

Transmission of the Infection

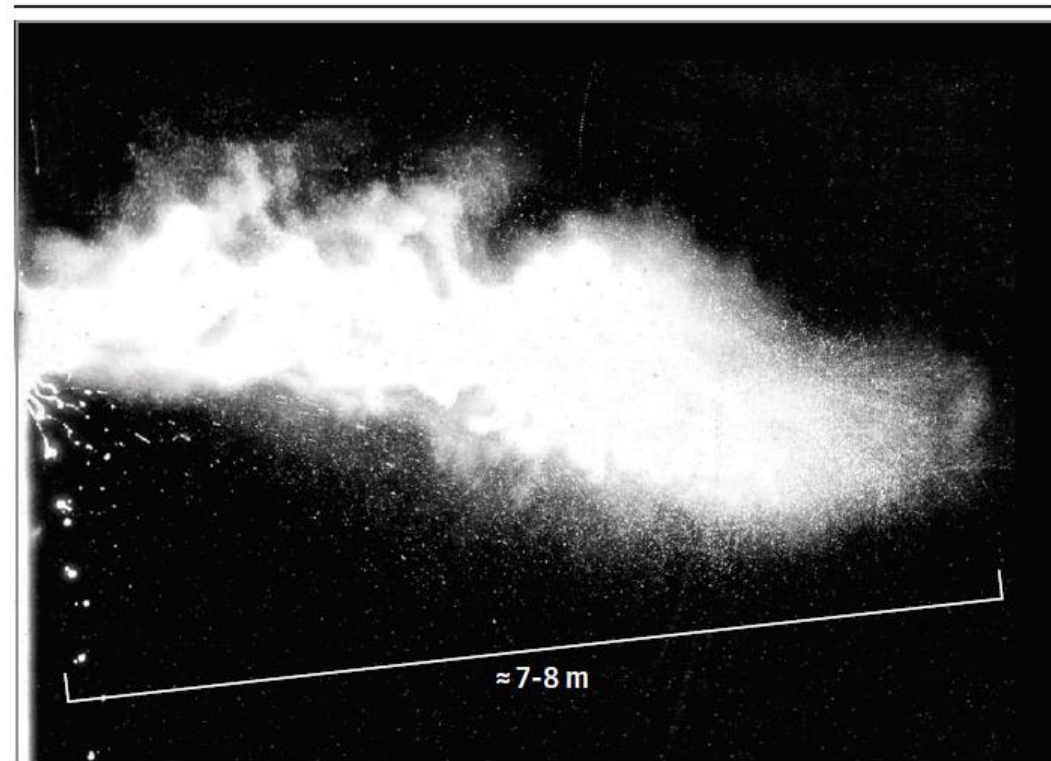
- Usually spreads from close person-to-person contact through **respiratory droplets** from coughing and sneezing (or talking).
 - family members, healthcare professionals, and other close contacts are at greatest risk
- May also spread through airborne transmission, when tiny droplets remain in the air even after the person with the virus leaves the area.
- It may be possible that a person can get COVID-19 by touching a surface or object that has the virus on it and then touching their own mouth, nose, or possibly their eyes. This is not thought to be the main way the virus spreads, but we are still learning more about how this virus spreads.*

Turbulent Gas Clouds and Respiratory Pathogen Emissions Potential Implications for Reducing Transmission of COVID-19

Lydia Bourouiba, PhD

Peak exhalation speeds can reach up to 33 to 100 feet per second (10-30 m/s) from a sneeze, creating a cloud that can span approximately 23 to 27 feet (7-8 m).

Figure. Multiphase Turbulent Gas Cloud From a Human Sneeze



How You May Transmit COVID-19 Coronavirus From Talking Without Coughing Or Sneezing



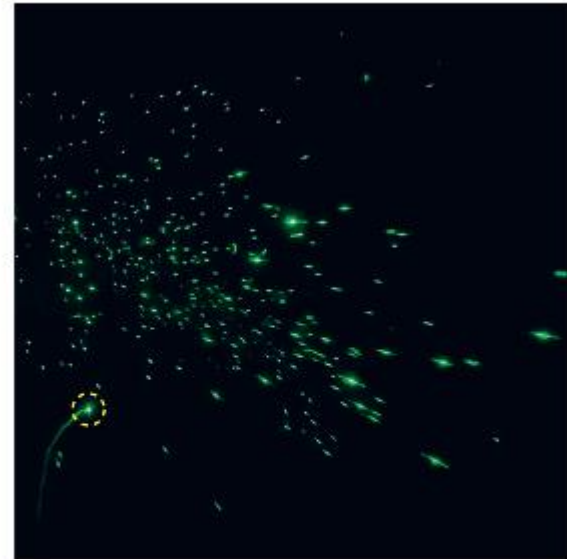
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I am a writer, journalist, professor, systems modeler, computational and digital health expert, avocado-eater, and entrepreneur, not always in that order.



What's coming out of your mouth when you talk? (Photo: Getty) ©GETTY

B Flashes in a Single Video Frame



Emission of Droplets While a Person Said "Stay Healthy."

We found that when the person said "stay healthy," numerous droplets were generated.....

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

Derek K Chu, Elie A Akl, Stephanie Duda, Karla Solo, Sally Yaacoub, Holger J Schünemann, on behalf of the COVID-19 Systematic Urgent Review Group Effort (SURGE) study authors*



- Meta-analysis of 172 observational studies with 25,697 patients
 - Physical distancing (1 meter) – aOR 0.18
 - Wearing a mask – aOR 0.15
 - Eye protection – aOR 0.22

Physical distancing – 82% relative reduction

Mask – 85% relative reduction

www.thelancet.com

Published online June 1, 2020 [https://doi.org/10.1016/S0140-6736\(20\)31142-9](https://doi.org/10.1016/S0140-6736(20)31142-9)

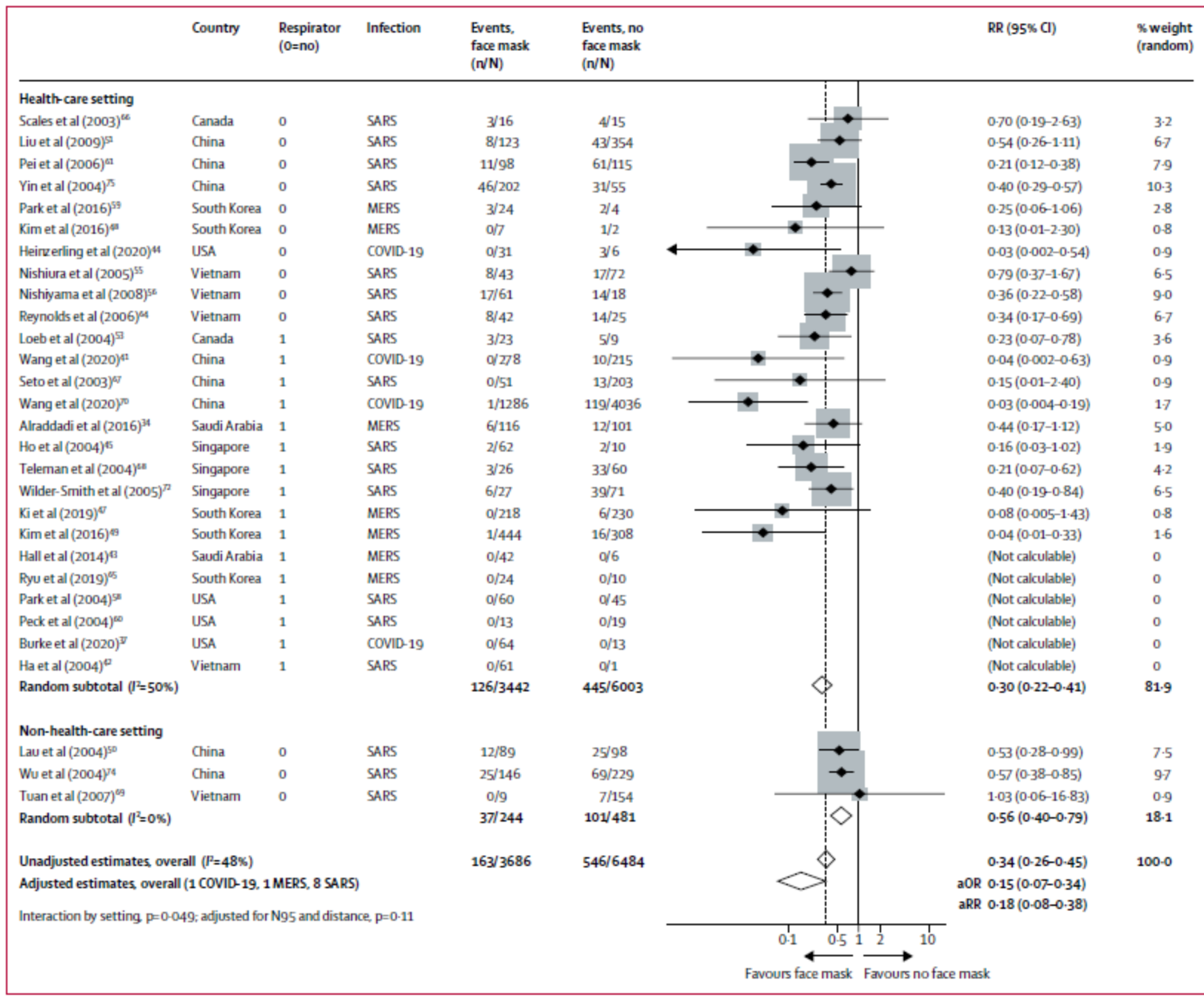
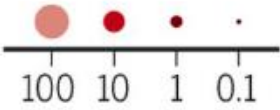


Figure 4: Forest plot showing unadjusted estimates for the association of face mask use with viral infection causing COVID-19, SARS, or MERS. SARS=severe acute respiratory syndrome. MERS=Middle East respiratory syndrome. RR=relative risk. aOR=adjusted odds ratio. aRR=adjusted relative risk.

Masks reduce airborne transmission

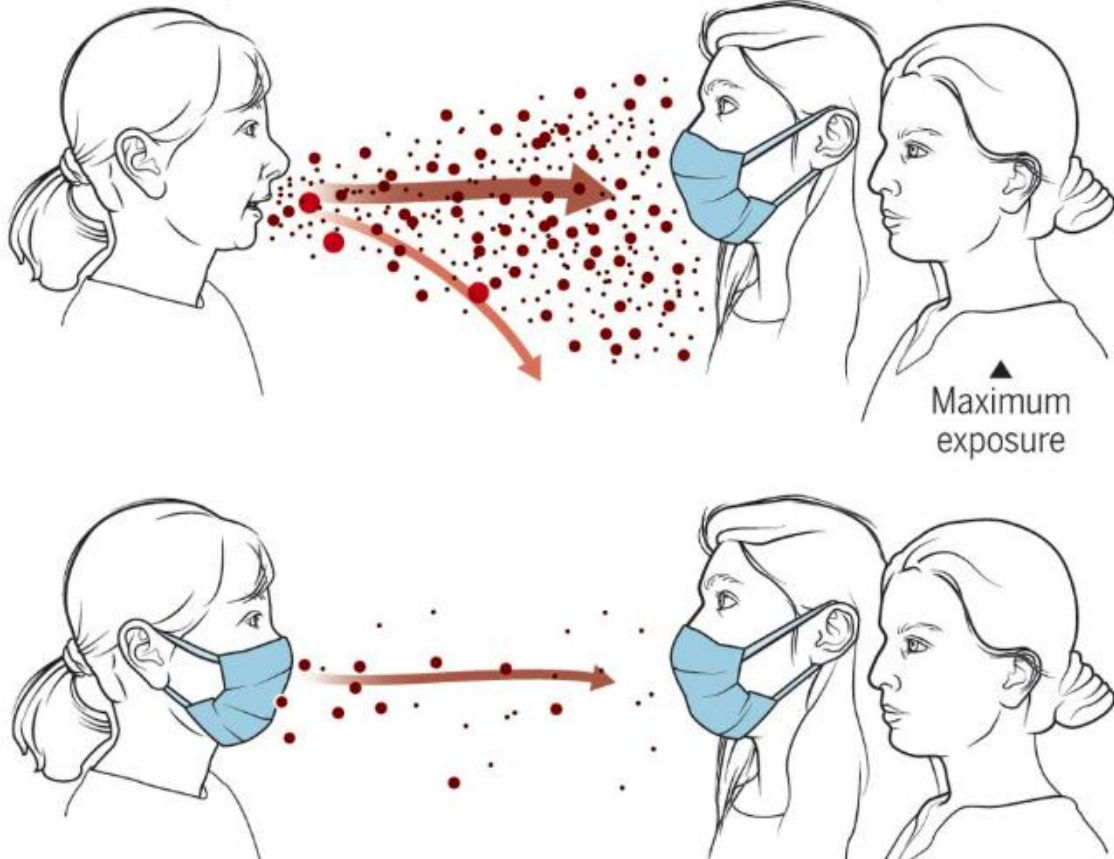
Infectious aerosol particles can be released during breathing and speaking by asymptomatic infected individuals. No masking maximizes exposure, whereas universal masking results in the least exposure.

Particle size (μm)



Infected, asymptomatic

Healthy

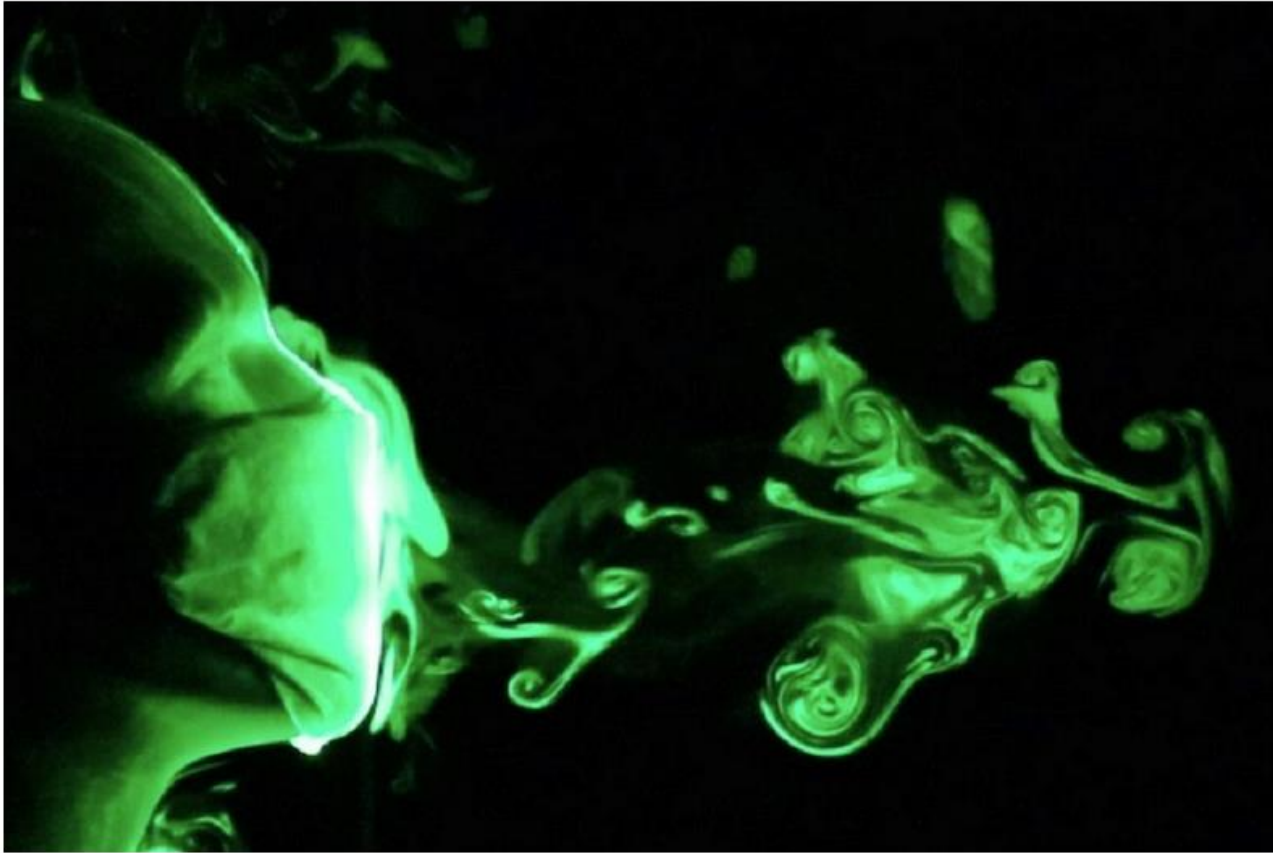


“Aerosol transmission of viruses must be acknowledged as a key factor leading to the spread of infectious respiratory diseases. Evidence suggests that SARS-CoV-2 is silently spreading in aerosols exhaled by highly contagious infected individuals with no symptoms.”

Speaking with and without a cloth mask...

<https://www.nejm.org/doi/full/10.1056/NEJMc2007800>

SEEING IS BELIEVING: EFFECTIVENESS OF FACEMASKS



<https://www.fau.edu/newsdesk/articles/efficacy-facemasks-coronavirus.php>

Importantly, uncovered emulated coughs were able to travel noticeably farther than the currently recommended 6-foot distancing guideline.

- Without a mask, droplets traveled more than 8 feet;
- with a bandana, they traveled 3 feet, 7 inches;
- with a folded cotton handkerchief, they traveled 1 foot, 3 inches;
- with the stitched quilting cotton mask, they traveled 2.5 inches; and
- with the cone-style mask, droplets traveled about 8 inches.

Is there any good news?

- Case fatalities are down
 - Younger age group infected and better treatment of sick patients
- Clinical trials showing improvements including
 - Dexamethasone
 - Remdesivir
 - Tocilizumab
- At least two vaccines have entered Phase III trials