When will the COVID-19 pandemic end? August 2021 update

This article updates our perspectives on when the coronavirus pandemic will end to reflect the latest information on vaccines and variants.

This article was a collaborative effort by Sarun Charumilind, Matt Craven, Jessica Lamb, Adam Sabow, Shubham Singhal, and Matt Wilson, representing views from McKinsey’s Healthcare Systems & Services Practice.
Since the March installment in this series, many countries, including the United States, Canada, and those in Western Europe, experienced a measure of relief from the COVID-19 pandemic when some locales embarked on the second-quarter transition toward normalcy that we previously discussed. This progress was enabled by rapid vaccine rollout, with most Western European countries and Canada overcoming their slower starts during the first quarter of 2021 and passing the United States in the share of the population that is fully immunized. However, even that share has been too small for them to achieve herd immunity, because of the emergence of the more transmissible and more lethal Delta variant and the persistence of vaccine hesitancy.

Among high-income countries, cases caused by the Delta variant reversed the transition toward normalcy first in the United Kingdom, where a summertime surge of cases led authorities to delay lifting public-health restrictions, and more recently in the United States and elsewhere. The Delta variant increases the short-term burden of disease, causing more cases, hospitalizations, and deaths. Delta’s high transmissibility also makes herd immunity harder to achieve: a larger fraction of a given population must be immune to keep Delta from spreading within that population (see sidebar, “Understanding the Delta variant”). Our own analysis supports the view of others that the Delta variant has effectively moved herd immunity out of reach in most countries for now, although some regions may come close to it.

While the vaccines used in Western countries remain highly effective at preventing severe disease due to COVID-19, recent data from Israel, the United Kingdom, and the United States have raised new questions about the ability of these vaccines to prevent infection from the Delta variant. Serial blood tests suggest that immunity may wane relatively quickly. This has prompted some high-income countries to start offering booster doses to high-risk populations or planning for their rollout. Data from the US Centers for Disease Control and Prevention also suggest that vaccinated people who become infected with the Delta variant may transmit it efficiently.

These events and findings have raised new questions about when the pandemic will end. The United Kingdom’s experience nevertheless suggests that once a country has weathered a Delta-driven wave of cases, it may be able to relax public-health measures and resume the transition toward normalcy. Beyond that, a more realistic epidemiological endpoint might arrive not when herd immunity is achieved but when countries are able to control the burden of COVID-19 enough that it can be managed as an endemic disease. The biggest risk to a country’s ability to do this would likely then be the emergence of a new variant that is more transmissible, more liable to cause hospitalizations and deaths, or more capable of infecting people who have been vaccinated.


2 See our earlier perspectives, below, for definitions of normalcy and herd immunity. When we refer to herd-immunity timelines for a country, we mean the point at which the entire nation or a significant portion reaches herd immunity.


Understanding the Delta variant

The Delta variant of SARS-CoV-2, also called B1.617.2, emerged in late 2020 and has since spread rapidly around the world. It first caused major waves of disease in India and the United Kingdom and more recently triggered serious outbreaks in many other countries. The Delta variant has also tended to displace all other variants to become the dominant variant. Its behavior and effects, with respect to several key measurable traits, are as follows:

Transmissibility—Delta is significantly more transmissible than either the ancestral COVID-19 variant or other variants. The R0 value for the Delta variant (the number of people who can be expected to contract a disease by a single infected person) has been estimated at 5 to 8 by the US Centers for Disease Control and Prevention. Limited evidence also suggests that vaccinated individuals who are infected by the Delta variant can transmit it to others as efficiently as unvaccinated people do.

Fatality—Limited evidence suggests that the case fatality ratio (the proportion of deaths among confirmed cases) of the Delta variant is roughly one and a half to two times greater than that of ancestral COVID-19.

Immunity—While data are still being gathered and existing evidence is not fully consistent, the general picture is that full vaccination with the vaccines used in Western countries generally provides strong protection against serious illness caused by the Delta variant. Evidence of protection against infection is more mixed, with a recent preprint suggesting that full vaccination provides only moderate protection. Prior natural infection with a different variant appears to provide only partial protection against Delta.

SARS-CoV-2 continues to mutate, and so new variants are likely to emerge. Their behavior and effects, regarding these characteristics, will determine the extent to which they displace existing variants and affect the prospects for reaching the end of the pandemic.


Raising vaccination rates will be essential to achieving a transition toward normalcy. Vaccine hesitancy, however, has proven to be a persistent challenge, both to preventing the spread of the Delta variant and to reaching herd immunity. The US Food and Drug Administration has now fully approved Pfizer’s COVID-19 vaccine, and other full approvals may follow soon, which could help increase vaccination rates. Vaccines are also likely to be made available to children in the coming months, making it possible to protect a group that comprises a significant share of the population in some countries.

In this article, we review developments since our March update, offer a perspective on the situation and evidence as of this writing, and present our scenario-based analysis of when a transition toward normalcy could occur.

Even without herd immunity, a transition toward normalcy is possible

We have written previously about two endpoints for the COVID-19 pandemic: a transition toward normalcy, and herd immunity. The transition would gradually normalize aspects of social and economic life, with some public-health measures remaining in effect as people gradually resume prepandemic activities. Many high-income countries did begin such a transition toward normalcy during the second quarter of this year, only to be hit with a new wave of cases caused by the Delta variant and exacerbated by vaccine hesitancy.

Indeed, our scenario analysis suggests that the United States, Canada, and many European countries would likely have reached herd immunity by now if they had faced only the ancestral SARS-CoV-2 virus and if a high percentage of those eligible to receive the vaccine had chosen to take it. But as the more infectious Delta variant becomes more prevalent within a population, more people within that population must be vaccinated before herd immunity can be achieved (Exhibit 1).

Exhibit 1

Because of the highly transmissible Delta variant, countries may have to reach higher COVID-19 vaccination rates to achieve herd immunity.
Vaccine hesitancy makes it all the more difficult to reach the population-wide vaccination level rates that confer herd immunity. Researchers are learning more about differences among individuals’ attitudes, which include both “cautious” and “unlikely to be vaccinated.” Meanwhile, social tolerance for vaccination incentives and mandates appears to be growing, with more European locations adopting vaccination passes and more large employers in the United States implementing vaccine mandates.

While it now appears unlikely that large countries will reach overall herd immunity (though some areas might), developments in the United Kingdom during the past few months may help illustrate the prospects for Western countries to transition back toward normalcy. Having suffered a wave of cases caused by the Delta variant during June and the first few weeks of July, the country delayed plans to ease many public-health restrictions and eventually did so on July 19, though expansive testing and genomic surveillance remain in place. UK case counts may fluctuate and targeted public-health measures may be reinstated, but our scenario analysis suggests that the country’s renewed transition toward normalcy is likely to continue unless a significant new variant emerges.

The United States, Canada, and much of the European Union are now in the throes of a Delta-driven wave of cases. While each country’s situation is different, most have again enacted public-health restrictions, thus reversing their transitions toward normalcy. The trajectory of the epidemic remains uncertain, but the United Kingdom’s experience and estimates of total immunity suggest that many of these countries are likely to see new cases peak late in the third quarter or early in the fourth quarter of 2021. As cases decline, our analysis suggests that the United States, Canada, and the European Union could restart the transition toward normalcy as early as the fourth quarter of 2021, provided that the vaccines used in these countries continue to be effective at preventing severe cases of COVID-19. Allowing for the risk of another new variant and the compound societal risk of a high burden of influenza, respiratory syncytial virus, and other winter respiratory diseases, the question for these countries will be whether they manage to arrive at a different epidemiological endpoint, as we discuss next.

**Endemic COVID-19 may be a more realistic endpoint than herd immunity**

We have previously written about herd immunity as a likely epidemiological endpoint for some countries, but the Delta variant has put this out of reach in the short term. Instead, it is most likely as of now that countries will reach an alternative epidemiological endpoint, where COVID-19 becomes endemic and societies decide—much as they have with respect to influenza and other diseases—that the ongoing burden of disease is low enough that COVID-19 can be managed as a constant threat rather than an exceptional one requiring society-defining interventions. One step toward this endpoint could be shifting the focus of public-health efforts from managing case counts to managing severe illnesses and deaths. Singapore’s government has announced that it will make this shift, and more countries may follow its lead.

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Other authors have compared the burden of COVID-19 with that of other diseases, such as influenza, as a way to understand when endemicity might occur. In the United States, COVID-19 hospitalization and mortality rates in June and July were nearing the ten-year average rates for influenza but have since risen. Today, the burden of disease caused by COVID-19 in vaccinated people in the United States is similar to or lower than the average burden of influenza over the last decade, while the risks from COVID-19 to unvaccinated people are significantly higher (Exhibit 2). This comparison should be qualified, insofar as the burden of COVID-19 is dynamic, currently increasing, and uneven geographically. It nevertheless helps illustrate the relative threat posed by the two diseases.

Countries experiencing a Delta-driven wave of cases may be more likely to begin managing COVID-19 as an endemic disease after cases go into decline. The United Kingdom appears to be making this shift now (though cases there were increasing as of this writing). For the United States and the European

Exhibit 2

In the United States, incidence of COVID-19 cases in June and July was similar to long-term incidence of influenza cases, but now exceeds it.

**Weekly incidence of COVID-19 and influenza cases,** rate per 100,000

![Graph showing weekly incidence of COVID-19 and influenza cases from June to July.](image)

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1 Estimates for recent seasons are preliminary and may change as data are finalized.
2 Following Centers for Disease Control and Prevention (CDC) methodology, rate in unvaccinated = combined rate / (1 - fully vaccinated coverage) + (1 - vaccine effectiveness) * fully vaccinated coverage.
3 Following CDC methodology, rate in fully vaccinated = (1 - vaccine effectiveness) * rate in unvaccinated. At ~50% fully vaccinated with vaccine effectiveness rates of 87%/96%/96% at preventing symptomatic infection/hospitalization/death.
4 Influenza incidence rates are based on data from 2010–19; peak rates assume that all cases, hospitalizations, and deaths occur over a 4-month time period.

Source: CDC; Our World in Data; Stowe et al., “Effectiveness of COVID-19 vaccines against hospital admission with the Delta (B.1.617.2) variant,” preprint not certified by peer review, Public Health England, June 2021; USAFacts

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22 “From pandemic to endemic,” July 1, 2021.
Union, scenario analysis suggests that the shift may begin in the fourth quarter of 2021 and continue into early 2022 (Exhibit 3). As it progresses, countries would likely achieve high levels of protection against hospitalization and death as a result of further vaccination efforts (which may be accelerated by fear of the Delta variant) and natural immunity from prior infection. In addition, boosters, full approval of vaccines (rather than emergency-use authorization), authorization of vaccines for children, and a continuation of the trend toward employer and government mandates and incentives for vaccination are all likely to increase immunity. Our scenario modeling suggests that although the resulting level of population immunity may not be high enough to achieve herd protection, it would still protect a substantial portion of the population. Most serious cases of COVID-19 would occur in unvaccinated people. Flare-ups and localized epidemics would happen while COVID-19 is managed as an endemic disease, but scenario modeling suggests that these may have less of an effect on the whole of society than the waves seen to date. Booster vaccinations will be important in maintaining immunity levels over time. A new variant that substantially evades existing immunity would remain the biggest overall risk.

Some countries could resume a transition to normalcy and begin managing COVID-19 as an endemic disease after the recent wave of Delta-variant cases.

### UK COVID-19 disease pattern

Transition toward normalcy

Delta variant results in public-health measures

Transition toward normalcy

Endemic disease: subnational regions may get herd immunity; national herd immunity unlikely

Ongoing risk due to pockets of lower immunity and potential for immunity-evading variants

### US COVID-19 disease pattern

Transition toward normalcy

Delta variant results in public-health measures

Transition toward normalcy

Endemic disease: subnational regions may get herd immunity; national herd immunity unlikely

Ongoing risk due to pockets of lower immunity and potential for immunity-evading variants

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Countries have varying prospects for reaching the end of the pandemic

Here, we offer a broader geographic view, comparing the current state as of the time of publishing in countries around the world. Our analysis suggests that countries fall into three general groups (within which national conditions can vary to some extent):

1. **High-vaccination countries.** These countries, primarily in North America and Western Europe, are the ones discussed above.

2. **Case controllers.** This group includes countries such as Singapore that have been most successful in limiting mortality associated with COVID-19 to date. They have typically maintained tight border restrictions and a strong public-health response to imported cases. Their residents have mostly enjoyed long periods of relative normalcy without public-health restrictions, aside from limits on international travel. Some countries in this group, such as Australia, have recently faced a Delta-driven surge in cases, but in absolute terms the burden of disease remains low relative to other countries. Unless these countries choose to maintain their border restrictions (such as hotel-based quarantine) indefinitely, they might accept the risk of endemic COVID-19 after governments determine that a sufficient portion of the population is vaccinated.

The pace of vaccine rollout varies among the countries, but in many cases reopening of borders may not begin until 2022, dependent in part on public-health outcomes for countries in other groups. The shift from a zero-COVID-19 goal to an endemic, low-burden goal may be challenging for some countries.

3. **At-risk countries.** Mainly comprising most lower-income and many middle-income countries, this is a group of nations that have not yet gained access to enough vaccine doses to cover a large portion of their populations. Estimates of their overall immunity remain low enough that there is still a risk of significant waves of disease. Recent projections suggest that it is likely to take until late 2022 or early 2023 for these countries to achieve high vaccine coverage. The possible time frame for them to manage COVID-19 as an endemic disease is less clear.

Globally and nationally, the epidemiological and public-health situation remains dynamic, and the prospects for each country group are subject to uncertainty. Factors that could influence actual outcomes include:

- the potential for new variants to emerge (for example, a variant that evades vaccine-mediated immunity to the extent that it frequently causes severe disease in the vaccinated and spreads widely would likely have the most significant effect on any country’s prospects for reaching the end of the pandemic)

- further evidence of waning natural and vaccine-mediated immunity over time, and challenges with rolling out vaccine boosters quickly enough to maintain immunity

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— further challenges with vaccine manufacturing or global rollout
— changes in the ways that countries define an acceptable burden of disease (for example, setting different targets for disease burden in vaccinated and unvaccinated populations)

The surge of COVID-19 cases resulting from the spread of the Delta variant and from vaccine hesitancy brought a sudden, tragic end to the transition toward normalcy that some countries had begun to make. But the United Kingdom's experience indicates that a transition toward normalcy may yet be possible before long, at least in countries where the vaccine rollout is well under way. Their task will be determining what burden of disease is low enough to warrant lifting of public-health restrictions, and how to manage the public-health impacts of endemic COVID-19. In countries where vaccination rates remain low, the prospects for ending the pandemic remain largely tied to the availability and administration of additional doses. Expanding the international vaccine rollout remains essential to achieving a postpandemic sense of normalcy worldwide.