Massachusetts Department of Public Health

Update in Adult Immunizations

Massachusetts Adult Immunization Coalition Meeting

October 1, 2024

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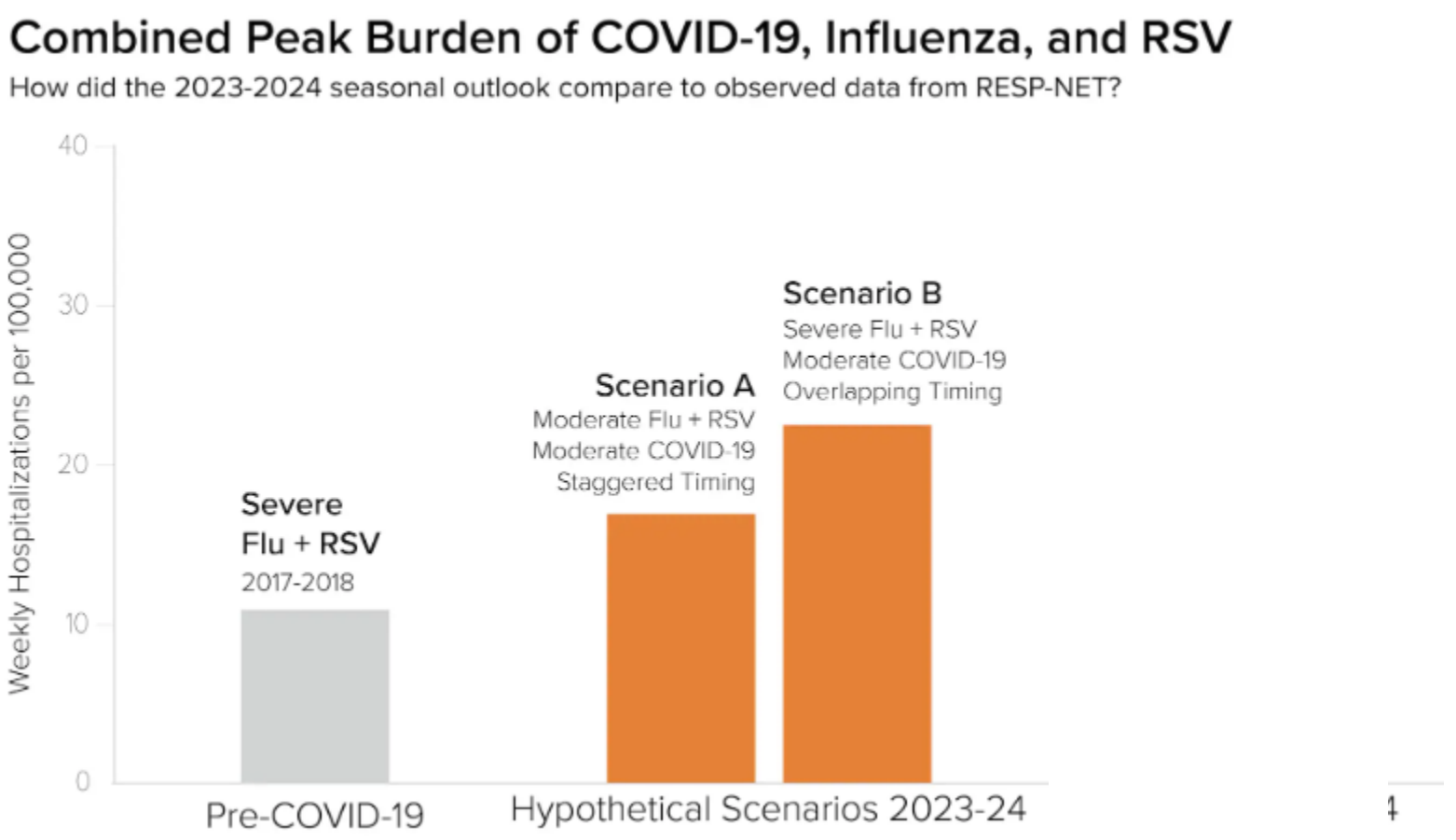
Massachusetts Department of Public Health

Updates in Immunizations

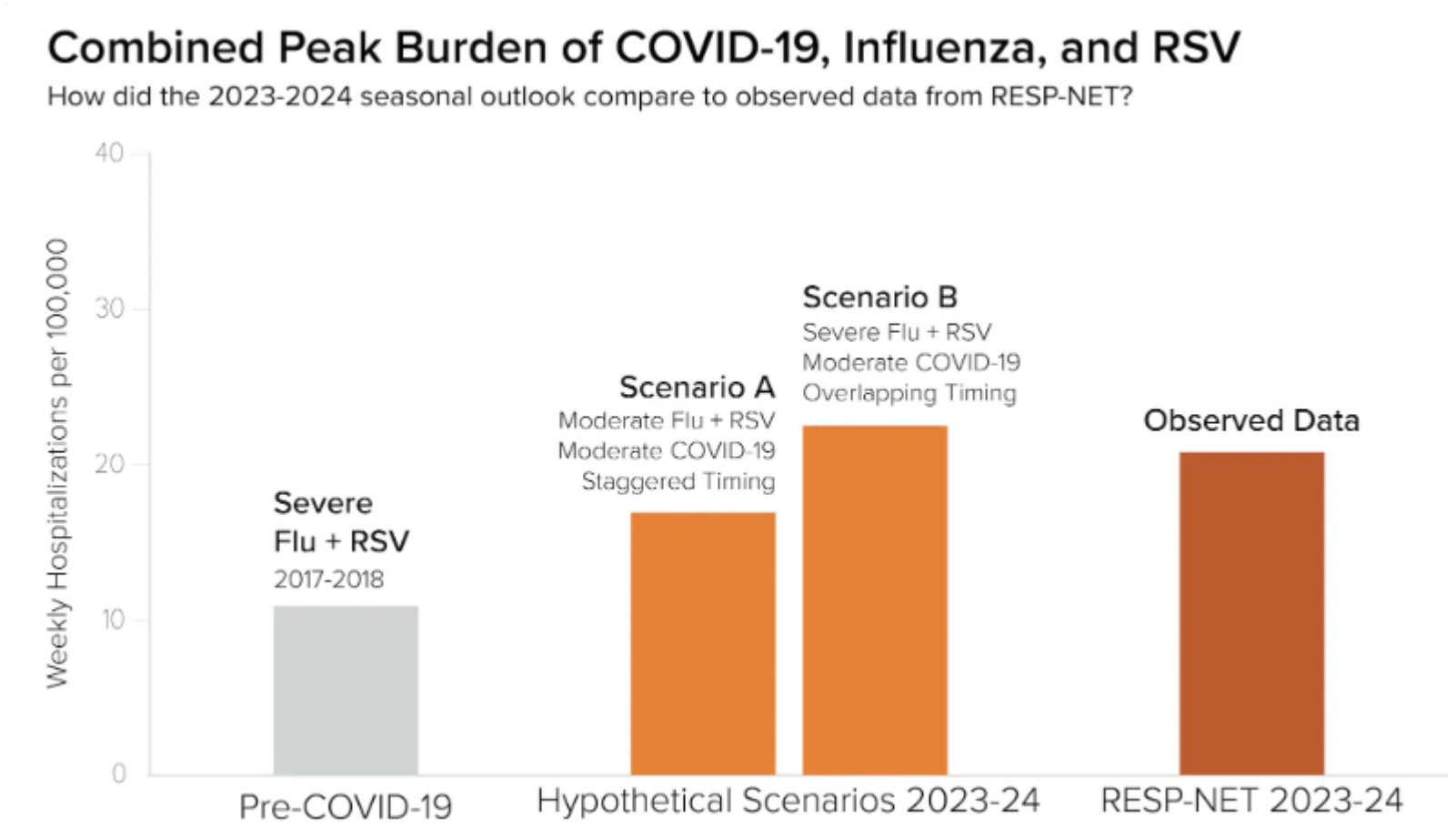
COVID-19
Flu
RSV
PSV21
MenB
Mpox


Fall Respiratory Virus Season

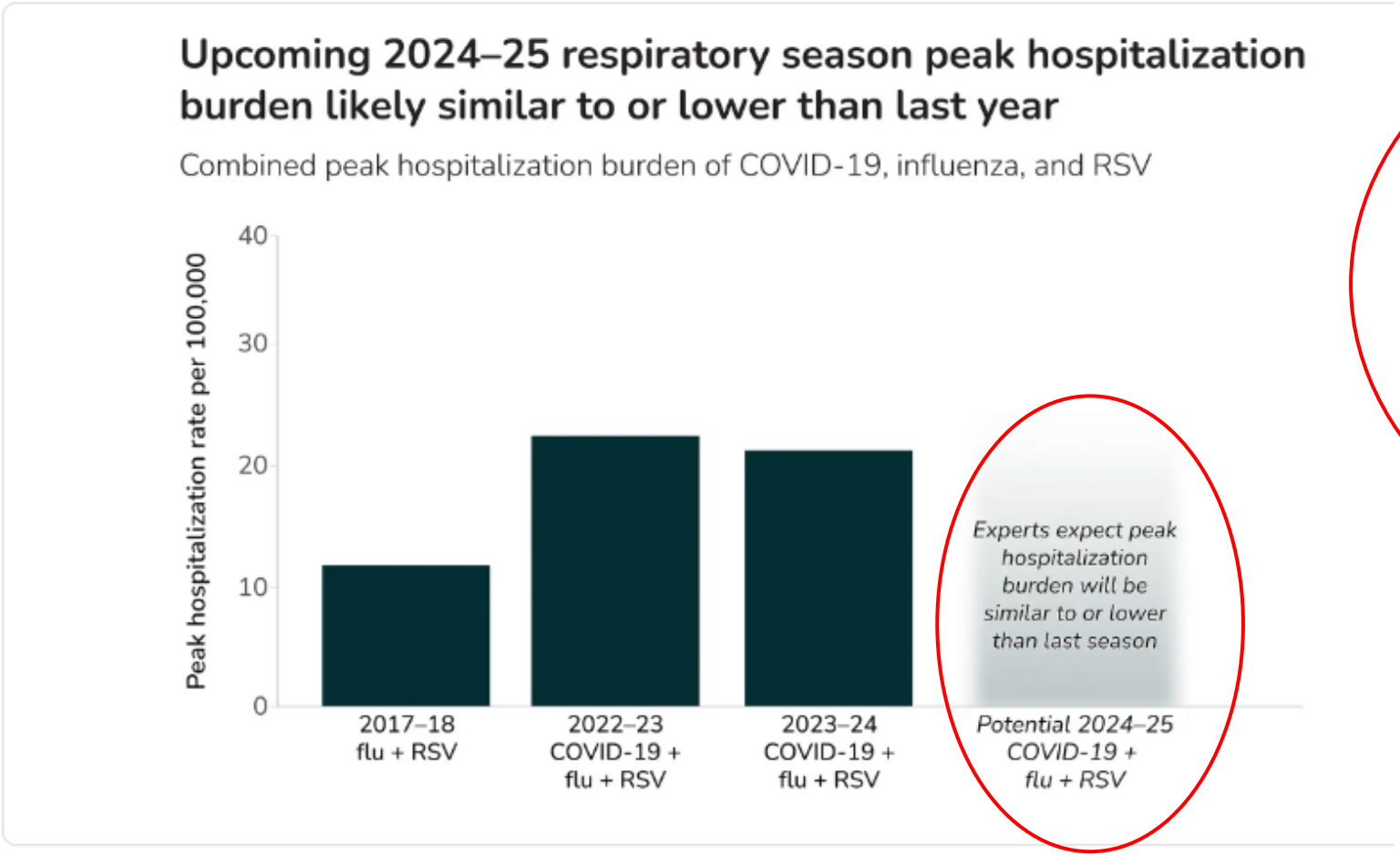
2023-2024 Respiratory Disease Season Outlook



2023-2024 Respiratory Disease Season Outlook



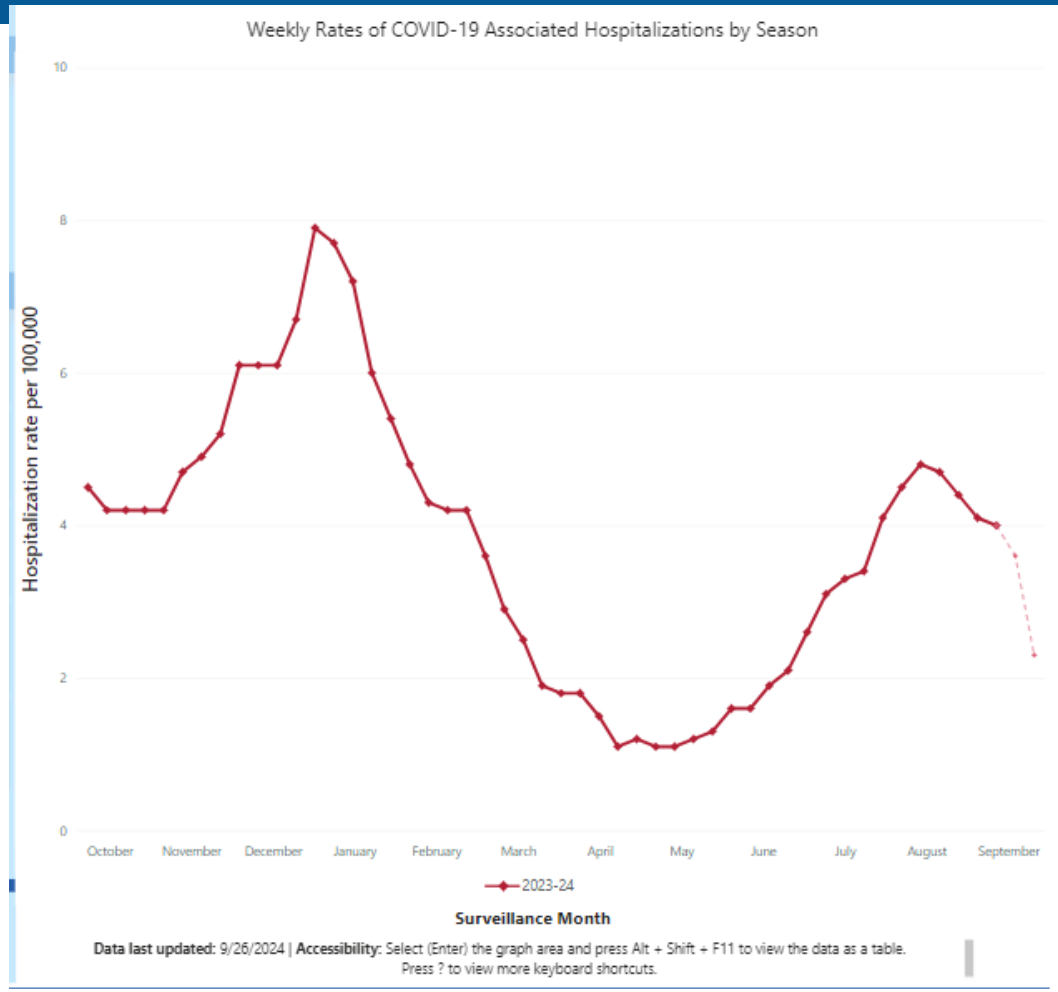
2024-2025 Respiratory Virus Season Outlook



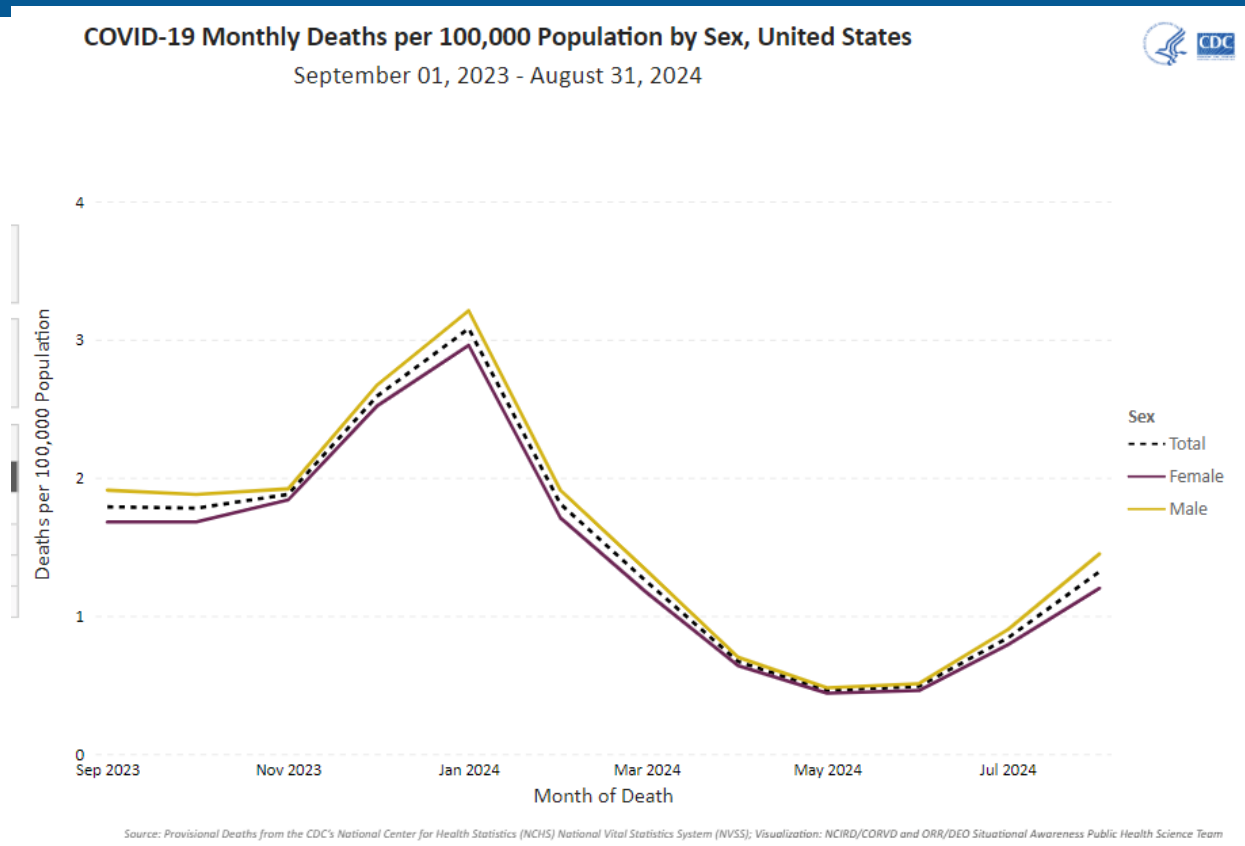
Scenario relative to 2023–2024	Definition	Percentage chance estimated by experts
Similar peak	The combined peak hospitalization burden for the 2024-2025 season will be similar (within +/- 20%) to the combined peak burden for the 2023-2024 respiratory season.	54%
Lower peak	The combined peak hospitalization burden for the 2024-2025 season will be substantially lower (at least 20%) than that of the 2023-2024 respiratory season.	28%
Higher peak	The combined peak hospitalization burden for the 2024-2025 season will be substantially higher (at least 20%) than that of the 2023-2024 respiratory season.	18%


COVID-19

Summer COVID-19 Wave



https://www.cdc.gov/covid/php/covid-net/index.html



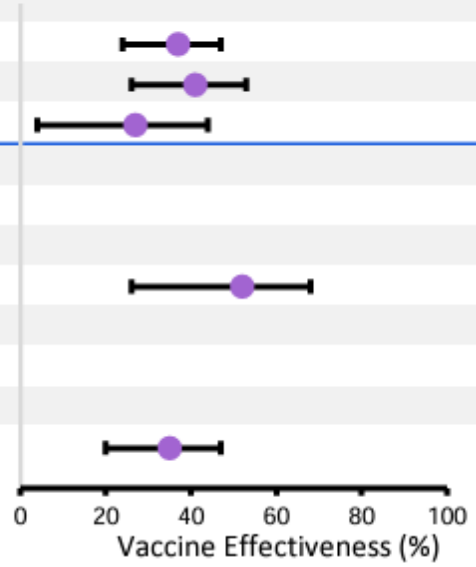
Between 30 June and 31 August – 133 COVID-19 deaths in Massachusetts

2023-2024 COVID-19 Vaccine Effectiveness against Hospitalizations

IVY: VE of *2023–2024 vaccine* against *hospitalization* among immuno*competent* adults aged ≥18 years, by age group and time since dose

September 21, 2023 – April 30, 2024

COVID-19 dosage pattern/age group	COVID-19 case-patients N (Col %)	COVID-19 control-patients N (Col %)	Median interval since last dose among those vaccinated, days (IQR)	VE* % (95% CI)
≥18 years				
No 2023-2024 COVID-19 dose (ref)	1538 (89)	4149 (84)	681 (430–840)	**Ref**
2023-2024 COVID-19 dose, ≥7 days	191 (11)	786 (16)	81 (43–121)	**37 (24–47)**
2023-2024 COVID-19 dose, 7–89 days earlier	110 (6)	441 (9)	48 (26-69)	**41 (26–53)**
2023-2024 COVID-19 dose, 90–179 days earlier	81 (5)	345 (7)	127 (107–148)	**27 (4–44)**
18–64 years				
No 2023-2024 COVID-19 dose (ref)	530 (95)	2084 (90)	733 (485–879)	**Ref**
2023-2024 COVID-19 dose, ≥7 days	27 (5)	236 (10)	73 (34–112)	**52 (26–68)**
≥65 years				
No 2023-2024 COVID-19 dose (ref)	1008 (86)	2065 (79)	643 (406–802)	**Ref**
2023-2024 COVID-19 dose, ≥7 days	164 (14)	550 (21)	82 (45–123)	**35 (20–47)**



2023-2024 COVID-19 Vaccine Effective in Those With Immunocompromising Conditions

TABLE 2. Effectiveness of updated 2023–2024 (monovalent XBB.1.5) COVID-19 vaccination against laboratory-confirmed COVID-19–associated hospitalization among immunocompromised adults aged ≥18 years — VISION, September 2023–February 2024

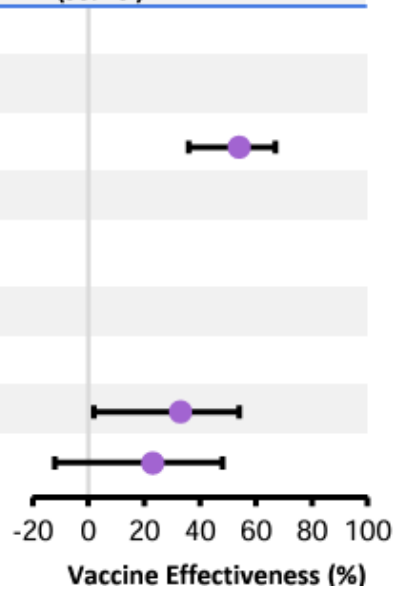
COVID-19 vaccination dosage pattern	Total	Positive SARS-CoV-2 test result, no. (%)	Median interval since last dose, days (IQR)	Unadjusted VE, %* (95% CI)	Adjusted VE, %† (95% CI)
No updated dose§ (Ref)	**11,990**	1,197 (10)	587 (381–766)	Ref	Ref
Received updated dose	**2,596**	195 (8)	56 (32–81)	27 (14–37)	36 (25–46)
7–59 days earlier	**1,381**	100 (7)	34 (21–46)	30 (13–43)	38 (23–50)
60–119 days earlier	**1,215**	95 (8)	83 (71–98)	24 (5–38)	34 (16–47)

2023-2024 COVID-19 Vaccine Less Effective Against More Recent Variants

IVY: VE of *2023–2024 COVID-19 vaccine* against *hospitalization* among adults aged ≥18 years*, by SARS-CoV-2 lineage and time since dose

October 18, 2023 – March 9, 2024

COVID-19 dosage pattern	COVID-19 control-patients		COVID-19 case-patients		VE** (95% CI)
	N (Col %)	Median interval since last dose among vaccinated, days (IQR)	N (Col %)	Median interval since last dose among vaccinated, days (IQR)	
XBB lineages†					
No 2023-2024 COVID-19 dose (ref)	3736 (82)	688 (429–834)	532 (91)	557 (385–751)	**Ref**
2023-2024 COVID-19 dose, 7–89 days earlier	568 (12)	47 (26–68)	47 (8)	44 (22–67)	**54 (36–67)**
2023-2024 COVID-19 dose, 90–179 days earlier	276 (6)	118 (106–131)	6 (1)	92 (91–105)	**§**
JN lineages†					
No 2023-2024 COVID-19 dose (ref)	3736 (82)	688 (429–834)	319 (80)	746 (479–855)	**Ref**
2023-2024 COVID-19 dose, 7–89 days earlier	568 (12)	47 (26–68)	38 (10)	56 (31–74)	**33 (2–54)**¶
2023-2024 COVID-19 dose, 90–179 days earlier	276 (6)	118 (106–131)	40 (10)	118 (107–130)	**23 (-12 to 48)**¶



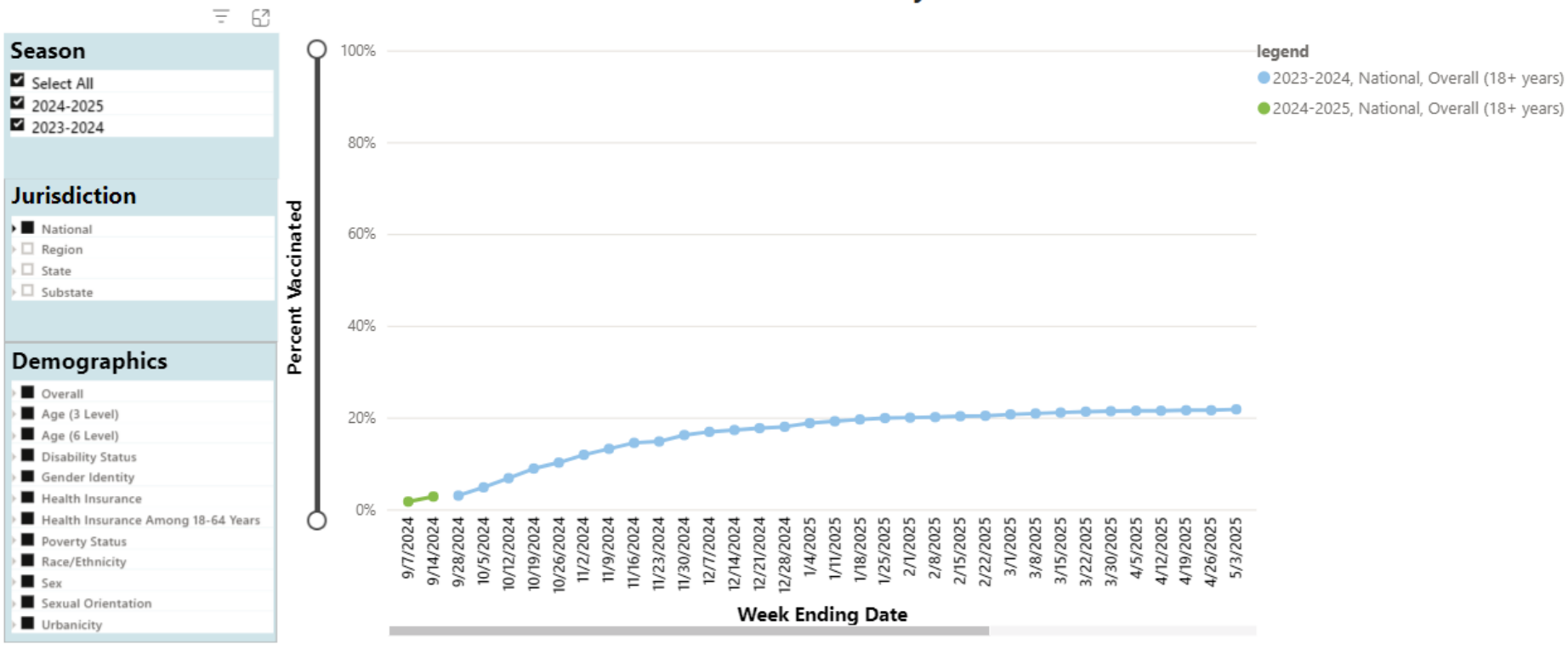
* These results include both immunocompetent and immunocompromised persons.
† JN lineages comprised BA.2.86 and its descendants. XBB lineages comprised all other co-circulating lineages.
§ Based on timing of recommendations to receive 2023–2024 COVID-19 vaccines and JN lineage emergence, limited numbers of individuals with XBB infection

COVID-19 Vaccine Recommendations and Approvals

- June 2024 - ACIP recommends 2024-2025 COVID-19 vaccines as authorized or approved by FDA in persons ≥6 months of age.
- August/September 2024 – FDA approves the 2024-2025 COVID-19 vaccines
- Available Vaccines
  - mRNA (KP.2)
    - Pfizer
    - Moderna
  - Protein Subunit (JN.1)
    - Novavax

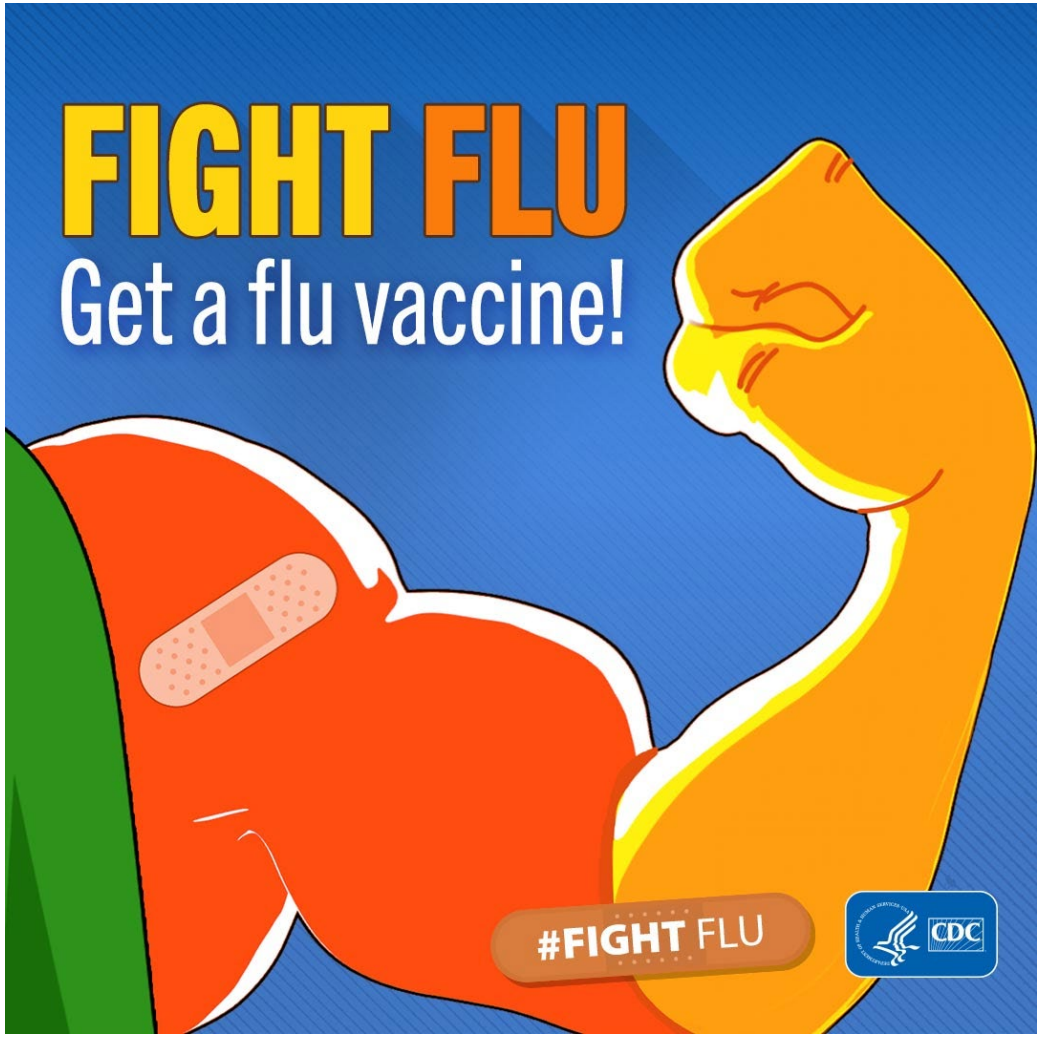
Figure 3A. COVID-19 Vaccination Coverage, Overall and by Selected Demographics and Jurisdiction, Among Adults 18 Years and Older, 2023–24 Through 2024–25[*,†,‡,§]

Data Source: National Immunization Survey–Adult COVID Module



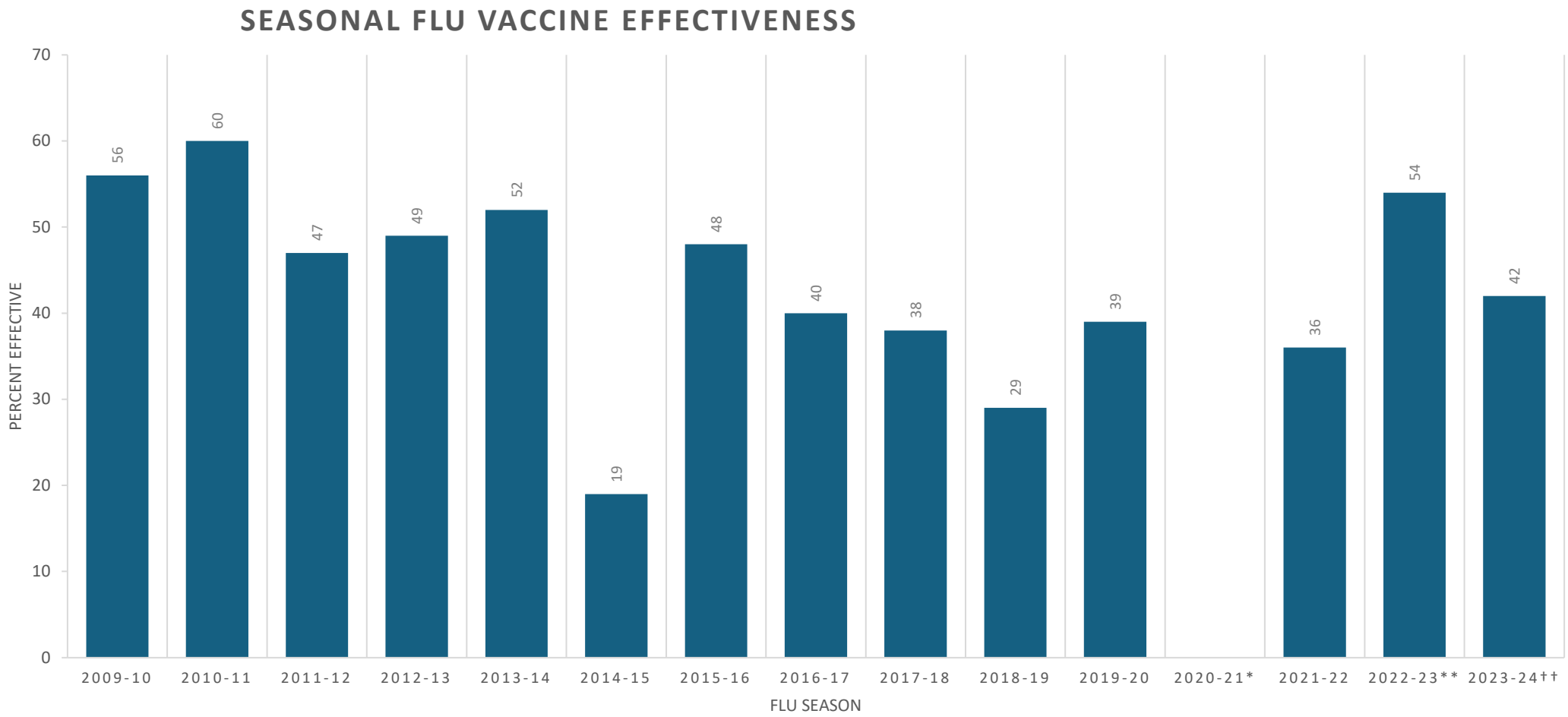
Influenza

Influenza



- ACIP recommends routine annual influenza vaccination is recommended for all persons aged ≥6 months without contraindications (since 2010/2011 season)
  - No confirmed detections of wild-type influenza B/Yamagata lineage viruses in global surveillance since March 2020 → 2024–25 U.S. influenza vaccines will not include an influenza B/Yamagata component. Flu vaccines will be trivalent
  - HD-IIV3 and aIIV3 as acceptable options for solid organ transplant recipients aged 18 through 64 years who are receiving immunosuppressive medication regimens (without a preference over other age-appropriate IIV3s or RIV3)

Effectiveness of Seasonal Flu Vaccines from the 2005 – 2024 Flu Seasons

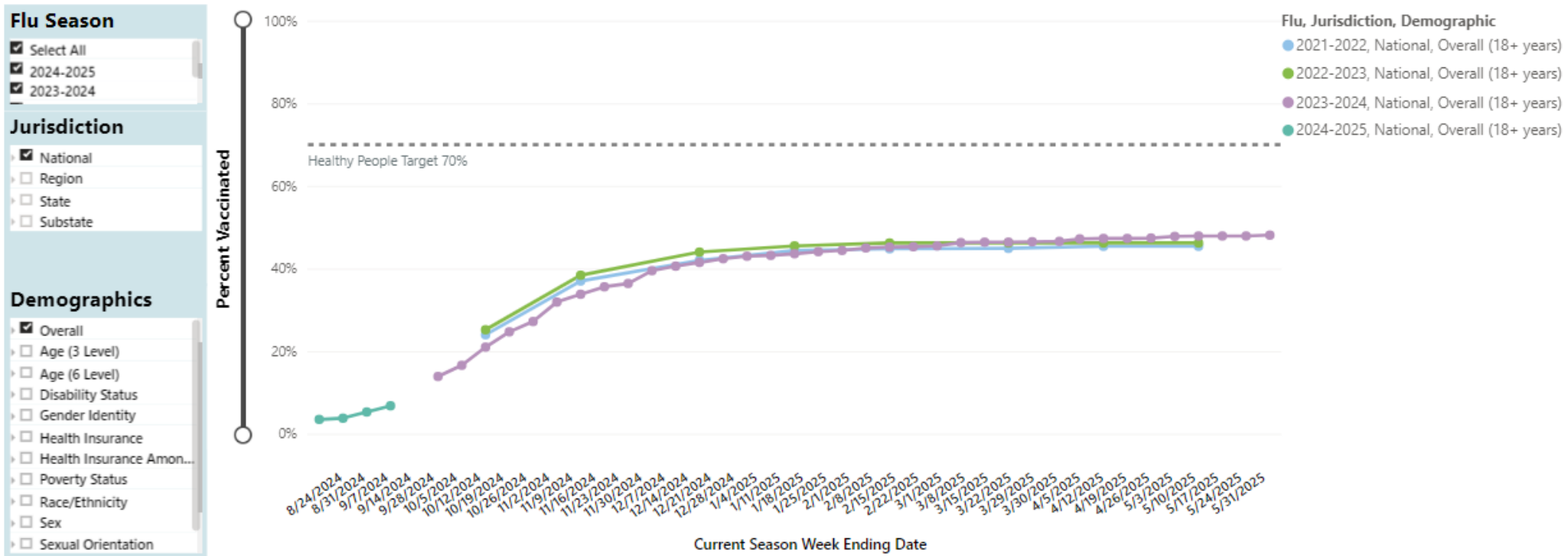


Source: https://www.cdc.gov/flu/professionals/vaccination/effectiveness-studies.htm

*2020-21 flu vaccine effectiveness was not estimated due to low flu virus circulation during the 2020-2021 flu season.
**In a Wisconsin study among patients aged 6 months to 64 years, VE was 54% against medically attended outpatient acute respiratory illness (ARI) associated with laboratory-confirmed influenza A.
†† VE estimates for 2022-2023 flu season are preliminary.

Figure 4A. Influenza Vaccination Coverage, Overall by Selected Demographics, 2024-25 and Jurisdiction, Among Adults 18 Years and Older *,†,‡,§,±

Data Source: National Immunization Survey–Adult COVID Module



Flu Vaccine for Home Administration

FDA NEWS RELEASE

FDA Approves Nasal Spray Influenza Vaccine for Self- or Caregiver-Administration

First Influenza Vaccine That Does Not Need to be Administered by a Health Care Provider

September 20, 2024

FluMist Home Administration

FluMist
Influenza Vaccine
Live, Intranasal

Visit HCP Site

Home Delivery | Why FluMist?

- **The same nasal spray flu vaccine** you can already get at a pharmacy or doctor's office.
- **Nasal spray** flu vaccine for **ages 2–49**
- **FluMist is recommended** by the CDC and the American Academy of Pediatrics (AAP)
- **Home delivery anticipated** to be available for the 2025-2026 flu season*

Dairy cow H5N1 Situation

Multistate outbreak of HPAI A(H5N1) bird flu in dairy cows was first reported on March 25, 2024.

→This is the first time that bird flu viruses had been found in cows.

On April 1, CDC began reporting sporadic human cases of HPAI A(H5N1) in people who had exposure to infected dairy cows.

→This is thought to be the first instance of likely mammal to human spread of HPAI A(H5N1) virus.

Current H5N1 Bird Flu Situation

Cumulative surveillance (since 2022)

Humans

Total Reported Human Cases in the United States: **15** (since 2022)

4 following exposure to dairy cows (reported between 4/1/2024 and 7/3/2024) | Full Report

10 following exposure to poultry (reported between 4/28/2022 and 7/25/2024) | Full Report

1 with no immediately known animal exposure (reported on 9/6/2024) | Full Report

States with Reported Case(s): **4**

**10 of the 15 H5 human cases reported in the US have been confirmed as H5N1.*

The New York Times

Possible Cluster of Human Bird-Flu Infections Expands in Missouri

Seven people in contact with a patient hospitalized with bird flu also developed symptoms, the C.D.C. reported. Some are undergoing further tests.

Sept. 27, 2024

RSV Update

RSV immunization Updates

Adult Vaccination

- Change in age indication
  - Adults aged 75 years and older receive a single dose of RSV vaccine.
  - Adults aged 60–74 years who are at increased risk of severe disease receive a single dose of RSV vaccine.

- May 2024, FDA licensed a third RSV vaccine, mResvia (Moderna), an mRNA vaccine

Infant immunization

- Abrysvo is recommended for one lifetime dose - a person who received one dose of Abrysvo should not be given Abrysvo during subsequent pregnancies; instead, infants born after subsequent pregnancies should receive nirsevimab after delivery.

From: **RSV Vaccine Effectiveness Against Hospitalization Among US Adults 60 Years and Older**

JAMA. Published online September 04, 2024. doi:10.1001/jama.2024.15775

Group	Vaccinated RSV case patients, No./total No. (%)	Vaccinated control patients, No./total No. (%)	Days since RSV vaccination, median (IQR)	Vaccine effectiveness, % (95% CI)
Adults aged ≥60 y, unweighted[a]	9/367 (2.5)	256/2611 (9.8)	84 (54-125)	75 (50-87)
Adults aged ≥60 y, inverse probability of vaccination weighting[b]	9/367 (2.5)	256/2611 (9.8)	84 (54-125)	79 (56-90)
Age group, y, unweighted[a]				
60-74	4/214 (1.9)	118/1542 (7.7)	88 (57-128)	75 (31-91)
≥75	5/153 (3.3)	138/1069 (12.9)	81 (50-123)	76 (40-91)

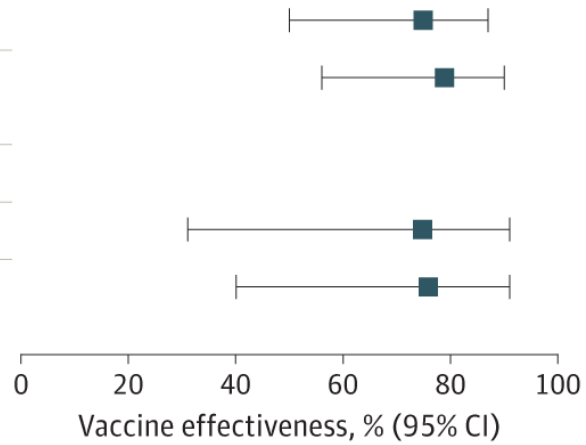


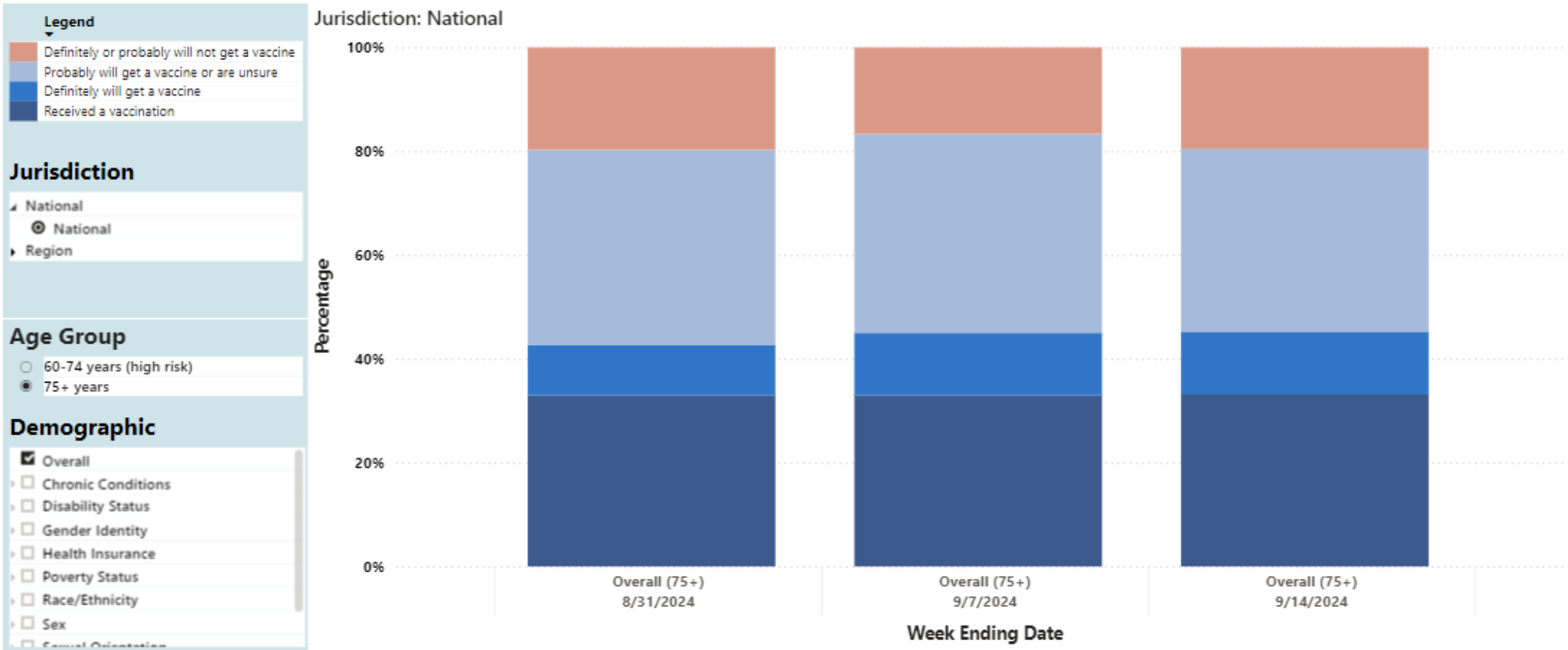
Figure Legend:

Vaccine Effectiveness Against Respiratory Syncytial Virus (RSV)–Associated Hospitalization Among Adults 60 Years and Older[a]Multivariable logistic regression compared the odds of RSV vaccination among RSV case and control patients. Models were adjusted for a base set of a priori variables, including age, sex, race and ethnicity, US Department of Health and Human Services Region, and calendar month of admission. Vaccine effectiveness (VE) was computed as: (1 − adjusted odds ratio) × 100%.

[b]Propensity for vaccination was modeled with an expanded set of a priori covariates. Weights were computed as the inverse of the probability of vaccination. The standardized differences for covariates after weighting were all <0.1, except for Social Vulnerability Index, which was included in the final logistic regression model that compared the odds of RSV vaccination between RSV case and control patients (eMethods in Supplement 1).

Figure 1B. Weekly Intent± for Vaccination and Cumulative Percentage of Adults 75 Years and Older and Adults 60–74 Years with High-Risk Conditions Ever Vaccinated with RSV Vaccine, 2024–2025*,†,‡,§,^

Data Source: National Immunization Survey–Adult COVID Module



Pneumococcus Update

Pneumococcal Disease

- Caused by bacteria - Streptococcus pneumoniae
- More serious clinical syndromes such as are pneumonia, bacteremia, and meningitis.
  - Pneumococcal pneumonia hospitalizes about 150,000 people in the US each year—killing about 5-7% □ 1 in 20 of those infected.
    - The death rate is even higher among adults age 65 years and older and people with certain medical conditions or other risk factors.
  - Pneumococcal meningitis or bacteremia kills more than 3,000 US adults each year.
- Less serious, but more common syndromes include acute otitis media and sinusitis.
- Highest incidence in the winter and early spring months in temperate climates.

Pneumococcal vaccine for adults

Pneumococcal vaccination is recommended for the following adults:

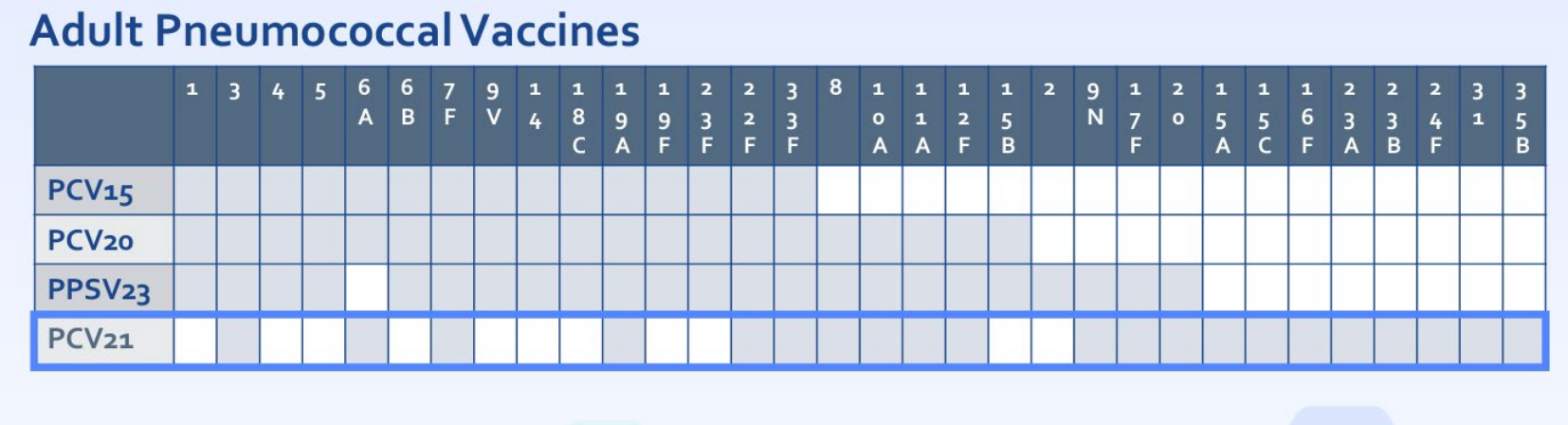
- Adults aged 65 years and older
- Adults aged 19–64 years with certain underlying conditions or risk factors

Previous adult pneumococcal vaccination options:

- PCV20 alone or
- PCV15 followed by PPSV23.

New Pneumococcal vaccine for adults – PCV21 (CAPVAXIVE, Merck)

- PCV21 includes 11 serotypes not included in PCV20 and excludes 10 serotypes included in PCV20.



- Serotypes in PCV21 cause approximately 85% of invasive pneumococcal disease in U.S. adults age 65 and older, while those in PCV20 cover 54%
- **Update** ACIP voted to recommend PCV21 as an option for adults aged19 years and older who currently have a recommendation to receive a dose of PCV

Approved on the basis of immune response elicited

- In adults 50 years of age and older, Capvaxive was non-inferior to PCV20 for the 10 serotype polysaccharides shared with both vaccines (3, 6A, 7F, 8, 10A, 11A, 12F, 19A, 22F, 33F) (assessed by serotype-specific OPA geometric mean titers - GMTs at 1 month postvaccination)

- Capvaxive was superior to PCV20 for 10 of 11 serotype polysaccharides included in Capvaxive but not in PCV20 (9N, 15A, 16F, 17F, 20A, 23A, 23B, 24F, 31, 35B), as assessed by serotype-specific OPA GMTs 1 month postvaccination. Immune responses were observed for serotype 15C in participants receiving Capvaxive but did not meet criteria for statistical significance.

- In individuals 18 through 49 years of age, Capvaxive elicited non-inferior immune responses (immunobridged) compared to individuals 50 through 64 years of age, as assessed by serotype-specific OPA GMTs 1 month postvaccination

- Capvaxive had a safety profile comparable to PCV20.

Meningococcal Update

Schedule change for Bexsero

- On August 19, FDA approved a new dosing schedule for GSK meningococcal B (MenB) vaccine (Bexsero) that matches the schedule for Pfizer MenB vaccine (Trumenba), with 2 doses given 6 months apart or 3 doses given at 0, 1–2, and 6-month intervals.

- Bexsero's original 2-dose schedule, with a 1-month interval between the two doses, is no longer licensed.

- GSK has a meningococcal ABCWY (MenABCWY) vaccine candidate under review by the FDA for a Biologics License Application (BLA).

Mpox Update

Mpox outbreak – clade II

- Clade II mpox, which is endemic to West Africa, caused an ongoing global outbreak that began in 2022.
- Although the peak of the clade II mpox outbreak had decreased by early 2023, cases continue to be reported at low levels in many countries today.
- Outbreak primarily impacted MSM

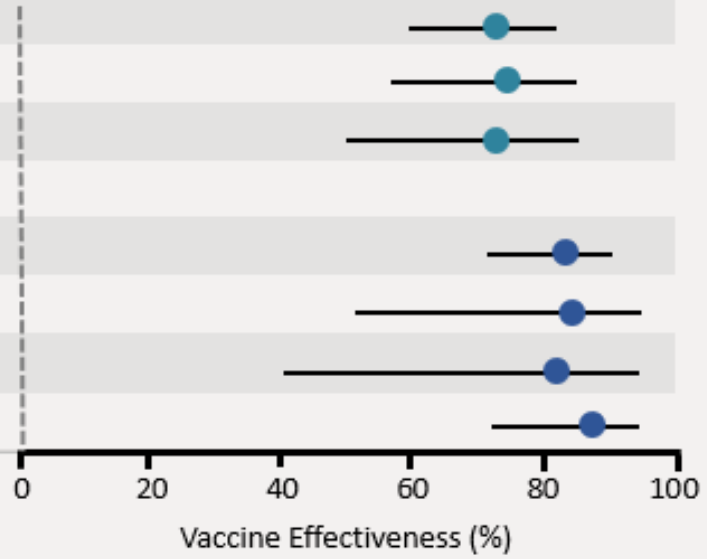
JYNNEOS Vaccine

- Smallpox and Monkeypox Vaccine
- Developed by Bavarian Nordic/supported by the National Institute of Allergy and Infectious Diseases
- Approved by the FDA in 2019 for the prevention of smallpox and mpox
- Attenuated form of live vaccinia virus that is incapable of replicating

Multi-jurisdictional Case-Control Study

Both partial and full vaccination with JYNNEOS showed effectiveness against mpox, regardless of administration route

	Cases	Controls	Adjusted* VE (95% CI)
Overall VE, partial vaccination (1 dose)	**73**	**262**	**73% (59–82)**
Subcutaneous administration	41	162	75% (57–85)
Intradermal administration	30	97	73% (50–85)
Overall VE, full vaccination (2 doses)	**36**	**209**	**83% (71–90)**
Subcutaneous administration	9	27	85% (51–95)
Intradermal administration	7	30	82% (40–95)
Heterologous administration	19	151	88% (72–95)



*Adjusted for age, race/ethnicity, immunocompromised status, reported close contact with a confirmed/suspected mpox case in 3 weeks prior to index event

Only 25% of the population at risk is estimated to have been fully vaccinated

JYNNEOS (risk based) recommended for:

People aged 18 years of age or older at increased risk of mpox, including:

Persons who are gay, bisexual and other men who have sex with men, transgender or nonbinary people who in the past 6 months have had:

- At least 1 sexually transmitted disease
- More than 1 sex partner
- Sex at a commercial sex venue
- Sex in association with a large public event in a geographic area where mpox transmission is occurring
- Persons who are sexual contacts of the persons described above

Licensed for persons ≥ 18 years of age; an NIH trial is underway to evaluate safety and immunogenicity for persons 12-17 years of age

Mpox outbreak – clade Ib

- This year central African regional outbreak of clade 1b in DRC - spreading to surrounding countries.

- As of September 18, 2024, >21,000 suspected clade I mpox cases have been identified in DRC, its largest annual number on record. This includes >700 deaths (population of >99 million people).

- Available data indicate that it is predominantly spreading through intimate or sexual contact between adults.

Prevention Strategies for Mpox, including Vaccinating People at Risk via Sexual Exposure, for U.S. Travelers Visiting Countries with Clade I Mpox Outbreaks

Print

Distributed via the CDC Health Alert Network
September 23, 2024, 12:45 PM ET
CDCHAN-00516

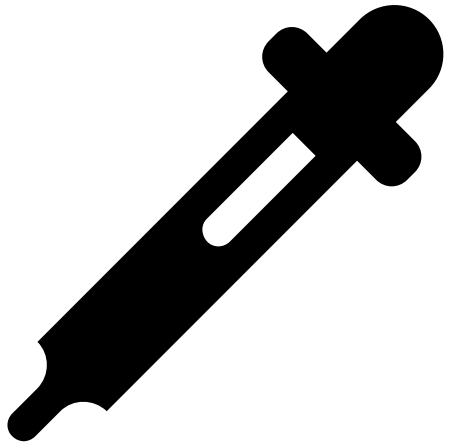
•Recommend vaccination with the 2-dose JYNNEOS vaccine series to any adult, regardless of gender identity or sexual orientation, if:

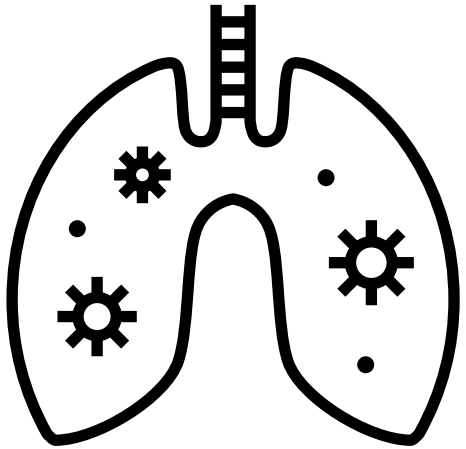
- They are traveling to a country where clade I MPXV is spreading between people, AND
- They anticipate experiencing any of the following:
  - Sex with a new partner
  - Sex at a commercial sex venue, like a sex club or bathhouse
  - Sex in exchange for money, goods, drugs, or other trade
  - Sex in association with a large public event, such as a rave, party, or festival

•Recommend starting, if possible, the mpox vaccine series at least 6 weeks before travel begins, since two doses should be given 28 days apart and it takes 14 more days for immunity to peak.

Conclusion

- There are safe and effective vaccines for several serious infectious conditions.
- The challenge is to promote uptake in appropriate populations





Thank you! Questions?