HOW TO BEST MANAGE THE RISK OF COVID INFECTION WHILE SEEKING HEALTH CARE?

KEVIN T. KAVANAGH, MD, MS
MASK TOGETHER AMERICA
FEB. 13, 2024

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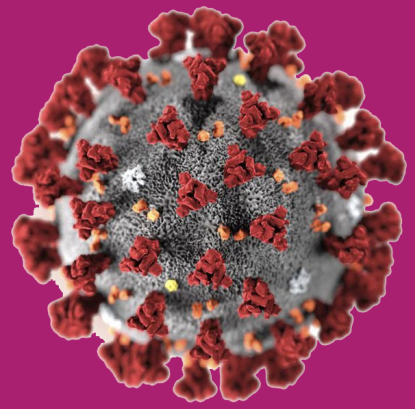

AGENDA

- 1. We are Still In A Pandemic
- 2. Impact on Healthcare Workers
- 3. Vaccination
- 4. Ventilation
- 5. Masking
- 6. Type of Doctor Visit
- 7. Preparation
- 8. Americans with Disability Act

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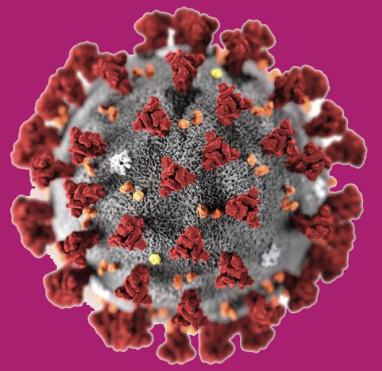

1. WE ARE STILL IN A PANDEMIC

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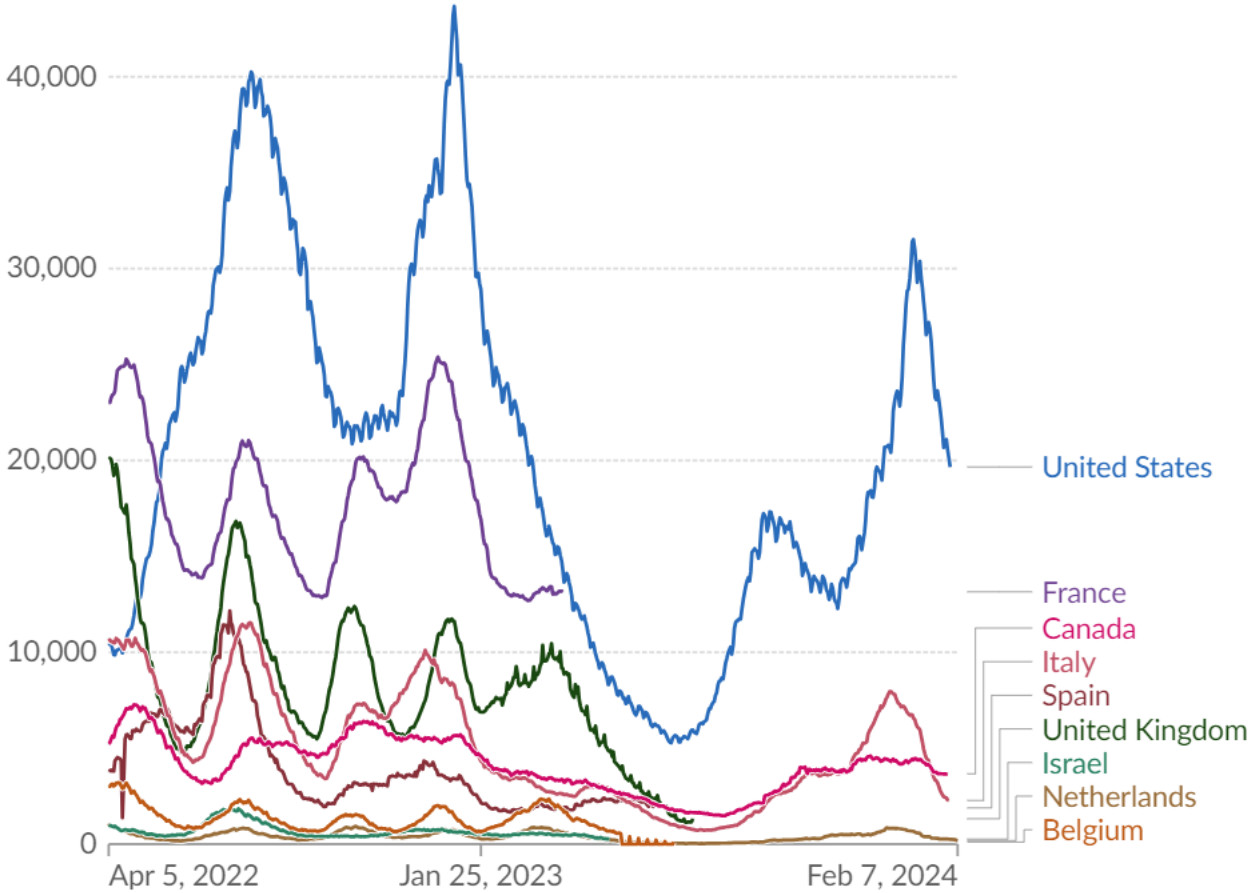
Number of COVID-19 patients in hospital

Our World in Data

Table | Map | Chart

Edit countries and regions



Feb 24, 2020 — Feb 7, 2024

Data source: Official data collated by Our World in Data – Last updated 8 February 2024 – Learn more about this data

OurWorldInData.org/coronavirus | CC BY

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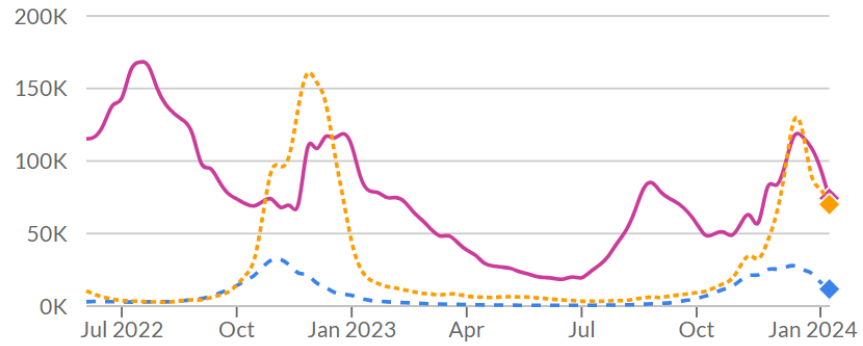
COVID-19 RSV Influenza

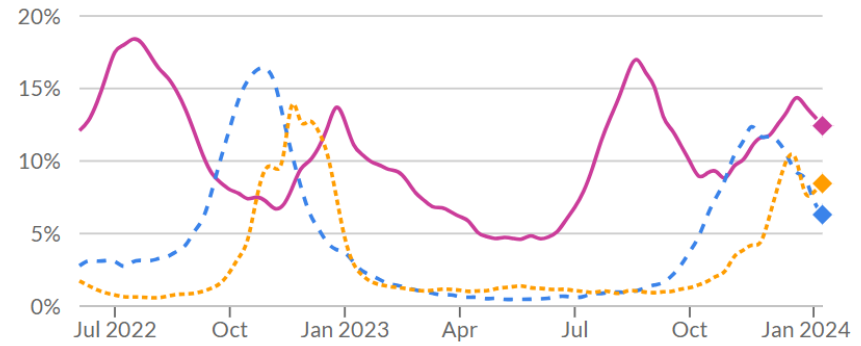
New Infections

Weekly counts of new infections by respiratory illness type.



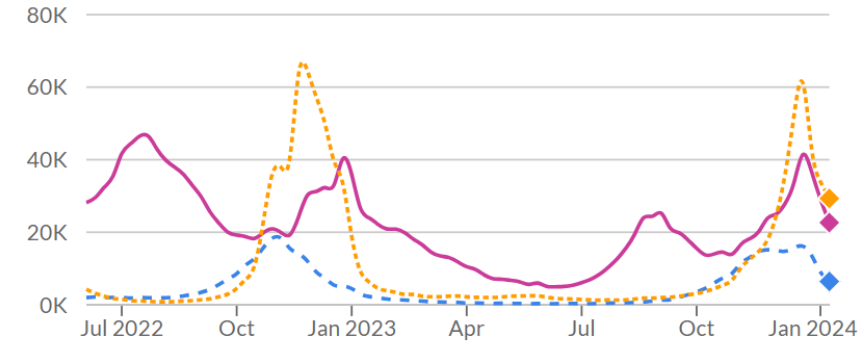
Positivity Rate

Weekly positivity rates by respiratory illness type.



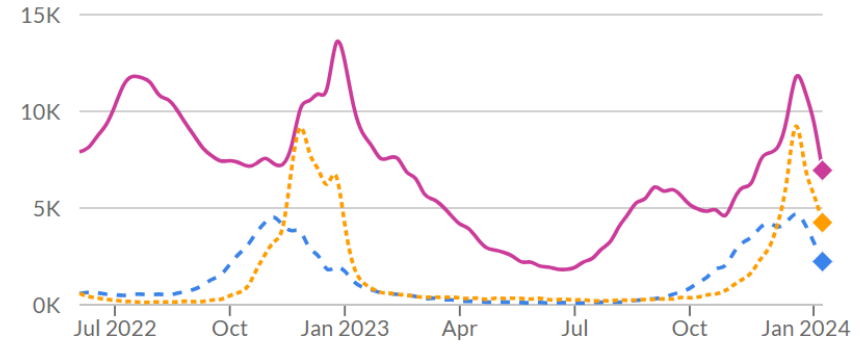
ED Visits

Weekly counts of new ED visits by respiratory illness type.



Hospitalizations

Weekly counts of new hospital admissions by respiratory illness type.



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Home > Community Health > Nearly 1 in 4 American Adults Who Get COVID-19 Suffer From Long COVID

Nearly 1 in 4 American Adults Who Get COVID-19 Suffer From Long COVID

Analysis of the latest U.S. Census Bureau data finds 24% of U.S. adults affected by the disease have experienced COVID-19 symptoms for three months or longer. Learn which state and major metro area populations are experiencing the highest rates of long COVID.

https://www.helpadvisor.com/community-health/long-covid-report

CASES & DEATHS ARE STILL TOO HIGH

Dosage Matters

- Exposure Time
- Concentration of Virus (Combination of Community Rates and The Number of People you are exposed to.)
- Mitigation by Vaccination, Masks and Good Ventilation

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ARTICLES - DOSAGE EFFECTS OF SARS-COV-2

Lind, M.L., Dorion, M., Houde, A.J. et al. Evidence of leaky protection following COVID-19 vaccination and SARS-CoV-2 infection in an incarcerated population. Nat Commun 14, 5055 (2023). https://doi.org/10.1038/s41467-023-40750-8

During the Omicron period, prior infection, vaccination, and hybrid immunity reduced the infection risk of resident:

Chances of an infection:
without a documented exposure (HR: 0.36; 0.57; 0.24)
with cellblock exposures (0.61; 0.69; 0.41 ;respectively)
with cell exposures (0.89; 0.96; 0.80;respectively).

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ARTICLES - DOSAGE EFFECTS OF SARS-COV-2

Ferretti, L., Wymant, C., Petrie, J. et al. Digital measurement of SARS-CoV-2 transmission risk from 7 million contacts. Nature 626, 145–150 (2024). https://doi.org/10.1038/s41586-023-06952-2

Cell Phone Tracking Data: Longer exposures at greater distances had risk similar to that of shorter exposures at closer distances. The probability of transmission confirmed by a reported positive test increased initially linearly with duration of exposure (1.1% per hour) and continued increasing over several days.

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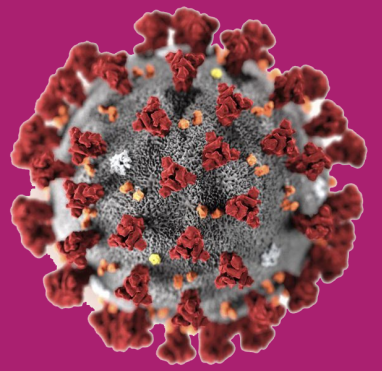


2. IMPACT ON HEALTHCARE WORKERS

BMC Infectious Diseases

Research | Open access | Published: 23 January 2024

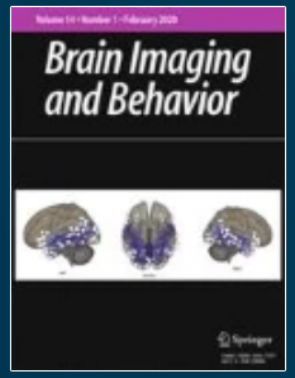
Long-term symptoms after SARS-CoV-2 infection in a cohort of hospital employees: duration and predictive factors

Of 221 included (hospital employees), a number of 104 HEs (47.1%) reported at least one persisting symptom for more than 90 days after initial SARS-CoV-2 detection.

About half of the (hospital employees) suffered from long lasting symptoms over 90 days after almost entirely mild acute COVID-19. Predictive factors could possibly be used for early treatment to prevent development of long-term symptoms after COVID-19 in future.

Home › Brain Imaging and Behavior › Article

Attentional impairment and altered brain activity in healthcare workers after mild COVID-19



Research | Open access | Published: 01 February 2024

Brain Imaging and Behavior

This study included a high-risk healthcare population divided into groups of healthcare workers (HCWs) with mild COVID-19 (patient group, n = 45) and matched healthy HCWs controls (HC group, n = 42), who completed general neuropsychological background tests and Attention Network Test (ANT), and underwent resting-state functional magnetic resonance imaging (rs-fMRI) using amplitude of low-frequency fluctuation (ALFF) to assess altered brain activity; Selective impairment occurred in orienting and executive control networks, but not in alert network, in the patient group, and widespread cognitive impairment encompassing general attention, memory, and executive dysfunction.

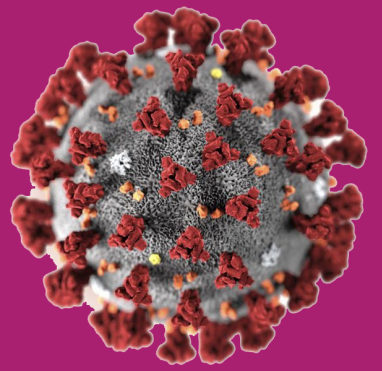
https://link.springer.com/article/10.1007/s11682-024-00851-4

Brain fog is one of the most common, persistent complaints in patients with long COVID. It affects as many as 46% of patients who also deal with other cognitive concerns like memory loss and difficulty concentrating.

Researchers found that 351 patients hospitalized with severe COVID-19 had evidence of a long-term brain injury a year after contracting the SARS-CoV-2 virus.

The brain deficits found in COVID-19 patients were equivalent to 20 years of brain aging and provided proof of what doctors have feared: that this virus can damage the brain and result in ongoing mental health issues.

New Evidence Suggests Long COVID Could Be a Brain Injury - Medscape - February 08, 2024. https://www.medscape.com/viewarticle/new-evidence-suggests-long-covid-could-be-brain-injury-2024a10002v0



3. VACCINATION

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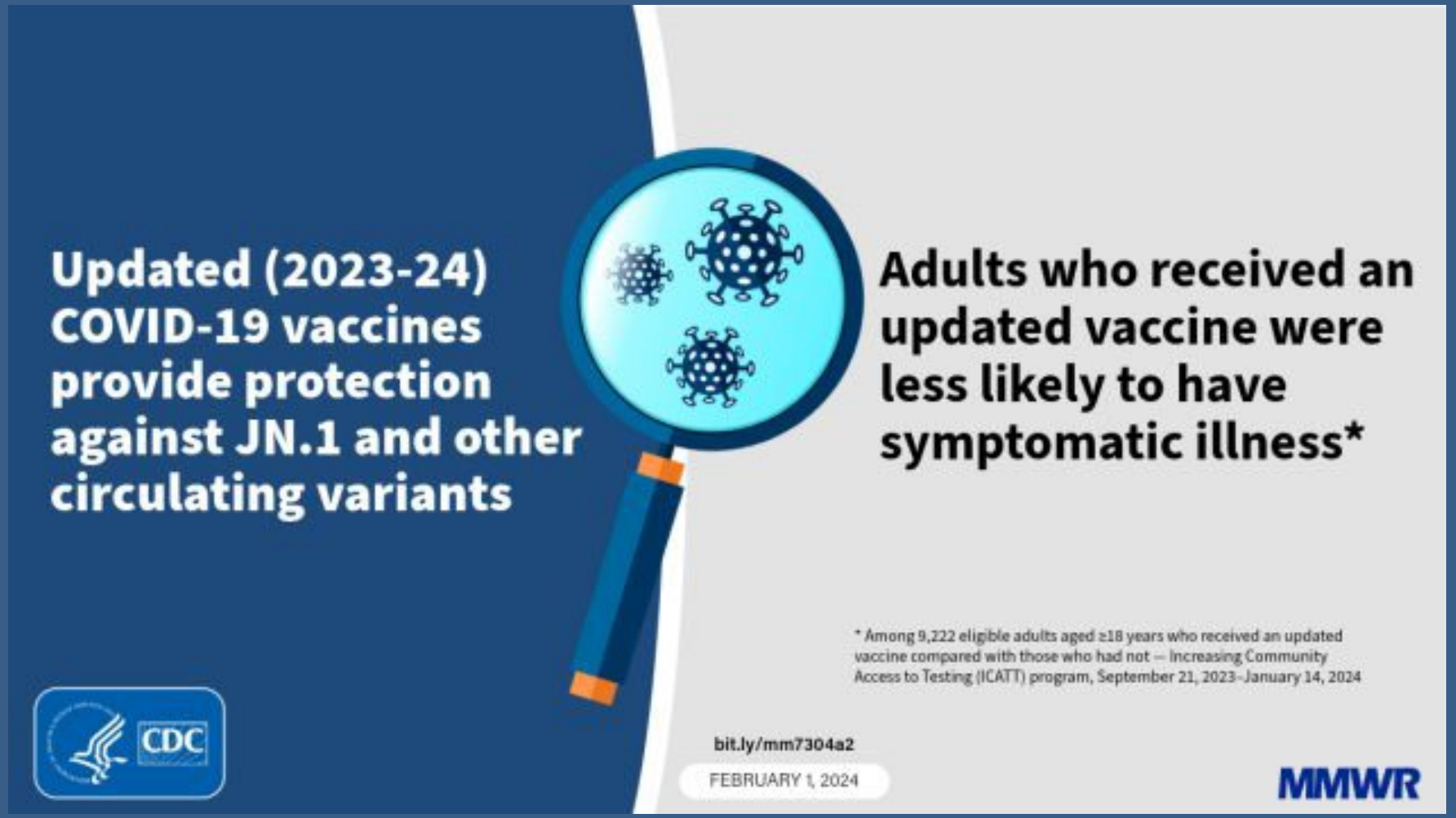
Vaccine Effectiveness In Preventing Symptomatic Infections Was 54% at a median of 52 days after vaccination.



https://www.cdc.gov/mmwr/volumes/73/wr/mm7304a2.htm

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VACCINATION

- As of January 27, 2024, 21.8% (95% Confidence Interval: 21.3%-22.4%) of adults reported having received an updated 2023-24 COVID-19 vaccine since September 14, 2023.

- As of January 27, 2024, 11.6% (95% Confidence Interval: 10.9%-12.3%) of children were reported to be up to date with the 2023-24 COVID-19 vaccine.

https://www.cdc.gov/vaccines/imz-managers/coverage/covidvaxview/interactive/vaccination-dashboard.html

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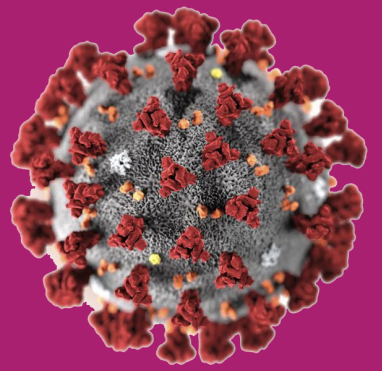

4. VENTILATION

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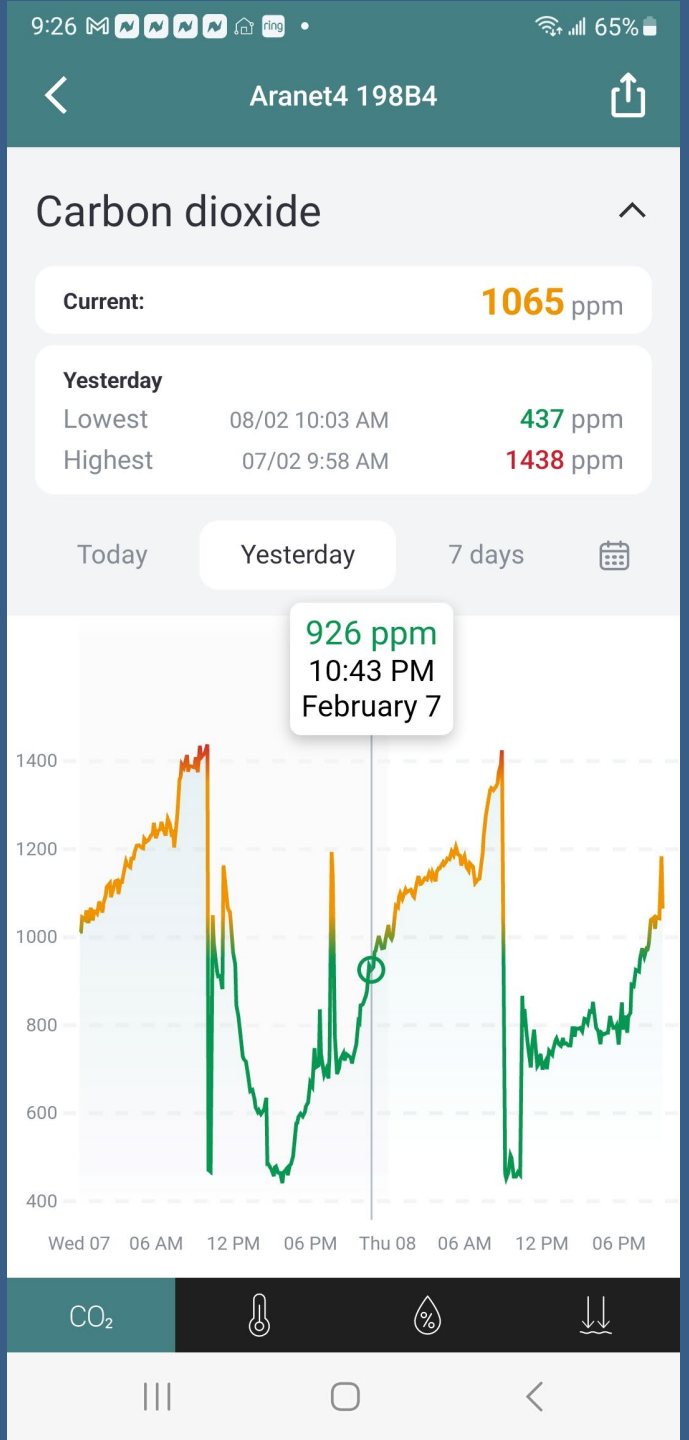
THE VIRUS IS AIRBORNE

- Means it is spread by shouting, singing and talking.
- Indoors, no safe distance. Even 60 feet is unsafe.
- Outdoor, the aerosols dissipate so that large particle spread in crowded conditions are the main concern.

PORTABLE CO2 MONITOR



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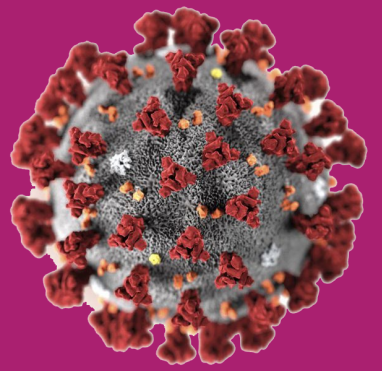

5. MASKING

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PERSONAL HEALTH IS NOT PUBLIC HEALTH

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MASK EFFECTIVENESS

Figure 1

Time to infectious dose for an uninfected person (receiver)*

Receiver Is Wearing (% inward leakage)

Source Is Wearing (% outward leakage)		Nothing	Typical cloth mask	Typical surgical mask	Non-fit-tested N95 FFR†	Fit-tested N95 FFR
		100%	75%	50%	20%	10%
Nothing	100%	15 min.	20 min.	30 min.	1.25 hours	2.5 hours
Typical cloth mask	75%	20 min.	26 min.	40 min.	1.7 hours	3.3 hours
Typical surgical mask	50%	30 min.	40 min.	1 hour	2.5 hours	5 hours
Non-fit-tested N95 FFR†	20%	1.25 hours	1.7 hours	2.5 hours	6.25 hours	12.5 hours
Fit-tested N95 FFR	10%	2.5 hours	3.3 hours	5 hours	12.5 hours	25 hours

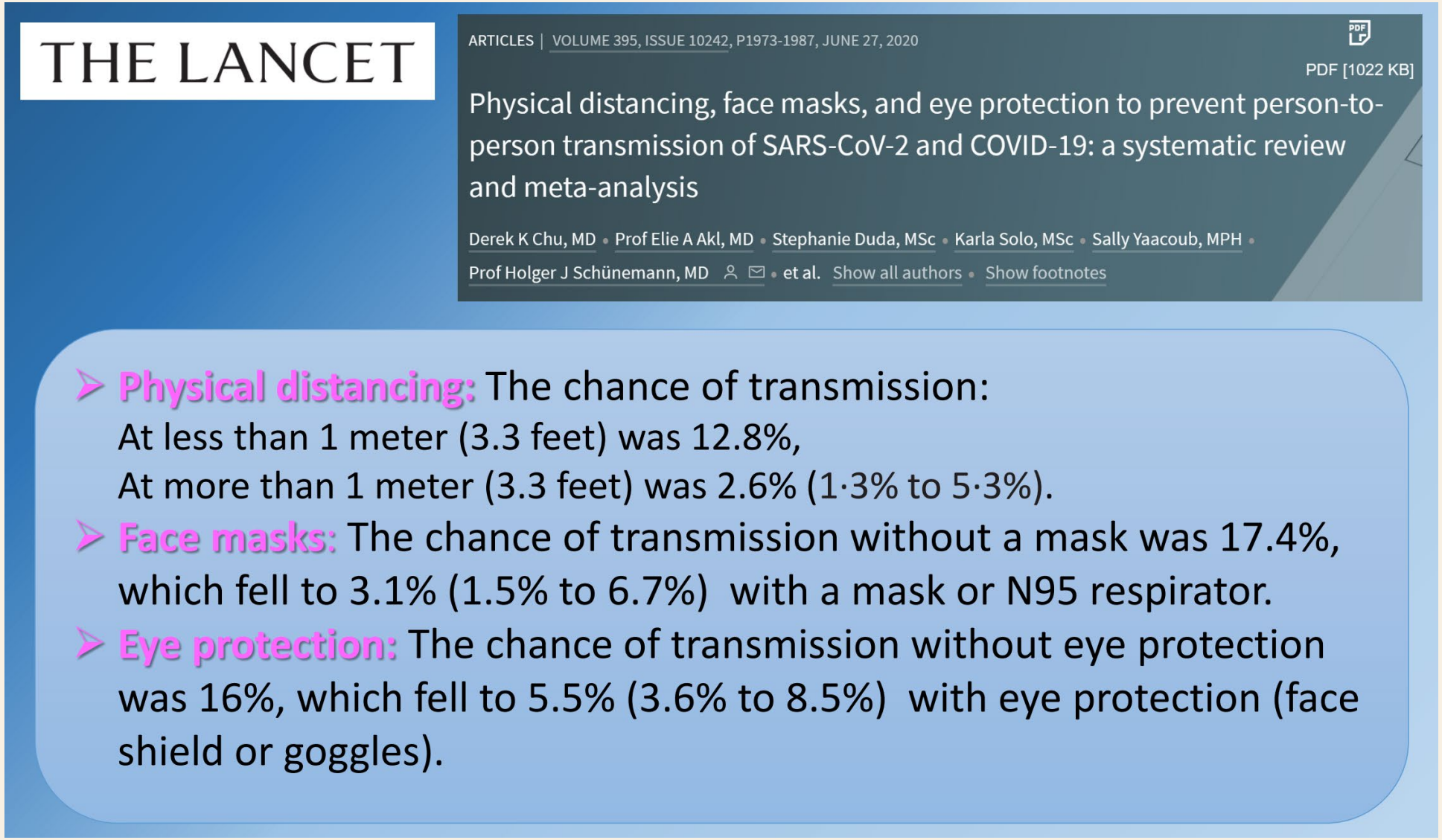
†FFR = filtering facepiece respirator; N95 = not oil-proof, 95% efficient at NIOSH filter test conditions

Getting to and Sustaining the Next Normal A Roadmap for Living with COVID

The Rockefeller Foundation. March 2022

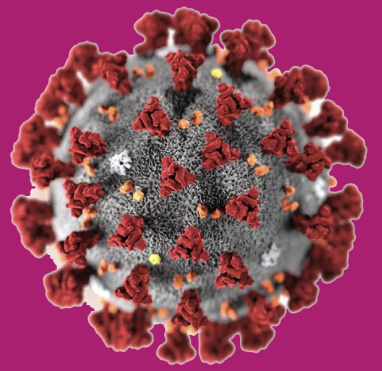
UPenn_NextNormal_030822_sm.pdf (rockefellerfoundation.org)

MASK EFFECTIVENESS



- **Physical distancing:** The chance of transmission:
  At less than 1 meter (3.3 feet) was 12.8%,
  At more than 1 meter (3.3 feet) was 2.6% (1·3% to 5·3%).
- **Face masks:** The chance of transmission without a mask was 17.4%, which fell to 3.1% (1.5% to 6.7%) with a mask or N95 respirator.
- **Eye protection:** The chance of transmission without eye protection was 16%, which fell to 5.5% (3.6% to 8.5%) with eye protection (face shield or goggles).

https://www.thelancet.com/journals/lancet/article/PIIS0140-6736(20)31142-9/fulltext



6. TYPE OF DOCTOR VISIT

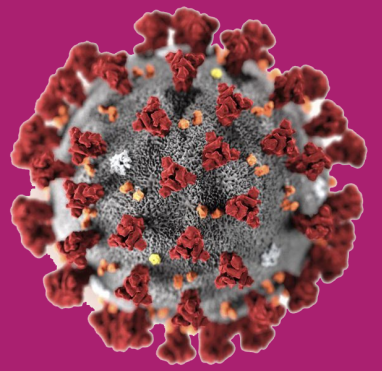
TYPE OF VISIT

Routine Follow Up – Months to Plan

New Problem Not Urgent – Weeks to Plan

Urgent Care - At Best Hours to Plan

You do not have time to evaluate practices if you need to see someone today. But you can preemptively do this today, for an emergency in the future.



7. PREPARATION

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PREPARATION
-- RISK CORRELATES WITH EXPOSURE TIME

- **Be up to date on vaccinations and boosters.**
- **Call ahead and ask questions:**
  -- Will the provider and staff wear an N95 masks?
  -- Are Masks required for all Patients?

  (The answer will probably be no but if non-urgent appointment you may want to try other providers)

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PREPARATION
-- RISK CORRELATES WITH EXPOSURE TIME

- First goal is to spend the least time possible in the waiting room with the least people.

  -- Try to get the first appointment in the morning. If this fails then the first afternoon appointment.

  -- If unable, ask if you can wait in the car and the receptionist calls you on your cell phone.

  -- Do all paperwork online before the visit.

  -- Wear a N95 mask.

  -- Sit in a corner or under an air vent so air is flowing away not toward you.

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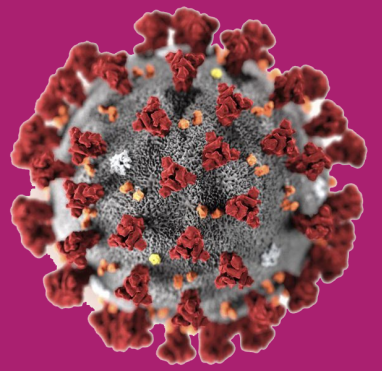

8. AMERICANS WITH DISABILITIES ACT

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HIGH RISK PATIENTS

Recent INFORM and EPOCH studies shed light on the significant risk and poor outcomes faced by immunocompromised individuals due to COVID-19, emphasizing the need for tailored prevention strategies.
https://www.infectioncontroltoday.com/view/inform-epoch-studies-unveil-covid-19-s-heavy-toll-immunocompromised-individuals

Impact of COVID-19 on immunocompromised populations during the Omicron era: insights from the observational population-based INFORM study

INFORM Study: “Immunocompromised individuals are not optimally protected by COVID-19 vaccines and potentially require additional preventive interventions to mitigate the risk of severe COVID.” “Immunocompromised individuals continue to be impacted disproportionately by COVID-19 and have an urgent need for additional preventive measures beyond current vaccination (programs).” Oct. 12, 2023.
https://www.thelancet.com/journals/lanepe/article/PIIS2666-7762(23)00166-7/fulltext

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HIGH RISK PATIENTS & THE ADA

1. Section 36.211 of the ADA requires maintenance of accessible features. One of these features is adequate and safe ventilation. There must be firm regulations enacted regarding HVAC system's air exchanges per hour based upon occupation, and for the use of HEPA filtration and UV-C germicidal lighting.

2. Section 39.301 of the ADA states, "A public accommodation may impose legitimate safety requirements that are necessary for safe operation." Thus, mandatory masking and safe ventilation are within the purview of the ADA.

HIGH RISK PATIENTS & THE ADA

3. Section 36.208 of the ADA states a facility does not have to provide services to an individual "when that individual poses a direct threat to the health and safety of others." Individuals who frequent healthcare settings may carry respiratory pathogens and be asymptomatic carriers of SARS-CoV-2, as such they are "direct threats" to immunocompromised individuals. Therefore, mandatory universal masking with respirators should be implemented for all individuals who enter or work in any healthcare facility where immunocompromised individuals work or obtain needed care.

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THANK YOU

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