

2024 Update

Major issues and strategies for surviving
the Infectocene

Prepared for OHCOW:
Occupational Health Clinics for Ontario Workers

Kashif Pirzada, MD, CCFP(EM)
Attending Emergency Physician,
Assistant Clinical Professor (adj), McMaster University



@kashprime

Background

Undergrad at UofT, studied Human Biology and Computer Science

UofT Medicine Class of 2004

McGill Family Medicine 2006, Emergency Medicine Fellowship 2007

Some volunteer work overseas

Full-time work as ED physician since 2007, Part-time in Chronic Pain Management since 2008

Faculty appointments to UofToronto and McMaster University

Coroner since 2016

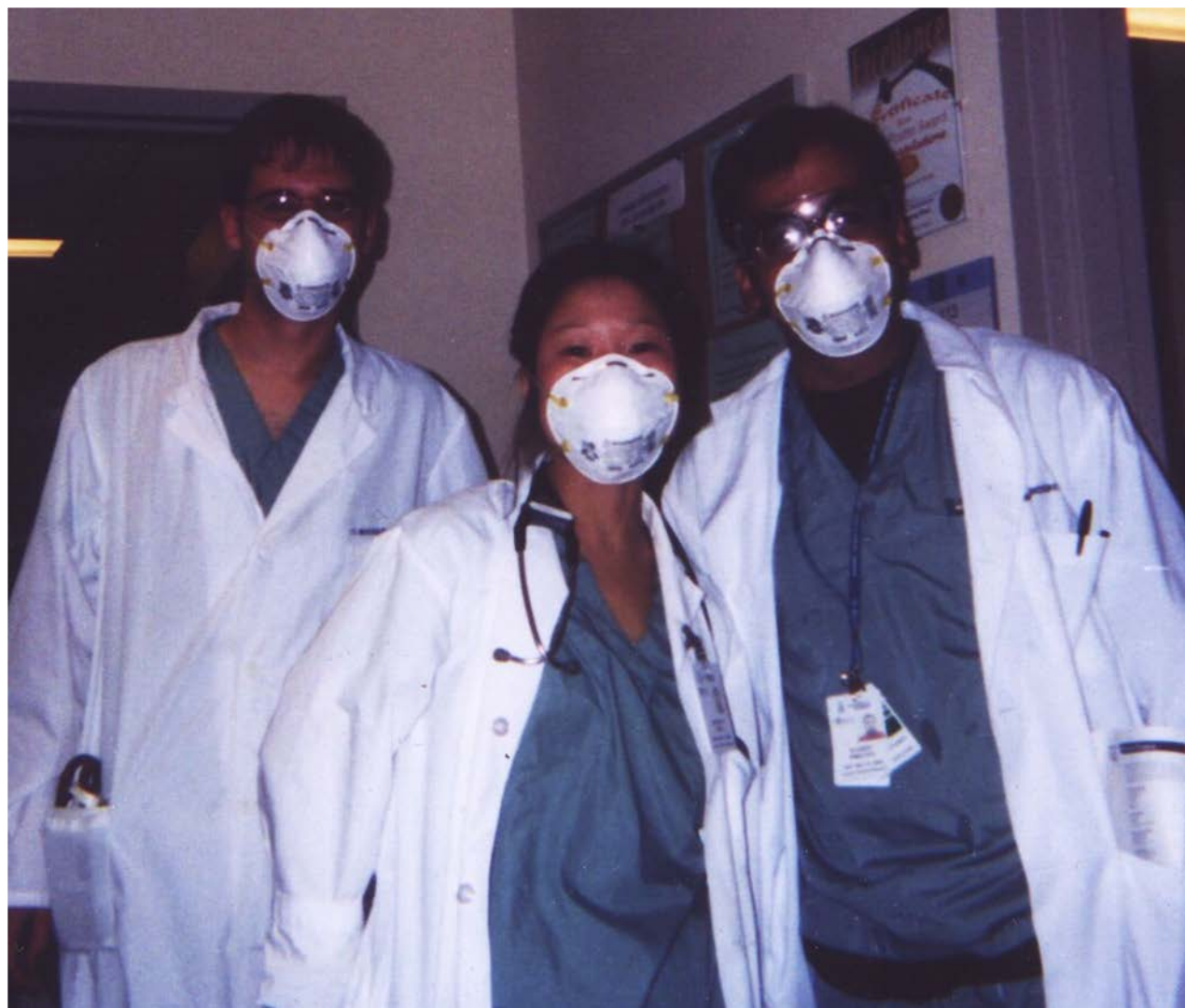
Startup Founder from 2016

Focused on clinical and entrepreneurial work until ...





Jan 24, 2020





Masks4Canada

Founded in May 2020 by physicians, engineers, lawyers and others across Canada to advocate for mask mandates across the country

Successfully covered 71% of the country by September 2020

School campaign: tracking every school outbreak in the country and advocating for a safe school environment

Ventilation group: open letter in January advocating for the recognition of airborne/aerosol spread of SARS-CoV-2

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TORONTO

BREAKING NEWS

DR. KASHIF PIRZADA
Emergency Physician


CTV NEWS CHANNEL

VS BREAKING NEWS BREAKING NEWS BREAKING NEWS BREAKING NEWS BREAKING NEWS BREAKI
ON THE SCENE OF WHAT THEY ARE CALLING A 'MAJOR EXPLOSION' ON SUND





Outline

- 1) Covid-19 and the immune system
 - 2) Long Covid
 - 3) Ventilation, increasing evidence for it
 - 4) Mitigations in the current era
 - 5) Recommendations
- 

Thoughts

It's not something that's happening to everyone all at once, which is the problem

Some people die or are absolutely crippled, and disappear from public life

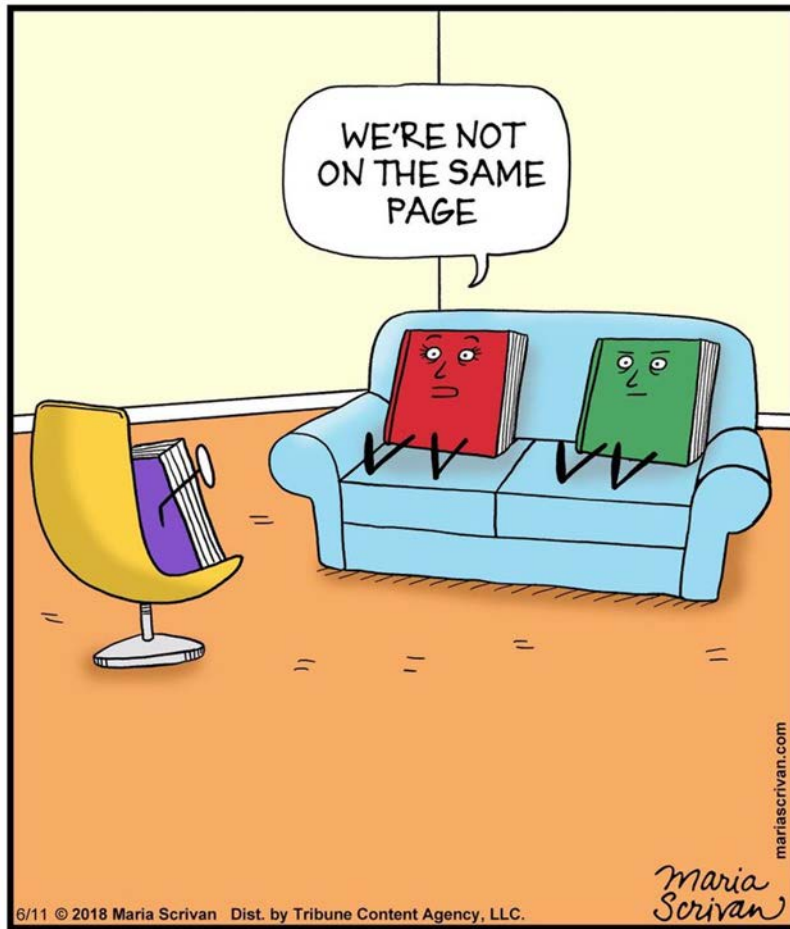
Others are superficially unscathed, and are very visible

Many have little to no ability to mitigate their workplaces, schools or homes

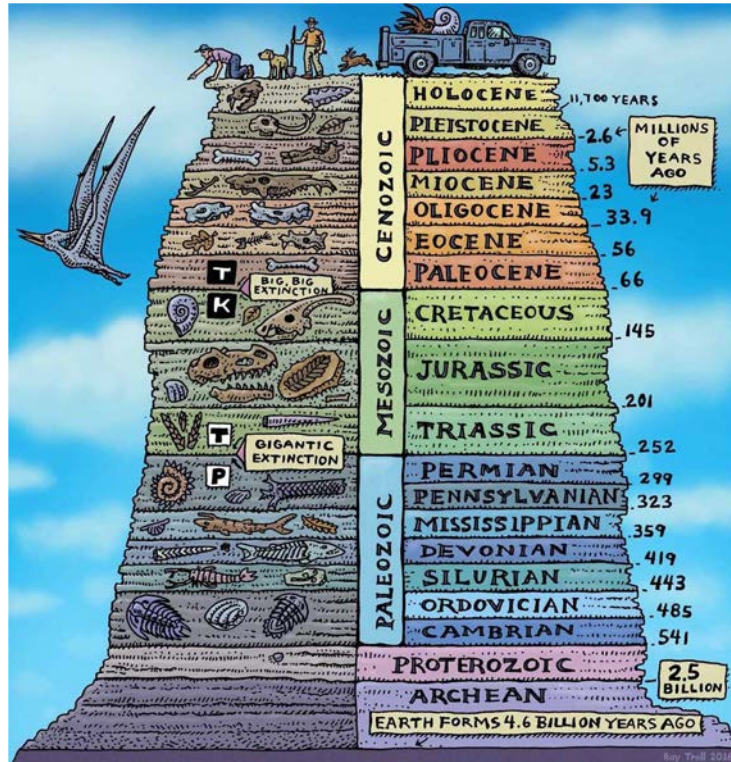
Some have worsening infections each time they get it

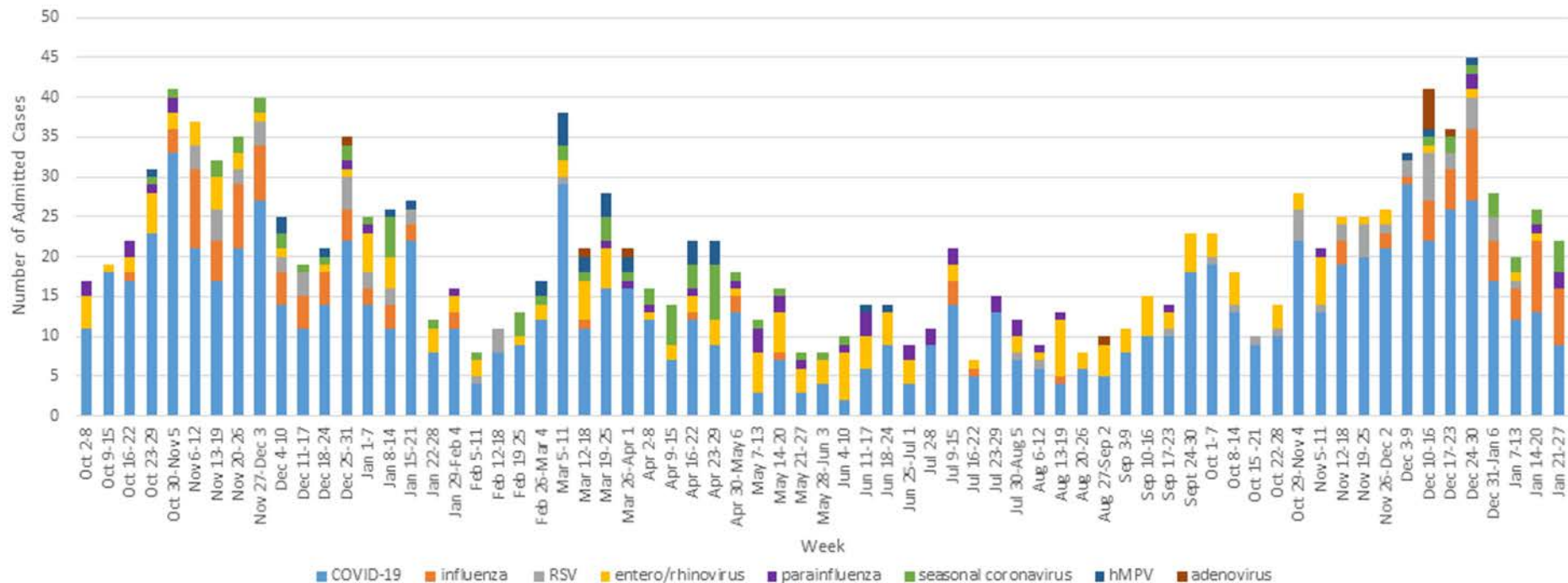
Some people barely know they've had it, even several times

Many don't know, and don't want to know



Are we entering the 'Infectocene'?



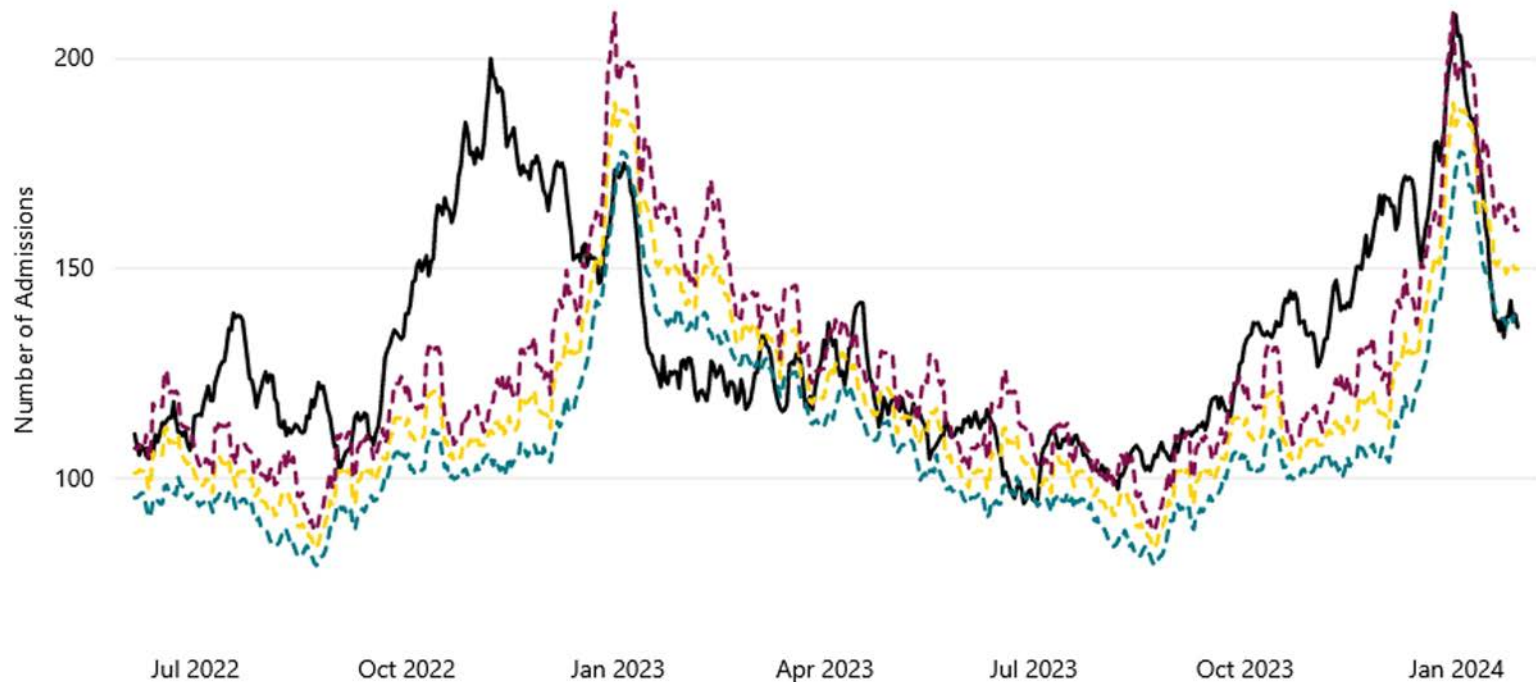


Respiratory virus activity

Virus	Percent positivity (%)
Adenovirus	0.6%
COVID-19	13.9%
Entero/Rhinovirus	3.2%
Human metapneumovirus	1.2%
Influenza A	8.7%
Influenza B	0.5%
Parainfluenza (all types)	1.2%
Respiratory syncytial virus	3.0%
Seasonal human coronavirus	3.8%

Pneumonia, Influenza-like Illness, General Infection and COVID-19 Flagged New Hospital Admissions:
7-Day Moving Average - Pandemic (2020+) vs. Pre-Pandemic Historical (2018-2019)
(Historical Admissions for Pneumonia, Influenza-like Illness and Infection)

● 7-Day Moving Average ● Historical 7-Day Moving Average ● Historical 7-Day Moving Average + 1 Stand... ● Historical 7-Day Moving A...

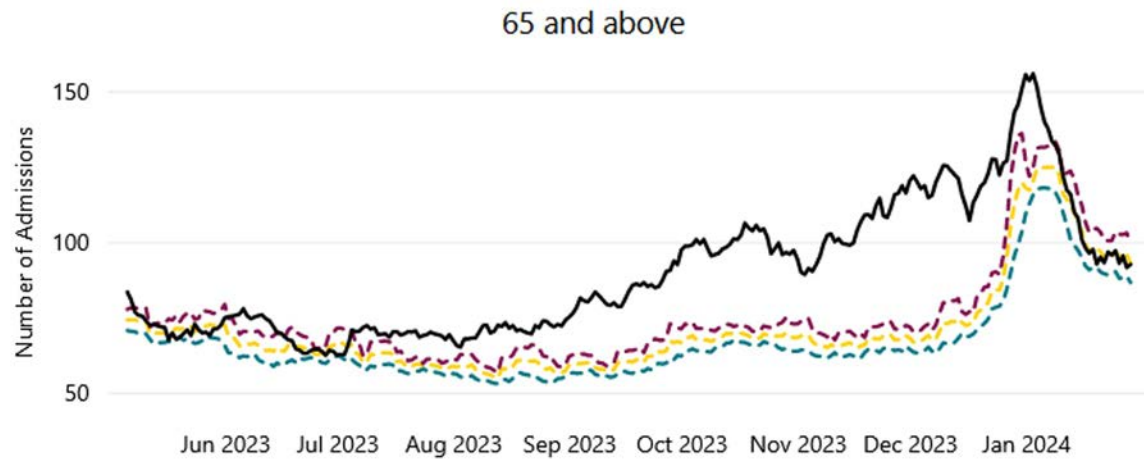
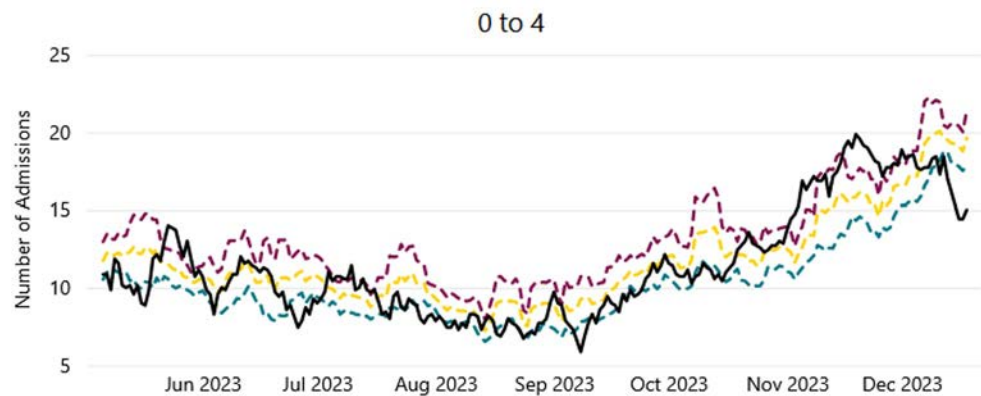


Date Range for Graph

6/5/2022

1/28/2024



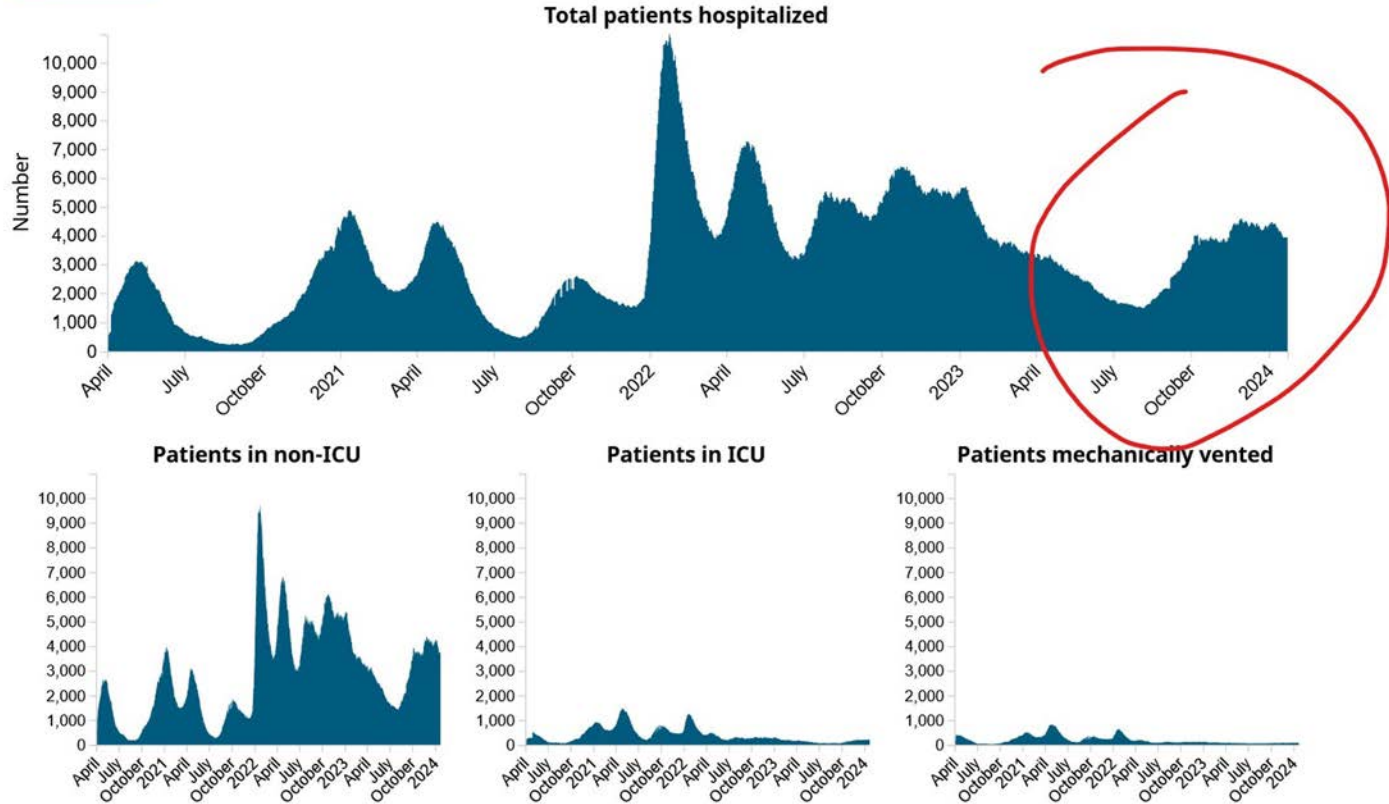


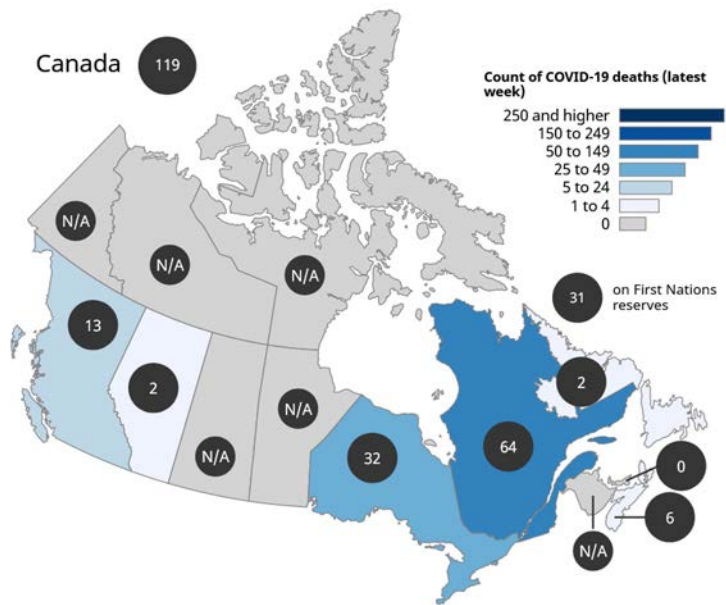
Hospital use

Figure 5. Daily number of hospital beds and ICU beds occupied by COVID-19 patients as of January 23, 2024



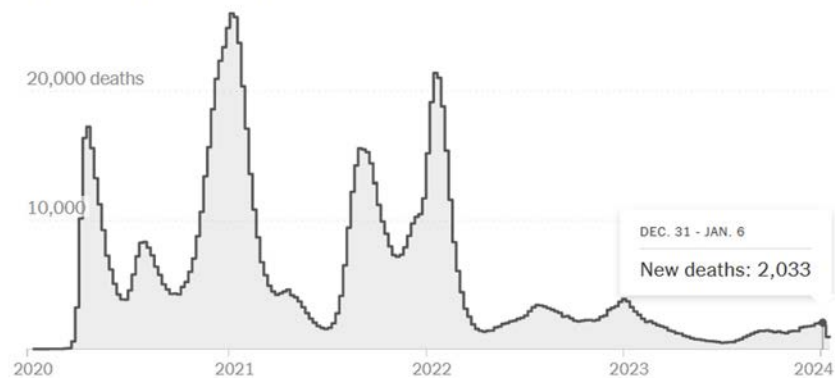
Relative scale





Weekly deaths

Data for recent weeks is incomplete.



[About this data](#)

More recognition in the scientific and medical literature about negative short and long-term effects of unmitigated Covid-19, but it is uneven and not filtering through in regulations, practice guidelines, to the front-line workers and to the general public



Covid-19 and the Immune System: RSV

Multicenter Study > Fam Med Community Health. 2023 Oct;11(4):e002456.
doi: 10.1136/fmch-2023-002456.

Association of COVID-19 with respiratory syncytial virus (RSV) infections in children aged 0-5 years in the USA in 2022: a multicentre retrospective cohort study

Lindsey Wang¹, Pamela B Davis², Nathan Berger¹, David C Kaelber³, Nora Volkow⁴, Rong Xu⁵

Affiliations + expand

PMID: 37832975 PMID: PMC10582888 DOI: 10.1136/fmch-2023-002456

Free PMC article

Invited Commentary | Pediatrics

June 28, 2022

The Pneumococcus-Respiratory Virus Connection—Unexpected Lessons From the COVID-19 Pandemic

Ron Dagan, MD¹; Dana Danino, MD^{1,2}; Daniel M. Weinberger, PhD³

> Author Affiliations | Article Information

JAMA Netw Open. 2022;5(6):e2218966. doi:10.1001/jamanetworkopen.2022.18966

 COVID-19 Resource Center

Previous Covid-19 infection was correlated with a 40% higher risk of needing medical attention in RSV infection, comparing across two seasons, 2021 and 2022.

It also correlated to increases in pneumococcal (bacterial) pneumonia, even though the ‘carriage rate’ (people carrying the bug asymptotically) was unchanged, thus no ‘immunity debt’

Covid-19 and the Immune System: Shingles

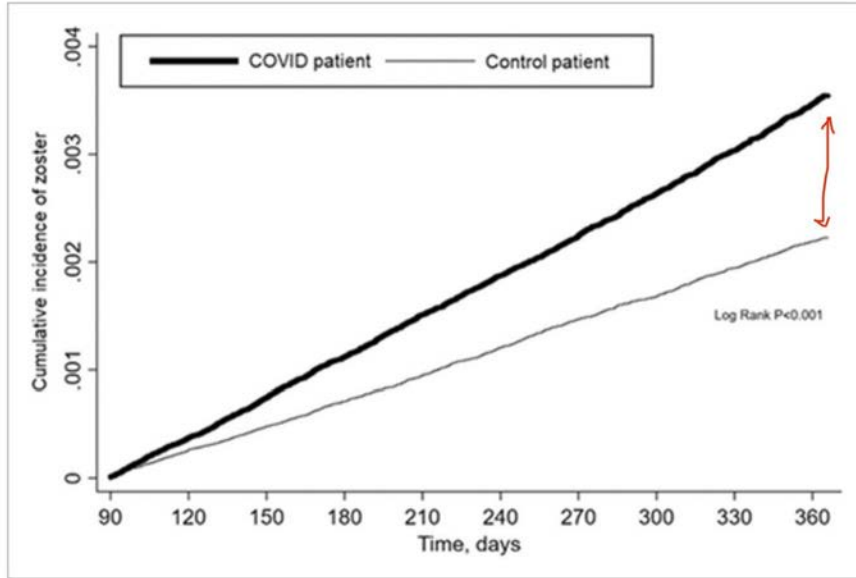


Figure 2

[Open in figure viewer](#) | [PowerPoint](#)

Cumulative Incidence of zoster after COVID-19.

JOURNAL OF
MEDICAL VIROLOGY

RESEARCH ARTICLE

Long-term risk of herpes zoster following COVID-19: A retrospective cohort study of 2 442 686 patients

[Correction\(s\) for this article](#) ▾

Yi-Chen Chen, Chung-Han Ho, Ting-Hui Liu, Jheng-Yan Wu, Po-Yu Huang, Ya-Wen Tsai, Chih-Cheng Lai [✉](#)

First published: 18 April 2023 | <https://doi.org/10.1002/jmv.28745> | Citations: 8

Yi-Chen Chen and Chung-Han Ho contributed equally to this study.

Risk of severe shingles (disseminated zoster) was 2.8X higher for those post-Covid.

 @lisa_iannattone

Covid-19 and the Immune System: Strep

thebmj

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Research

Long covid outcomes at one year after mild SARS-CoV-2 infection: nationwide cohort study

BMJ 2023 ; 380 doi: <https://doi.org/10.1136/bmj-2022-072529> (Published 11 January 2023)

Cite this as: BMJ 2023;380:e072529


Article

Related content

Metrics

Responses

Peer review

Barak Mizrahi , senior researcher¹, Tamar Sudry, researcher¹, Natalie Flaks-Manov, senior researcher¹, Yoav Yehezkeili, medical consultant¹, Nir Kalkstein, senior researcher¹, Pinchas Akiva, senior researcher¹, Anat Ekka-Zohar, head of quality, Research and Digital Health Division², Shirley Shapiro Ben David, director of Infectious Diseases Unit², Uri Lerner, project manager², Maytal Bivas-Benita, senior researcher¹, Shira Greenfeld, director of medical informatics²

The hazard ratio for streptococcal tonsillitis was elevated in SARS2 positive patients from 4 to 8 months after diagnosis, peaking at 6 months (hazard ratio 1.27).

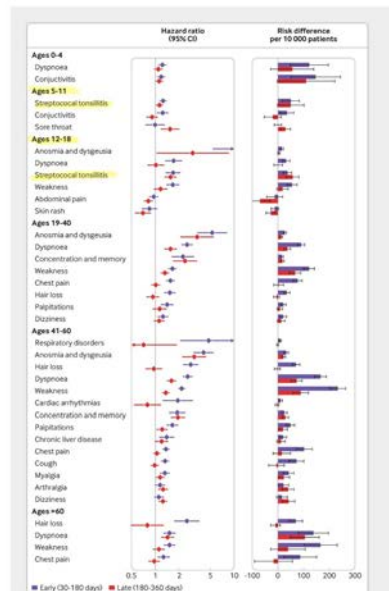


Fig 5

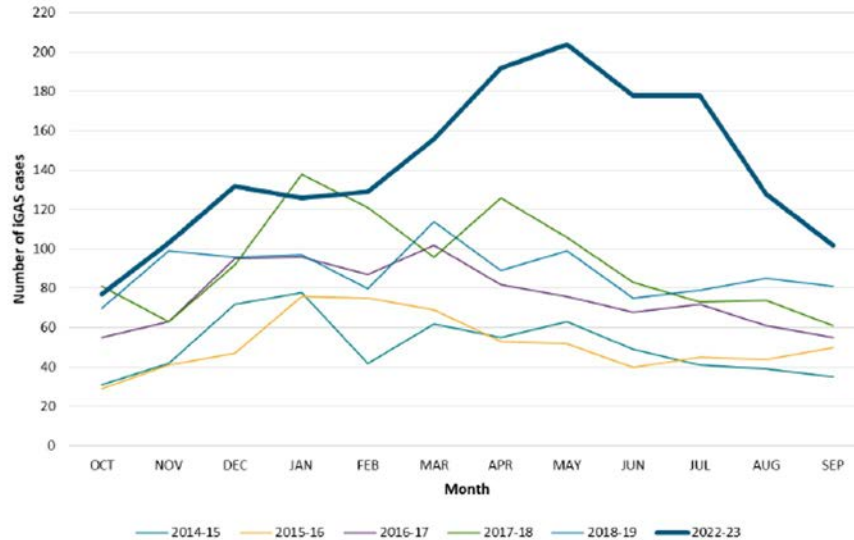
Risk of significant reported outcomes in different age subgroups. Hazard ratios and risk differences (with 95% confidence intervals) for all reported health conditions (supplementary tables S4a-f) were evaluated during early and late (orange) periods

bmj.com

 @lisa_iannattone

Covid-19 and the Immune System: iGAS

Figure 1. Confirmed iGAS case counts by month across all ages: current season (October 1, 2022 – September 30, 2023)* compared to five pre-pandemic seasons (October 1, 2014 – September 30, 2019)



Data source: Ontario. Ministry of Health. Integrated Public Health Information System (IPHIS) [database]. Toronto, ON: King's Printer for Ontario [extracted 2023 October 10].

*Data for the most recent reporting month should be interpreted with caution due to reporting and/or data entry lags.

'Don't sit on it,' warns woman whose husband died of strep A

Dan Wetmore was in bed sick for days. By the time he went to the hospital, it was too late



Philip Drost · CBC News · Posted: Jan 28, 2024 2:26 PM EST | Last Updated: January 28




Dan Wetmore, right, with his wife, Kim, and son, Zach. (Kim Wetmore)

[nature](#) > [cellular & molecular immunology](#) > [articles](#) > [article](#)

Article | [Published: 21 July 2021](#)

Dendritic cell deficiencies persist seven months after SARS-CoV-2 infection

[Alberto Pérez-Gómez](#), [Joana Vitallé](#), [Carmen Gasca-Capote](#), [Alicia Gutierrez-Valencia](#), [María Trujillo-Rodriguez](#), [Ana Serna-Gallego](#), [Esperanza Muñoz-Muela](#), [María de los Reyes Jiménez-Leon](#), [Mohamed Rafii-El-Idrissi Benhnia](#), [Inmaculada Rivas-Jeremias](#), [Cesar Sotomayor](#), [Cristina Roca-Oporto](#), [Nuria Espinosa](#), [Carmen Infante-Domínguez](#), [Juan Carlos Crespo-Rivas](#), [Alberto Fernández-Villar](#), [Alexandre Pérez-González](#), [Luis Fernando López-Cortés](#), [Eva Poveda](#), [Ezequiel Ruiz-Mateos](#)  & [the Virgen del Rocío Hospital COVID-19 Working Team](#)

[Cellular & Molecular Immunology](#) **18**, 2128–2139 (2021) | [Cite this article](#)

22k Accesses | **57** Citations | **1404** Altmetric | [Metrics](#)



Long COVID manifests with T cell dysregulation, inflammation and an uncoordinated adaptive immune response to SARS-CoV-2

Received: 9 February 2023

Accepted: 29 November 2023

Published online: 11 January 2024

Check for updates

Kailin Yin^{1,2,9}, Michael J. Peluso^{3,9}, Xiaoyu Luo^{1,3}, Reuben Thomas¹, Min-Gyoung Shin¹, Jason Neidleman^{1,2}, Alicer Andrew^{1,2}, Kyrilia C. Young^{1,2}, Tongcui Ma^{1,2}, Rebecca Hoh³, Khamal Anglin³, Beatrice Huang³, Urania Argueta³, Monica Lopez², Daisy Valdivieso³, Kofi Asare³, Tyler-Marie Deveau³, Sadie E. Munter³, Rania Ibrahim³, Ludger Ständker³, Scott Lu⁴, Sarah A. Goldberg⁴, Sulggi A. Lee⁴, Kara L. Lynch⁴, J. Daniel Kelly⁴, Jeffrey N. Martin⁴, Jan Münch⁴, Steven G. Deeks⁵, Timothy J. Henrich⁴ & Nadia R. Roan^{1,2,10}

Long COVID (LC) occurs after at least 10% of severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) infections, yet its etiology remains poorly understood. We used 'omic' assays and serology to deeply characterize the global and SARS-CoV-2-specific immunity in the blood of individuals with clear LC and non-LC clinical trajectories, 8 months postinfection. We found that LC individuals exhibited systemic inflammation and immune dysregulation. This was evidenced by global differences in T cell subset distribution implying ongoing immune responses, as well as by sex-specific perturbations in cytolytic subsets. LC individuals displayed increased frequencies of CD4⁺ T cells poised to migrate to inflamed tissues and exhausted SARS-CoV-2-specific CD8⁺ T cells, higher levels of SARS-CoV-2 antibodies and a mis-coordination between their SARS-CoV-2-specific T and B cell responses. Our analysis suggested an improper crosstalk between the cellular and humoral adaptive immunity in LC, which can lead to immune dysregulation, inflammation and clinical symptoms associated with this debilitating condition.

Intense efforts are underway to determine the pathophysiology of long COVID (LC), a set of conditions characterized by immune perturbations. T cells have important roles in severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) immunity and pathogenesis^{1,2}, yet relatively little is known about their role in LC. Here we used CyTOF, serology, RNA sequencing (RNA-seq), single-cell RNA-seq (scRNA-seq) and plasma proteomics to obtain a deep phenotypic characterization

of T cells in a well-matched set of LC and fully recovered (R) individuals to identify unique immune features associated with LC that inform on the mechanistic underpinnings of this condition.

We leveraged a well-characterized cohort (Long-term Impact of Infection with Novel Coronavirus (LIINC); Supplementary Tables 1–3) to analyze the blood from 27 LC and 16 R individuals, obtained 8 months postinfection (Fig. 1a) before any SARS-CoV-2 vaccination

Immune damage in Long Covid

Links between the complement and coagulation systems could lead to Long Covid therapies

WOLFRAM RUF [Authors Info & Affiliations](#)

SCIENCE • 18 Jan 2024 • Vol 363, Issue 6680 • pp. 262-263 • DOI:10.1126/science.adn1977

33,511



RELATED RESEARCH ARTICLE

Persistent complement dysregulation with signs of thromboinflammation in active Long Covid

BY CARLO CERVIA-HASLER, SARAH C. BRÜNINGK, TOBIAS HOCH, ET AL.

Acute infections with severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) cause a respiratory illness that can be associated with systemic immune cell activation and inflammation, widespread multiorgan dysfunction, and thrombosis. Not everyone fully recovers from COVID-19, leading to Long Covid, the treatment of which is a major unmet clinical need (1). Long Covid can affect people of all ages, follows severe as well as mild disease, and involves multiple organs. The persistence of lingering symptoms after acute disease creates a considerable challenge for understanding the specific pathophysiology and risk factors underlying Long Covid. On page 273 of this issue, Cervia-Hasler *et al.* (2) report a multicenter, longitudinal study of 113 patients who either fully recovered from COVID-19 or developed Long Covid, identifying localized activation of the innate immune defense complement system as a likely culprit that induces thromboinflammation and prevents the restoration of fitness after acute COVID-19.





Part 1:

The T-cells are not alright

An Interview with
Dr. Anthony Leonardi



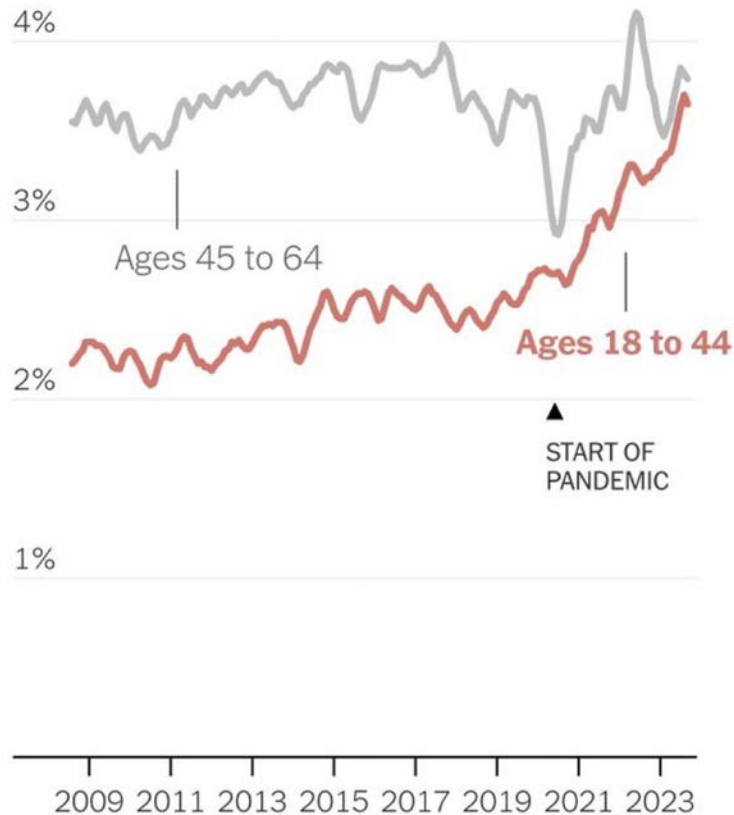
Long Covid

Mechanisms are gradually being better understood.

- Mitochondrial dysfunction and muscle ischemia
- Immune system alterations, T-cell exhaustion
- Thromboinflammation, complement activation
- Viral persistence

No reliable way to predict who gets it, when they get it, how to prevent it, and how to treat it

Percent of Americans who said they had “serious difficulty” remembering, concentrating or making decisions



Long Covid

Very little organized followup in Ontario, usually left to GPs to coordinate, many of whom are unaware of the issue.

Cardiology - some recognition of POTS in new guidelines from the CCS

Respirology - some guidelines for post-ICU patients, not much besides monitoring and graduated exercises

Neurology - no treatments for 'brain fog' - not much until an actual stroke happens

Hematology - mostly focused on acute-care treatment with anti-coagulants

Abstract

Résumé

Introduction and Rationale

Methods

Definitions and Diagnostic Criteria

Epidemiology and Natural History

Pathophysiology

Diagnosis and Evaluation

Treatment and Management

Special Considerations

Summary

Supplementary

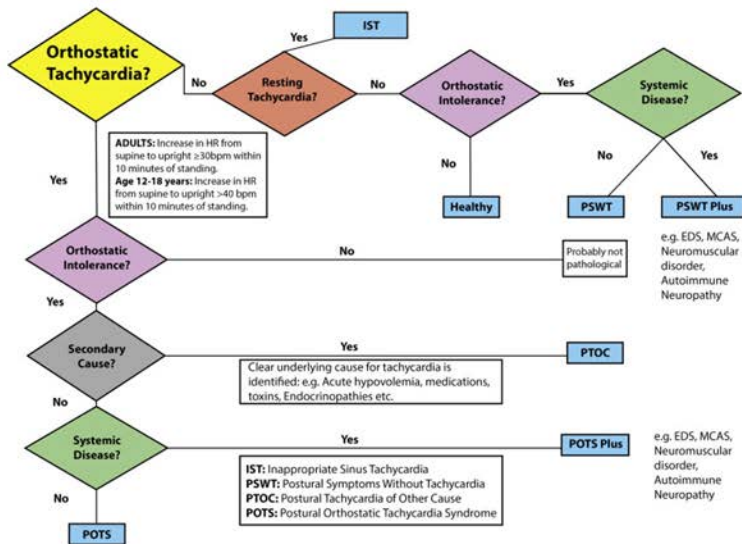


Figure 2 Postural orthostatic tachycardia syndrome (POTS) diagnostic criteria algorithm: a flow algorithm to help clinicians navigate the diagnosis of POTS and related disorders of orthostatic intolerance and orthostatic tachycardia. bpm, beats per minute; EDS, Ehlers-Danlos syndrome; HR, heart rate; IST, inappropriate sinus tachycardia; MCAS, mast cell activation syndrome; PSWT, postural symptoms without tachycardia.

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Orthostatic Vital Signs/The NASA 10-minute Lean Test

	Blood Pressure (BP)		Pulse
	Systolic	Diastolic	
Supine 1 minute			
Supine 2 minute			
Standing 0 minute			
Standing 1 minute			
Standing 2 minute			
Standing 3 minute			
Standing 4 minute			
Standing 5 minute			
Standing 6 minute			

Ventilation

[Vol. 152 No. 2122 \(2022\)](#)

SARS-CoV-2 aerosol transmission in schools: the effectiveness of different interventions

Jennifer Villers, Andre Henriques, Serafina Calarco, Markus Rognlien, Nicolas Mounet, James Devine, Gabriella Azzopardi, Philip Elson, Marco Andreini, Nicola Tarocco, Claudia Vassella, Olivia Keiser

[Fulltext PDF](#)

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DOI

<https://doi.org/10.4414/SMW.2022.w30178>

Cite this as:

Swiss Med Wkly. 2022;152:w30178

Opening windows and HEPA filters each led to 5-7X reduction in transmission of infectious particles

Combined with masks, 25X reduction

Ventilation

ORIGINAL RESEARCH article

Front. Public Health, 09 December 2022
Sec. Infectious Diseases: Epidemiology and Prevention
Volume 10 - 2022 | <https://doi.org/10.3389/fpubh.2022.1087087>

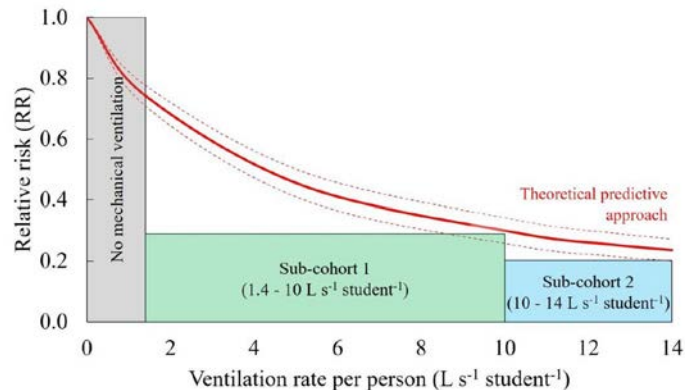
This article is part of the Research Topic
Adaptive Design Solutions to Buildings and the Built Environment
after lessons learnt from the COVID-19 Pandemic
[View all 7 Articles >](#)

Increasing ventilation reduces SARS-CoV-2 airborne transmission in schools: A retrospective cohort study in Italy's Marche region

Giorgio Buonanno^{1,2} Luca Ricolfi^{1,4} Lidia Morawska³ Luca Stabile^{1*}

¹ Department of Civil and Mechanical Engineering, University of Cassino and Southern Lazio, Cassino, Italy
² International Laboratory for Air Quality and Health, Queensland University of Technology, Brisbane, QLD, Australia
³ Department of Psychology, University of Turin, Turin, Italy
⁴ David Hume Foundation, Turin, Italy

For classrooms equipped with mechanical ventilation systems, the relative risk of infection of students decreased at least by 74% compared with a classroom with only natural ventilation, reaching values of at least 80% for ventilation rates $>10 \text{ L s}^{-1}$ student $^{-1}$.



Ventilation

Comparing two teaching hospitals in the UCSD system, the older poorly ventilated site with shared rooms had 4X nosocomial transmission.

Integrated genomic and social network analyses of SARS-CoV-2 transmission in the healthcare setting

Keehner et al., 2023 | Clinical Infectious Diseases



Background and Methods



1. Infection prevention (IP) measures are designed to mitigate the transmission of infectious pathogens in healthcare.
2. Genomic/social network analyses and contact tracing data were used to identify transmission of SARS-CoV-2 within the healthcare setting during the 2nd & 3rd wave and the Omicron BA.1 wave.
3. Between Nov 2020 and Jan 2022, 12,933 viral genomes from 35,666 patients and healthcare workers who tested positive for SARS-CoV-2 were analyzed.
4. Tempo-spatial overlap of infections among related viromes served to characterize SARS-CoV-2 transmissions.
5. Outcome measure was any instance of healthcare transmission defined as cases with closely related viral genomes and epidemiological connection during the infection window.

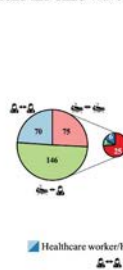
Key Findings



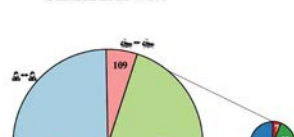
1. Few instances of SARS-CoV-2 transmission were identified in the healthcare setting.
2. Transmissions were linked to lapses in institutional IP protocols and when SARS-CoV-2 infection was not identified upon admission.
3. Transmission was fully mitigated in patients with known infection when IP protocols were adhered to.

Probable Transmission Pairs Identified with Electronic Contact Record and Supported by Phylogenetic Analysis

Second and Third Wave



Omicron BA.1 Wave



Transmissions by Healthcare Campus

UCSDH consists of 2 campuses: the older Hillcrest campus, established in 1966, consists of a 381-bed hospital that contains multiple shared patient rooms and the newer 418-bed La Jolla campus, built between 1993 and 2016, that has a majority of single-occupancy rooms. During the study period (November 2020 through January 2022), there were 15 333 adult admissions at the Hillcrest campus and 20 765 at the La Jolla campus.

Most healthcare pair transmission events occurred at the older Hillcrest campus; 79% (11 pairs) during the second and third waves and 75% (18 pairs) during Omicron, in contrast to 21% (3 pairs) and 21% (5 pairs) at the La Jolla campus, respectively. Thirty-nine individuals (both HCWs and patients) were part of likely transmission events at Hillcrest compared with only 13 at the La Jolla campus. The rate of SARS-CoV-2 transmissions per 1000 admissions was 2.54 at Hillcrest compared with 0.63 at the La Jolla campus (χ^2 test; $P < .001$). Additionally, most patients who either acquired or transmitted SARS-CoV-2 in the hospital were in a shared room during part of their stay (6 of 6 patients during the second and third waves of SARS-CoV-2, 4 of 6 patients during Omicron). We did not identify a single transmission event from exposures via open doors of COVID-19 patients or from patients being placed in nonnegative-pressure rooms, except for exposure to roommates or their direct healthcare providers. Further, no instance of transmission from COVID-19 patients in the intensive care unit to HCWs was identified.

Clinical Infectious Diseases

Full text not published yet, reference pending

Transmission only when protocols broken (eg lunch in break rooms)

Used surgical masks, source control helps in a place with good ventilation

Masks

Special Communication | Infectious Diseases

October 31, 2023

Masks During Pandemics Caused by Respiratory Pathogens—Evidence and Implications for Action

Shama Cash-Goldwasser, MD, MPH¹; Arthur L. Reingold, MD²; Stephen P. Luby, MD³; [et al](#)

[» Author Affiliations](#) | [Article Information](#)

JAMA Netw Open. 2023;6(10):e2339443. doi:10.1001/jamanetworkopen.2023.39443



Interviews

Key Points

Question During the COVID-19 pandemic, what has been learned about whether face mask use is associated with lower transmission of SARS-CoV-2 in community settings, and how has it been learned?

Literature review revealed many high-quality observational studies demonstrating the association of face mask use in the community and of mask mandates with reduced spread of SARS-CoV-2.

Recommendations

Set up your personal and work life to minimize risk as much as possible, as sustainably as possible.

You'll go crazy thinking about Covid all the time, and you can't eliminate all risk completely. But you can try to control the biggest risk points in your life.

REDUCING COVID-19 TRANSMISSION

COVID-19 TRANSMISSION 101

- COVID-19 is airborne and moves like smoke.
- COVID-19 may remain contagious for hours in a room.
- COVID-19 transmission can happen before symptoms begin.



MASK

Well-fitted N95 or better masks help protect the wearer and the group. Aim for 100% masking.



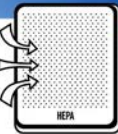
VENTILATE

Open as many windows as possible. Fans in windows and doorways increase ventilation.



FILTER

Use portable HEPA or MERV13 (or better) filters to reduce indoor airborne viral particles. The more the better.



GO OUTSIDE/HYBRID

Host events outside when possible. Offer meaningful hybrid meeting access (i.e. video conference).



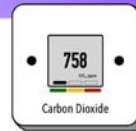
TEST

Test for COVID at home and/or at an event prior to entry. COVID-19 can still be transmitted by a person testing negative.



MONITOR

Monitor CO2 to assess indoor air quality. Ventilate to reduce CO2 levels below 800ppm.



MORE RESOURCES/LINKS AT [BIT.LY/LESSCOVID](https://bit.ly/lesscovid)

This is not medical advice. Use at your own risk. These tips will not provide complete protection from COVID-19. Please share this document freely. CC0.



@markdixontweets

In Practice

N95 masks at work (95%-100% of staff and patients wear masks at my hospital even though it's not required). I see 100-150 patients a week with no issues.

Good ventilation at work - Upgraded after SARS1, HEPA filters for clinics that aren't as well ventilated

Masks in planes, Ubers, trains, buses and most crowded indoor settings. Not so much in empty cavernous big box stores or empty malls with good ventilation. Almost never outside, unless very crowded.

Personal Life

Rather than restaurants, we host small dinner gatherings where guests self-screen, we use rapid tests frequently.

For the kids, we set playdates and also 'rain dates' two weeks later. We cancel meetings if there's any respiratory symptoms, even mild ones, and shift to the new date.

Stay on top of boosters. Seek antivirals if sick

Grocery delivery



Steps you can take

Check the quality of ventilation in your workplace or school. Advocate for HVAC improvements or HEPA filters.

During big waves, your company may be amenable to being mask friendly, more WFH to preserve staffing.

In high risk environments, masking, ventilation and good sick time benefits are essential.



WFH vs RTO

Return-to-Office Mandates

42 Pages • Posted: 18 Jan 2024 • Last revised: 26 Jan 2024

Yuye Ding

University of Pittsburgh - Katz Graduate School of Business

Mark (Shuai) Ma

University of Pittsburgh - Katz Graduate School of Business

Date Written: December 25, 2023

Abstract

Using a sample of Standard and Poor's 500 firms, we examine determinants and consequences of U.S. firms' return-to-office (RTO) mandates. Results of our determinant analyses are consistent with managers using RTO mandates to reassert control over employees and blame employees as a scapegoat for bad firm performance. Also, our findings do not support the argument that managers impose mandate because they believe RTO increases firm values. Further, our difference in differences tests report significant declines in employees' job satisfactions mandates but no significant changes in financial performance or firm values after RTO mandates. In summary, our research contributes to the ongoing debate over RTO versus working from home and has important implications for practitioners.

Paper studies Return to Office Mandates on Employees and Firm Performance from 2020-23

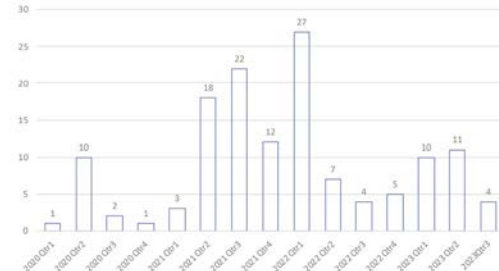


Figure 1. Distribution of firms' RTO mandates over our sample period. This figure shows the distribution of RTO announcements at the firm level across different quarters from January 2020 to August 2023. A total of 137 S&P500 firms publicly announced their RTO plans. We summarize the frequency of RTO announcements on a quarterly basis.

1) RTO mandates are more likely in firms with poor recent stock performance, and in those with powerful male CEOs.

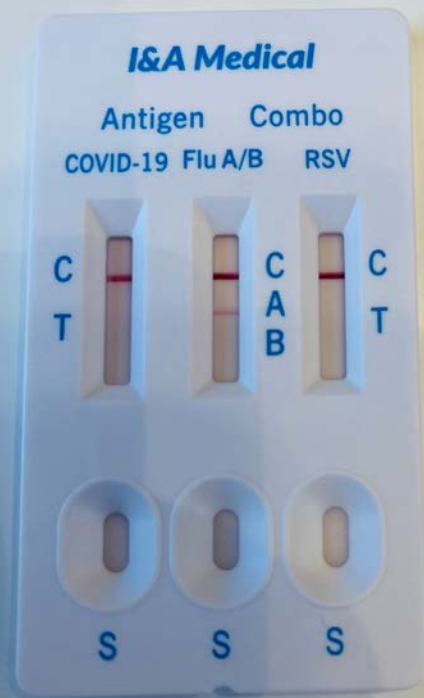
2) Glassdoor data finds RTO mandates significantly reduce employee ratings for job satisfaction, work-life balance and senior management.

3) There is no significant impact of RTO mandates on either firm profitability or firm stock-returns.

RTO mandates are often a response to poor recent company performance, perhaps adopted by under-pressure CEOs. These RTO mandates upset employees, but do not appear to yield performance benefits in return.



@@I_Am_NickBloom



10 Capsules

DIN 02457989

NAT-OSELTAMIVIR

Osetamivir Capsules, USP
Capsules d'oseltamivir, USP
(as osetamivir phosphate / sous forme de
phosphate d'oseltamivir)

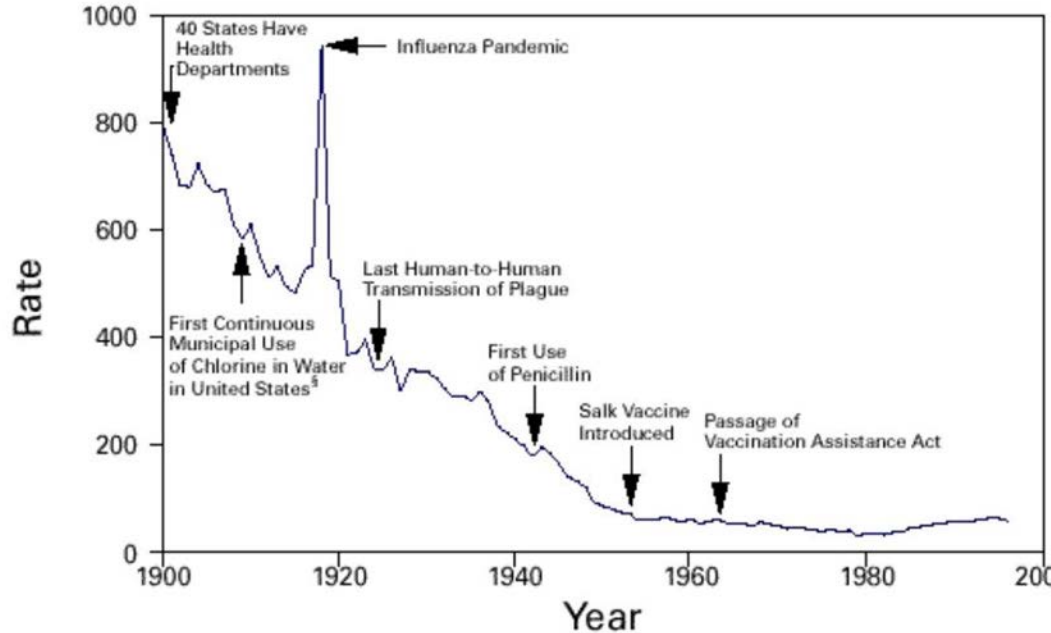
Antiviral Agent / Antiviral

75 mg

 **NATCO PHARMA**
(CANADA) INC.

You know something is wrong

FIGURE 1. Crude death rate* for infectious diseases — United States, 1900–1996



The current advice to ‘vax and relax’ goes against well over a 150 years of good public health practice

*Per 100,000 population per year.

[†]Adapted from Armstrong GL, Conn LA, Pinner RW. Trends in infectious disease mortality in the United States during the 20th century. JAMA 1999;281:61–6.

[§]American Water Works Association. Water chlorination principles and practices: AWWA manual M20. Denver, Colorado: American Water Works Association, 1973.

We are a social species

“The normal behavior of the tribe overpowers the desired behavior of the individual.”

Social conformity experiments by psychologist Solomon Asch in the 1950s found 75% of study participants would knowingly pick a wrong answer if it meant conforming to what the group around them chose.

Have the courage to stand out

You would be surprised how many people are worried, and need someone else to take the lead.

Never be afraid to address matters that affect your personal health and safety.



Raven App: ravenapp.org/cleanair



CO2 LEVELS AND COVID:

LOWER LEVELS MEAN MORE FRESH AIR, LESS COVID



<800
ppm*

Ideal, the lower the better. Safe place to be with a mask on.

800 to 1000

Be on your guard, try to open windows, get HEPA filters, turn on/upgrade HVAC systems

>1000

Not safe, do not stay there for prolonged periods, even with a mask on

* parts per million. Normal atmospheric CO2 level is 415 ppm. The more people in a room breathing, the more CO2 there is



Heart Disease



diet



exercise



monitoring



medication

Cancer



screening



behavior change



therapy

Covid-19



masks



ventilation



antivirals

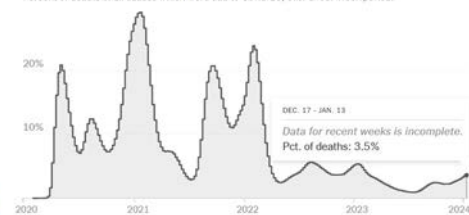


boosters



Canadian
Cancer
Society

Percent of deaths due to Covid-19
Percent of deaths of all causes which were due to Covid-19, over a four-week period.



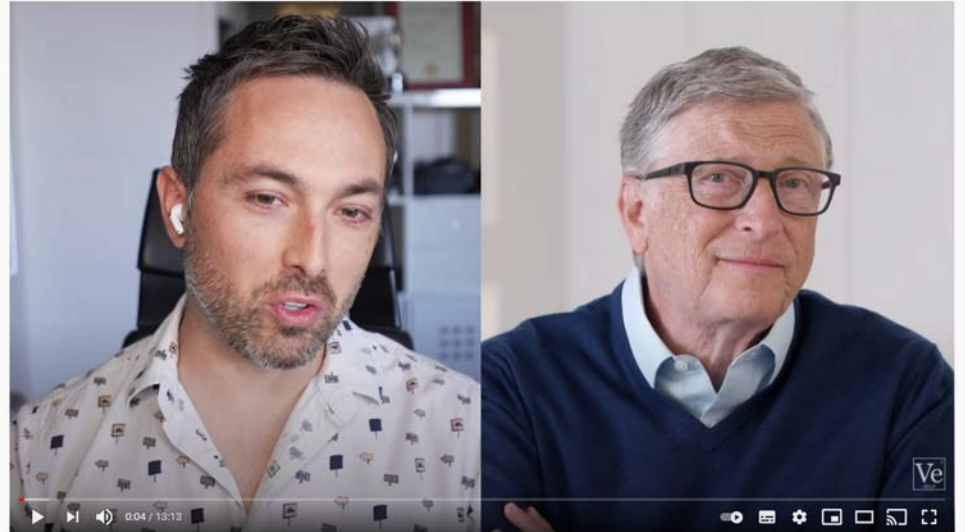
Coming
Soon

Future Threats

- 1) Climate Change
- 2) Bioterrorism
- 3) Great power conflict
- 4) Rapid technological change

Societal Challenges

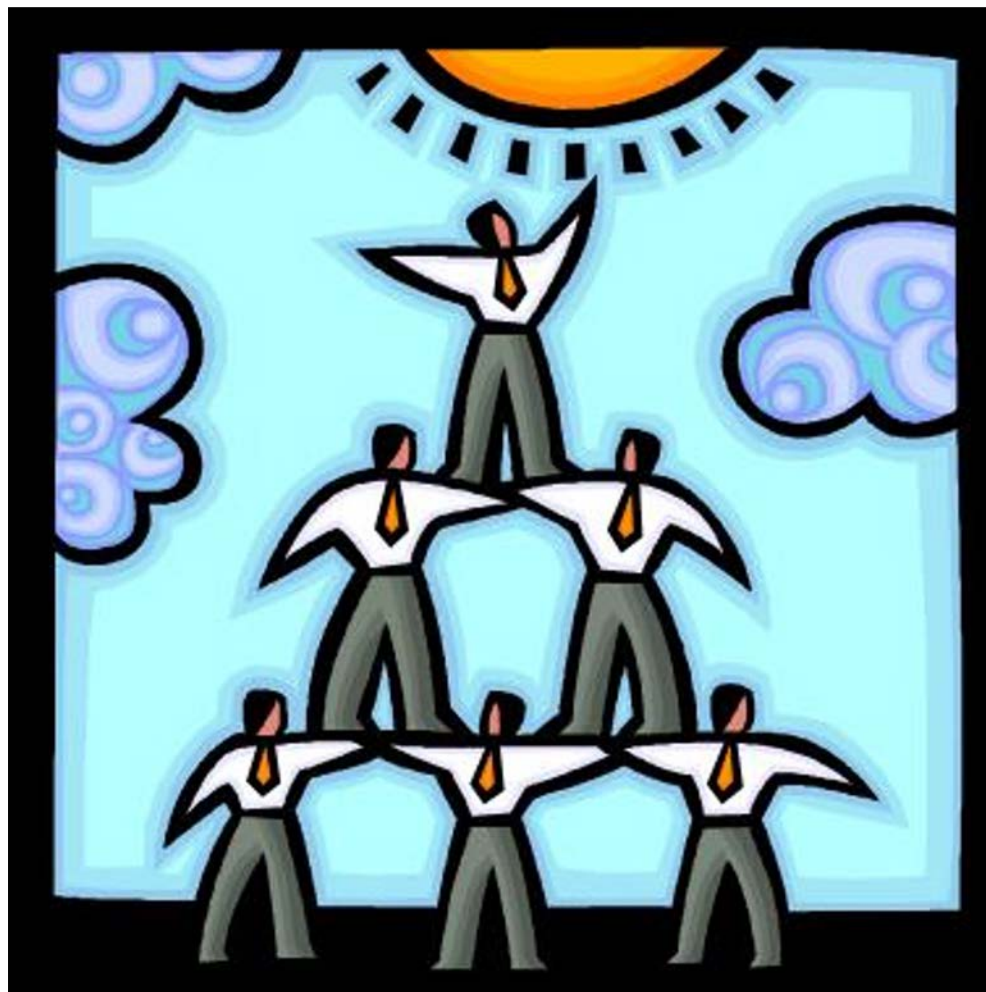
- 1) Homelessness
- 2) Poverty/Inequality
- 3) Racial equality



I Asked Bill Gates What's The Next Crisis?

2,334,057 views • 4 Feb 2021

110K 15K





We choose to go to the Moon in this decade and do the other things, **not because they are easy, but because they are hard**; because that goal will serve to organize and measure the best of our energies and skills, because that challenge is one that we are willing to accept, one we are unwilling to postpone, and one we intend to win...

Thank
you



@kashprime