



COVID & Infectious diseases
Reference Team (CIRT)

*formerly COVID
Response Team*


Who is on the CIRT?

- Dwayne Fuchs, Jennifer McMillan, Kelly Brown, Kevin Hedges, Kimberly O'Connell, Krista Thompson, Mark Parent, Melissa Statham, Pravesh Jugnundan, Tracey Feener-Snow, Valerie Wolfe
- Welcome to our new members in 2023:
Cheryl Baker, Jennifer Hayde

Overall Infectious Disease Updates

- PHO, week of December 25-31, published January 6
- COVID-19 positivity is 16.5%, and indicators suggest increasing
- Influenza indicators are declining over all, 4.7% positivity
- RSV positivity is 8.2%, which is an increase from previous week
 - 4X higher in <1 year-olds, and 2X higher in 1-4 year-olds, compared to >12 years

<https://www.publichealthontario.ca/-/media/Documents/nCoV/epi/respiratory-virus-overview-ontario.pdf>



Best ways to protect yourself from COVID-19

- COVID-19 Vaccination & Boosters
- Face Coverings: Masks & Respirators
- Clean the Air: Ventilation & Filtration

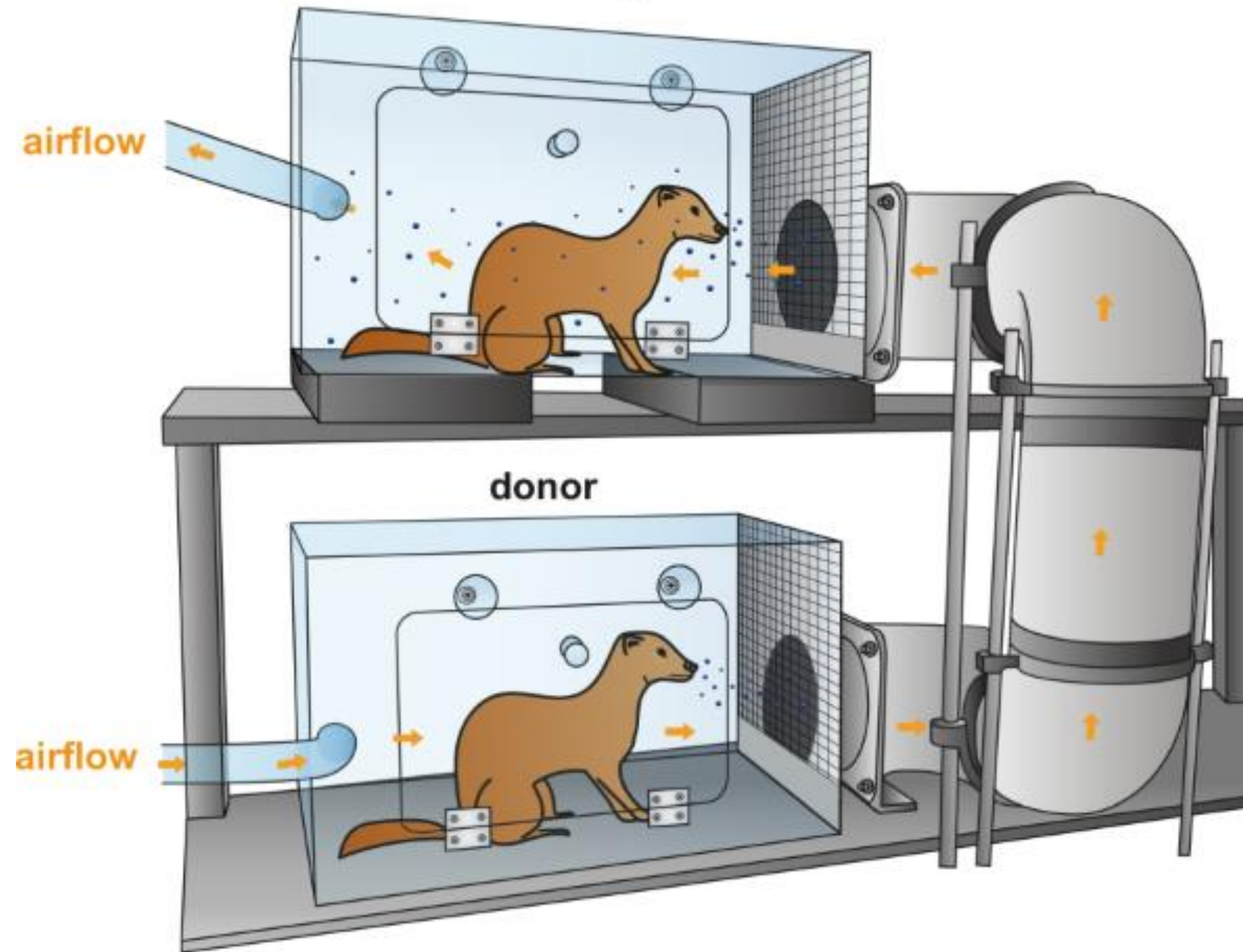
COVID-19 Vaccination & Boosters

- Vaccination: Primary Series
 - Primary series = 2 doses for most; 1 dose for Janssen (J&J)
 - mRNA vaccinations: Moderna, Pfizer
 - Non-mRNA vaccinations: AstraZeneca (no longer in Canada), Janssen (J&J), Novavax (Nuvaxovid)
- For most: Booster recommended every 6 months

Is COVID-19 airborne?

- Greenhalgh et al 2021 “Ten scientific reasons in support of airborne transmission of SARS-CoV-2”, citing other studies, including:
 - Long-range transmission between rooms in quarantine hotels
 - Asymptomatic transmission and presymptomatic transmission before coughing (droplets)
 - Ferret study

indirect recipient



Ferret study (Kutter et al 2021)

- Donor ferret (infected with SARS-CoV-2) was below an uninfected ferret, connected via hard duct system w/ 4x90° turns, average length 118 cm (73 – 163 cm range)
- Two out of the four uninfected ferrets became infected with SARS-CoV-2

What face covering to wear? AKA Mask versus Respirator

- Two widely shared studies
 1. Randomized Control Trial (RCT) by Loeb et al 2022
 - 1009 healthcare workers at 29 hospitals in 4 countries: randomized to mask or N95, followed for 10 weeks
 - Could have no face covering (mask or N95) if not in patient did not have COVID-19
 - Mask wearers could upgrade to N95 by choice at any time; but not tracked
 - COVID-19 occurred in 52/497 mask wearers versus 47/507 N95 wearers: **HR = 1.14**, 95%CI 0.77-1.69 (not stat sign)
 - In analysis of Canadian arm, **HR = 2.83**, 95%CI 0.75-10.72 (not stat sign)

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2. Matched Case-Control Study by Andrejko et al 2022

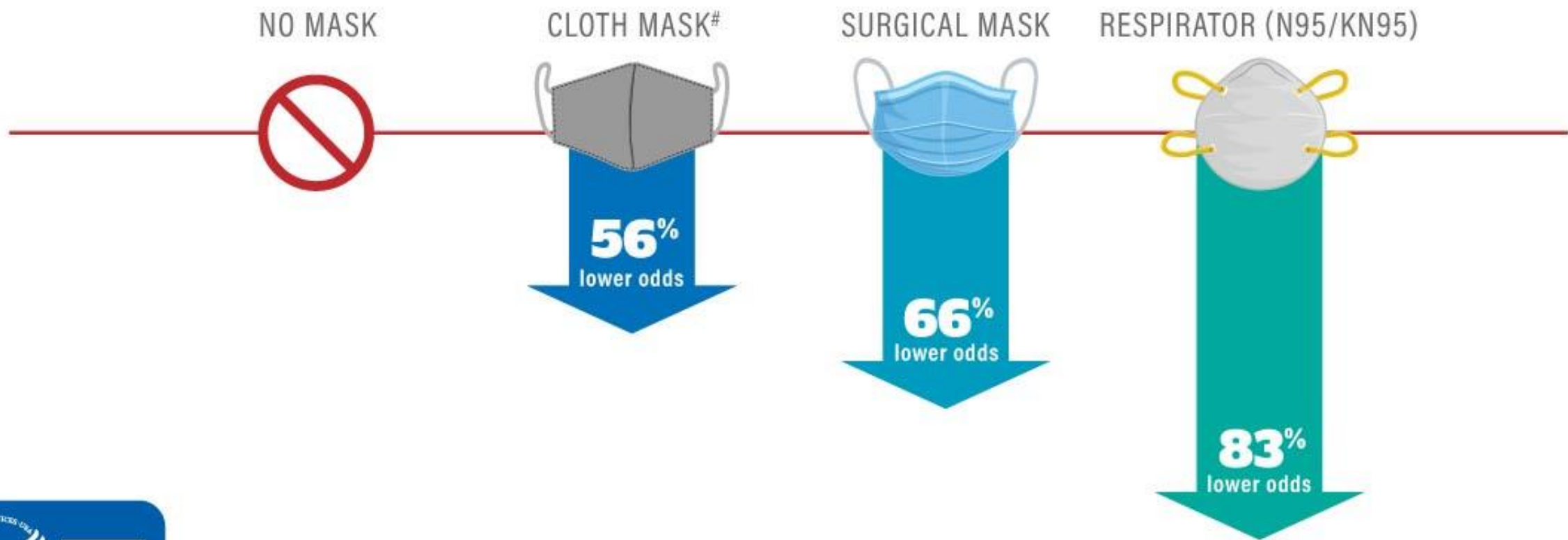
- California: 534 participants had a test result for COVID-19 in the previous 2 weeks: reported being indoors in those 2 weeks; had no known contact with someone positive for COVID-19; reported if they wore a face covering (if so, what type) or no face covering
- Cloth mask: adjusted **OR = 0.44**, 95%CI 0.17-1.17 (not stat sign)
- Surgical/medical mask: adjusted **OR = 0.34**, 95%CI 0.13-0.90
- N95/KN95: adjusted **OR = 0.17**, 95%CI 0.05-0.64

People who reported always wearing a mask in indoor public settings were less likely to test positive for COVID-19 than people who didn't*

02/04/2022

WEARING A MASK LOWERED THE ODDS OF TESTING POSITIVE

Among 534 participants reporting mask type[†]



bit.ly/MMWR7106

* Matched case-control study, 1,828 people, Feb 10–Dec 1, 2021

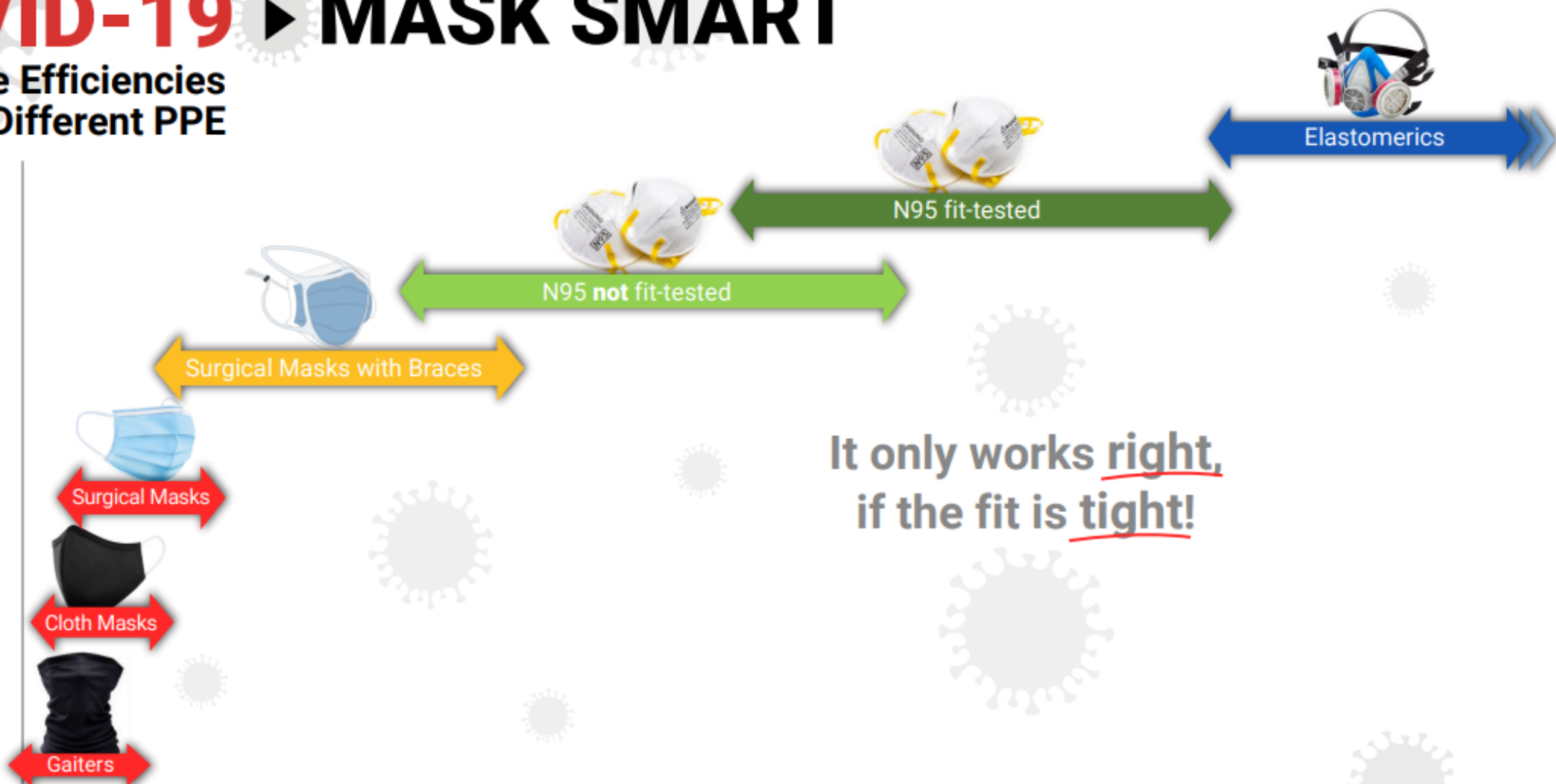
[†] Compared people with similar characteristics (e.g., vaccination)

[#] Not statistically significant

MMWR

COVID-19 ► MASK SMART

Relative Efficiencies of Different PPE



Efficiency bands distilled from published, peer-reviewed articles on quantitative fit testing under varying conditions. Range likely relative to fit and activity level.

Capture:	0%	50%	67%	80%	90%	96%
Fit Factor(FF):	1	2	3	5	10	25
Leakage:	100%	50%	33%	20%	10%	4%

← not to scale →

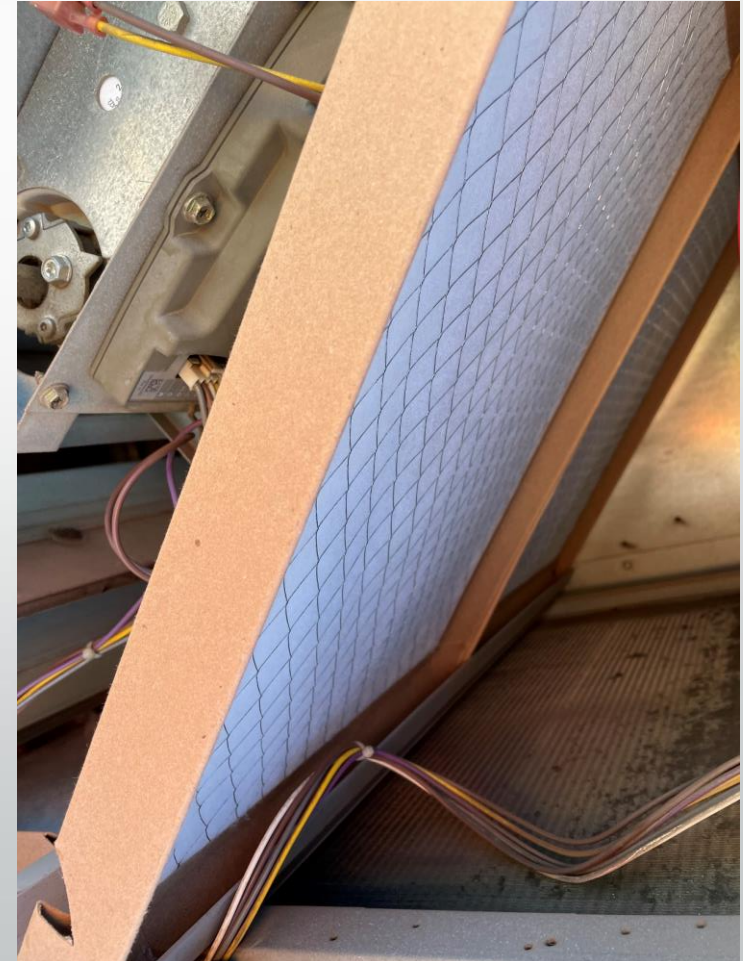


Learn more at www.ohcow.on.ca/covid-19/

Clean the Air: Ventilation and Filtration

- Ventilation removes air (aerosols, CO₂), replaces with fresh air: can use CO₂ monitor as proxy to assess ventilation
 - Natural ventilation
 - Mechanical ventilation
- Air filtration removes aerosols: cannot use CO₂ monitor
 - MERV filter in forced air furnace, HVAC
 - HEPA filter in a portable air purifier
 - Corsi-Rosenthal Box

New versus Old MERV₄ Filters

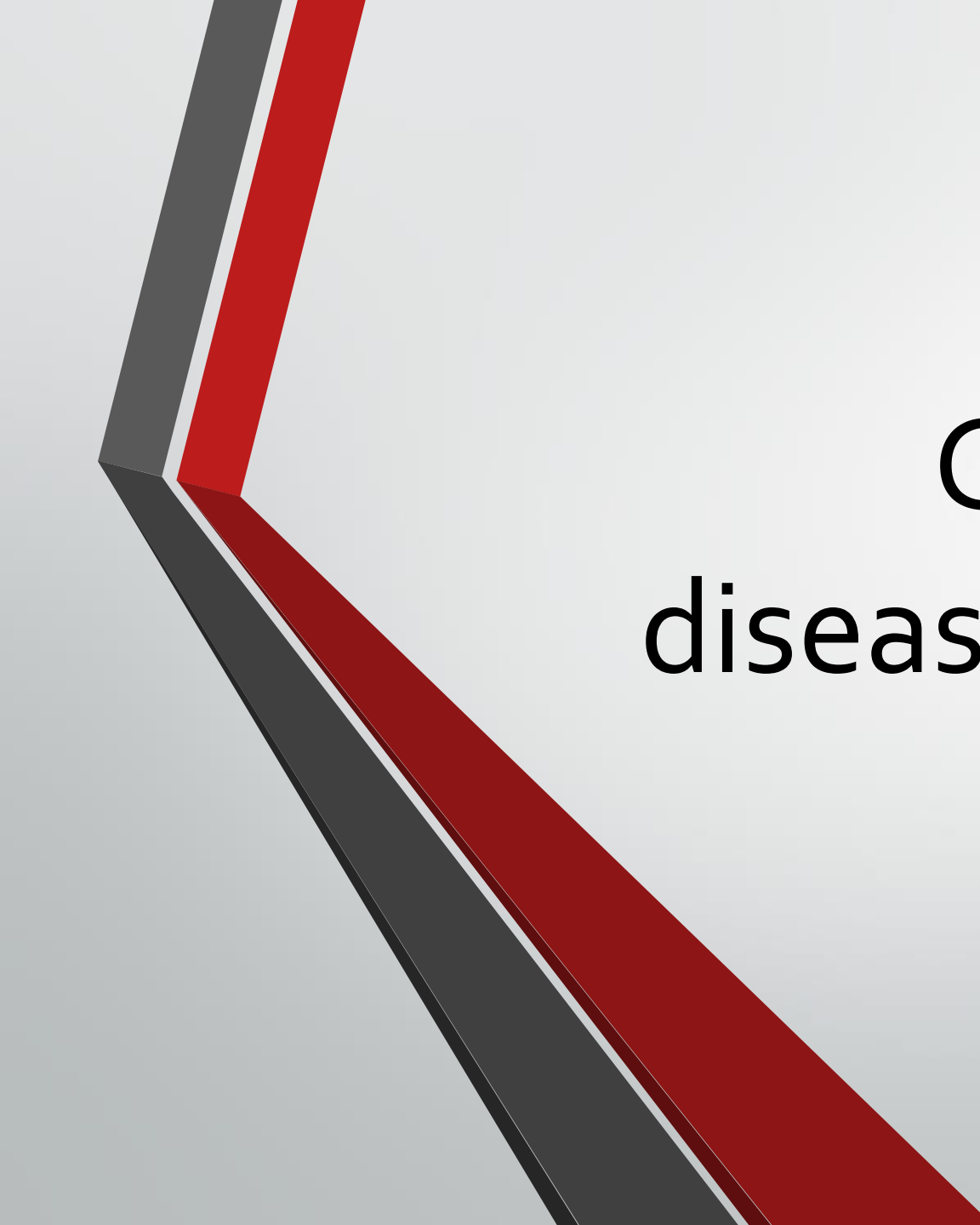


Citations

- Greenhalgh et al. **Ten scientific reasons in support of airborne transmission of SARS-CoV-2.** Lancet. 2021 May 1; 397(10285): 1603-1605
<https://www.thelancet.com/action/showPdf?pii=S0140-6736%2821%2900869-2>
- Kutter et al. **SARS-CoV and SARS-CoV-2 are transmitted through the air between ferrets over more than one meter distance.** Nat Commun. 2021 Mar 12; 12(1): 165
<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7955093/>
- Loeb et al. **Medical Masks Versus N95 Respirators for Preventing COVID-19 Among Health Care Workers: A Randomized Trial.** Ann Intern Med. 2022 Dec;175(12):1629-1638.
<https://pubmed.ncbi.nlm.nih.gov/36442064/>
- Andrejko et al. **Effectiveness of Face Mask or Respirator Use in Indoor Public Settings for Prevention of SARS-CoV-2 Infection — California, February–December 2021.** MMWR Morb Mortal Wkly Rep 2022;71:212–216. <https://bit.ly/MMWR7106>

Resources

- OHCOW: <https://www.ohcow.on.ca/covid-19/>
- Public Health Ontario [Weekly Epidemiological Summary](#)
- Health Canada: NACI's [COVID-19 Vaccination Recommendations](#)
- Occ-COVID videos:
 - [COVID-19 Transmission – Taking Stock of the Science](#)
 - [Face Coverings & Respirators – Filling the Gaps](#)
 - [Clean Air Really Matters](#)
- Canadian Airborne Transmission Coalition video: [Mask Smart 1](#)
- CDC webpage: [Improving Ventilation in Your Home](#)
- Health Canada webpage: [Guidance on Indoor Ventilation During the Pandemic](#)



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