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Taking Action: Identify & Address Disparities in Your IP Program

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- Ep. 2 - Infection Prevention for Patients with CP-CRE & Other Multi-Drug Resistant Gram-Negative Rods
- Ep. 3 - Preventing Transmission at the Port-of-Entry: Risk Reduction Practices in the ED

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Houston, Texas

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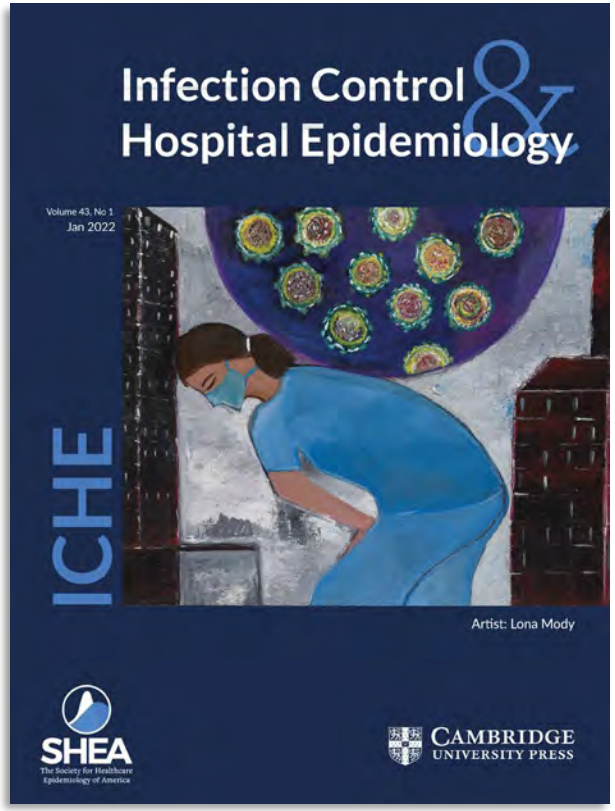
ICHE Journal – Fast Tracking COVID Article Submissions



Infection Control & Hospital Epidemiology publishes scientifically authoritative, clinically applicable, peer-reviewed research on control and evaluation of the transmission of pathogens in healthcare institutions and on the use of epidemiological principles and methods to evaluate and improve the delivery of care. Major topics covered include infection control practices, surveillance, antimicrobial stewardship, cost-benefit analyses, resource use, occupational health, and regulatory issues.

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SHEA Webinar

Town Hall 2024

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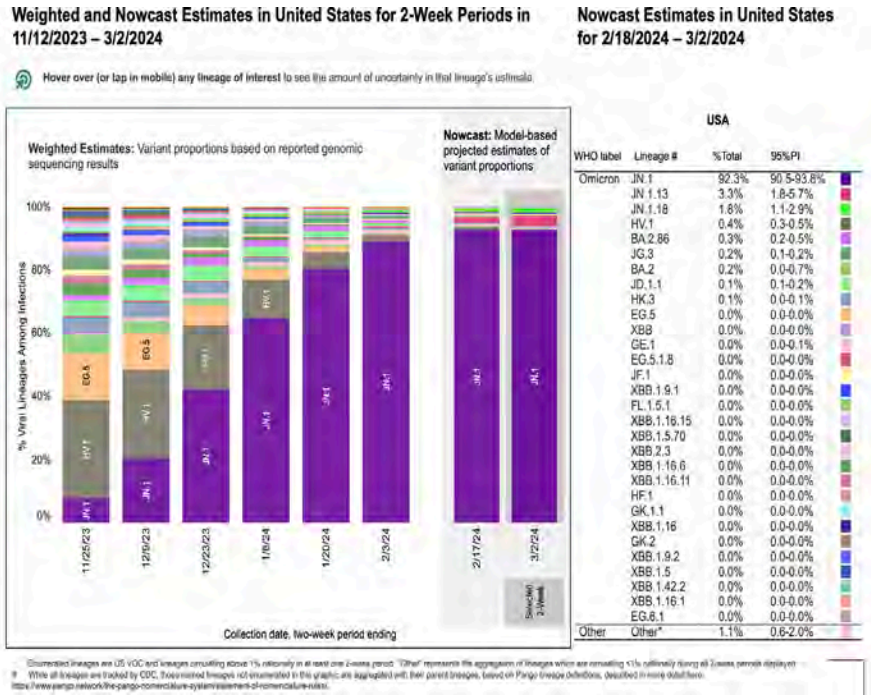
House Keeping Items

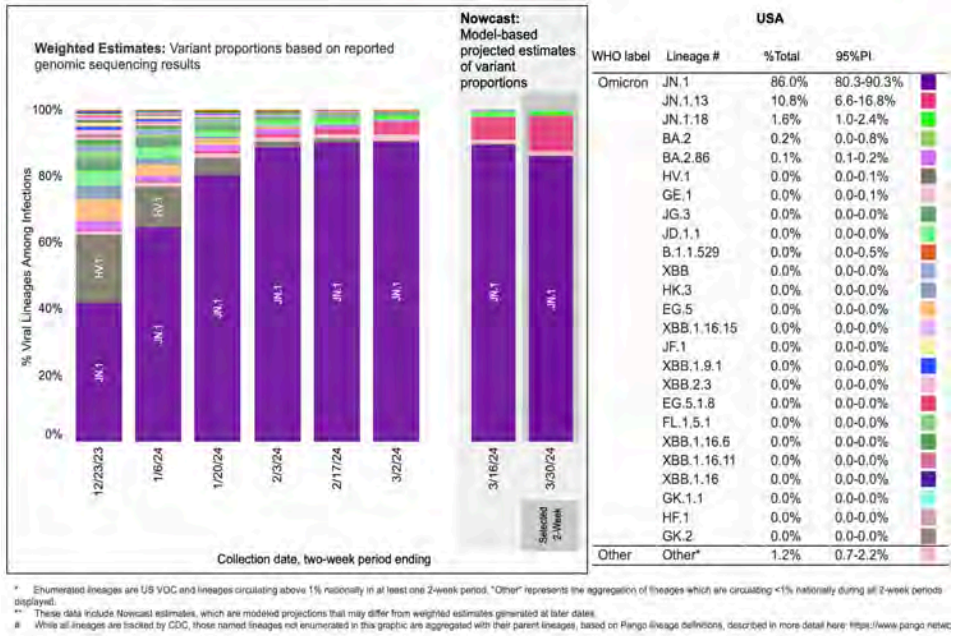
- Technical difficulties? Visit: https://support.zoom.us
- Webinar recording, PowerPoint presentation, and references available on LearningCE
- Streaming Live on SHEA's Facebook page
- Zoom Q&A and Chat

SHEA Town Hall 95
Overview

SARS-CoV-2 Variants, US, CDC



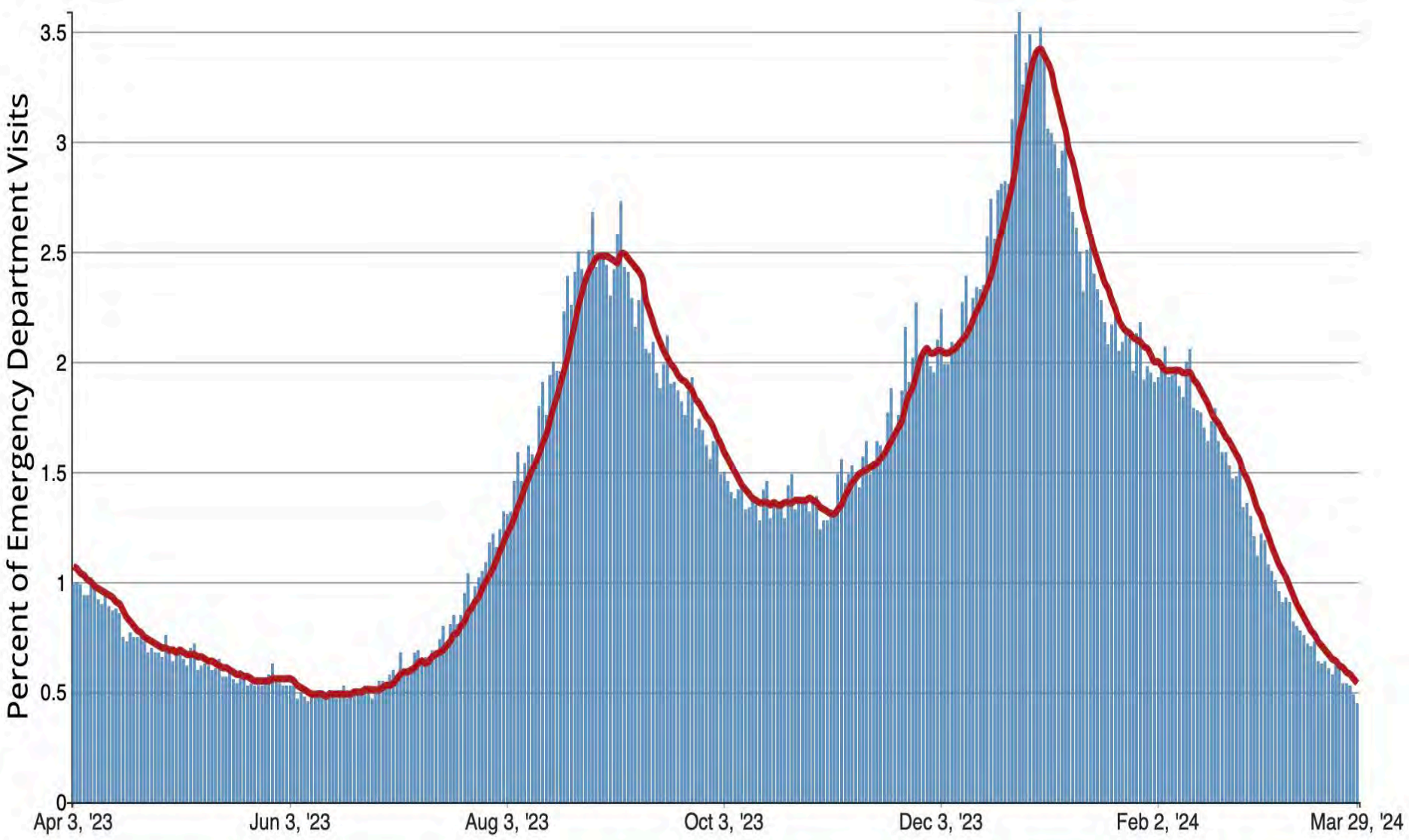
Data from 11/12/23 – 3/2/2024



Data from 12/10/23 – 3/30/2024

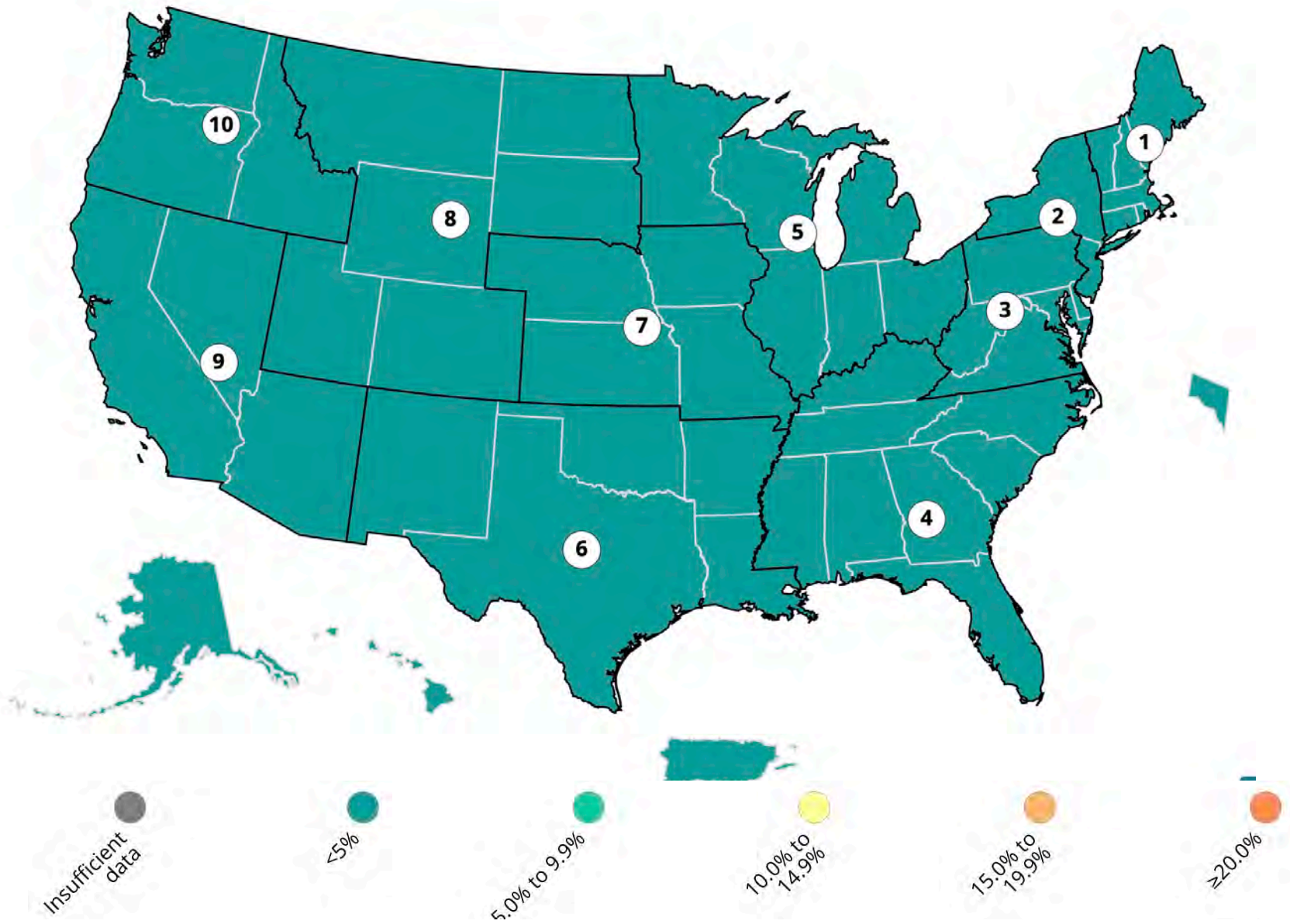
https://covid.cdc.gov/covid-data-tracker/#variant-proportions

EMERGENCY DEPARTMENT VISITS DUE TO COVID-19



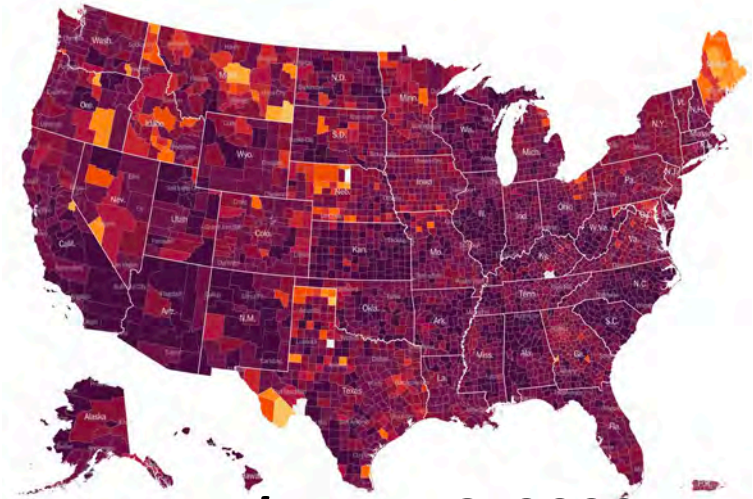
Source: CDC https://covid.cdc.gov/covid-data-tracker/#ed-visits_all_ages_combined 4-4-2024

COVID-19 Test Positivity Rates

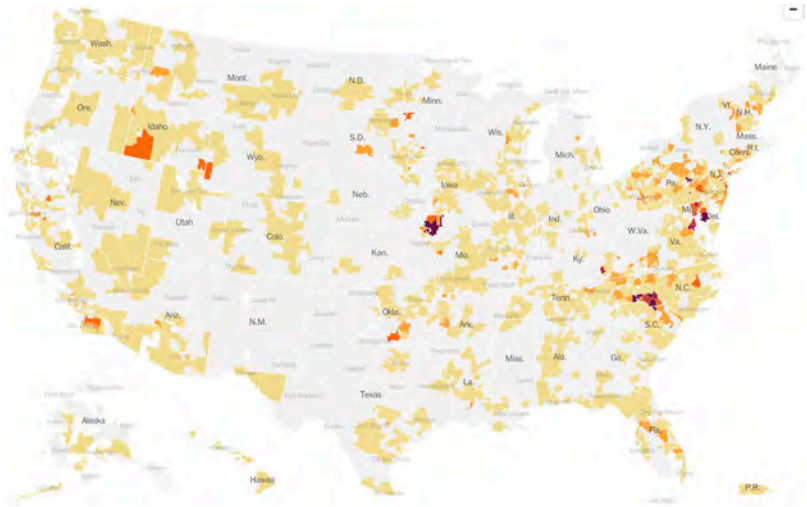


Source: CDC https://covid.cdc.gov/covid-data-tracker/#maps_positivity-week 4-4-2024

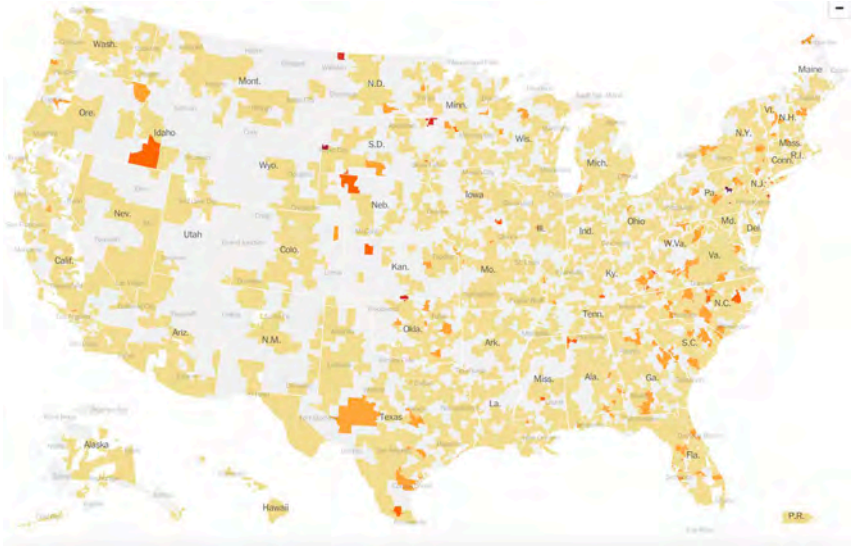
US COVID-19 Hotspots



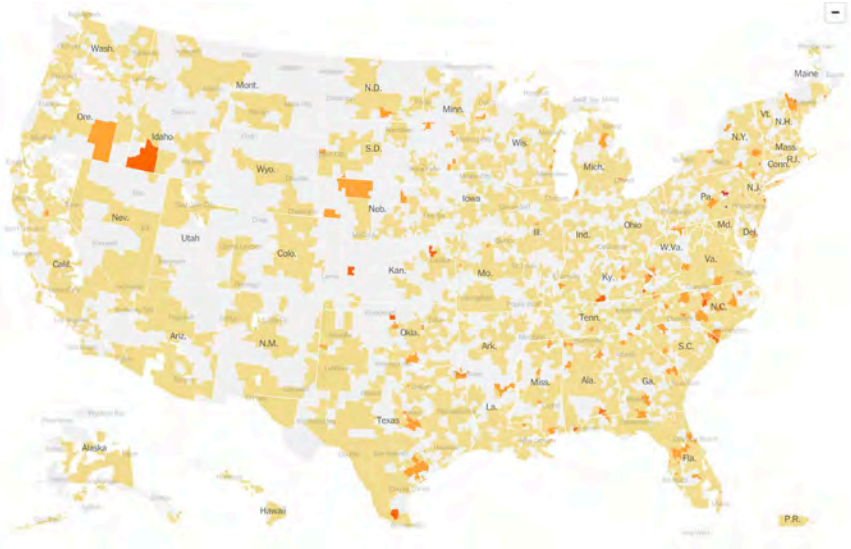
February 6, 2022



February 4, 2024



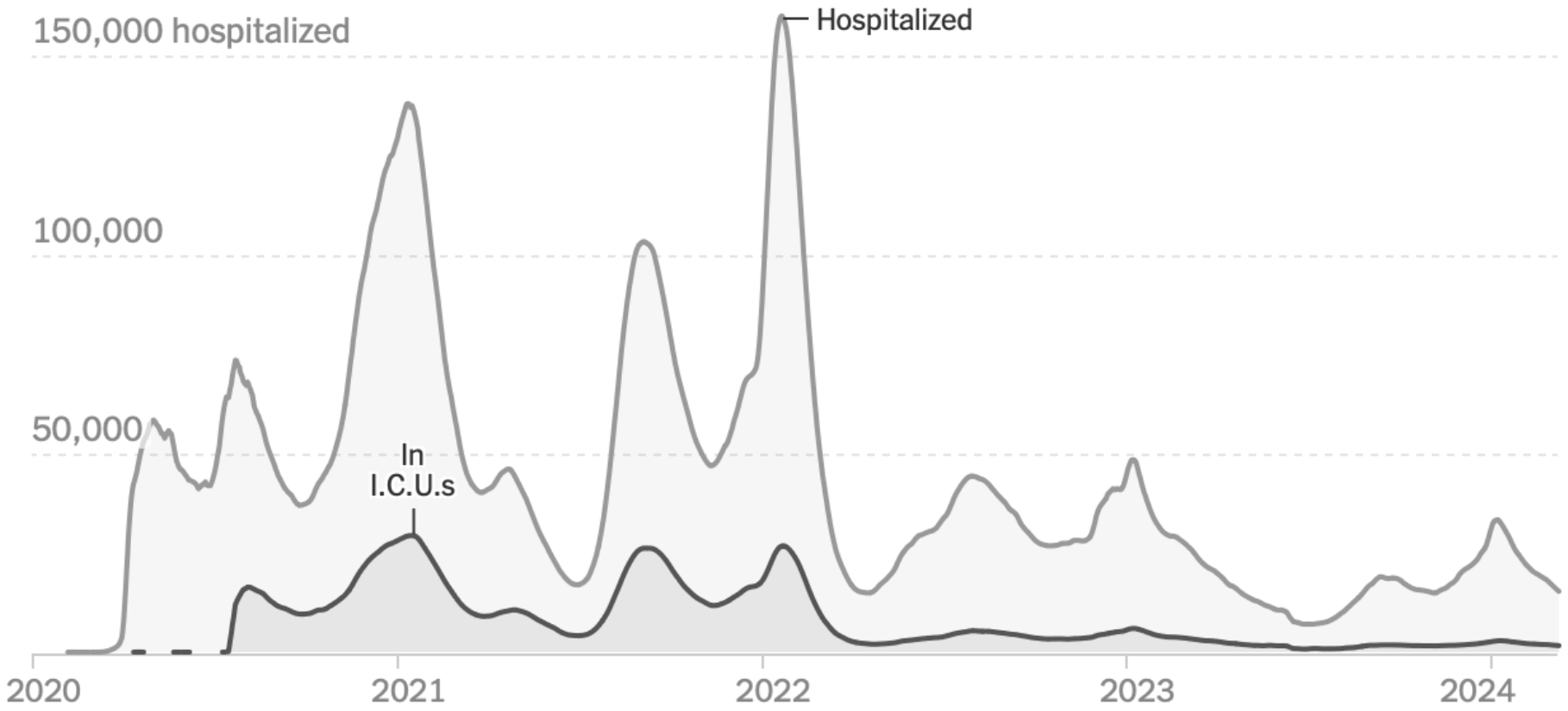
March 6, 2024



April 6, 2024

Source: New York Times https://www.nytimes.com/interactive/2023/us/covid-cases.html 3-9-2024

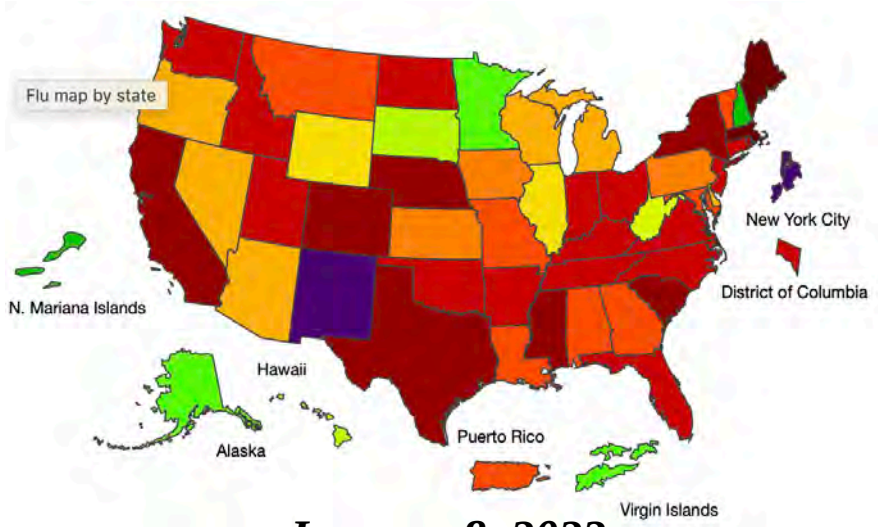
HOSPITALIZATIONS AND ICU HOSPITALIZATIONS FOR COVID-19 IN THE UNITED STATES



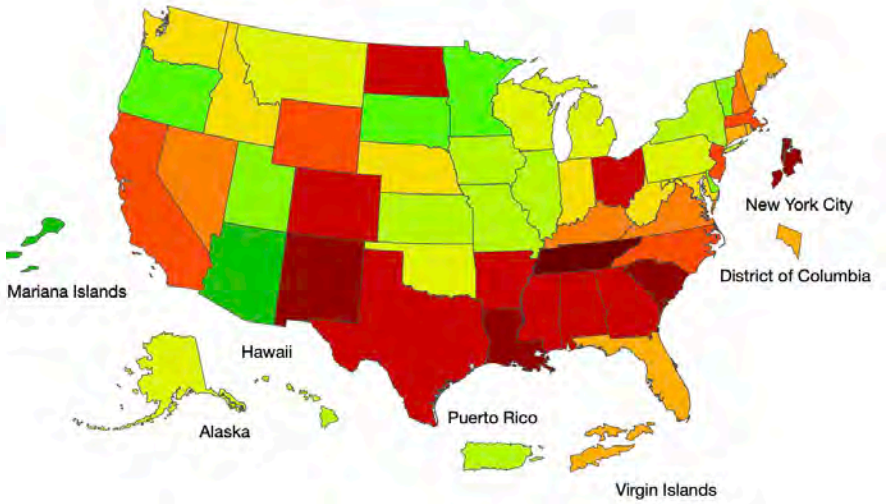
Hospitalizations decreased by 55.9 % from our last Town Hall
ICU admissions decreased by 60.0 % from our last Town Hall

Source: https://covid.cdc.gov/covid-data-tracker/#maps_new-admissions-rate-county 4-8-24

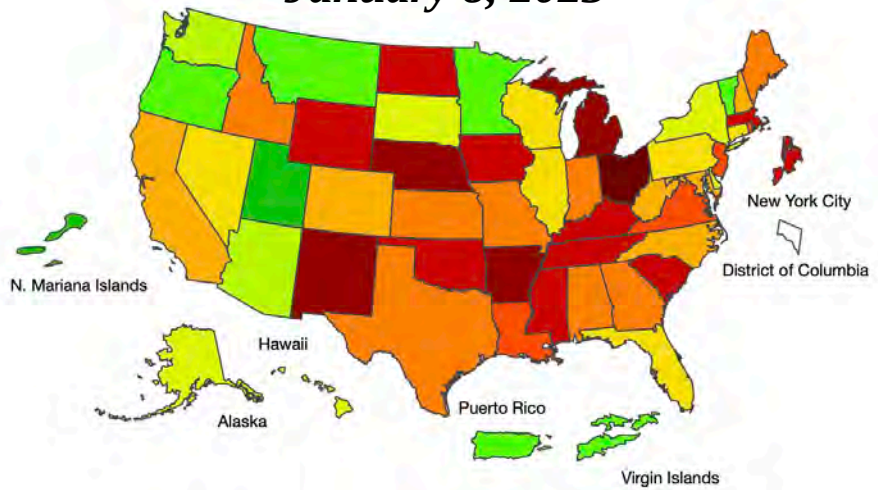
Influenza Activity by State in the United States



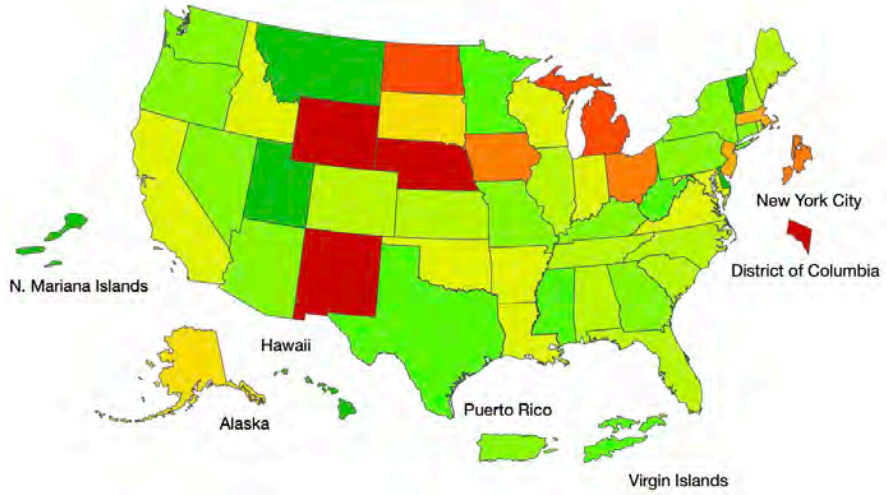
January 8, 2023



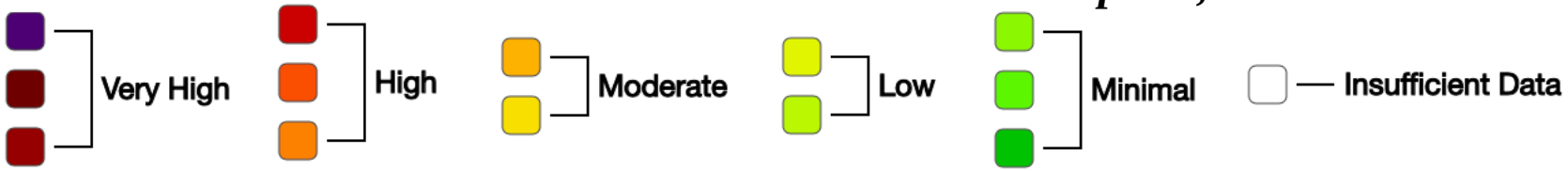
February 4, 2024



March 7, 2024



April 7, 2024



Source: CDC https://www.cdc.gov/flu/weekly/usmap.htm 47-2024

Today's Emerging Infectious Disease News

1. *A large multicenter ICU-based trial published in **JAMA** found targeting a PaO_2 of 60 mm Hg resulted in more days alive without life support at 90 days than targeting PaO_2 of 90 mm Hg.*
2. *A **New England Journal of Medicine** study found no benefit of nirmatrelvir/ritonavir administered to patients at 'standard risk' (i.e., not having risk factors for severe disease).*
3. *A **New England Journal of Medicine** editorial accompanying the prior paper recommends the use of nirmatrelvir/ritonavir in patients at risk for severe COVID disease, but notes that no conclusion can be reached about its utility in lower risk patients who have been fully vaccinated.*
4. *A paper published in **JAMA Network Open** found that the more states were inclined to vote Republican, the more likely vaccine recipients or clinicians reported COVID-19 vaccine adverse events.*
5. *The Pediatric Infectious Diseases Society published updated guidance for the prevention and management of COVID-19 in children and adolescents in the **Journal of the Pediatric Infectious Diseases Society**.*
6. *A paper in **The Journal of the Pediatric Infectious Diseases Society** found that the benefit of receiving the primary series of mRNA vaccines outweighed the risk for children ages 6 months to 4 years irrespective of sex, presence of underlying medical conditions, presence of infection-induced immunity, or the specific mRNA vaccine administered..*
7. *A retrospective cohort study published in **Infection Control and Hospital Epidemiology** evaluating hospital-onset COVID cases suggested that measures of community COVID-19 activity might be used to predict hospital-onset cases.*
8. *An **MMWR** update of an ongoing vaccine effectiveness study demonstrated that receipt of an updated COVID-19 vaccine dose provided increased protection against COVID-19–associated hospitalization among adults with immunocompromising conditions.*
9. *An interesting paper published in **mBio** provides indirect evidence that angiotensin-converting enzyme 2-like enzymatic activity is associated with immunoglobulin in COVID-19 patients; the authors suggest this 'abzyme' activity may play a role in the pathogenesis of long COVID symptoms.*

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

UPDATE: INFECTIOUS DISEASE THREATS

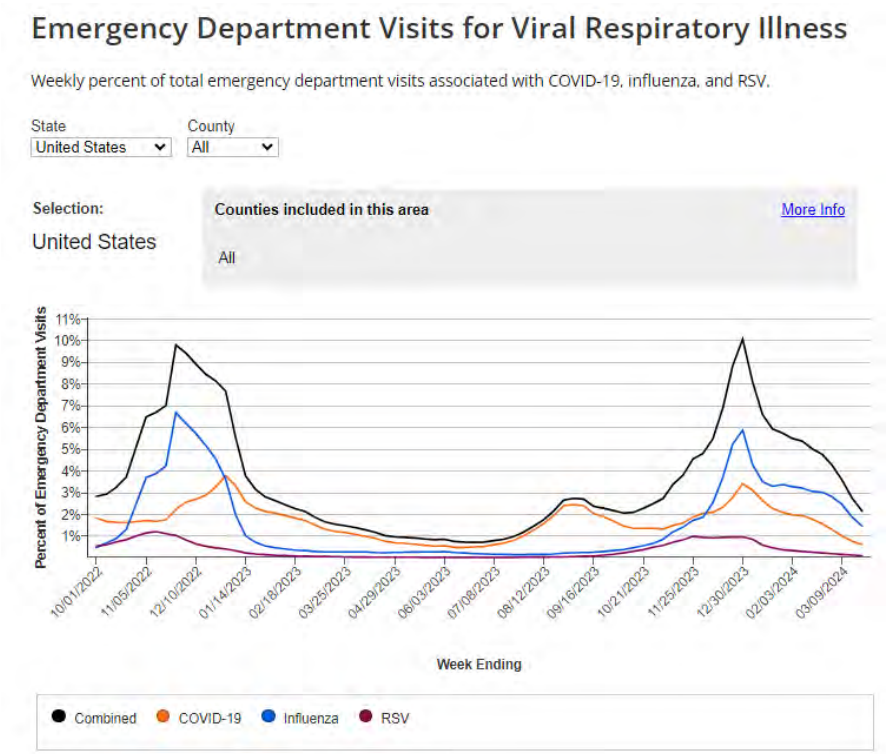
David J. Weber, MD, MPH, FIDSA, FSHEA, FRSM (London)
Sanders Distinguished Professor of Medicine, Pediatrics and Epidemiology
Associate Chief Medical Officer, and Quality Officer, UNC-MC
Medical Director, Hospital Epidemiology, UNC-MC
University of North Carolina, Chapel Hill, NC
President Elect, Society for Healthcare Epidemiology of America

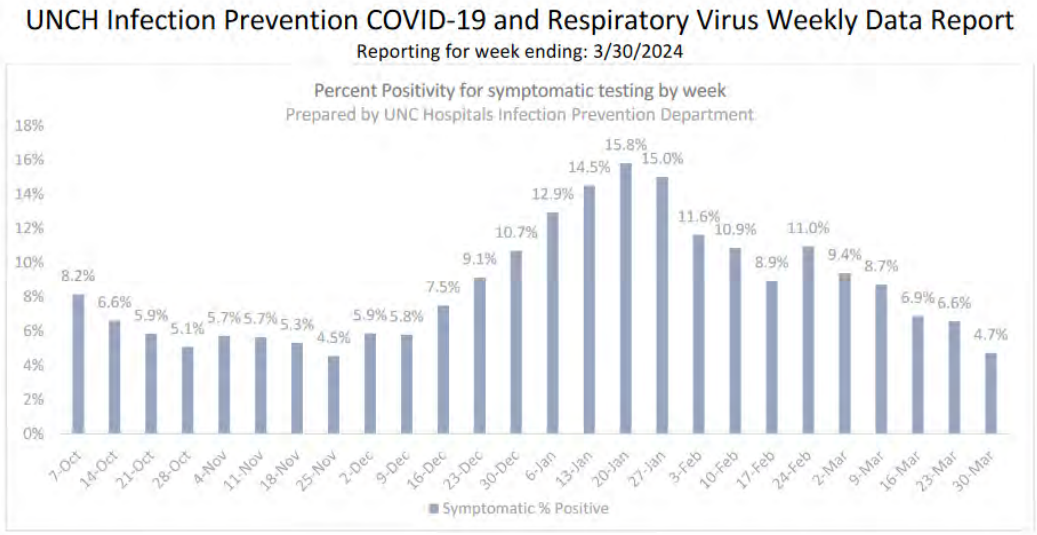
UNC
SCHOOL OF MEDICINE

Thanks for obtaining data: Lauren DiBiase, Zin Lyons, Melissa Miller

COVID-19

- 98% US population has immunity to SARS-CoV-2; via vaccine or s/p infection
- US deaths: 2023 ~245,000; 2024 ~76,000
- JN.1 and JN.1 derived variants predominant in US
- COVID-19 cases have decreased in recent weeks across US, NC, and UNC Medical Center
- <10 patients hospitalized at UNC-MC each day with COVID-19
- The overall number of lab-confirmed cases of respiratory viral pathogens remains stable at lower levels (compared to Oct-Jan activity).
- Pemgarda (pemivibart) IV authorized by FDA late March for pre-exposure prophylaxis of COVID-19 in adults and adolescents (≥12 years of age) with moderate-to-severe immune compromise (HIV <200/mm^3, CAR-T, chemotherapy)
  - Active against JN.1 variants
  - Approval based on immunobridging trial (~70% clinical efficacy at day 90 expected)
  - UNC P&T evaluating for addition to formulary
- CDC/ACIP now recommends 2nd dose of COVID-19 2023-24 vaccine for persons ≥65 years of age: Standing order revised





https://www.cdc.gov/respiratory-viruses/data-research/dashboard/activity-levels.html
https://www.biospace.com/article/releases/invivyd-announces-fda-authorization-for-emergency-use-of-pemgarda-formerly-vyd222-for-pre-exposure-prophylaxis-prep-of-covid-19/
https://www.cdc.gov/respiratory-viruses/guidance/faq.html

MPOX

DRC

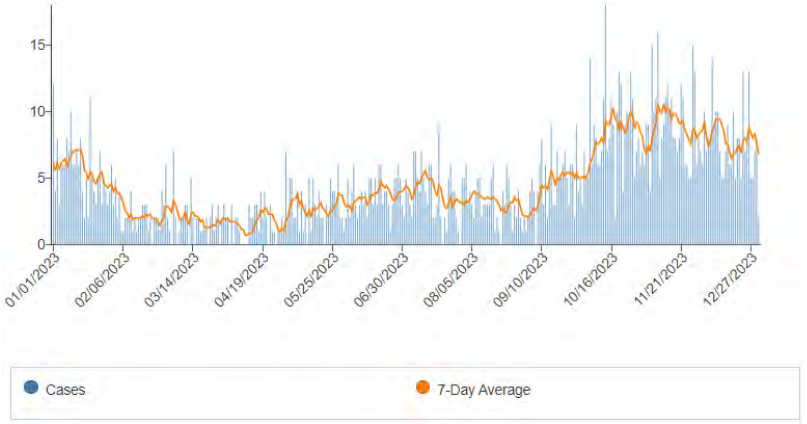
- Clade 1 (US outbreak, clade IIb)
- Per CDC, ~14,000 cases in 2023; ~4,000 so far in 2024; mortality 4%-8%
- Most cases in children but some due to sexual transmission
- Some strains may possess mutations impairing testing identification
- No cases outside of DRC
- CDC has activated their Emergency Response System

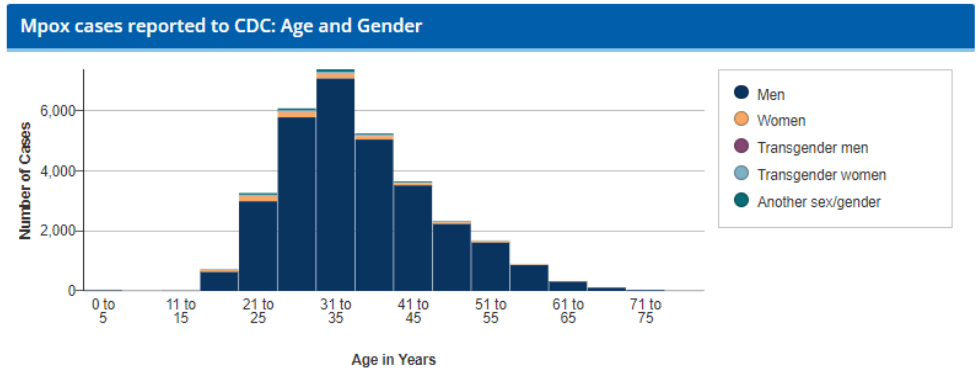
US

- Total cases in US: 32,063; US: 2023=299; 2024=582; Mid-Atlantic=185
- Cases this year: NC, 33; Triangle, 12
- Cases remain largely in MSMs; transmission mostly via sexual/direct contact but transmission in home, via needles sticks reported; clinical cases usually have localized (genital) lesion(s), may only have proctitis
- JYNNEOS vaccine availability being transferred from Federal Government to commercial source; efficacy 1 dose = 75% (37%)*; 2 doses = 86% (23%)*
- Reinfection and vaccine failures noted
- Therapy (severe cases) = Tecovirimat (some adding cidofovir)
- Mortality <1% (most commonly in late-stage HIV infected persons)

vaccine coverage, high-risk; https://www.cdc.gov/poxvirus/mpox/response/2022/mpx-trends.html

Data as of,
27 Feb 2024





Mpox cases reported to CDC by Race and Ethnicity

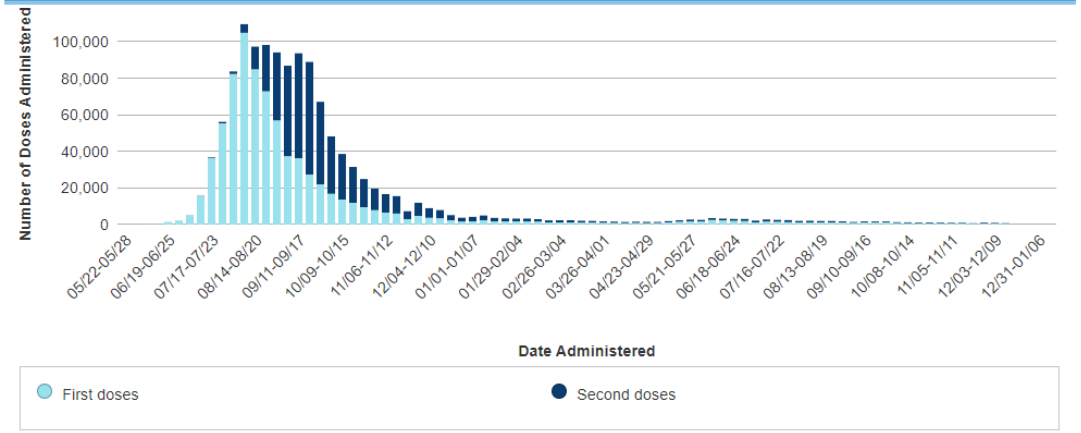
Race and Ethnicity+	Count	Percent
African American or Black	9,732	32.18%
Hispanic or Latino	9,382	31.03%
White	8,997	29.75%
Asian	869	2.87%
Other	634	2.1%
Multiple Races	419	1.39%
American Indian or Alaska Native	127	0.42%
Native Hawaiian or Pacific Islander	78	0.26%
Missing	1,825	-

JYNNEOS VACCINE, US, CDC

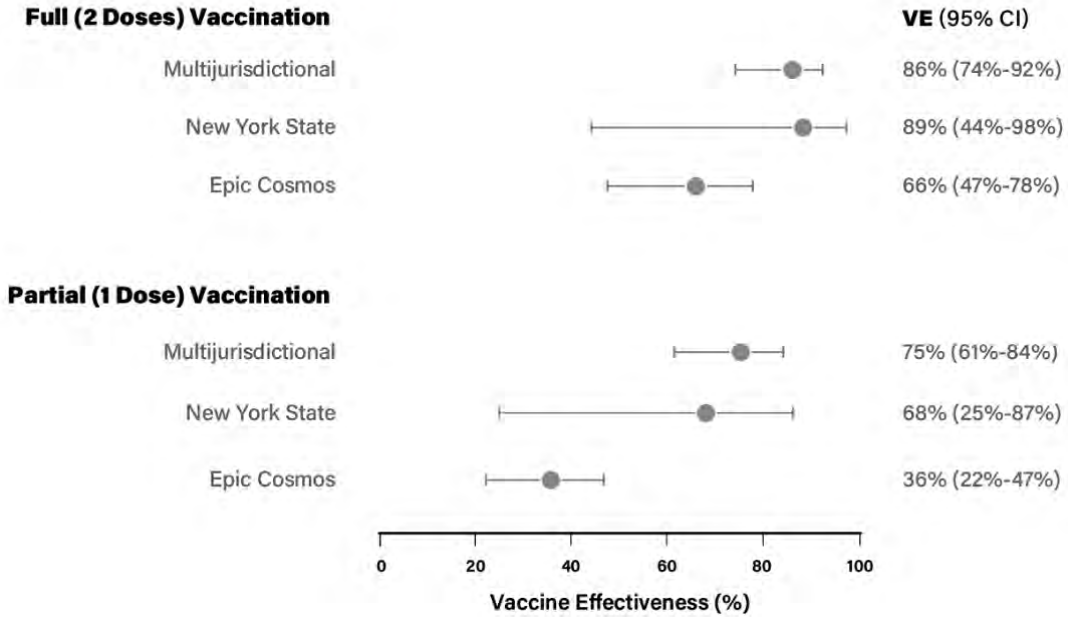
Total Vaccine Doses Administered

1,286,849
Doses Administered in the 57 U.S. Jurisdictions Reporting Data as of January 09 2024 .

Total JYNNEOS Vaccine Second Doses and First Doses Reported to CDC



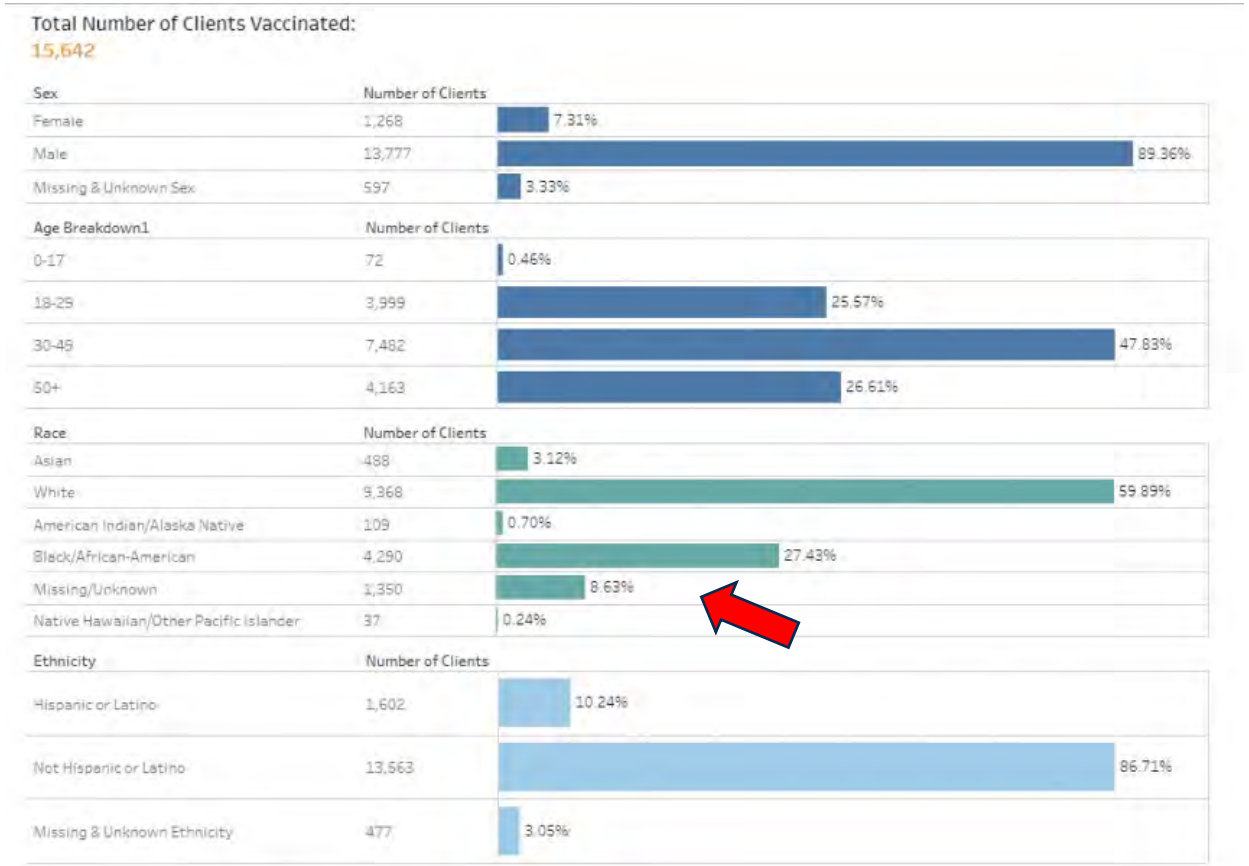
Adjusted vaccine effectiveness (VE) of JYNNEOS vaccine against mpox by study and number of doses



JYNNEOS vaccine (the vaccine used in the current mpox outbreak) is effective at preventing mpox among people at risk of mpox. Although ~1.2 million vaccine doses have been administered, only 23% of the population at risk has been fully vaccinated nationally. Vaccine coverage varies widely between jurisdictions. Reasons for coverage variability could include lower vaccine accessibility and awareness, fewer vaccine providers, lower vaccine confidence and demand, and concern about stigma; https://www.cdc.gov/poxvirus/mpox/cases-data/mpx-jynneos-vaccine-coverage.html

2024 Mpox Vaccine Administration Data, NC DHHS

North Carolina Mpox Vaccine Administration Summary	
Total Vaccinating Providers:	138
Total Doses Administered:	27,065
Total Persons Immunized:	15,642
One Dose:	4,408
Two Doses:	11,234

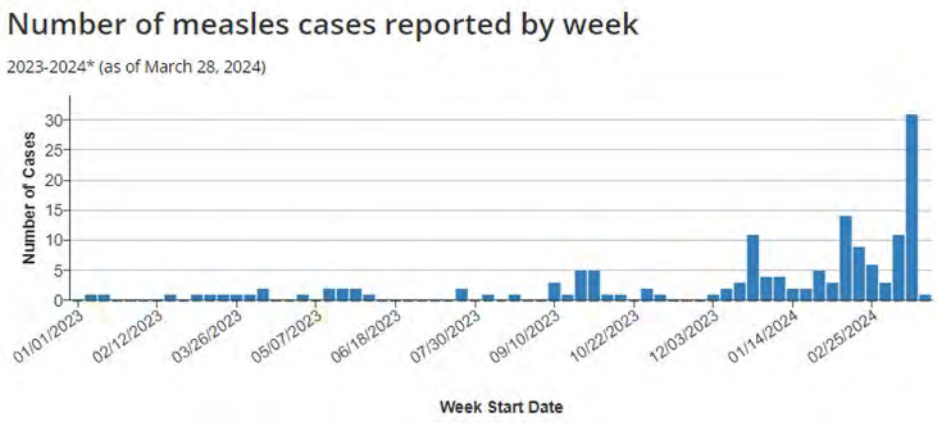


Updated monthly on Thursdays by 12pm

https://www.ncdhhs.gov/mpox-vaccine-administration-and-demographic-data/download?attachment?attachment

MEASLES

- As of March 28, 2024, a total of 97 measles cases were reported by 18 jurisdictions: AZ, CA, FL, GA, IL, IN, LO, MA, MI, MN, MO, NJ, NYC, NY State, Ohio, PN, VA, DC. No cases in NC 2023-24
- There have been 7 outbreaks (defined as 3 or more related cases) reported in 2024, and 72% of cases (70 of 97) are outbreak-associated. For comparison, 4 outbreaks were reported during 2023 and 48% of cases (28 of 58) were outbreak-associated. Largest outbreak = Chicago
- 56% of cases hospitalized (54 of 97 cases) for isolation or for management of measles complications. ~20% of children hospitalized for illness.
- Vaccine status: Unvaccinated, 59%; one dose MMR, 12%; two doses MMR, 5%; unknown, 24%
- PEP: MMR within 72 hours or IG within 6 days (not both)

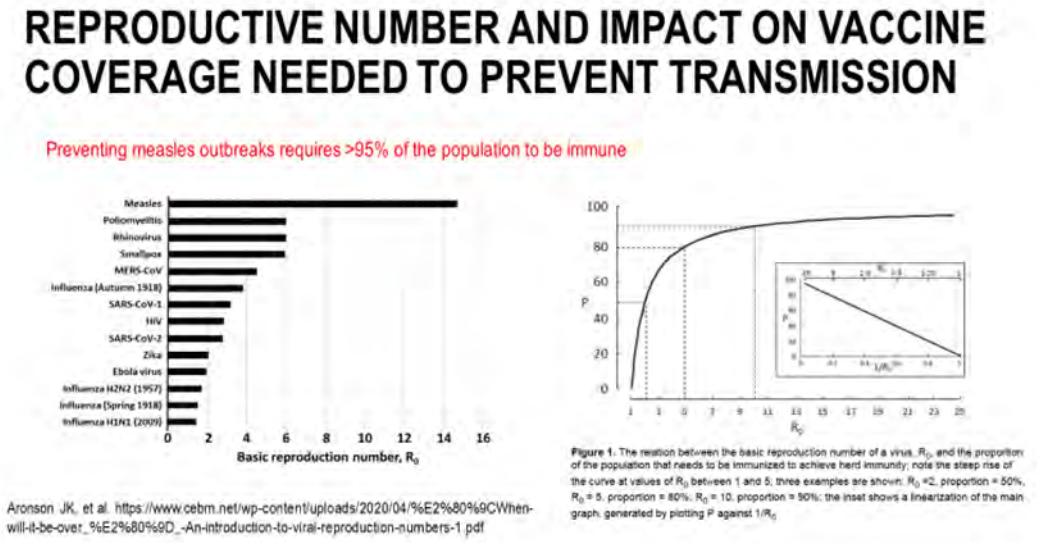


https://www.cdc.gov/measles/cases-outbreaks.html

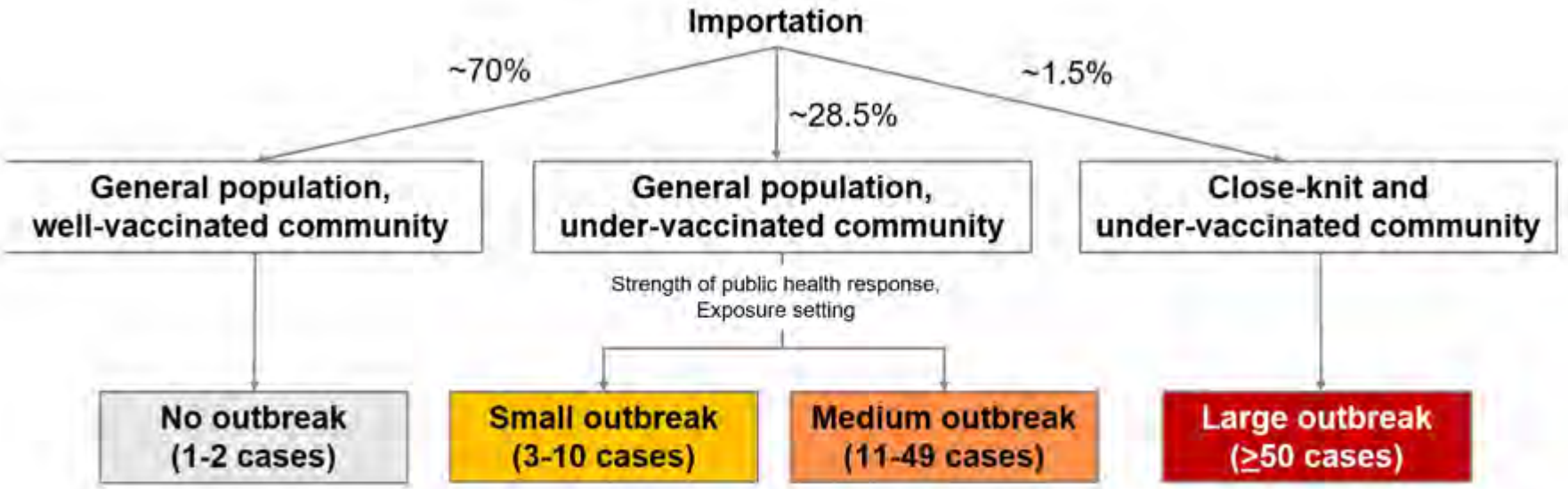
From the 2019–20 to the 2021–22 school year, national coverage with state-required vaccines among kindergartners declined from 95% to approximately 93%, ranging from 92.7% for diphtheria, tetanus, and acellular pertussis vaccine (DTaP) to 93.1% for polio.

During the 2022–23 school year, coverage remained near 93% for all reported vaccines, ranging from 92.7% for DTaP to 93.1% for measles, mumps, and rubella and polio. The exemption rate increased 0.4 percentage points to 3.0%. Exemptions increased in 41 states, exceeding 5% in 10 states.

Exemptions >5% limit the level of achievable vaccination coverage, which increases the risk for outbreaks of vaccine-preventable diseases. Vaccination before school entry or during provisional enrollment periods could reduce exemptions resulting from barriers to vaccination during the COVID-19 pandemic.



CDC, US MEASLES OUTBREAKS GENERALLY FALL INTO 3 CATEGORIES



Risk to general population remains low

INVASIVE MENINGOCOCCAL INFECTIONS

US, CDC, HAN alert, 28 March 2024

- Increase in cases, mainly attributable to *Neisseria meningitidis* serogroup.
- 2023: 422 cases in the US (The highest since 2014)
- As of March 25 2024: 143 cases in the US (An increase of 62 cases over the 81 reported as of this date in 2023).
- Disproportionately occurring in people aged 30-60 years (65%), Black or African American (63%), and HIV (15%).
- In most cases of invasive meningococcal disease caused by ST-1466 in 2023 had a clinical presentation other than meningitis: bacteremia (64%), and septic arthritis (4%).
- 17 (18%) patients died out of 94 patients with known outcomes (case-fatality rate higher than the rate of 11% reported for serogroup Y in 2017-2021).

Guidance for Providers

- Have a heightened suspicion for meningococcal disease, particularly among populations disproportionately affected by the current increase.
- Patients may present without symptoms typical of meningitis.
- Ensure that all people recommended for meningococcal vaccination, including people with HIV, are up to date for meningococcal vaccines (i.e., Meningococcal A,C,W,Y).
- PEP: Rifampin and ceftriaxone, 90%-95% effective; Azithromyin not a first line agent but may be used if there is cipro-resistant strains in a community

NC

- 2 October 2023: From January 2022 to September 2023, there have been 35 cases reported in NC.
- Out of 35 cases, 24 (69%) have been caused by *Neisseria meningitidis* serogroup Y.
- 18 cases in 2022 and 17 cases so far in 2023.
- The average number of cases from 2017 to 2021 was 9 cases per year.
- Most case-patients have developed septicemia, with common symptoms including fever, nausea, vomiting, and muscle aches - ~50% in African Americans, ~23% HIV+, only patient had received vaccine.
- 21 February 2024 (Cipro Pen- resistant strains): Providers in the Charlotte Metropolitan region including Cabarrus, Gaston, Iredell, Lincoln, Mecklenburg, Rowan, and Union Counties should discontinue the use of ciprofloxacin for prophylaxis of close contacts of invasive meningococcal disease cases and prescribe rifampin, ceftriaxone, or azithromycin.

https://www.cdc.gov/infectioncontrol/guidelines/healthcare-personnel/selected-infections/meningococcal-disease.html
https://emergency.cdc.gov/han/2024/han00505.asp;
file:///C:/Users/dweber/AppData/Local/Microsoft/Windows/INetCache/Content.Outlook/5XP2AOX3/Meningitis%20Provider%20Memo%20Oct%202023_final.pdf
file:///C:/Users/dweber/AppData/Local/Microsoft/Windows/INetCache/Content.Outlook/5XP2AOX3/Meningitis%20Prophylaxis%20Memo%20Feb%202024%20FINAL.pdf

UNC SCHOOL OF MEDICINE

AVIAN INFLUENZA

CDC, March 2024

- The panzootic of HPAI A(H5N1) viruses in wild birds has resulted in outbreaks among commercial poultry, backyard bird flocks, and spread to infect wild terrestrial and marine mammals, as well as domesticated animals.
- Sporadic human infections with HPAI A(H5N1) virus have been reported in 23 countries since 1997 with a case fatality proportion of >50%, but only a small number of H5N1 cases have been reported in humans since 2022. Most human infections with H5N1 virus have occurred after unprotected exposures to sick or dead infected poultry.
- There is no evidence of sustained human-to-human H5N1 virus transmission, and limited, non-sustained human-to-human H5N1 virus transmission has not been reported worldwide since 2007.
- HPAI A(H5N1) virus infection has been reported in wild mammals such as foxes, bears, seals, and sea lions, and in domesticated animals, including pets such as cats and dogs, farmed mink and foxes, and livestock such as goats and cows. In the United States, HPAI A(H5N1) virus detections in mammals have been reported in more than 20 states.

CDC, 1 April 2024

- A person in the United States has tested positive for highly pathogenic avian influenza (HPAI) A(H5N1) virus ("H5N1 bird flu"), as reported by Texas and confirmed by CDC. This person had exposure to dairy cattle in Texas presumed to be infected with HPAI A(H5N1) viruses. This is the second person reported to have tested positive for influenza A(H5N1) viruses in the US. A previous human case occurred in 2022 in Colorado.
- H5 bird flu is widespread among wild birds in the U.S. and globally. These viruses also have caused outbreaks in commercial and backyard poultry flocks, and sporadic infections in mammals. HPAI in dairy cows was first reported in Texas and Kansas by the USDA on March 25, 2024.
- H5N1 has been detected in NC poultry.

UNC-MC

- Our 4plex and RPP tests would identify H5, but not differentiate it from other influenza types. 4plex doesn't type at all, so we would never pick it up by that test.
- Micro Lab reviews all influenza A that does not subtype daily – if appropriate, sent to State Lab for identification.
- In summary, an H5N1 human case could easily be missed based on testing alone.
- If the clinical team has epidemiologic reasons to suspect a novel influenza strain (and the patient tests positive for fluA), then contact Dr. Miller (Micro Lab) so it can send to the state lab.

https://www.cdc.gov/media/releases/2024/p0401-avian-flu.html; https://www.cdc.gov/flu/avianflu/hpai/hpai-interim-recommendations.html

Recent Changes in Patterns of Mammal Infection with Highly Pathogenic Avian Influenza A(H5N1) Virus Worldwide

We reviewed information about mammals naturally infected by highly pathogenic avian influenza A virus subtype H5N1 during 2 periods: the current panzootic (2020–2023) and previous waves of infection (2003–2019). In the current panzootic, 26 countries have reported >48 mammal species infected by H5N1 virus; in some cases, the virus has affected thousands of individual animals. The geographic area and the number of species affected by the current event are considerably larger than in previous waves of infection. The most plausible source of mammal infection in both periods appears to be close contact with infected birds, including their ingestion. Some studies, especially in the current panzootic, suggest that mammal-to-mammal transmission might be responsible for some infections; some mutations found could help this avian pathogen replicate in mammals. H5N1 virus may be changing and adapting to infect mammals. Continuous surveillance is essential to mitigate the risk for a global pandemic.

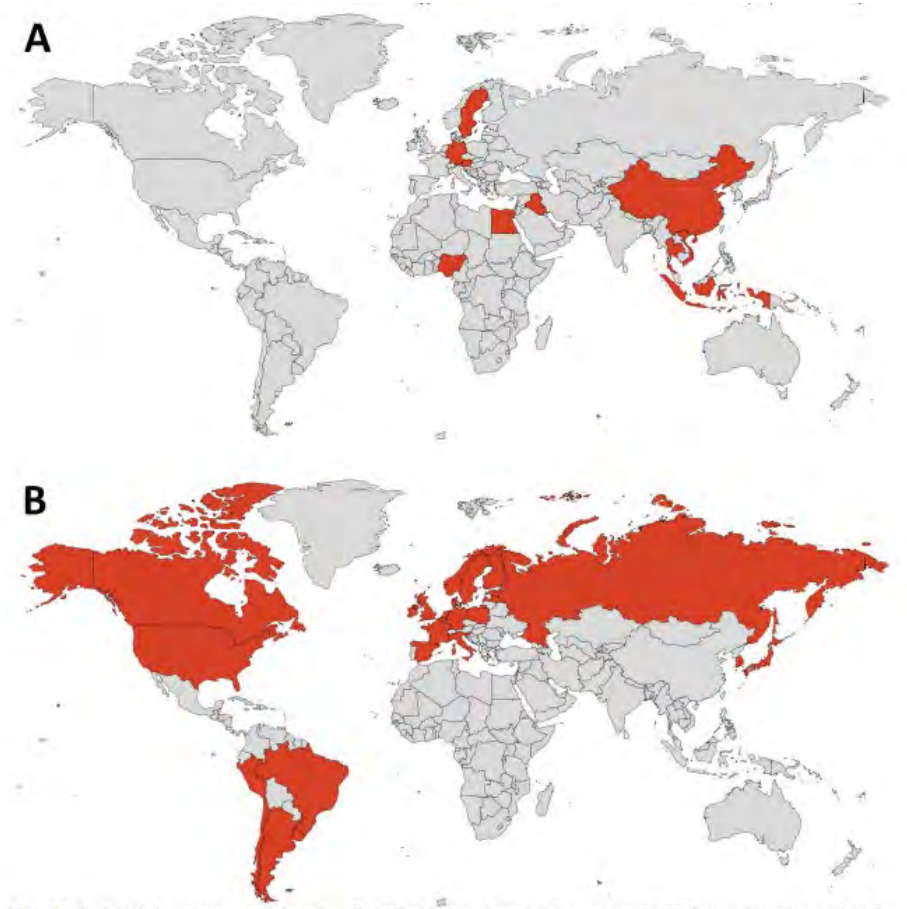


Figure 1. Geographic location of mammal species affected by highly pathogenic influenza virus A(H5N1) in previous waves of infection, 2003–2019 (A), and in the current panzootic, 2020–2023 (B).

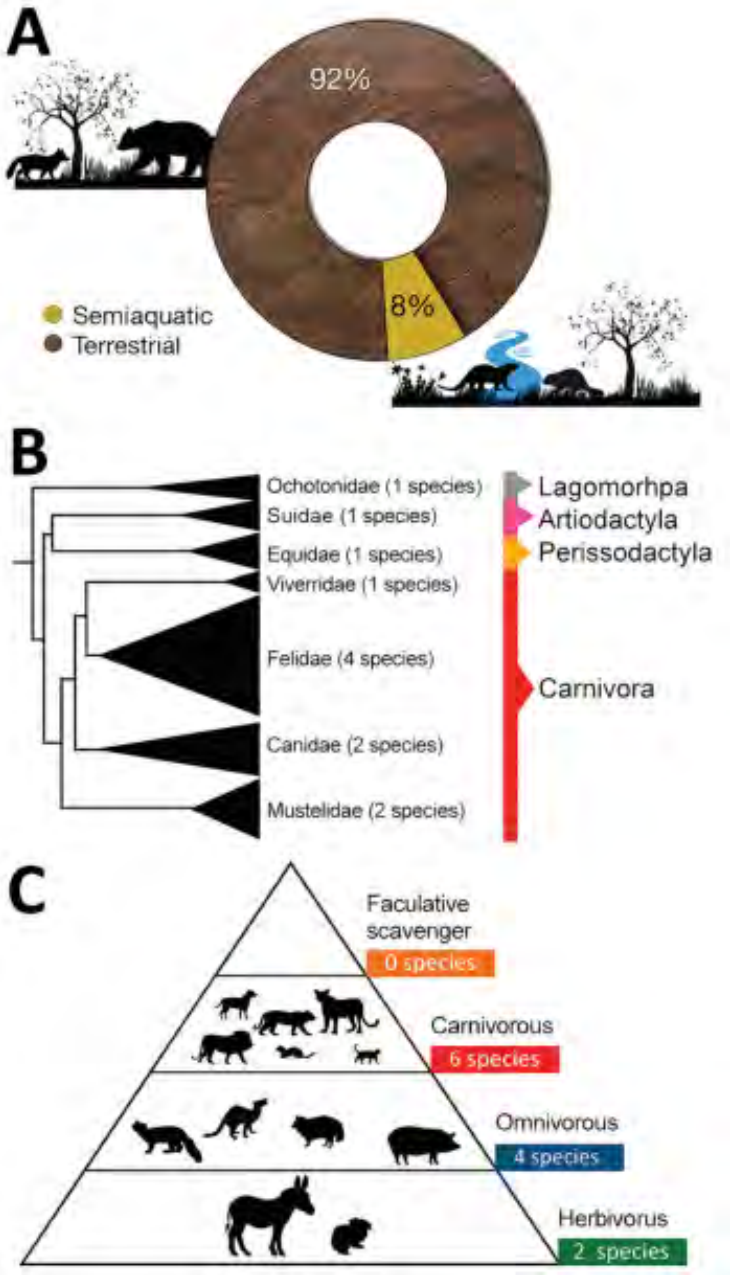
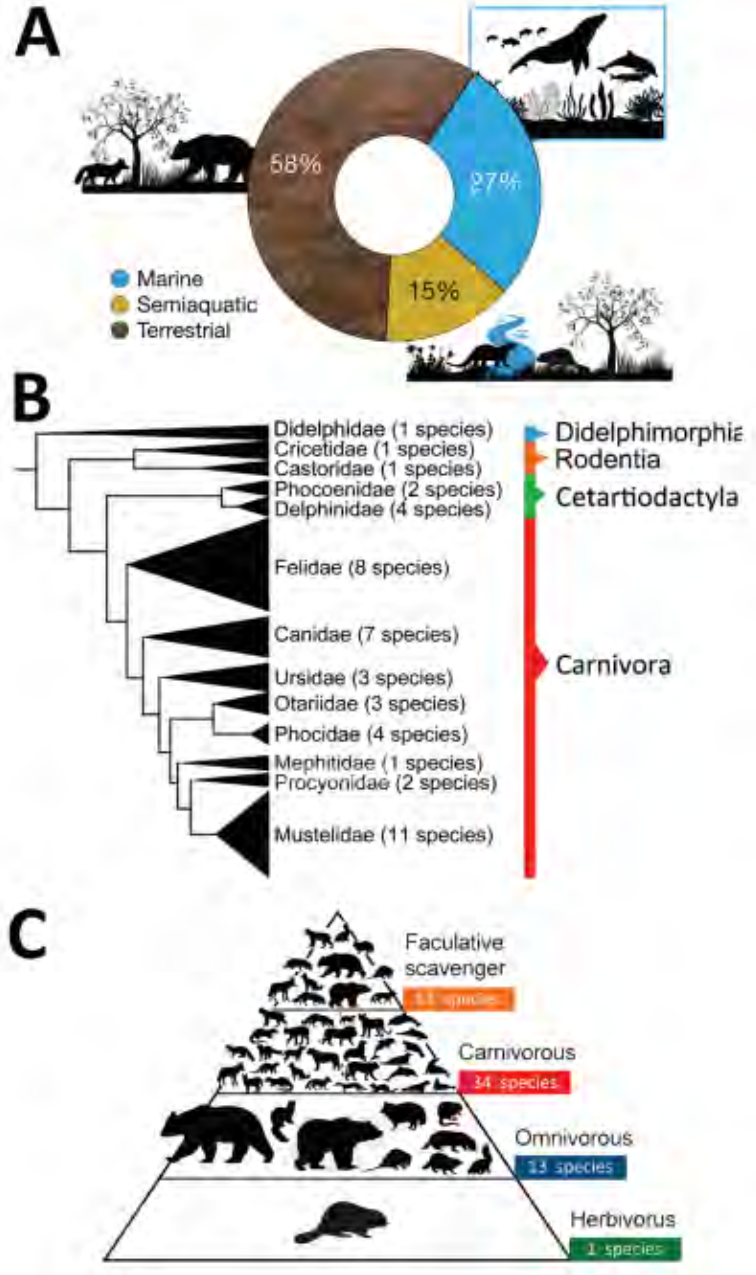


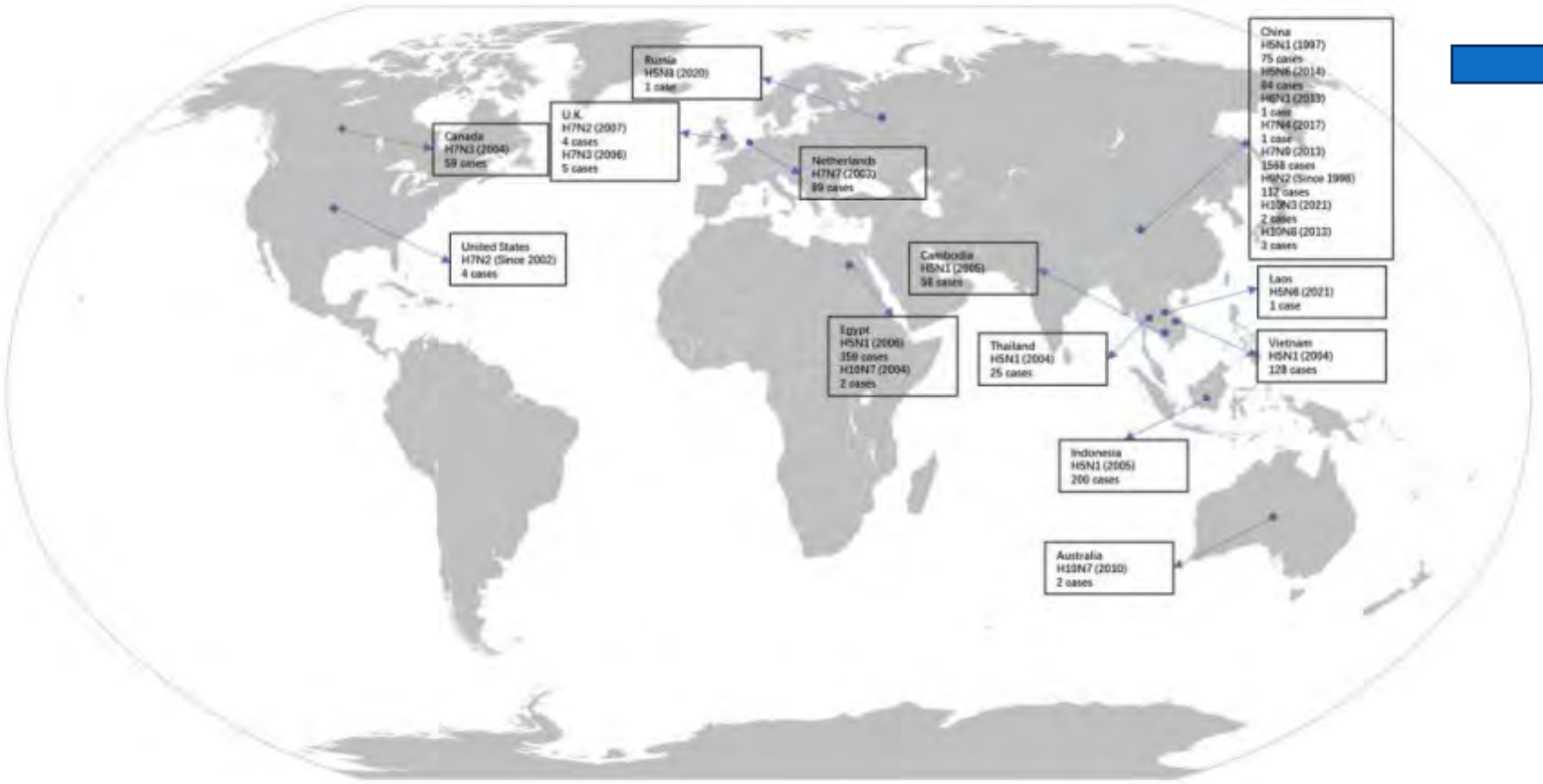
Figure 2. Characteristics of mammal species affected worldwide by highly pathogenic influenza virus A (H5N1) in previous waves of infection (2003–2019). A) Habitat of mammal species affected by H5N1. B) Phylogeny of mammal species affected (tree constructed using iTOL version 5 following Letunic and Bork [*15*], from DNA sequence data available in Upham et al. [*16*]). C) Trophic level (facultative scavenger, carnivore, omnivore, or herbivore) of mammalian species affected worldwide by H5N1.

Figure 3. Characteristics of mammal species affected worldwide by highly pathogenic influenza virus A (H5N1) the current panzootic (2020–2023). A) Habitat of mammal species affected by H5N1. B) Phylogeny of mammal species affected (tree constructed using iTOL version 5 following Letunic and Bork [*15*], from DNA sequence data available in Upham et al. [*16*]). C) Trophic level (facultative scavenger, carnivore, omnivore, or herbivore) of mammal species affected worldwide by H5N1. Some of the omnivorous and carnivorous mammals included in the pyramid (n = 13) also consume carrion; thus, they are also considered to be facultative scavengers and are incorporated in the upper part of the pyramid.



Plaza PI, et al. Emerg Infect Dis 2024;30:444

GLOBAL DISTRIBUTION OF AVIAN INFLUENZA, 1997-2023



Subtypes	Reported Human Infections	HPAI/LPAI	Affected Area
H5N1	Over 890 cases since 1997	HPAI	Worldwide
H5N6	Over 80 cases since 2014	HPAI	China, Laos
H5N8	One case in 2020	HPAI	Russia
H6N1	One case in 2013	LPAI	China
H7N2	8 cases since 2002	LPAI	U.K. and U.S
H7N3	64 cases since 2004	HPAI/LPAI	U.K. and Canada
H7N4	One case in 2017	LPAI	China
H7N7	Over 90 cases since 2003	HPAI/LPAI	Netherlands
H7N9	Over 1500 cases since 2013	HPAI/LPAI	China, Malaysia, and Canada
H9N2	Over 100 cases since 1998	LPAI	China, Bangladesh, Cambodia, Egypt, India, Oman, Pakistan, and Senegal
H10N3	2 cases since 2021	LPAI	China
H10N7	3 cases since 2004	LPAI	Egypt and Australia
H10N8	3 cases in 2013	LPAI	China

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