



Staying Safe after Circuit Breaker

Dancing with COVID-19

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After the Circuit Breaker ‘hammer’

What’s next?

Phase 1: Safe Re-opening

*“Singapore has **hidden reservoirs of coronavirus infections** in the community: Experts” “..**People need to be reminded constantly that the outbreak is ONGOING..**”*

(The Straits Times, June 4, 2020)

Phase 2: Safe Transition

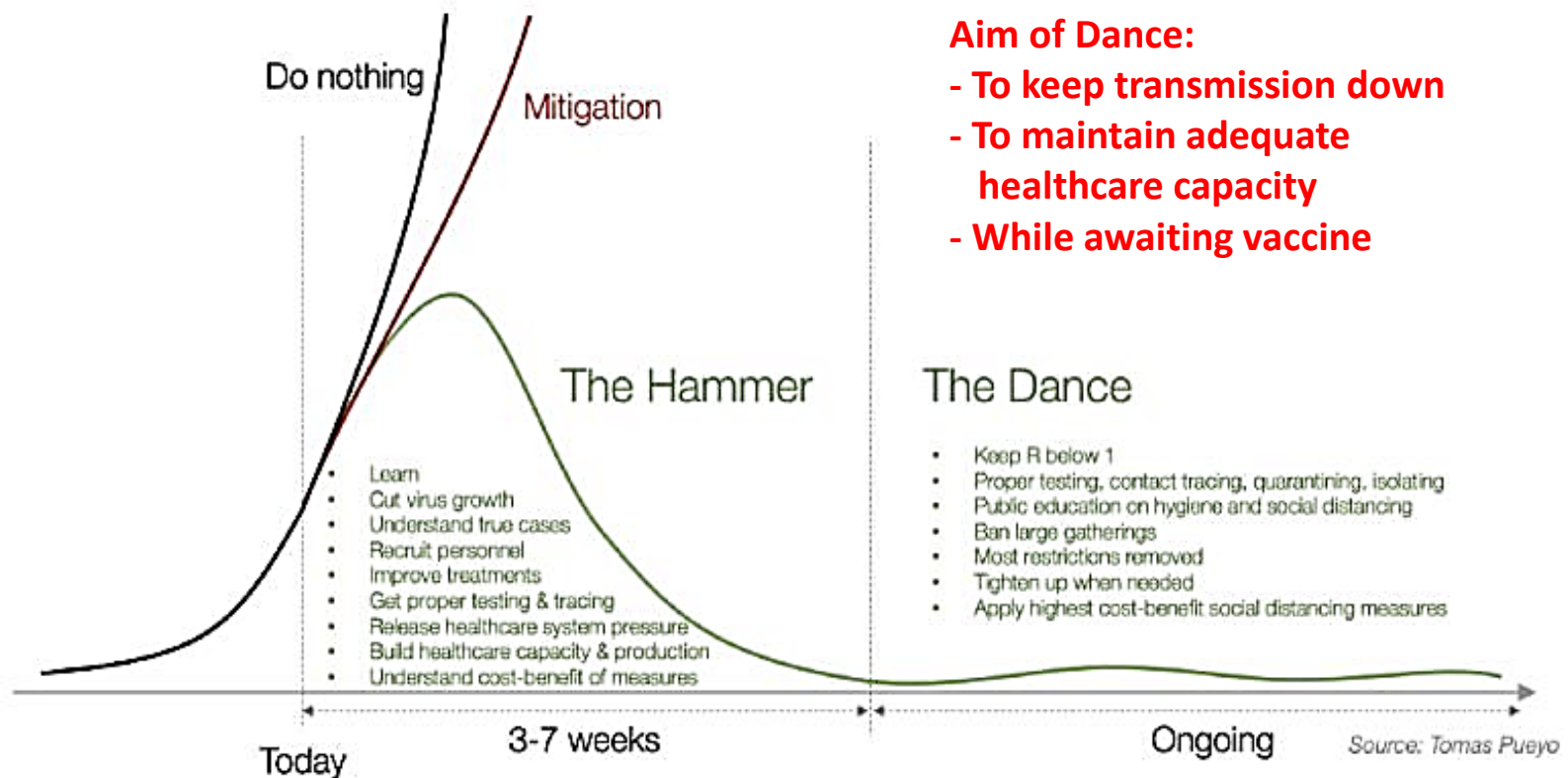
*“**We have long forgotten about Dorscon Orange.** My family and friends just keep mentioning that we are in phase 2 and waiting for phase 3 to come.”*

*“..**some don’t even bother to wear masks anymore..** There are many inconsiderate people who come too near my parents or me, and yet **they told us off when we asked them to keep an appropriate distance.**” “**Just tell us what to do, we will follow.**”*

(The Sunday Times, Sun, June 28, 2020)

Next Phase: the *Dance* with Covid-19

The 'Hammer' followed by the 'Dance'



The *Dance* to keep $R < 1$

Watch the
Transmission Rate

CASES



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**Hygiene Measures
& Safe Distancing**
Testing, Contact Tracing,
Isolation & Quarantine

CASES



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Travel Ban
Ban on Social Gatherings

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School Closures
Business Closures



3 Things to Do

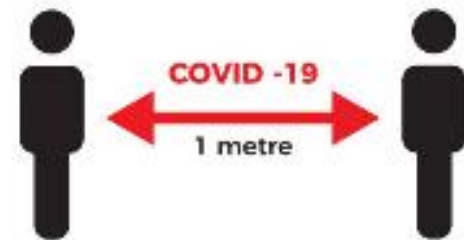
A. Wear a mask at all times



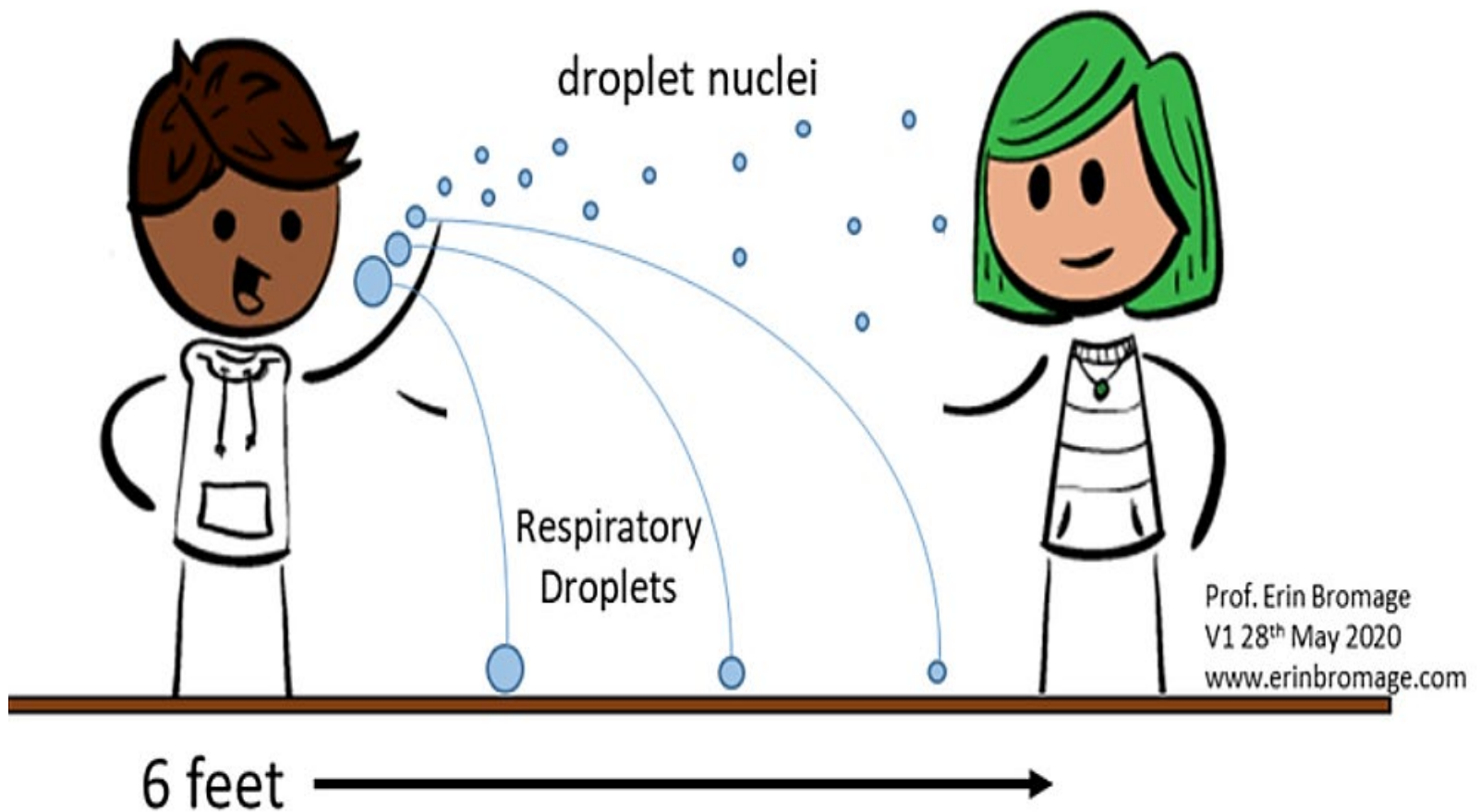
B. Hand Washing



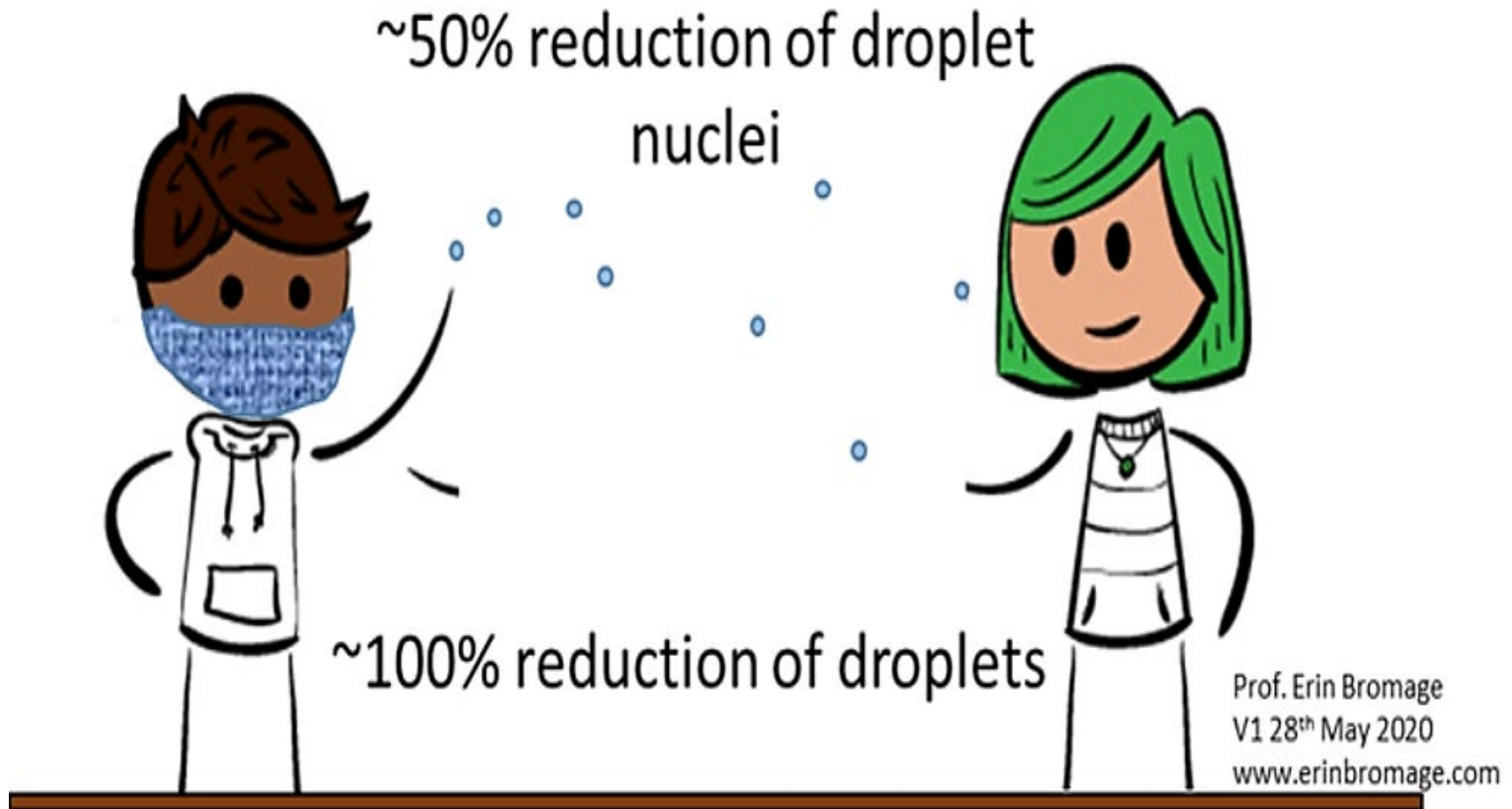
C. Safe Distancing



A. Why Mask Up?

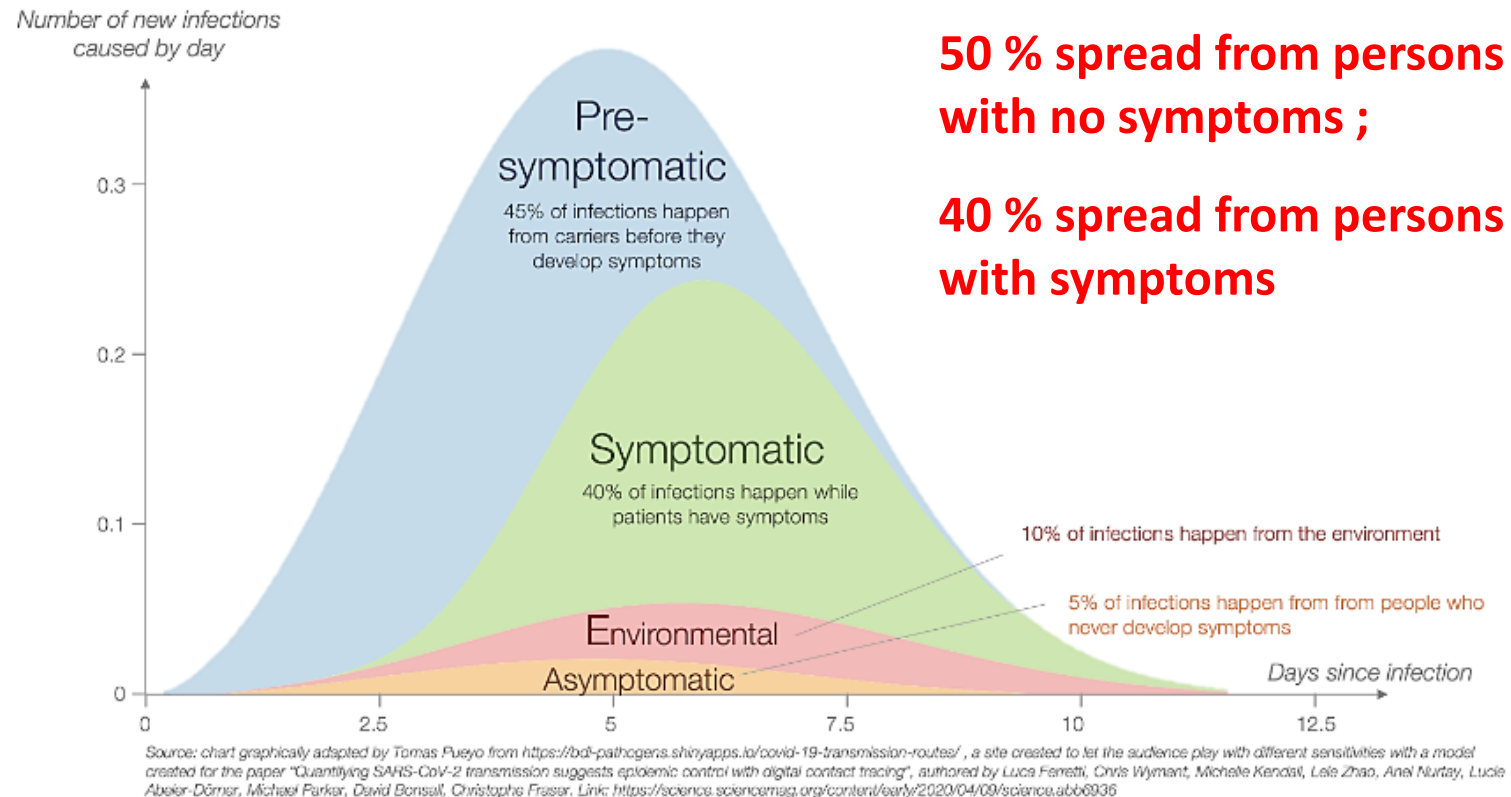


A Mask reduces dissemination effectively



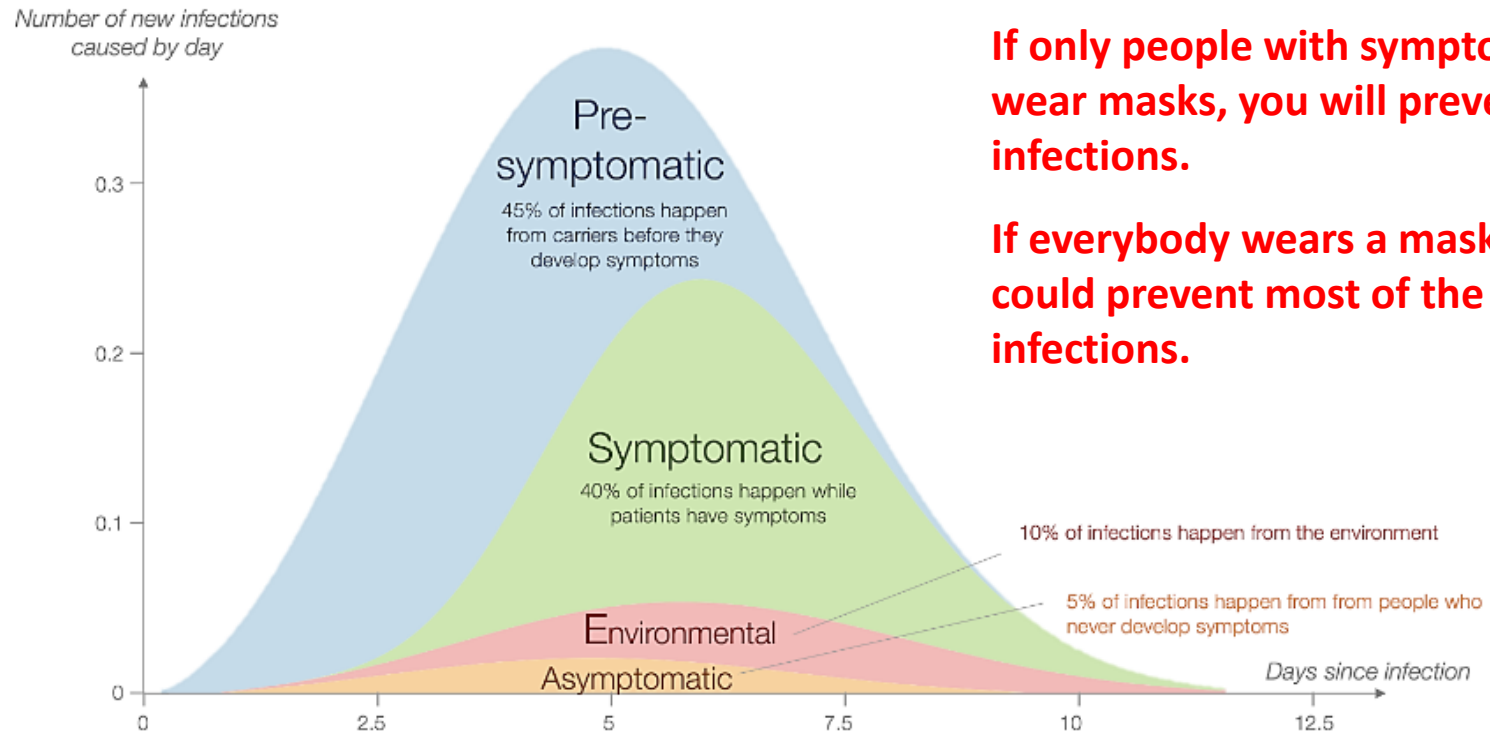
The Virus is shed by people with **NO Symptoms**

Chart 15.a: How Do Coronavirus Carriers Infect Other People?



The Virus is shed by people with **NO Symptoms**

Chart 15.a: How Do Coronavirus Carriers Infect Other People?



Source: chart graphically adapted by Tomas Pueyo from <https://bd-pathogens.shinyapps.io/covid-19-transmission-routes/>, a site created to let the audience play with different sensitivities with a model created for the paper "Quantifying SARS-CoV-2 transmission suggests epidemic control with digital contact tracing", authored by Luca Ferretti, Chris Wymant, Michele Kendall, Lele Zhao, Anel Nurtay, Lucile Abeler-Dörner, Michael Parker, David Bonsall, Christophe Fraser. Link: <https://science.sciencemag.org/content/early/2020/04/09/science.abb6936>

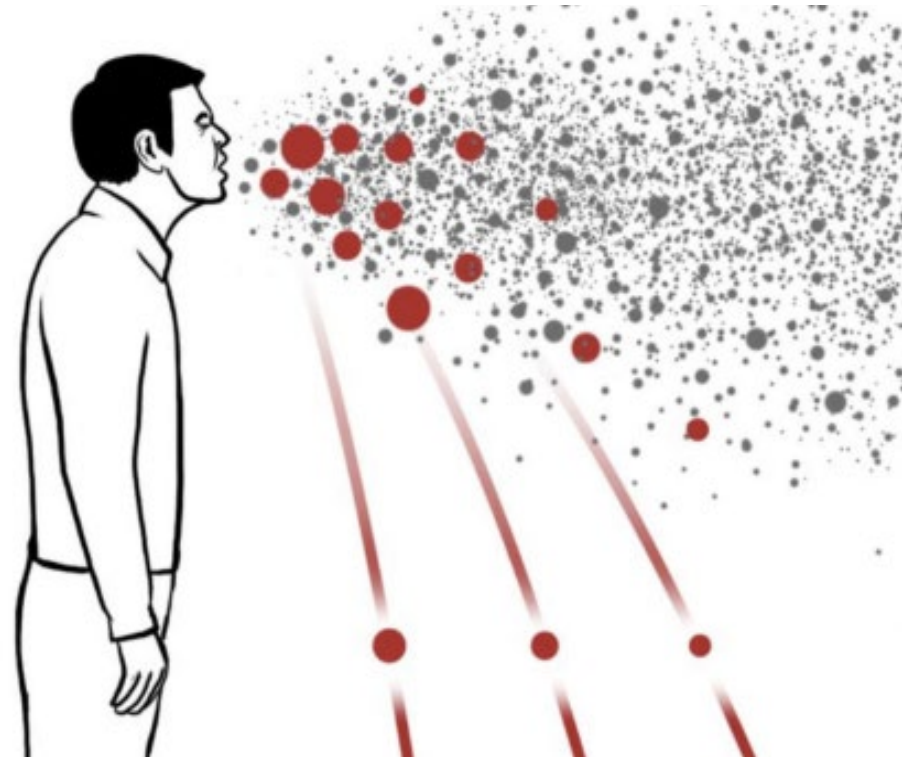
If only people with symptoms wear masks, you will prevent <1/2 infections.

If everybody wears a mask, you could prevent most of the infections.

Successful Infection = **Viral Load** accumulated over **Time**

Viral load disseminated
when you

- cough
- sneeze
- sing
- **talk (200 copies/min)**
- **breathe (20 copies/ min)**

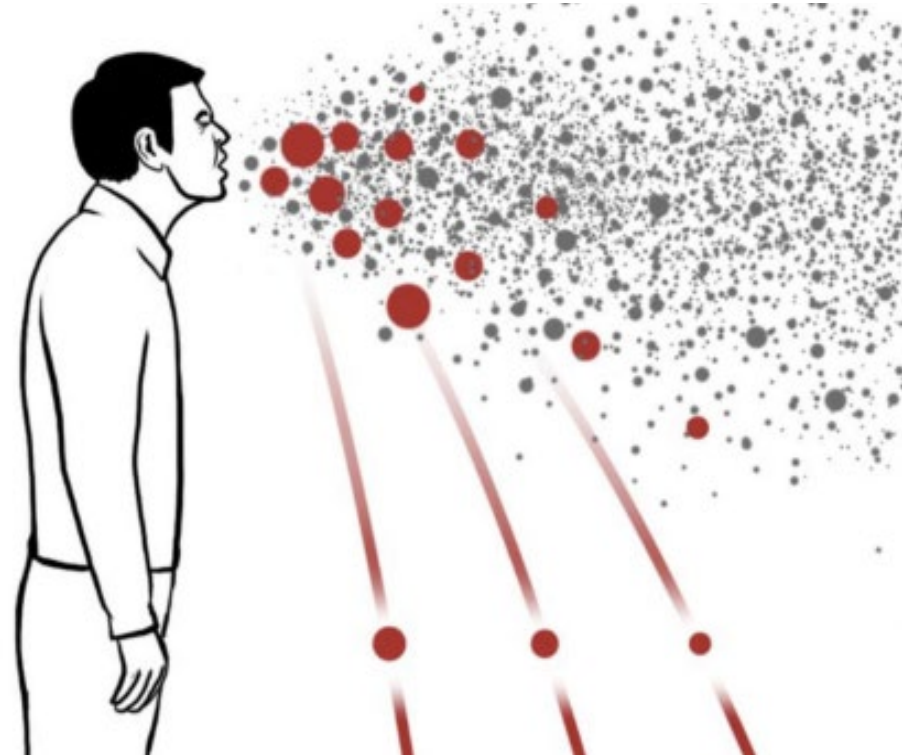




Successful Infection = 1000 viral copies received

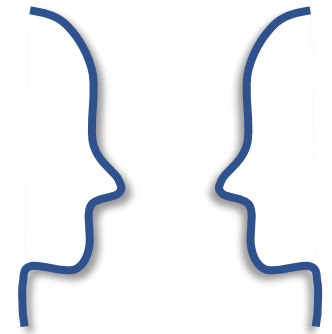
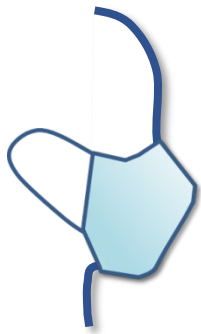
Infection occurs with:

- 5 min (x 200/ min) talk in face to face encounter
- 50 min (x 20/min) breathing in enclosed space





Risk Factors for viral load build up in Face to Face Conversations



Lowest Risk

Highest Risk

2m away

Distance

Close range

Short conversation

Time

Long conversation

Outdoors

Location

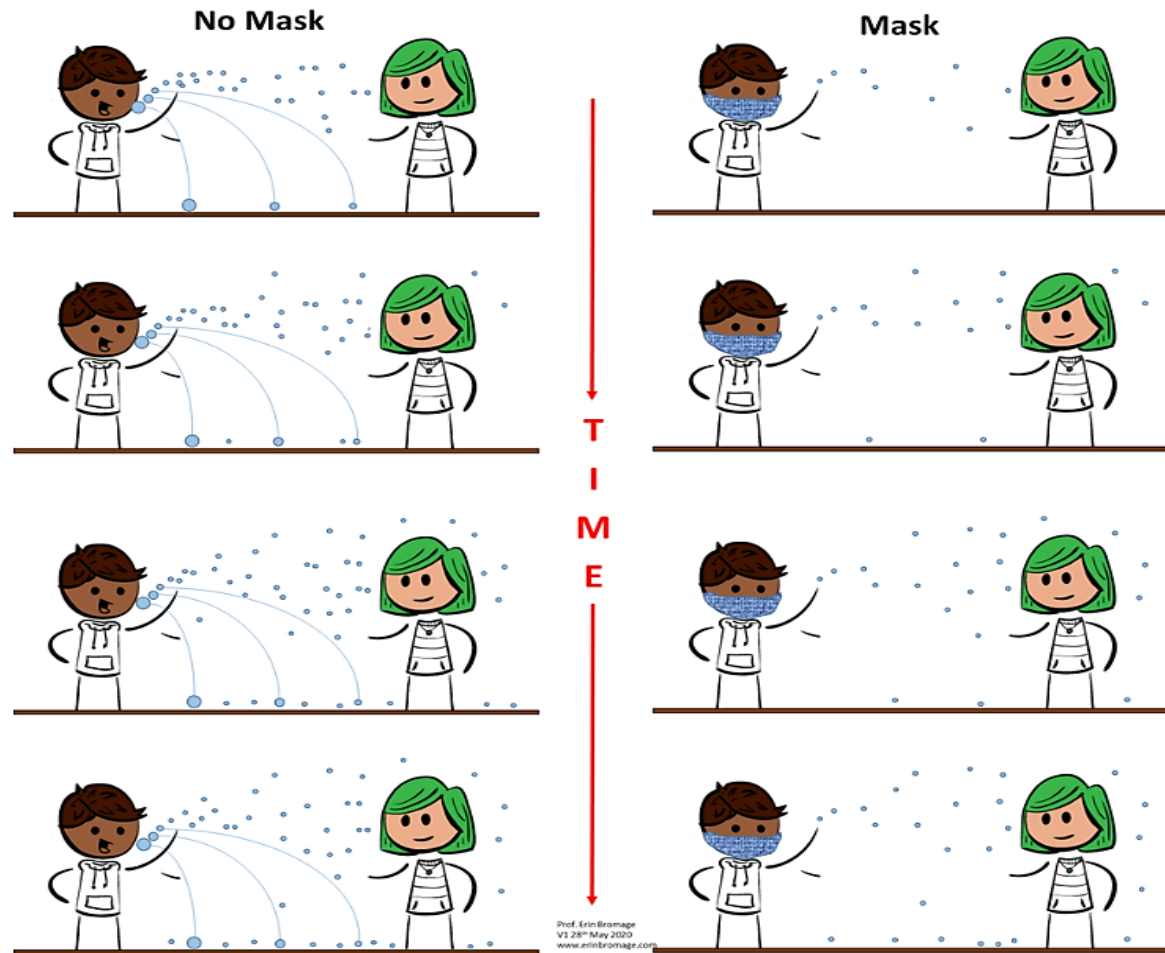
Indoors

High quality mask

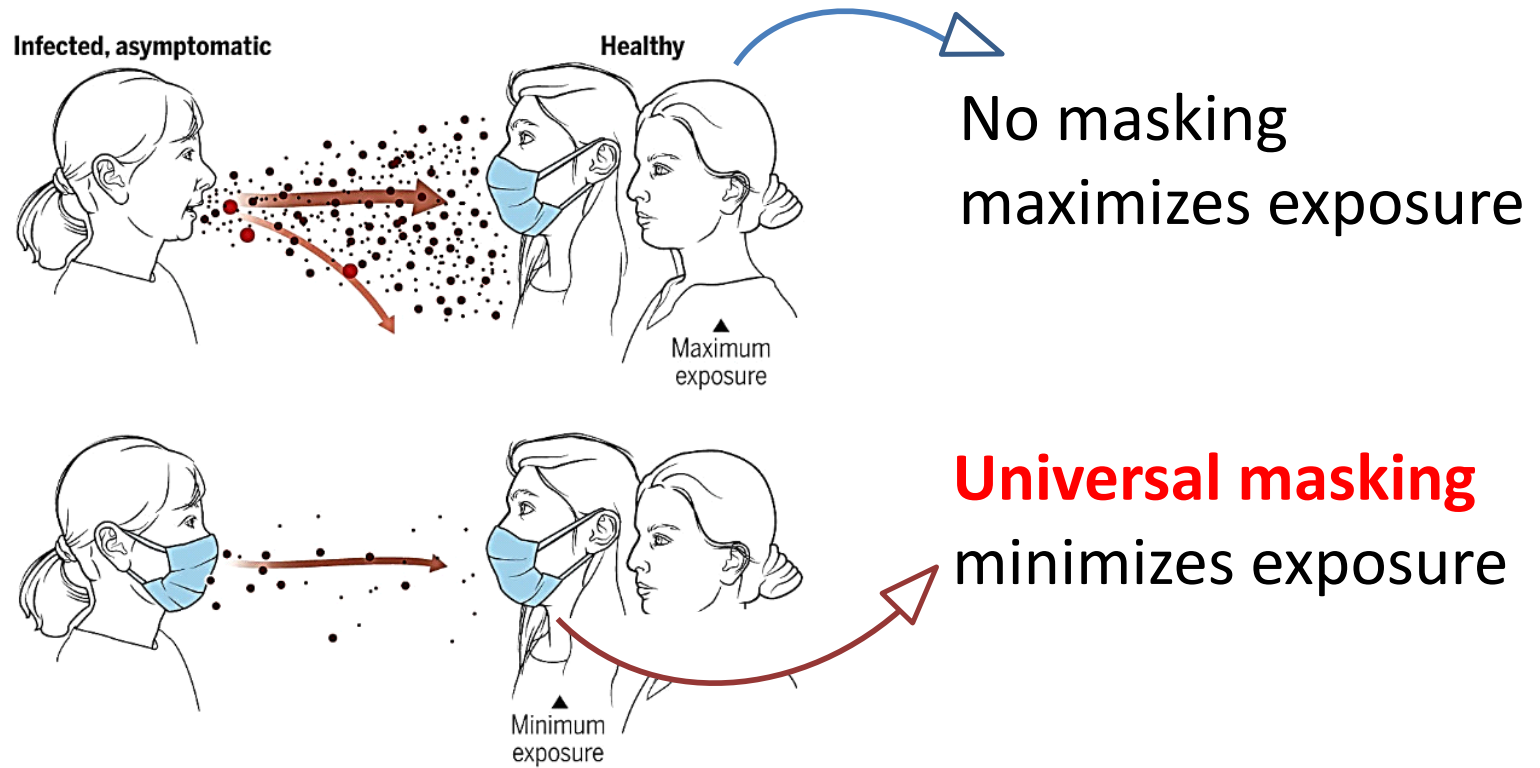
Mask

No mask

Saliva Droplets accumulate over Time in Enclosed Spaces with Low Air Exchange



6. Universal Masking minimises exposure

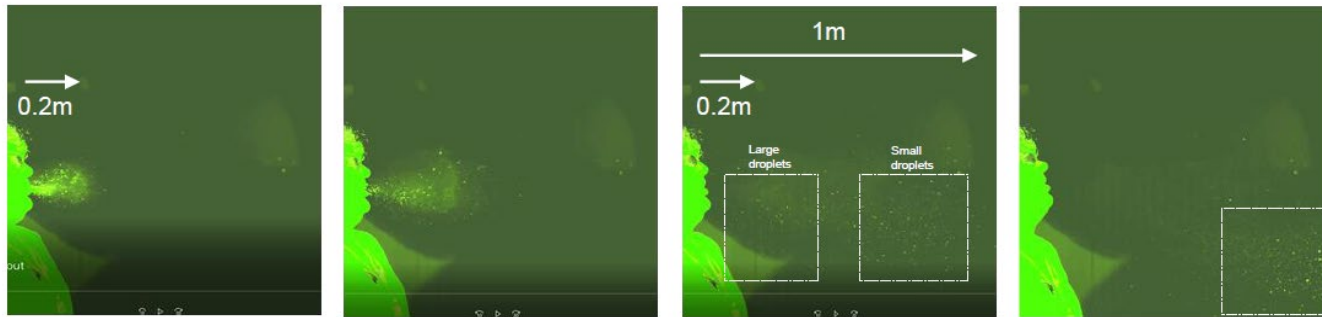


GRAPHIC: V. ALTOUNIAN/SCIENCE

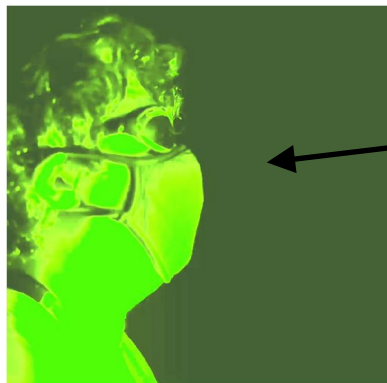


Effectiveness of Masks depends on **Correct Usage**

Subject does NOT wear a mask

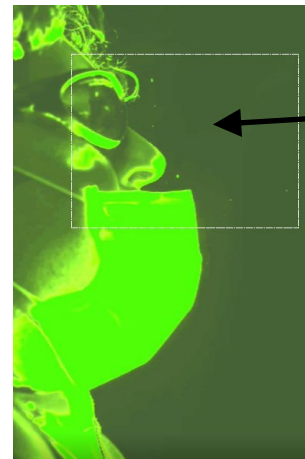


Subject wears a mask properly



NO droplet

Subject does not wear a mask properly



Some droplets

Any mask is better than no mask

Rationale behind use of mask

- Protect yourself from other people's saliva droplets
- Protect others from your saliva droplets

Surgical mask

- **Wear the right way**
 - Blue side repels liquid, faces outwards
 - Inner layer absorbs your saliva
- **Fit mask to your face** (mould metal piece over nose bridge, no gap at sides or chin) So that you **breathe through the mask**
 - Middle layer filters air



Cloth mask

- reduces droplet transmission
- A more Fitted mask with Filter confers more protection but..

ANY MASK IS BETTER THAN NO MASK

Who, When and Where to wear a Mask?

EVERYONE!

ALL THE TIME!

(except when eating / drinking)

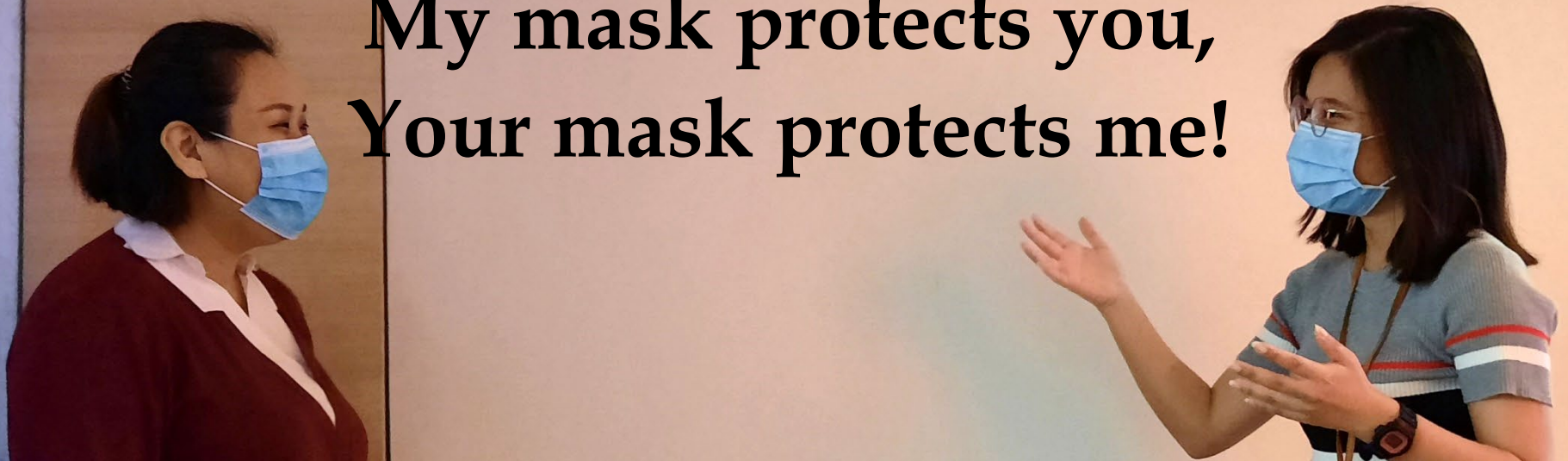
EVERYWHERE!

- Once you leave your house
- On public transport
- Malls and supermarkets
- Packing rooms
- Open offices
- While waiting for food, and after meal in restaurants



The Use of a Mask is a Social Contract

**My mask protects you,
Your mask protects me!**



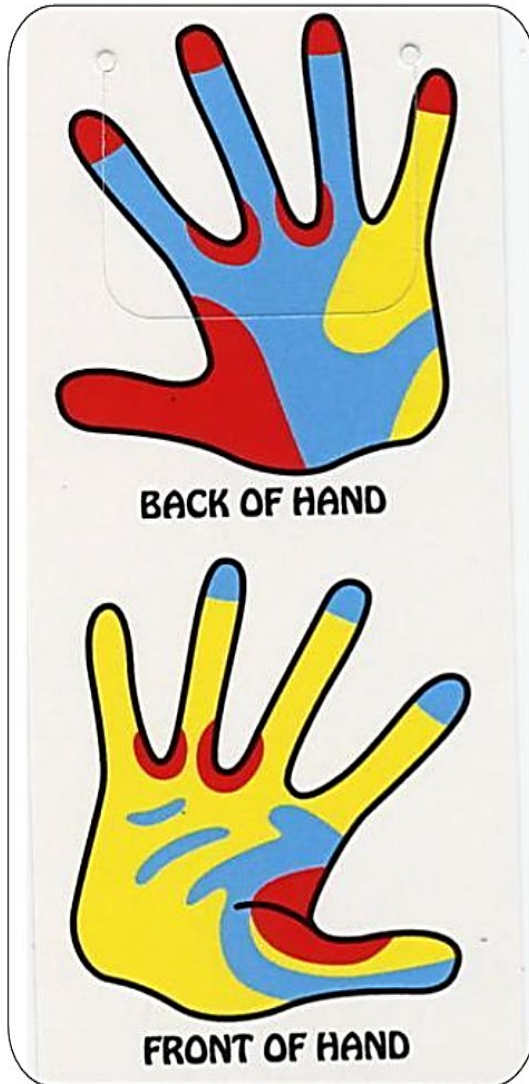


B. How **Hands** can spread Covid-19

<https://www.youtube.com/watch?v=l5dl74zxPg&authuser=0>

Washing your hands with soap and water or using alcohol-based hand rub kills viruses that may be on your hands (WHO)

How **Hands** can spread Covid-19



**Areas most frequently
missed during hand
hygiene**

Less frequently missed

Not Missed

(Adapted from Taylor L (1978), An evaluation of
Hand washing techniques-1, Nursing Times, 12 Jan p54-55

Protecting yourself and others from the spread COVID-19 (WHO)

Wash your hands

Wash your hands with soap and running water when **hands are visibly dirty**



If your **hands are not visibly dirty**, frequently clean them by using alcohol-based hand rub or soap and water



Protect yourself and others from getting sick

Wash your hands



- after coughing or sneezing
- when caring for the sick
- before, during and after you prepare food
- before eating
- after toilet use
- when hands are visibly dirty
- after handling animals or animal waste



6-Step Hand Washing Technique (WHO)



Rub hands palm to palm



Right palm over left backhand with interlaced fingers and vice versa



Palm to palm with finger interlaced



Backs of fingers to opposing palms with fingers interlocked

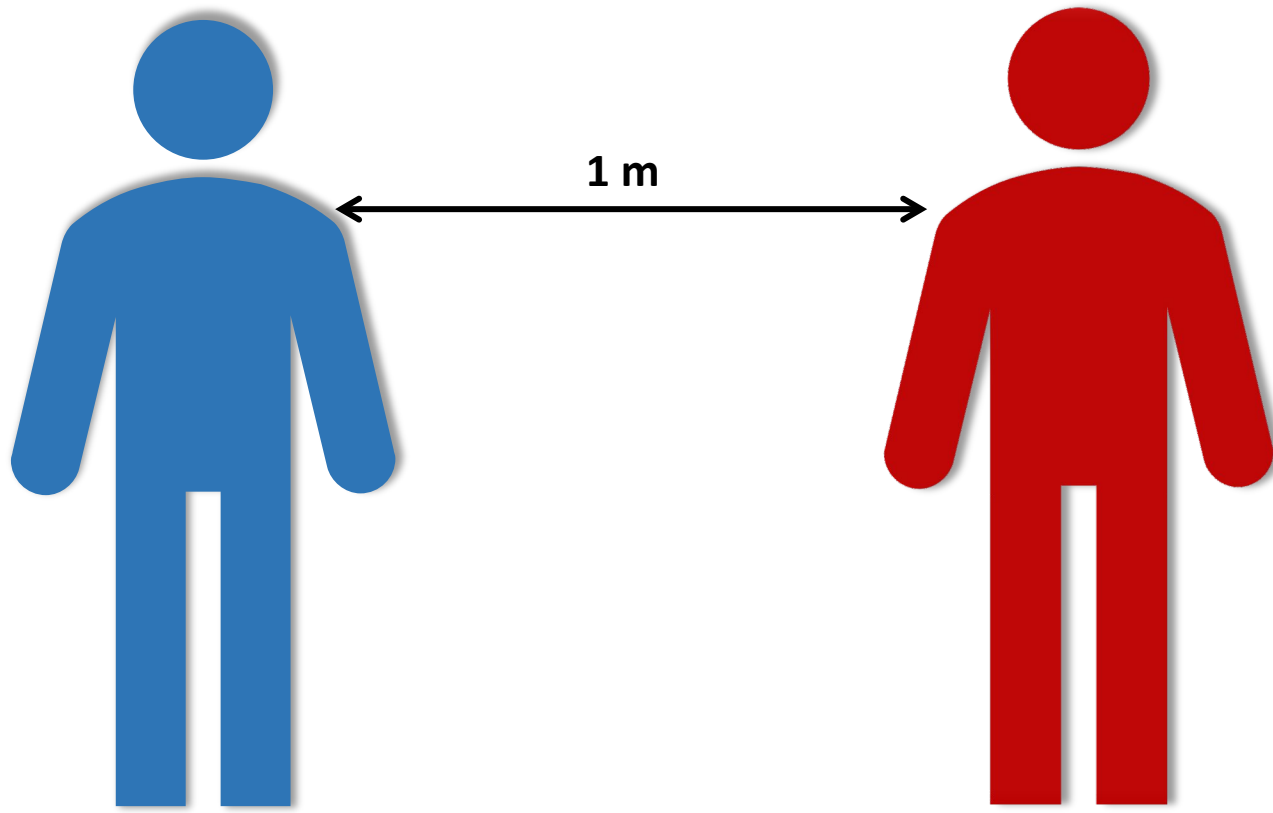


Rotational rubbing of left thumb clasped in right palm and vice versa

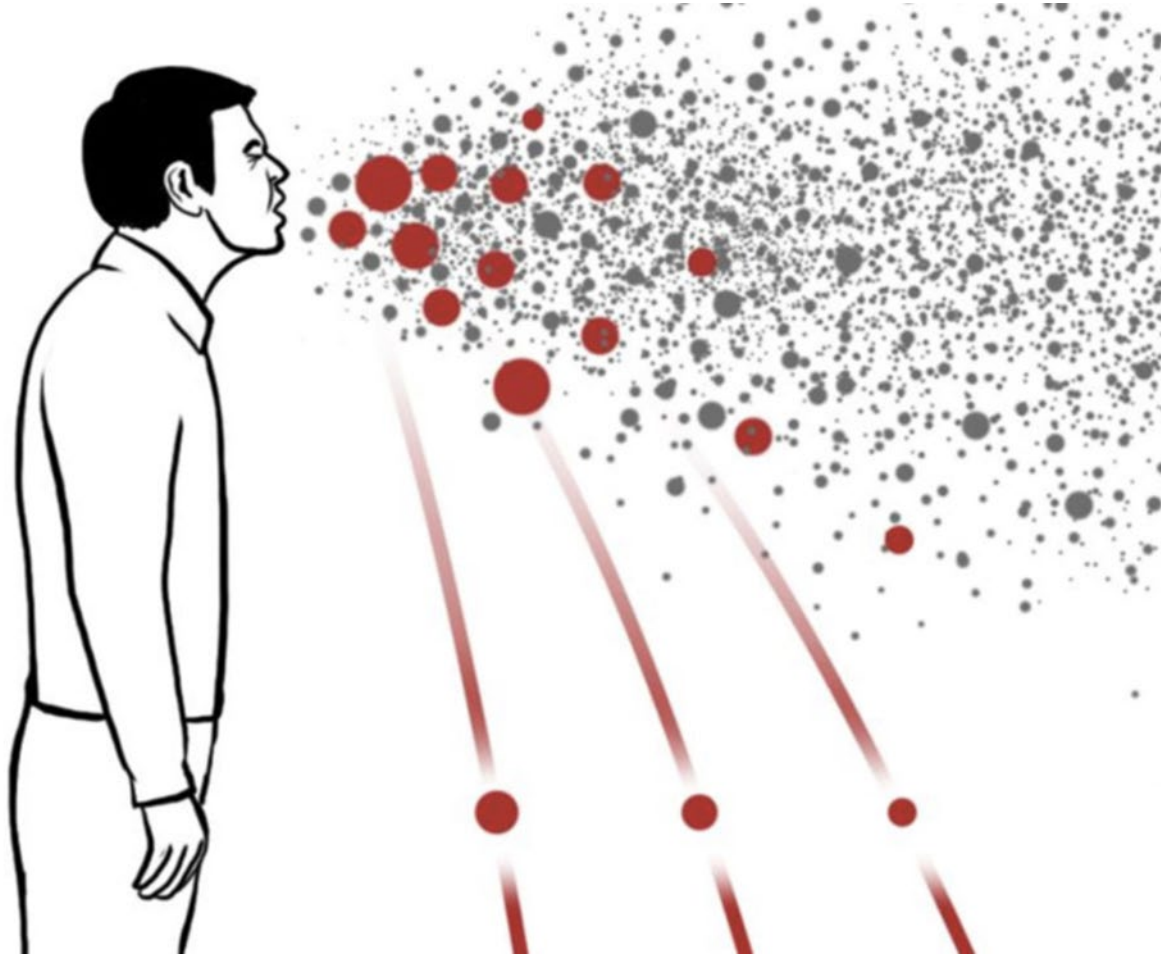


Rotational rubbing, backwards and forwards with clasped fingers of right hand in left palm and vice versa

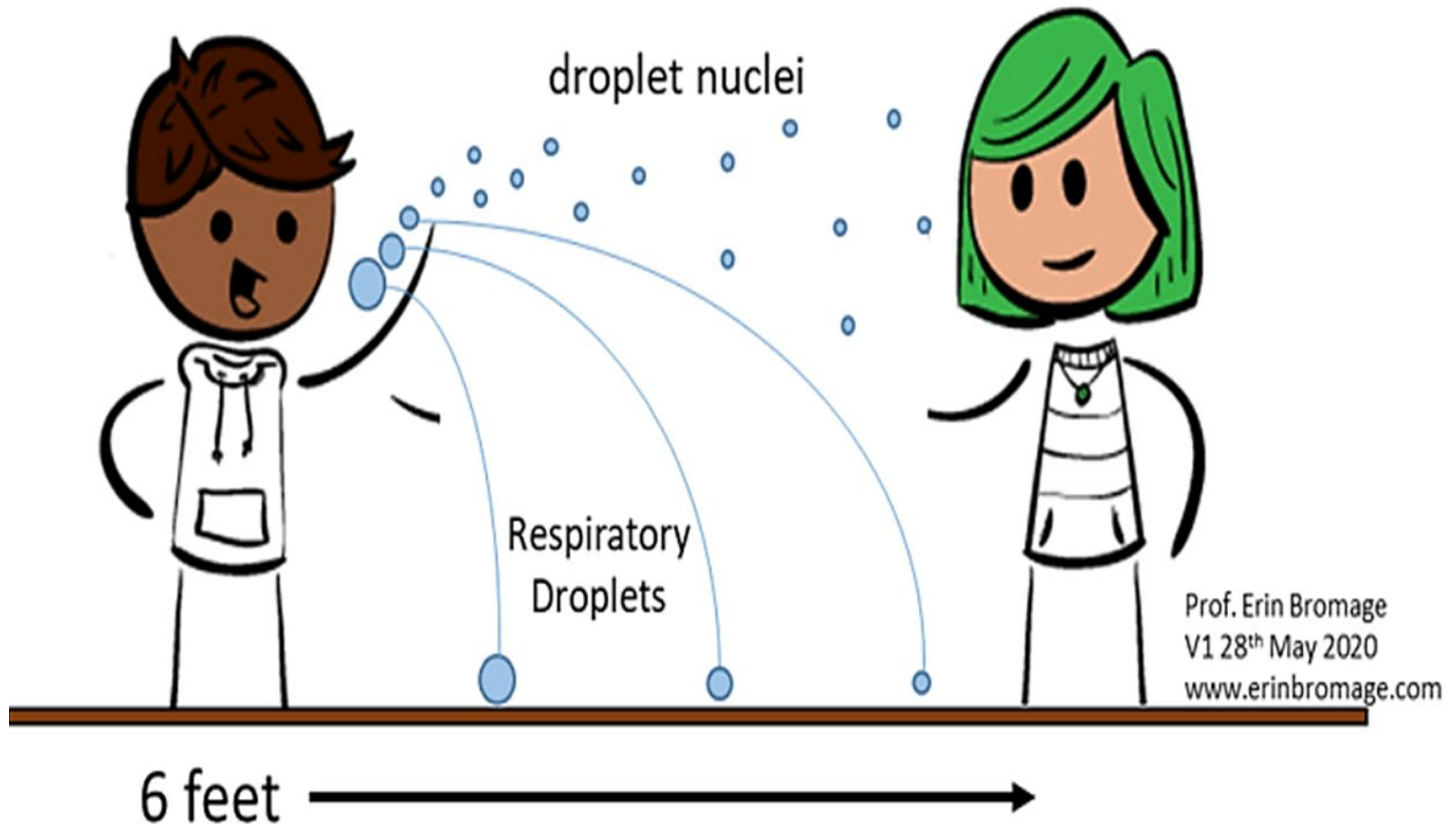
C. Safe Distancing is Crucial!



Why must we stay $> 1\text{m}$ Apart?



Biggest droplets will drop to the ground or on surfaces like furniture or on **YOU** if you are close enough!



Safe Distancing

- Stand or sit at least 1m apart
- When eating, do not gather together
 - Sit apart, on alternate seats
 - Keep distance of at least 1m
- Do not socialise during and after work
 - Do not gather in groups as far as possible
 - Do not meet others unnecessarily, even after work

Meals at Work or in Public Places

- Sit > 1 m apart
- When mask is down, eat and drink only
- **Talk only
(before or after
your meal) with
mask on**



REMEMBER The *Dance* to keep $R < 1$

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Business Closures



**“The health of ALL depends on
EACH ONE of us!”**

Call to ALL Singaporeans/residents:

“We Need **EVERYONE to Cooperate..”**

- Minister Lawrence Wong (May 2 2020)

It is an offence to disobey safe distancing measures.

References and Acknowledgments

1. “The risks- know them – avoid them” – Erin Borage*

<https://www.wral.com/coronavirus/erin-bromage-virus-spread-the-risks-know-them-avoid-them/19094009/>

2. Coronavirus: Learning How to Dance - Tomas Pueyo* – Medium

<https://medium.com/@tomaspueyo/coronavirus-learning-how-to-dance-b8420170203e>

3. Coronavirus: The Basic Dance Steps Everybody Can Follow

<https://medium.com/@tomaspueyo/coronavirus-the-basic-dance-steps-everybody-can-follow-b3d216daa343>

4. Prather*, Wang and Schooley “Reducing transmission of SARS-Cov-2” , Science 27May20202.

(<https://science.sciencemag.org/content/early/2020/05/27/science.abc6197.full>)

5. Infection Prevention and Epidemiology Department and Safe Management Council, Singapore General Hospital

*Special thanks to Prof Erin Borage , Prof Kim Prather and Mr. Tomas Pueyo for their gracious permission to use their excellent illustrations

Thank You