Lessons Emerging From COVID-19 Responses by US States

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Without any precedent for responding to an infectious airborne virus as severe and widespread as SARS-CoV-2, the diversity of the US in terms of population density, demographics, political ideology, and epidemiologic surveillance led to a variety of state responses. These responses included a range of state-mandated economic closures, stay-at-home orders, and mask mandates. Despite rapidly expanding scientific understanding of COVID-19 and its societal consequences, more than 1 year into the pandemic we continue to seek a better understanding of the value of nonpharmaceutical interventions to curb hospitalizations and deaths.

A recent study by Gupta and colleagues1 published in this issue of JAMA Health Forum sheds new light on the associations between state reopenings and COVID-19 health outcomes during the first wave of the pandemic from April 16 to July 31, 2020. Using cross-sectional data from the University of Minnesota COVID-19 Hospitalization Tracking Project, this study performed an interrupted time-series analysis to assess trends of COVID-19 hospitalizations and deaths before and after state reopenings, as well as the changes associated with the reopening of state economies.

Gupta and colleagues1 reported that all but 7 states had implemented stay-at-home orders at some point during the first wave of the pandemic, and all states had reopened their economies by May 29, 2020. The authors assessed COVID-19 hospitalizations and deaths per 100 000 people in the 47 states that reported these outcomes. The study found that state reopenings were associated with worse COVID-19 health outcomes. Whereas COVID-19–related hospitalizations and deaths trended downward prior to reopening, the postreopening rate of these 2 outcomes trended upwards. Importantly, the daily rate of COVID-19 hospitalizations per 100 000 people associated with state reopenings significantly increased, but the effects on COVID-19–related deaths were only marginally significant.1

Gupta and colleagues further stratified their analysis by states' reopening approaches, finding that states with phased reopenings and stay-at-home orders still in place at the time of initial reopening fared worse in daily trends of COVID-19 hospitalizations.1 While these findings from the stratified analyses may seem curious, they report higher hospitalization rates on the reopening day in states implementing phased reopening and retaining stay-at-home orders relative to states with immediate reopenings and expired stay-at-home orders, respectively. This evidence suggests that states with more severe outbreaks—characterized by a higher daily postreopening trend in hospitalizations—may have chosen to follow stricter reopening guidelines.2

There were several limitations to the study by Gupta and colleagues,1 some inherent to natural experiments3 such as theirs. Although these policies were clearly not implemented in a randomized fashion, the authors took several steps to rule out alternate explanations, including sensitivity and falsification tests.4 However, their study still cannot tell us what the counterfactual of not implementing closures and stay-at-home orders would have been. Their study also does not quantify all COVID-19 outcomes of interest to society—morbidity from infections and the hardships stemming from the psychological and economic costs of closures nor the severity of these outcomes within marginalized communities disproportionately affected by the pandemic.

Other factors related to the geotemporal spread of COVID-19, but beyond the scope of the study by Gupta and colleagues,1 warrant further research. For instance, the study focused only on the first wave of the COVID-19 pandemic; however, some noncoastal states saw infections spread over time from urban communities to rural communities and experienced higher hospitalization rates later in the year, after the expiration of closures and stay-at-home orders.5 In addition, although the
authors conducted a sensitivity analysis to account for counties whose reopening date differed from that of their state,\(^1\) the health effects of substate variation in policies may be important, including specific policies such as masking requirements.\(^6\) That said, the study by Gupta and colleagues\(^1\) does help us understand the importance of public health orders in contributing to the crucial goal of preventing health systems from being overwhelmed and the high death rates that could ensue.

Understanding the associations between policy actions and COVID-19–related health outcomes is crucial to mitigating subsequent waves and future pandemics. The extreme health and economic costs of the COVID-19 pandemic compel us to continue investigating which policies have been most effective and to implement interventions that are consistent with the most robust scientific evidence.

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REFERENCES