OHAO/CATC June 15, 2022

Why: Masks still matter for Covid (and beyond)

BY KASHIF PIRZADA, MD

MASKS 4 CANADA
MASQUES POUR LE CANADA

Kashif Pirzada

EMERGENCY PHYSICIAN
ASSISTANT CLINICAL PROFESSOR, MCMASTER UNIVERSITY

Masks4Canada

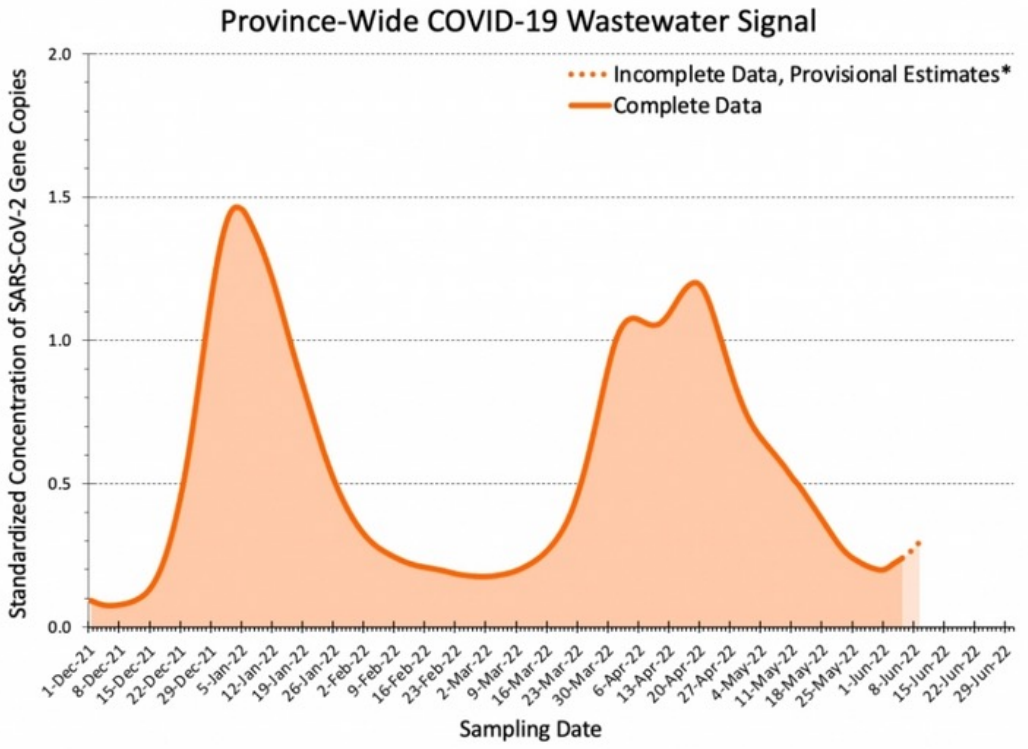
Worked to promote pandemic precautions to reduce the burden of death and morbidity from the Covid-19 pandemic

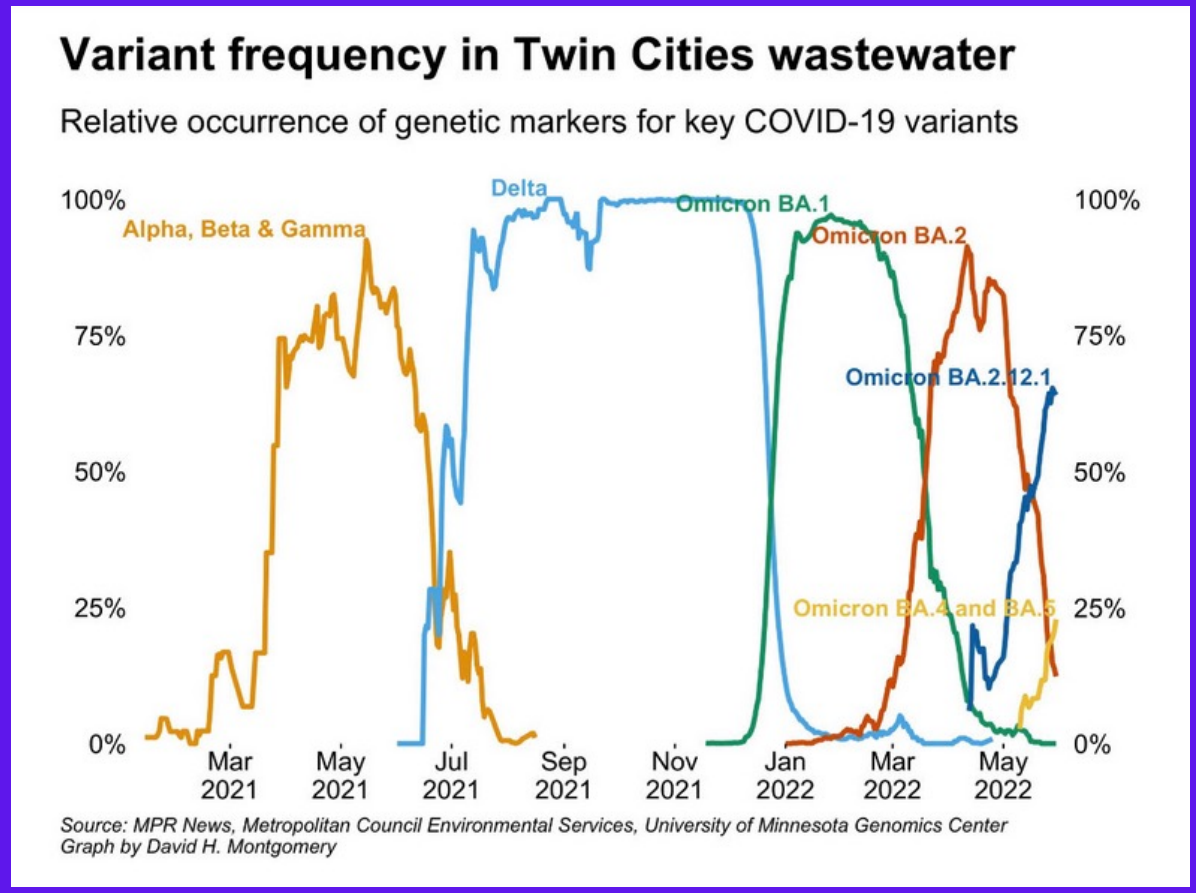
Critical Drugs Coalition

Worked to bring attention to critical drug shortages, and improve Canada's supply chain with respect to medications and vaccines.

@kashprime

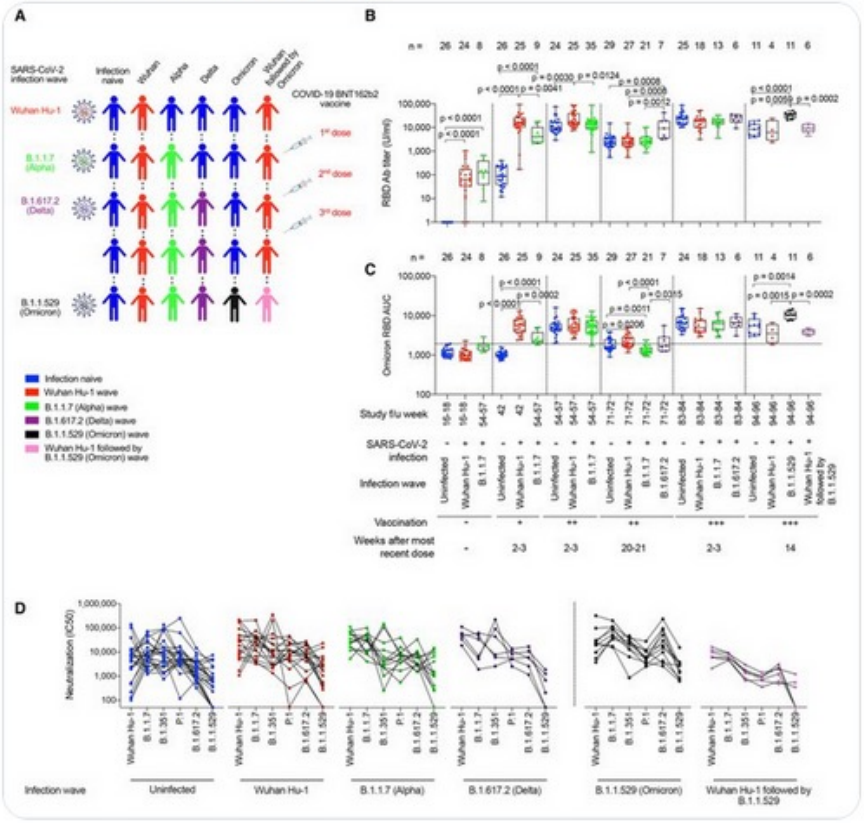
COVID-19 Wastewater Signals in Ontario





Science Magazine
@ScienceMagazine

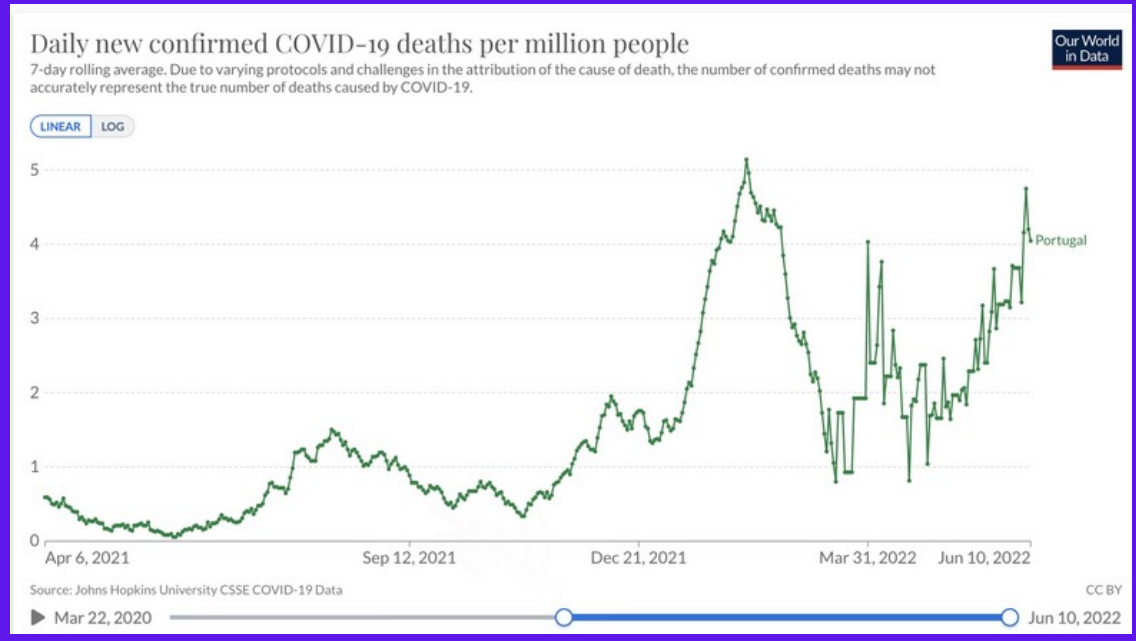
Analyzing how past #SARSCoV2 infection & vaccine history combined to influence Omicron immunity revealed Omicron infection boosted immunity against early variants but less against Omicron, perhaps explaining the occurrence of frequent Omicron reinfections. fcld.ly/kffjirf



10:05 AM · Jun 14, 2022 · Facelift-Cloud

Portugal's BA.5 Wave

94% of adults 18+ with 2 doses
75% with 3 doses
99.6% over 60y with 2 doses
82.5% over 60 with 3 doses



Simple measures for your clinic/ workspace

Masks: an essential line of defence

Table 1. Time to Infectious Dose for an Uninfected Person (Receiver)*

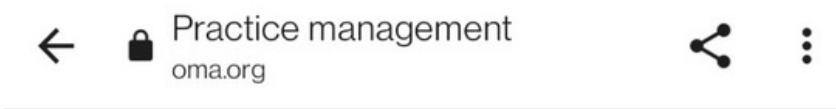
		Receiver is wearing (% inward leakage)				
		Nothing	Typical cloth mask	Typical surgical mask	Non–fit-tested N95 FFR	Fit-tested N95 FFR
Source is wearing (% outward leakage)		100%	75%	50%	20%	10%
Nothing	100%	15 min	20 min	30 min	1.25 hr	2.5 hr
Typical cloth mask	75%	20 min	26 min	40 min	1.7 hr	3.3 hr
Typical surgical mask	50%	30 min	40 min	1 hr	2.5 hr	5 hr
Non–fit-tested N95 FFR**	20%	1.25 hr	1.7 hr	2.5 hr	6.25 hr	12.5 hr
Fit-tested N95 FFR	10%	2.5 hr	3.3 hr	5 hr	12.5 hr	25 hr

*The data for % inward and outward leakage of cloth and surgical masks were derived from a study by Lindsley et al (2021). Data for non–fit-tested N95 FFRs come from a study by Brosseau (2010). Data for fit-tested N95 FFRs are derived from the OSHA-assigned protection factor of 10 for half-facepiece respirators. Also, note the following:

- These numbers are not bright lines between safe and unsafe, but rather are meant to illustrate the differences between cloth face coverings, surgical masks, and respirators.
- People should not rely on these exact times to protect themselves, but should limit the amount of time they spend in enclosed spaces with many potential sources.
- The baseline time of 15 minutes is not based on any science and could be shorter or longer, depending on the number of sources, size of the room, source's activities (eg,talking, singing), nature of ventilation, etc. The CDC says the 15 minutes could be spread out over the course of a day. Exposure (and dose) depend on the concentration of infectious particles in the air and the time spent inhaling those particles. This table illustrates only the impact of time.

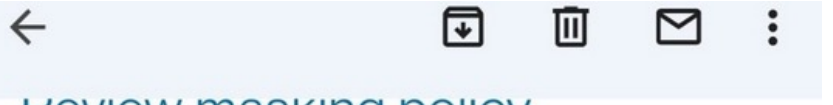
**FFR = filtering facepiece respirator; N95 = not oil-proof, 95% efficient at NIOSH filter test conditions

https://www.cidrap.umn.edu/news-perspective/2021/10/commentary-what-can-masks-do-part-1-science-behind-covid-19-protection



Masking mandates for health-care settings are planned to end on June 11. As private entities, health-care practices may choose to adopt a masking policy for staff after mandatory masking ends. A masking policy can require staff to continue universal masking unless they have an accommodation under the Ontario Human Rights Code, such as a medical exemption.

Mandatory masking can only be required for staff. Public Health Ontario continues to recommend masking of ambulatory patients when community transmission is moderate or high, and therefore patients should be encouraged to wear masks. In situations where patients refuse to wear a mask, the College of Physicians and Surgeons of Ontario continues to expect physicians to provide the standard of care.



Review masking policy resources

As private entities, medical practices may choose to implement a mandatory masking policy for staff once mandates are lifted on Saturday, June 11. Public Health Ontario continues to recommend masking of ambulatory patients, and therefore patients should be encouraged to wear masks. In situations where patients refuse to wear a mask, the College of Physicians and Surgeons of Ontario expects physicians to provide the standard of care.
Learn more about masking policies.

Read updated Paxlovid resources. The Ontario COVID-19 Science Advisory Table

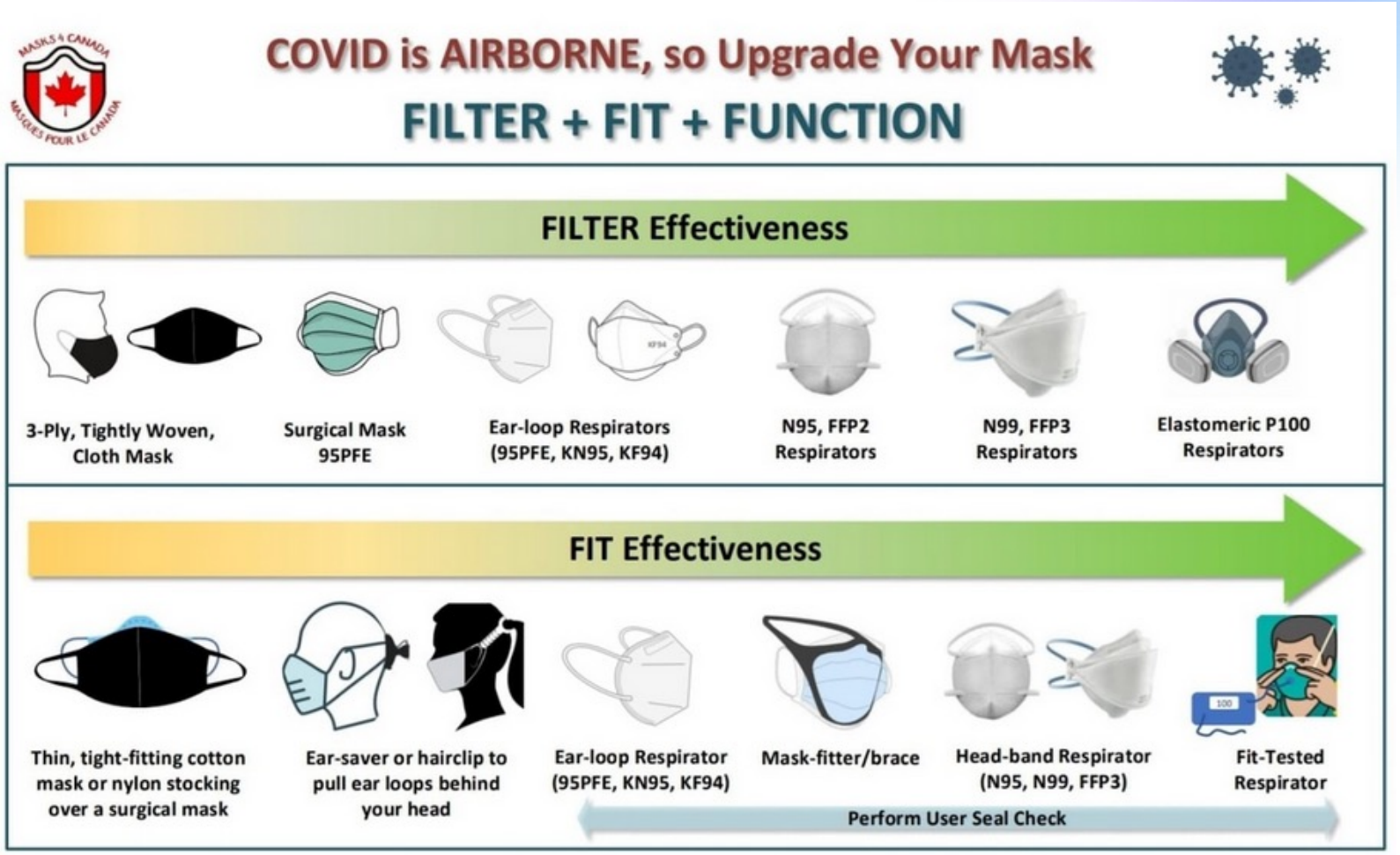
Strategies

Strongly encourage mask wearing in the clinic

Schedule separately from more vulnerable patients (i.e. elderly, young children, cancer patients)

Use telemedicine unless in-person physical examination is absolutely required

Upgrade your clinic ventilation to control any potential super-spreading events


COVID is AIRBORNE, so Upgrade Your Mask
FILTER + FIT + FUNCTION
FILTER Effectiveness
3-Ply, Tightly Woven, Cloth Mask
Surgical Mask 95PFE
Ear-loop Respirators (95PFE, KN95, KF94)
N95, FFP2 Respirators
N99, FFP3 Respirators
Elastomeric P100 Respirators
FIT Effectiveness
Thin, tight-fitting cotton mask or nylon stocking over a surgical mask
Ear-saver or hairclip to pull ear loops behind your head
Ear-loop Respirator (95PFE, KN95, KF94)
Mask-fitter/brace
Head-band Respirator (N95, N99, FFP3)
Fit-Tested Respirator
Perform User Seal Check
FUNCTION: Make sure your mask is breathable and comfortable.

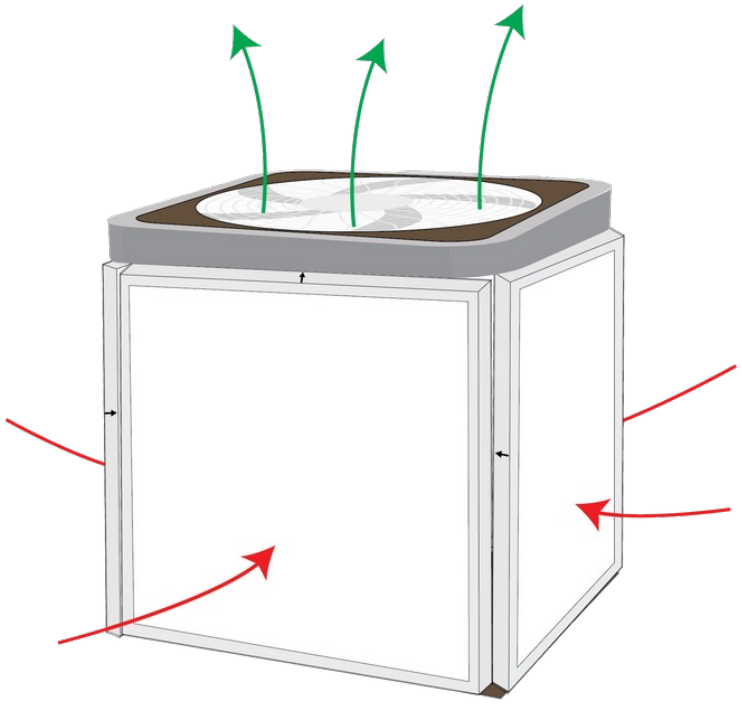
Fresh Air/Filtration

Italian study shows ventilation can cut school COVID cases by 82%

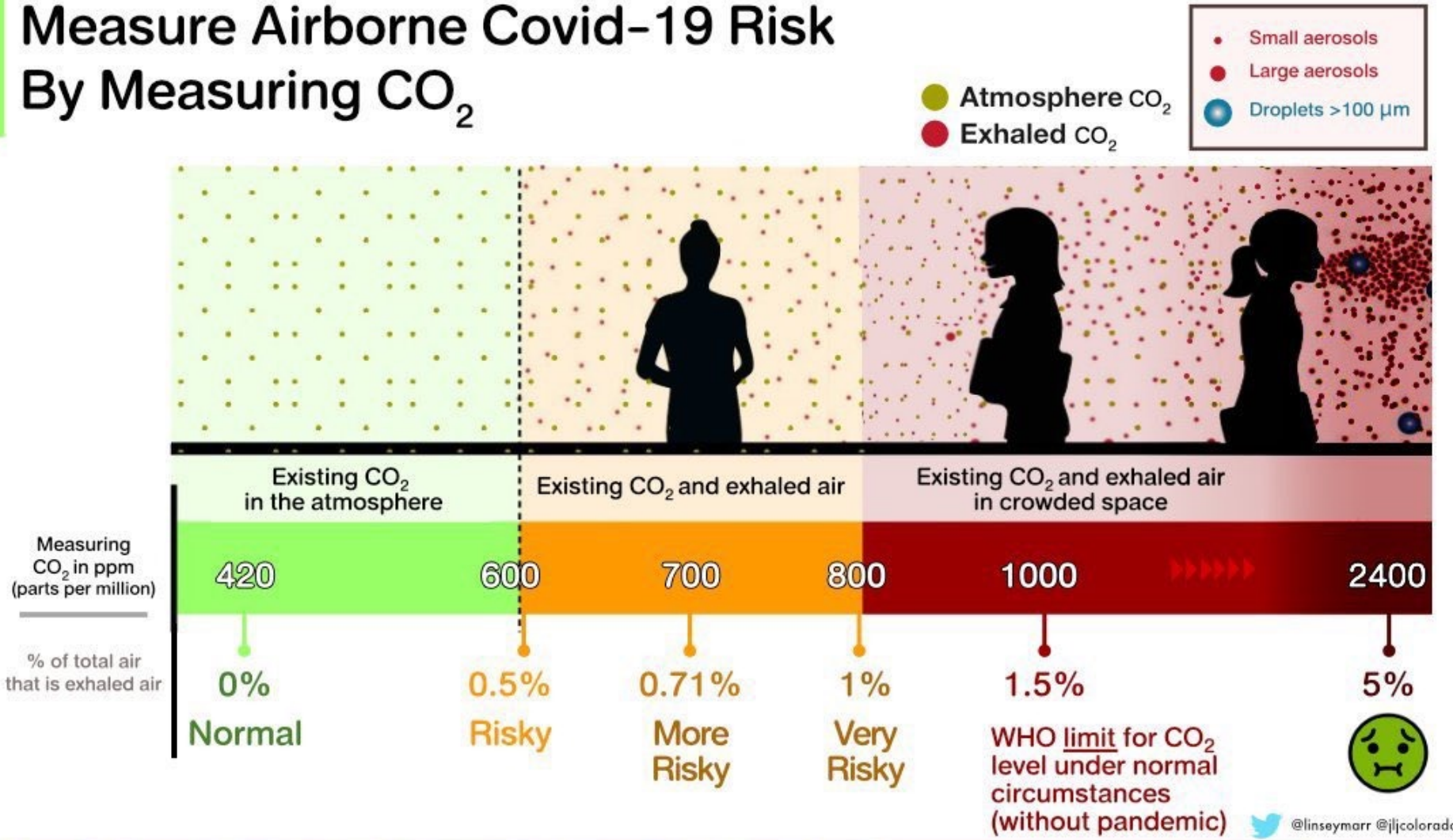
(ANSA) – ANCONA, MARCH 22 – The use of Controlled Mechanical Ventilation (Vmc) in school classrooms, depending on the flow rate of cubic meters / hour of the machinery, reduces the risk of coronavirus transmission between 40% and 82% , 5% (the latter with machines that allow 4.67-6.66 air changes per hour). This is the result of the study conducted for the Marche Region in collaboration with the Hume Foundation, chaired by Luca Ricolfi. In 2021 the Region allocated about 9 million euros to install Vmc systems in

<700 ppm CO2

or



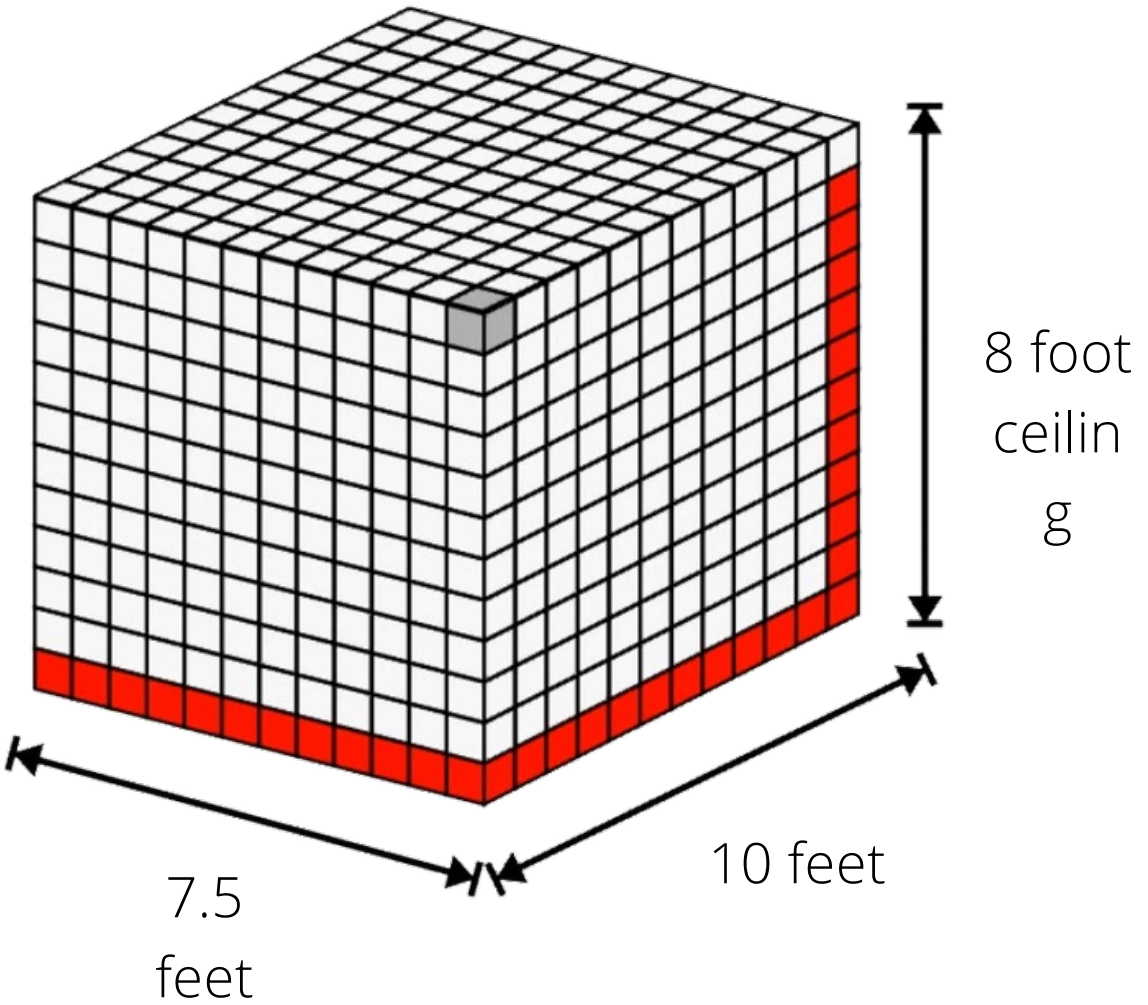
Measure Airborne Covid-19 Risk By Measuring CO_2



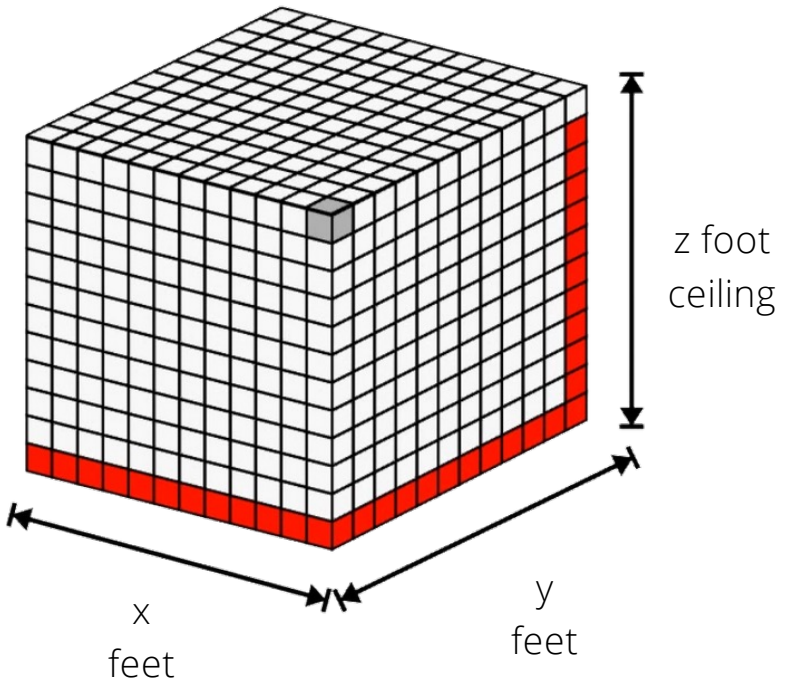
Reference: https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7805396/ https://pubs.acs.org/doi/10.1021/acs.estlett.1c00183
https://twitter.com/jljcolorado/status/1408477517967732738 https://onlinelibrary.wiley.com/doi/abs/10.1034/j.1600-0668.2003.00189
https://twitter.com/jljcolorado/status/1408478760018530305

Compiled by ZCT ZERO COVID THAILAND

Step 1: Measure the room



Step 2: Pick the right HEPA



75 square foot office means:
75 x 8 foot ceiling =
600 Cubic feet total volume

+

HEPA Filter CADR of
50 Cubic Feet/Min (CFM) =
3000 Cubic Feet/Hour

=

The Filter will go through all of the air in the room 5 times (3000 Cubic Feet/Hour in a 600 Cubic Foot room). This means:

5 ACH
(Air Changes per Hour)

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Your Goal:

>6 ACH

(Air Changes per Hour)

But this is oversimplified:

$$Risk\ of\ infection = virus\ concentration\ x\ time\ x\ breathing\ rate\ x\ respiratory\ tract\ deposition$$

$$Virus\ Concentration = \frac{mask\ leakage_{infector}\ x\ mask\ leakage_{\ susceptible}\ x\ distance\ x\ \#\ infected\ ppl\ x\ viral\ load\ x\ activity}{ventilation + filtration + deactivation + deposition}$$

$$Risk = \frac{mask\ leakage_{infector}\ x\ mask\ leakage_{\ susceptible}\ x\ distance\ x\ \#\ infected\ ppl\ x\ viral\ load\ x\ activity\ x\ time\ x\ breathing\ rate\ x\ respiratory\ tract\ deposition}{ventilation + filtration + deactivation + deposition}$$

@joeyfox85

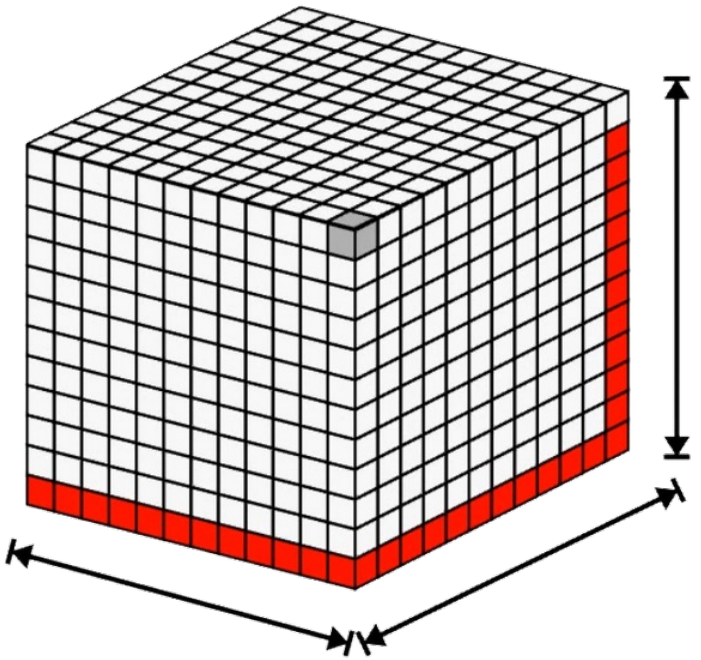

www.sycorp.ca
www.sycorp.ca
3M
Aura 1870+
NIOSH N95
TC-84A-5726


20x20x1

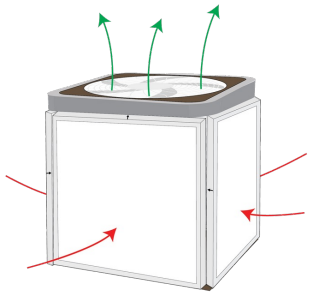

DELL
DO NOT TOUCH


20x20x1

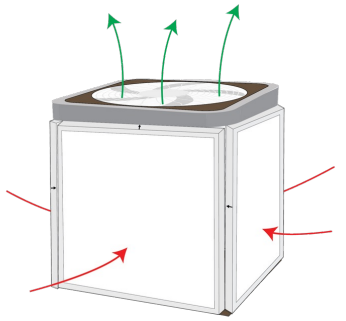
Example



1500 square foot clinic means:
1500 x 8 foot ceiling =
12000 Cubic feet total volume



CADR =
600 CFM



CADR =
600 CFM

+

CADR =
50 CFM

HEPA Filter CADR of
600x2 + 50x4 Cubic Feet/Min =
84000 Cubic Feet/Hour

The Filter will go through all of the air in the clinic 7 times (84K Cubic Feet/Hour in a 12K Cubic Foot room). This means:

= 7 ACH
(Air Changes per Hour)

Conclusion: Cleaner, fresher air will help beat Covid-19 and future threats

Transmission

Monkeypox virus can be transmitted from animals-to-humans (i.e., zoonotic transmission) or person-to-person by contact with infected lesions, skin scabs, body fluids or respiratory secretions. It can also be transmitted by contact with materials contaminated with the virus (e.g., clothing, bedding).[1-4]

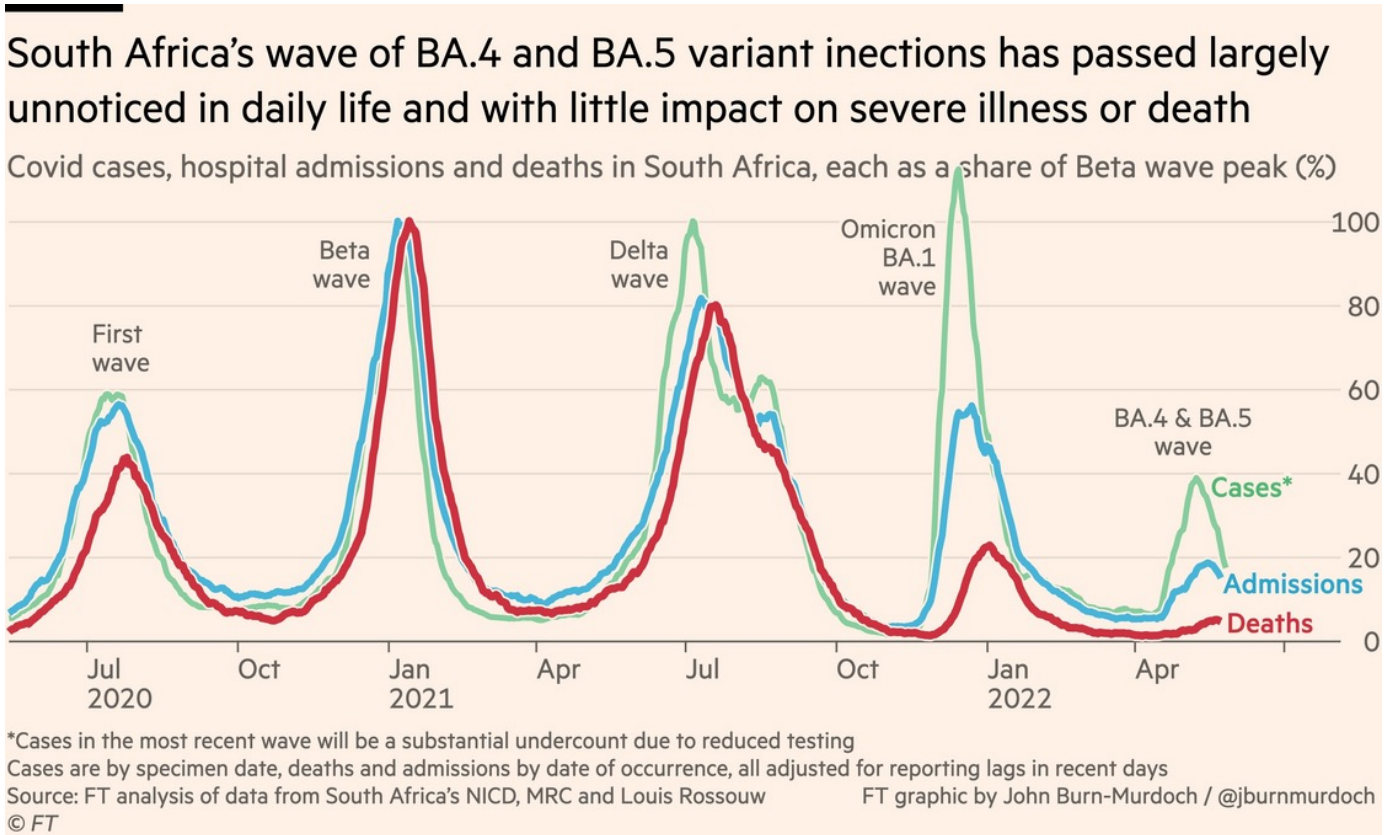
Historically, there has been limited person-to-person transmission.[3,4] The primary mode of person-to-person transmission has been through respiratory secretions and direct contact with skin lesions or a patient's items that have been contaminated.[2,4] However, given the respiratory system involvement during infection, the possible transmission during the prodromal period and similarities to variola virus (smallpox), the potential for airborne transmission has been suggested.[1-4]

The incubation period averages 7 to 14 days (range 5 to 21 days). A person is most commonly contagious from the onset of initial lesions (typically on the tongue and in the mouth), until scabs have fallen off and new skin present. Some cases may be contagious during their early set of symptoms (prodrome) such as fever, malaise, headache before the rash develops.[2]

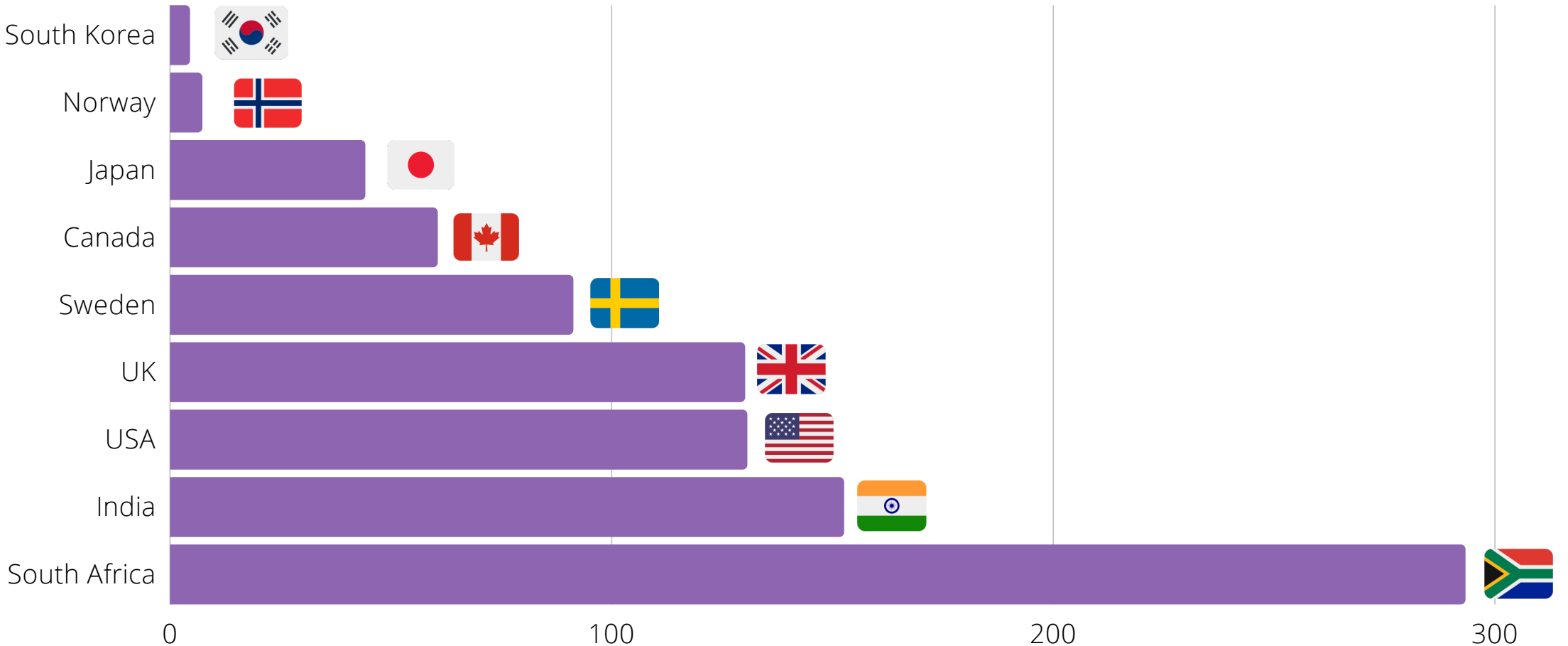
IPAC Precautions in All Health Care Settings

In addition to Routine Practices, the following Additional Precautions - Airborne/Droplet/Contact

Why should we care?



Policy Choices Matter



Excess Deaths per 100,000 population

source: Lancet, 399:10334, P1513-1536, April 16, 2022
Estimating excess mortality due to the COVID-19 pandemic: a systematic analysis of COVID-19-related mortality, 2020–21

Long Covid

Hard to Define

Long Covid isn't fully understood, and there's no internationally-agreed definition - so estimates of how common it is, or what the main symptoms are, vary. Most describe it as disabling symptoms that persist after 6-12 weeks post infection

It is definitely real

A set of common symptoms are appearing in many patients and are beginning to be recognized, including severe fatigue, trouble breathing, concentration and memory issues, cardiovascular issues

Vaccines reduce but do not eliminate the risk

In one study of double vaccinated patients, 10% developed long-term symptoms

Results The study sample comprised 3,090 double-vaccinated participants (mean age 49 years, 54% female, 92% white, median follow-up from infection 96 days) and matched control participants. Long Covid symptoms were reported by 294 double-vaccinated participants (prevalence 9.5%) compared with 452 unvaccinated participants (14.6%), corresponding to an aOR for Long Covid symptoms of 0.59 (95% CI: 0.50 to 0.69). There was no evidence of heterogeneity by adenovirus vector versus messenger ribonucleic acid vaccines (p=0.25).

Tim Kaine 46:54

And so that's why I've started to do it. And I'll tell you Andy the response of people, the first time I did it at a hearing couple months back with Fauci, Dr. Fauci, and Walensky, got a lot of outreach, introduced this bill, so a lot of people reaching out to me, including look, including colleagues here on the hill, who are having the same experience, but don't want to talk about it yet. And there's that, hey, thanks for putting that bill in. Because this is real. And look, when COVID is completely in

Office for National Statistics (ONS)
@ONS

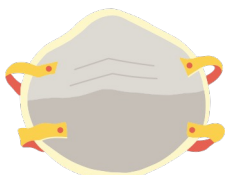
Self-reported long COVID was greatest in those:

- aged 35 to 69 years
- female
- living in more deprived areas
- working in social care, teaching, education, health care
- who had another activity-limiting health condition or disability

Covid Surges

YOU ARE HERE

N95 MASKS

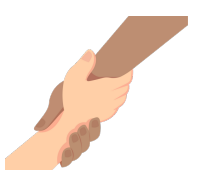


WORK FROM HOME

ANTI VIRALS

RAPID TESTS

PAID SICK DAYS



SEE FRIENDS & FAMILY

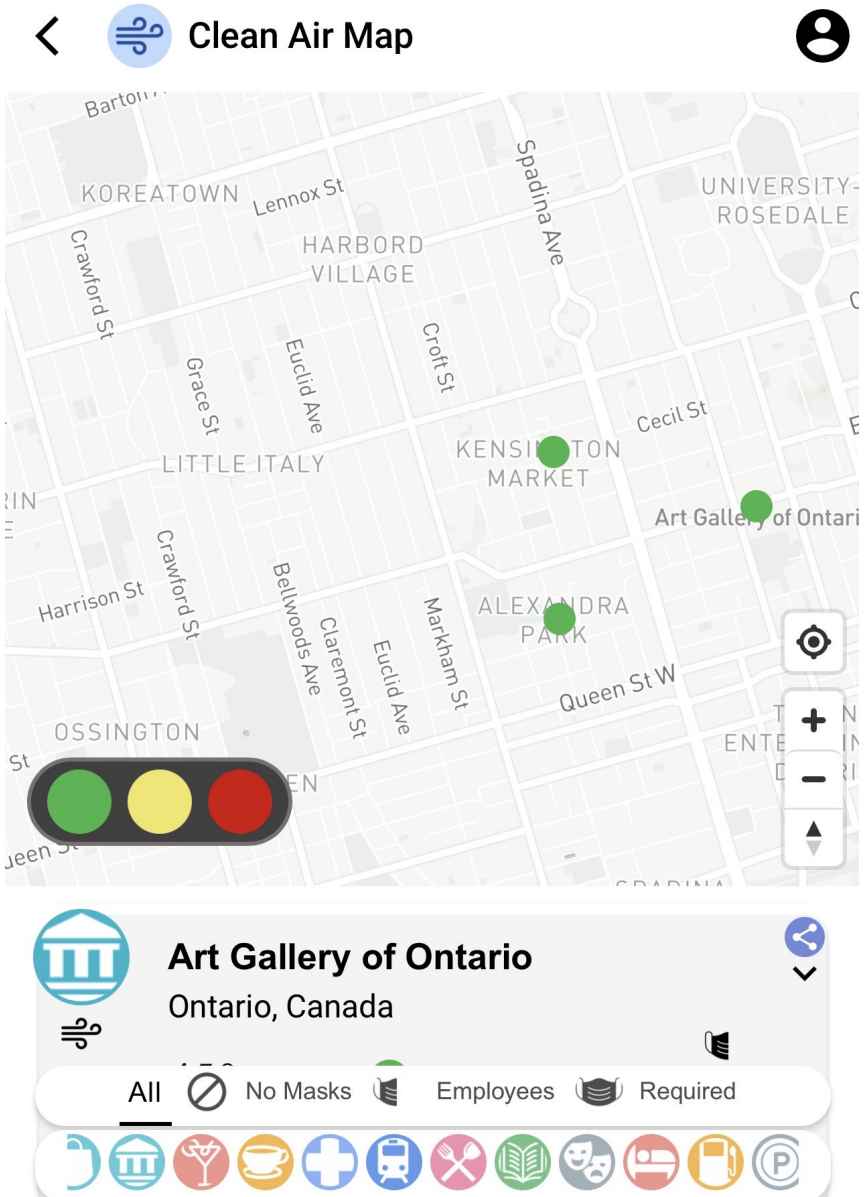
TRAVEL!

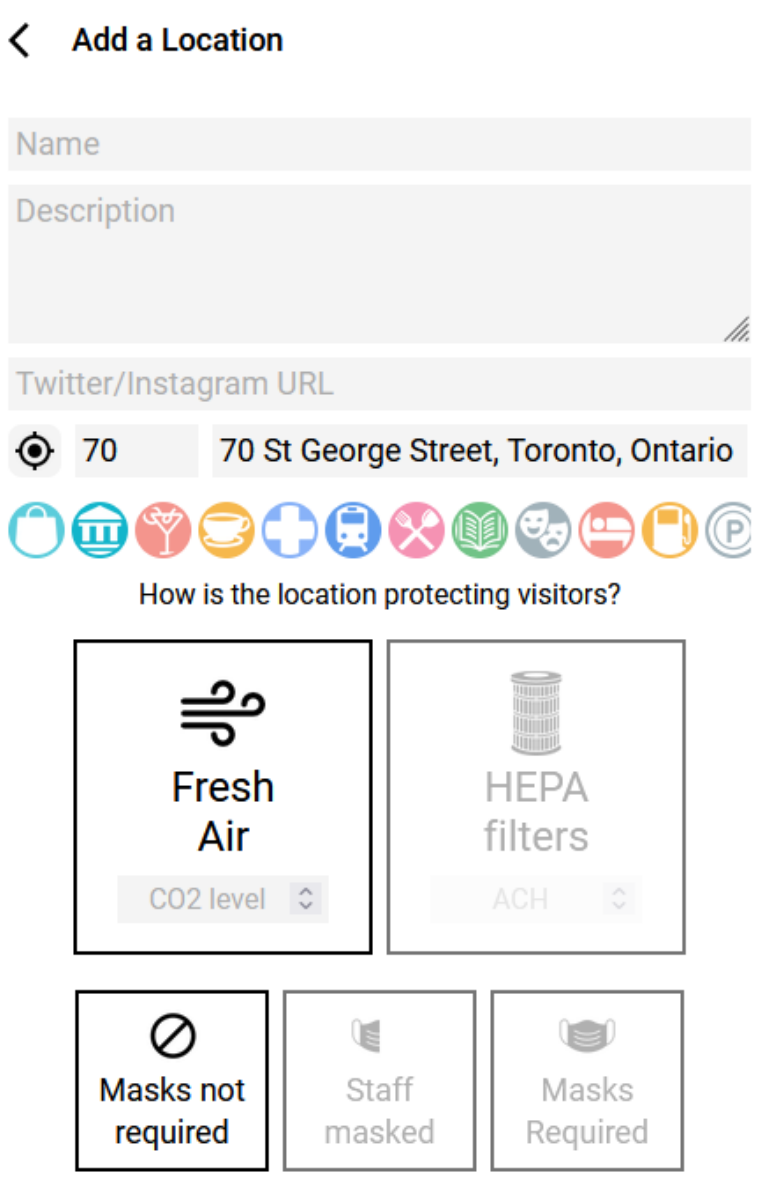
ONGOING RESEARCH

BOOSTERS

Surge Ends

@kashprime


Clean Air Map
KOREATOWN
Lennox St
Spadina Ave
UNIVERSITY-
ROSEDALE
HARBORD
VILLAGE
Crawford St
Grace St
Euclid Ave
Croft St
Cecil St
LITTLE ITALY
KENSINGTON
MARKET
Art Gallery of Ontari
Harrison St
Bellwoods Ave
Claremont St
Markham St
ALEXANDRA
PARK
Queen St W
OSSINGTON
Art Gallery of Ontario
Ontario, Canada
All
No Masks
Employees
Required


Add a Location
Name
Description
Twitter/Instagram URL
70
70 St George Street, Toronto, Ontario
How is the location protecting visitors?
Fresh
Air
CO2 level
HEPA
filters
ACH
Masks not
required
Staff
masked
Masks
Required

Thank you