Vaccines save lives: research can help ensure people take them

Prevention is central in our fight against infectious diseases, and vaccination helps ensure people can continue to lead healthy lives. According to a study in The Lancet, vaccines for ten pathogens, including hepatitis B virus, HPV and measles, will have prevented an estimated 69 million deaths between 2000 and 2030. Using models to estimate disease burden, the researchers also showed that for people born in 2019, vaccines will result in a 72% reduction in lifetime mortality.

By preventing infection, illness and death, vaccination supports Sustainable Development Goal (SDG) 3: to ensure health and well-being for all, at every stage of life. Good progress was being made, including through vaccination, but the COVID-19 pandemic has set back efforts.

The pandemic and focused efforts to control the spread of coronavirus have interrupted childhood immunization programs around the world. And the UN expects to see a spike in infectious diseases, including a 100% increase in malaria deaths in sub-Saharan Africa due to service cancellations.

The virus itself also threatens people's well-being: at the time of writing, almost 143 million cases of COVID-19 have been registered globally, and more than 3 million people have died as a result of infection.

Thanks to unprecedented support from national and regional authorities, and the tireless effort of thousands of researchers, COVID-19 vaccines are being rolled out. Now comes the challenge of ensuring everyone gets vaccinated.

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Advising against a jump to mandated vaccination

Since the results of the COVID-19 vaccine clinical trials were announced, Professor [Michelle Mello](#), Professor of Law at Stanford Law School and Professor of Medicine at Stanford University School of Medicine, has been inundated with questions from reporters. One in particular stood out: will there be vaccination mandates?

With a background in public health law, Prof. Mello uses quantitative data to understand the effect of law on population health outcomes. The questions reporters were asking her led her to write a paper on the topic.

Read the paper: [Ensuring Uptake of Vaccines against SARS-CoV-2](#)

"The main choice that governments have about a vaccine is, are they going to require it or not?" Prof. Mello explained. The paper, published in the New England Journal of Medicine, focuses on the question - when, if ever, would a COVID-19 vaccine be

mandated – and sets forth a series of preconditions for mandating vaccination.

"We shouldn't leap immediately to mandates as a first best solution – they should be the policy of last resort, when we have really tried to make voluntary vaccination work," she said. "This means not just offering a vaccination, but actually bringing it to people where they are and making it possible for them to receive it."

There are other approaches being used around the world, such as the [Green Pass used in Israel](#). This involves an app on your phone enabling you to go to concerts and museums, for example, once you're vaccinated. Similarly, in March, the [European Commission proposed a Digital Green Certificate](#). Other options include paying people to receive the vaccine and allowing employers to set conditions for returning to work.

The best approach always depends on the context," Prof. Mello said. "For many reasons, I think it's the wrong -

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approach to go right to a mandate, even though it's the most efficient way of getting to high levels of coverage."

The decision to mandate, she says, should factor in how voluntary uptake is progressing and what is happening with the virus. In the case of COVID-19, the vaccines are brand new, use new technologies, and take a different development approach from previous vaccines. They have been approved through a different channel at the FDA, which has meant faster approval, leading some people to worry about the standard of the vaccine.

"Even when we have really well established vaccines that have gone into millions of arms without safety problems, vaccination is a challenge in the US," Prof. Mello said.

"Now add to that the circumstances under which people are being asked to receive the COVID-19 vaccine, and there is a lot of distrust, even among people who ordinarily trust these processes and these products."

Monitoring vaccine confidence

Understanding changes in people's trust – or confidence – in vaccines can help develop successful intervention efforts and ensure enough people are vaccinated. This is something Professor Heidi Larson, Professor of Anthropology, Risk and Decision Science at the London School of Hygiene & Tropical Medicine and Director of The Vaccine Confidence Project (VCP) has been working on for many years.

"I think it's perfectly reasonable for people to be hesitant, for instance around COVID vaccines," Prof. Larson said, "and they naturally want to know more about a brand new vaccine against a brand new virus – is it worth the risk? What have other people done?"

The goal should not be to eliminate hesitancy, she says, but to understand people's levels of confidence. We need to ask questions like how confident are people in vaccines and has it changed?

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Why are people not taking the vaccine? And what can we do differently?

Prof. Larson worked for the United Nations for over a decade, including with the WHO and UNICEF, and was frequently asked about how vaccine confidence is changing. But because it hadn't been studied before, there was no benchmark against which to assess change. Her mission became to set a benchmark and establish a monitoring system.

In 2015, Prof. Larson and her team published the benchmark paper: a global study of vaccine confidence, covering 67 countries.

They developed a Confidence Index, drawing from the concept of the consumer confidence index, and carried out surveys. "I was surprised to see how significantly Europe stood out as being the most skeptical region, and that France was, not by a small margin, the most skeptical in the world,"

Prof. Larson said. "That had not been characterised before our study."

The team publishes biannual updates on vaccine confidence; the latest global update, including data to 2019, was published in The Lancet. Results of the analysis show that "confidence in the importance, safety, and effectiveness of vaccines" fell in several countries, with significant increases in respondents strongly disagreeing that vaccines are safe in six countries. However, there were signs of improvement between 2018 and 2019 in some EU member states.

Read the paper: Mapping global trends in vaccine confidence and investigating barriers to vaccine uptake: a large-scale retrospective temporal modelling study

"Sometimes I compare monitoring vaccine confidence to watching the weather, because it's not stable – it's not necessarily an upward trajectory, it goes up and down.

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Our interest is not just finding out what people are thinking today but finding out if vaccine confidence is going up and down, how it changes over time, and how it spreads."

When the VCP notices a trend in a certain country or region, they contact their local counterparts in that area and share the data with them. Having worked with colleagues around the world for many years, they have a strong network of local connections who are happy to have data that supports their observations or highlights a trend they didn't know about.

Once the trend has been identified, they need to understand what is driving it. "Was there a particular incident? Or has it been a slow burn and is coming to a head? Understanding the cause helps define what intervention you need."

While the COVID-19 pandemic and the new vaccines to end it are likely to have had an impact on vaccine confidence, Prof. Larson believes the discussions around vaccination are valuable. "During the COVID-19 pandemic, people have been using innovative approaches to increase confidence in the vaccines. We need to continue those conversations when the pandemic is over: new issues emerge all the time, and the more responsive we can be, the better we can avoid negative implications.

She added: "We have created a world that's totally dependent on vaccines. If people *en masse* started stopping vaccination, there would be life-threatening implications, and it would certainly set the SDGs back."

Engaging the public

Research on controversial topics like vaccination tends to garner attention online. As Prof. Mello said, "I posted to Twitter as I usually do, and that post certainly found its way to some interesting quarters of the internet."

Prof. Mello focuses on engaging the academic community and policymakers with her work. "What's very helpful is that so many journals have made COVID-related publications open access. It's really wonderful to be able to tweet about an article, but it's even more wonderful when people can click through and actually read it. That's been a big change in how our research is disseminated during COVID-19."

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Prof. Larson agrees that making research open access supports public engagement with the work. She also makes her work understandable in lay terms. "Think about what the implications are and why the research would matter to anyone. I think sometimes, researchers get excited about the scientific nature of their work and are surprised that other people don't feel the same. Perhaps the public would be more interested if we can help them understand why it matters to them."

Explore the online coverage:
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