# COVID-19: The New Reality

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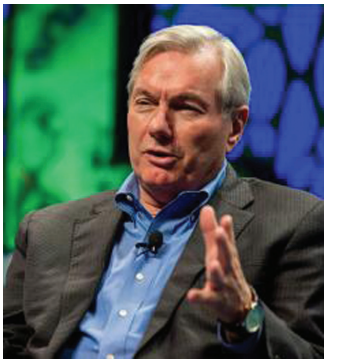

Let's face it: We all need a good, old-fashioned reality check at one point or another, and this has never been more true than during the COVID-19 pandemic. In his keynote address on May 4, 2021, at the CSE 2021 Virtual Annual Meeting, Dr Michael Osterholm provided attendees with a frank and fact-laden overview of the current state of the pandemic as of May 2021 that was interwoven with his candid appraisals of the uncharted road ahead.

Osterholm's candor was manifest not only in the hard truths about the pandemic and the virus behind it, but also in his assertions about our ability—or lack thereof—to predict or control our fate. As is often the case, any discussion about the future is rooted in the events of the past, and this is where Osterholm started. Historically, our preparation for pandemics caused by respiratory-transmitted pathogens has been informed largely by our knowledge of the influenza virus and the many influenza pandemics that have transpired within the last century. Citing the 2009 pandemic caused by the H1N1 strain of the influenza virus, which emerged in Mexico and quickly spread to North America, Osterholm noted that the sharp surges and precipitous drops in H1N1 case numbers occurred without any human mitigation, and that the vaccine that was developed ultimately had little influence on the pandemic's end. Inexplicable as it was, this phenomenon shaped a scientific model that suggested that viral epidemics, given time, would eventually subside on their own.

Enter SARS-CoV-2.

As with previous viruses, the emergence of SARS-CoV-2 in March 2020 in the Pacific Northwest initially led to sporadic surges of infections throughout the United States. Due to an absence of testing methods and "challenges with the CDC," Osterholm opined that the country was "flying blind" until April, when case numbers surged in several major cities, though much of the rest of the country had been spared. The numbers increased dramatically after Memorial Day, then dropped quickly after July, enough so that by September it seemed as though the pandemic might be on its way out. However, despite a comparatively quiet October and November—including in Florida, a state that had reopened completely—the upper Midwest saw a surge that accounted for a large percentage of the 200,000 cases per day in the United States in mid-November. A subsequent drop in case numbers was short-lived; cases surged again across the country by mid-December, primarily in the South, and by January 2021 the entire country was at 300,000 cases per day.

Although these unpredictable patterns of SARS-CoV-2 transmission resemble those of previous pandemics, and although pre-vaccine declines in COVID-19 case numbers have been attributed by many to interventive public health measures (e.g., masking, social distancing, and shutdowns), Osterholm noted that the pathology of coronaviruses is still largely unknown. At the time of his address, other parts of the world had been seeing drops and surges in case numbers that remain unexplained. Iran experienced a fourth major surge in cases. The United Kingdom saw a surge that would have equated to 195,000 hospitalizations per day in the United States. India had a dramatic drop in case numbers that lasted for months, yet their numbers eventually skyrocketed to 400,000 cases per day. And Sweden, once a model of successful COVID-19 response, found itself among the top 5 countries for case numbers per capita by February 2021.

These elusive answers from the past have given way to new, confounding factors at present. Perhaps the most significant of these factors is the emergence of what Osterholm called "variants of concern": viruses that are more infectious, can cause more severe disease, and have a heightened ability to avoid different forms of immunoprotection, including vaccines. These inherent challenges notwithstanding, Osterholm raised the additional concern that our response to these variants is hampered by a limited global capacity to manufacture vaccines for low- and middle-income countries, leading him to conclude that "we're going to be at the mercy of these variants for some time to come." Another conundrum comes in the form of decreased vaccination rates in the midst of new surges of case numbers. When the vaccines were first introduced in the United States, Osterholm observed that there were

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"more arms than needles" due to the initial demand; yet despite the distribution of 220 million doses within the first 100 days of the Biden administration, the country eventually reached a point when there were "more needles than arms." Finally, the concept of herd immunity, though popular, was dismissed by Osterholm as an unattainable distraction. To attain herd immunity against a highly infectious virus such as SARS-CoV-2 and its variants, the percentage of vaccinated individuals must be at 92% or more before transmission rates can be slowed—and even if this percentage is achieved, the protected individuals must be well integrated within the general population. Citing a series of measles outbreaks in his home state of Minnesota, where 93% of the population is vaccinated against this highly infectious disease, Osterholm noted that large segments of the remaining 7% lived in similar areas of the state and had similar social circles—a virtual petri dish for outbreaks. Experiences such as this have bolstered his conviction that vaccination remains the key to containing virus transmission.

The reality check continued well into the Q&A session that followed Osterholm's talk. Certain questions elicited succinct and sanguine responses, such as "When might a vaccine be available for children aged 6 months and up?" (hopefully by early- to mid-fall 2021) and "Is there a national communications campaign to combat vaccine hesitancy?" (yes, one that is focused on specific populations such as essential workers and certain racial and ethnic groups). Yet many answers were rife with caution and uncertainty. When asked how the pediatric population factored into a scenario of herd immunity, Osterholm reiterated his skepticism about this concept, noting that the effectiveness (as opposed to the efficacy) of the vaccine was still untested and that the vaccination rate among adults was still too low for herd immunity to be attainable. In response to an inquiry about the hold placed on the Johnson & Johnson vaccine due to associated blood clots in the brain, he indicated that "time will tell" whether it was the right decision while lamenting that the incident only acted as fuel for the fire of vaccine hesitancy—a topic that dominated much of the rest of the discussion.

"How do we get more people vaccinated at this point?" Osterholm suggested that anyone who provided a satisfactory answer to this question deserved a Nobel Peace Prize. One of the greatest challenges, he said, is educating the general public about how the vaccines were created, how they work, and how safe they are. In addition, the myriad populations of people expressing reluctance, each with their own circumstances and complexities, constitute a reality that renders global messaging less effective; this reality necessitates a more tailored approach of hearing people's individual stories to provide contextual reassurance that the vaccine is safe for them. Faced with questions about navigating vaccine hesitancy among friends and conversations with skeptics, Osterholm continued his straight talk; a quip about having "fewer friends these days" was delivered with a laugh, but he quickly pivoted to the seriousness of current affairs. Recounting a conversation with a history professor who had likened the divisiveness over vaccination to familial rifts that occurred during the Civil War, Osterholm encouraged vigilance in broadcasting the safety and viability of vaccines while conceding that "some people just aren't going to listen." For those who will listen to reason, though, he advised against the tactic of delivering unyielding lectures. Bringing people together, meeting them where they're at, and finding ways to help them see and understand the value of getting vaccinated—this, he said, is our best hope for success in the vaccination endeavor.

And when will it be safe for societies such as CSE to hold in-person conferences again? "Give me 3 months," Osterholm chuckled, saying that the feasibility and practicality of large group assemblies will depend entirely on our ability to reduce the surges of case numbers in this country. That said, he also asserted that a "psychology of the return" must be considered, suggesting that societies may need to reevaluate and reimagine the dynamics of future gatherings in the wake of the pandemic.

Yet amidst the uncertainties, there are securities. With this in mind, Osterholm concluded his talk with an apt metaphor. As a firefighter, he owns a suit that protects him from fire 90%–95% of the time. But is he walking into a burning building every day? Of course not. Yet the firefighting suit is a source of protection should he ever find himself exposed to a wall of flame. Such is the way with the COVID-19 vaccines. They are a critical protective measure that will help us return to some semblance of normal—and although Osterholm acknowledged that there is no reliable road map for the return, he assured his audience that vaccination is the vehicle that will get us there.