

Mask-wearing reduces COVID-19 transmission, study finds

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Mask-wearing is associated with a significant reduction in COVID-19 transmission and factors other than mandates contributed to the global uptake of mask-wearing in 2020, new research has found.

The study led by academics at the Universities of Bristol, Oxford and Copenhagen is published on the preprint server *medRxiv*.

Mask-wearing is an important barrier to COVID-19 [transmission](#) based on experimental studies, such as those examining droplets or aerosols generated by someone talking with or without a mask, and in animal models, but it is harder to find this effect in epidemiological data.

The research team analyzed the effect of mask-wearing on COVID-19 transmission using the largest survey of mask-wearing individuals (n=20 million) and obtained estimates from 92 regions across six continents. The researchers' analysis goes further than past work due to the quality of wearing data—100 times the sample size, with random sampling—the geographical scope, the

sophistication of the infection model, and the validation of results.

Using a statistical technique known as hierarchical Bayesian modeling, the researchers estimated the effect of both mask-wearing and mask mandates on transmission by linking wearing levels (or mandates) to reported cases in each region, adjusting for mobility and non-pharmaceutical interventions.

The study found mask-wearing reduces COVID-19 transmission by around 25 percent if everyone wears them. Previous work has looked for R to decrease at the time of a government mask mandate, but the research found actual mask-wearing rises in anticipation, before the mandate, and then after the mandate compliance increases slowly as people get used to mask-wearing. The research suggests that transmission is strongly predicted by mask-wearing, but not by mask mandates.

Dr. Laurence Aitchison, Lecturer in Machine Learning and Computational Neuroscience in the Department of Computer Science at the University of Bristol and a senior author on the paper, said, "At a time where mask-wearing is decreasing and mask mandates are being lifted, our research confirms that masks do indeed have a strong impact on COVID-19 transmission in the population and remain an important measure in our response against the disease."

The research team will continue to adjust their model to capture the effect of new variants on mask-wearing, together with the type of masks worn.

More information: Mass mask-wearing notably reduces COVID-19 transmission, Gavin Leech, Charlie Rogers-Smith et al, *medRxiv*, [www.medrxiv.org/content/10.1101.21258817v1.full.pdf](https://www.medrxiv.org/content/10.1101.20210528.21258817v1.full.pdf)

Provided by University of Bristol

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