National Collaborating Centre for Environmental Health

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COVID-19 Precautions for Multi-Unit Residential Buildings

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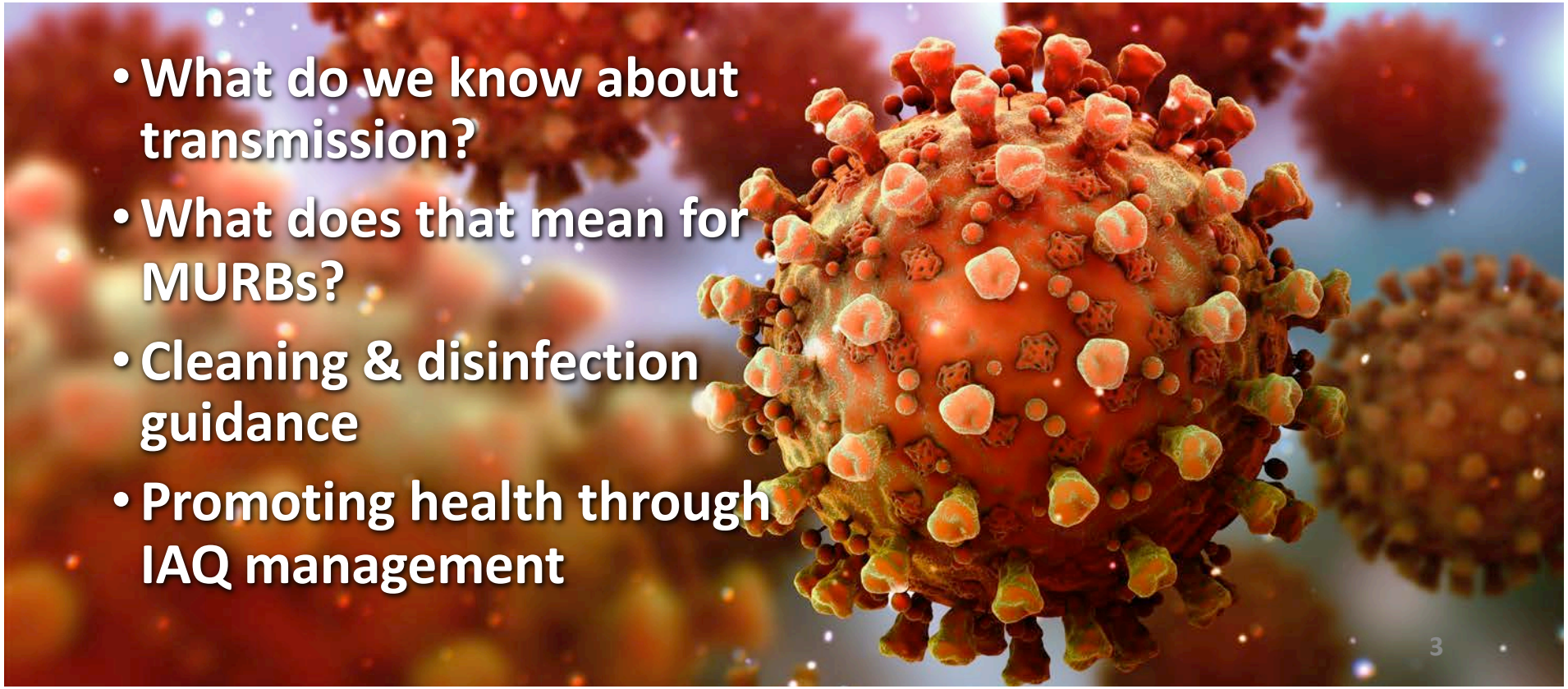
COVID-19 Topic Page

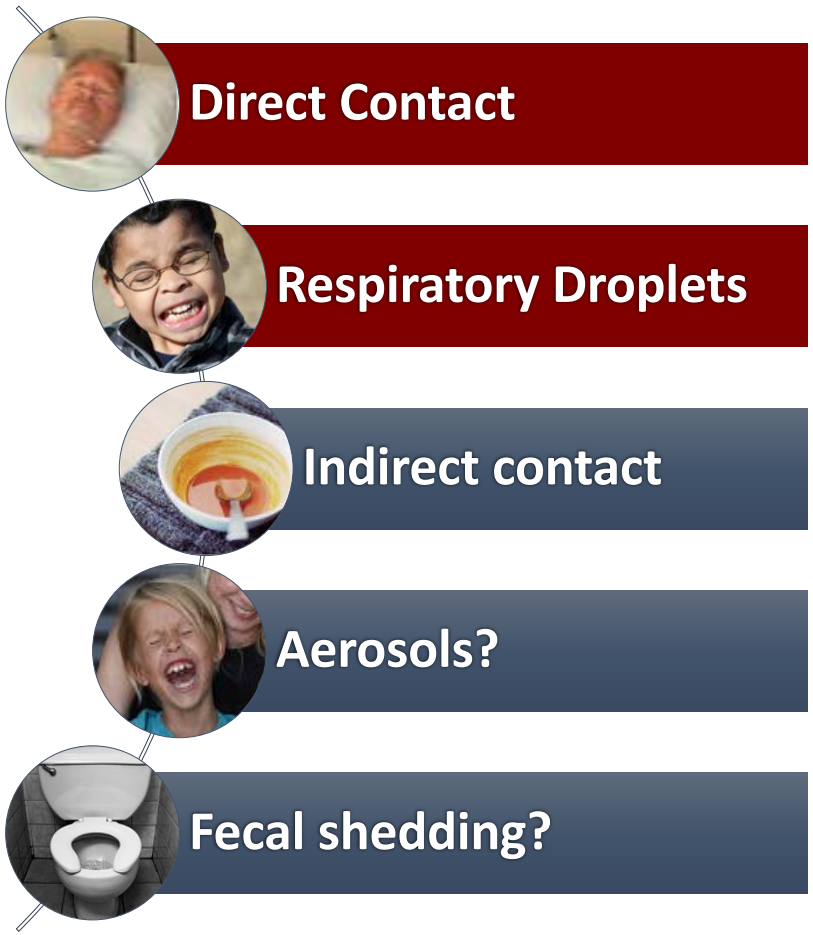
- Review of 50+ public health websites
- Many env health topics
- Our documents:
  - Disease backgrounder
  - Building re-opening
  - Precautions for MURBs
  - Guide to masking
  - Outdoor safety
  - Acrylic partitions

Today


• What do we know about transmission?
• What does that mean for MURBs?
• Cleaning & disinfection guidance
• Promoting health through IAQ management

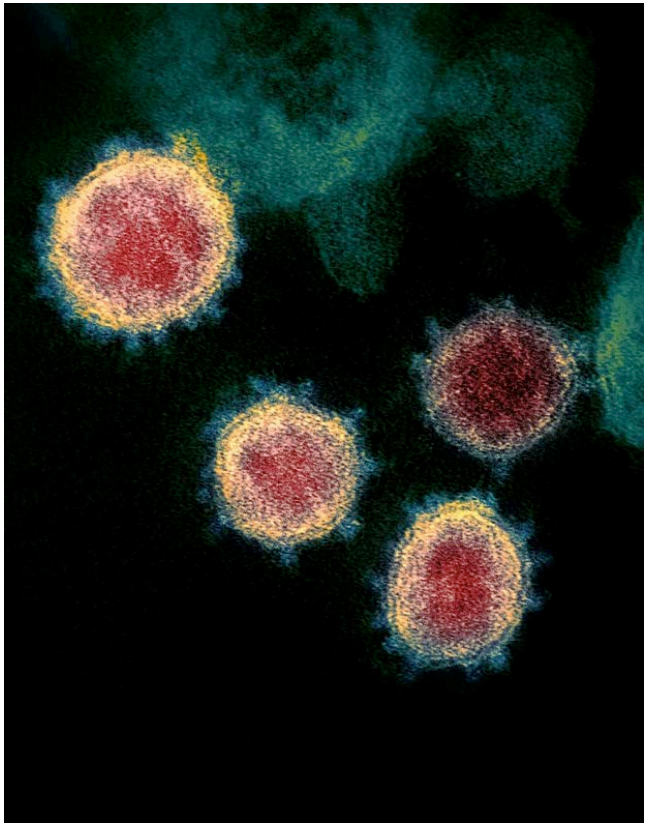
Modes of SARS-CoV-2 Transmission

- Evidence supports **5** potential modes.
- Direct **contact** and **respiratory droplets** are primary modes.
- Role of aerosols and fecal shedding still unclear



Environmental sampling and lab studies

- Studies have artificially generated viral aerosols that remain infectious for hours.
  - Do people generate aerosols like that?
- People themselves generate aerosols (a lot of aerosols!)
  - Does every droplet carry the virus? What concentration of virus-laden aerosols are produced?
- Viral RNA has been found in the air and on surfaces in hospitals
  - How long did it remain infectious? How far did it travel? How easy is it to get an infectious dose? Did anybody get sick from it?



So is the virus “airborne” and what does that mean?

- Means different things to different people
  - Transmits easily (preferentially) via an aerosol over longer distances/periods.
  - E.g., Measles: aerosol that remains infectious for ~2 hours.
  - Can catch it from someone even if you’ve never been in the same room as them.
  - Highly contagious: up to 90% of susceptible contacts will get it!
  - *Tellier et al. 2019 BMC Infectious Diseases*

Droplets, droplets everywhere…

Larger gobs of mucus, cells and virus referred to as **respiratory droplets** (> 5 um)	Smaller droplets referred to as **aerosols** (< 5 um)
Expelled or generated when breathing < talking < singing/laughing/shouting < coughing < sneezing	
Float seconds (100 um, ballistic trajectory) to minutes (10 um), settle due to gravity	Float for minutes to hours, travel farther, are removed via impaction, electrostatic attraction, etc.
Infect by contacting the eyes, nose or mouth, upper airway if caught in	Are inhaled deeper into the lung
Larger particles more likely to carry 1 or more virions, but fall faster	Smaller particles remain suspend longer and travel farther, but are **much less likely to carry even 1 virion**
You've got to be closer to "catch" these	The farther you are, the less likely (highly unlikely) you are to get enough to establish an infection.

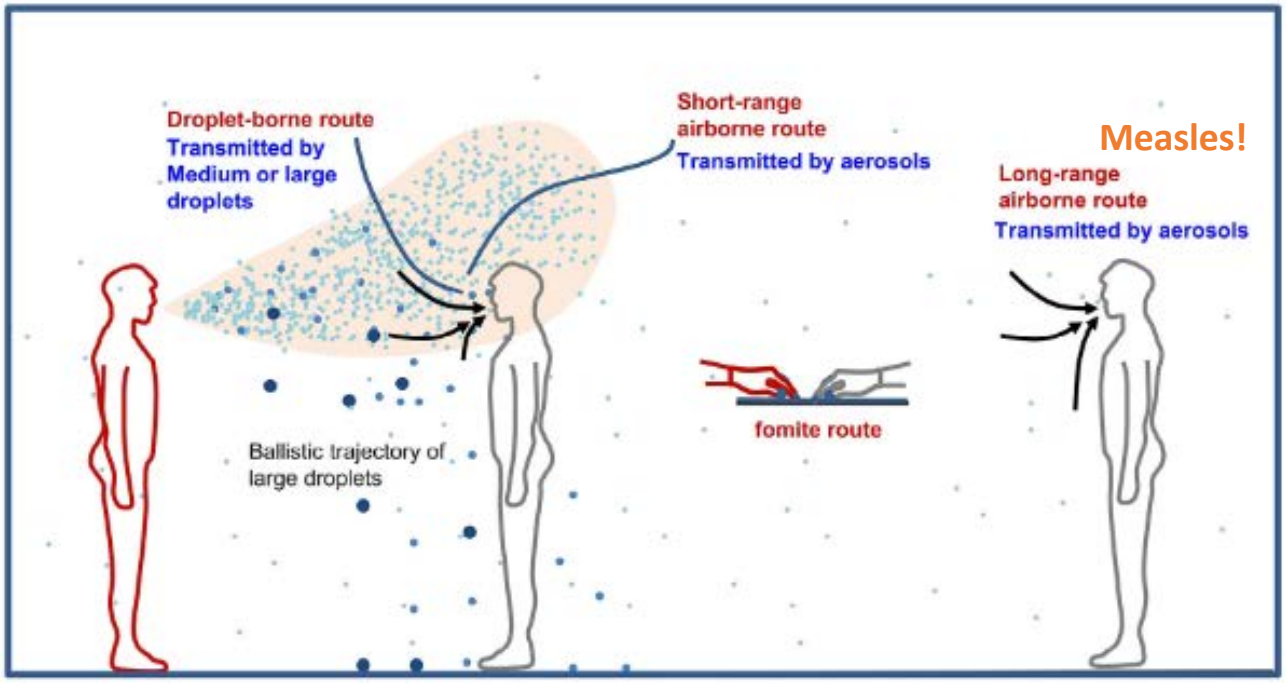
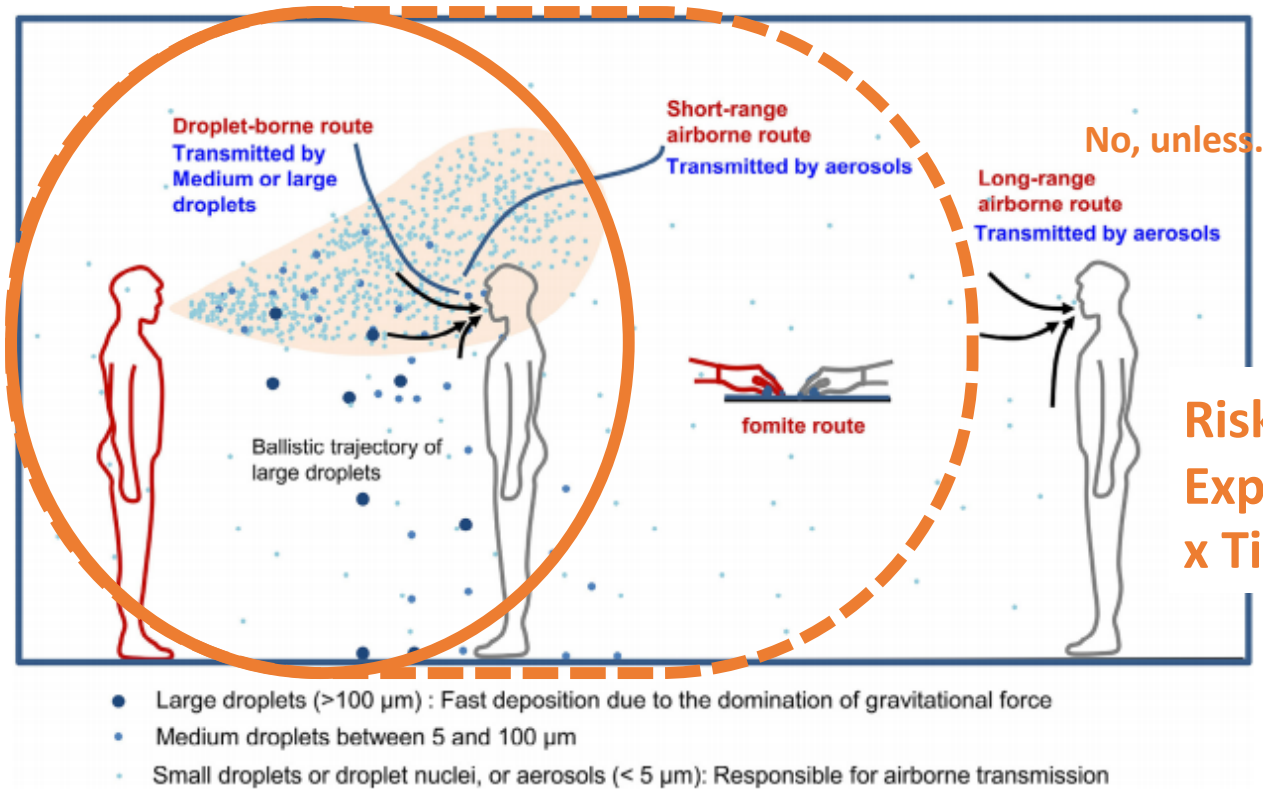


Fig 4. Illustration of different transmission routes. Small droplets (<5 μm), sometimes called aerosols, are responsible for the short-range airborne route, long-range airborne route, and indirect contact route; large droplets are responsible for the direct spray route and indirect contact route.

Outbreak investigations

- 75,000+ cases in China and US:
  - Most transmission is **within families**, mostly spouses, rarely children
  - Household secondary attack rate varies (~0.5-20%), but is low.
- Outbreaks in semi-residential settings with **interpersonal interaction** and/or **shared facilities**:
  - Seniors homes, work camps, dorms, prisons.

- Under the right conditions (activity, crowding) the virus can spread very easily!
  - E.g., Guangzhou restaurant, Washington choir, call centre, zumba class
- **MURBs? No evidence of outbreaks or long-range transmission to date.**



No, unless…

Risk α
Exposure
x Time

Fig 4. Illustration of different transmission routes. Small droplets (<5 μm), sometimes called aerosols, are responsible for the short-range airborne route, long-range airborne route, and indirect contact route; large droplets are responsible for the direct spray route and indirect contact route.

What does this all mean for MURBs???

- Need to keep people **away** from each other:
  - Close amenities, limit elevator/laundry access, discourage gatherings, electronic meetings.
- Need to enhance **cleaning**:
  - Clean high-touch surfaces frequently
  - Prevent cross-contamination in laundry rooms and washrooms (poster)
- Need to **communicate** with residents, reinforce health messaging
- Need to keep people **comfortable and healthy** in their homes (extreme heat)

Cleaning and Disinfection

- Public Health Agency of Canada: manual cleaning with soap and water and/or a disinfectant product.
  - If in doubt, there is a product list.
- Frequency determined by traffic: 1-3 times a day
- Vacuuming: HEPA exhaust filter, diffuser

Cleaning and Disinfection

- Poison control centers seeing uptick
  - Mostly related to bleach, both due to mixing with other agents and using very high concentrations
  - Some related to swallowing hand sanitizer
- Affecting children under 5
- Follow the label, do not mix, and store securely!
- *NCCEH has a guide on disinfectants and household cleaning, and a blog on Hand Sanitizer*

Spraying and Fogging

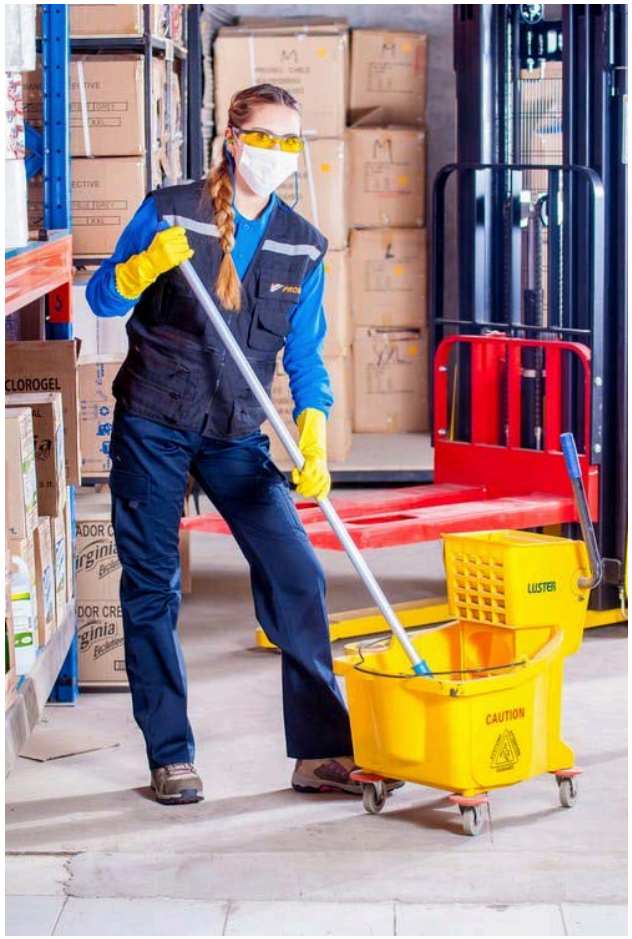
- Spraying and fogging both indoors and outdoors
  - Sodium hypochlorite (bleach), hydrogen peroxide, others.
- Reduced effectiveness on **soiled** or porous surfaces
- Some products (bleach) may trigger **chemical sensitivities**
- Difficult to get buy-in from residents
- PHAC: Elbow grease is best.

DON'T DO THIS!

https://www.youtube.com/watch?v=Min3y-toaUU

PPE for Staff/Cleaners

- Should ALWAYS use PPE as per label on the disinfectant product
- Disposable or reusable products OK
  - Launder and dry hot
  - Gloves: use only for that purpose
- Do s/he need a mask?
  - Is the cleaner within 2 m of people?
  - Is s/he creating dust?
  - Does s/he wish to wear a non-medical mask to protect others?
- *NCCEH has a guidance doc on masking*



Current Guidance on Ventilation for MURBs

- In suites with sick people:
  - Patient should be isolated behind a closed door
  - Increase ventilation (open windows, in-suite ventilation) to the infected suite AND to rest of home, independently.
  - Air cleaners (ASHRAE) → may be overkill, but also assist with periods of poor outdoor air quality (wildfire season is here).
  - **Remember that heaviest/riskiest droplets are falling to the floor – surface cleaning!**

Current Guidance on Ventilation for MURBs

- In the building:
  - No major modifications, but ensure systems are maintained and functioning as designed to do;
  - General good practice: increase outdoor air
  - Buildings with corridor pressurization: ensure that this is maintained 24/7;
  - **Consult an HVAC professional**
  - ***NCCEH Building Shutdown and Reopening page***

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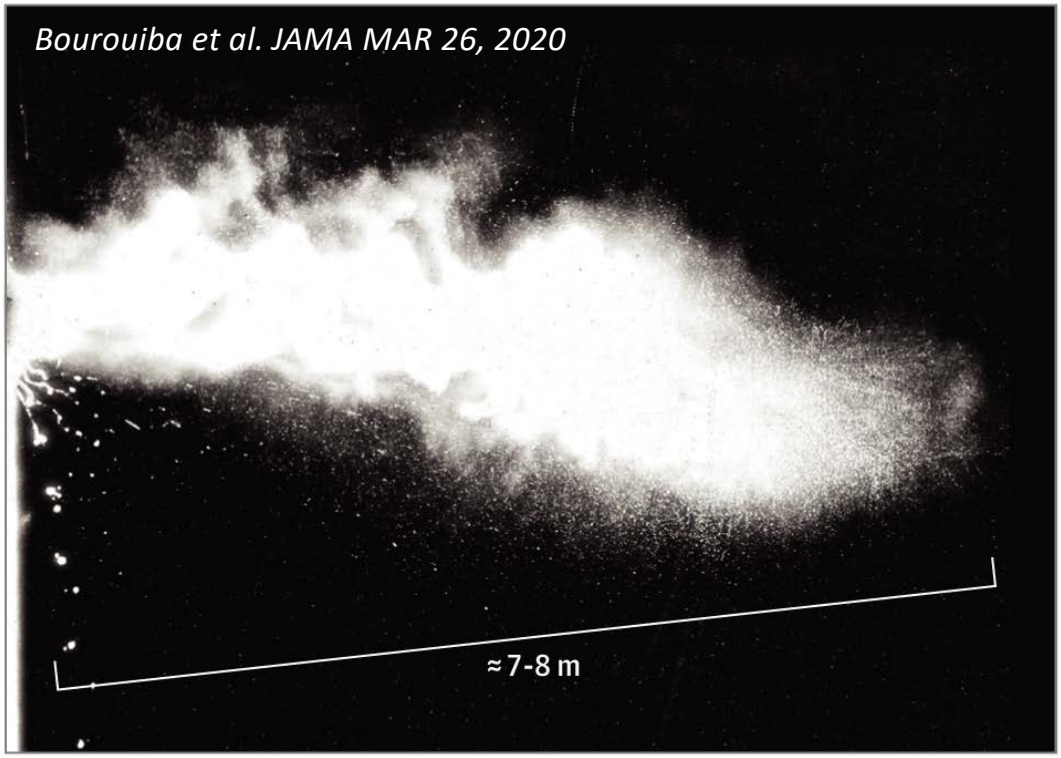

Thank you!
Questions?

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