

Commentary

Local, state and federal face mask mandates during the COVID-19 pandemic

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It has been well established that severe acute respiratory coronavirus virus 2 (SARS-CoV-2), the virus that causes coronavirus disease 2019 (COVID-19), is spread primarily through respiratory droplets.¹ In healthcare facilities with adherence to personal protective equipment (PPE) guidance, patient-to-healthcare personnel COVID-19 transmission is relatively rare. This finding demonstrates the effectiveness of face masks and respirators, in combination with eye protection, for healthcare personnel caring for patients with suspected or known COVID-19.

On April 3, 2020, the Centers for Disease Control and Prevention (CDC) released a recommendation that public citizens should wear “nonmedical cloth masks” while in public places to help prevent the spread of SARS-CoV-2.² The initial rationale behind this recommendation was for “source control,” to limit the emission of virus-containing respiratory droplets from infected people during their contagious period. As the viral transmission dynamics were better understood, another pandemic challenge was realized: up to 40% of infected people are asymptomatic but can shed high levels of SARS-CoV-2 from their respiratory tracts, and they contribute to more than half of viral transmissions.^{3–6} Thus, the universal use of face masks for source control among the general public became a top priority in the pandemic mitigation strategy.

Despite the evidence supporting universal public face masks, guidance varies widely from state to state. As of November 28, 2020, the US governors of 35 states have issued emergency orders for statewide mandatory mask requirements.⁷ In the states lacking statewide mandates, some local leaders within those states have issued face mask requirements for their cities or counties. Across the United States, variations regarding face mask exceptions add even more complexity. Examples include exempting children <5 years of age in Oregon,⁸ compared to children <10 years of age in Texas.⁹ Additionally, many states do not require face masks in places of worship and other specific settings.^{9–11}

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Cite this article: Guzman-Cottrill JA, et al. (2021). Local, state and federal face mask mandates during the COVID-19 pandemic. *Infection Control & Hospital Epidemiology*, 42, 455–456, <https://doi.org/10.1017/ice.2020.1403>

The Society of Healthcare Epidemiology of America (SHEA) supports and recommends face-mask mandates as an effective strategy to decrease SARS-CoV-2 community transmission. Mask have been proven to decrease person-to-person respiratory viral transmission and to decrease community COVID-19 rates. These decreases will reduce the pressures on healthcare facilities as the number of COVID-19–related hospitalizations continue to surge across the country and ultimately, masks will save lives.

Several studies have demonstrated that face masks decrease the spread of SARS-CoV-2 virus. The primary objective is to provide “source control” of infected individuals, and face covering blocks a large proportion of the person’s respiratory secretions during talking, deep exhalation, singing, and similar actions. Face masks can decrease the number of expelled large droplets and aerosols, the concentration of virus-laden droplets, and the distance that secretions travel from the source person.⁶ As a result, the exposure risk to other people is diminished.

Although cloth face masks are not equivalent to medical-grade PPE used in healthcare settings, recent studies demonstrate that cloth face masks do provide some protection to individuals exposed to contagious persons in the community. Depending on the material used, cloth masks can provide filtration of droplets and particles <10 µm, can utilize static electricity to capture particles, or may help repel moisture.⁶

The safety of cloth face masks has been questioned, including unsubstantiated claims that face masks can cause hypoxia. To date, no national medical society has identified any true risk that outweighs the benefits of wearing face masks in public during the COVID-19 pandemic. In addition, 3-layer masks are not associated with a decline in oxygen saturation in older persons, and they may be protective for children with exercise-induced asthma.^{12,13} The American Lung Association recommends public face masks for people with chronic lung disease in addition to the other public health–recommended preventive strategies that all should follow: maintaining physical distance from others, avoiding crowded areas, and performing frequent hand hygiene.¹⁴

Across the United States, community-level COVID-19 rates vary dramatically. Notably, public mask requirements appear to correlate with lower COVID-19 rates. In July 2020, the governor of Kansas issued an executive order requiring public face masks, but county officials had the authority to opt out of the mandate.¹⁶ In the 24 counties that accepted the face mask requirement, the COVID-19 incidence decreased.¹⁷ Simultaneously, the COVID-19 incidence dramatically increased in the counties that opted out of the mask mandate.¹⁷ Similar trends comparing counties with and without public face mask requirements have also been reported in Missouri.¹⁸

Many hospitals and healthcare systems are currently operating at crisis capacity, and their inpatient surge capacity plans are not meeting the widening gap. Temporary “overflow facilities” are being erected, adults are overflowing into children’s hospitals, and hospital staffing shortages are not being met. Facilities continue to face challenges in unreliable PPE supply chains, and commercial laboratory turnaround times are again lengthening due to dramatic increases in patient testing. Until a vaccine is widely available, the only effective way to reverse this dire situation is to “flatten the curve” and for the general public to do everything possible to decrease viral transmission. Public face mask mandates are a critical part of this strategy. As CDC Director Dr Robert Redfield stated, “Cloth face coverings are one of the most powerful weapons we have to slow and stop the spread of the virus—particularly when used universally within a community setting. All Americans have a responsibility to protect themselves, their families, and their communities.”¹⁹

We are facing unfortunate challenges during this pandemic, including a growing distrust in public health agencies and the politicization of wearing face masks in public. Across the country, some citizens hold the opinion that wearing a face mask is taking away their individual freedom or civil liberty. However, widespread mask requirements should be regarded through a very different lens. SARS-CoV-2 is a respiratory virus and wearing a face mask will decrease person-to-person spread.^{6,20} Mask mandates that include minimal exceptions will lead to a reduction in community COVID-19 rates, decrease hospitalizations, and save lives. Reducing community prevalence and transmission will allow us to find our individual and community freedoms again: freedom to travel, send students back to classrooms, return to indoor dining, and safely reopen the economy. Most importantly, mask mandates will decrease the enormous pressures placed on healthcare facilities and decrease the occupational risks that our frontline healthcare workers are currently facing while working in crisis capacity settings.

Acknowledgments. The authors acknowledge the SHEA Public Health Task Force for their valuable review and the SHEA Executive Office Staff for their assistance in the preparation of this manuscript.

Financial support. No financial support was provided relevant to this article.

Conflicts of interest. All authors report no conflicts of interest relevant to this article.

References

- Interim infection prevention and control recommendations for healthcare personnel during the coronavirus disease 2019 (COVID-19) pandemic. Center for Disease Control and Prevention website. <https://www.cdc.gov/coronavirus/2019-ncov/hcp/infection-control-recommendations.html>. Published 2020. Accessed November 28, 2020.
- Use of masks to help slow the spread of COVID-19. Center for Disease Control and Prevention website. <https://www.cdc.gov/coronavirus/2019-ncov/prevent-getting-sick/diy-cloth-face-coverings.html>. Published 2020. Accessed November 28, 2020.
- Furukawa NW, Brooks JT, Sobel J. Evidence supporting transmission of severe acute respiratory syndrome coronavirus 2 while presymptomatic or asymptomatic. *Emerg Infect Dis* 2020;26(7). doi: [10.3201/eid2607.201595](https://doi.org/10.3201/eid2607.201595).
- Mizumoto K, Kagaya K, Zarebski A, Chowell G. Estimating the asymptomatic proportion of coronavirus disease 2019 (COVID-19) cases on board the *Diamond Princess* cruise ship, Yokohama, Japan, 2020. *Euro Surveill* 2020;25(10):2000180.
- Lee S, Kim T, Lee E, *et al*. Symptomatic patients with SARS-CoV-2 infection in a community treatment center in the Republic of Korea. *JAMA Intern Med* 2020;180:1447–1452.
- Scientific brief: community use of cloth masks to control the spread of SARS-CoV-2. Centers for Disease Control and Prevention website. <https://www.cdc.gov/coronavirus/2019-ncov/more/masking-science-sars-cov-2.html>. Published 2020. Accessed November 28, 2020.
- See coronavirus restrictions and mask mandates for all 50 states. *New York Times* website. <https://www.nytimes.com/interactive/2020/us/states-reopen-map-coronavirus.html>. Published 2020. Accessed November 28, 2020.
- Oregon mask requirements. Oregon Health Authority website. <https://govstatus.egov.com/or-oha-face-coverings>. Published 2020. Accessed November 28, 2020.
- Executive Order No. GA-29 relating to the use of face coverings during the COVID-19 disaster. State of Texas website. <https://gov.texas.gov/uploads/files/press/EO-GA-29-use-of-face-coverings-during-COVID-19-IMAGE-07-02-2020.pdf>. Published 2020. Accessed November 28, 2020.
- Executive Order. State of Iowa Executive Department. State of Iowa website. <https://governor.iowa.gov/sites/default/files/documents/Public%20Health%20Proclamation%20-%202020.11.16.pdf>. Published 2020. Accessed November 28, 2020.
- Guidance for places of worship. Arizona Department of Health Services website. <https://www.azdhs.gov/documents/preparedness/epidemiology-disease-control/infectious-disease-epidemiology/novel-coronavirus/community/return-stronger-worship.pdf>. Published 2020. Accessed November 28, 2020.
- Chan NC, Li K, Hirsh J. Peripheral oxygen saturation in older persons wearing nonmedical face masks in community settings. *JAMA* 2020;324:2323–2324.
- Brenner AM, Weiser PC, Krogh LA, Loren ML. Effectiveness of a portable face mask in attenuating exercise-induced asthma. *JAMA* 1980;244:2196–2198.
- From the frontlines: the truth about masks and COVID-19. American Lung Association website. <https://www.lung.org/blog/covid-masks>. Published 2020. Accessed November 29, 2020.
- Lyu W, Wehby GL. Community use of face masks and COVID-19: evidence from a natural experiment of state mandates in the US. *Health Affairs* 2020;39:1419–1425.
- Executive Order No. 20-52, Requiring masks or other face coverings in public. State of Kansas website. <https://governor.kansas.gov/wp-content/uploads/2020/07/20200702093130003.pdf>. Published 2020. Accessed November 28, 2020.
- Van Dyke MD, Rogers TM, Pevzner E, *et al*. Trends in county-level COVID-19 incidence in counties with and without a mask mandate—Kansas, June 1–August 23, 2020. *Morb Mortal Wkly Rep* 2020;69:1777–1781.
- Shacham S, Scroggins S, Ellis M, Garza A. Association of county-wide mask ordinances with reductions in daily COVID-19 incident case growth in a midwestern region over 12 weeks. *medRxiv* 2020. doi: [10.1101/2020.10.28.20221705](https://doi.org/10.1101/2020.10.28.20221705).
- Brooks JT, Butler JC, Redfield RR. Universal masking to prevent SARS-CoV-2 transmission—the time is now. *JAMA* 2020;324:635–637.
- Doung-Ngern P, Suphanchaimat R, Panjangampathana A, *et al*. Case-Control study of use of personal protective measures and risk for SARS-CoV 2 infection, Thailand. *Emerg Infect Dis* 2020;26:2607–2616.