
COVID-19 Outlook: Cautious Optimism Before Halloween

[Population Health Sciences](#)

Date Posted:

Oct 28, 2021

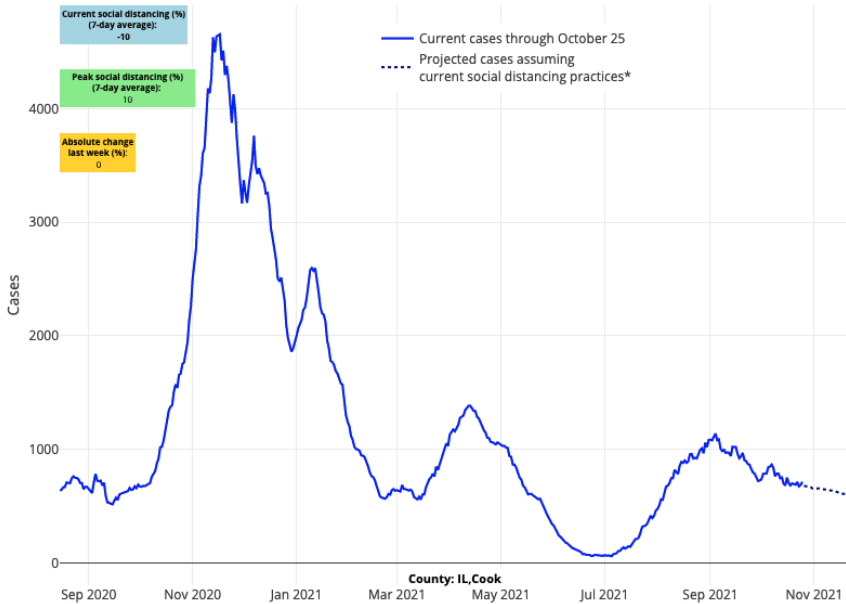
We're continuing to monitor the data coming out of our [COVID-Lab forecasting model](#). Here are this week's updates:

National Data

- The average PCR test positivity rate across the 803 U.S. counties we're monitoring is down to 7.6% from 8.5% last week. This week, only one-quarter of these counties have increasing test positivity, compared to one-third of counties last week.
- The average reproduction number (a measure of transmission that estimates how many additional individuals, on average, will be infected by every positive case) across the counties we're monitoring is 0.82, indicating declining transmission on average throughout the country. None of the 803 counties have reproduction numbers above 1.5, and although 40% of counties have reproduction numbers above 1, they are more scattered across the country now.
- Average case incidence across all counties declined from 220 weekly cases per 100,000 people to 184 weekly cases per 100,000 people; one-quarter of the counties we're monitoring are seeing fewer than 100 weekly cases per 100,000 residents, falling below the Centers for Disease Control and Prevention's (CDC) threshold for "high" transmission.
- Adult and pediatric hospital censuses continue to hover near 50,000 and 800, respectively, although daily hospital admissions have fallen below 5,000 and 150, respectively.

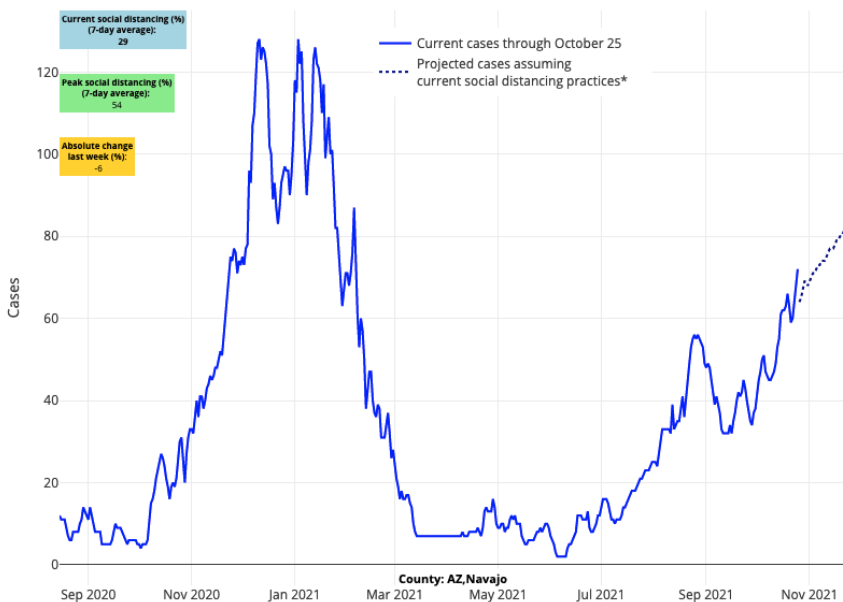
Regional Data

- Colorado has seen substantial transmission in recent weeks. Test positivity continues to grow in Denver and Colorado Springs, though the region may be nearing its peak. Despite increased case incidence in the region, adult hospital census across the state is about half its level from last winter, suggesting benefits from the area's high vaccination rates. Pediatric hospital census has peaked at nearly 30 children daily across the state, up from 10 children in August.
- Chicago—where nearly 65% of all residents have received at least one COVID-19 vaccine dose—has kept reproduction numbers just under 1 and our forecasts show slowly declining case incidence over the next four weeks.



Above are the projections for Cook County in Illinois.

- The Northeast continues to see stable case incidence at 100 weekly cases per 100,000 residents. Hospitalizations have been flat or declining in most parts of the region, and our forecasts project flat case incidence leading up to Thanksgiving.
- Florida’s cities have seen remarkable improvements in recent weeks, with case incidence dropping below 100 weekly cases per 100,000 residents. Our forecasts, however, suggest the state is nearing a fall plateau as reproduction numbers in Miami, for example, return toward 1, and projections show flat case incidence over the next four weeks.
- Improvements in the Pacific Northwest have stalled in the last couple of weeks, and case incidence has been sustained between 100 to 300 weekly cases per 100,000 residents in the counties we’re monitoring in the region. Our projections forecast flat but high case incidence throughout the Portland and Seattle-Tacoma regions leading up to Thanksgiving.
- One area of continuing concern is the Desert Southwest. We’re projecting increasing or sustained high case incidence over the next four weeks in much of New Mexico, particularly around Albuquerque, and our forecasts show the same for Phoenix, where they are seeing about 200 weekly cases per 100,000 residents.



Above are the projections for Navajo County in Arizona.

Signs that Last Year's Halloween Effect May Not Repeat in Highly Vaccinated Communities

Looking back, activities related to Halloween 2020 likely promoted significant community-level transmission that was then amplified throughout the remaining winter holiday season in many parts of the country. We're more cautiously optimistic about Halloween this year. Since September, our team has been closely monitoring more highly vaccinated areas of the Upper Midwest and Northeast to understand how higher vaccine coverage might insulate communities from swift increases in transmission and hospitalizations. It's clear that colder weather and shorter days are still leading to increases in case incidence among less vaccinated communities, like in Utah, which has had a difficult few weeks. It also appears that highly vaccinated regions, like metropolitan areas (Chicago, Philadelphia, New York and Boston) of the Upper Midwest and Northeast, can experience flat case incidence and even decreases in hospitalizations despite the onset on colder weather and decreasing daylight.

The stability in these regions leads us to believe that while fall and holiday gatherings are upon us, the impacts of these events are likely to be far less substantial than last year given high population immunity. We worry far more about communities in the Mountain West and Southwest, where case incidence remains high, hovering above 200 weekly cases per 100,000 residents. Sharp increases in transmission after Halloween in less vaccinated communities can quickly double case incidence, potentially leading to more individuals needing hospitalization.

Vaccines Should Soon Arrive for Younger Children

Adding more optimism to our outlook for the next several weeks is the Food and Drug Administration's (FDA) [recent decision](#) to extend emergency use authorization for the Pfizer-BioNTech COVID-19 vaccine to children 5-11 years of age. This announcement should allow for children in this age group to be vaccinated before the winter holidays. Efficient rollout of vaccine campaigns for 5-11-year-old children will not only protect children from a low, but appreciable risk of severe disease this holiday season, but will help prevent transmission from children to their older relatives during gatherings.

After the holiday season, with many more children vaccinated, we will likely reach an important inflection point in school mitigation practices. If transmission continues to decline, and as families are afforded sufficient time to vaccinate their children, we suspect many school policies will shift back toward local flexibility and family choice when it comes to masking and other mitigation strategies.

Light at the End of the Tunnel

While we see growing optimism for many regions of the country this week, communities have another, and hopefully last, important leg in this journey. During the coming months, we urge individuals and families to continue making practical choices to mask in crowded indoor public locations until case incidence declines to the low levels of early summer. Additionally, communities need to remain steadfast in increasing vaccination coverage, now including children 5-11 years old. These efforts will help stabilize some areas experiencing an increase in case incidence and assist other communities in achieving a more rapid decline in their already stable case incidence.

With a little vigilance, we will celebrate a holiday season that should be far safer than last year and hopefully put the worst days of the pandemic in our rearview mirror.



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