

BRIEF19

A daily review of covid-19 research and policy.

RESEARCH BRIEFING

Post-vaccination attitudes reveal that there is still room for education.

A new analysis [published](#) in the *New England Journal of Medicine* assessed attitudes regarding vaccine efficacy among people who had already received the vaccine. The report also discussed how those receiving vaccination felt about the need to continue key mitigation measures. The analysis relies on the results of a relatively small survey, though one that was meant to be a representative national sample.

Survey respondents had varying beliefs regarding whether one dose or two doses of the Pfizer/BioNtech or Moderna mRNA vaccines were needed. (The authors note that up to and during the time of survey administration, public officials were debating the need for one vs two doses, as well as efficacy at preventing severe covid-19 after the first and second doses.) At the time the survey was conducted, the single-dose Johnson & Johnson vaccine was receiving some negative attention in the news, which may have influenced the findings.

Of the 18 percent of respondents who had received at least one dose of a vaccine, a substantial proportion of respondents did not know that protection against covid-19 was strongest after the second dose. Furthermore, lack of information was provided to vaccine recipients regarding the uncertainty of post-vaccine transmission of SARS-CoV-2 to others, as well as importance of continuing mitigation measures, at least until such data are known.

Uncertainty of post-vaccine transmission risk, or the belief that post-vaccine transmission does not occur was associated with being less likely to support mask use after vaccination. (In fairness, people spreading the virus after vaccination spread has not been documented, though post-vaccination infections have been reported, especially with certain variants.) Still, the majority of respondents continued to support the use of masks after vaccination.

One limitation to this survey-based study was that it was unable to assess to what extent vaccine recipients continued to adhere to mitigation measures receiving their shots. Another notable limitation was that a relatively small number of survey respondents had actually received a coronavirus vaccine, thus greatly limiting any inference that can be made regarding post-vaccination behaviors and any education that might be provided at the time of vaccination.

The overall takeaway from this study is two-fold. First, public health officials and prominent voices in the news should be cognizant that debating scientific nuances in public may result in confusion. Second, it is important to provide information to individuals—at the time of vaccination and after—about efficacy and the need to continue certain mitigation measures in certain circumstances. The CDC's [new guidance](#) for vaccinated persons should be helpful. [29 April 2021](#).

—Joshua Niforatos, MD, MTS

Pediatric hospitalizations decreased during the spring and summer of 2020.

Research over the last year suggests that pediatric hospital admissions have decreased during the covid-19 pandemic. In a new paper [published](#) yesterday in *JAMA*, researchers provide a detailed look at data regarding specific trends in decreased hospitalization for a variety of conditions.

The researchers conducted a retrospective review of the Pediatric Health Information System databases for all admissions for children aged 0 to 18 years of age across 43 freestanding children's hospitals in the United States. Data on admission trends and diagnoses from 2020 were compared to similar time-of-year data from 2017 to 2019.

Compared to 2017-2019, pediatric hospitalizations decreased 48 percent during the spring and 23.5 percent during the summer of 2020. Decreases in hospitalizations occurred across all demographic groups.

When looking at specific reasons for hospitalizations for spring of 2020, hospital admissions for respiratory failure decreased by 168 percent, bronchiolitis (inflammation of the small airway branches in the lungs) decreased by 122 percent, and asthma exacerbations decreased by over 79 percent.

Rates of admission decreased for major depressive disorder by 52.5 percent, epilepsy by 48 percent, and sickle cell crisis by 50 percent, sepsis by 64.5 percent, gastroenteritis by 82 percent, and cellulitis by over 34 percent. Headaches decreased by 60 percent. Broken bones requiring admission decreased by 26 percent.

Notably, admission rates started to slowly increase for these conditions during the summer of 2020, but nevertheless remained significantly decreased when compared to admission rates in 2017-2019.

How can we explain the lower rates of pediatric hospitalizations due to such a wide variety of causes during the first 6 months of the covid-19 pandemic? Much of this explained by physical distancing. Many contagious diseases other than covid-19 were prevented by the lack of close contact among children for the better part of a year. In addition, perhaps some parents who might have normally had a relatively low threshold to bring their children in to emergency rooms for evaluation instead opted for at-home “watchful waiting.” Another interesting finding here was that hospitalizations for psychiatric complaints during 2020 was also lower than in previous years. This may come as a surprise given reports of higher rates of mental health struggles among kids during the pandemic. However, this study did not cover the school year that began in the fall of 2020, nor the winter or spring of 2021. It’s possible that pediatric mental health hospitalizations went up in the months after the period covered by the study. Data on that should be available in the coming months.

The major limitation of this study is that the authors did not assess whether changes in hospitalization rates were correlated with local and contemporaneous changes in mortality. Doing so would have helped us confirm that the decreases in acute emergency care reflected fewer emergencies, rather than inadequate treatment of the usual number of life-threatening conditions. Further research is warranted to understand what role decreased hospital utilization had on non-covid-19 pediatric morbidity and mortality during the pandemic. [28 April 2021](#).

—Joshua Niforatos, MD, MTS

Middle seats: bad. Airport-based testing: good.

The covid-19 pandemic has changed our way of life for over a year. Few industries have been harder hit than the travel sector. Two new studies appearing in the US Centers for Disease Control and Prevention’s *Morbidity and Mortality Weekly Report* shed light on related areas of interest: Whether or not banning the use of middle seats might have any effect on viral transmission and airport-based testing for SARS-CoV-2.

The [first study](#) modelled the effect of empty middle seats on SARS-CoV-2 exposure on a commercial airliner. Recent real-world literature already suggests the obvious: the further someone is seated from a SARS-CoV-2 source patient on a plane, the lower their chances of picking up the infection are; 75 percent of those infected on a flight were seated within two rows of the source individual. This new study was, in essence, a model that used a surrogate for SARS-CoV-2 in order to estimate the effect of removing people in middle seats. The researchers found that in their model of a plane with a single-aisle configuration (3 seats, one aisle, 3 seats, the typical layout of a Boeing 737 or Airbus 319 or 320), removing middle seat passengers would reduce exposure to the passengers near an infected source individual by around 23 percent. For two-aisle configurations (including large jumbo jets such as Boeing 777s and Airbus 380s), the reduction in exposure by

banning middle seat occupants would be closer to 57 percent. While this study supports what many of us might like to see during the pandemic (i.e. banning of middle seat use), it is important to note that this was a model of *exposure* only; the model did not capture whether that exposure would be synonymous with *infection*. Secondly, this was not a real-world trial that tracked infection rates in outbreaks occurring on real planes. Lastly, the effect of vaccinated versus unvaccinated travelers was not studied.

The [second study](#) looked at the effect of airport-based coronavirus testing in Alaska. If any US state had a good chance of understanding the effect of such an intervention, it would be Hawaii and Alaska, where entry to the state largely occurs via airports. In this case, officials monitored the number of positive SARS-CoV-2 tests that were picked up as part of testing regimens put in place during the re-opening phases of the pandemic. The testing program identified 951 SARS-CoV-2 infections during the period from June 6 to November 14, 2020, or around one out of every 406 arriving travelers. In general, the number of cases found at airports mirrored that in the state, implying that false positives were not driving these numbers. While 951 cases may not sound like much, realize that during that period only around 21,500 total infections were detected in Alaska. Depending on when in the course of the 951 travelers' infections the airport-identified cases were found, thousands of downstream cases may have been prevented, and many hospitalizations and deaths.

Of note, Alaska has had a far lower number of excess deaths than most US states, even adjusting for its small population. Some of that may result from geographic advantages; Alaska does not have a high population density. But at least some of that may be a result of its relatively intense testing at its major ports of entry. In the coming months, some nations around the world will continue to have low vaccination rates. However, rather than relying on hygiene theater (highly conspicuous “deep cleanings” of surfaces) or largely useless symptom checklists which hinge on the honor system, and also completely fail to detect asymptomatic disease, many countries could reap a substantial benefit in limiting new infections by more rigorous testing at their borders. [26 April 2021](#).

—Jeremy Samuel Faust, MD MS

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Brief19 is a daily executive summary of covid-19-related medical research, news, and public policy. It was founded and created by frontline emergency medicine physicians with expertise in medical research critique, health policy, and public policy.