Children's Hospital of Philadelphia
PolicyLab

New Study Shows Mask Mandates Associated with Reduction in County-level COVID-19 Case Incidence Early in Pandemic

Findings may inform local mask mandate decisions during periods of high community COVID-19 transmission

Philadelphia, PA – February 16, 2022 – Counties that introduced a mask mandate early in the pandemic experienced lower COVID-19 case incidence in the six weeks after introduction compared to counties without mandates, according to a new study in *Health Affairs* from researchers at PolicyLab at Children's Hospital of Philadelphia (CHOP) and the University of Pennsylvania's Perelman School of Medicine. The study, which is the largest to assess the impact of masking mandates in the United States, included nearly 400 diverse counties and focused on larger counties experiencing moderate to substantial community transmission in the spring and summer of 2020.

Through a pragmatic trial design, this study compared case incidence for eight weeks between counties that initiated mask mandates and neighboring counties that did not initiate mandates but had similar transmission and demographic characteristics during the period of March 21 and October 20, 2020. The researchers found that on average, COVID-19 case incidence per 100,000 people was 33% lower after six weeks in counties that initiated mask mandates versus those that didn't. The impact of mask mandates lessened between six and eight weeks.

"Throughout the pandemic, our communities have vigorously debated the value of mask requirements in reducing community transmission. While there is substantial evidence that masking can protect individuals, little data existed on how well mask mandates offered additional protection to communities," said Jing Huang, PhD, faculty member at PolicyLab at CHOP, assistant professor of biostatistics at the University of Pennsylvania's Perelman School of Medicine and lead author on the study. "This study gives us a better understanding of the benefits and nuances of such mandates and can provide a guide for how and when communities might employ this mitigation strategy should it be needed in the future."

The researchers also found differences between counties based on population density and political leaning, suggesting a larger short-term reduction in transmission resulting from mask requirements in more crowded communities or those with a reticence toward voluntary masking. The strongest effects were seen in large, urban counties, where COVID-19 transmission was 48% lower at six weeks among those that initiated versus did not initiate mask mandates. Counties that implemented mask mandates and voted Republican in the 2016 presidential election had 38% lower case incidence rates at six weeks as compared to similar voting Republican counties without mask mandates. In contrast, counties that voted Democrat and implemented masking requirements had 30% lower transmission than similar voting counties without mandates. However, in all of these counties, as with the overall analysis, the effect of mask mandates began to wane between six and eight weeks. The researchers found no observable impacts of masking requirements in suburban or rural counties.

"As we continue to discuss how well mitigation measures have worked throughout the pandemic, we need to recognize the variability in effectiveness of mask mandates over the course of a pandemic in different communities," said David Rubin, MD, MSCE, director of PolicyLab at CHOP, professor of Pediatrics at the University of Pennsylvania's Perelman School of Medicine and senior author on the study. "While it is difficult to extrapolate these findings to later stages of the pandemic when fatigue with public restrictions was greater, the

results suggest mask mandates may be effective as a time-limited measure for local leaders to consider during periods of high case incidence or when hospitals are strained."

While this study detected a benefit of mask mandates—particularly in large, urban counties—for blunting disease incidence across communities early in the pandemic, the exact factors that mediate this benefit warrant further study. The study did not examine issues like local enforcement of mandates and individual fatigue over time that could influence reproducibility of these results. It also did not disaggregate the degree to which benefits were the direct result of more uniform protection with masks in public settings or the signaling to a community of enhanced risk, which may have led to utilization of other mitigation measures (e.g., social distancing) in the weeks following the start of a mask mandate.

Read the study here.

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About PolicyLab at Children's Hospital of Philadelphia: PolicyLab at Children's Hospital of Philadelphia (CHOP) is dedicated to achieving optimal child health and well-being by informing program and policy changes through interdisciplinary research. Founded in 2008, PolicyLab is a Center of Emphasis within the CHOP Research Institute, one of the largest pediatric research institutes in the country. With more than 30 highly-regarded faculty and 60 passionate staff who bring expertise from myriad of fields covering health, research and health policy, our work focuses on improving public systems, improving health care delivery and improving child health outcomes. For more information, visit **http://www.policylab.chop.edu**.