HVP COVID REPORT

The Next Pandemic: How Can we Best Prepare?

Interview with Michael Osterholm, PhD, MPH
Professor, University of Minnesota
Director, Center for Infectious Disease Research and Policy

Michael Osterholm has been an outspoken advocate for pandemic preparedness. In 2017, his book, *Deadliest Enemy: Our War Against Killer Germs*, detailed the most pressing infectious diseases threats and outlined a series of actions to ensure the world was adequately prepared for them. It was a warning of sorts. Now, five months into the COVID-19 pandemic, HVP editor Kristen Jill Abboud asked Osterholm how this pandemic and the global response to it is both better and worse than what he had expected, and how best to prepare for the next one.

An edited version of the conversation appears below.

What surprised you most about the COVID-19 pandemic?

A few things. Many people thought the next pandemic would be caused by an influenza virus, so what preparedness planning we had done was based on assumptions about how a flu virus would be anticipated to spread. For example, the idea of there being a first wave, a trough, and then a second wave. Assumptions were also made about how important testing would be, and for influenza it isn't as important as it clearly is for COVID-19.

Then there is the fact that while we surely talked about mitigation strategies, during the 2009 H1N1 flu pandemic, and during the two previous pandemics, there was very little effort to reduce transmission at the community level. These types of containment efforts were something we really hadn't considered much since the 1918 pandemic. And I don't think that people connected the dots and realized early on that in a pandemic like this one we should be doing more of what we did in 1918 than what we did during the more recent influenza pandemics. We just weren't prepared for that. We were surprised by the idea of "locking down" our economy to try to reduce transmission of the virus. In some ways, all of the preparation we did for an influenza pandemic held us back from imagining what it would be like for another pathogen. Another thing that was really a surprise that hadn't been planned for was the partisan nature of the response here in the US. That's been really unfortunate.

Is there anything about the response that has gone better than you would have expected?

I think the ability of the world to respond with clinical trials for vaccines, and, to some degree, therapeutics, has been quite remarkable. Instead of making an influenza vaccine using technologies that were already in existence, we have a brand-new virus and many vaccines based on novel approaches are moving forward rapidly.

Are you optimistic about the vaccines and therapies in development?

I'm optimistic that we're seeing such rapid evaluation of these products. Ultimately, the proof will be in the pudding as to what moves forward, how it gets approved, and how much confidence the world has in these products. Many of us are still concerned about public acceptance of vaccines in this very rapid schedule of research and development.

How worried are you about the overall drop in childhood immunization rates both because of reluctance to vaccinate children and as a result of the pandemic?

It worries me a lot. And it's not just childhood immunizations—it's the disruption in TB treatment, of polio eradication efforts, and HIV treatment and prevention programs, not to mention reversing whatever progress we were making with antimicrobial resistance and antibiotic stewardship. Progress has been lost in a lot of places. This whole year of COVID will end up setting us back from a general public health perspective and infectious disease prevention perspective. It is going to take us many years to recover from these losses.

What do you think is the most pressing unanswered scientific question about SARS-CoV-2?

Without a doubt the most significant question is does one develop durable immunity from either infection or with vaccination? And, what do we even mean by durable immunity? That's a huge question. I wish we knew the answer. Most of us believe that it may be possible that people can get re-infected with this infectious agent and vaccines may only have a limited time period for which you can expect them to provide immunity. It's different with flu, because with that we can infer that if you've been vaccinated or if you were infected and developed immunity to that strain that would you would no longer be at risk of being re-infected with that same strain that year or the year after. We just don't know that with this virus.

What lessons are emerging from this pandemic that will help the world be better prepared for the next?

I think the first lesson we are learning is that we were not ready for a pandemic like this—not even close. And I am very concerned that the big one is still yet to happen. If we had another 1918-like pandemic that hit hard in the young adult population, it could be much worse than what we're experiencing now. This coronavirus tends to be worse in the elderly population and in those with underlying health problems.

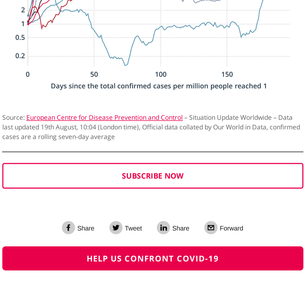
But some of the countries ranked as the most prepared, including the US, are now fairing the worst. Why is that?

I think it shows how good all of the past preparedness work really was. This should be a clear call to society as a whole that we must be better prepared.

Interview by Kristen Jill Abboud

Michael Osterholm recently appeared live on CNN's The Lead and co-authored The New York Times' Opinion article "Here's How to Crush the Virus Until Vaccines Arrive".

Global COVID Lab Meeting



Join us for the next Global COVID Lab Meeting on August 27th at 10:00 am EDT with Dr. Michael Farzan, PhD, Professor and Chair of the Department of Immunology and Microbiology at Scripps Research Institute. His research group focuses on entry processes of enveloped viruses and develops therapeutic strategies to enhance the innate and adaptive immune responses. He will share his findings on efforts to develop a safe and effective vaccine that triggers antibodies against the novel coronavirus. Register for the webinar here.

Must Read

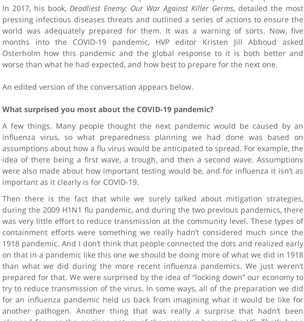
Data continues to emerge for vaccine candidates and monoclonal antibodies that are currently in clinical trials, along with the results of several studies that add to the understanding of the virus and its immunological impact.

- Additional data suggest that T-cell responses to common cold causing coronaviruses are cross-reactive with SARS-CoV-2.
- The patterns of SARS-CoV-2 spread in Africa raises questions about whether it is a more attenuated virus circulating there than in the US and Europe.
- A preprint publication provides data on therapeutic and prophylactic use of a cocktail of two neutralizing antibodies against SARS-CoV-2 developed by Regeneron in both rhesus macaques and Syrian hamsters.
- A structural analysis of an antibody isolated from a convalescent patient complexed with the receptor binding domain of SARS-CoV-2 yields clues about virus neutralization.
- A new report from IAVI and Wellcome details ways to improve access to monoclonal antibody-based products, including those in development for SARS-CoV-2.
- Data was recently published for an inactivated SARS-CoV-2 vaccine candidate that was tested in Phase I/II trials in China.
- A report shows that the increase in deaths seen in New York City during the beginning of the COVID-19 pandemic rivaled the death rate at the peak of the 1918 flu pandemic.
- Two recently published papers, one in *Science* and one in *Cell Reports Medicine*, report the results of systems immunology analyses to compare different stages and severity of COVID-19.

COVID-19 in Numbers

Daily New Confirmed COVID-19 Cases per Million People

February 1 - August 19



Source: European Centre for Disease Prevention and Control – Situation Update Worldwide – Data last updated 19th August, 10:04 (London time), Official data collated by Our World in Data, confirmed cases are a rolling seven-day average

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