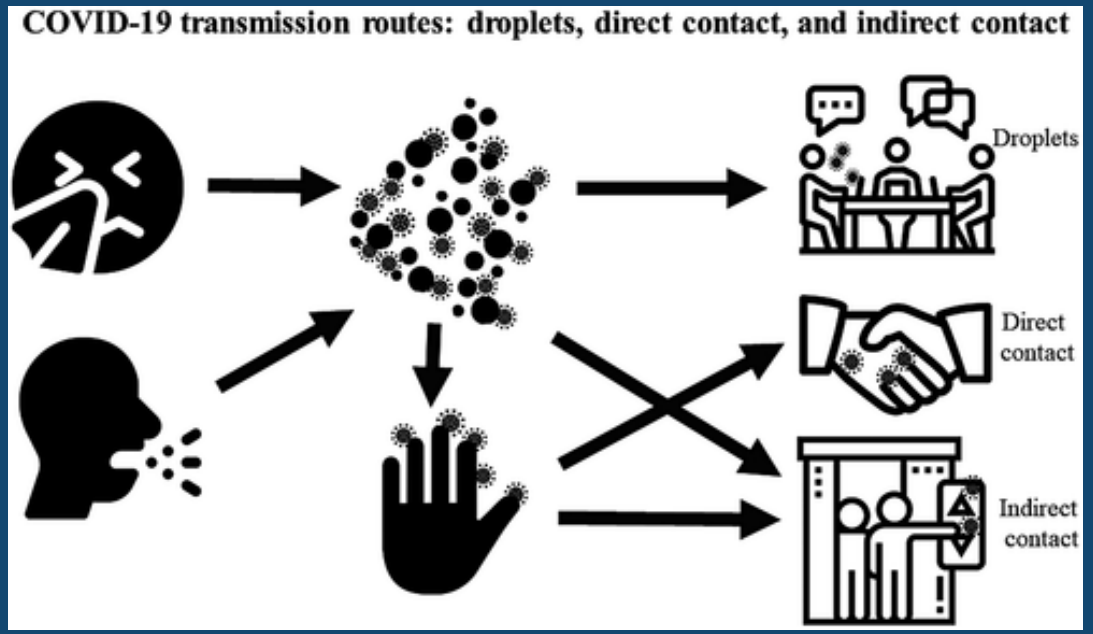
HOW CAN IT TRANSMIT?



- 700 microns
- 0-?Virons
- ? Survival
- ?pick up

- 200microns
- 0-?Virons
- ? Survival
- ?pick up

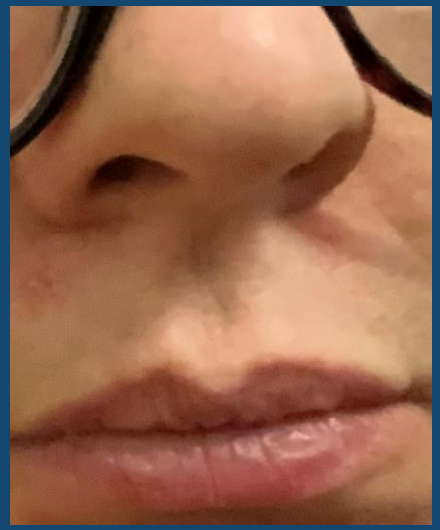
Biosafety in the preparation and processing of cytology specimens with potential coronavirus (COVID-19) infection: Perspectives from Taiwan

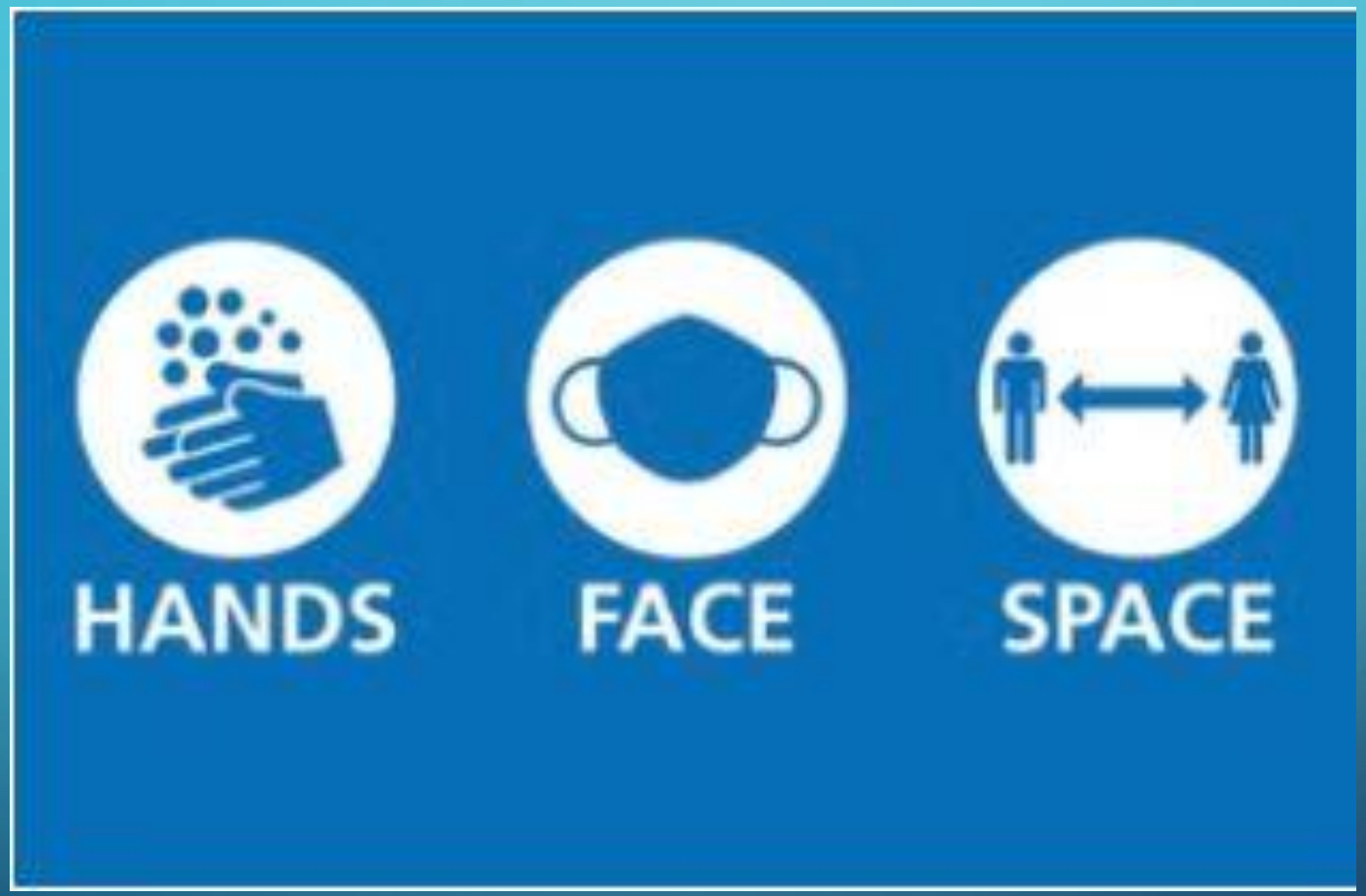
Chien-Chin Chen MD, FIAC, Chia-Yu Chi MD, PhD

First published: 07 April 2020
https://doi.org/10.1002/cncy.22280

WILL INFECTION RESULT ?

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




HANDS
FACE
SPACE

SO FAR SO ORTHODOX

Wellcome Open Research

Wellcome Open Research 2021, 6:126 Last updated: 25 MAY

Check for upda

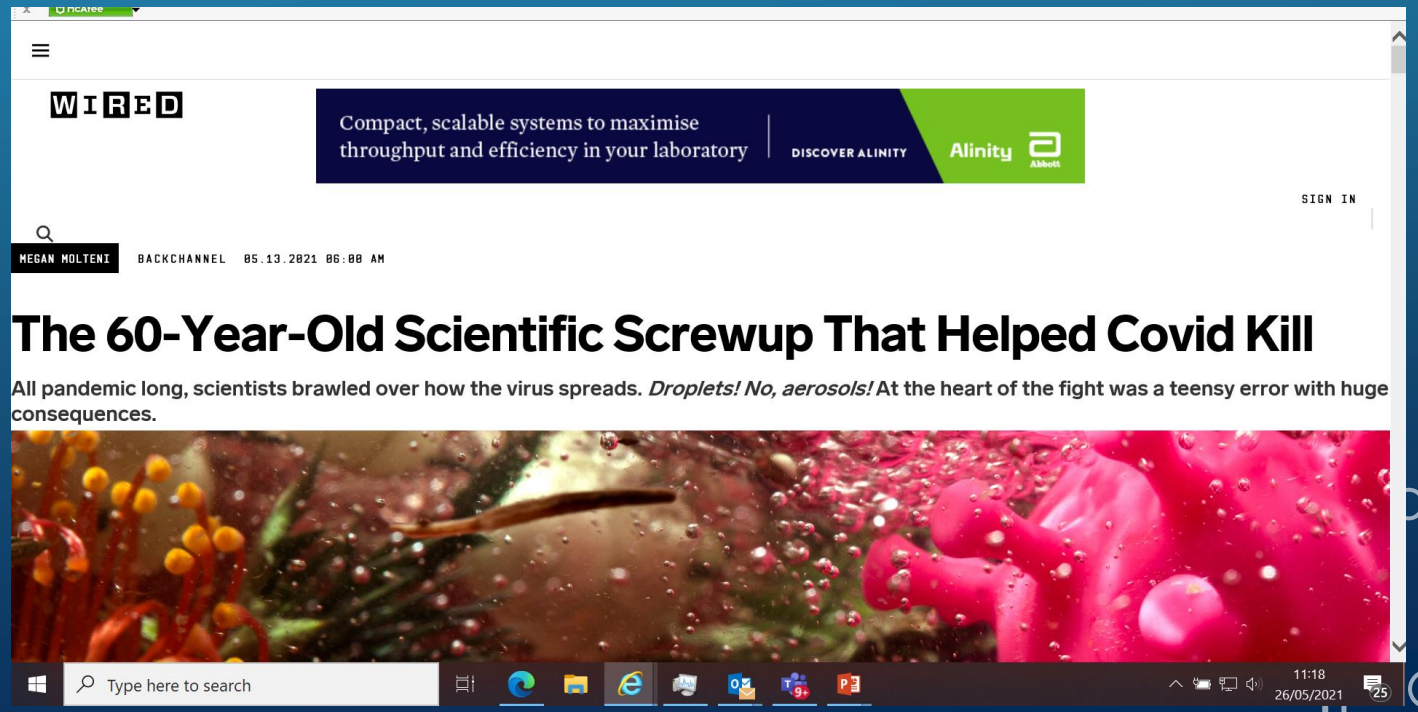
RESEARCH ARTICLE

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[1], Mustafa Ozbilgin[2], Damien Contandriopoulos[3]

[1]Nuffield Department of Primary Care Health Sciences, University of Oxford, Oxford, OX2 6GG, UK
[2]Brunel University London, Uxbridge, UB8 3PH, UK
[3]School of Nursing, University of Victoria, Victoria, British Colombia, V8P 5C2, Canada



WIRED

SIGN IN

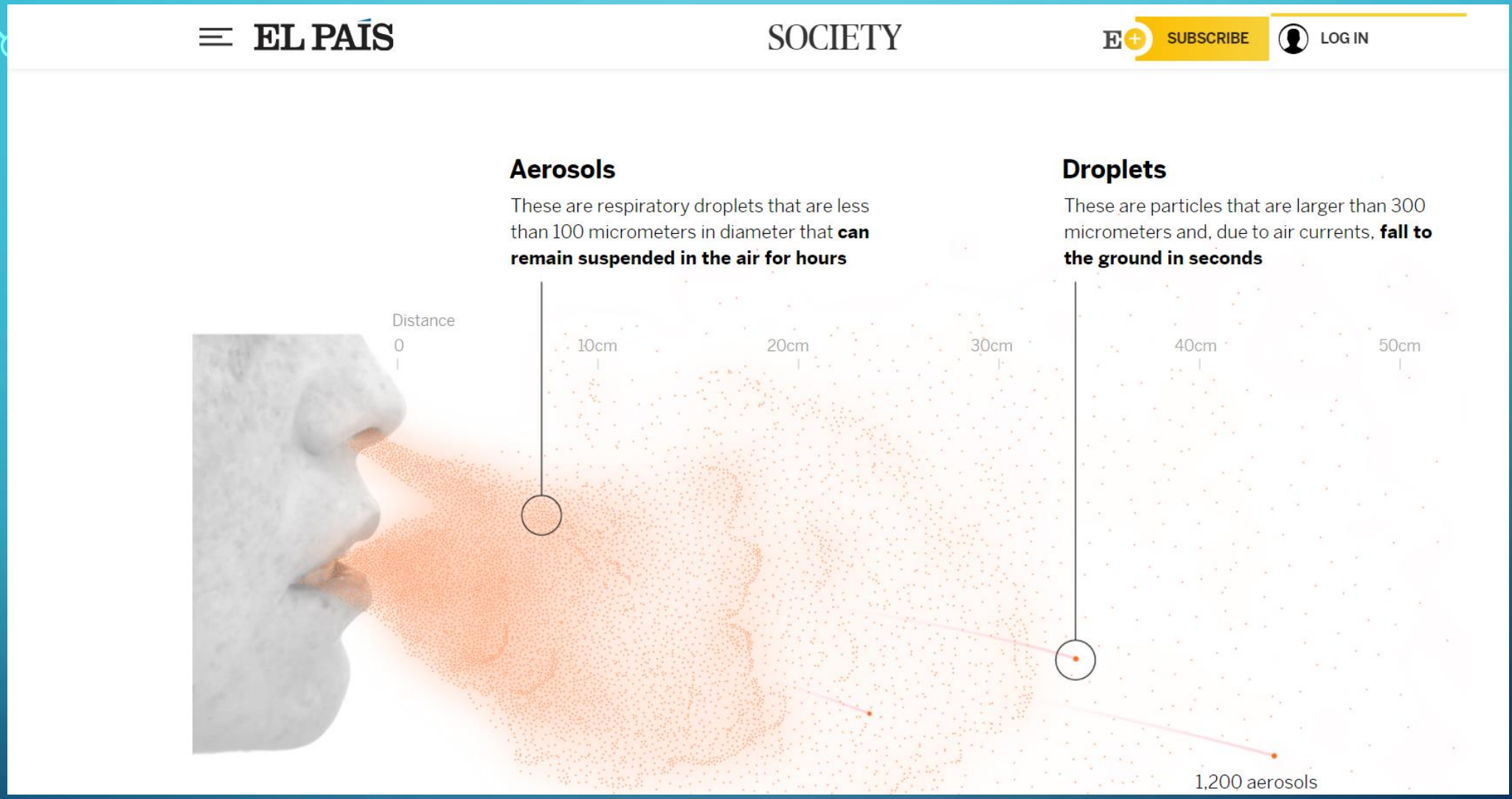
MEGAN MOLTENI BACKCHANNEL 05.13.2021 06:00 AM

The 60-Year-Old Scientific Screwup That Helped Covid Kill

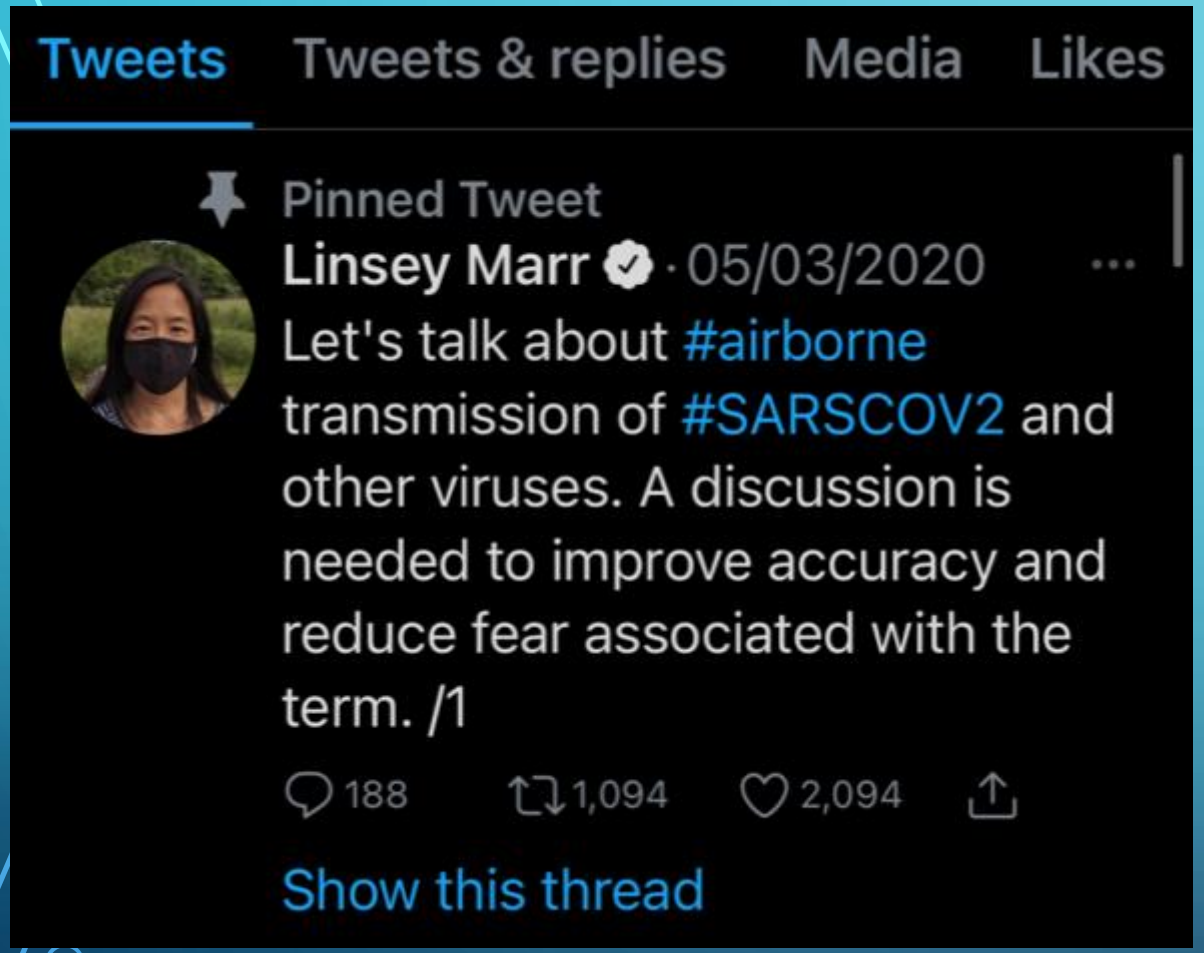
All pandemic long, scientists brawled over how the virus spreads. *Droplets! No, aerosols!* At the heart of the fight was a teensy error with huge consequences.

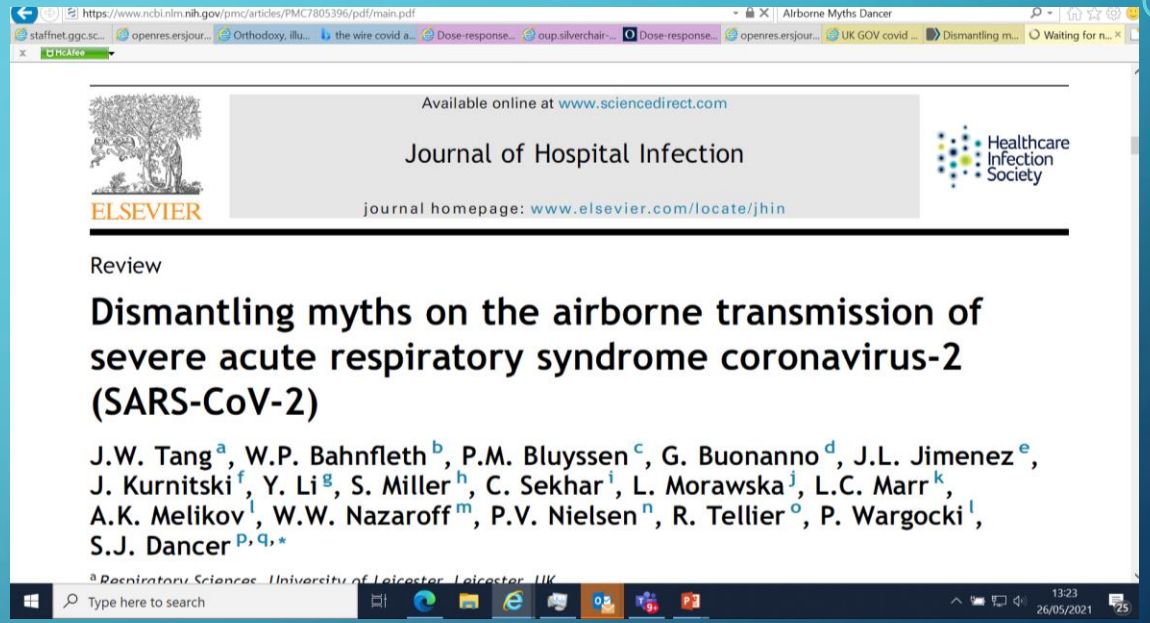
Type here to search

11:18
26/05/2021



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
Journal of Hospital Infection
journal homepage: www.elsevier.com/locate/jhin
ELSEVIER
Healthcare Infection Society
Review
Dismantling myths on the airborne transmission of severe acute respiratory syndrome coronavirus-2 (SARS-CoV-2)
J.W. Tang[a], W.P. Bahnfleth[b], P.M. Bluyssen[c], G. Buonanno[d], J.L. Jimenez[e], J. Kurnitski[f], Y. Li[g], S. Miller[h], C. Sekhar[i], L. Morawska[j], L.C. Marr[k], A.K. Melikov[l], W.W. Nazaroff[m], P.V. Nielsen[n], R. Tellier[o], P. Wargocki[l], S.J. Dancer[p,q,*]
Type here to search
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"

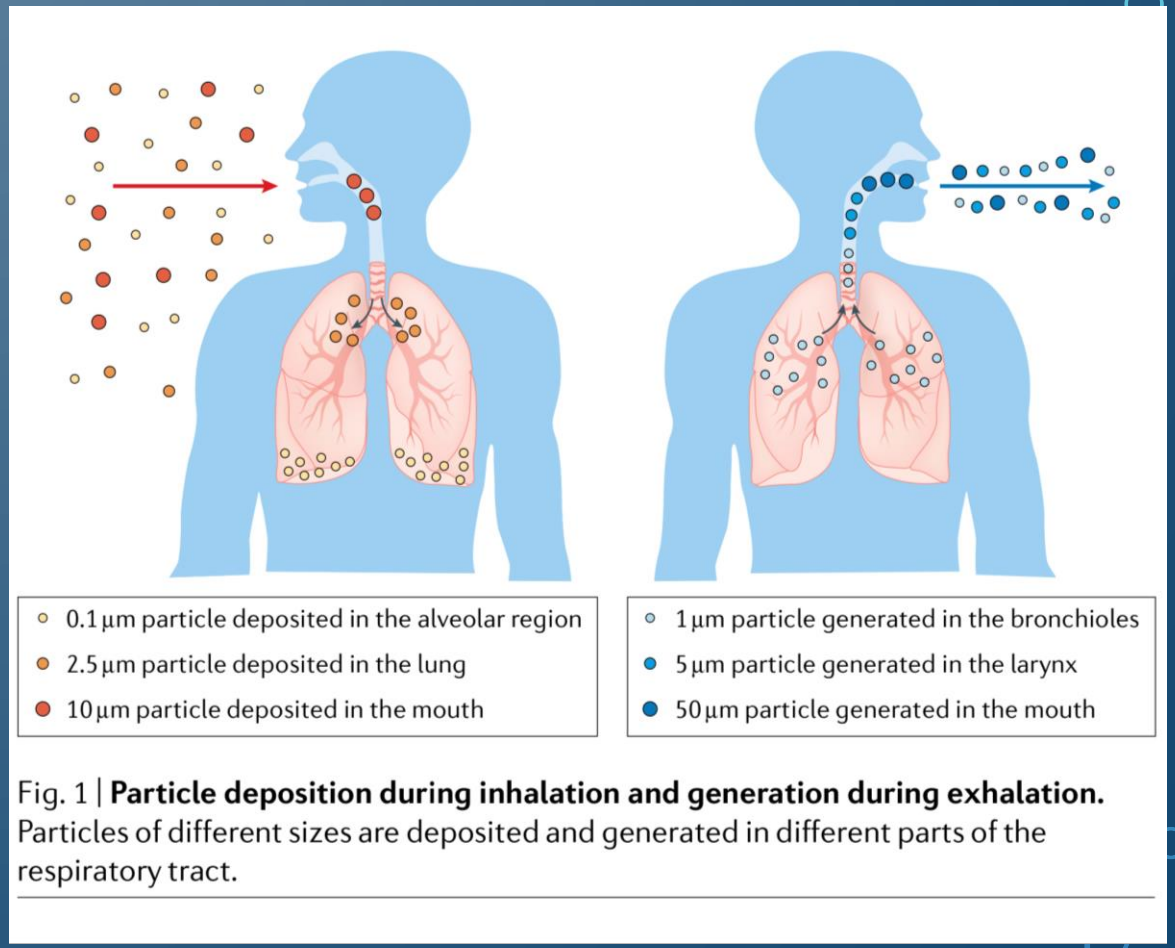
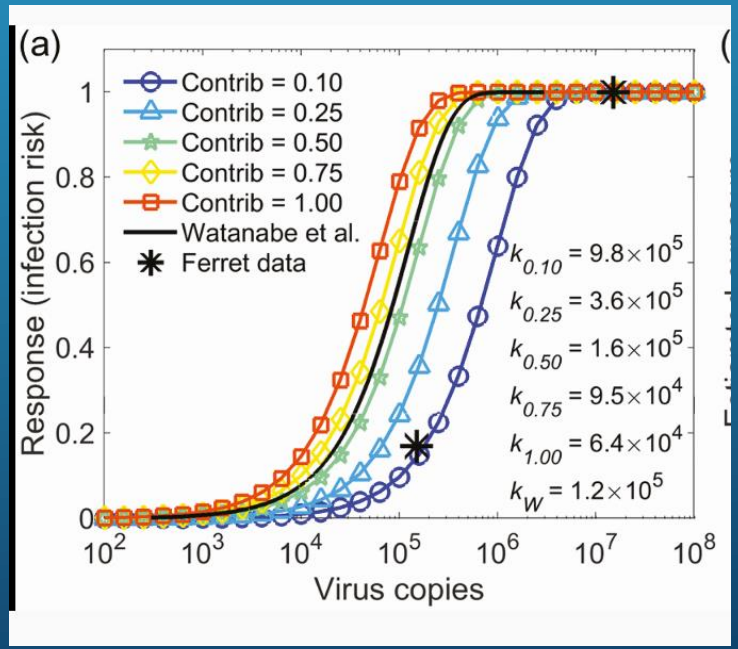


Fig. 1 | **Particle deposition during inhalation and generation during exhalation.** Particles of different sizes are deposited and generated in different parts of the respiratory tract.

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

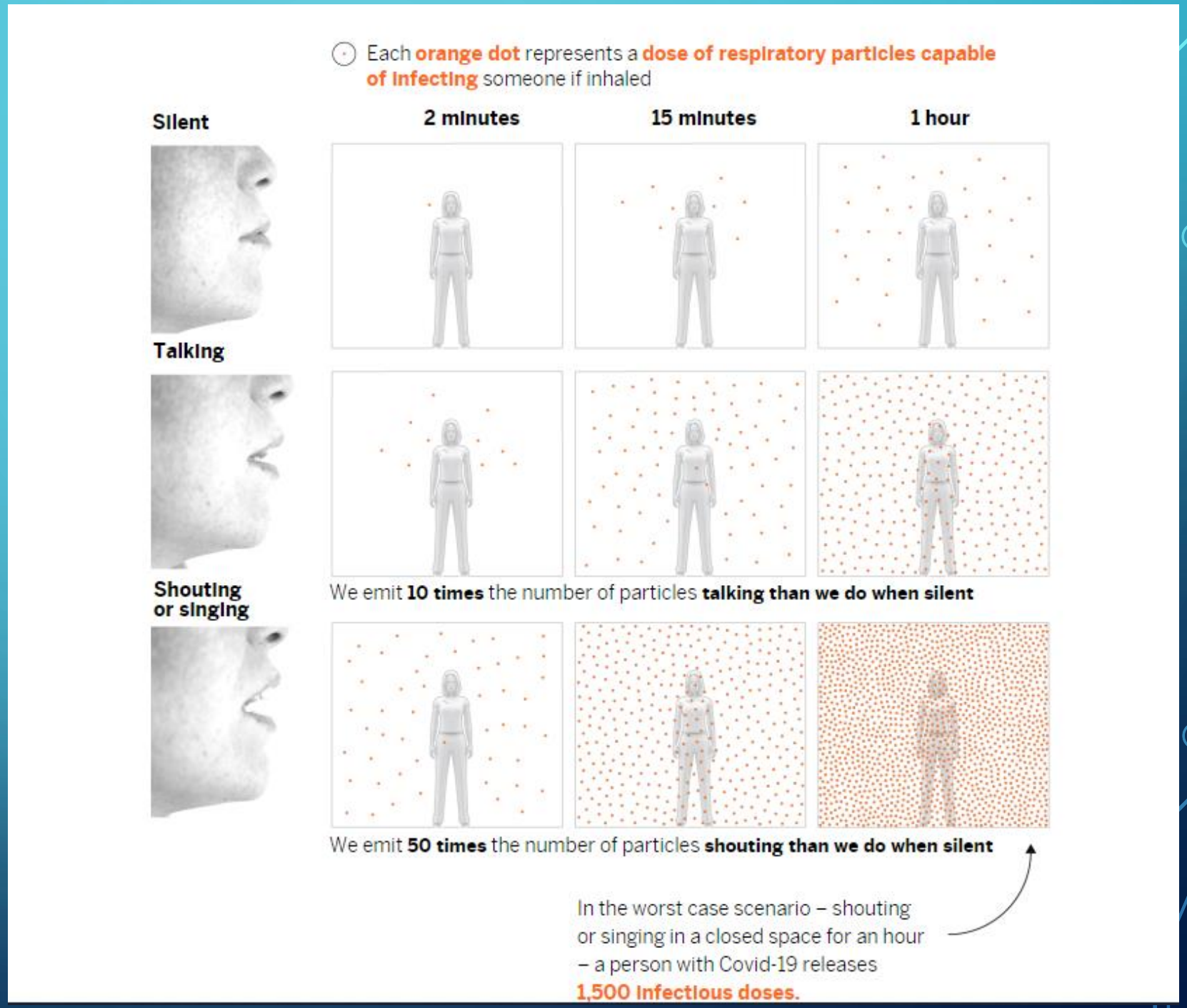
HOW MUCH VIRUS ?



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

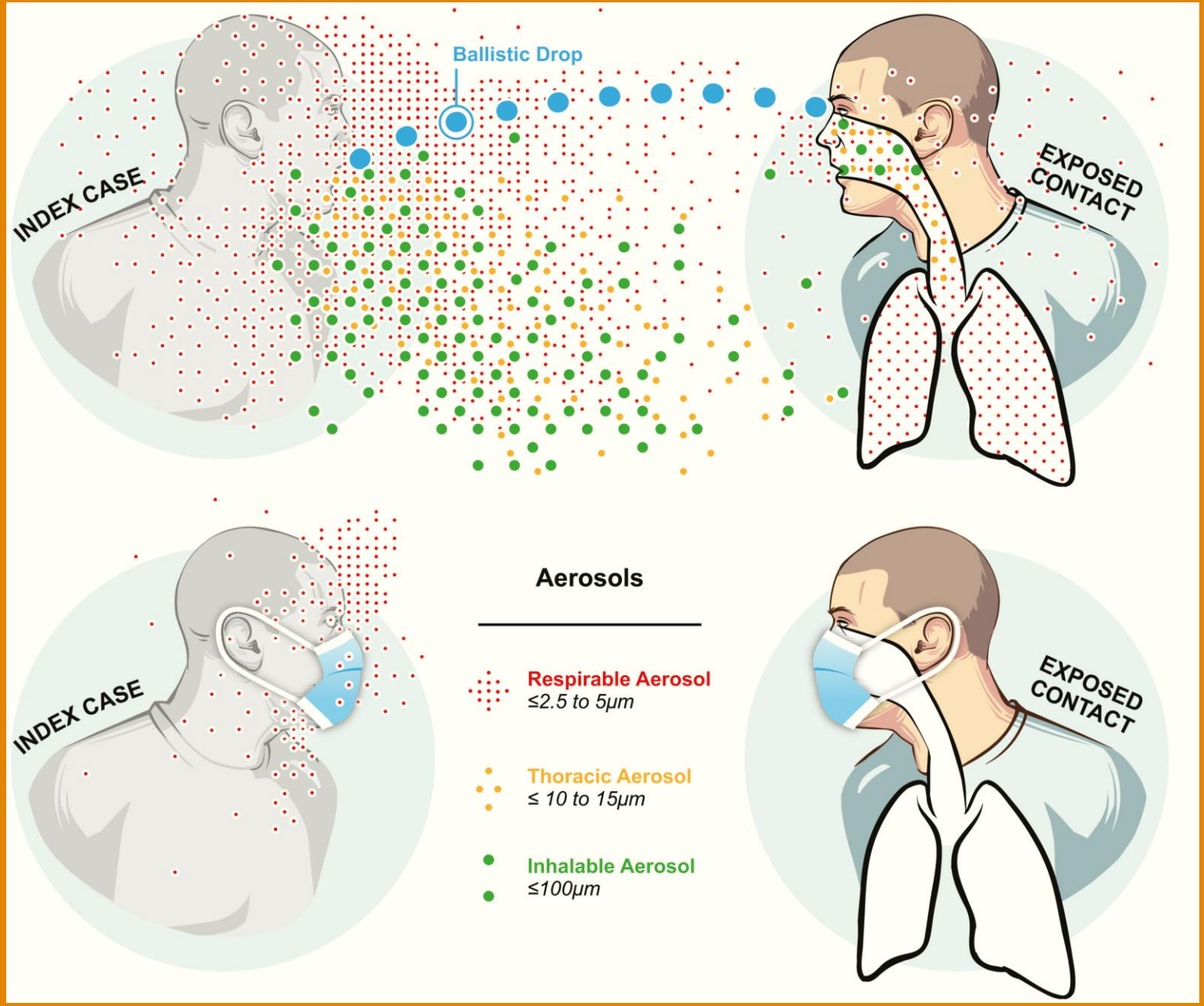
Xiaole Zhang, Jing Wang, Dose-response Relation Deduced for Coronaviruses From Coronavirus Disease 2019, Severe Acute Respiratory Syndrome, and Middle East Respiratory Syndrome: Meta-analysis Results and its Application for Infection Risk Assessment of Aerosol Transmission, *Clinical Infectious Diseases*, 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)]



SOURCE CONTROL

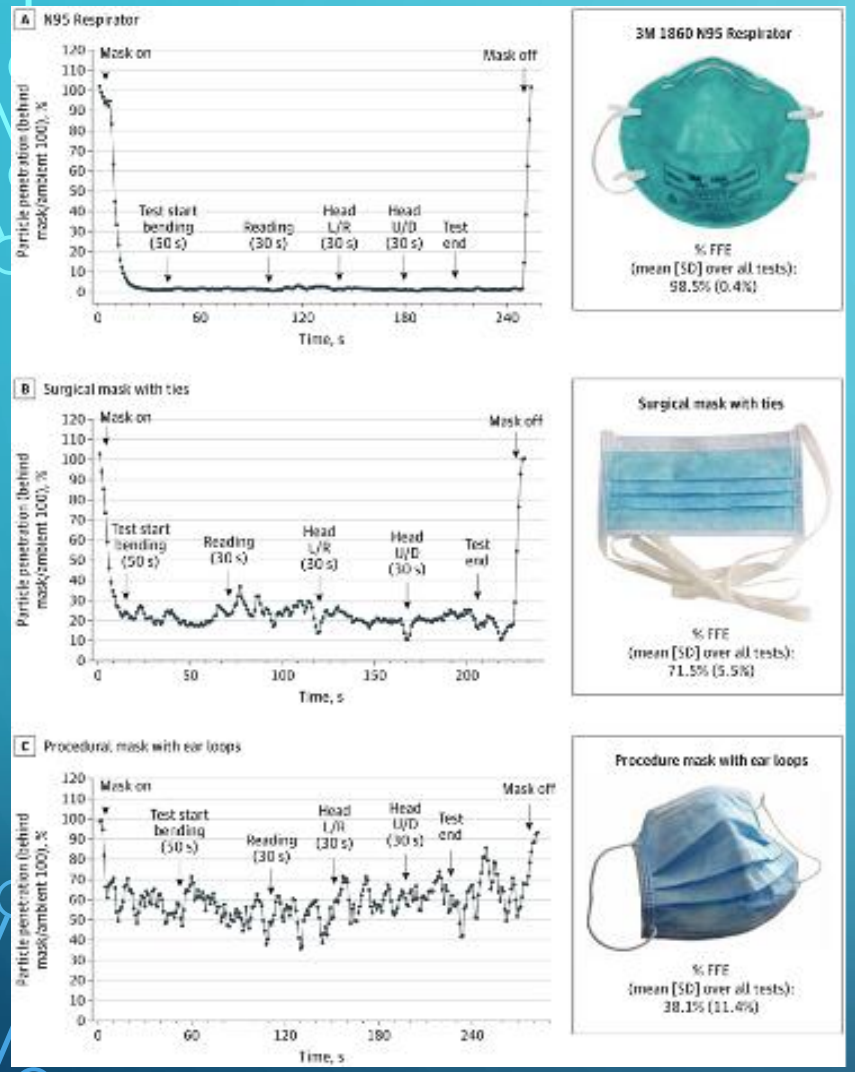
Donald K Milton, A Rosetta Stone for Understanding Infectious Drops and Aerosols, *Journal of the Pediatric Infectious Diseases Society*, Volume 9, Issue 4, September 2020, Pages 413–415, https://doi.org/10.1093/jpids/piaa079

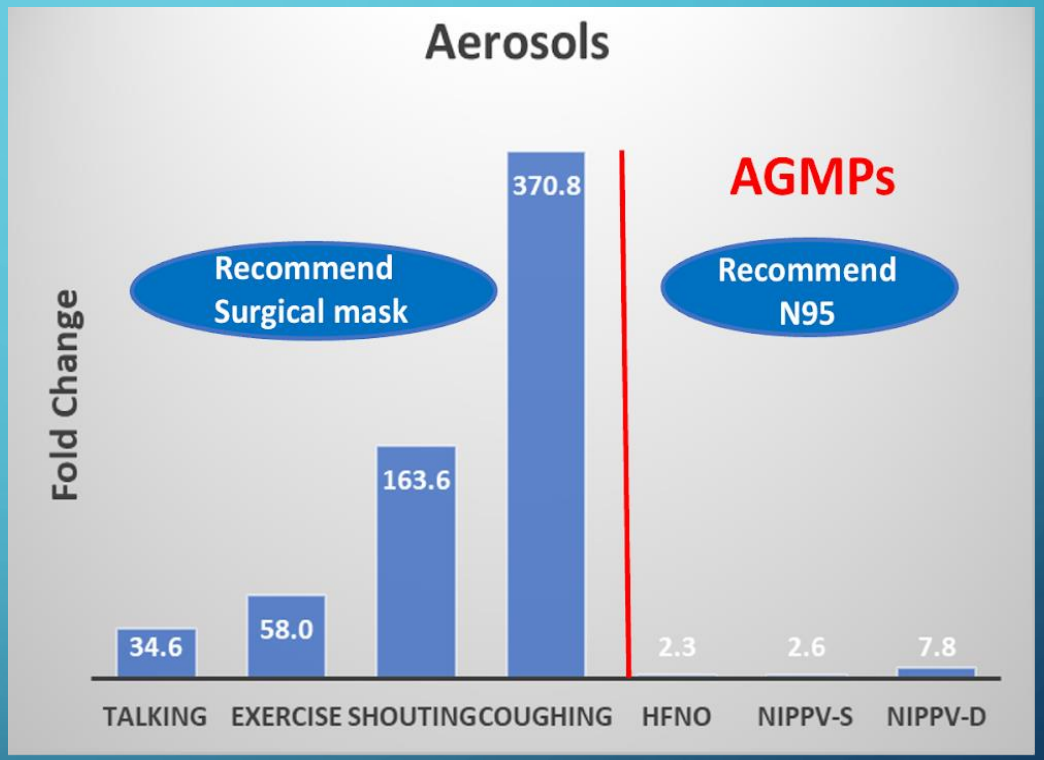



HANDS
FACE
SPACE
FRESH AIR


UK Government
NHS
by coughing, talking,
Hands. Face. Space. Fresh Air

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





More accurate "AGP" = Aerosol generating person?

Adapted from Wilson et al 2021

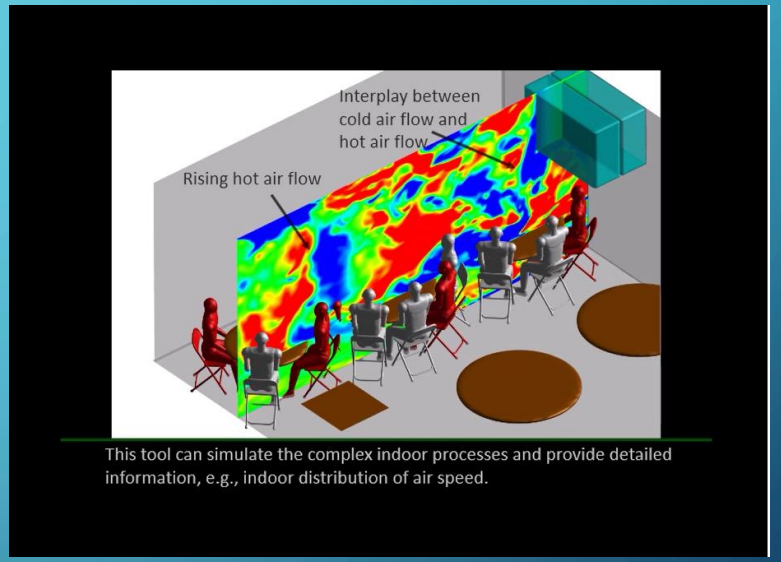
JAMA Intern Med. 2020;180(12):1607-1612. doi:10.1001/jamainternmed.2020.4221

Slide Image from Prof Kim Prather

UC San Diego
SCRIPPS INSTITUTION OF OCEANOGRAPHY

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