





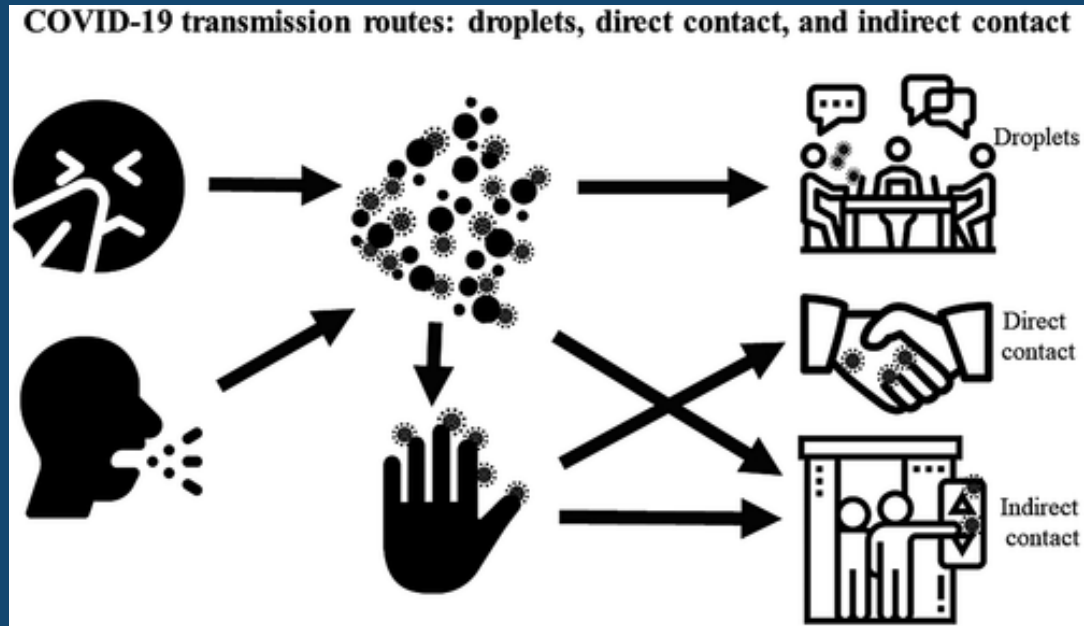
# HOW CAN IT TRANSMIT?

**Biosafety in the preparation and processing of cytology specimens with potential coronavirus (COVID-19) infection: Perspectives from Taiwan**

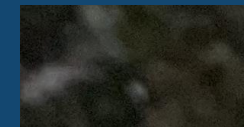
Chien-Chin Chen MD, FIAC, Chia-Yu Chi MD, PhD

First published: 07 April 2020

<https://doi.org/10.1002/cncy.22280>



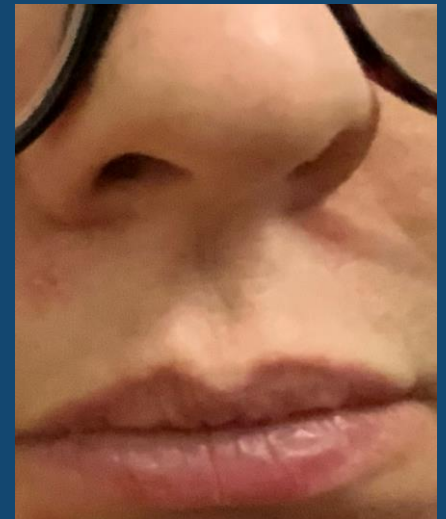
- 700 microns
- 0- $\infty$  Virons
- $\infty$  Survival
- $\infty$  pick up



- 200microns
- 0- $\infty$  Virons
- $\infty$  Survival
- $\infty$  pick up

# WILL INFECTION RESULT ?

- Where it lands
- How inoculated
- Receptors
- Immune status
- Unknown





**HANDS**



**FACE**



**SPACE**

# SO FAR SO ORTHODOX



RESEARCH ARTICLE

## Orthodoxy, *illusio*, and playing the scientific game: a Bourdieusian analysis of infection control science in the COVID-19 pandemic [version 1; peer review: awaiting peer review]

<https://wellcomeopenresearch.org/articles/6-126/v1>

Trisha Greenhalgh <sup>1</sup>, Mustafa Ozbilgin <sup>2</sup>, Damien Contandriopoulos<sup>3</sup>

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<sup>2</sup>Brunel University London, Uxbridge, UB8 3PH, UK

<sup>3</sup>School of Nursing, University of Victoria, Victoria, British Columbia, V8P 5C2, Canada

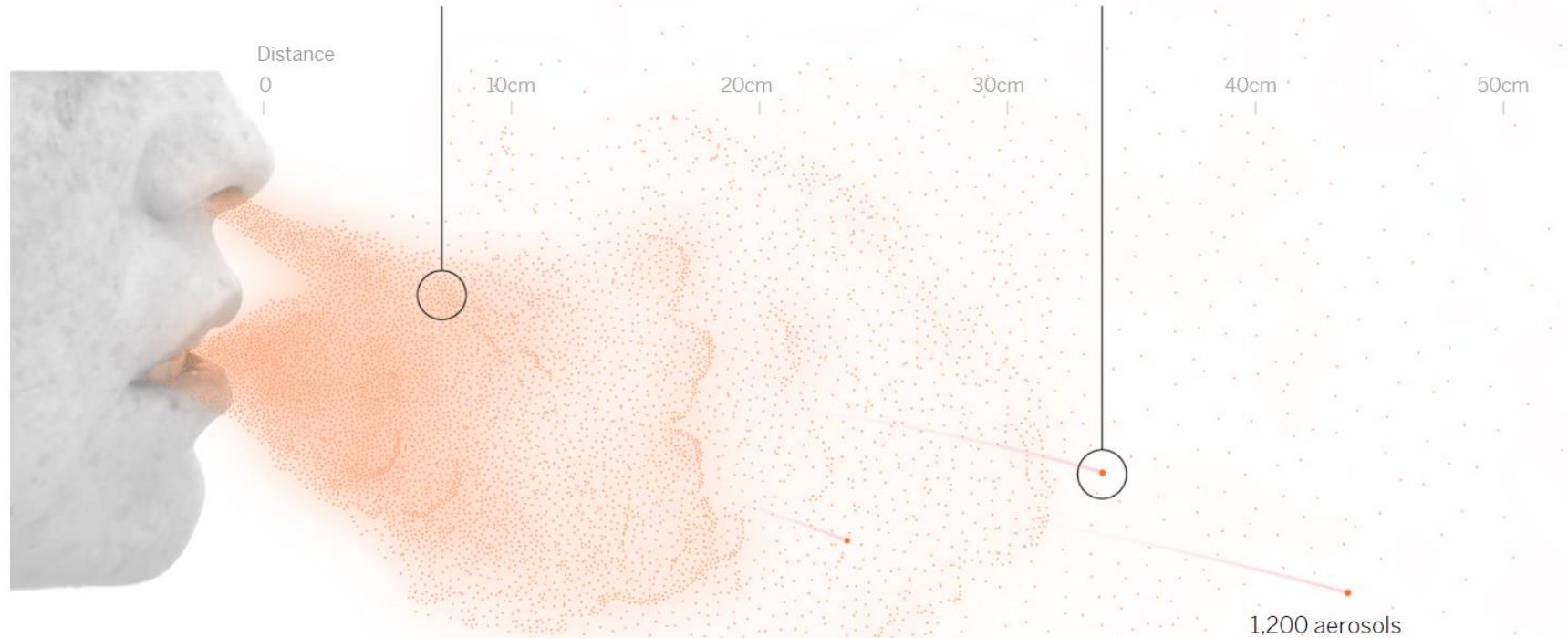
The screenshot shows a Wired article page. At the top, there is a navigation menu with a hamburger icon and the Wired logo. Below the logo is a dark blue banner with the text "Compact, scalable systems to maximise throughput and efficiency in your laboratory" and the Alinity logo. To the right of the banner is a "SIGN IN" link. Below the banner is a search bar and a breadcrumb trail: "MEGAN MOLteni > BACKCHANNEL > 05.13.2021 06:00 AM". The main headline is "The 60-Year-Old Scientific Screwup That Helped Covid Kill". Below the headline is a sub-headline: "All pandemic long, scientists brawled over how the virus spreads. *Droplets! No, aerosols!* At the heart of the fight was a teensy error with huge consequences." Below the sub-headline is a large image showing a close-up of a person's face, possibly a scientist, with a focus on the mouth and nose area, surrounded by a pinkish, bubbly texture. At the bottom of the screenshot is a Windows taskbar with the search bar, task view icon, and several application icons (Edge, File Explorer, Teams, etc.). The system tray shows the time as 11:18 and the date as 26/05/2021.

### Aerosols

These are respiratory droplets that are less than 100 micrometers in diameter that **can remain suspended in the air for hours**

### Droplets

These are particles that are larger than 300 micrometers and, due to air currents, **fall to the ground in seconds**



[Aerosol transmission of Covid-19: A room, a bar and a classroom: how the coronavirus is spread through the air | Society | EL PAÍS in English \(elpais.com\)](#)

Tweets

Tweets & replies

Media

Likes



Pinned Tweet



Linsey Marr · 05/03/2020

Let's talk about [#airborne](#) transmission of [#SARSCOV2](#) and other viruses. A discussion is needed to improve accuracy and reduce fear associated with the term. /1

188

1,094

2,094



Show this thread

Available online at [www.sciencedirect.com](http://www.sciencedirect.com)

**Journal of Hospital Infection**

journal homepage: [www.elsevier.com/locate/jhin](http://www.elsevier.com/locate/jhin)

Review

### Dismantling myths on the airborne transmission of severe acute respiratory syndrome coronavirus-2 (SARS-CoV-2)

J.W. Tang<sup>a</sup>, W.P. Bahnfleth<sup>b</sup>, P.M. Bluyssen<sup>c</sup>, G. Buonanno<sup>d</sup>, J.L. Jimenez<sup>e</sup>, J. Kurnitski<sup>f</sup>, Y. Li<sup>g</sup>, S. Miller<sup>h</sup>, C. Sekhar<sup>i</sup>, L. Morawska<sup>j</sup>, L.C. Marr<sup>k</sup>, A.K. Melikov<sup>l</sup>, W.W. Nazaroff<sup>m</sup>, P.V. Nielsen<sup>n</sup>, R. Tellier<sup>o</sup>, P. Wargocki<sup>l</sup>, S.J. Dancer<sup>p,q,\*</sup>

<sup>a</sup>Respiratory Sciences, University of Leicester, Leicester, UK

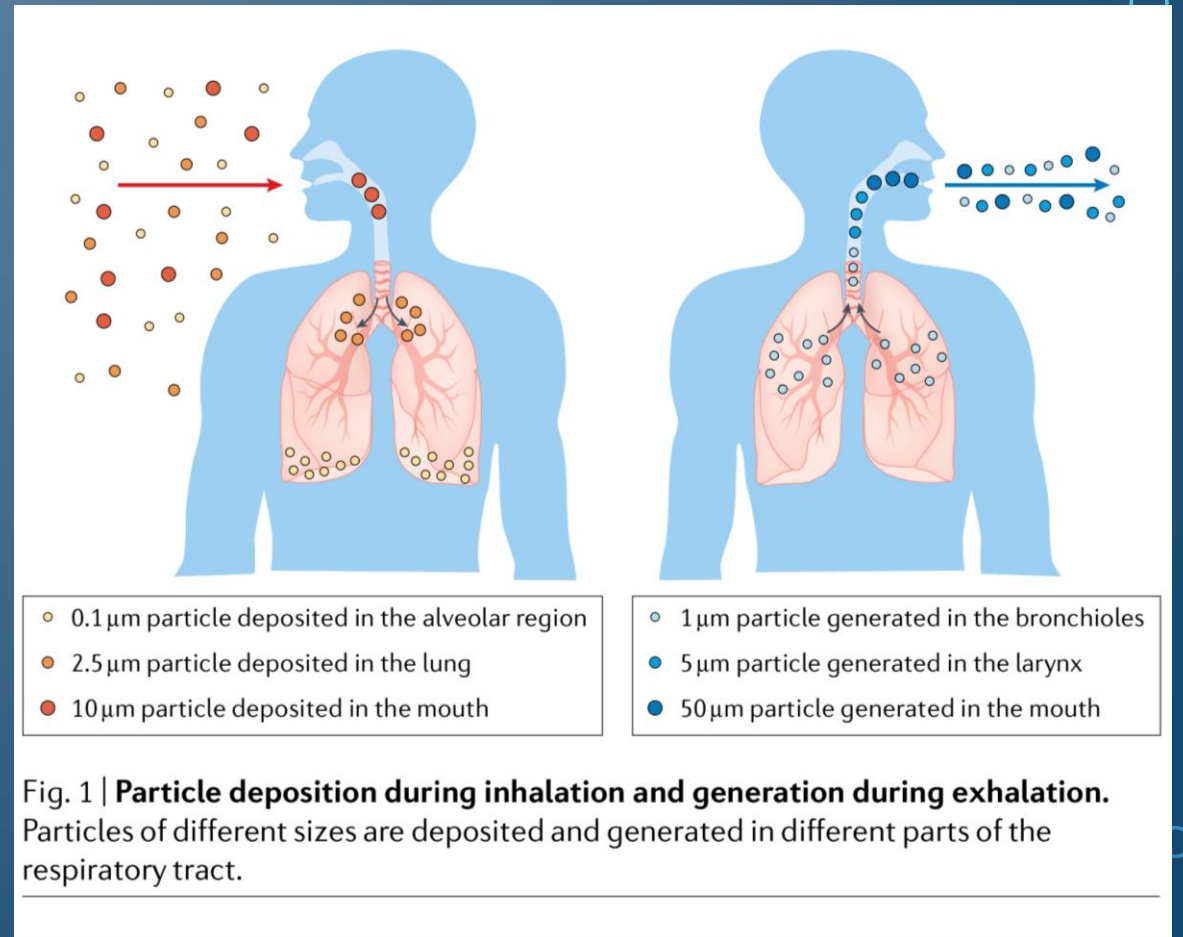
13:23 26/05/2021



# DR MOROWSKA

“we know more about the surface of Mars from direct images, including the dynamics of the impact of airflow and the Martian wind, than we know about the surface of the lung of a living person”

Morawska, L., Buonanno, G. The physics of particle formation and deposition during breathing. *Nat Rev Phys* 3, 300–301 (2021).  
<https://doi.org/10.1038/s42254-021-00307-4>



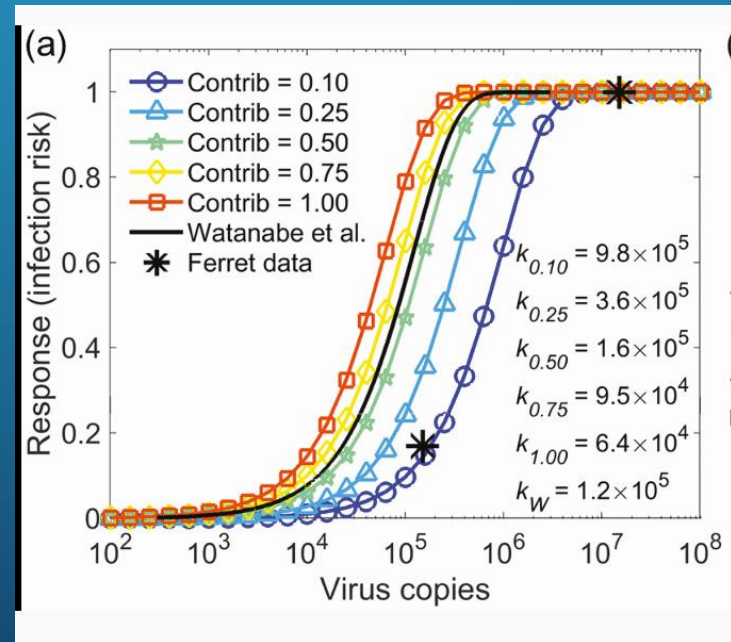
# HOW MUCH VIRUS ?

Editorial | [Free Access](#)

## Coronavirus and Risk Analysis

Charles Haas

First published: 08 April 2020 | <https://doi.org/10.1111/risa.13481> | Citations: 6



- infection risk caused by 1 virus copy in viral shedding is on the order of  $10^{-6}$  to  $10^{-5}$

Xiaole Zhang, Jing Wang, Dose-response Relation Deduced for Coronaviruses From Coronavirus Disease 2019, Severe Acute Respiratory Syndrome, and Middle East Respiratory Syndrome: Meta-analysis Results and its Application for Infection Risk Assessment of Aerosol Transmission, *Clinical Infectious Diseases*, 2020,; ciaa1675, <https://doi.org/10.1093/cid/ciaa1675>

[Aerosol transmission of Covid-19: A room, a bar and a classroom: how the coronavirus is spread through the air | Society | EL PAÍS in English \(elpais.com\)](#)

Each **orange dot** represents a **dose of respiratory particles capable of infecting** someone if inhaled

**Silent**



**Talking**



**Shouting or singing**



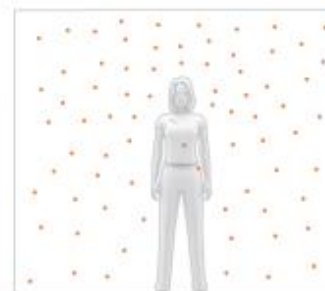
**2 minutes**



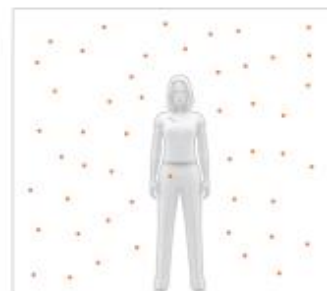
**15 minutes**



**1 hour**



We emit **10 times** the number of particles **talking** than we do when silent

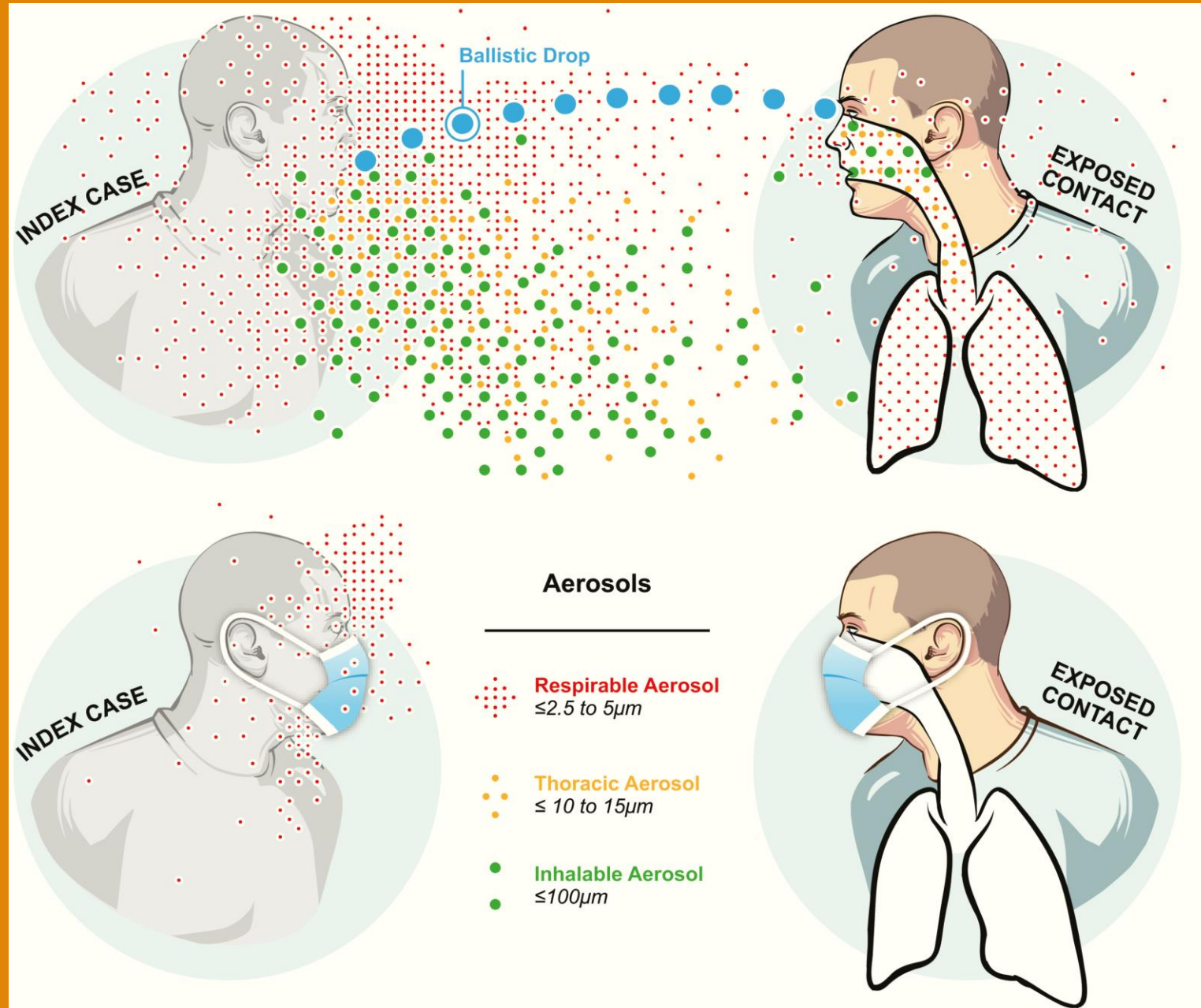


We emit **50 times** the number of particles **shouting** than we do when silent

In the worst case scenario – shouting or singing in a closed space for an hour – a person with Covid-19 releases **1,500 infectious doses.**

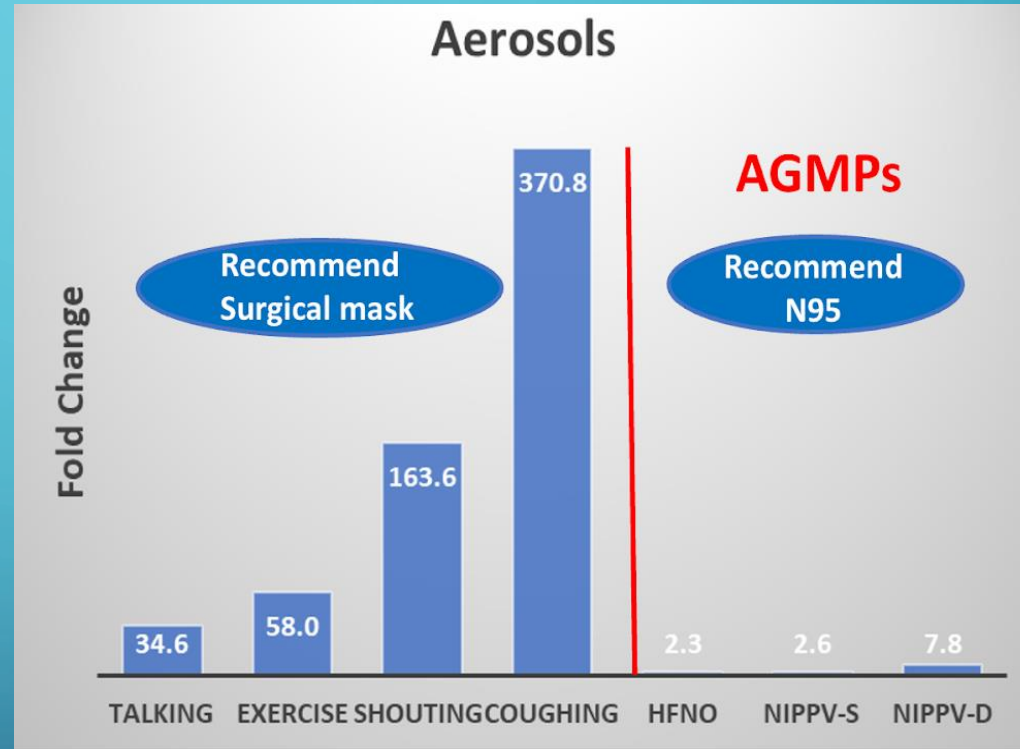
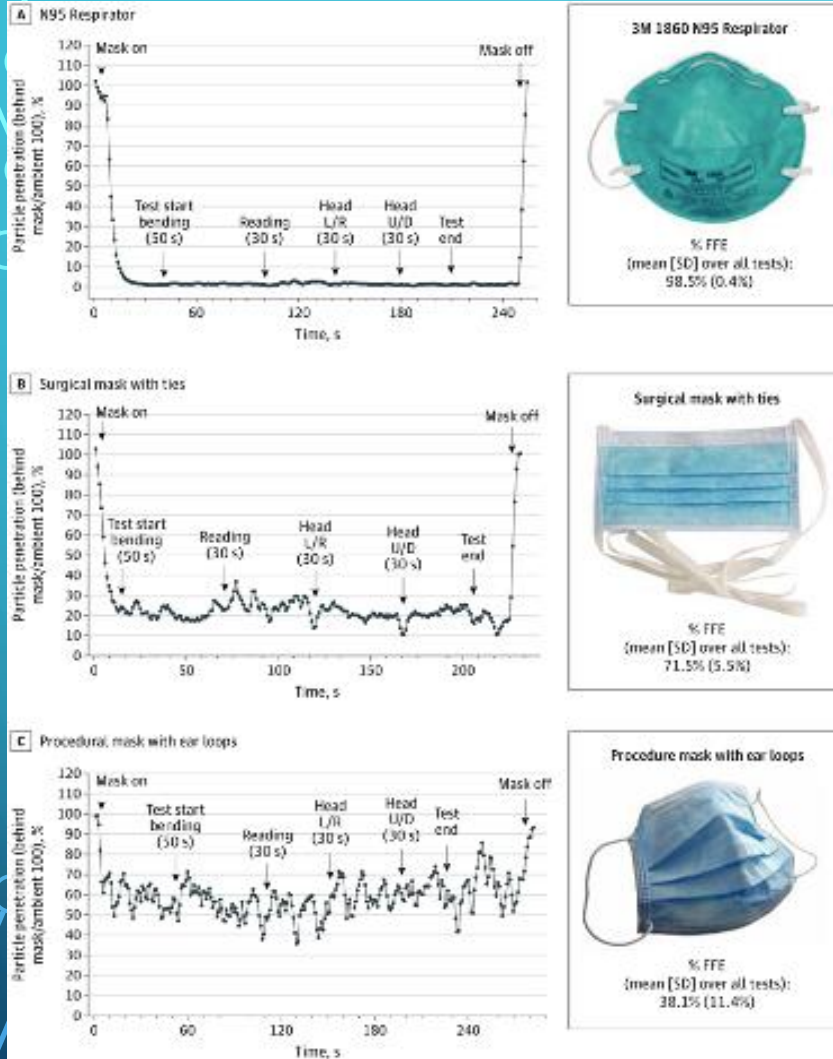
# SOURCE CONTROL

Donald K Milton, A Rosetta Stone for Understanding Infectious Drops and Aerosols, *Journal of the Pediatric Infectious Diseases Society*, Volume 9, Issue 4, September 2020, Pages 413–415, <https://doi.org/10.1093/jpids/piaa079>



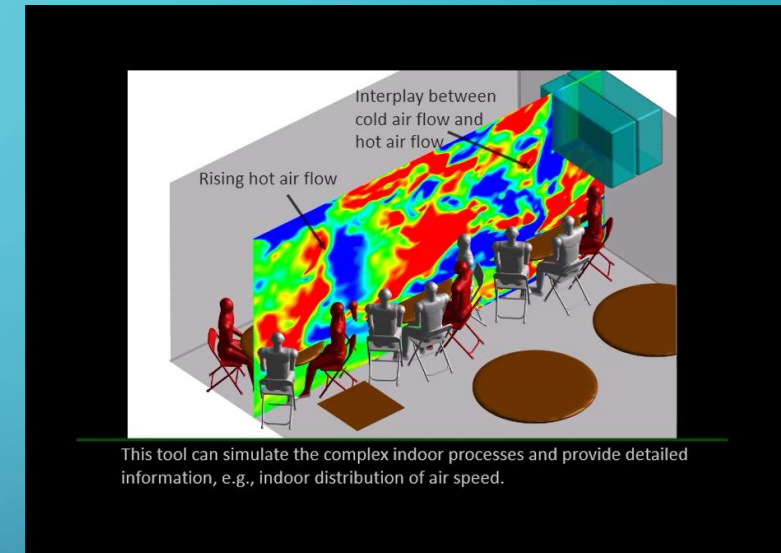


# Surgical masks are not PPE and do not protect from airborne pathogens (HSE 2008)



Adapted from Wilson et al 2021

# Only He Who Can See The Invisible Can Do The Impossible“ Frank Gaines



<https://fluids.umn.edu/research/environmental-fluid-mechanics/covid-19-transmission>

Liu, H., He, S., Shen, L. & Hong, J. (2021), "Simulation-based study of COVID-19 outbreak associated with air-conditioning in a restaurant," *Physics of Fluids*, Vol. 33, 023301