

What does endemic mean? Experts answer your questions about the future of covid.



A pedestrian in an Underground station tunnel in London. (Kirsty Wigglesworth/AP)

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As [coronavirus](#) experts around the world share their predictions that we will have to [learn to live with covid-19](#), they are highlighting one of the less-familiar terms in the pandemic glossary: endemic.

“We have seen now that this is likely to become an endemic disease here in the United States and really around the world,” Rochelle Walensky, director of the Centers for Disease Control and Prevention, said during [an appearance on MSNBC](#) in December. “We have many diseases that are endemic, influenza being one of them, that cause us minor challenges year after year that we can handle and tackle, and that may very well be what happens with covid.”

This doesn’t mean that the pandemic is close to being over — many parts of the world, including much of the U.S., are still experiencing elevated case counts, hospitalizations and deaths driven by the highly contagious omicron variant. And, experts said, even if and when covid-19 becomes endemic, we won’t likely be able to return to our carefree, pre-pandemic lives.

Still, the word endemic is “a helpful concept, and it certainly provides some context as to where we are in this horribly unfortunate journey,” said [Jacob Lemieux](#), an infectious-disease physician at Massachusetts General Hospital. The issue, however, is nuanced, he added.

[Albert Ko](#), chair of the department of epidemiology and microbial diseases at the Yale School of Public Health, agreed. “This is not a situation where you have a flip of the switch, like, we’re pandemic one day and then we switch to endemic,” Ko said. “This is a gradual process and this is the process that we’re undergoing now.”

Here’s what you need to know about a disease becoming endemic — what it means, when it might happen and how it’s managed. Please keep in mind that as the pandemic evolves, information about the future of living with the coronavirus will likely change.

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What does endemic mean?

The CDC defines endemic as “the constant presence and/or usual prevalence of a disease or infectious agent in a population within a geographic area.”

In simpler terms, it means “a point at which the infection is no longer unpredictably disruptive,” said [Stuart Ray](#), a professor of medicine in the division of infectious diseases at Johns Hopkins.

What is the difference between outbreak, epidemic, pandemic and endemic?

The terms refer to different levels of disease, according to the CDC. Outbreaks are generally defined as a sudden rise in the number of cases of a disease that exceeds normal expectations. An epidemic is essentially “a big outbreak of disease” that is usually limited by time and geography, said [William Schaffner](#), medical director of the National Foundation for Infectious Diseases.

Meanwhile, a pandemic is an epidemic that has spread over a wider geographical area, often worldwide, and is typically caused by a new virus or strain of virus that humans usually have little to no immunity against. In addition to having much higher numbers of infections and deaths than epidemics, pandemics tend to have larger social and economic impacts.

In the case of the coronavirus, “the end of the pandemic doesn’t mean that the virus is gone,” Schaffner said. “It’s just that it’s in this kind of live-with, smoldering stage, and we’ll continue to have to cope with it depending upon what the characteristics of that virus are.”

Is an endemic disease less harmful?

No. The “biggest misconception” about the word is that it denotes mild disease or infection, Ray said. “Endemic does not mean not harmful. It just means relatively stable and predictable.”

The flu, for example, has caused hundreds of thousands of hospitalizations and 12,000 to 52,000 deaths annually in recent years, according to the [CDC’s estimation](#). Some other endemic diseases are measles, HIV and chickenpox. Whether a disease is considered endemic varies by location; consider malaria, which is endemic in places such as Africa and parts of Brazil, but not in the U.S.

Once a disease becomes endemic, its transmission levels might vary by season, as with the flu. And it’s possible to have epidemics or pandemics of endemic diseases.

“It’s a fluid thing,” Ko said. The emergence of new variants or decreases in vaccination rates could make populations susceptible to large surges of infections. Ray pointed to past flu pandemics fueled by different strains of the virus as an example.

“We can have pandemic strains of a virus that we normally think of as endemic, and I think we can anticipate a phase like that in the future with covid,” Ray said.

When will covid-19 become endemic?

At this point, it’s difficult to provide a definitive answer, experts said. “It’s kind of like the Potter Stewart definition of pornography, you know it when you see it,” Lemieux said, referring to the late Supreme Court justice’s [famous quotation](#).

Broadly, a viral epidemic or pandemic moves to endemic status when there is equilibrium between the level of transmission of the virus and the level of immunity in the population, he said. With the “huge amount of immunity” driven by omicron infections and continuing vaccination efforts, “it’s fair to say that omicron will accelerate the transition to endemicity.”

“This kind of immunity will control, we think, the scope and scale of future transmission and future waves,” he continued, “but it’s not endemic yet.”

In addition to the fact that omicron hasn’t reached its peak in the U.S. — although cases in some areas are starting to plateau — we don’t yet know the thresholds that need to be reached for covid to become endemic, or when that might happen.

“There’s a lot of these uncertainties that are going to really determine do we still call this a pandemic or do we call it endemic,” Ko said. “You’re going to ask a hundred epidemiologists, you’re going to get a hundred different thresholds.” In his view, the deciding factors will include transmissibility, virulence and whether any new variants can evade immunity conferred by vaccination or natural infection.

The unpredictability of the coronavirus is a major complication, and experts said it’s critical to continue global efforts to keep an eye out for new variants. “We may think we’re at a place where epidemics are no longer going to happen, and then there could be something that comes out of left field,” Lemieux said. “Omicron came out of left field.”

Reaching an endemic state would also likely depend on finding ways to protect children who are too young to be vaccinated or wear masks, Ray said. “I don’t think any of us really would accept a level of childhood death.”

The bottom line is that the shift to endemic covid will be gradual and still require caution. “I don’t think there’s going to be like a freedom day where everybody just rips off their masks and goes back to what they were doing,” Lemieux said.

If covid is declared endemic, does that mean earlier efforts to control it failed?

Even during the early days of the pandemic, many experts, such as Ko, anticipated that the coronavirus would likely become endemic. Despite some initial suggestions, especially from political leaders, that the virus might disappear, the idea of eradicating it “was a fallacy right from the beginning just because of the transmissibility of this virus,” Ko said. “Influenza is much less transmissible than the coronavirus, and we can’t shut it down.”

Schaffner agreed. “There’s no way a highly contagious respiratory virus like covid could ever have been eliminated or eradicated,” he said. “That was never in the cards from the very first infections that we discovered in Wuhan.”

And experts view the weapons and strategies developed in the war against covid as great successes. Using interventions such as masks, physical distancing and stay-at-home orders, Ko said, “we bought ourselves time” to develop tests, vaccines and therapeutics that are now helping to prevent severe infections, hospitalizations and death. At this stage of the pandemic, “we have an incredible tool kit,” Lemieux said.

How is an endemic disease managed?

Because individual countries will likely tolerate different levels of transmission and disease, experts predict that approaches may vary by nation. Schaffner envisions a national U.S. strategy that combines behavioral interventions (such as wearing masks), preventive efforts (including vaccination) and treatments.

Additionally, Ray recommended prioritizing efforts to improve vaccines and increase the supply of pharmaceutical treatments. Doing so, he said, will provide “new tools that will make this endemic state less harmful, even if the virus doesn’t change.”

But experts anticipate a continuing need for some restrictions. “We’ll have to modify some of our freedoms in order to protect the people who are the most vulnerable or give them the opportunity to protect themselves,” Schaffner said. And vulnerable people, such as the elderly or immunocompromised, will likely need to remain cautious.

Another thing that’s here to stay: uncertainty.

“Nobody has a crystal ball,” Lemieux said. “We live in a world now where SARS-CoV-2 is a part of that world. It’s not going away. It’s unpredictable. We don’t fully understand when a variant arises, how a variant arises, what impact it will have, and that uncertainty is just a part of our lives now. That doesn’t mean that we give up.”

By [Allyson Chiu](#)

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