

Impact of Face Coverings on Transmission of SARS-CoV-2 Virus

Renyi Zhang, Yixin Li, Annie L. Zhang, Yuan Wang, Mario J. Molina. Identifying airborne transmission as the dominant route for the spread of COVID-19, Proceedings of the National Academy of Sciences Jun 2020, 202009637; DOI:10.1073/pnas.2009637117

The airborne transmission route is highly virulent and dominant for the spread of COVID-19. The mitigation measures are discernable from the trends of the pandemic. Our analysis reveals that the difference with and without mandated face covering represents the determinant in shaping the trends of the pandemic.

Wearing of face masks in public corresponds to the most effective means to prevent inter-human transmission, and this inexpensive practice, in conjunction with simultaneous social distancing, quarantine, and contact tracing, represents the most likely fighting opportunity to stop the COVID-19 pandemic

Chu DK, Akl EA, Duda S, et al. Physical distancing, face masks, and eye protection to prevent person-to-person transmission of SARS-CoV-2 and COVID-19: a systematic review and meta-analysis

[published online ahead of print, 2020 Jun 1]. *Lancet*. 2020;S0140-6736(20)31142-9.

Our comprehensive systematic review provides the best available information on three simple and common interventions to combat the immediate threat of COVID-19, while new evidence on pharmacological treatments, vaccines, and other personal protective strategies is being generated.

MacIntyre CR, Chughtai AA. A rapid systematic review of the efficacy of face masks and respirators against coronaviruses and other respiratory transmissible viruses for the community, healthcare workers and sick patients. *Int J Nurs Stud*. 2020;108:103629. doi:10.1016/j.ijnurstu.2020.103629

There is a growing body of evidence supporting all three indications for respiratory protection – community, healthcare workers and sick patients (source control). The largest number of randomised controlled trials have been done for community use of masks by well people in high-transmission settings such as household or college settings. There is benefit in the community if used early, with hand hygiene and if compliant.

Eikenberry SE, Mancuso M, Iboi E, et al. To mask or not to mask: Modeling the potential for face mask use by the general public to curtail the COVID-19 pandemic. *Infect Dis Model.* 2020;5:293-308. Published 2020 Apr 21. doi:10.1016/j.idm.2020.04.001

- Masks are found to be useful with respect to both preventing illness in healthy persons *and* preventing asymptomatic transmission. Hypothetical mask adoption scenarios, for Washington and New York state, suggest that immediate near universal (80%) adoption of moderately (50%) effective masks could prevent on the order of 17-45% of projected deaths over two months in New York, while decreasing the peak daily death rate by 34-58%, absent other changes in epidemic dynamics. Even very weak masks (20% effective) can still be useful if the underlying transmission rate is relatively low or decreasing: In Washington, where baseline transmission is much less intense, 80% adoption of such masks could reduce mortality by 24-65% (and peak deaths 15-69%), compared to 2-9% mortality reduction in New York (peak death reduction 9-18%). Our results suggest use of face masks by the general public is potentially of high value in curtailing community transmission and the burden of the pandemic.

Lyu,Wei, Wheby, George. Community Use of Face Masks and COVID-19: Evidence from a natural experiment of state mandates in the US. Health Affairs. 2020, June 16.

- This study provides evidence from a natural experiment on effects of state government mandates in the US for face mask use in public issued by 15 states plus DC between April 8 and May 15. The research design is an event study examining changes in the daily county-level COVID-19 growth rates between March 31, 2020 and May 22, 2020. Mandating face mask use in public is associated with a decline in the daily COVID-19 growth rate by 0.9, 1.1, 1.4, 1.7, and 2.0 percentage-points in 1–5, 6–10, 11–15, 16–20, and 21+ days after signing, respectively. Estimates suggest as many as 230,000–450,000 COVID-19 cases possibly averted by May 22, 2020 by these mandates.

Considerations:

- COVID-19 is a disease that continues to cause a large burden of suffering to individuals, families and society
- There are potentially effective interventions available that can prevent transmission of the SARS-CoV-2 virus

Recommendations

For individuals greater than two years of age:

Mandatory mask / face covering wearing in public spaces when individuals cannot easily maintain a continuous physical distance of at least six feet from all other persons