

# COVID-19's "first wave" may be the only wave—with no pause

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Don't wait for the coming of a second wave of the COVID-19 pandemic. Focus on the first wave that is still with us, says Michael Osterholm, PhD, MPH, and director of the Center for Infectious Disease Research and policy at University of Minnesota and regent's professor of public health.

There may never be a second wave, just a continuous stream of infection wherever individuals let down their guard. The first wave is complicated and confusing and not over—and may not end until a vaccine is successfully distributed, Dr. Osterholm told JAMA editor-in-chief Howard Bauchner, MD, on the "Conversations with Dr. Bauchner" video podcast.

The future of this pandemic is hard to predict, and even the present is still murky, he said amid major surges in COVID-19 case counts in California, Texas, Arizona, Florida and many other states south of the Mason-Dixon line.

"I know less about this virus today than I did six weeks ago. The more we learn, the more humble we need to be about what it means," Dr. Osterholm said.

Dr. Osterholm and his colleagues began studying the path of the COVID-19 virus in December 2019, before it left China and at the time proposed three scenarios of its evolution—none of which turned out to be correct. They had suggested the virus could be a "slow steady burn," of regular courses of infection, "hills and valleys" of on and off infection, or the "influenza pandemic" model which comes in waves.

While the influenza pandemic scenario was the most popular with some researchers, Dr. Osterholm said recent history has dismissed it.

"It's more like hills and valleys" around the country, with areas growing and others shrinking, he said. "I liken it more to a forest fire, wherever there is wood to burn, i.e. susceptible humans, it will find them."

Stay up to speed on the fast-moving pandemic with the AMA's COVID-19 resource center, which offers a library of the most up-to-date resources from JAMA Network™, the Centers for Disease Control and Prevention, and the World Health Organization. Also check out the JAMA Network COVID-19 resource center.

## Leaky bucket virus

But no one is sure about the future. “If you wonder what’s going to happen, just wait two weeks and I will tell you how it is going to be different than what I thought today,” he said. “This virus is what I call a ‘leaky bucket virus.’ If there is a micro leak, it is going to get out. And it is going to continue transmitting.”

Or “in the end it will be like one river of virus flowing down stream,” he said.

A vaccine would dam the river, but how effective can a vaccine be and how durable will the immunity be that it provides?

“Immunity with coronavirus is a very complicated issue. But my big concern is that we are still not ready to deliver the vaccine in a meaningful way. Everyone is going to want it,” he said.

However, pending new research on treatments and vaccines, there isn’t much new that public health officials can do to continue to shrink the number of cases around the United States, Dr. Osterholm argued. And not every protective technique works as well as experts hope. Physical distancing and face coverings are still helpful but must be used properly.

“Distancing, distancing, distancing is really the only focus we have,” he said. Masks are also still a valuable tool in protecting individuals from infection, but the value of masks vary. “An N95 mask, a surgical mask and a cloth face covering are not all the same in the protection they provide.”

And cloth face coverings only help if used properly. His recent review of media photography indicates that in 25% of images, masks are not worn properly, leaving the nose uncovered, creating gaps where the virus can exist and enter.

“It’s like fixing three of your five screen doors on your submarine,” he said.

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