved vaccines you must take it and follow the public health guidance in your country.

AK Thank you so much, Dr Soumya. Thank you, Lisa, for your time today and for your answers, for creating this space as well to take the difficult questions and I thank all our viewers from Ghana, Haiti, Mexico, the US, Jordan, India, Canada, Italy, Greece, Lebanon, Kazakhstan, Finland, Uganda, Singapore and many others.

Thank you for being with us today. For all information about vaccines or COVID-19 you can follow our social media channels or visit our website. Until next week, stay safe. Thank you.

SS Bye.

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