

# It's not the dribble you nibble so much as the air you share

*Elected Officials call 6/18/2020*

Hoping to share my “working understanding” or “working model”

- Hard to trust science speak when we keep changing our story
- Our knowledge of COVID-19 is evolving.
- We all knew that the Sun and stars rotated around the earth until Copernicus developed heliocentric model, and put the sun at the center of the universe. That is how science works.

Initial model for COVID-19 was that of influenza, because that was what we had and what we knew. Droplets on surfaces, sneezing, shared utensils.

- We are learning more and more. Now have a more refined model for COVID-19.

Seems to follow the 80 – 20 rule: 20% of virus causes 80% of infection.

- There are multiple ways that the virus is transmitted
- I'm going to focus on the 20% of the viruses appear to cause 80% of infection

Model

- Multiple hits
  - Not like a seed in the ground
  - Specific key holes the virus can squeeze through from nose/lungs into blood
  - Need to pepper the lining of nose and lungs to land on the correct spot to pass through
  - So time in contact is key, volume of air shared is key
- Droplet transport
  - Think of soap bubbles, big ones float a little way and drop, tiny ones float for a long time
  - Imagine tonsils as being the breeding ground for the virus
    - Anything that pushes air past the tonsils will collect and expel virus
    - Singing, yelling, breathing hard, coughing (snoring?) – big droplets
    - Even talking (vibrations) releases small virus-containing droplets
  - Big droplets contain lots of virus, but fall to surfaces within 6 feet
    - (yes you could contract the virus from those surfaces, but it is hard)
  - Very small droplets float around for a long time, but don't contain many viruses, aren't that infectious
  - Remember: multiple hits – need to pepper your mucosa with virus to contract it
    - Within 6 feet of someone coughing or yelling (spewing big droplets) for 10 min
    - Or within the same car as someone breathing quietly (small droplets) for an hour
  - What about medium sized droplets?

- New information
  - Medium sized droplets carry medium numbers of virus
  - Medium sized droplets appear to dry out as they float
  - Water evaporates and they become small, and can float for a long time
  - AND – they are super-concentrated with virus
  - These medium sized droplets seem to be the “super infectors”
- So it is about the air that you share.
  - Outside, with lots of air movement (feels fresh = 1 meter/s), safe
  - Inside, minimal air movement, dangerous
  - This is why working out in a gym seems so risky
  - Car-pooling with extended family from Yakima to Moses lake for a Quinceanera
  - Gathering in someone’s living room for a memorial service, with singing and sobbing
- Masking
  - It doesn’t make sense, they are telling us all sorts of things, they can’t make up their minds
  - Studied epidemiologic curves in China, Italy, NYC. All imposed social distancing, all imposed stay at home, all imposed universal masking.
  - The curves all bent the most after masking was imposed.
  - How do they work?
    - Mask retains the biggest droplets and most of those nasty medium sized droplets
    - Only the small droplets that don’t contain many viruses can get through
    - Dramatically reduces the volume of virus floating around in the air that we share
  - “Masking is the next best thing to a vaccine”
- “You cannot make me do it”
  - This is a public health intervention.
  - Masking is the next best thing to a vaccine
  - Prior to March, did you smoke in a restaurant?
    - Not many non-smokers protested the restrictions
    - Even smokers realize that their habit is dangerous, and are willing not to contaminate others
    - Same as wearing a mask
  - Do you drive the speed limit?
    - Why?
      - The law
      - Keeps people safe
      - Keeps me safe
    - Speed limits are public health interventions, they keep us safe
    - Same as masking
- Don’t stop washing your hands and don’t start scratching your eye.

- 80-20 rule says: It is not the dribble you nibble so much as the air you share
- Masking: the next best thing to a vaccine

Good articles:

<https://www.erinbromage.com/post/the-risks-know-them-avoid-them>

<https://www.erinbromage.com/post/what-s-the-deal-with-masks>