



Flu Scenario Modeling Hub Report

Round 1 2025/26 - 2025 to 2026 Season

19 November, 2025, Scenario Modeling Hub Team¹

Overview

In the first influenza round of the 2025-26 season, the Scenario Modeling Hub generated pre-season projections for the 43-week period from Sunday, Aug 10, 2025 to Saturday, June 6, 2026. We considered 3 vaccine scenarios representing the impact of different levels of vaccine coverage (a “business-as-usual” scenario assuming 46% all-age vaccine coverage, as in the 2023-24 season; a pessimistic scenario assuming 34% all-age vaccine coverage based on a putative 35% decline in vaccine uptake in individuals under 65 yrs compared to 2023-24; and a counterfactual representing no vaccine uptake in any age group). Epidemiological uncertainty was left at the discretion of the modeling teams. Ensemble projections are based on contributions from 12 teams (including 11 contributing national projections) using the trimmed linear opinion pool approach.

Our main findings include:

- In both business-as-usual and pessimistic vaccine coverage scenarios, projected influenza activity is likely to remain below levels seen last season. Hospitalizations are projected to peak at 28,900 weekly admissions (95% PI 4,800-66,000), compared to 54,000 last season. Hospitalizations are projected to reach their peak in the week of Jan 18, 2026 (95% PI December 7, 2025 to March 1, 2026).
- In the business-as-usual vaccination scenario, cumulative burden for this season is projected to reach 315,000 (95% PI: 68,000-680,000) hospitalizations and 35,000 (95% PI: 13,000-48,000) deaths.
- Vaccine levels substantially affect hospitalization and death burden:
 - A business-as-usual vaccination campaign is estimated to prevent 40% (95%CI 29-51%) of influenza-related hospitalizations and 37% (95%CI 14-60%) of influenza-related deaths, compared to no vaccination. In absolute terms, this represents in the order of 240,000 hospitalizations and 23,000 deaths averted (medians).
 - A pessimistic vaccine uptake is estimated to prevent 31% (95% CI 22-39%) of hospitalizations and 29% (95%CI 13-45%) of deaths.
 - Vaccine benefits vary between states depending on the level of vaccine coverage. For instance, a business-as-usual vaccine campaign is projected to avert a median of 25% (95% CI 15-34%) of hospitalizations in Nevada and 45% (95%CI 25-64%) in the District of Columbia.
 - These estimates include the direct and indirect benefits of vaccination, namely, both the benefits to those vaccinated and their contacts who may experience reduced influenza transmission.
 - There is considerable variability between models as regards the projected impact of the vaccination program. This variability is explained in part by differences in assumptions about the vaccine effect against infection and model structure.

A few caveats are worth noting:

- These are pre-season projections, and hence there is no calibration data on the dynamics of the upcoming epidemic.
- All epidemiological uncertainty was left at the teams’ discretion. This includes the particular mix of influenza subtypes circulating this season, and the transmissibility and severity of circulating strains.
- Estimates of vaccine benefits should be interpreted in light of a high assumed VE against hospitalizations (50%), which anticipates a good match between circulating viruses and vaccine strains. Further, projections assume a high vaccine uptake among individuals over 65 yrs who suffer higher hospitalization and death burden. Lastly, indirect vaccine benefits are theoretically amplified in low influenza transmission seasons and most models project a fair probability of a low transmission season.
- Only 4 models provided death estimates so death projections should be taken with caution.

¹Compiled by Sara Loo, Lucie Contamin, Shaun Truelove, Cécile Viboud.

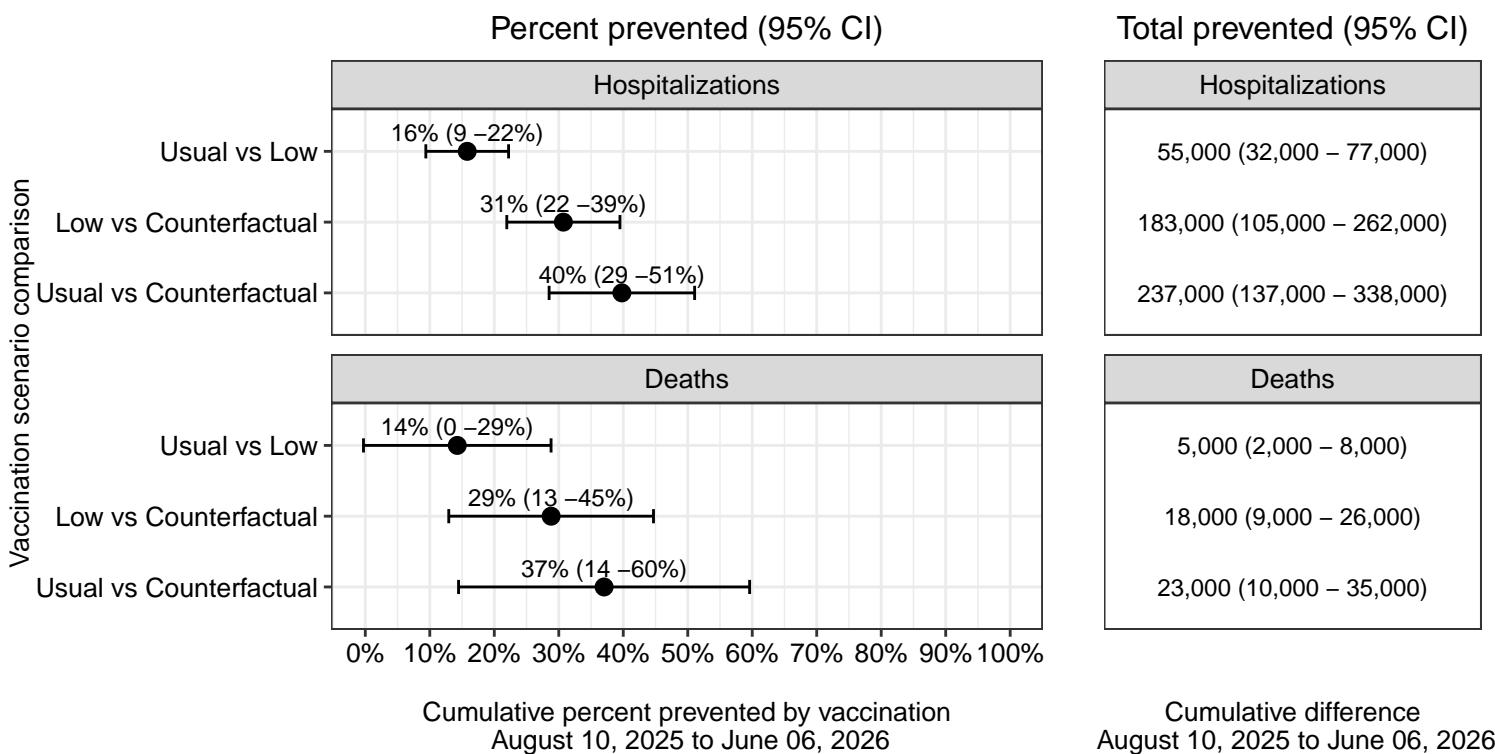
Round 1 2025/26 Specifications

Business as Usual Vaccine Coverage <ul style="list-style-type: none">Vaccine coverage is the same as in the 2023-24 flu season in all age groups and jurisdictions. Overall, the US coverage is about 46% in this scenario.	Scenario A
Low Vaccine Coverage <ul style="list-style-type: none">Vaccine coverage is 35% lower than in the 2023-24 flu season in age groups <u>under 65 yrs</u> ($\times 0.65$ 2023-24 coverage). Overall, the US coverage is about 34% in this scenario.	Scenario B
Counterfactual <ul style="list-style-type: none">No influenza vaccination in any age group	Scenario C

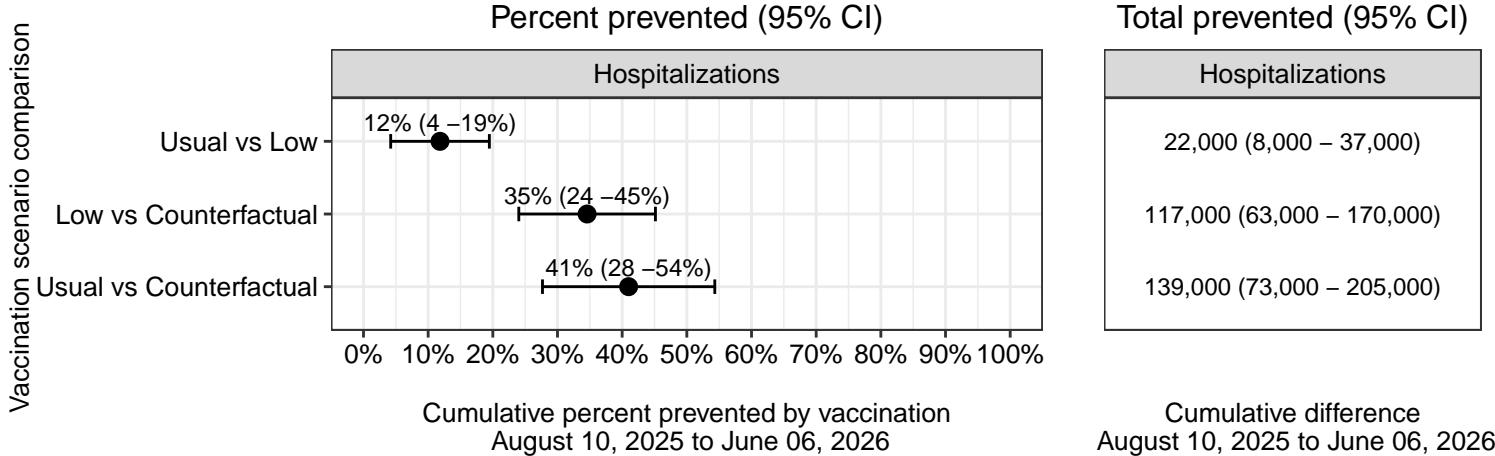
Differences Between Scenarios

Cumulative pooled differences between vaccination scenarios from August 10, 2025 to June 06, 2026 for overall population (top) and 65+ yo population (bottom). Vaccination is expected to prevent a substantial number of hospitalizations and deaths overall and in individuals 65 years and over, even if coverage is reduced in younger individuals compared to last year. For instance, vaccination coverage similar to last would prevent 40% of all-age hospitalizations, 41% of 65+ hospitalizations, and 37% of all-age deaths on average. A reduced coverage would decrease these benefits to 31% averted all-age hospitalizations and 29% averted deaths. A reduced coverage would result in a 12-16% increase in outcomes on average compared to maintaining coverage at the same level as in 2023-24.

Overall population



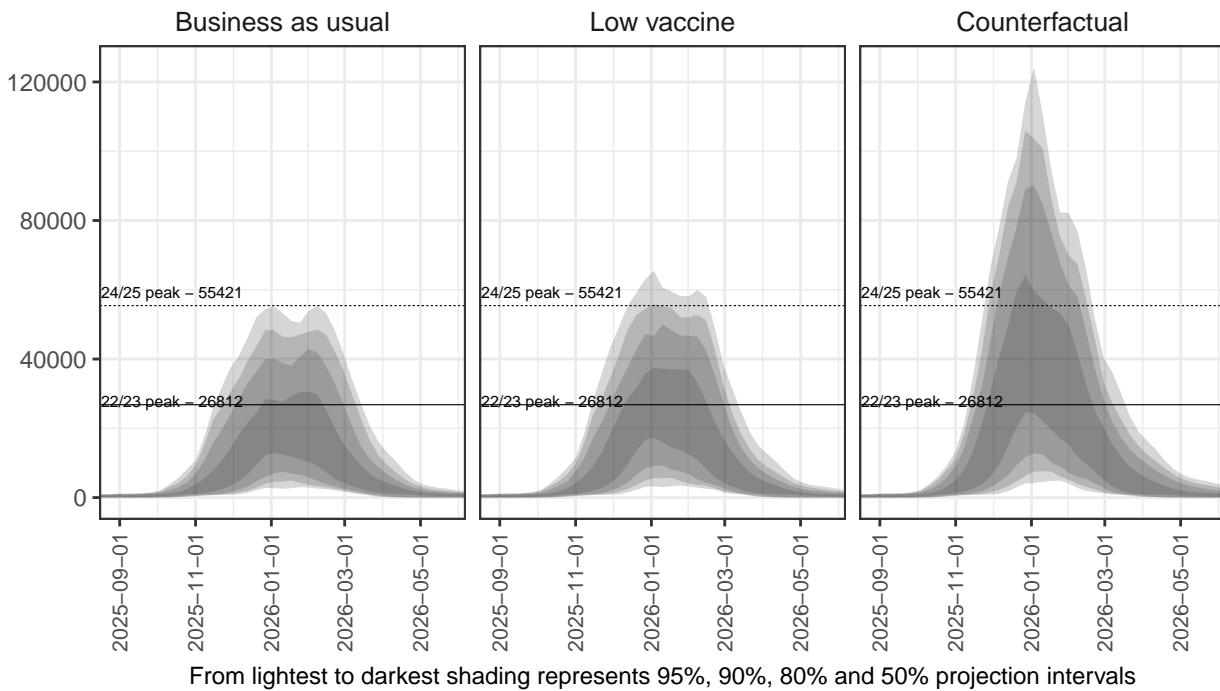
65+ population



National Ensemble Projections

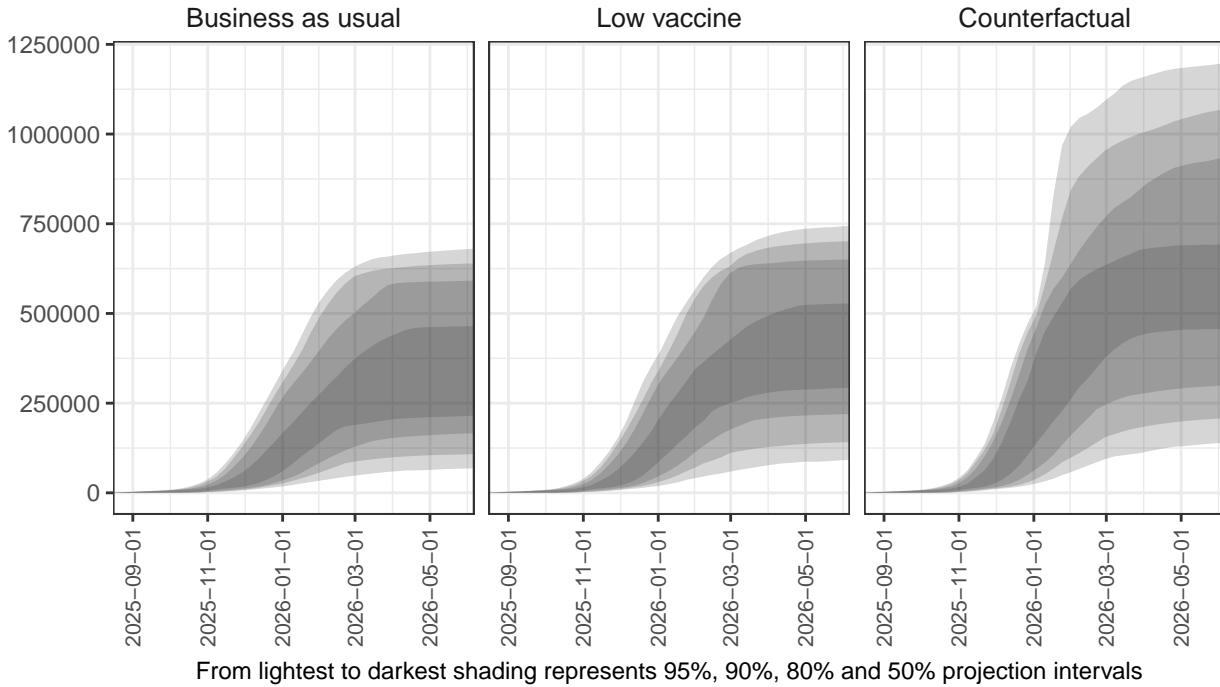
Weekly Incident hospitalizations and death in the national ensemble. Horizontal lines are given for prior peak incident hospitalizations, from past 2024-25 and 2022-23 seasons based on NHSN data. Whether vaccine coverage remains level or decreases in younger individuals, incident hospitalizations are likely to remain lower than last year.

US ensemble projection intervals – Hospitalizations

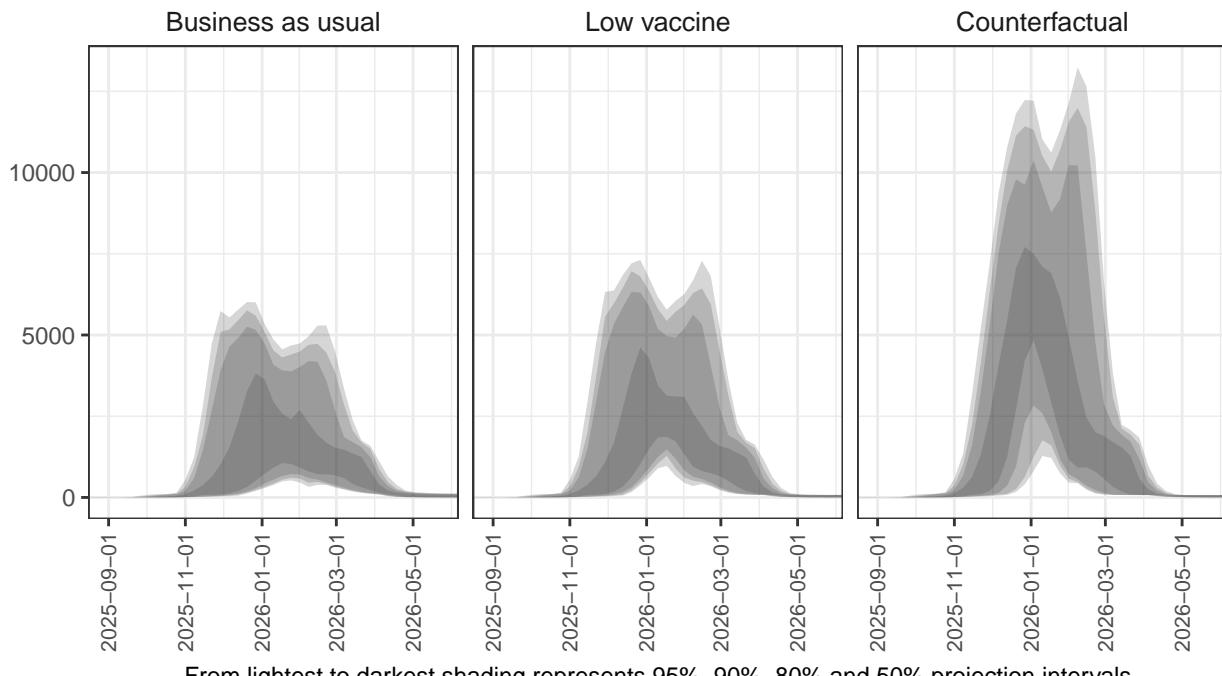


If vaccine coverage remains at the same levels as last year, cumulative burden for this season is projected to reach 315,000 (95% PI: 68,000-680,000) hospitalizations and 35,000 (95% PI: 13,000-48,000) deaths.

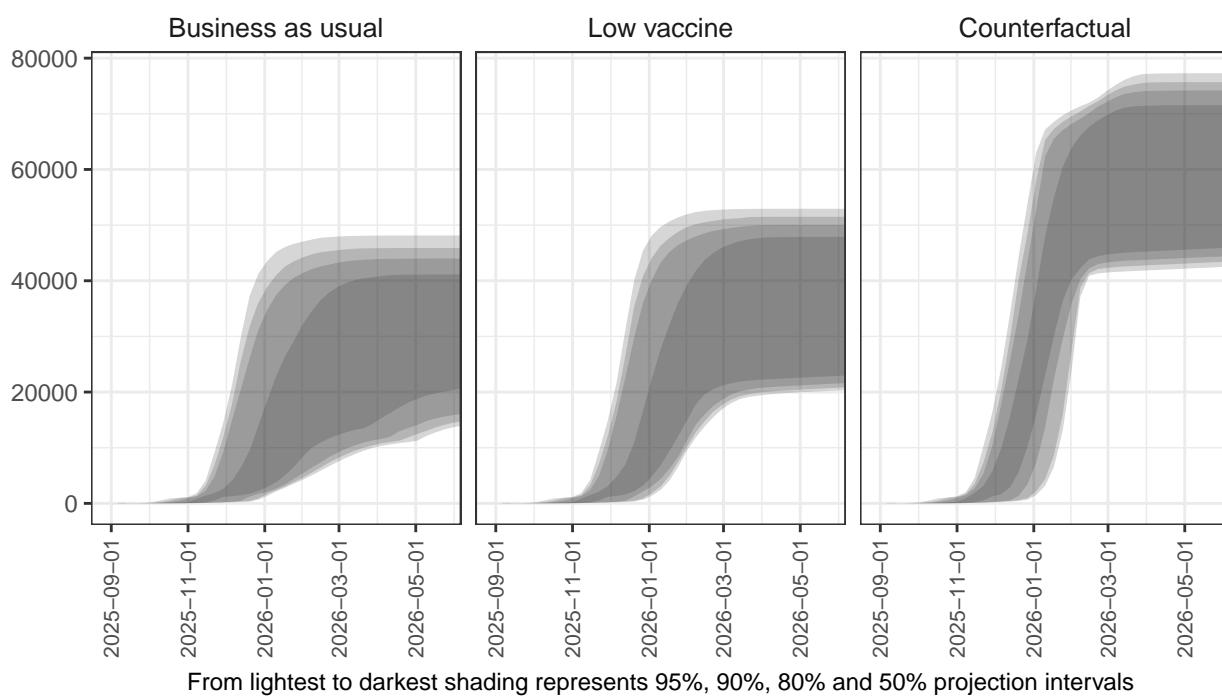
US ensemble projection intervals – Cumulative Hospitalizations



US ensemble projection intervals – Deaths



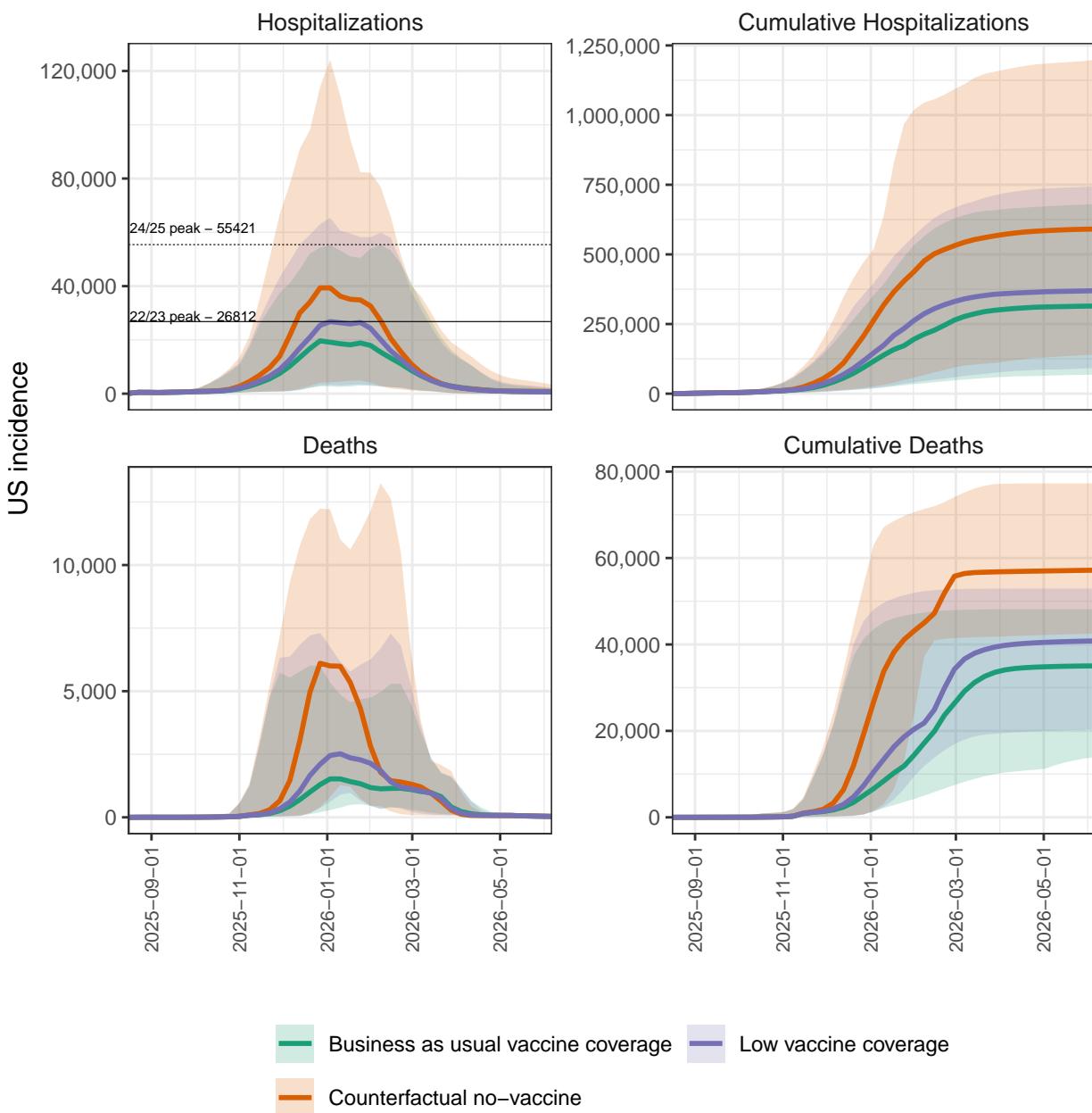
US ensemble projection intervals – Cumulative Deaths



Ensemble Projection Comparisons

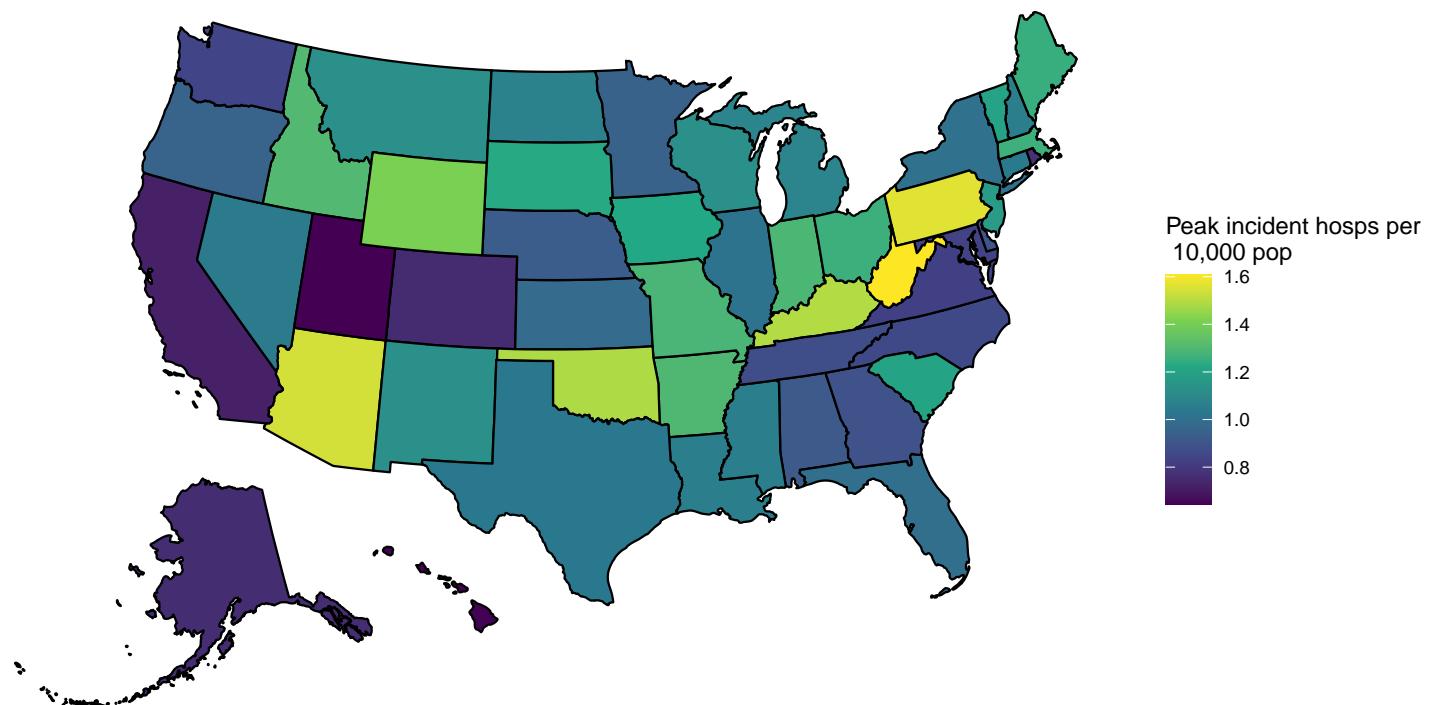
Ensemble projections for national incident and cumulative hospitalization and deaths separated by scenario

US ensemble projections & 95% projection intervals

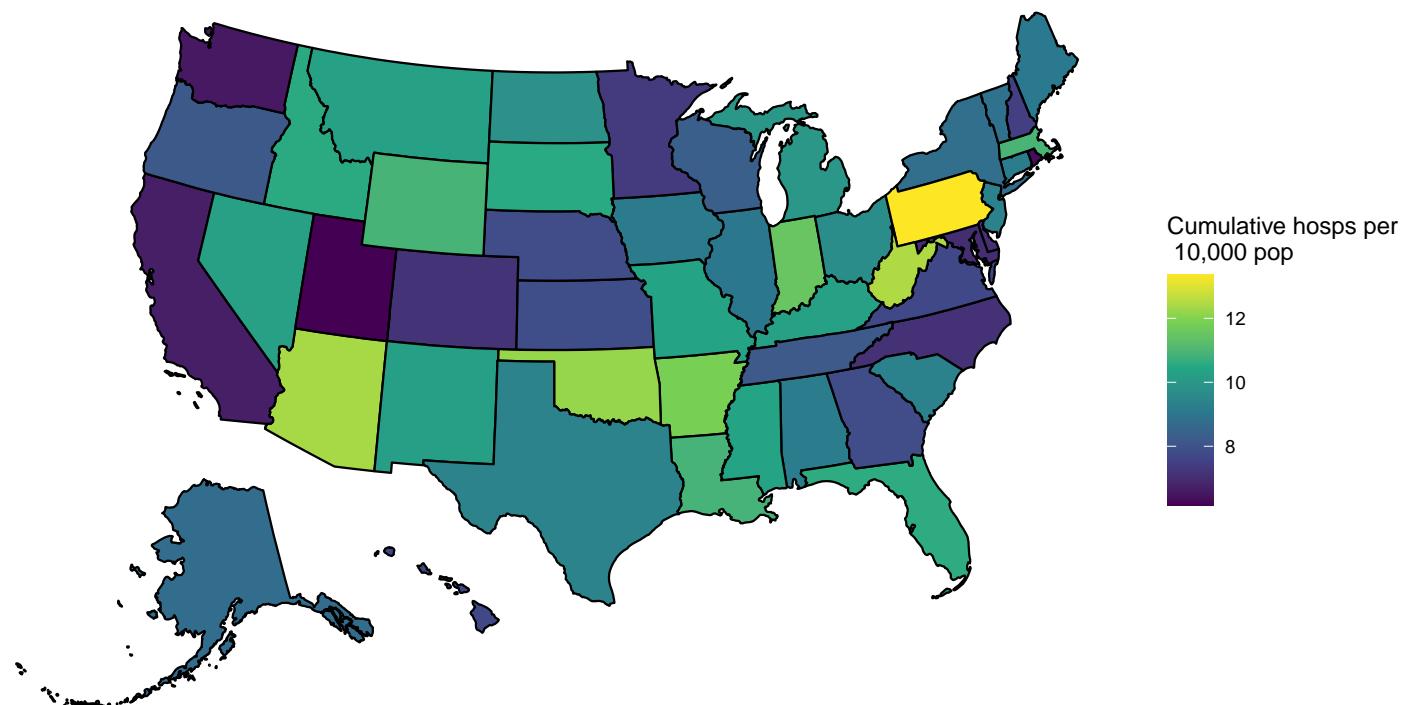


Risk maps

Peak incident reported hospitalizations per 10,000 population in scenario with
Business as usual vaccine coverage: August 10, 2025 to June 06, 2026



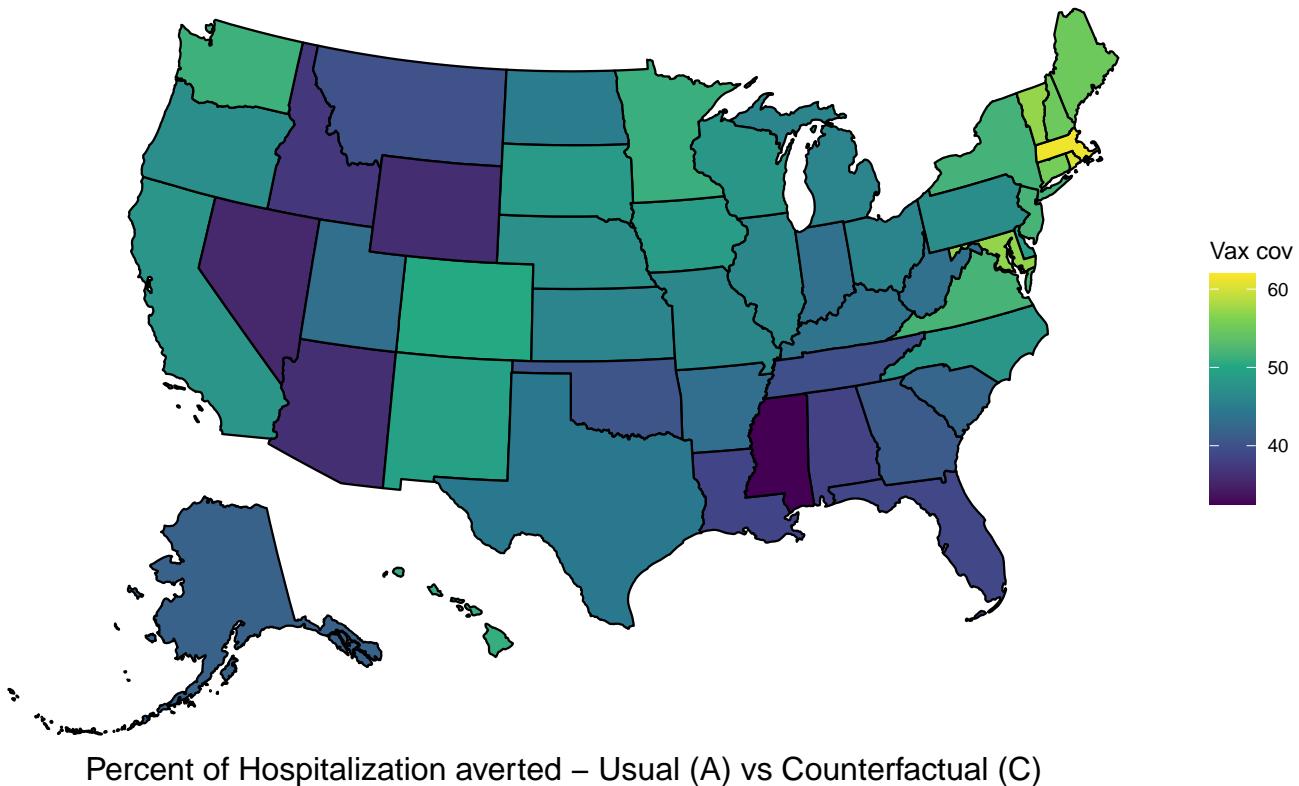
Cumulative reported hospitalizations per 10,000 population in scenario with
Business as usual vaccine coverage: August 10, 2025 to June 06, 2026



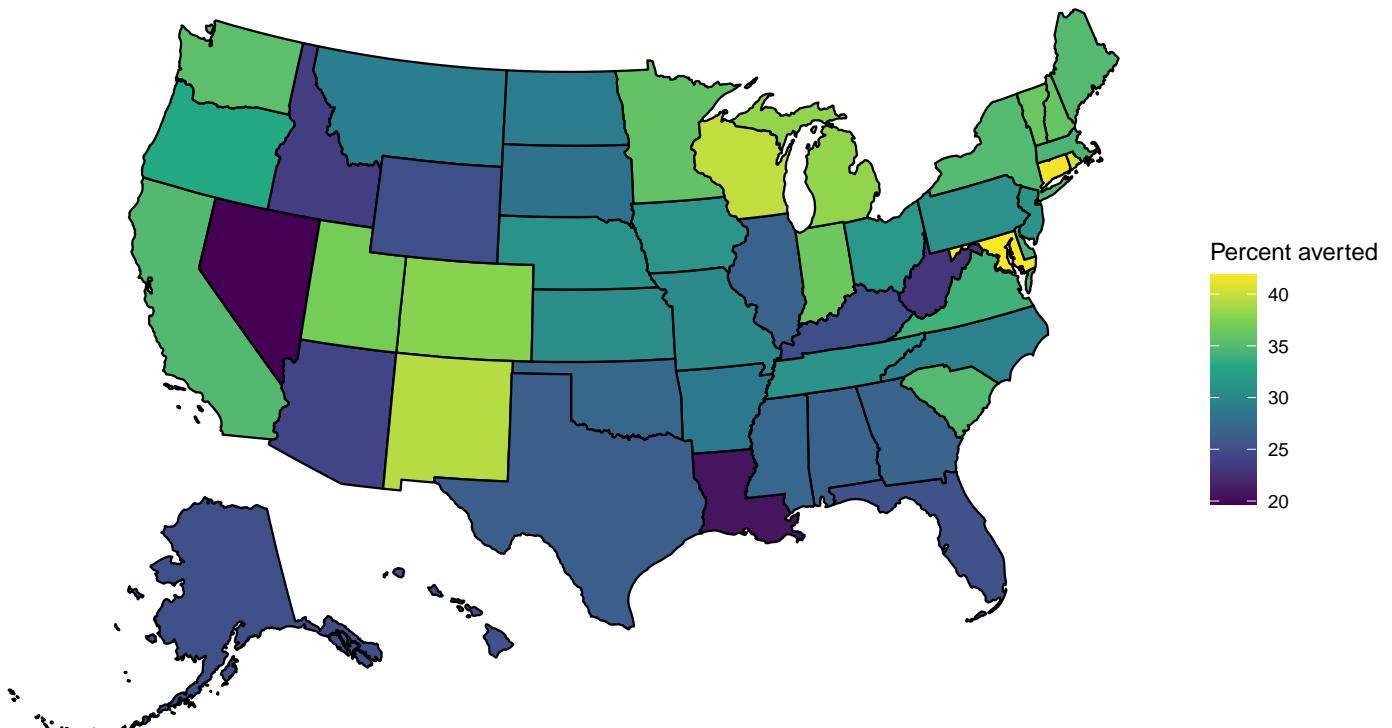
Risk map showing state specific coverage vs state-specific benefits

States that have higher vaccine coverage are projected to benefit from greater percent reductions in hospitalizations (correlation coefficient between assumed coverage in optimisitic scenario A (top map) and projected percent averted hospitalizations compared to counterfactual (bottom map) = 0.73, P < 0.0001).

Vaccination coverage

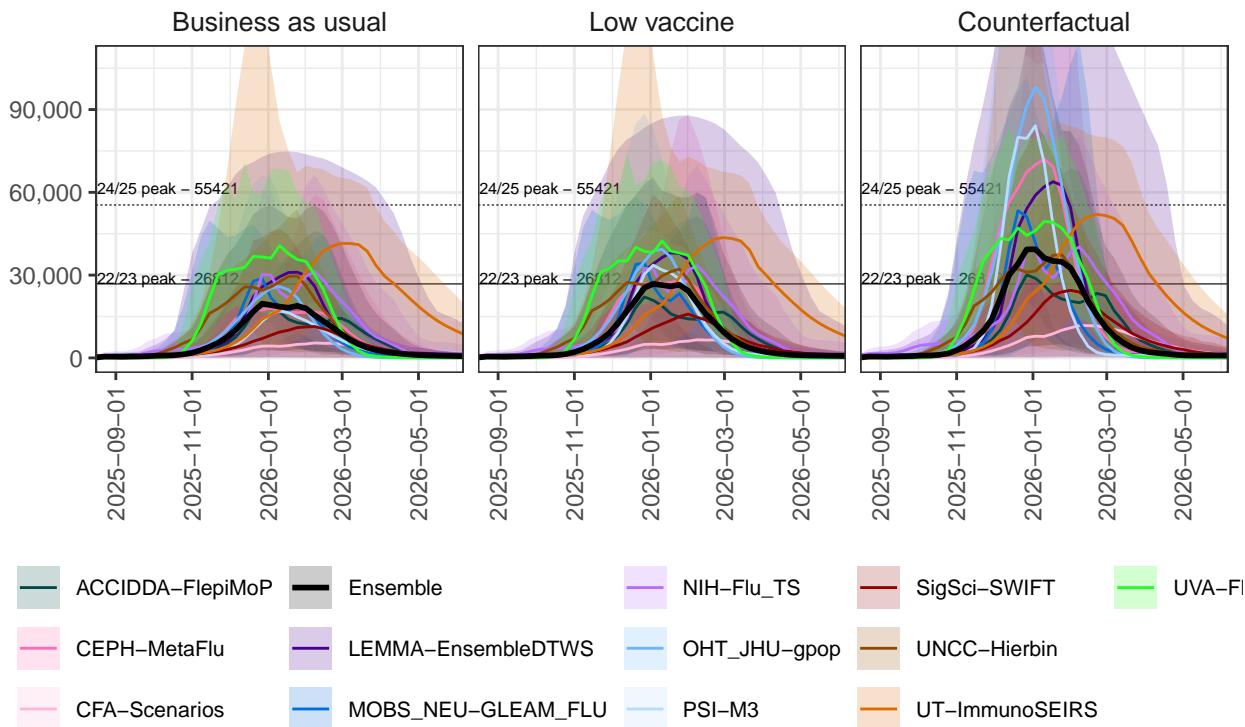


Percent of Hospitalization averted – Usual (A) vs Counterfactual (C)

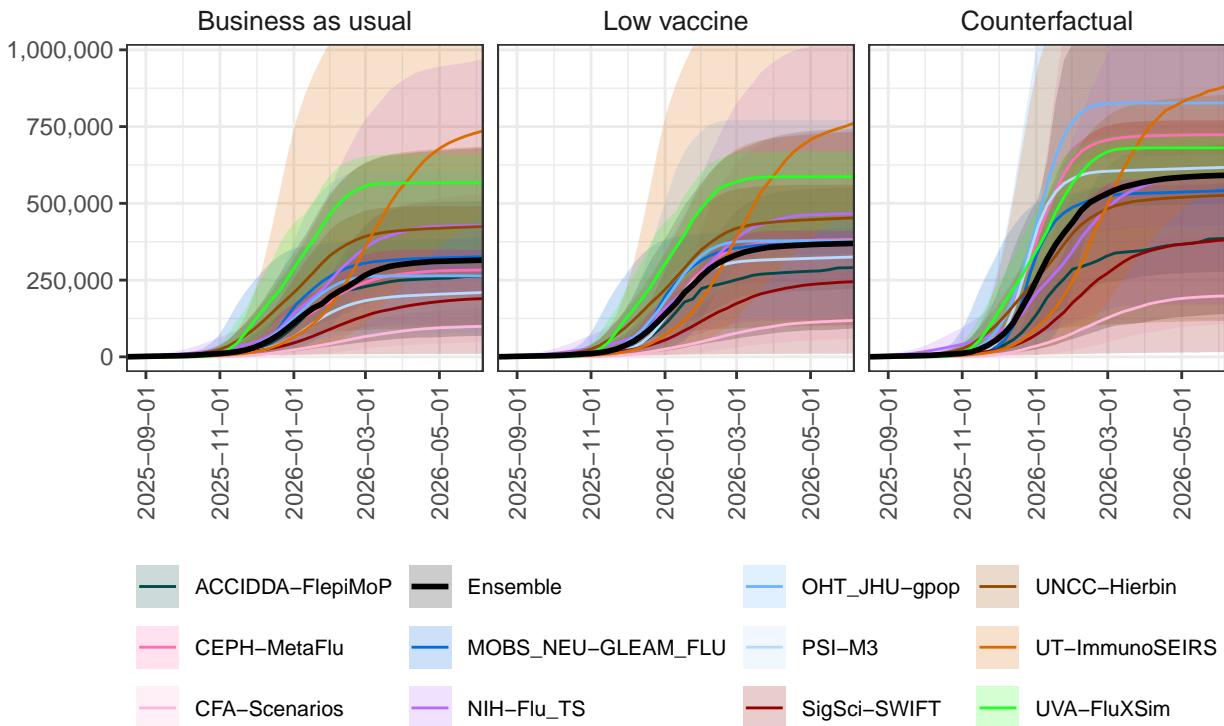


National individual model projections

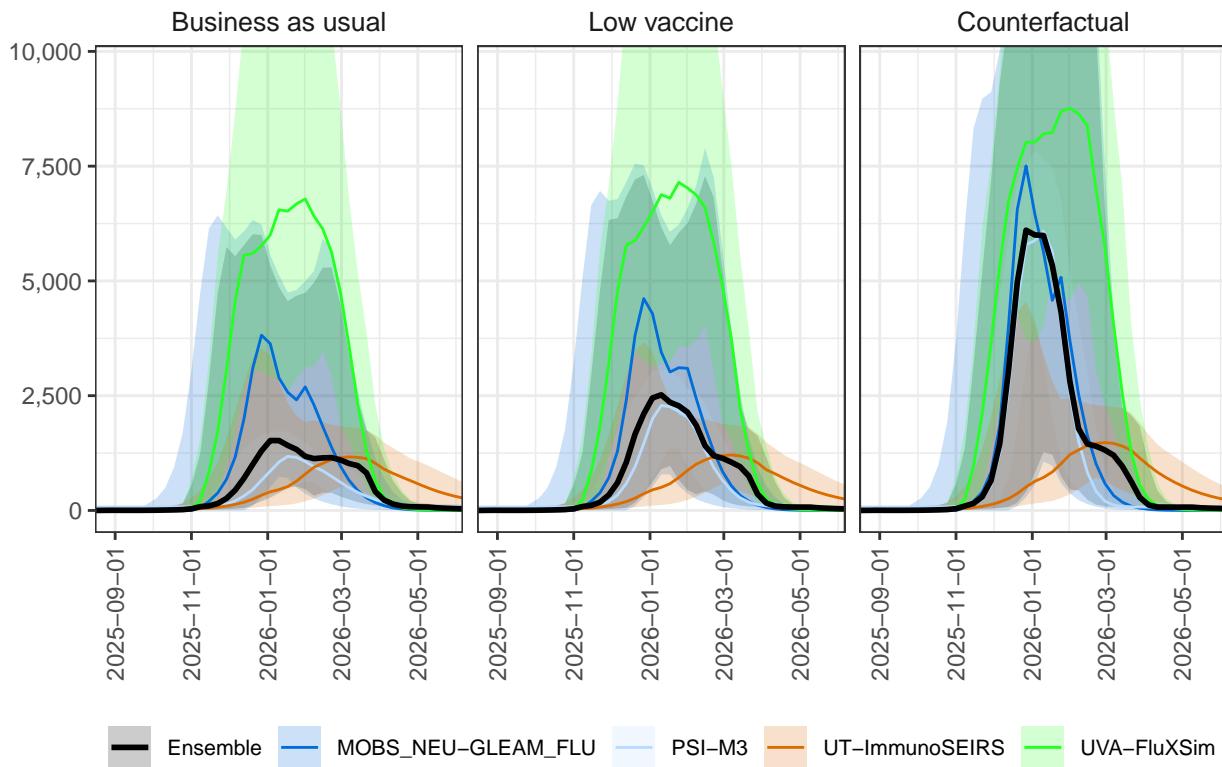
US Individual Model Projections & 95% Projection Intervals Hospitalizations



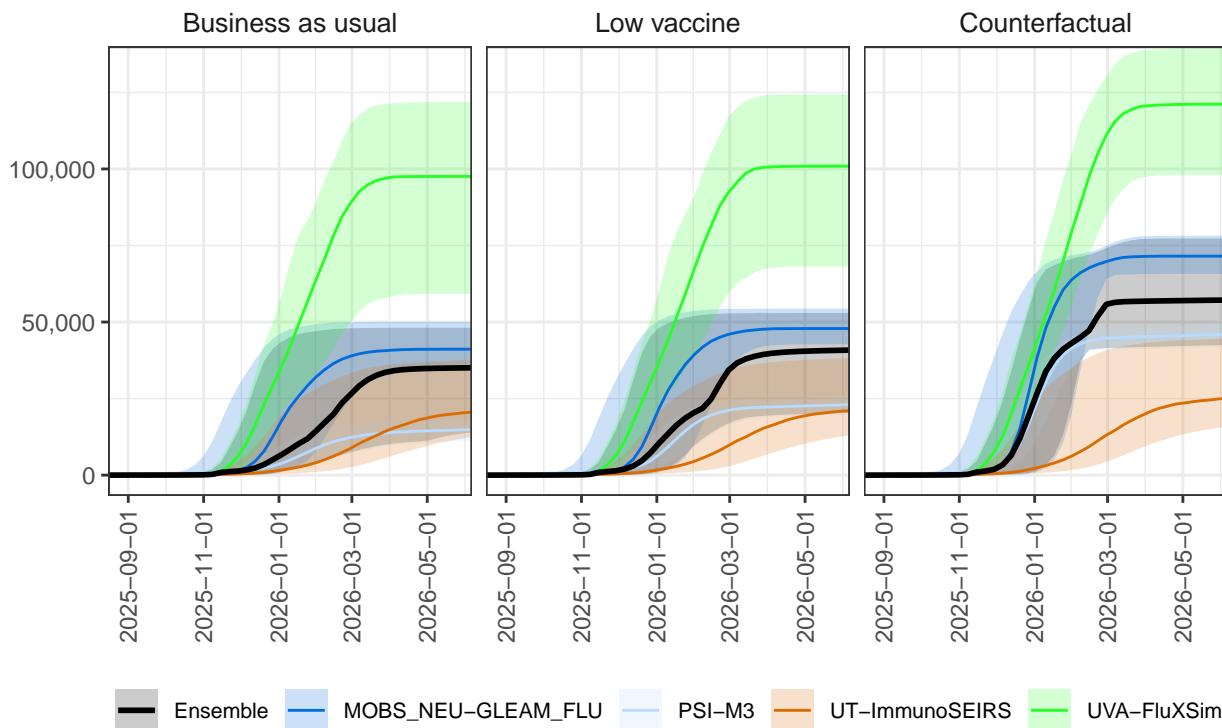
US Individual Model Projections & 95% Projection Intervals Cumulative Hospitalizations



US Individual Model Projections & 95% Projection Intervals – Deaths



US Individual Model Projections & 95% Projection Intervals Cumulative Deaths



Teams and models

- Atlantic Coast Center for Infectious Disease Dynamics and Analytics - FlepiMoP
 - Joshua Macdonald (Johns Hopkins University), Timothy Willard (University of North Carolina at Chapel Hill), Carl Pearson (University of North Carolina at Chapel Hill), Joseph Lemaitre (University of North Carolina at Chapel Hill), Sara Loo (Johns Hopkins University), Sara Loo (Johns Hopkins University), Clif McKee (Johns Hopkins University), Emily Przykucki, Justin Lessler (University of North Carolina at Chapel Hill), Shaun Truelove (Johns Hopkins University)
- California Department of Public Health (CADPH) - FluCAT
 - White, Lauren (California Department of Public Health), Leon, Tomas (California Department of Public Health)
- CEPH Lab at Indiana University - MetaFlu
 - Marco Ajelli (Indiana University Bloomington), Shreeya Mhade (Indiana University Bloomington), Paulo C. Ventura (Indiana University Bloomington)
- CFA - Scenarios
 - Laura Albrecht (CDC Center for Forecasting and Outbreak Analytics), Elisha Are (CDC Center for Forecasting and Outbreak Analytics), Michael Batista (CDC Center for Forecasting and Outbreak Analytics), Kok Ben Toh (CDC Center for Forecasting and Outbreak Analytics), Thomas Hladish (CDC Center for Forecasting and Outbreak Analytics)
- LEMMA (Part of the ACCIDDA center) - EnsembleDTWS
 - Ajitesh Srivastava (University of Southern California)
- MOBS Lab at Northeastern University - GLEAM_FLU
 - Alessandro Vespignani (MOBS Lab, Northeastern University), Matteo Chinazzi (The Roux Institute, Northeastern University), Jessica T. Davis (MOBS Lab, Northeastern University)
- NIH - Flu_TS
 - Amanda Perofsky (Fogarty International Center, National Institutes of Health), Cécile Viboud (Fogarty International Center, National Institutes of Health)
- One Health Trust and Johns Hopkins University - gpop
 - Alexander Tulchinsky (One Health Trust), Eili Klein (One Health Trust & Johns Hopkins School of Medicine)
- Predictive Science Inc - M3
 - Turtle J (Predictive Science), Ben-Nun M (Predictive Science), Riley P (Predictive Science)
- Signature Science - SWIFT
 - Benefield AE (Signature Science, LLC), Nagraj VP (Signature Science, LLC)
- UNC Charlotte - Hierbin
 - Shi Chen (University of North Carolina at Charlotte)
- University of Texas at Austin - ImmunoSEIRS
 - Shraddha Ramdas Bandekar (The University of Texas at Austin), Kaiming Bi (University of Texas Health Science Center School of Public Health), Anass Bouchnita (The University of Texas at El Paso), Spencer J. Fox (Northern Arizona University), Lauren Ancel Meyers (The University of Texas at Austin)
- UVA Biocomplexity Institute - FluXSim
 - Srinivasa Venkatramanan (University of Virginia), Aniruddha Adiga (University of Virginia), Brian Klahn (University of Virginia), Bryan Lewis (University of Virginia), Madhav Marathe (University of Virginia)

The Flu Scenario Modeling Hub Coordination Team

- Shaun Truelove, Johns Hopkins University
- Cécile Viboud, NIH Fogarty
- Justin Lessler, University of North Carolina
- Sara Loo, Johns Hopkins University
- Lucie Contamin, University of Pittsburgh
- Emily Howerton, Penn State University
- Claire Smith, Johns Hopkins University
- Harry Hochheiser, University of Pittsburgh
- Katriiona Shea, Penn State University
- Michael Runge, USGS
- Erica Carcelen, Johns Hopkins University
- Sung-mok Jung, University of North Carolina
- J Espino, University of Pittsburgh
- John Levander, University of Pittsburgh
- Katie Yan, Penn State University