

## COVID-19 Face Masks

### Media

Updated CDC guidance acknowledges coronavirus can spread through the air. CNN, Sept. 20, 2020

<https://www.cnn.com/2020/09/20/health/cdc-coronavirus-airborne-transmission/index.html>  
<https://www.cdc.gov/coronavirus/2019-ncov/prevent-getting-sick/how-covid-spreads.html>

What Scientists Know About Airborne Transmission of the New Coronavirus; Aerosol experts, from engineers to doctors, weigh in on the ability of tiny droplets to transmit the virus that causes COVID-19. Smithsonian, Aug. 12, 2020

<https://www.smithsonianmag.com/science-nature/what-scientists-know-about-airborne-transmission-new-coronavirus-180975547>

Yes, the Coronavirus Is in the Air. Transmission through aerosols matters — and probably a lot more than we've been able to prove yet. Lindsay Marr, New York Times, July 30, 2020

<https://www.nytimes.com/2020/07/30/opinion/coronavirus-aerosols.html>

Aerosols are a bigger coronavirus threat than WHO guidelines suggest – here's what you need to know. The Conversation, July 9, 2020.

<https://theconversation.com/aerosols-are-a-bigger-coronavirus-threat-than-who-guidelines-suggest-heres-what-you-need-to-know-142233>

How Masks Went From Don't-Wear to Must-Have. Public health messaging and science have to work hard to stay in sync during a crisis. During the Covid-19 pandemic, they haven't always succeeded. Wired July 2, 2020

<https://www.wired.com/story/how-masks-went-from-dont-wear-to-must-have/>

Who can — and should — make masks mandatory in Ontario. Research shows that masks help reduce the spread of COVID-19. So should we be required to wear them? And if so, who would give the order? TVO, July 2, 2020

<https://www.tvo.org/article/who-can-and-should-make-masks-mandatory-in-ontario>

In the W.H.O.'s Coronavirus Stumbles, Some Scientists See a Pattern

The agency's advice sometimes lags behind rapidly evolving research into the coronavirus, experts contend.

<https://www.nytimes.com/2020/06/09/health/coronavirus-asymptomatic-world-health-organization.html>

Masks for all? The science says yes. Written: 13 Apr 2020 by Professor Trisha Greenhalgh OBE and Jeremy Howard <https://www.fast.ai/2020/04/13/masks-summary/>

The Guardian, May 11, 2020. Public advised to wear face coverings under UK government's lockdown easing plan

<https://www.theguardian.com/world/2020/may/11/public-advised-wear-face-masks-coronavirus-lockdown-easing-plan-for-england>

Vanity Fair, May 5, 2020. If 80% of Americans Wore Masks, COVID-19 Infections Would Plummet, New Study Says

<https://www.vanityfair.com/news/2020/05/masks-covid-19-infections-would-plummet-new-study-says>

Science Times, April 21, 2020. Austria Has 90% Drop in Coronavirus Cases After Requiring People to Wear Face Masks

<https://www.sciencetimes.com/articles/25410/20200421/austria-90-drop-coronavirus-cases-requiring-people-wear-face-masks.htm>

The Atlantic, April 22, 2020. The Real Reason to Wear a Mask

[https://www.theatlantic.com/health/archive/2020/04/dont-wear-mask-yourself/610336/?utm\\_source=twitter&utm\\_medium=social&utm\\_campaign=share](https://www.theatlantic.com/health/archive/2020/04/dont-wear-mask-yourself/610336/?utm_source=twitter&utm_medium=social&utm_campaign=share)

#### Science Publications & Peer Reviewed Studies

Transit

<https://www.scientificamerican.com/article/there-is-little-evidence-that-mass-transit-poses-a-risk-of-coronavirus-outbreaks/>

Teslya et al., 2020 Impact of self-imposed prevention measures and short-term government-imposed social distancing on mitigating and delaying a COVID-19 epidemic: A modelling study. PLOS Medicine, July 21, 2020

<https://journals.plos.org/plosmedicine/article?id=10.1371/journal.pmed.1003166>

" Our results suggest that information dissemination about COVID-19, which causes individual adoption of handwashing, mask-wearing, and social distancing, can be an effective strategy to mitigate and delay the epidemic."

<https://twitter.com/jvipondmd/status/1279142122503892992?s=19>

Howard et al. 2020. Face Masks Against COVID-19: An Evidence Review. (Pre-Print)

<https://www.preprints.org/manuscript/202004.0203/v1>

Leffler et al., 2020. Association of country-wide coronavirus mortality with demographics, testing, lockdowns, and public wearing of masks (Update June 15, 2020).

[https://www.researchgate.net/publication/342198360\\_Association\\_of\\_country-wide\\_coronavirus\\_mortality\\_with\\_demographics\\_testing\\_lockdowns\\_and\\_public\\_wearing\\_of\\_masks\\_Update\\_June\\_15\\_2020](https://www.researchgate.net/publication/342198360_Association_of_country-wide_coronavirus_mortality_with_demographics_testing_lockdowns_and_public_wearing_of_masks_Update_June_15_2020)

Societal norms and government policies supporting the wearing of masks by the public, as well as international travel controls, are independently associated with lower per-capita mortality from COVID-19.

Science Times, April 20, 2020. Austria Has 90% Drop in Coronavirus Cases After Requiring People to Wear Face Masks

<https://www.sciencetimes.com/amp/articles/25410/20200421/austria-90-drop-coronavirus-cases-requiring-people-wear-face-masks.htm>

Centers for Disease Control and Prevention. June, 2020. SARS-CoV-2 Infections and Serologic Responses from a Sample of U.S. Navy Service Members — USS Theodore Roosevelt, April 2020.

[https://www.cdc.gov/mmwr/volumes/69/wr/mm6923e4.htm?s\\_cid=mm6923e4\\_w](https://www.cdc.gov/mmwr/volumes/69/wr/mm6923e4.htm?s_cid=mm6923e4_w)

Among a convenience sample of 382 young adult U.S. service members aboard an aircraft carrier experiencing a COVID-19 outbreak, 60% had reactive antibodies, and 59% of those also had neutralizing antibodies at the time of specimen collection. One fifth of infected participants reported no symptoms. Preventive measures, such as using face coverings and observing social distancing, reduced risk for infection.

Leung et al. 2020. Respiratory virus shedding in exhaled breath and efficacy of face masks. Nature Medicine. April 3, 2020. <https://www.nature.com/articles/s41591-020-0843-2>

“Our results indicate that surgical face masks could prevent transmission of human coronaviruses and influenza viruses from symptomatic individuals.”

Leffler et al. 2020. Country-wide Mortality from the Novel Coronavirus (COVID-19) Pandemic and Notes Regarding Mask Usage by the Public

[https://www.researchgate.net/publication/340438732\\_Country-wide\\_Mortality\\_from\\_the\\_Novel\\_Coronavirus\\_COVID-19\\_Pandemic\\_and\\_Notes\\_Regarding\\_Mask\\_Usage\\_by\\_the\\_Public](https://www.researchgate.net/publication/340438732_Country-wide_Mortality_from_the_Novel_Coronavirus_COVID-19_Pandemic_and_Notes_Regarding_Mask_Usage_by_the_Public)

“Public mask usage is one of several plausible explanations for the mortality reduction in some regions. The benefit of broad public use of masks might be better established by the end of April 2020, when the mortality trajectories in Western regions recently mandating mask usage are known. In the meantime, broad adoption of public mask usage is a reasonable strategy for infection control which should be adopted on the precautionary principle.”

Gandhi et al. 2020 Asymptomatic Transmission, the Achilles' Heel of Current Strategies to Control Covid-19. The New England Journal of Medicine. April 24, 2020

<https://www.nejm.org/doi/full/10.1056/NEJMe2009758?query=RP>

“These factors also support the case for the general public to use face masks when in crowded outdoor or indoor spaces.”

Greenhalgh et al. 2020. Face masks for the public during the covid-19 crisis. BMJ 2020;369

<https://www.bmj.com/content/bmj/369/bmj.m1435.full.pdf>

“Masks are simple, cheap, and potentially effective. We believe that, worn both in the home (particularly by the person showing symptoms) and also outside the home in situations where meeting others is likely (for example, shopping, public transport), they could have a substantial impact on transmission with a relatively small impact on social and economic life.”

Chu et al. 2020. 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. The Lancet, June 1, 2020

[https://www.thelancet.com/pdfs/journals/lancet/PIIS0140-6736\(20\)31142-9.pdf](https://www.thelancet.com/pdfs/journals/lancet/PIIS0140-6736(20)31142-9.pdf)

For the general public, evidence shows that physical distancing of more than 1 m is highly effective and that face masks are associated with protection, even in non-health-care settings, with either disposable surgical masks or reusable 12–16-layer cotton ones, although much of this evidence was on mask use within households and among contacts of cases.

Gadi et al, 2020. Standardized Synthesis of Face Masks as a Harm Reduction Strategy in Times of PPE Shortage - COVID-19

<https://stem.idaho.gov/wp-content/uploads/2020/03/Standardized-Synthesis-Face-Masks.pdf>

Aerosolization and Spread:

<https://science.sciencemag.org/content/early/2020/10/02/science.abf0521>

<https://www.epa.gov/coronavirus/indoor-air-and-covid-19-key-references-and-publications>

Santarpia et al. 2020. The Infectious Nature of Patient-Generated SARS-CoV-2 Aerosol. MedRxiv (preprint) July

<https://www.medrxiv.org/content/10.1101/2020.07.13.20041632v2>

239 Experts With 1 Big Claim: The Coronavirus Is Airborne. New York Times, July 4, 2020

<https://www.nytimes.com/2020/07/04/health/239-experts-with-1-big-claim-the-coronavirus-is-airborne.html>

Scientists say WHO ignores the risk that coronavirus floats in air as aerosol. LA Times, July 4, 2020

<https://www.latimes.com/world-nation/story/2020-07-04/coronavirus-airborne-spread>

Aerosols, Droplets, and Airborne Spread: Everything you could possibly want to know

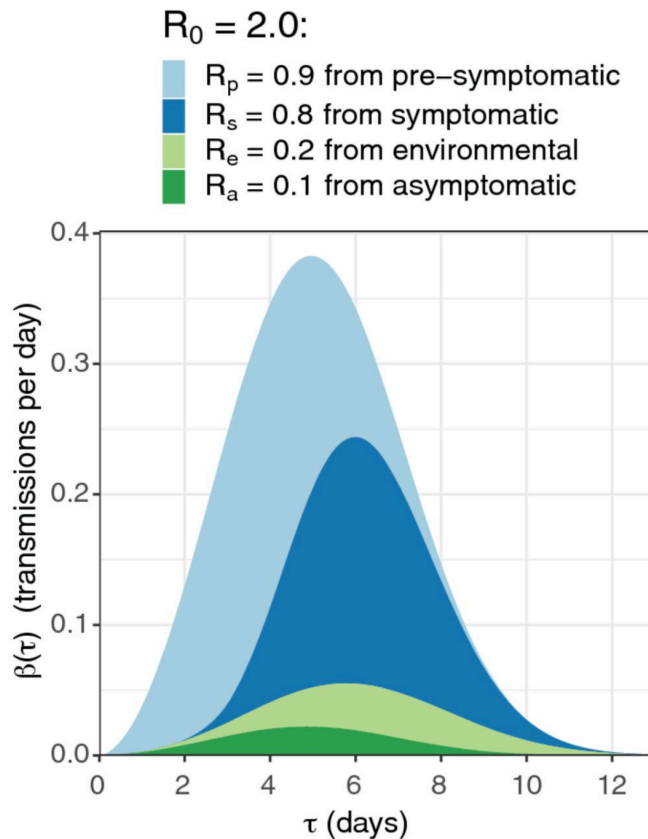
<https://first10em.com/aerosols-droplets-and-airborne-spread/amp/>

Doremalen et al., 2020. Aerosol and Surface Stability of SARS-CoV-2 as Compared with SARS-CoV-1. New England Journal of Medicine Correspondence, March 17, 2020

<https://www.nejm.org/doi/full/10.1056/nejmc2004973>

Ferretti et al., 2020. Quantifying SARS-CoV-2 transmission suggests epidemic control with digital contact tracing. Science 08 May 2020: Vol. 368, Issue 6491

<https://science.sciencemag.org/content/early/2020/04/09/science.abb6936.full>



Lu et al. 2020 COVID-19 Outbreak Associated with Air Conditioning in Restaurant, Guangzhou, China, 2020 [https://wwwnc.cdc.gov/eid/article/26/7/20-0764\\_article](https://wwwnc.cdc.gov/eid/article/26/7/20-0764_article)

Park et al. 2020 Coronavirus Disease Outbreak in Call Center, South Korea [https://wwwnc.cdc.gov/eid/article/26/8/20-1274\\_article](https://wwwnc.cdc.gov/eid/article/26/8/20-1274_article)

Scientific American, May 12, 2020. How Coronavirus Spreads through the Air: What We Know So Far <https://www.scientificamerican.com/article/how-coronavirus-spreads-through-the-air-what-we-know-so-far1>

Although the study did not look at COVID-19 specifically, the findings support mask wearing as an effective way to limit transmission of the virus from an infected person—known in medical parlance as source control. There is not much evidence that masks convey protection to healthy people, although it is possible (and may depend on the type of mask). Given the prevalence of asymptomatic infection with COVID-19, however, there is some justification for universal mask wearing to prevent those who do not know they are sick from infecting others. In Hong Kong, which has kept its outbreak relatively under control, masks are worn by the vast majority of the population, Cowling says.

CDC

<https://www.cdc.gov/coronavirus/2019-ncov/prevent-getting-sick/diy-cloth-face-coverings.html>  
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<https://medium.com/@Cancerwarrior/covid-19-why-we-should-all-wear-masks-there-is-new-scientific-rationale-280e08ceee71>

(endorsed by Shelly Miller)

<https://theconversation.com/coronavirus-drifts-through-the-air-in-microscopic-droplets-heres-the-science-of-infectious-aerosols-136663>

[https://www.washingtonpost.com/health/cdc-considering-recommending-general-public-wear-face-coverings-in-public/2020/03/30/6a3e495c-7280-11ea-87da-77a8136c1a6d\\_story.html](https://www.washingtonpost.com/health/cdc-considering-recommending-general-public-wear-face-coverings-in-public/2020/03/30/6a3e495c-7280-11ea-87da-77a8136c1a6d_story.html)

Czech Republic - public campaign

[https://youtu.be/HhNo\\_IOPotU](https://youtu.be/HhNo_IOPotU)

<https://youtu.be/BoDwXwZXsDI>

<https://www.bloomberg.com/amp/news/articles/2020-06-12/masks-can-reduce-covid-spread-by-40-german-study-suggests>

<https://www.vanityfair.com/news/2020/05/masks-covid-19-infections-would-plummet-new-study-says/amp>

<https://t.co/WV8VSFahva?amp=1>

Jeremy Howard references: <https://t.co/tFVlcnZuwQ?amp=1>

<https://scholar.colorado.edu/concern/articles/8w32r666s>

<https://www.vox.com/2020/5/18/21262273/coronavirus-hong-kong-masks-deaths-new-york>

<https://www.nytimes.com/article/how-to-make-face-mask-coronavirus.html?searchResultPosition=1>

<https://sites.uci.edu/ucimask/>

<https://news.uci.edu/2020/04/16/face-masks-for-all/>

<https://www.universityhealthsystem.com/news/2020/04/chief-nurse-designs-a-mask>