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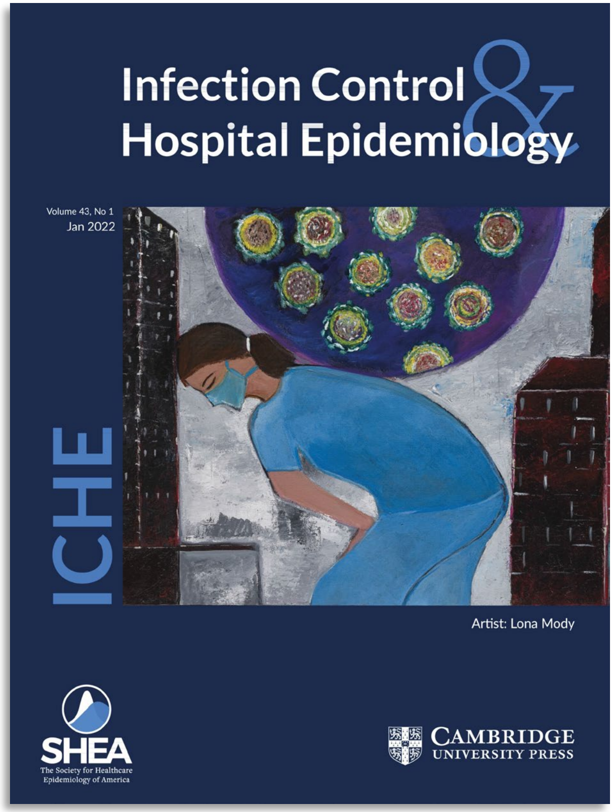

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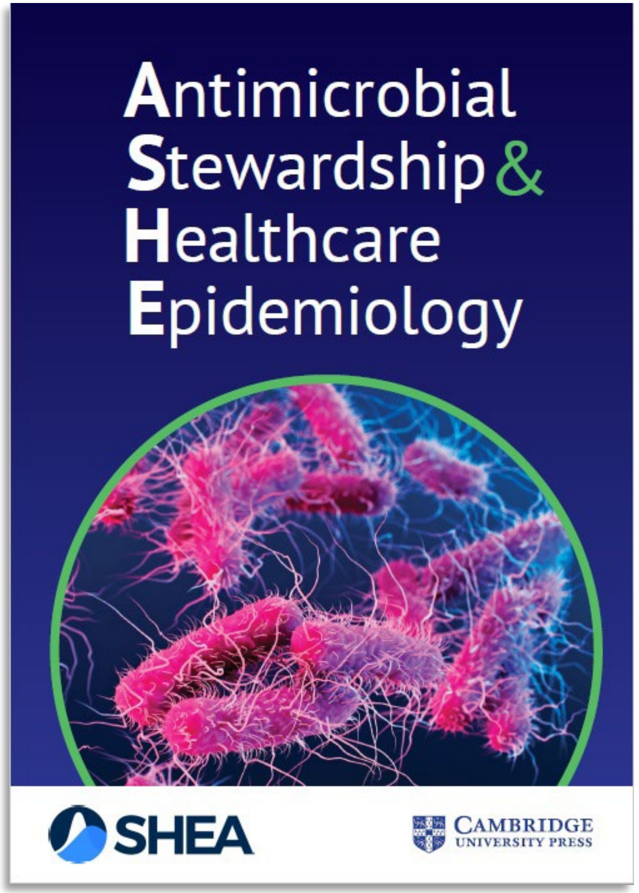

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Impact of Blood Culture Practices on Antibiotic Stewardship & HAI Surveillance & Management

- Ep. 1 - Healthcare Onset Bacteremia
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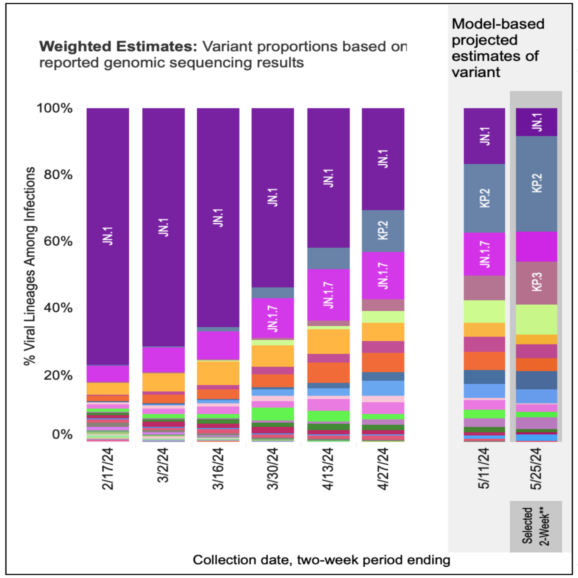
SHEA Town Hall 98
Overview

SARS-CoV-2 Variants, US, CDC



USA

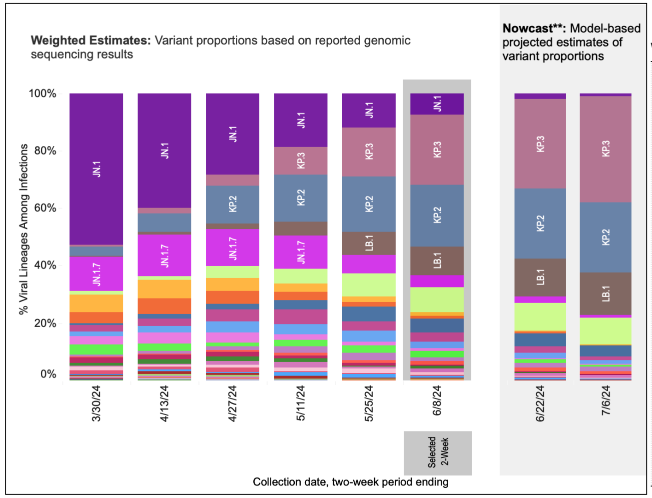
WHO label	Lineage #	%Total	95%PI
Omicron	KP.2	28.5%	23.0-34.7%
	KP.3	12.7%	7.8-19.6%
	JN.1.7	9.2%	7.3-11.6%
	KP.1.1	9.2%	6.5-12.8%
	JN.1	8.4%	6.8-10.3%
	JN.1.16.1	5.4%	3.3-8.8%
	JN.1.16	4.2%	2.6-6.8%
	JN.1.13.1	4.0%	2.8-5.7%
	JN.1.11.1	3.9%	2.6-5.9%
	KS.1	3.5%	2.0-6.1%
	JN.1.8.1	2.7%	2.0-3.6%
	KQ.1	2.2%	1.2-4.0%
	KW.1.1	1.7%	0.7-4.2%
	JN.1.18	1.7%	1.1-2.5%
	JN.1.32	1.0%	0.7-1.5%
	XDP	0.6%	0.4-1.0%
	KV.2	0.4%	0.2-0.7%
	GE.1	0.0%	0.0-0.0%
	BA.2	0.0%	0.0-0.1%
	BA.2.86	0.0%	0.0-0.0%
	JG.3	0.0%	0.0-0.0%
	HV.1	0.0%	0.0-0.0%

** These data include Nowcast estimates, which are modeled projections that may differ from weighted estimates generated at later dates
# Enumerated lineages are US VOC and lineages circulating above 1% nationally in at least one 2-week period. "Other" represents the aggregation of lineages which are circulating <1% nationally du
2-week periods displayed. While all lineages are tracked by CDC, those named lineages not enumerated in this graphic are aggregated with their parent lineages, based on Pango lineage definit
described in more detail here: https://web.archive.org/web/20240116214031/https://www.pango.network/the-pango-nomenclature-system/statement-of-nomenclature-rules.

Data from 2/17/24 – 5/25/24

Weighted Estimates in United States for 2-Week Periods in 3/17/2024 – 7/6/2024

Hover over (or tap in mobile) any lineage of interest to see the amount of uncertainty in that lineage's estimate.



Weighted Estimates in United States for 5/26/2024 – 6/8/2024

USA

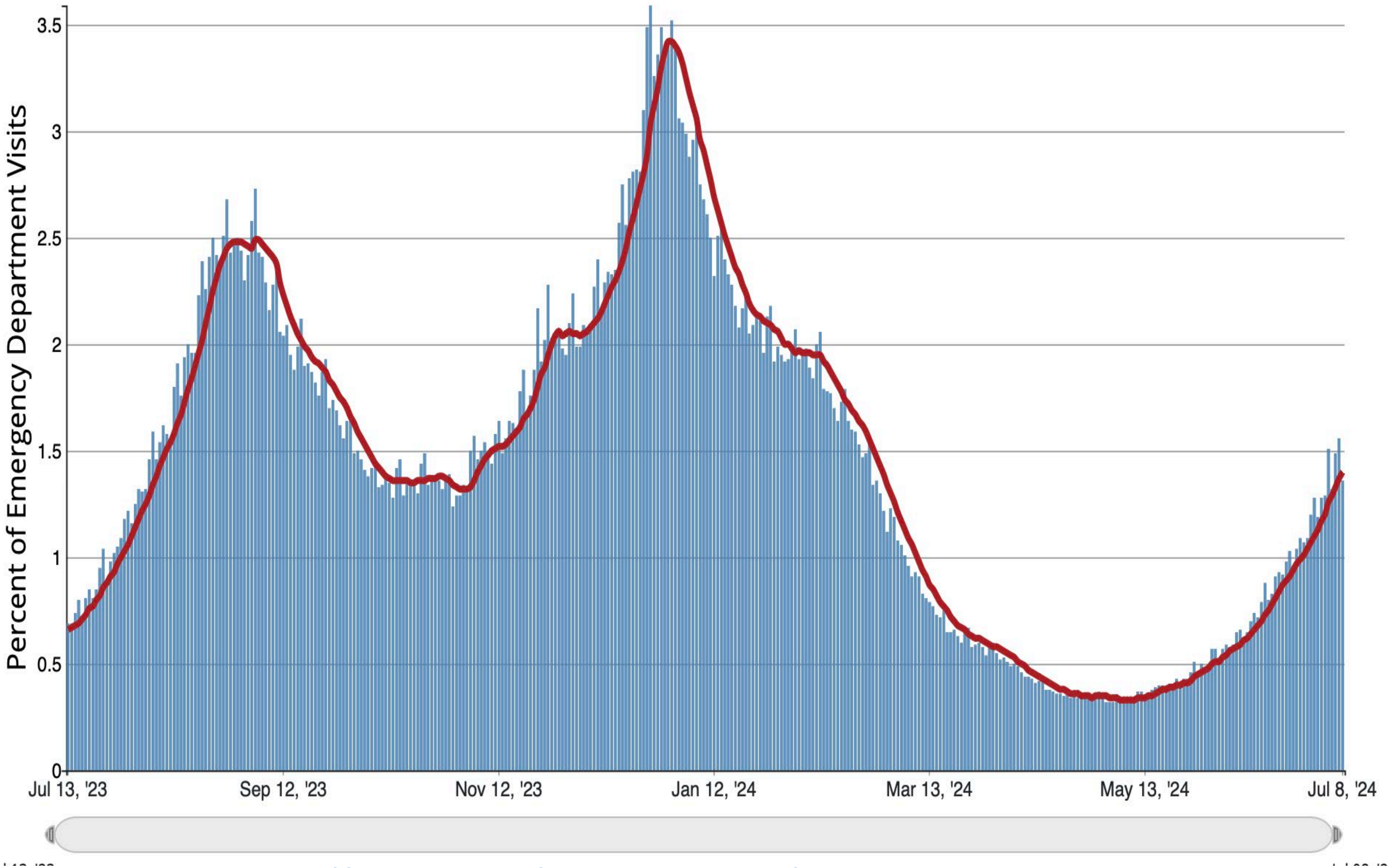
WHO label	Lineage #		%Total	95%CI
Omicron	KP.3		24.5%	18.4-31.6%
	KP.2		21.5%	17.5-25.9%
	LB.1		10.0%	5.2-17.0%
	KP.1.1		8.9%	4.6-15.2%
	JN.1		7.4%	4.8-10.9%
	JN.1.16.1		4.8%	2.5-8.2%
	JN.1.7	†	4.0%	1.7-7.9%
	JN.1.16		3.1%	1.6-5.4%
	JN.1.18		2.2%	1.2-3.7%
	JN.1.11.1		2.1%	1.1-3.7%
	XDV.1	†	1.4%	0.2-5.0%
	KP.4.1	†	1.3%	0.4-3.4%
	JN.1.13.1	†	1.2%	0.3-3.0%
	KS.1	†	1.1%	0.4-2.6%
	KQ.1	†	1.1%	0.1-3.7%
	JN.1.8.1	†	1.0%	0.3-2.4%
	JN.1.32	†	0.8%	0.0-4.4%
	KW.1.1	†	0.8%	0.2-2.2%
	XDP	†	0.6%	0.1-1.8%
	KV.2	†	0.3%	0.0-1.2%
	JN.1.4.3	†	0.3%	0.0-1.5%
	BA.2	†	0.0%	0.0-0.4%

** These data include Nowcast estimates, which are modeled projections that may differ from weighted estimates generated at later dates
† Estimates are less reliable based on one or more violations of NCHS data presentation standards for proportions: https://www.cdc.gov/nchs/data/series/sr_02/sr02_175.pdf
# Enumerated lineages are US VOC and lineages circulating above 1% nationally in at least one 2-week period. "Other" represents the aggregation of lineages which are circulating <1% nationally during all 2-week periods displayed. While all lineages are tracke
by CDC, those named lineages not enumerated in this graphic are aggregated with their parent lineages, based on Pango lineage definitions, described in more detail here: https://web.archive.org/web/20240116214031/https://www.pango.network/the-pango-nom

https://covid.cdc.gov/covid-data-tracker/#variant-proportions 7-18-

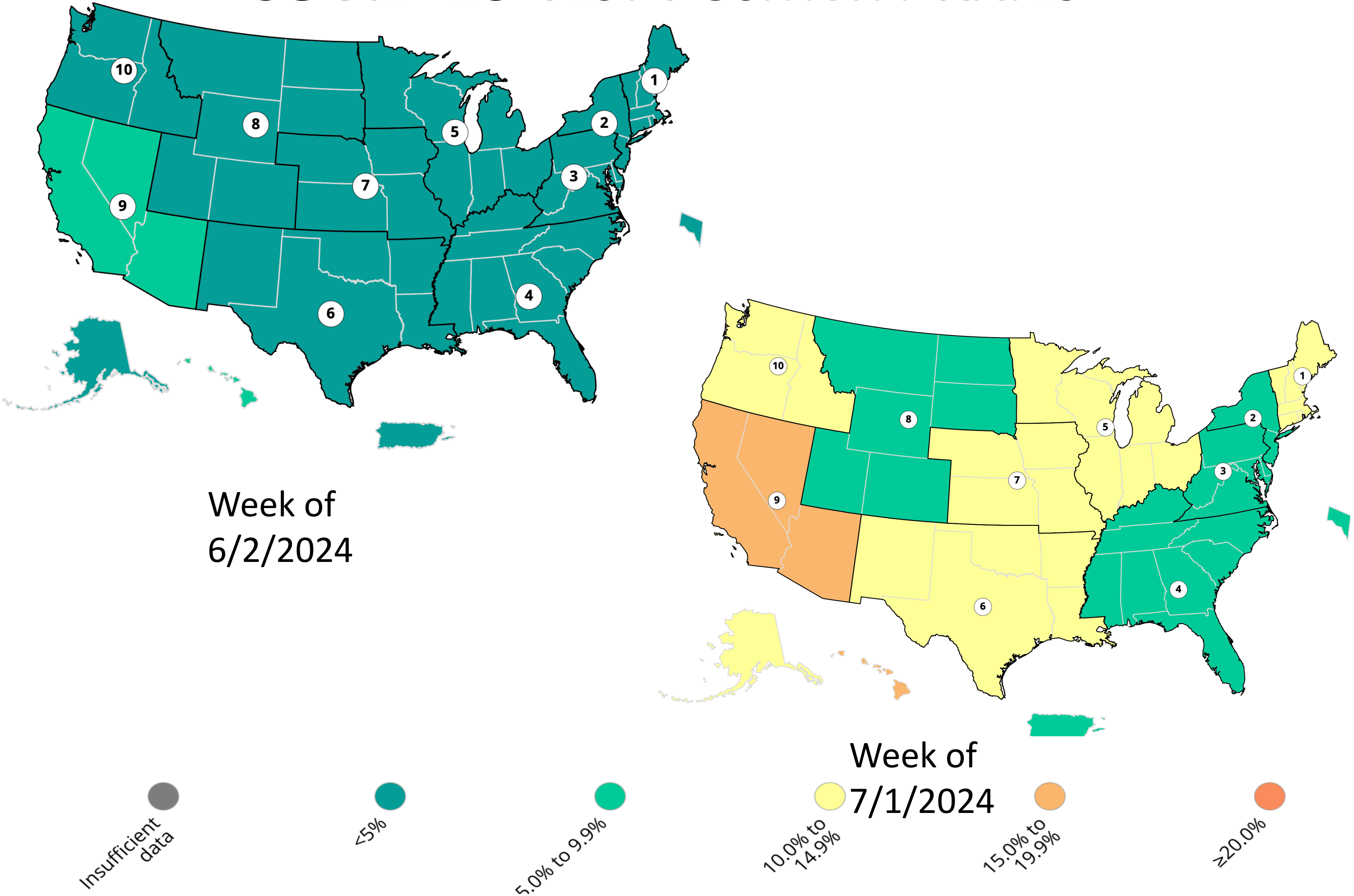
7/6/2024

EMERGENCY DEPARTMENT VISITS DUE TO COVID-19



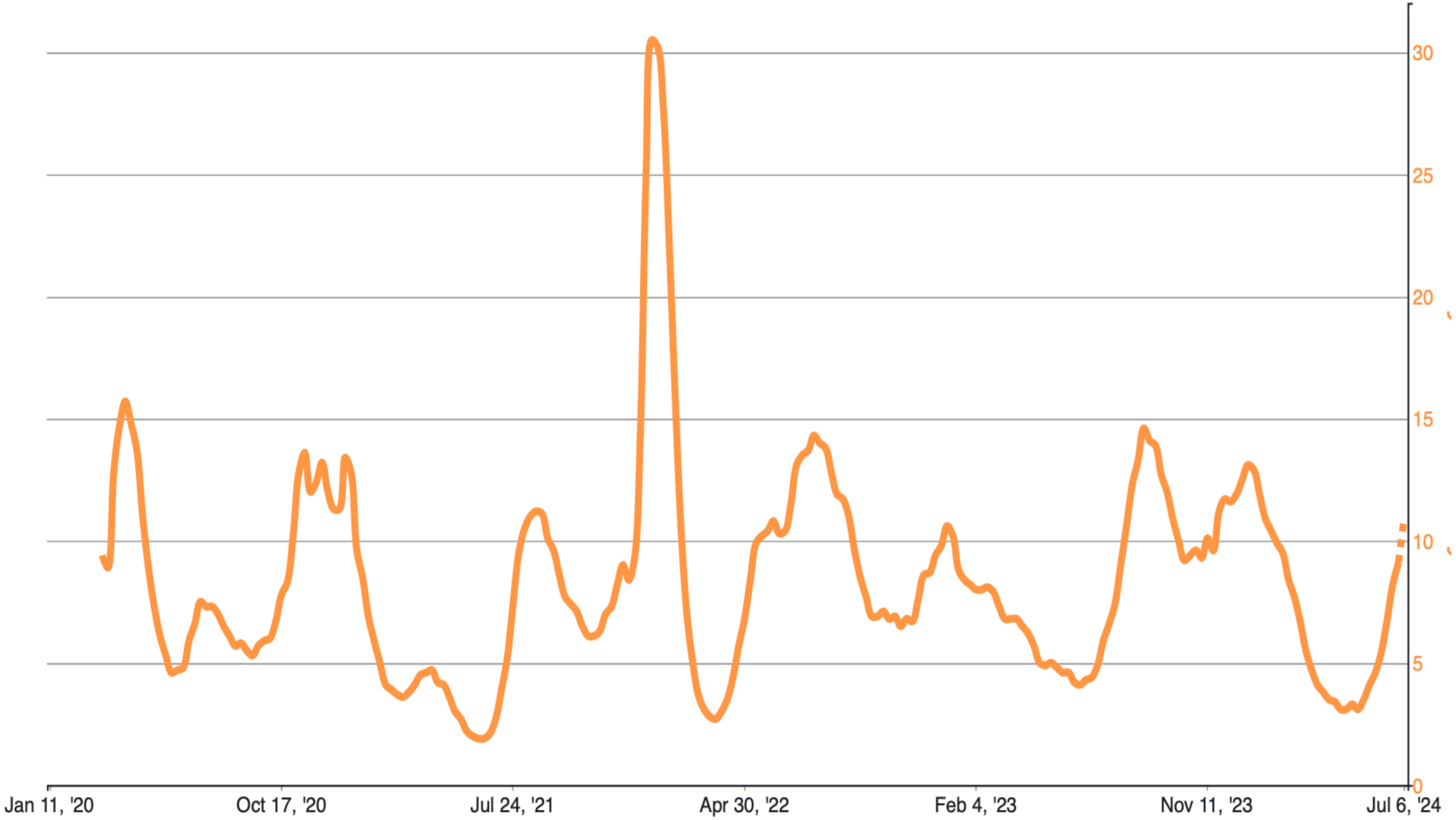
Source: CDC https://covid.cdc.gov/covid-data-tracker/#ed-visits_all_ages_combined 7-18-2024

COVID-19 Test Positivity Rates



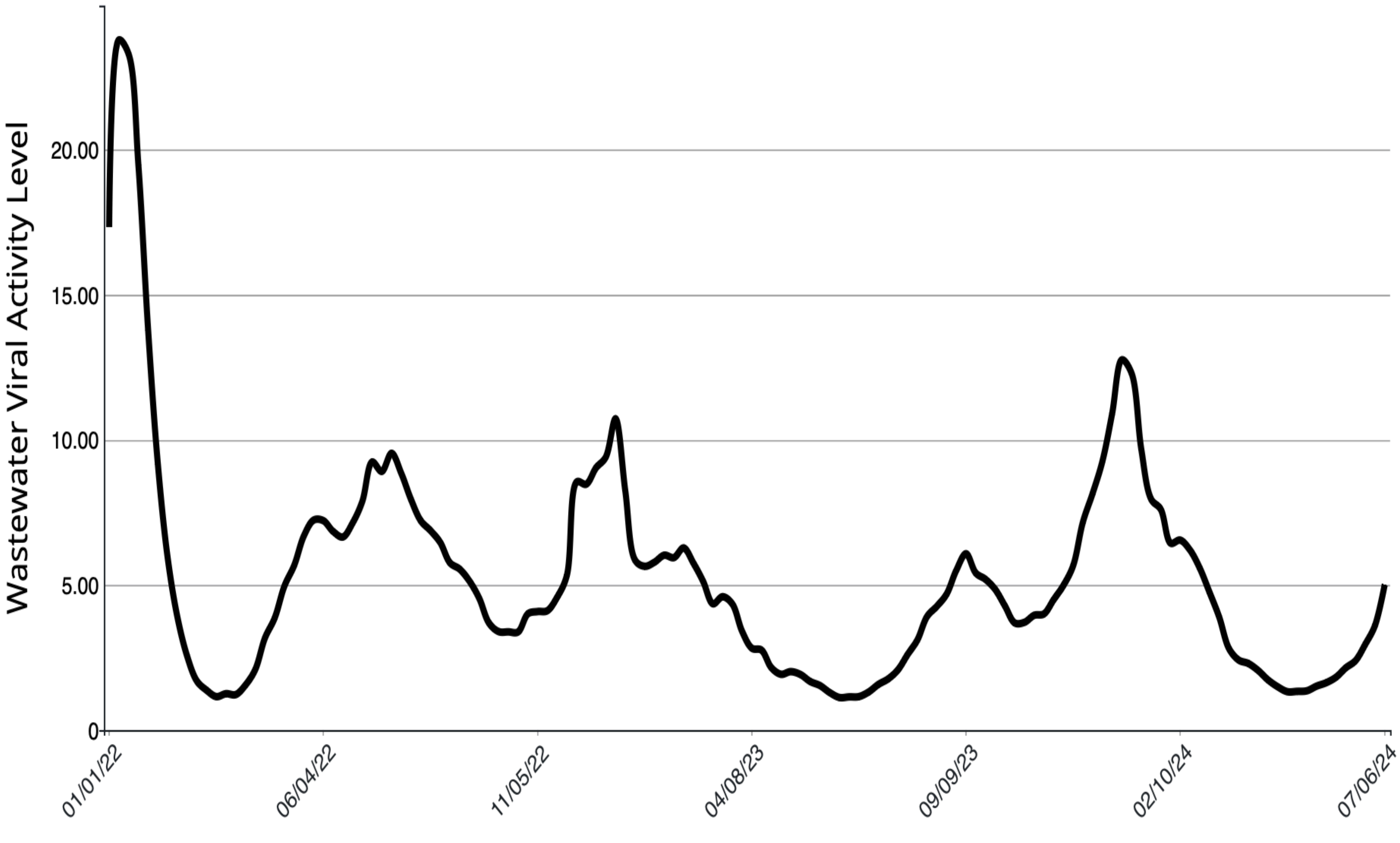
Source: CDC https://covid.cdc.gov/covid-data-tracker/#maps_positivity-week 7-1-2024

COVID-19 Rates of Test Positivity



Source: CDC https://covid.cdc.gov/covid-data-tracker/#trends_weeklyhospitaladmissions_testpositivity_00 7/1-2024

COVID-19 Wastewater Viral Activity



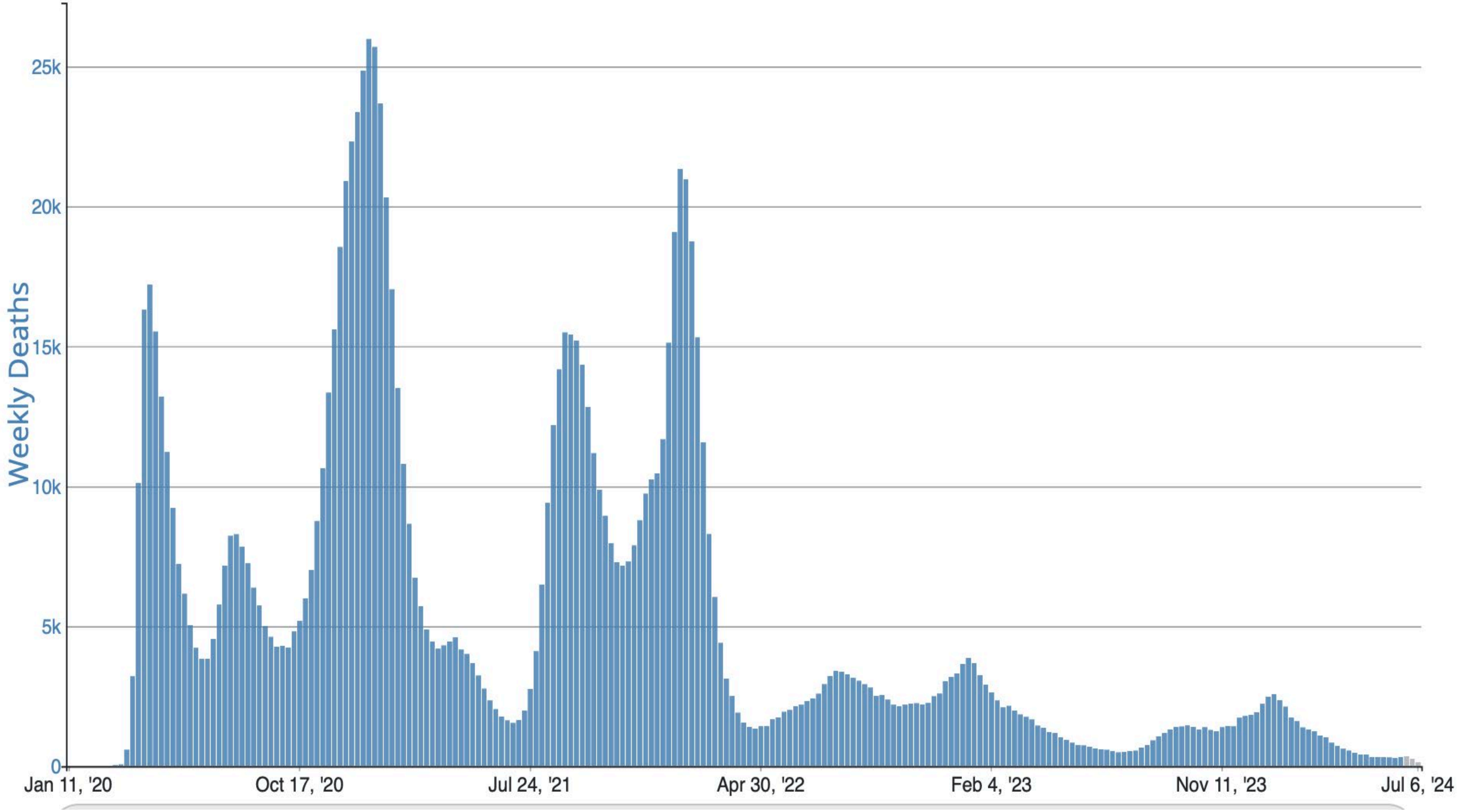
Source: CDC https://covid.cdc.gov/covid-data-tracker/#wastewater-surveillance 7-1-2024

HOSPITALIZATIONS FOR COVID-19 IN THE UNITED STATES

Hospitalizations increased by 60 % from our last Town Hall

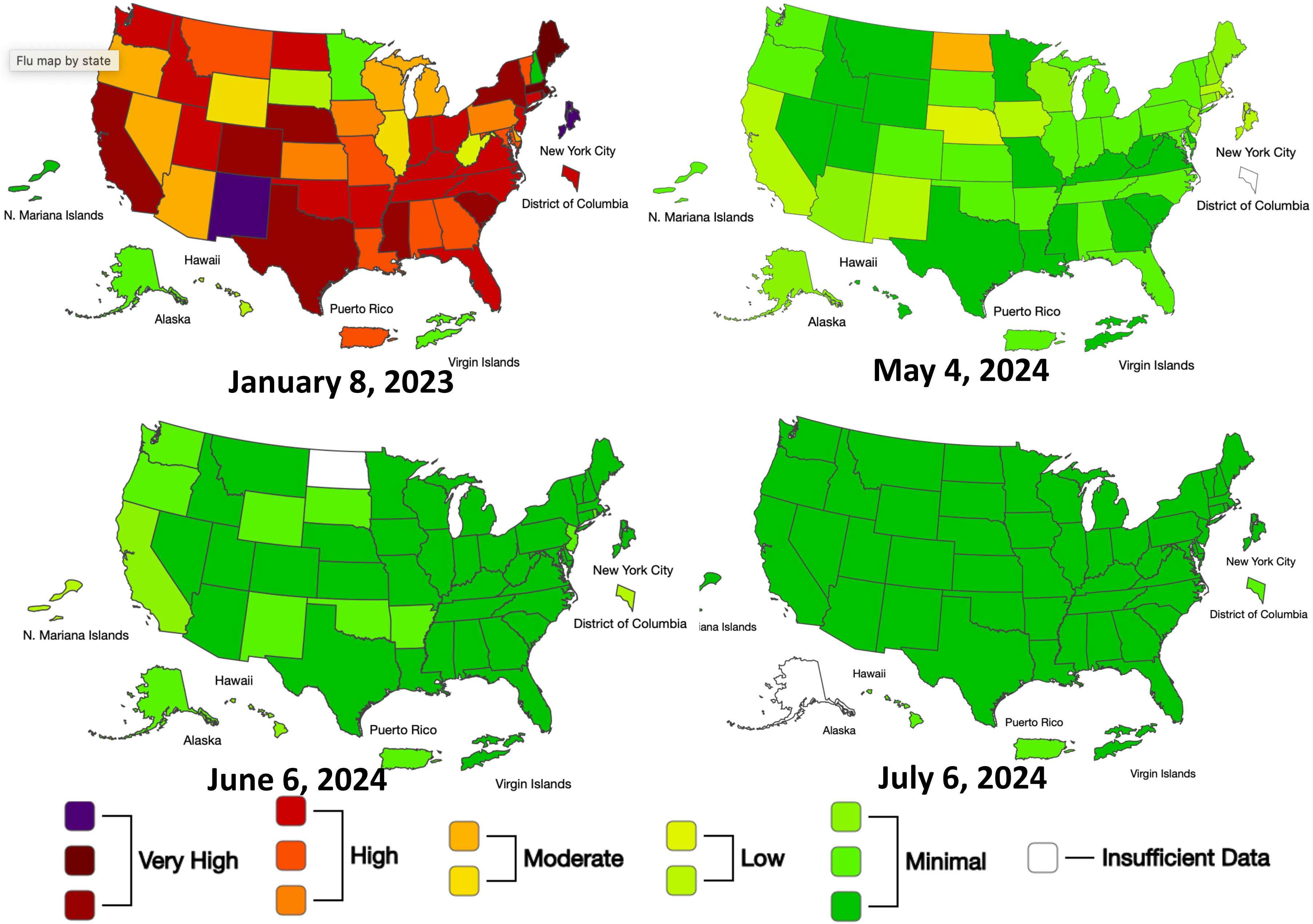
Source: https://covid.cdc.gov/covid-data-tracker/#covidnet-hospitalization-network 7-2-24

Weekly Provisional Deaths from COVID-19 in the United States



CDC https://covid.cdc.gov/covid-data-tracker/#trends_weeklydeaths_select_00 7-17-2024

INFLUENZA ACTIVITY BY STATE IN THE UNITED STATES



Source: CDC https://www.cdc.gov/flu/weekly/usmap.htm 7-6-2024

Today’s Emerging Infectious Disease News

1. An opinion piece in **The New England Journal of Medicine** discusses ‘academic freedom’ in the context of controversial statements about COVID made by a Stanford faculty member in 2020 that were viewed as possibly endangering the public health..
2. A paper in **Lancet’s eClinical Medicine** evaluated the effect of digitalizing the contact tracing process, concluding that digitalization improved exposure notification and facilitated the tracing of a greater number of contacts of individuals infected with SARS-CoV-2 in a resource-limited setting.
3. An editorial published in **Lancet’s eBioMedicine** discusses the current state of knowledge about the so-called brain fog and severe fatigue associated with long COVID and identifies the need for additional studies.
4. A letter to the editor in **Lancet Infectious Diseases** describes the virological characteristics of the SARS-CoV-2 KP.3, LB.1, and KP.2.3 variants.
5. A large cohort study published in **JAMA Network Open** found that, among 3568 patients younger than 18 years hospitalized with acute SARS-CoV-2 or MIS-C, severe neurological manifestations were common and were associated with new neurocognitive or functional morbidity at hospital discharge.
6. A series of five papers published in **Infection Control and Hospital Epidemiology** provides SHEA societal position statements on several aspects of pandemic preparedness for policymakers.
7. A study published in the **Annals of Internal Medicine** reported that short-term systemic side effects of SARS-CoV-2 mRNA vaccination were associated with greater long-lasting neutralizing antibody responses.

References available in the chat

Today's Emerging Infectious Disease News

8. Results of an electronic survey of public health practices for H_5N_1 found that nearly all states and territories reported ability to monitor and test persons exposed to H_5N_1. Jurisdictions varied: in capacities to monitor exposed persons, in recommendations for use of antivirals, and in potential use of H5N1 vaccines, if available.
9. A multicenter, cluster-randomized, investigator-masked, crossover, noninferiority trial compared preoperative skin preparation with povidone iodine in alcohol with chlorhexidine gluconate in alcohol. published in **JAMA** found povidone iodine in alcohol to be noninferior to chlorhexidine in preventing SSIs after cardiac or abdominal surgery.
10. A paper in **JAMA Pediatrics** evaluating 451,443 infants from 322 NICUs provides estimated incidence rates, clinical characteristics, and attributable mortality of hospital-onset bacteremia among infants in NICUs. The study found that hospital-onset bacteremia conferred a significant absolute increase in attributable mortality.
11. A study in **Clinical Infectious Diseases** of patients being treated for infection with multidrug-resistant Pseudomonas aeruginosa bacteremia or pneumonia found those treated with ceftazidime-avibactam were more likely to develop resistance than those treated with ceftolozane-tazobactam.
12. A cohort study of 311 older adults hospitalized for acute COVID-19 illness published in **JAMA Network Open** found that in-hospital delirium was associated with both functional disability and cognitive impairment over the 6 months after hospital discharge.
13. A study of youth with presymptomatic type 1 diabetes published in **JAMA** reported COVID infection was associated with accelerated progression to clinical type 1 disease

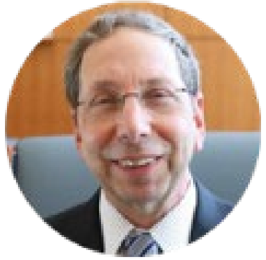
References available in the chat

Panelists:

Dr. David Henderson
NIH Consultant

Dr. Sarah Haessler
Baystate Health

Dr. Kristina Bryant
University of Louisville



Dr. David Weber
UNC School of Medicine

HCP MASKING TO PREVENT TRANSMISSION OF VIRAL RESPIRATORY PATHOGENS: CURRENT OPTIONS

David J. Weber, MD, MPH, FIDSA, FSHEA, FRSM (London)
Sanders Distinguished Professor of Medicine, Pediatrics and Epidemiology
Associate Chief Medical Officer, UNC Medical Center
Medical Director, Hospital Epidemiology, UNC Medical Center
University of North Carolina at Chapel Hill

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Disclosures: Consultancy-Pfizer, GSK, PDI, BD, Germitec; Speaker's Bureau-Merck, BD, GAMA

Universal Masking to Control Healthcare-associated Transmission of SARS-CoV-2

Goal: To evaluate the effectiveness of infection control measures, including universal masking

Results: Among 250 potentially exposed patients and staff, 14 confirmed cases of coronavirus disease 2019 (COVID-19) were identified. Patient roommates and staff with prolonged patient contact were most likely to be infected. The last potential date of transmission from staff to patient was day 22, the day universal masking was implemented. Subsequent point-prevalence surveys in 126 patients and 234 staff identified 0 patient cases and 5 staff cases of COVID-19, without evidence of healthcare-associated transmission.

Conclusion: Universal masking with medical face masks was effective in preventing further spread of SARS-CoV-2 in our facility in conjunction with other traditional infection prevention measures

Thompson ER, et al. ICHE 2021:1-7

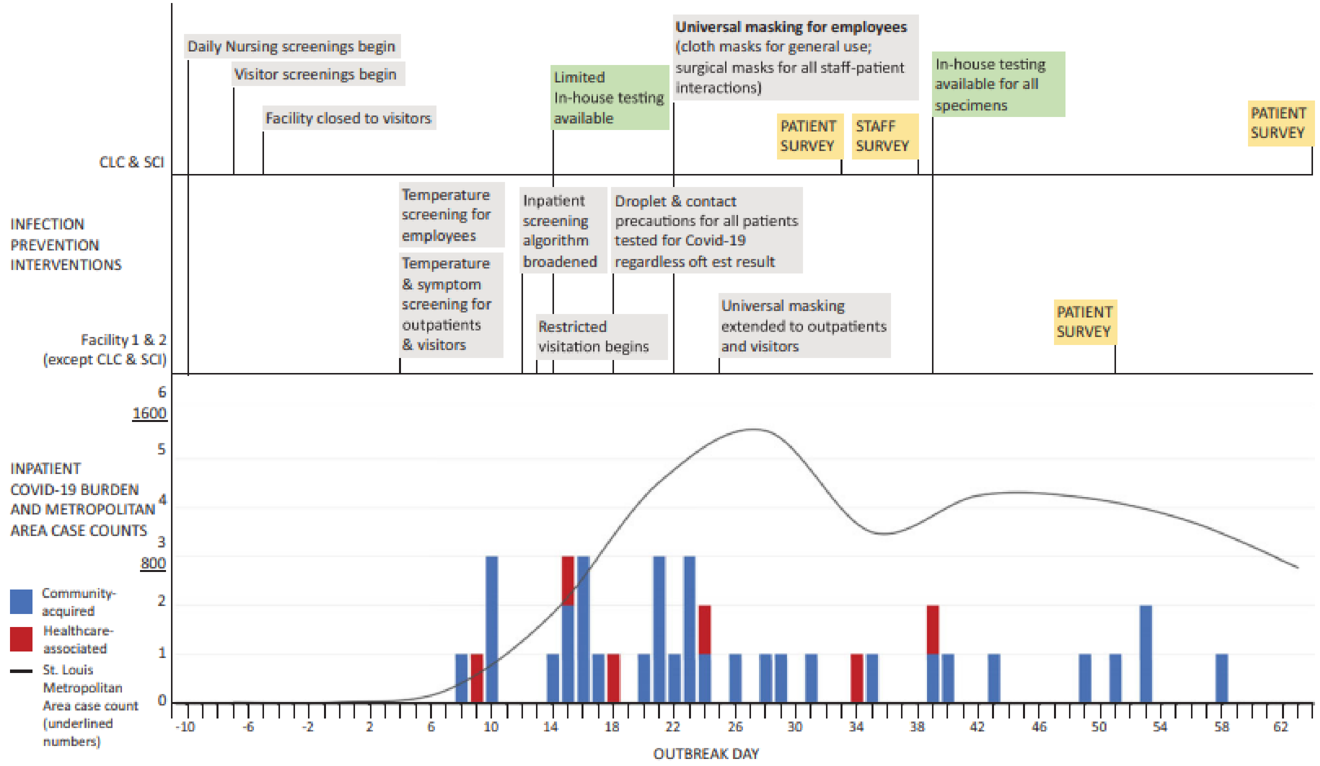

Fig. 1. Timeline of infection prevention interventions implemented across both campuses. The x-axis shows outbreak days. The graph shows laboratory confirmed inpatient healthcare-associated (red) and community-associated (blue) cases of COVID-19 by date of test collection, as well as weekly case counts in the St Louis Metropolitan Area. Healthcare-associated cases were defined by symptoms arising >72 hours after admission. The St Louis Metropolitan Area includes St Louis City, St Louis County, and St Charles County in Missouri and Madison County, Monroe County, and St Clair County in Illinois.

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Association of institutional masking policies with healthcare-associated SARS-CoV-2 infections in Swiss acute care hospitals during the BA.4/5 wave (CH-SUR study): a retrospective observational study

Background: We investigated the association of variation in institutional mask policies with healthcare-associated SARS-CoV-2 infections in acute care hospitals in Switzerland during the BA.4/5 2022 wave.

Methods SARS-CoV-2 infections in hospitalized patients between June 1 and September 5, 2022, were obtained from the "Hospital-based surveillance of COVID-19 in Switzerland"-database and classified as healthcare- or community-associated based on time of disease onset. Institutions provided information regarding institutional masking policies for healthcare workers and other prevention policies. The percentage of healthcare-associated SARSCoV-2 infections was calculated per institution and per type of mask policy. The association of healthcare-associated SARS-CoV-2 infections with mask policies was tested using a negative binominal mixed-effect model.

Results We included 2'980 SARS-CoV-2 infections from 13 institutions, 444 (15%) were classified as healthcare associated. Between June 20 and June 30, 2022, six (46%) institutions switched to a more stringent mask policy. The percentage of healthcare-associated infections subsequently declined in institutions with policy switch but not in the others. In particular, the switch from situative masking (standard precautions) to general masking of HCW in contact with patients was followed by a strong reduction of healthcare-associated infections (rate ratio 0.39, 95% CI 0.30-0.49).

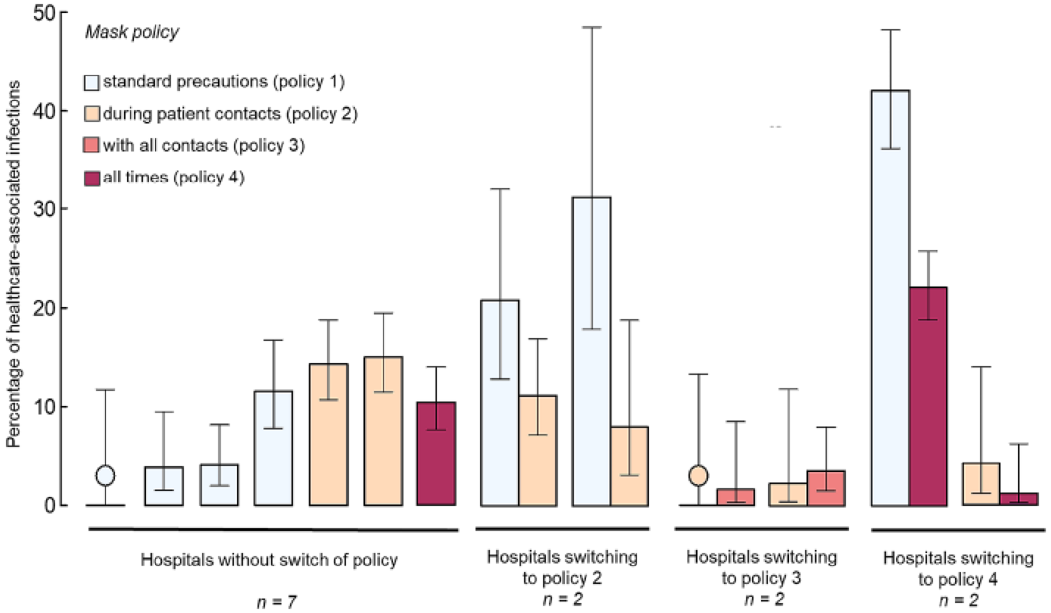


Fig. 4 Percentage of healthcare-associated infections by hospital and mask policy, with 95% Wilson CI). Institutions are grouped by the policies switched to. If there were no healthcare-associated infections, a coloured dot indicates the mask policy

Table 1 Negative binomial mixed-effects model evaluating the association of mask policies with the rate of healthcare-associated SARS-CoV-2 infections (number of healthcare-associated infections relative to number of community-acquired infections) both among and within institutions

Effect in model	RR (95% CI)	*p*-value
Mask with patients vs. standard	0.56 (0.32–0.96)	0.035
Mask during all contacts vs. standard	0.73 (0.21–2.53)	0.615
Mask indoors at all times vs. standard	0.40 (0.31–0.52)	< 0.001
Mean duration of patient stay (per day)	2.28 (1.58–3.27)	< 0.001
Overall test for differences among mask policies		< 0.01

RR: Rate ratio; *p*-values: Wald tests.

Dorr T, et al. Antimicrob Resist & Infect Control 2024;13:64

Universal masking during COVID-19 outbreaks in aged care settings: A systematic review and meta-analysis

Aged care facilities (ACF) are a high-risk COVID-19 transmission setting, and older residents are at greater risk of severe outcomes. This systematic review and meta-analysis assessed whether universal masking and COVID-19 vaccination reduce SARS-CoV-2 attack rates (ARs) in ACF. Articles published between 1 December 2019 and 28 February 2022 were screened across five databases (Medline, Embase, PubMed, Scopus, Web of Science and Cumulative Index to Nursing and Allied Health Literature (CINAHL)). Risk of bias was assessed using relevant Joanna Briggs Institute critical appraisal tools. Meta-analysis of single proportions, subgroup analysis, and metaregression were performed to compare the effects of universal masking and vaccine doses on pooled SARS-CoV-2 ARs. Of 99 included articles, SARS-CoV-2 ARs for residents were available in 86 studies (representing 139 outbreaks), and for staff in 49 studies (78 outbreaks). Universal masking was associated with lower SARS-CoV-2 ARs in ACF outbreaks (AR = 34.9% [95% CI: 27.2–42.6%]) compared to facilities without universal masking (67.3% [54.2–80.4%], p < .0001). In ACF with universal masking prior to outbreak onset, facility-wide testing, and documentation of asymptomatic infection, the asymptomatic AR at time of testing was 11.4% (6.5–17.4%) in residents. Receipt of zero, one and two vaccination doses were associated with ARs of 64.9% (49.6–80.2%), 54.9% (33.7–76.1%) and 45.2% (29.2–61.3%), respectively. To protect residents from COVID-19, ACF should provide vaccination of residents and staff, universal masking for staff, and facility-wide testing during times of heightened community transmission.

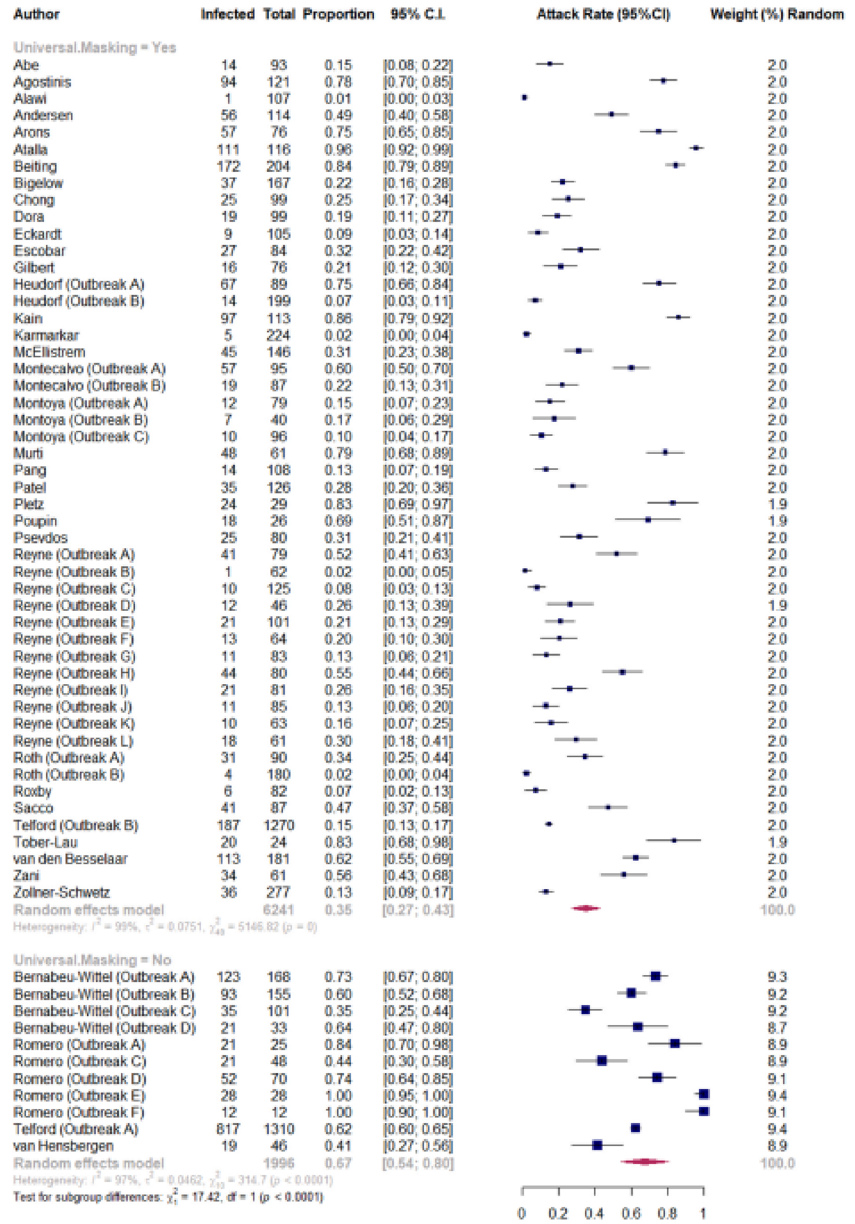


Fig. 2. Pooled SARS-CoV-2 attack rates in residents by universal masking comparison groups. Blue squares represent the median attack rate and black horizontal lines represent the 95% confidence interval for each study. The centre of the red diamond indicates the median pooled attack rate, while the ends of the red diamond indicate the 95% confidence interval.

Chen R, et al. Ageing Res Reviews 2024;93:102138

Infect Control Hosp Epidemiol. 2023 Sep;44(9):1373-1374. doi: 10.1017/ice.2023.2. Epub 2023 Feb 10.

Back to the future: Redefining "universal precautions" to include masking for all patient encounters

Ibukunoluwa C Kalu [1], David K Henderson [2], David J Weber [3], Sarah Haessler [4]

Review Antimicrob Steward Healthc Epidemiol. 2023 Jul 26;3(1):e128. doi: 10.1017/ash.2023.200. eCollection 2023.

Considerations for de-escalating universal masking in healthcare centers

Caroline Landelle [1], Gabriel Birgand [2] [3], James R Price [4], Nico T Mutters [5], Daniel J Morgan [6] [7], Jean-Christophe Lucet [8], Solen Kerneis [8], Walter Zingg [9]

Editorial Ann Intern Med. 2023 Jun;176(6):862-863. doi: 10.7326/M23-1190. Epub 2023 May 16.

For Patient Safety, It Is Not Time to Take Off Masks in Health Care Settings

Tara N Palmore [1], David K Henderson [2]

Editorial Ann Intern Med. 2023 Jun;176(6):859-861. doi: 10.7326/M23-0793. Epub 2023 Apr 18.

Universal Masking in Health Care Settings: A Pandemic Strategy Whose Time Has Come and Gone, For Now

Erica S Shenoy [1], Hilary M Babcock [2], Karen B Brust [3], Michael S Calderwood [4], Shira Doron [5], Anurag N Malani [6], Sharon B Wright [7], Westyn Branch-Elliman [8]

Front Public Health. 2024 Apr 23:12:1378567. doi: 10.3389/fpubh.2024.1378567. eCollection 2024.

The time has come to protect healthcare workers and patients from aerosol transmissible disease

Lisa M Brosseau [1], Andrew Bowdle [2], Raymond Tellier [3], Michael Klompas [4], Robert T Schooley [5], Robert Harrison [6], Srdjan Jelacic [2], Michael T Osterholm [1]

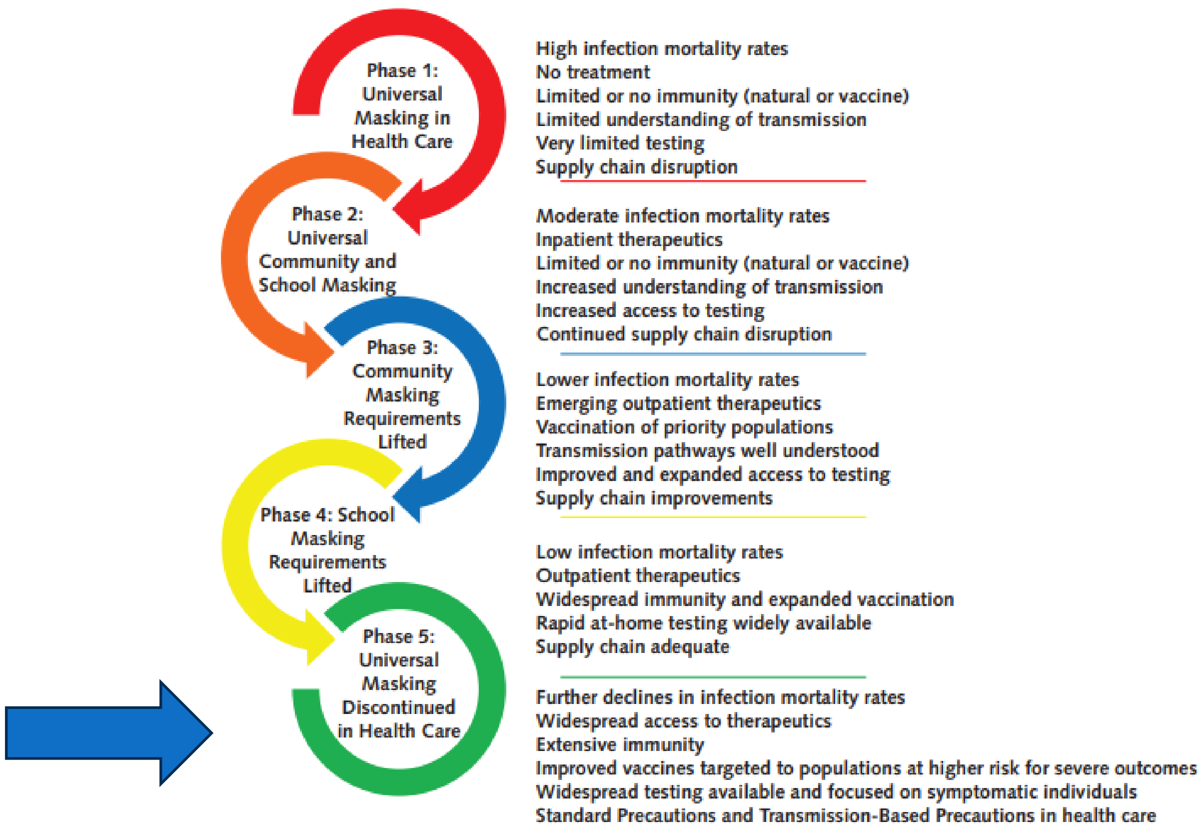
N Engl J Med. 2023 Jul 6;389(1):4-6. doi: 10.1056/NEJMp2306223. Epub 2023 Jun 14.

Strategic Masking to Protect Patients from All Respiratory Viral Infections

Michael Klompas [1], Meghan A Baker [1], Chanu Rhee [1], Lindsey R Baden [1]

Universal Masking in Health Care Settings: A Pandemic Strategy Whose Time Has Come and Gone, For Now

Figure. Key milestones and contextual factors during the pandemic to endemic phases.



Transitions during the pandemic to endemic stages and linkage of key milestones and contextual factors to masking recommendations in health care and community settings are illustrated.

During the COVID-19 pandemic in the United States, the use of facemasks has been mandated in all health care settings for individuals older than 2 years, whether present as health care personnel, patients, or visitors. In this commentary, a group of health care epidemiologists, infectious diseases physicians, and researchers argue for the withdrawal of the universal masking policy given the current status of the COVID-19 pandemic.

Shenoy ES, et al
Ann Intern Med 2023;176:859-861

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Back to the future: Redefining “universal precautions” to include masking for all patient encounters

Despite recent guidance from the Centers for Disease Control and Prevention (CDC) allowing institutions to relax in-facility masking strategies and due to our evolving understanding of respiratory pathogen transmission during the coronavirus disease 2019 (COVID-19) pandemic, we propose an updated standard for universal precautions in healthcare settings: permanently including universal masking in routine patient-care interactions. Such a practice prioritizes safety for patients, healthcare providers (HCPs), and visitors.

Kalu IC, et al. ICHE 2023;44:1373-1374

Table 1. Pathogens and Syndromes With Outbreak Potential Whose Transmission is Interrupted by Mask Wearing as Part of Standard Precautions

Pathogens/Syndromes	Examples
Viruses	Influenza
	Respiratory syncytial virus
	Rhinovirus
	Adenovirus
	Parainfluenza virus
	SARS-CoV-1
	SARS-CoV-2
	MERS-CoV
	Endemic enteroviruses and coronaviruses
	Rubeola (measles)
	Mumps virus
	Rubella virus
	Varicella zoster virus
	Monkeypox
Bacteria	*Bordetella pertussis*
	Corynebacterium diphtheriae
	Neisseria meningitidis
	Group A *Streptococcus*
Mycobacteria	*Mycobacterium tuberculosis*
Syndromes	Bronchiolitis
	Croup

Note. SARS-CoV-1, severe acute respiratory coronavirus virus 1; MERS, Middle East respiratory coronavirus.

Considerations for De-escalating Universal Masking in Healthcare Centers

Three years after the beginning of the COVID-19 pandemic, better knowledge on the transmission of respiratory viral infections (RVI) including the contribution of asymptomatic infections encouraged most healthcare centers to implement universal masking. The evolution of the SARS-CoV-2 epidemiology and improved immunization of the population call for the infection and prevention control community to revisit the masking strategy in healthcare. In this narrative review, we consider factors for de-escalating universal masking in healthcare centers, addressing compliance with the mask policy, local epidemiology, the level of protection provided by medical face masks, the consequences of absenteeism and presenteeism, as well as logistics, costs, and ecological impact. Most current national and international guidelines for mask use are based on the level of community transmission of SARS-CoV-2. Actions are now required to refine future recommendations, such as establishing a list of the most relevant RVI to consider, implement reliable local RVI surveillance, and define thresholds for activating masking strategies. Considering the epidemiological context (measured via sentinel networks or wastewater analysis), and, if not available, considering a time period (winter season) may guide to three gradual levels of masking: (i) standard and transmissionbased precautions and respiratory etiquette, (ii) systematic face mask wearing when in direct contact with patients, and (iii) universal masking. Cost-effectiveness analysis of the different strategies is warranted in the coming years. Masking is just one element to be considered along with other preventive measures such as staff and patient immunization, and efficient ventilation.

Landelle C, et al. ASHE 2023;3:e128, 1-8

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Factors for and against De-escalating or Maintaining Universal Masking in Healthcare Centers

Targeted population	De-escalating universal masking	Maintaining universal masking
HCP and patient perspective	**Adherence** Lack of adherence and compliance with universal masking related to fatigue, discomfort, and tolerability	Rare hospital transmission with good adherence and compliance of universal masking policy
	Epidemiology Decreasing benefit of universal masking in healthcare settings during low community transmission	Policy driven by imperfect epidemiological data (no real-time data, testing bias); challenge of back-and-force reinstitution of universal masking
	Immunity and treatment options High level of vaccine and infection-induced immunity and availability of effective treatment and prevention tools	Vaccine hesitancy and waning immunity
	Community measures Inconsistencies with non-pharmaceutical measures in the population	Prevention of transmission by asymptomatic and presymptomatic individuals; anticipating the occurrence of variants or emerging respiratory viruses
	Cost and logistics Rupture of supply chains, high cost, and ecological concerns	Counterbalancing costly installation of ventilation systems or investments to improve infrastructure
HCP perspective	**Absenteeism and presenteeism** Universal masking applying to the occupational setting only	Absenteeism due to occupational transmission of respiratory viruses; presenteeism
	Staff without patient contact Unclear benefit for HCP without direct patient contact	
Patient perspective	Improved HCP-patient relationship in the absence of face covering	Protection of vulnerable patients

Landelle C, et al. ASHE 2023;3:e128, 1-8

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Example of Advantages and Disadvantages of Alternative Strategies to Permanent Universal Masking in Healthcare Centers

Strategies	Description	Advantages of the strategy	Disadvantages of the strategy
Symptom-based precautions	Wearing a surgical mask in addition to standard precautions by patients with respiratory symptoms	- Better compliance with policy - Lower utilization of supplies - Better HCP-patient relationship	- Does not prevent asymptomatic and presymptomatic transmission - Requires high levels of vaccine and infection-induced immunity
Targeted masking	Wearing of a face mask in direct patient contact (either all patients or immunocompromised patients only)	- Better compliance with policy - Protection of (vulnerable) patients	- Does not prevent staff-to-staff transmission - Interferes with HCP-patient relationship
Epidemiology-based universal masking	Wearing surgical masks by all staff (clinical and nonclinical), patients, and visitors during high level of community transmission	- Adjustment to the risk of transmission, more acceptable by HCPs - Increased adherence and compliance with policy - Responsible utilization of supplies	- Difficult to implement in regions without sentinel data or wastewater surveillance - Challenge of back-and-force institution of a radical intervention in a complex environment
Season-based universal masking	Wearing a surgical mask by all staff (clinical and nonclinical), patients, and visitors during seasonal respiratory viral periods	- Adjustment to the theoretical risk of transmission of all respiratory viruses with a seasonal pattern - Takes into account the risk of asymptomatic and presymptomatic respiratory infections - Prevents hospital functioning	- Decreased adherence from HCPs during low level of community transmission - Not covering non-seasonal respiratory infections - Utilization of supplies
Targeted continuous masking	Wearing of a face mask by all HCPs during their entire shifts in areas with patient care	- Prevents HCP-patient and patient-patient asymptomatic and presymptomatic transmission - Increased adherence due to consistency of the strategy - Prevents presenteeism or absenteeism in clinical areas - Mitigates presenteeism in clinical areas - Preserves patient safety - Maintains clinical activity	- Utilization of supplies - Not preventing staff-to-staff transmission in nonclinical areas - Interferes with HCP-patient relationship
Permanent universal masking	Wearing a surgical mask by all staff (clinical and nonclinical), patients, and visitors at any time	- Prevents asymptomatic and presymptomatic transmission in the hospital - Prevents absenteeism - Mitigates presenteeism - Preserves patient safety - Maintains hospital activity	- Lack of adherence and compliance related to fatigue, discomfort and tolerability - Large utilization of supplies

Note. HCPs: healthcare professionals.

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The time has come to protect healthcare workers and patients from aerosol transmissible disease

In order to protect patients and healthcare workers from aerosol transmissible diseases, healthcare facilities should improve ventilation and air purification and in addition should consider universal use of respirators (e.g., N95, FFP2 or equivalent) when aerosol transmissible pathogens are widespread in the community. A study of SARS-CoV-2 within 288 United States hospitals documented more than 14,000 infections potentially acquired in the hospital over a 2-year period and found that more than 8% of patients hospitalized with SARS-CoV-2 may have acquired their infection in the hospital (1). Despite the frequency of nosocomial respiratory viral transmission most countries have no national mandate for masks or respirators in healthcare facilities. We propose that healthcare facilities should anticipate that aerosol transmissible disease will continue to be of major importance to public health for the foreseeable future.

TABLE 1 Examples of aerosol transmissible pathogens.

Pathogen	Early evidence of aerosol transmission	Person to person transmission
Adenovirus	Couch et al. (10)	Yes
Coxiella burnetti (Q fever)*	Welsh et al. (11)	No
Coxsackie A21 virus	Couch et al. (12)	Yes
Influenza virus	Alford et al. (13)	Yes
Legionella pneumophila	Nguyen et al. (14)	No
Mycobacterium tuberculosis	Riley et al. (15)	Yes
Respiratory syncytial virus	Kulkarni et al. (16)	Yes
Rubella virus (measles)	Marks et al. (17)	Yes
Rubeola virus (measles)	Riley et al. (18)	Yes
SARS-CoV-2 virus (COVID)	Hamner et al. (19)	Yes
Staphylococcus aureus	Eichenwald et al. (20)	Yes
Varicella virus (chicken pox)	Leclair et al. (21)	Yes
Variola virus (smallpox)*	Wehrle et al. (22)	Yes
Yersinia pestis (pneumonic plague)*	Meyer (23)	Yes

*Potential bioweapon.

Examples of pathogens with significant aerosol transmission, along with a single representative citation for each. This list of pathogens and citations is not intended to be inclusive or exhaustive. The citations were selected to emphasize that evidence for aerosol transmission of a number of pathogens has been available for more than 60 years.

Brosseau LM, et al. Front Public Health 2024;12:1378567

Impact of the COVID-19 pandemic on healthcare-associated viral respiratory infections at a tertiary care pediatric hospital

The incidence of healthcare-associated viral respiratory infections in a pediatric hospital decreased from 1.6 /1,000 patient-days in 2019 to 0.2 /1,000 patient-days in 2020 (P < .01), and this was maintained in 2021 despite an increase in community circulation of respiratory viruses. Universal masking, stricter infection control measures, and pandemic public health interventions likely accounted for this improvement.

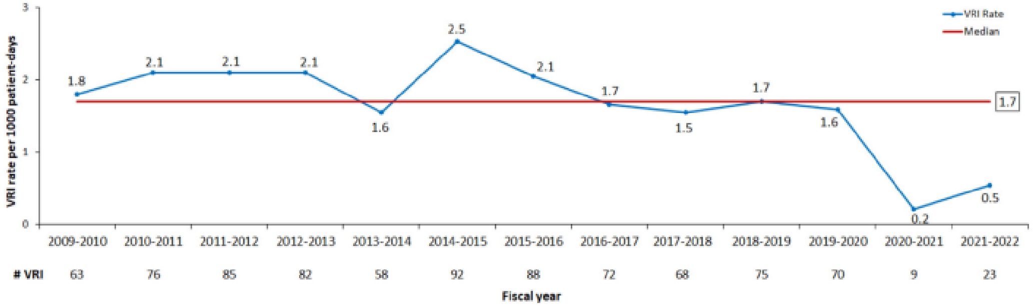

Fig 1. Evolution of healthcare-associated viral respiratory infection (HA-VRI) incidence at a tertiary care pediatric center in Montreal, Canada, before and since the COVID-19 pandemic. Run chart displaying annual HA-VRI incidence from 2009 to 2022. Two astronomical data points are seen in 2020-2021 and 2021-2022, indicating non-random signals of change.

Table 1
Distribution of viruses causing healthcare-associated viral respiratory infections at a tertiary care pediatric center between April 1, 2019, and March 31, 2022.

Respiratory virus*	Fiscal year 2019-2020	Fiscal year 2020-2021	Fiscal year 2021-2022
Rhinovirus, n (%)	26 (34.7)	3 (42.8)	3 (13.0)
Rhinovirus/Enterovirus†, n (%)	16 (21.3)	1 (14.3)	0 (0)
Adenovirus, n (%)	10 (13.3)	0 (0)	1 (4.3)
Influenza A, n (%)	7 (9.3)	0 (0)	0 (0)
RSV, n (%)	7 (9.3)	0 (0)	4 (17.420)
Enterovirus, n (%)	5 (6.7)	0 (0)	3 (13.0)
Parainfluenza virus type 1, n (%)	1 (1.3)	0 (0)	0 (0)
Parainfluenza virus type 3, n (%)	1 (1.3)	0 (0)	2 (8.7)
Influenza B, n (%)	1 (1.3)	0 (0)	0 (0)
HMPV, n (%)	1 (1.3)	0 (0)	1 (4.30)
Coronavirus OC43, n (%)	0 (0)	0 (0)	1 (4.3)
SARS-CoV-2, n (%)	0 (0)	3 (42.8)	8 (34.8)

RSV, respiratory syncytial virus; HMPV, human metapneumovirus; SARS-CoV-2, severe acute respiratory syndrome coronavirus 2.
*The denominator in this table is the total number of respiratory viruses isolated. Of note, some HA-VRI were caused by more than 1 virus.
†These may represent co-infections or infections with either virus that cannot be differentiated by PCR due to genetic homology between rhinovirus and enterovirus species.

Lefebvre2023 M-A, et al. AJIC 2023;1-3

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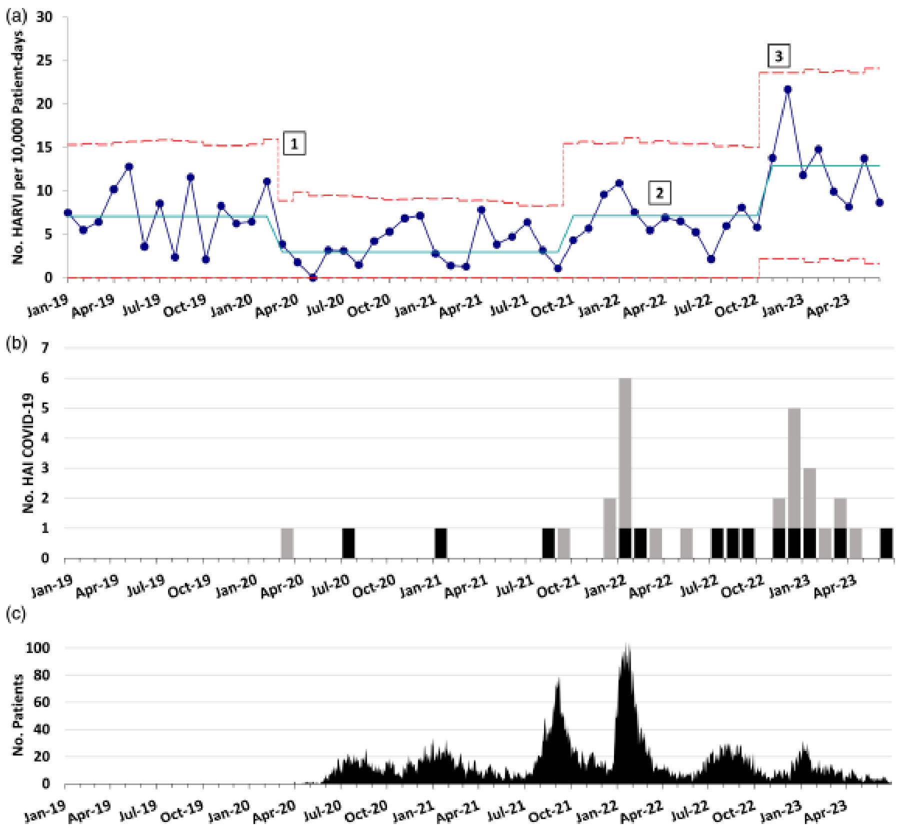
Healthcare-associated respiratory viral infections after discontinuing universal masking

In November 2022, our pediatric hospital replaced the requirement for universal masking of all healthcare personnel and visitors in all clinical buildings with a requirement for masking only during patient encounters. Following this change, we observed an immediate, substantial, and sustained increase in healthcare-associated respiratory viral infections



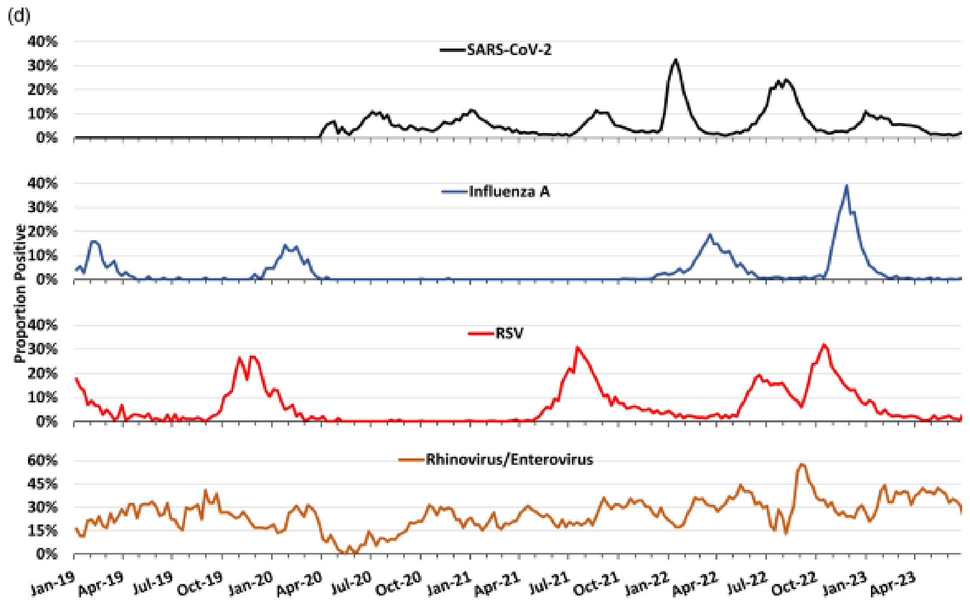


Figure 1. Trend in healthcare-associated and community respiratory viral infections over time at a pediatric hospital. (A) Statistical process control *u* chart showing incidence of healthcare-associated respiratory viral infections (HARVIs) by month. Solid blue line: centerline. Red dashed lines indicate upper control limit (+3 sigma) and lower control limit (−3 sigma). Centerline shifts occurred when there were 8 consecutive months above or below the centerline, according to Institute for Healthcare Improvement control chart rules. Numbers mark (1) initiation of universal masking and SARS-CoV-2 admission testing; (2) discontinuation of SARS-CoV-2 admission testing for asymptomatic individuals with no known coronavirus disease 2019 (COVID-19) close contacts; and (3) replacement of universal masking with masking during all patient encounters. HARVI case definitions are provided in the Supplementary Appendix (online). (B) Run chart of definite (gray bars) and possible (black bars) healthcare-associated COVID-19 cases by month. (C) Hospital census of patients admitted with SARS-CoV-2 infection by date. (D) Test positivity rate for several respiratory viruses in the hospital microbiology laboratory by week.

Most ZM, et al. ICHE 2024;45:247-249

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CONCLUSIONS

- Rationale for masking for all direct patient care (preferred option; personal opinion):
  - Hospitals provide care for patients at high risk for morbidity and mortality from viral respiratory infections
  - Transmission based precautions do NOT prevent transmission for asymptomatic or pre-symptomatic infected patients
  - Presenteeism is common among HCP with viral respiratory diseases (30%-50%)
  - Protects patients and HCP for transmission of ALL droplet & airborne-transmitted infections during direct patient care
  - Does NOT prevent healthcare provider-to-provider transmission
- Potential triggers for masking for with all direct patient care:
  - Include as part of Standard Precautions (i.e., year-round)
  - Time based (i.e., during viral respiratory season)
  - Community burden based (i.e., during community surges: triggers = hospitalizations, deaths, wastewater measures)
  - Other: Percent positive tests in community or HCP; HCP absences; others
  - Additional research (data/studies) required to assess proper trigger(s) and levels to increasing masking (except for inclusion in Standard Precautions)
- Universal masking (i.e., masking by all HCP while in the hospital/healthcare facility or in selected units)
  - Should be considered during pandemic with highly pathogenic respiratory pathogens (e.g., HPAI, novel coronaviruses)
  - Not practical/feasible as a routine precaution