Flu Scenario Modeling Hub Report

Round 1 2025/26 - 2025 to 2026 Season

10 December, 2025, Scenario Modeling Hub Team[1]

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 29,000 weekly admissions (95% PI 7,000-66,000), compared to 54,000 last season. Hospitalization peak timing is not well defined, though expected to occur between the weeks of December 28, 2025 and February 1, 2026.
- In the business-as-usual vaccination scenario, cumulative burden for this season is projected to reach 316,000 (95% PI: 94,000-680,000) hospitalizations and 35,000 (95% PI: 14,000-48,000) deaths.
- Vaccine levels substantially affect hospitalization and death burden:
  - A business-as-usual vaccination campaign is estimated to prevent 39% (95%CI 28-50%) 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 30% (95% CI 21-39%) 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.

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

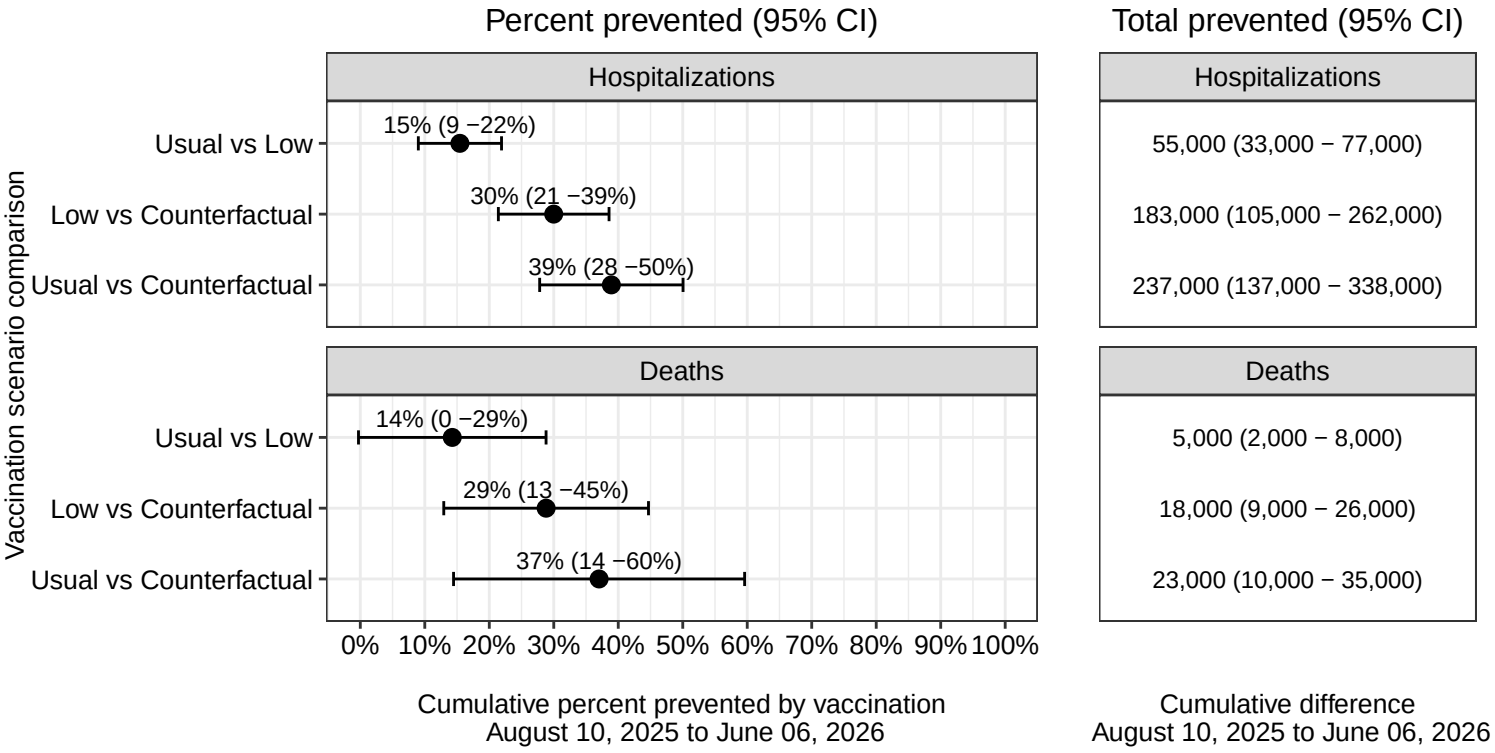
Round 1 2025/26 Specifications

Business as Usual Vaccine Coverage ● 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 ● Vaccine coverage is **35% lower than in the 2023-24** flu season in age groups **under 65 yrs** (x0.65 2023-24 coverage). Overall, the US coverage is about 34% in this scenario.	**Scenario B**
Counterfactual ● No influenza vaccination in any age group	**Scenario C**

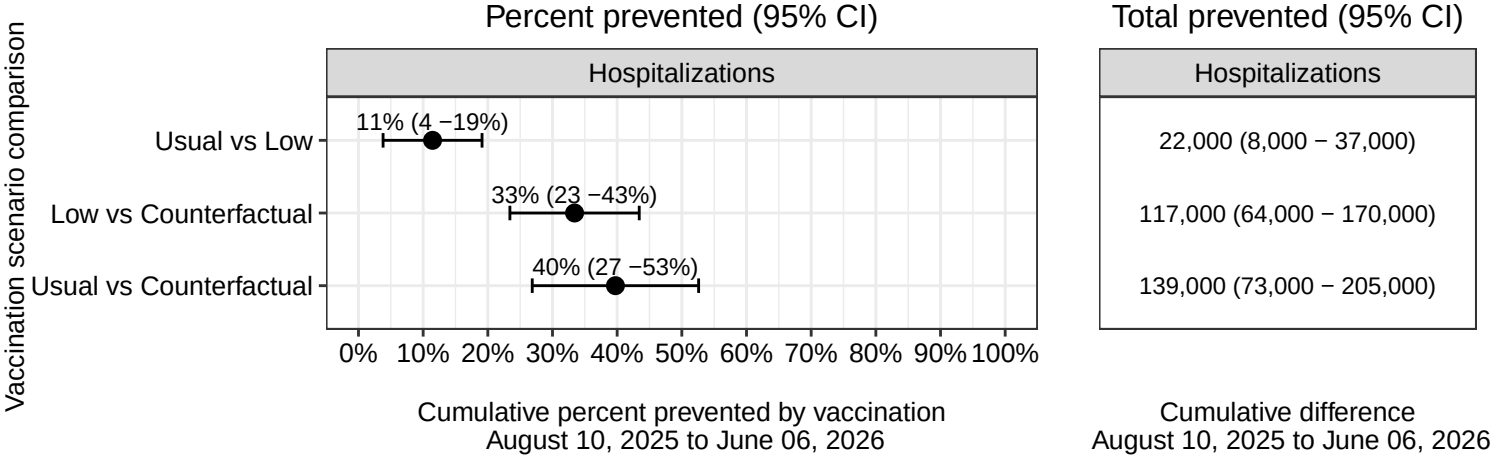
Differences Between Scenarios

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 season would prevent 39% of all-age hospitalizations, 40% of 65+ hospitalizations, and 37% of all-age deaths on average. A reduced coverage would decrease these benefits to 30% averted all-age hospitalizations and 29% averted deaths. A reduced coverage would result in a 12% increase in outcomes on average compared to maintaining coverage at the same level as in 2023-24.

Overall population

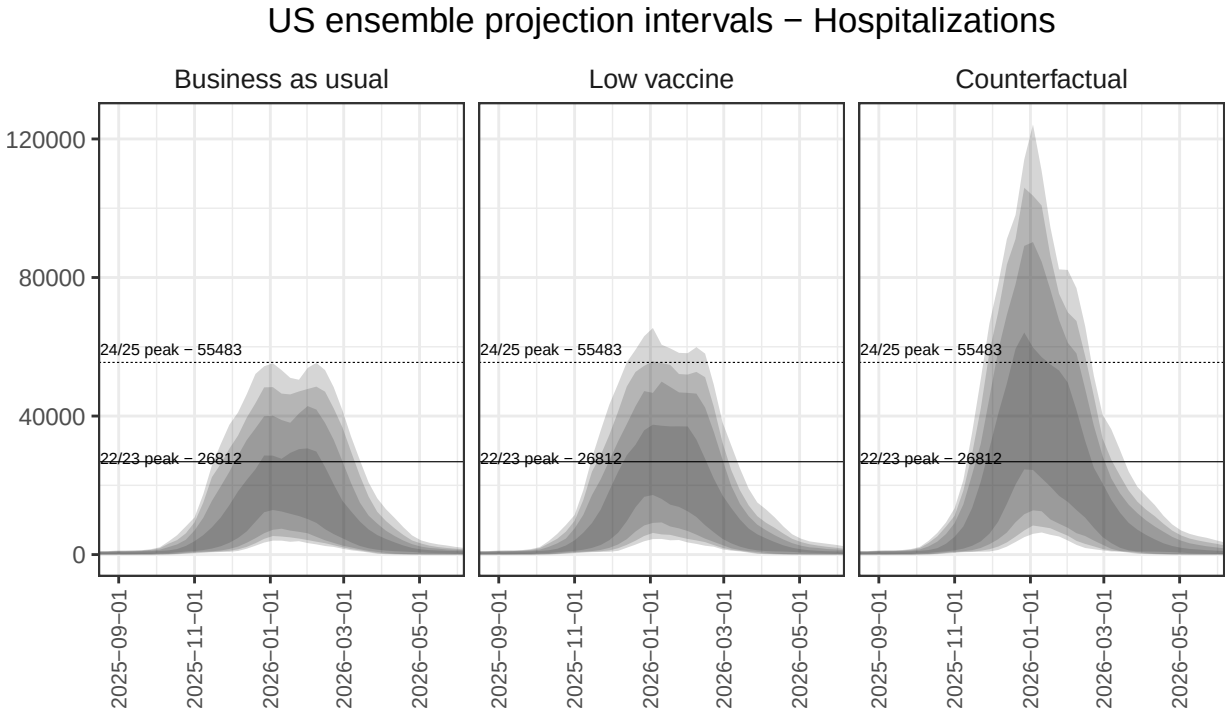


65+ population

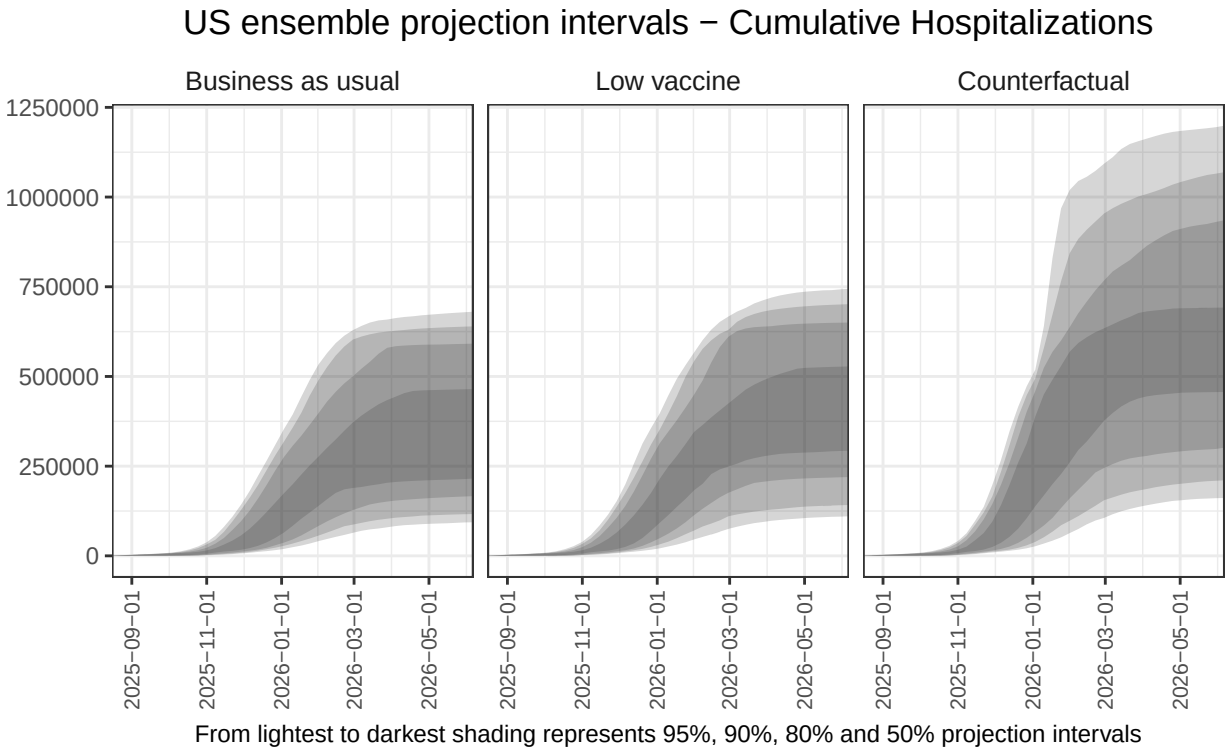


National Ensemble Projections

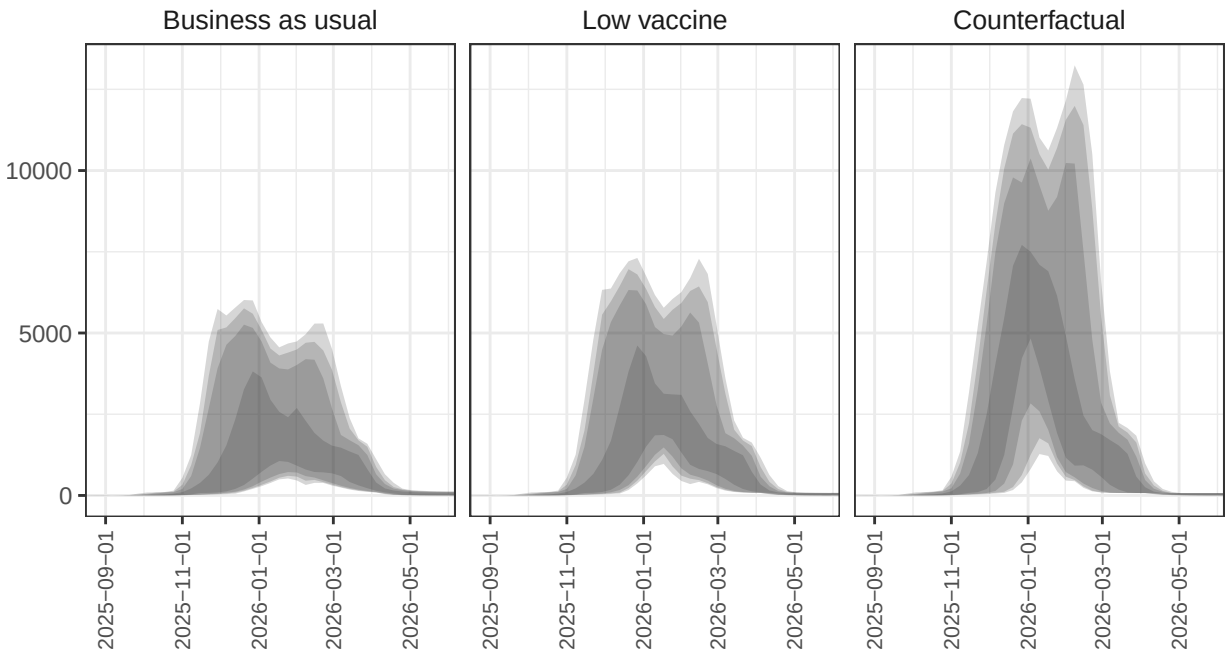
Weekly Incident hospitalizations and death in the national ensemble. Horizontal lines are given for prior peak incident hospitalizations, from past 2024-25 and 2022-23 seasons based on NHSN data.Whether vaccine coverage remains level or decreases in younger individuals, incident hospitalizations are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



If vaccine coverage remains at the same levels as last year, cumulative burden for this season is projected to reach 316,000 (95% PI: 94,000-680,000) hospitalizations and 35,000 (95% PI: 14,000-48,000) deaths.

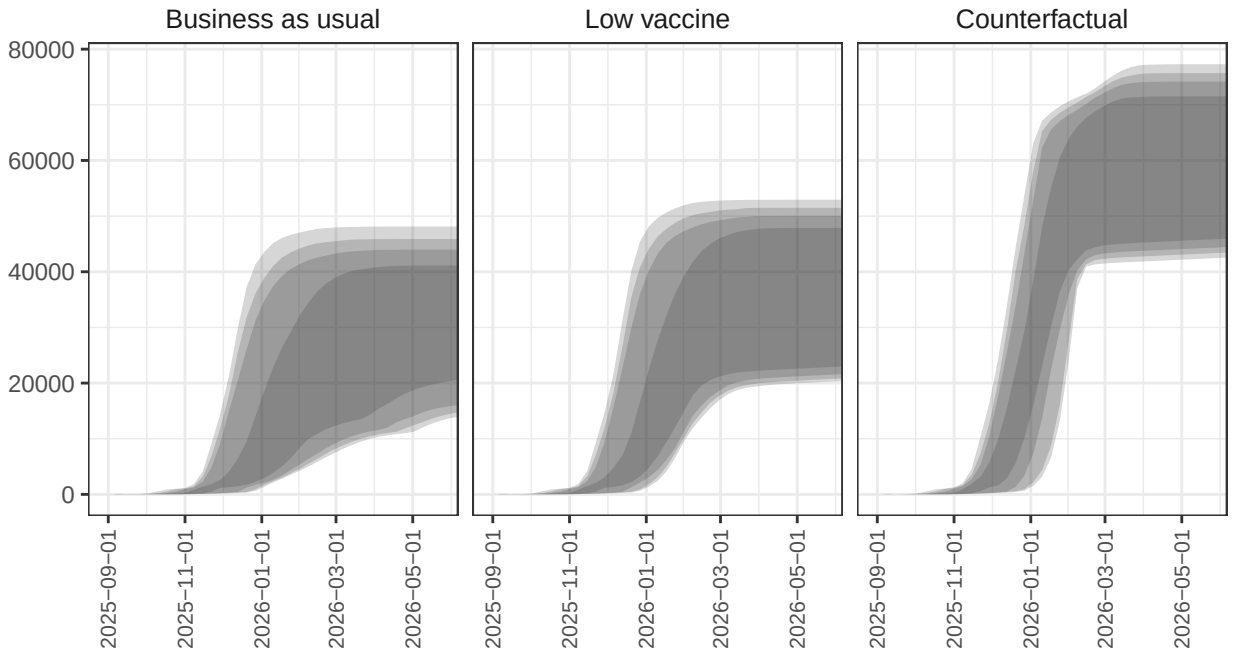


US ensemble projection intervals − Deaths



From lightest to darkest shading represents 95%, 90%, 80% and 50% projection intervals

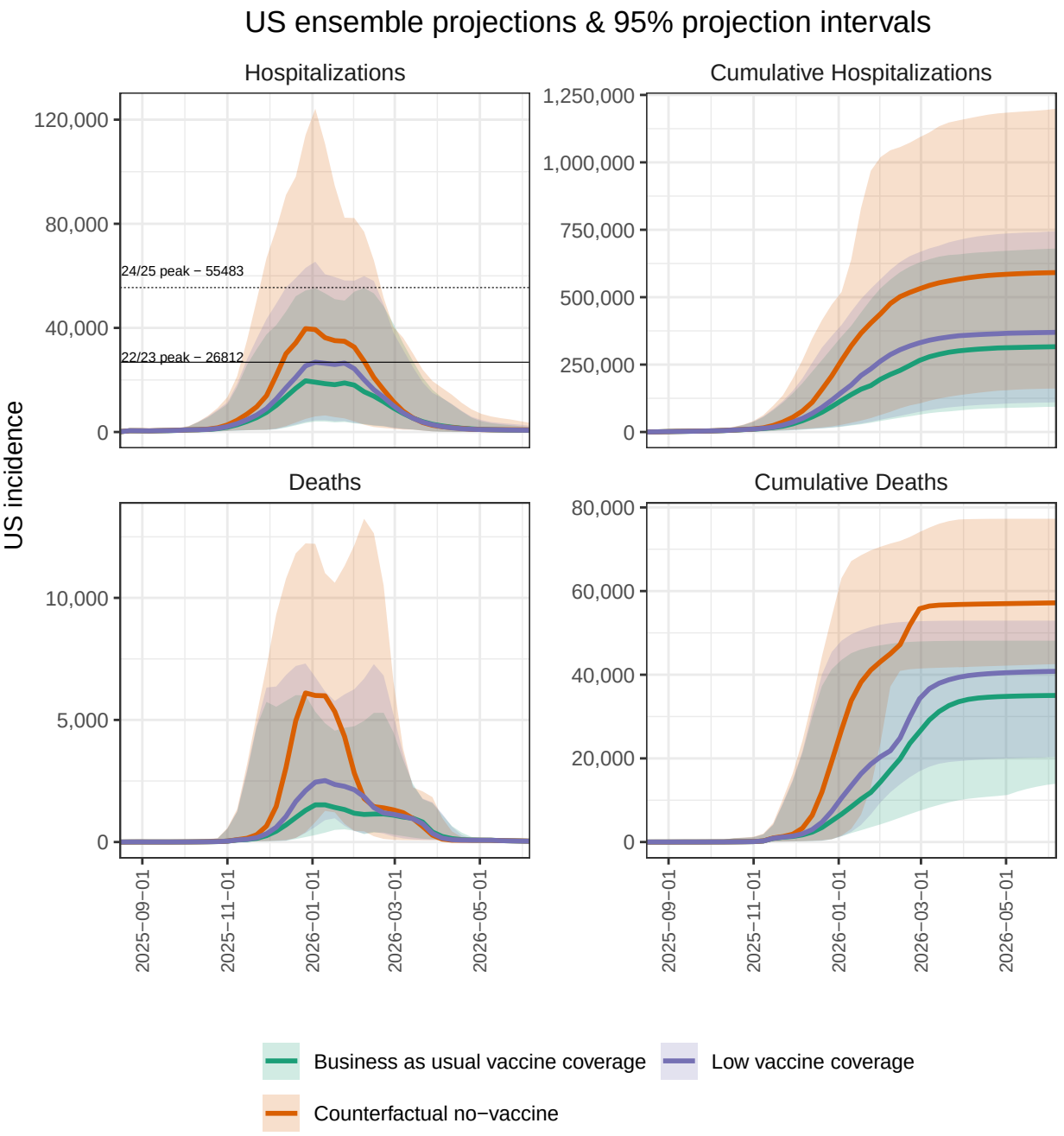
US ensemble projection intervals − Cumulative Deaths



From lightest to darkest shading represents 95%, 90%, 80% and 50% projection intervals

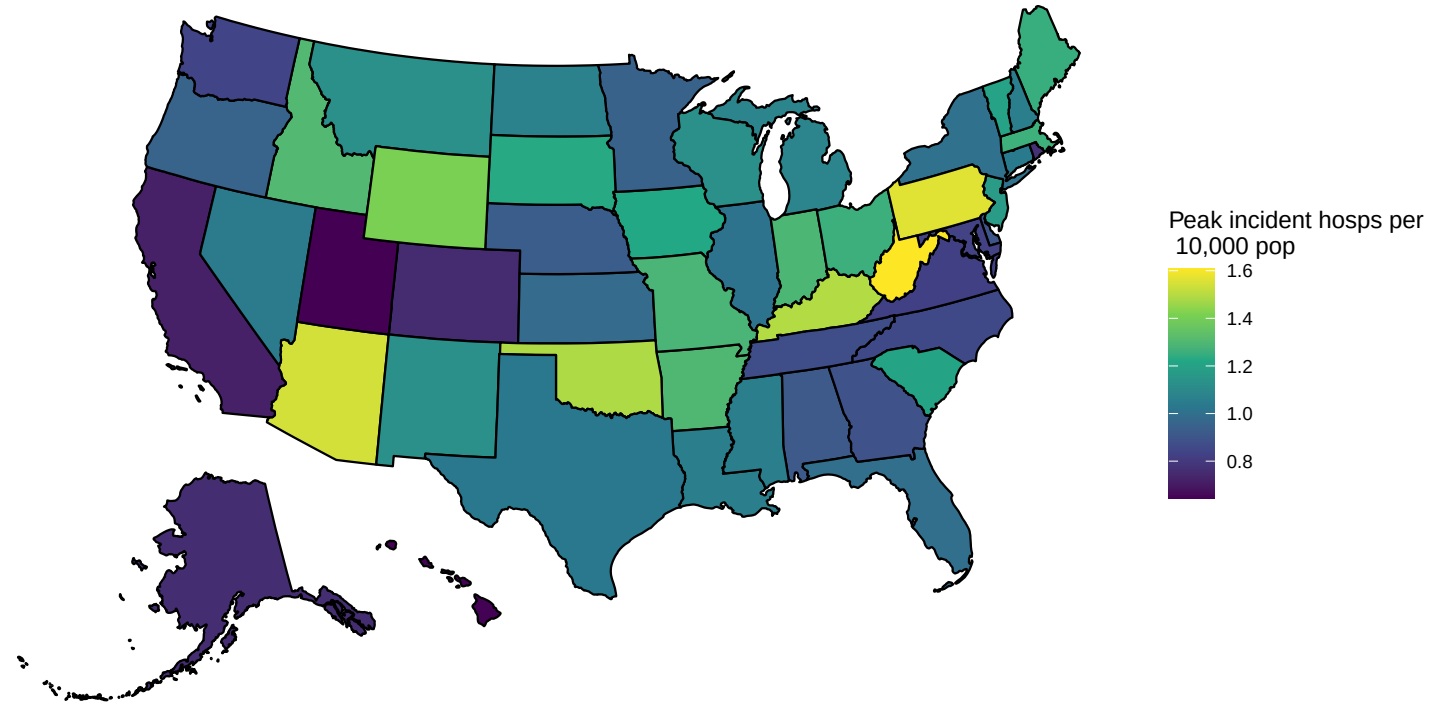
Ensemble Projection Comparisons

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

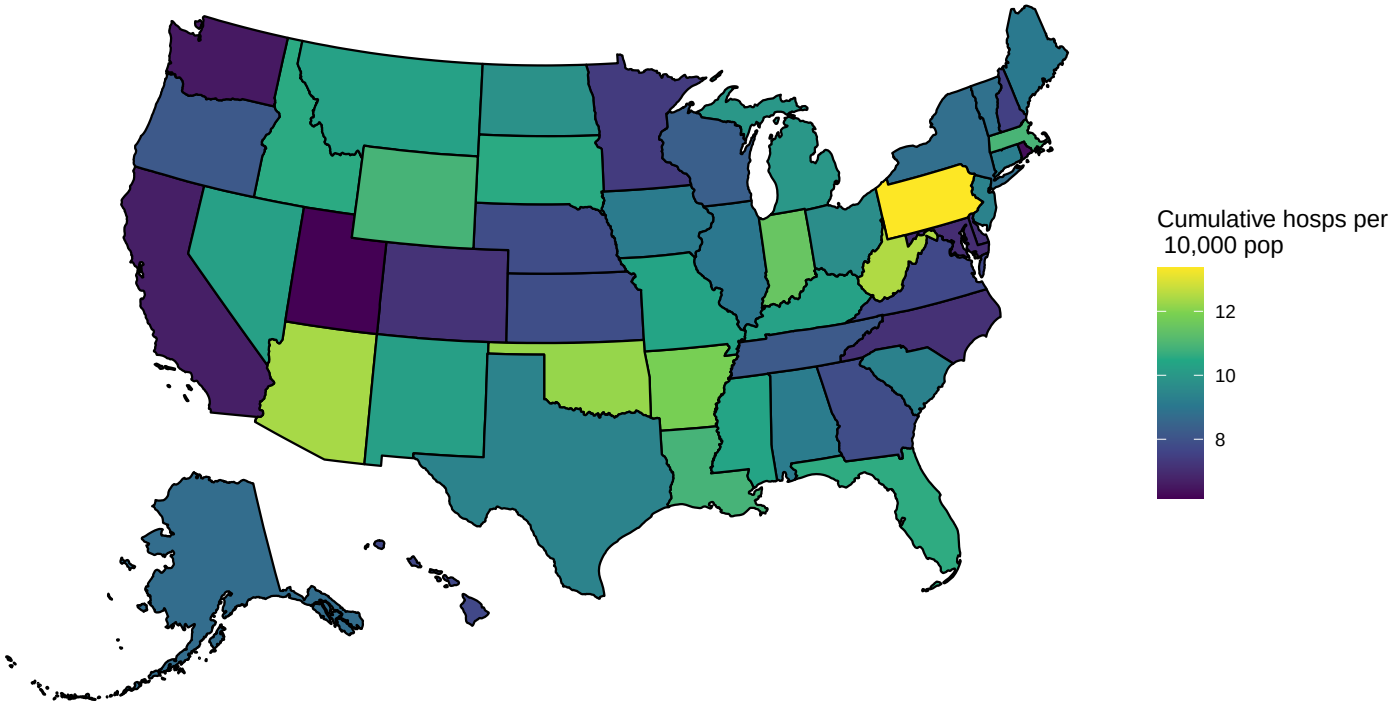


Risk maps

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

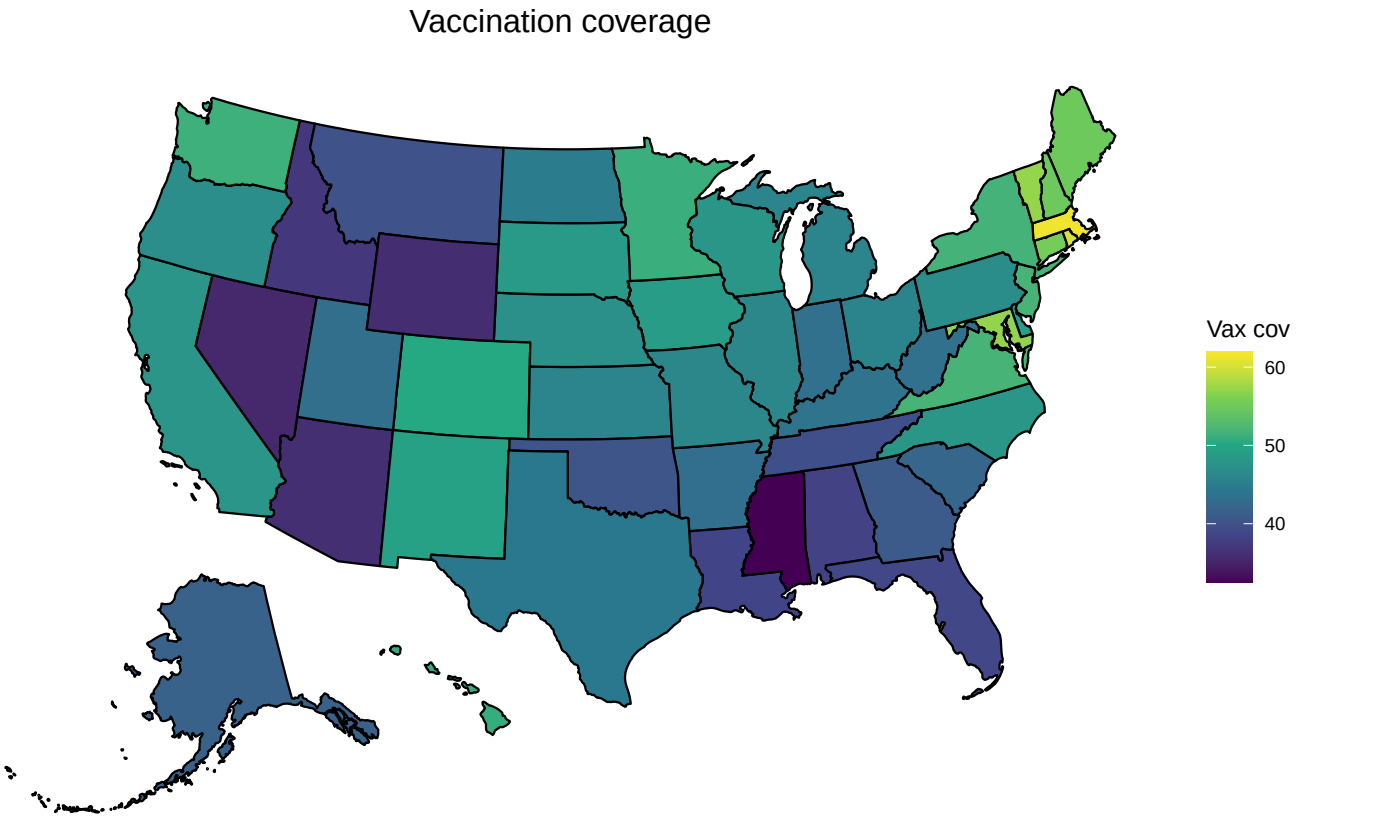


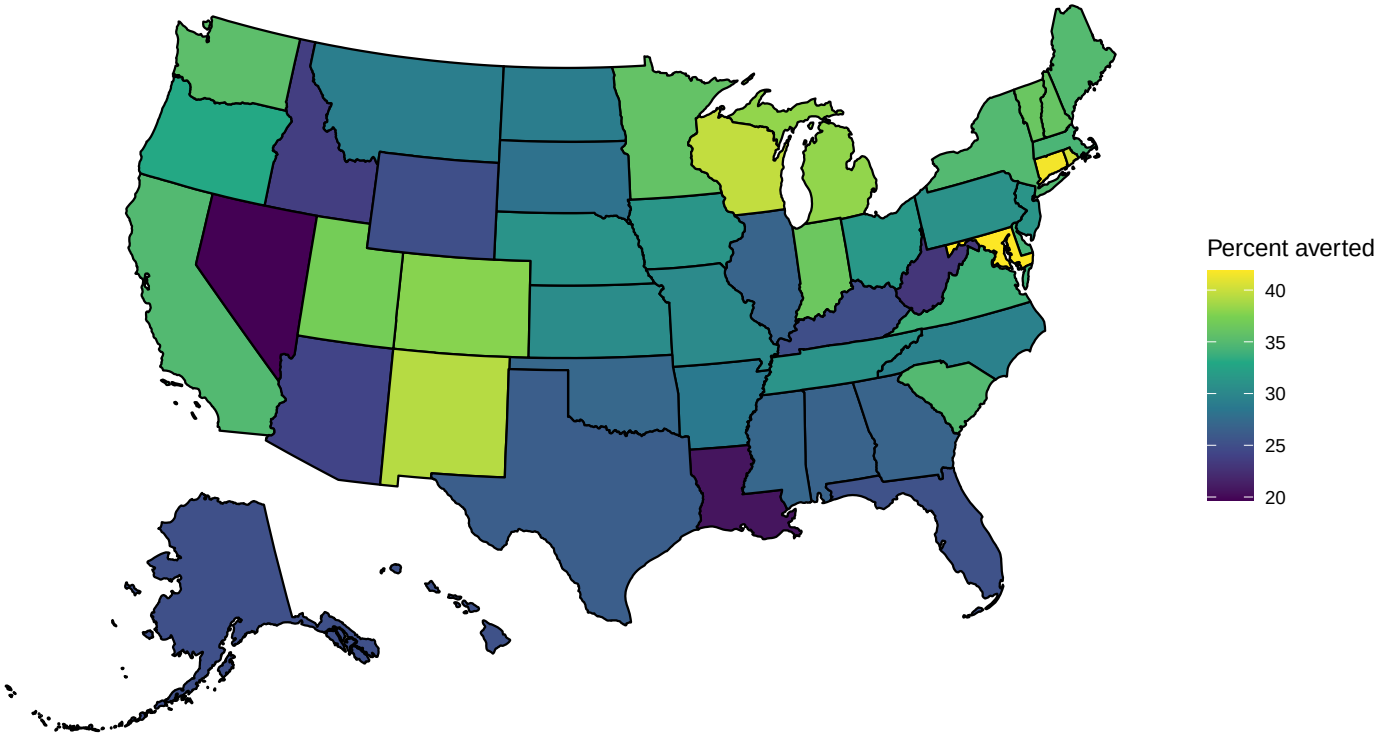
Cumulative reported hospitalizations per 10,000 population in scenario with Business as usual vaccine coverage: August 10, 2025 to June 06, 2026



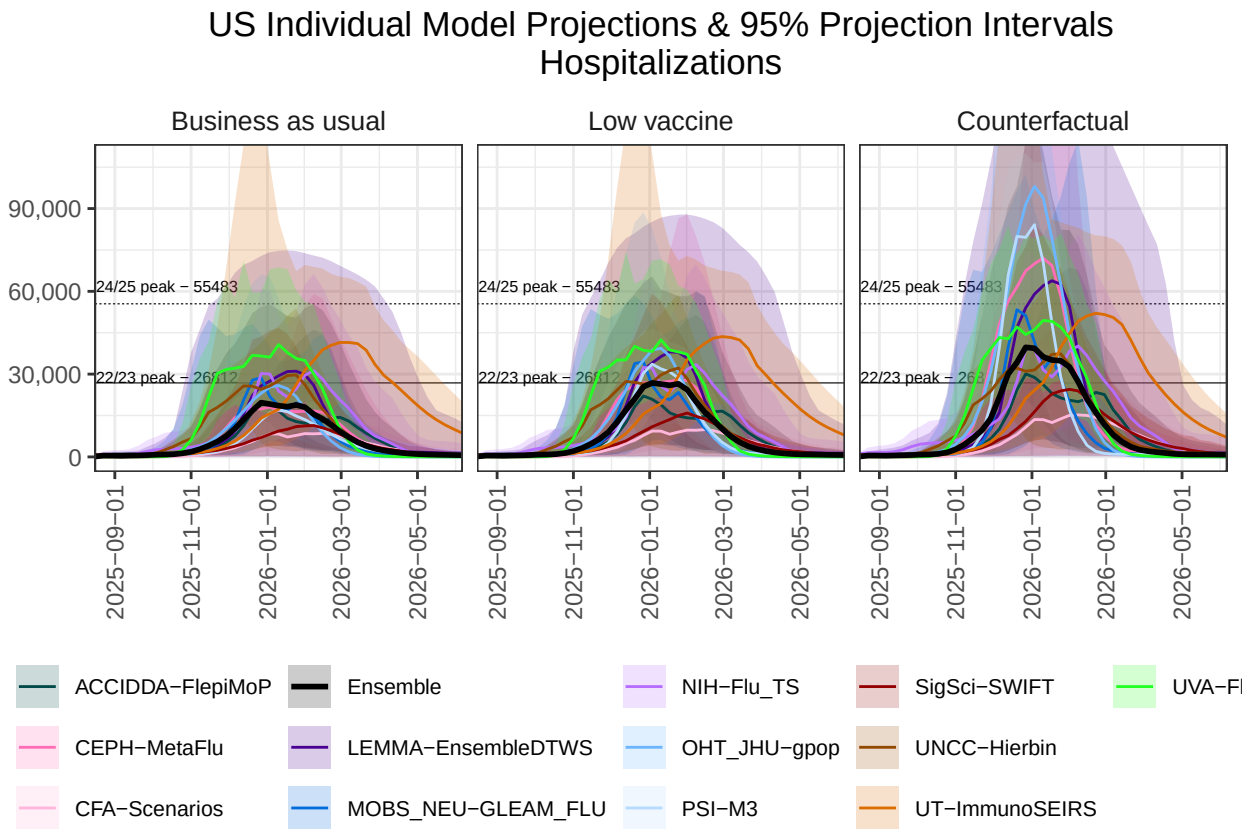
Risk map showing state specific coverage vs state-specific benefits

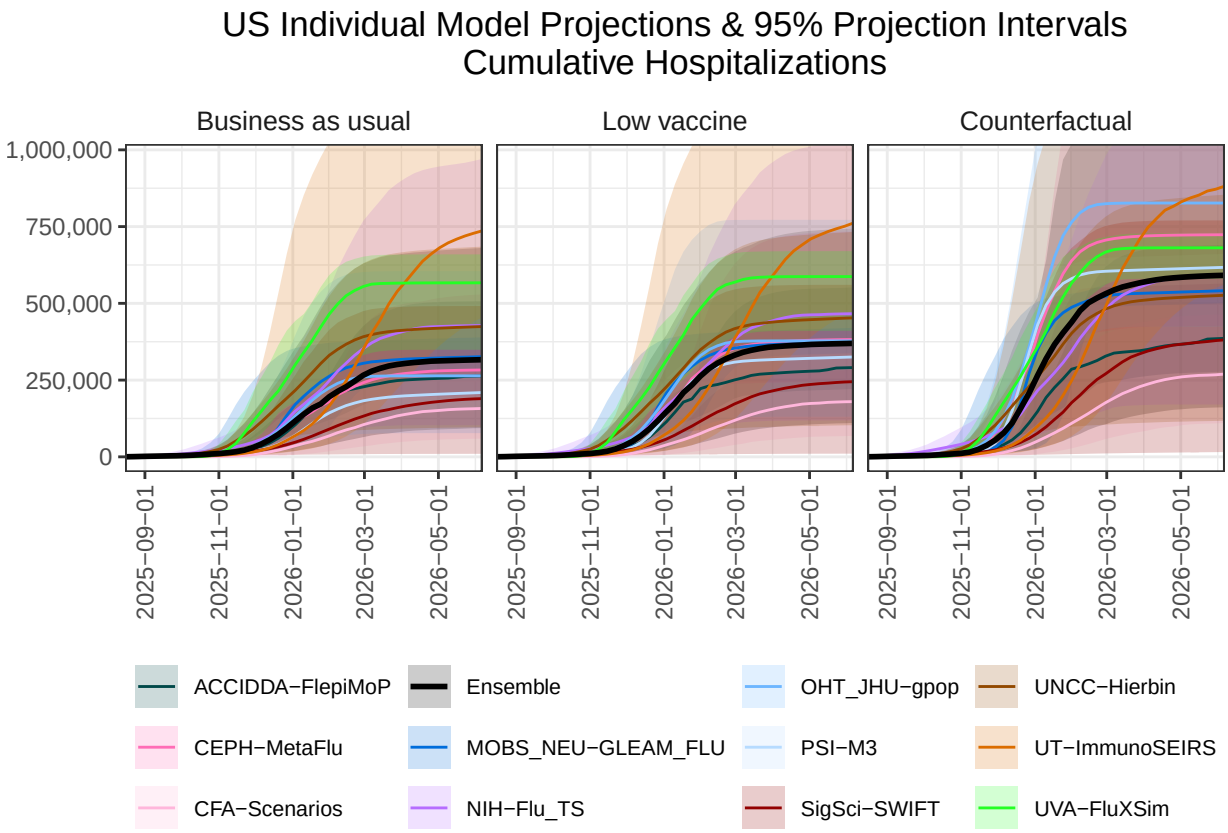
States that have higher vaccine coverage are projected to benefit from greater percent reductions in hospitalizations (correlation coefficient between assumed coverage in optimisitic scenario A (top map) and projected percent averted hospitalizations compared to counterfactual (bottom map) = 0.73, P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

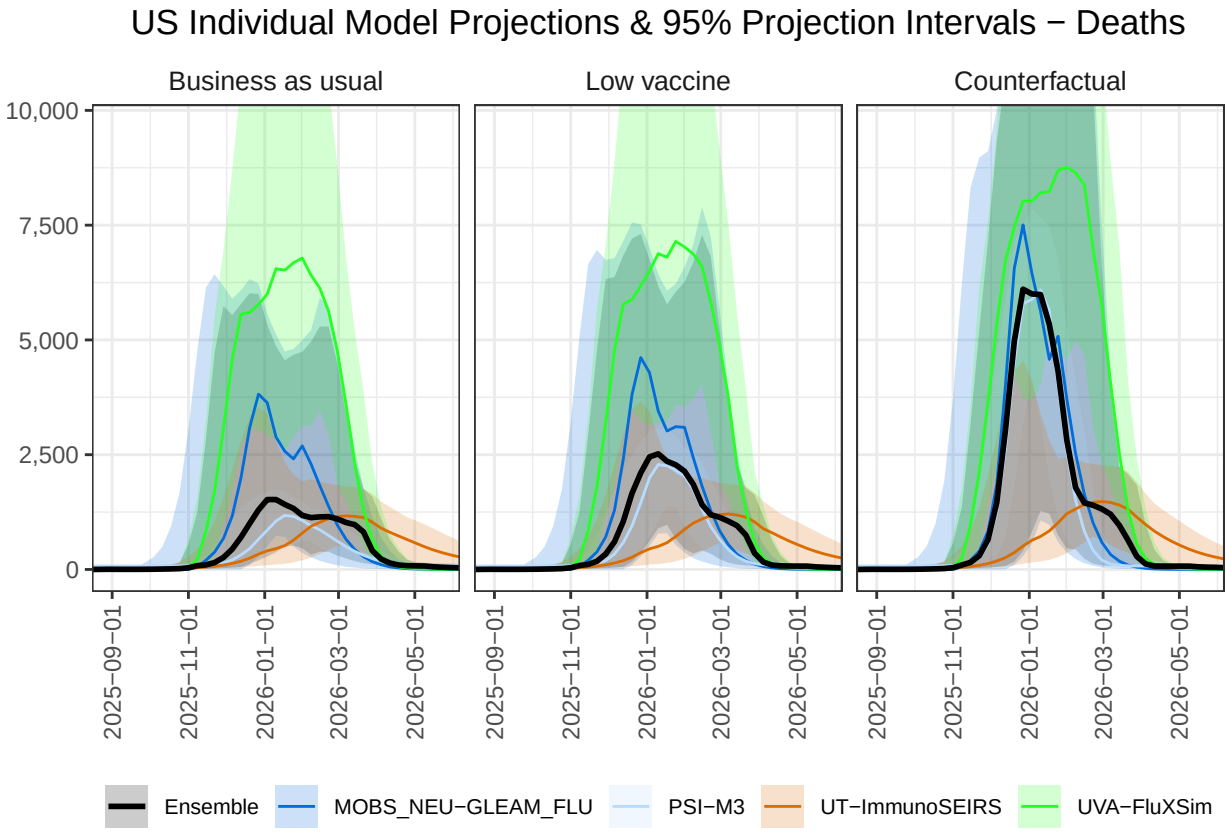


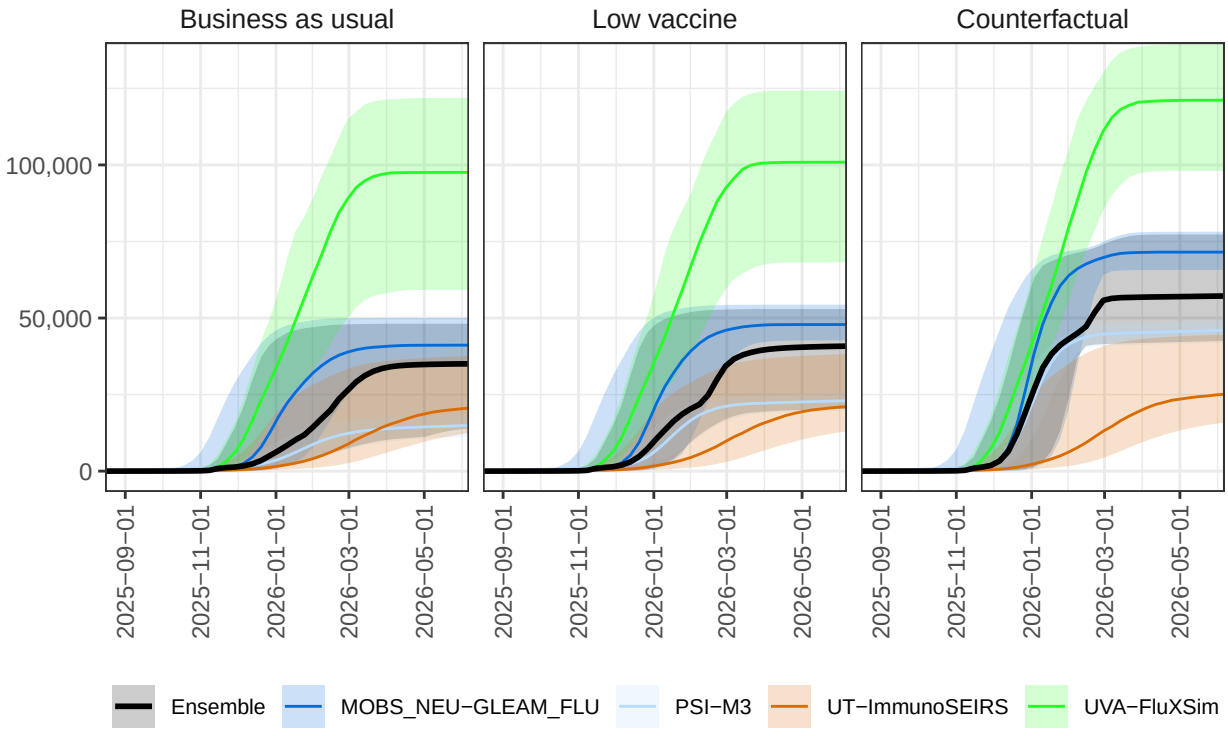


National individual model projections






US Individual Model Projections & 95% Projection Intervals − Deaths
Business as usual
Low vaccine
Counterfactual
10,000
7,500
5,000
2,500
0
2025−09−01
2025−11−01
2026−01−01
2026−03−01
2026−05−01
Ensemble
MOBS_NEU−GLEAM_FLU
PSI−M3
UT−ImmunoSEIRS
UVA−FluXSim


US Individual Model Projections & 95% Projection Intervals
Cumulative Deaths
Business as usual
Low vaccine
Counterfactual
100,000
50,000
0
2025−09−01
2025−11−01
2026−01−01
2026−03−01
2026−05−01
Ensemble
MOBS_NEU−GLEAM_FLU
PSI−M3
UT−ImmunoSEIRS
UVA−FluXSim

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- 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
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