Something Old, Something New: update on viral infections

2025 Montana Chapter Annual Scientific Meeting

Thursday, September 11 & Friday, September 12, 2025

Providence St. Patrick Hospital | Missoula, MT

Disclosure

- Dr. Claude Tonnerre: none

Beyond COVID: Infectious Disease Updates for Hospitalists

Montana ACP Chapter
2023 Hospitalist Meeting
March 16-18, 2023

Topics

1) Empiric antibiotic therapy choices
2) Is 7 days the new 14 days?
3) IV antibiotics: are we climbing the mountain because it's there?
4) What to do with patients with PCN allergy?
5) Past year review:
   a. We avoided the worst: Ebola, RSV, Influenza
   b. Still a concern: COVID 19, Mpox
6) New threats: Syphilis, Brucella canis, and the next Big One (Avian Flu anyone?)

In summary (my take, and I have been wrong many times before!):

1) Ebola: there will be more outbreaks, but the actual risk for seeing cases in the USA is low
2) RSV, Influenza will likely resume the usual seasonal pattern over the next 1-2 years
3) COVID 19 morbidity and mortality will likely continue to decrease, and hopefully, at some point, COVID 19 will behave more like influenza
4) Mpox: there will be more outbreaks, but we don't have any idea of when and where
5) Please think about Syphilis, and test people!
6) Brucella canis will likely cause a lot of anxiety and sadness, but the actual threat for humans is probably low
7) The next Big One? Avian Flu

Provisional Monthly COVID-19 Deaths per 100,000 Population by Age (Crude), United States

January 01, 2020 - July 31, 2025

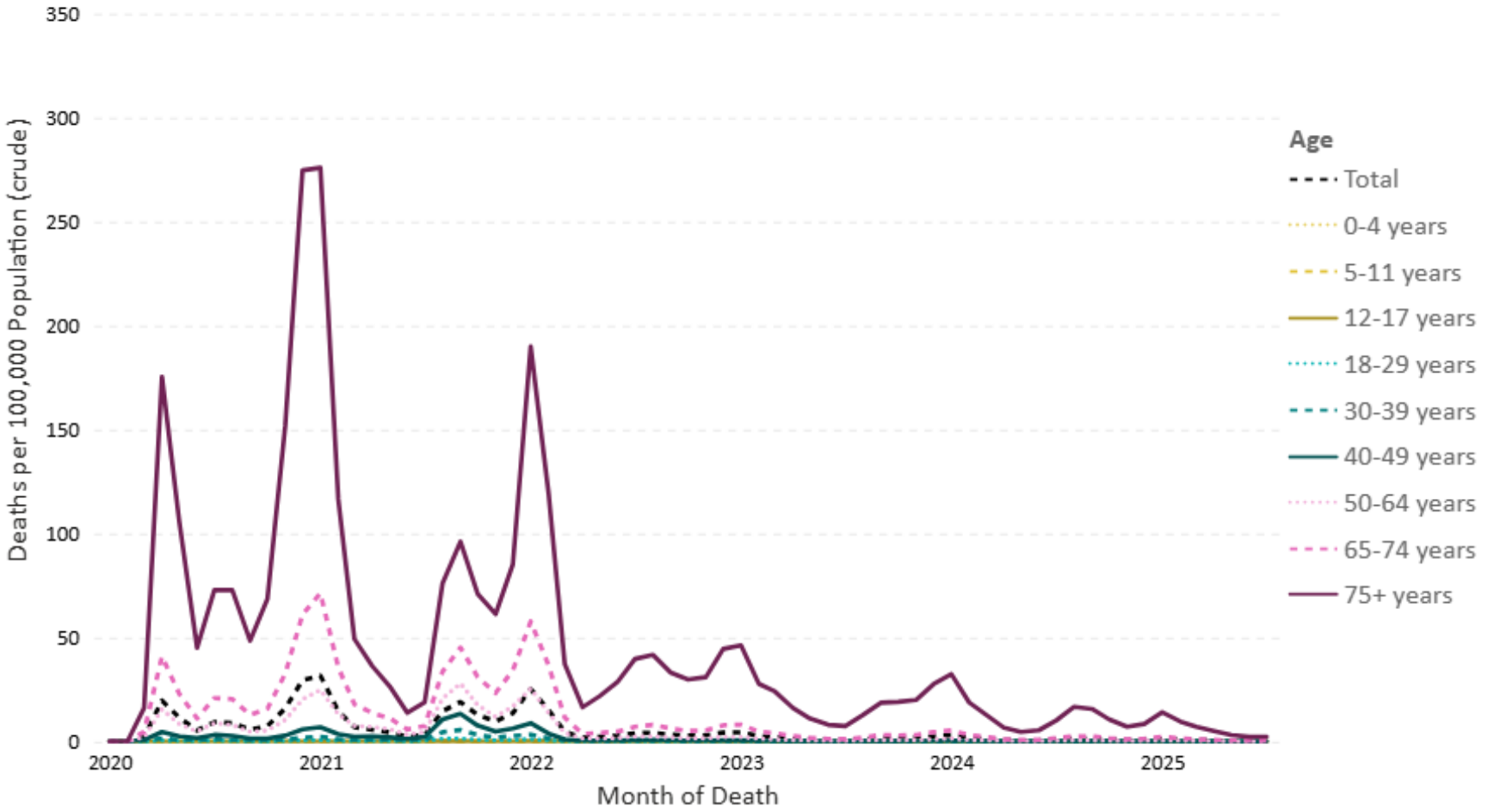
Jurisdiction

United States

1/31/2020 7/31/2025

Deaths

- Weekly Death Counts
- Weekly Death Rates (crude)
- Weekly Death Rates (age-adjusted)
- Cumulative Death Counts
- Click here to follow
- Cumulative Death…es (age-adjusted)
- Monthly Death Rates by Age (crude)
- Monthly Death Rates by Sex (crude)
- Monthly Death Rates by Race & Ethnicity (crude)



Month of death shows the calendar month in which the death occurred.

Source: Provisional Deaths from the CDC's National Center for Health Statistics (NCHS) National Vital Statistics System (NVSS); Visualization: NCIRD/CORVD and ORR/DEO Situational Awareness Public Health Science Team

Last Updated: Sep 05, 2025

Provisional Monthly COVID-19 Deaths per 100,000 Population by Age (Crude), United States

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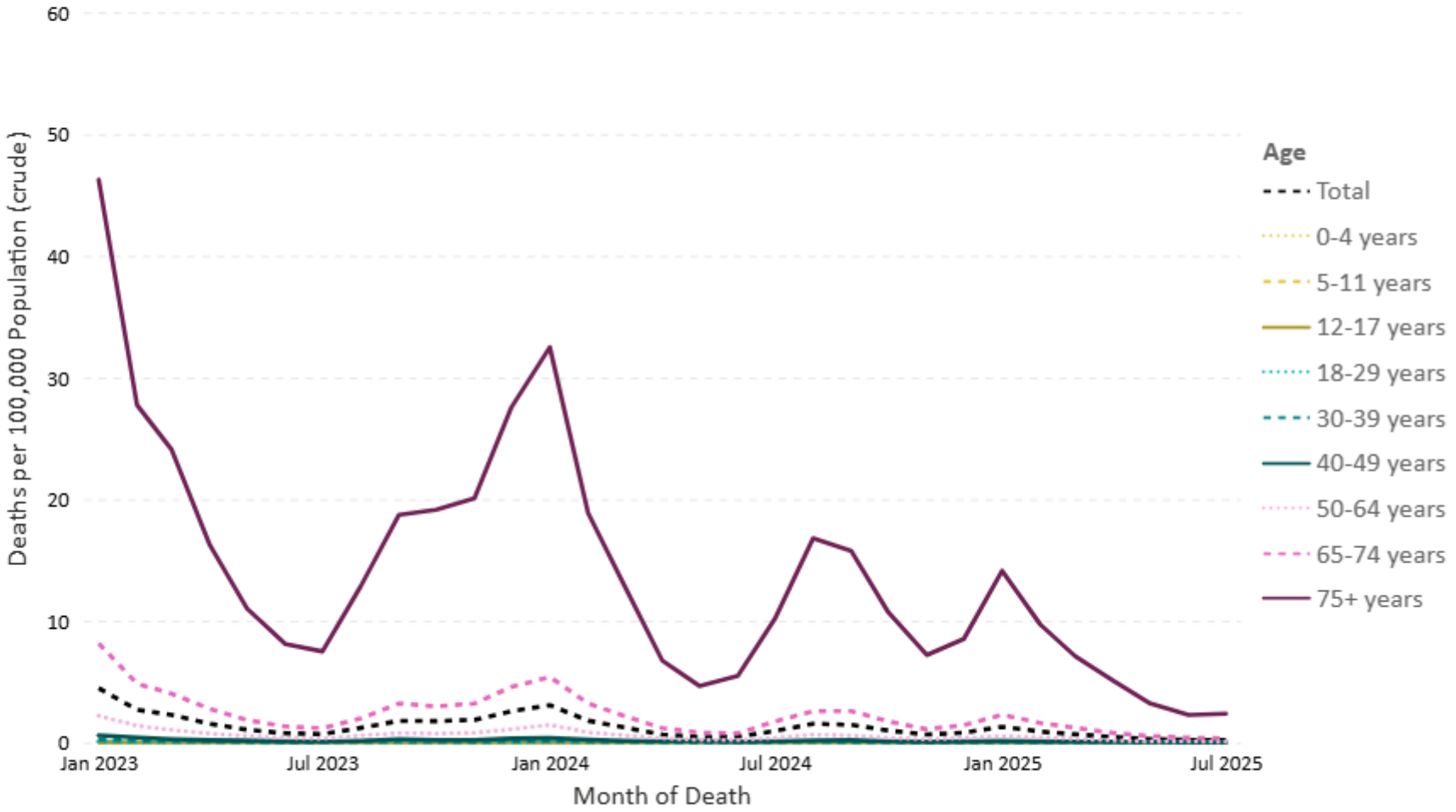
- Monthly Death Rates by Sex (crude)
- Monthly Death Rates by Race & Ethnicity (crude)



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Last Updated: Sep 05, 2025

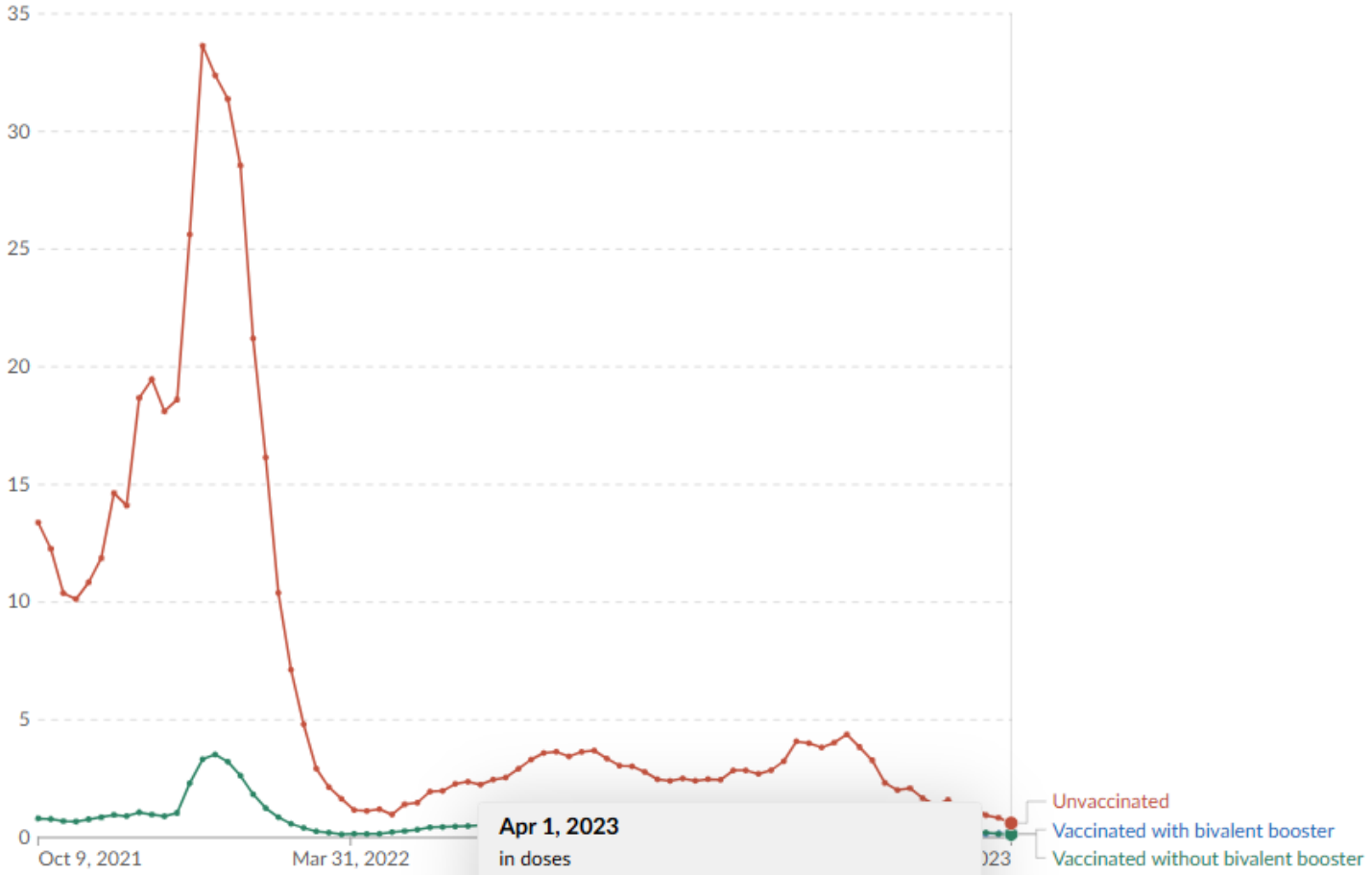
United States: COVID-19 weekly death rate by vaccination status, All ages

Our World in Data

Death rates are calculated as the number of deaths in each group, divided by the total number of people in this group. This is given per 100,000 people.

Table | Chart

Settings



Data source: Centers for Disease Control and Prev

OurWorldinData.org/coronavirus | CC BY

Note: The mortality rate for the 'All ages' group is age-s of older and younger people.

article on death rates by vaccination status

CHOOSE AN AGE GROUP

Search for an age group

Sort by: Name

- 0.5-4
- 12-17
- 18-29
- 30-49
- 5-11
- 50-64
- 65-79
- 80+
- All ages

COVID-19 Surveillance Data in the United States

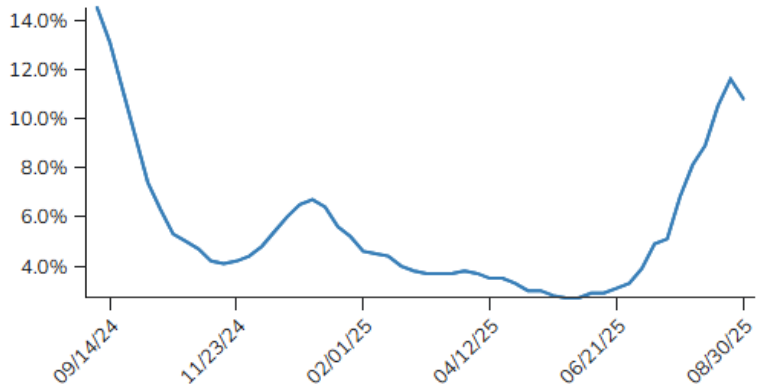
Early Indicators

Test positivity (the percentage of total reported tests that are positive) and the percentage of total emergency department visits due to COVID-19 are key metrics to assess the impact of COVID-19 on communities. For public health professionals, these metrics act as early indicators of potential increases in COVID-19 activity.

% Test Positivity

10.8%

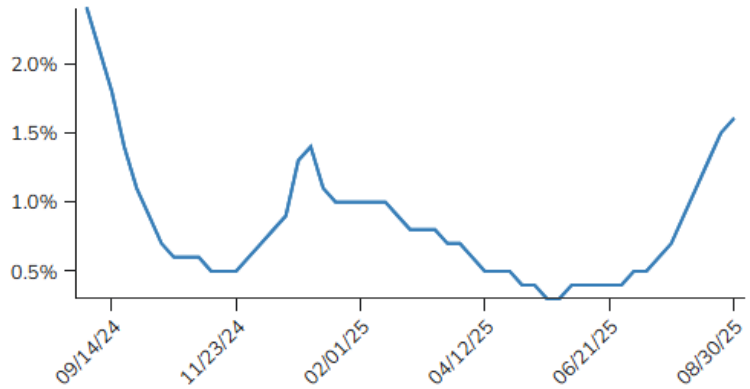
Week ending 2025-08-30
Previous Week 11.6%



% ED visits diagnosed as COVID-19

1.6%

Week ending 2025-08-30
Previous Week 1.5%



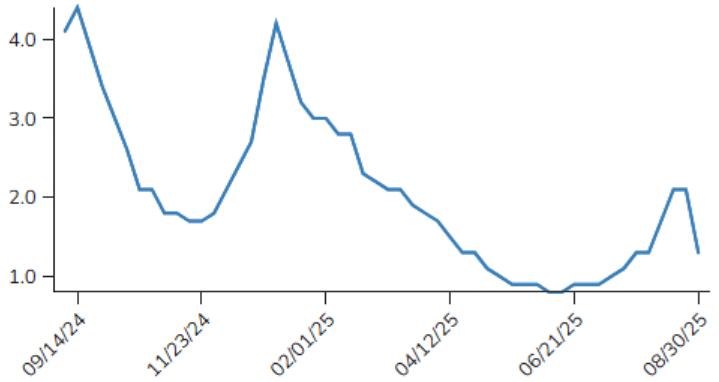
Severity Indicators

Hospitalizations and deaths are key metrics for assessing the severity and disease burden of COVID-19, including which groups are at the increased risk of severe COVID-19.

Hospitalization rate per 100,000 population

1.3

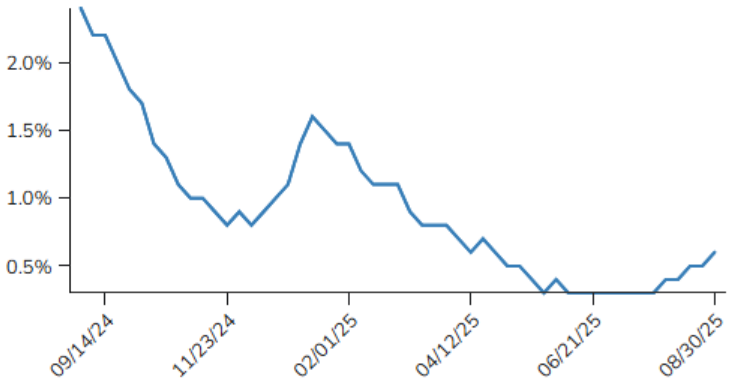
Week ending 2025-08-30
Previous week 2.1



% of All Deaths in U.S. Due to COVID-19

0.6%

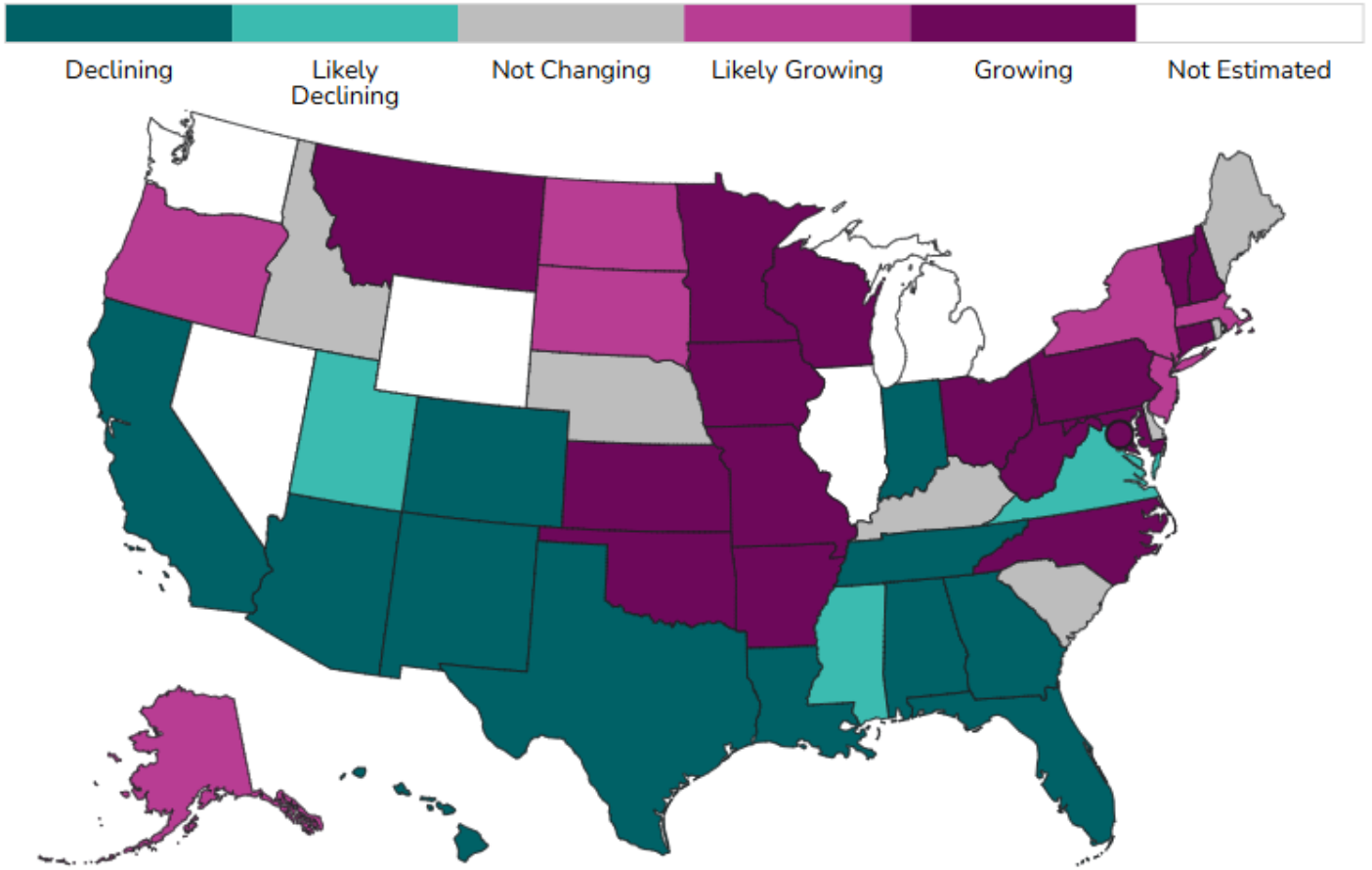
Week ending 2025-08-30
Previous Week 0.5%



COVID-19

COVID-19 | Influenza

Epidemic Trend



U.S. territories

AS | GU | PR | VI

COVID-19

Care location and COVID-19 severity	Pharmacologic treatments available in the United States
Ambulatory mild-to-moderate disease (not hypoxemic) *with high risk for progression to severe disease*, hospitalization or death *(see individual drug section for specific considerations for each of these agents)* Can be considered in patients with mild-moderate COVID-19 hospitalized for other reasons	• Nirmatrelvir/ritonavir X 5 days (oral) • Remdesivir x 3 days (intravenous) • Anti-SARS-CoV-2 monoclonal antibodies if regional circulating SARS Cov-2 variants are susceptible to available agents [a] • If other treatment options are not available then consider Molnupiravir x 5 days (oral) or, if immunocompromised, high-titer convalescent plasma with activity against circulating variant (intravenous). • Systemic steroids have no demonstrated benefit and may harm. • No benefit demonstrated for hydroxychloroquine, azithromycin, lopinavir/ritonavir, or ivermectin.

COVID-19

Hospitalized for mild-to-moderate COVID-19 (not hypoxemic)	• If at high risk for progression and within 7 days of symptom onset, remdesivir x 3 days. • Systemic steroids have no demonstrated benefit and may harm. • No benefit demonstrated in RCTs for convalescent plasma, hydroxychloroquine, azithromycin, lopinavir/ritonavir, or ivermectin.
Hospitalized for severe, but not critical COVID-19 (hypoxemic needing low flow supplemental oxygen)	• Corticosteroids (dexamethasone 6 mg/d x 10 days or until discharge or an equivalent dose of another agent). • Remdesivir x 5 days • Tocilizumab or Sarilumab in progressive disease with elevated inflammatory makers. or • Baricitinib or tofacitinib in patients with elevated inflammatory markers. • No benefit demonstrated in RCTs for convalescent plasma, hydroxychloroquine, azithromycin, lopinavir/ritonavir, or ivermectin.
Hospitalized for critically ill COVID-19, needing non-invasive ventilation or Hi flow oxygen	Corticosteroids (dexamethasone 6 mg/d x 10 days or until discharge or an equivalent dose of hydrocortisone or methylprednisolone). • Tocilizumab or Sarilumab in patients with elevated inflammatory makers • Baricitinib or tofacitinib in patients with elevated inflammatory markers • No benefit demonstrated in RCTs for remdesivir, convalescent plasma, hydroxychloroquine, azithromycin, lopinavir/ritonavir, or ivermectin.

COVID-19

The NEW ENGLAND JOURNAL of MEDICINE

CURRENT ISSUE SPECIALTIES TOPICS

ORIGINAL ARTICLE

Oral Nirmatrelvir–Ritonavir as Postexposure Prophylaxis for Covid-19

Authors: Jennifer Hammond, Ph.D., Carla Yunis, M.D., Robert J. Fountaine, Pharm.D., Gerald Luscan, M.S., Aimee M. Burr, M.S., Wuyan Zhang, Ph.D., Wayne Wisemandle, M.A., +5 , and James M. Rusnak, M.D., Ph.D. Author Info & Affiliations

Published July 17, 2024 | N Engl J Med 2024;391:224-234 | DOI: 10.1056/NEJMoa2309002 | VOL. 391 NO. 3

METHODS

We conducted a phase 2–3 double-blind trial to assess the efficacy and safety of nirmatrelvir–ritonavir in asymptomatic, rapid antigen test–negative adults who had been exposed to a household contact with Covid-19 within 96 hours before randomization. The participants were randomly assigned in a 1:1:1 ratio to receive nirmatrelvir–ritonavir (300 mg of nirmatrelvir and 100 mg of ritonavir) every 12 hours for 5 days or for 10 days or matching placebo for 5 or 10 days. The primary end point was the development of symptomatic SARS-CoV-2 (severe acute respiratory syndrome coronavirus 2) infection, confirmed on reverse-transcriptase–polymerase-chain-reaction (RT-PCR) or rapid antigen testing, through 14 days in participants who had a negative RT-PCR test at baseline.

CONCLUSIONS

In this placebo-controlled trial, postexposure prophylaxis with nirmatrelvir–ritonavir for 5 or 10 days did not significantly reduce the risk of symptomatic SARS-CoV-2 infection. (Funded by Pfizer; ClinicalTrials.gov number, NCT05047601.)

COVID-19

FDA authorizes REGEN-COV monoclonal antibody therapy for post-exposure prophylaxis (prevention) for COVID-19

Prophylaxis with REGEN-COV is not a substitute for vaccination against COVID-19

REGEN-COV may only be used as post-exposure prophylaxis for adults and pediatric individuals (12 years of age and older weighing at least 40 kg) who are:

- at high risk for progression to severe COVID-19, including hospitalization or death, **and**
- not fully vaccinated **or** who are not expected to mount an adequate immune response to complete SARS-CoV-2 vaccination (for example, people with immunocompromising conditions, including those taking immunosuppressive medications), **and**
    - have been exposed to an individual infected with SARS-CoV-2 consistent with close contact criteria per Centers for Disease Control and Prevention (CDC), **or**
    - who are at high risk of exposure to an individual infected with SARS-CoV-2 because of occurrence of SARS-CoV-2 infection in other individuals in the same institutional setting (for example, nursing homes or prisons)

COVID-19

Late-Breaking at CROI 2025: SCORPIO-PEP Phase 3 Trial: Ensitrelvir is the First and Only COVID-19 Oral Antiviral to Demonstrate Prevention of COVID-19 as Post Exposure Prophylaxis

Study participants (N=2387) were randomly assigned 1:1 to receive ensitrelvir 125mg or placebo once daily for 5 days. Treatment was initiated within 3 days of when the infected household member began showing symptoms. The primary endpoint was the onset of COVID-19 symptoms through day 10.

Findings from the primary analysis population (n=2041; household contact participants with a negative SARS-CoV-2 test excluding those already positive by PCR at the central laboratory) showed 2.9% of the ensitrelvir arm developed symptomatic COVID-19 compared with 9.0% of the placebo arm (risk ratio, 0.33 [95% CI, 0.22-0.49]; *P* <.0001).

In the secondary analysis population (n=2387; household contact participants with a negative local test for SARS-CoV-2 not excluding those with a central laboratory positive SARS-CoV-2 PCR), results showed 4.4% of ensitrelvir-treated patients developed symptomatic COVID-19 vs 10.2% receiving placebo (risk ratio, 0.43 [95% CI, 0.32-0.59]; *P* <.0001).

Similar rates of adverse events were observed in the treatment groups (15.1% with ensitrelvir and 15.5% with placebo), with no COVID-19 related hospitalizations or deaths.

COVID-19

JAMA Internal Medicine

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Original Investigation

Azelastine Nasal Spray for Prevention of SARS-CoV-2 Infections

A Phase 2 Randomized Clinical Trial

Thorsten Lehr, PhD[1]; Peter Meiser, PhD[2]; Dominik Selzer, PhD[1] ; et al

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JAMA Intern Med

Published Online: September 2, 2025

doi: 10.1001/jamainternmed.2025.4283

Question Is regular application of azelastine nasal spray associated with reduced risk of SARS-CoV-2 infections?

Findings In this randomized placebo-controlled clinical trial that included 450 participants, the incidence of laboratory-confirmed SARS-CoV-2 infections was significantly lower with application of azelastine nasal spray compared with placebo treatment.

Meaning The use of azelastine nasal spray may help to reduce the risk of SARS-CoV-2 infections.

Design, Setting, and Participants A phase 2, double-blind, placebo-controlled, single-center trial was conducted from March 2023 to July 2024. Healthy adults from the general population were enrolled at the Saarland University Hospital in Germany.

Interventions Participants were randomly assigned 1:1 to receive azelastine, 0.1%, nasal spray or placebo 3 times daily for 56 days. SARS-CoV-2 rapid antigen testing (RAT) was conducted twice weekly, with positive results confirmed by polymerase chain reaction (PCR). Symptomatic participants with negative RAT results underwent multiplex PCR testing for respiratory viruses.

Main Outcome The primary end point was the number of PCR-confirmed SARS-CoV-2 infections during the study.

Results A total of 450 participants were randomized, with 227 assigned to azelastine and 223 to placebo; 299 (66.4%) were female, 151 (33.6%) male, with a mean (SD) age of 33.0 (13.3) years. Most were White (417 [92.7%]), with 4 (0.9%) African, 22 (4.9%) Asian, and 7 (1.6%) of other ethnicity. In the intention-to-treat (ITT) population, the incidence of PCR-confirmed SARS-CoV-2 infection was significantly lower in the azelastine group (n=5 [2.2%]) compared with the placebo group (n=15 [6.7%]) (OR, 0.31; 95% CI, 0.11-0.87). As secondary end points, azelastine demonstrated an increase in mean (SD) time to SARS-CoV-2 infection among infected participants (31.2 [9.3] vs 19.5 [14.8] days), a reduction of the overall number of PCR-confirmed symptomatic infections (21 of 227 participants vs 49 of 223 participants), and a lower incidence of PCR-confirmed rhinovirus infections (1.8% vs 6.3%). Adverse events were comparable between the groups.

When you may have a respiratory virus...

Stay home and away from others (including people you live with who are not sick) if you have respiratory virus symptoms that aren't better explained by another cause. These symptoms can include fever, chills, fatigue, cough, runny nose, and headache, among others.*

- You can go back to your normal activities when, for at least 24 hours, both are true:
  - Your symptoms are getting better overall, **and**
  - You have not had a fever (and are not using fever-reducing medication).
- When you go back to your normal activities, take added precautions over the next 5 days, such as taking steps for cleaner air, practicing good hygiene, wearing a well-fitted mask, physical distancing, or testing for times when you will be around other people. Taking precaution is especially important to protect people with factors that increase their risk of severe illness from respiratory viruses.

COVID-19

facility (e.g., radiology) and to other healthcare facilities.

Personal Protective Equipment

- HCP who enter the room of a patient with suspected or confirmed SARS-CoV-2 infection should adhere to Standard Precautions and use a NIOSH Approved particulate respirator with N95 filters or higher, gown, gloves, and eye protection (i.e., goggles or a face shield that covers the front and sides of the face).
- Respirators should be used in the context of a comprehensive respiratory protection program, which includes medical evaluations, fit testing and training in accordance with the Occupational Safety and Health Administration's (OSHA) Respiratory Protection standard (29 CFR 1910.134)

Personnel with SARS-CoV-2 Infection or Exposure to SARS-CoV-2

Health Care Providers
MARCH 18, 2024 •

KEY POINTS

- In general, asymptomatic healthcare personnel (HCP) who have had a higher-risk exposure do not require work restriction, regardless of vaccination status, if they do not develop symptoms or test positive for SARS-CoV-2.

For Awareness

Updates: Recommendations for duration of work exclusion for healthcare personnel with SARS-CoV-2 infection have been reviewed as part of updates to the **Guideline for Infection Control in Healthcare Personnel, 1998**. The draft has been finalized by the Healthcare Infection Control Practices Advisory Committee (HICPAC). It will be posted in the Federal Register in the coming months, for a public comment period before being returned to HICPAC for additional review. Further updates about the guideline development are available at: HICPAC Guideline Updates | HICPAC | CDC

ON THIS PAGE

COVID-19

COVID Isolation Practice Changes

The WA DOH has updated its recommendations regarding the use of personal protective equipment (PPE) by healthcare personnel (HCP) when caring for patients with suspected or confirmed COVID-19. The DOH PPE Recommendations can be found on the DOH COVID-19 Infection Prevention in Health Care Settings webpage

Key Updates:

- Gowns and Gloves: DOH recommends that HCP ***wear gowns and gloves when there is reasonable anticipation of contact with potentially infectious material***, in alignment with standard precautions and the Bloodborne Pathogens Standard.

Based on current literature review and transmission route for COVID-19, which is largely through droplet & aerosol, not through contact of objects/surfaces, **isolation gowns and gloves are no longer required when caring for a patient with rule out or confirmed COVID-19.**

***Order Droplet precautions in Epic and post the new Aerosol Isolation Sign.**

Follow standard precautions with all patients and wear gown/gloves if there is anticipated risk of contact with infectious materials.

- Look for new isolation signs as Infection Prevention works with department leaders to roll out this practice change.

New Sign (to be used for COVID-19)	Old Sign (to be used for Mpox)
	

COVID-19

After speaking with the MT State Health Department: State of Montana is not able to make their own recommendations for isolation, and we are to follow CDC recommendations.
As much as we would like to move forward, seems we are beholden to Administrative Rules of Montana.

Lacey

Lacey Taylor, PhD, MLS(ASCP)^{CM}, CIC
Senior Infection Preventionist, Infection Control and Prevention

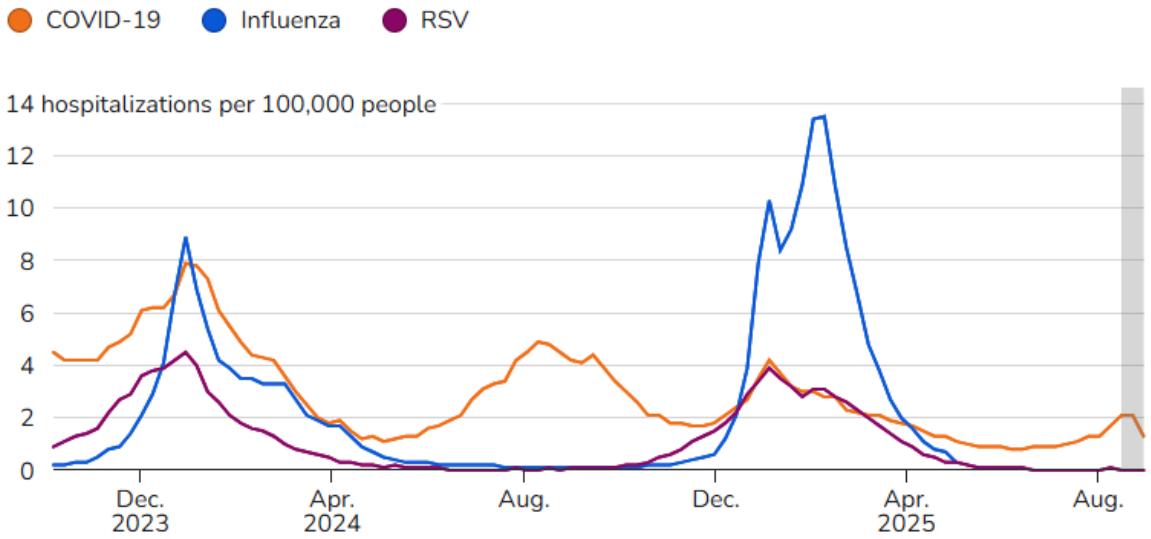
Hospitalization Rates from a Network of Hospitals

Weekly hospitalization rates of respiratory virus-associated hospitalizations per 100,000 population from RESP-NET. Preliminary data are shaded in gray. Refer to data notes for more details.

Seasonal surveillance data for influenza-associated hospital admissions from RESP-NET ended on April 30, 2025, and will resume on October 1, 2025, for the 2025–2026 season.

State/Territory

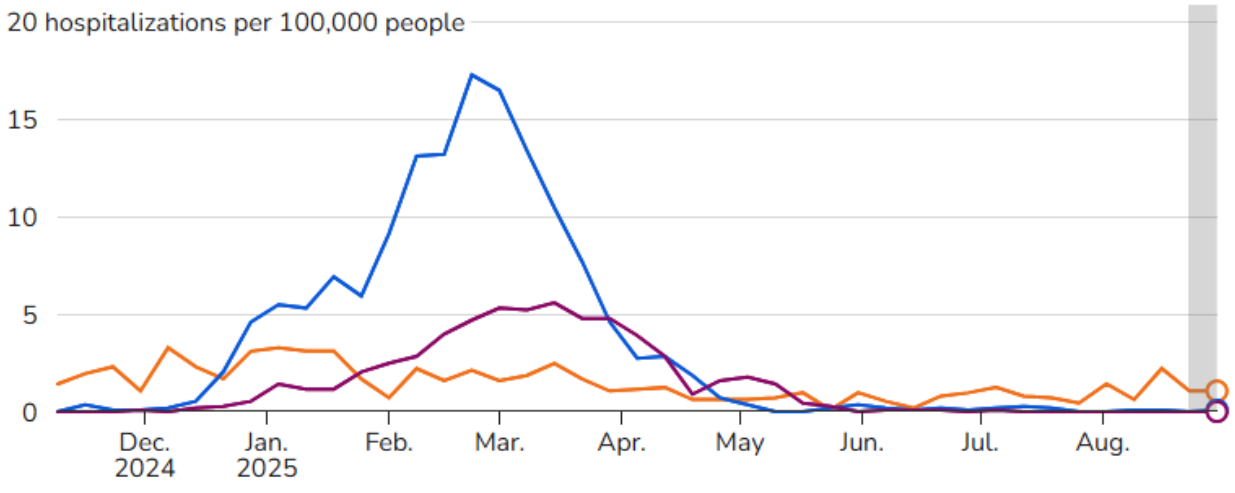
Overall Network



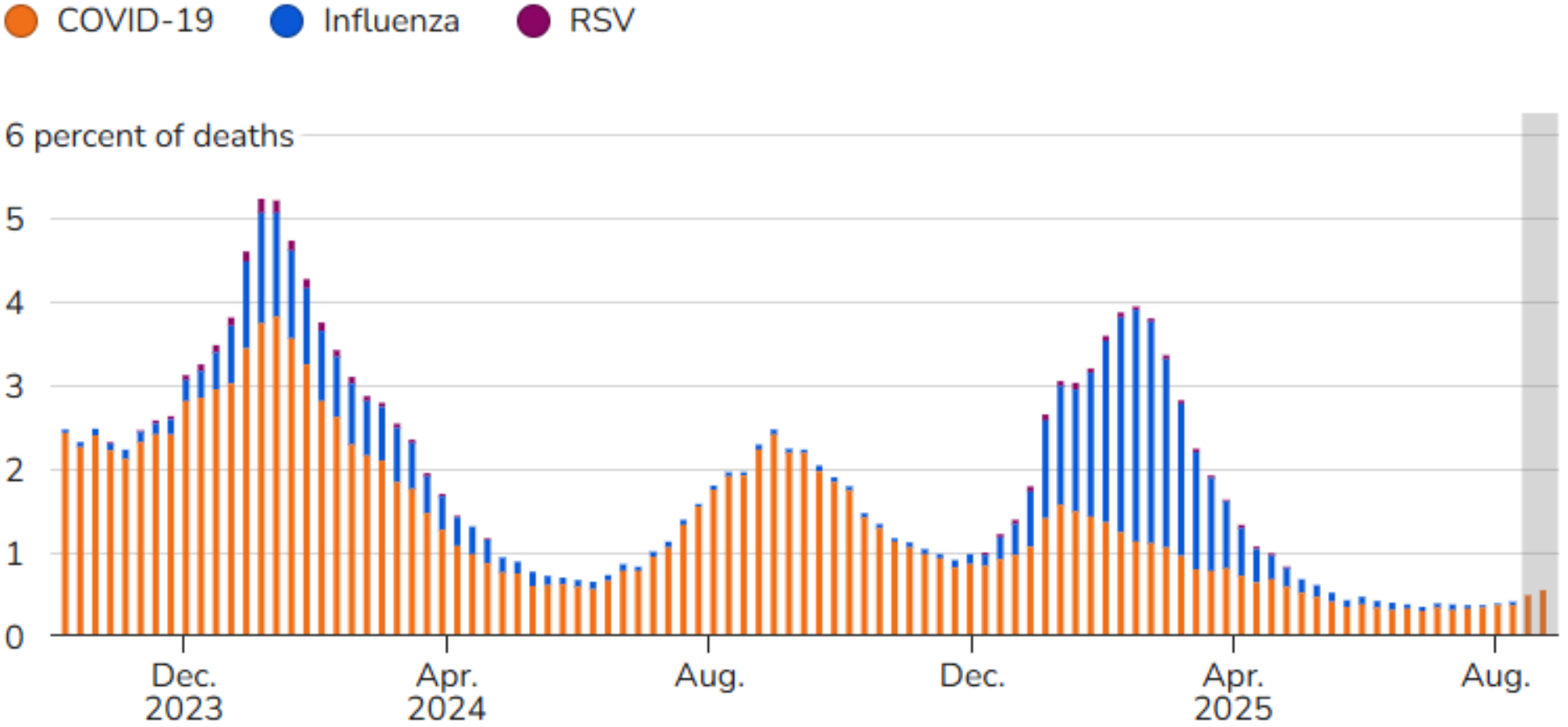
Hospitalization Rates Reported by Hospitals

Weekly hospitalization rates of respiratory virus-associated hospitalizations per 100,000 population from CDC's National Healthcare Safety Network (NHSN). Preliminary data are shaded in gray. Refer to data notes for more details.

Montana



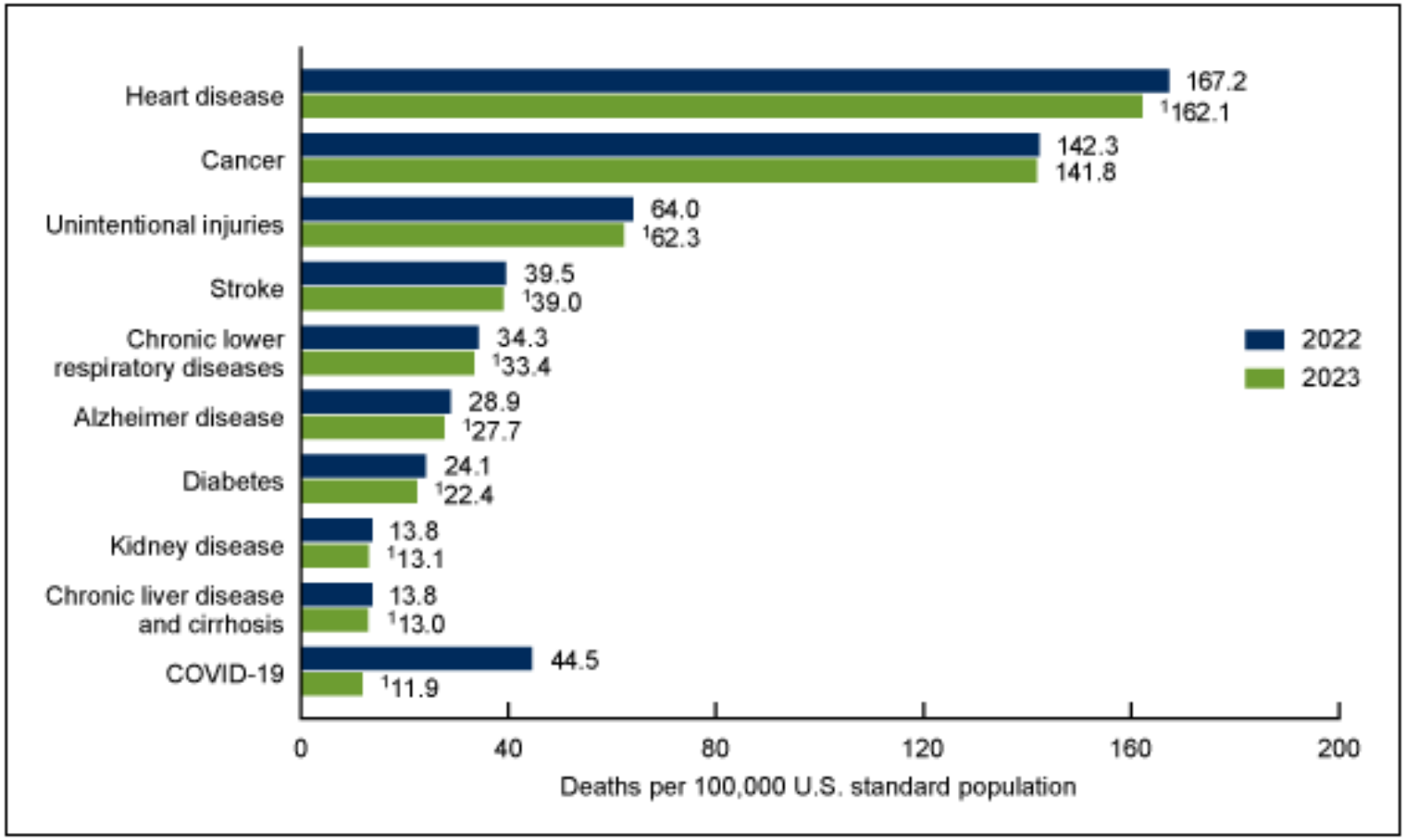
Weekly percent of total deaths associated with COVID-19, influenza, and RSV. Preliminary data are shaded in gray. Refer to data notes for more details.



One or more data points are based on death counts between 1-9 and have been suppressed in accordance with National Center for Health Statistics confidentiality standards.

COVID-19

Figure 4. Age-adjusted death rate for the 10 leading causes of death in 2023: United States, 2022 and 2023



[1]Statistically significant decrease from 2022 to 2023 ($p < 0.05$).

On Aug. 27, the U.S. Food and Drug Administration updated its COVID-19 vaccine guidance, limiting the groups of people approved to get the updated shot to anyone age 65 and older and any person 6 months and older who has at least one underlying health condition that increases their risk of severe COVID-19 infection.

The FDA's approval is not the only step in the process of making vaccines available to the public.

The Advisory Committee on Immunization Practices, a panel of independent experts that guides vaccine policy, has not voted on or issued current guidance. Typically, the Centers for Disease Control and Prevention recommends vaccines based on the panel's guidance.

What health conditions qualify you for a COVID shot?

The Food and Drug Administration says people between the ages of 6 months and 64 years must have at least one high-risk health condition to qualify for a COVID vaccine during the 2025-2026 season. Currently, that list includes:

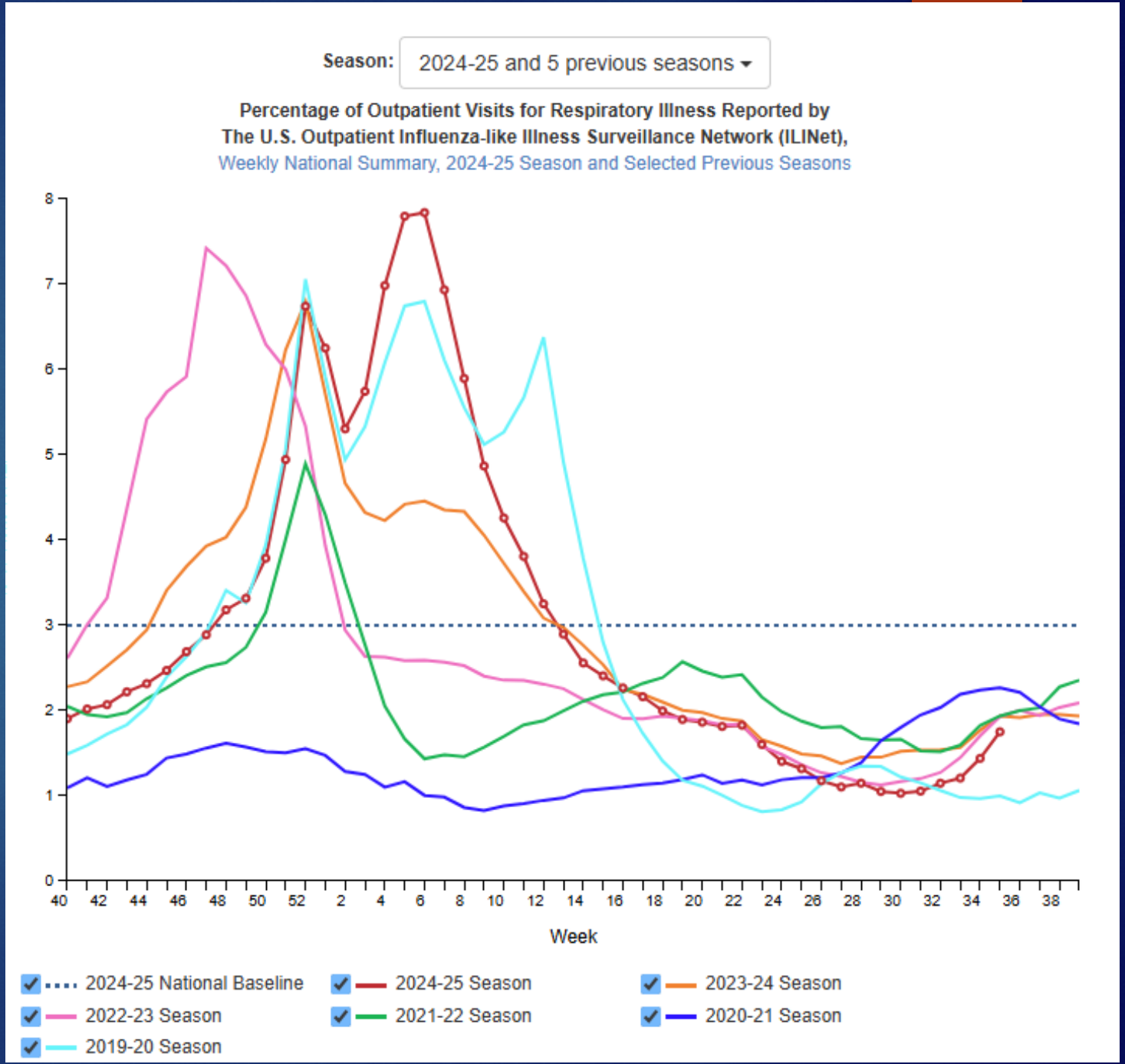
- Cancer
- Cerebrovascular disease (stroke)
- Chronic kidney disease
- Chronic liver disease
- Chronic lung disease (asthma, COPD, etc.)
- Cystic fibrosis
- Dementia and Parkinson's disease
- Diabetes (type 1 and type 2)
- Disabilities (ADHD, cerebral palsy, intellectual and learning disabilities, etc.)
- Heart conditions and heart disease
- Hemoglobin blood disorders (sickle cell disease, thalassemia)
- HIV infection
- Immunocompromised condition
- Mental health condition or mood disorders
- Being overweight or obese
- Lack of physical activity
- Pregnancy
- Smoking or history of smoking
- Solid organ or blood stem cell transplant
- Substance use disorders
- Tuberculosis

Source: Centers for Disease Control and Prevention, June 2025

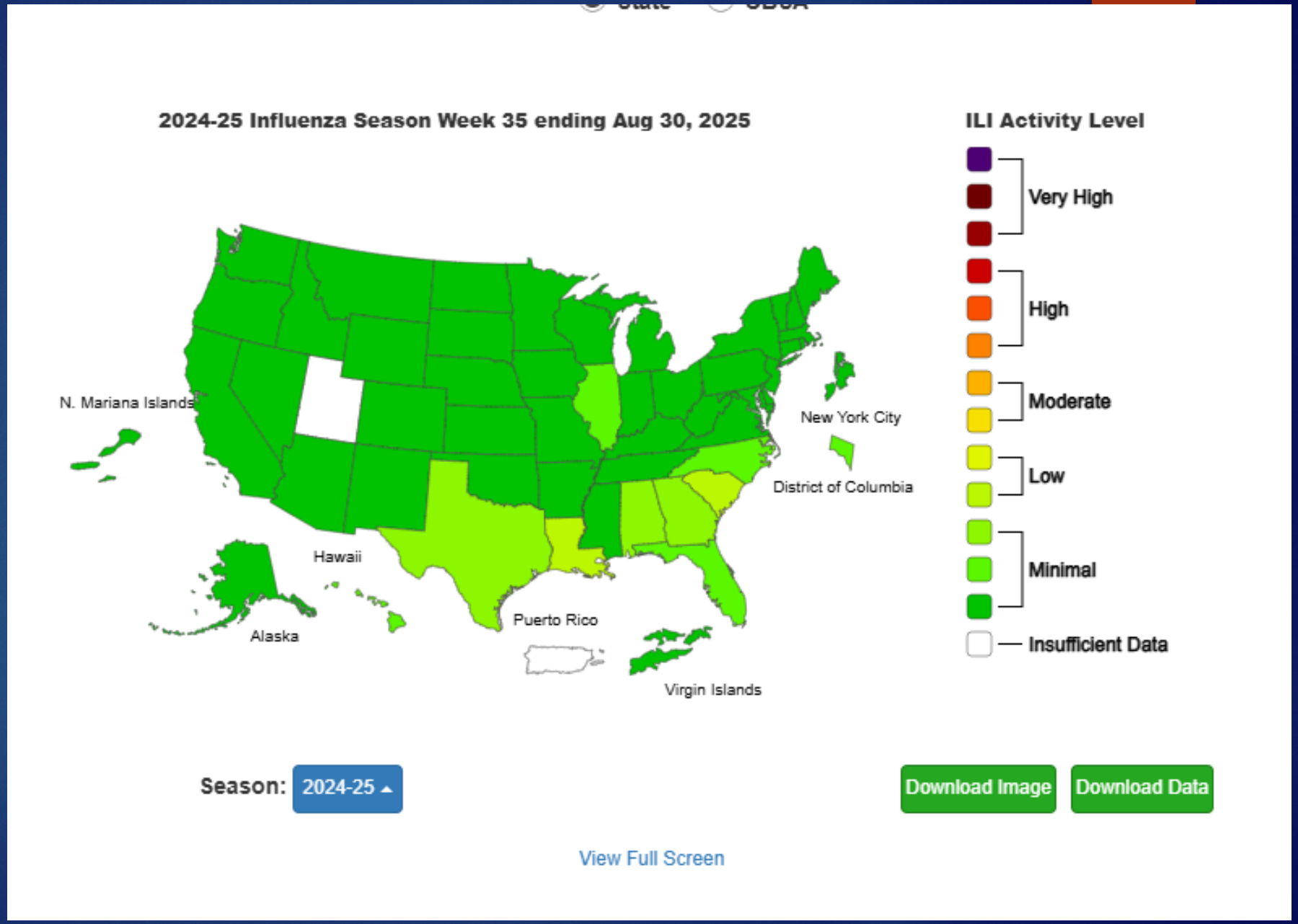
In 18 states and Washington, D.C., pharmacists' authority to administer vaccines is linked to the CDC's recommendations, said Brigid Groves, American Pharmacists Association's vice president of professional affairs. The states are: Colorado, Connecticut, Georgia, Iowa, Kentucky, Maine, Maryland, Massachusetts Montana, Nevada, New Jersey, New Mexico, North Carolina, Oregon, Pennsylvania, South Carolina, Virginia and West Virginia.

That means even though the FDA has issued its approval, in those 19 places, pharmacists cannot administer it because it isn't on the CDC immunization schedule yet, Groves said.

Influenza


Season: 2024-25 and 5 previous seasons
Percentage of Outpatient Visits for Respiratory Illness Reported by
The U.S. Outpatient Influenza-like Illness Surveillance Network (ILINet),
Weekly National Summary, 2024-25 Season and Selected Previous Seasons
0
1
2
3
4
5
6
7
8
40 42 44 46 48 50 52 2 4 6 8 10 12 14 16 18 20 22 24 26 28 30 32 34 36 38
Week
2024-25 National Baseline
2024-25 Season
2023-24 Season
2022-23 Season
2021-22 Season
2020-21 Season
2019-20 Season

Influenza


2024-25 Influenza Season Week 35 ending Aug 30, 2025
ILI Activity Level
Very High
High
Moderate
Low
Minimal
Insufficient Data
N. Mariana Islands
New York City
District of Columbia
Hawaii
Alaska
Puerto Rico
Virgin Islands
Season:
2024-25
Download Image
Download Data
View Full Screen

RSV

RSV Immunizations

There are immunizations to protect people who are at increased risk of severe RSV.

- CDC recommends RSV vaccination for all adults ages 75 and older and for adults ages 50–74 who are at increased risk of severe RSV.
- To protect infants from severe RSV, CDC recommends an RSV vaccine for pregnant women (Pfizer's Abrysvo) or an infant RSV antibody given to the baby.
  - Nirsevimab is also recommended for a small group of young children ages 8–19 months entering their second RSV season. Clesrovimab has not been recommended for this group.

Keep in mind

A recommendation from a healthcare provider is one of the most important factors that influences a patient's choice to accept a new prevention product or vaccine.

Avian Influenza

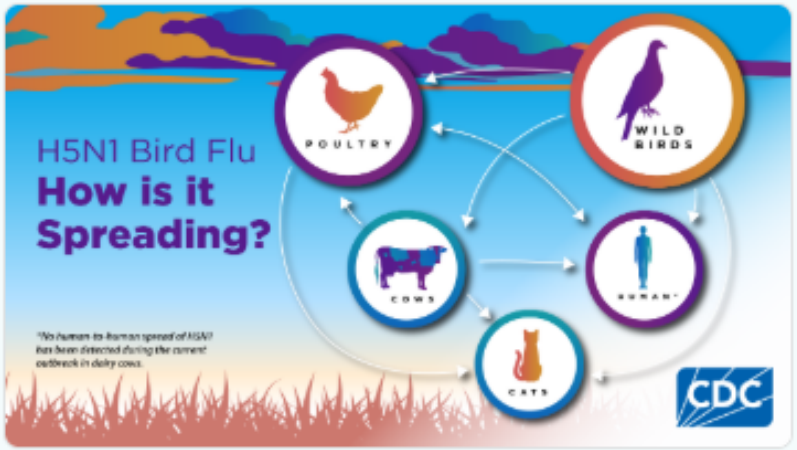
H5 Bird Flu: Current Situation

For Everyone

AUG. 1, 2025 • ESPAÑOL

WHAT TO KNOW

- H5 bird flu is widespread in wild birds worldwide and is causing outbreaks in poultry and U.S. dairy cows with several recent human cases in U.S. dairy and poultry workers.
- While the current public health risk is low, CDC is watching the situation carefully and working with states to monitor people with animal exposures.
- CDC is using its flu surveillance systems to monitor for H5 bird flu activity in people.



Person-to-person spread

NONE — There is no known person-to-person spread at this time.

Current public health risk

LOW — The current public health risk is Low.

Cases in the U.S.

70 cases

Deaths in U.S.

1 death

Situation summary of confirmed and probable human cases since 2024

Confirmed Cases | Probable Cases

State or territory

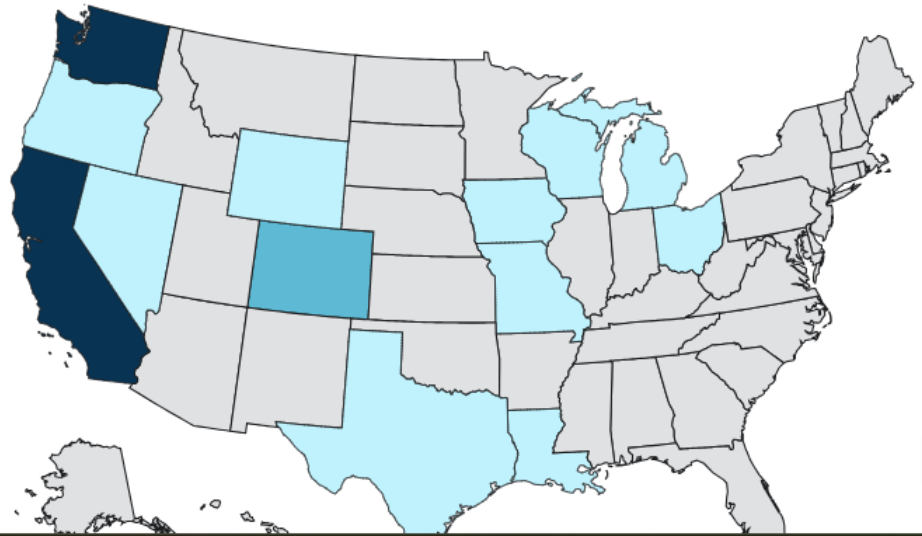
National

National Total Cases: 70

Cases	Exposure Source
41	Dairy Herds (Cattle)*
24	Poultry Farms and Culling Operations*
2	Other Animal Exposure†
3	Exposure Source Unknown‡

NOTE: One additional case was previously detected in a poultry worker in Colorado in 2022. Louisiana reported the first H5 bird flu death in the U.S.

*Exposure Associated with Commercial Agriculture and Related Operations



HPAI Confirmed Cases in Livestock Herds

Reporting period: March 25, 2024 through September 8, 2025
Last reported new confirmed case: Tuesday, September 2, 2025
Data updated weekdays by 12pm Eastern

Download Data

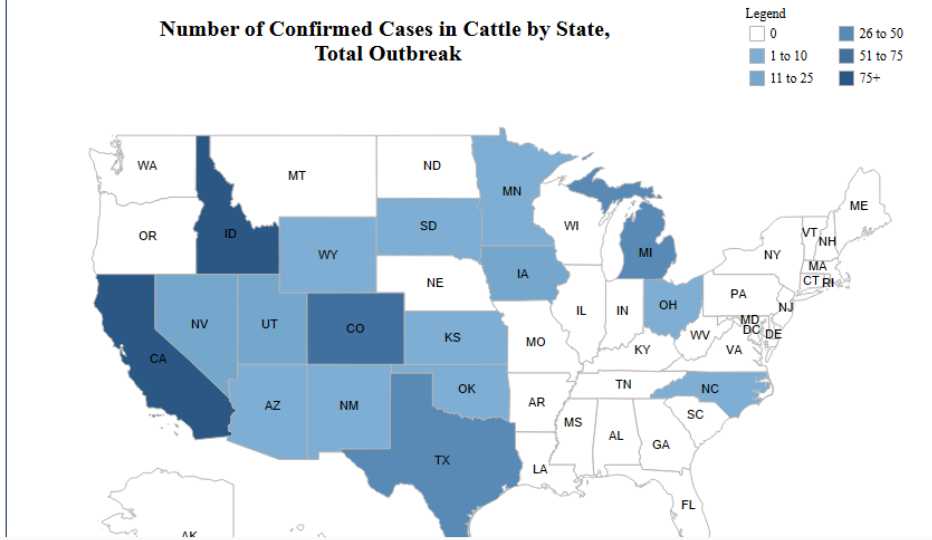
Choose time period: Total Outbreak
Choose species: Cattle

Click for International Exports

Situational Update

In the Total Outbreak, in Cattle, there were:
1,079 Confirmed Cases in **17** States

Number of Confirmed Cases in Cattle by State, Total Outbreak



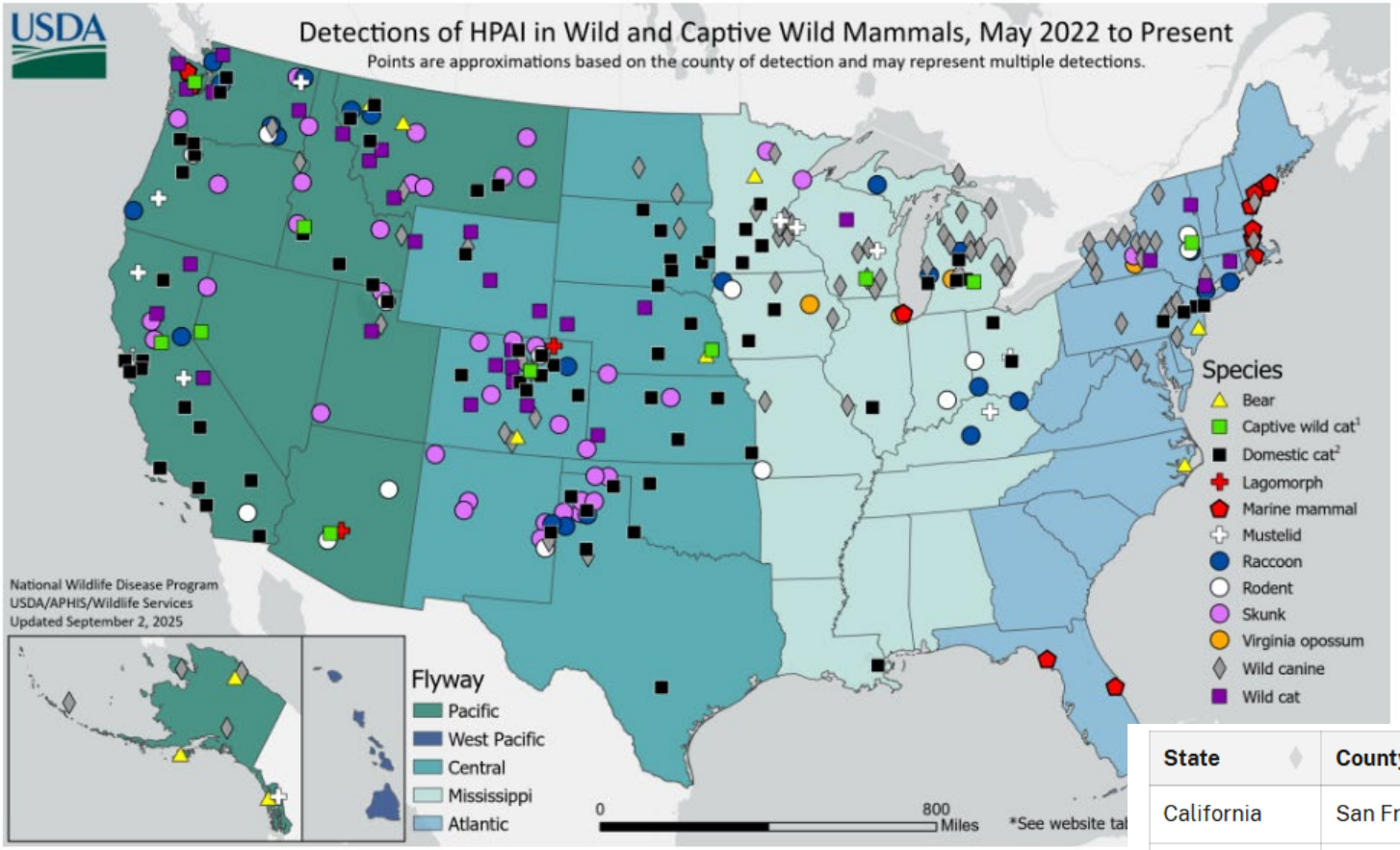
Save Custom View

Table Sort: Confirmation Date

Limit to month and year: (All)

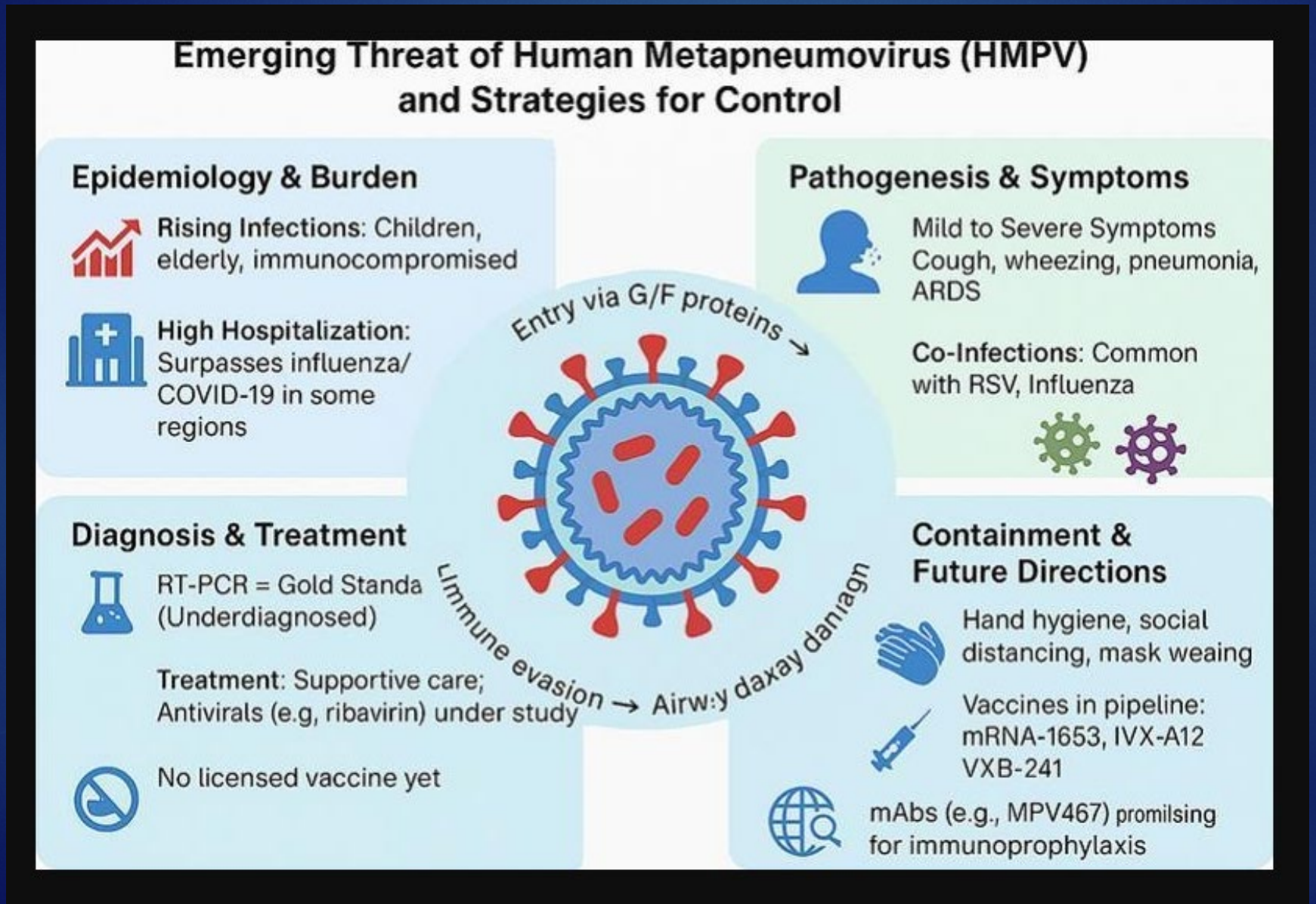
List of Confirmed Cases by Confirmation Date

Confirmed	State	Production	Species
02-Sep-25	Texas	Dairy Milking Cows	Cattle
01-Aug-25	California	Dairy Milking Cows	Cattle
21-Jul-25	California	Dairy Milking Cows	Cattle
		Dairy Milking Cows	Cattle
09-Jul-25	California	Dairy Milking Cows	Cattle
24-Jun-25	Arizona	Dairy Milking Cows	Cattle
03-Jun-25	California	Dairy Milking Cows	Cattle



State	County	Date Collected	Date Detected	HPAI Strain	Species
California	San Francisco	7/13/2025	8/29/2025	EA/AM H5N1	Domestic cat
Oregon	Multnomah	7/1/2025	7/8/2025	EA H5N1	Domestic cat
New Jersey	Union	6/30/2025	7/3/2025	EA H5	Domestic cat
Maine	Lincoln	6/19/2025	7/8/2025	EA H5	Harbor seal
Arizona	Maricopa	6/8/2025	6/20/2025	EA H5	Round-tailed ground squirrel
Arizona	Maricopa	6/7/2025	6/24/2025	EA/AM H5N1	Black rat
Arizona	Maricopa	5/31/2025	6/13/2025	EA H5	Desert cottontail
Colorado	Costilla	5/29/2025	6/12/2025	EA H5	Red fox
New York	Erie	5/22/2025	6/2/2025	EA H5	Red fox
South Dakota	Aurora	5/6/2025	5/15/2025	EA/AM H5N1	Domestic cat

Other respiratory viruses



Other respiratory viruses

RESEARCH ARTICLE OPEN ACCESS

Clinical and Epidemiological Insights into a Parainfluenza Virus Type 3 Outbreak in Multiple Myeloma Patients

Sarah Timsit[1] | Guillaume Mellon[2,3] | Nathalie Forgeard[4] | Séverine Mercier-Delarue[1] | Nadia Mahjoub[1] | Victor Euzen[1] | Stéphanie Harel[4] | Dikelele Elessa[4] | Nathalie Osinski[2] | Elise Diaz[5] | Bruno Royer[4] | Bertrand Arnulf[4] | Maud Salmona[1,5] | Jérôme Legoff[1,5]

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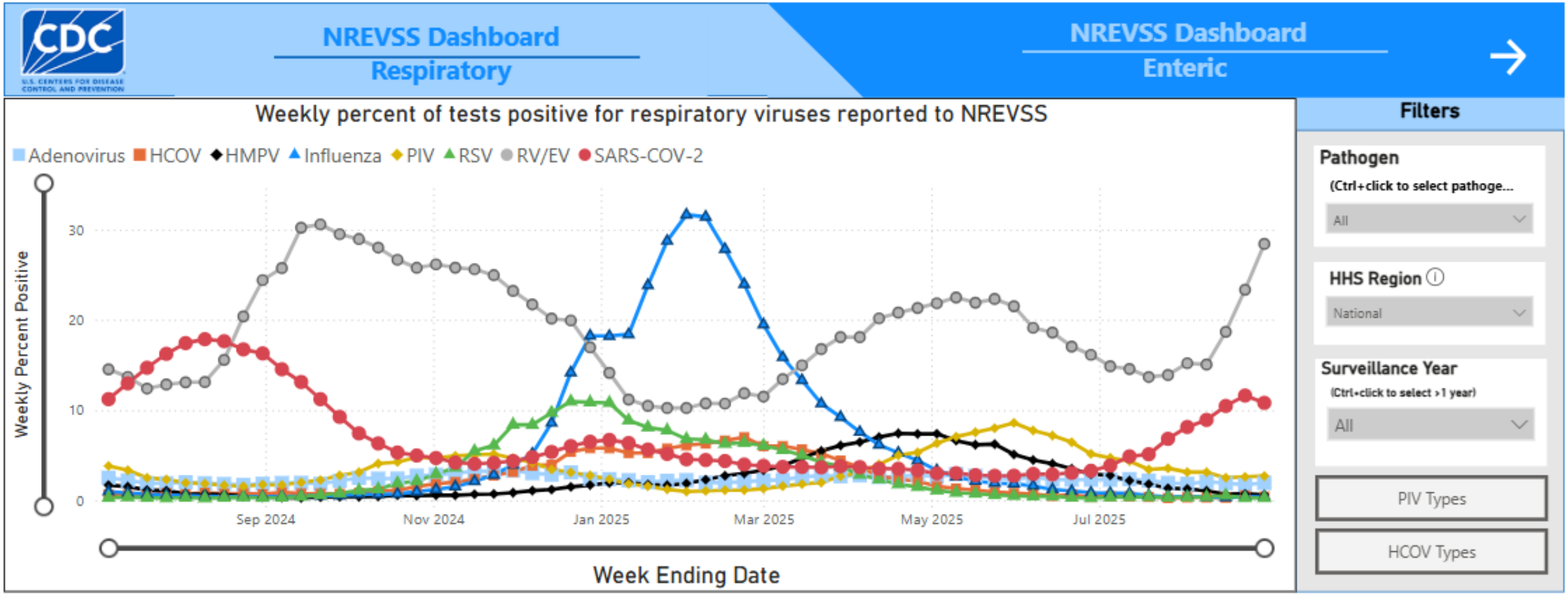
Received: 27 January 2025 | **Revised:** 13 April 2025 | **Accepted:** 12 May 2025

Keywords: air detection | hematology | HPIV-3 | infection and prevention control | outbreak | pneumonia | viral load | whole genome sequencing

ABSTRACT

Human parainfluenza virus type 3 (HPIV-3) can be responsible for mild to severe respiratory infections and hospital epidemics. We investigated an outbreak in a hematology unit. Respiratory viruses were screened using multiplex PCR. HPIV-3 quantification and whole-genome sequencing were performed on HPIV-3 positive respiratory samples. Clinical characteristics, infection progression, incidence rates of respiratory viruses within the hospital and detection of respiratory viruses were documented, along with the reinforcement of infection prevention and control (IPC) measures implemented. Between November 2022, and January 2023, HPIV-3 was identified in 20 of 113 hematology patients (17.7%), of whom 80% had multiple myeloma. A majority of HPIV-3-positive patients developed pneumonia (60%), and mortality was notably higher (35%) compared to patients who were negative (3%, $p < 0.0001$). Respiratory HPIV-3 viral loads were similar between patients with and without pneumonia. In parallel, HPIV-3 incidence in the hospital overall was lower than in the hematology unit ($p < 0.0001$). Air virus screening showed the detection of HPIV-3 in the air in different areas, and whole-genome sequencing confirmed the circulation of a single HPIV-3 strain. Strengthened IPC measures were associated with the containment of the outbreak. HPIV-3 has high epidemic potential in patients with multiple myeloma and causes severe infections. Our findings highlight the need for routine HPIV-3 testing in hematology units.

NREVSS Dashboard



Influenza

LIMITED COVERAGE FOR *EXPANDED* (>5 Pathogens) PANEL TESTING

FOR THE SPECIFIC PANEL TYPES LISTED BELOW, ALL OF THE FOLLOWING *ADDITIONAL* CRITERIA MUST BE MET:

- **Respiratory (RP) and Pneumonia (PNP) Panels** will only be covered when targeted testing is not appropriate AND according to the following additional criteria:
  - For immune-competent patients, at least 1 of the following must apply:
    - Testing is ordered by a clinician specialist in Infectious Diseases or Pulmonology for a patient with severe and established underlying respiratory pathology (i.e., severe asthma, chronic obstructive pulmonary disease (COPD), cystic fibrosis, pulmonary fibrosis, radiation therapy to the lung) AND treatment with antibiotics may be indicated according to established guidelines.[1,2] Specific examples that do NOT meet coverage criteria according to established guidelines include the following:
      - Asthma exacerbations without the additional presence of either fever and purulent sputum or radiographic evidence of pneumonia[2]
      - Uncomplicated community acquired pneumonia (CAP)[1]
    - The patient is seriously or critically ill or at imminent risk of becoming seriously or critically ill (as defined by the American Hospital Association's "General Guide for the Release of Information on the Condition of Patients")[3] as a result of a presumed respiratory infection AND the patient is being treated in an appropriate critical care facility.
  - For immune-suppressed patients: Testing is ordered by a clinician specialist in 1 of the following: Infectious Diseases, Pulmonology, Oncology, Transplant OR the patient is being managed in an appropriate critical care facility.
  - For ALL patients: Only 1 of the following panels - RP **OR** PNP- will be covered for a given patient for the same clinical indication. The PNP should be prioritized in the evaluation of pneumonia from lower respiratory tract specimens (i.e., bronchoalveolar lavage samples [BALs]). For the purposes of repeat panel testing for the same clinical indication, RP and PNP will be considered as equivalent tests, such that if criteria for repeat testing are met (as defined above), a clinician may choose to perform the repeat test using the PNP, even if the original test was performed using the RP.
  - For ALL patients, exceptions to the limitation on medical specialists who can order expanded panel tests are provided in the accompanying Billing and Coding Article, such that patient geography and access to care do not preclude the receipt of appropriate diagnostic testing when indicated.

Mpox

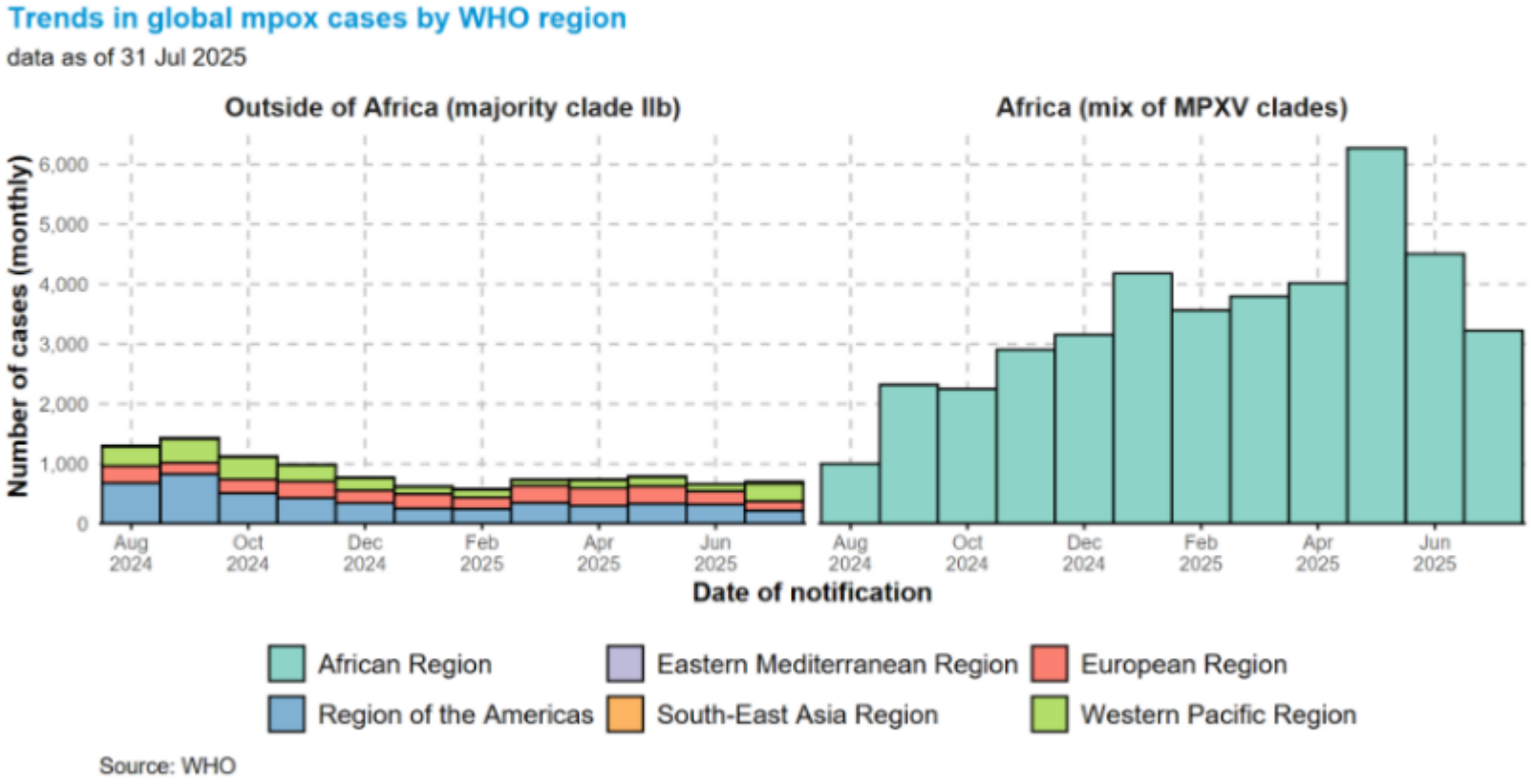
Multi-country external situation report no. 57 published 28 August 2025

KEY FIGURES			
Area	**Number of reported confirmed cases**	**Number of deaths among confirmed cases**	**Number of reporting countries**
Global (1 Jan – 31 July 2025)*	**34 386**	**138**	**84**
Key countries (1 Jan – 17 August 2025)			
Democratic Republic of the Congo	**15 377**	**30**	**-**
Uganda	**6522**	**35**	**-**
Sierra Leone	**5149**	**52**	**-**
Burundi	**1394**	**0**	**-**

** Most recent global surveillance data available.*

Mpox

Figure 4. Epidemic curve of monthly number of confirmed mpox cases reported to WHO, by WHO region, 1 August 2024 – 31 July 2025.



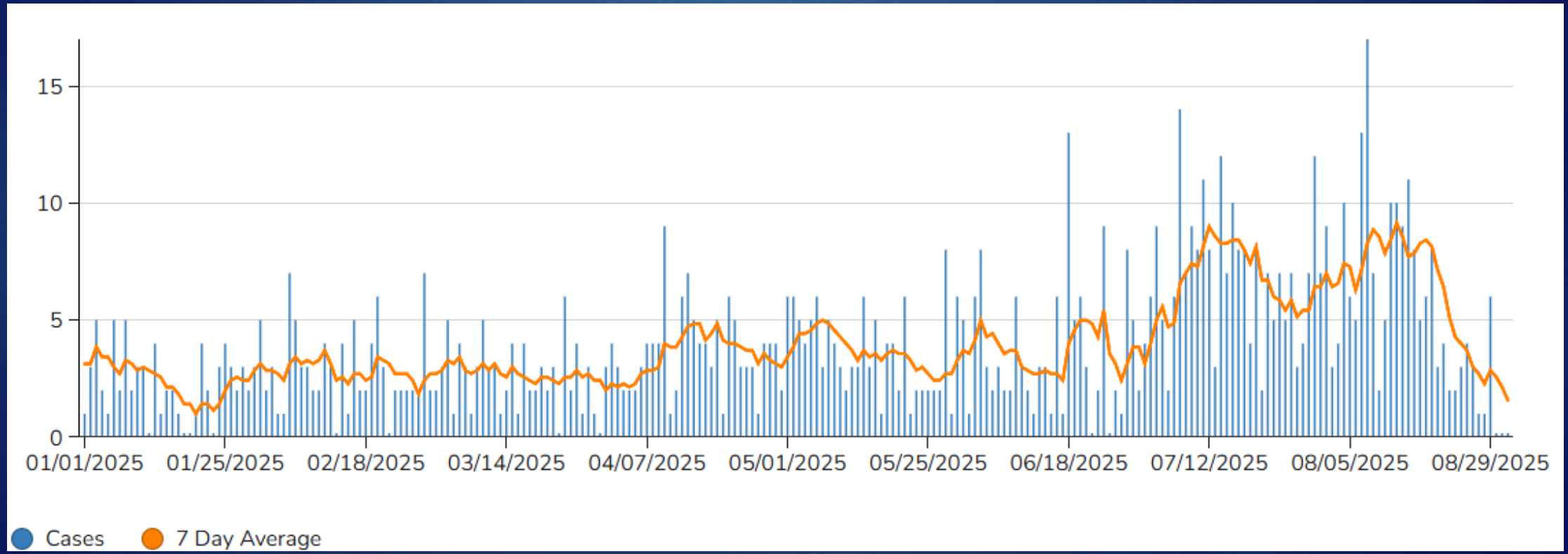
Mpox

Current situation

In the United States

- There have been five reported cases of clade I mpox in the United States in people who had recently traveled to affected areas in Central and Eastern Africa. The cases are separate events and are not linked; no additional spread of mpox has been reported.
- CDC regularly assesses the risk to the overall population and specific populations within the United States posed by the clade I mpox outbreak; it remains low.
- Clade II mpox is still circulating at low levels.
    - Several cases have recently been tied back to an outbreak in Sierra Leone, LIberia, and other West African countries.
- Children have historically gotten mpox in endemic areas in Western and Central Africa, and in this outbreak the high number of children with mpox reported in likely reflects spread within households.

Mpox: Clade II in the USA



Mpox

WHO winds down mpox pub emergency

Lisa Schnirring, September 5, 2025

Topics: Mpox

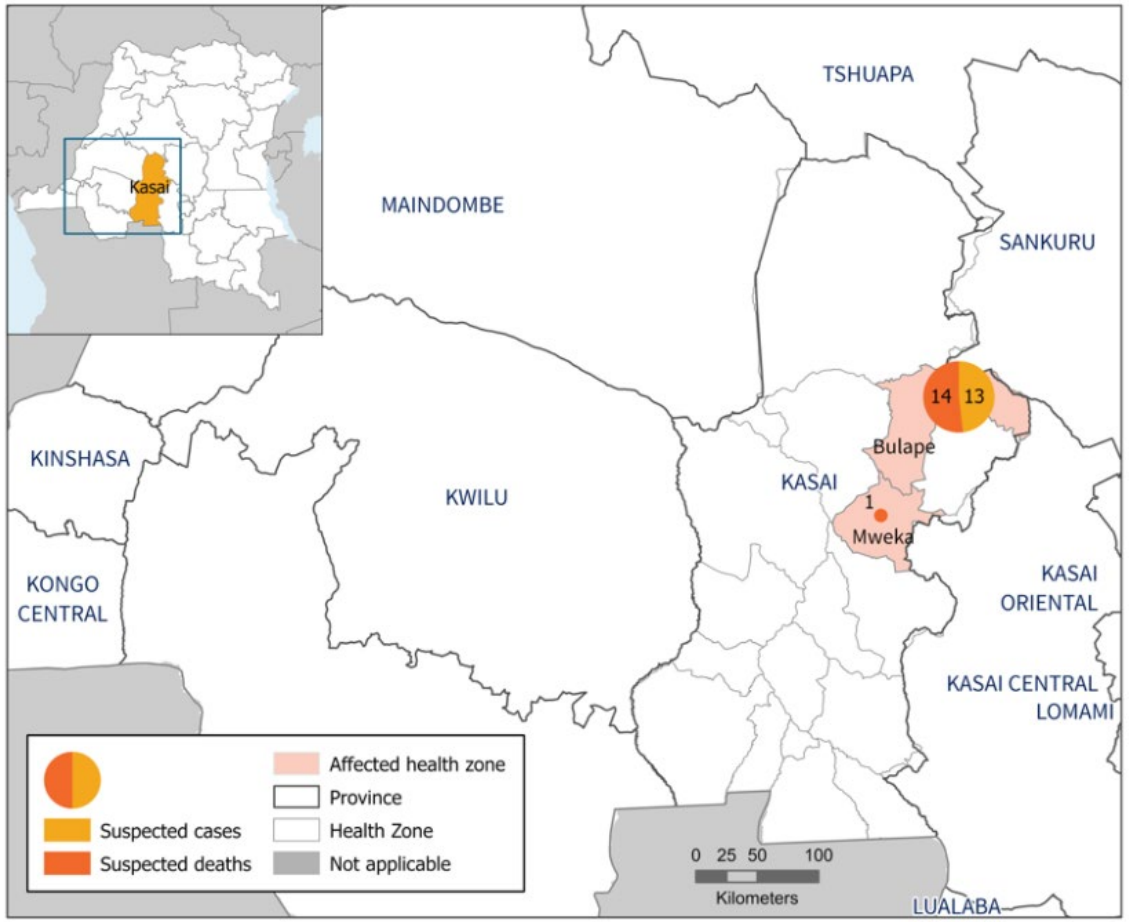
SHARE

After just over a year, the World Health Organization (WHO) today announced an end to the public health emergency of international concern (PHEIC) for mpox outbreaks in Africa, which has resulted in new patterns of transmission, emergence of new clades, and cases exported—with very limited onward spread—outside of Africa.

At a **media briefing**, WHO Director-General Tedros Adhanom Ghebreyesus, PhD, said the WHO's mpox emergency committee met yesterday to discuss the latest developments and recommended an end to the PHEIC while updating its recommendations for countries in the region. "I have accepted that advice," he said.

Hemorrhagic fevers

Figure 1. Map of suspected cases and deaths of Ebola virus disease by health zone, as of 4 September 2025



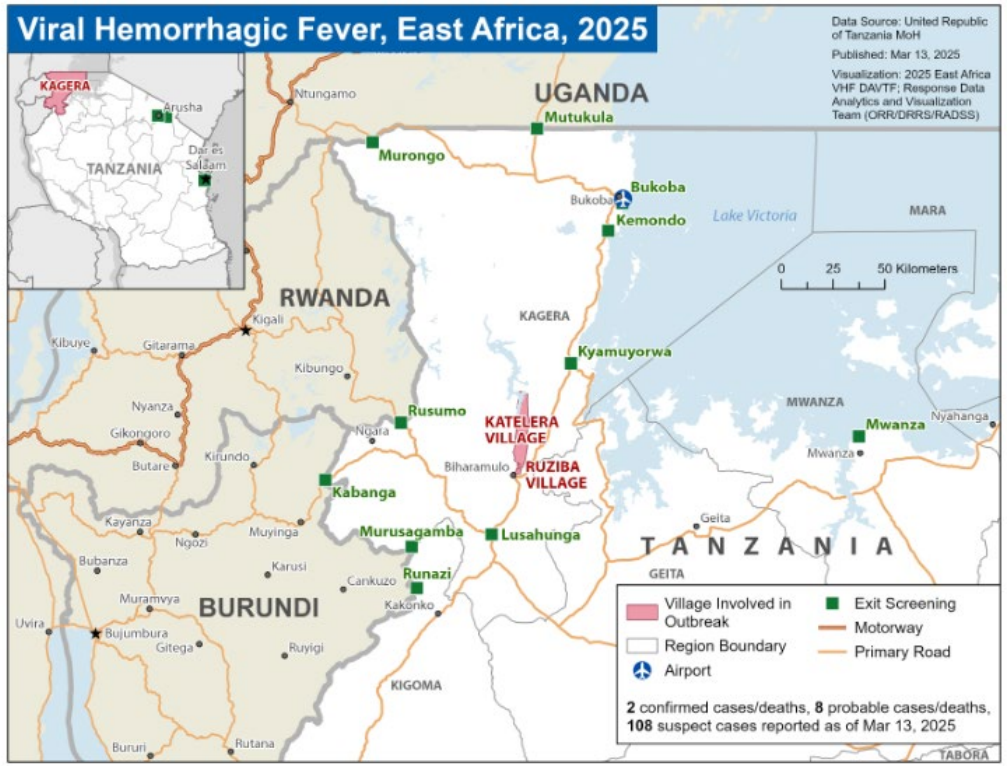
The designations employed and the presentation of the material in this publication do not imply the expression of any opinion whatsoever on the part of WHO concerning the legal status of any country, territory, city or area or of its authorities, or concerning the delimitation of its frontiers or boundaries. Dotted and dashed lines on maps represent approximate border lines for which there may not yet be full agreement.

Data Source: World Health Organization, Ministry of Health Democratic Republic of the Congo, GRID3
Map Production: WHO Health Emergencies Programme
Map Date: 5 September 2025

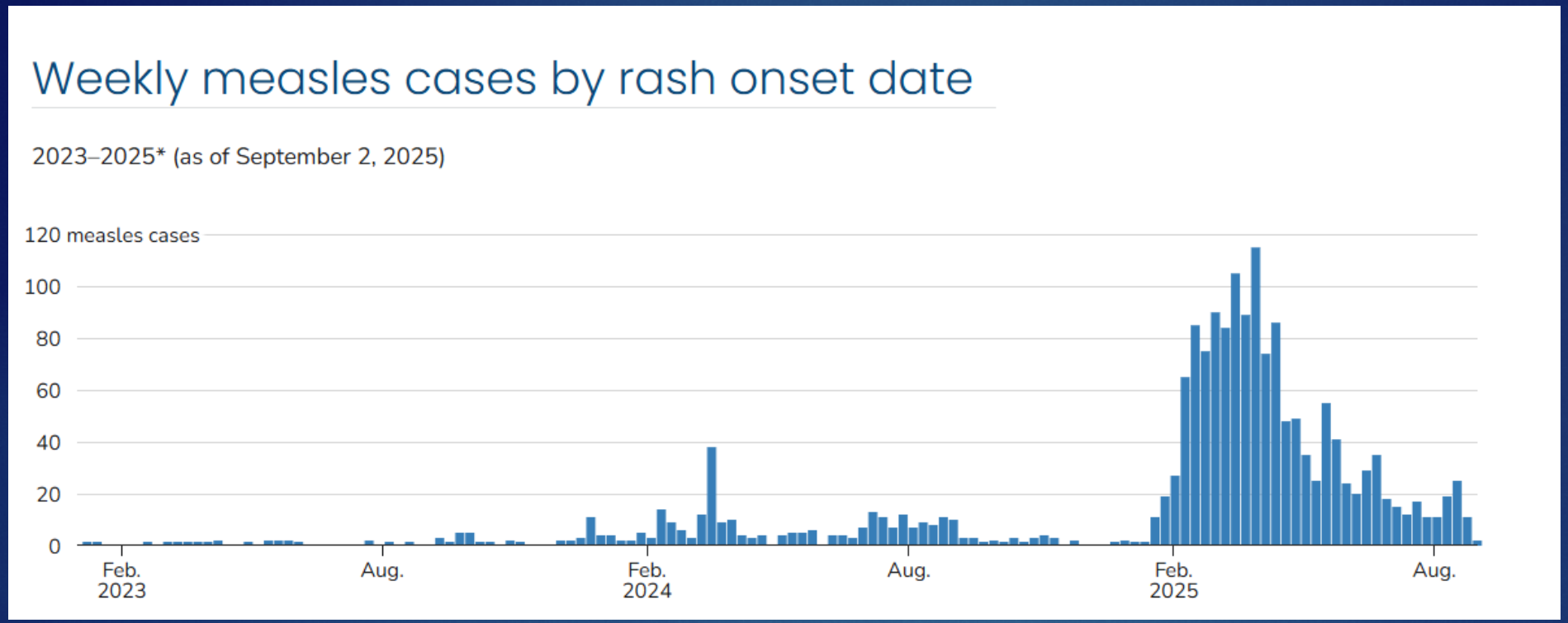
World Health Organization

No cases of Marburg were reported in the United States during this outbreak.

View Larger Download



Measles


Weekly measles cases by rash onset date
2023–2025* (as of September 2, 2025)
120 measles cases
100
80
60
40
20
0
Feb. 2023
Aug.
Feb. 2024
Aug.
Feb. 2025
Aug.

Measles

Figure 3

Outbreak Cases by Age

Age Group	Confirmed
0-4 Yrs	225
5-17 Yrs	286
18+ Yrs	247
Pending	4

Figure 4

Outbreak Cases by Vaccination Status

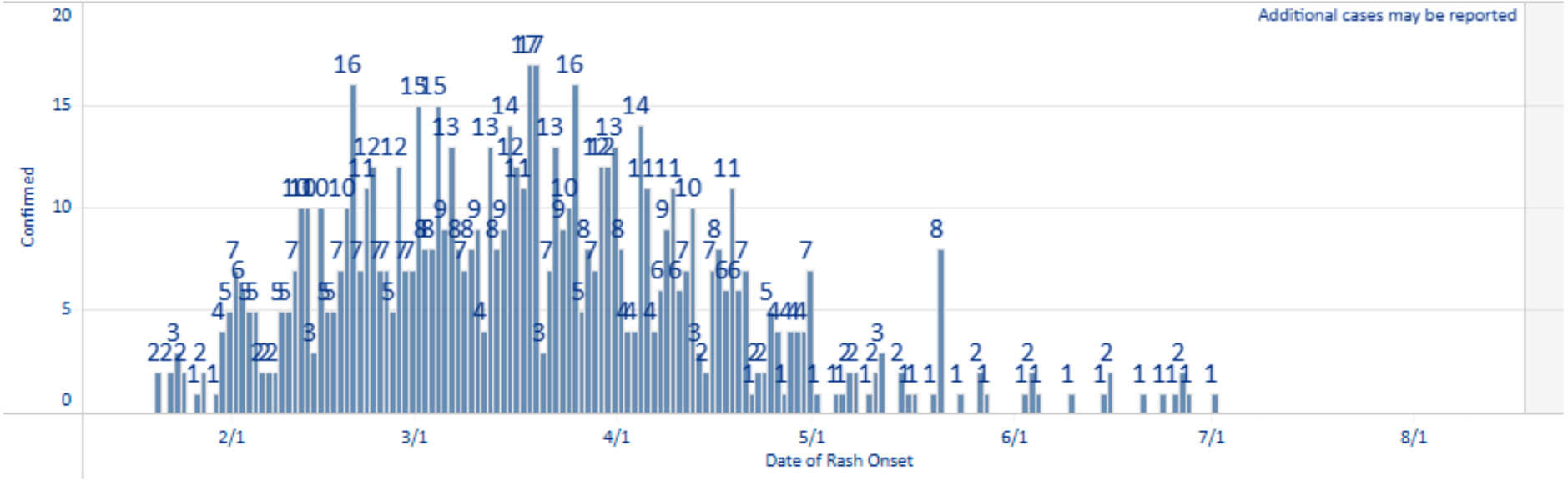
Vaccination Status	Confirmed
Unknown/Unvaccinated*	718
Vaccinated: 1 dose	23
Vaccinated: 2+ doses	21

*The unvaccinated/unknown category includes people with no documented doses of measles vaccin more than 14 days before symptom onset.

Figure 5

Outbreak Cases by Date of Rash Onset

If date of rash not available, the following hierarchy is used for date: symptom onset date, specimen collection date, hospital admission date, or date reported to the region. People with measles are contagious from four days before rash onset to four days after.



Measles

Measles Cases and Outbreaks

Measles in Montana

Last updated: 9/8/2025 7:37:10 AM

Choose Date Range of Measles Cases:

4/13/2025 — 8/3/2025

This dashboard displays reported cases of measles in Montana residents. Cases are classified as recent or recovered. A "recent case" becomes classified as a "recovered case" 21 days after they are no longer contagious (a measles case is no longer contagious 4 full days after rash onset). During these 21 days, public health monitors contacts to identify new cases and stop the spread of illness.

This dashboard updates every weekday (Monday through Friday, excluding holidays) using data from the Montana Infectious Disease Information System (MIDIS), as it appeared at 5:00 pm Mountain Time the previous day.

Recent Measles Activity

Recent cases	Counties with recent cases
0	0

Overall Measles Activity

Total measles cases	Measles hospitalizations	Measles deaths
31	2	0

Measles Cases by County

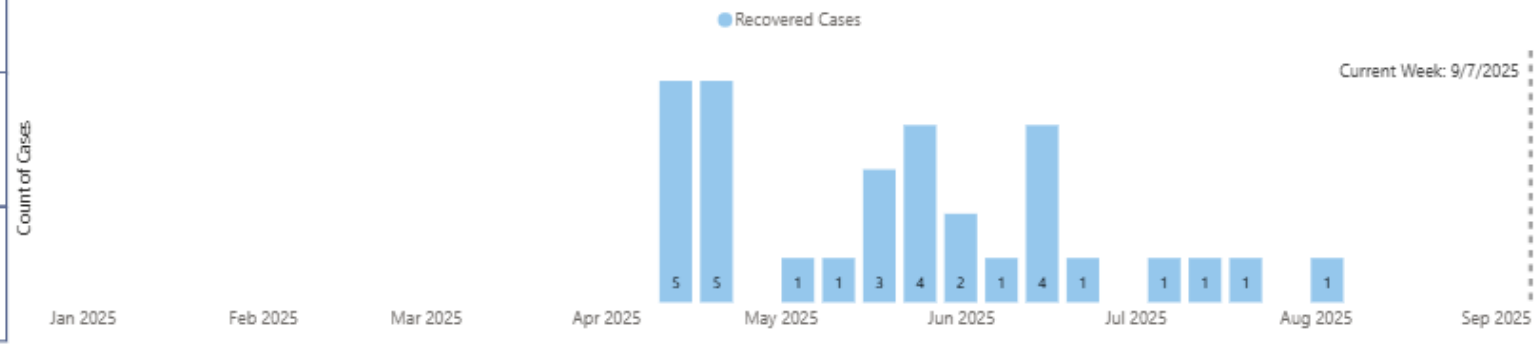
County	Recent Cases	Total Cases
Cascade	0	1
Flathead	0	2
Gallatin	0	19
Hill	0	4
Lewis and Clark	0	1
Yellowstone	0	4

Measles Cases by Age Group

Age Group	Case Count
0-4 years old	1
5-19 years old	20
20+ years old	10

Measles Cases by Onset Week

For accessible chart, press Ctrl+Shift+F11

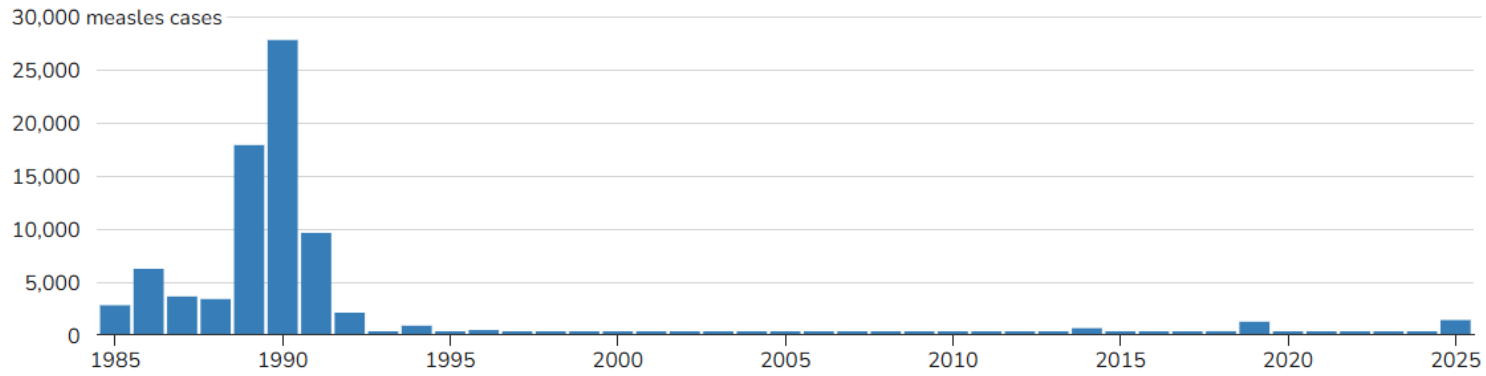


Measles

Yearly measles cases

as of September 2, 2025

2000-Present* **1985-Present***



1431

Age
Under 5 years: **400 (28%)**
5-19 years: **542 (38%)**
20+ years: **482 (34%)**
Age unknown: **7 (0%)**

Vaccination Status
Unvaccinated or Unknown: **92%**
One MMR dose: **4%**
Two MMR doses: **4%**

U.S. Hospitalizations in 2025

12%

12% of cases hospitalized (178 of 1431).

Percent of Age Group Hospitalized
Under 5 years: **21% (85 of 400)**
5-19 years: **7% (40 of 542)**
20+ years: **11% (53 of 482)**
Age unknown: **0% (0 of 7)**

U.S. Deaths in 2025

3

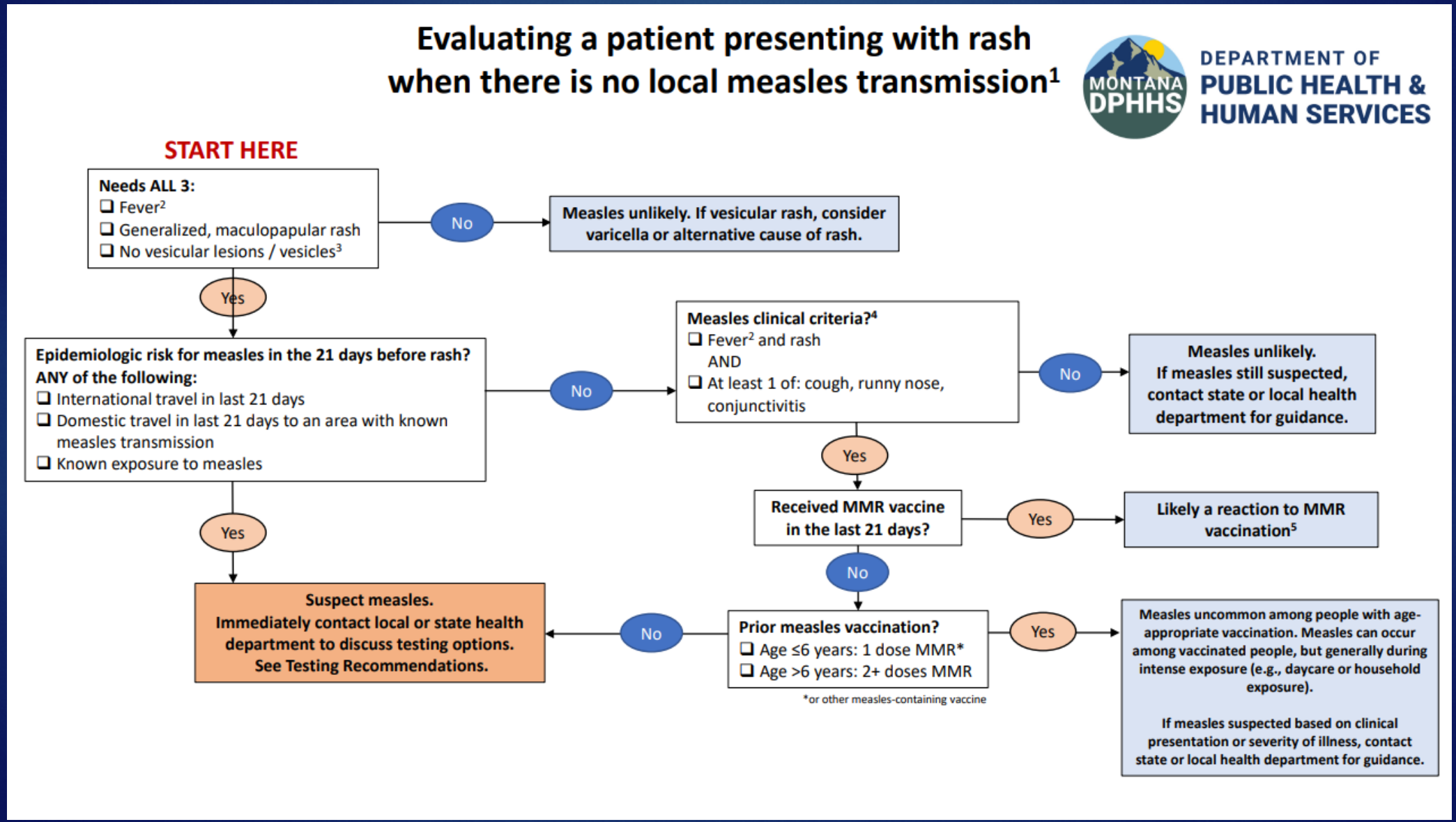
There have been 3 confirmed deaths from measles.

Measles

Top 10 countries with measles outbreaks

Country	Number of Cases
Yemen	20,622
Pakistan	13,582
India	10,688
Kyrgyzstan	8,125
Afghanistan	7,143
Ethiopia	4,974
Romania	4,058
Nigeria	5,870
Canada	3,621
Russian Federation	4,195

Measles


Evaluating a patient presenting with rash when there is no local measles transmission[1]
DEPARTMENT OF PUBLIC HEALTH & HUMAN SERVICES
MONTANA DPHHS
START HERE
Needs ALL 3:
❑ Fever[2]
❑ Generalized, maculopapular rash
❑ No vesicular lesions / vesicles[3]
No
Measles unlikely. If vesicular rash, consider varicella or alternative cause of rash.
Yes
Epidemiologic risk for measles in the 21 days before rash?
ANY of the following:
❑ International travel in last 21 days
❑ Domestic travel in last 21 days to an area with known measles transmission
❑ Known exposure to measles
No
Measles clinical criteria?[4]
❑ Fever[2] and rash
AND
❑ At least 1 of: cough, runny nose, conjunctivitis
No
Measles unlikely.
If measles still suspected, contact state or local health department for guidance.
Yes
Received MMR vaccine in the last 21 days?
Yes
Likely a reaction to MMR vaccination[5]
No
Yes
Suspect measles.
Immediately contact local or state health department to discuss testing options.
See Testing Recommendations.
No
Prior measles vaccination?
❑ Age ≤6 years: 1 dose MMR*
❑ Age >6 years: 2+ doses MMR
*or other measles-containing vaccine
Yes
Measles uncommon among people with age-appropriate vaccination. Measles can occur among vaccinated people, but generally during intense exposure (e.g., daycare or household exposure).
If measles suspected based on clinical presentation or severity of illness, contact state or local health department for guidance.

Measles

Notes

1. This testing algorithm is intended to be used by bedside providers in settings where there is not local measles transmission. This assumes that the pre-test probability for most people without known epidemiologic risk for measles and who do not meet case criteria will be low. In settings with active measles transmission, the threshold at which to pursue testing may be lower, and a more permissive algorithm could be considered.
2. Either a measured or patient/family-reported fever is adequate; fever may not be measured at the time of healthcare evaluation due to normal fluctuation or to use of antipyretics (e.g., ibuprofen).
3. A vesicular rash is not consistent with measles, and should prompt consideration for other causes of rash (e.g., varicella/chickenpox)
4. Measles clinical criteria (per CSTE* case definition) include ALL of the following:
   - ❑ Generalized maculopapular rash
   - ❑ Fever
   - ❑ Cough, coryza (runny nose), or conjunctivitis (also known as the "3 C's")
5. Up to 5% of MMR recipients will get a short-lived, mild febrile rash. This is more common with the first dose of MMR. People who experience this vaccine reaction are not contagious to others around them. If a person has received MMR within 21 days before rash onset, but also has epidemiologic risk for measles, then specialized testing may be required and should be discussed with local or state public health authorities.

*CSTE: Council of State and Territorial Epidemiologists: https://ndc.services.cdc.gov/case-definitions/measles-2013/

Measles

- If you suspect that your patient may have measles, follow the steps below:

1. **If safe to do so, immediately place a mask on the patient and isolate the patient** in a room with a closed door (a negative pressure room should be used if available in your facility). For more information on patient placement, see the tab below titled "Patient Placement".
2. Follow standard and airborne precautions.
3. **Immediately report the suspected case to your county or tribal health department**. If your county or tribal health department are not available, contact Montana Communicable Disease Epidemiology at (406) 444-0273.
4. Only allow health care workers with presumptive evidence of measles immunity to attend the patient. **Any person attending to the patient should use a fit-tested N-95 mask, regardless of immunity status**. Regardless of presumptive immunity status, all healthcare staff entering the room of the patient should use respiratory protection consistent with airborne control precautions. *Presumptive evidence of measles immunity for healthcare workers (one of the following): documentation of two doses of measles-containing vaccine, laboratory evidence of immunity (positive IgG), laboratory evidence of disease, or birth before 1957. Consider vaccinating healthcare workers born before 1957 who do not have other evidence of immunity to measles. Self-reported doses and a history of vaccination provided by a parent or other caregiver, or a clinical diagnosis of measles, should not be accepted.*
5. **Obtain specimens for testing** from patients with suspected measles, including viral specimens for genotyping, which can help determine the source of the virus. Coordinate with your local health department with questions about submitting specimens for testing. **Proper PPE should be worn during specimen collection.** Review Montana Public Health Laboratory Guidance on Measles Testing and CDC: Measles, Mumps, Rubella, and Varicella Testing.
6. Contact infection control if available at your facility.
7. After the patient leaves the room, it should remain vacant for the appropriate time (at least 2 hours) to allow for 99.9% of airborne-contaminant removal. (See Appendix B, Table B.1.: Air changes/hour and time required for airborne-contaminant removal by efficiency.)

Rabies

Six deaths from rabies have been reported over the last 12 months in the U.S., the highest number in years, according to the Centers for Disease Control and Prevention. From rabid skunks in Kentucky to gray foxes in Arizona and raccoons on Long Island, wild animals in more than a dozen places across the U.S. have experienced a rise in the deadly disease, at least partly driven by shrinking natural habitats and better surveillance.

"We are currently tracking 15 different likely outbreaks," said Dr. Ryan Wallace, who leads the rabies team at the Centers for Disease Control and Prevention. Areas with outbreaks include Nassau County, New York, which issued a health threat over rabid animals last month, as well as Cape Cod, Massachusetts, and parts of Alaska, Arizona, California, Indiana, Kentucky, Maine, North Carolina, Oregon and Vermont.

Rabies

Officials in Wyoming are working to track down visitors from around the world after at least 200 people may have been exposed to rabies at a hotel in Grand Teton National Park, according to a report from Wyoming Public Radio.

According to a report from the national park, a suspected bat colony was discovered in attic space above guest rooms 516, 518, 520, 522, 524, 526, 528, and 530 at the Jackson Lake Lodge. While there is not believed to be an immediate threat to the public, state health officials are reaching out to these guests to ask about their stay and whether or not there was exposure to bats during their visit. This information is being used to determine if the people should partake in preventative rabies treatment.

Per the Wyoming Public Radio report, those who stayed at the lodge from May 15 through July 27 may be at risk, with at least 200 guests included in that group. The rooms have been closed since July 27 with the park reporting that Grand Teton Lodge Company has gotten eight reports of bat exposure from overnight guests since June 2. The Wyoming Public Radio report on the matter notes that these visitors came from 38 states and seven countries.

Rabies

Short communication

Sick as a dog? The prevalence, politicization, and health policy consequences of canine vaccine hesitancy (CVH)

Matt Motta [a], Gabriella Motta [b], Dominik Stecula [c]

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https://doi.org/10.1016/j.vaccine.2023.08.059

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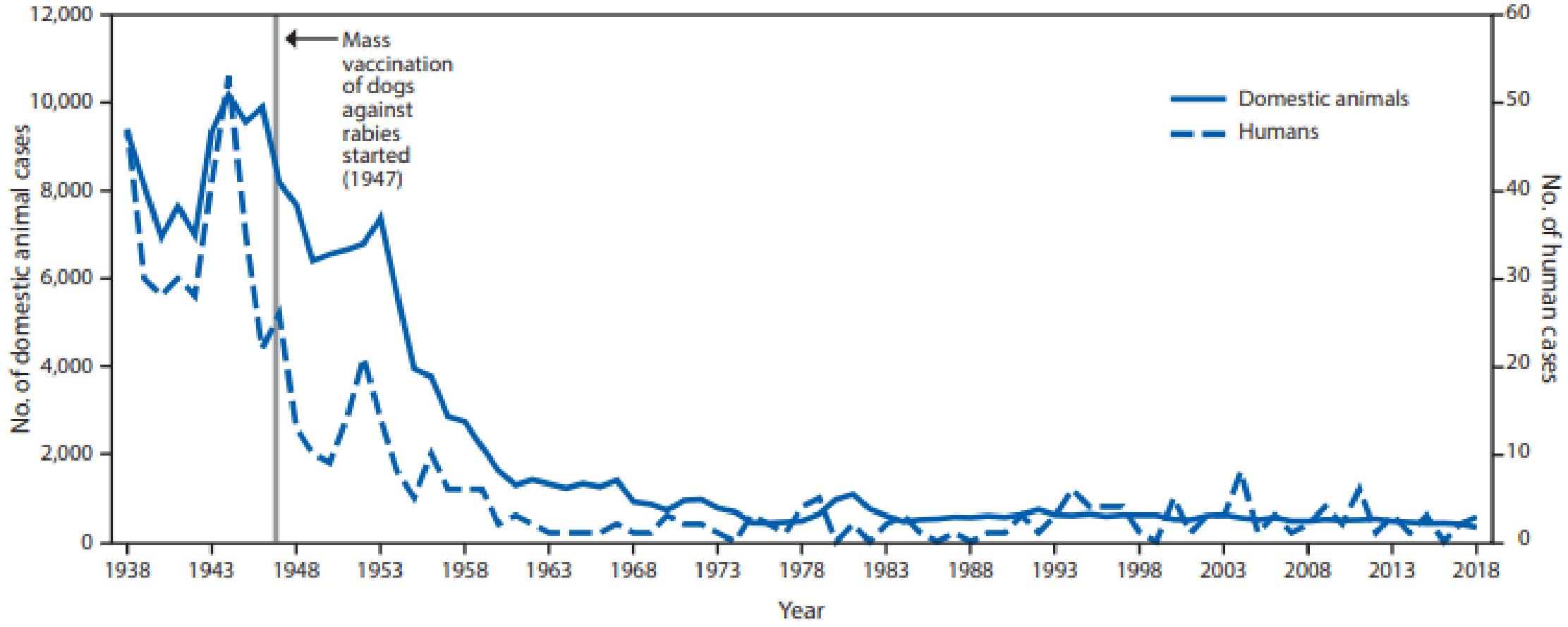
Highlights

- We introduce a new survey-based measure of Canine Vaccine Hesitancy ("CVH").
- CVH refers to doubt about safety, efficacy, and/or importance of canine vaccination.
- In a US representative survey, 52% of dog owners exhibited some degree of CVH.
- Negative attitudes toward human vaccines may "spill over" to increase CVH.
- CVH is associated with rabies non-vaccination and opposition to vaccine mandates.

Rabies

FIGURE 1. Rabies cases in humans and domestic animals — United States, 1938–2018



In summary (my take, and I have been wrong many times before!):

1) Ebola: there will be more outbreaks, but the actual risk for seeing cases in the USA is low (correct!)
2) RSV, Influenza will likely resume the usual seasonal pattern over the next 1-2 years (correct!)
3) COVID 19 morbidity and mortality will likely continue to decrease, and hopefully, at some point, COVID 19 will behave more like influenza (correct!)
4) Mpox: there will be more outbreaks, but we don't have any idea of when and where (correct!)
5) Please think about Syphilis, and test people!
6) Brucella canis will likely cause a lot of anxiety and sadness, but the actual threat for humans is probably low
7) The next Big One? Avian Flu (soon to be correct!)
8) I did not see the resurgence of measles coming on that scale

Questions?