

COVID-19 Scenario Modeling Hub Report

21 September, 2021

Scenario Modeling Hub Team¹

Executive Summary

This report presents the results of the ninth round of projections from the COVID-19 Scenario Modeling Hub. A consortium of nine modeling groups convened to generate week ahead projections of COVID-19 cases, deaths, and hospitalizations for a period of six months (weeks ending 2021-09-17 to 2022-03-12), given four scenarios of childhood vaccination and the emergence of a new variant. A full list of contributors is included at the end of the report. See the table on the next page for an overview of the scenarios included in this round. Detailed scenario descriptions and setting assumptions are provided [here](#).

Key Takeaways from the Ninth Round

Impact of Childhood Vaccination

- Absent a new more transmissible variant, childhood vaccination of 5-11 year-olds (assumed to begin November 1) is projected to reduce cumulative cases between November 1, 2021 and March 12, 2022 by about 9% (about 400K cases).
- In scenarios where a variant that is 50% more transmissible than Delta arises in mid-November 2021, childhood vaccination reduces cases by about 13% (nearly 1.2M cases) over the same period.
- The uncertainty in the course of the pandemic over this period arising from other sources is greater than the projected impact of childhood vaccination.

Overall course of the epidemic

- Nationally, cases and hospitalizations are projected to decrease over the coming months, though the ensemble assigns some chance to further increases through October. Deaths are projected to stabilize and then decrease.
- These decreases are not uniform across states, and many states are projected to see level or increasing epidemics in the coming weeks before seeing declines.
- The ensemble projects that cases should reach levels seen in the summer nadir (~July 1, 2021) in March 2022 absent a new variant.
- A 50% more transmissible variant introduced in mid-December would lead to national resurgences starting in early 2022.

Differences between models

- There is broad agreement over the models that case decline should occur nationally over the coming months, though some models predict further moderate rises in cases before that occurs.
- The timing and extent of the variant rebound varies between teams.
- Overall there is qualitative agreement between models at the national level but more deviations (and variability in calibration) at the state level. While projections largely agree on trends and ranking of scenarios, substantial quantitative uncertainty remains.

¹Compiled by Justin Lessler, Rebecca Borcherding, Emily Howerton, and Claire Smith.

Round 9 Scenario Specifications

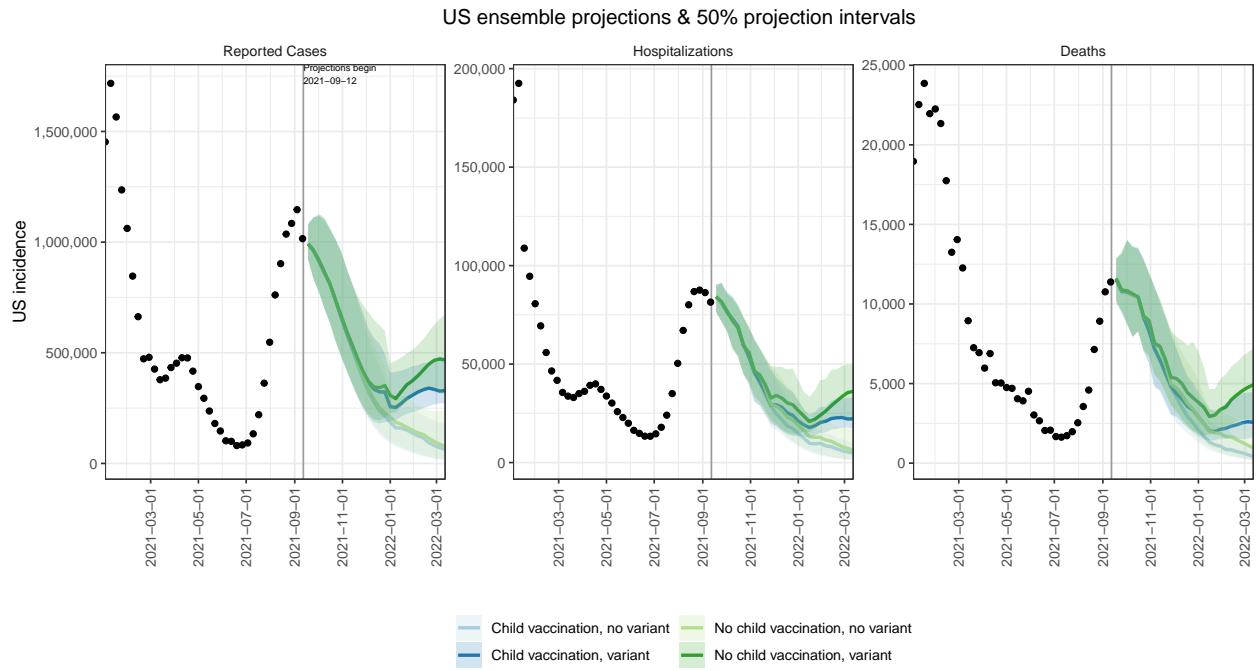
We consider a 2x2 scenario design, where childhood vaccination (5-11 years) is on the first axis, and a change in virus transmissibility is on the second axis. The second axis reflects a stress test, illustrating the potential impact of a new variant arising during the projection period:

	The same mix of variants circulate throughout the projection period. No change in virus transmissibility.	A more transmissible variant emerges, comprising 1% of circulating viruses on Nov 15 . The new variant is 1.5X as transmissible as viruses circulating at the beginning of the projection period.
Vaccination among 5-11yrs is approved and immunization begins on Nov 1. Each state's uptake rate reflects the percent coverage increases observed for 12-17-year-olds since distribution began on May 13.	A	C
No vaccination for children under 12	B	D

Figure 1: Round 9 Scenario Specifications

National ensemble projections

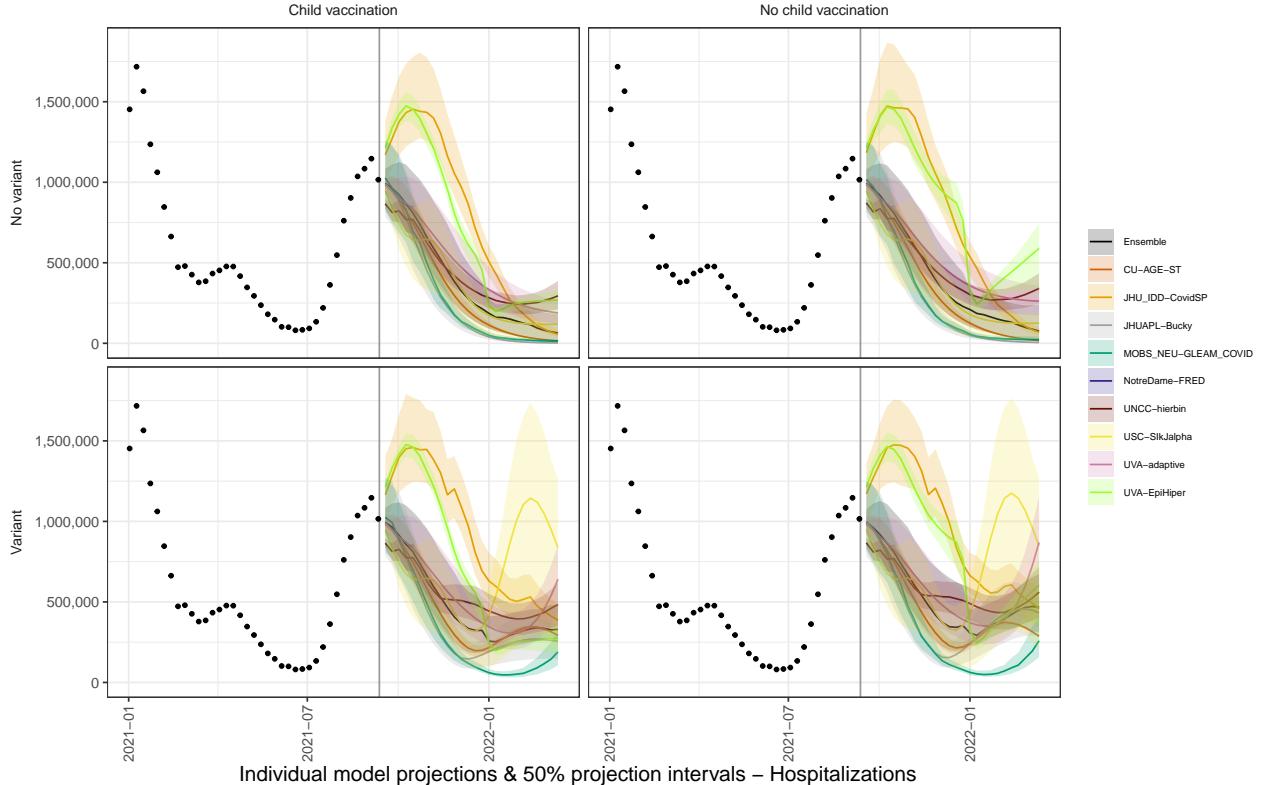
Ensemble projections for national cases, hospitalizations and deaths separated by scenario.



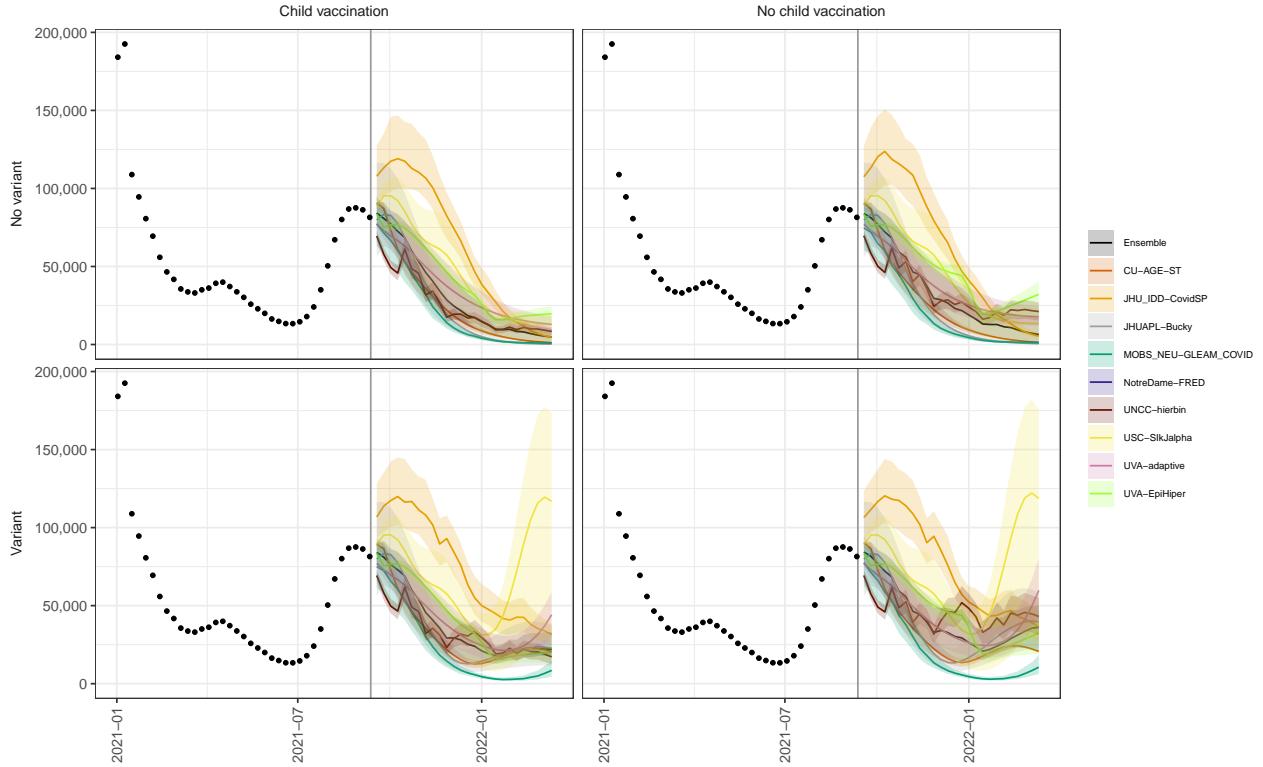
National individual model projections

Individual model projections and ensemble by scenario for national cases, hospitalizations, and deaths.

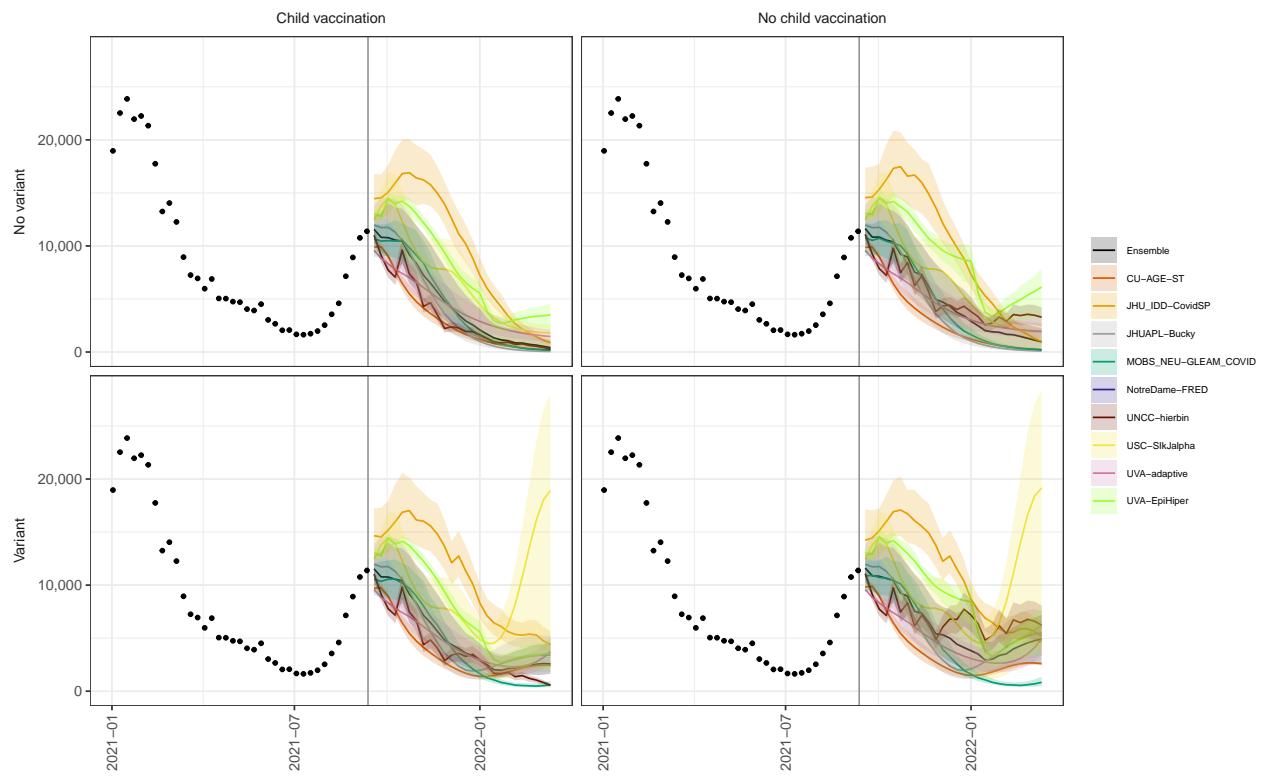
Individual model projections & 50% projection intervals – Reported Cases



Individual model projections & 50% projection intervals – Hospitalizations

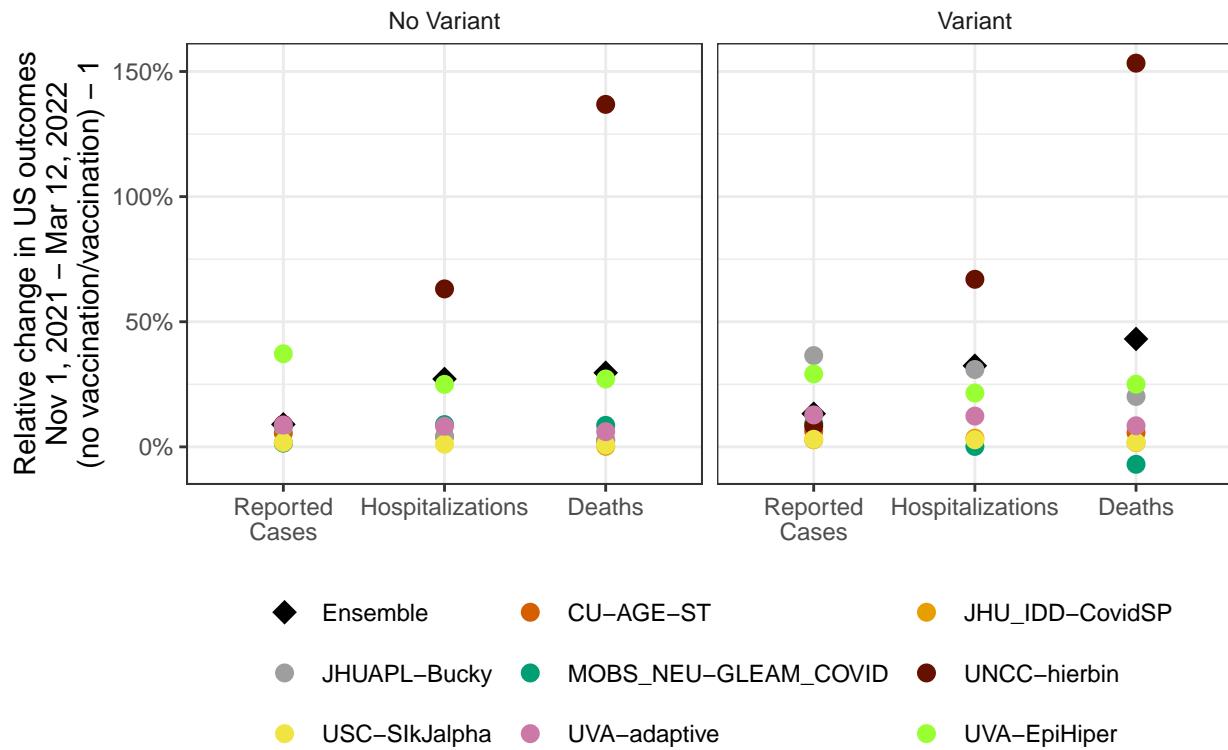


Individual model projections & 50% projection intervals – Deaths



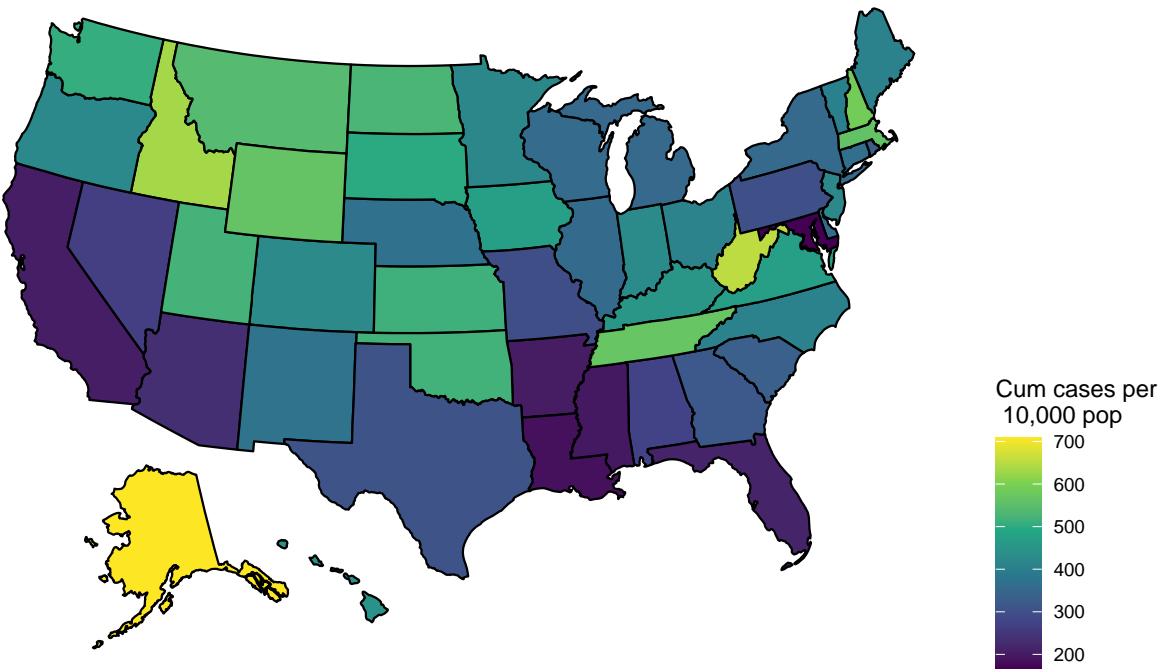
Scenario comparison

US reported cases, hospitalizations, and deaths averted in the childhood vaccination scenarios for each variant assumption from November 1, 2021 until the end of the projection period.

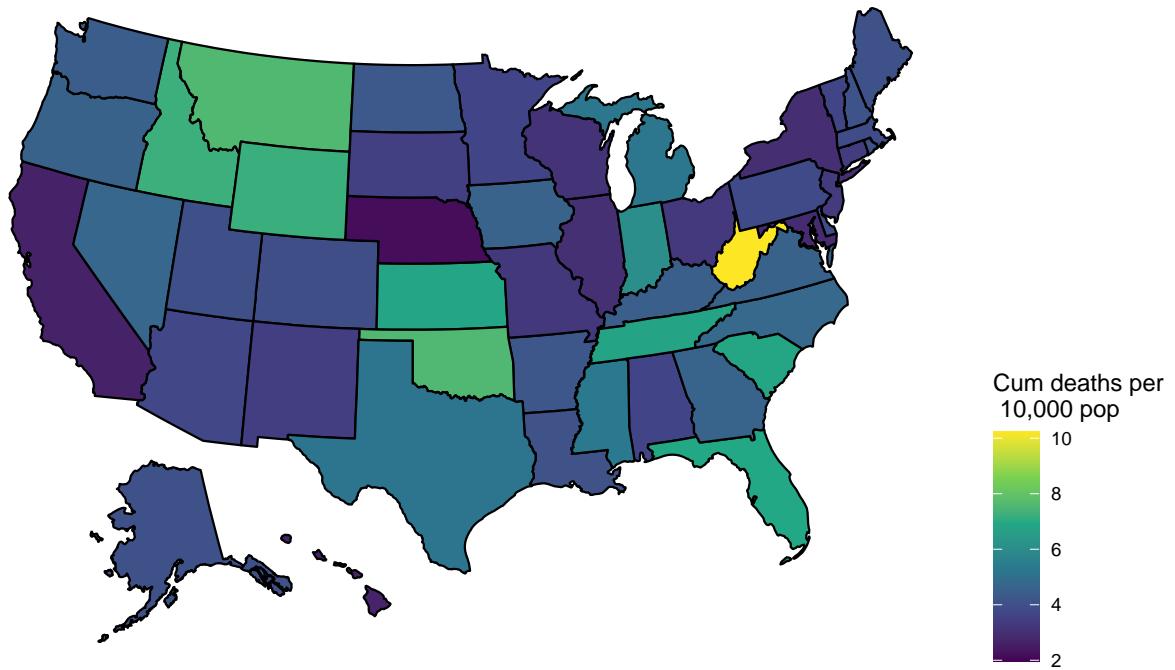


Risk maps

Cumulative reported cases per 10,000 population in scenario with no childhood vaccination,
and emergence of more transmissible variant: September 12, 2021 to March 12, 2022

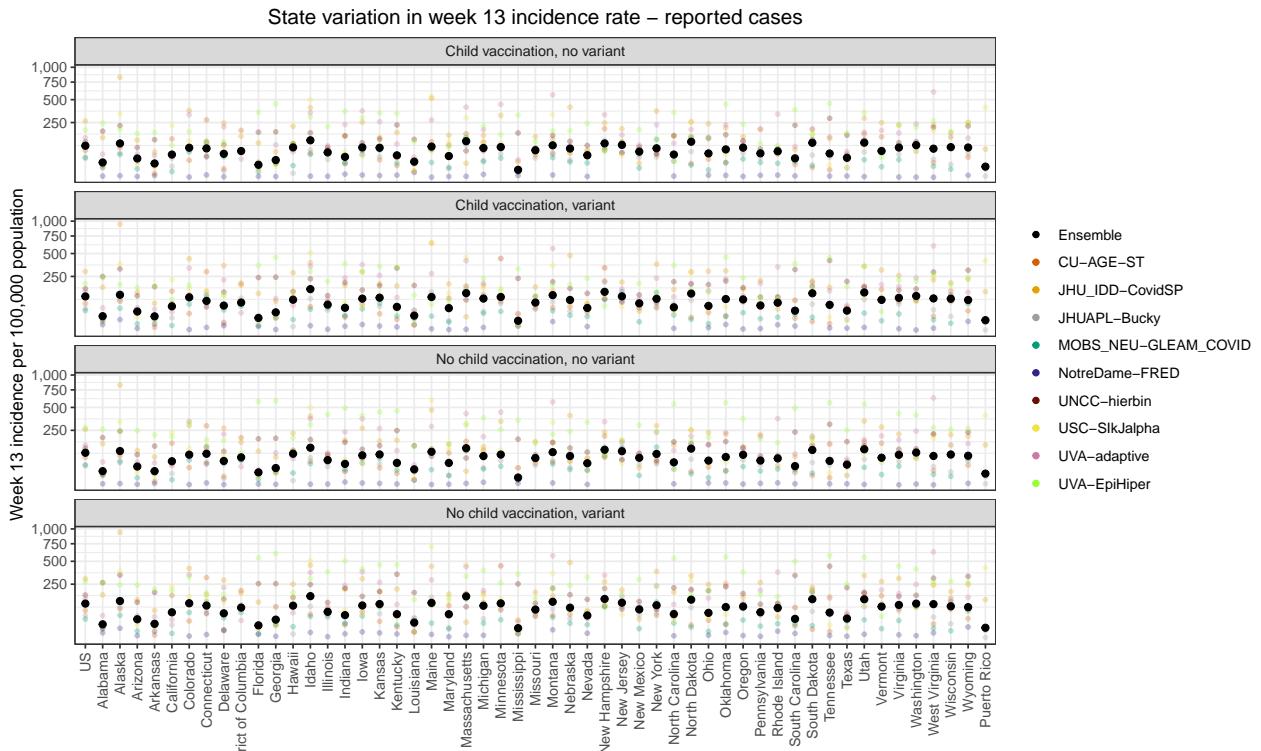


Cumulative deaths per 10,000 population in scenario with no childhood vaccination,
and emergence of more transmissible variant: September 12, 2021 to March 12, 2022



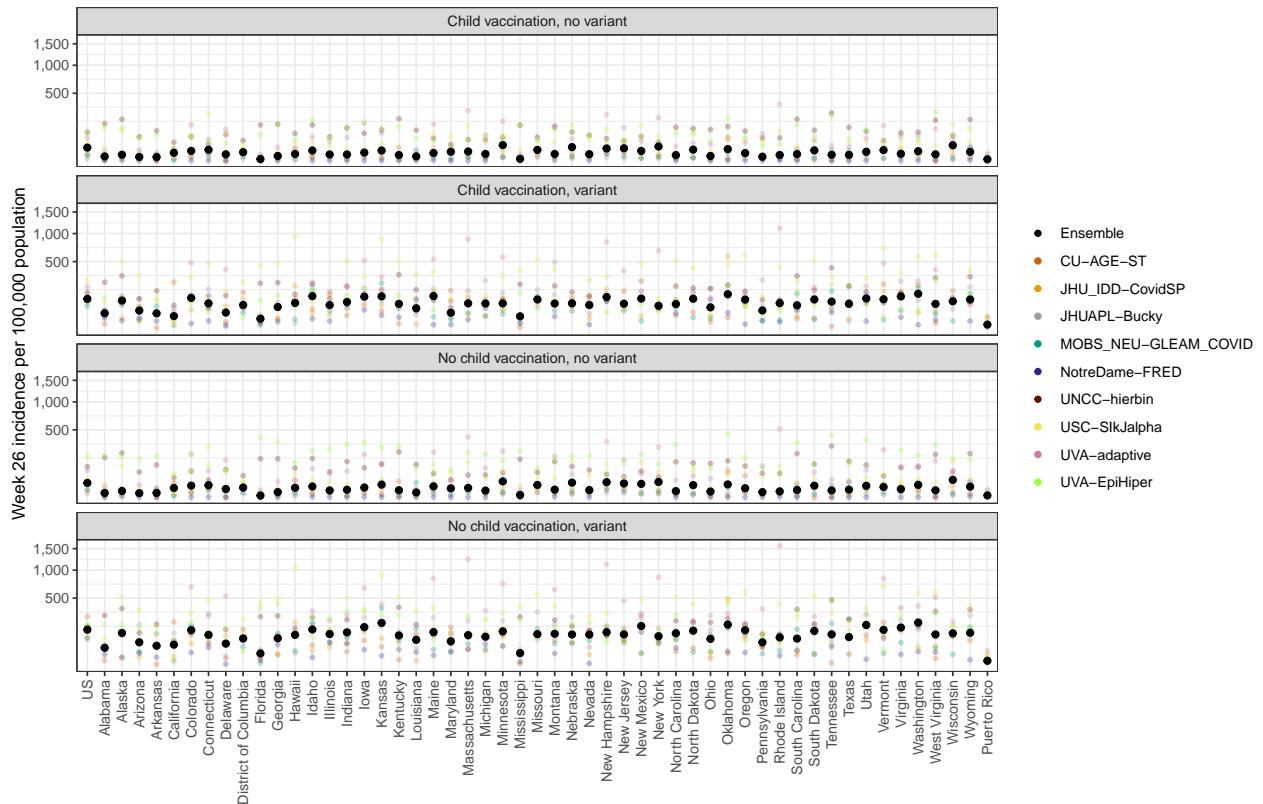
State-level deviation from national

Individual model and ensembles projections for state-level case incidence per 100,000 population at week 13.



Individual model and ensembles projections for state-level incidence per 100,000 population at week 26.

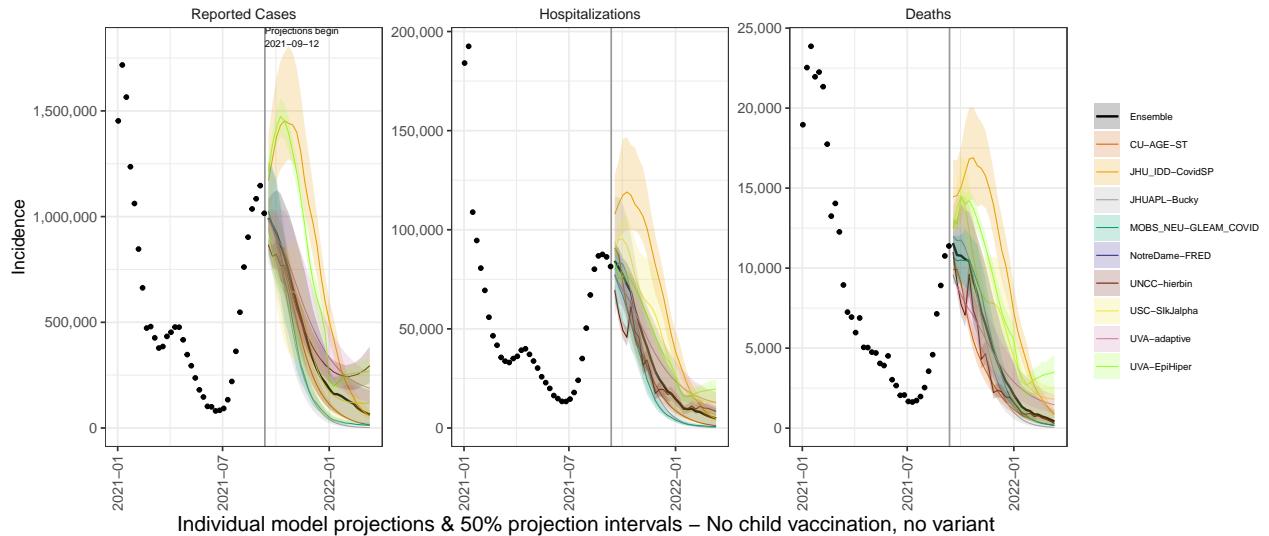
State variation in week 26 incidence rate – reported cases



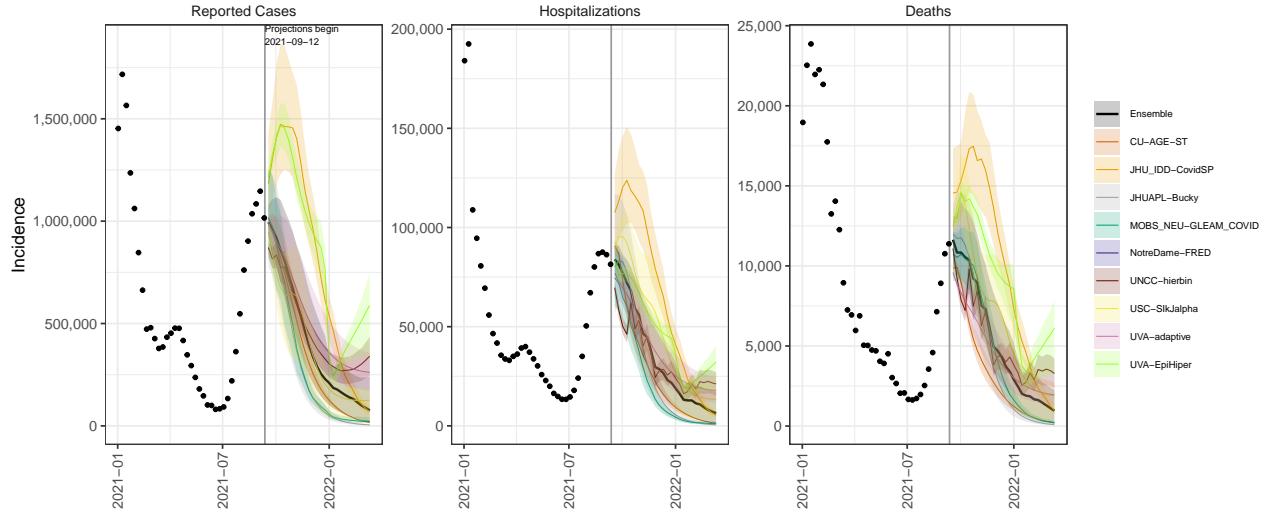
National model variation

Individual model projections for national incident cases, hospitalizations and deaths.

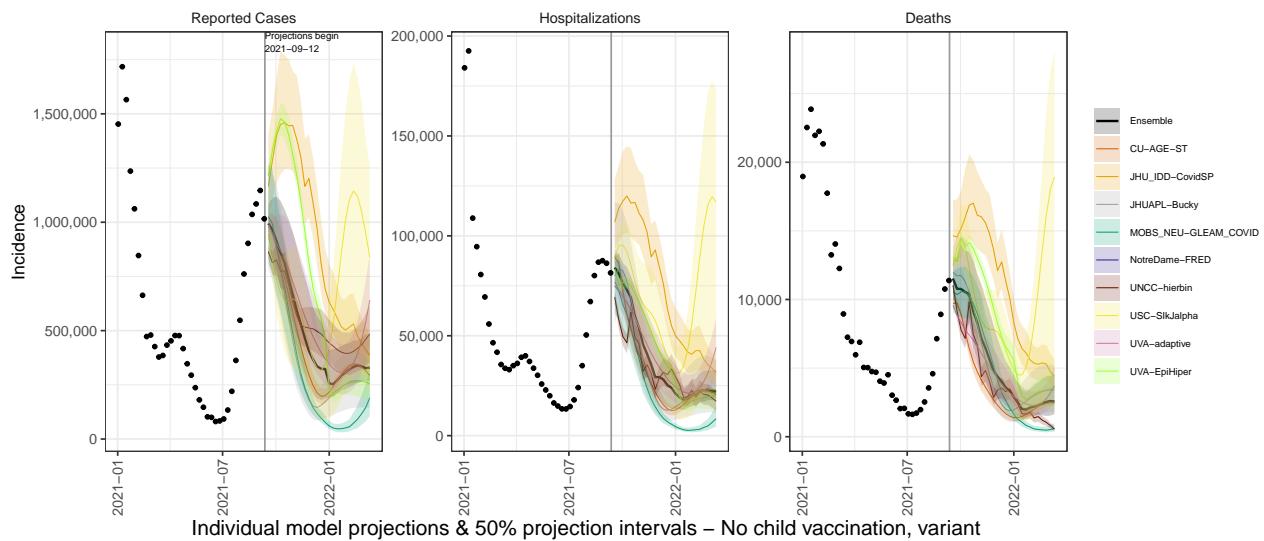
Individual model projections & 50% projection intervals – Child vaccination, no variant



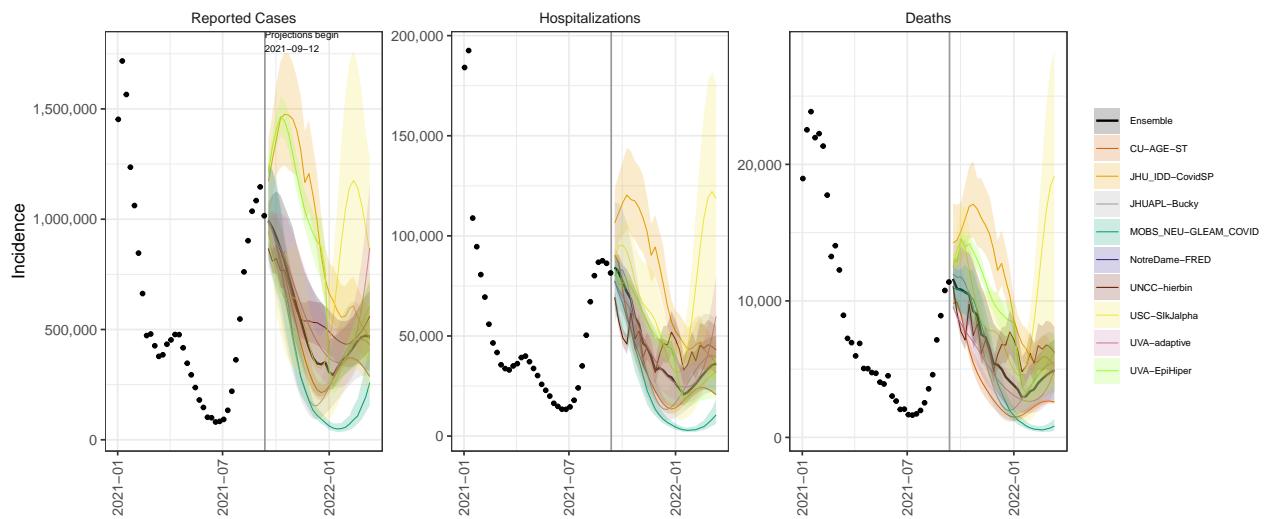
Individual model projections & 50% projection intervals – No child vaccination, no variant



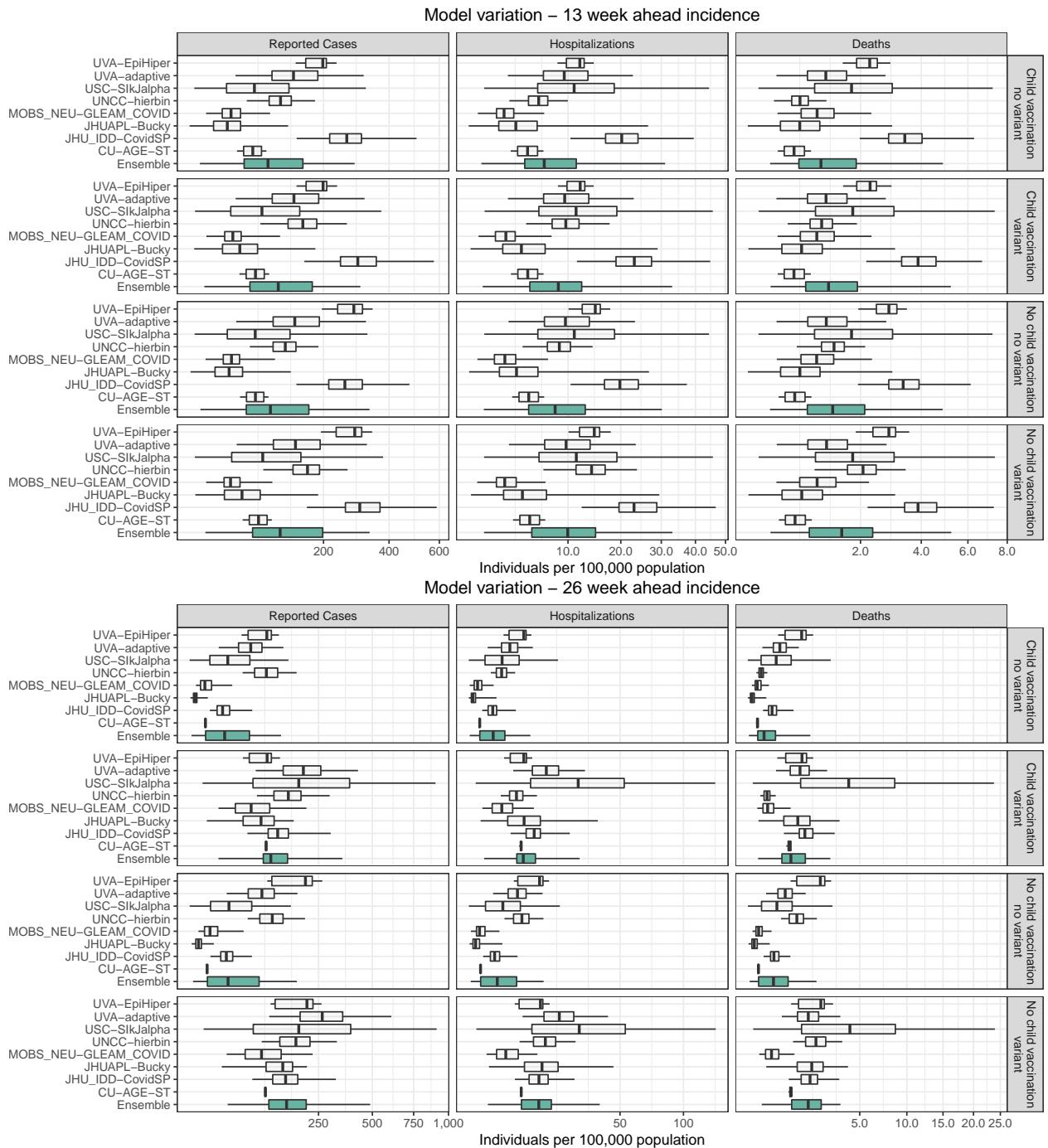
Individual model projections & 50% projection intervals – Child vaccination, variant



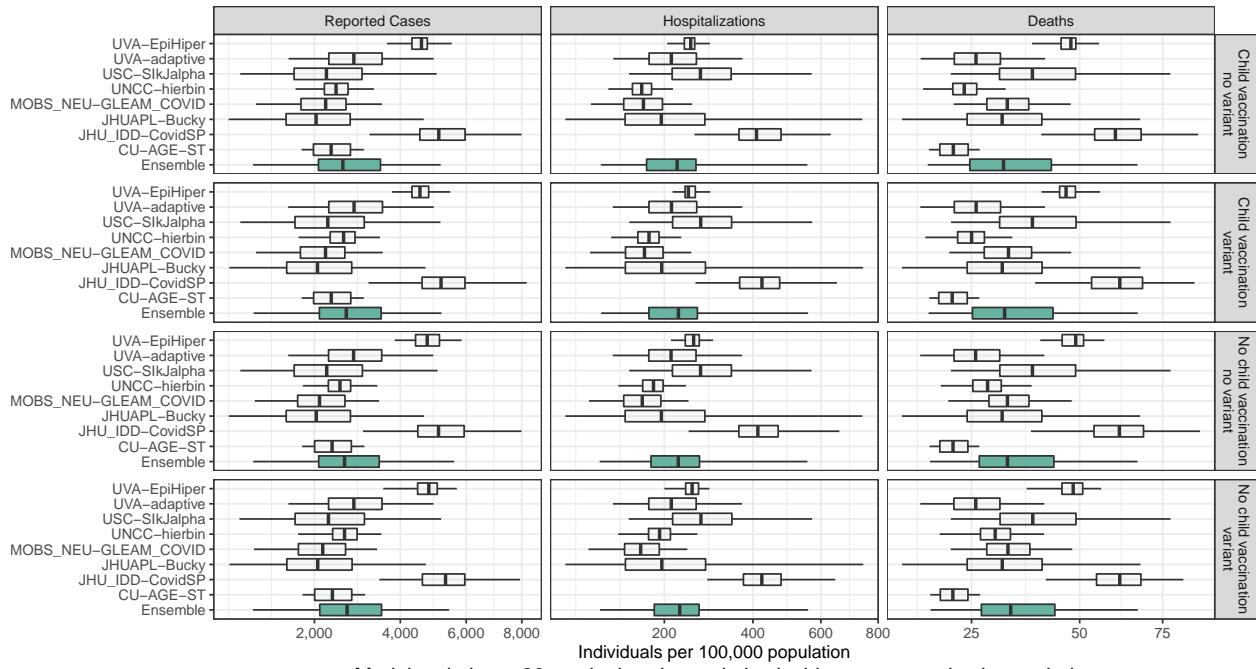
Individual model projections & 50% projection intervals – No child vaccination, variant



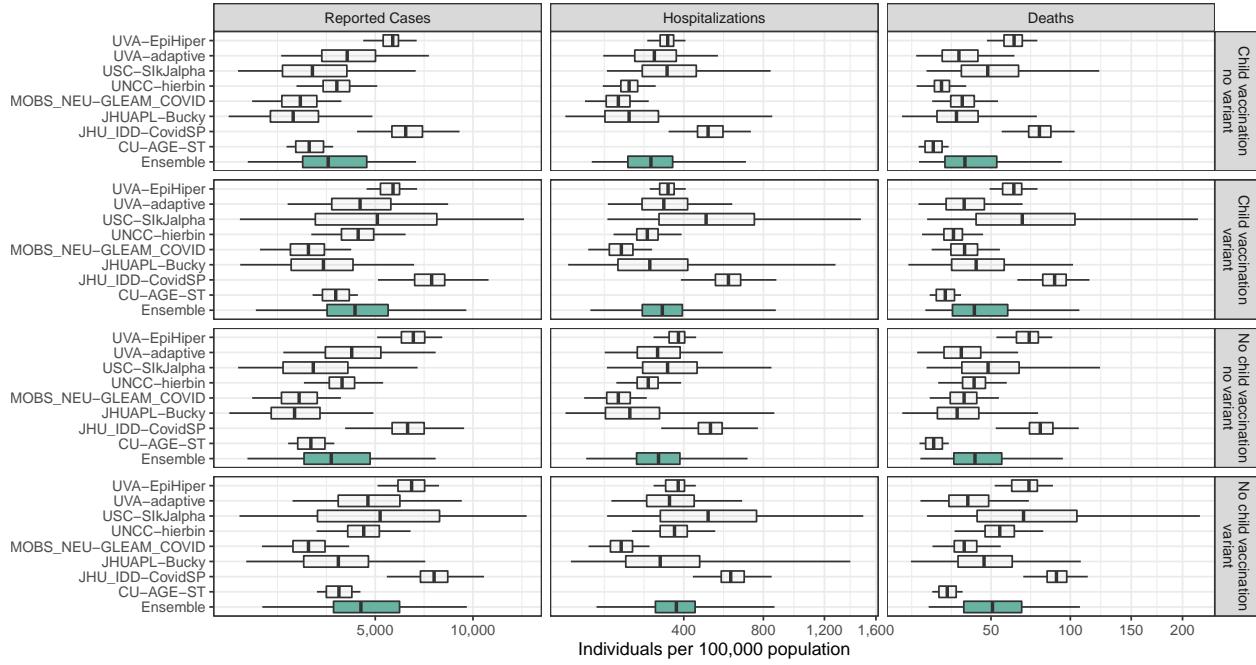
Projection distributions



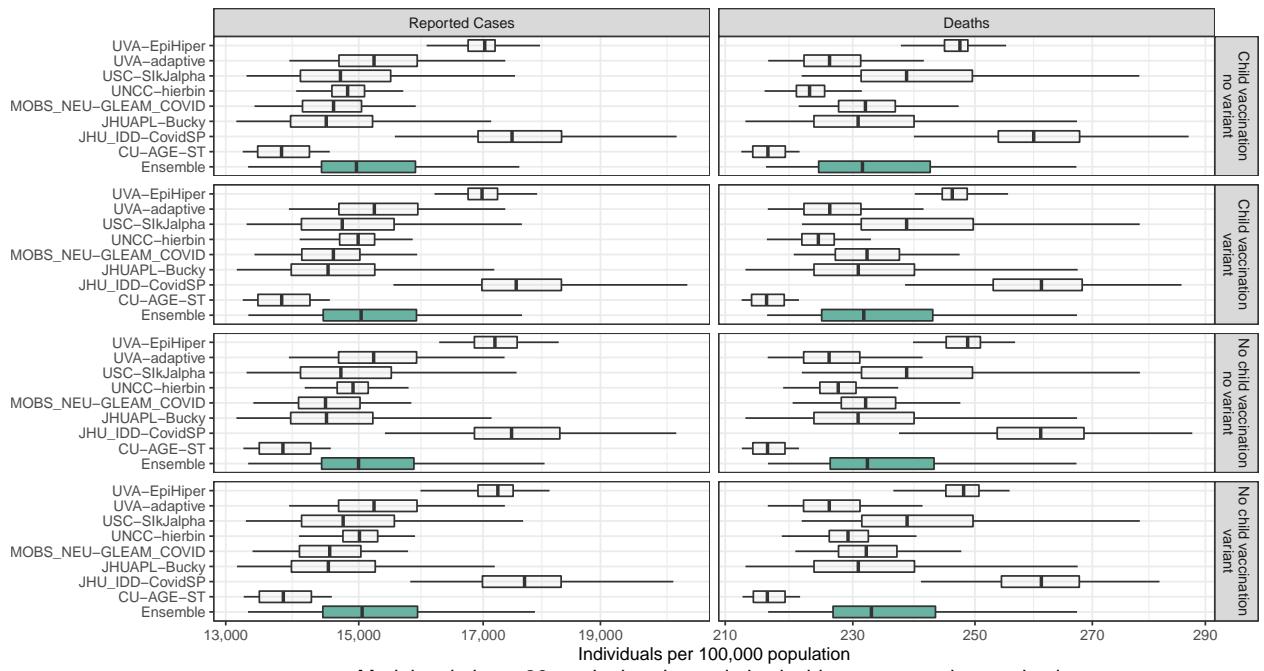
Model variation – 13 week ahead cumulative incidence over projection period



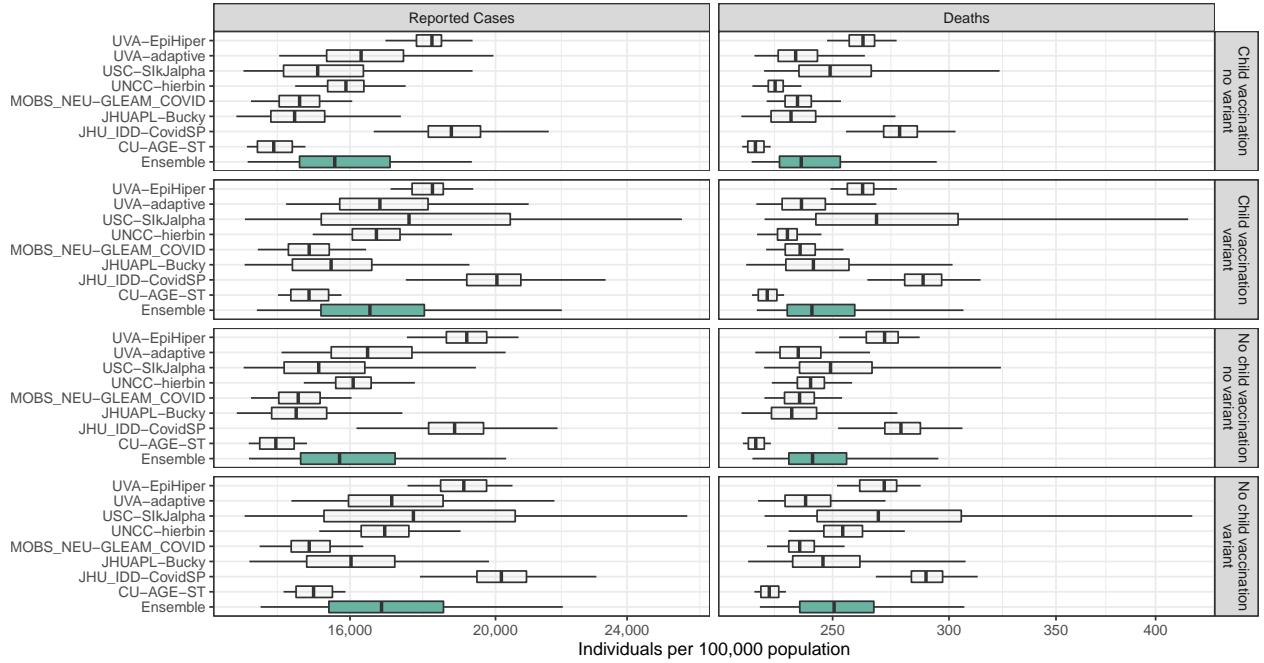
Model variation – 26 week ahead cumulative incidence over projection period



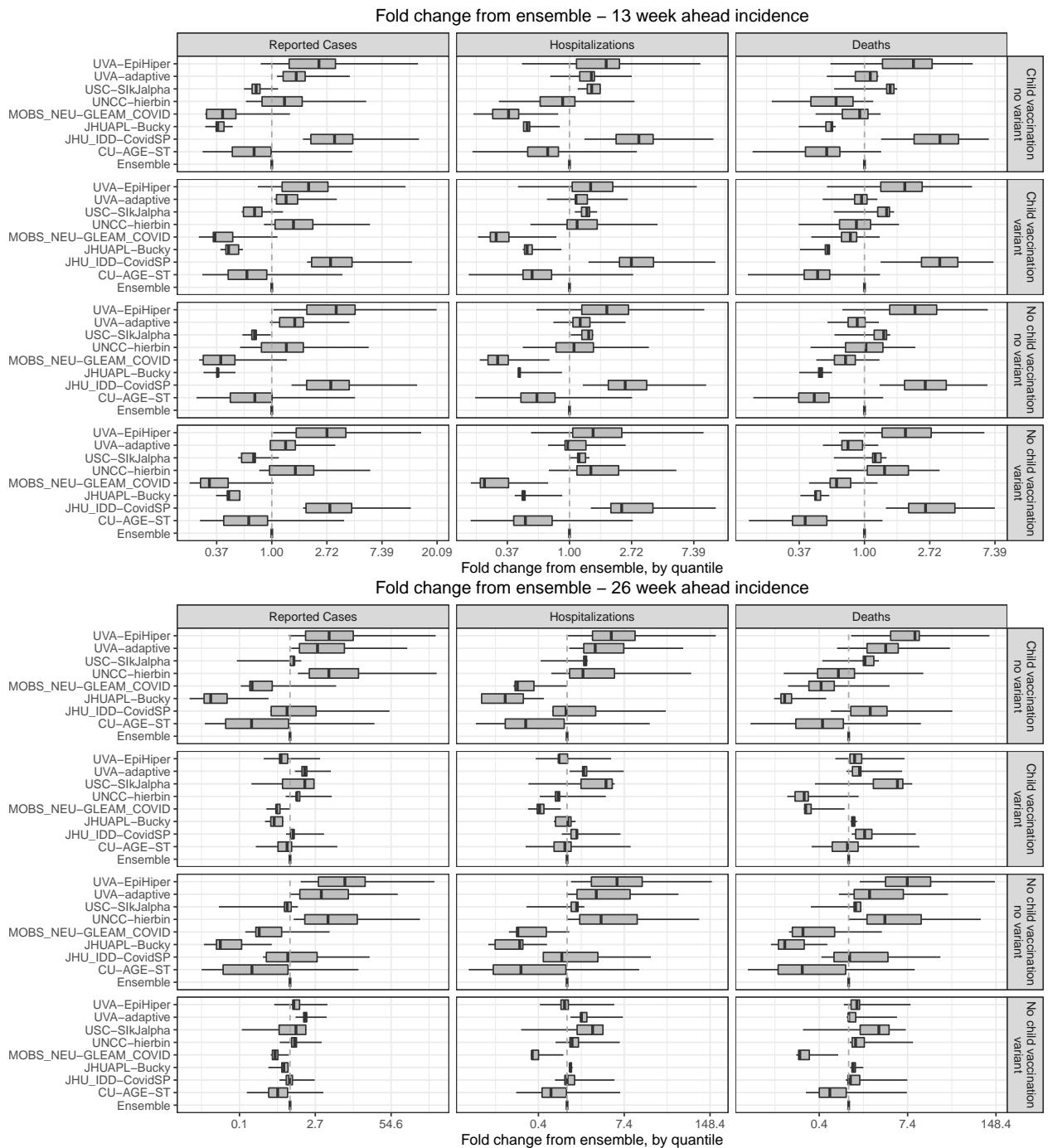
Model variation – 13 week ahead cumulative incidence over entire pandemic



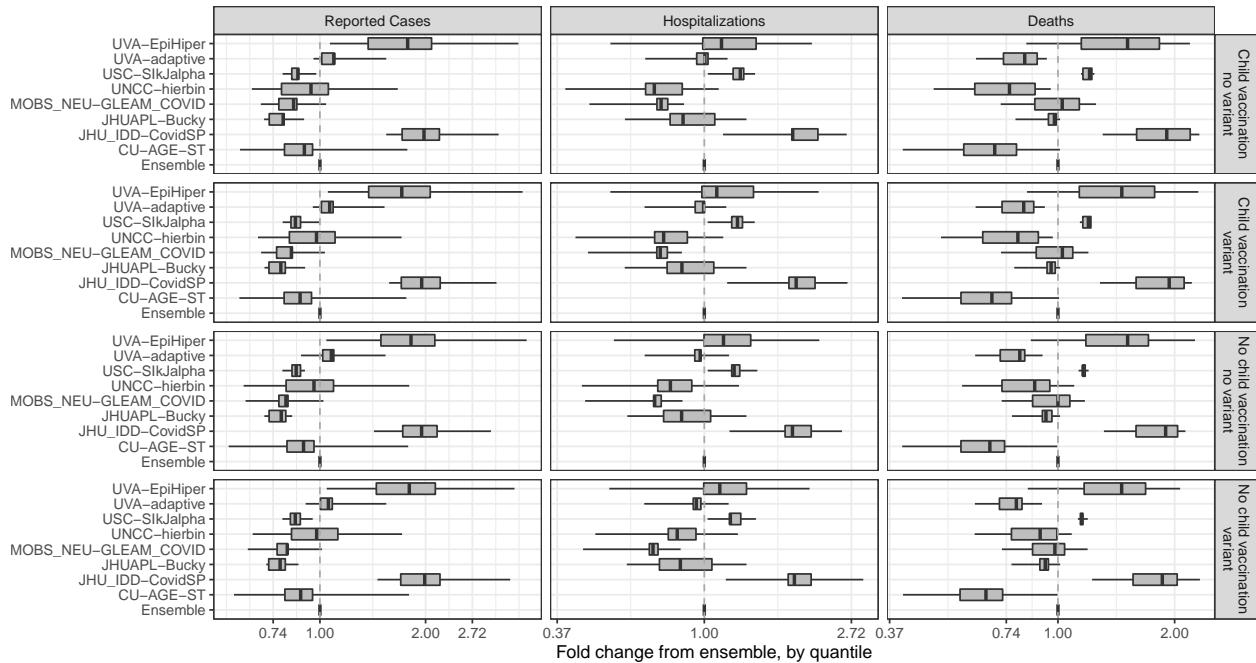
Model variation – 26 week ahead cumulative incidence over entire pandemic



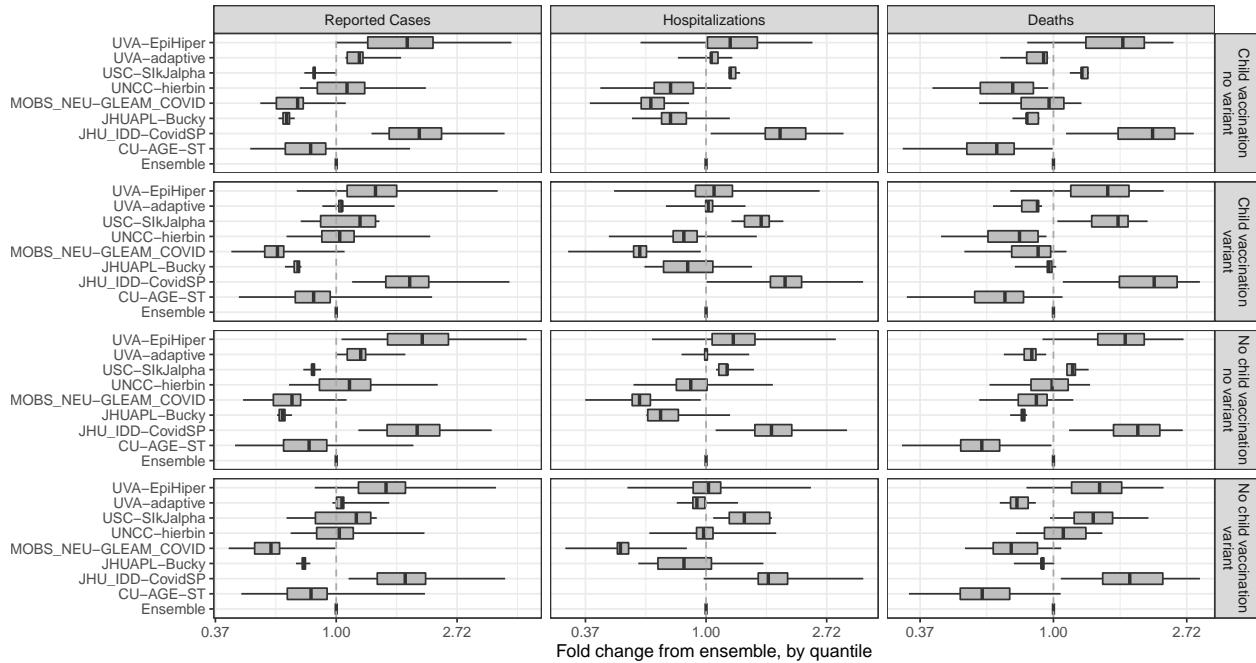
Difference between model and ensemble distributions



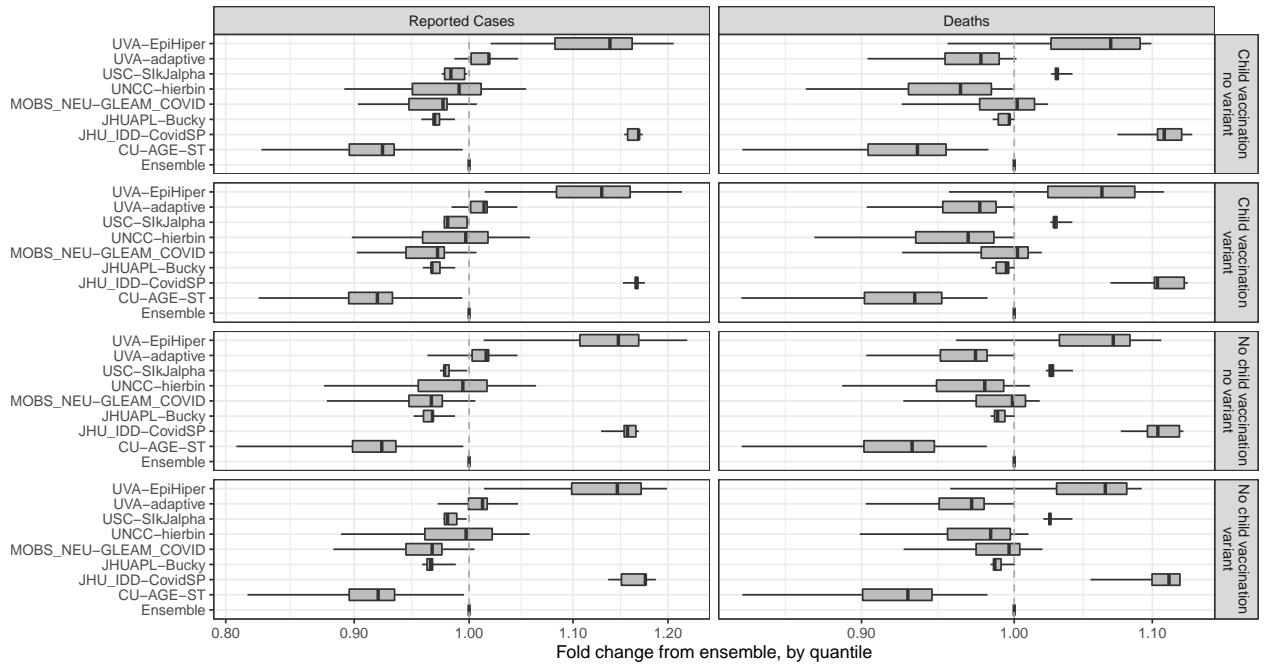
Fold change from ensemble – 13 week ahead cumulative incidence over projection period



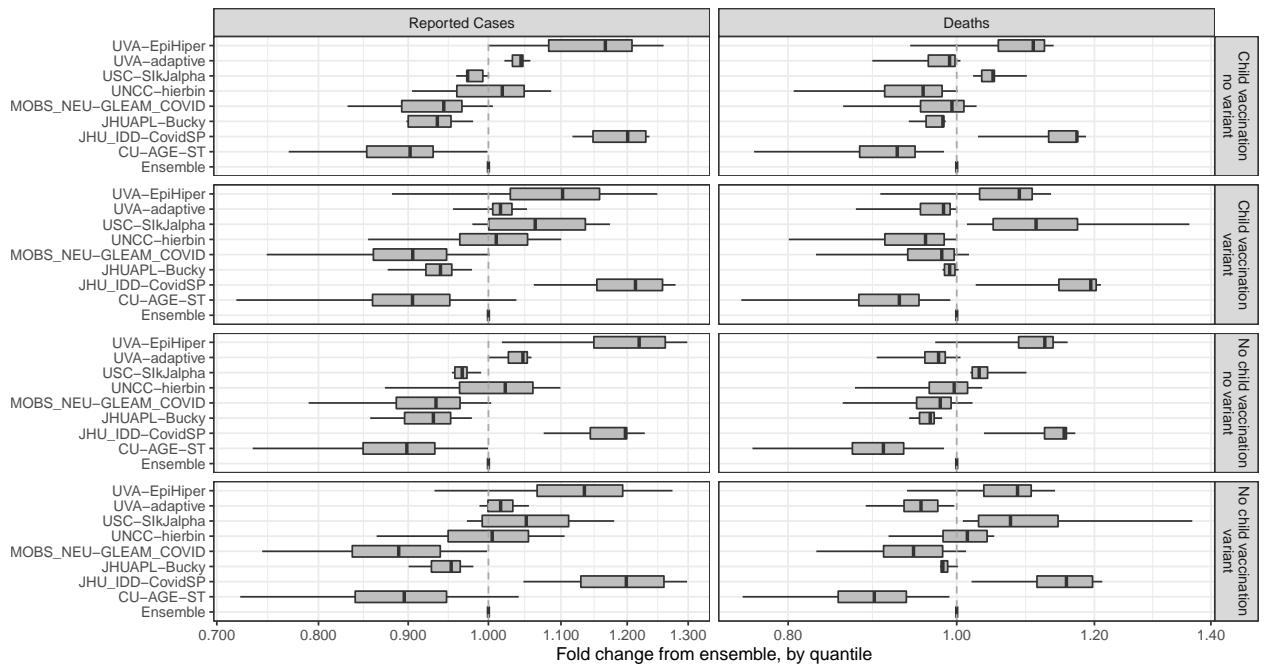
Fold change from ensemble – 26 week ahead cumulative incidence over projection period



Fold change from ensemble – 13 week ahead cumulative incidence over entire pandemic

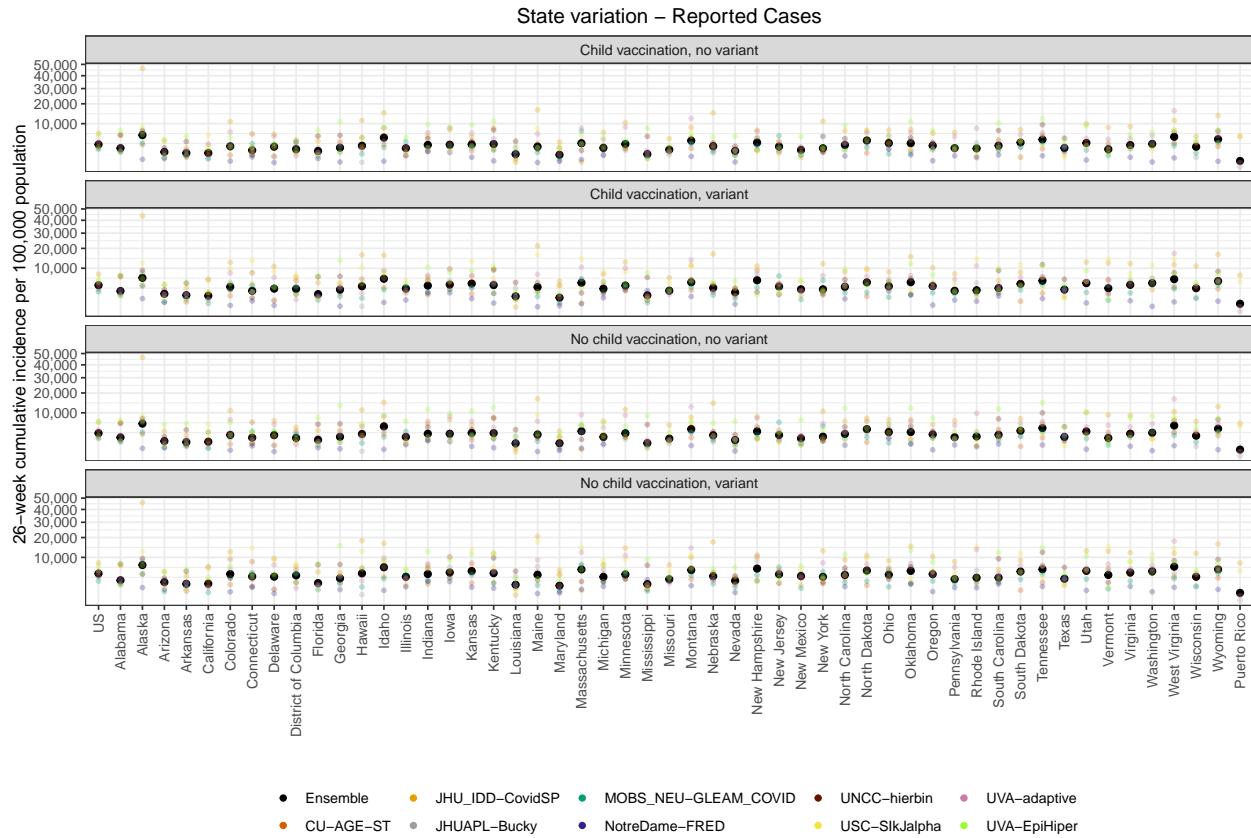


Fold change from ensemble – 26 week ahead cumulative incidence over entire pandemic

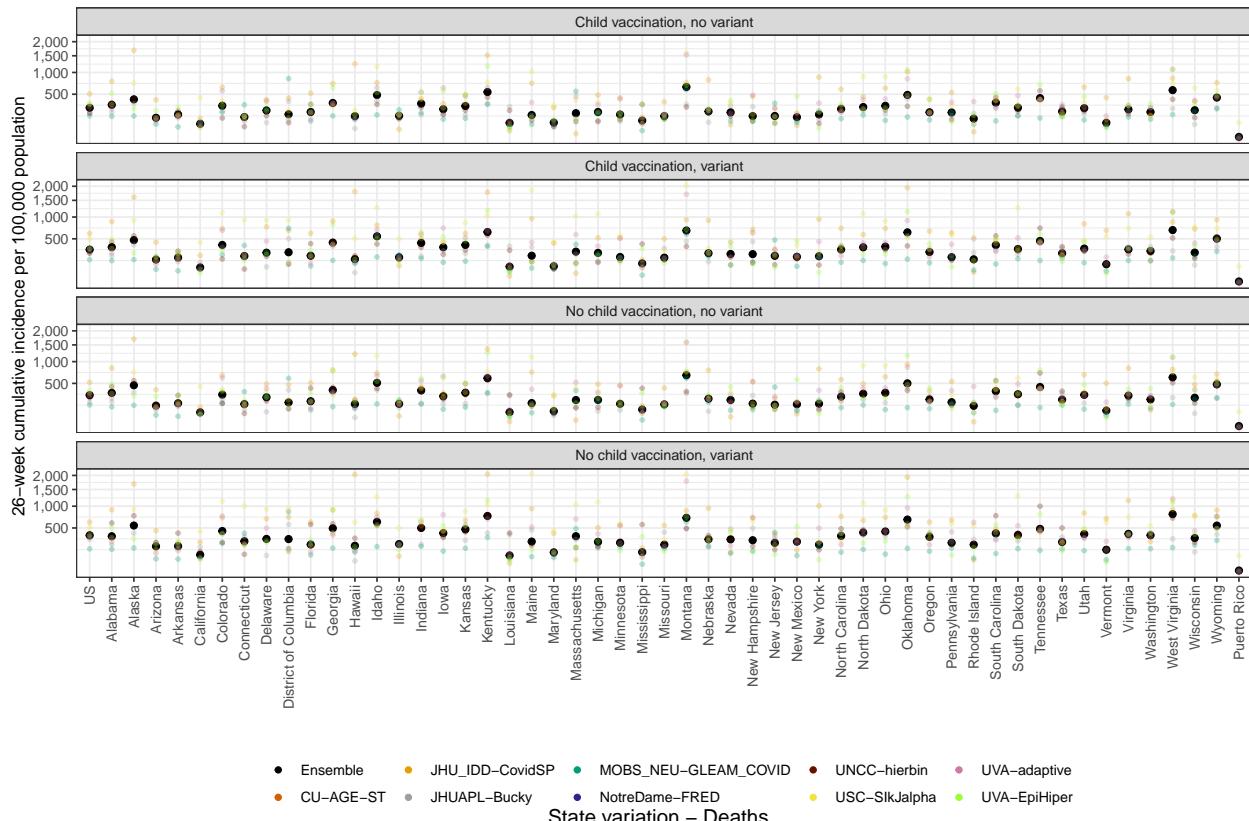


Supplemental Plots

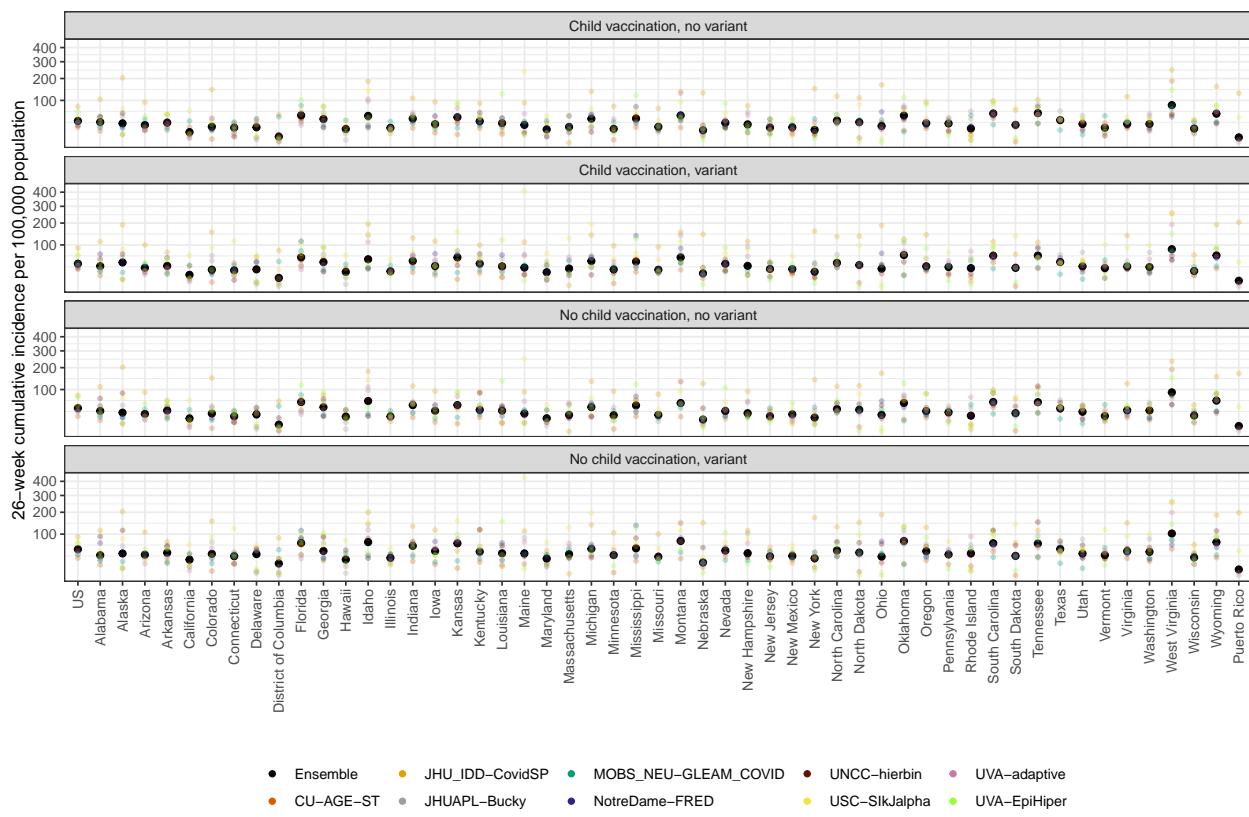
Individual model and ensembles projections for state-level cumulative incidence per 100,000 population over 26-week projection period. Please note the relatively small number of models incorporated in the ensemble at this stage, particularly states and territories for which only one or two models have submitted projections.



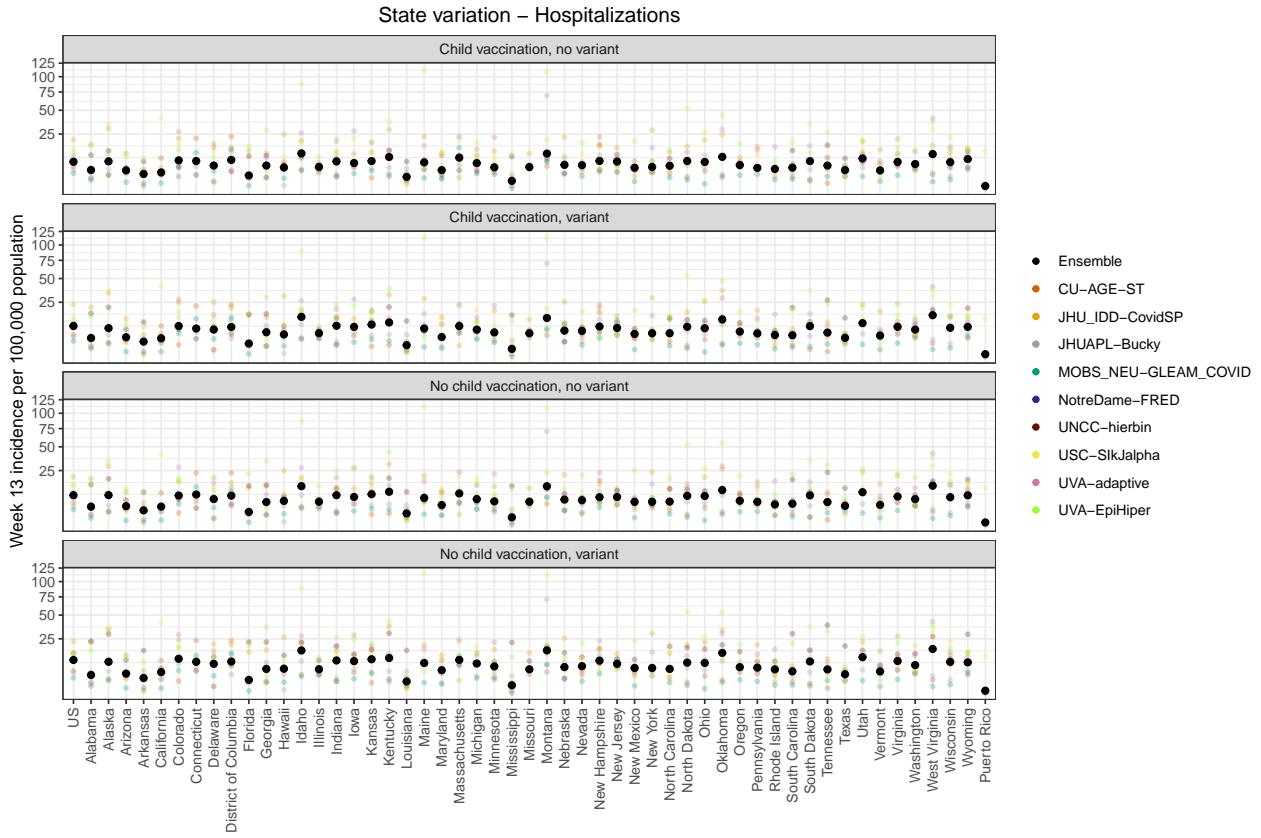
State variation – Hospitalizations

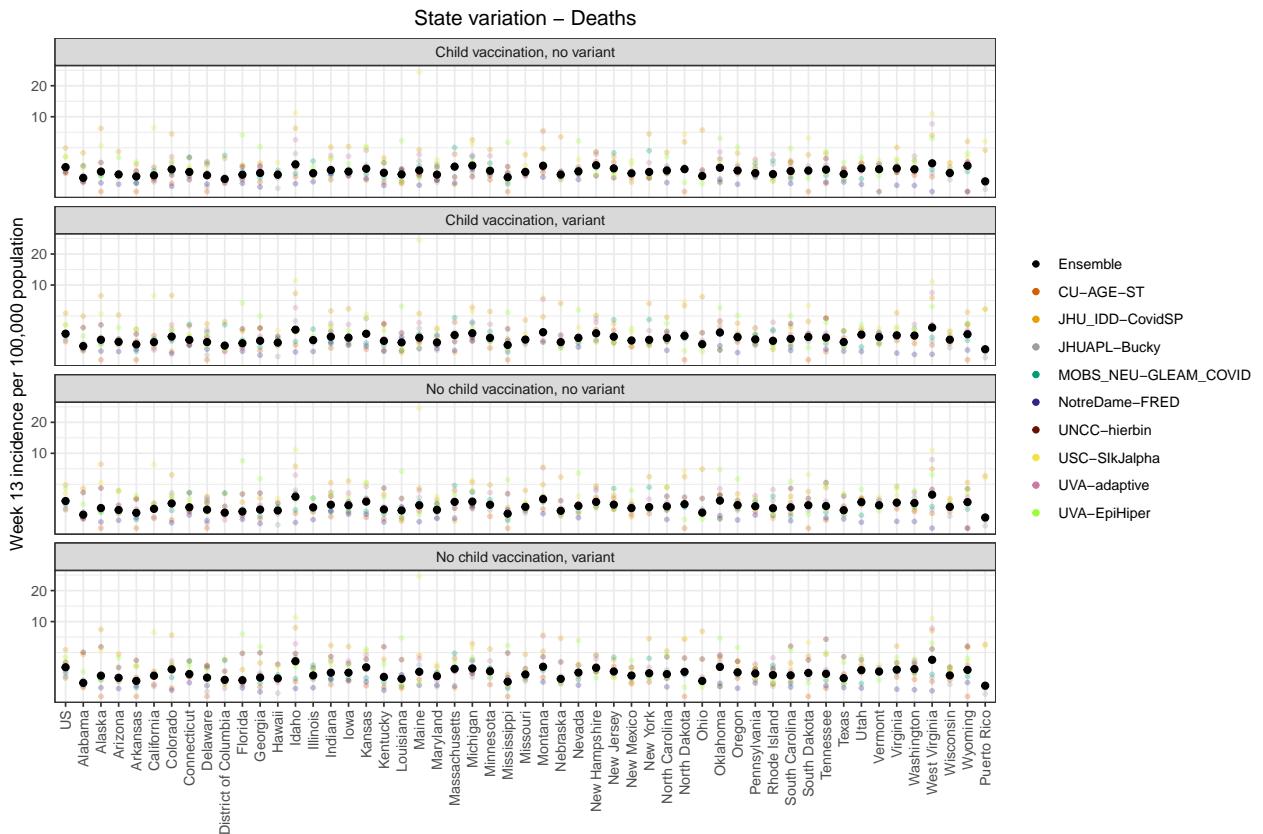


State variation – Deaths



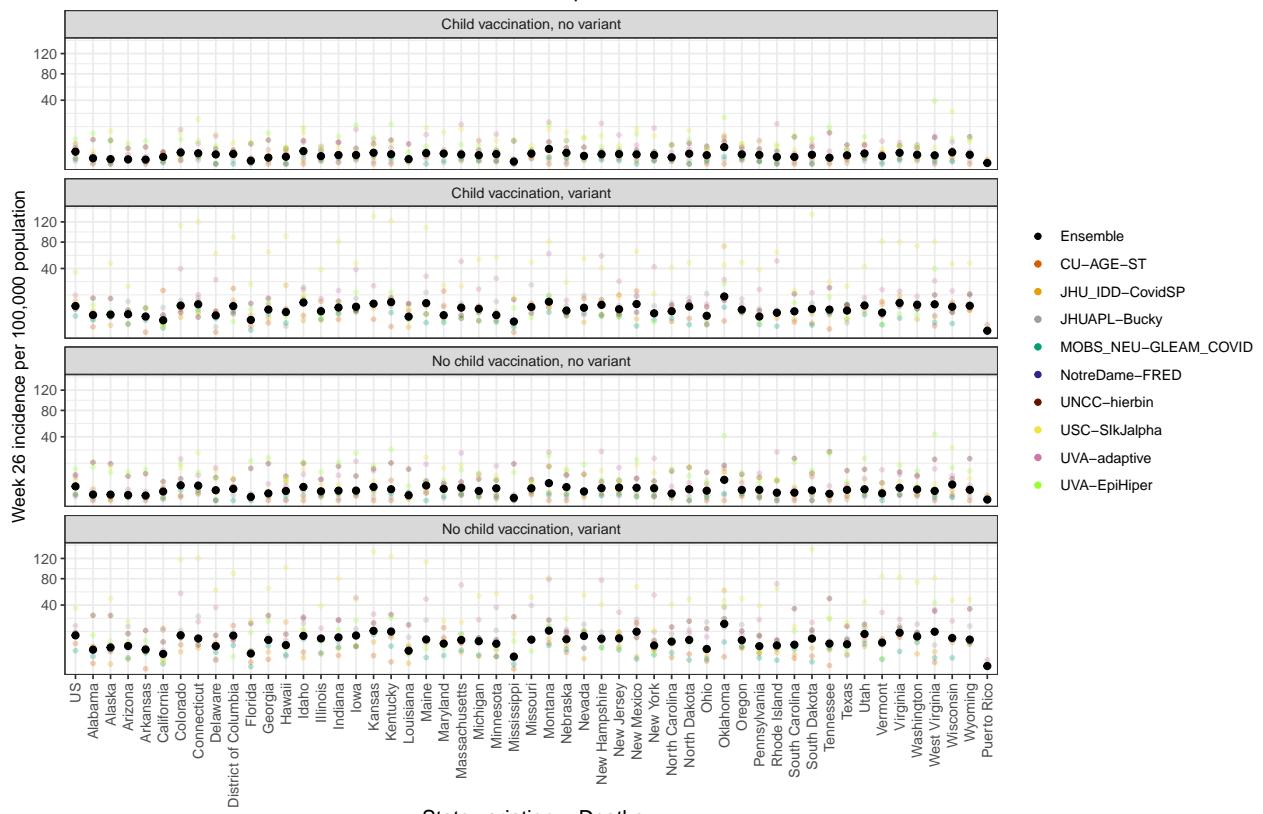
Individual model and ensembles projections for state-level death and hospitalization incidence per 100,000 population at week 13.



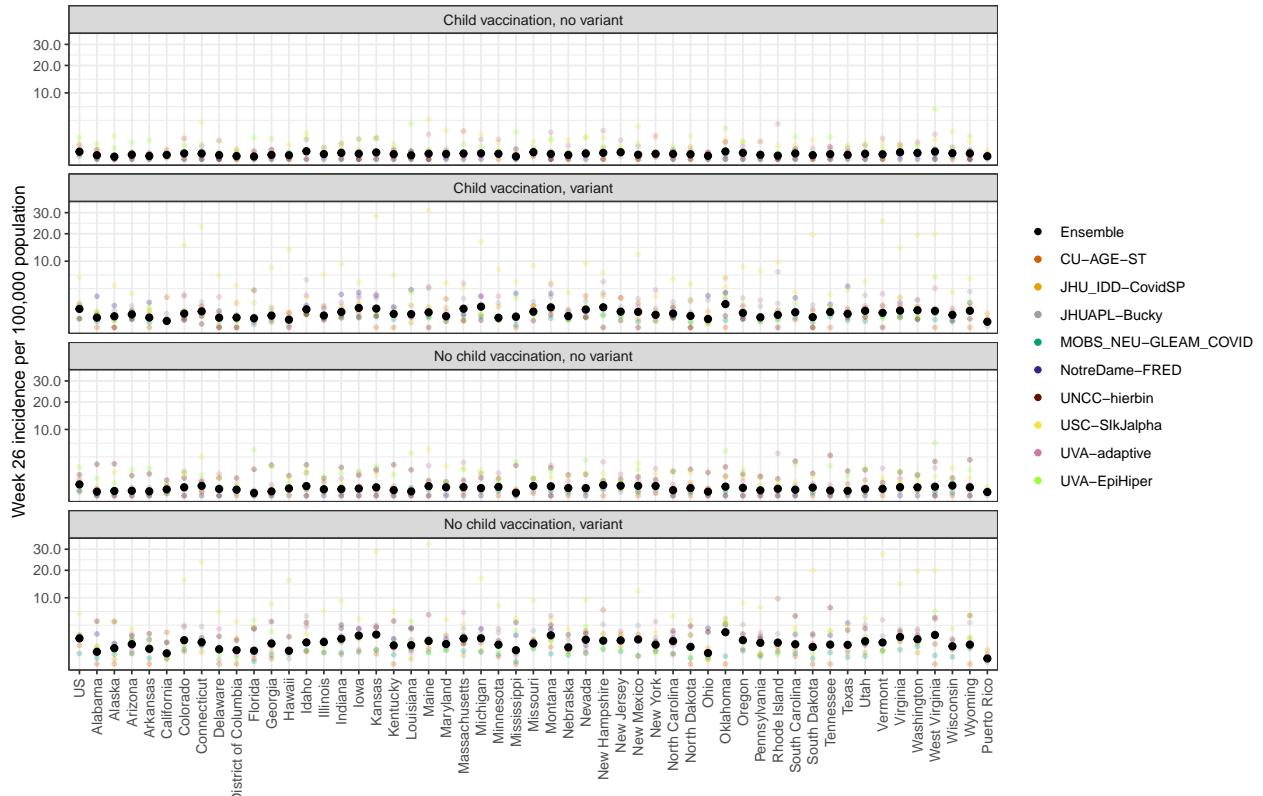


Individual model and ensembles projections for state-level incidence per 100,000 population at week 26.

State variation – Hospitalizations

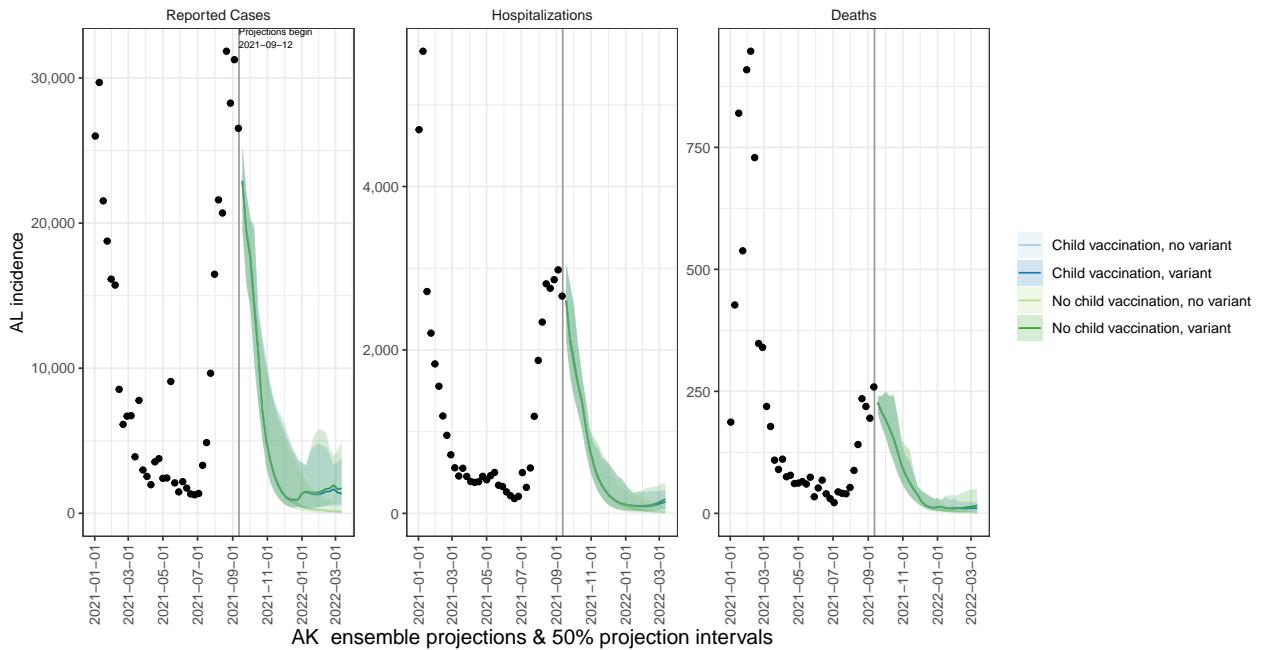


State variation – Deaths

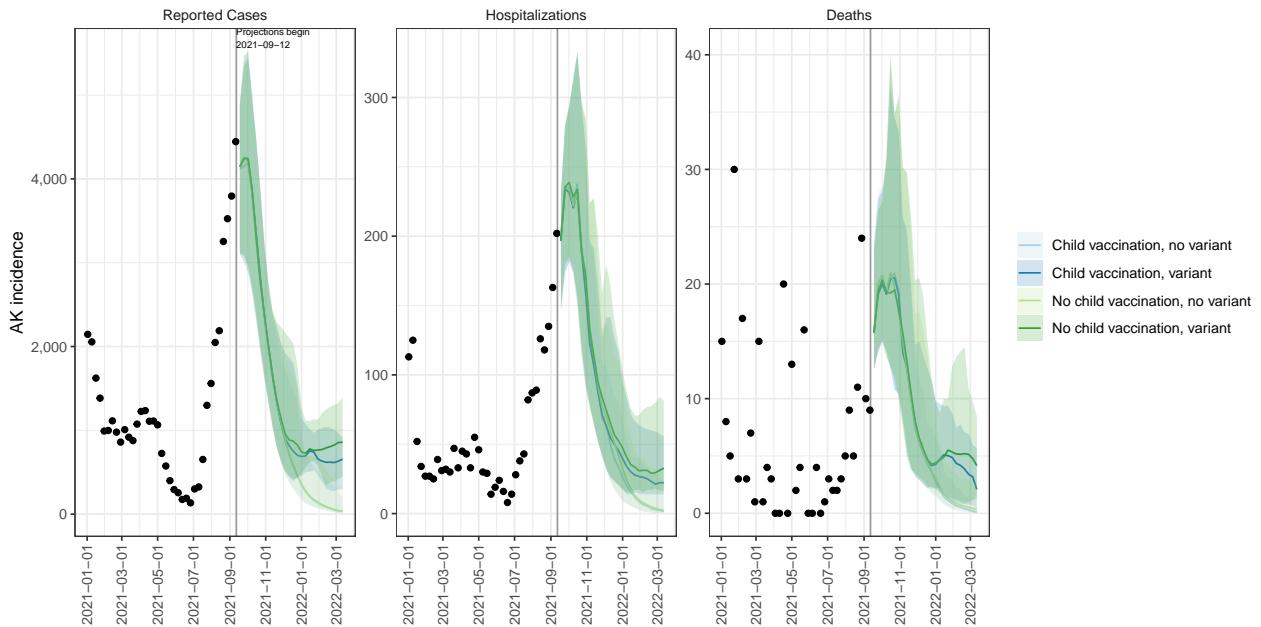


State-level ensemble plots

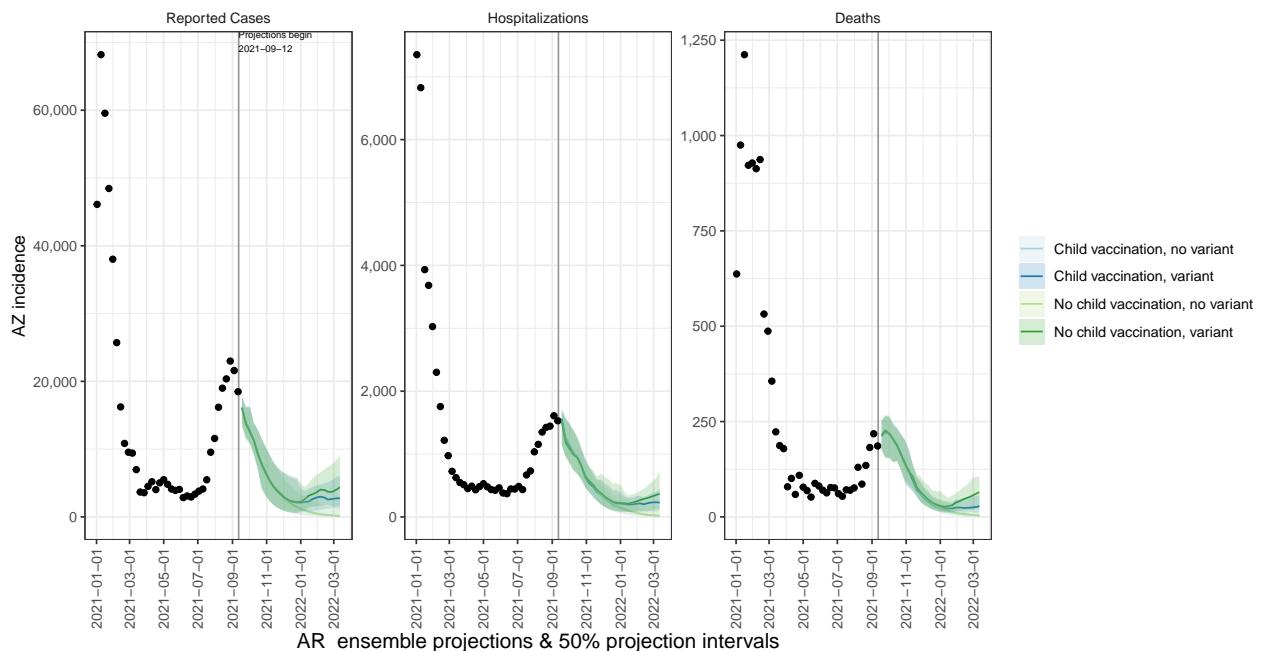
AL ensemble projections & 50% projection intervals



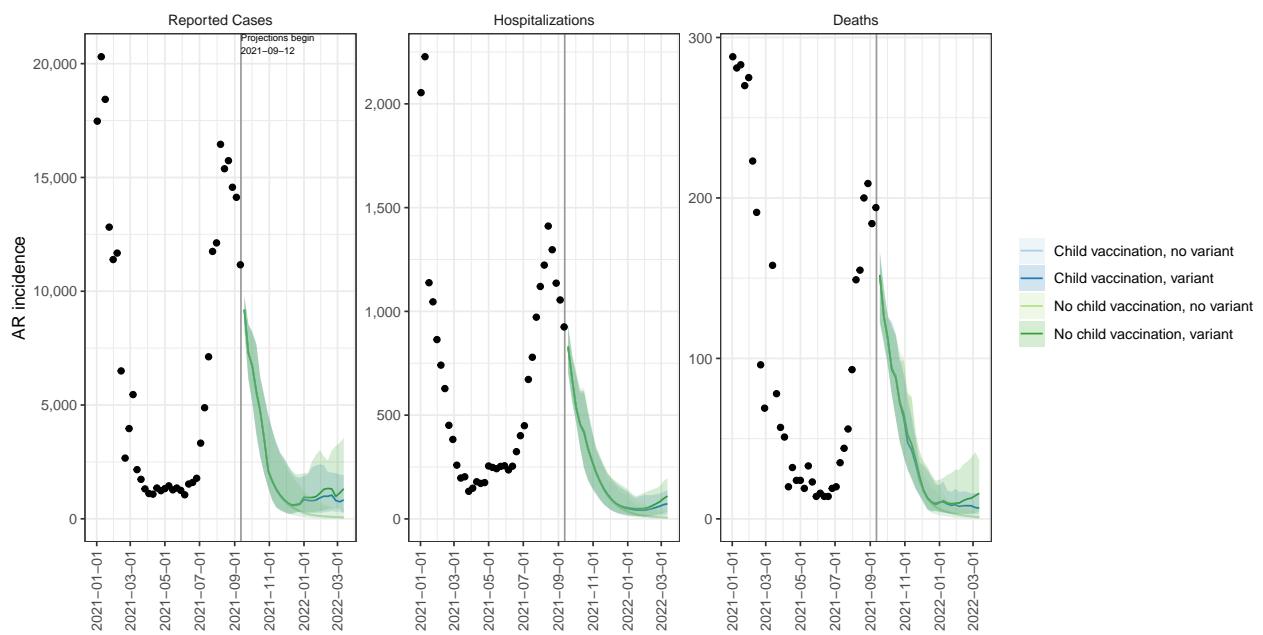
AK ensemble projections & 50% projection intervals



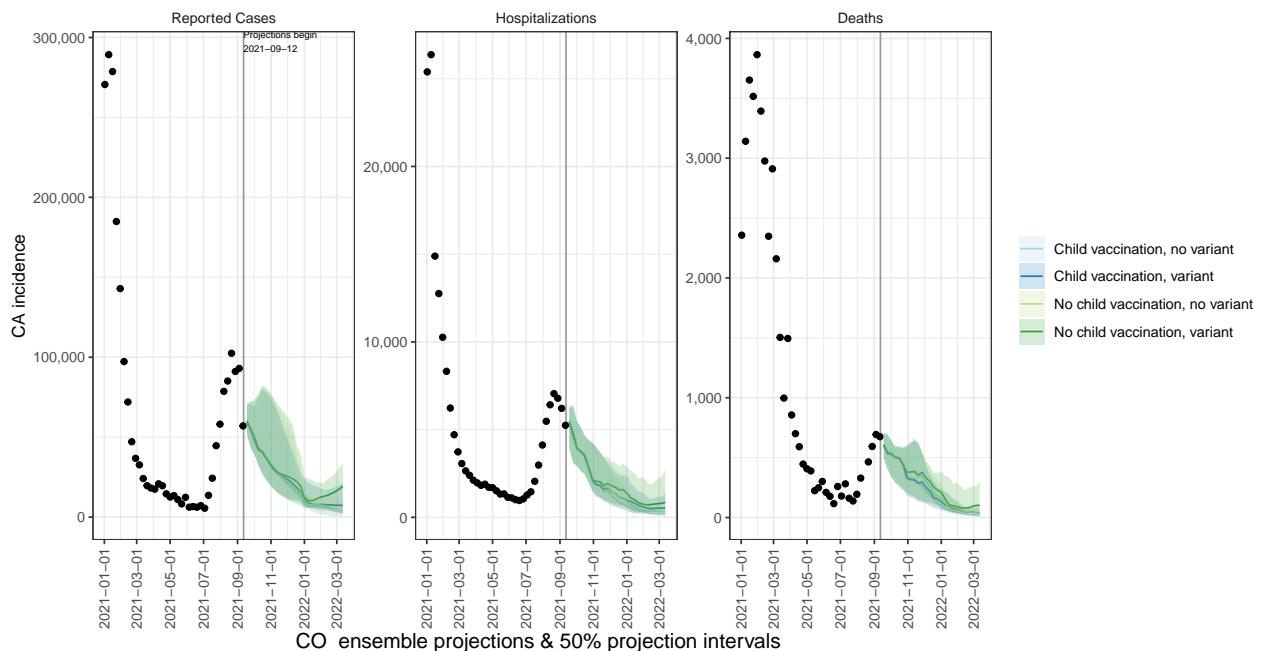
AZ ensemble projections & 50% projection intervals



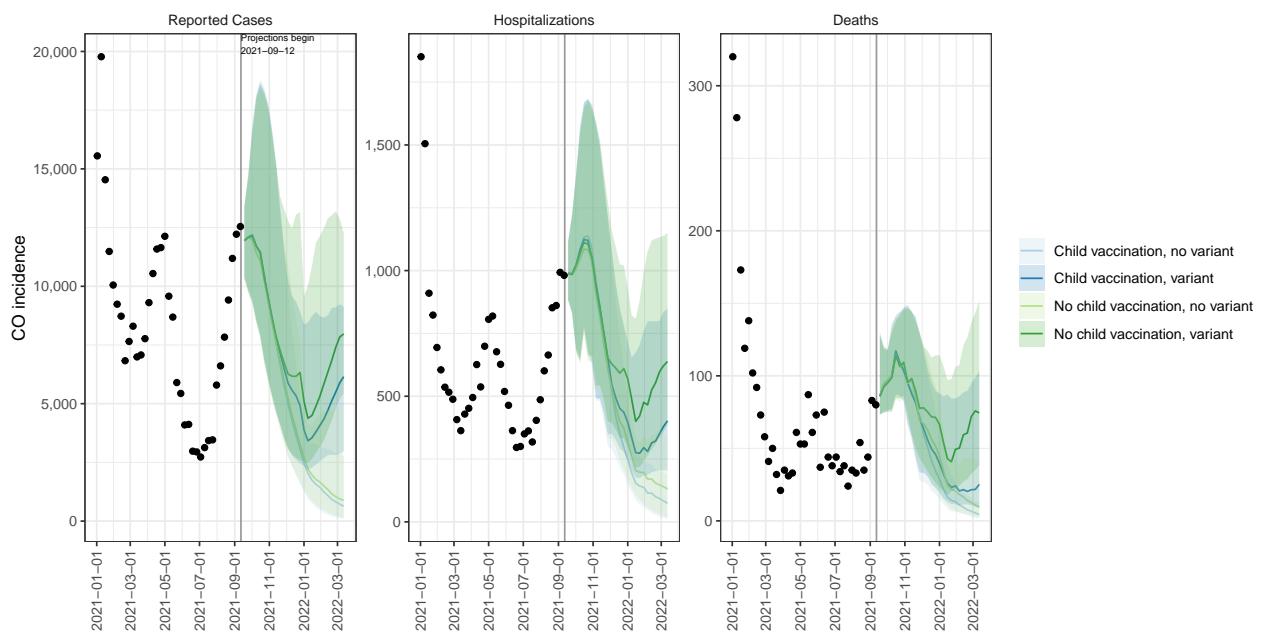
AR ensemble projections & 50% projection intervals



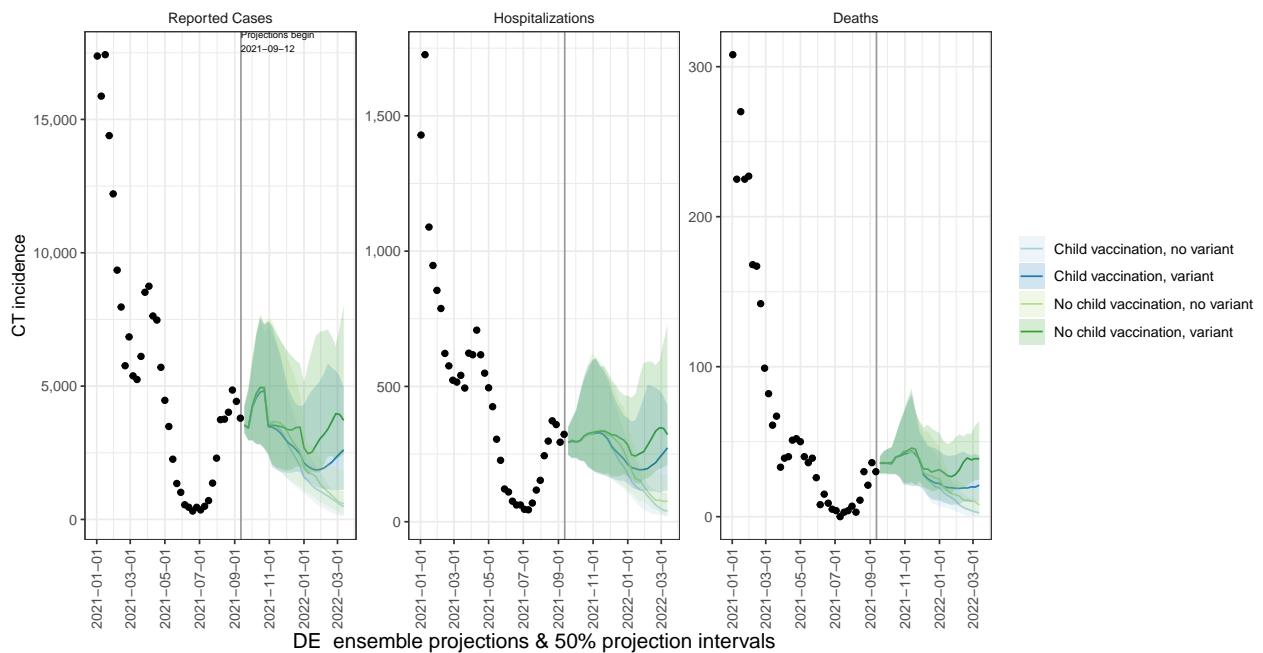
CA ensemble projections & 50% projection intervals



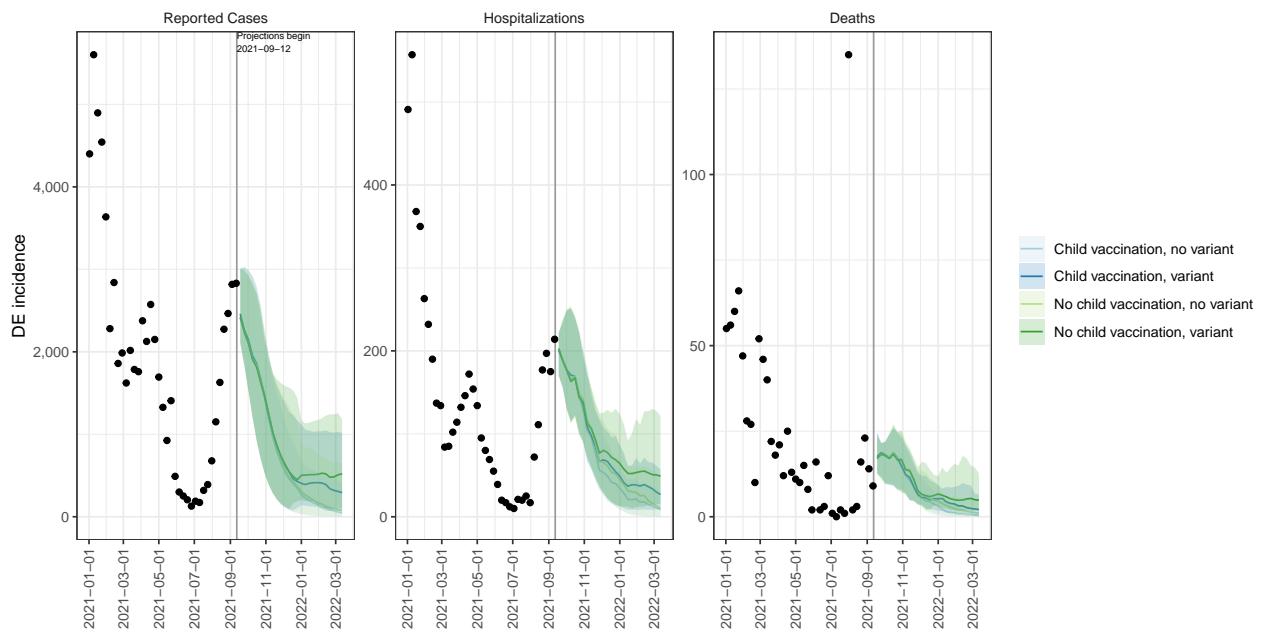
CO ensemble projections & 50% projection intervals



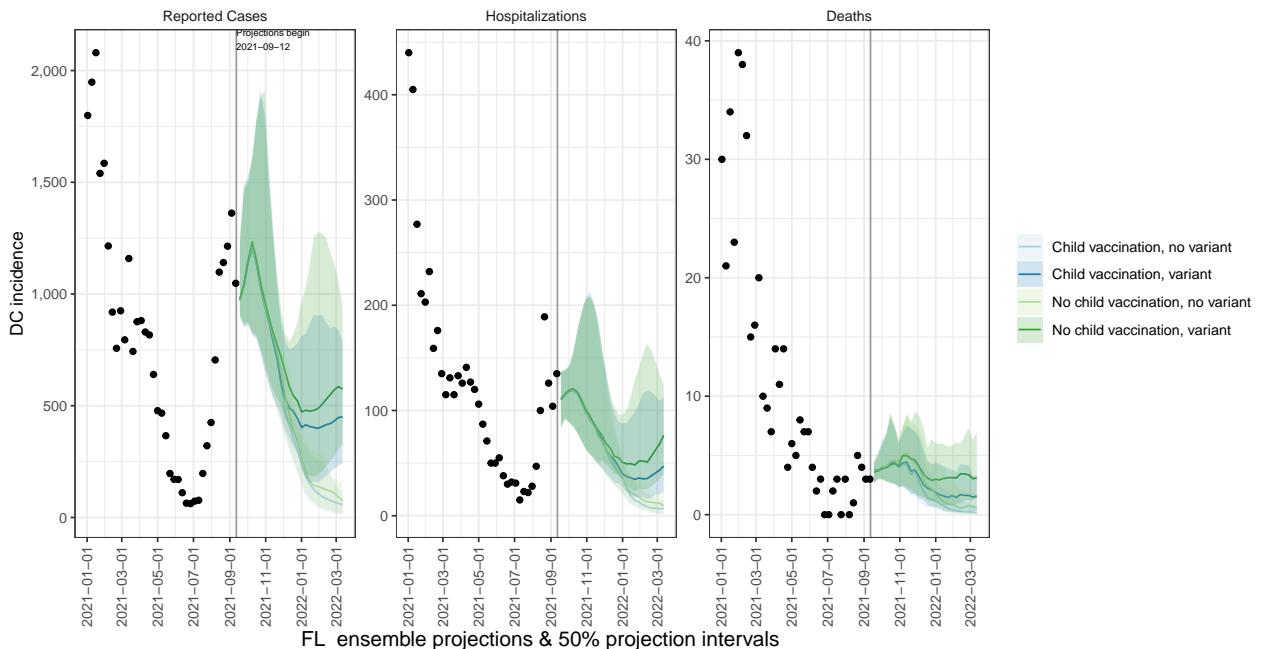
CT ensemble projections & 50% projection intervals



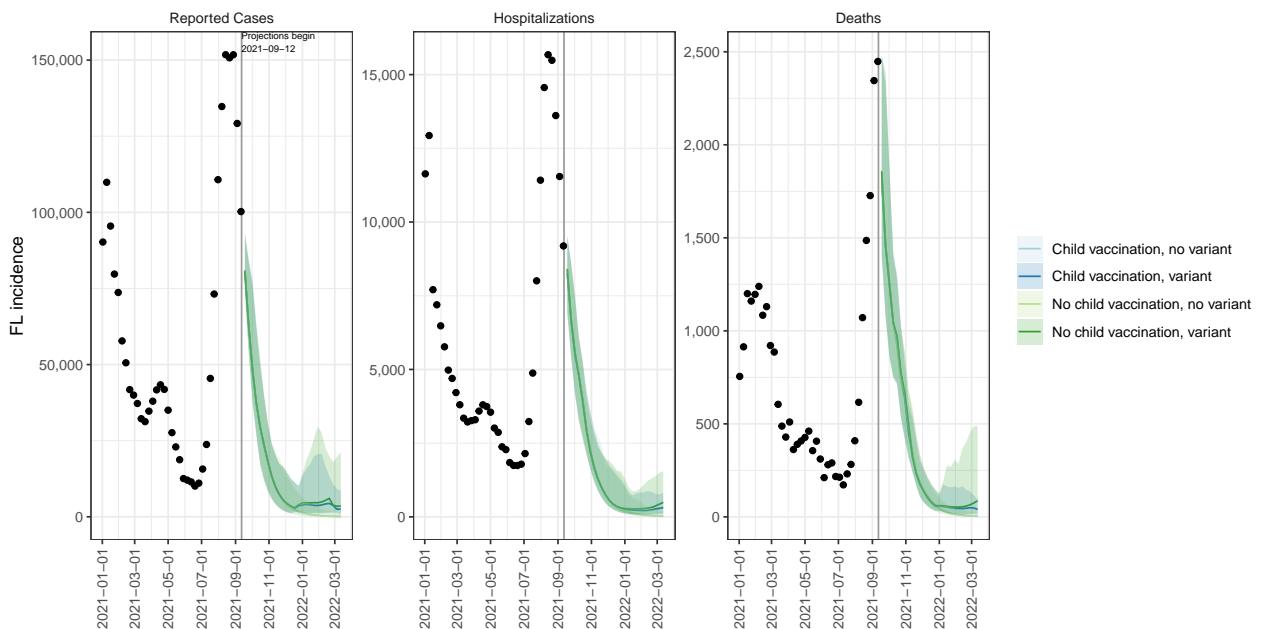
DE ensemble projections & 50% projection intervals



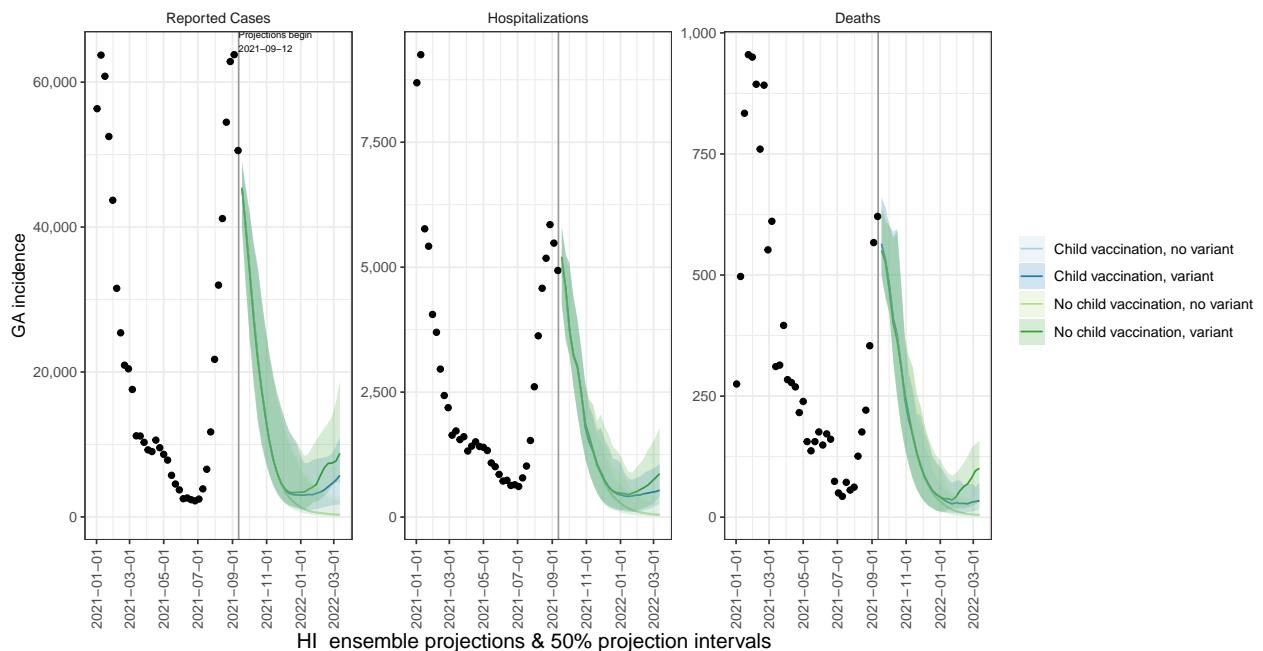
DC ensemble projections & 50% projection intervals



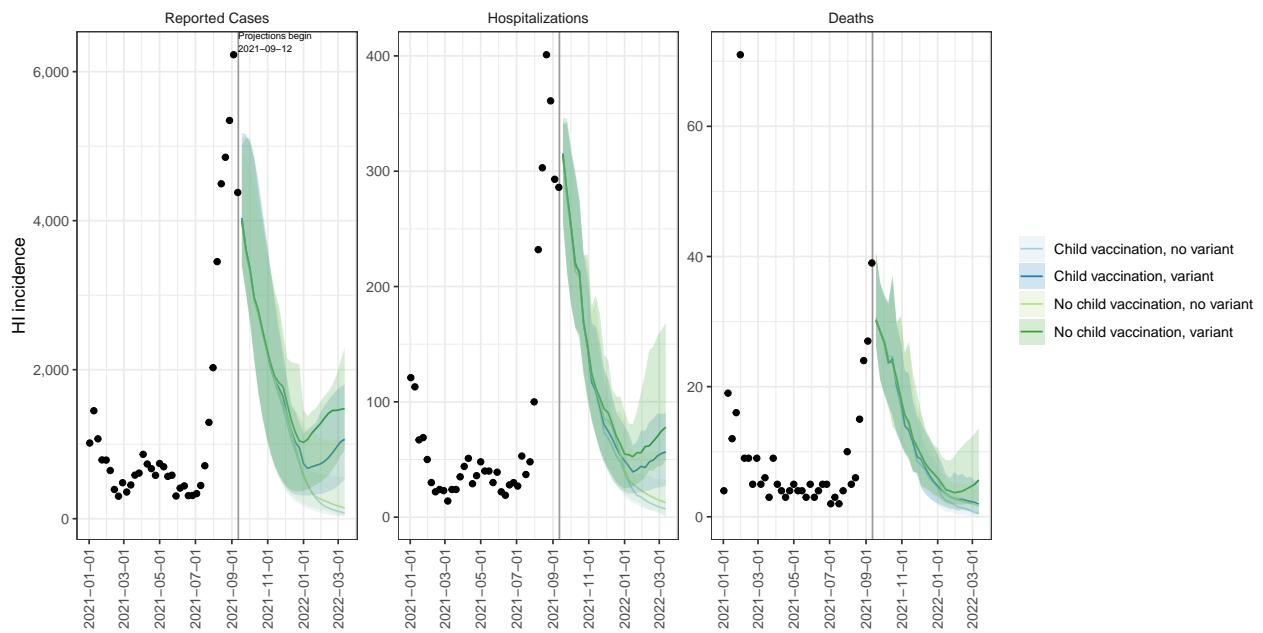
FL ensemble projections & 50% projection intervals



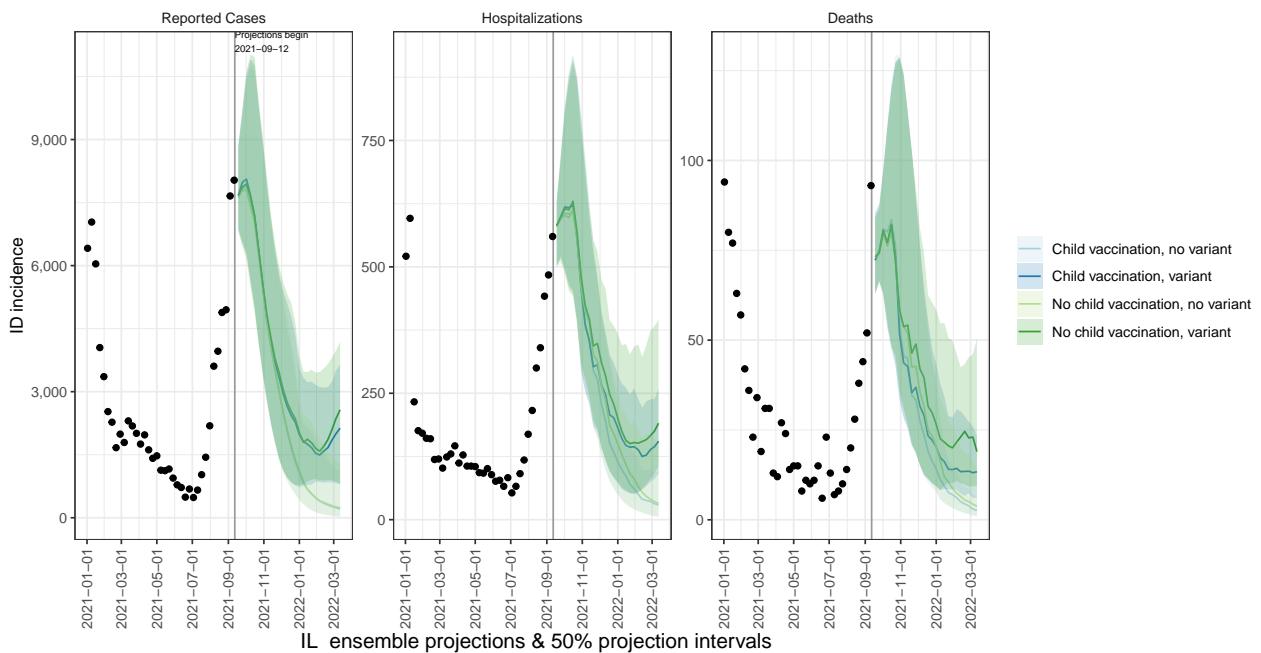
GA ensemble projections & 50% projection intervals



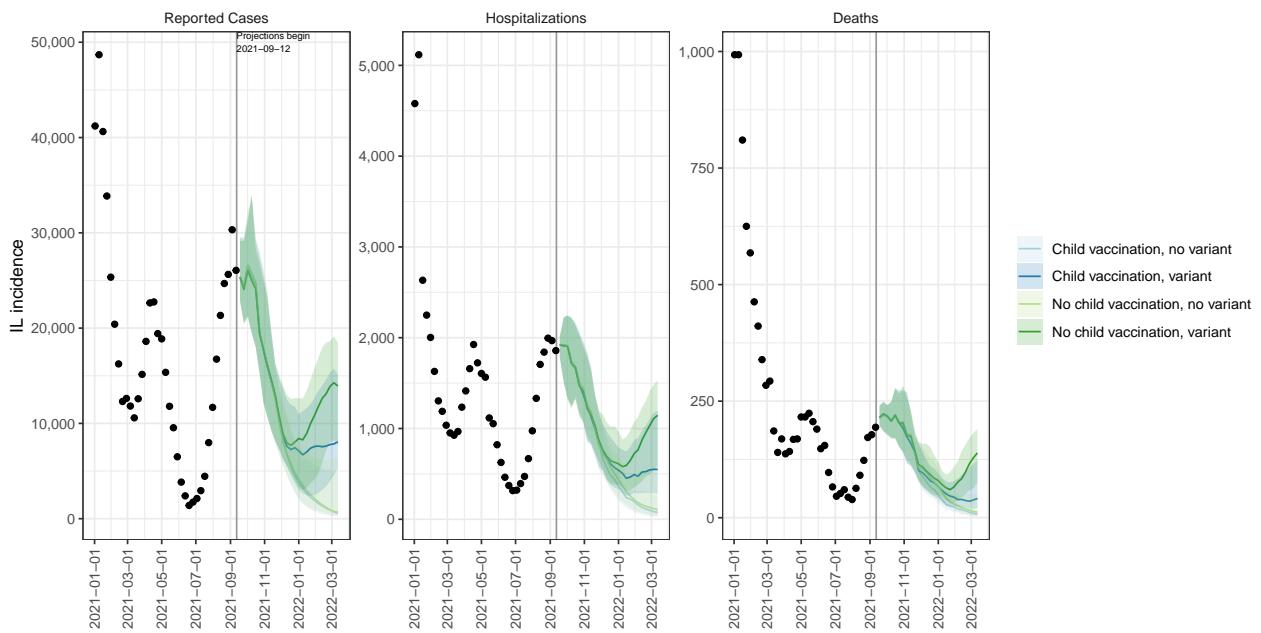
HI ensemble projections & 50% projection intervals



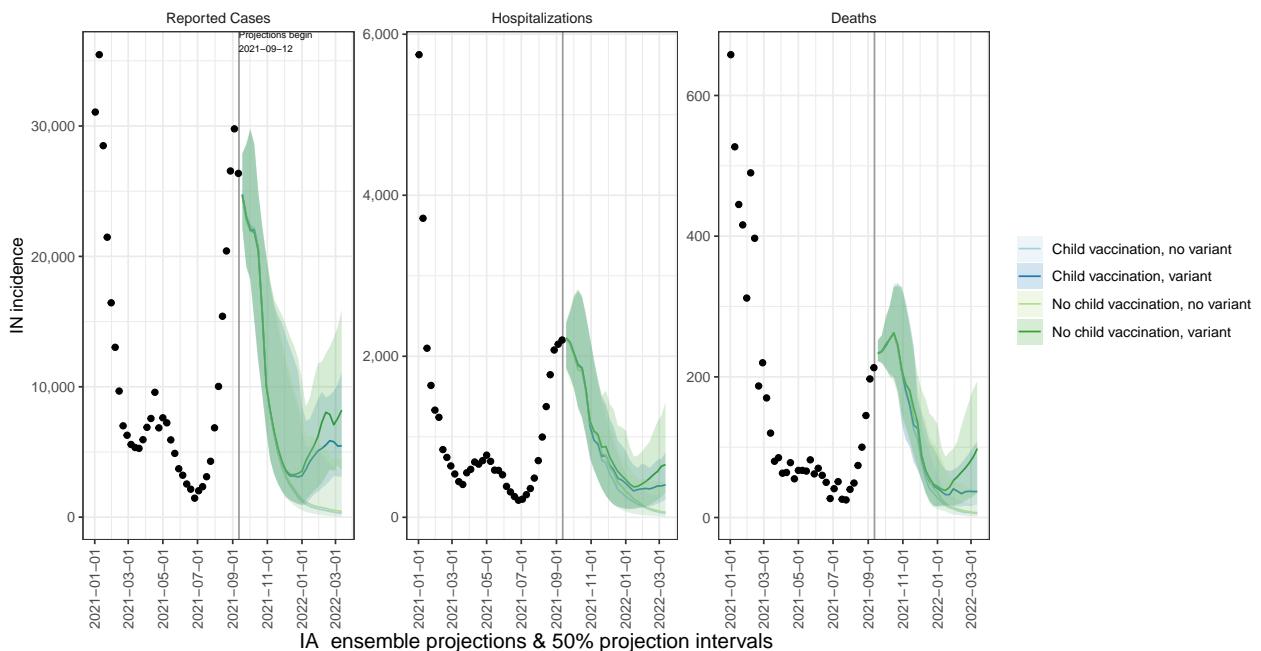
ID ensemble projections & 50% projection intervals



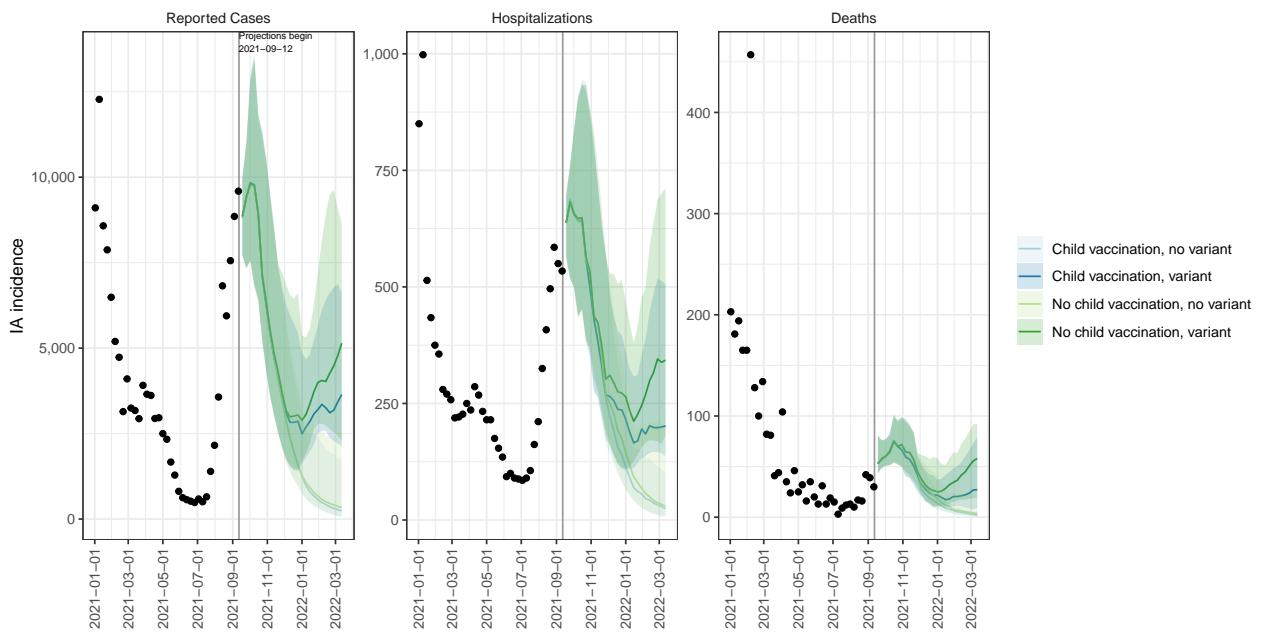
IL ensemble projections & 50% projection intervals



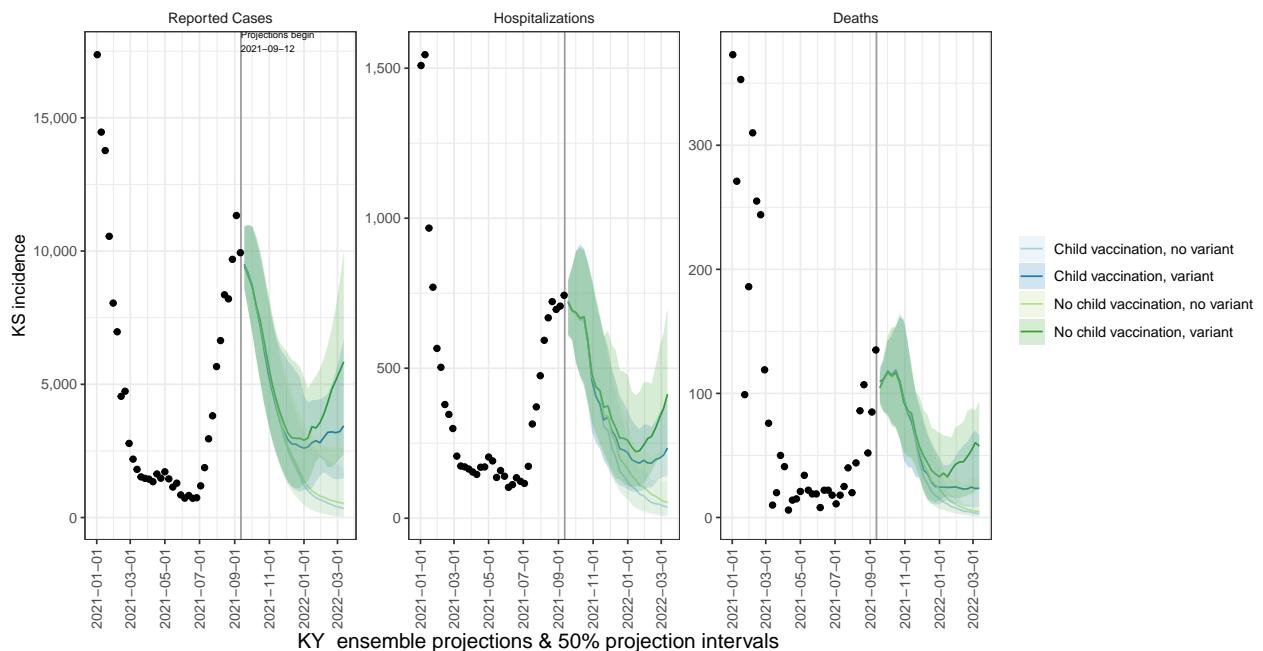
IN ensemble projections & 50% projection intervals



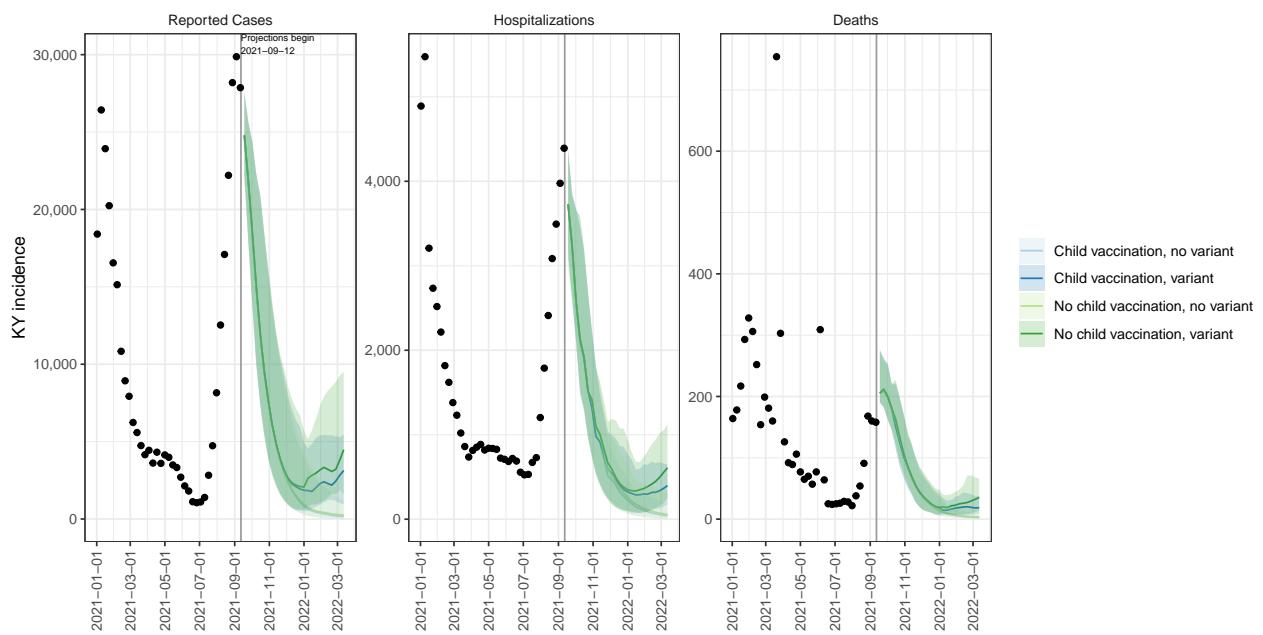
IA ensemble projections & 50% projection intervals



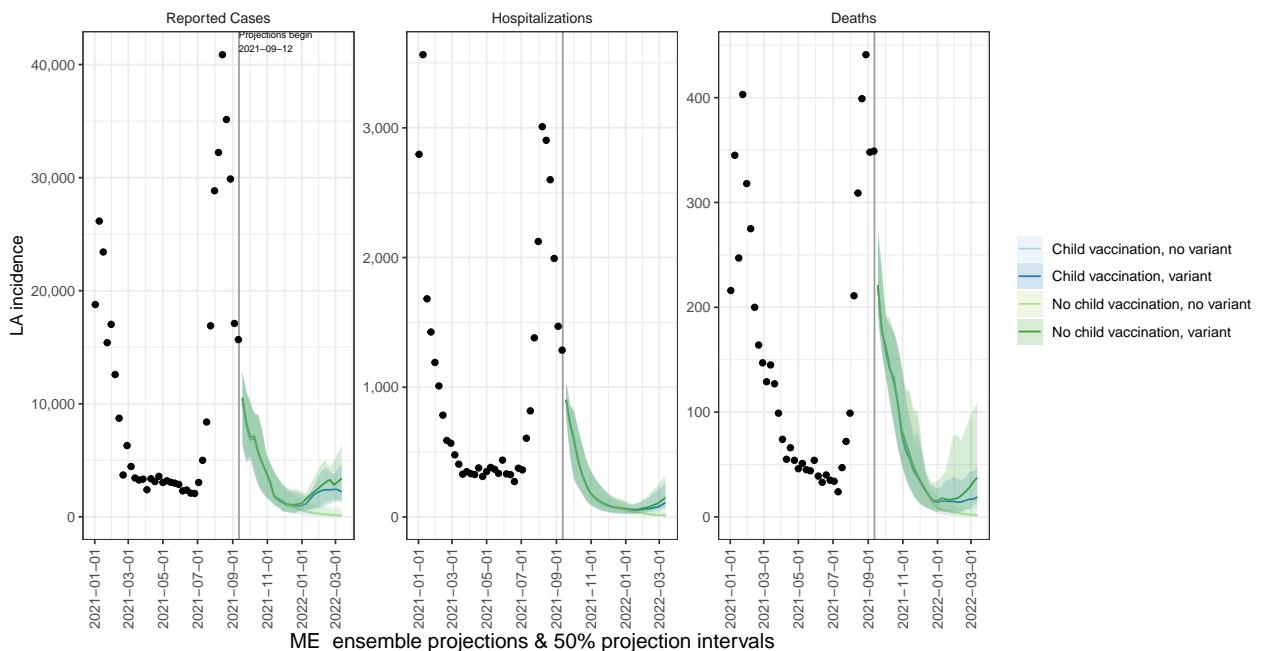
KS ensemble projections & 50% projection intervals



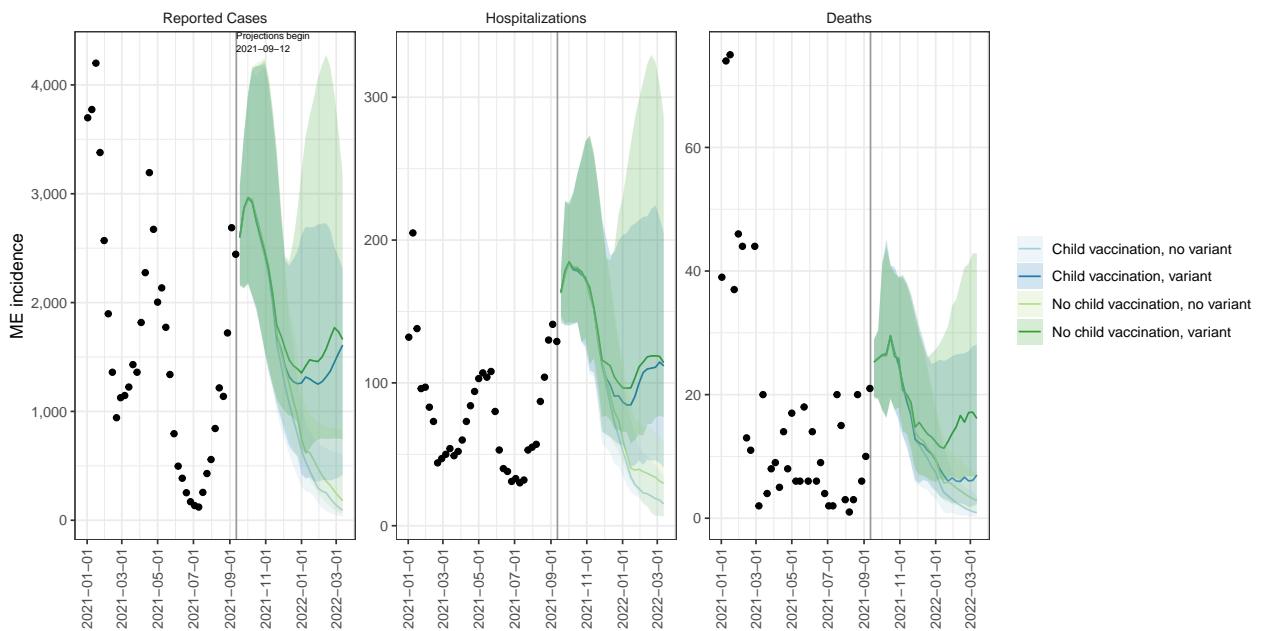
KY ensemble projections & 50% projection intervals



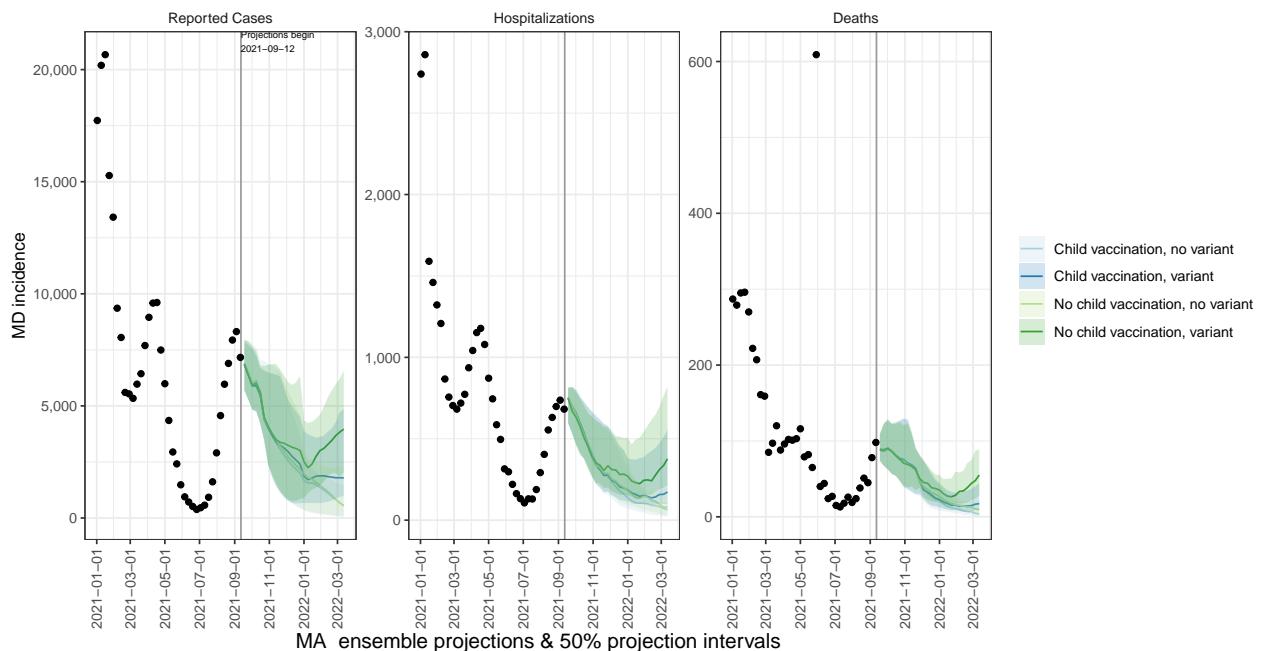
LA ensemble projections & 50% projection intervals



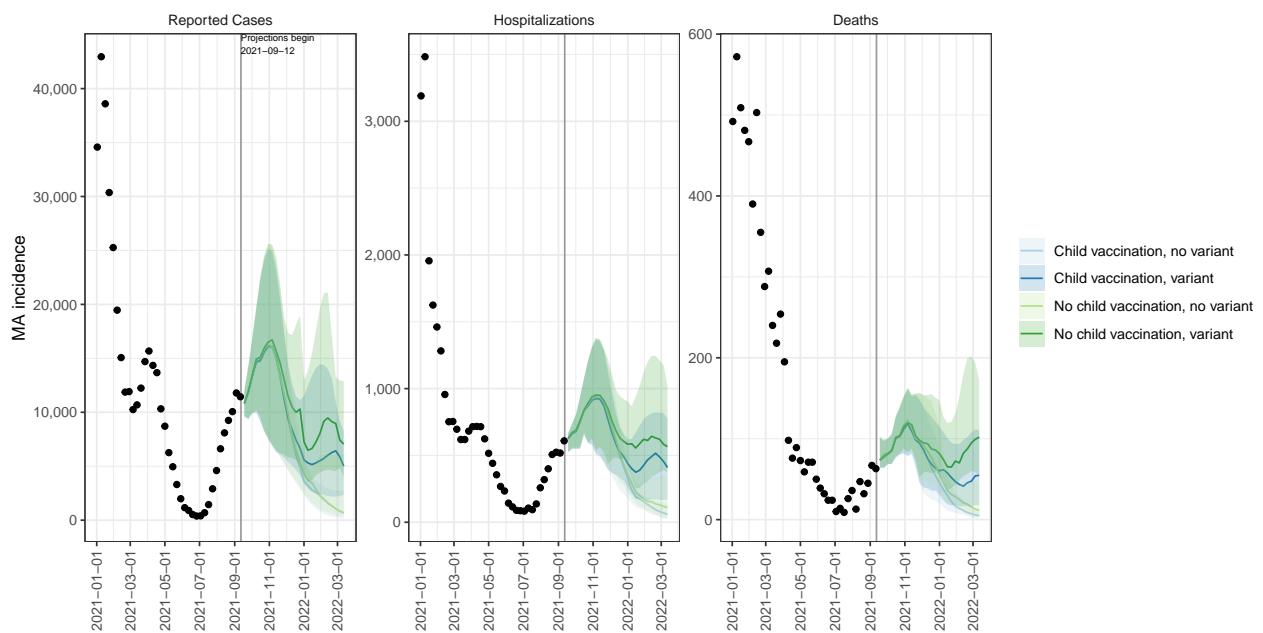
ME ensemble projections & 50% projection intervals



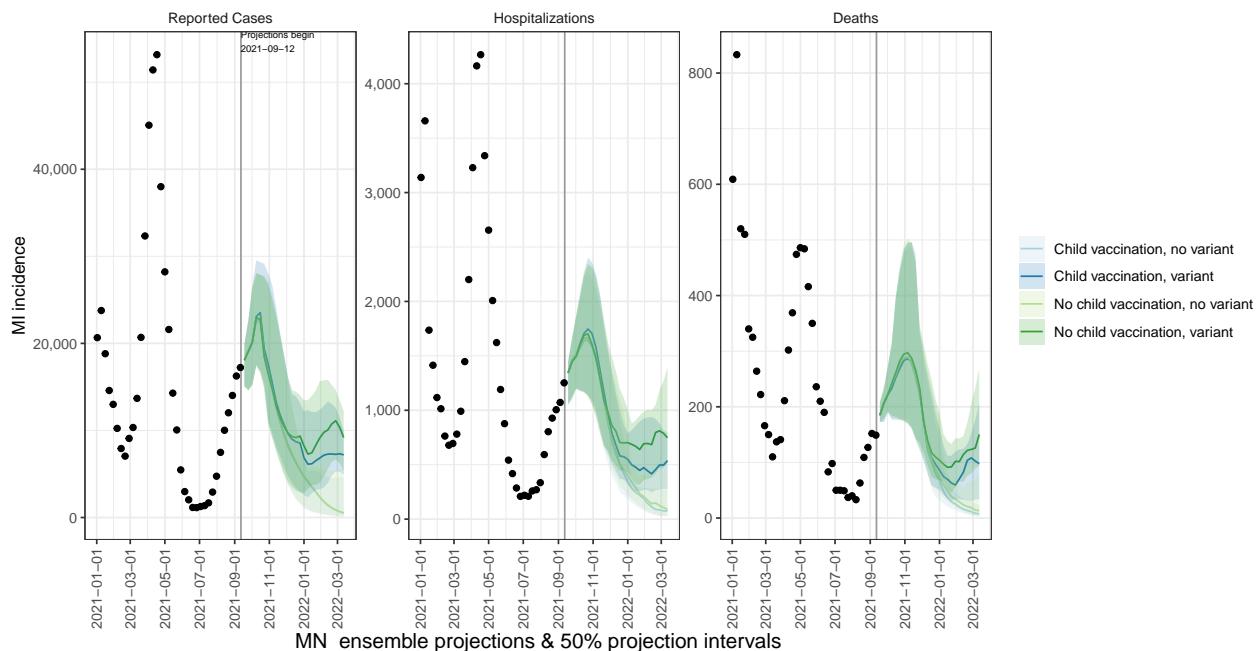
MD ensemble projections & 50% projection intervals



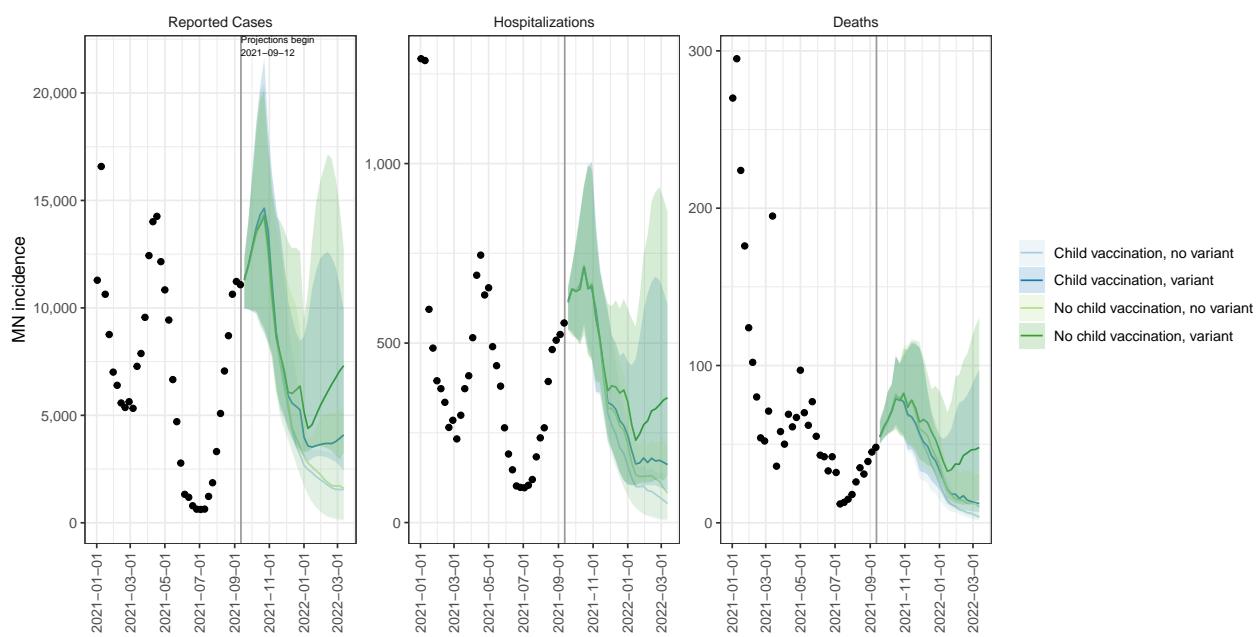
MA ensemble projections & 50% projection intervals



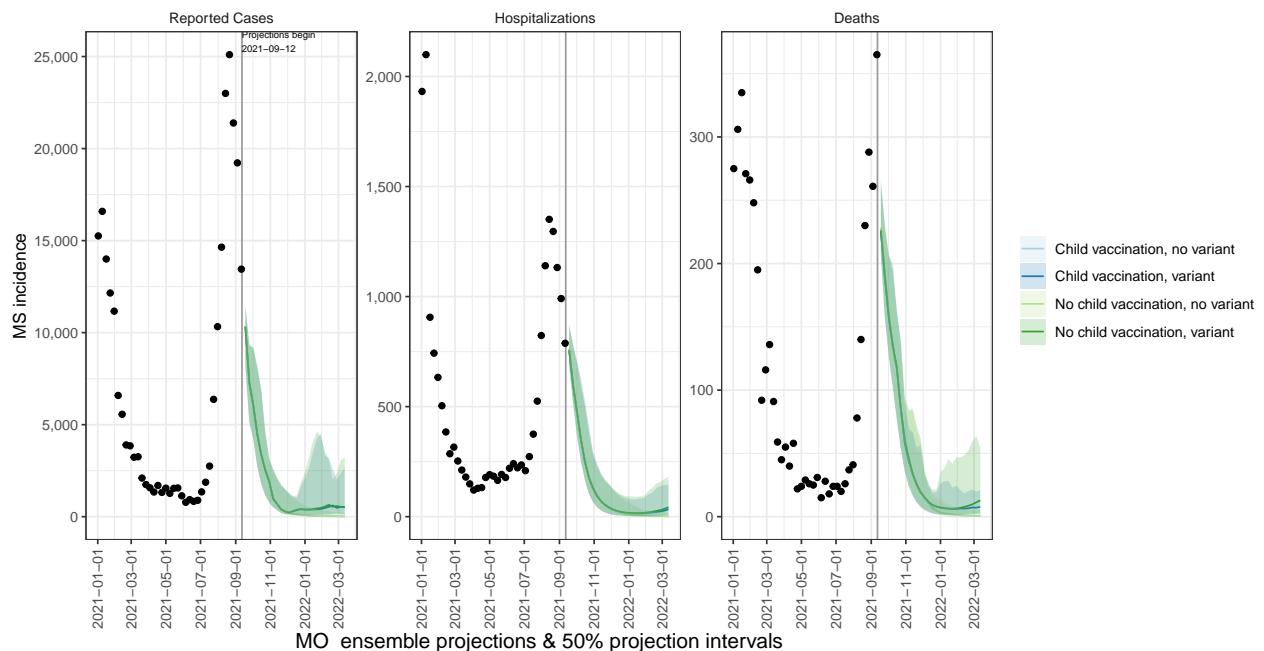
MI ensemble projections & 50% projection intervals



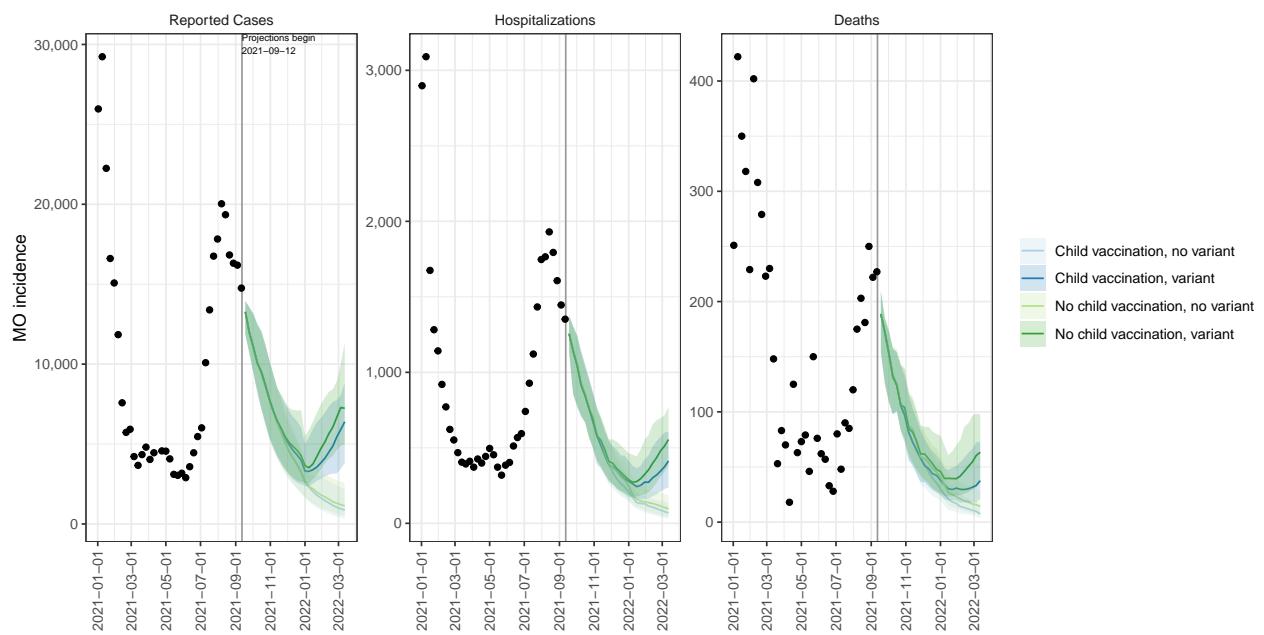
MN ensemble projections & 50% projection intervals



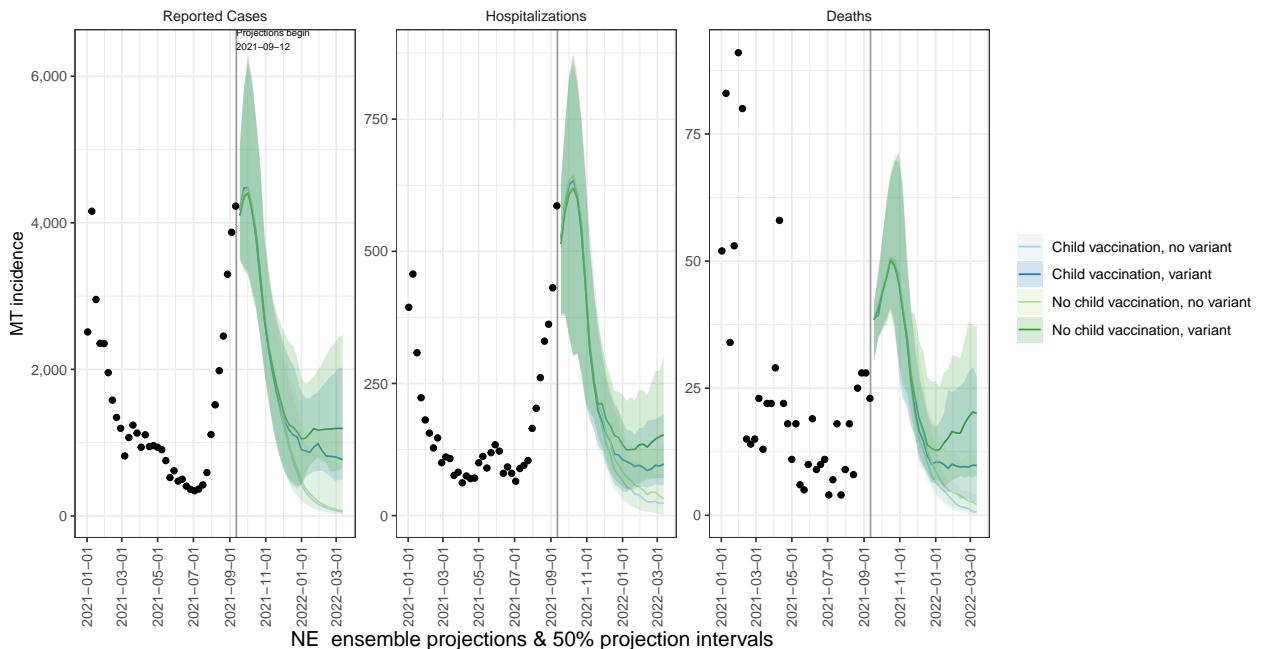
MS ensemble projections & 50% projection intervals



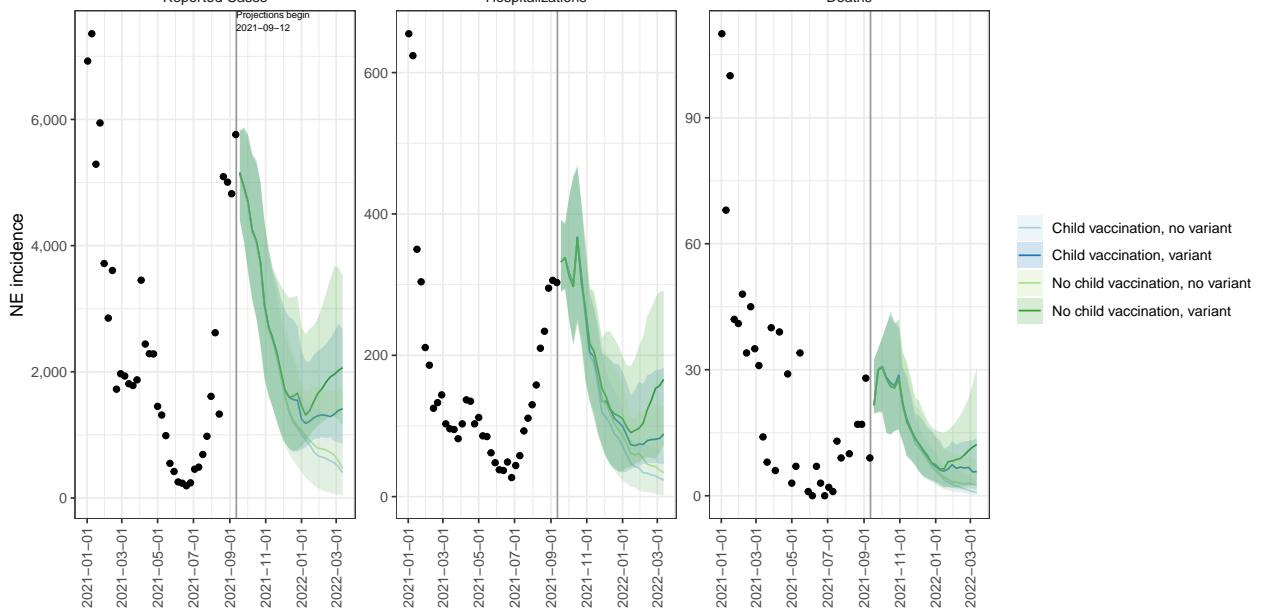
MO ensemble projections & 50% projection intervals



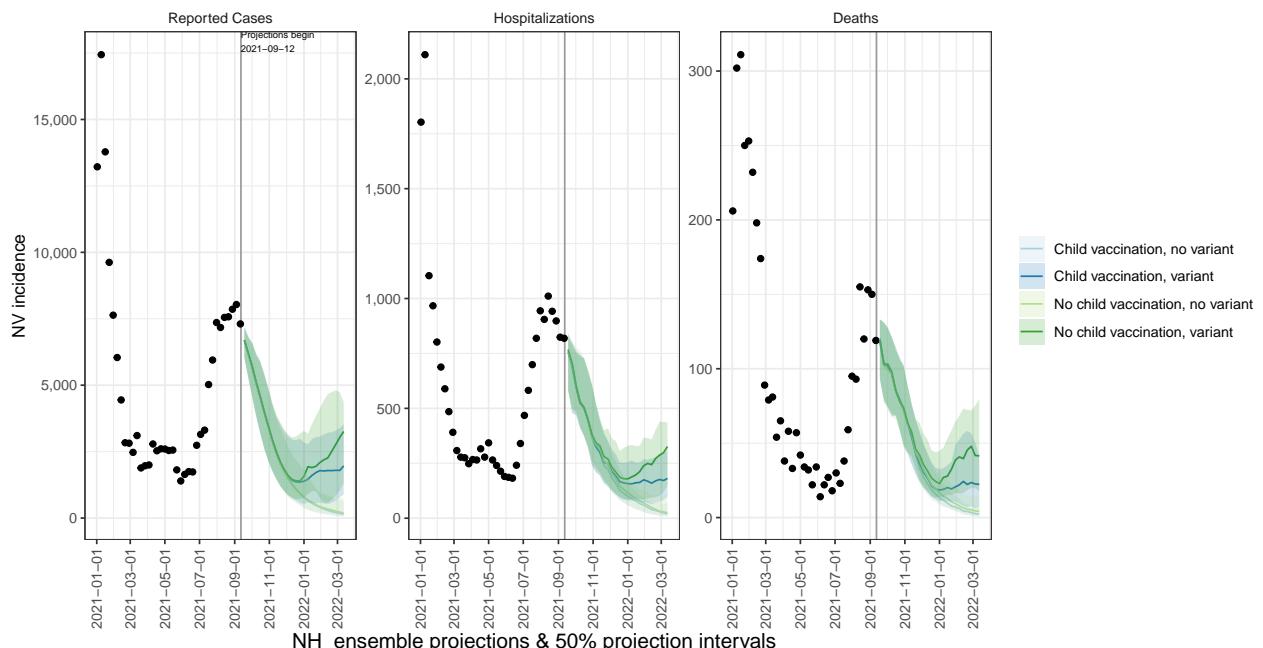
MT ensemble projections & 50% projection intervals



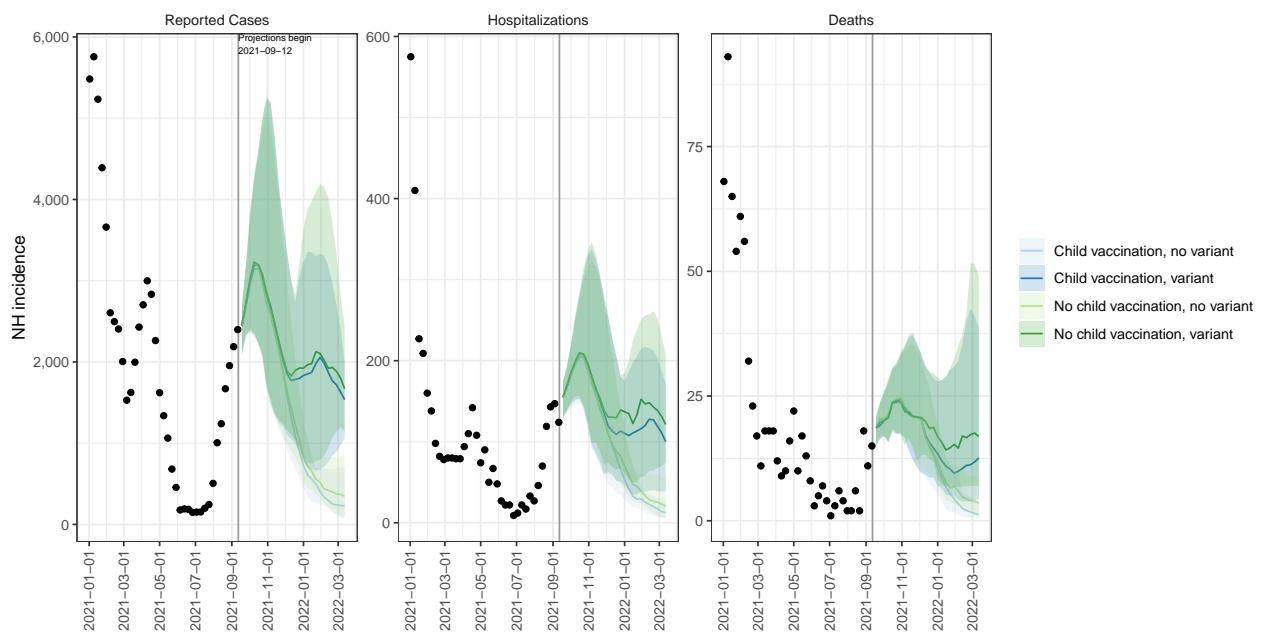
NE ensemble projections & 50% projection intervals



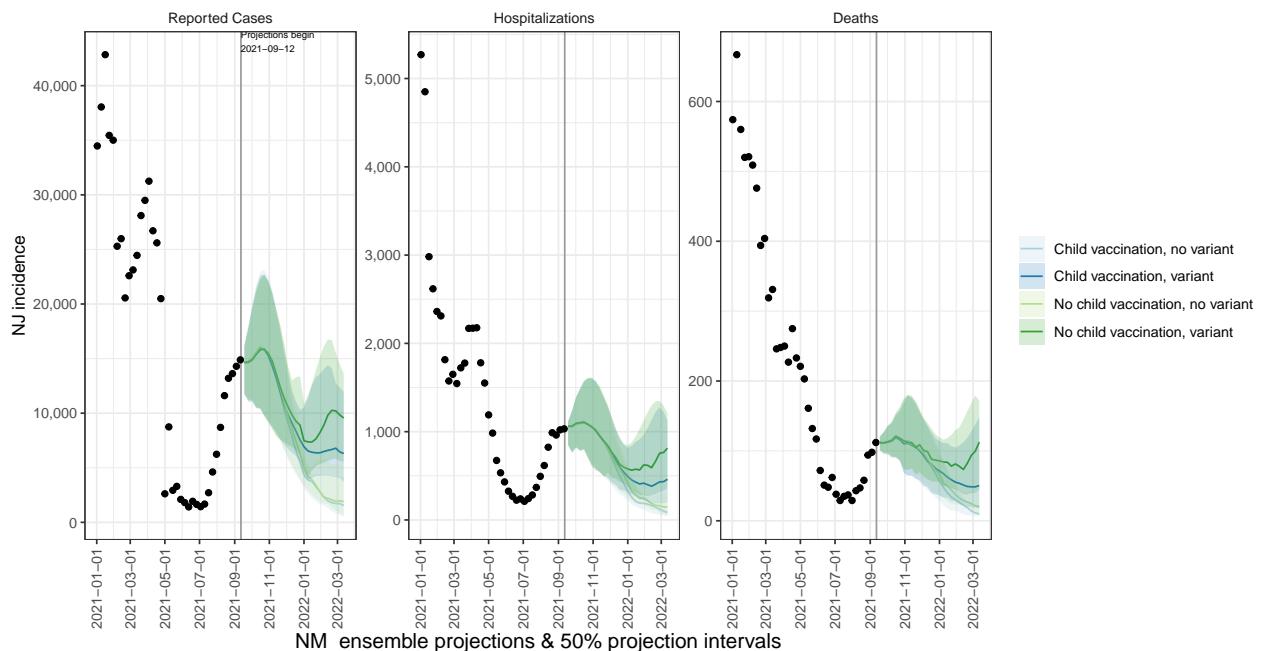
NV ensemble projections & 50% projection intervals



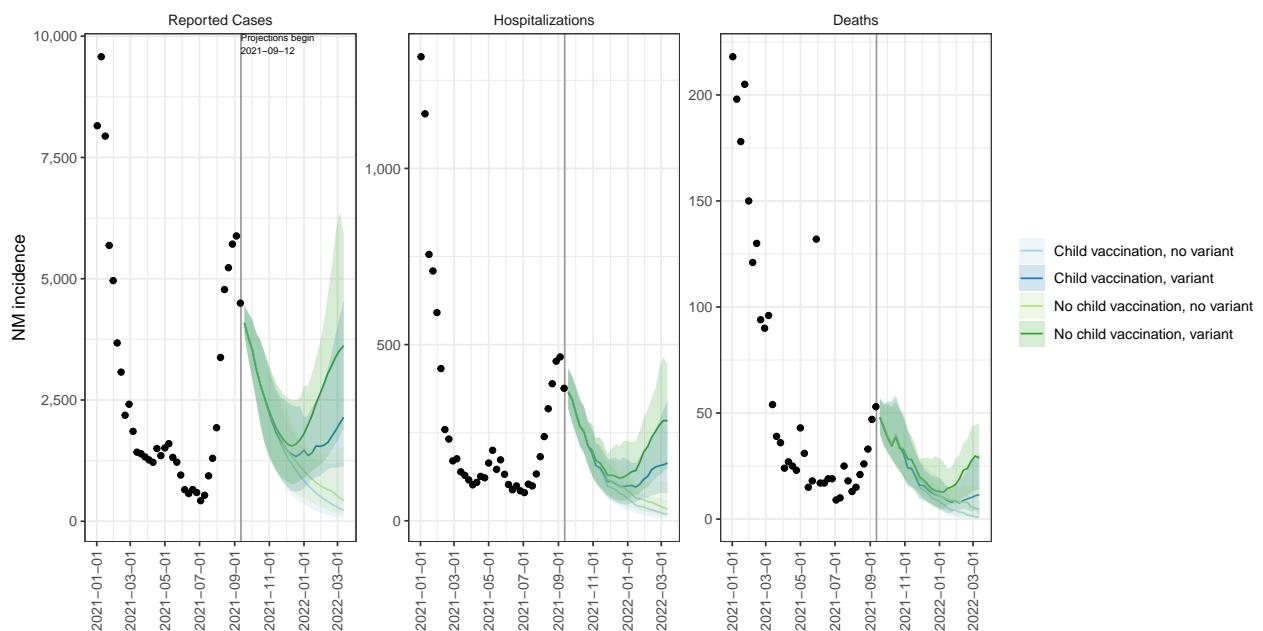
NH ensemble projections & 50% projection intervals



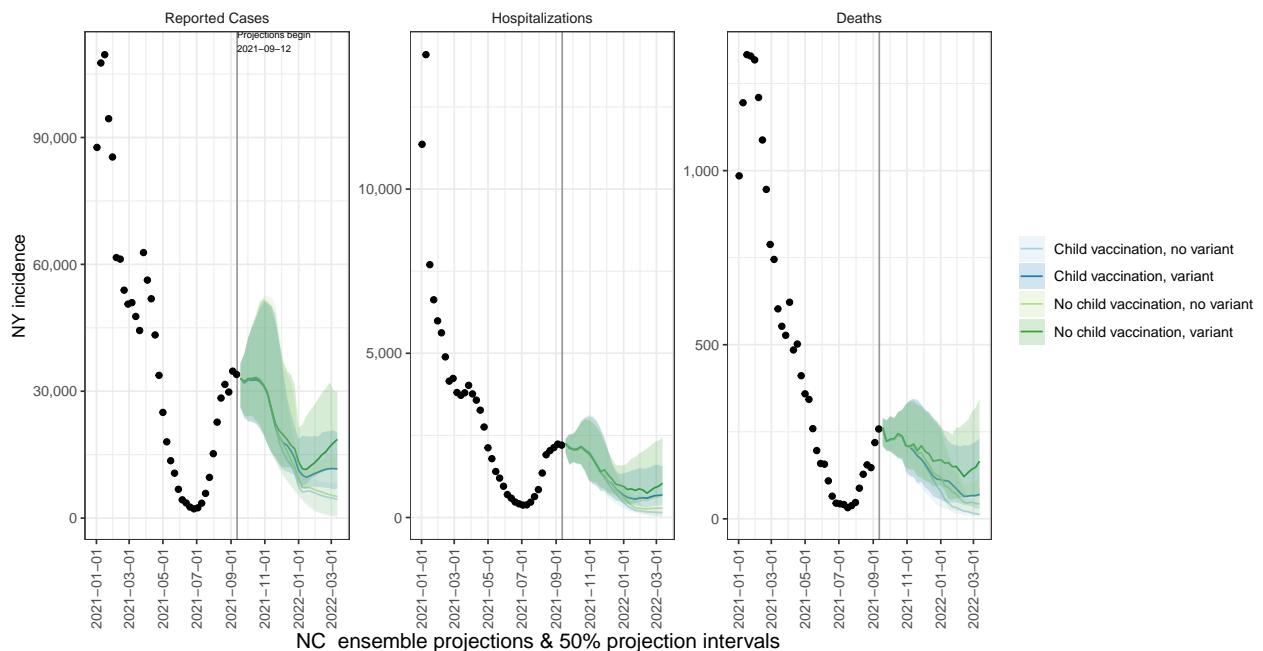
NJ ensemble projections & 50% projection intervals



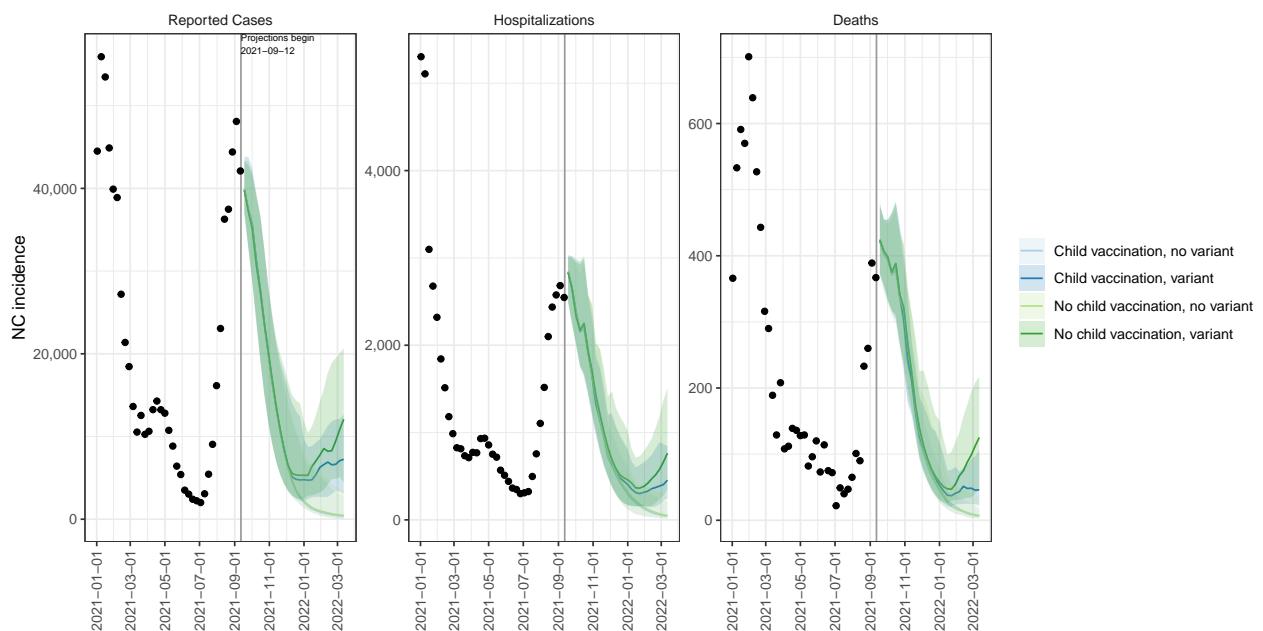
NM ensemble projections & 50% projection intervals



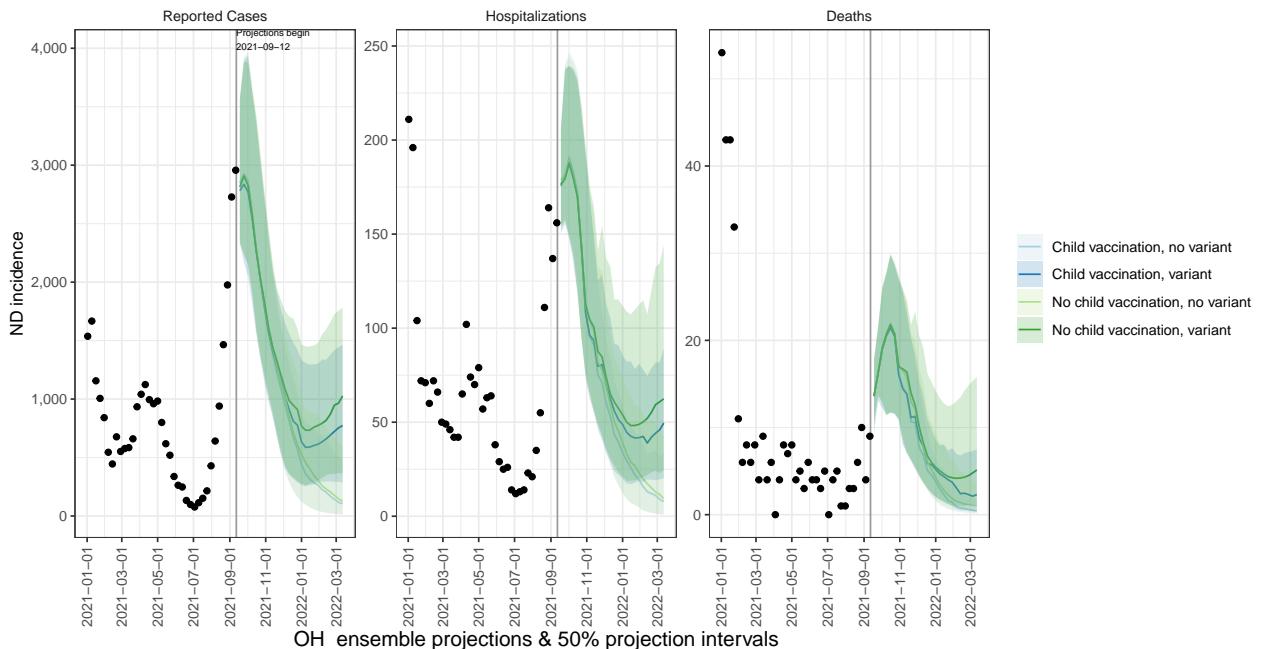
NY ensemble projections & 50% projection intervals



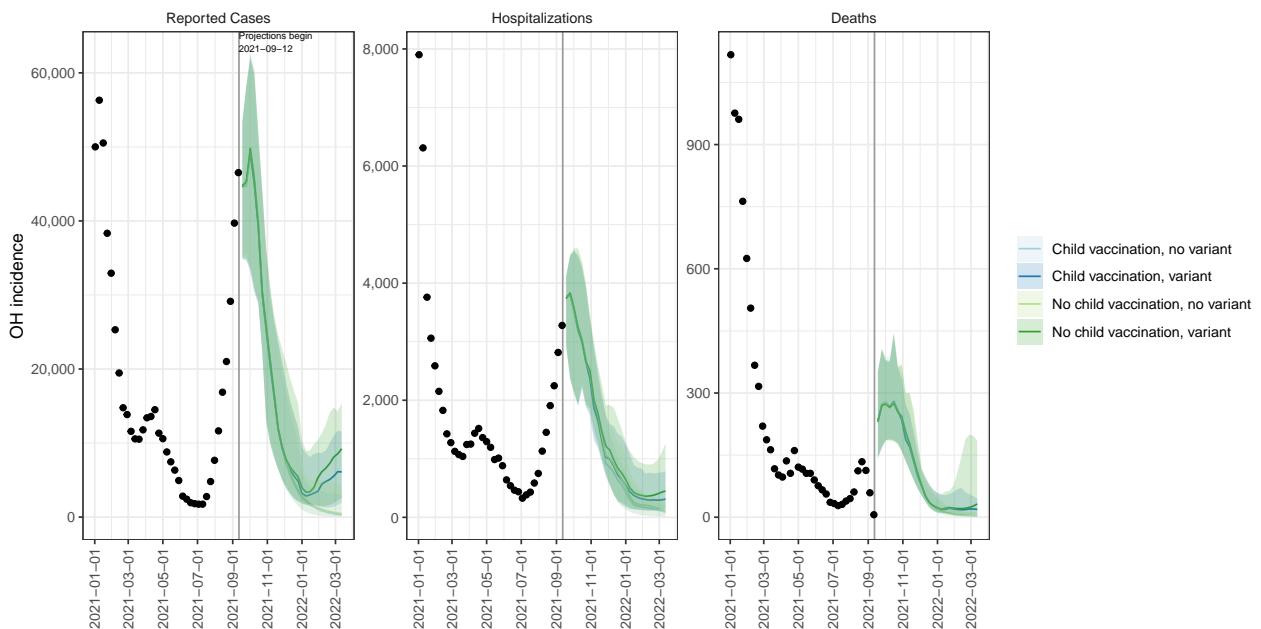
NC ensemble projections & 50% projection intervals



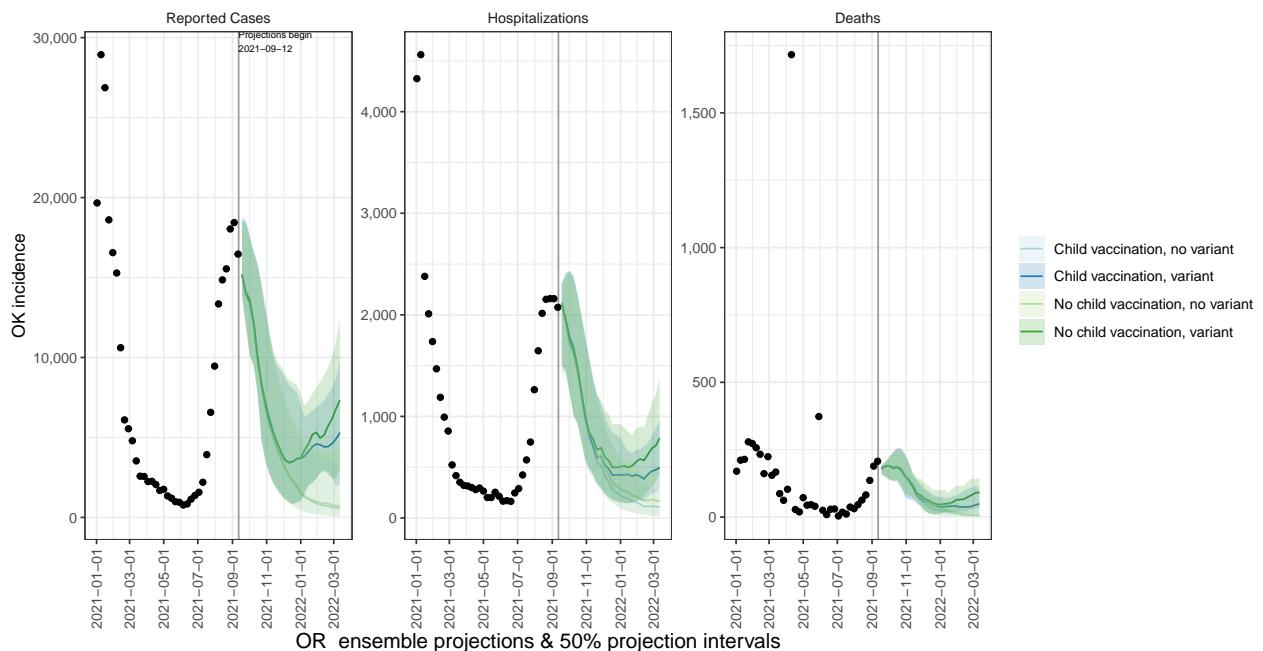
ND ensemble projections & 50% projection intervals



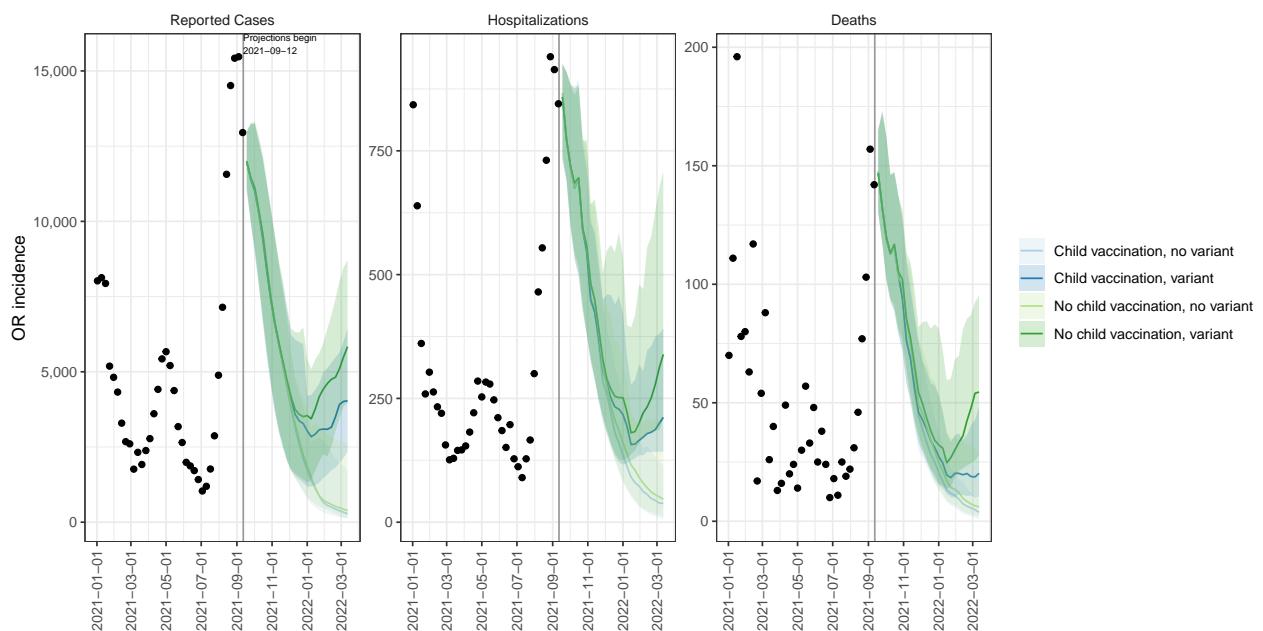
OH ensemble projections & 50% projection intervals



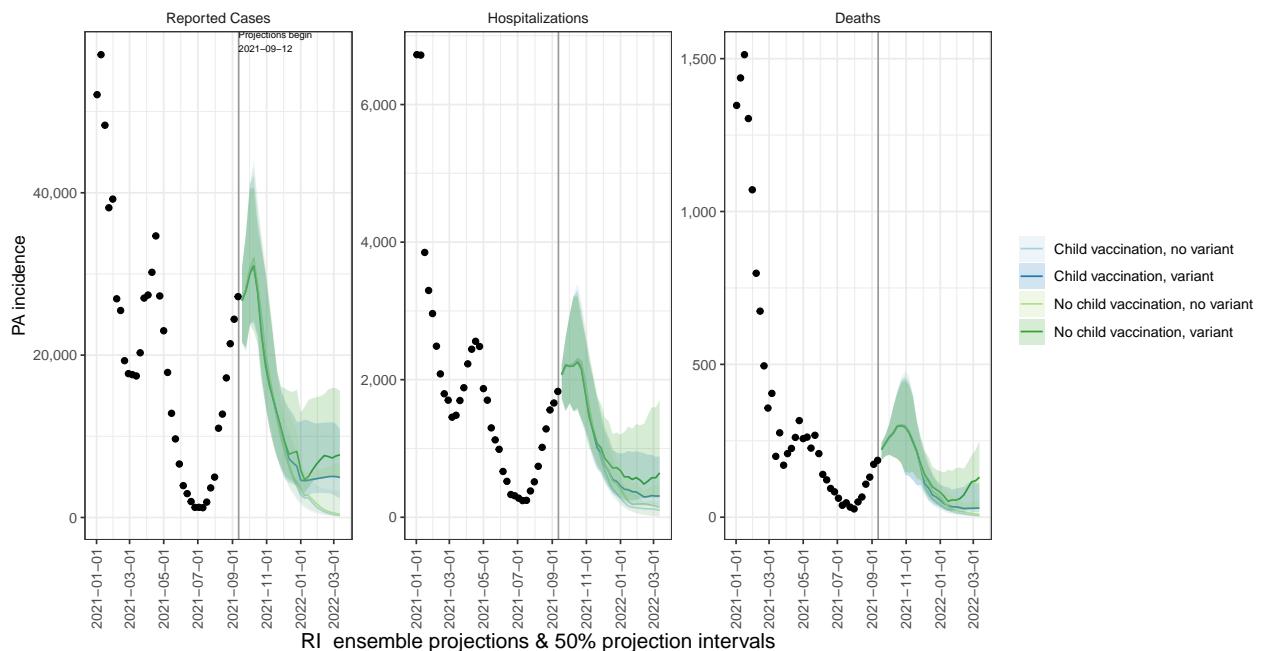
OK ensemble projections & 50% projection intervals



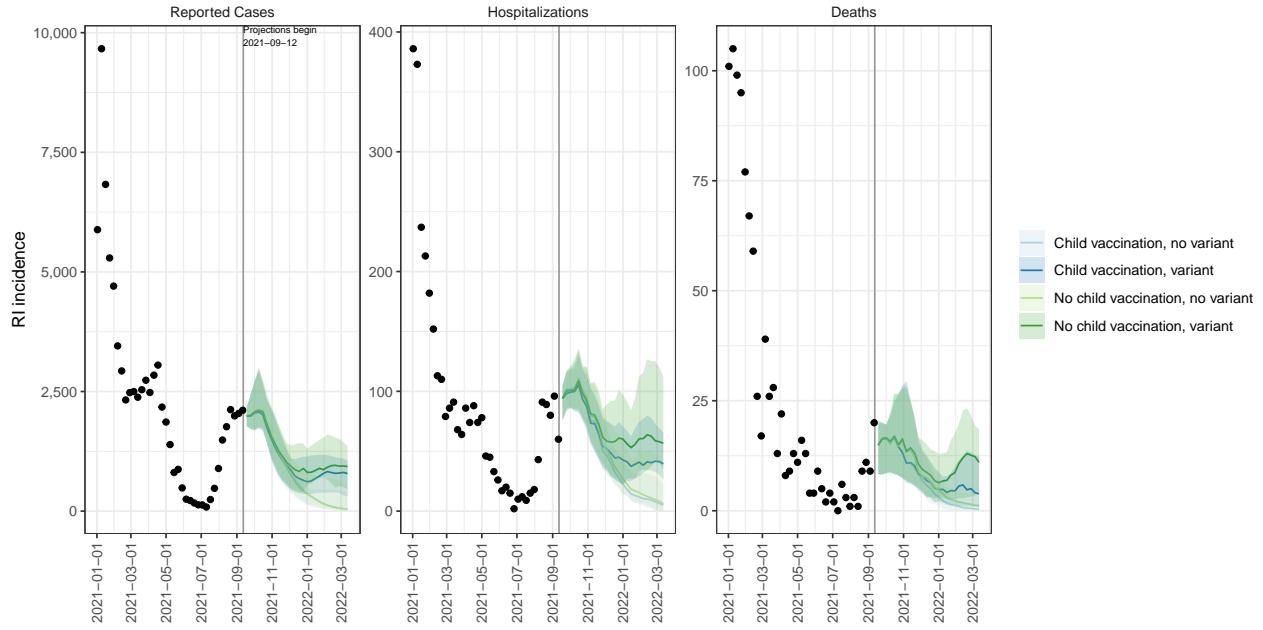
OR ensemble projections & 50% projection intervals



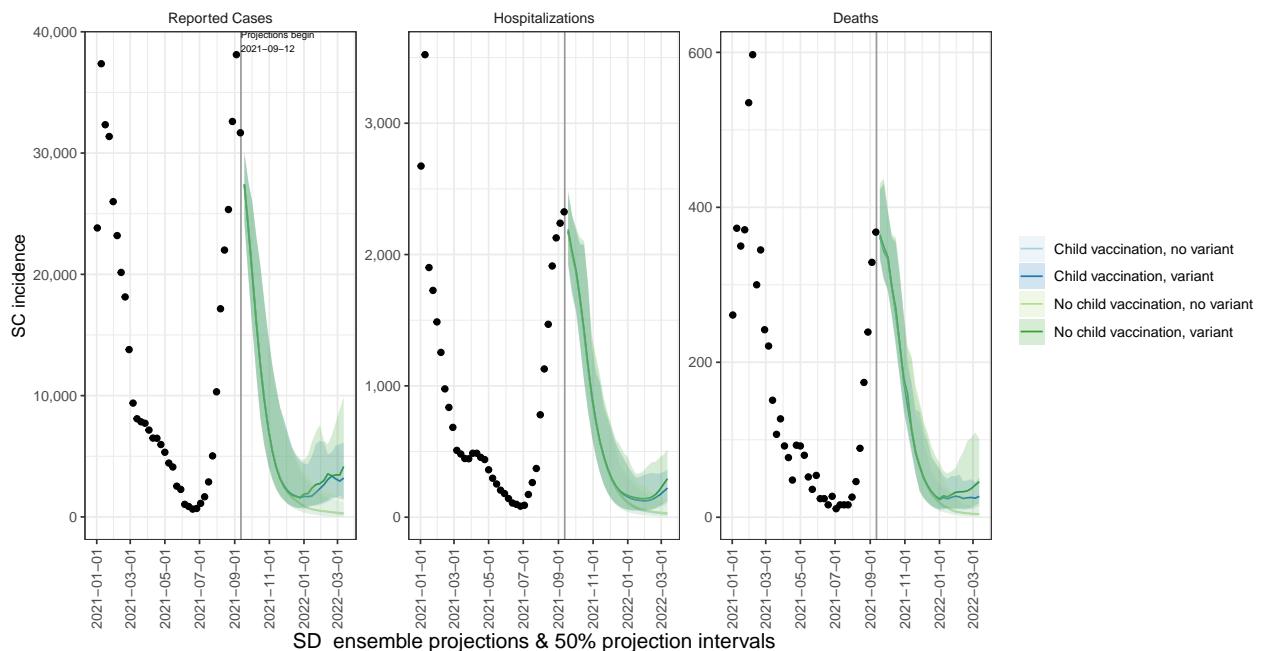
PA ensemble projections & 50% projection intervals



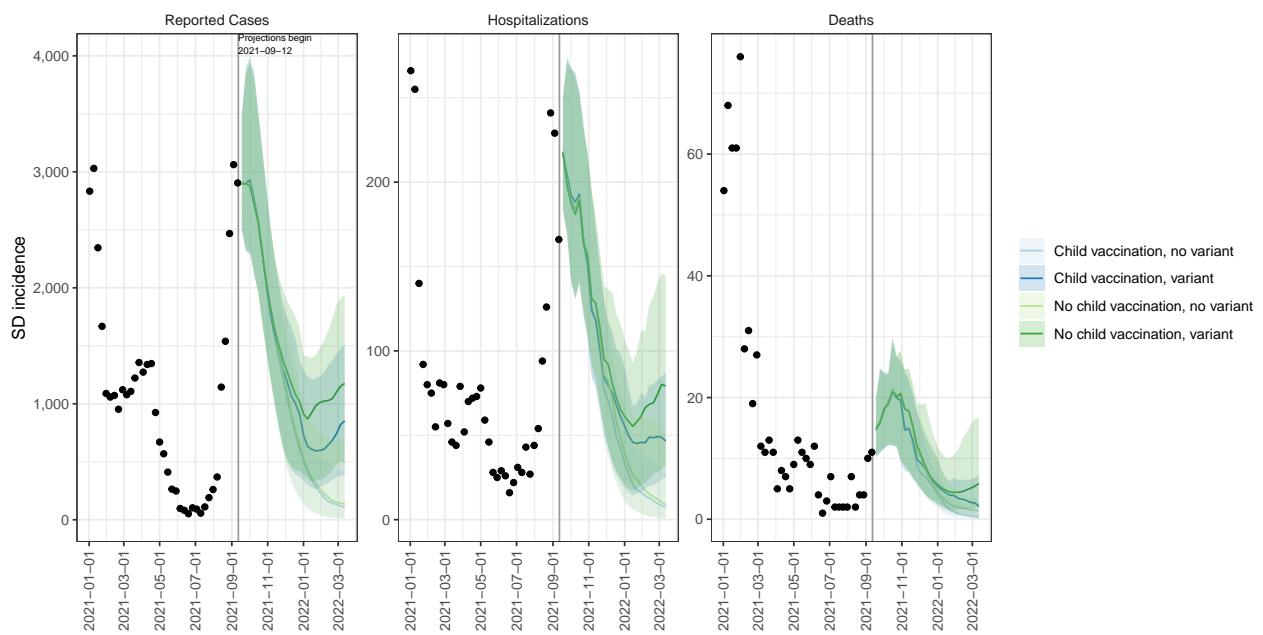
RI ensemble projections & 50% projection intervals



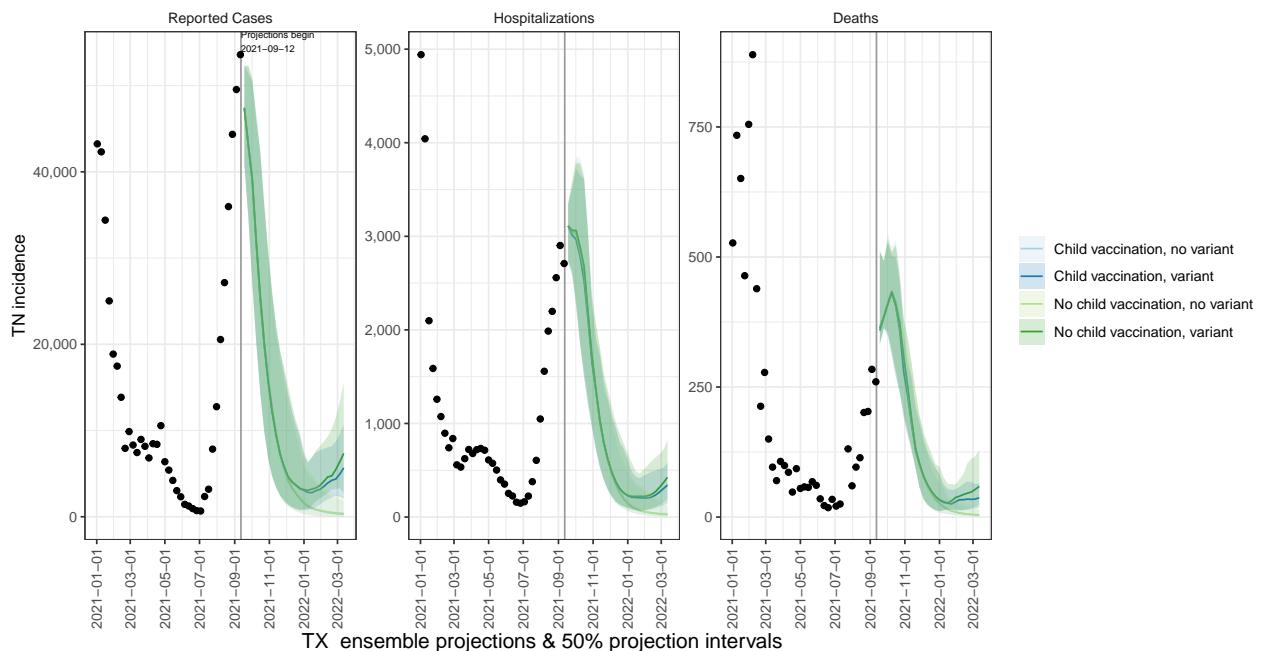
SC ensemble projections & 50% projection intervals



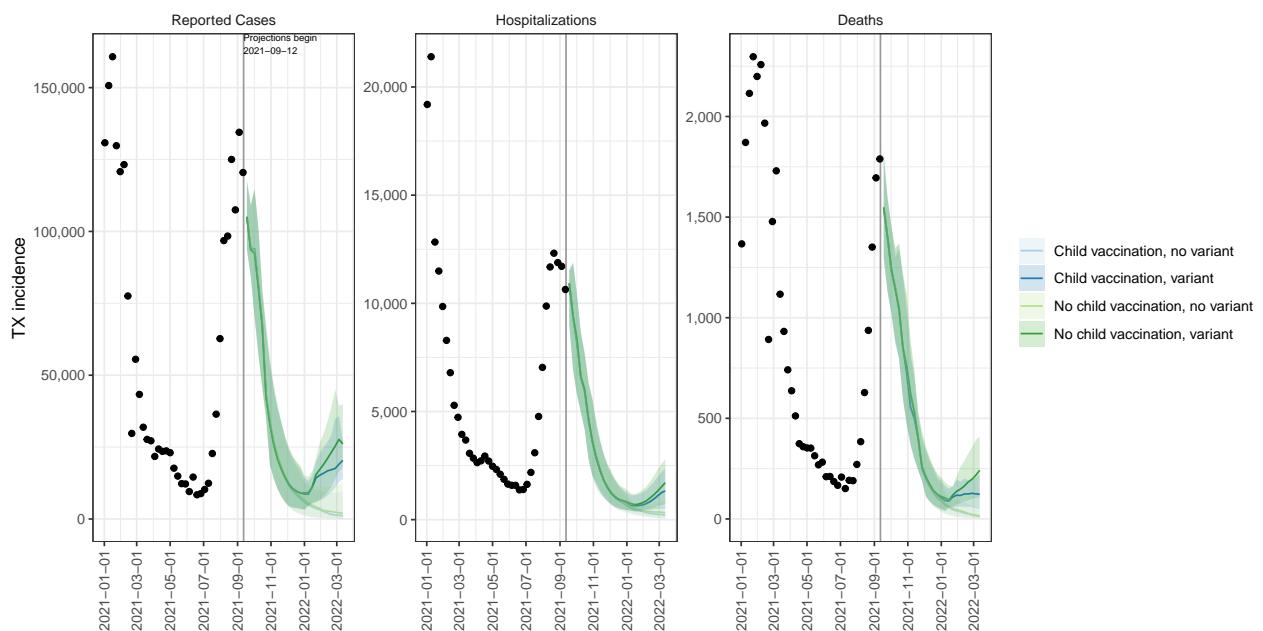
SD ensemble projections & 50% projection intervals



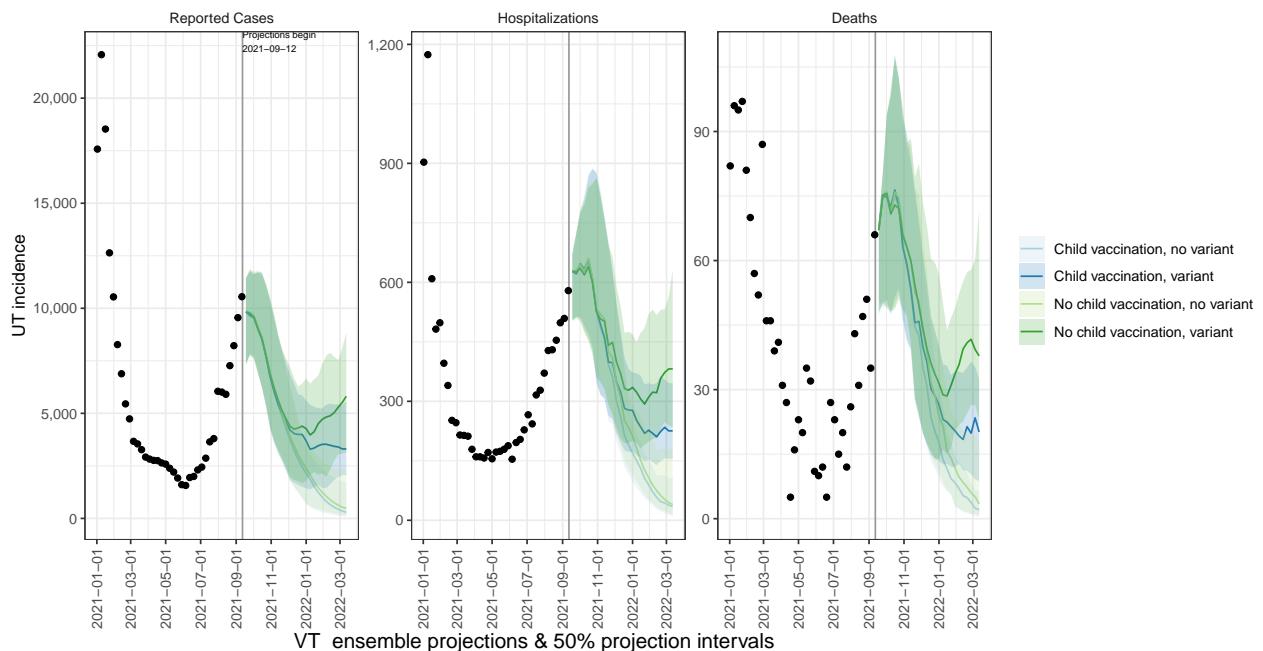
TN ensemble projections & 50% projection intervals



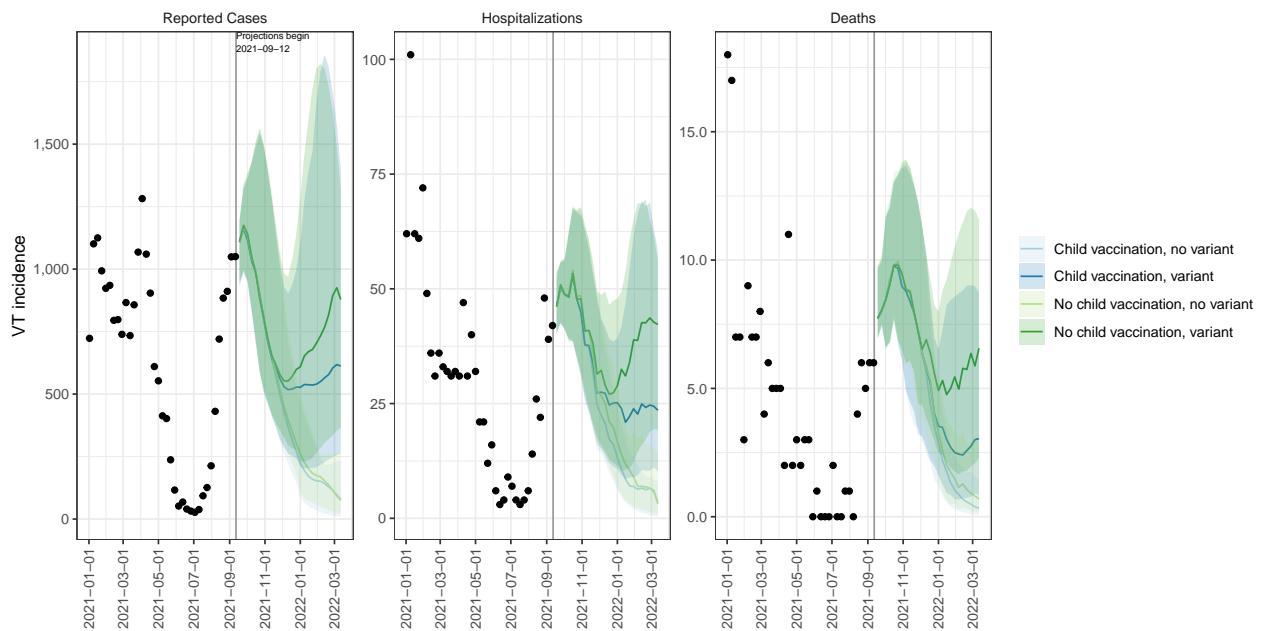
TX ensemble projections & 50% projection intervals



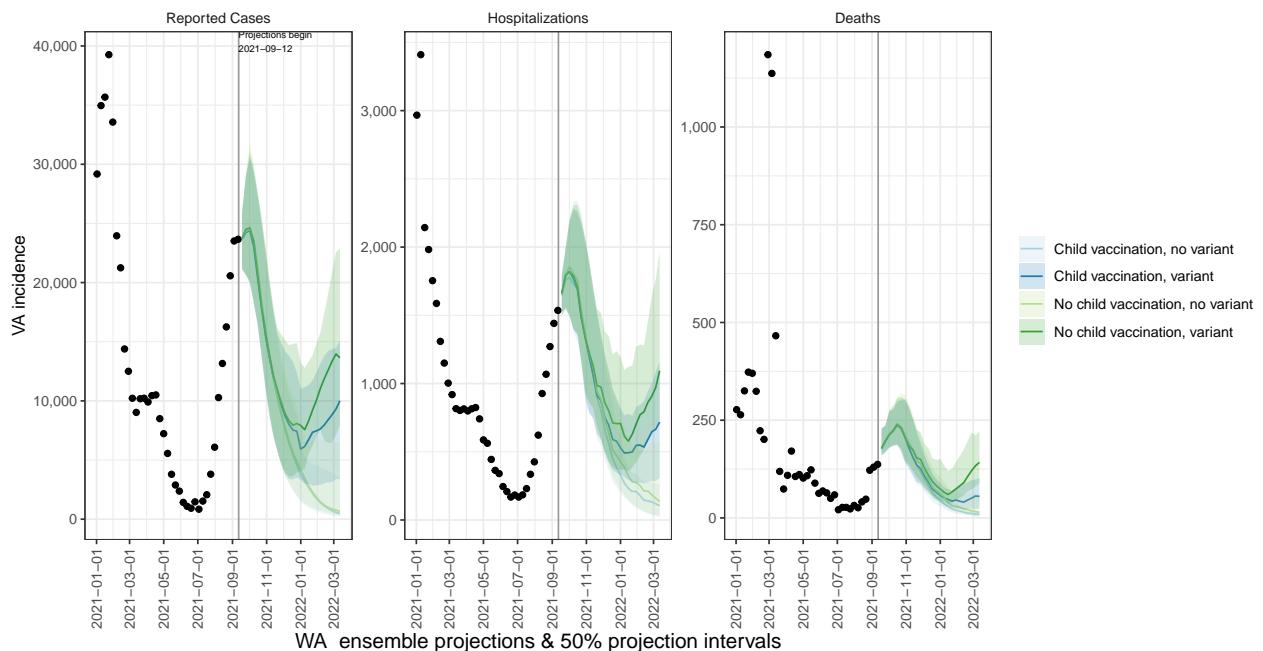
UT ensemble projections & 50% projection intervals



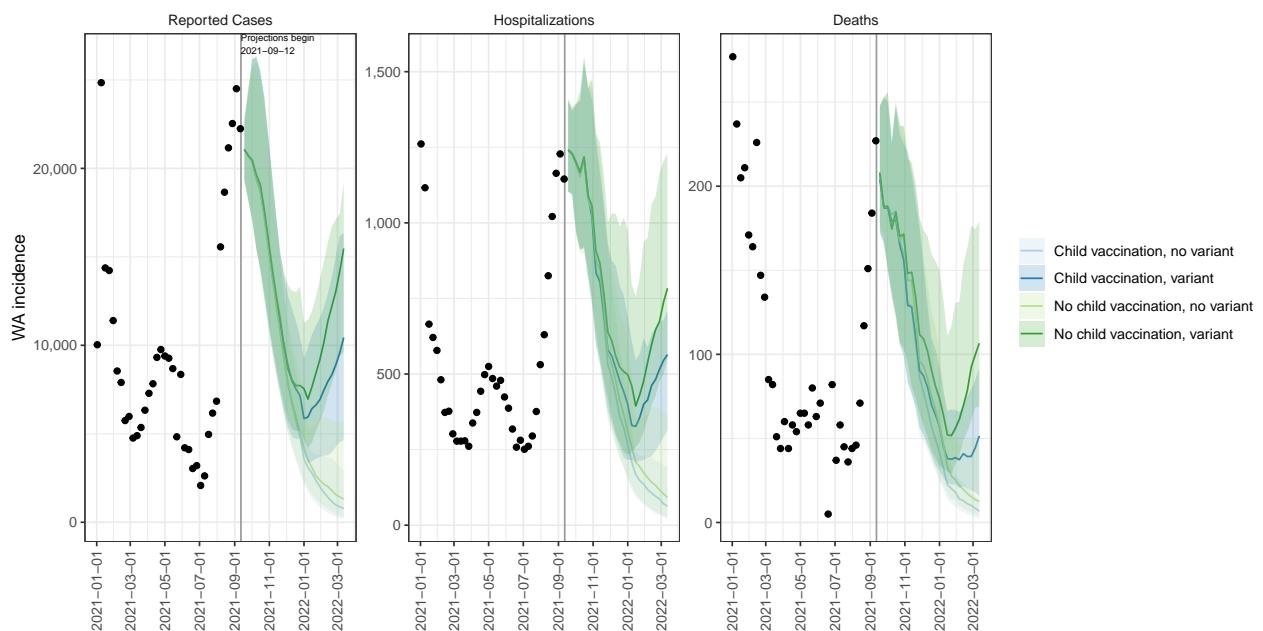
VT ensemble projections & 50% projection intervals



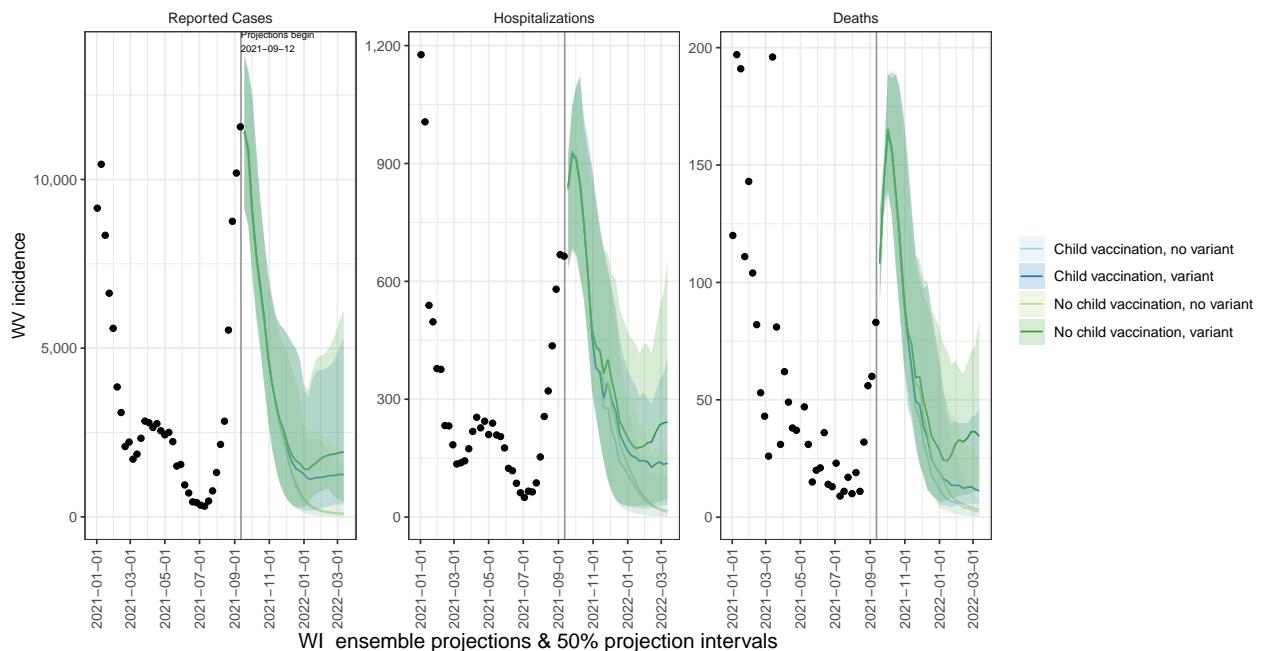
VA ensemble projections & 50% projection intervals



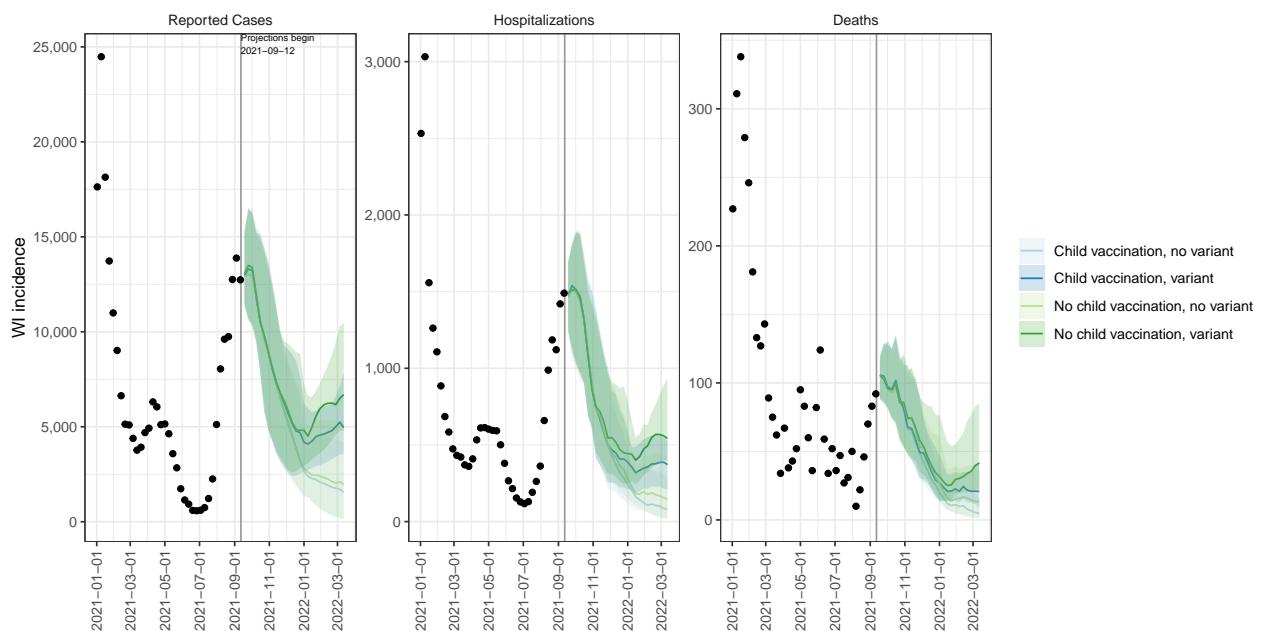
WA ensemble projections & 50% projection intervals



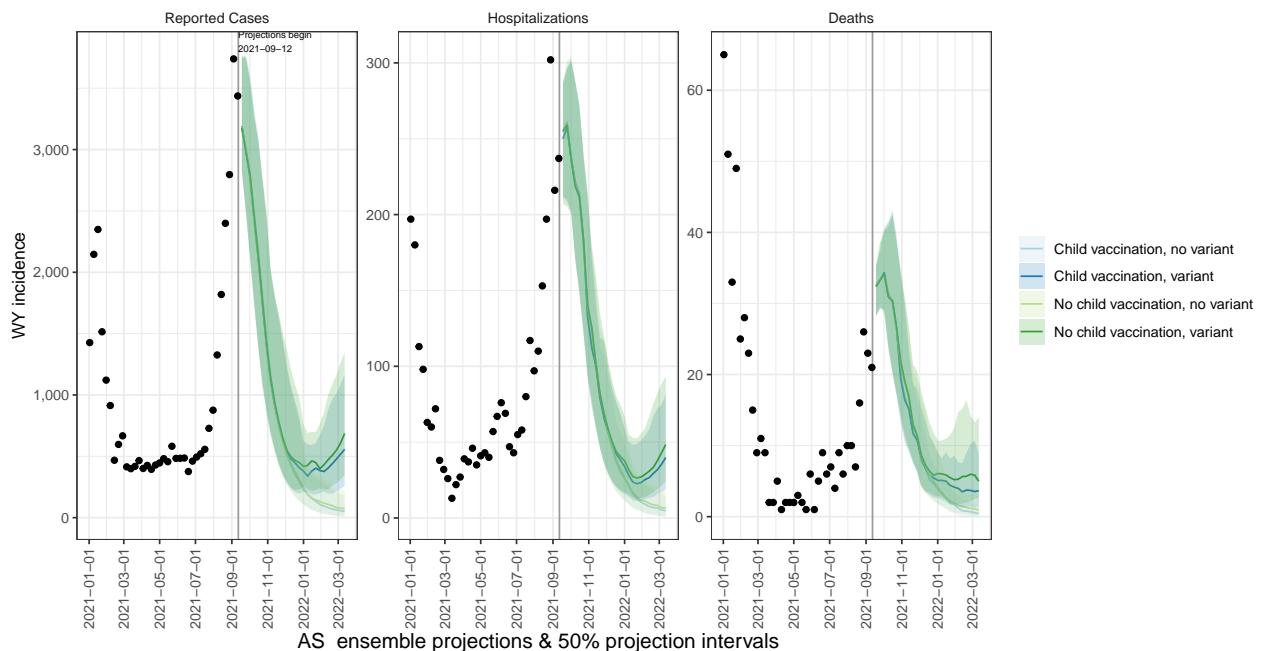
WV ensemble projections & 50% projection intervals



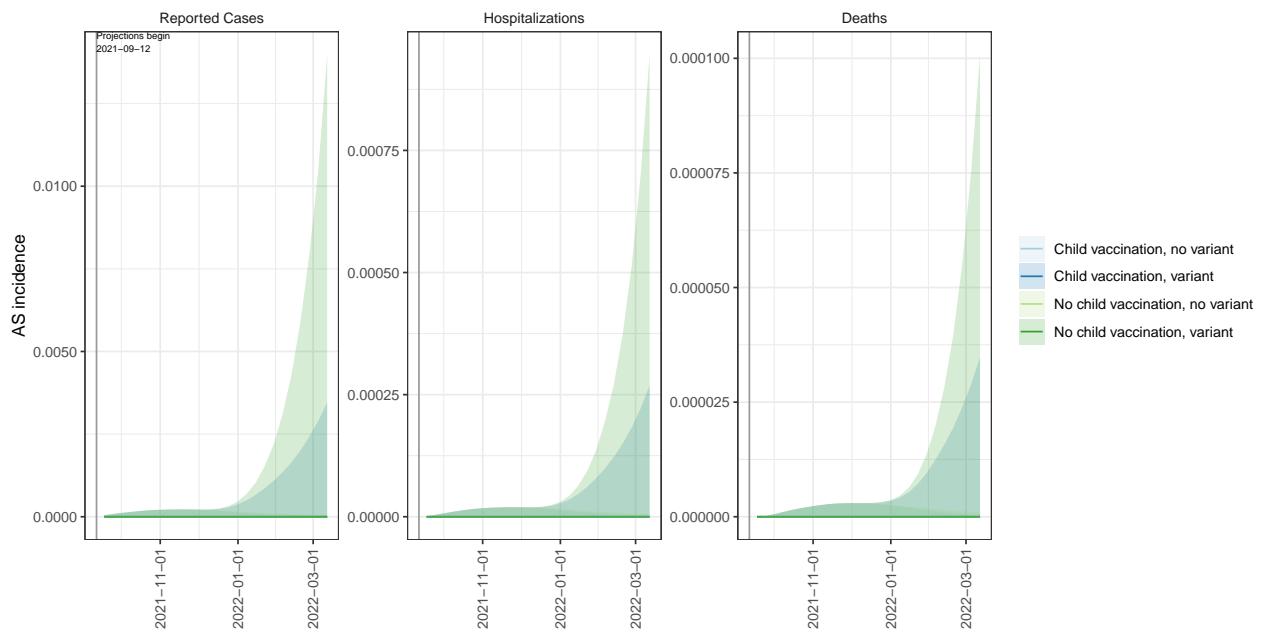
WI ensemble projections & 50% projection intervals



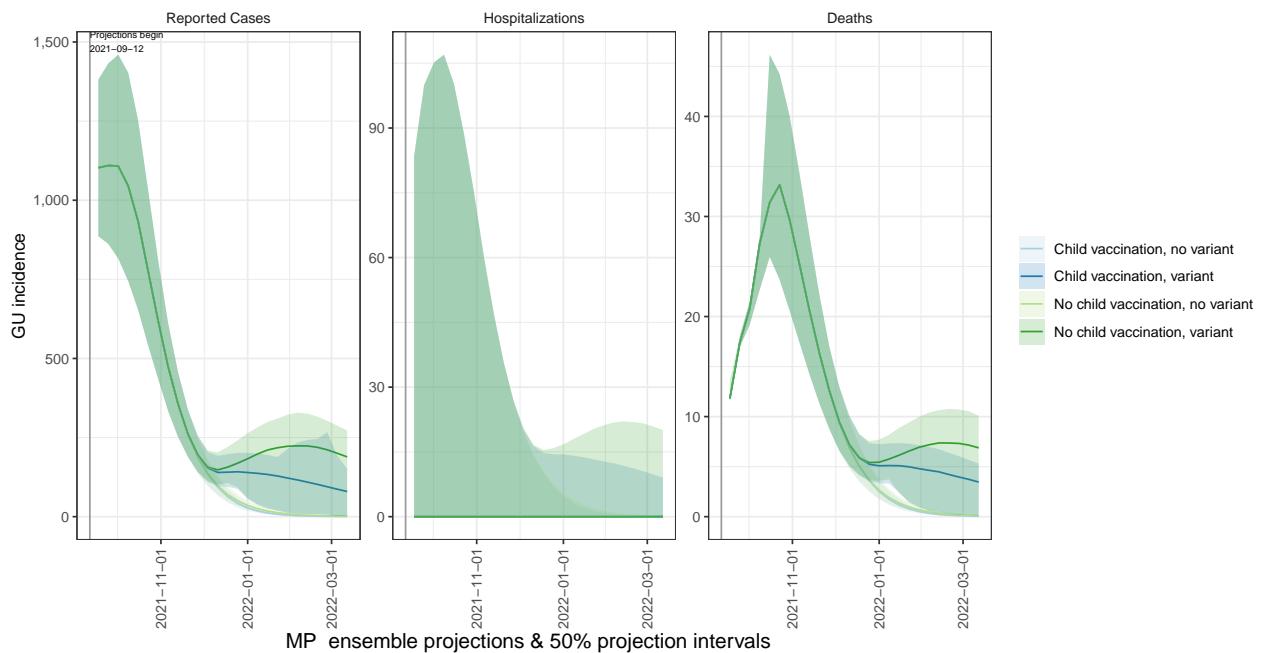
WY ensemble projections & 50% projection intervals



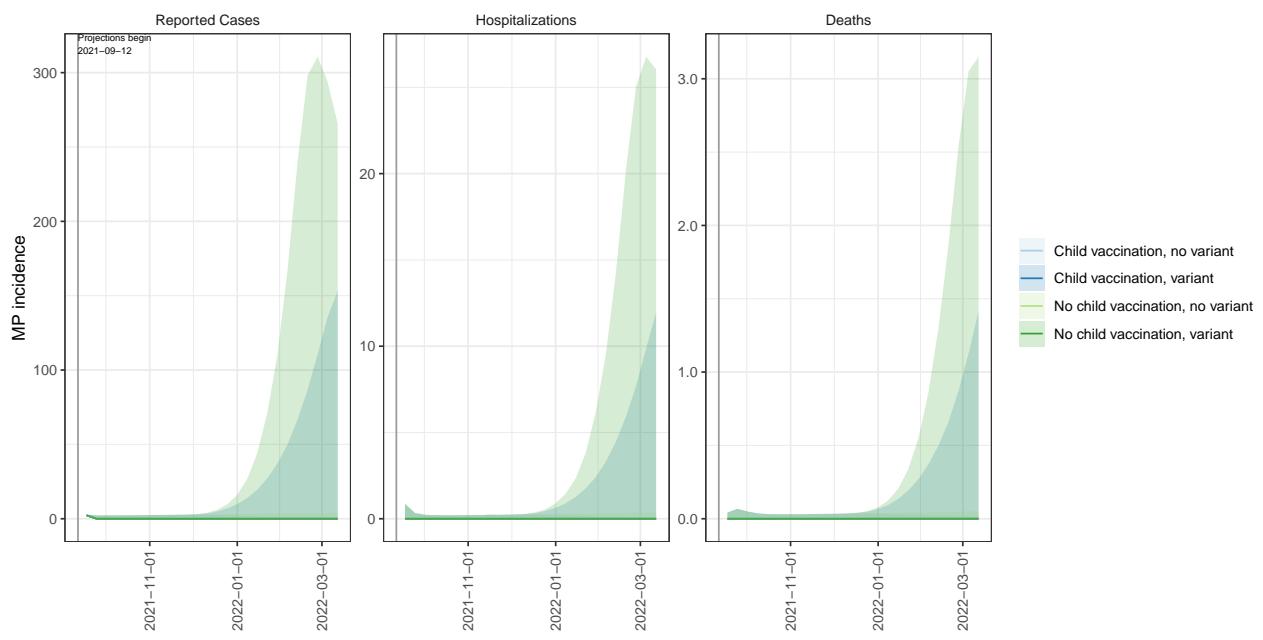
AS ensemble projections & 50% projection intervals



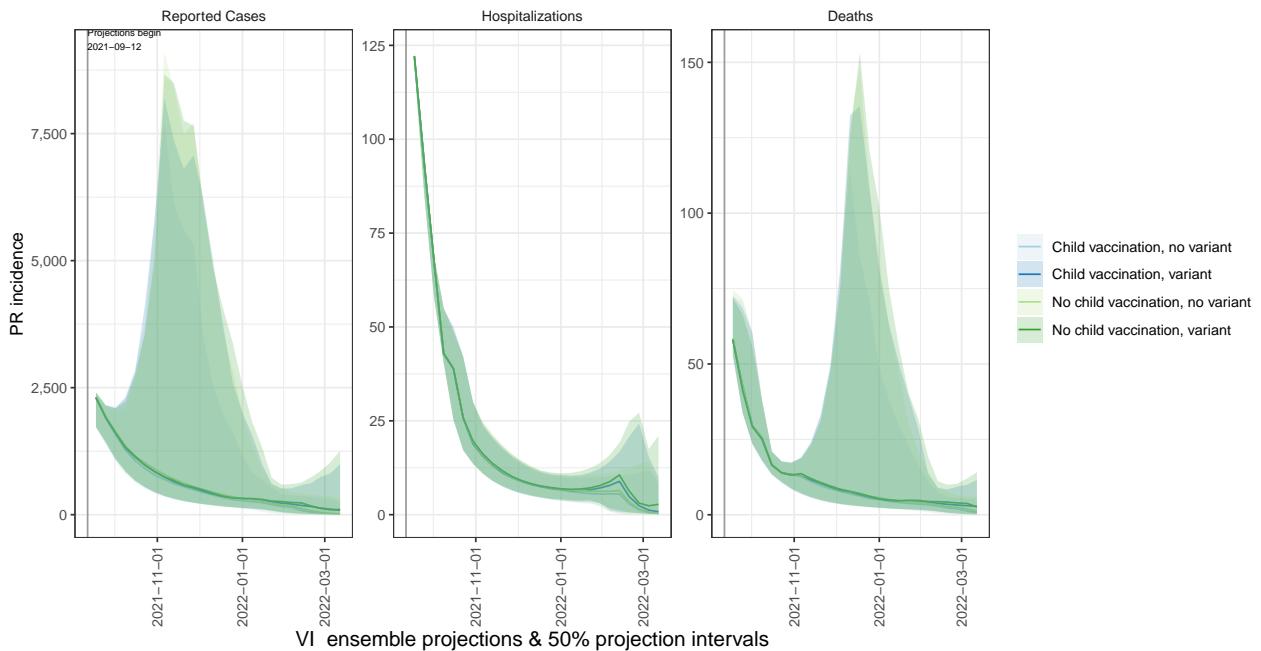
GU ensemble projections & 50% projection intervals



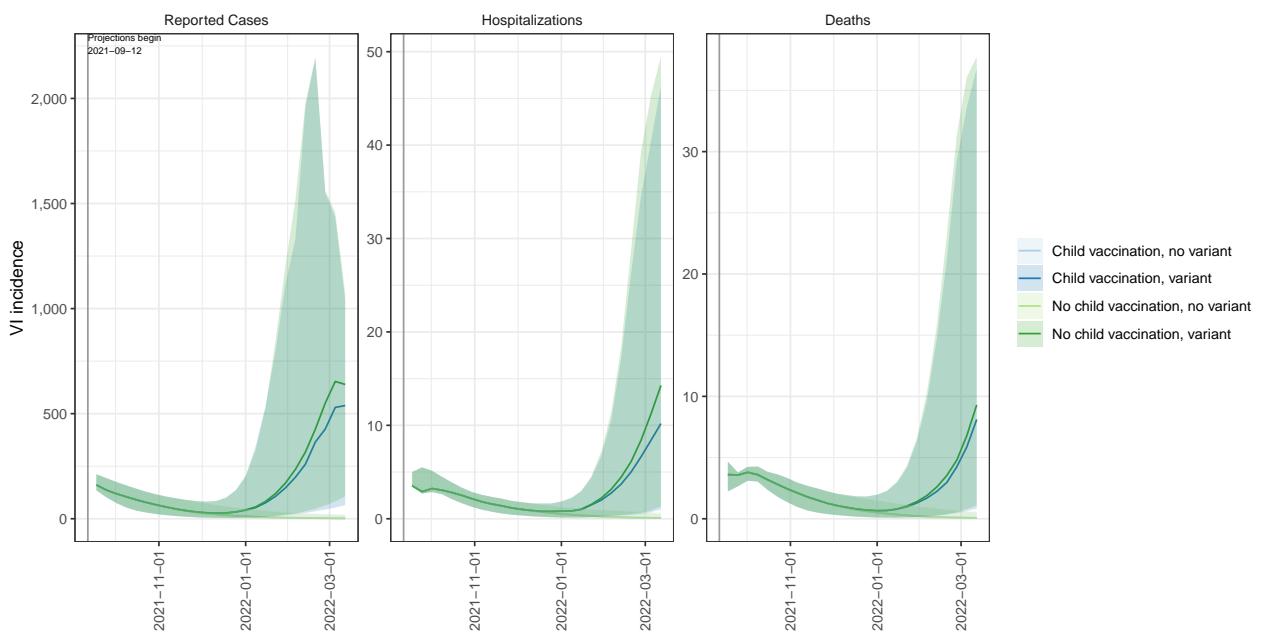
MP ensemble projections & 50% projection intervals



PR ensemble projections & 50% projection intervals



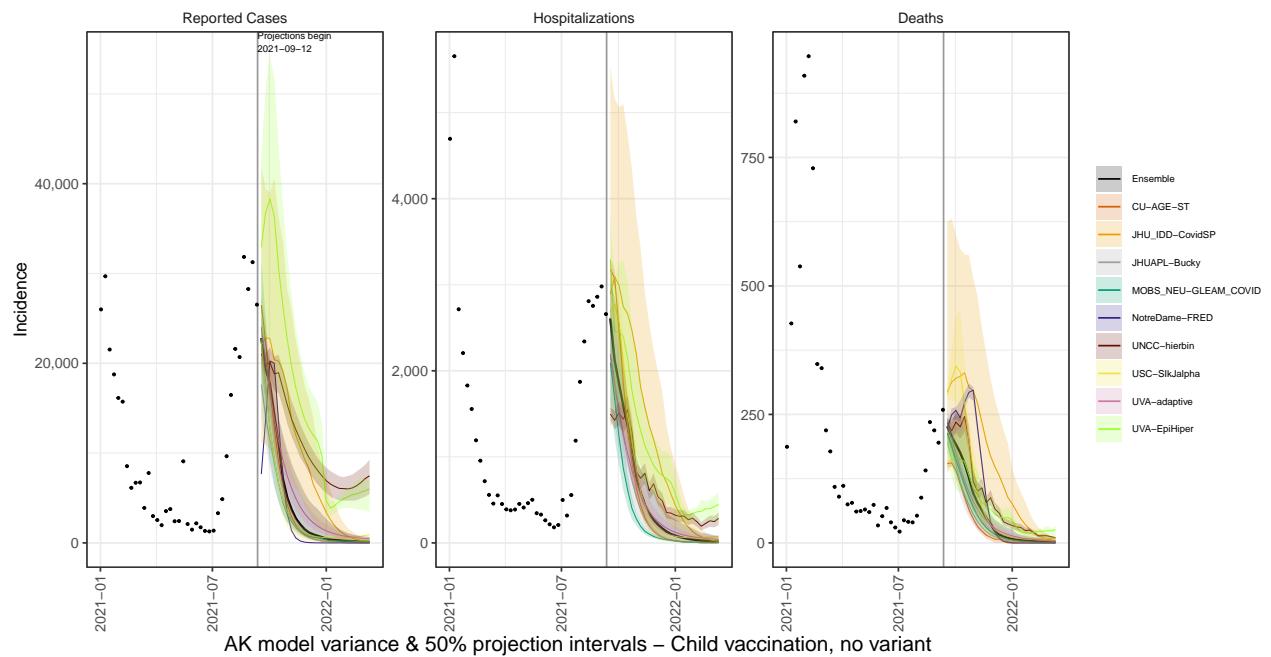
VI ensemble projections & 50% projection intervals



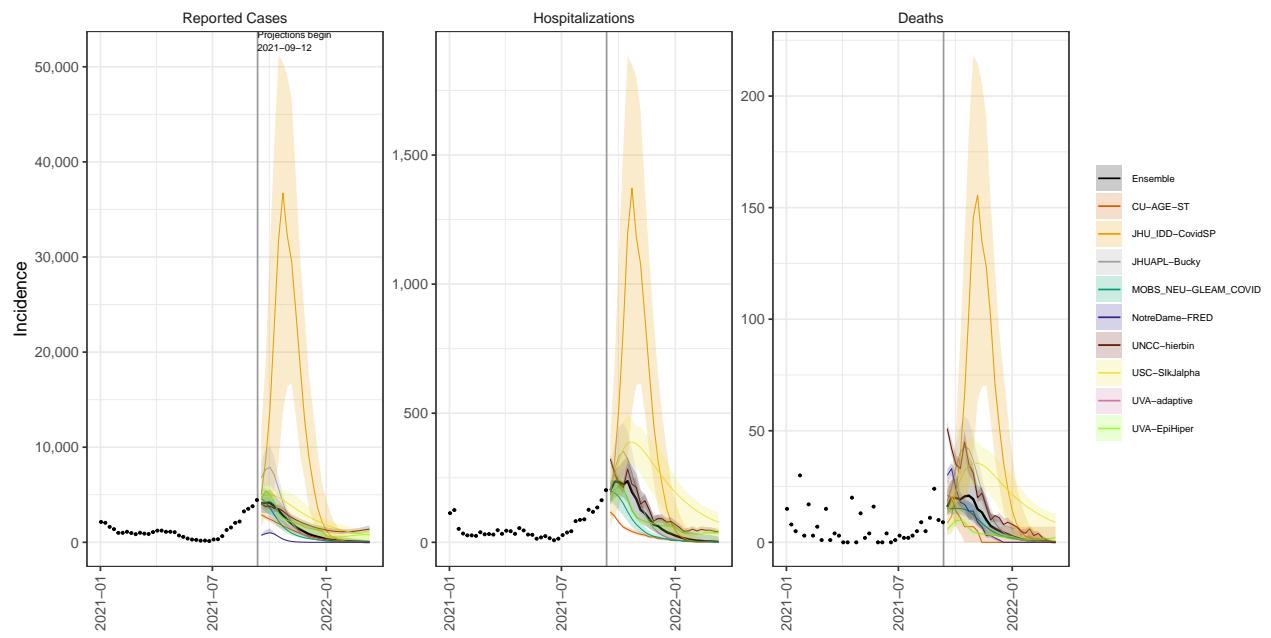
State-level model variation

National model variation for the child vaccination, no variant scenario

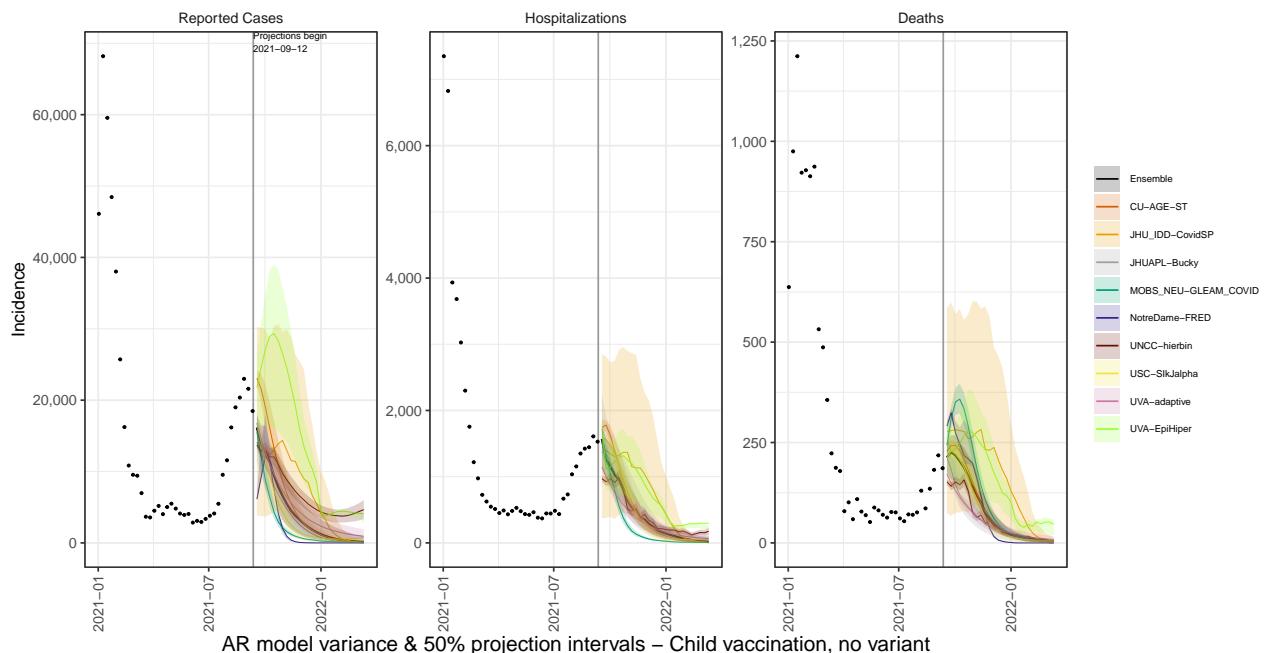
AL model variance & 50% projection intervals – Child vaccination, no variant



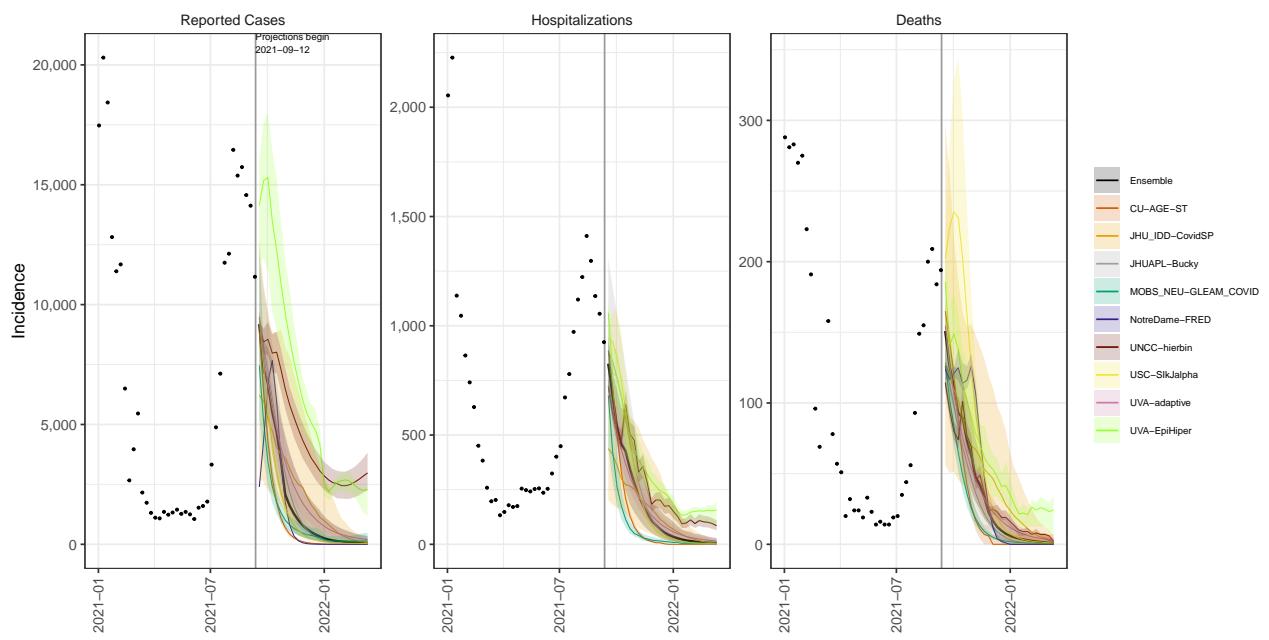
AK model variance & 50% projection intervals – Child vaccination, no variant



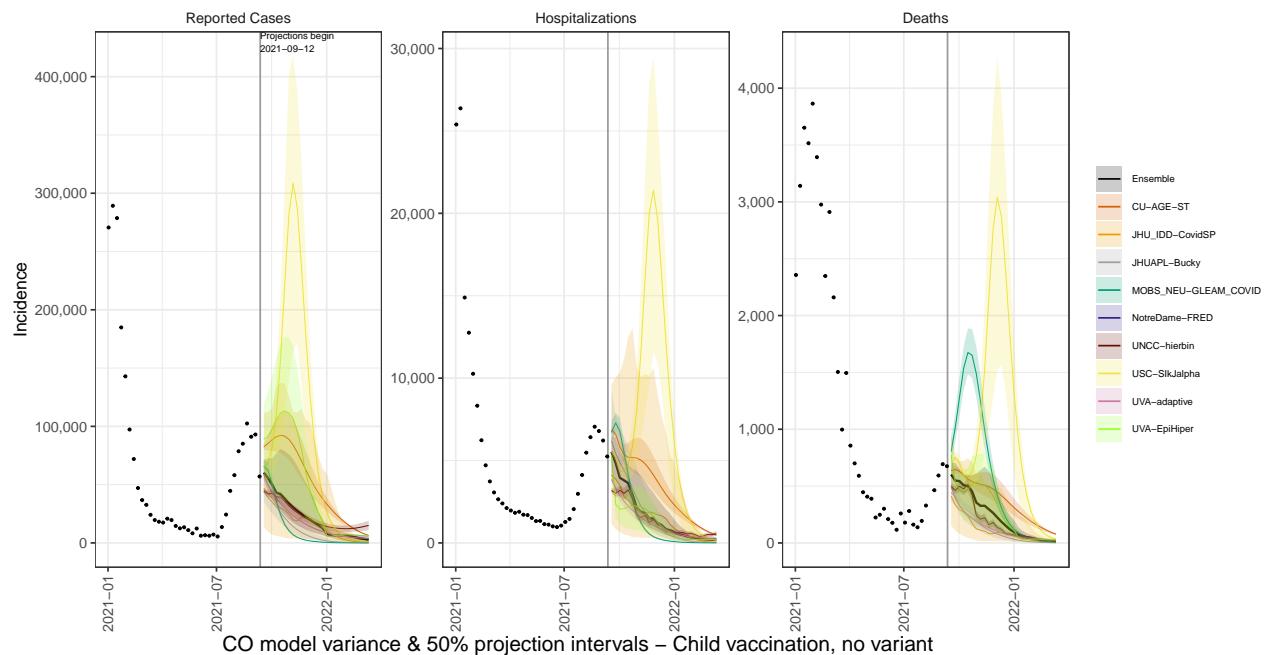
AZ model variance & 50% projection intervals – Child vaccination, no variant



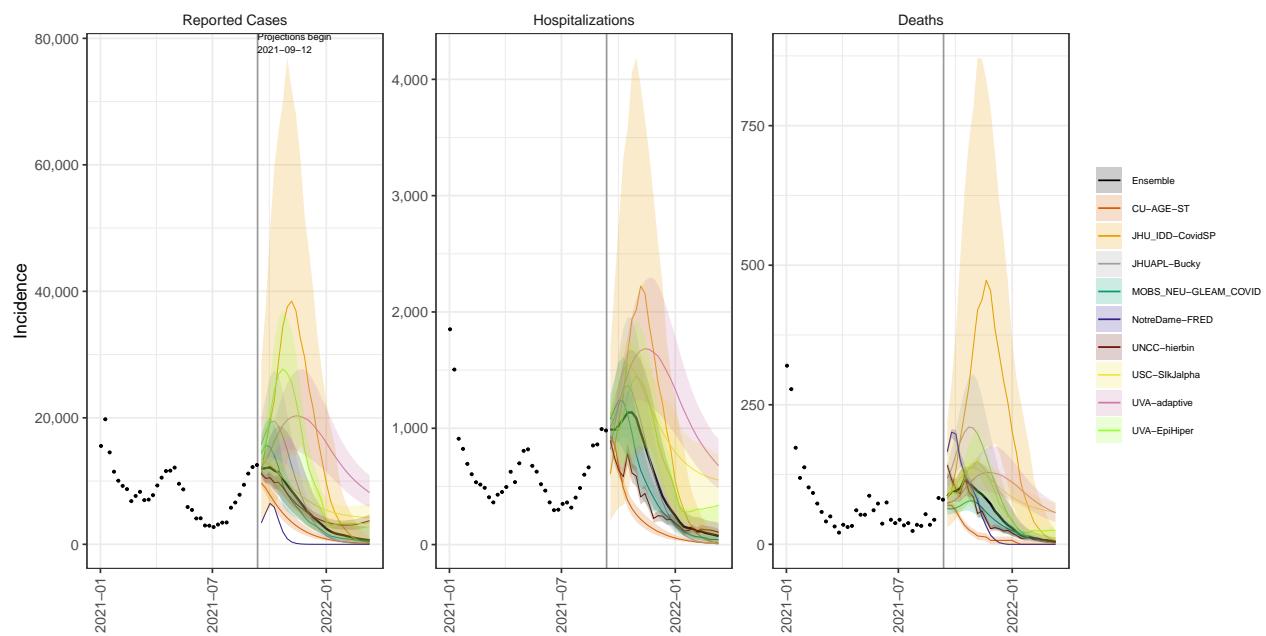
AR model variance & 50% projection intervals – Child vaccination, no variant



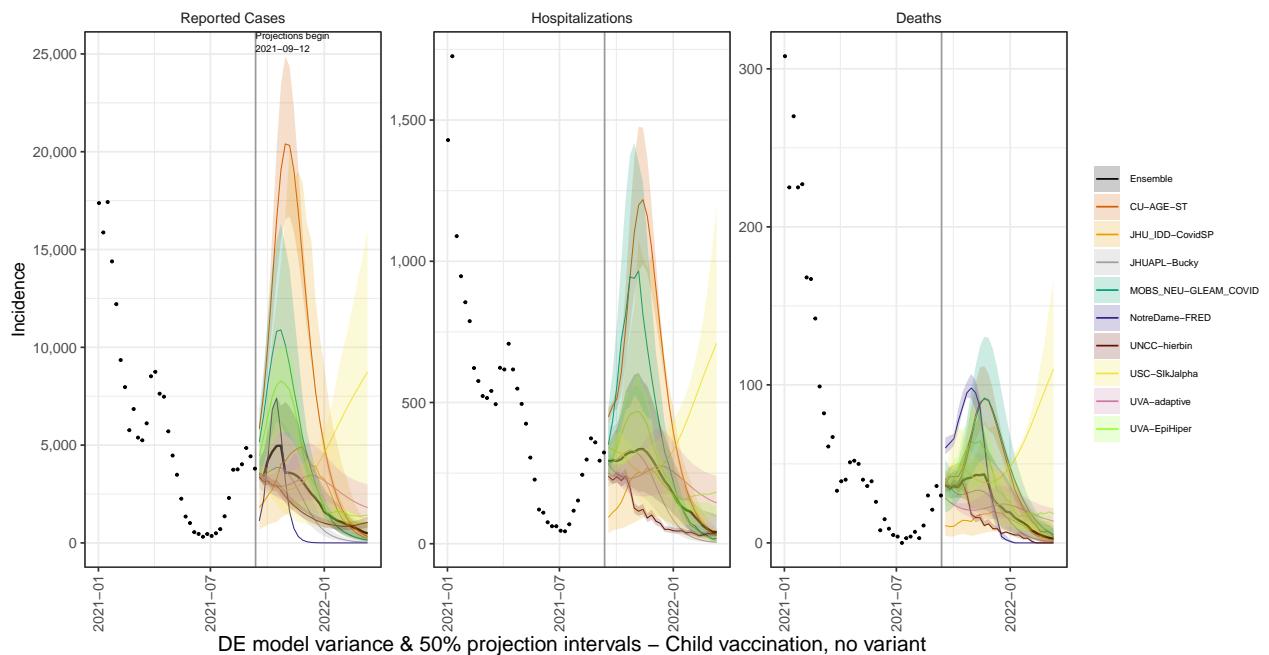
CA model variance & 50% projection intervals – Child vaccination, no variant



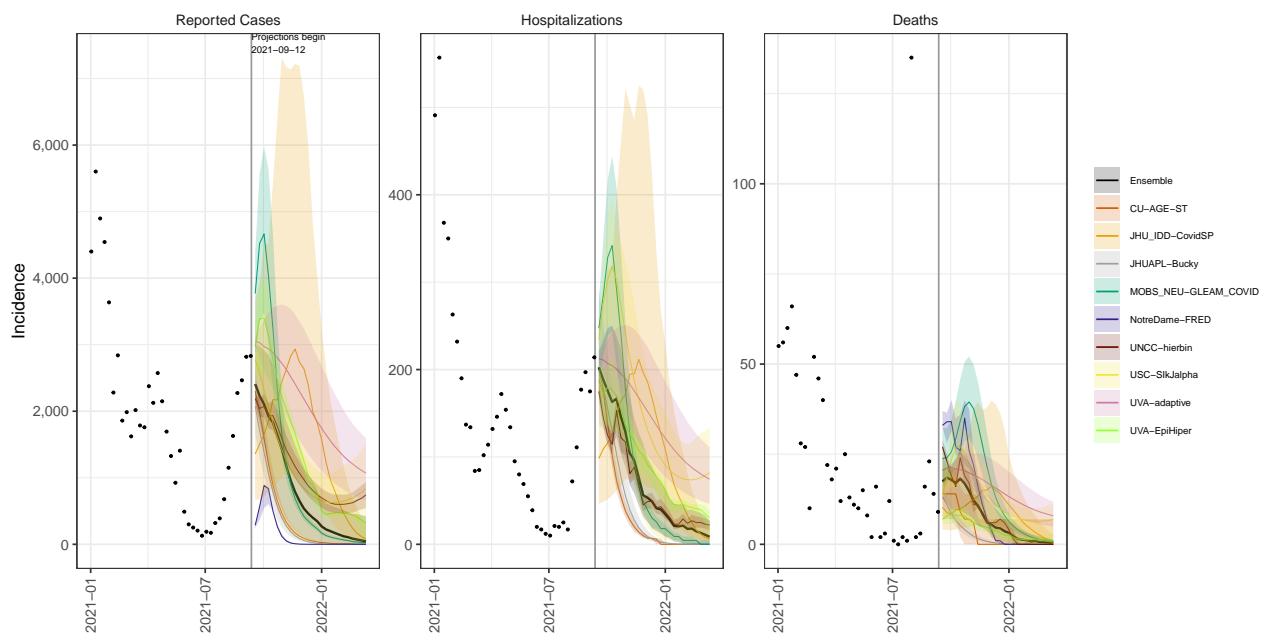
CO model variance & 50% projection intervals – Child vaccination, no variant



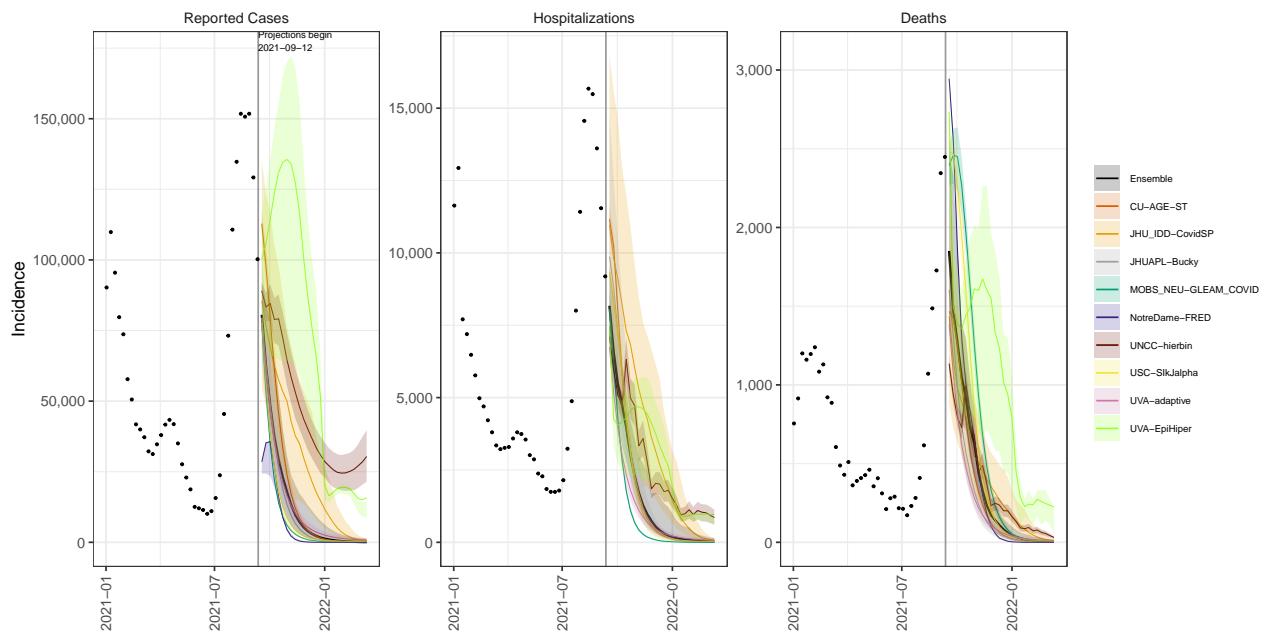
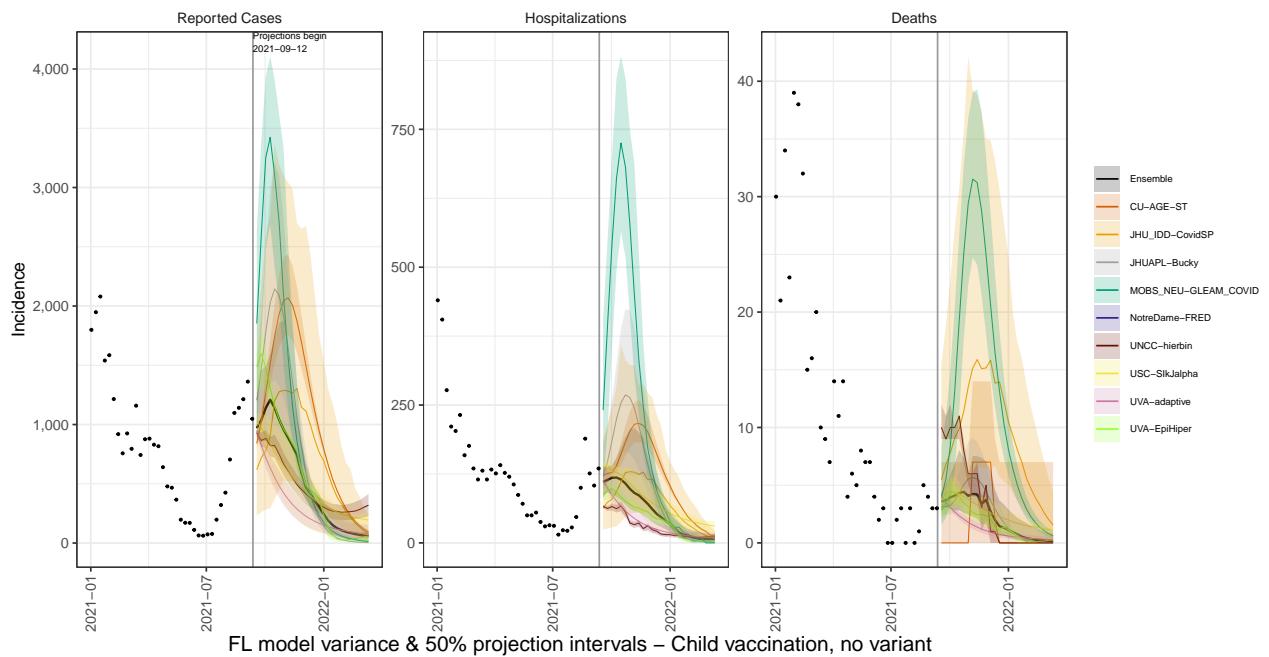
CT model variance & 50% projection intervals – Child vaccination, no variant



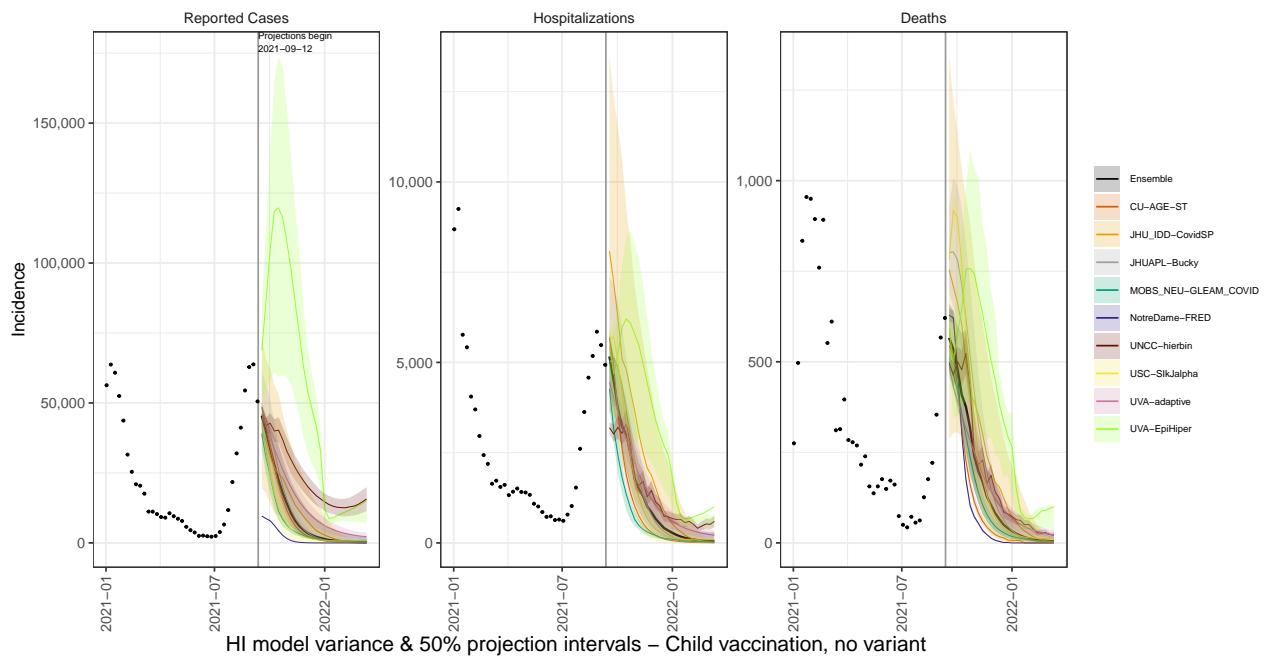
DE model variance & 50% projection intervals – Child vaccination, no variant



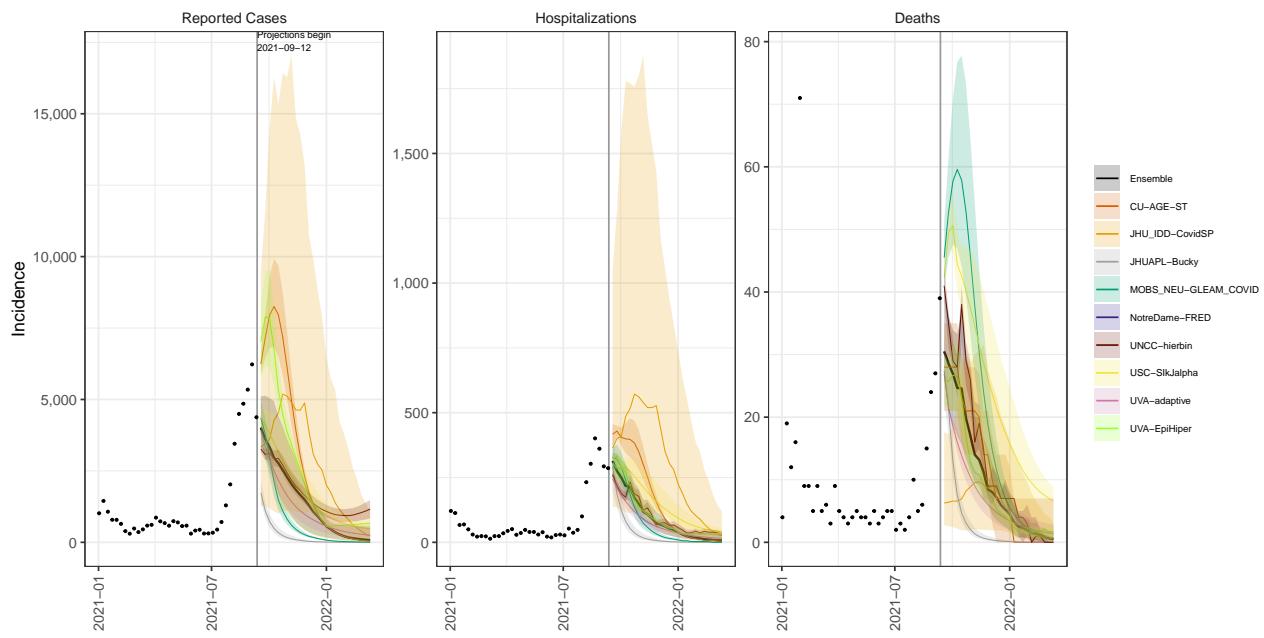
DC model variance & 50% projection intervals – Child vaccination, no variant



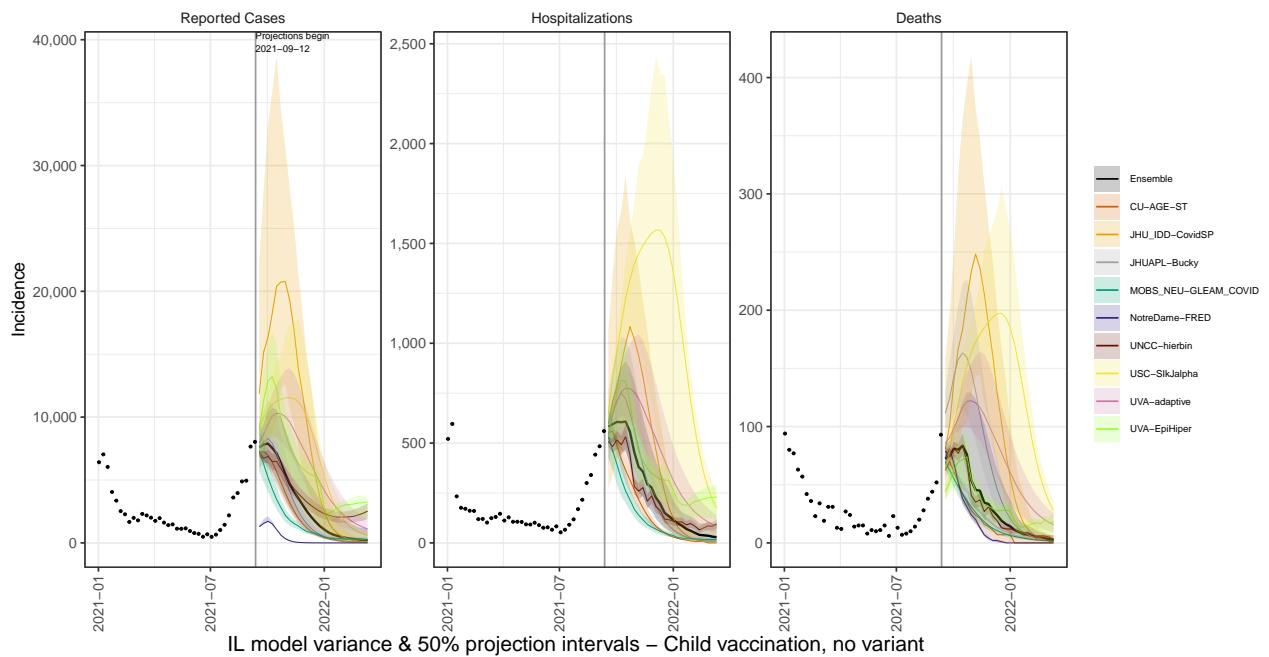
GA model variance & 50% projection intervals – Child vaccination, no variant



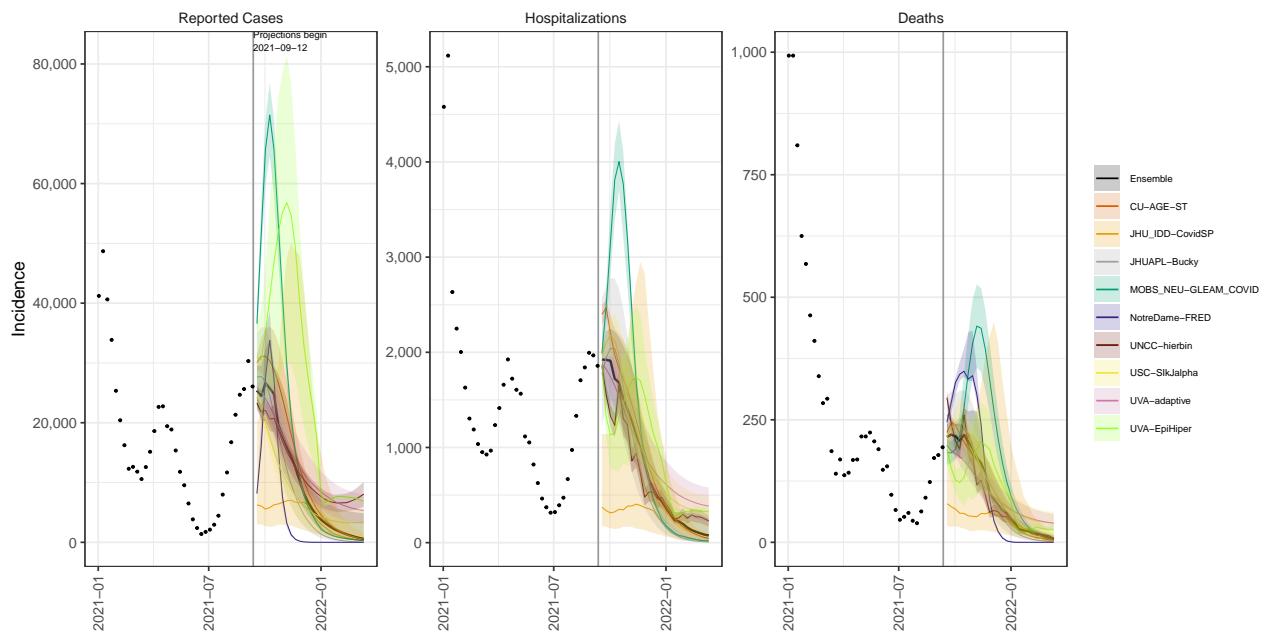
HI model variance & 50% projection intervals – Child vaccination, no variant



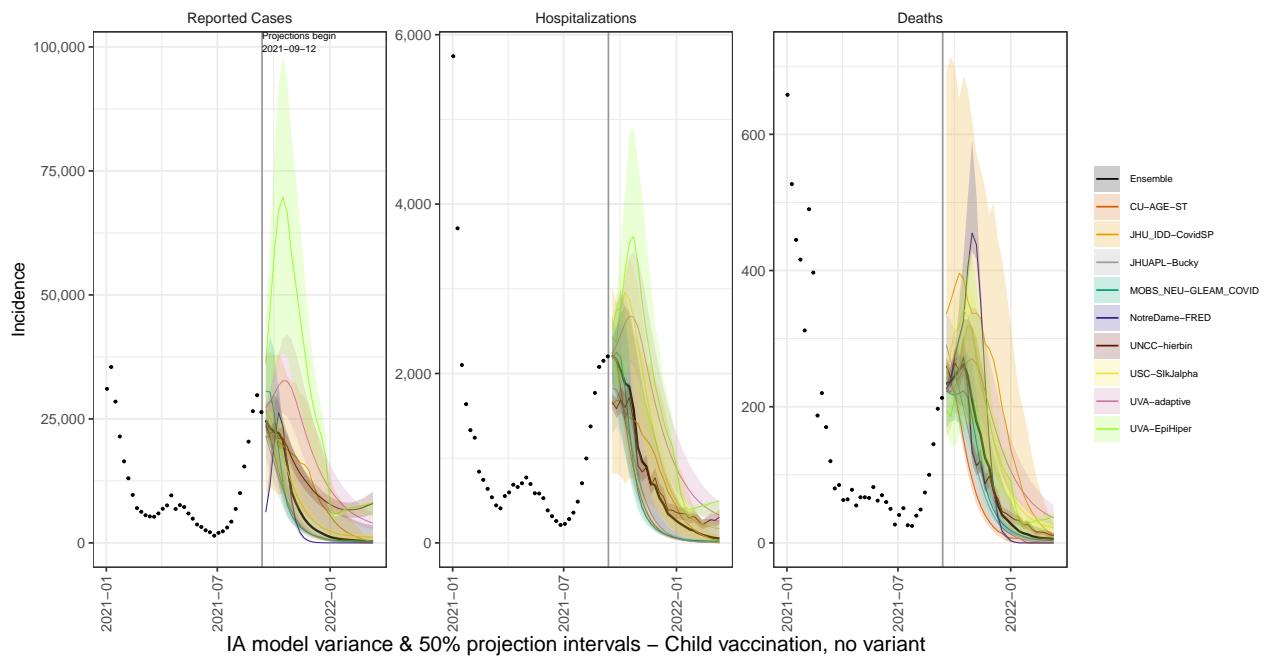
ID model variance & 50% projection intervals – Child vaccination, no variant



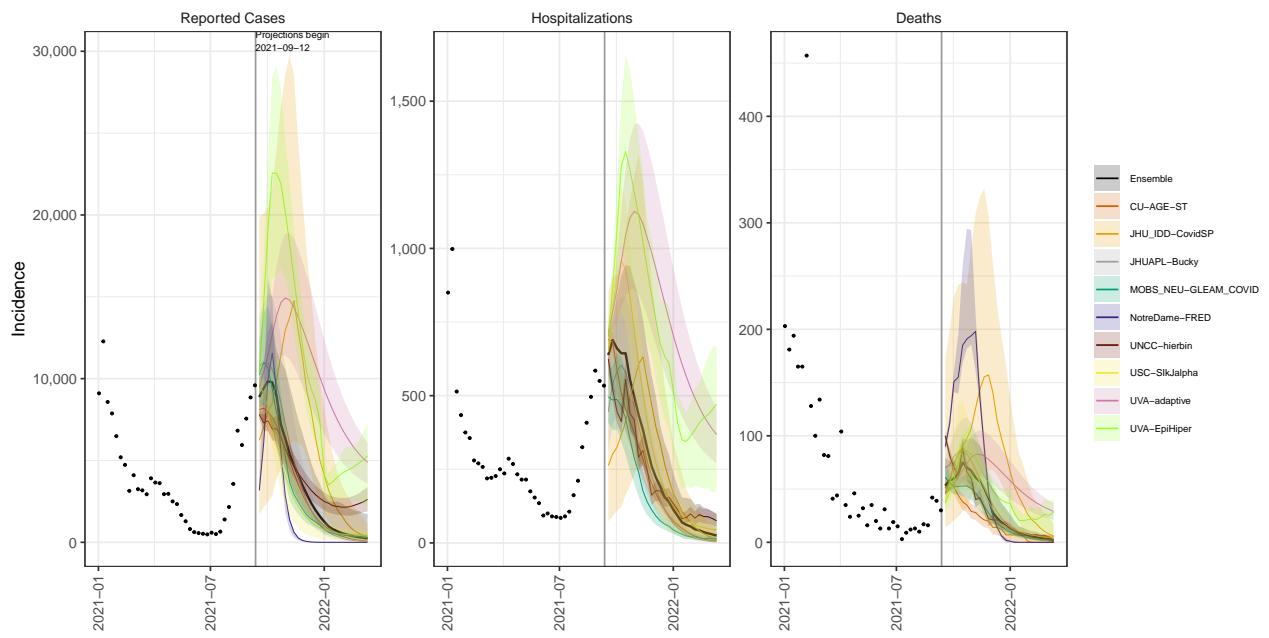
IL model variance & 50% projection intervals – Child vaccination, no variant



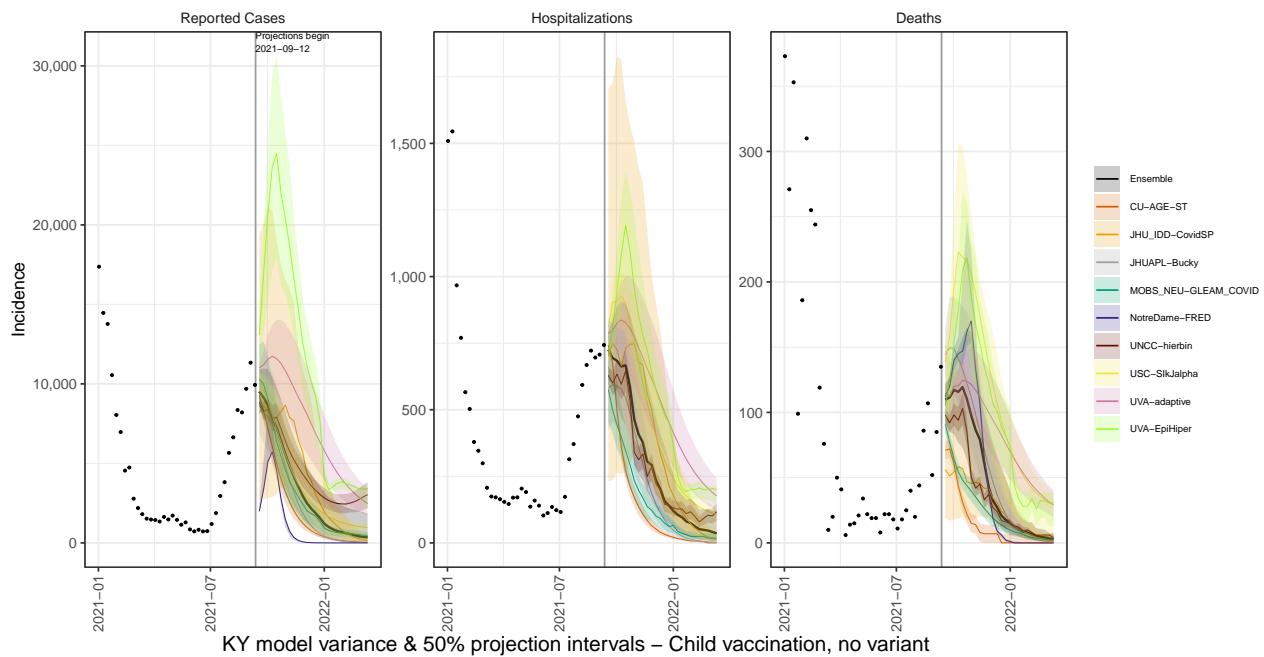
IN model variance & 50% projection intervals – Child vaccination, no variant



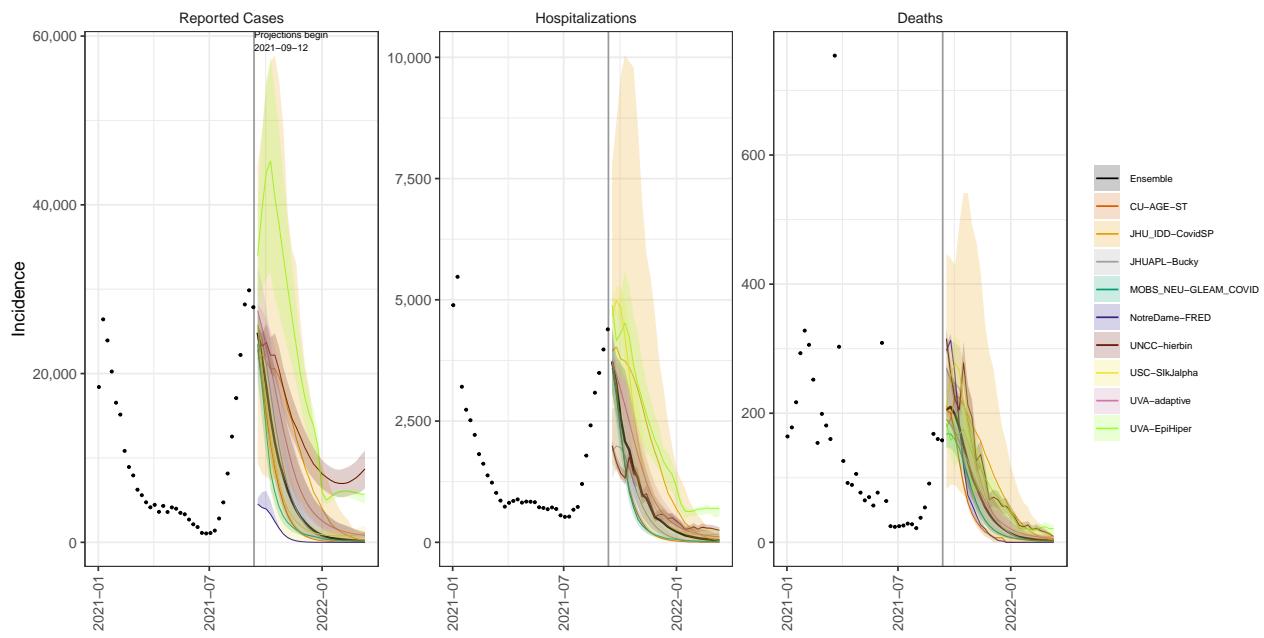
IA model variance & 50% projection intervals – Child vaccination, no variant



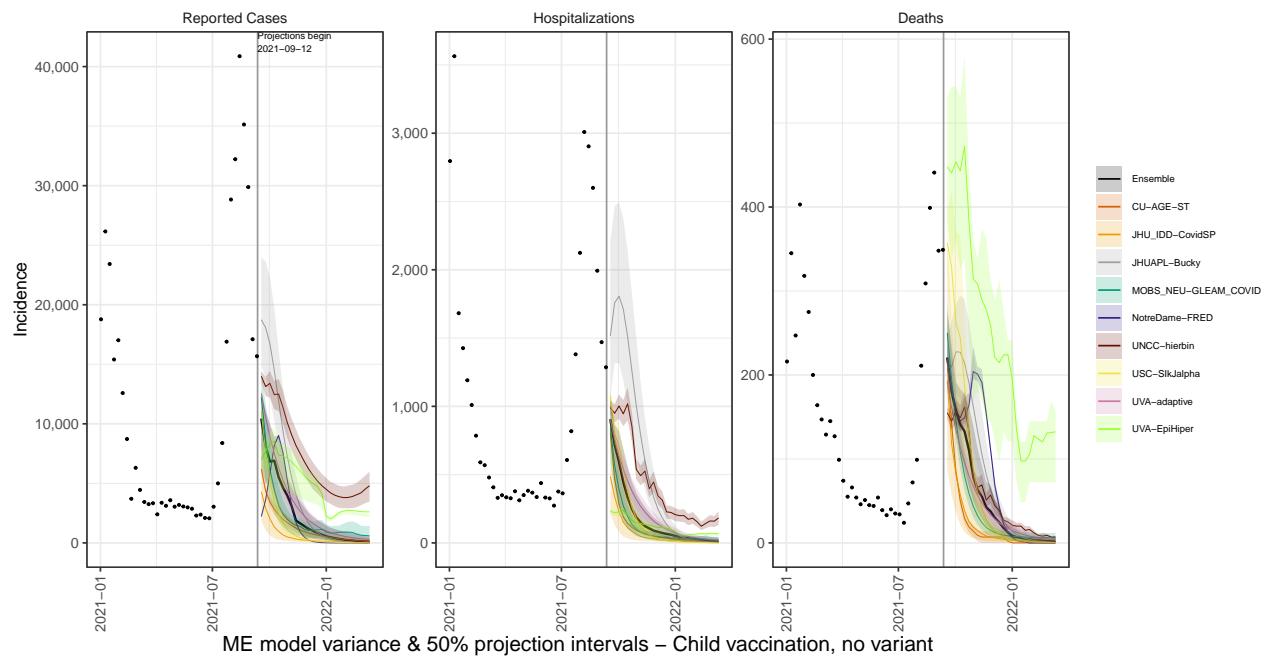
KS model variance & 50% projection intervals – Child vaccination, no variant



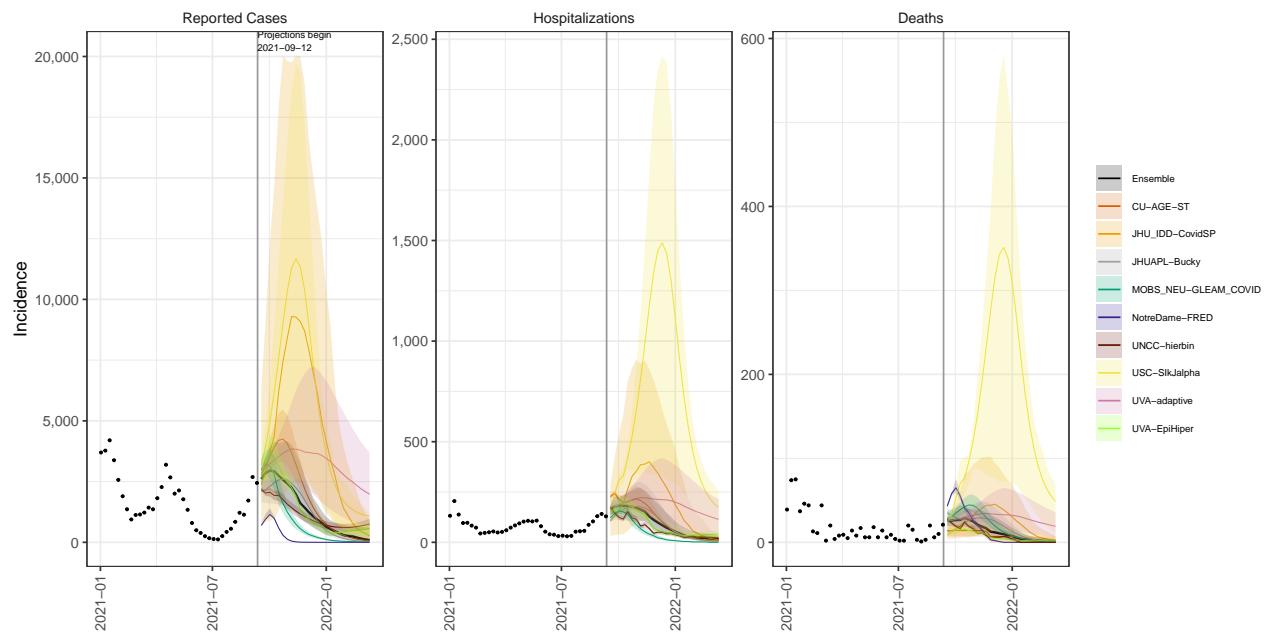
KY model variance & 50% projection intervals – Child vaccination, no variant



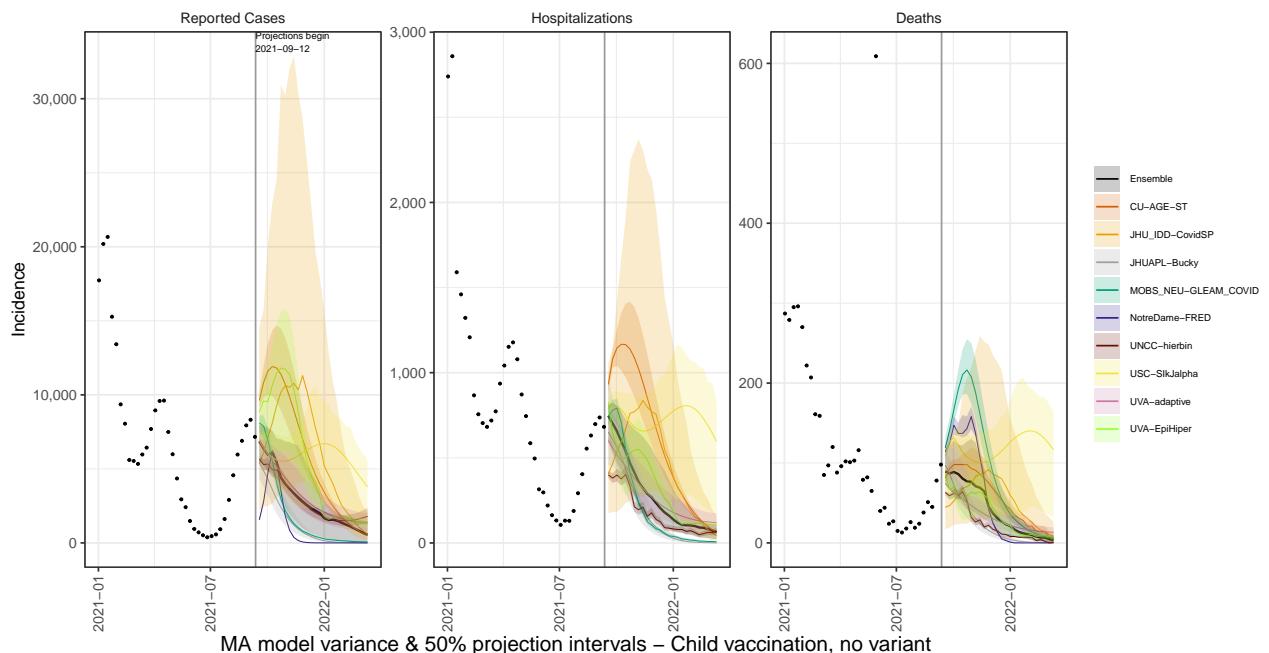
LA model variance & 50% projection intervals – Child vaccination, no variant



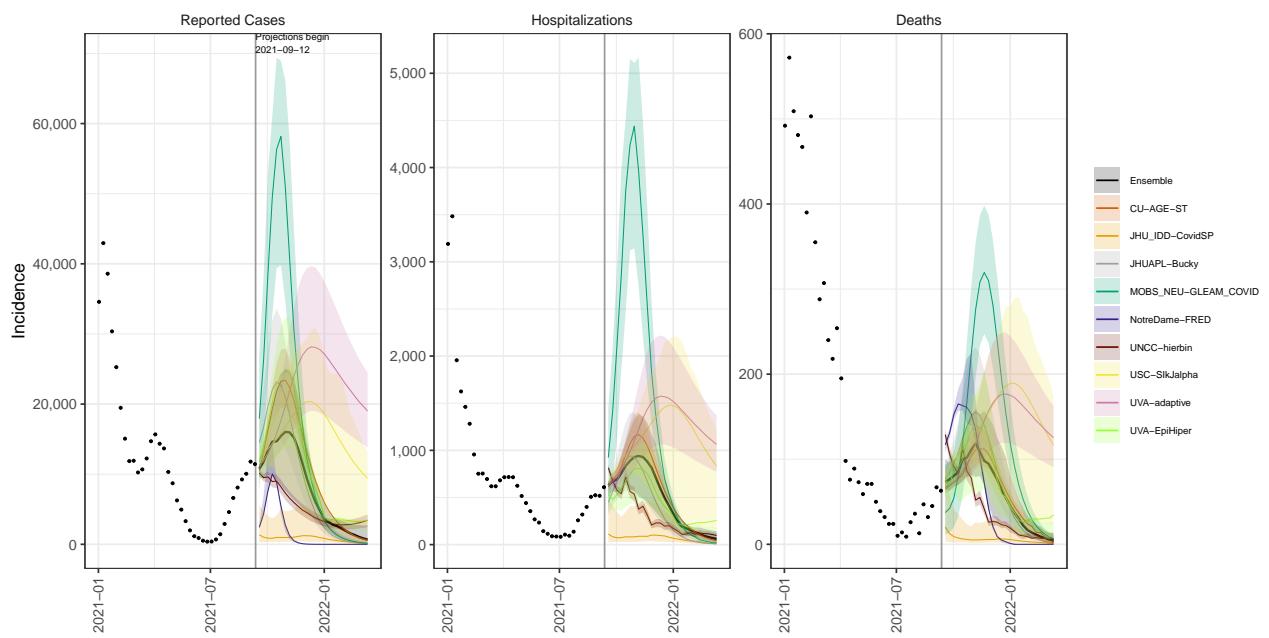
ME model variance & 50% projection intervals – Child vaccination, no variant



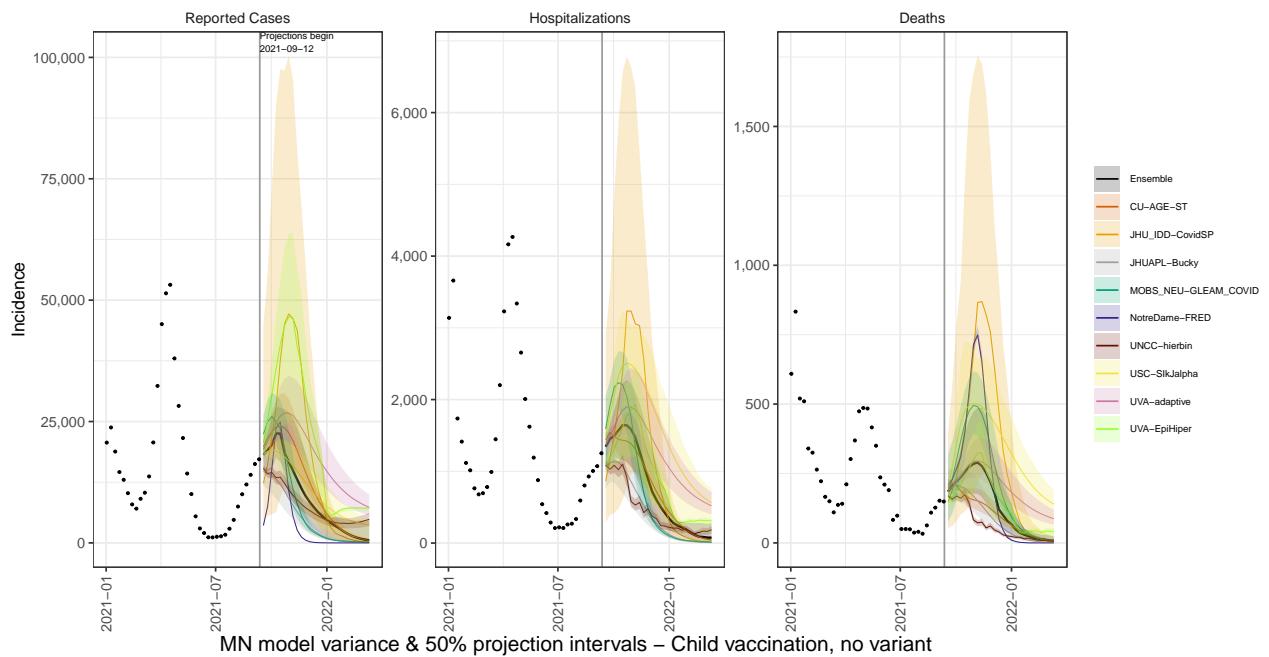
MD model variance & 50% projection intervals – Child vaccination, no variant



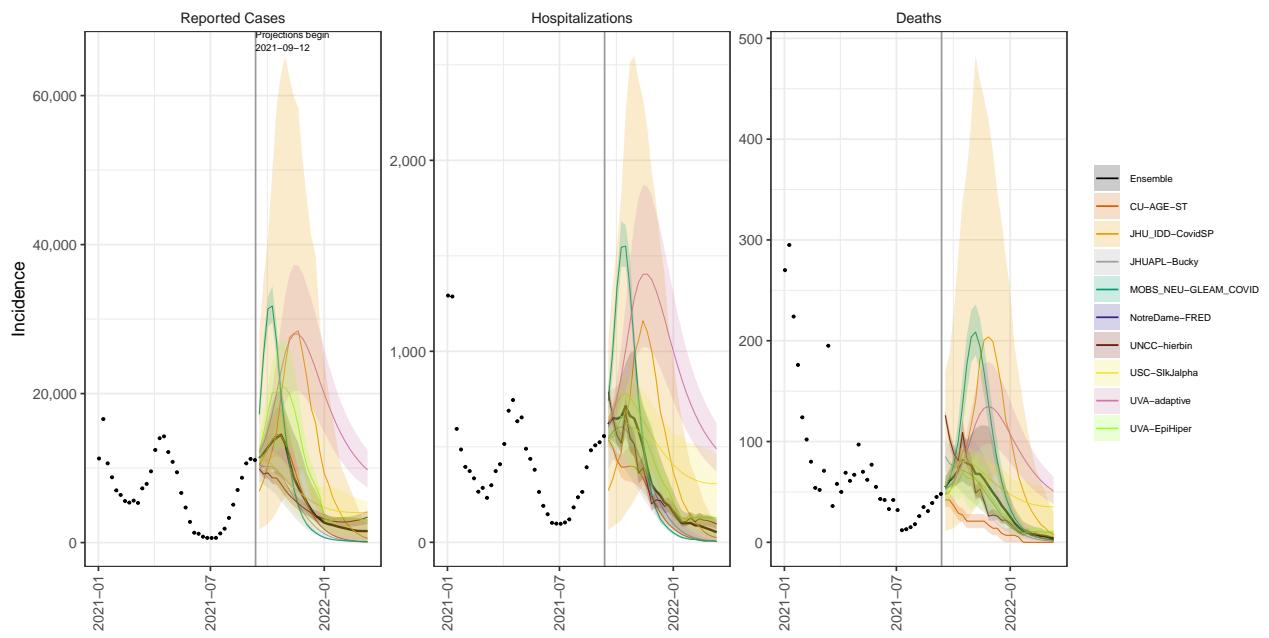
MA model variance & 50% projection intervals – Child vaccination, no variant



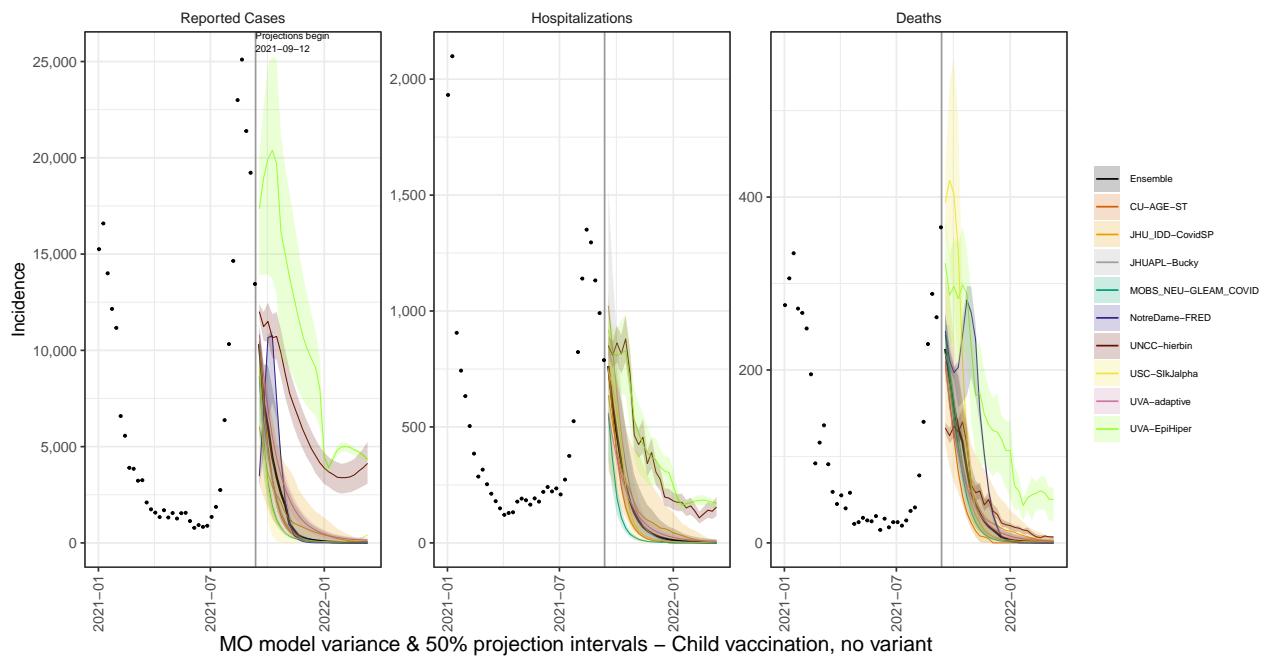
MI model variance & 50% projection intervals – Child vaccination, no variant



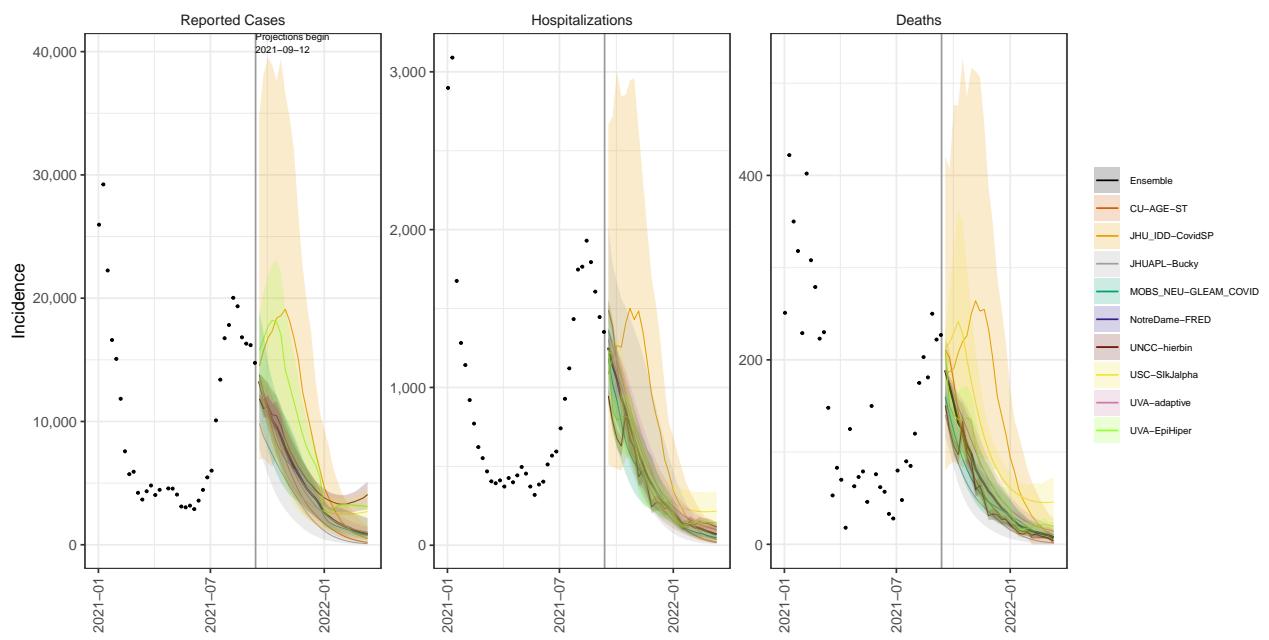
MN model variance & 50% projection intervals – Child vaccination, no variant



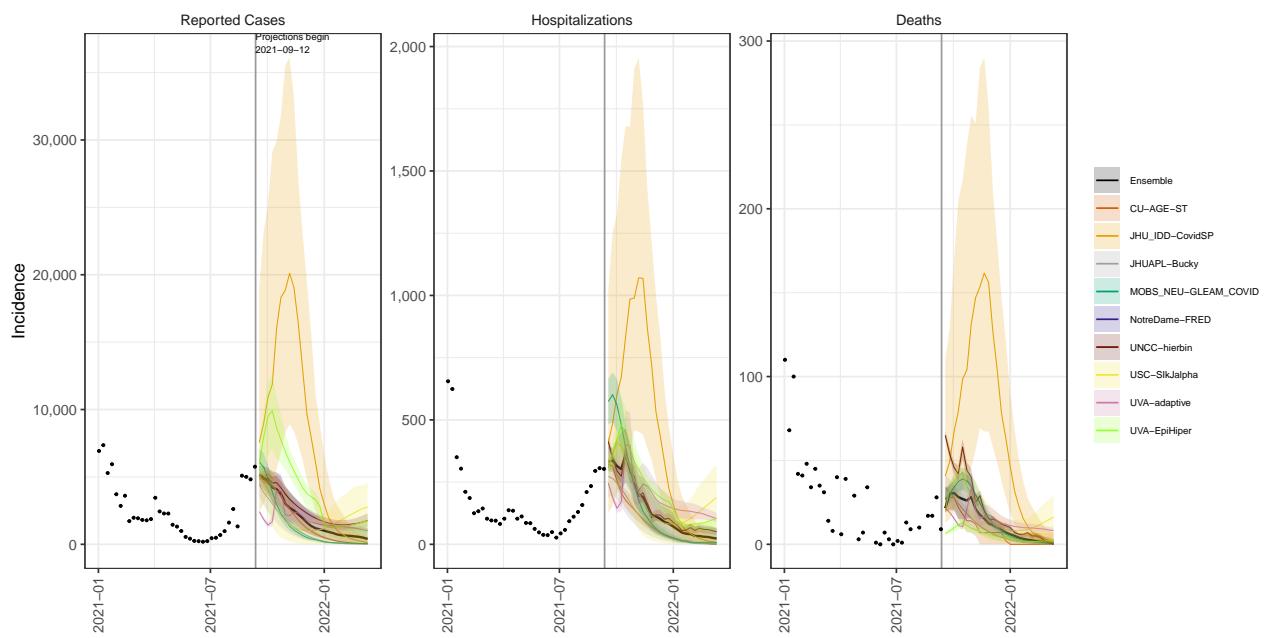
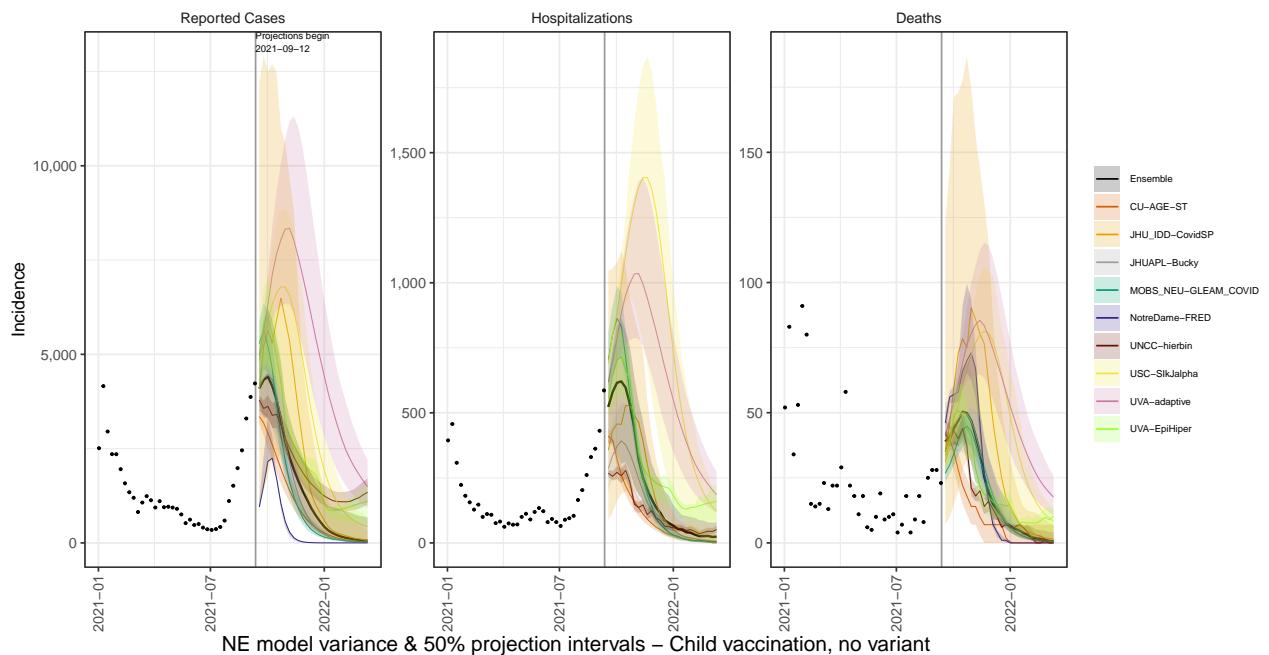
MS model variance & 50% projection intervals – Child vaccination, no variant



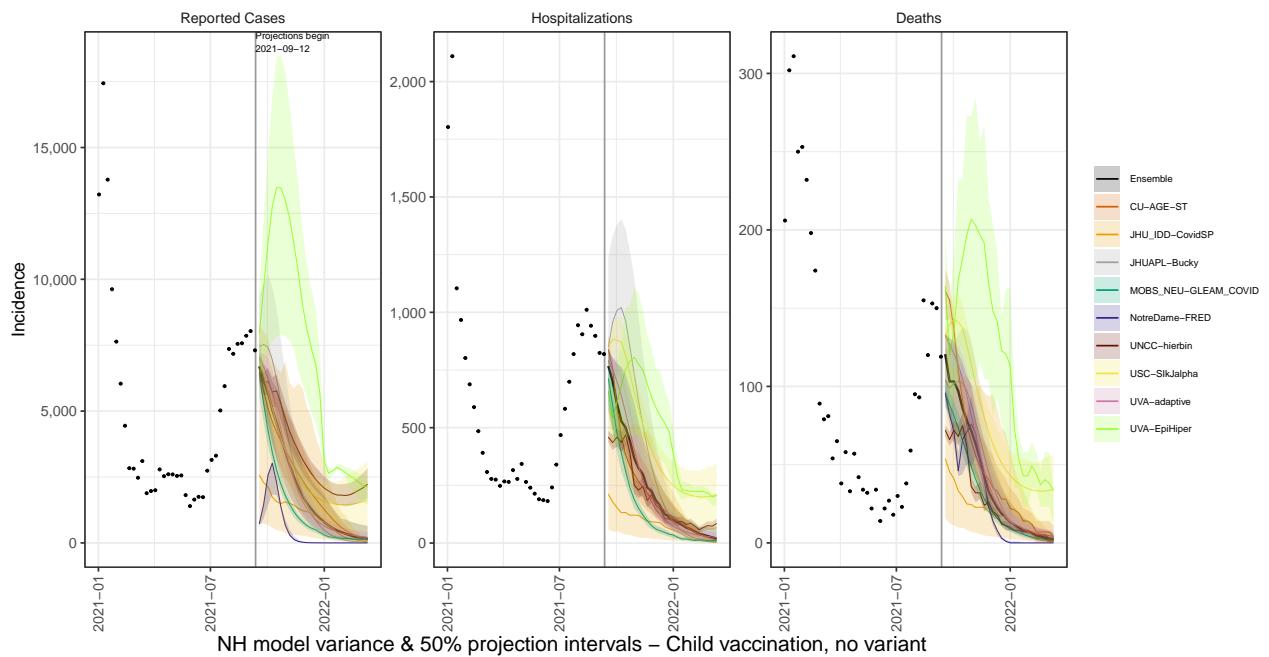
MO model variance & 50% projection intervals – Child vaccination, no variant



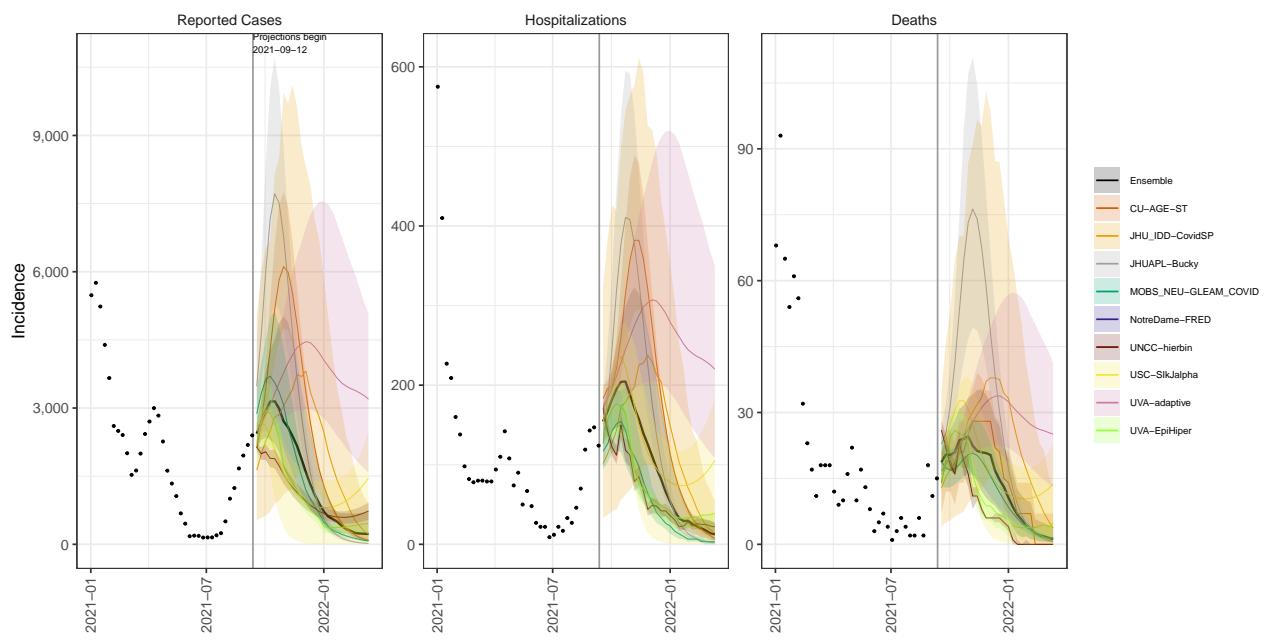
MT model variance & 50% projection intervals – Child vaccination, no variant



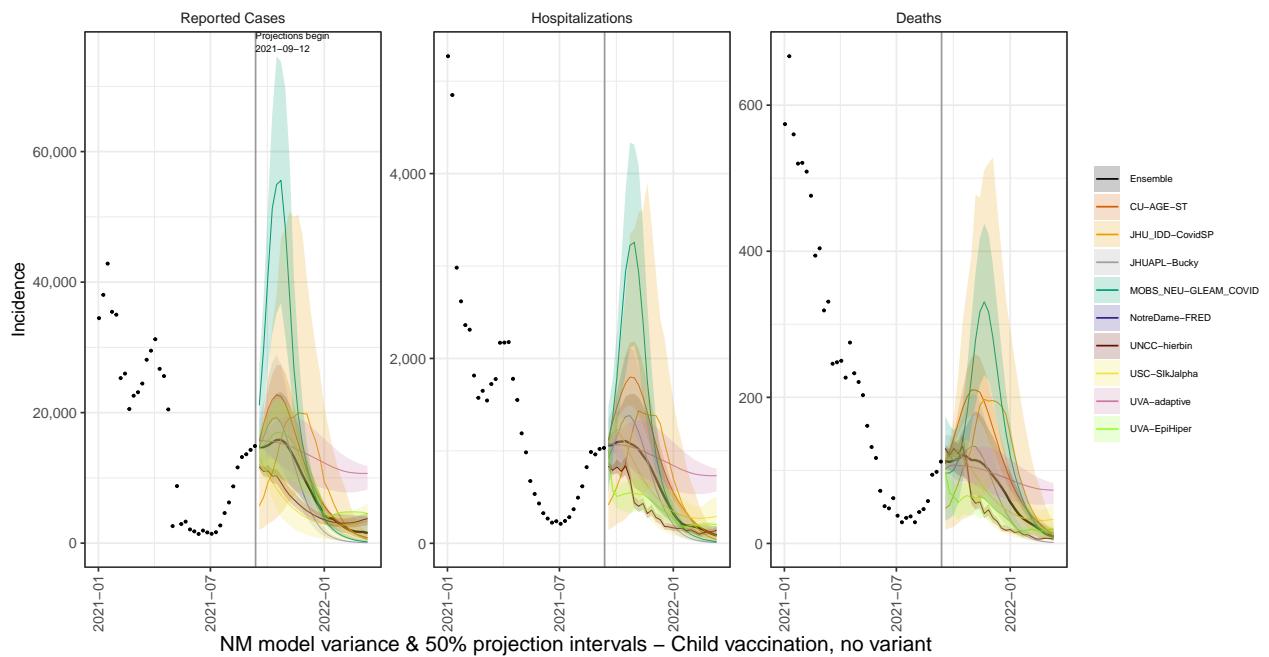
NV model variance & 50% projection intervals – Child vaccination, no variant



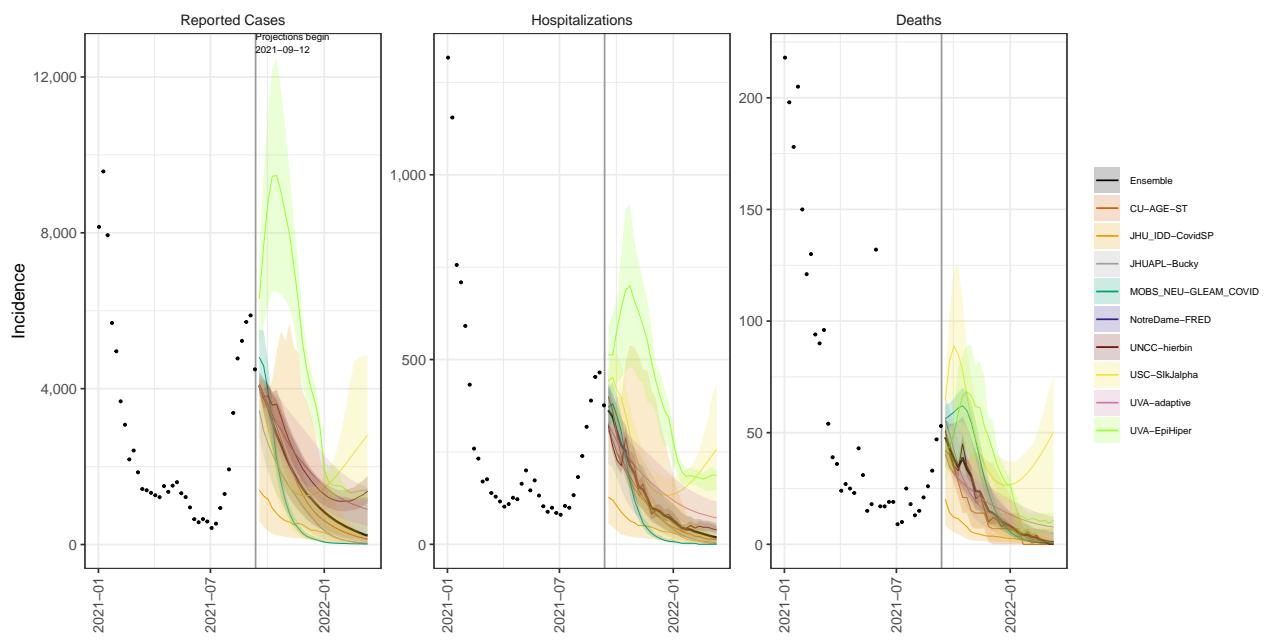
NH model variance & 50% projection intervals – Child vaccination, no variant



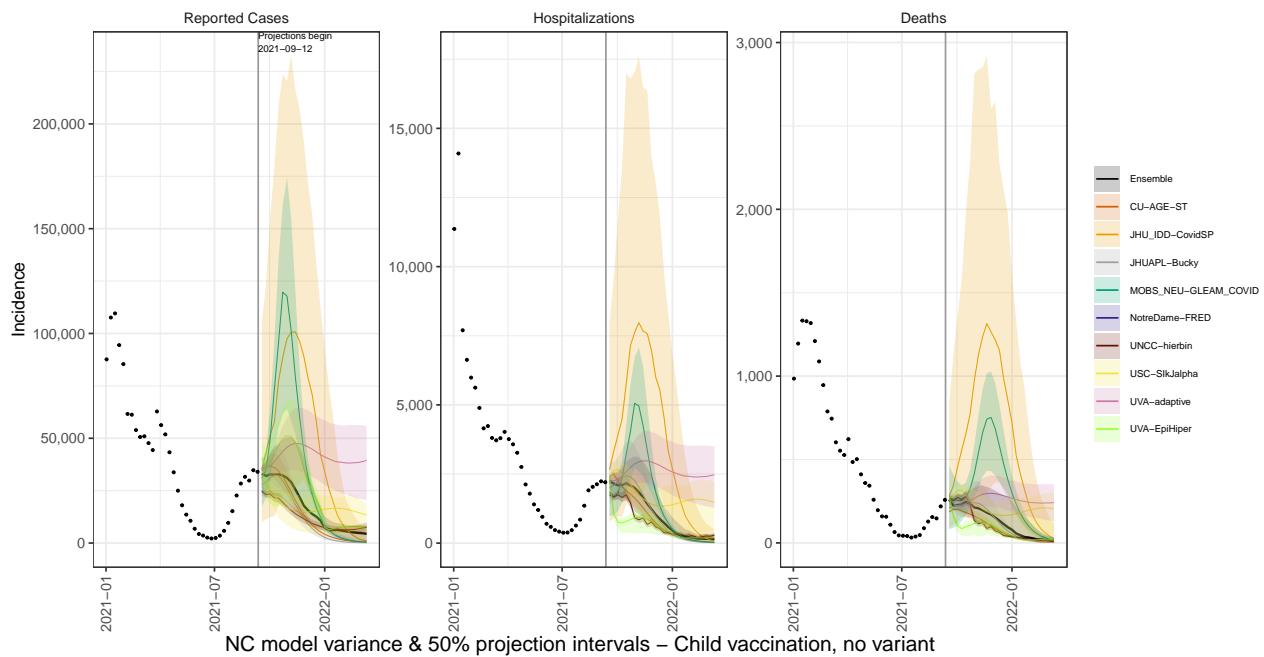
NJ model variance & 50% projection intervals – Child vaccination, no variant



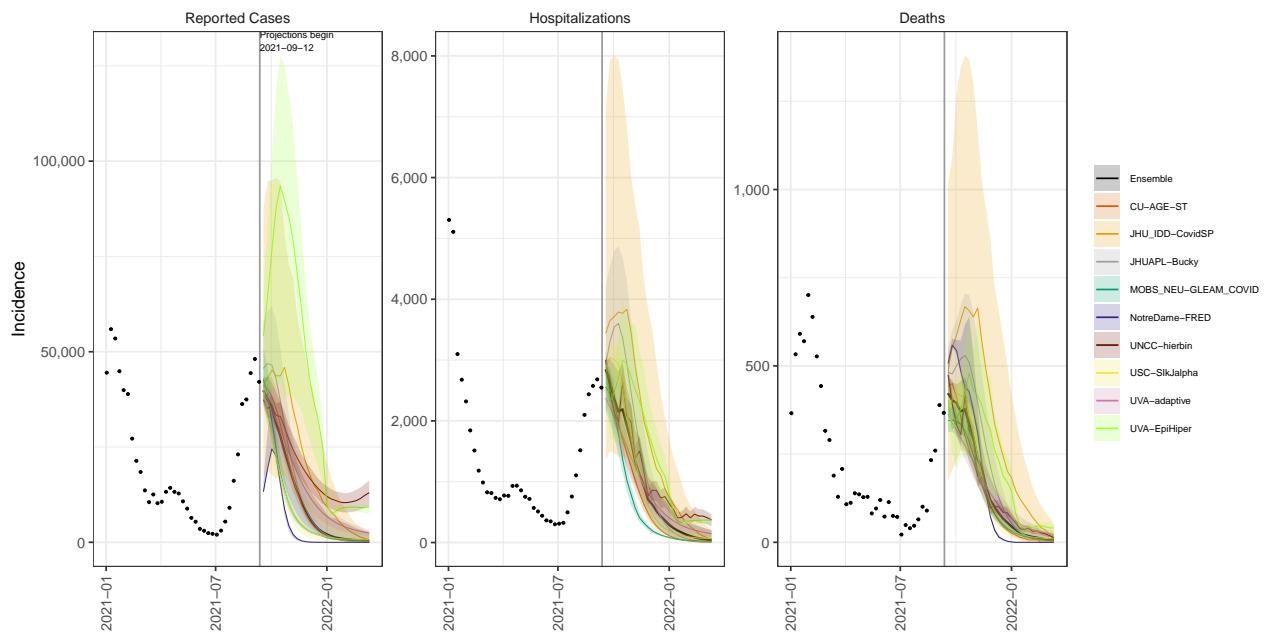
NM model variance & 50% projection intervals – Child vaccination, no variant



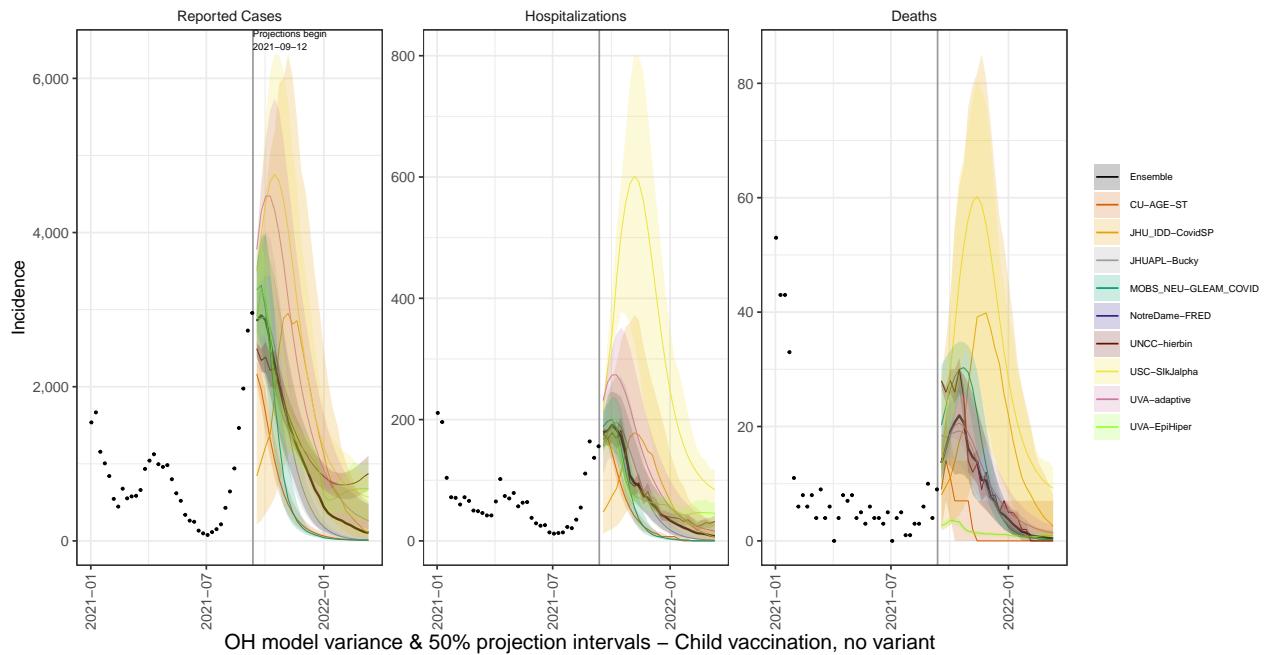
NY model variance & 50% projection intervals – Child vaccination, no variant



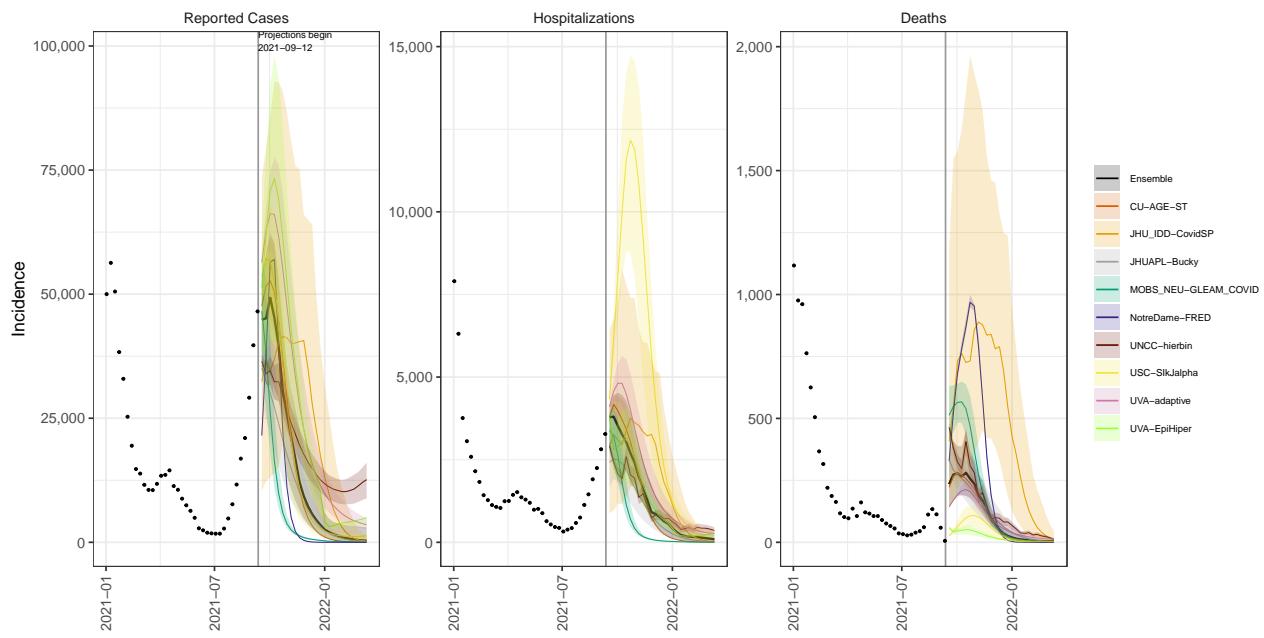
NC model variance & 50% projection intervals – Child vaccination, no variant



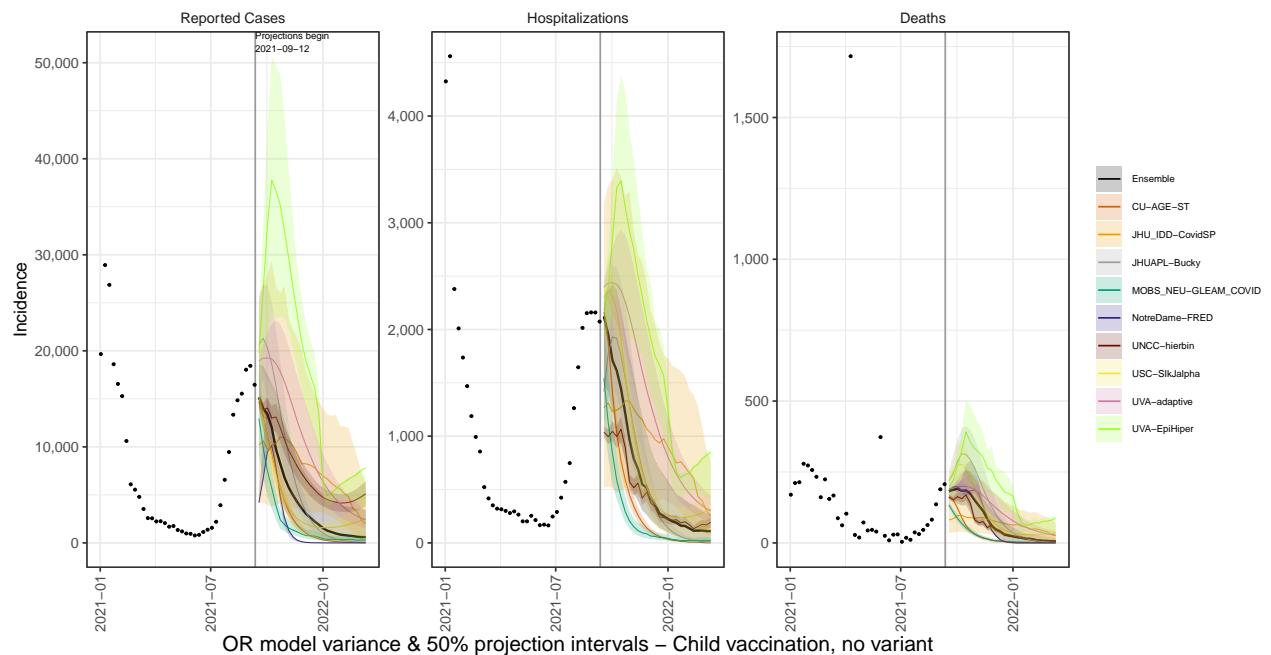
ND model variance & 50% projection intervals – Child vaccination, no variant



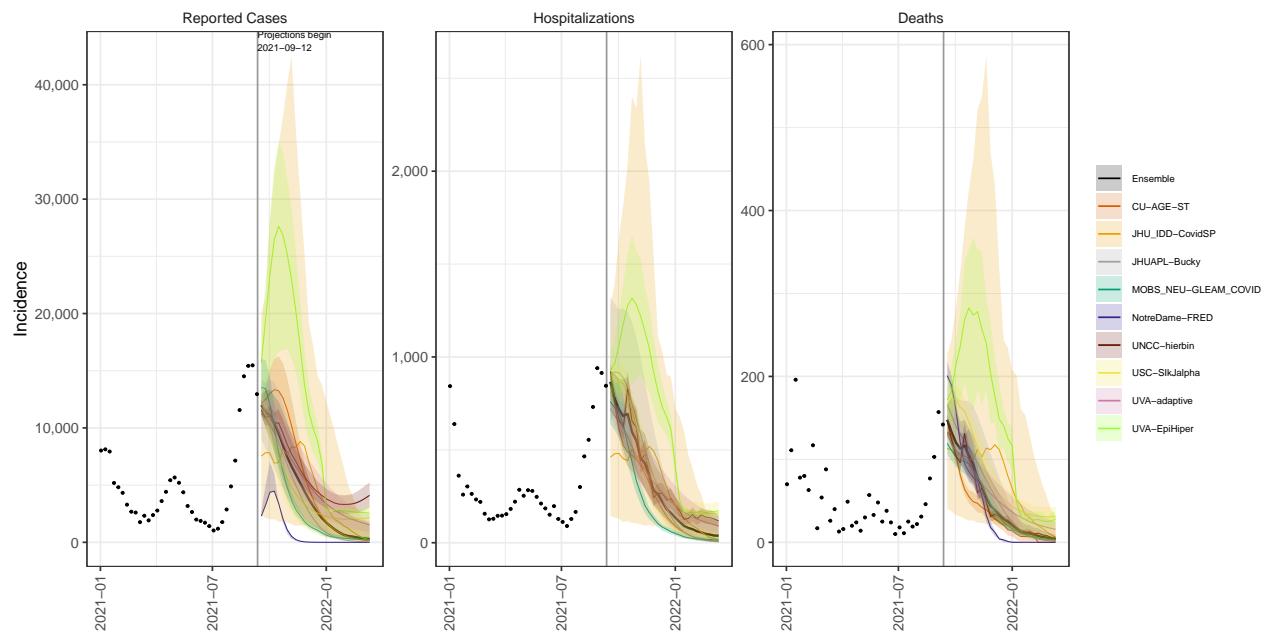
OH model variance & 50% projection intervals – Child vaccination, no variant



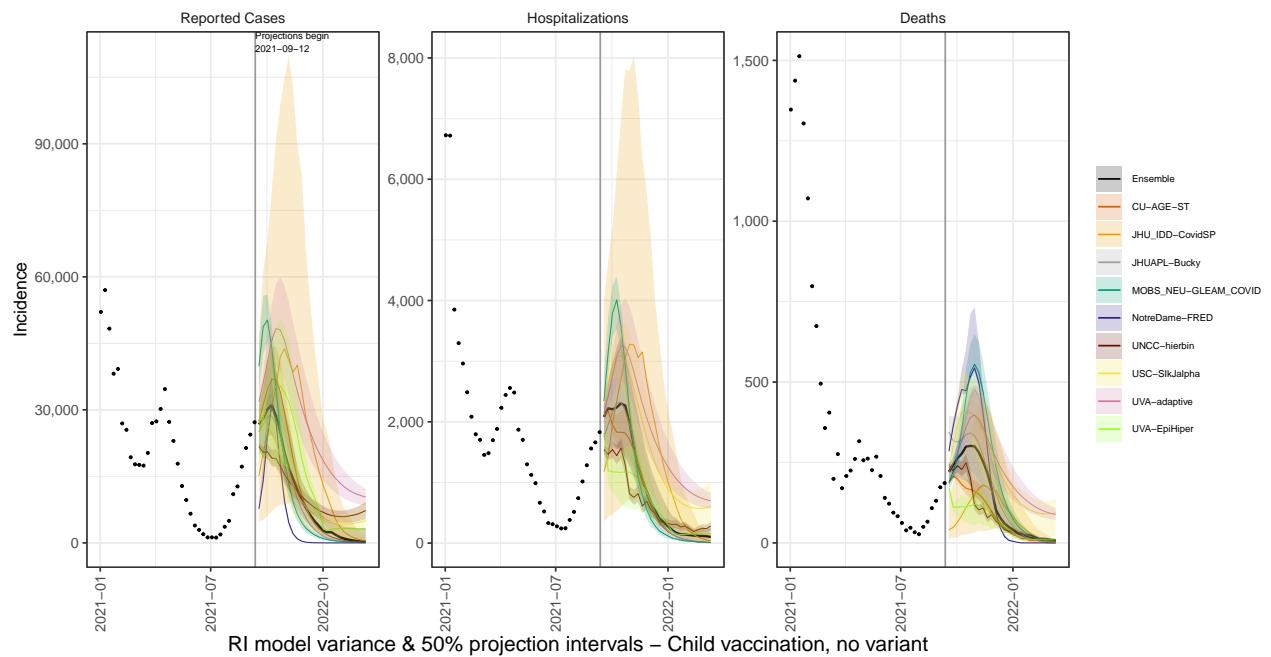
OK model variance & 50% projection intervals – Child vaccination, no variant



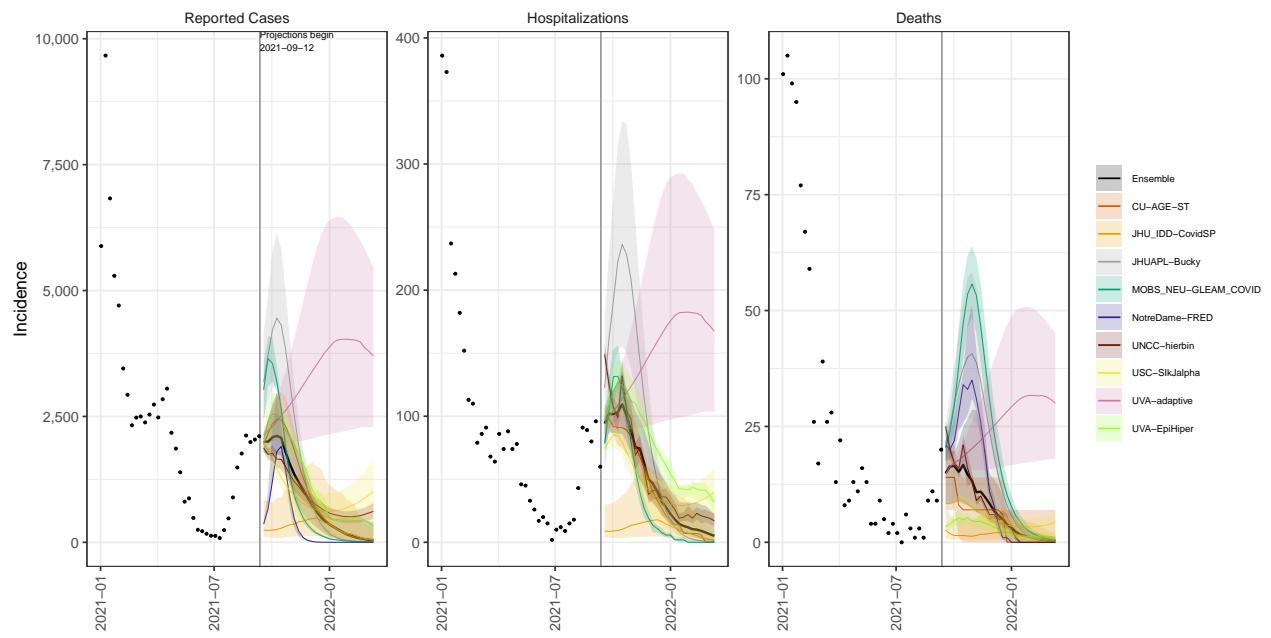
OR model variance & 50% projection intervals – Child vaccination, no variant



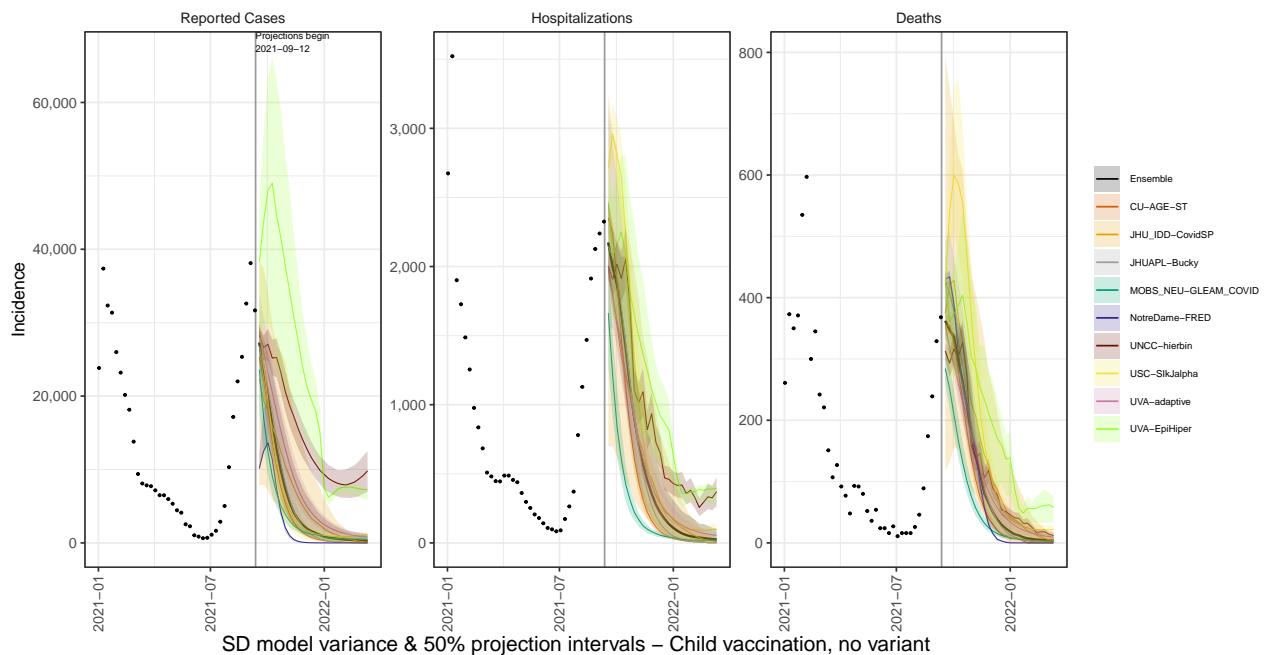
PA model variance & 50% projection intervals – Child vaccination, no variant



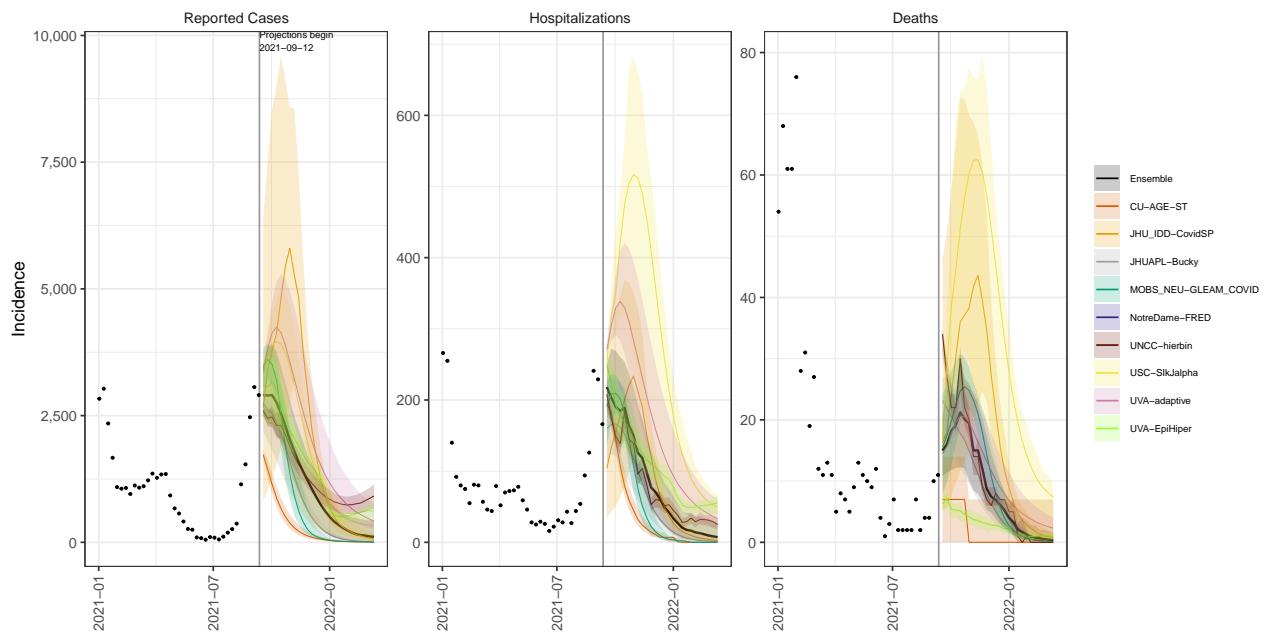
RI model variance & 50% projection intervals – Child vaccination, no variant



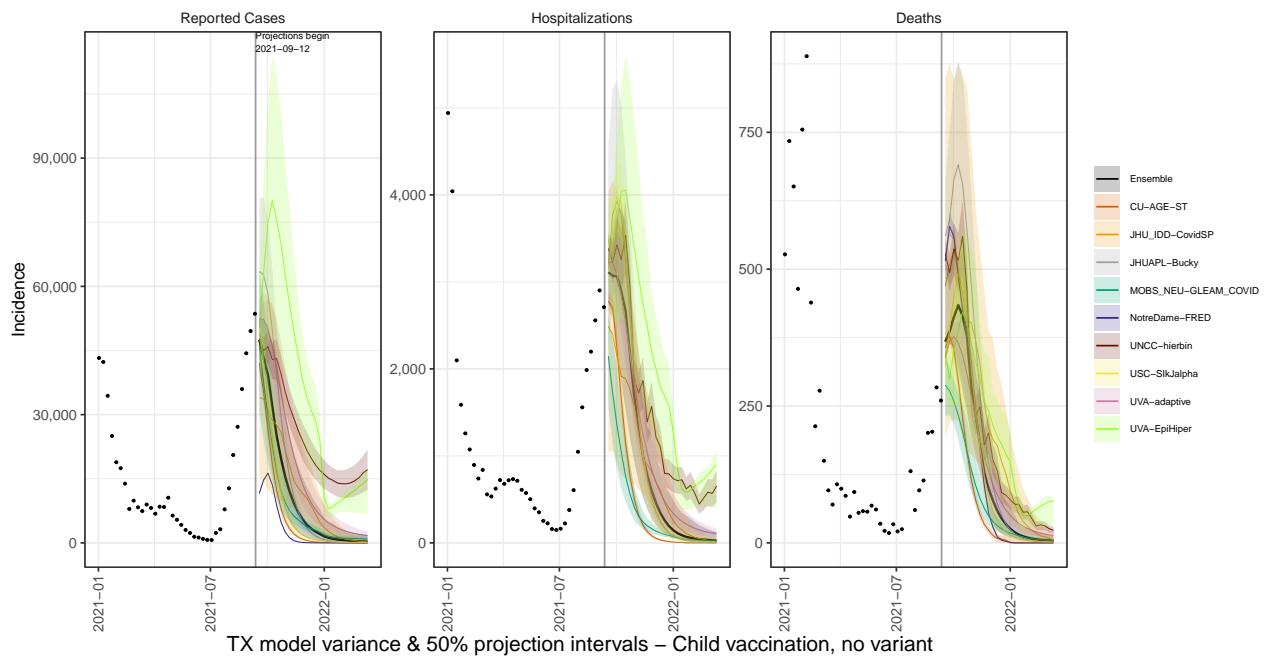
SC model variance & 50% projection intervals – Child vaccination, no variant



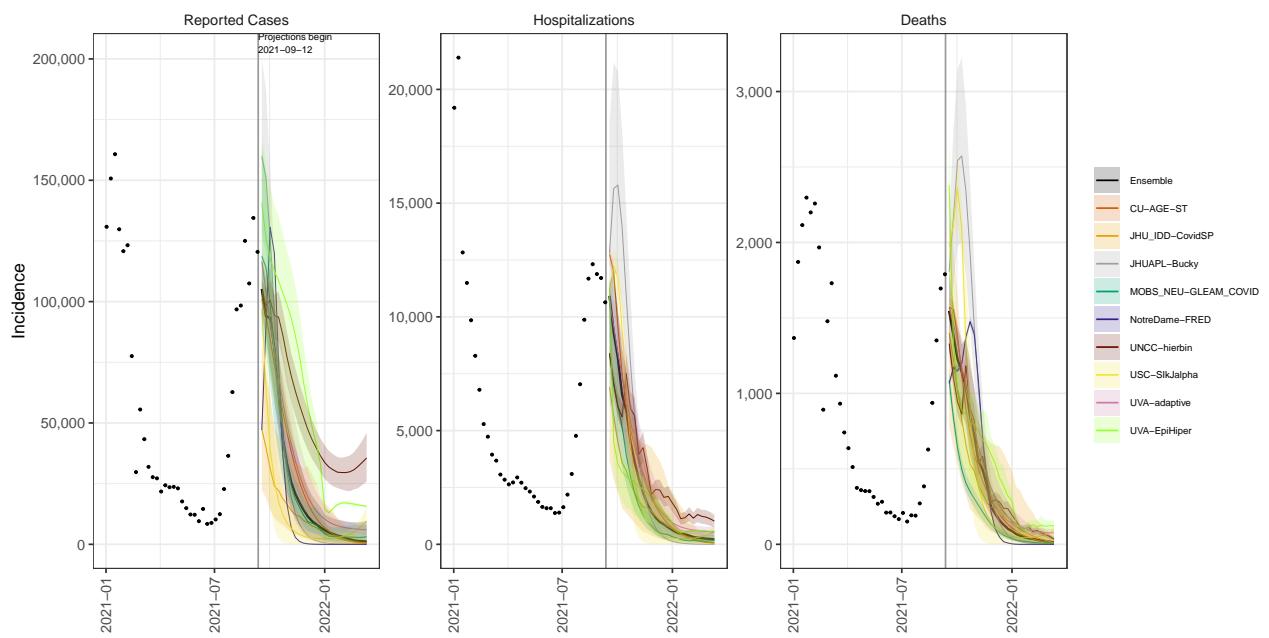
SD model variance & 50% projection intervals – Child vaccination, no variant



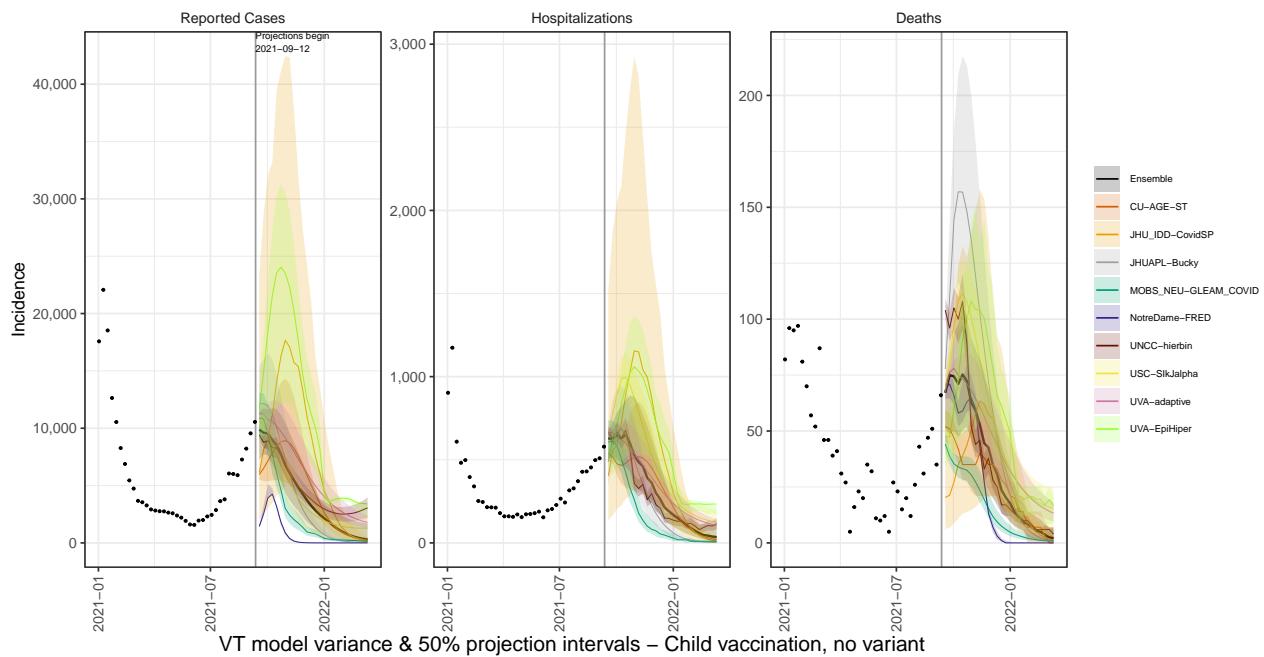
TN model variance & 50% projection intervals – Child vaccination, no variant



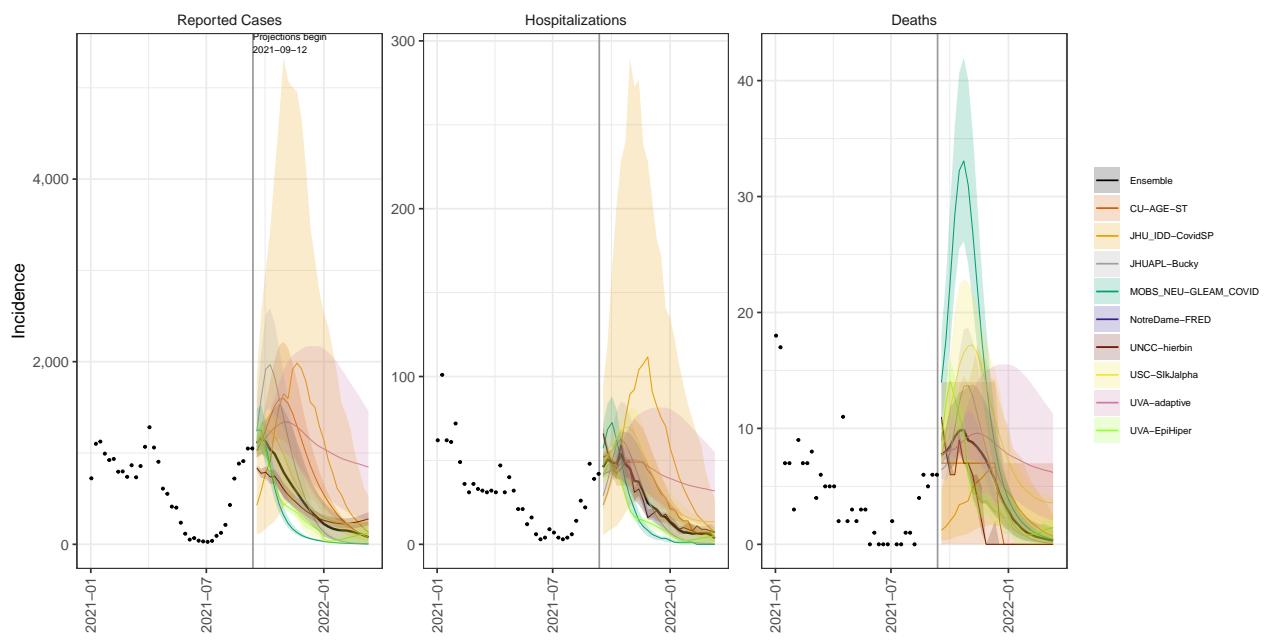
TX model variance & 50% projection intervals – Child vaccination, no variant



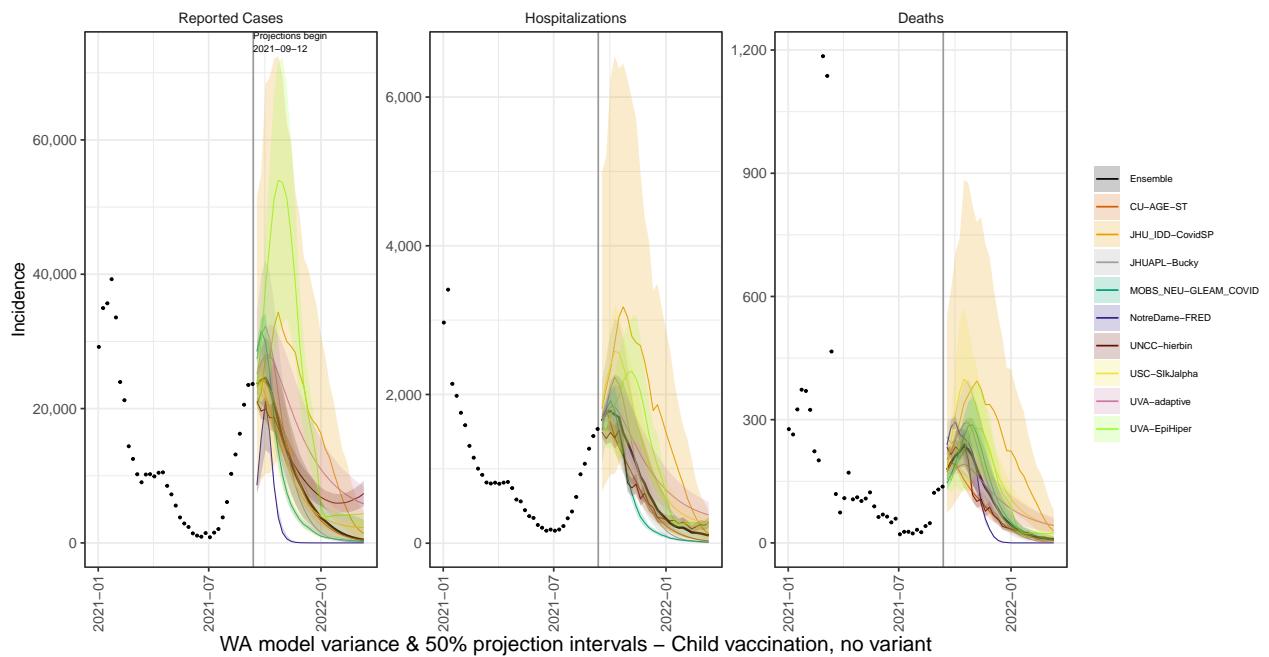
UT model variance & 50% projection intervals – Child vaccination, no variant



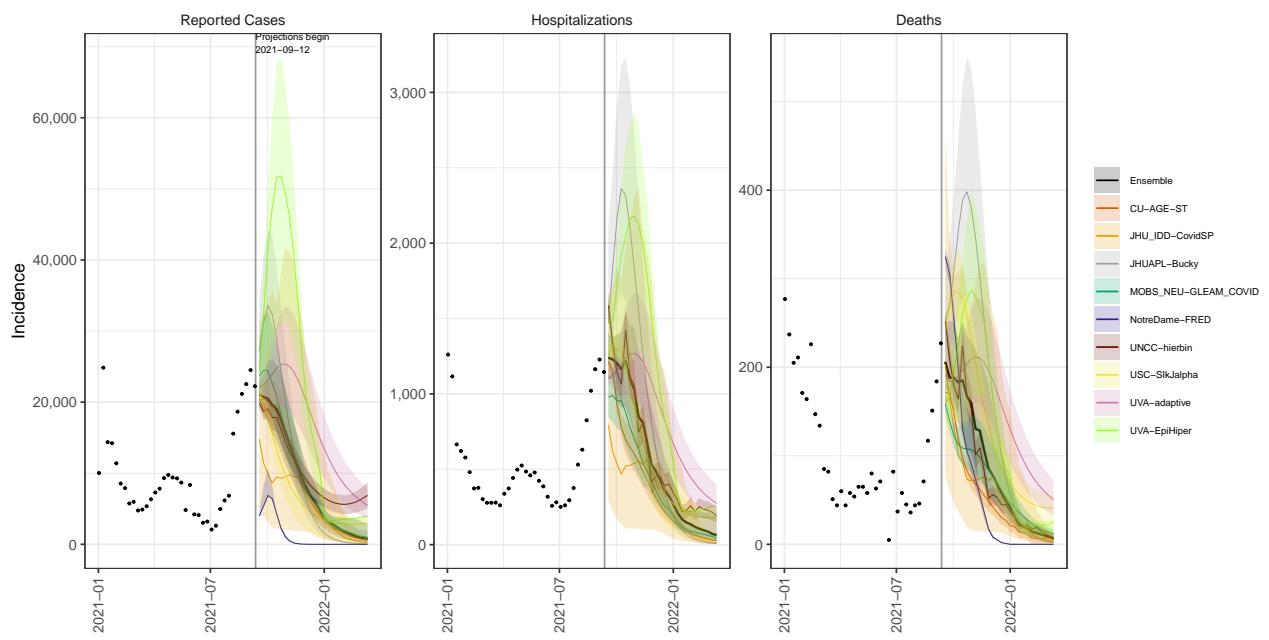
VT model variance & 50% projection intervals – Child vaccination, no variant



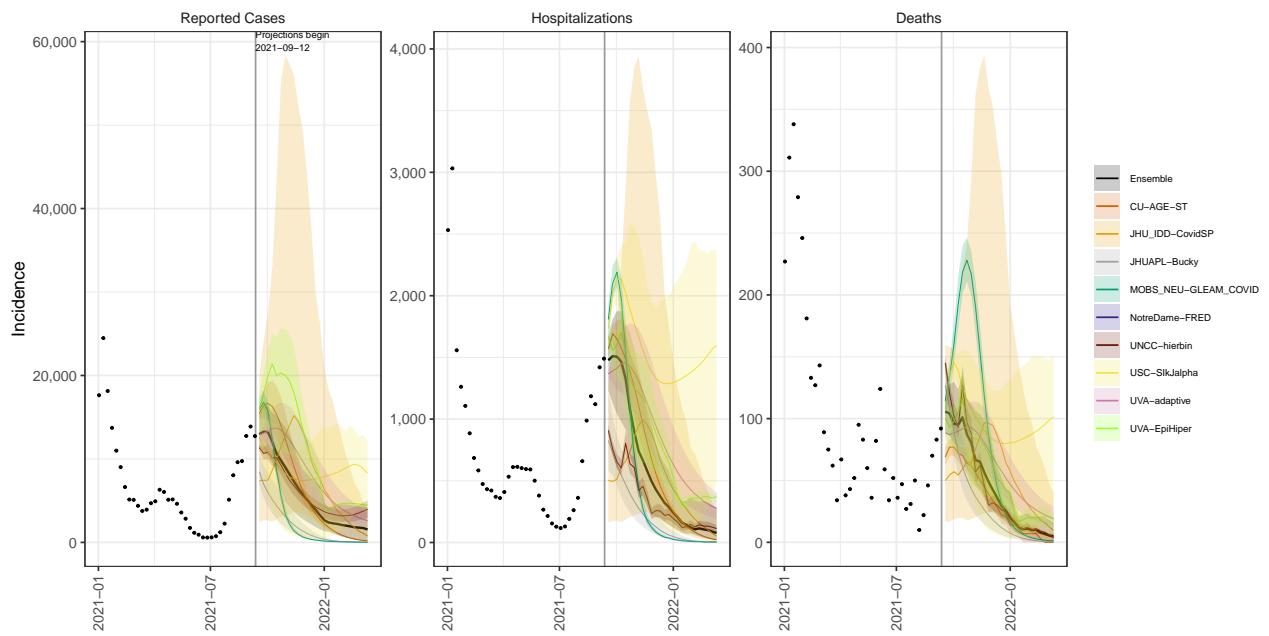
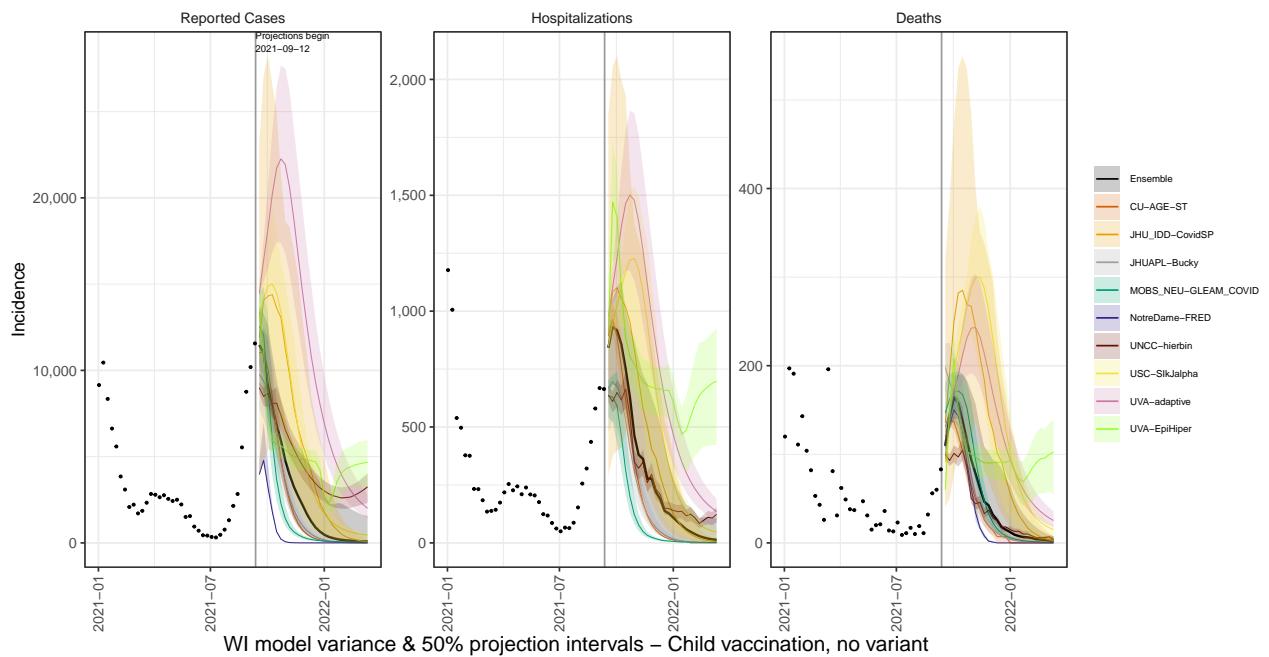
VA model variance & 50% projection intervals – Child vaccination, no variant



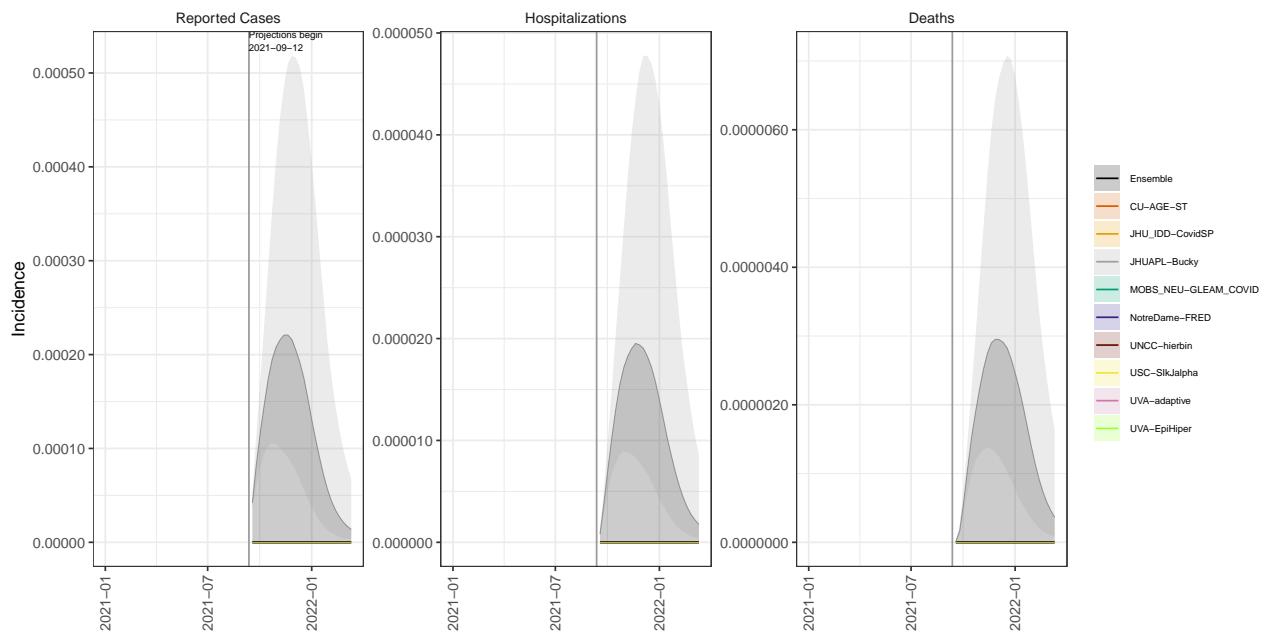
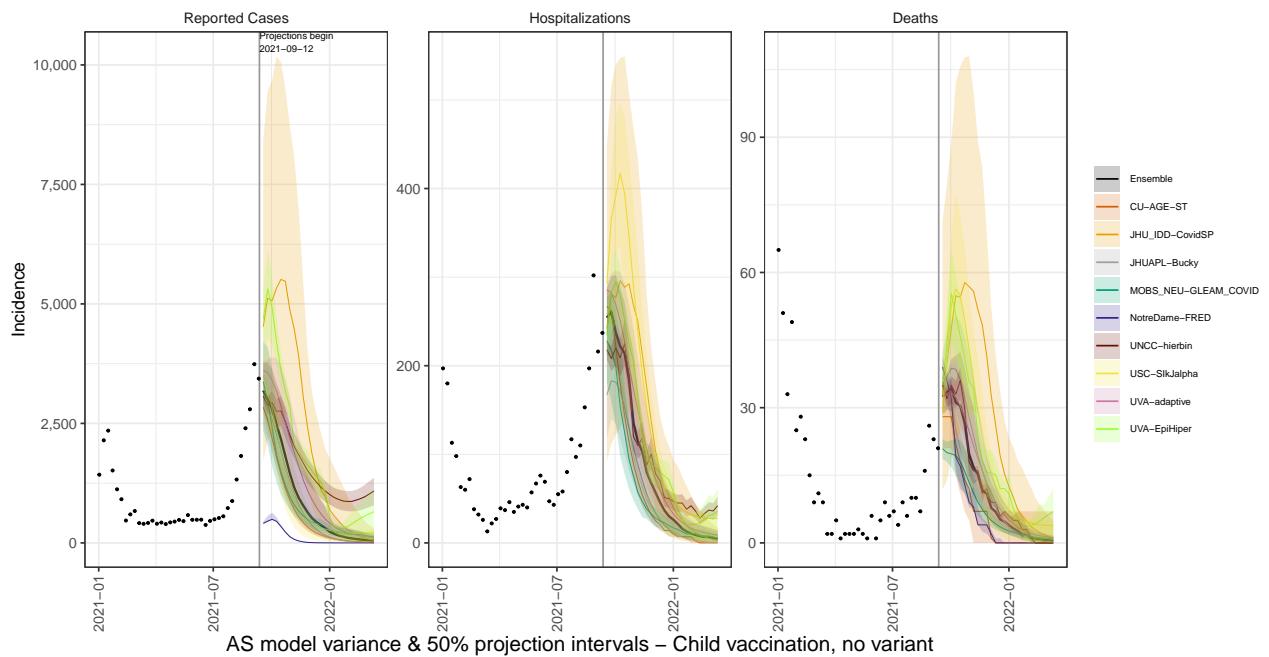
WA model variance & 50% projection intervals – Child vaccination, no variant



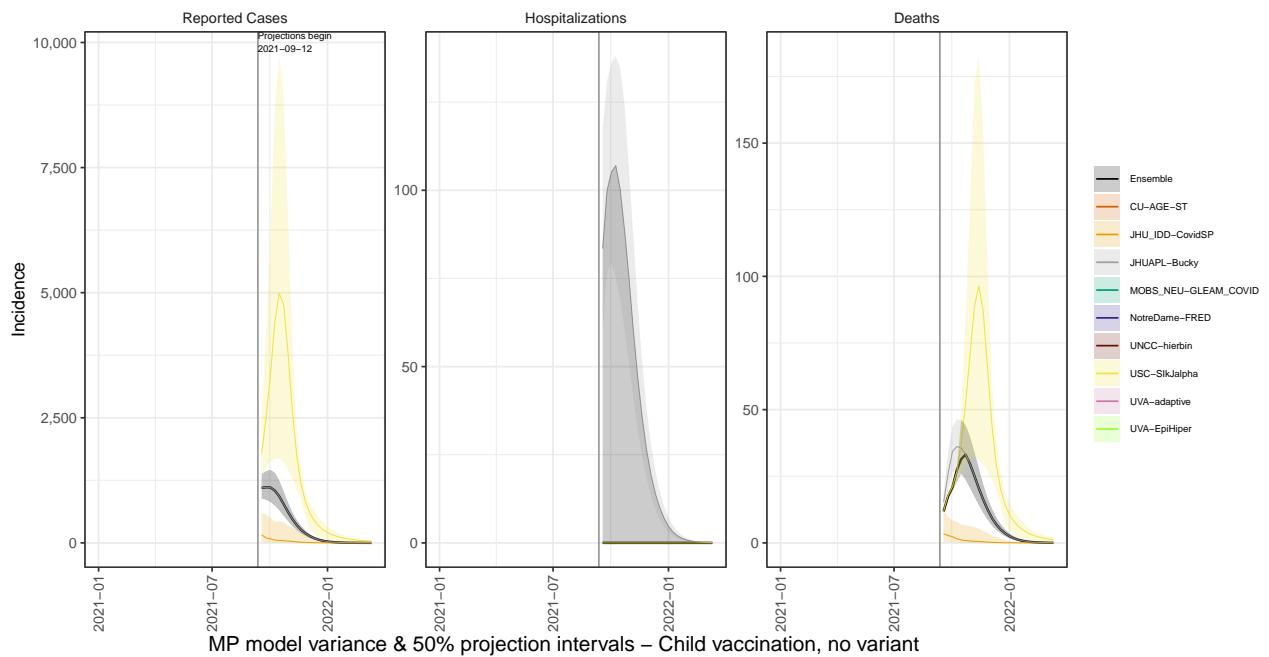
WV model variance & 50% projection intervals – Child vaccination, no variant



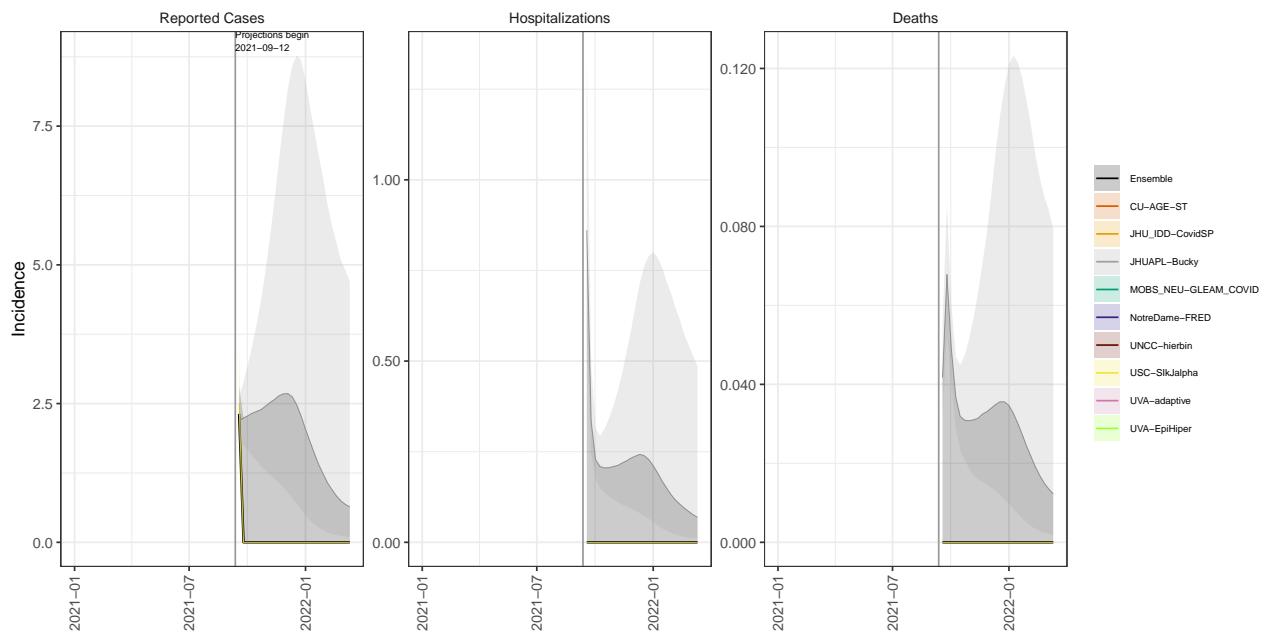
WY model variance & 50% projection intervals – Child vaccination, no variant



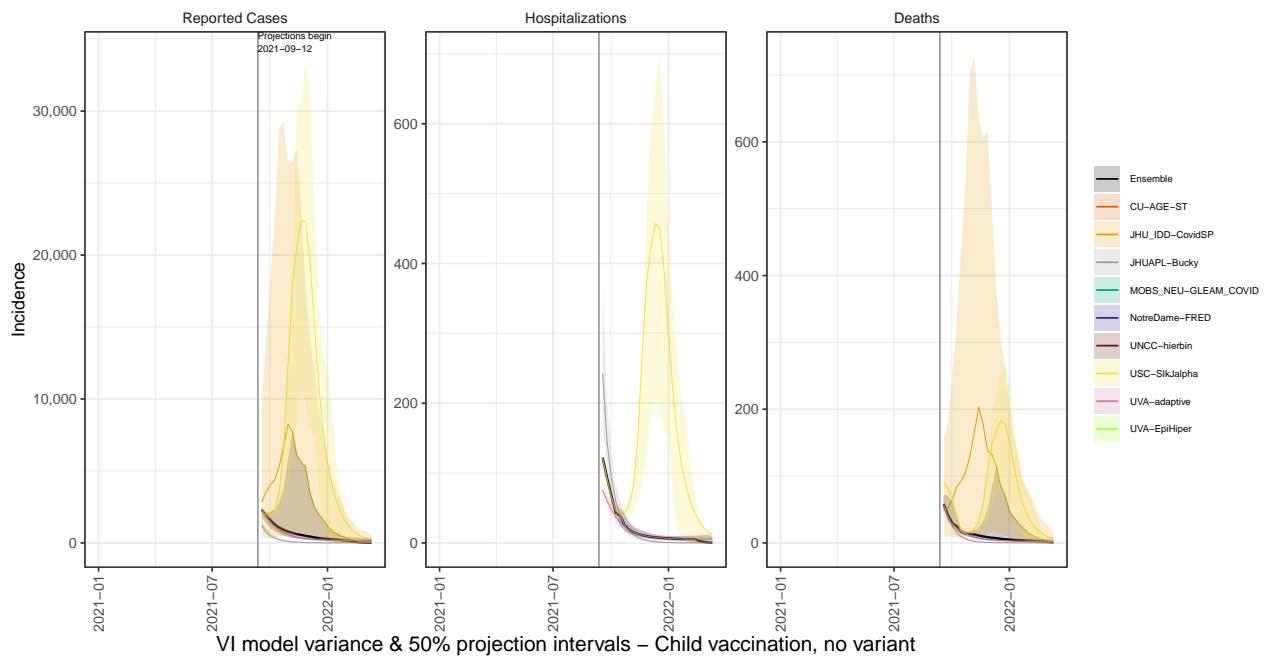
GU model variance & 50% projection intervals – Child vaccination, no variant



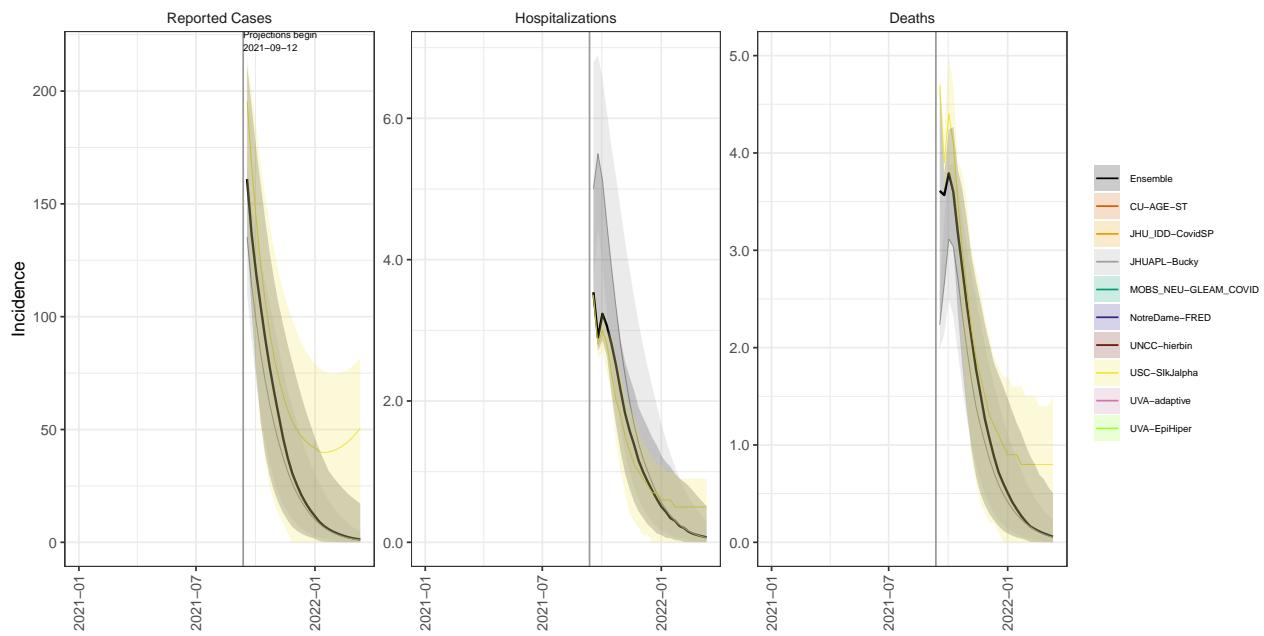
MP model variance & 50% projection intervals – Child vaccination, no variant



PR model variance & 50% projection intervals – Child vaccination, no variant

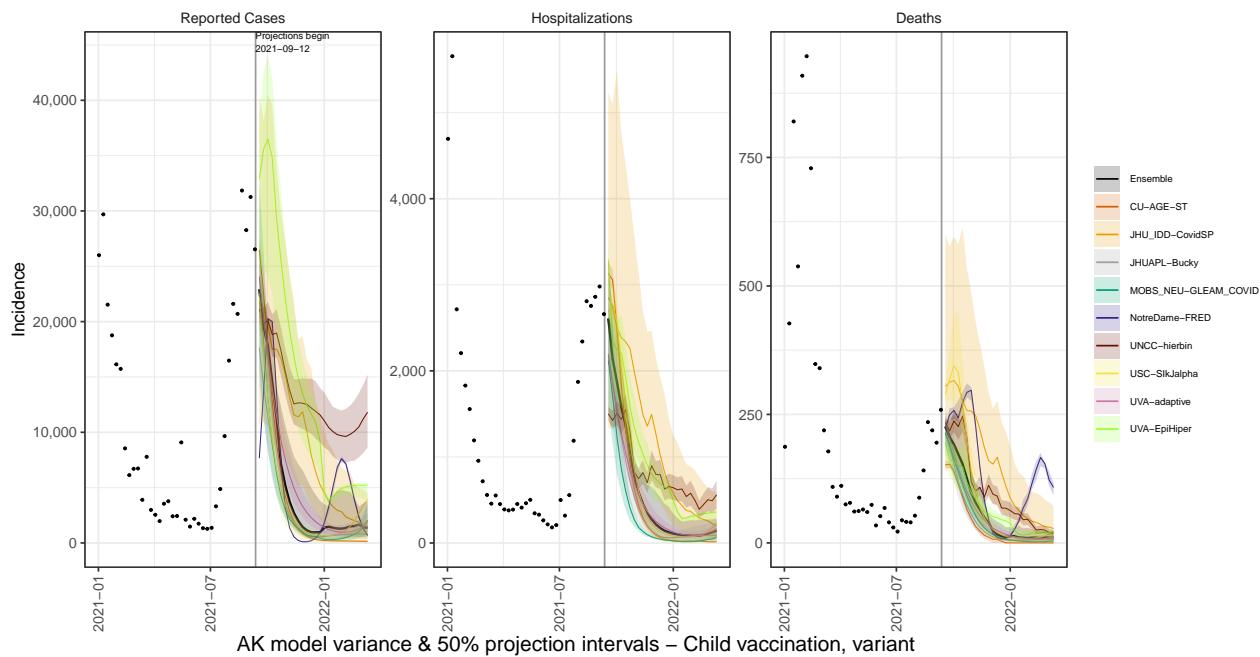


VI model variance & 50% projection intervals – Child vaccination, no variant

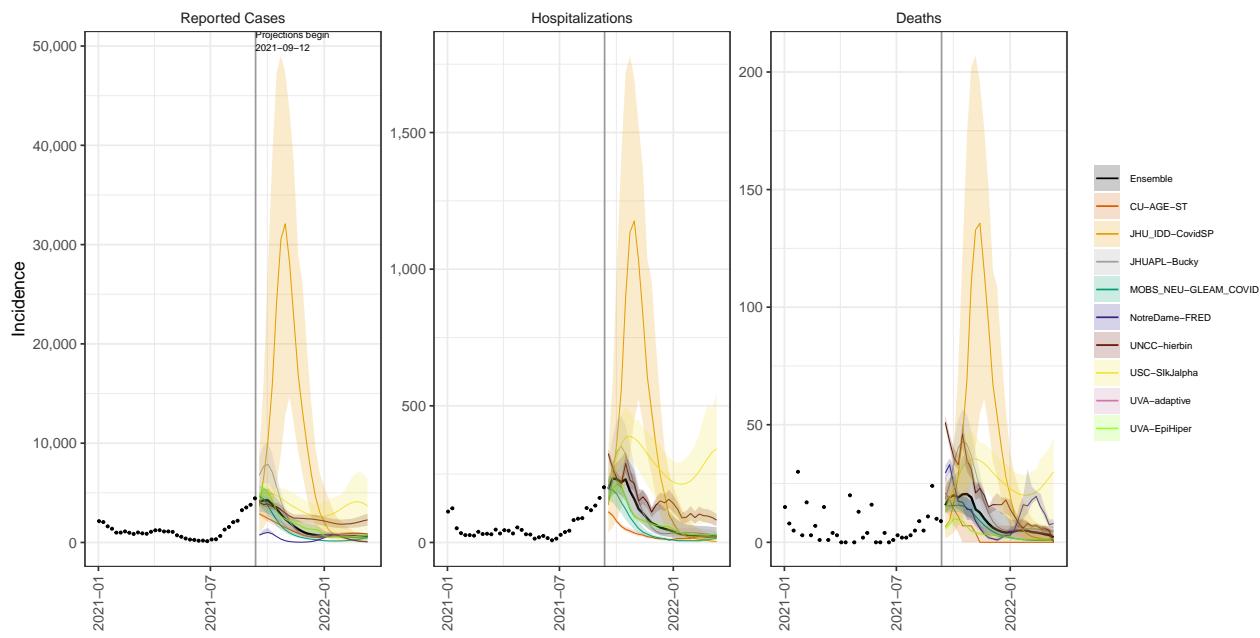


National model variation for the child vaccination, variant scenario

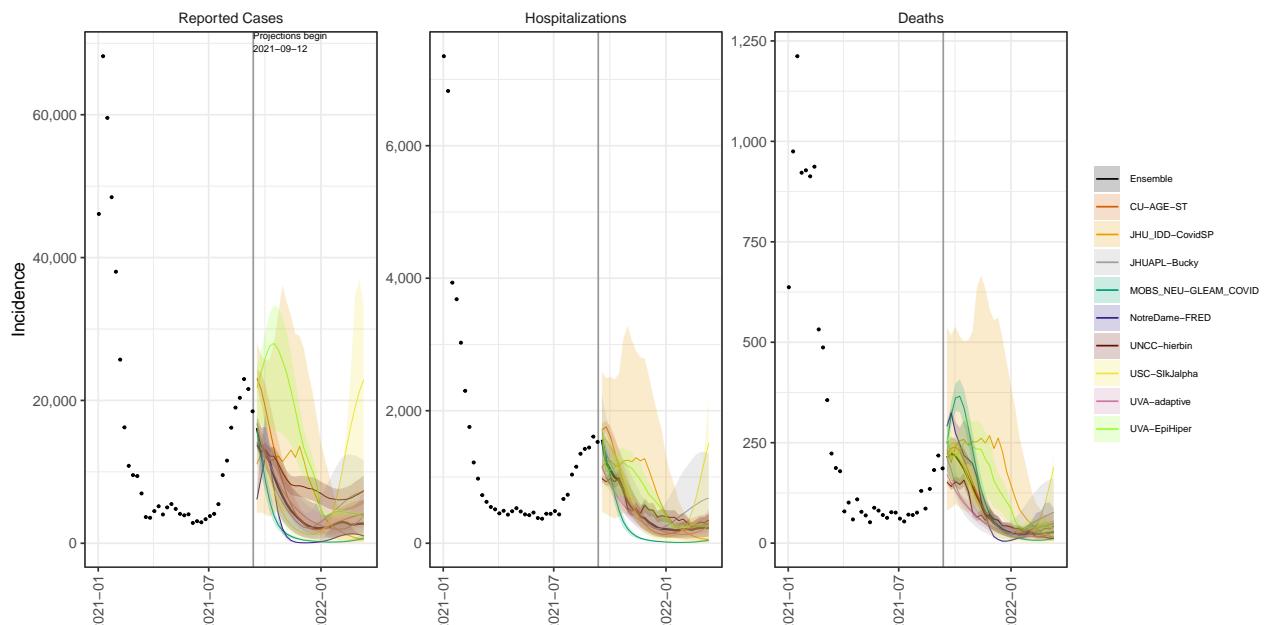
AL model variance & 50% projection intervals – Child vaccination, variant



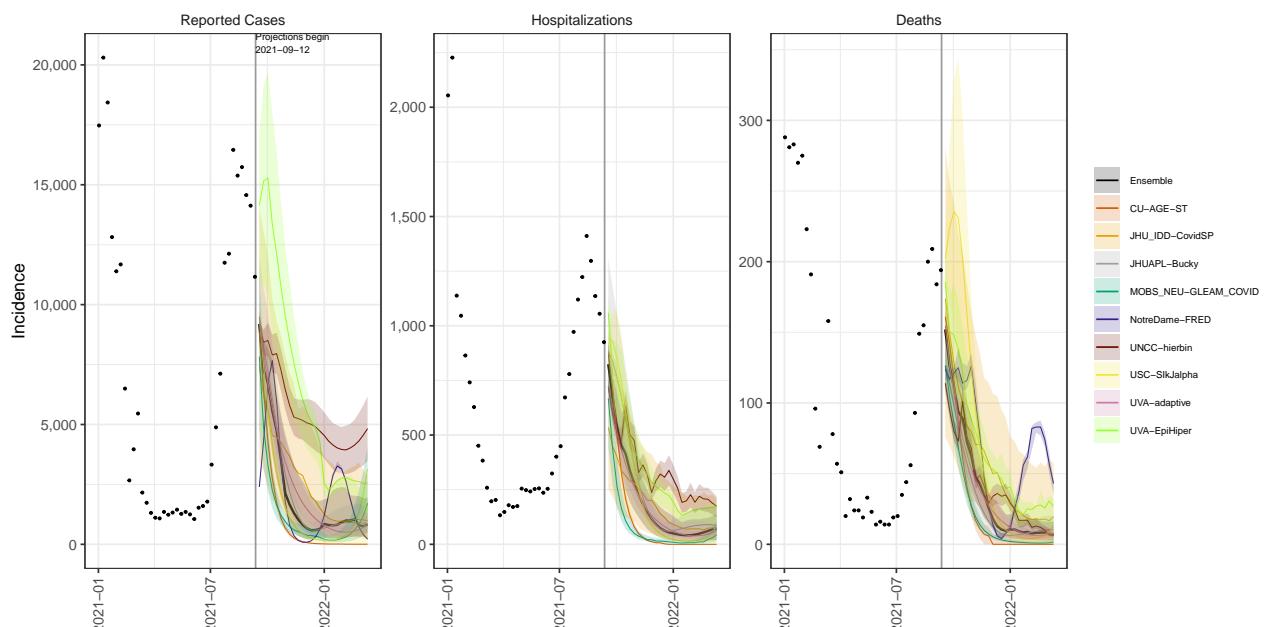
AK model variance & 50% projection intervals – Child vaccination, variant



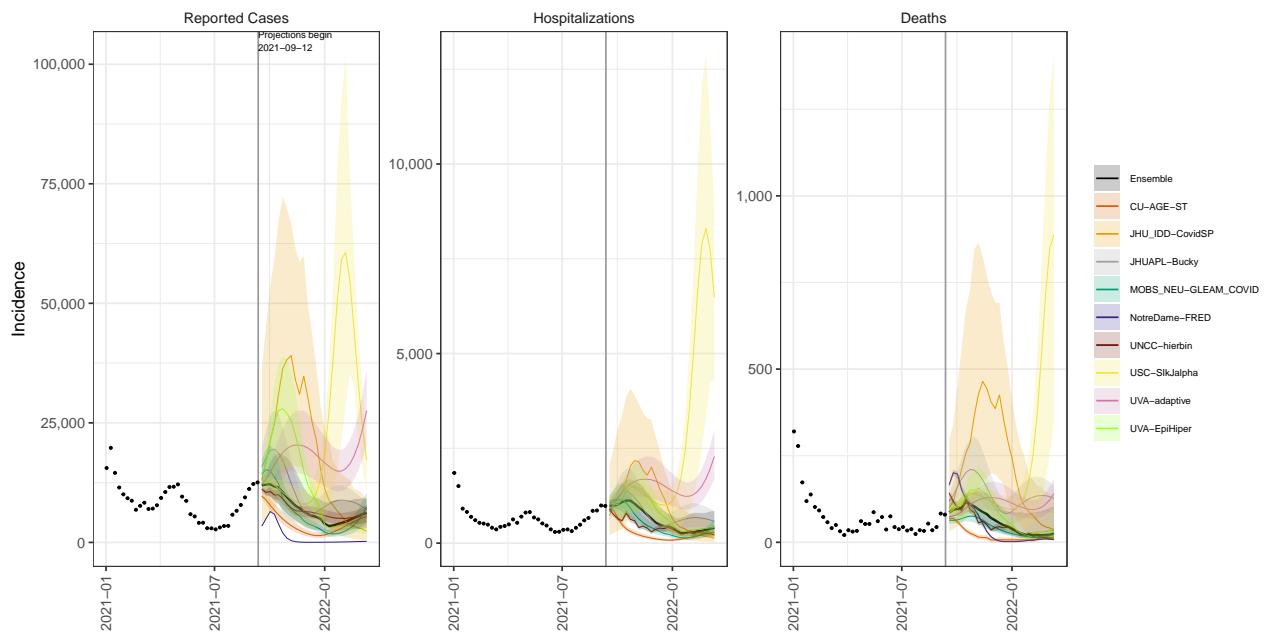
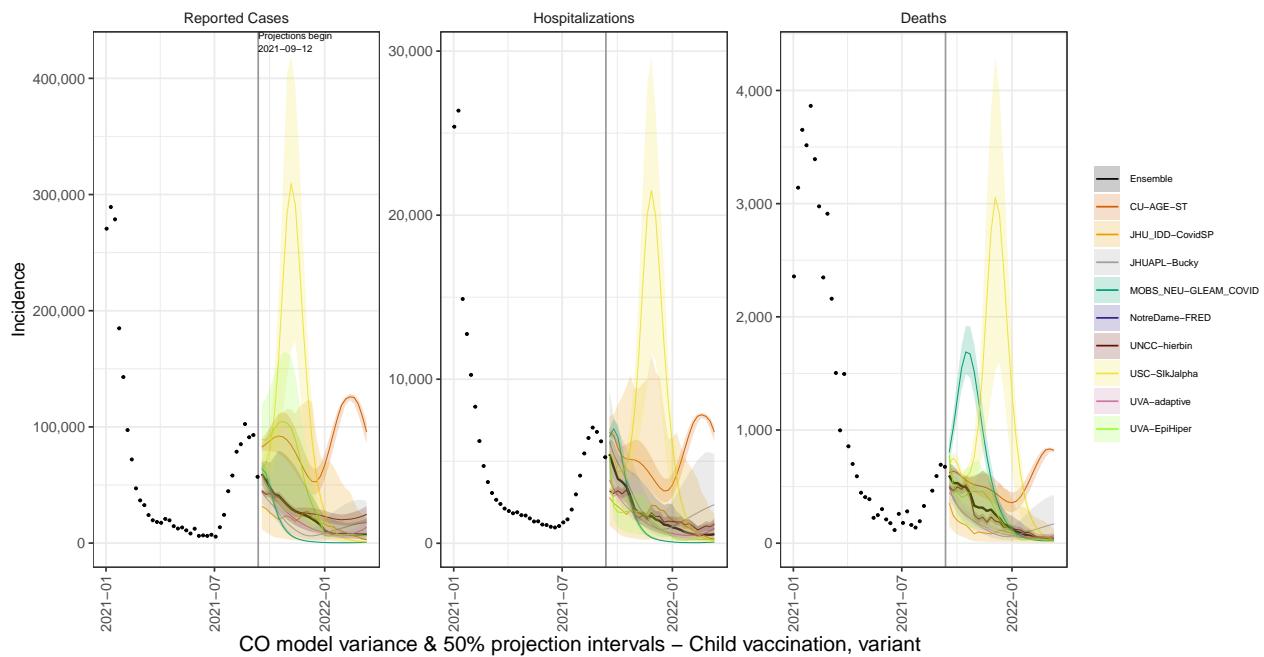
AZ model variance & 50% projection intervals – Child vaccination, variant



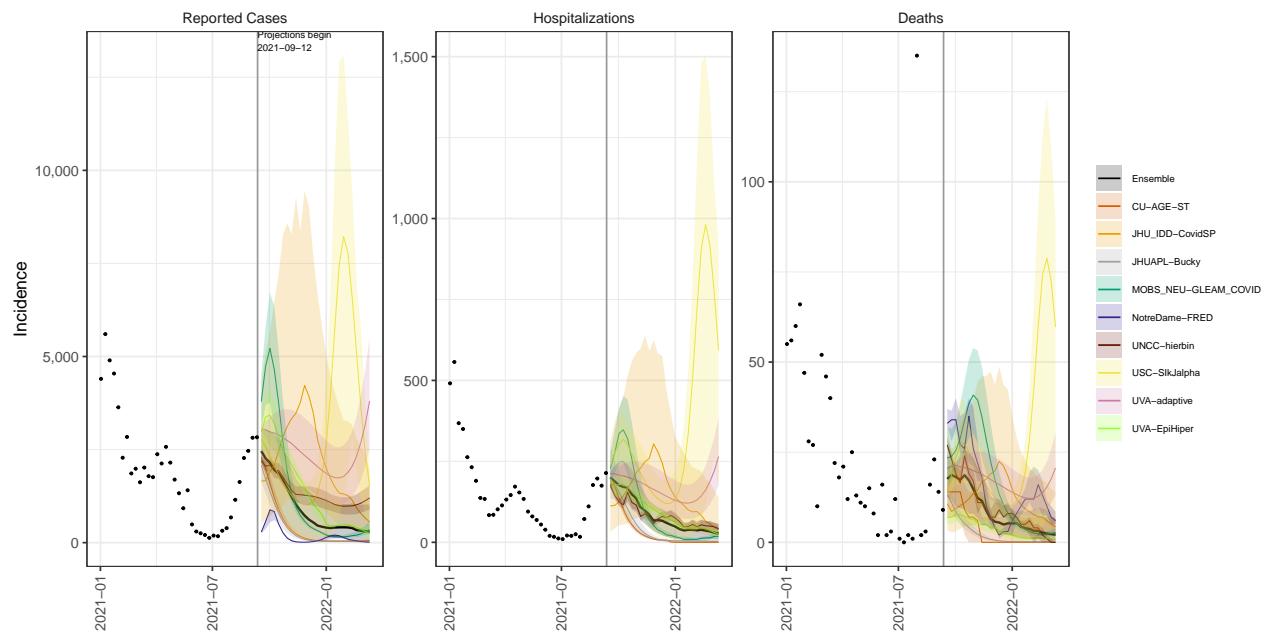
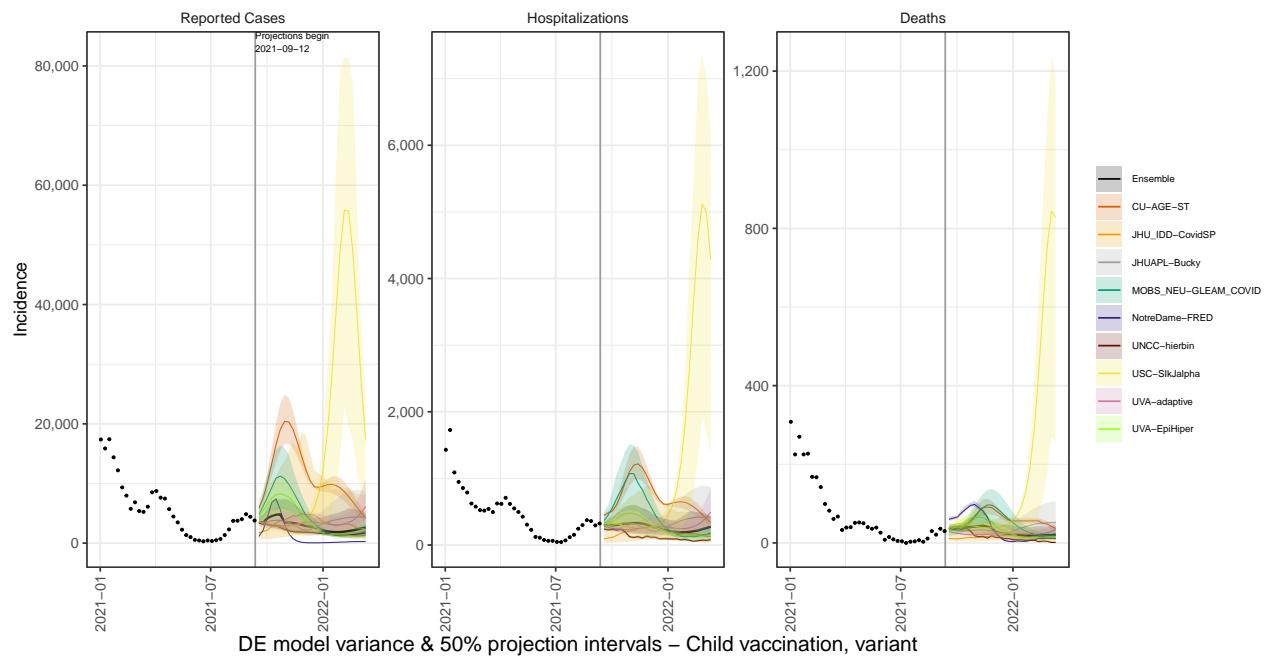
AR model variance & 50% projection intervals – Child vaccination, variant



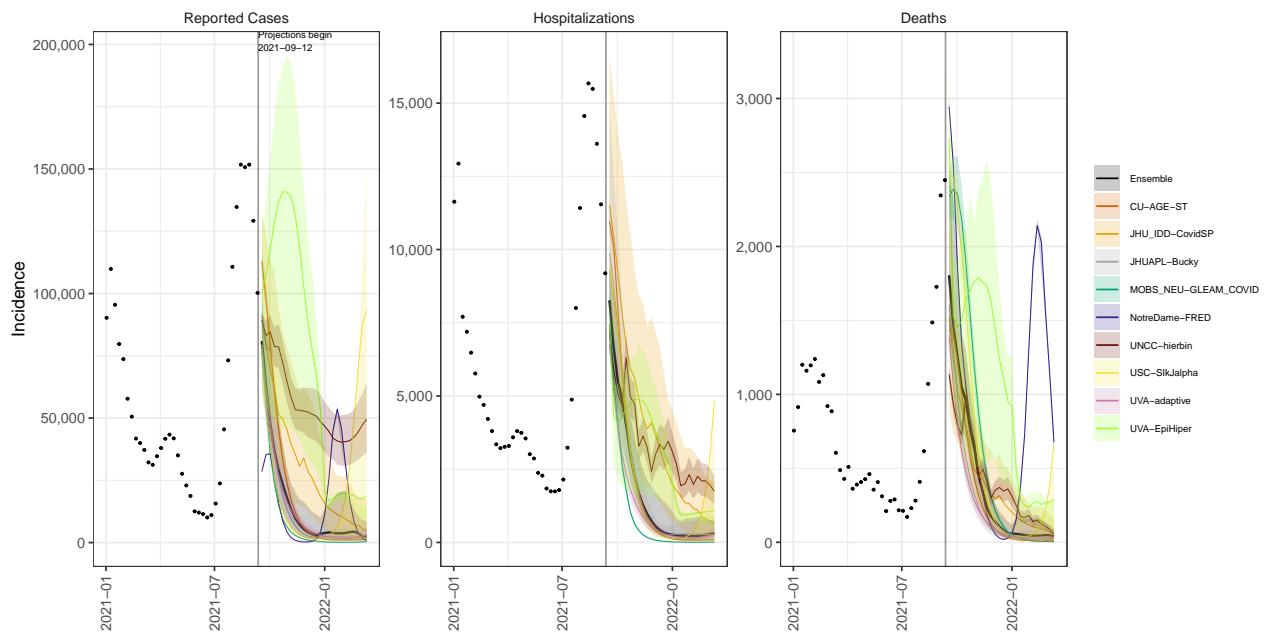
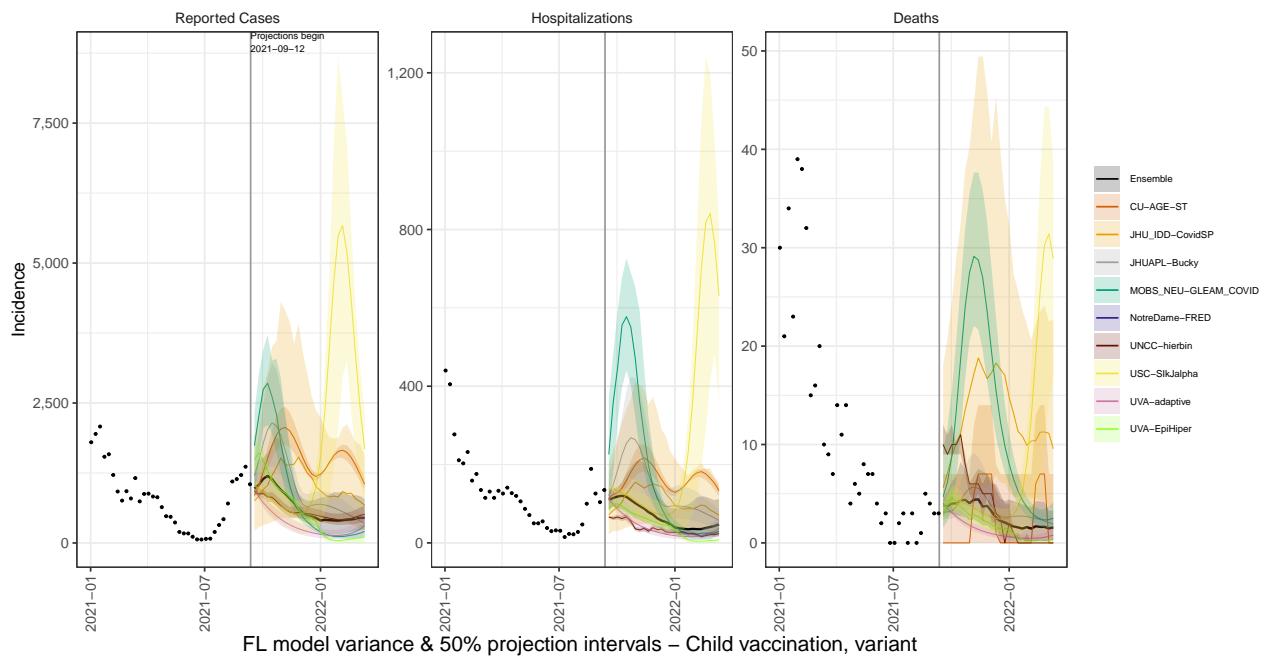
CA model variance & 50% projection intervals – Child vaccination, variant



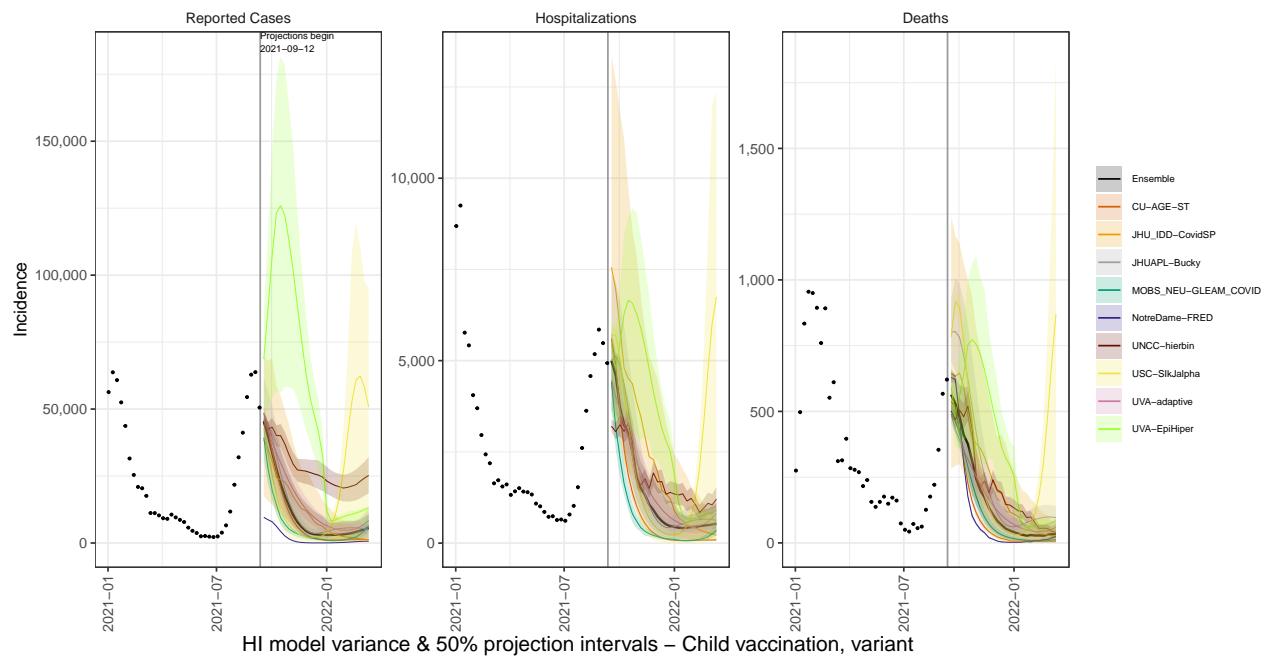
CT model variance & 50% projection intervals – Child vaccination, variant



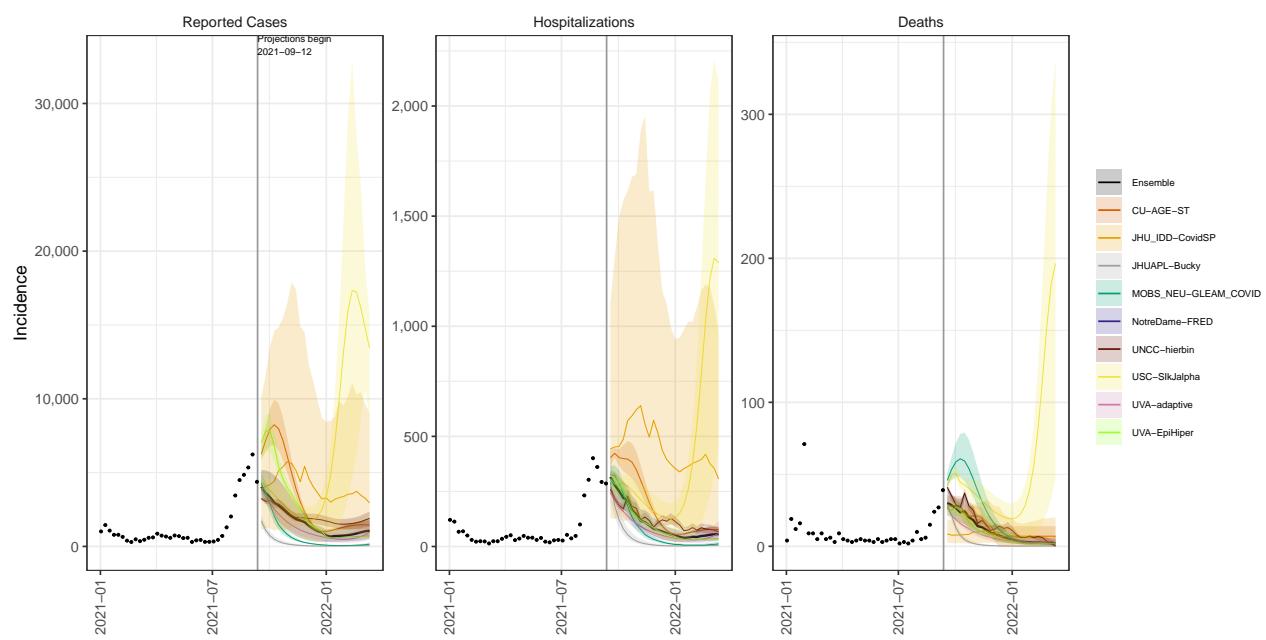
DC model variance & 50% projection intervals – Child vaccination, variant



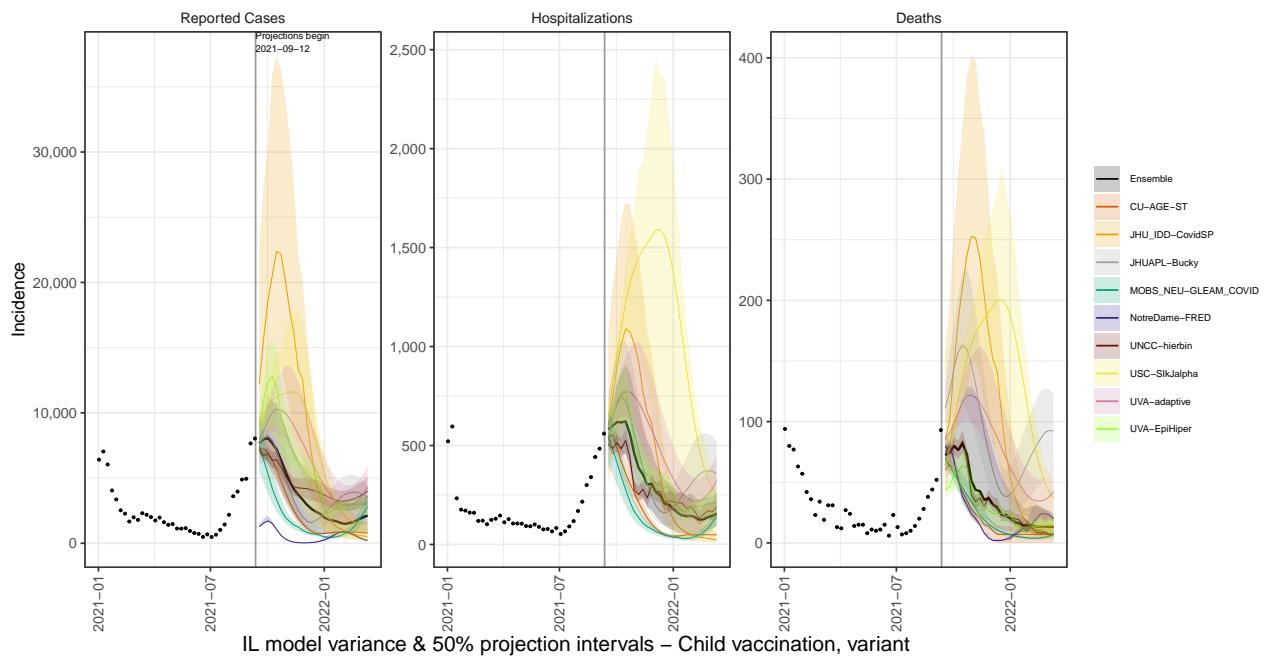
GA model variance & 50% projection intervals – Child vaccination, variant



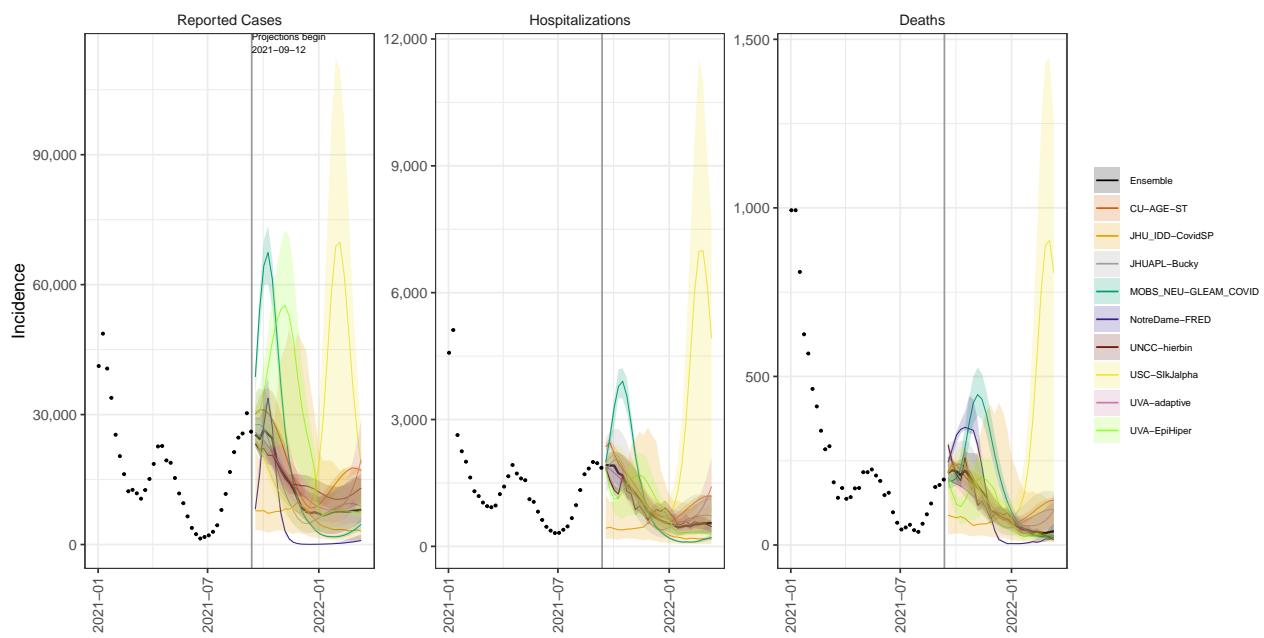
HI model variance & 50% projection intervals – Child vaccination, variant



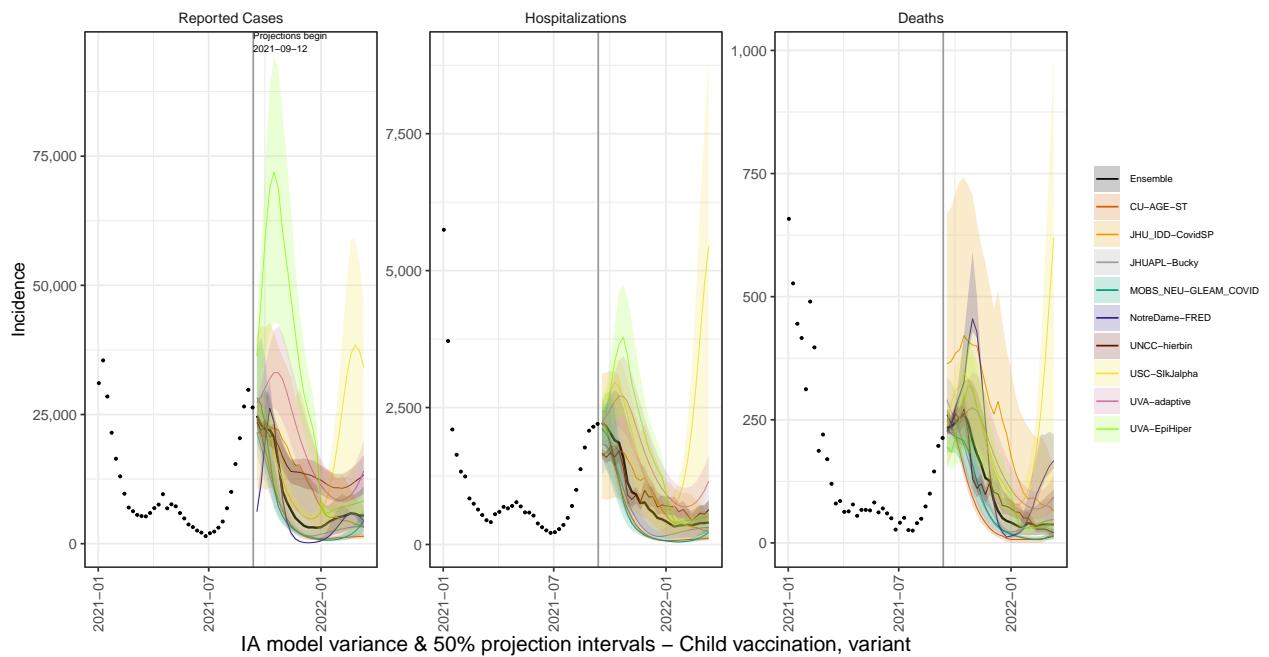
ID model variance & 50% projection intervals – Child vaccination, variant



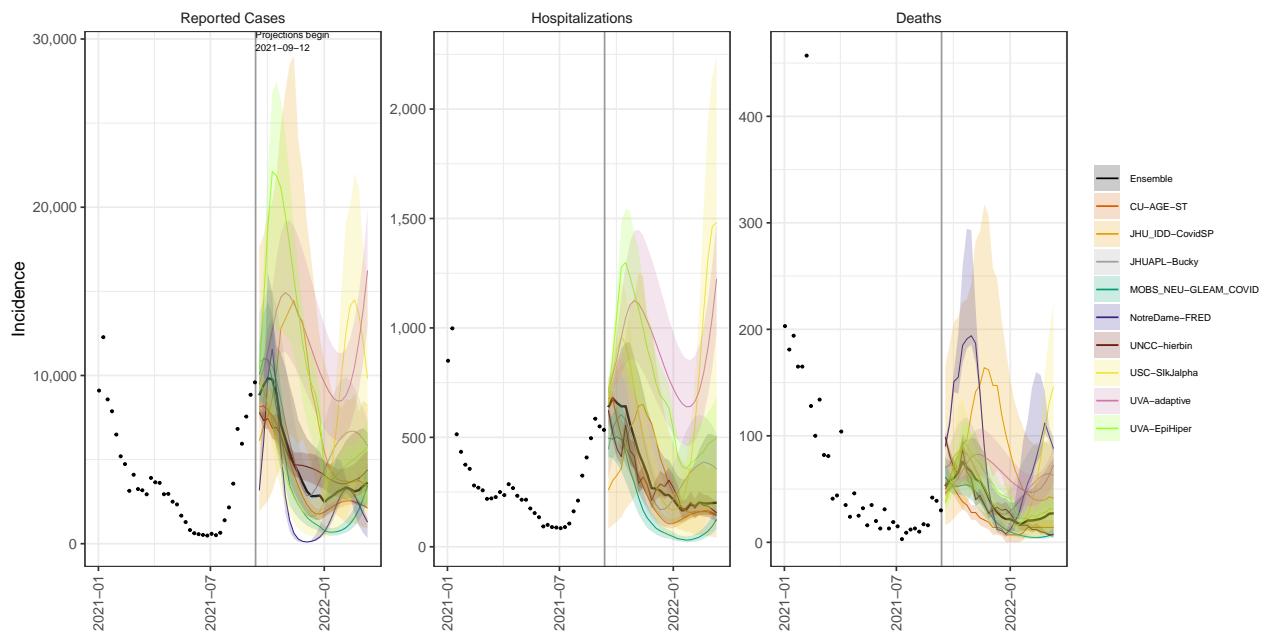
IL model variance & 50% projection intervals – Child vaccination, variant



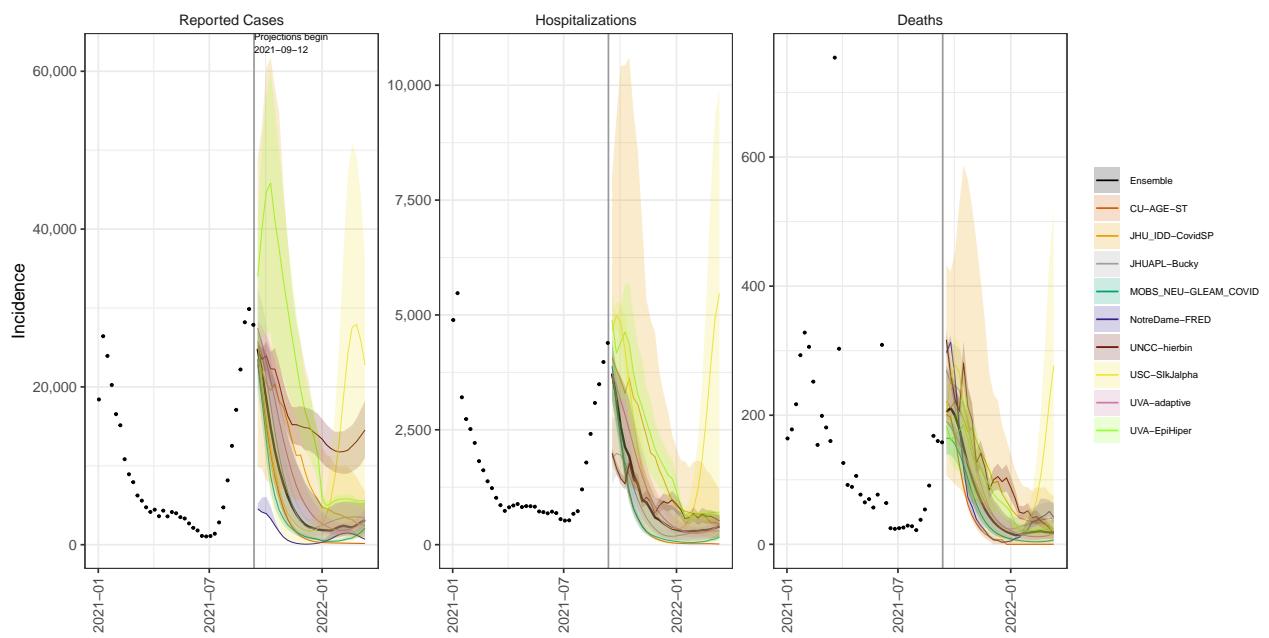
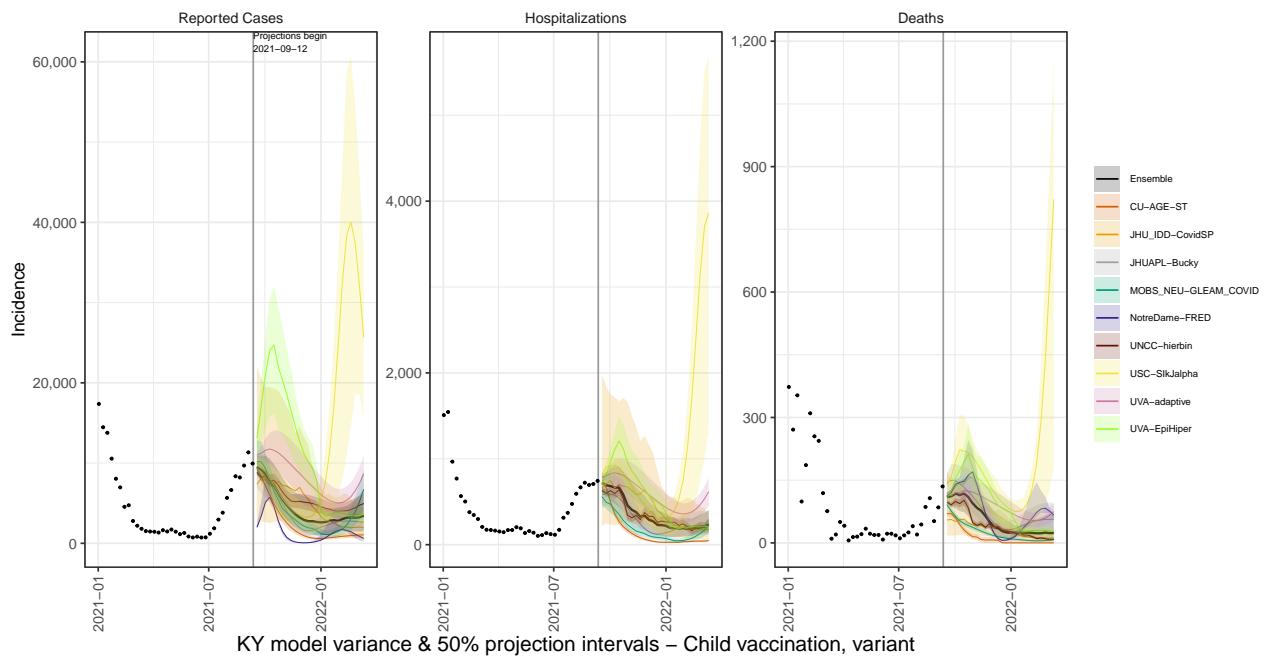
IN model variance & 50% projection intervals – Child vaccination, variant



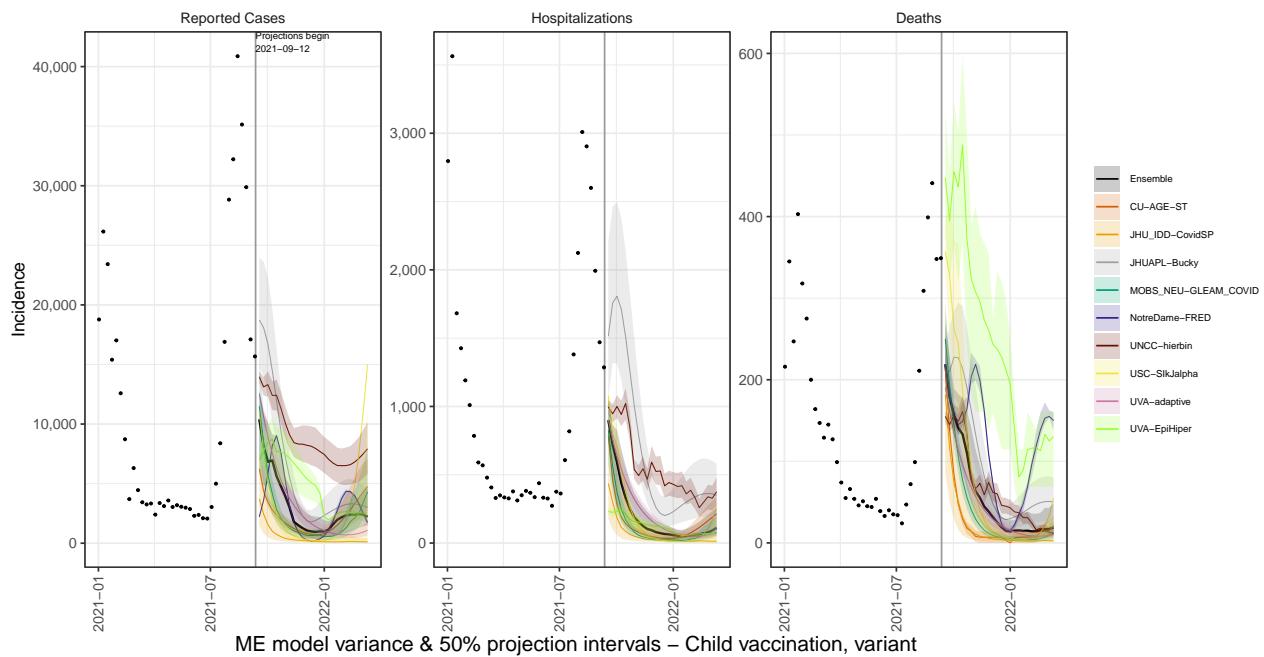
IA model variance & 50% projection intervals – Child vaccination, variant



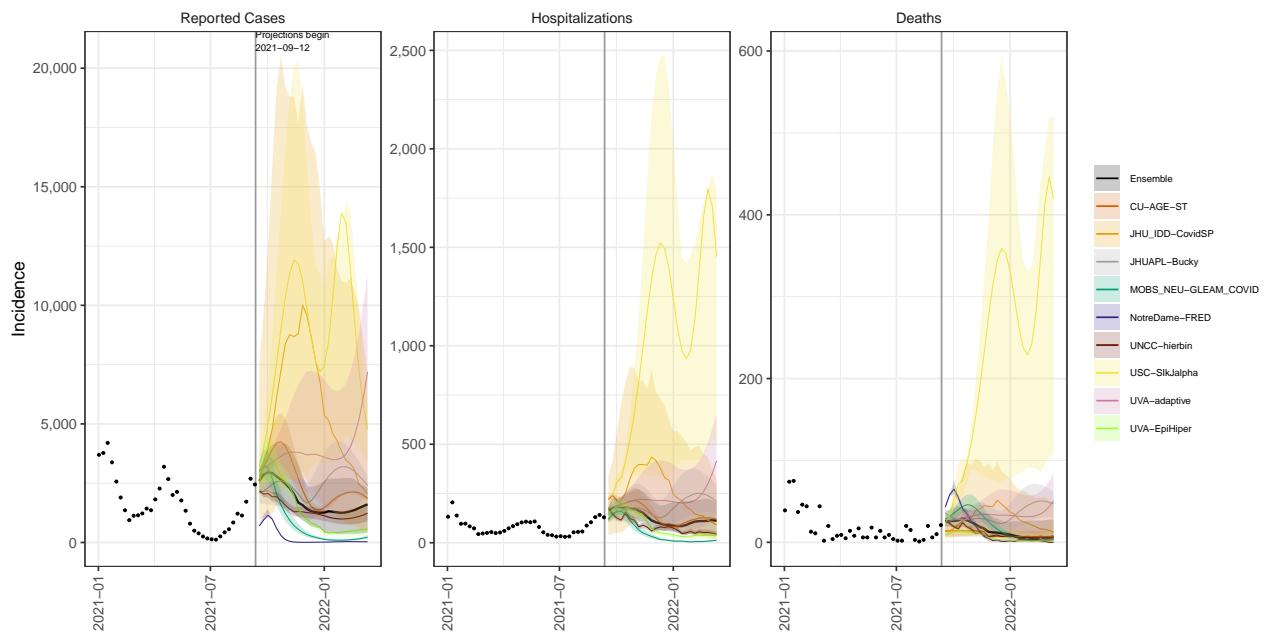
KS model variance & 50% projection intervals – Child vaccination, variant



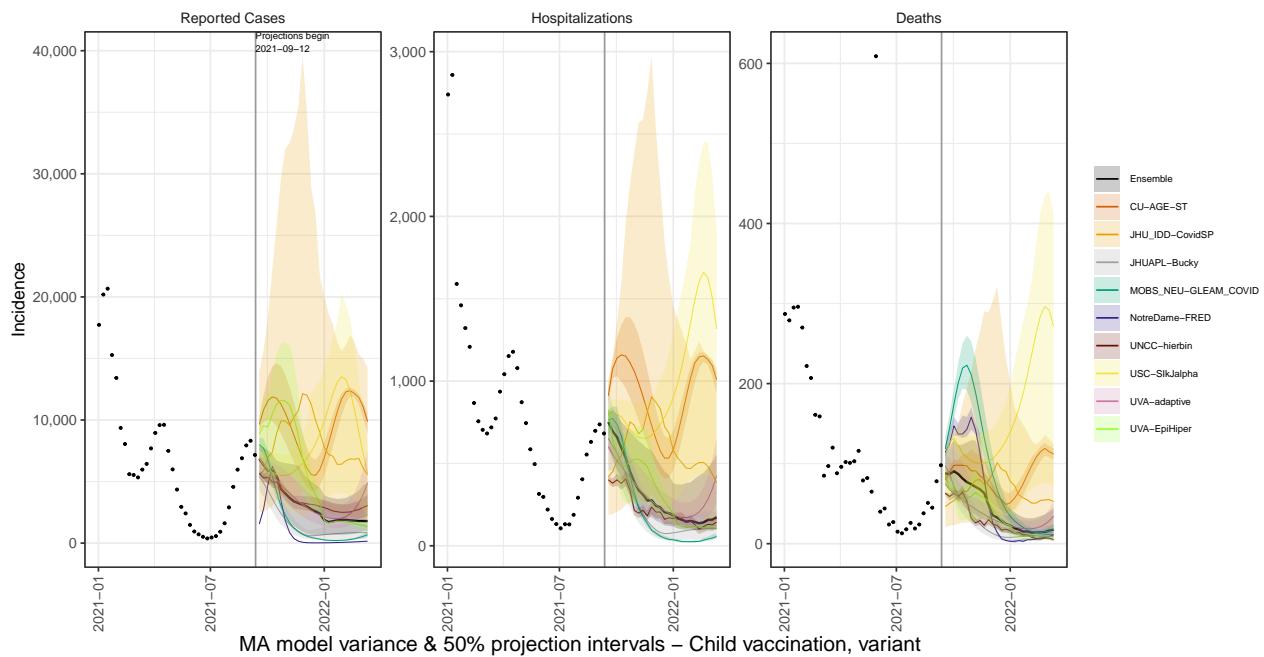
LA model variance & 50% projection intervals – Child vaccination, variant



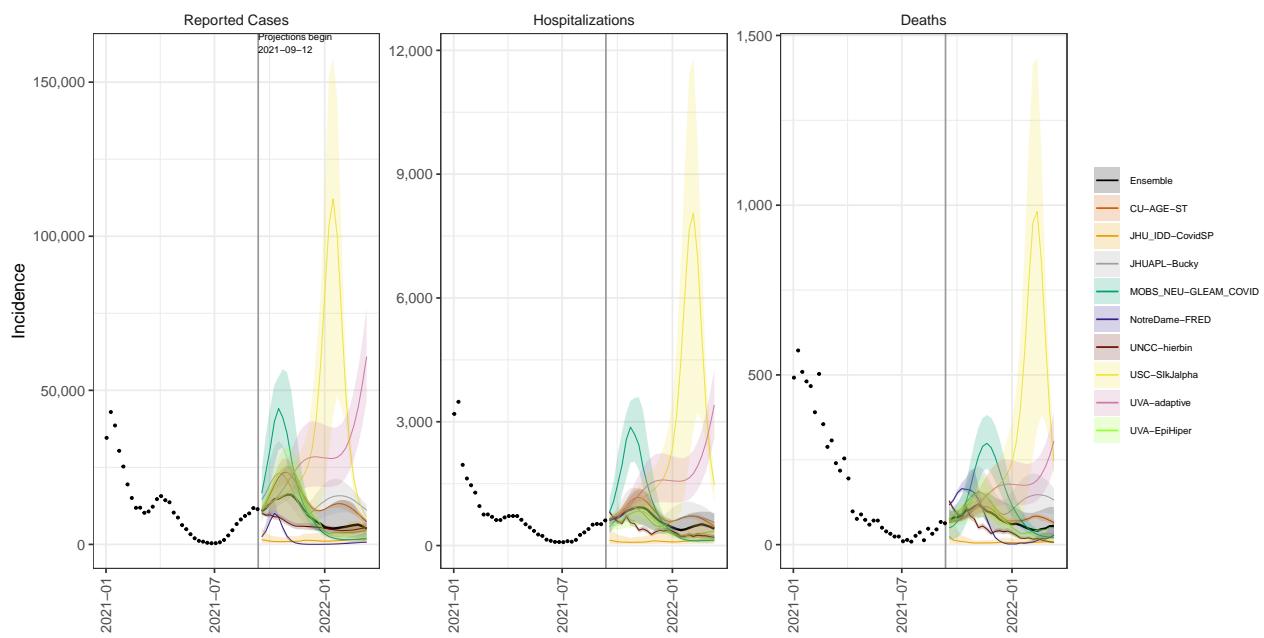
ME model variance & 50% projection intervals – Child vaccination, variant



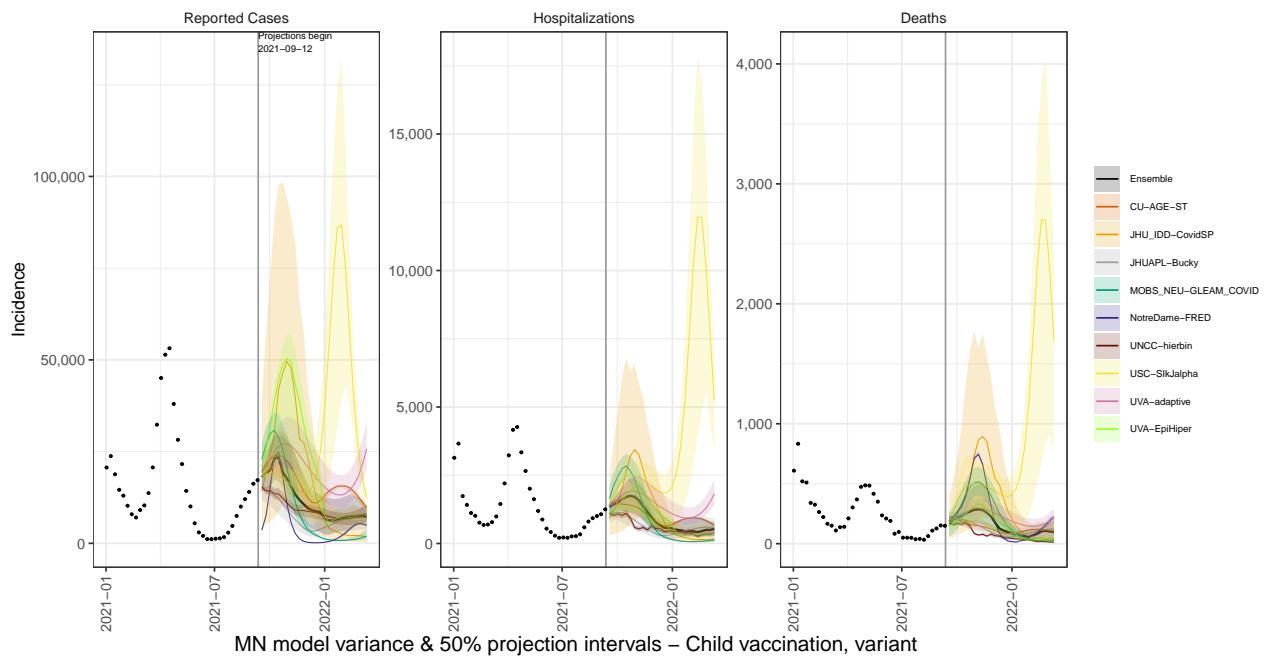
MD model variance & 50% projection intervals – Child vaccination, variant



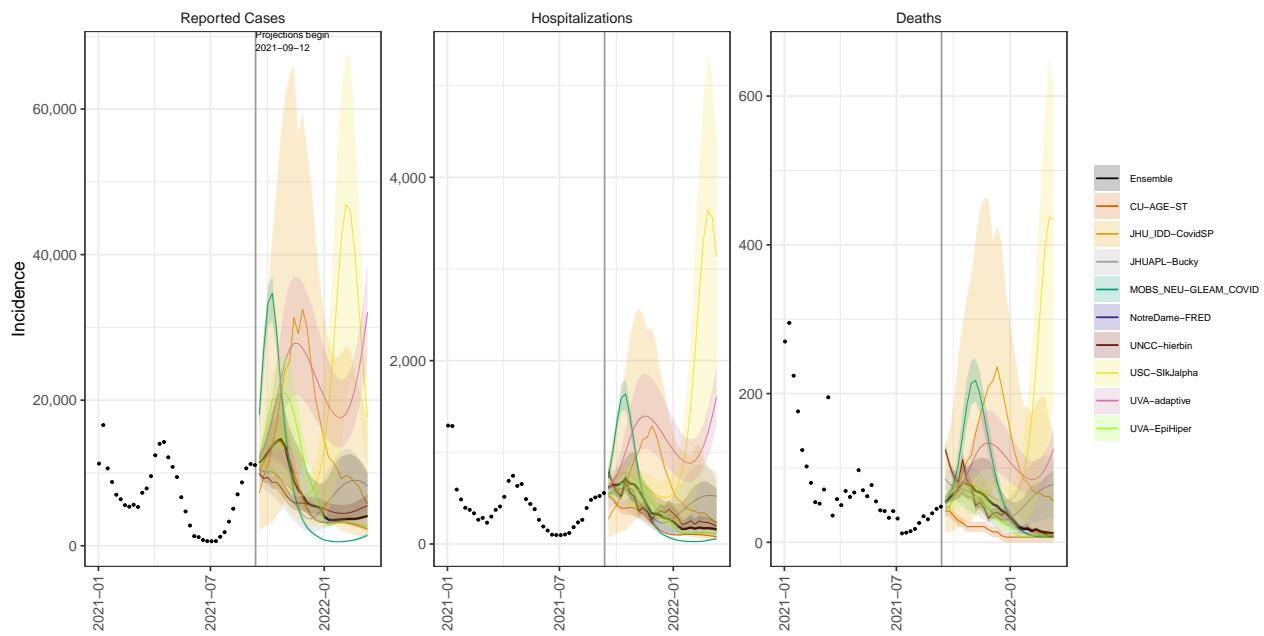
MA model variance & 50% projection intervals – Child vaccination, variant



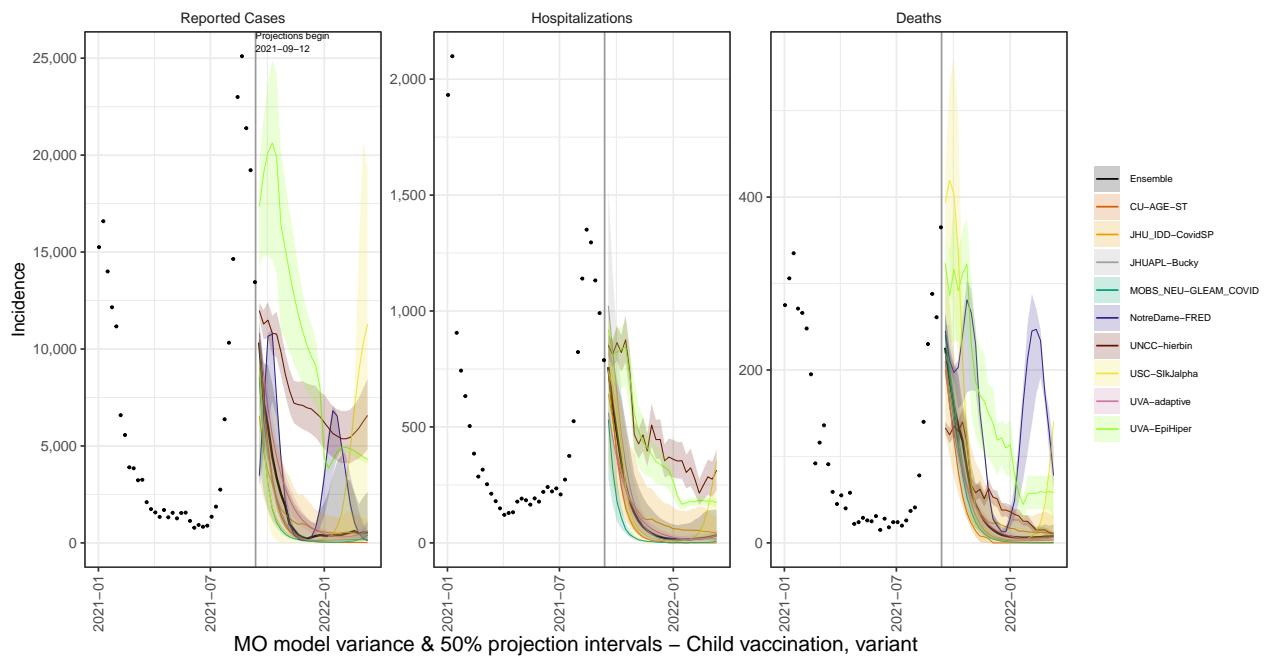
MI model variance & 50% projection intervals – Child vaccination, variant



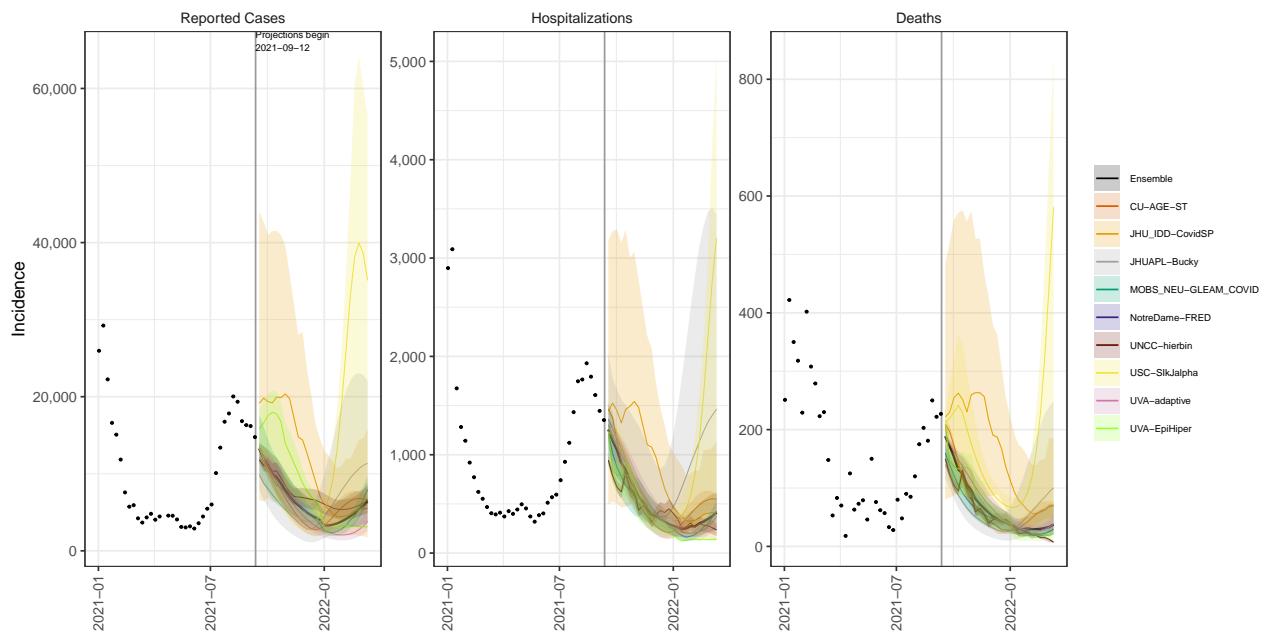
MN model variance & 50% projection intervals – Child vaccination, variant



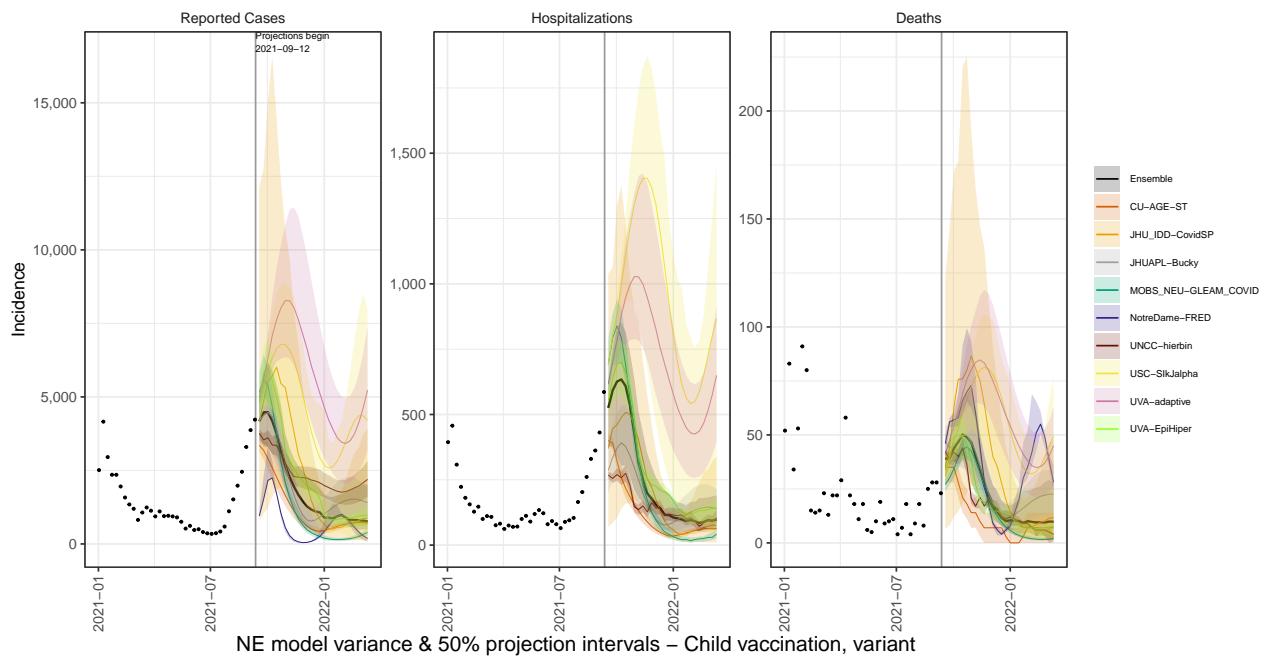
MS model variance & 50% projection intervals – Child vaccination, variant



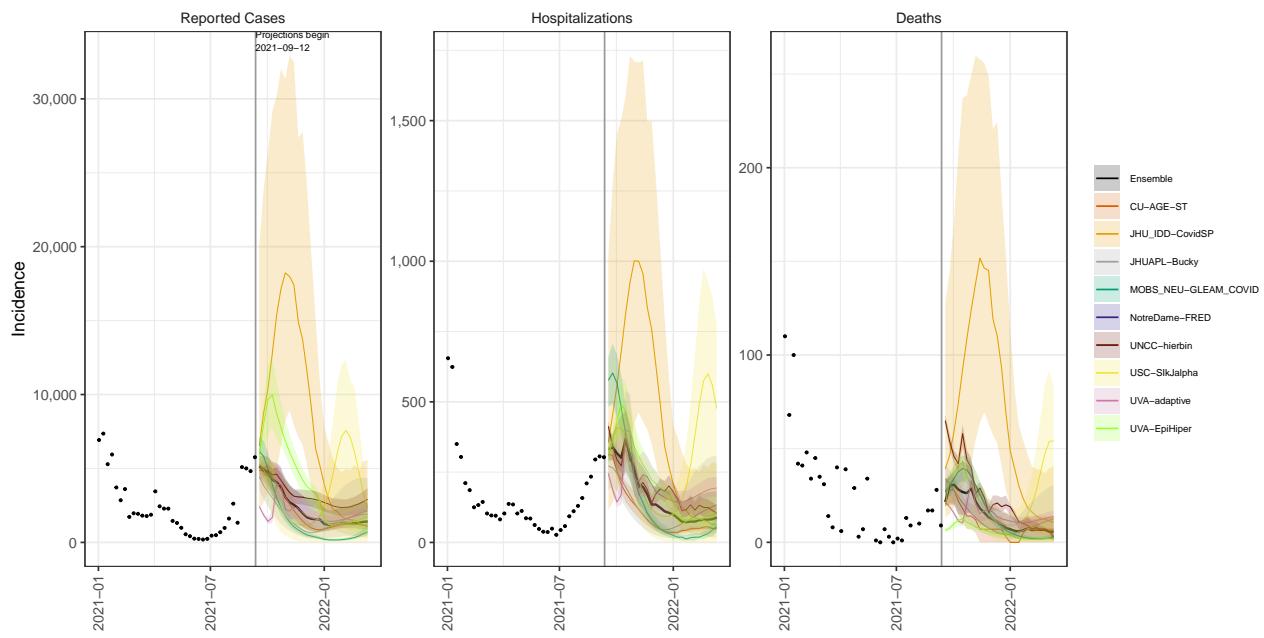
MO model variance & 50% projection intervals – Child vaccination, variant



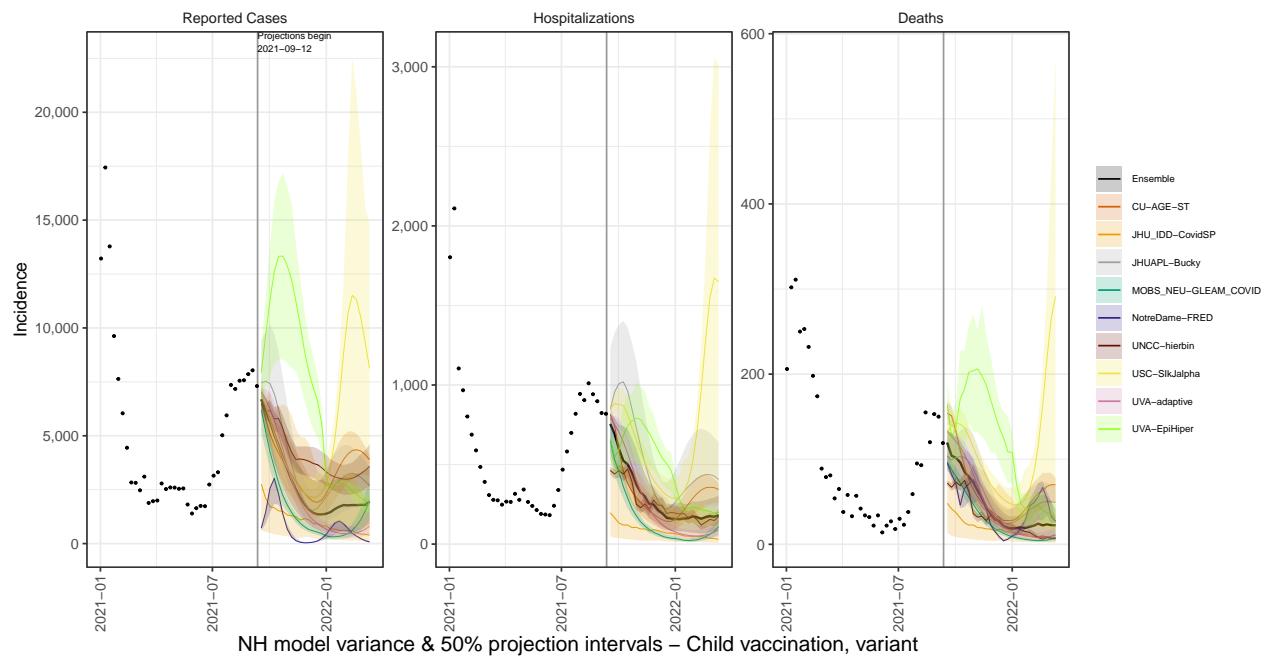
MT model variance & 50% projection intervals – Child vaccination, variant



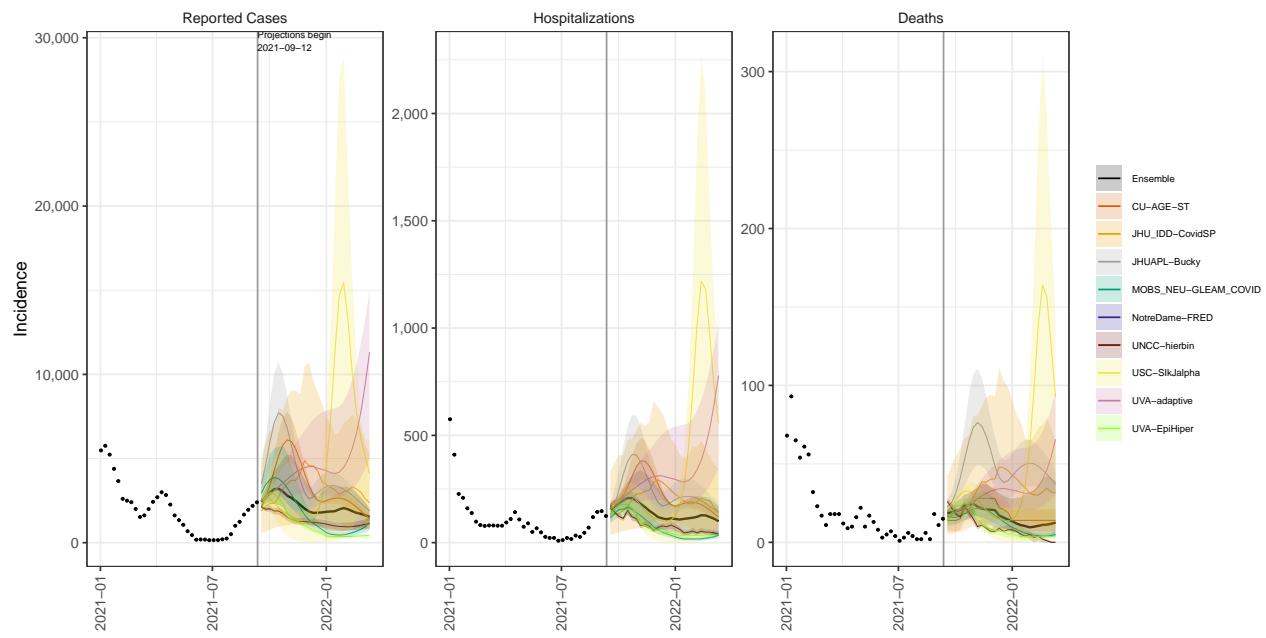
NE model variance & 50% projection intervals – Child vaccination, variant



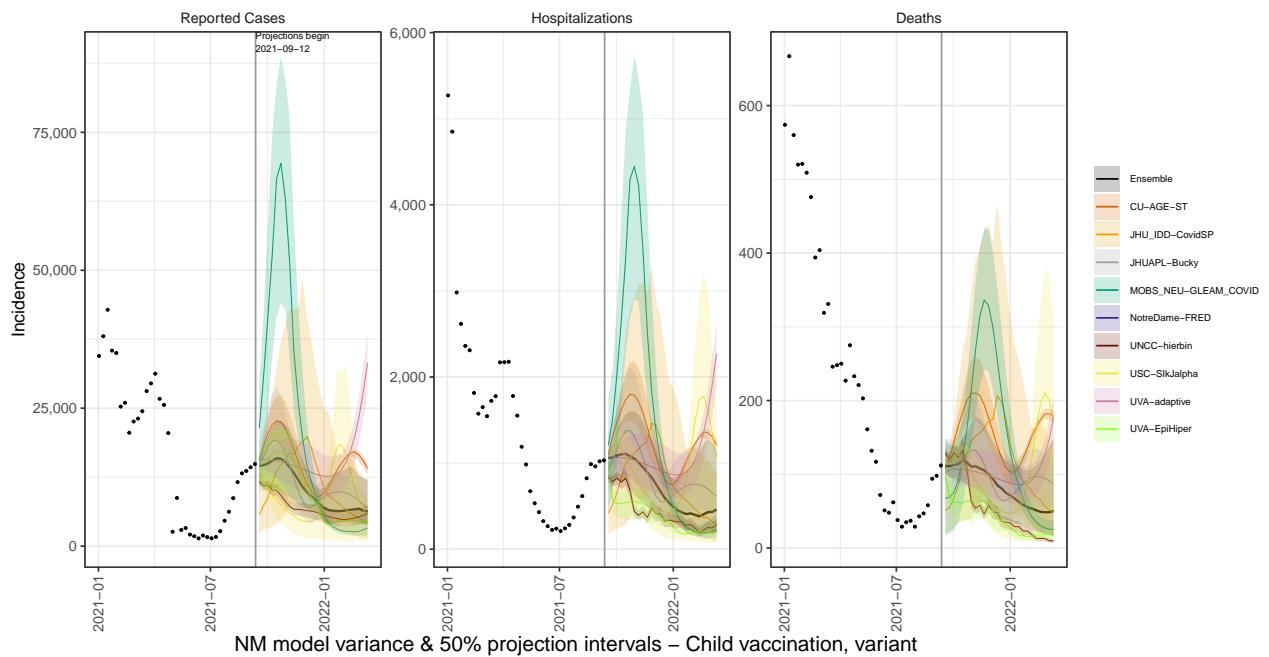
NV model variance & 50% projection intervals – Child vaccination, variant



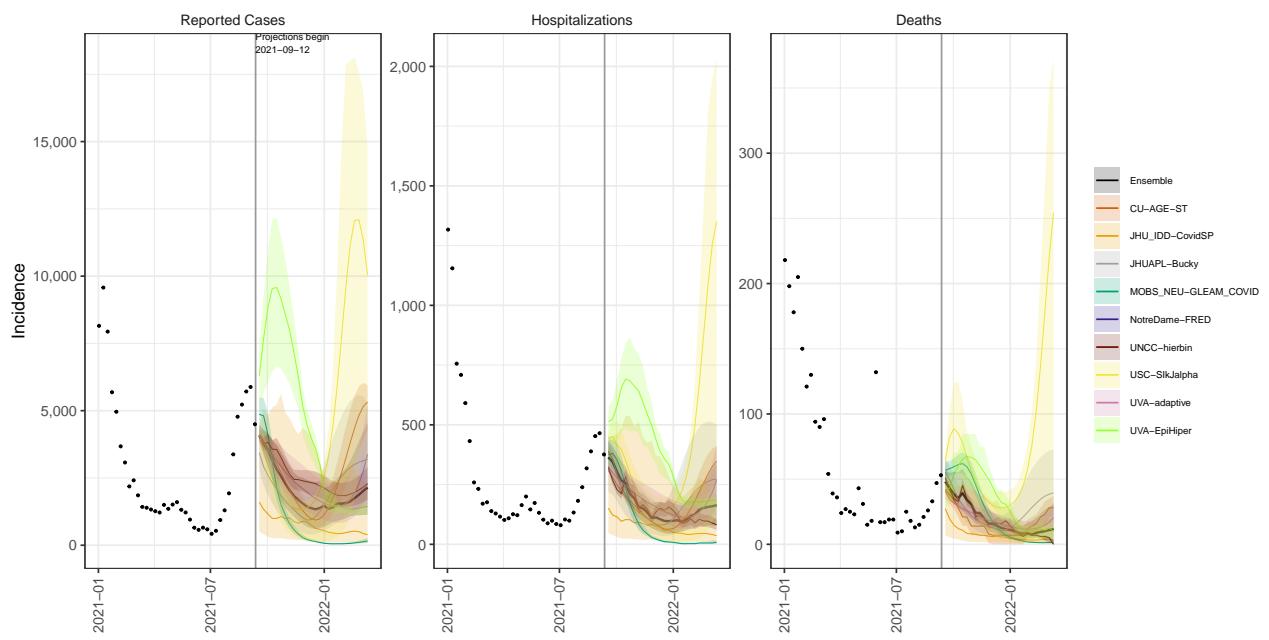
NH model variance & 50% projection intervals – Child vaccination, variant



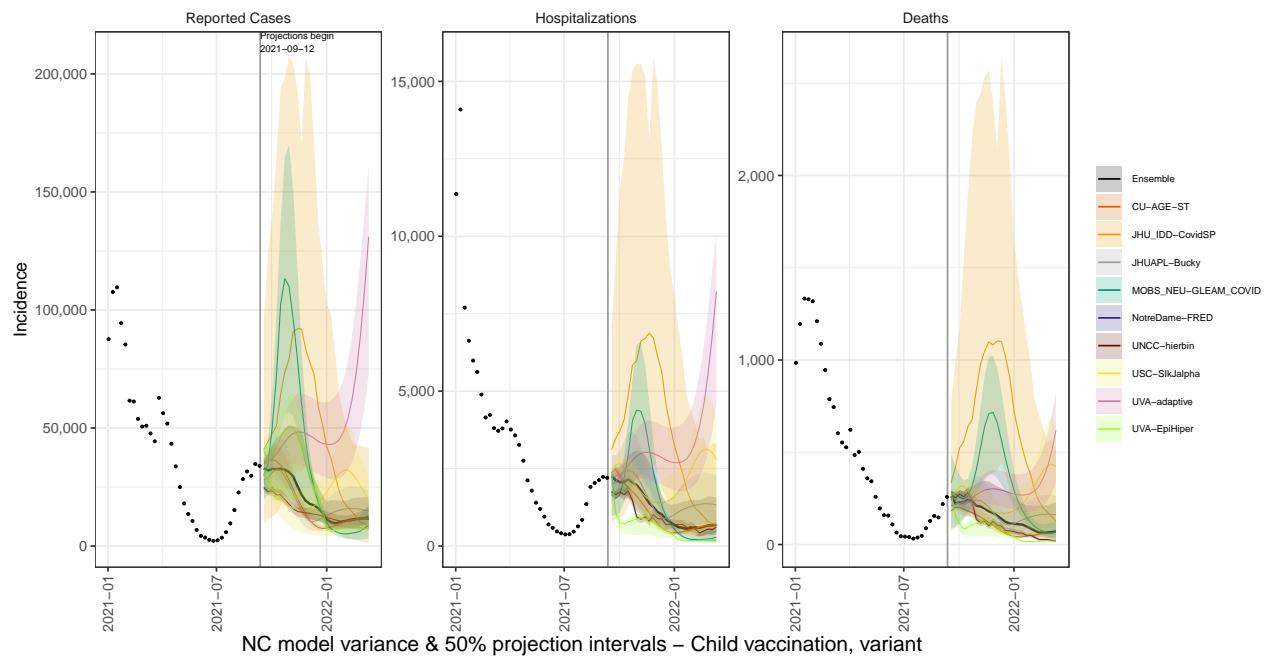
NJ model variance & 50% projection intervals – Child vaccination, variant



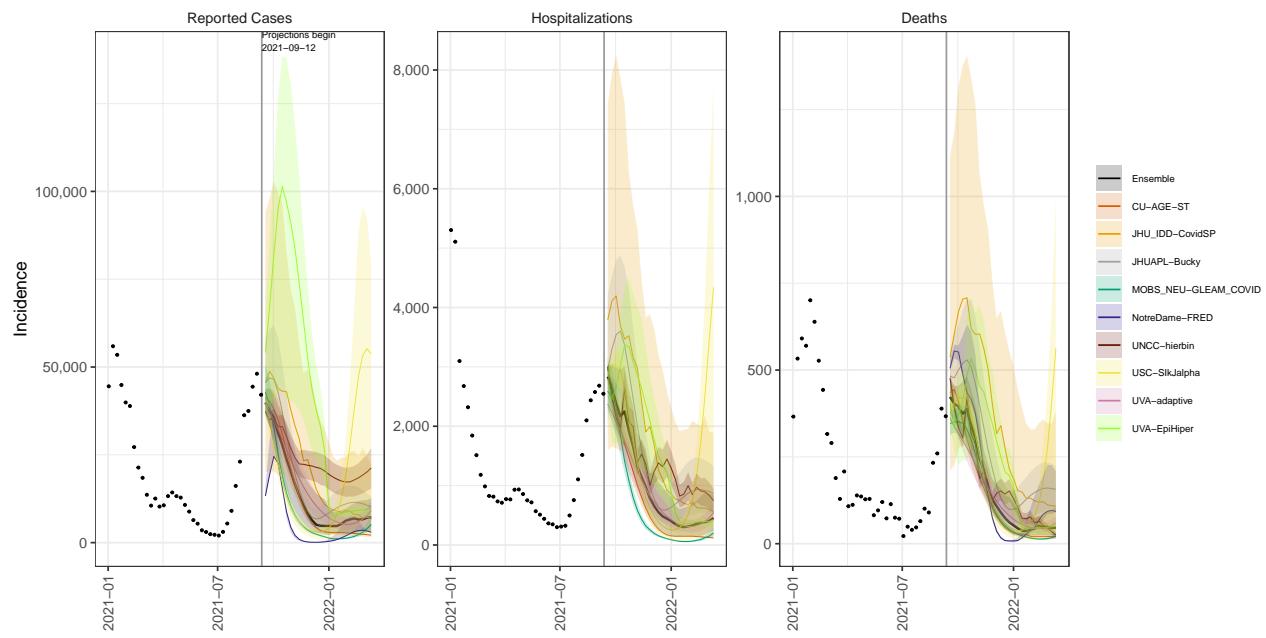
NM model variance & 50% projection intervals – Child vaccination, variant



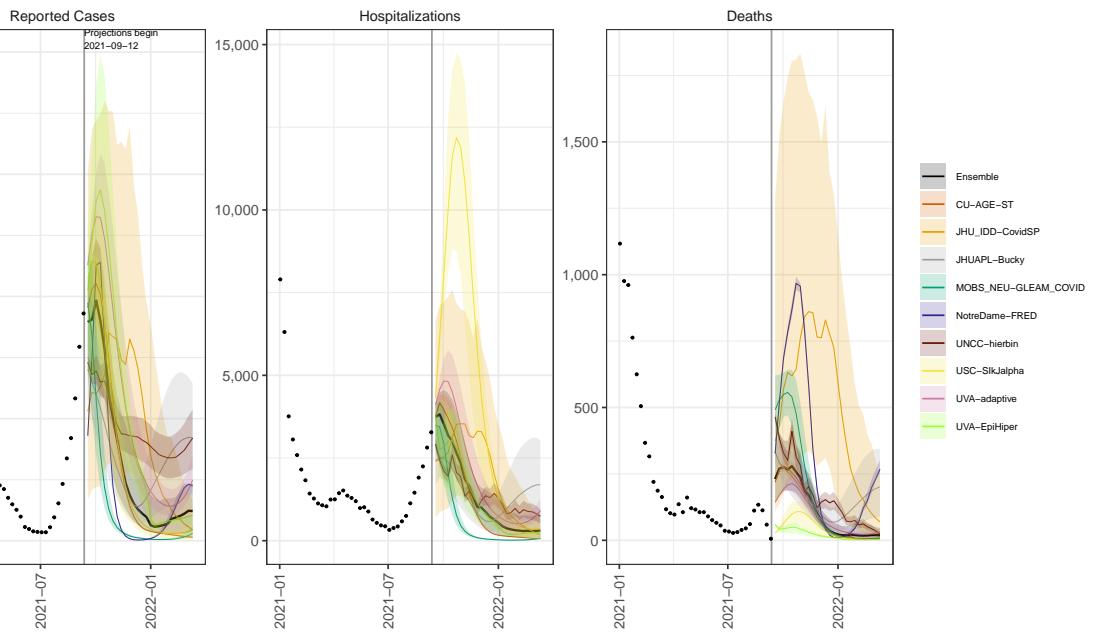
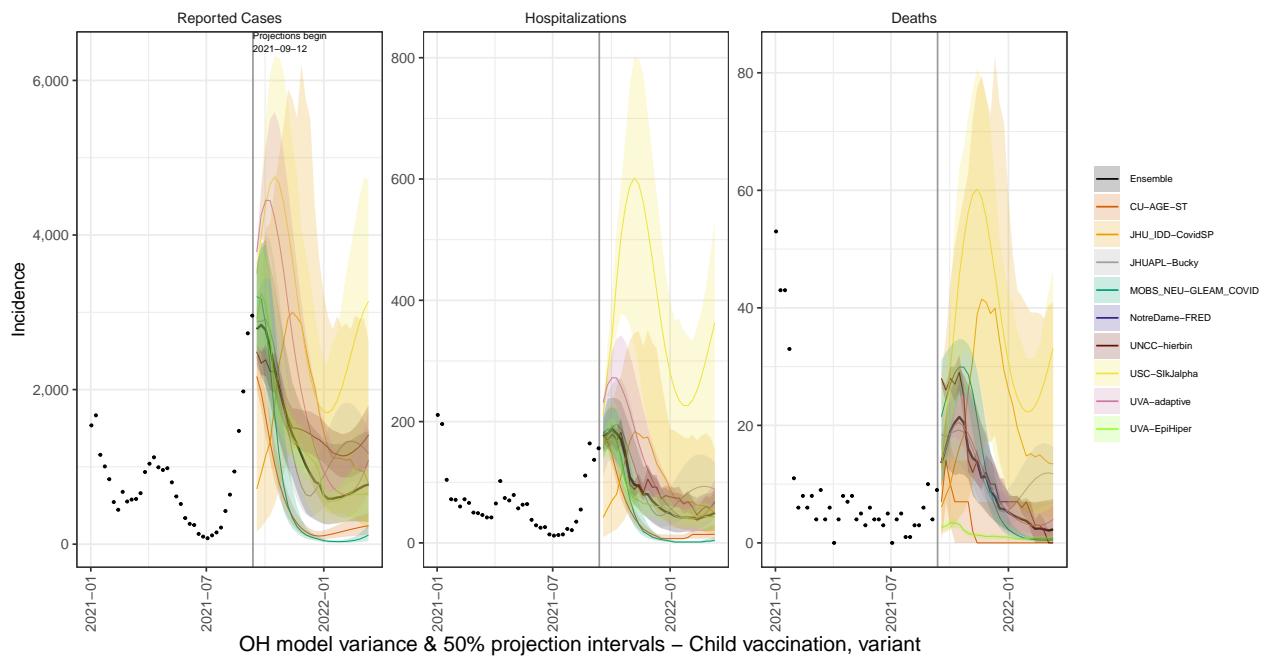
NY model variance & 50% projection intervals – Child vaccination, variant

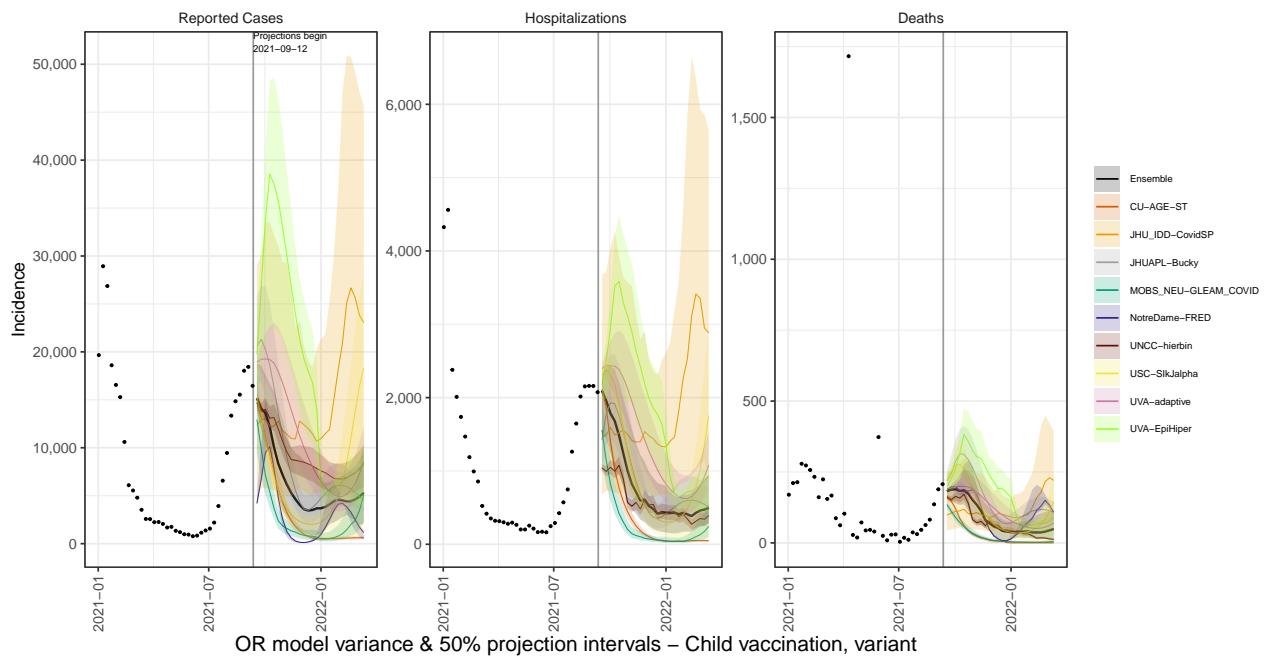
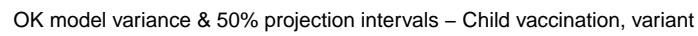


NC model variance & 50% projection intervals – Child vaccination, variant

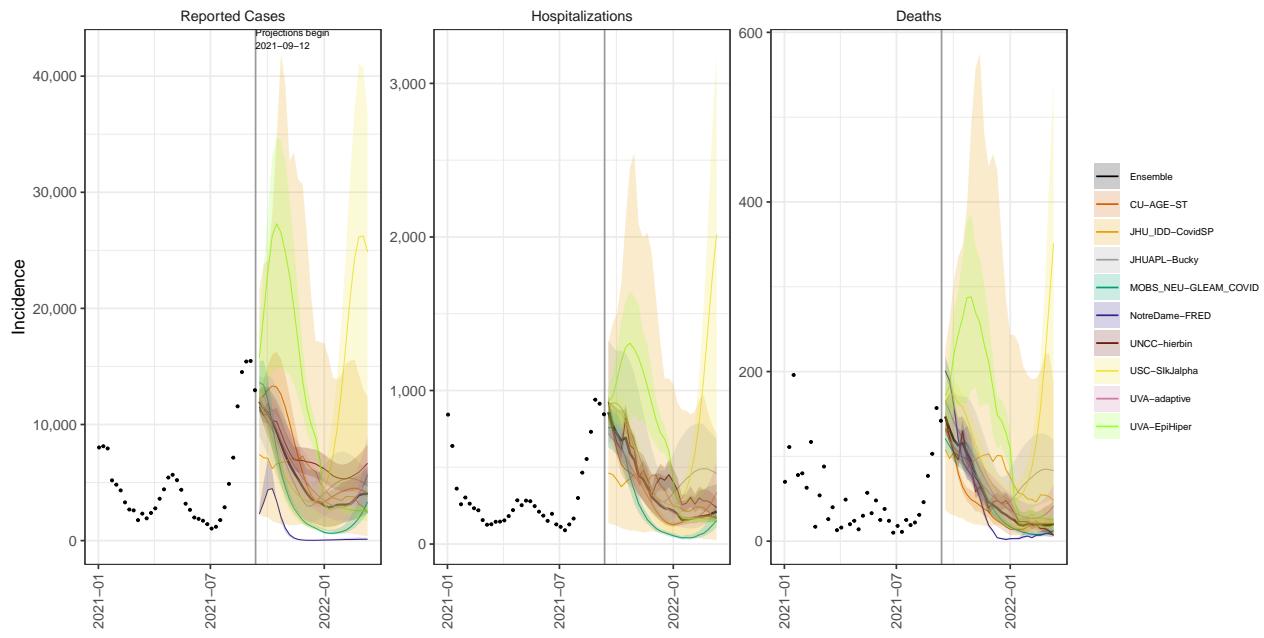


ND model variance & 50% projection intervals – Child vaccination, variant

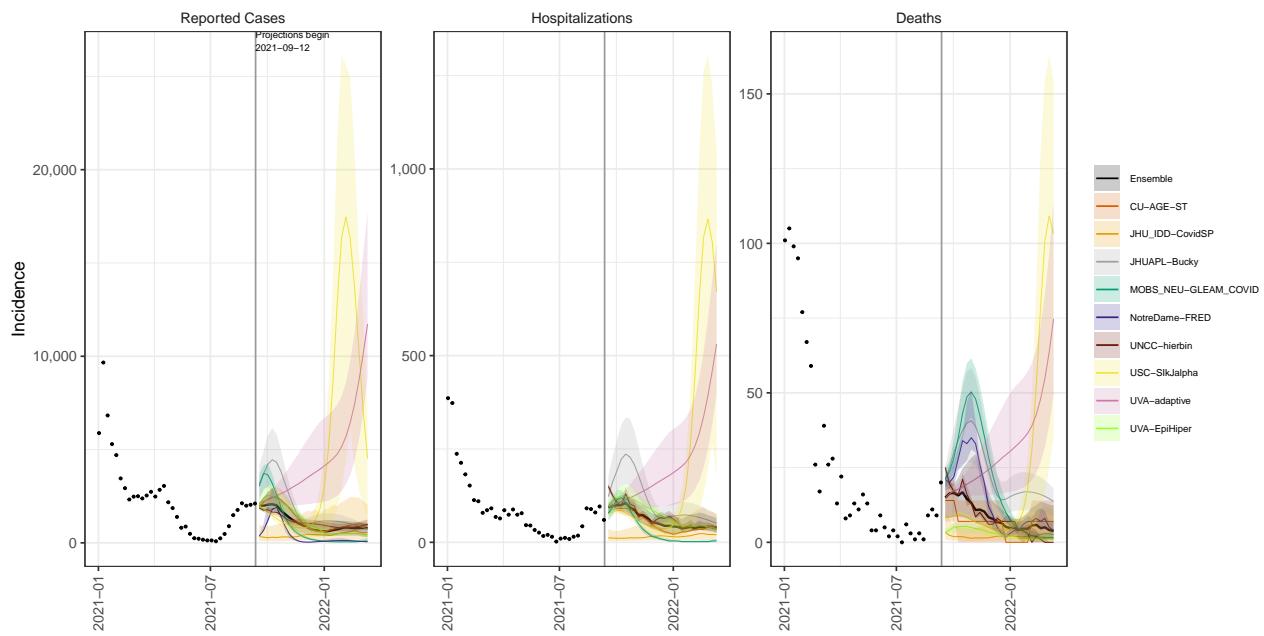
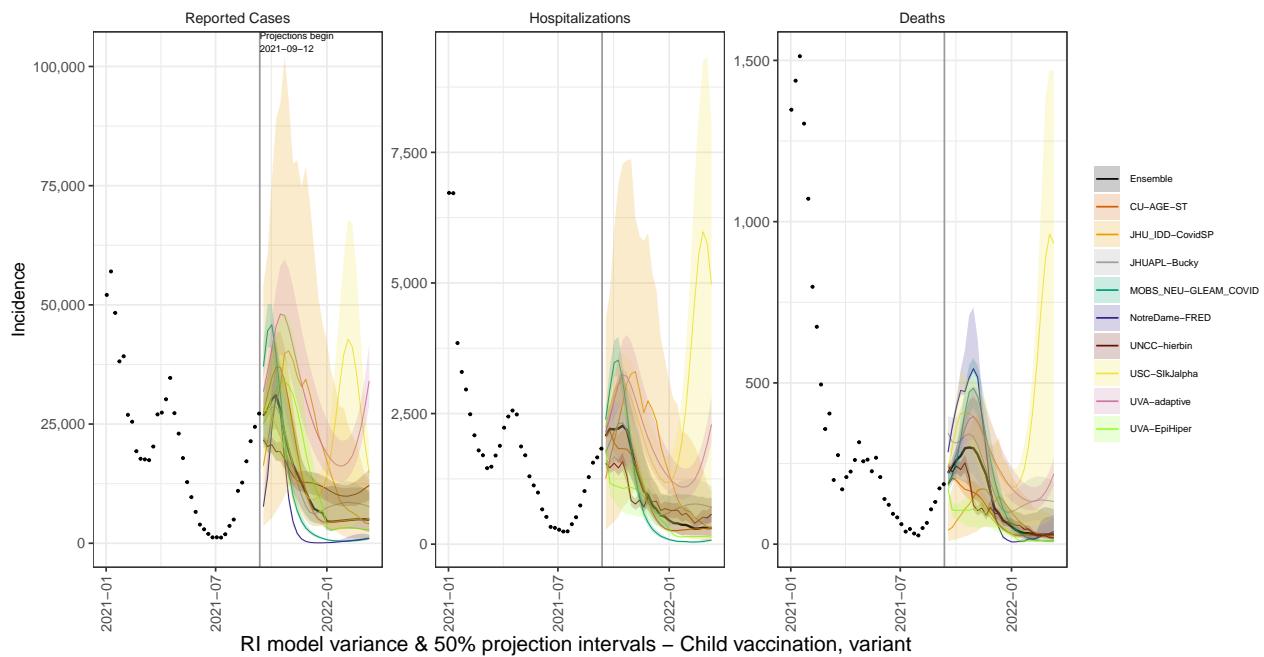




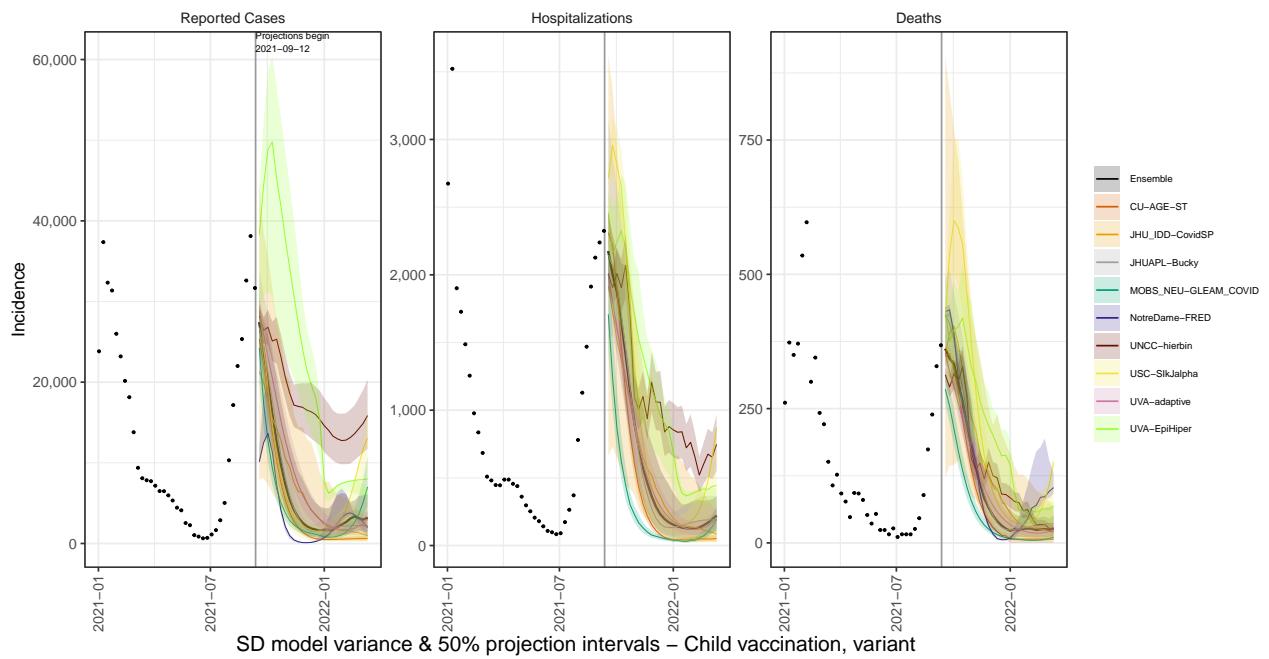
OR model variance & 50% projection intervals – Child vaccination, variant



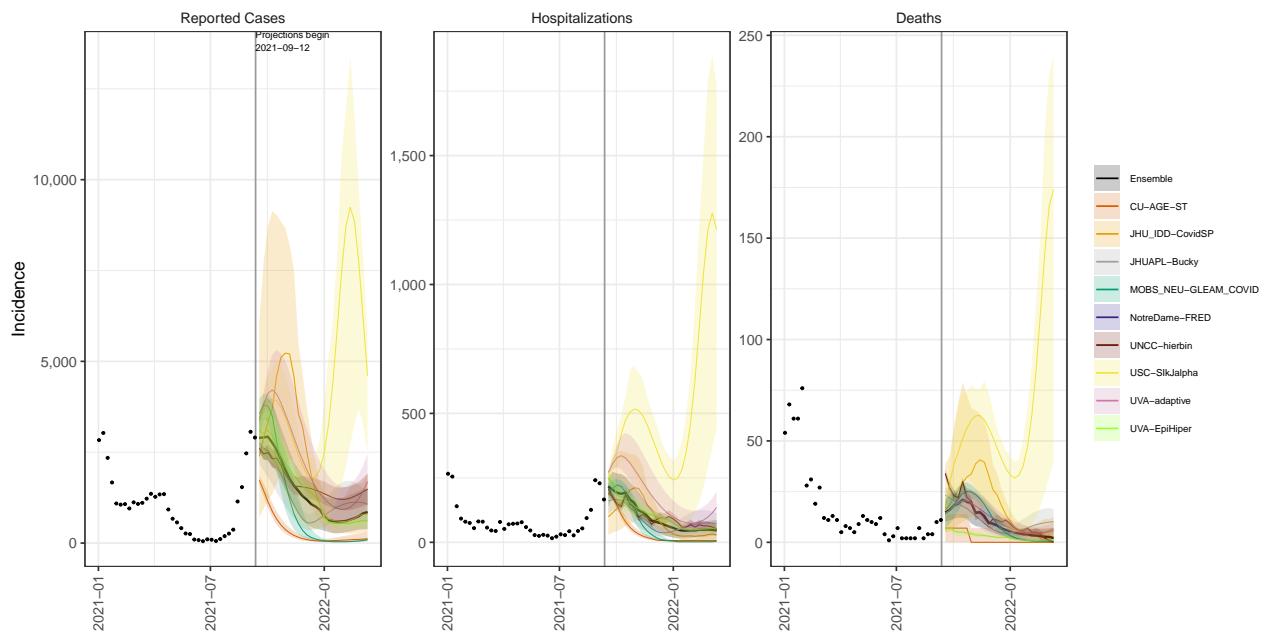
PA model variance & 50% projection intervals – Child vaccination, variant



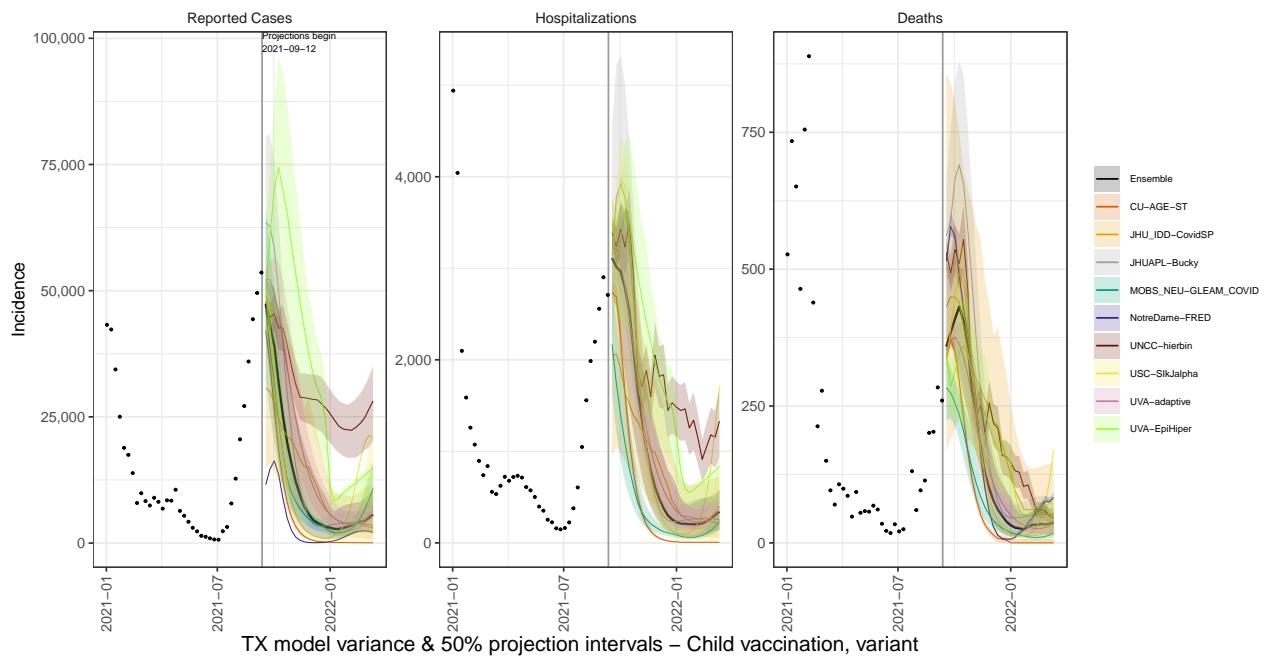
SC model variance & 50% projection intervals – Child vaccination, variant



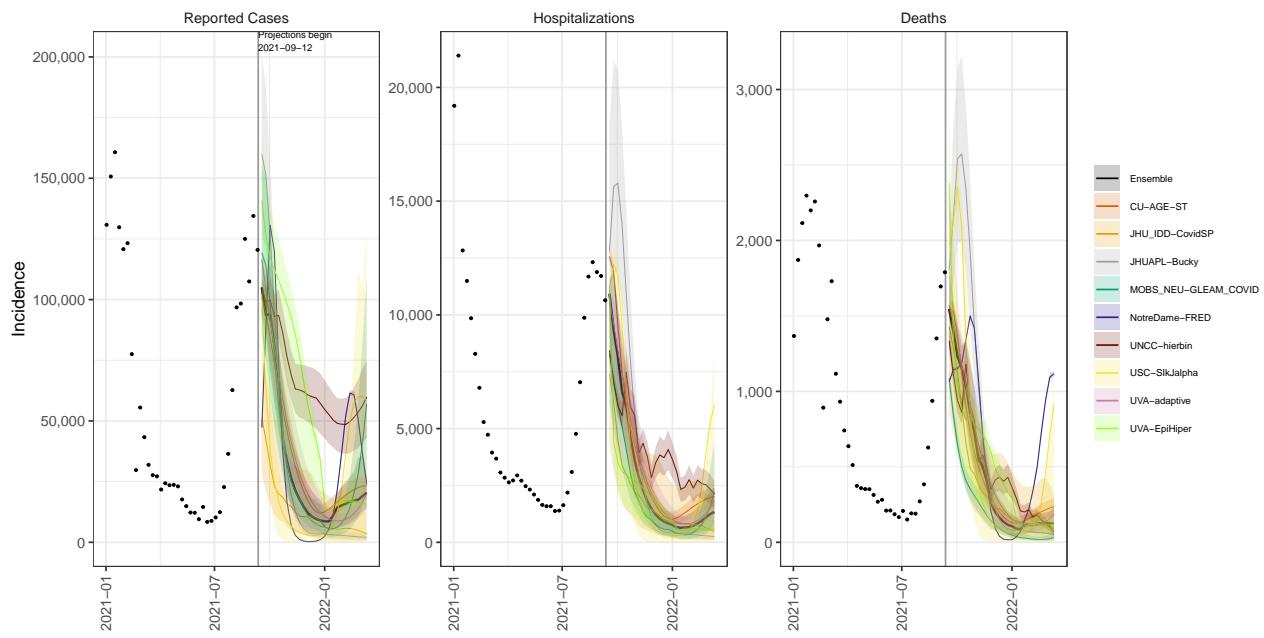
SD model variance & 50% projection intervals – Child vaccination, variant



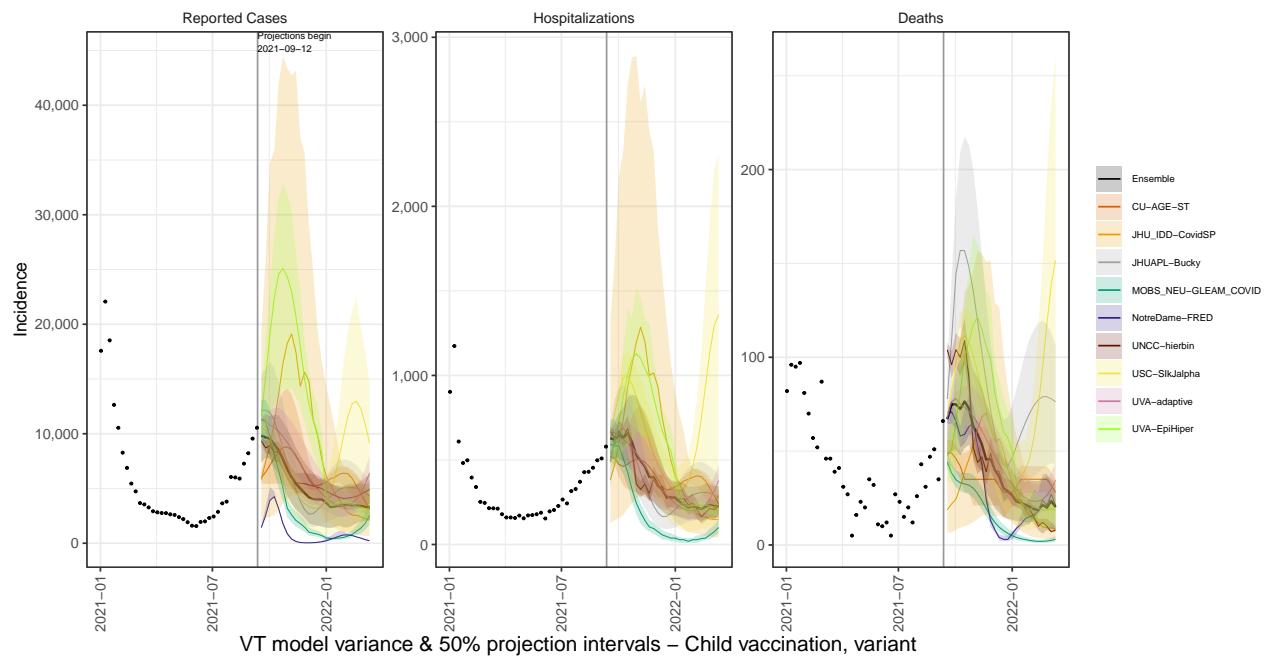
TN model variance & 50% projection intervals – Child vaccination, variant



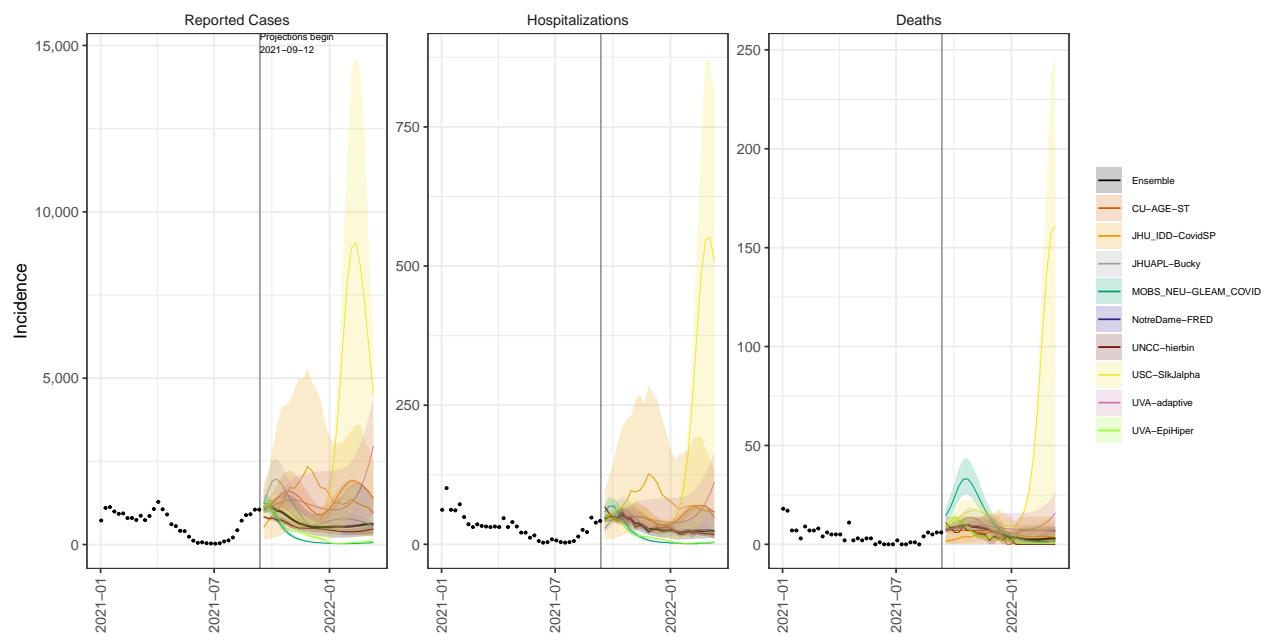
TX model variance & 50% projection intervals – Child vaccination, variant



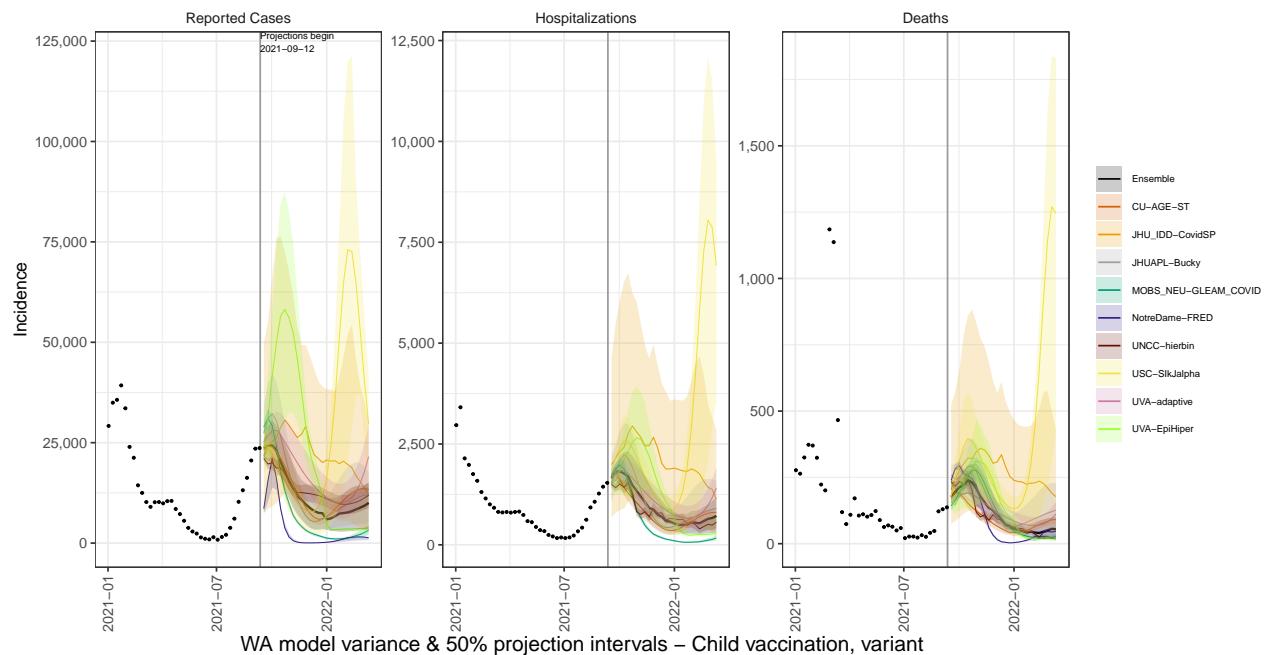
UT model variance & 50% projection intervals – Child vaccination, variant



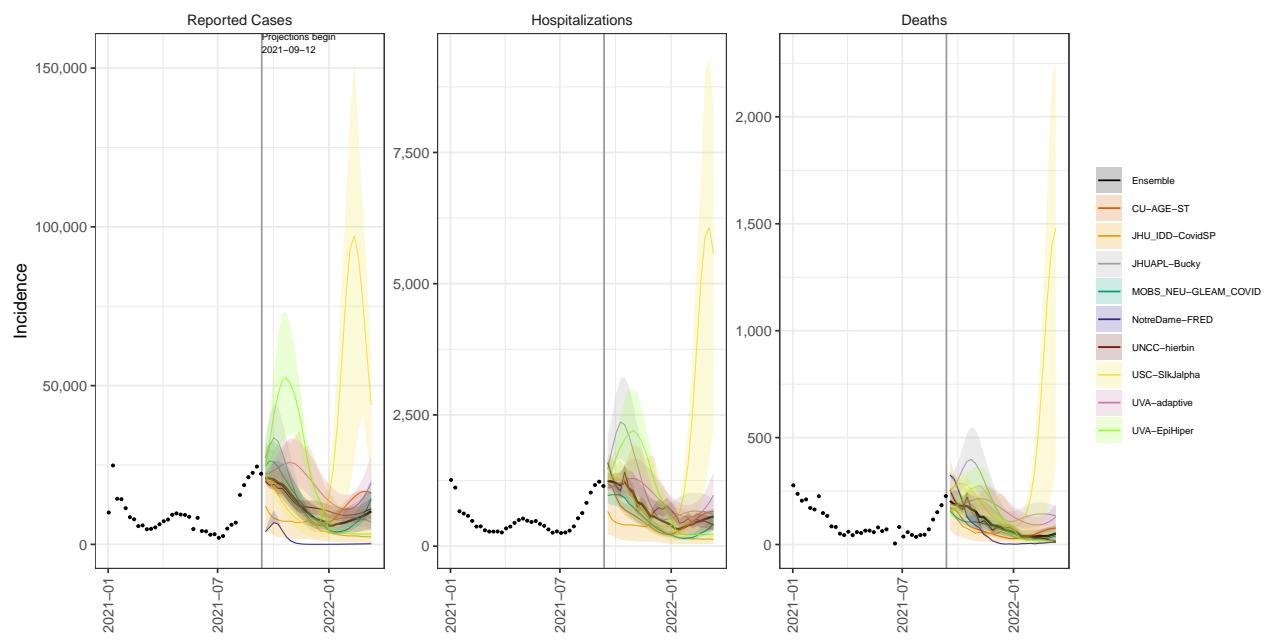
VT model variance & 50% projection intervals – Child vaccination, variant



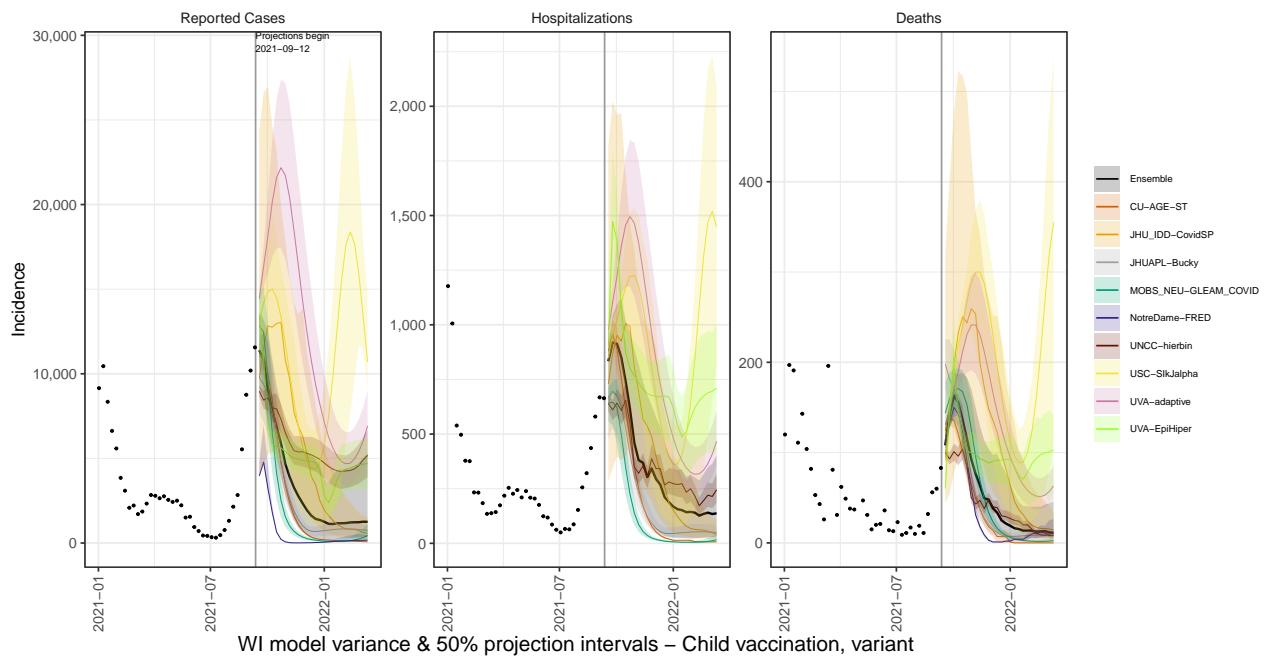
VA model variance & 50% projection intervals – Child vaccination, variant



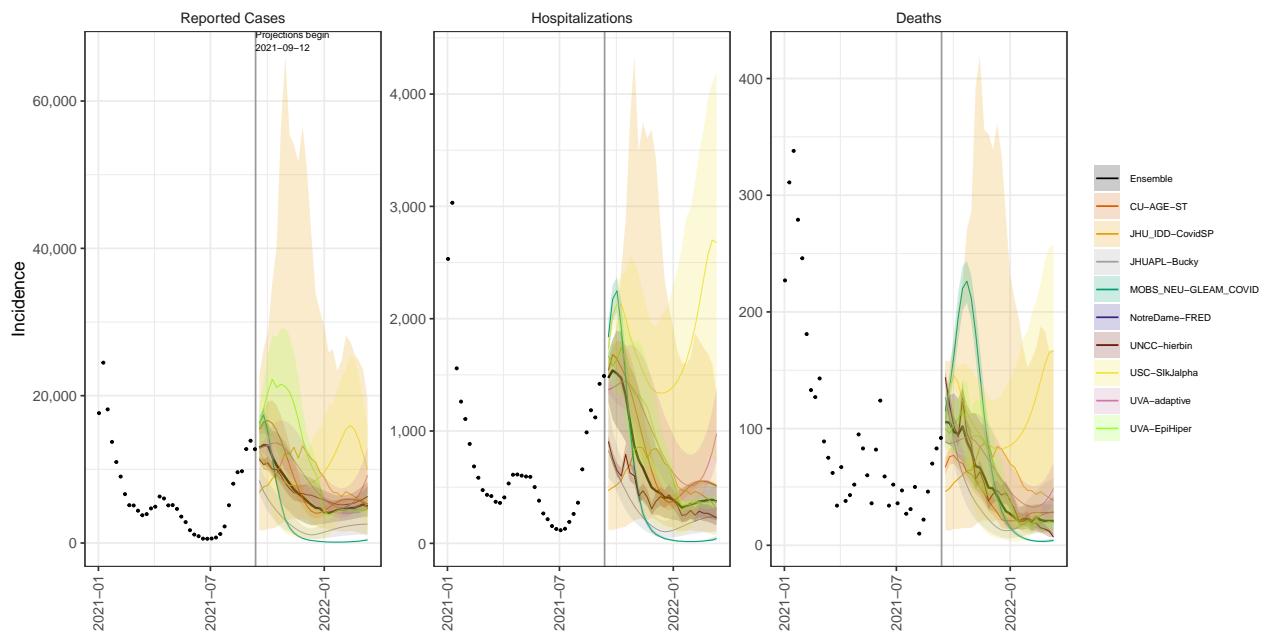
WA model variance & 50% projection intervals – Child vaccination, variant



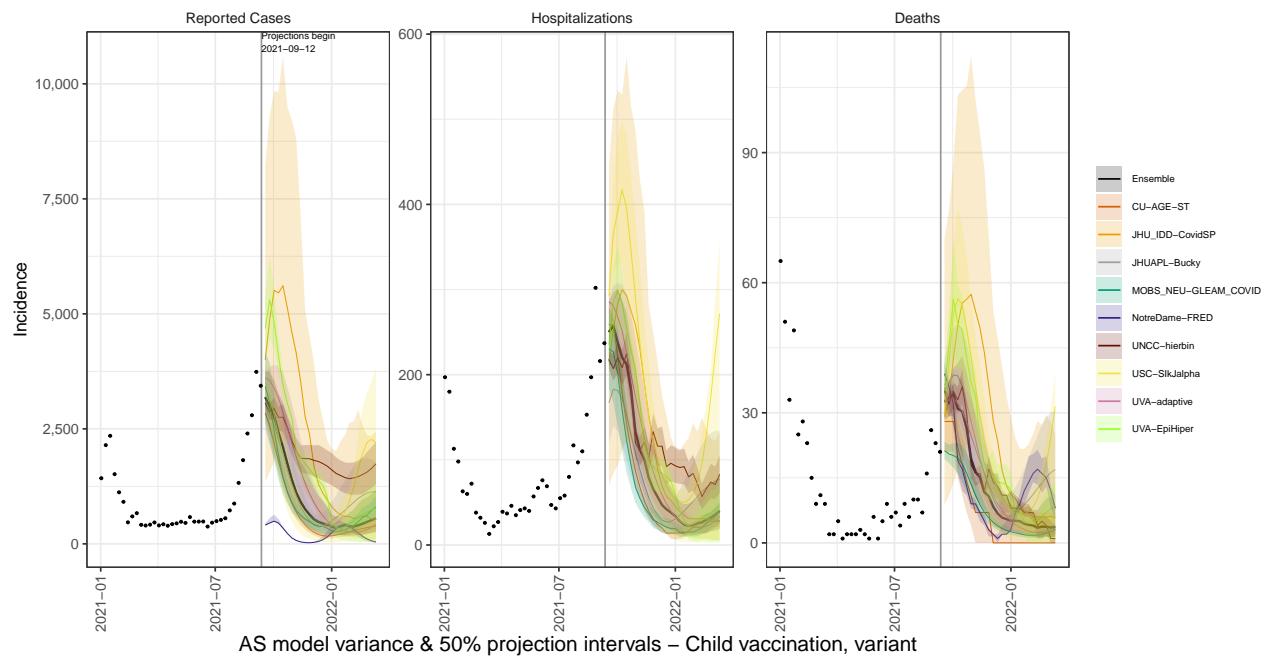
WV model variance & 50% projection intervals – Child vaccination, variant



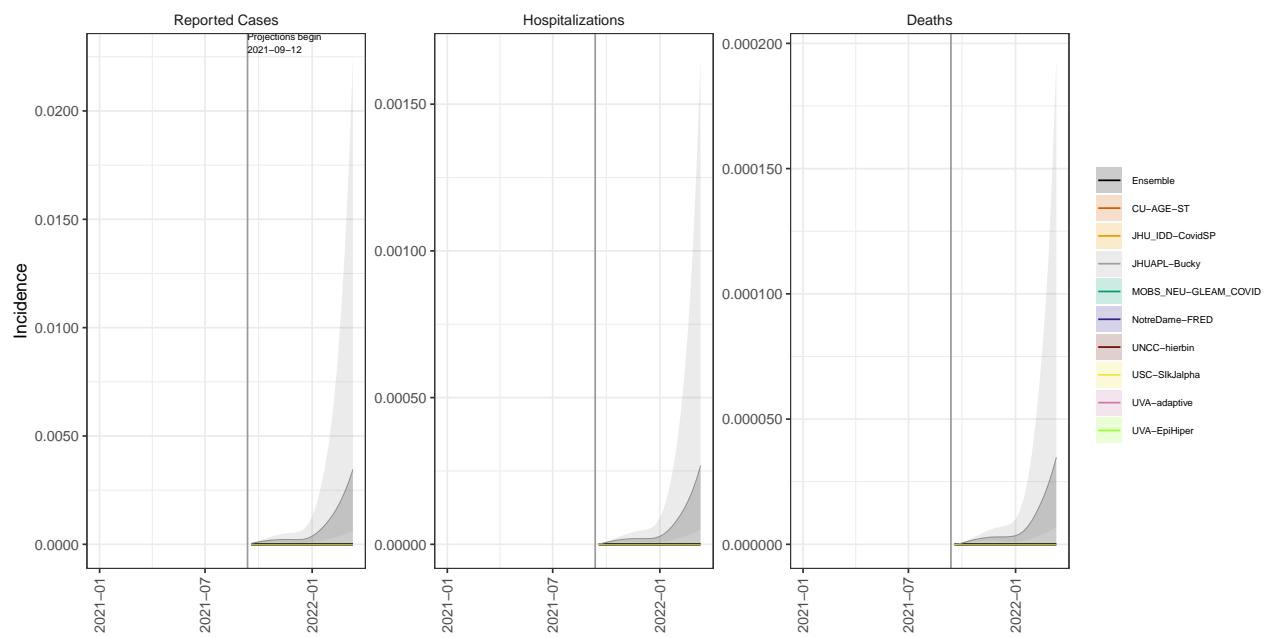
WI model variance & 50% projection intervals – Child vaccination, variant



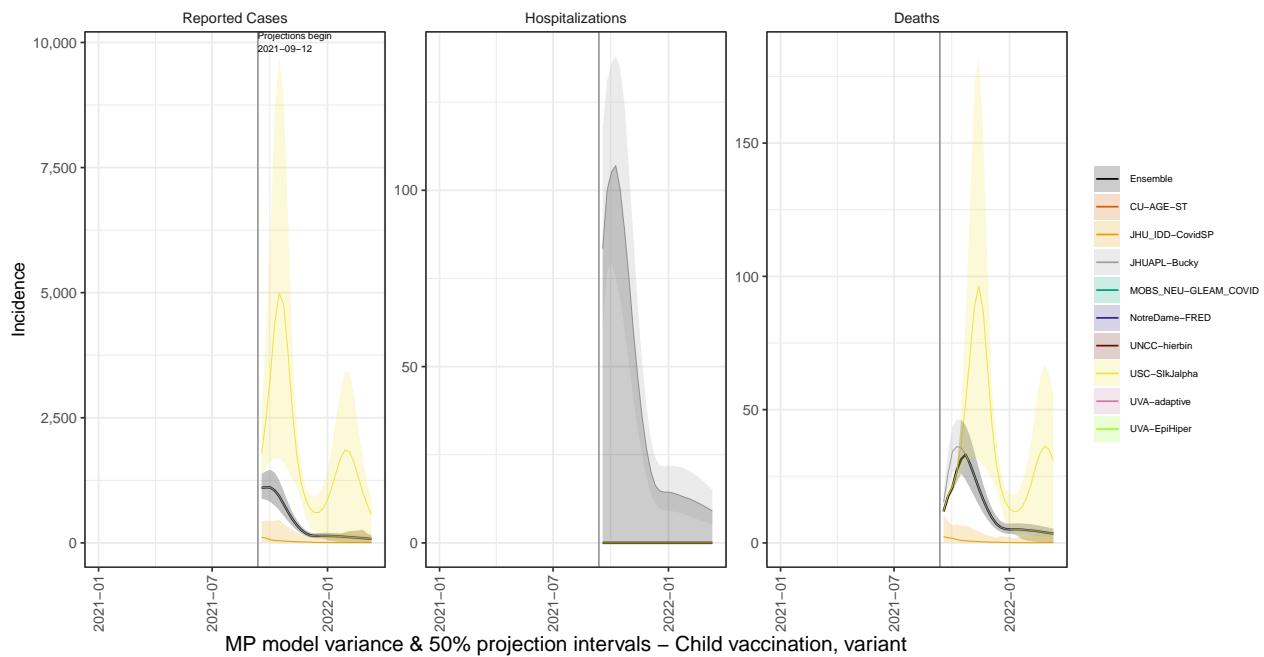
WY model variance & 50% projection intervals – Child vaccination, variant



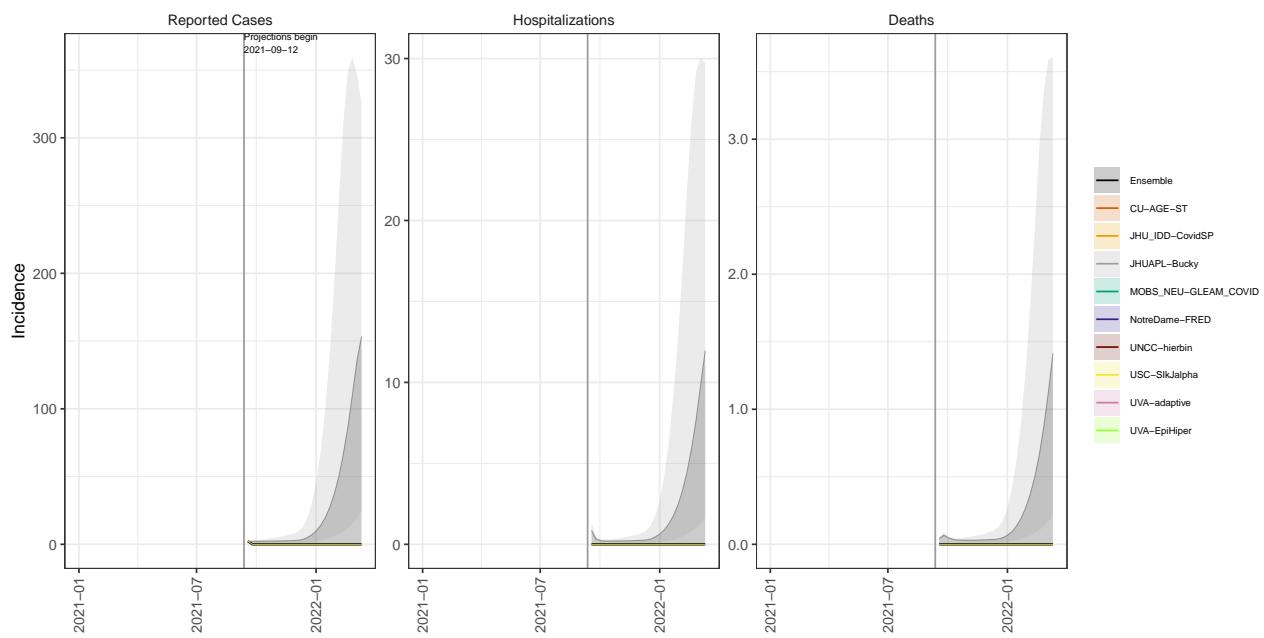
AS model variance & 50% projection intervals – Child vaccination, variant



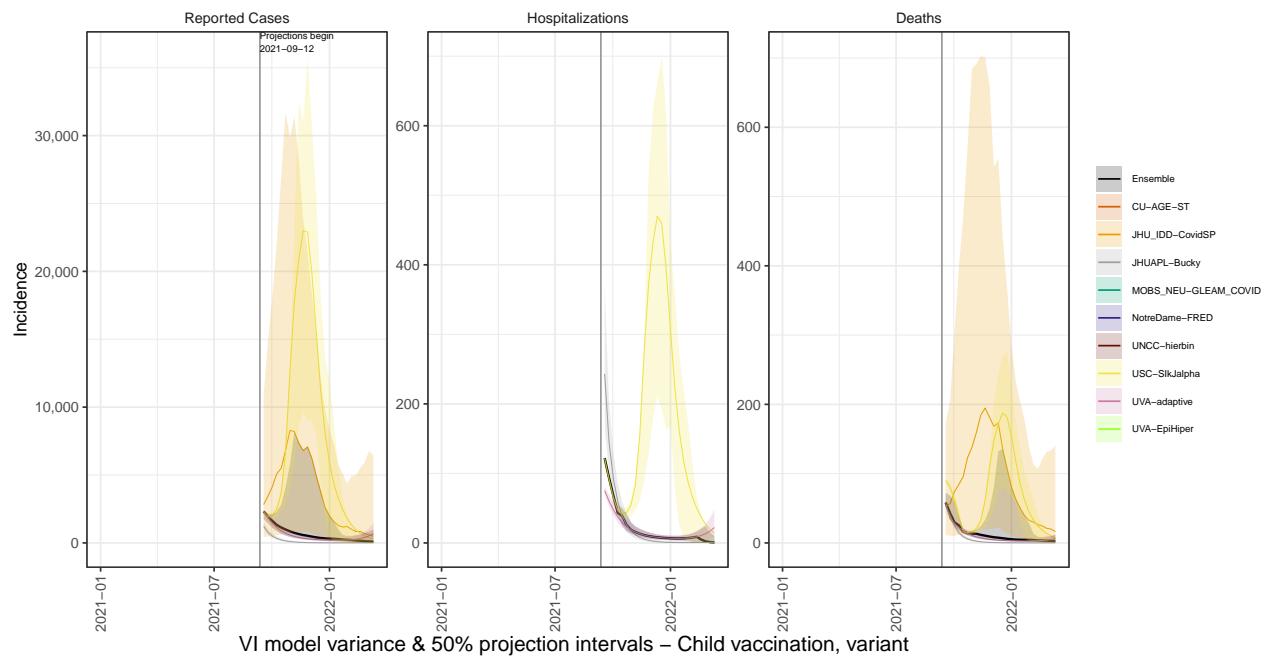
GU model variance & 50% projection intervals – Child vaccination, variant



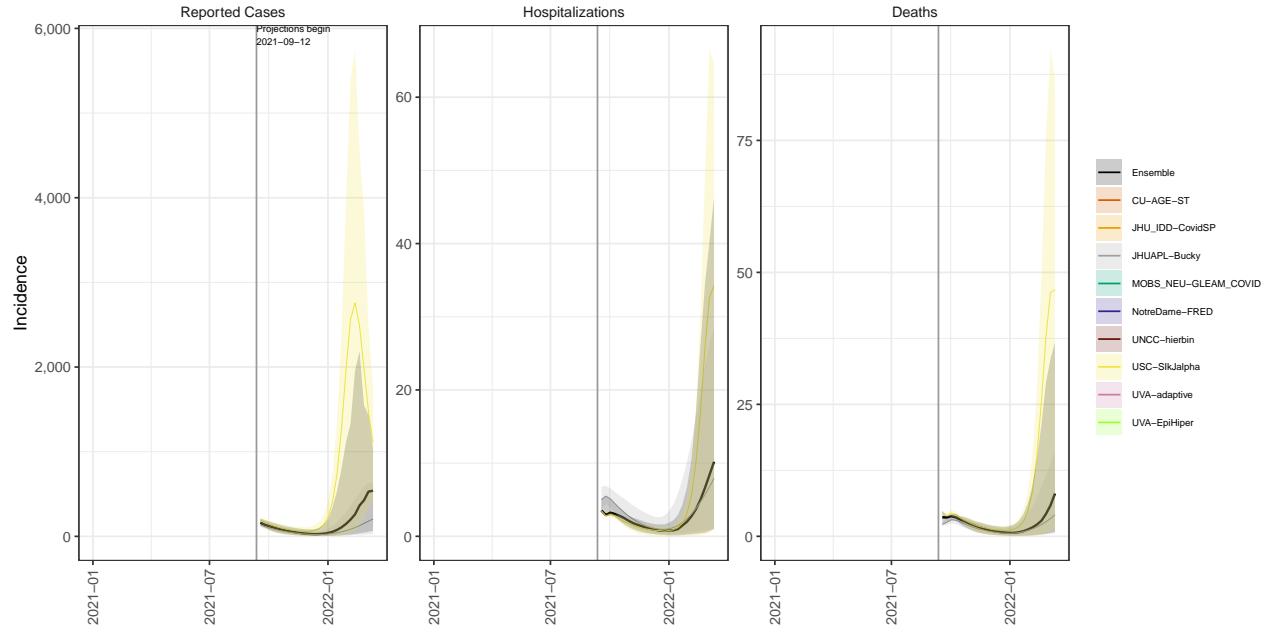
MP model variance & 50% projection intervals – Child vaccination, variant



PR model variance & 50% projection intervals – Child vaccination, variant

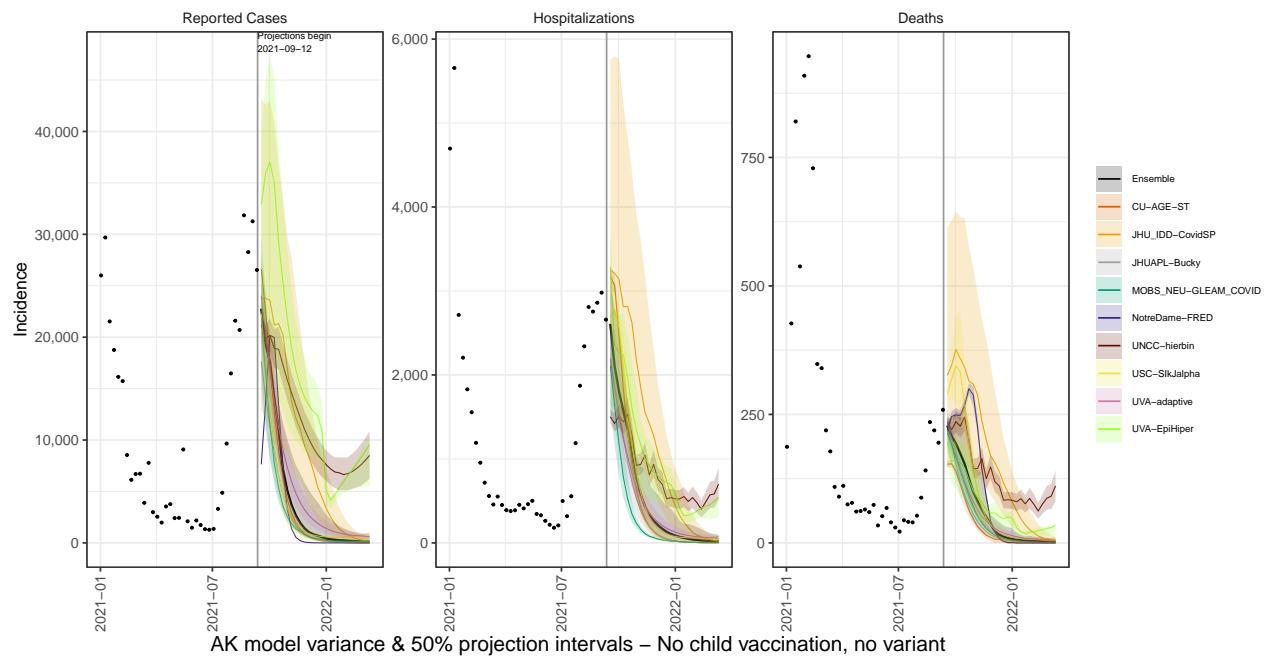


VI model variance & 50% projection intervals – Child vaccination, variant

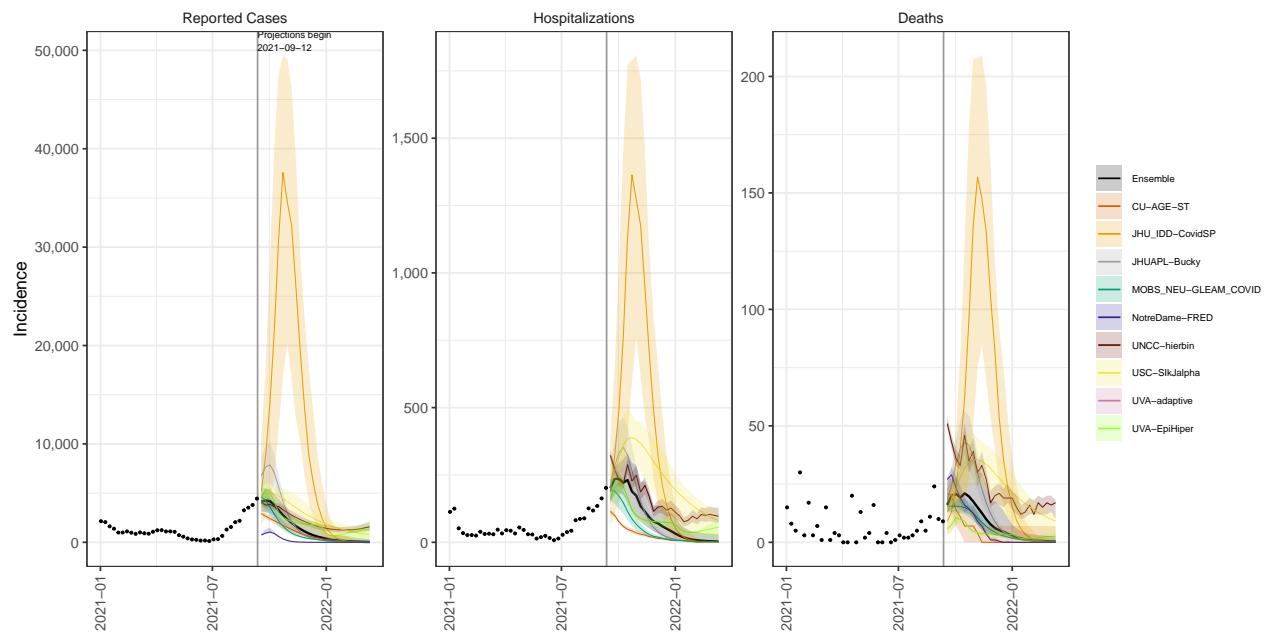


National model variation for the no child vaccination, no variant scenario

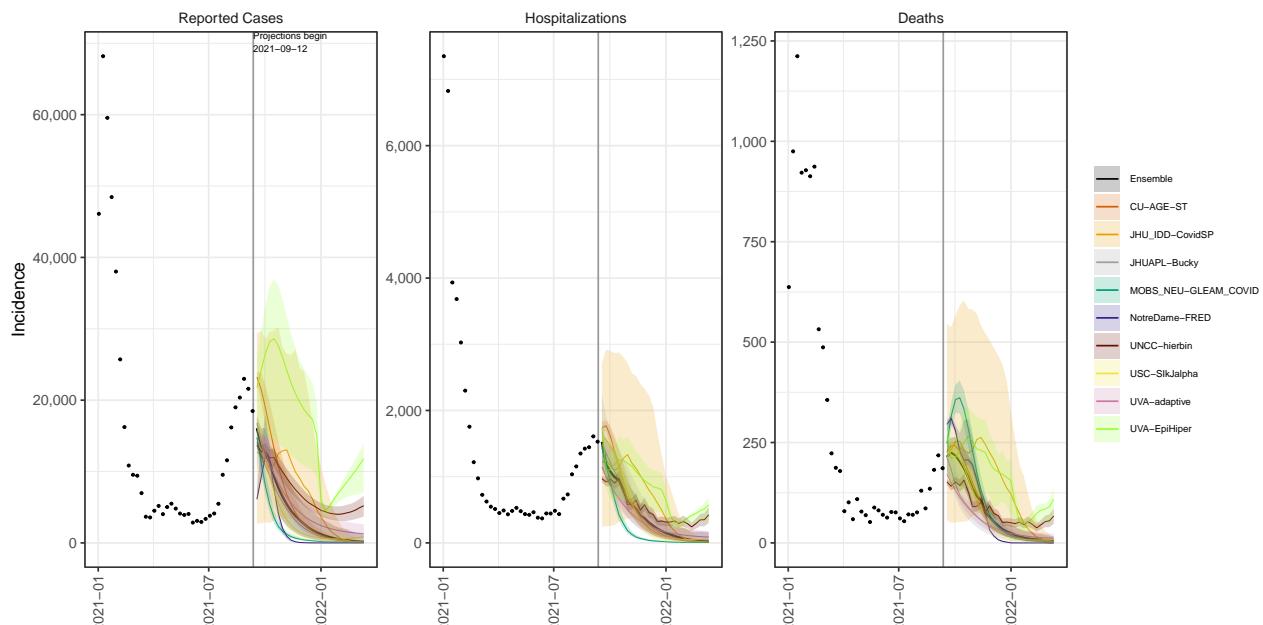
AL model variance & 50% projection intervals – No child vaccination, no variant



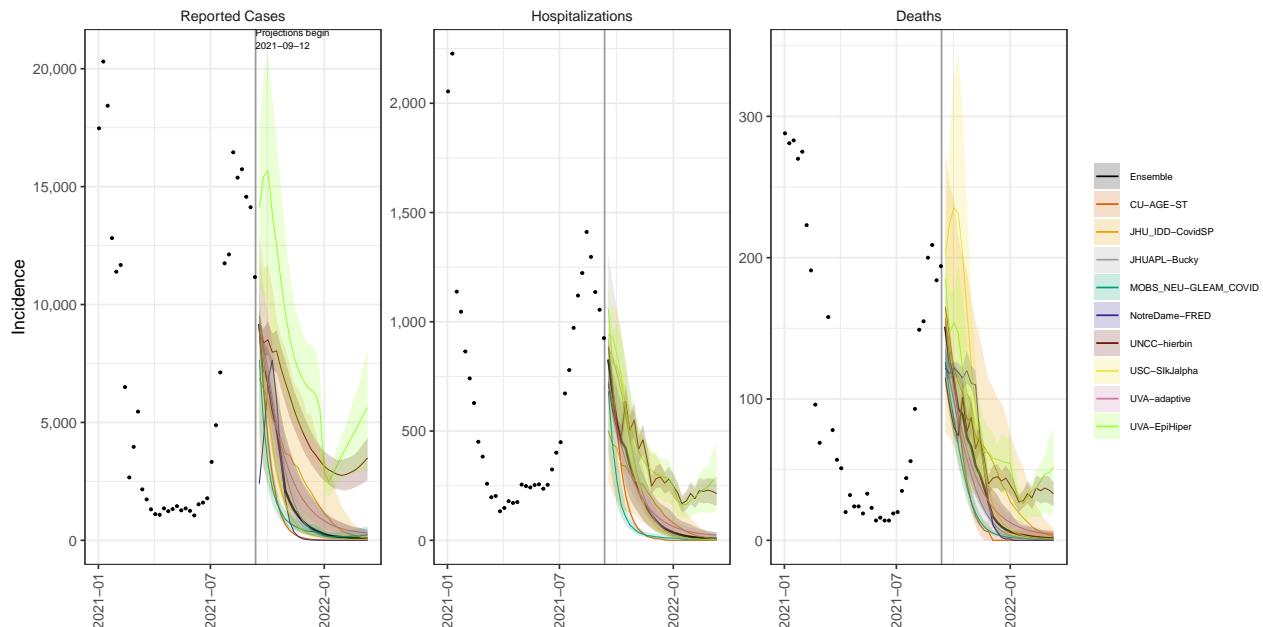
AK model variance & 50% projection intervals – No child vaccination, no variant



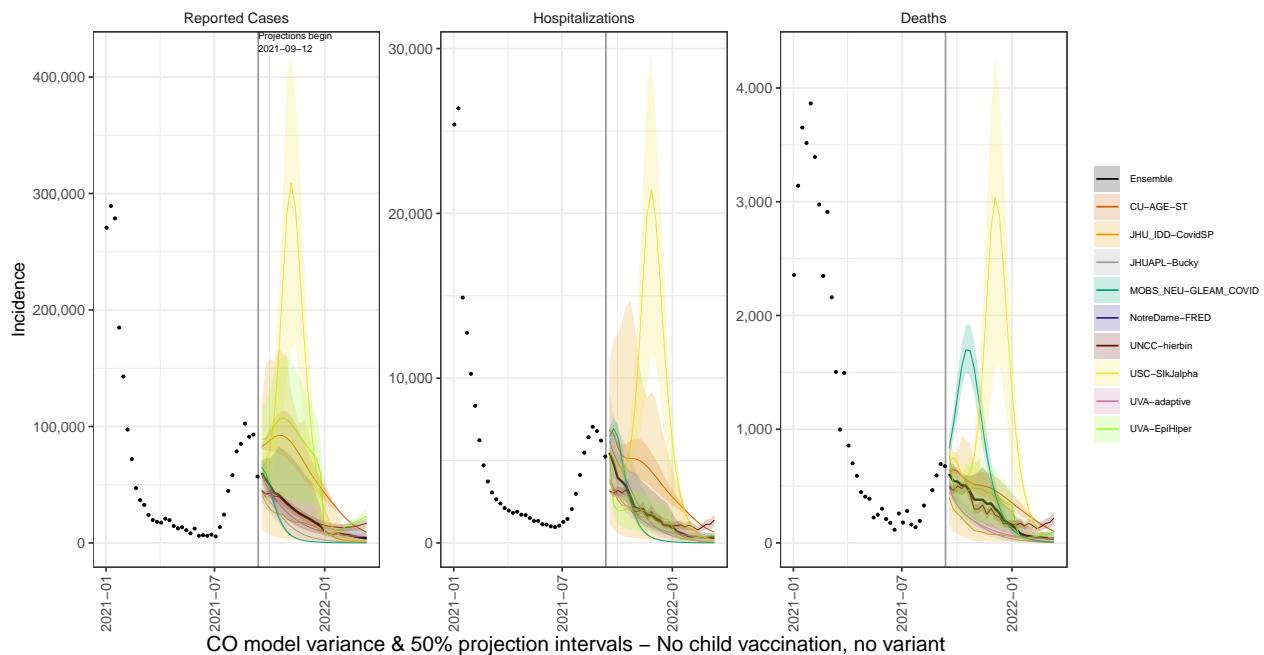
AZ model variance & 50% projection intervals – No child vaccination, no variant



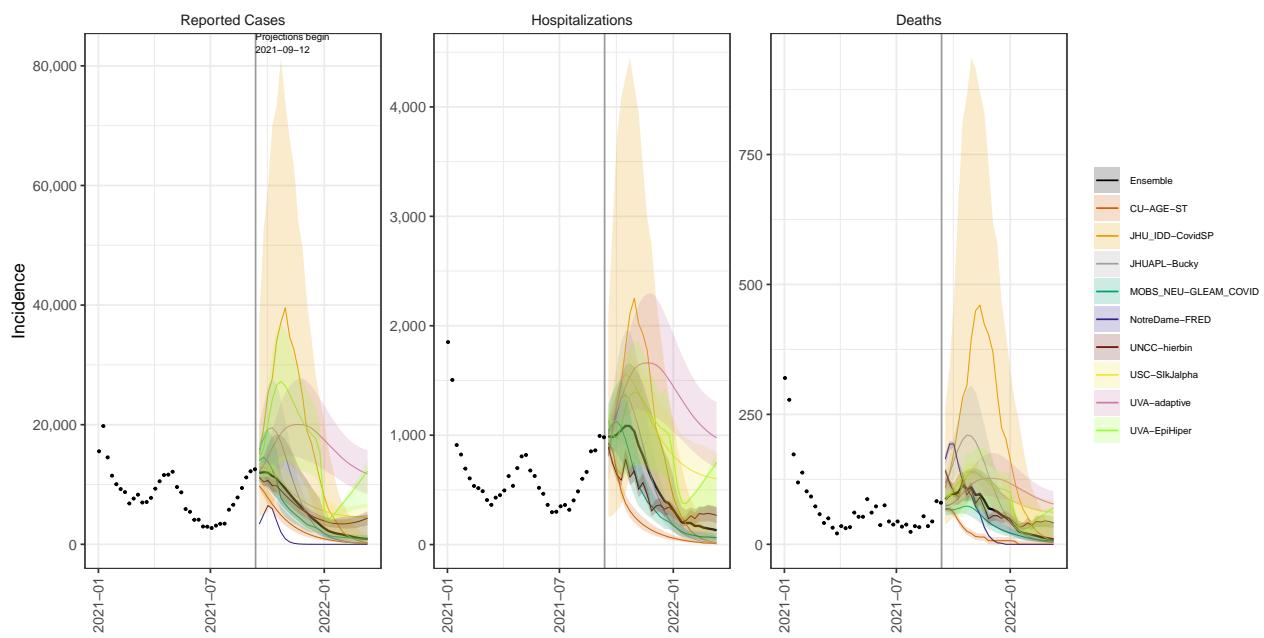
AR model variance & 50% projection intervals – No child vaccination, no variant



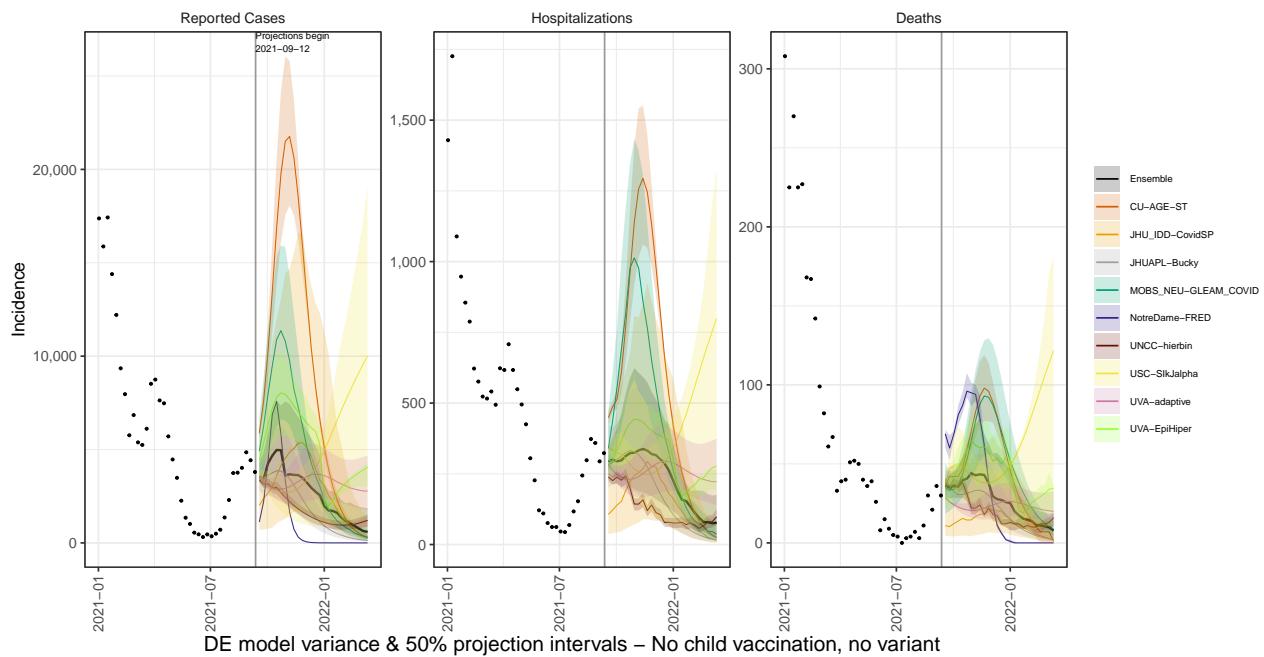
CA model variance & 50% projection intervals – No child vaccination, no variant



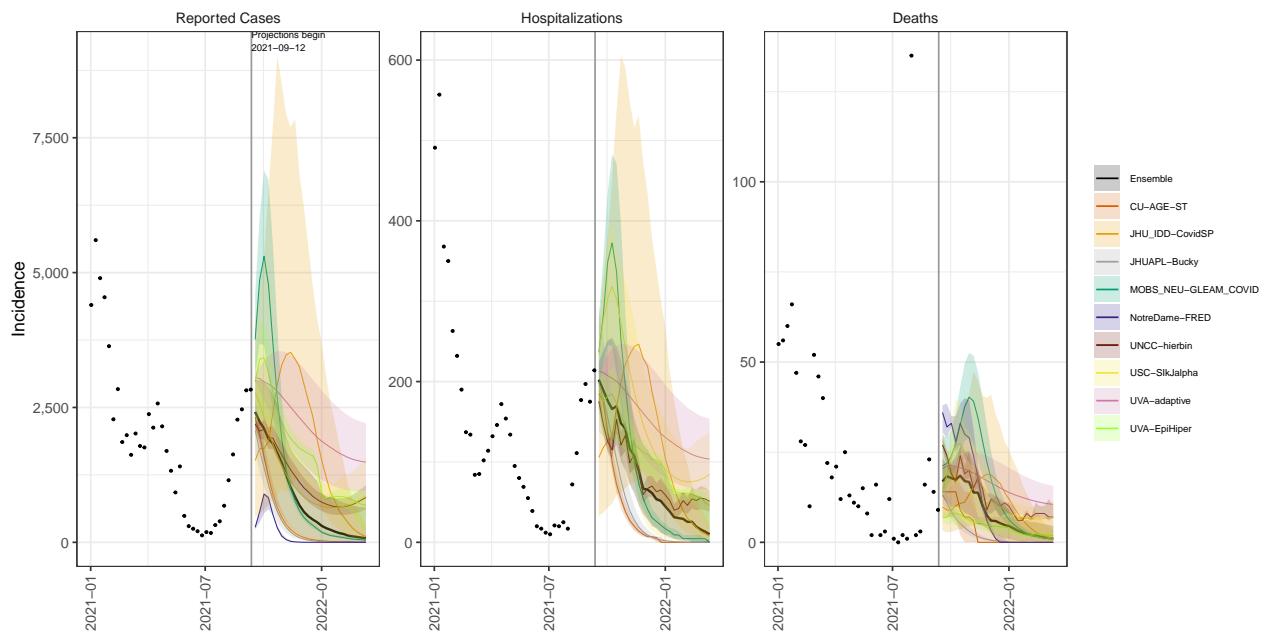
CO model variance & 50% projection intervals – No child vaccination, no variant



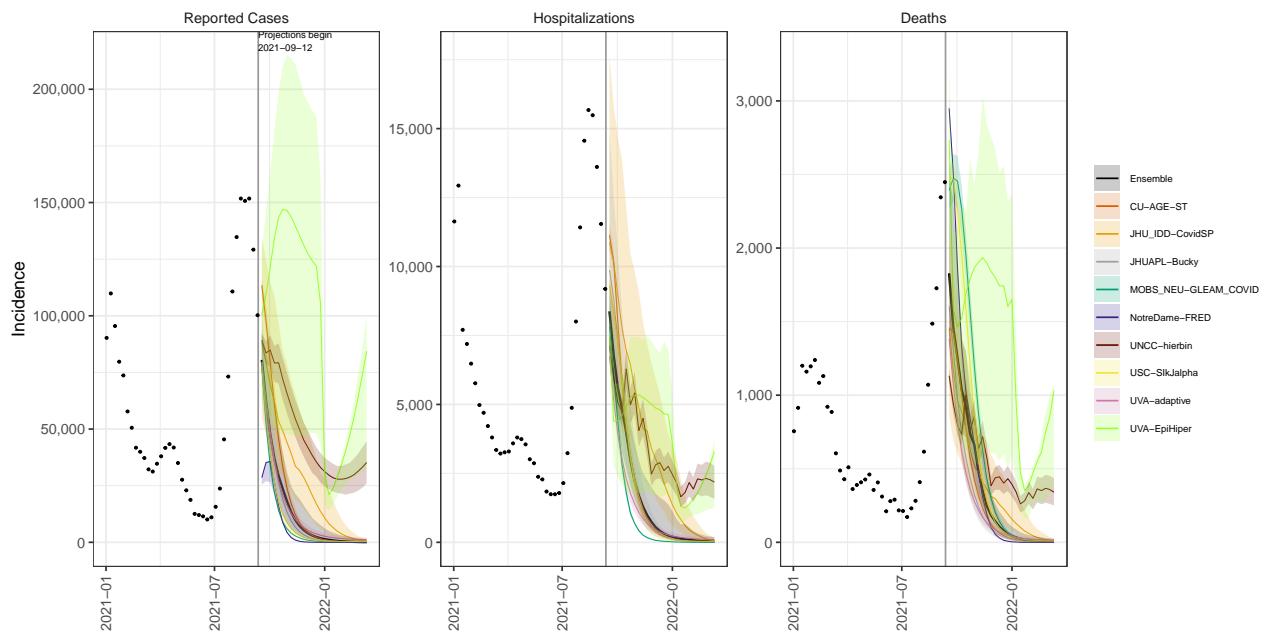
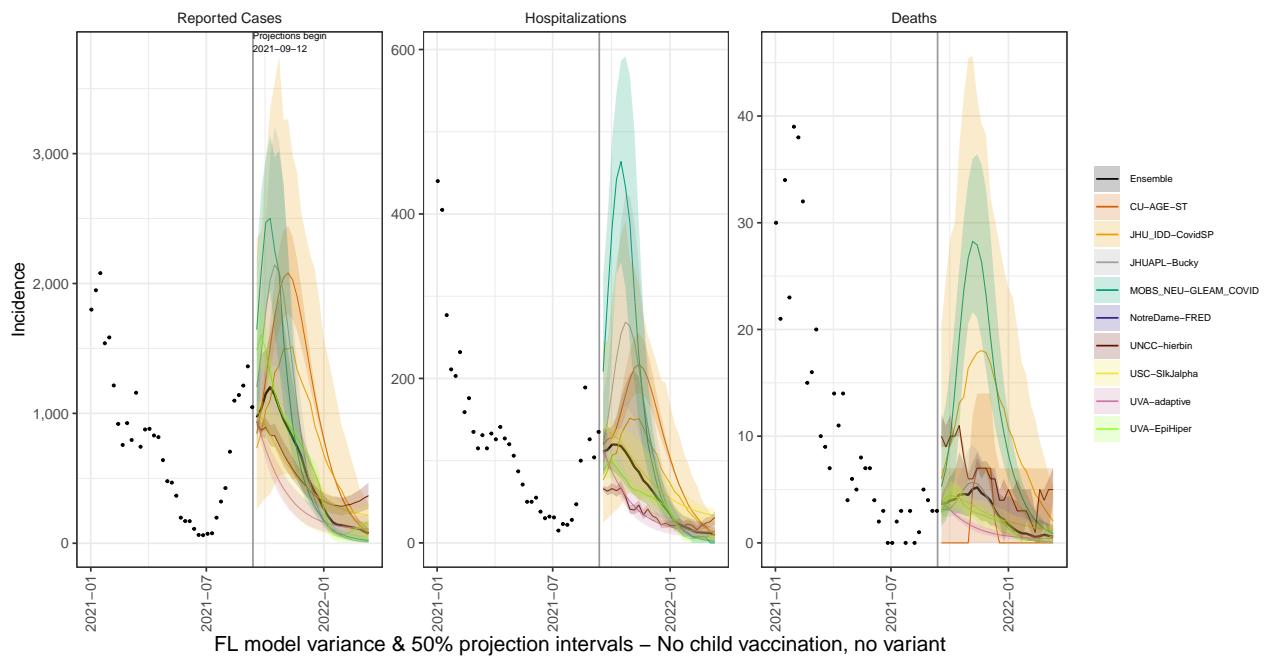
CT model variance & 50% projection intervals – No child vaccination, no variant



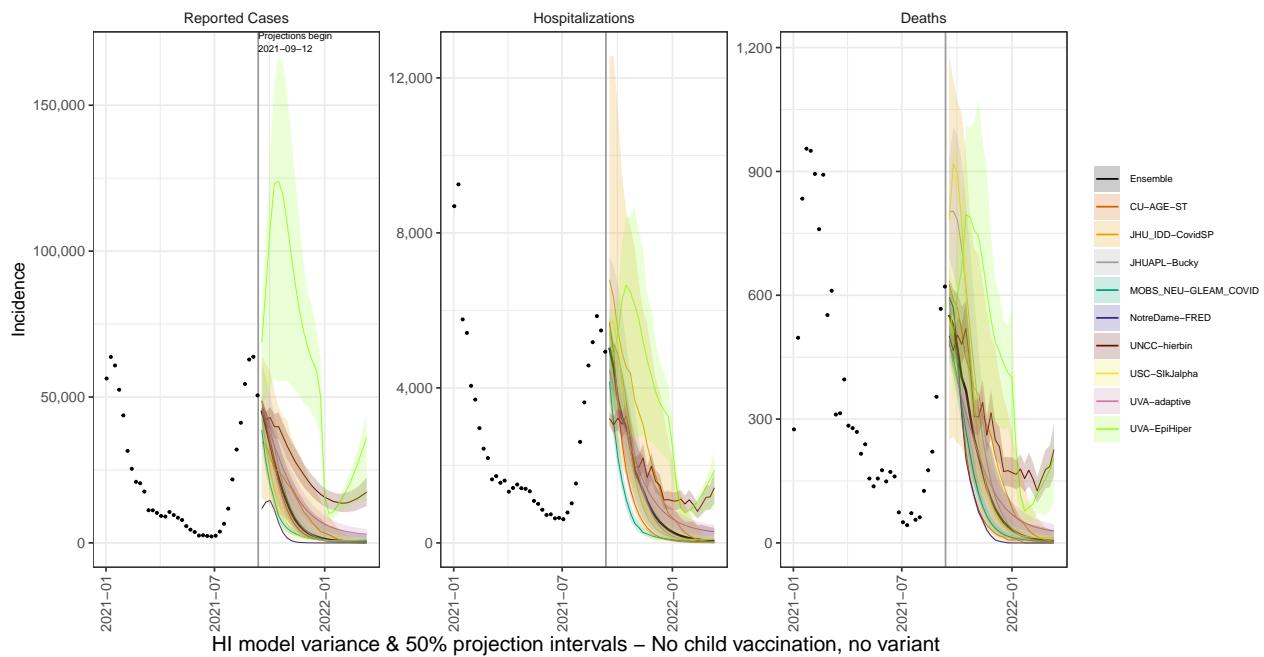
DE model variance & 50% projection intervals – No child vaccination, no variant



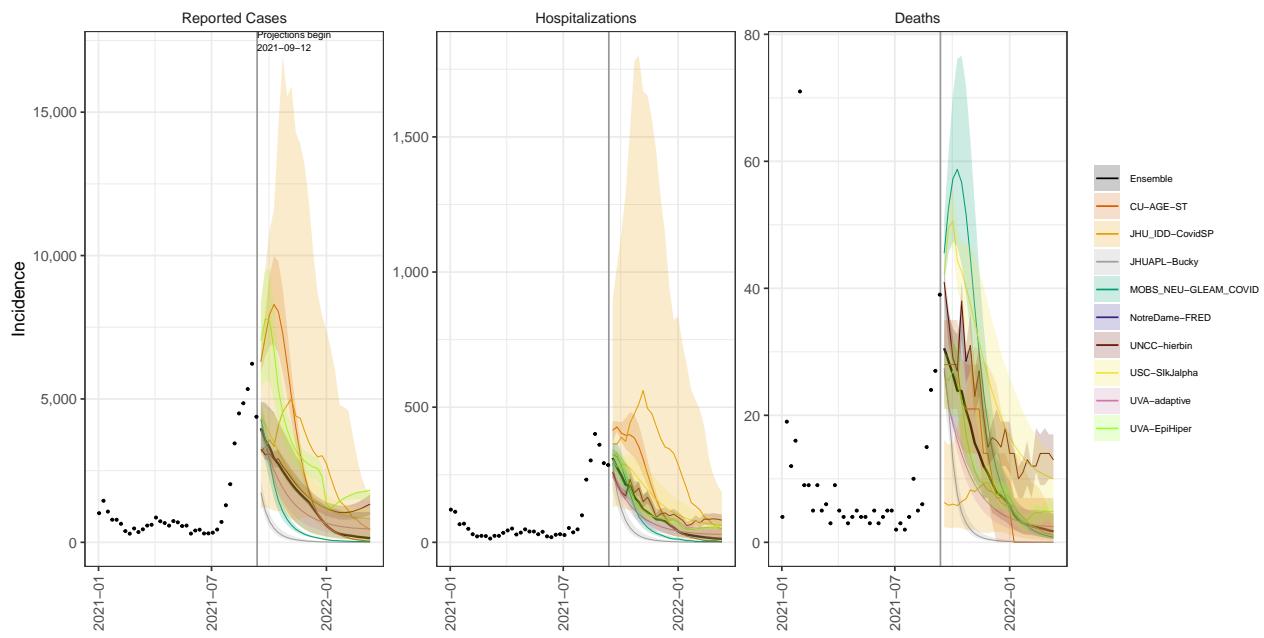
DC model variance & 50% projection intervals – No child vaccination, no variant



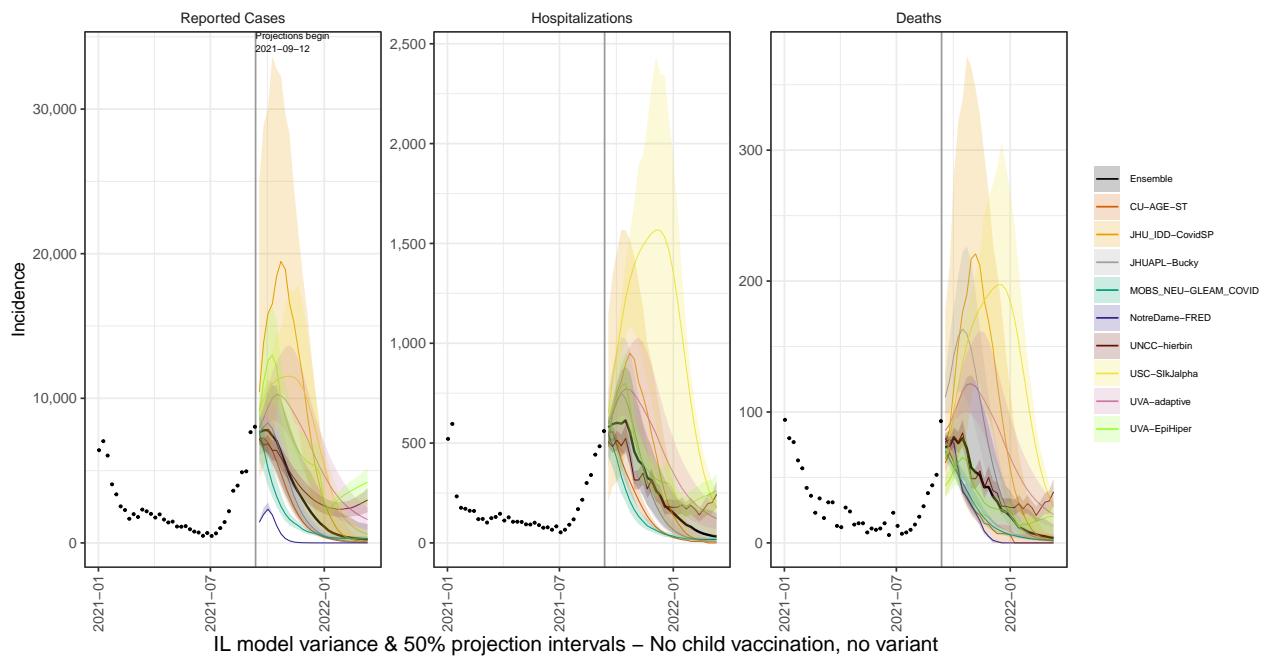
GA model variance & 50% projection intervals – No child vaccination, no variant



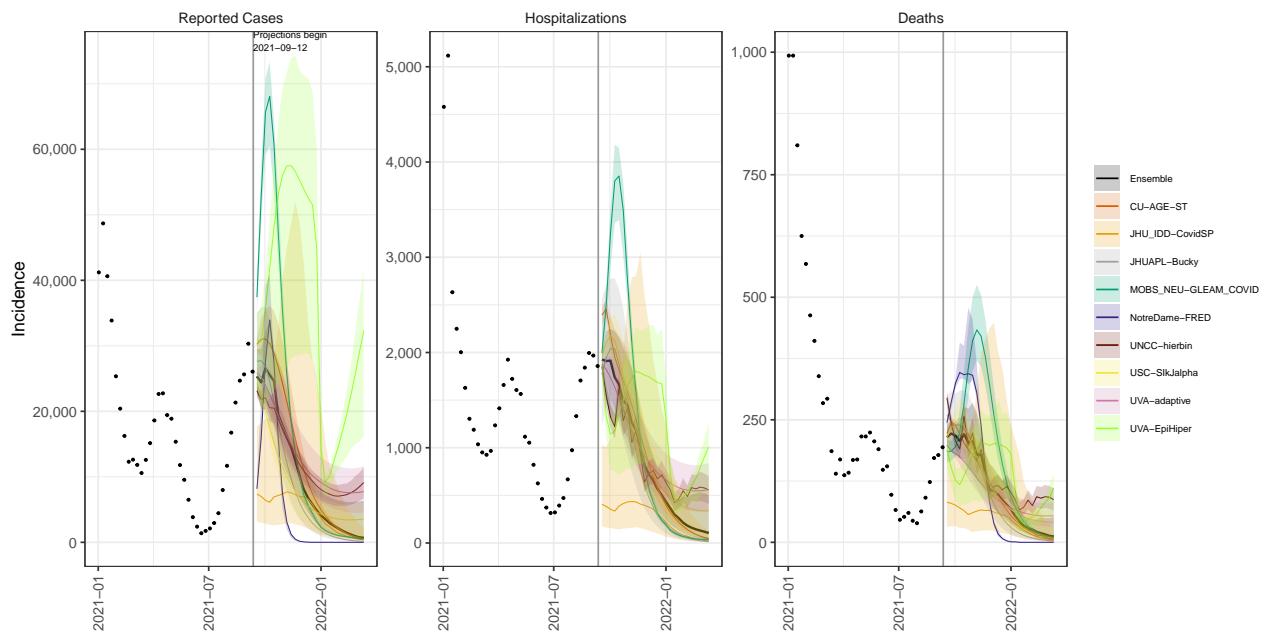
HI model variance & 50% projection intervals – No child vaccination, no variant



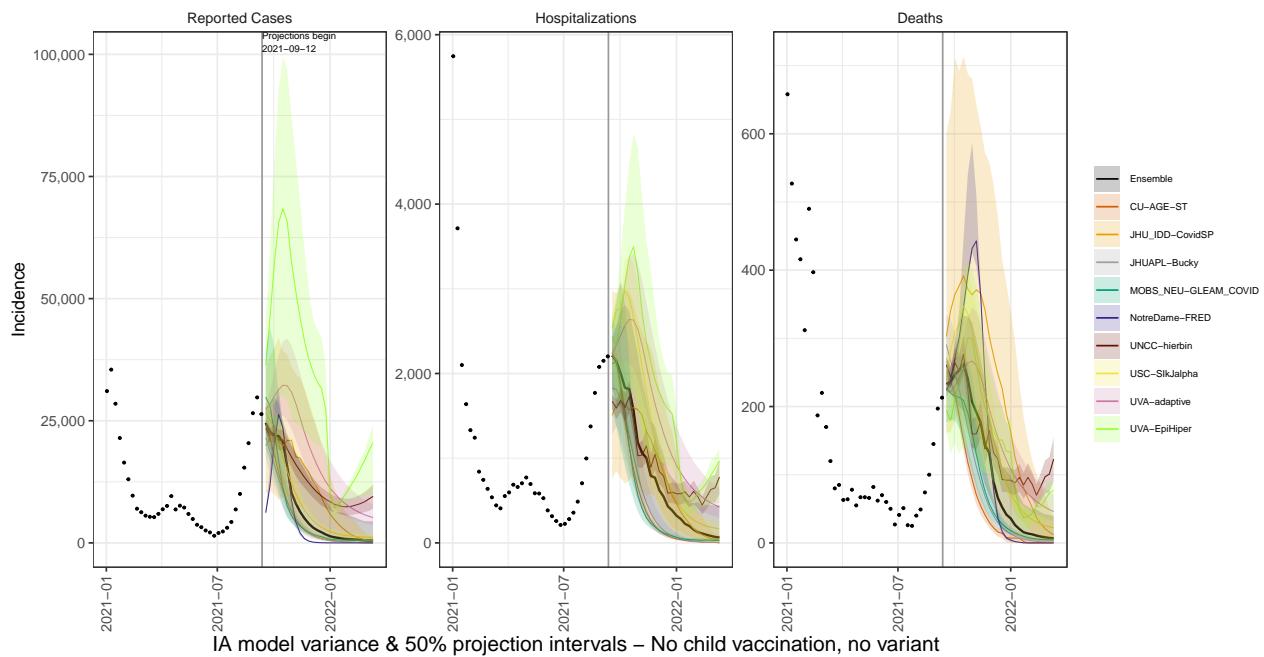
ID model variance & 50% projection intervals – No child vaccination, no variant



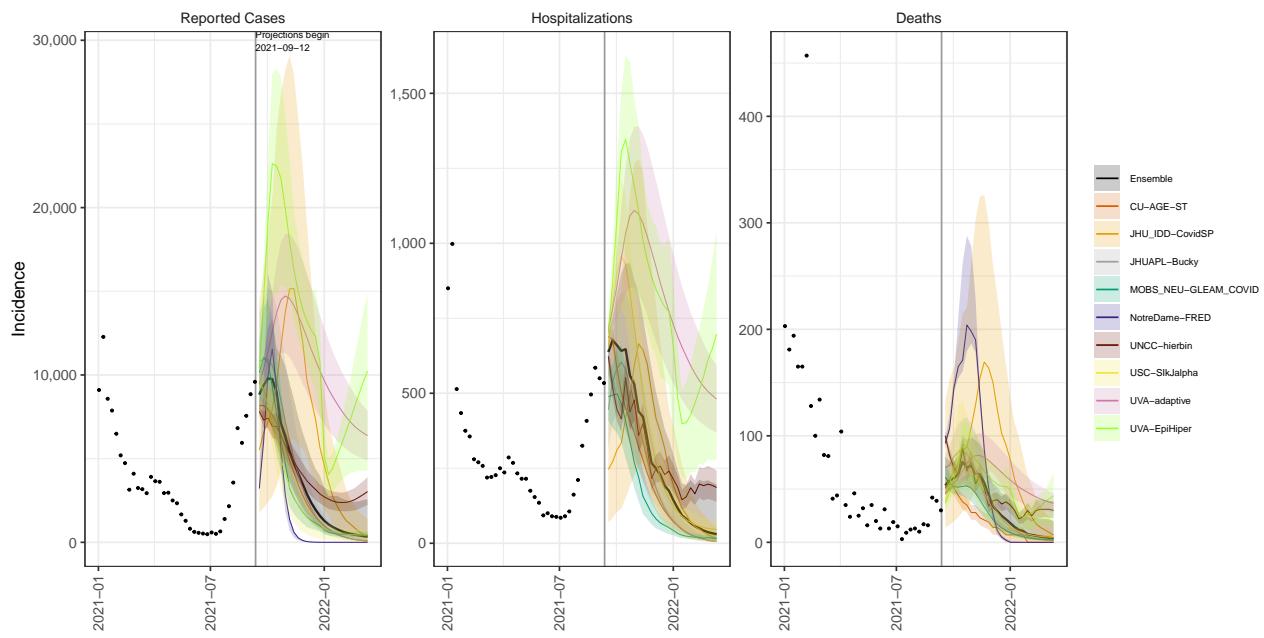
IL model variance & 50% projection intervals – No child vaccination, no variant



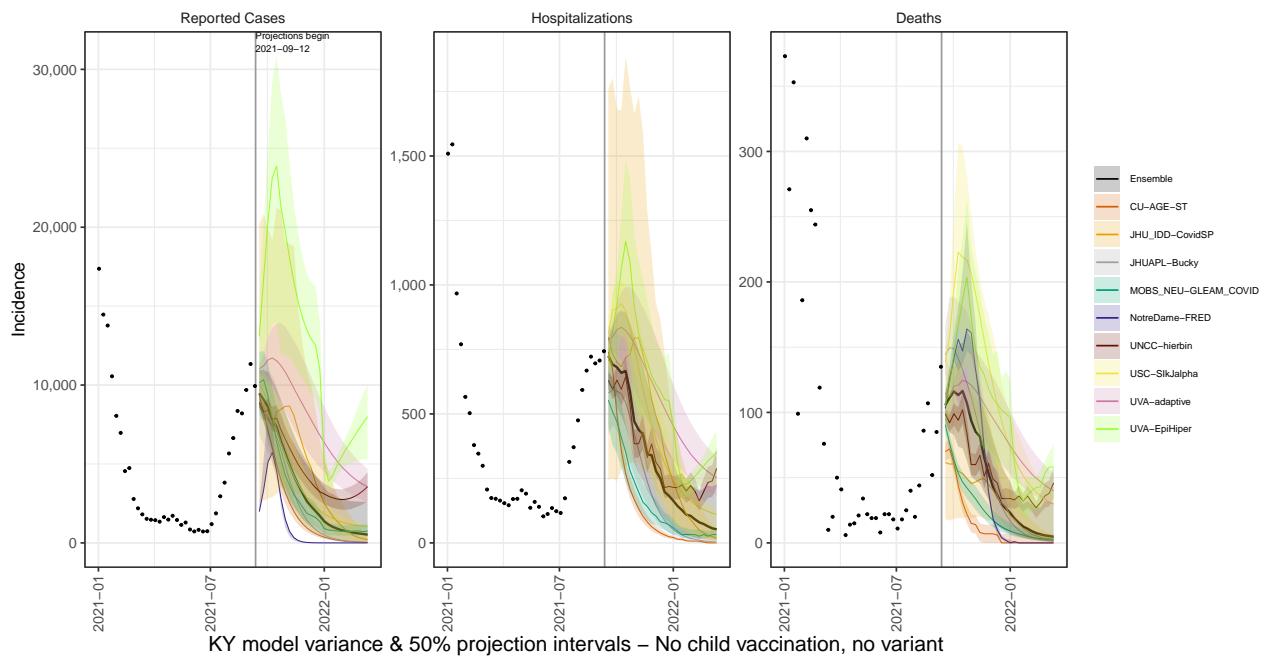
IN model variance & 50% projection intervals – No child vaccination, no variant



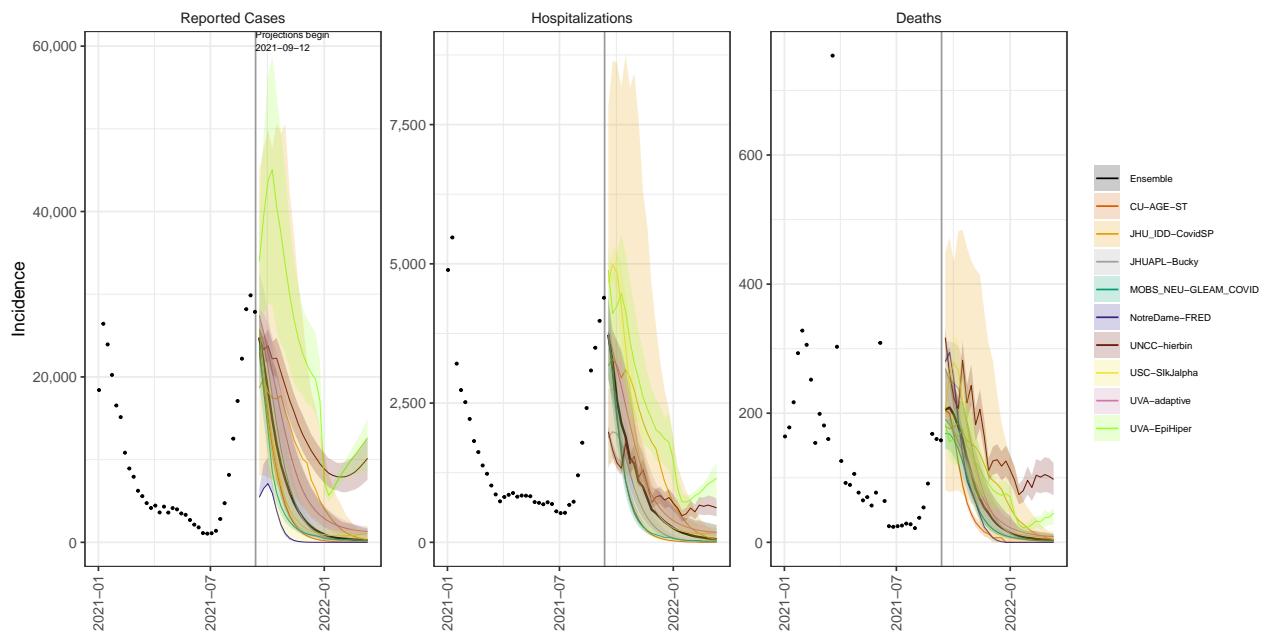
IA model variance & 50% projection intervals – No child vaccination, no variant



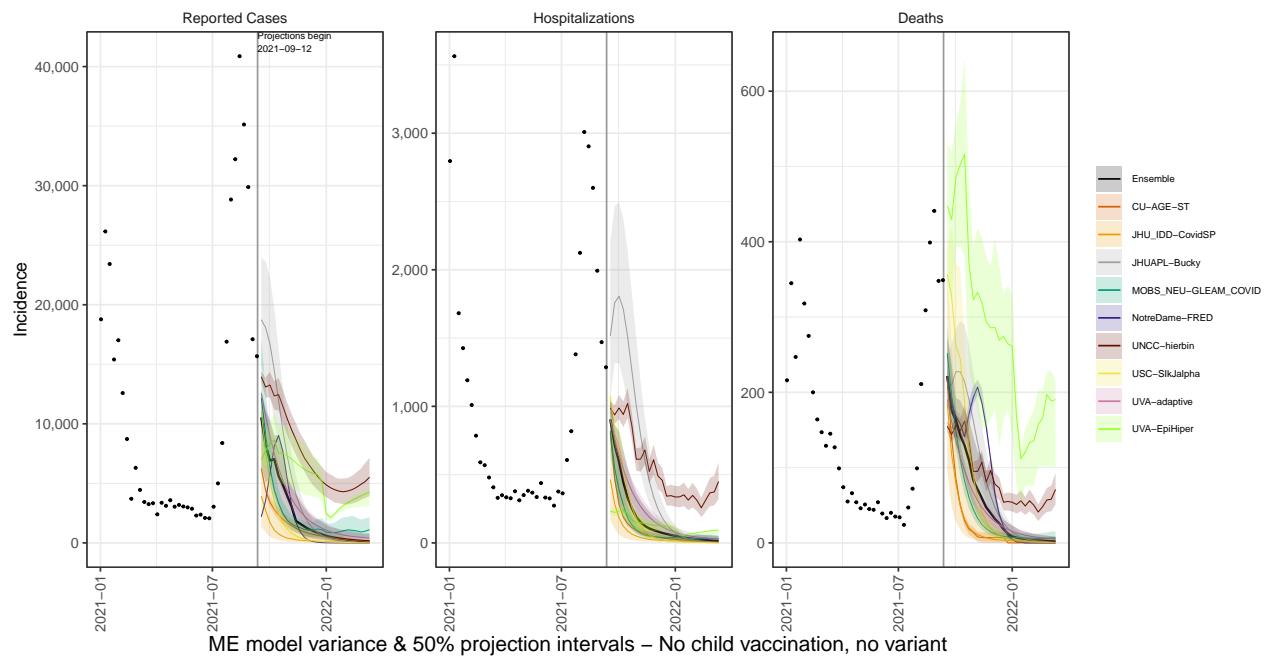
KS model variance & 50% projection intervals – No child vaccination, no variant



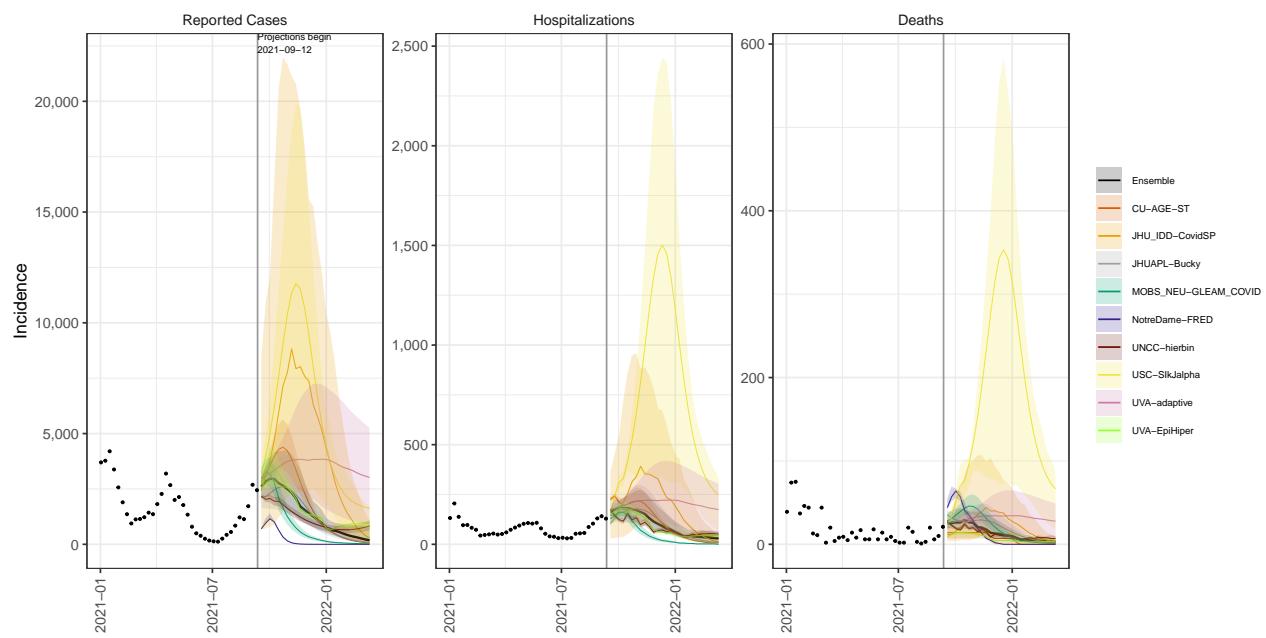
KY model variance & 50% projection intervals – No child vaccination, no variant



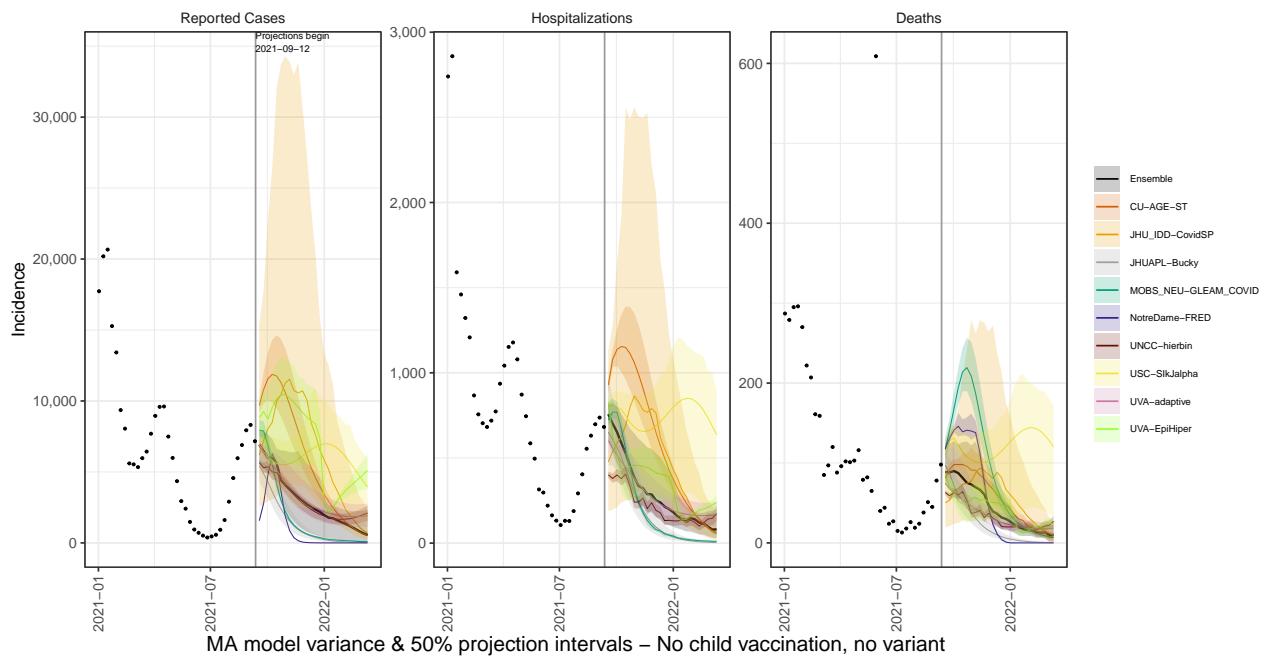
LA model variance & 50% projection intervals – No child vaccination, no variant



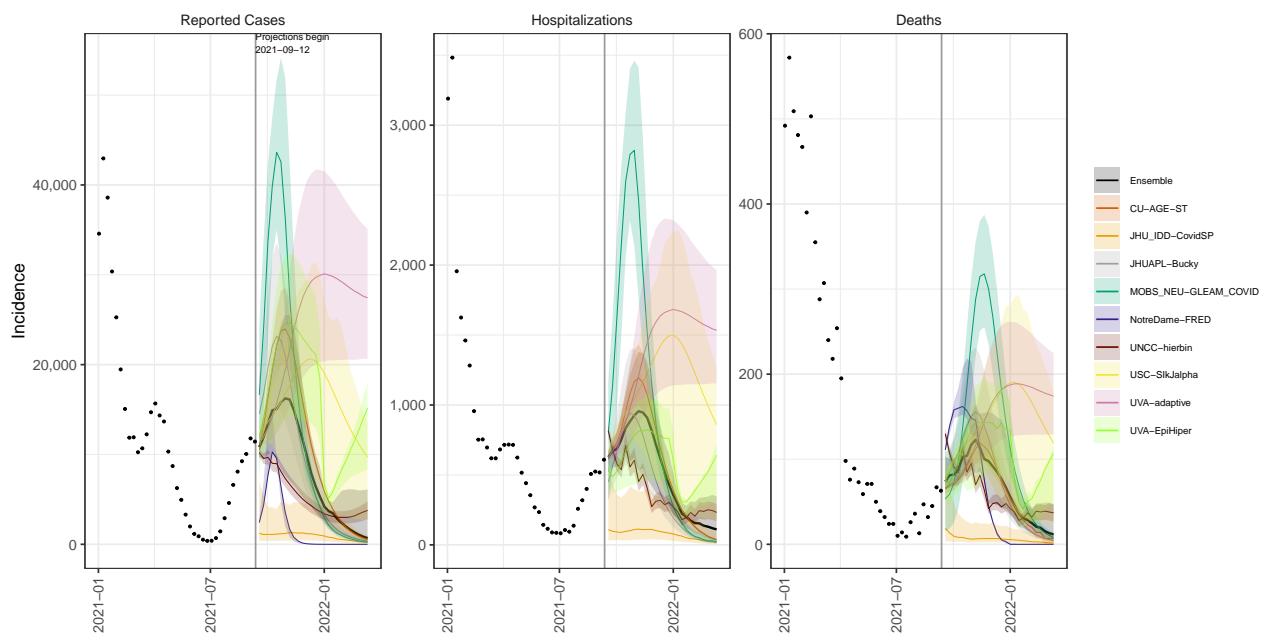
ME model variance & 50% projection intervals – No child vaccination, no variant



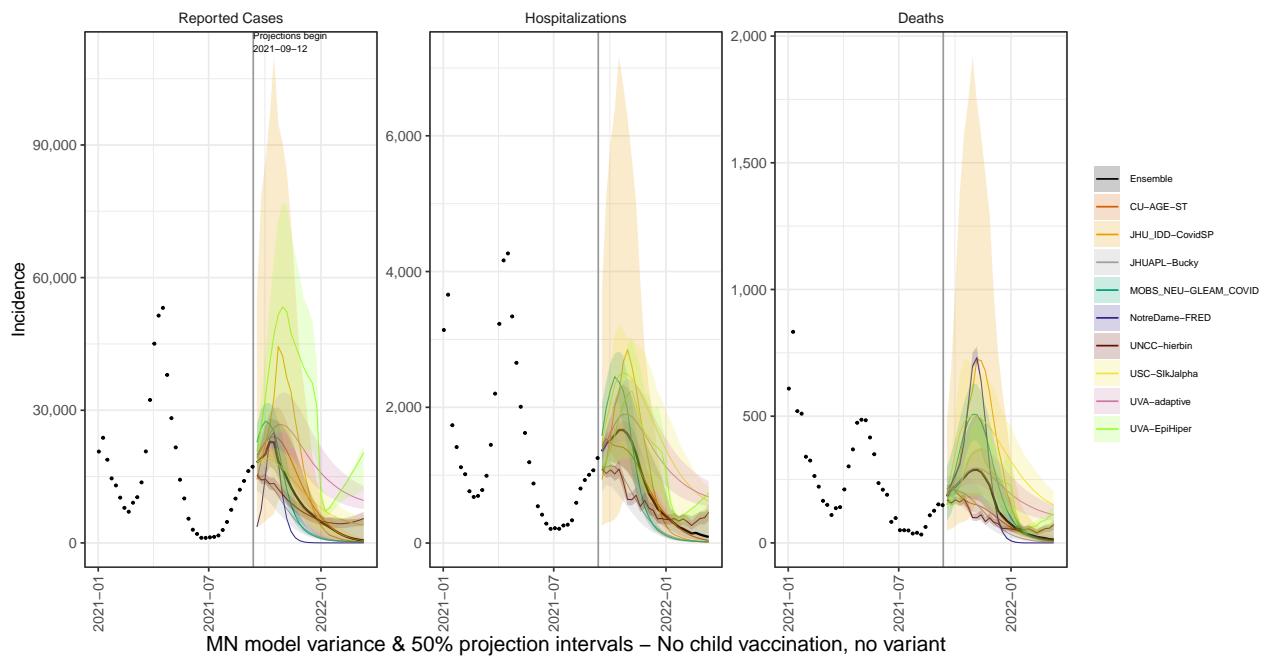
MD model variance & 50% projection intervals – No child vaccination, no variant



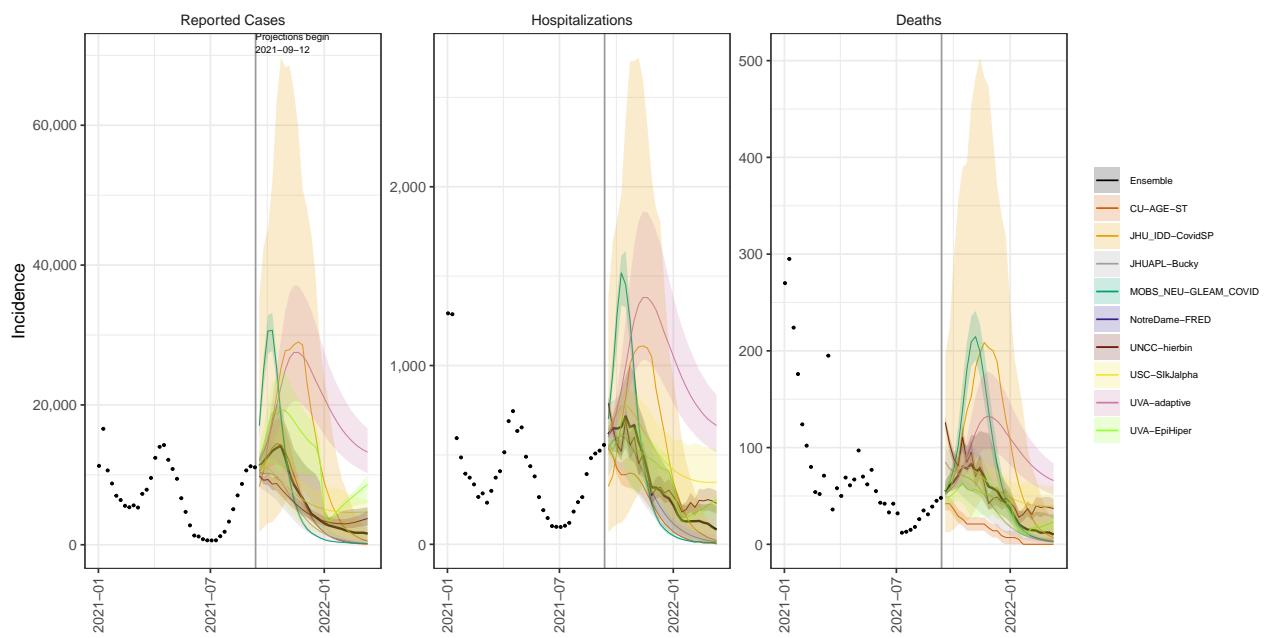
MA model variance & 50% projection intervals – No child vaccination, no variant



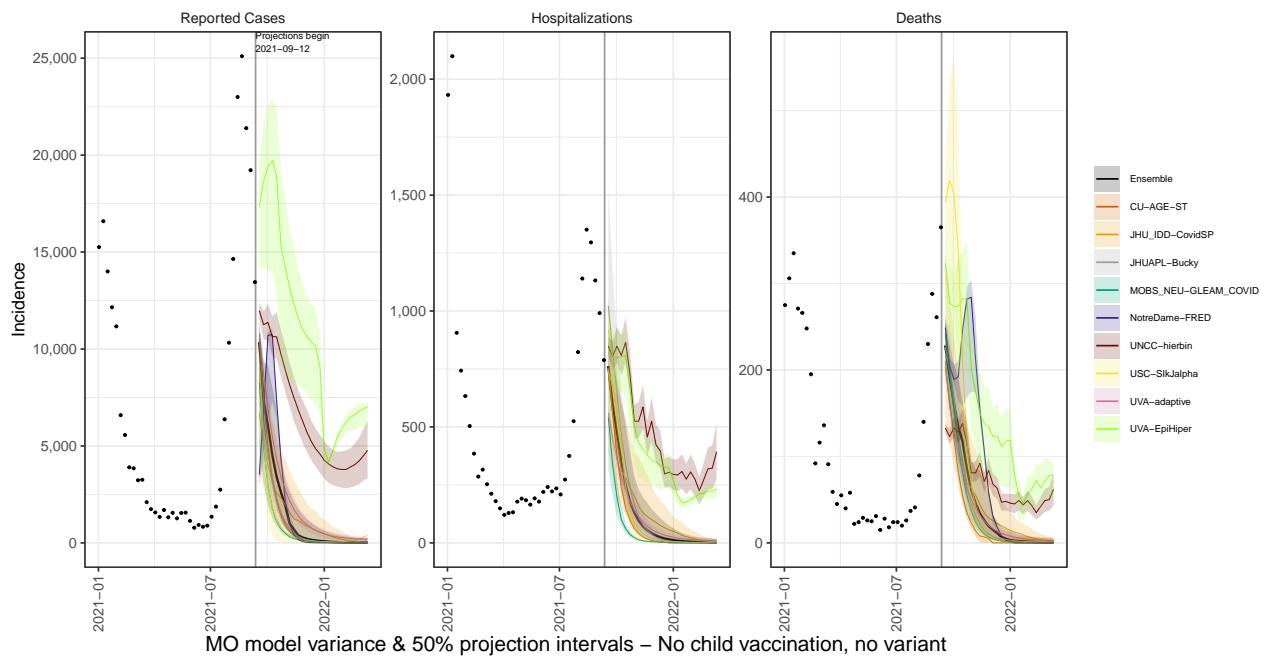
MI model variance & 50% projection intervals – No child vaccination, no variant



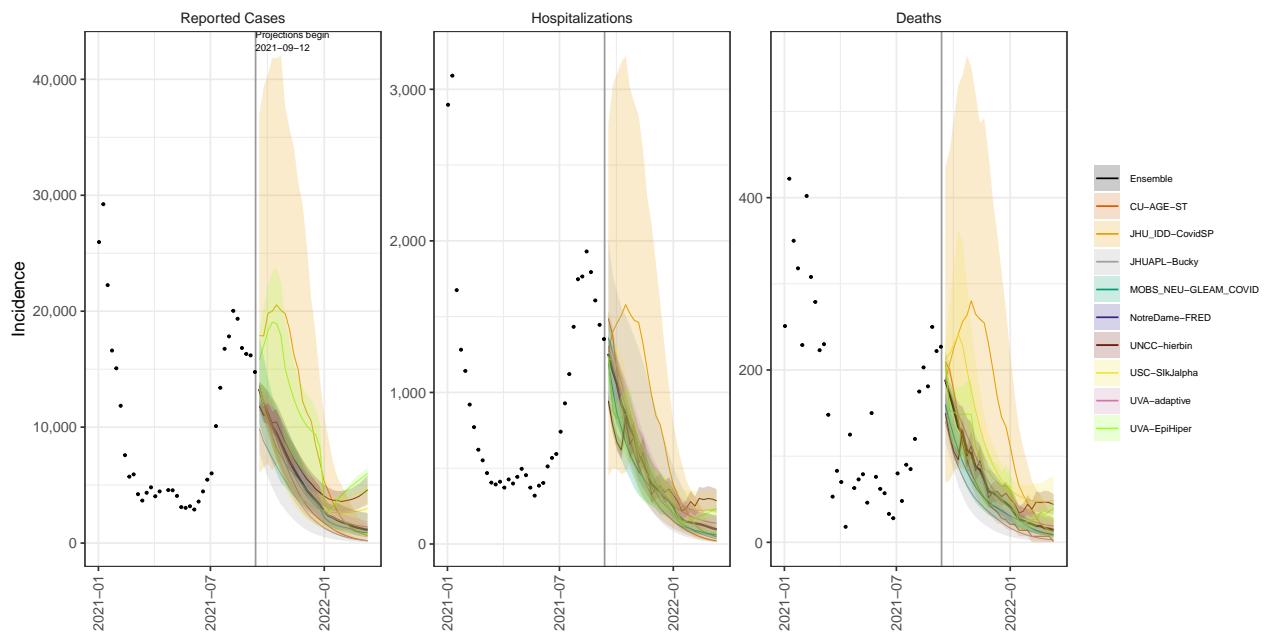
MN model variance & 50% projection intervals – No child vaccination, no variant



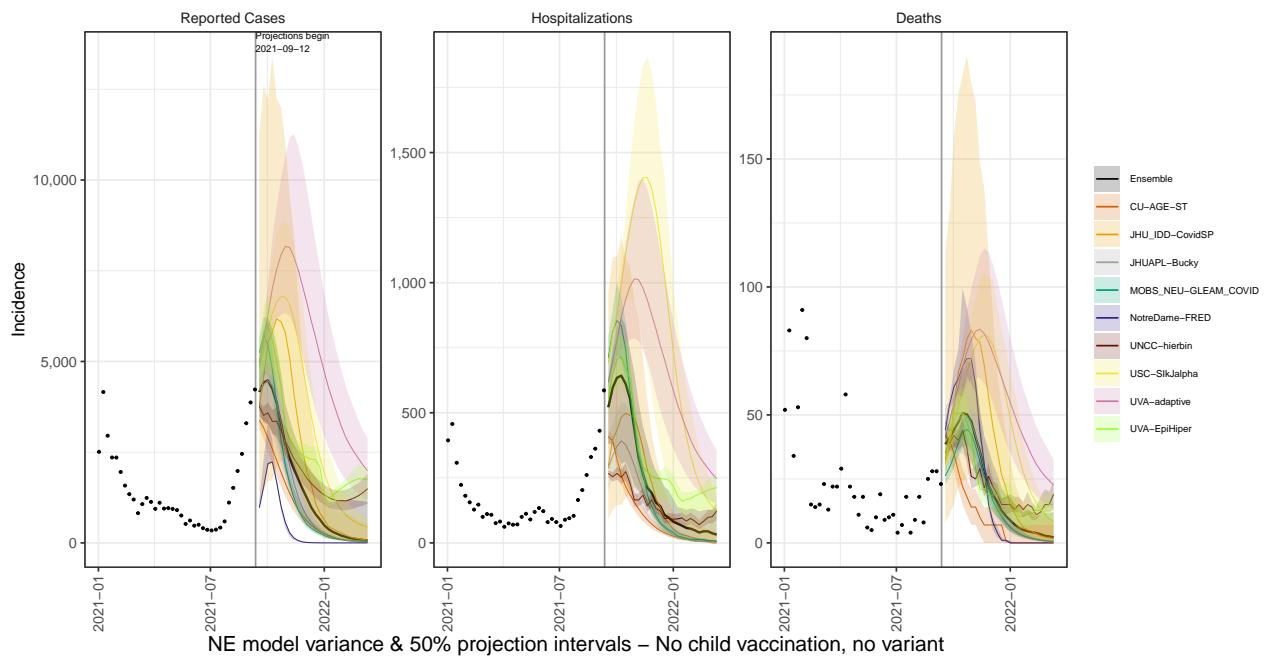
MS model variance & 50% projection intervals – No child vaccination, no variant



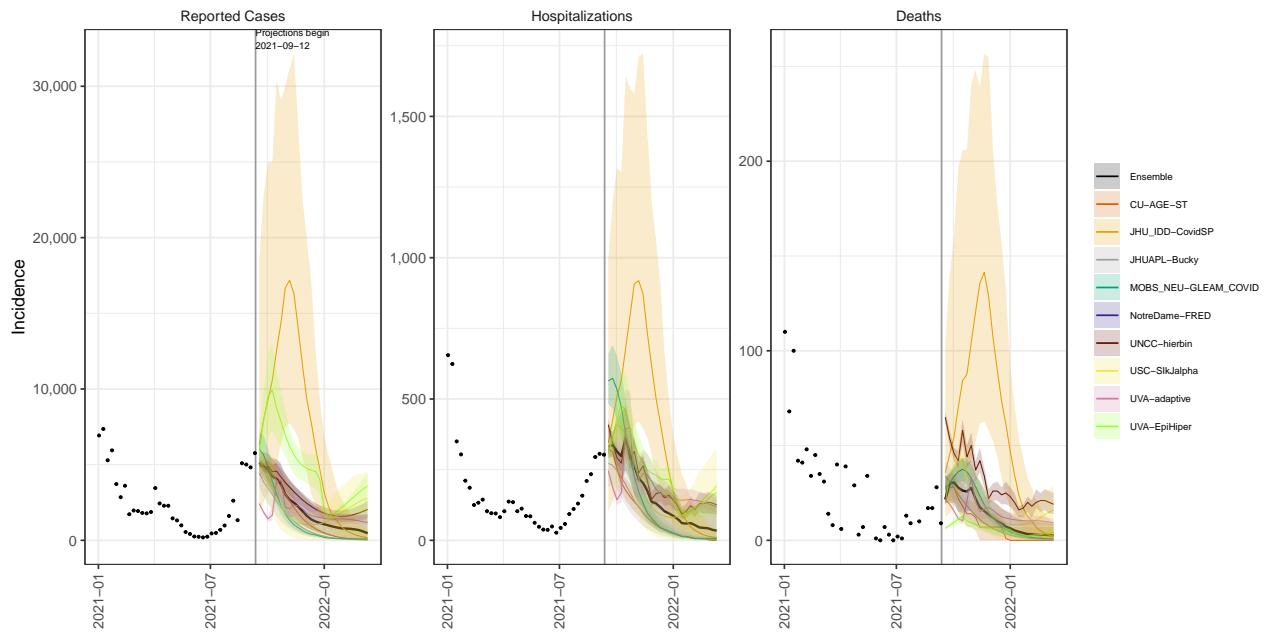
MO model variance & 50% projection intervals – No child vaccination, no variant



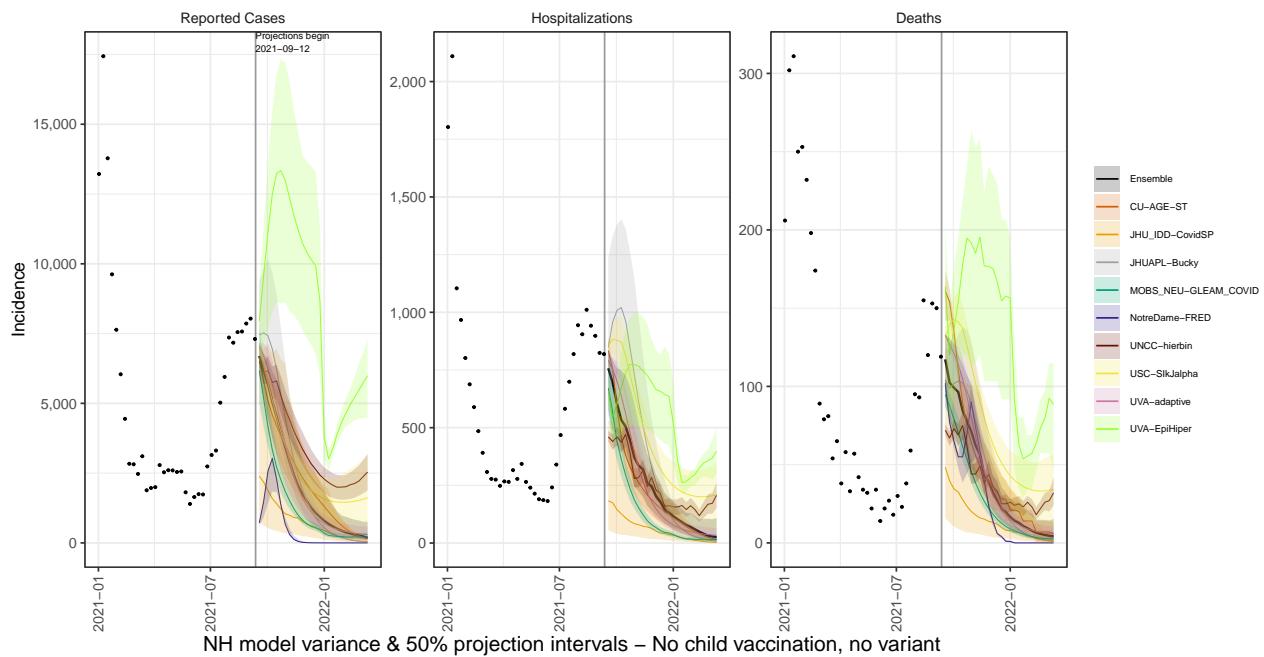
MT model variance & 50% projection intervals – No child vaccination, no variant



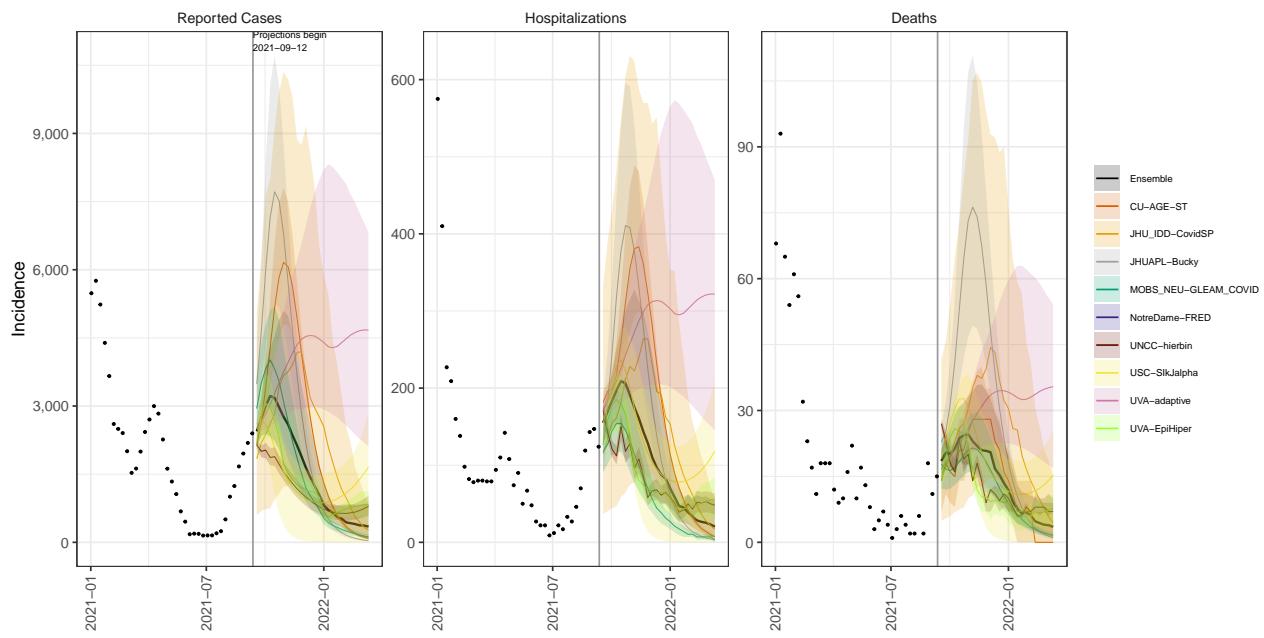
NE model variance & 50% projection intervals – No child vaccination, no variant



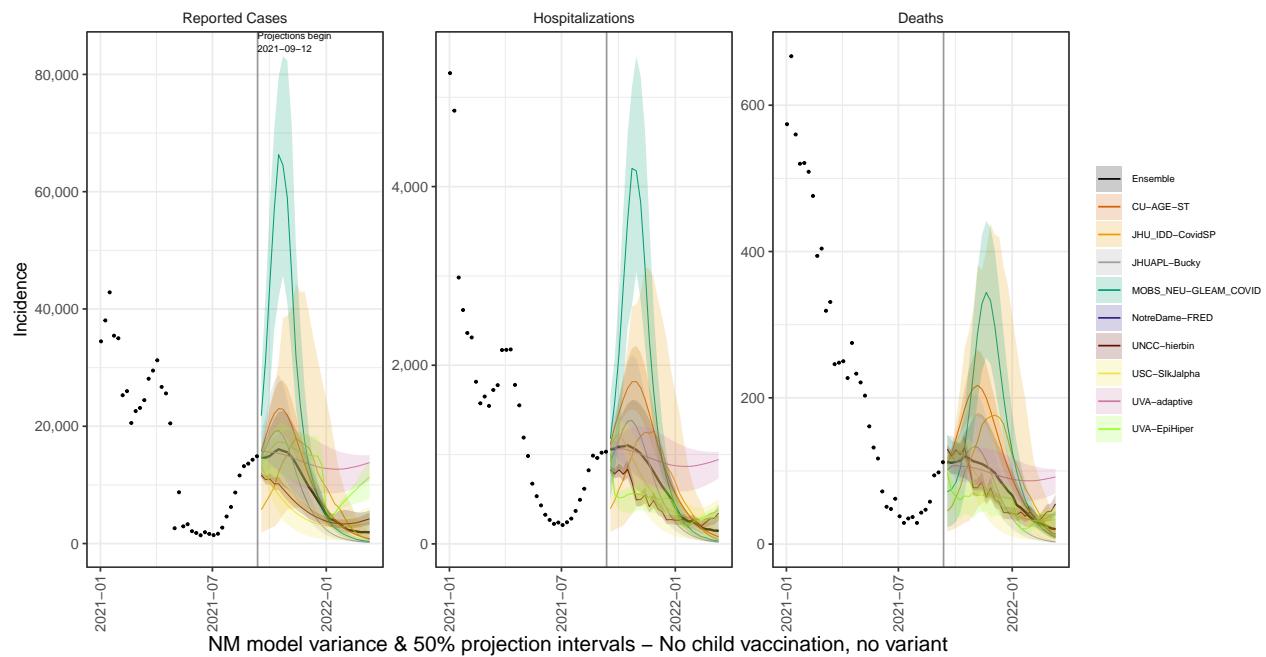
NV model variance & 50% projection intervals – No child vaccination, no variant



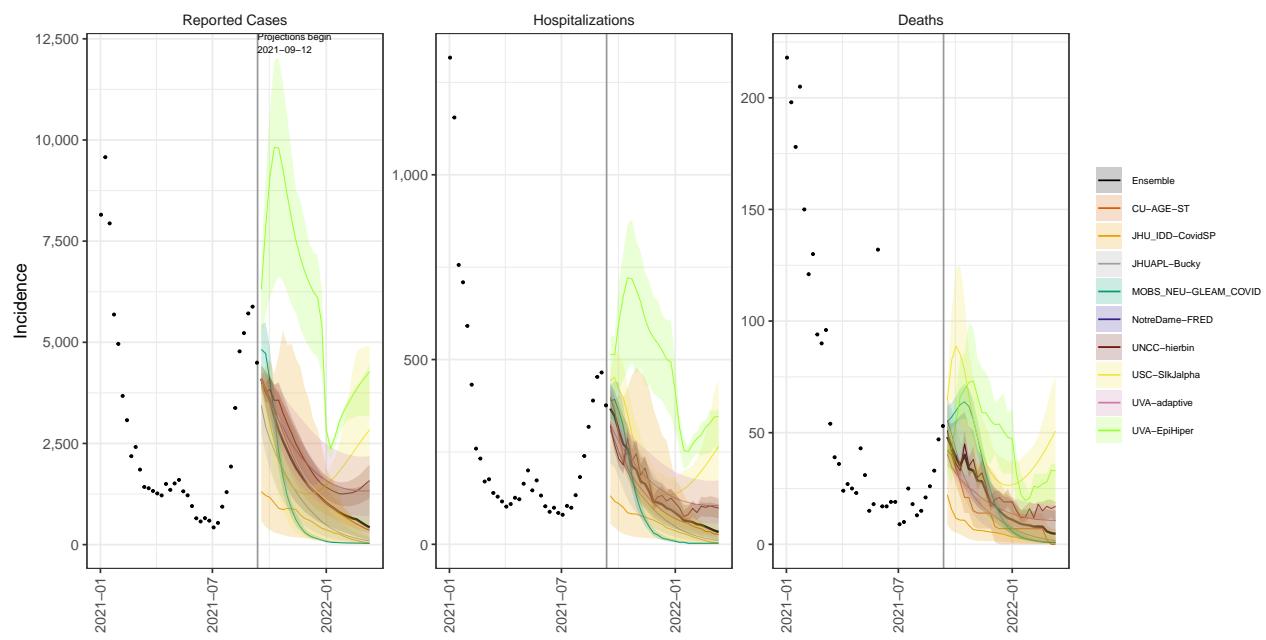
NH model variance & 50% projection intervals – No child vaccination, no variant



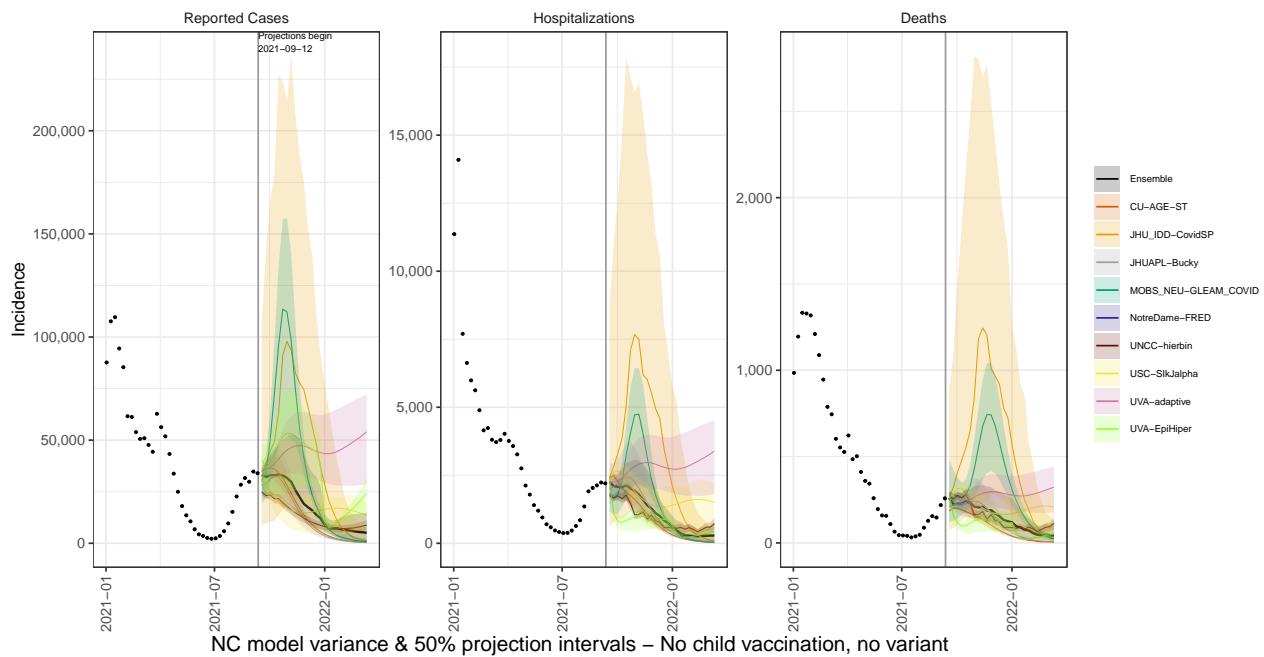
NJ model variance & 50% projection intervals – No child vaccination, no variant



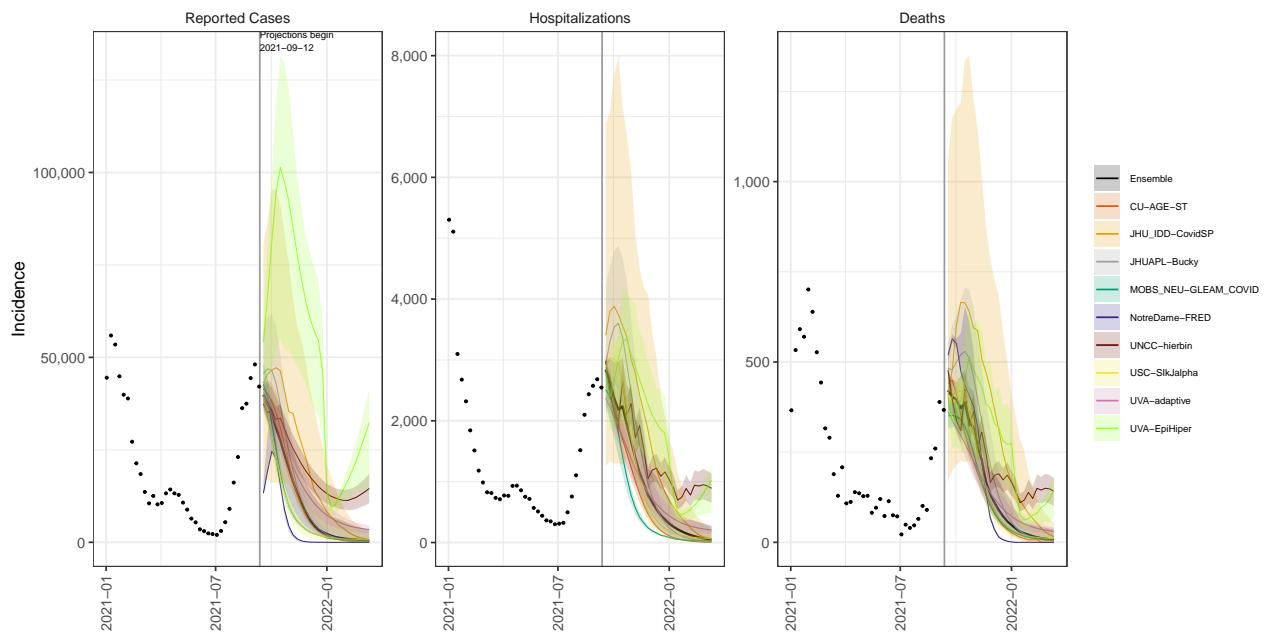
NM model variance & 50% projection intervals – No child vaccination, no variant



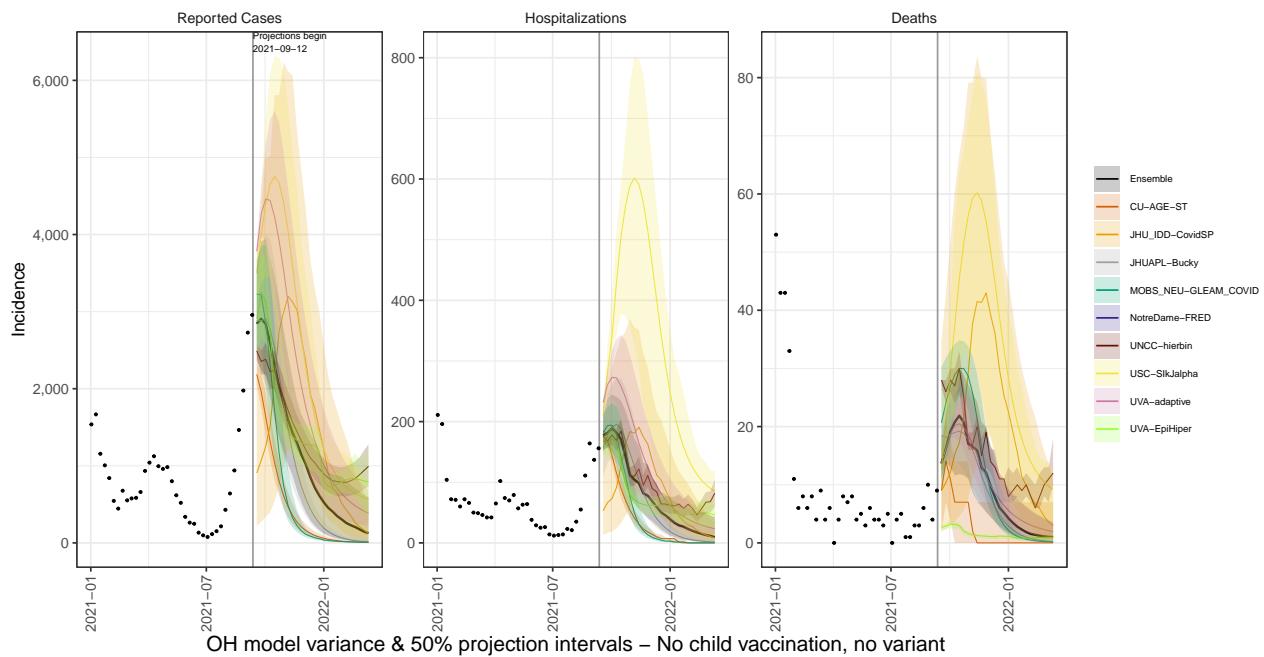
NY model variance & 50% projection intervals – No child vaccination, no variant



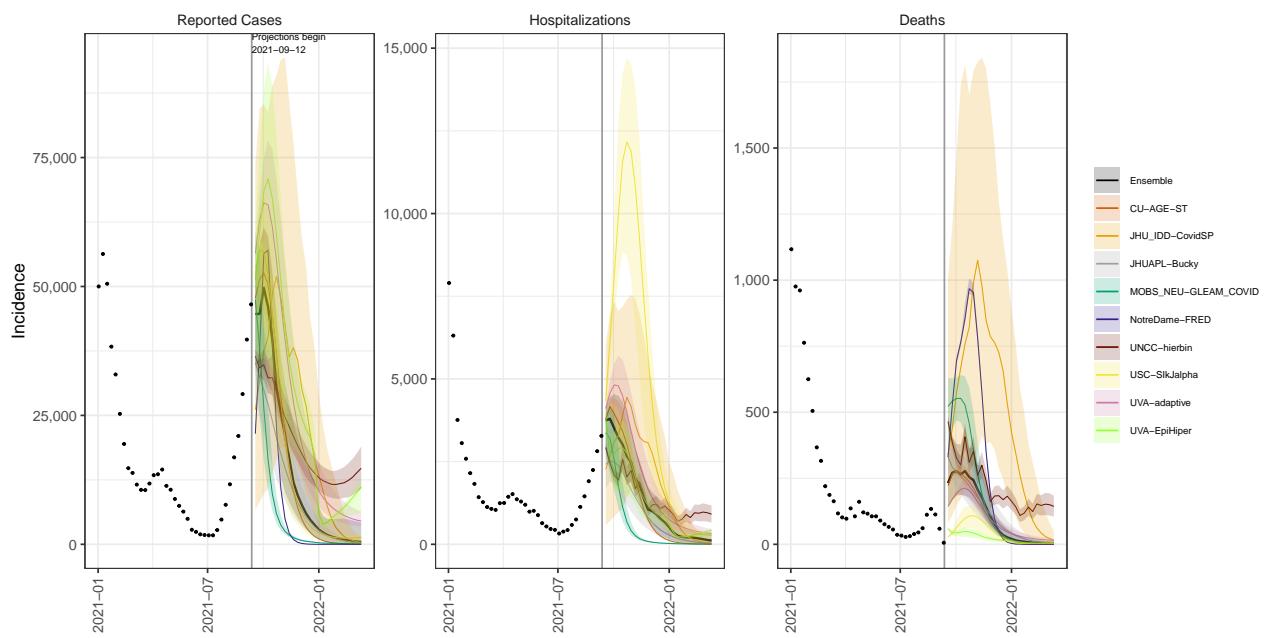
NC model variance & 50% projection intervals – No child vaccination, no variant



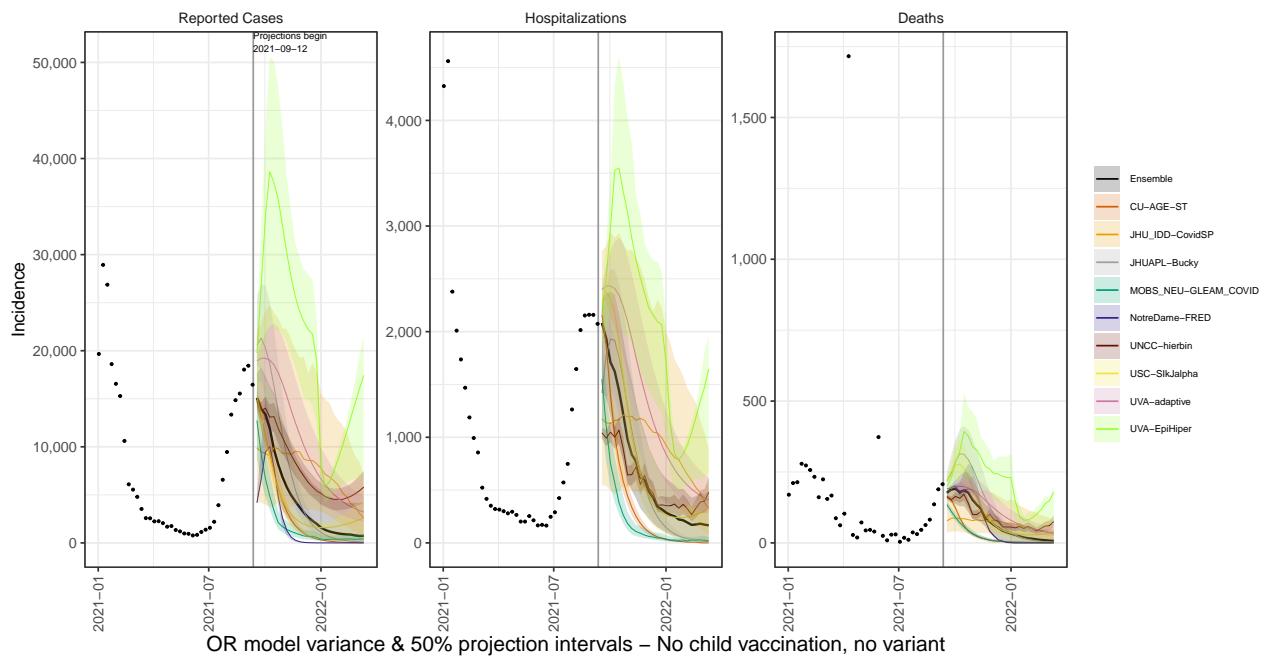
ND model variance & 50% projection intervals – No child vaccination, no variant



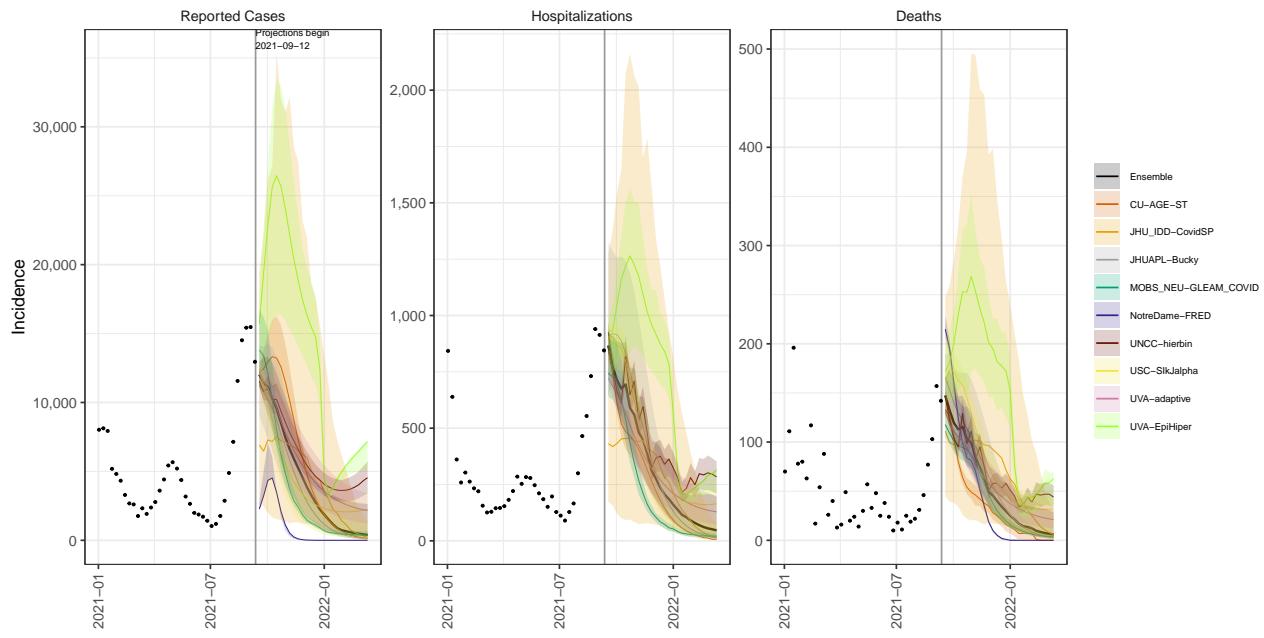
OH model variance & 50% projection intervals – No child vaccination, no variant



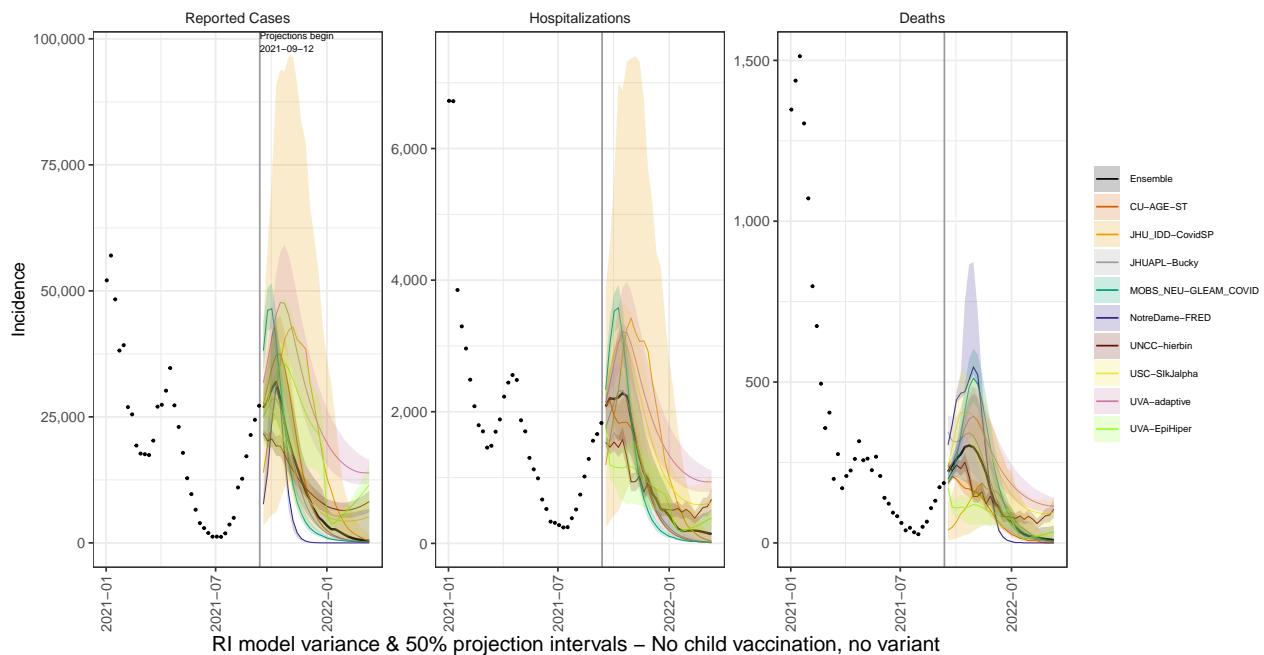
OK model variance & 50% projection intervals – No child vaccination, no variant



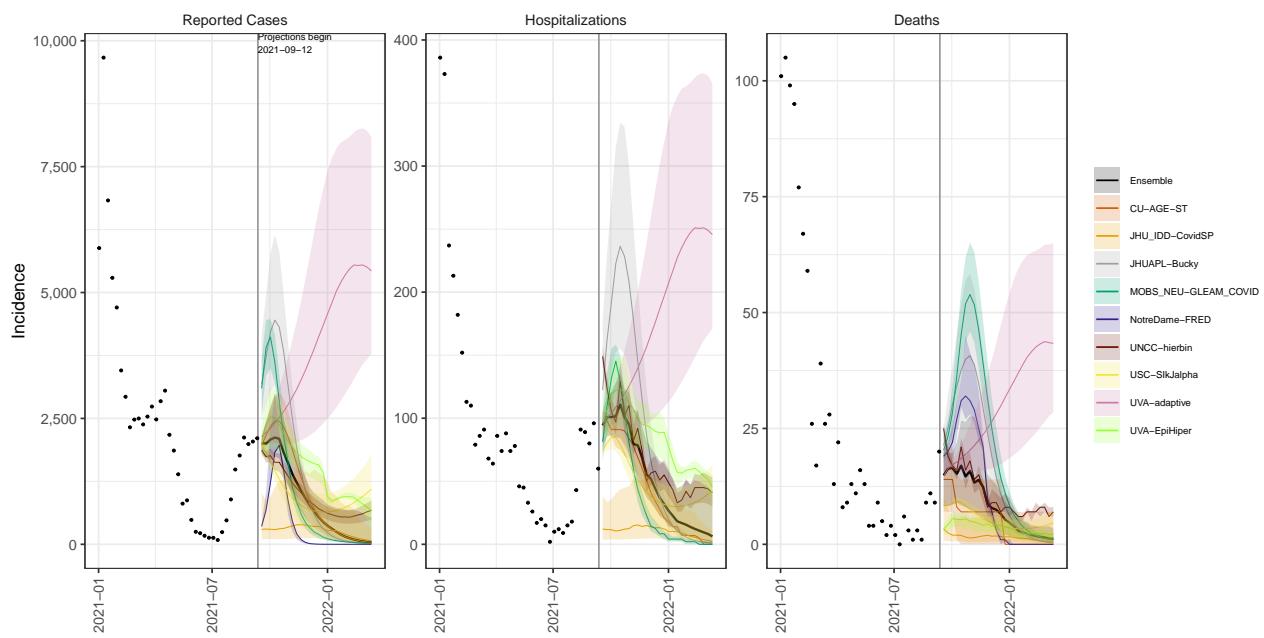
OR model variance & 50% projection intervals – No child vaccination, no variant



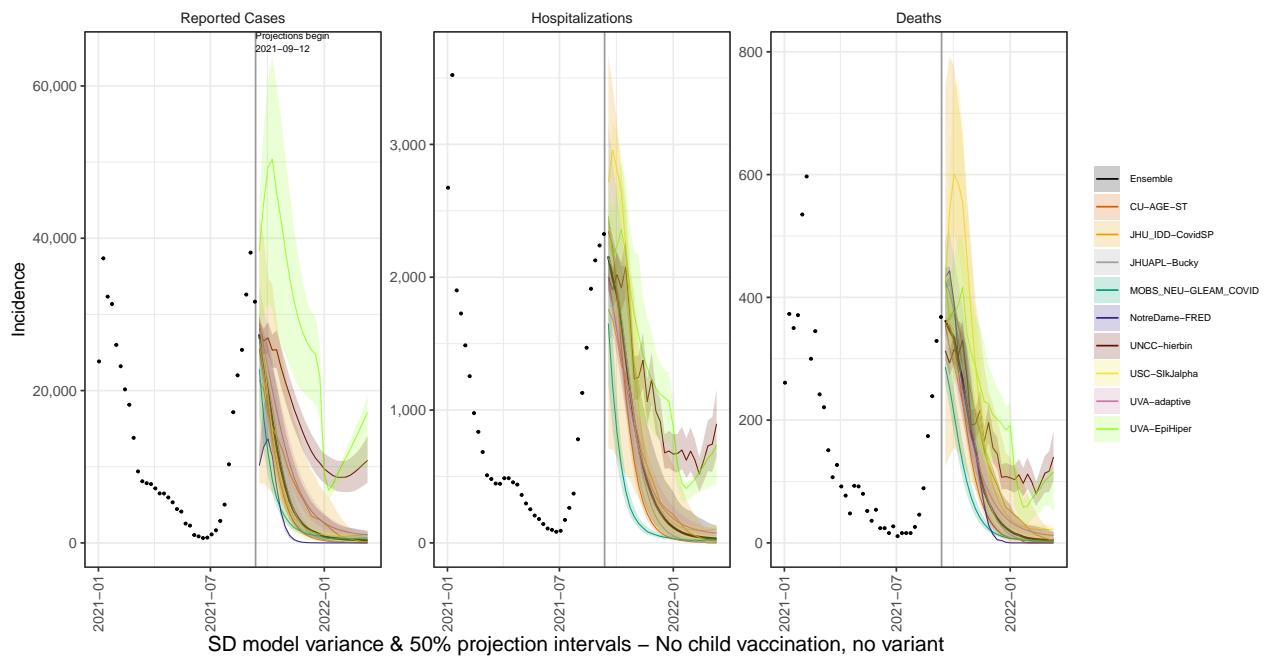
PA model variance & 50% projection intervals – No child vaccination, no variant



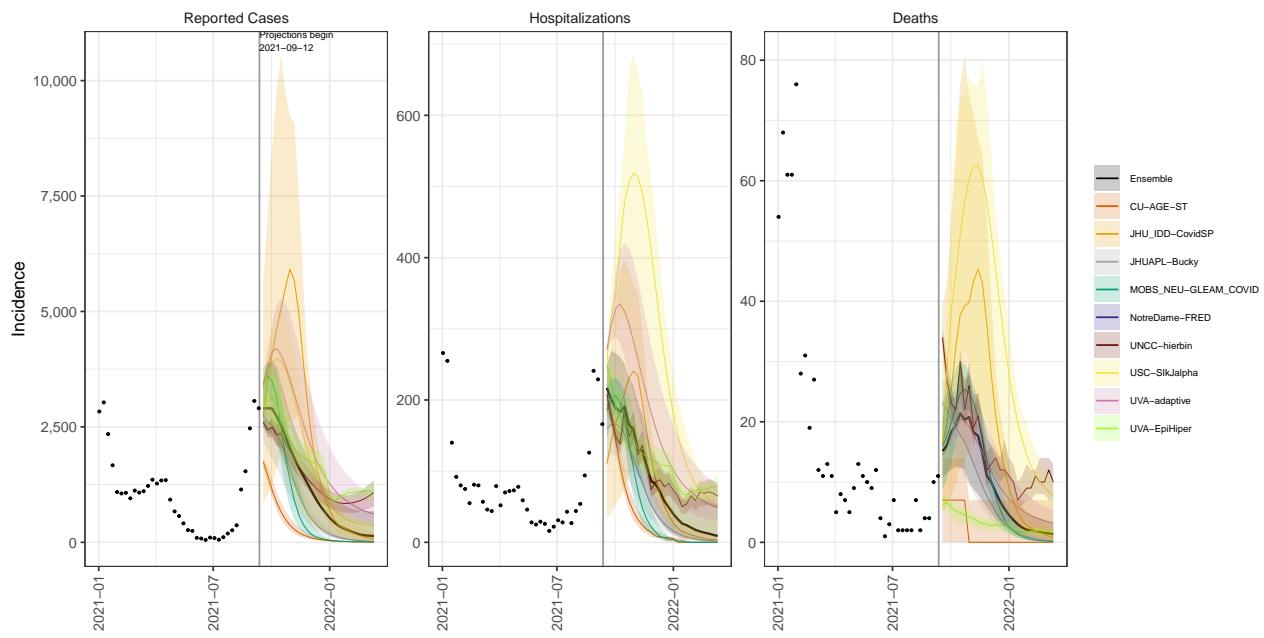
RI model variance & 50% projection intervals – No child vaccination, no variant



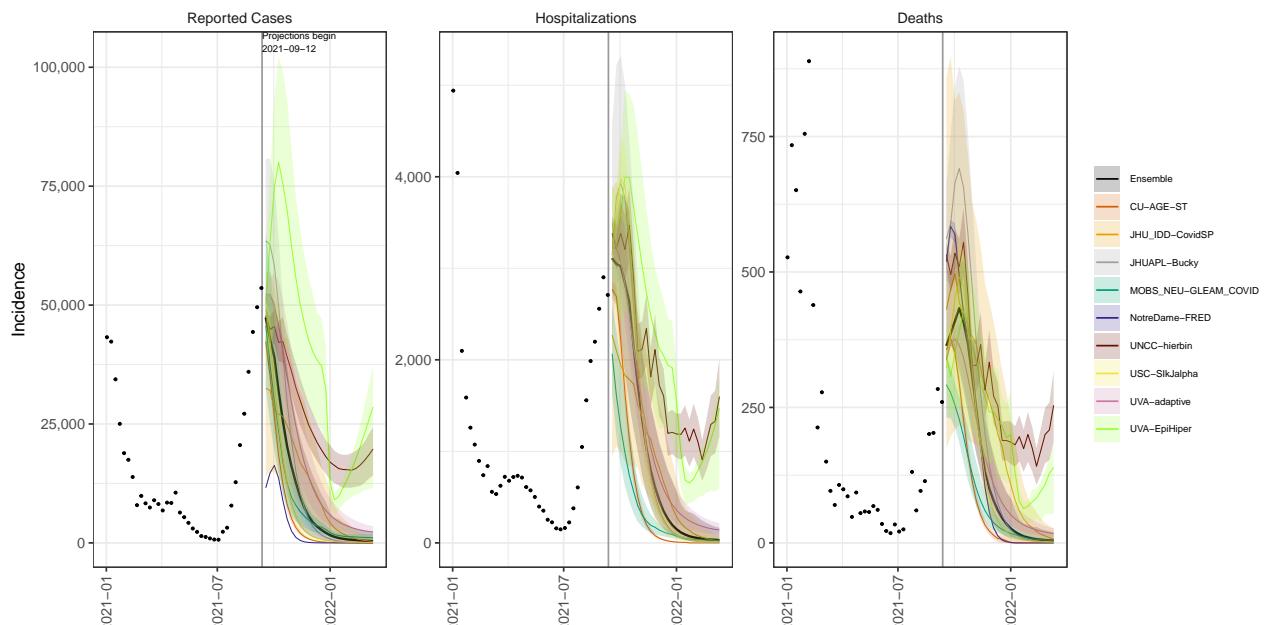
SC model variance & 50% projection intervals – No child vaccination, no variant



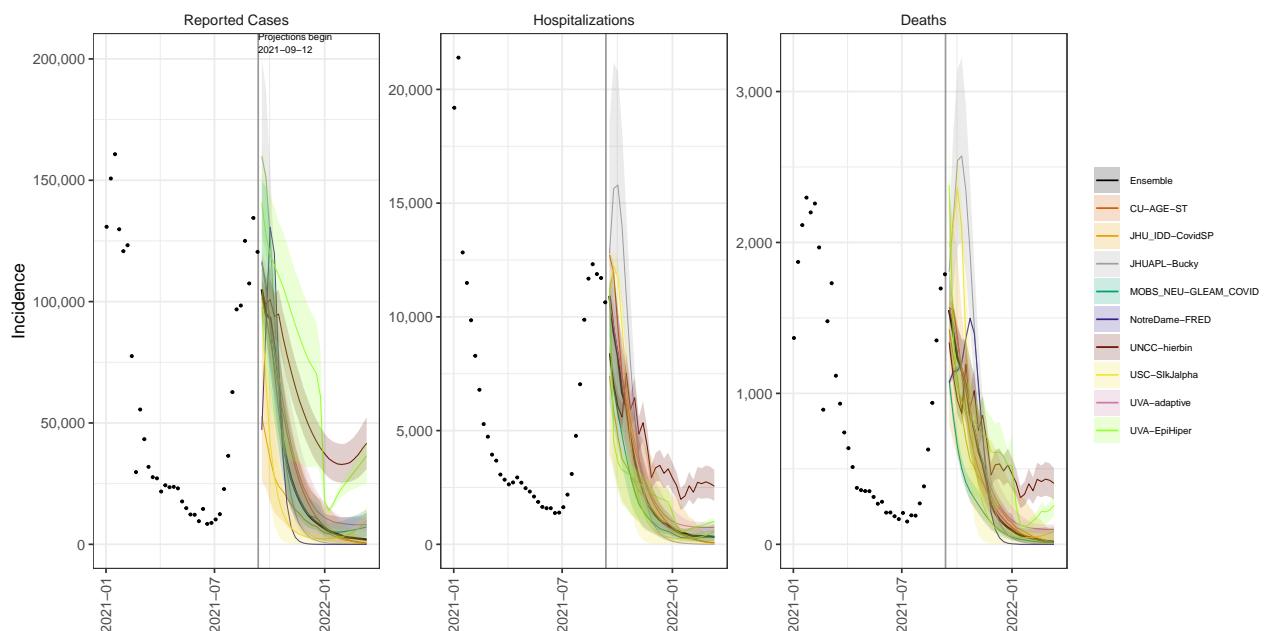
SD model variance & 50% projection intervals – No child vaccination, no variant



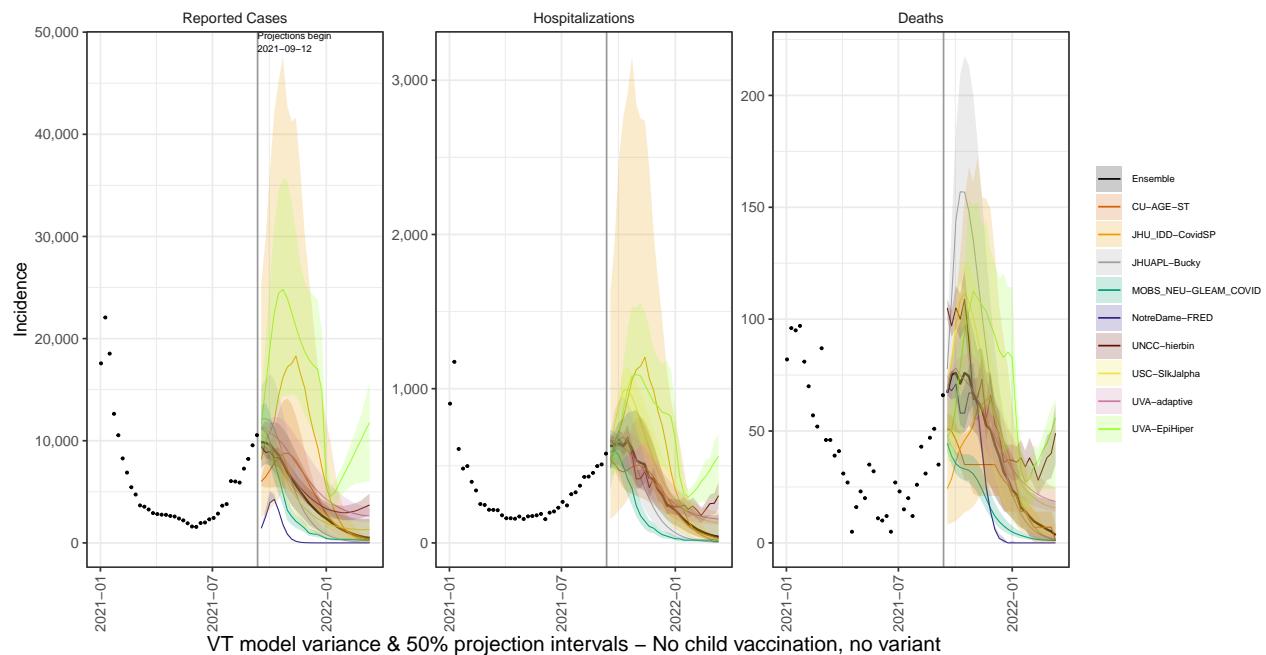
TN model variance & 50% projection intervals – No child vaccination, no variant



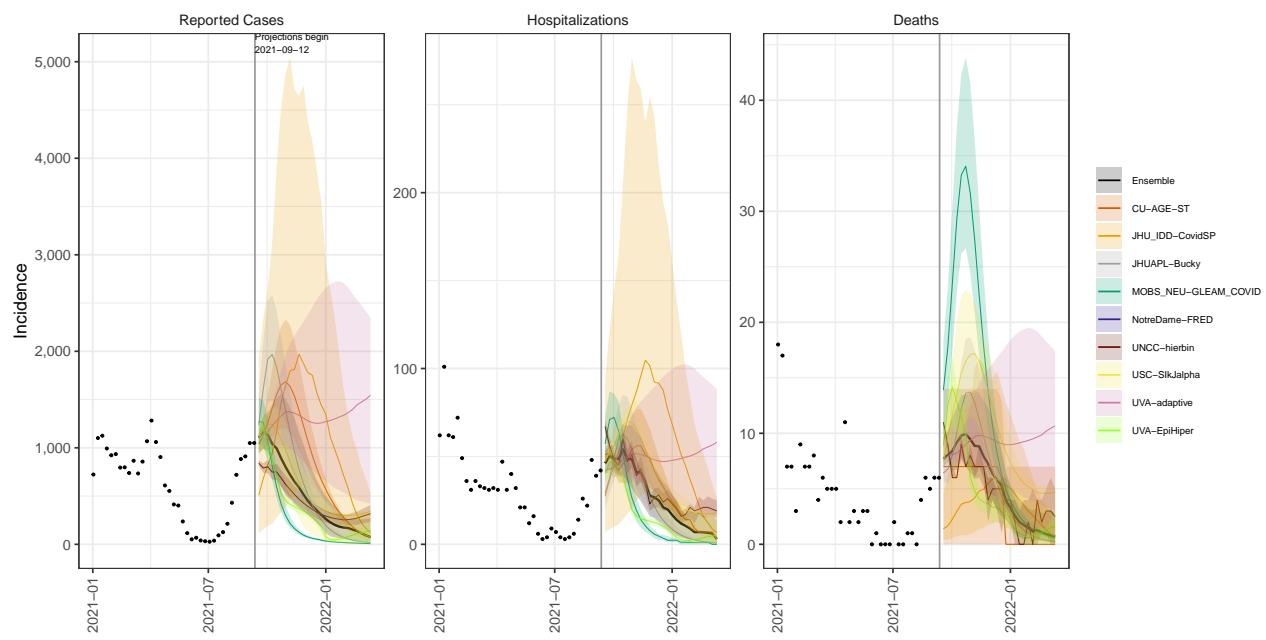
TX model variance & 50% projection intervals – No child vaccination, no variant



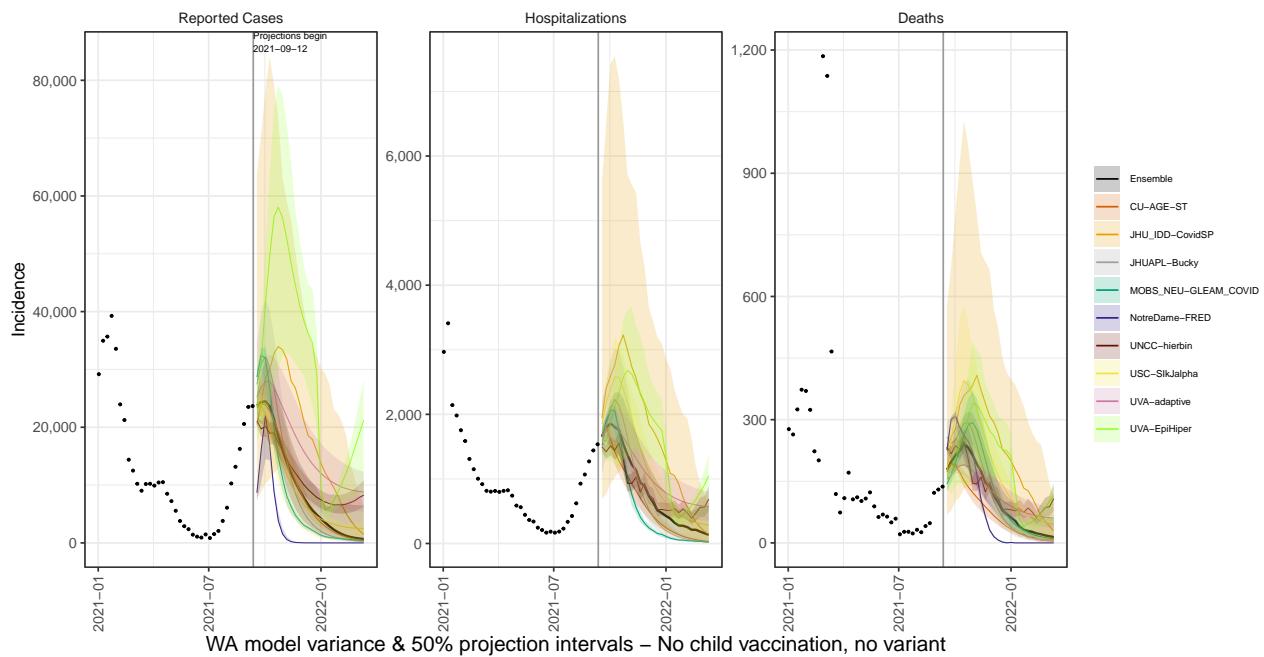
UT model variance & 50% projection intervals – No child vaccination, no variant



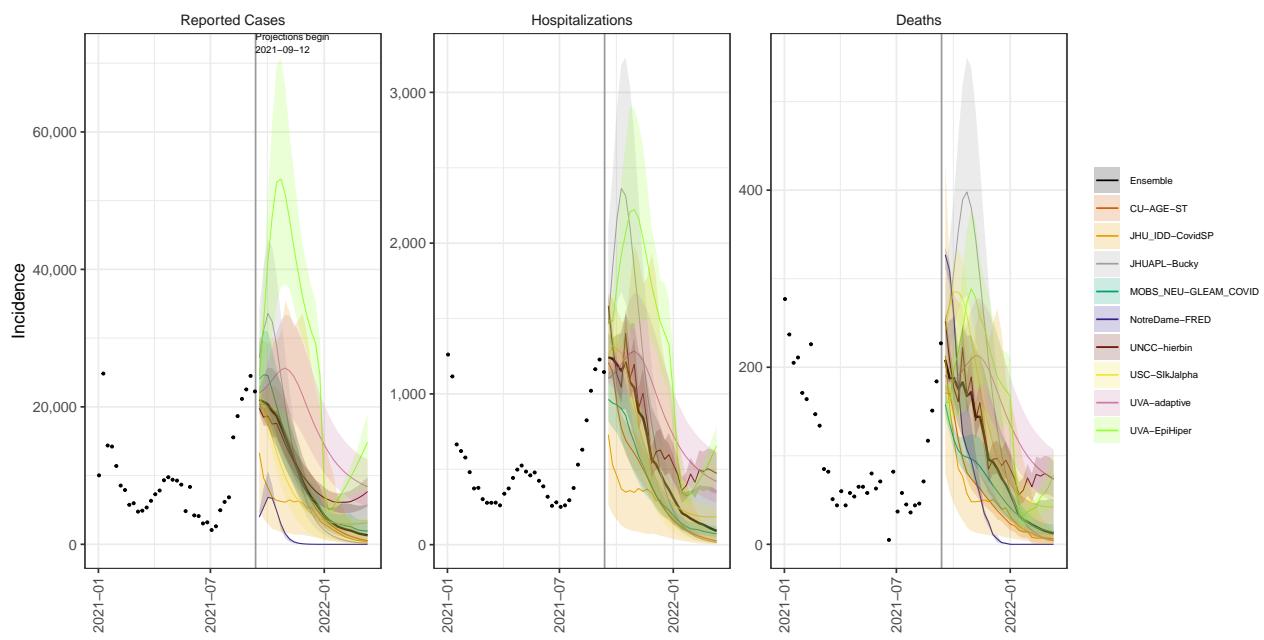
VT model variance & 50% projection intervals – No child vaccination, no variant



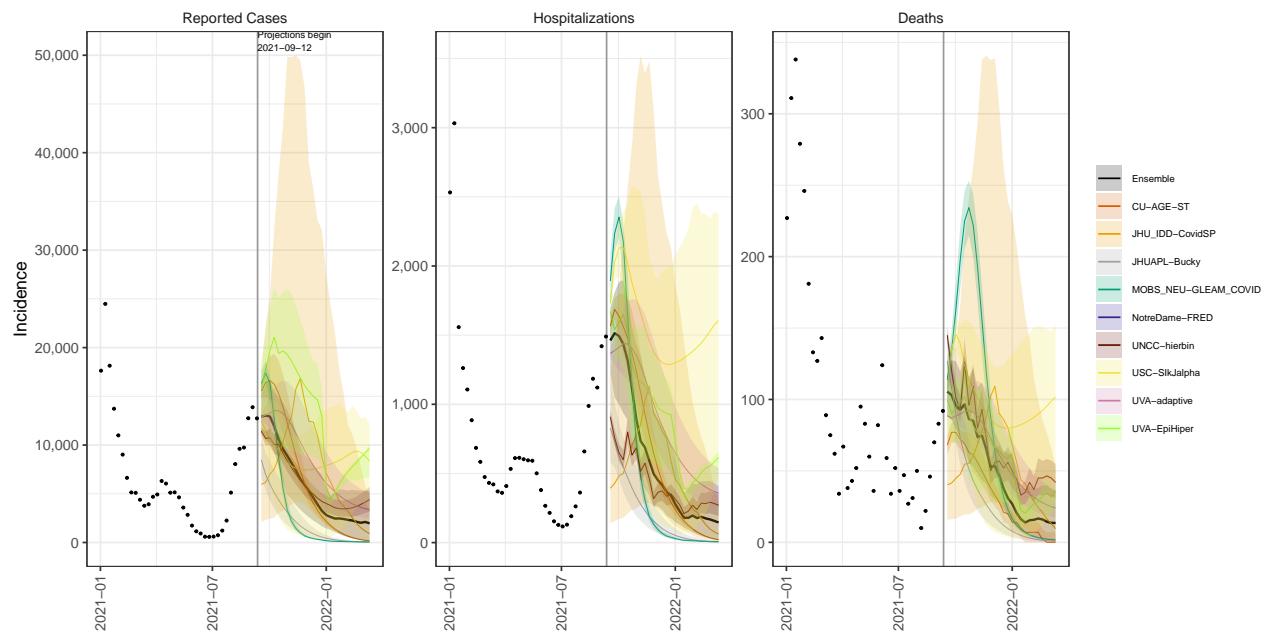
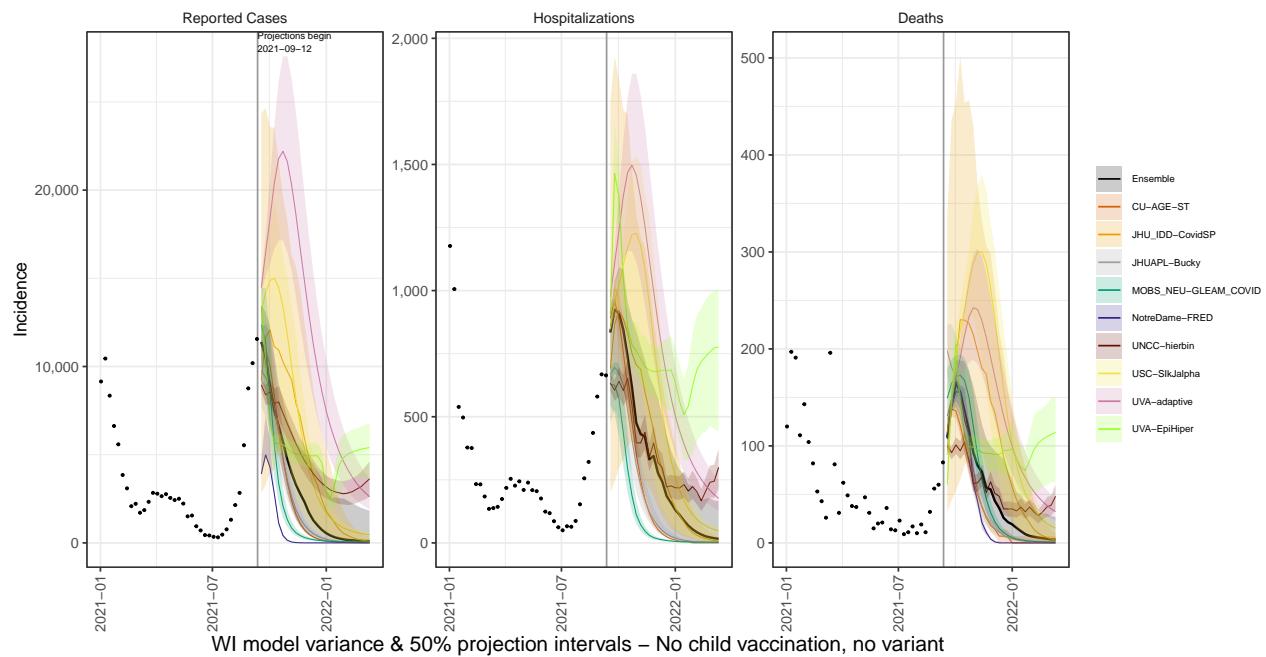
VA model variance & 50% projection intervals – No child vaccination, no variant



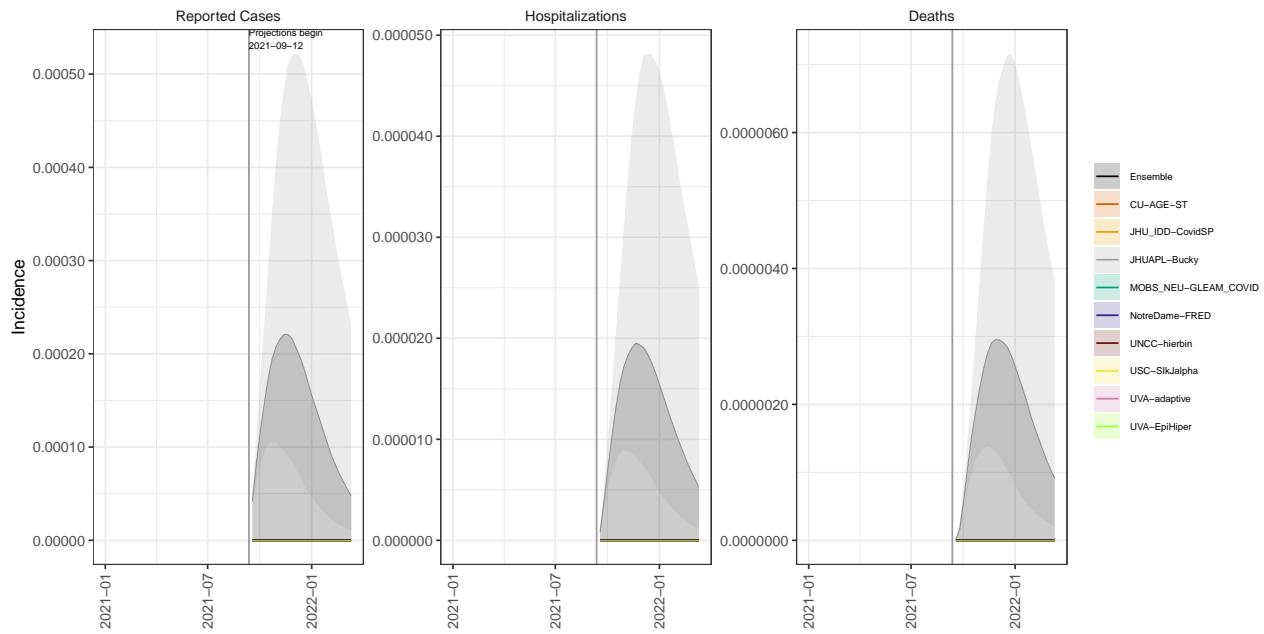
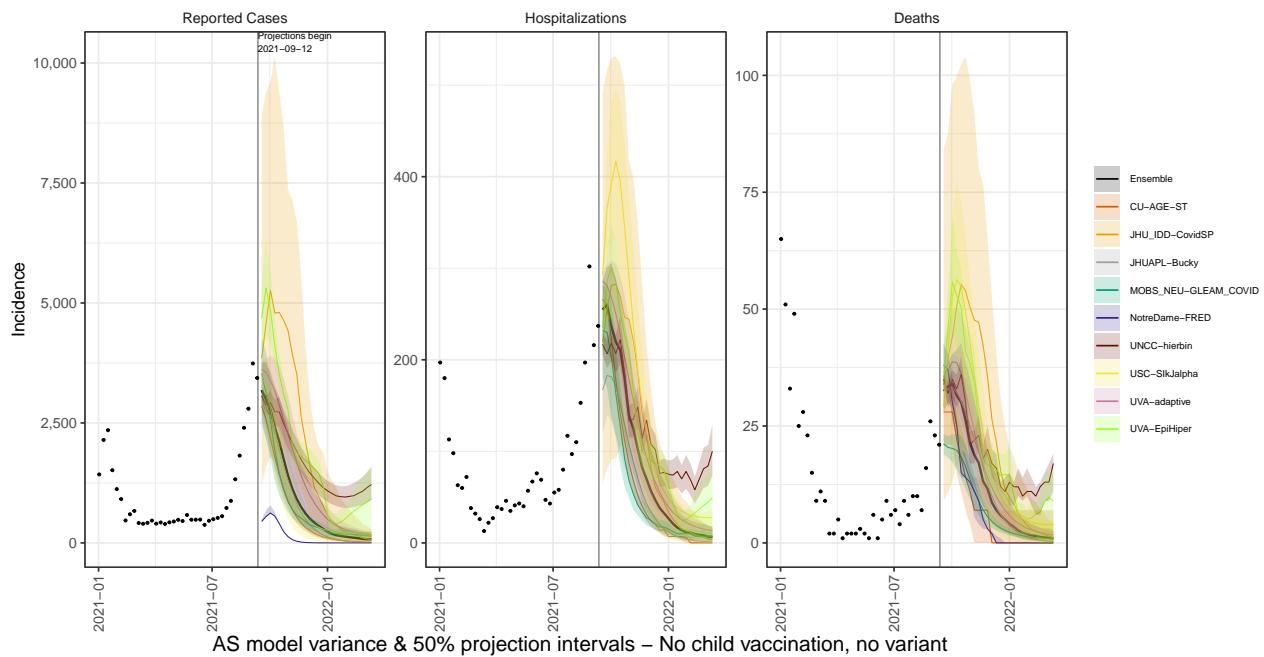
WA model variance & 50% projection intervals – No child vaccination, no variant



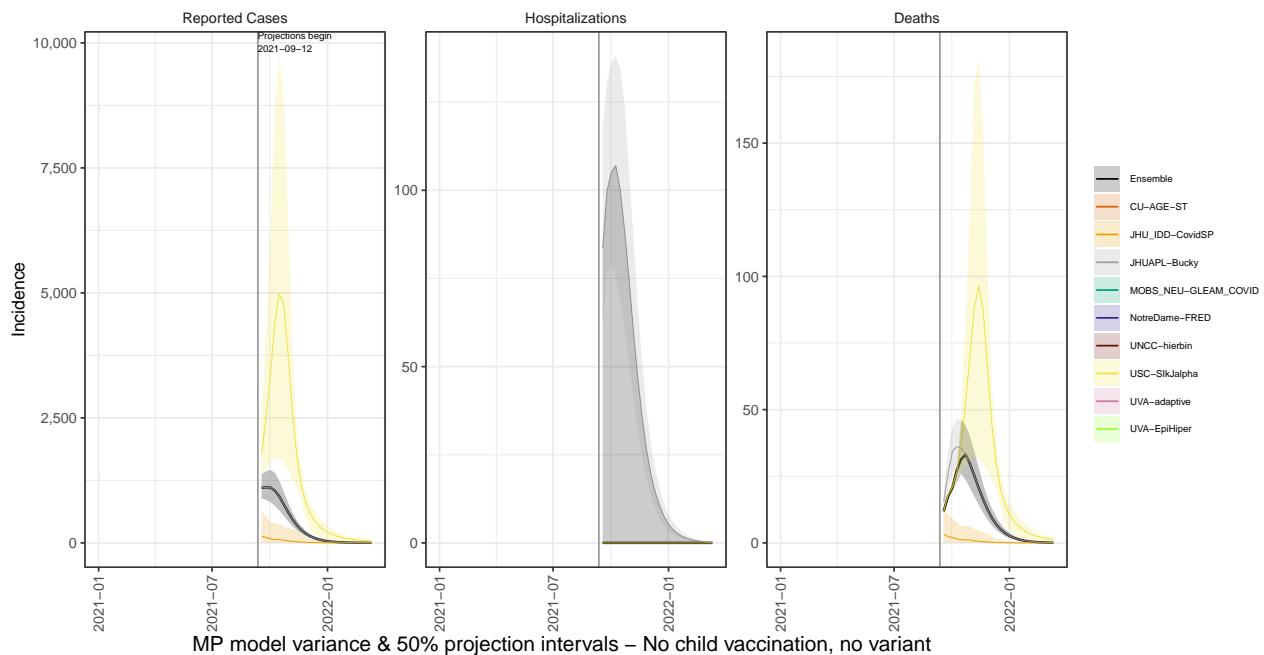
WV model variance & 50% projection intervals – No child vaccination, no variant



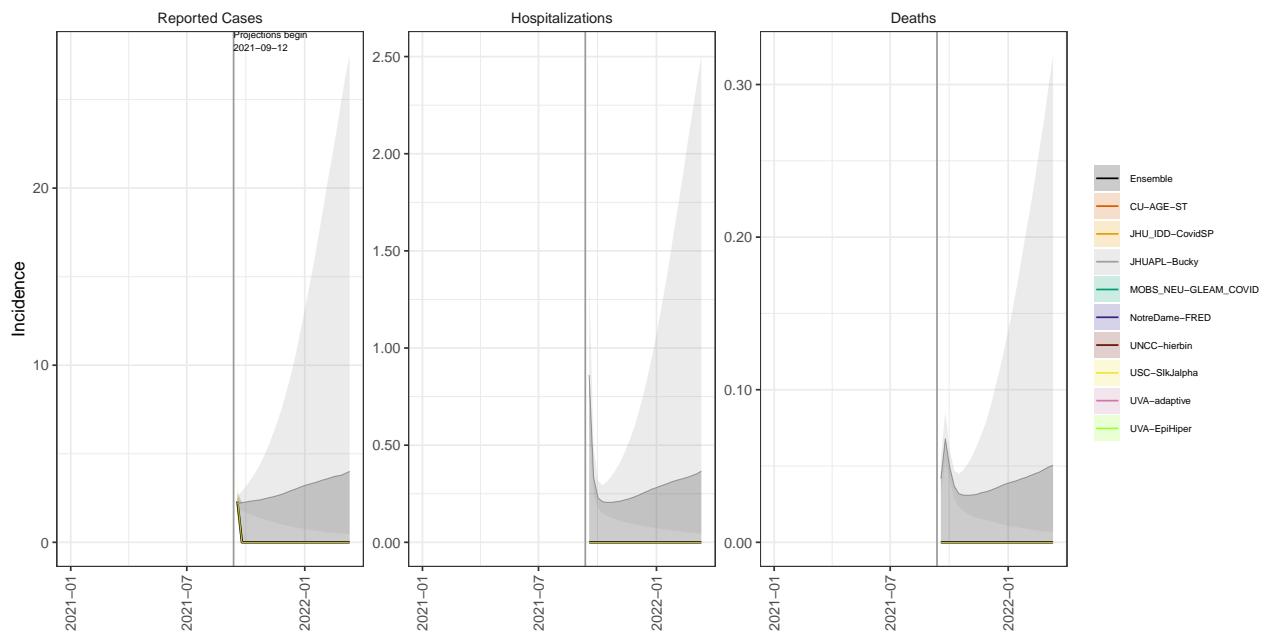
WY model variance & 50% projection intervals – No child vaccination, no variant



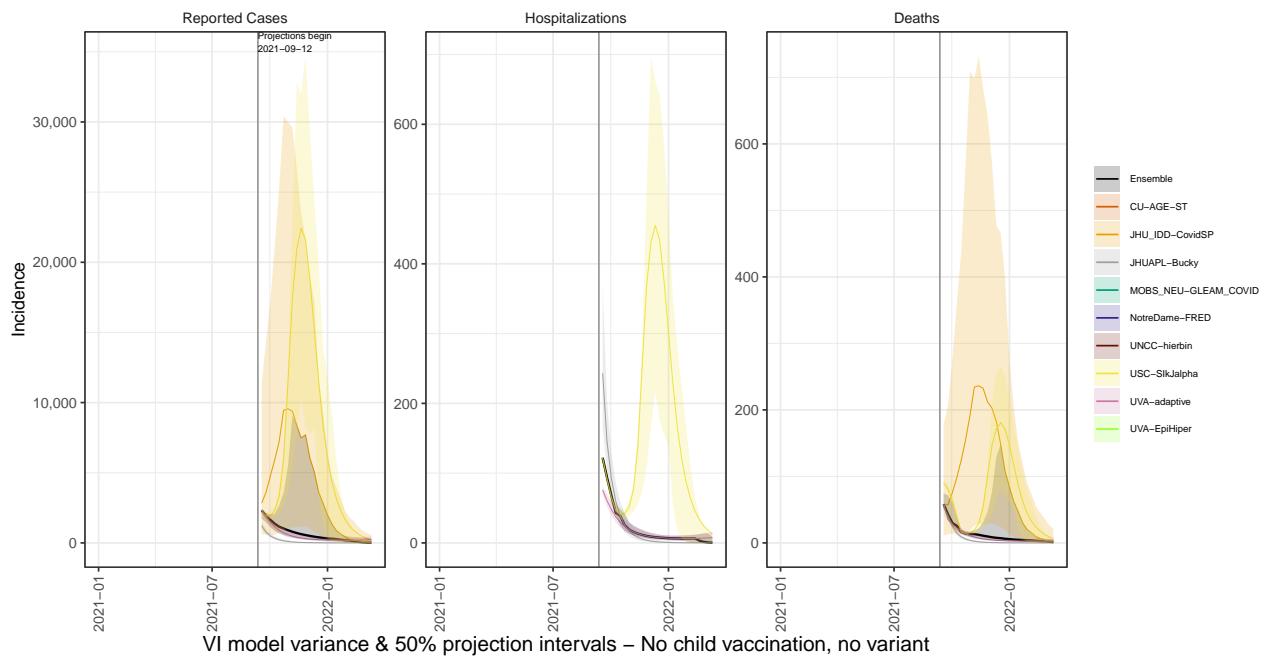
GU model variance & 50% projection intervals – No child vaccination, no variant



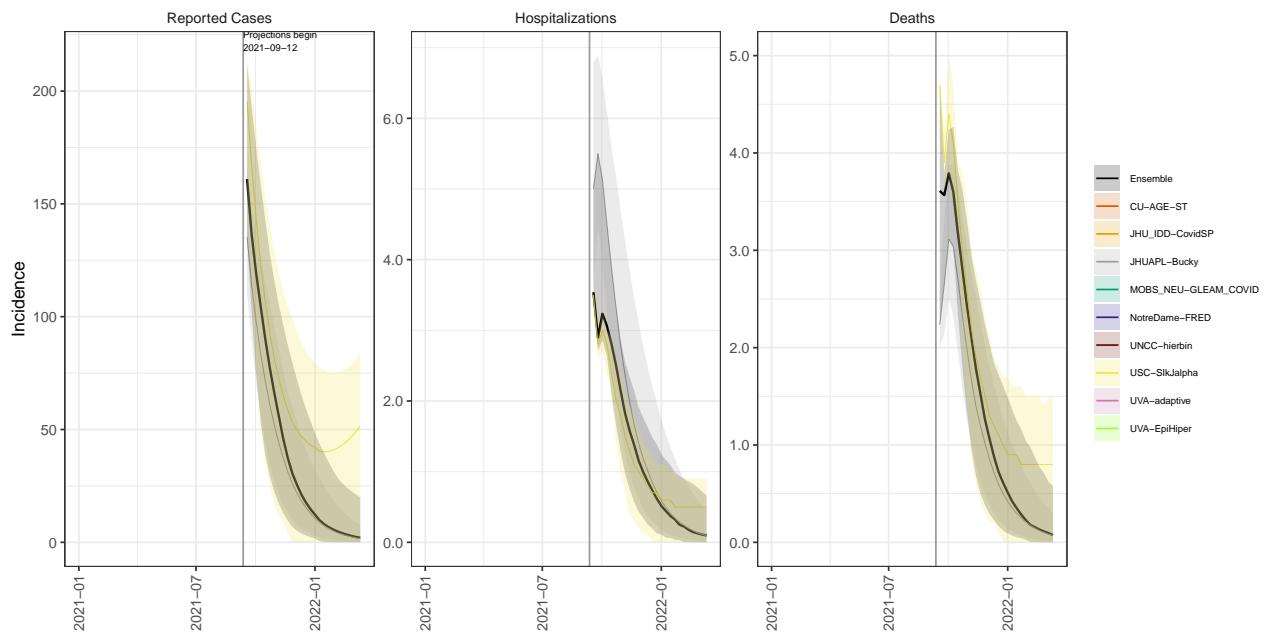
MP model variance & 50% projection intervals – No child vaccination, no variant



PR model variance & 50% projection intervals – No child vaccination, no variant

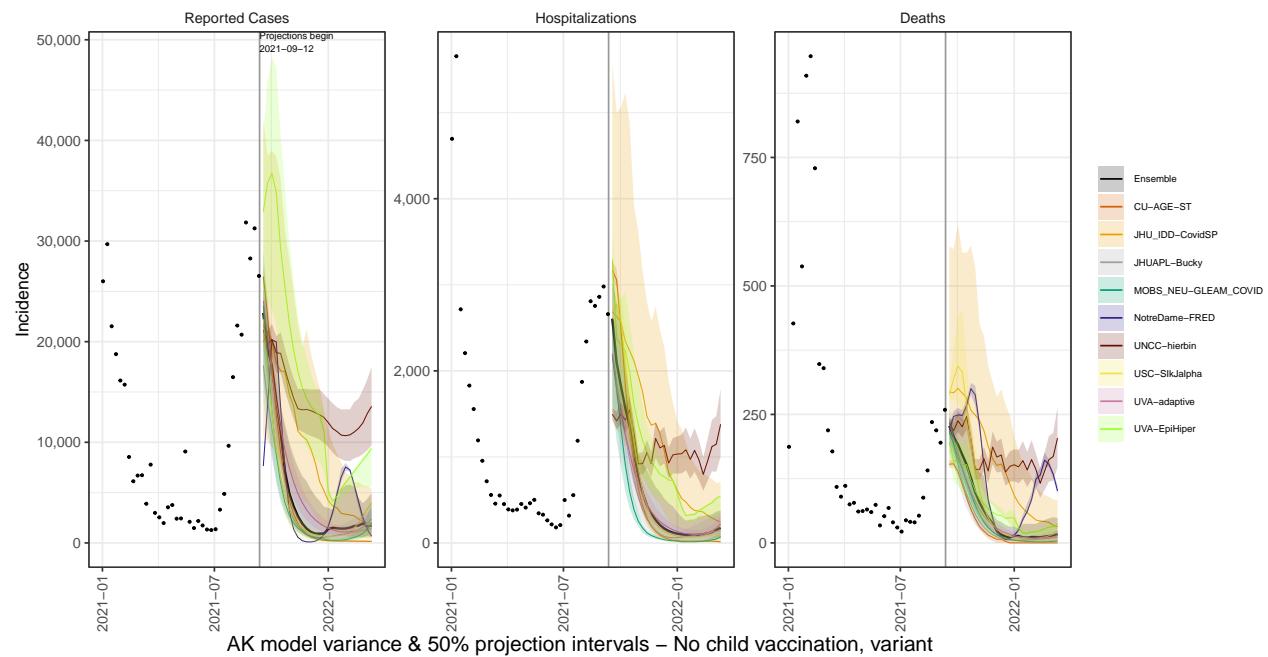


VI model variance & 50% projection intervals – No child vaccination, no variant

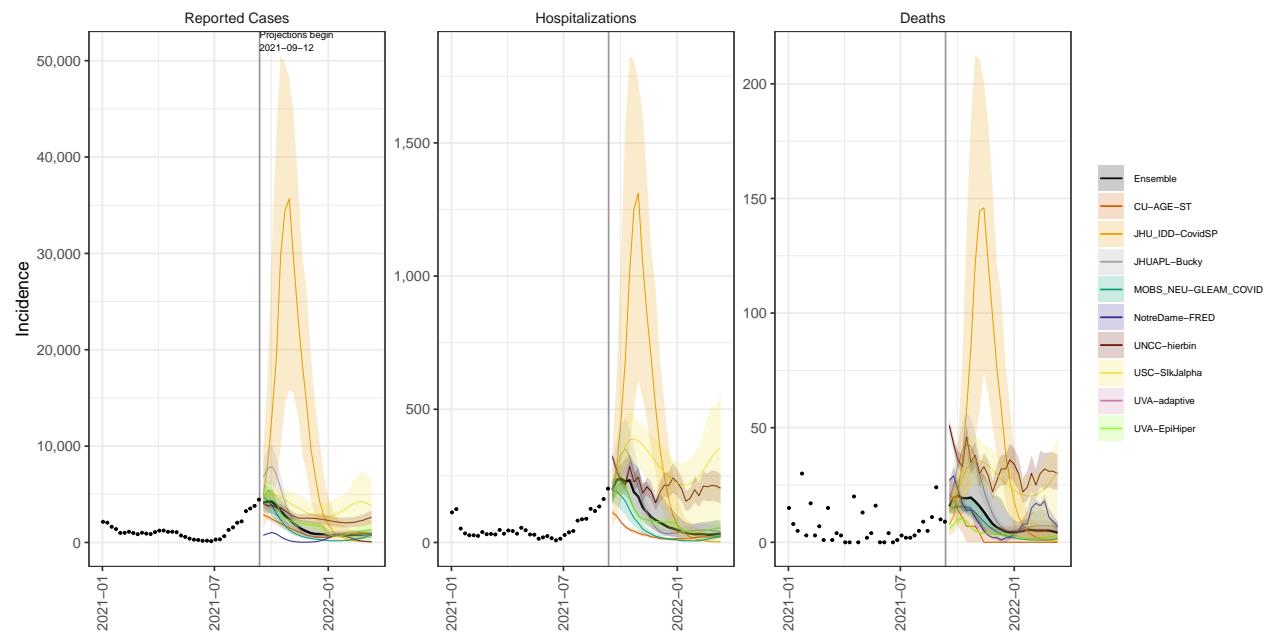


National model variation for the no child vaccination, variant scenario

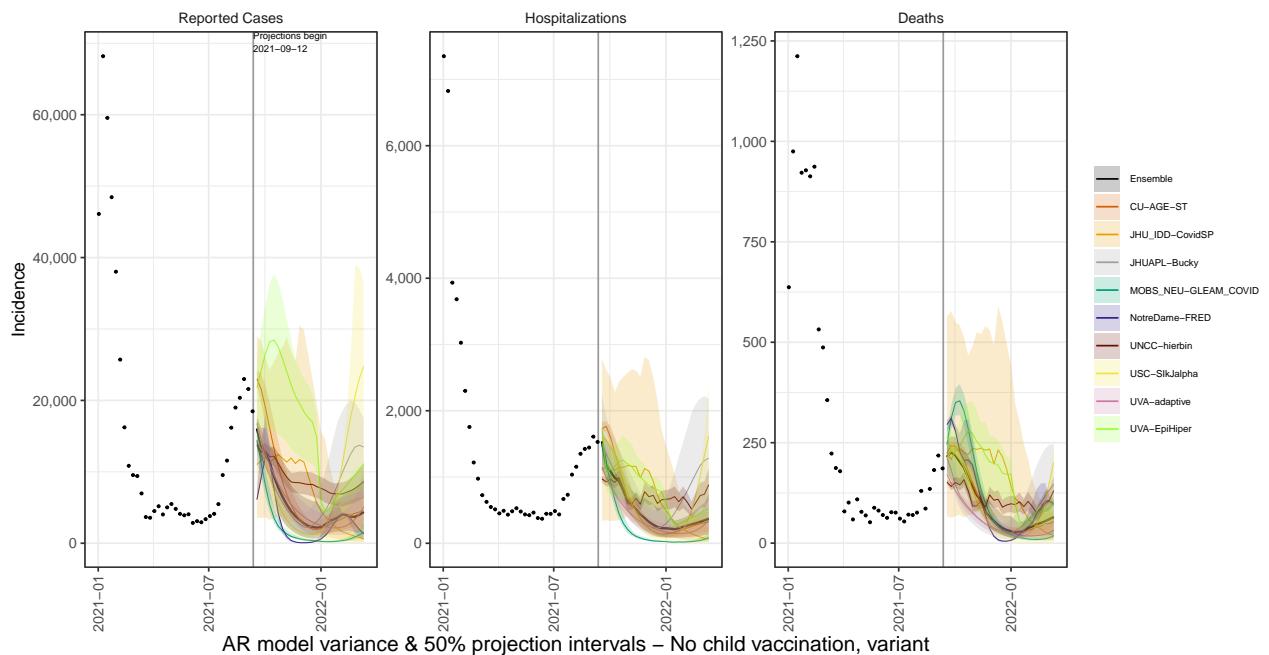
AL model variance & 50% projection intervals – No child vaccination, variant



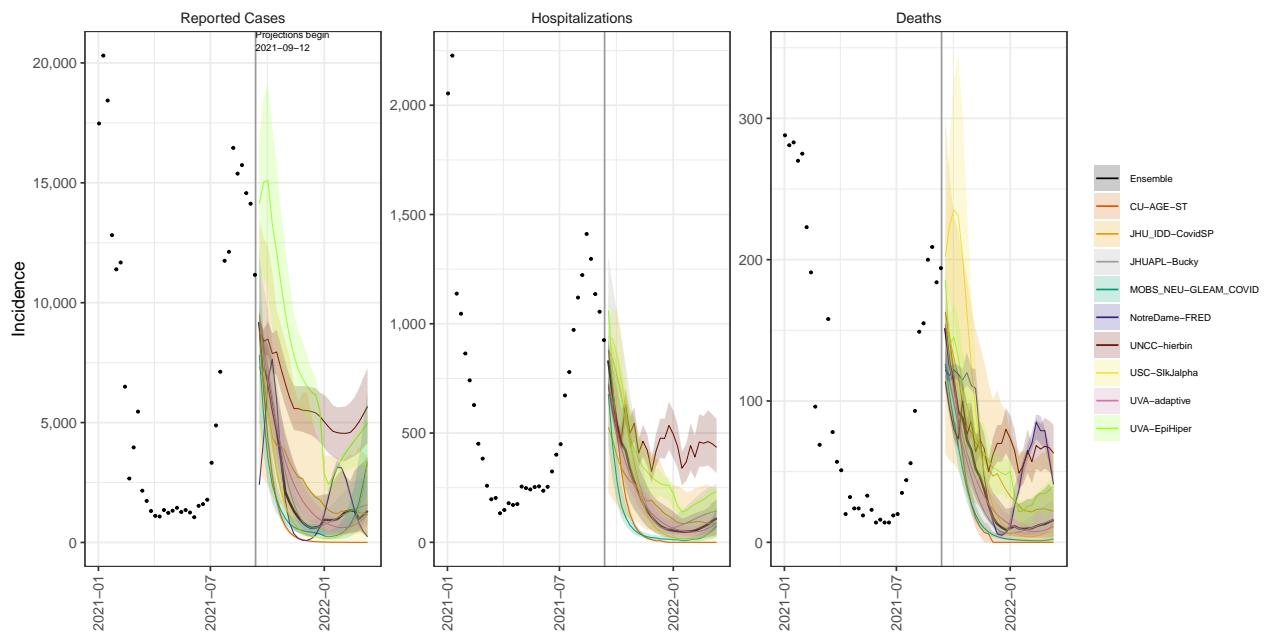
AK model variance & 50% projection intervals – No child vaccination, variant



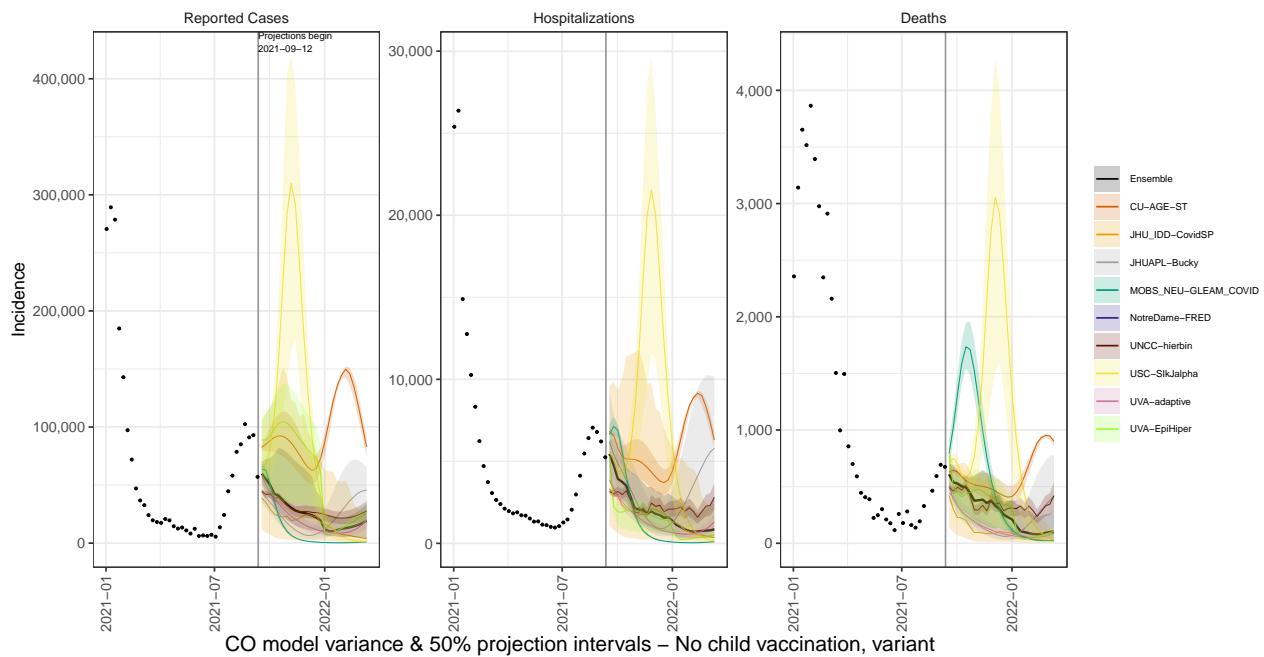
AZ model variance & 50% projection intervals – No child vaccination, variant



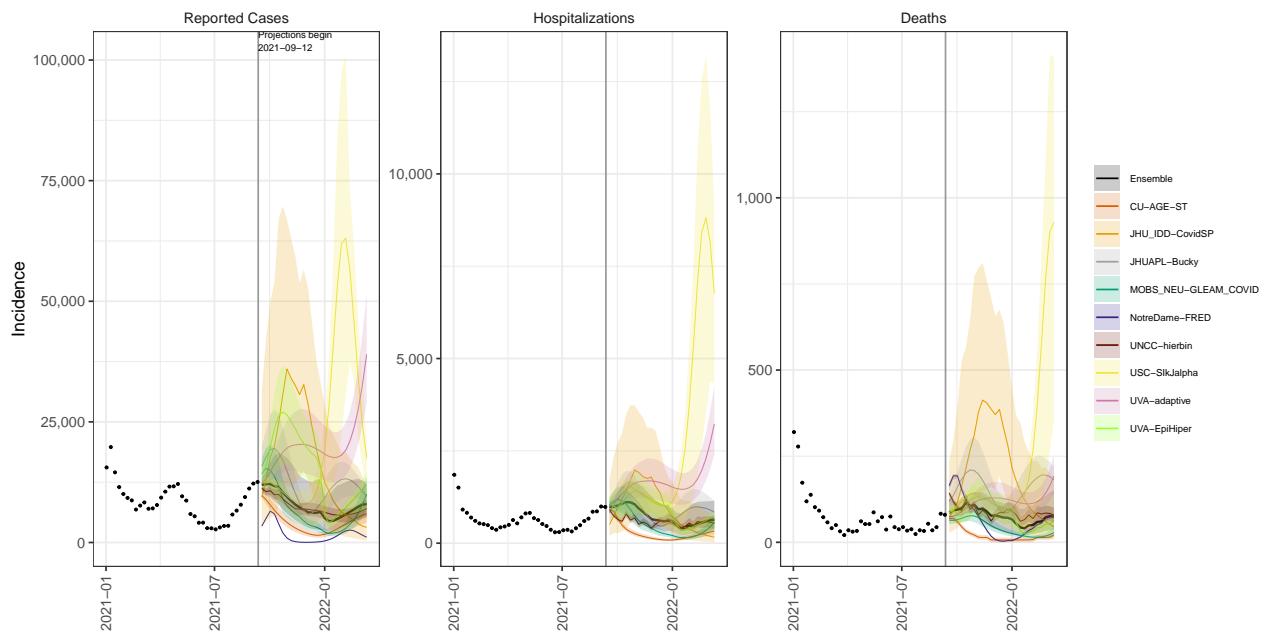
AR model variance & 50% projection intervals – No child vaccination, variant



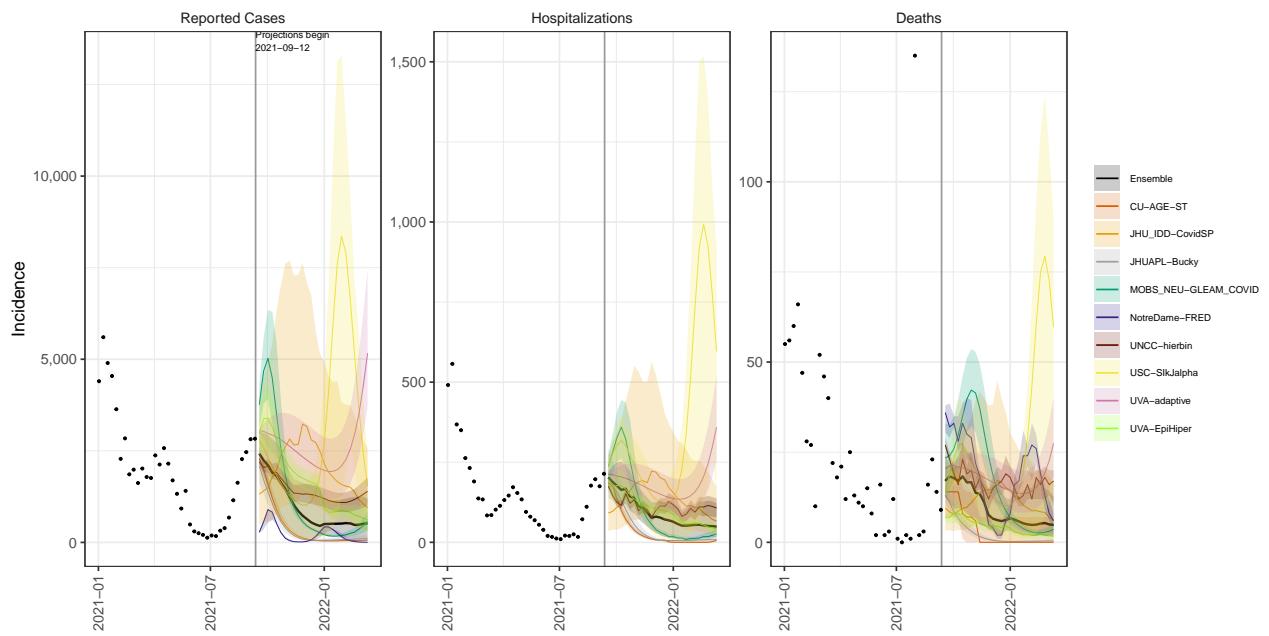
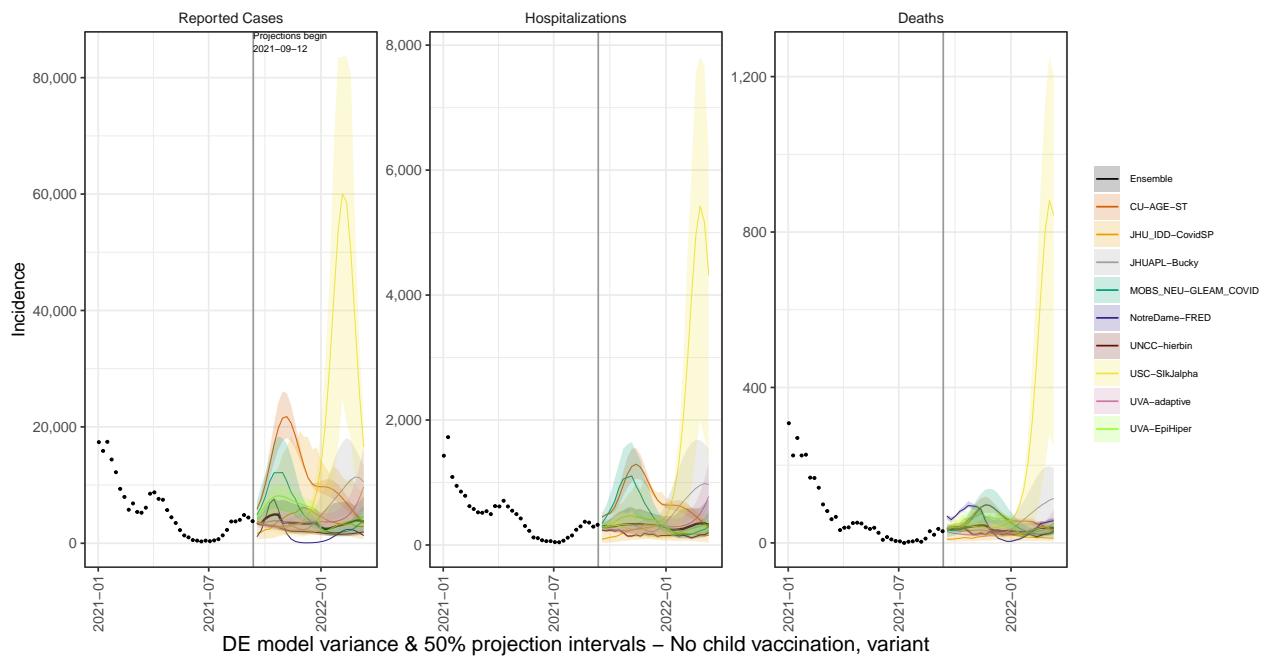
CA model variance & 50% projection intervals – No child vaccination, variant



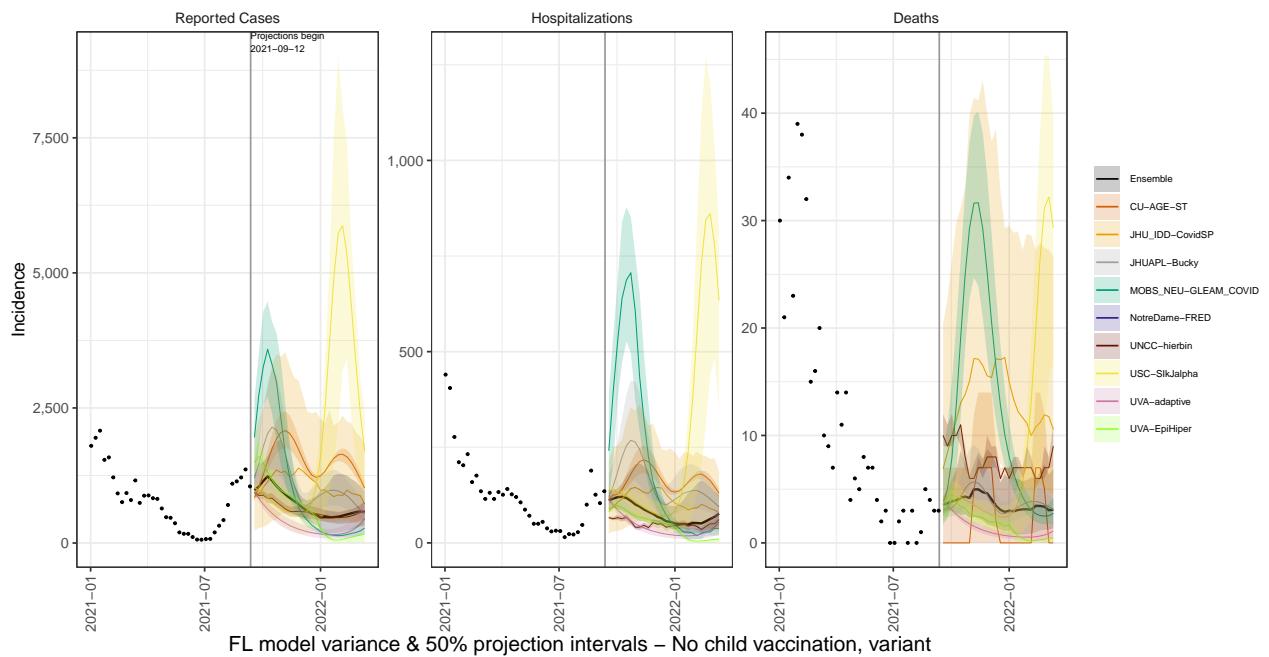
CO model variance & 50% projection intervals – No child vaccination, variant



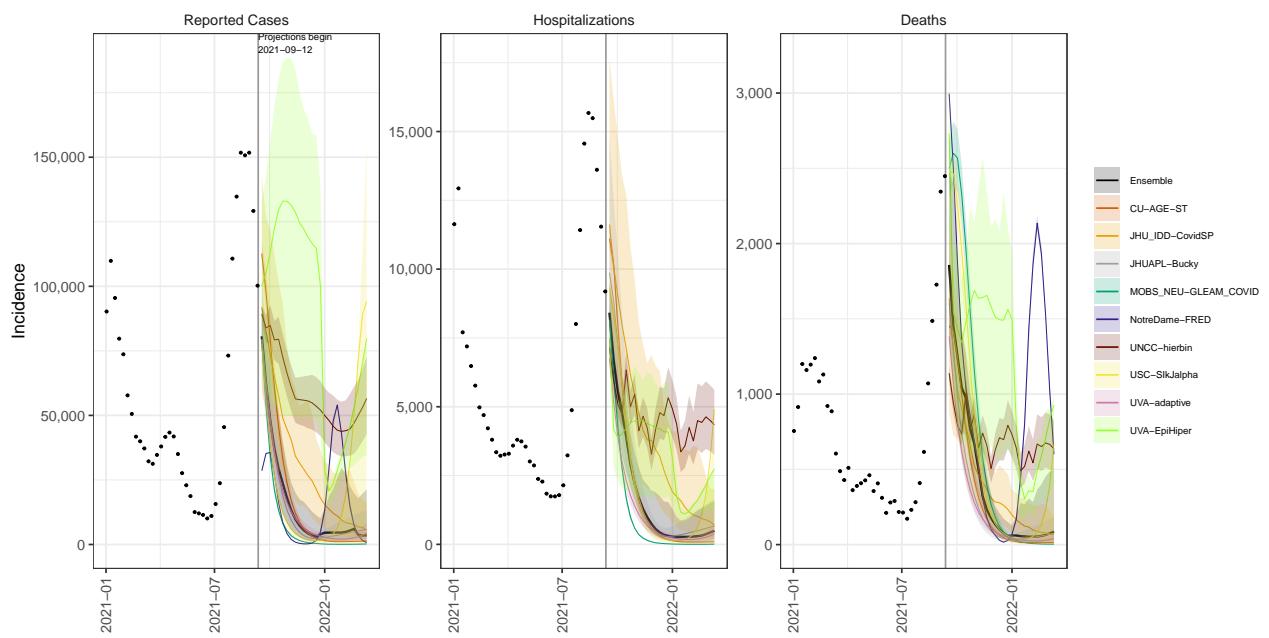
CT model variance & 50% projection intervals – No child vaccination, variant



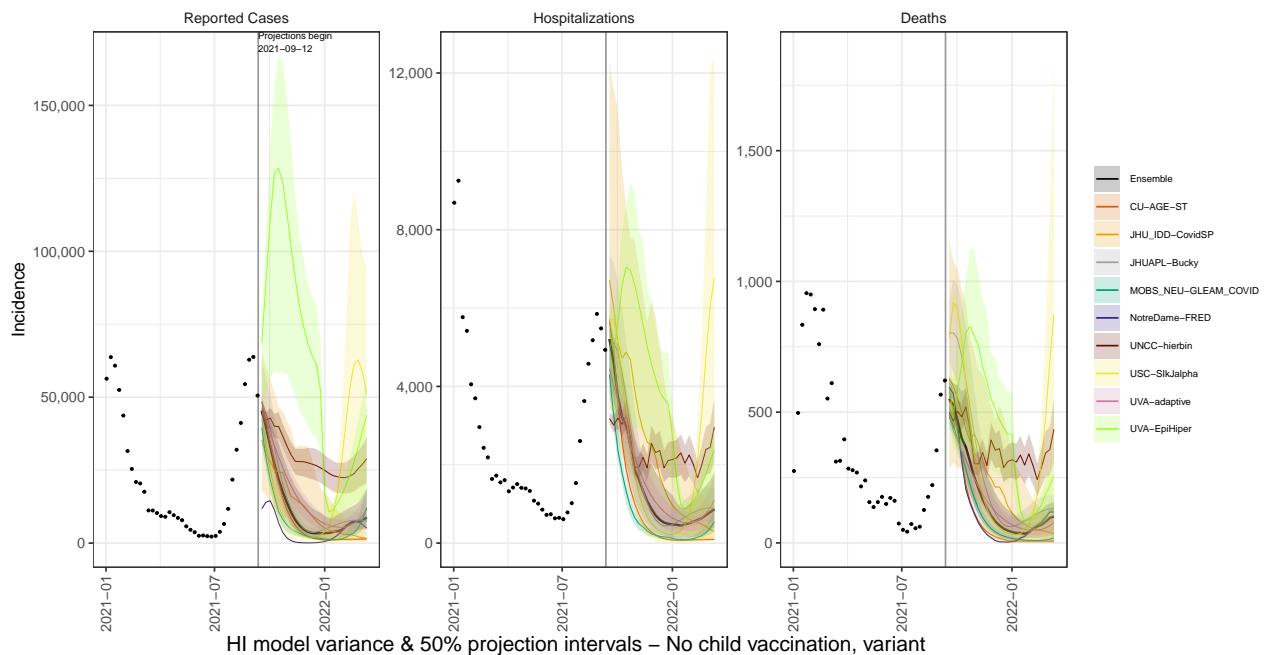
DC model variance & 50% projection intervals – No child vaccination, variant



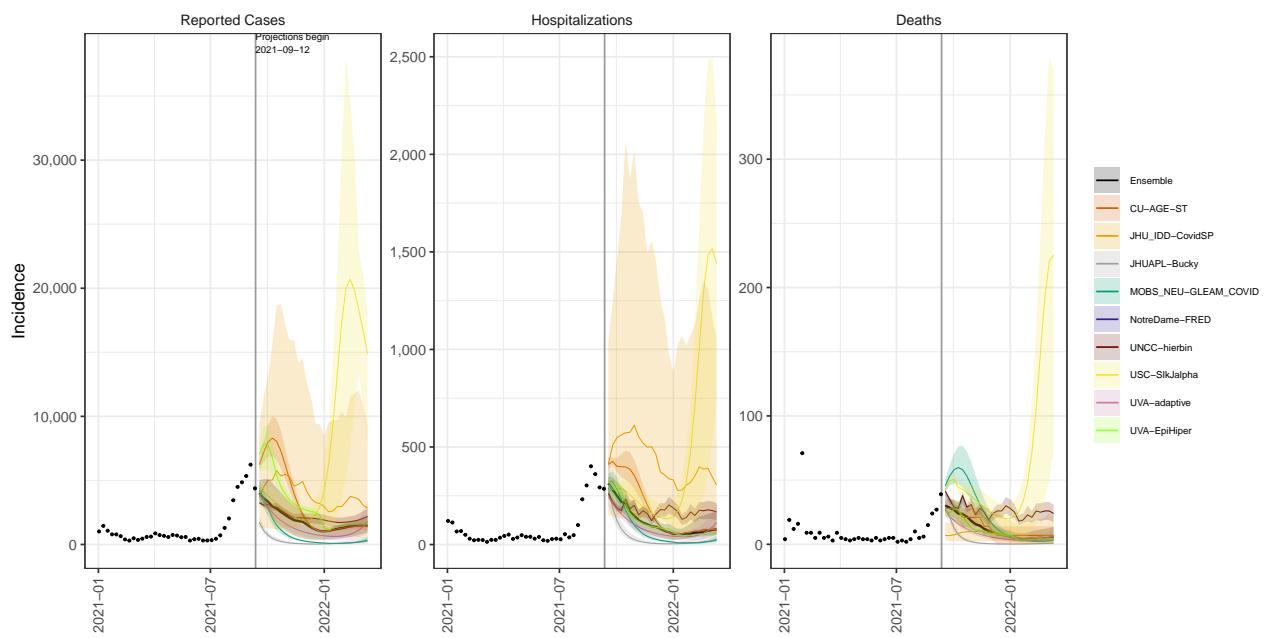
FL model variance & 50% projection intervals – No child vaccination, variant



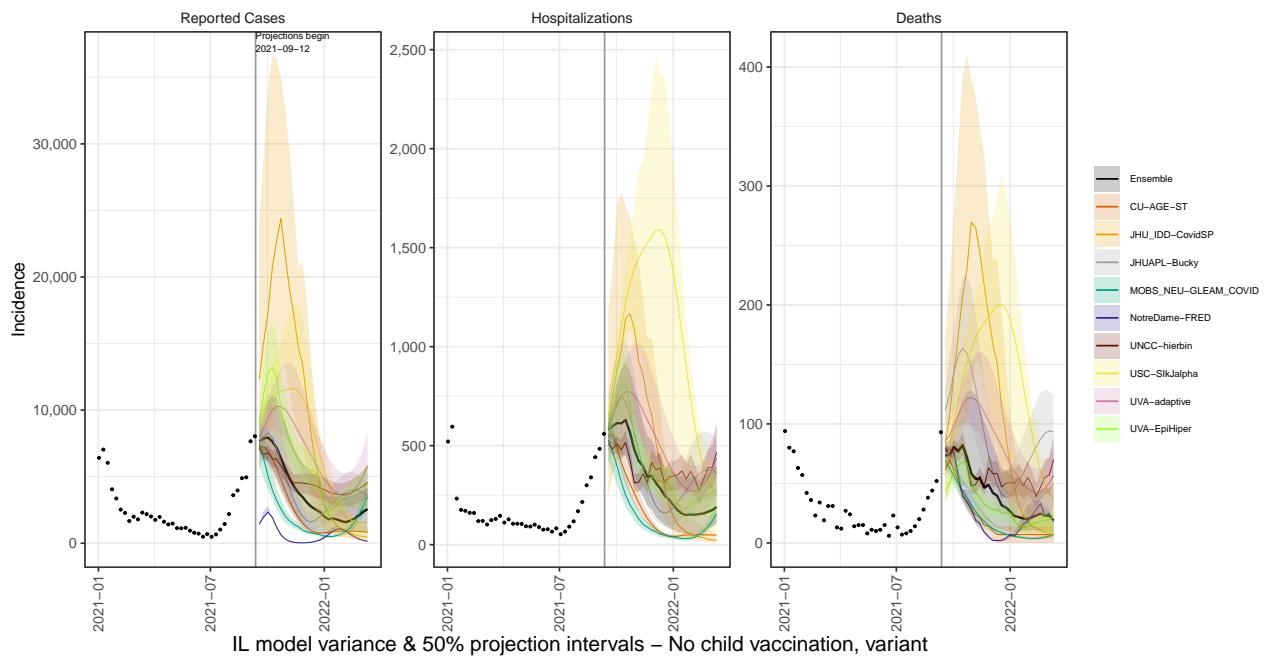
GA model variance & 50% projection intervals – No child vaccination, variant



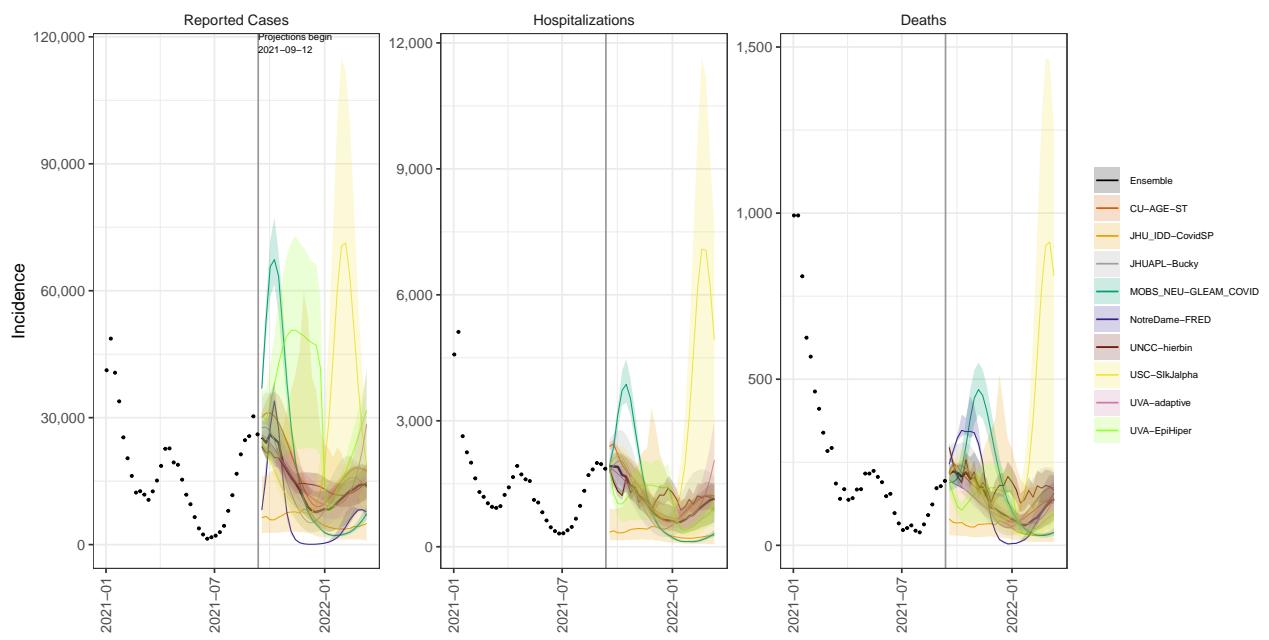
HI model variance & 50% projection intervals – No child vaccination, variant



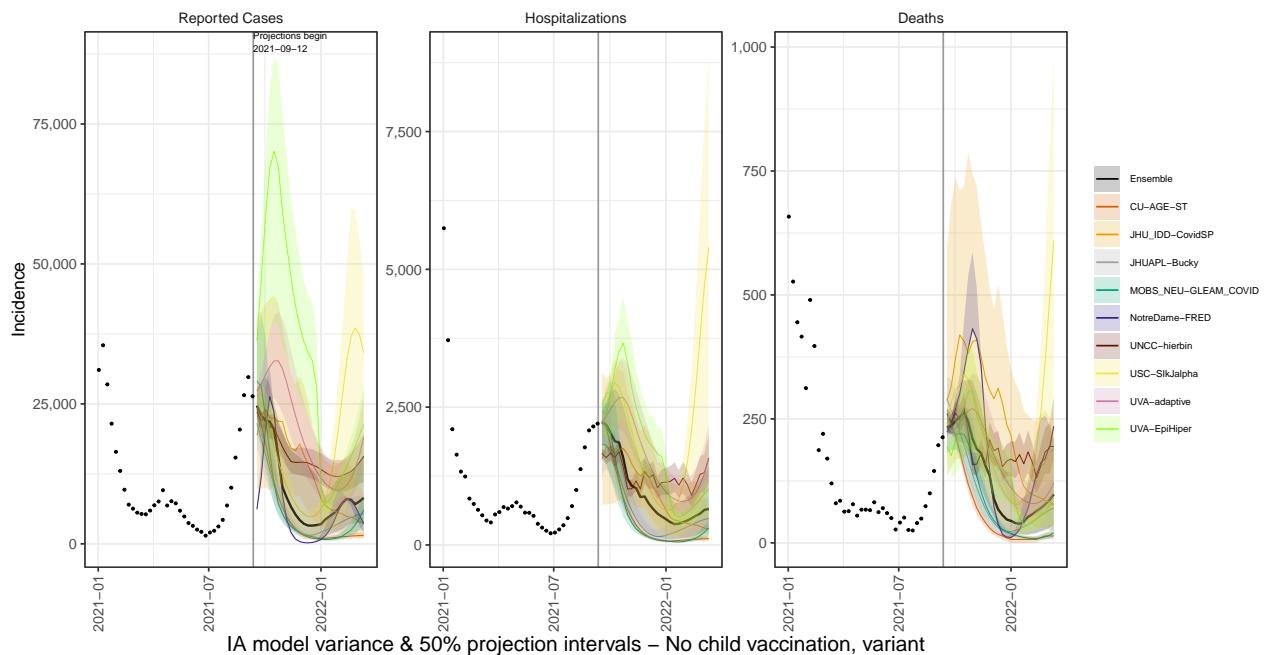
ID model variance & 50% projection intervals – No child vaccination, variant



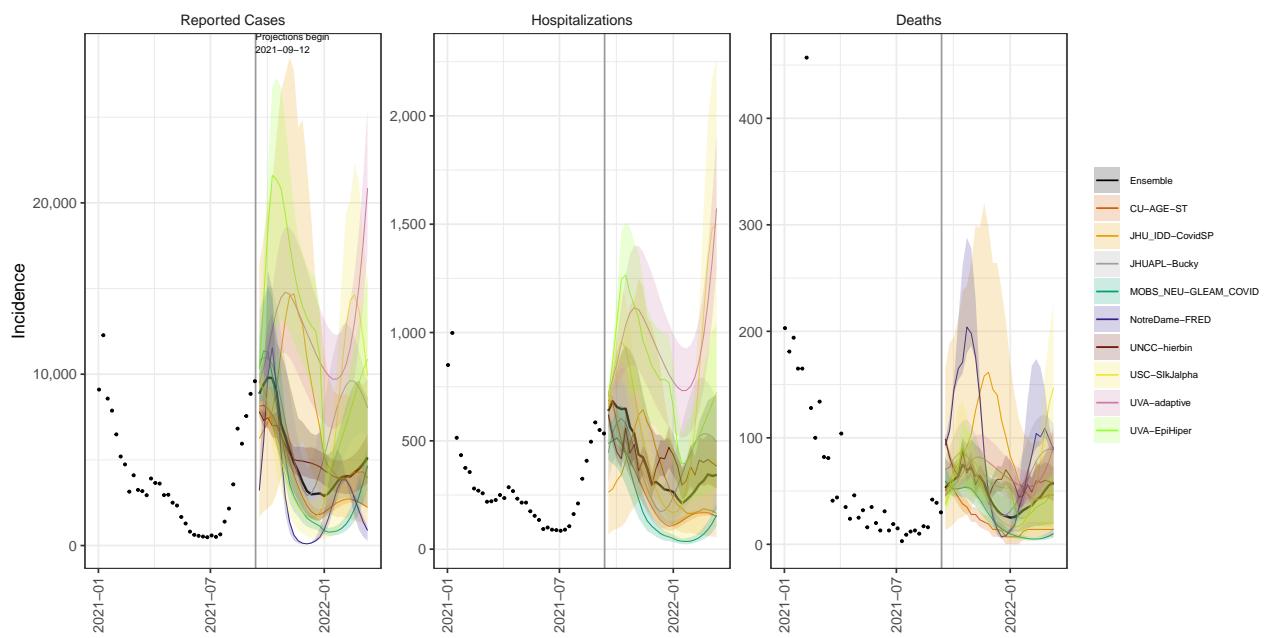
IL model variance & 50% projection intervals – No child vaccination, variant



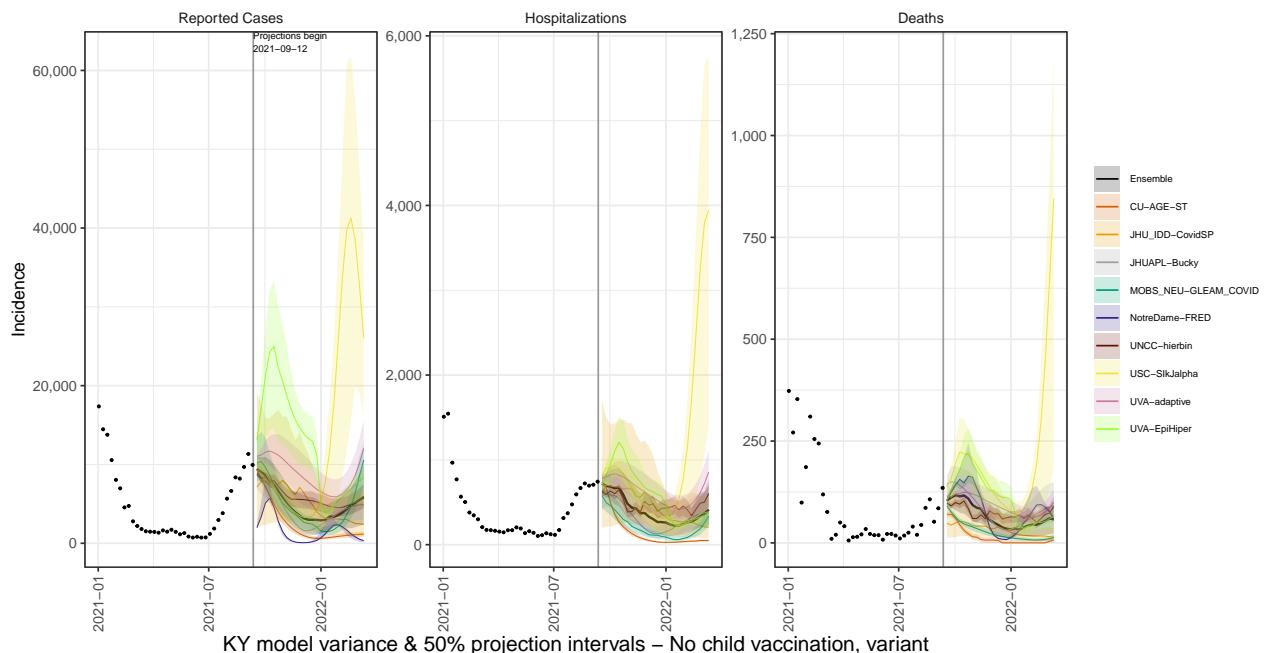
IN model variance & 50% projection intervals – No child vaccination, variant



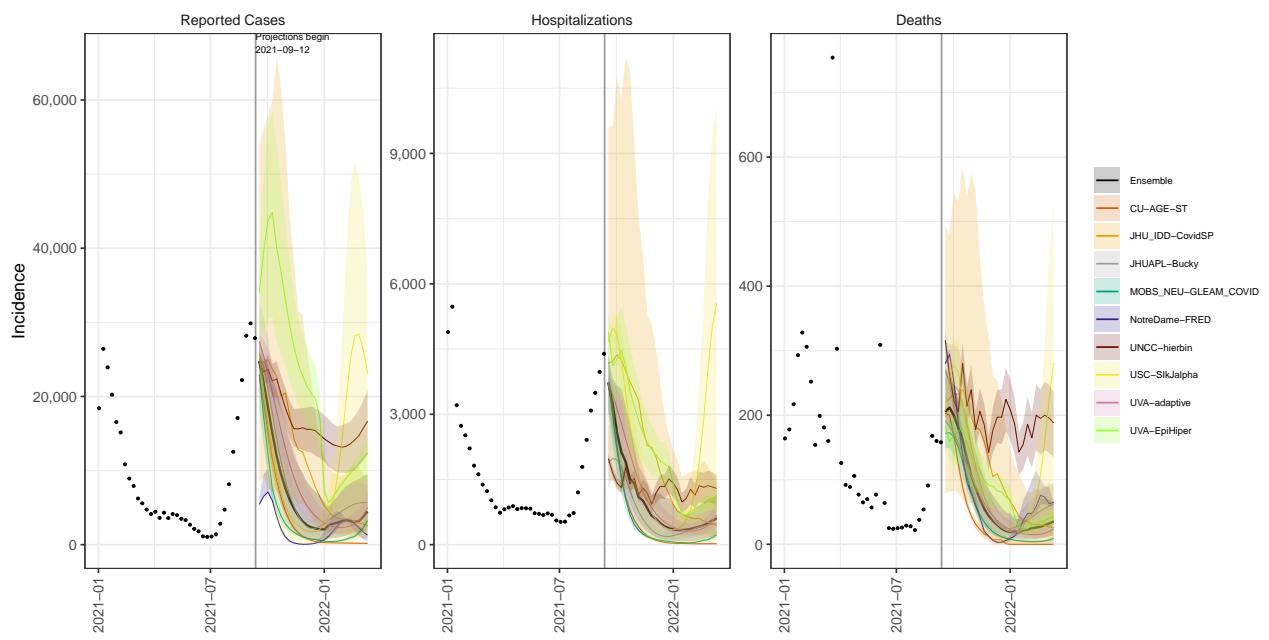
IA model variance & 50% projection intervals – No child vaccination, variant



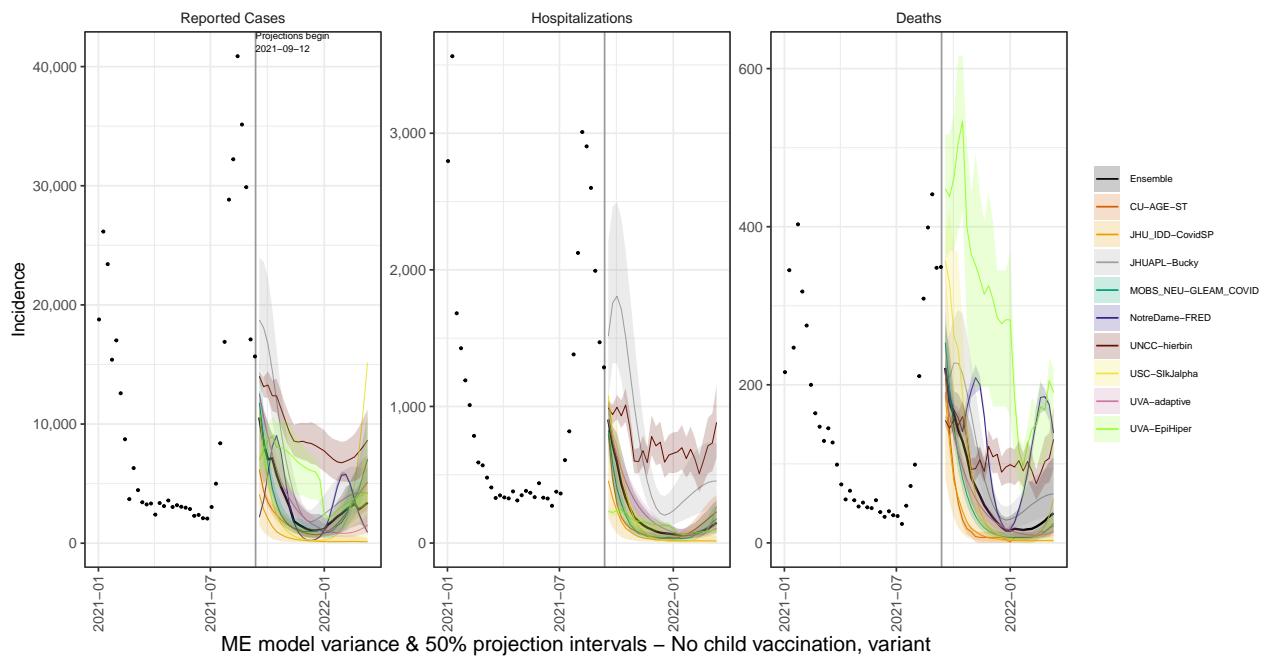
KS model variance & 50% projection intervals – No child vaccination, variant



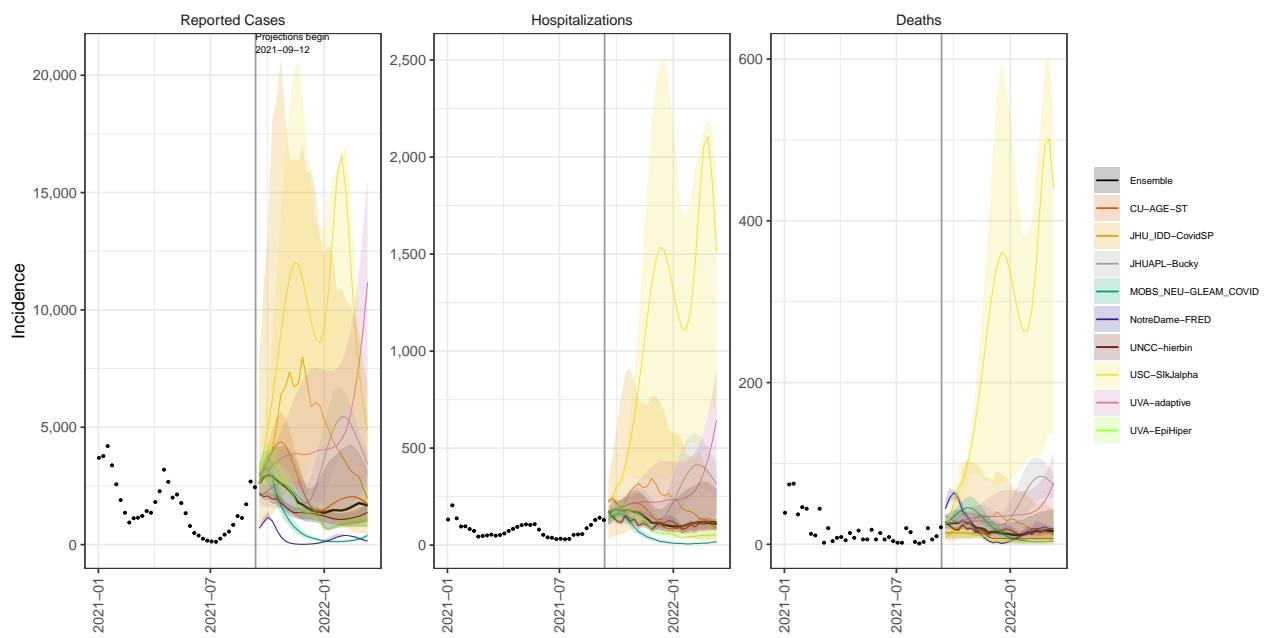
KY model variance & 50% projection intervals – No child vaccination, variant



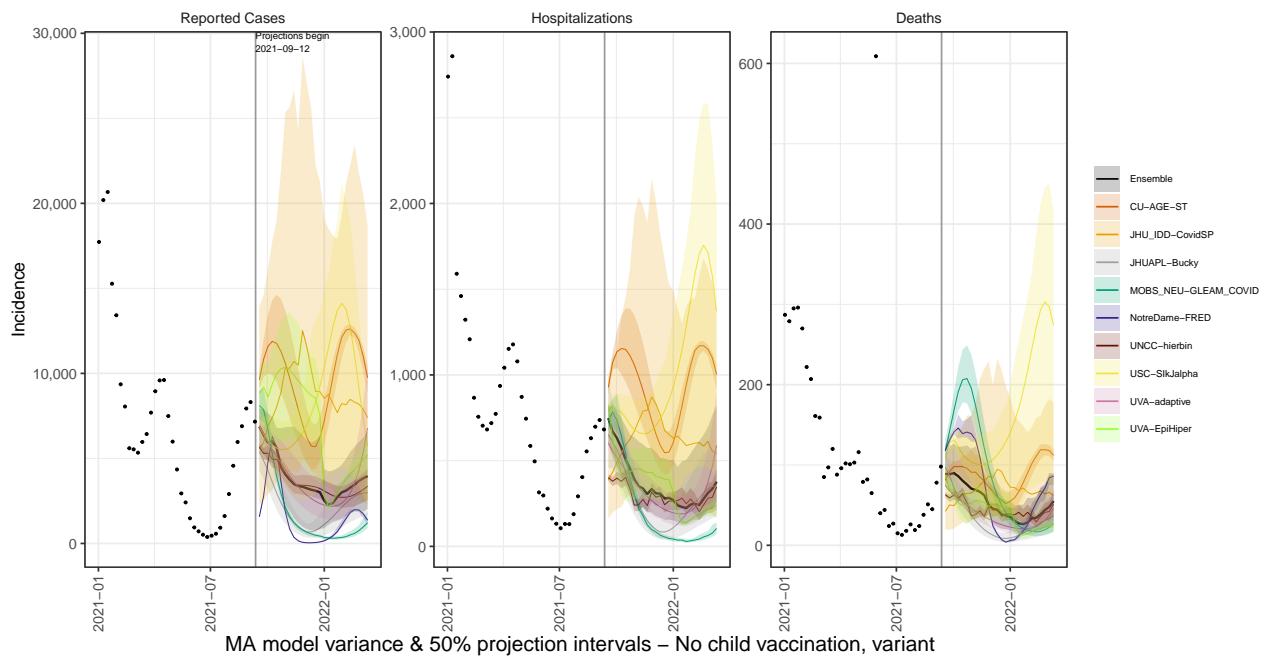
LA model variance & 50% projection intervals – No child vaccination, variant



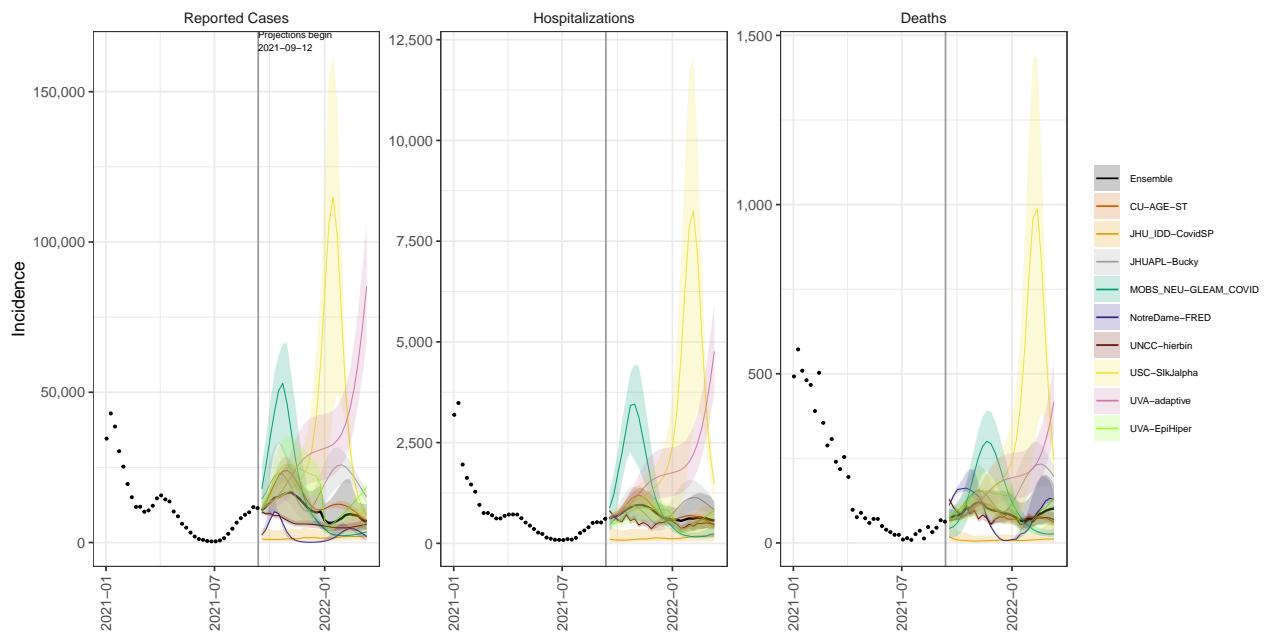
ME model variance & 50% projection intervals – No child vaccination, variant



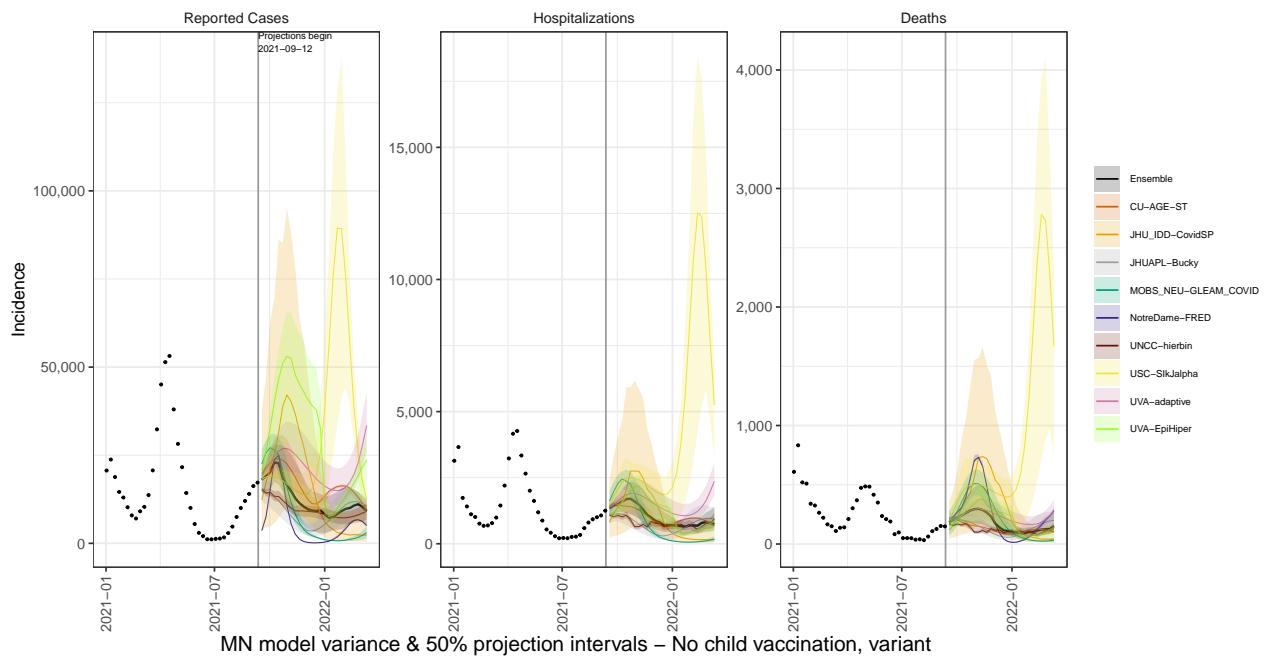
MD model variance & 50% projection intervals – No child vaccination, variant



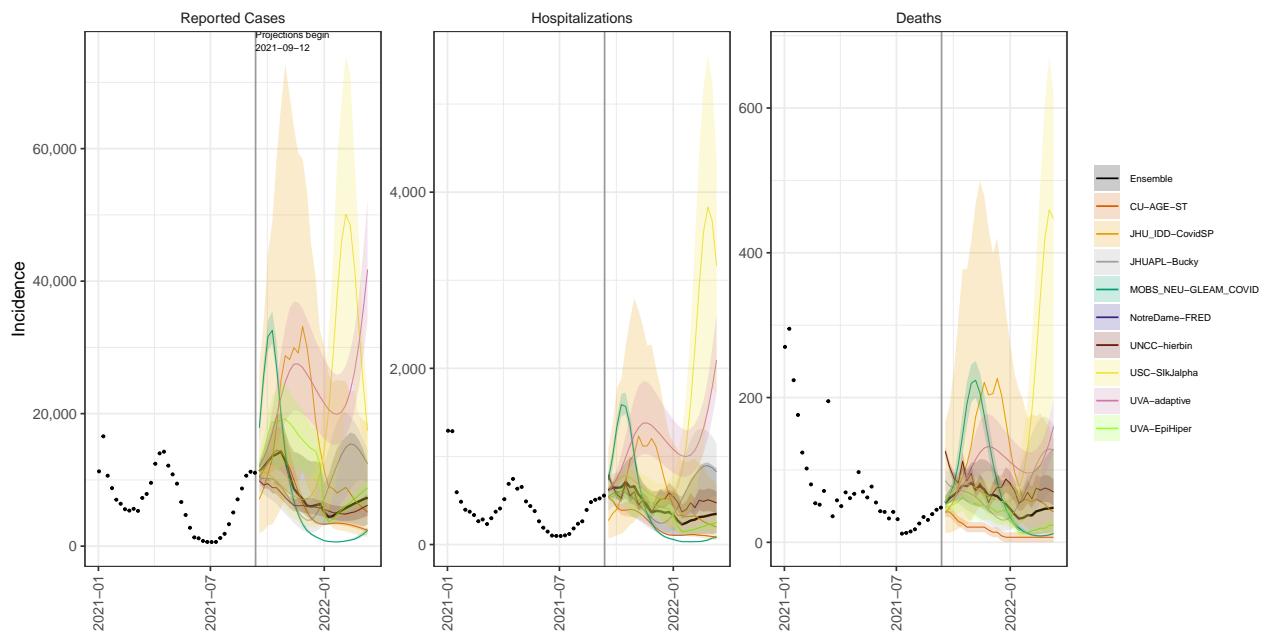
MA model variance & 50% projection intervals – No child vaccination, variant



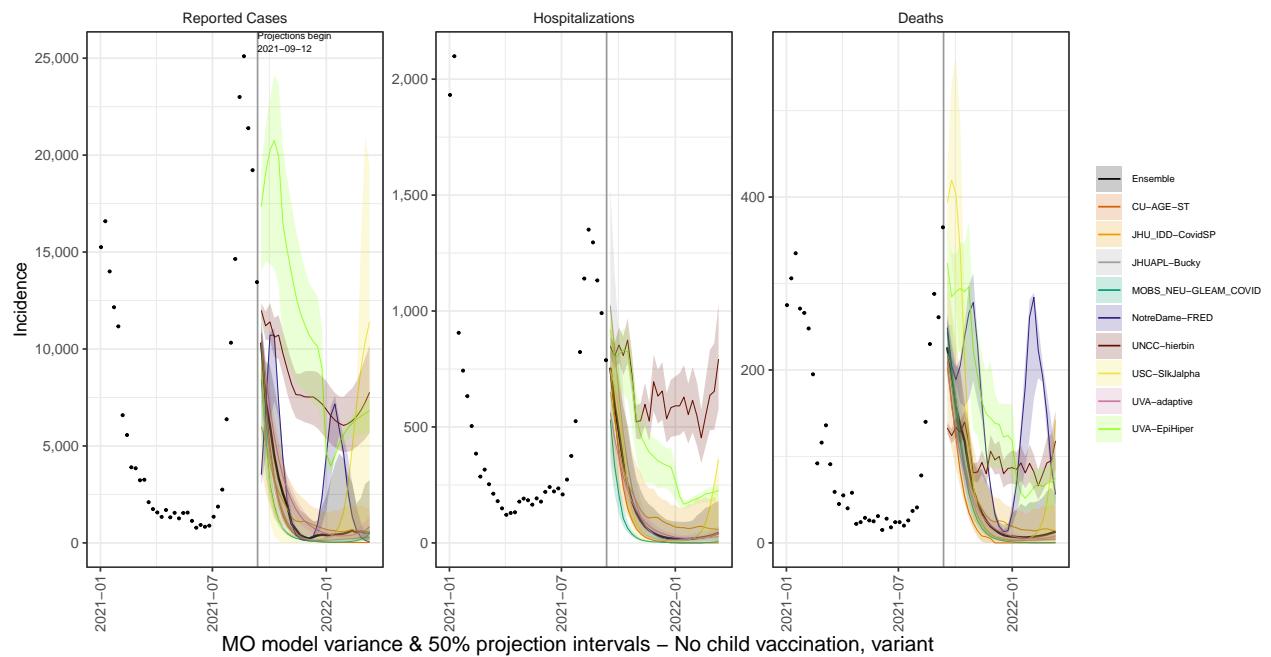
MI model variance & 50% projection intervals – No child vaccination, variant



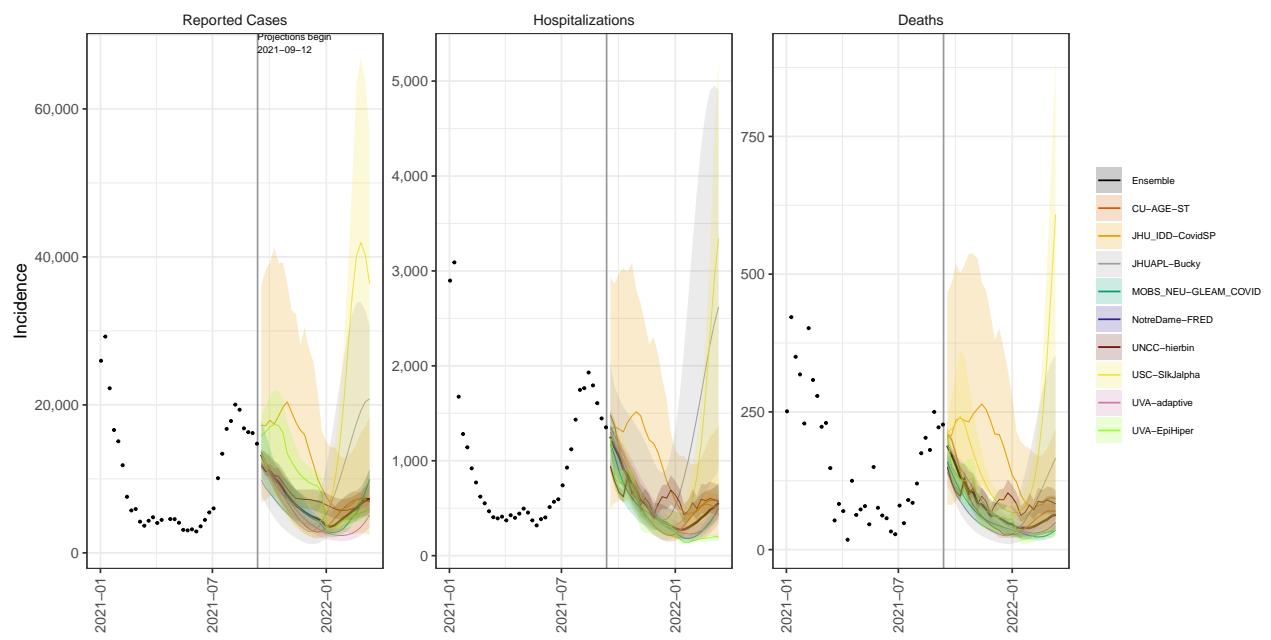
MN model variance & 50% projection intervals – No child vaccination, variant



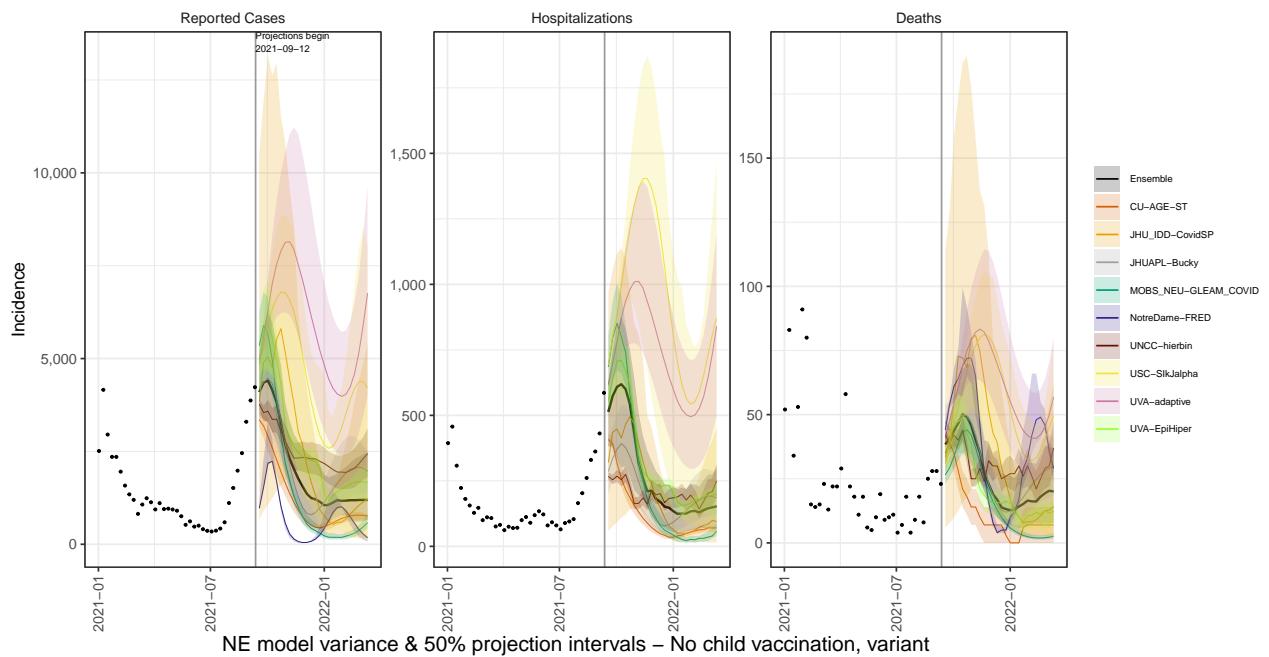
MS model variance & 50% projection intervals – No child vaccination, variant



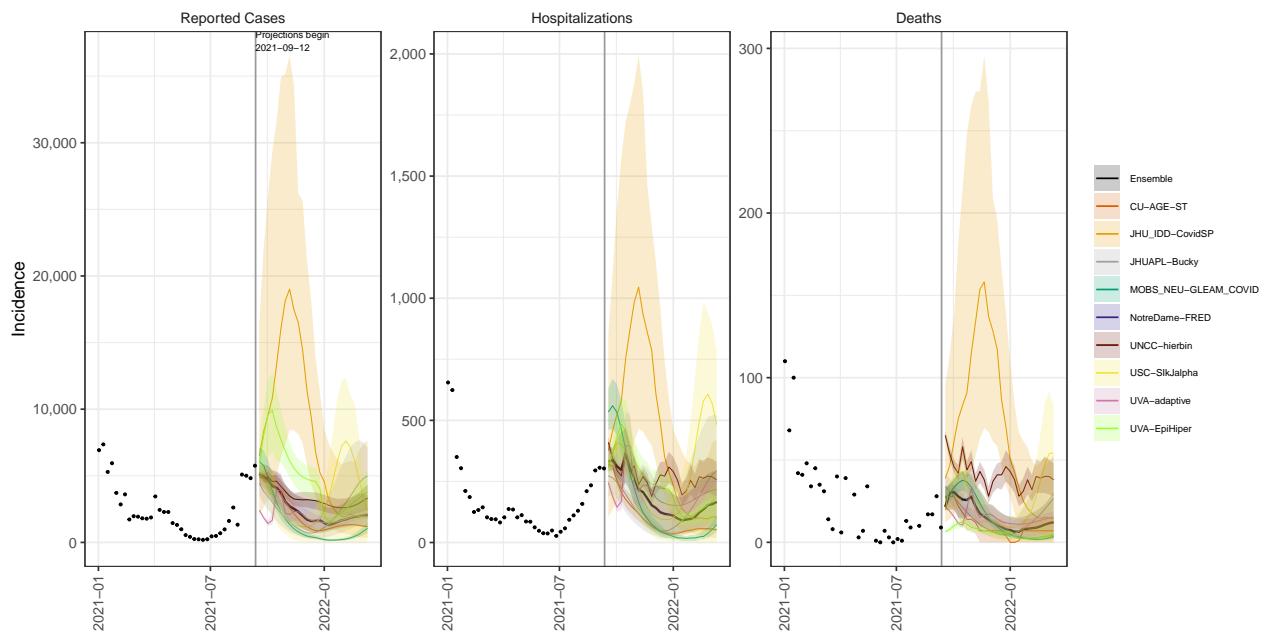
MO model variance & 50% projection intervals – No child vaccination, variant



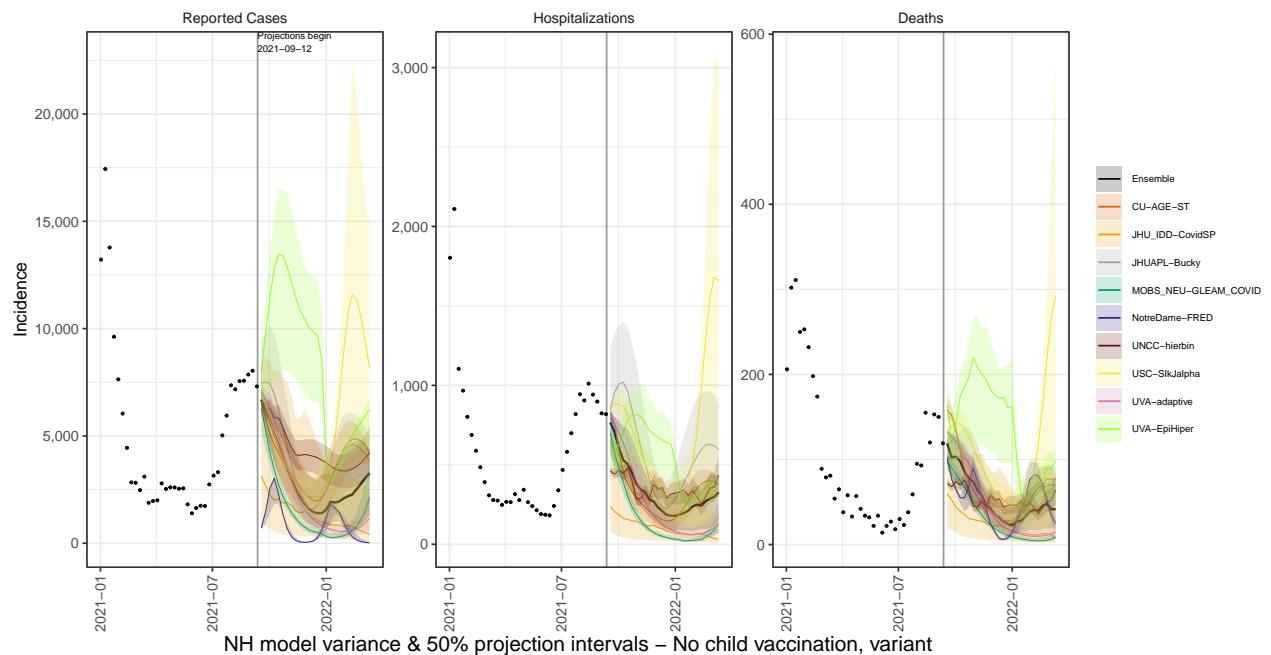
MT model variance & 50% projection intervals – No child vaccination, variant



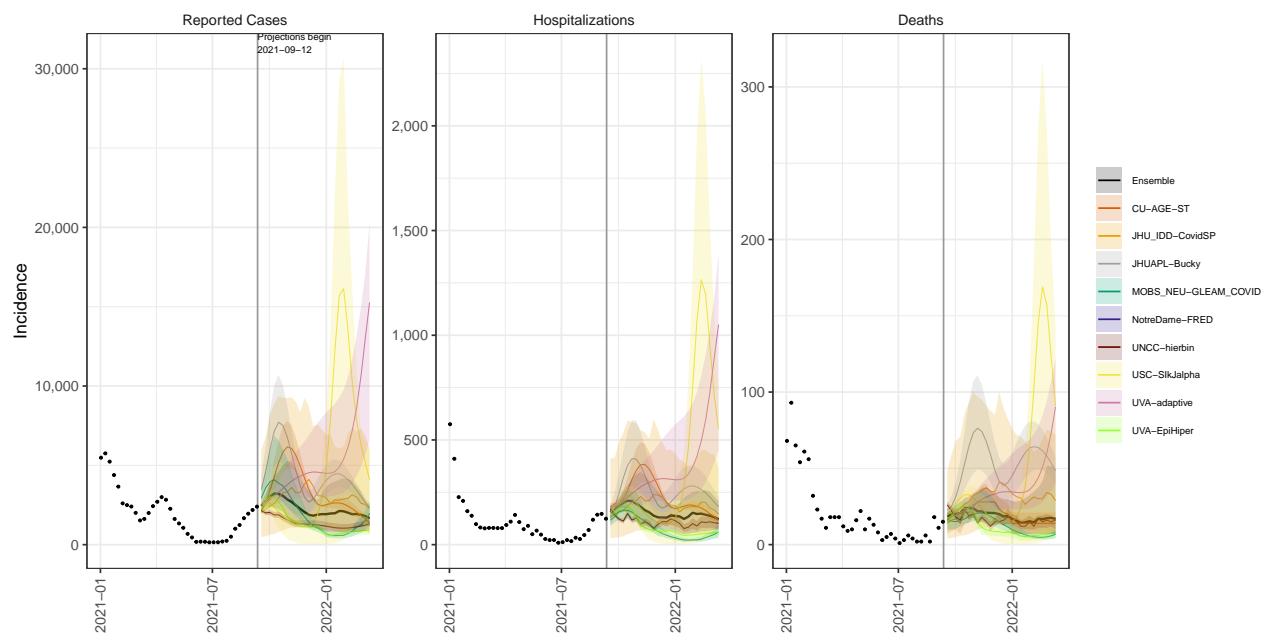
NE model variance & 50% projection intervals – No child vaccination, variant



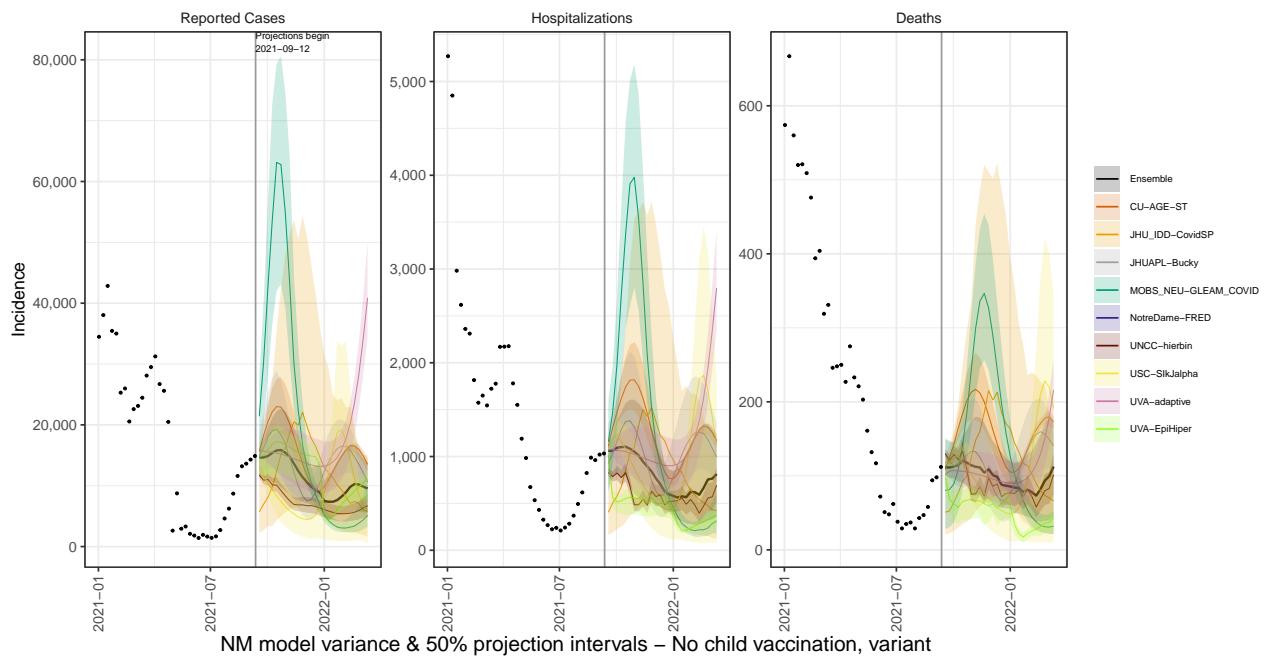
NV model variance & 50% projection intervals – No child vaccination, variant



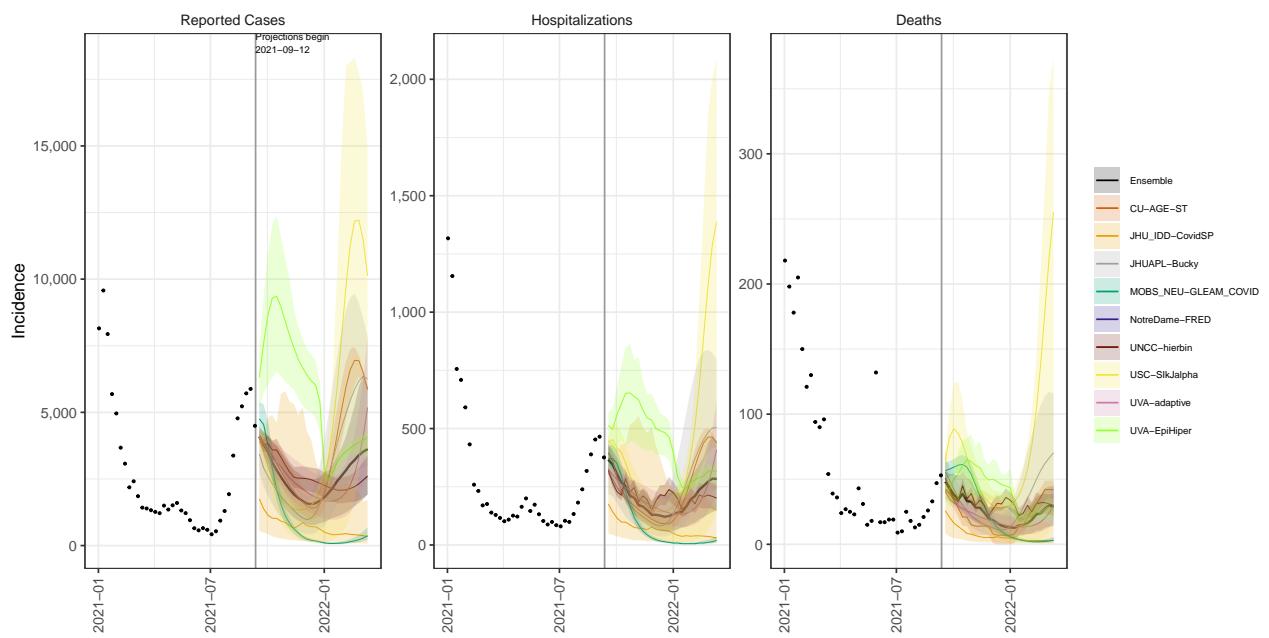
NH model variance & 50% projection intervals – No child vaccination, variant



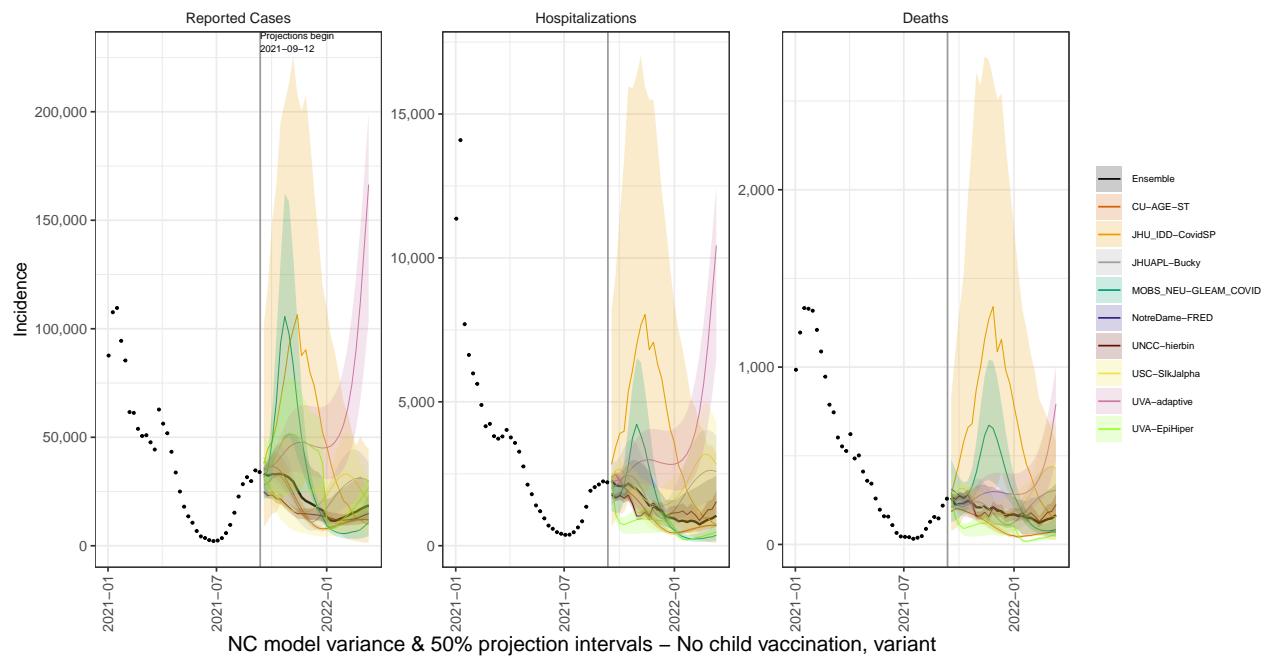
NJ model variance & 50% projection intervals – No child vaccination, variant



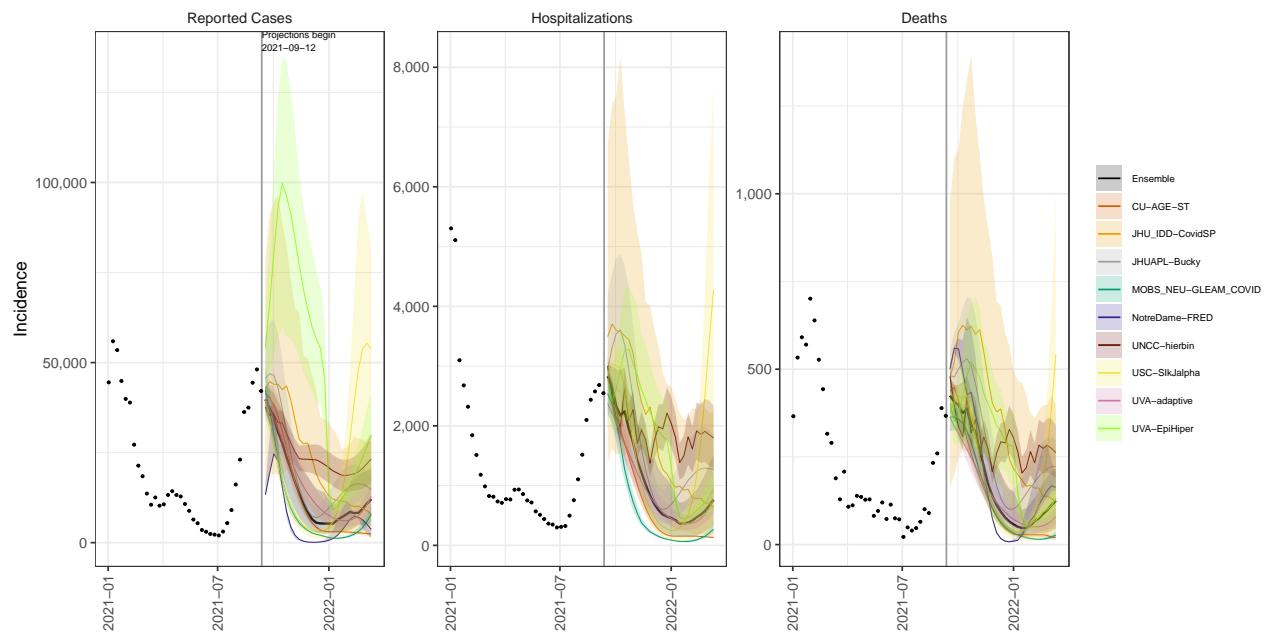
NM model variance & 50% projection intervals – No child vaccination, variant



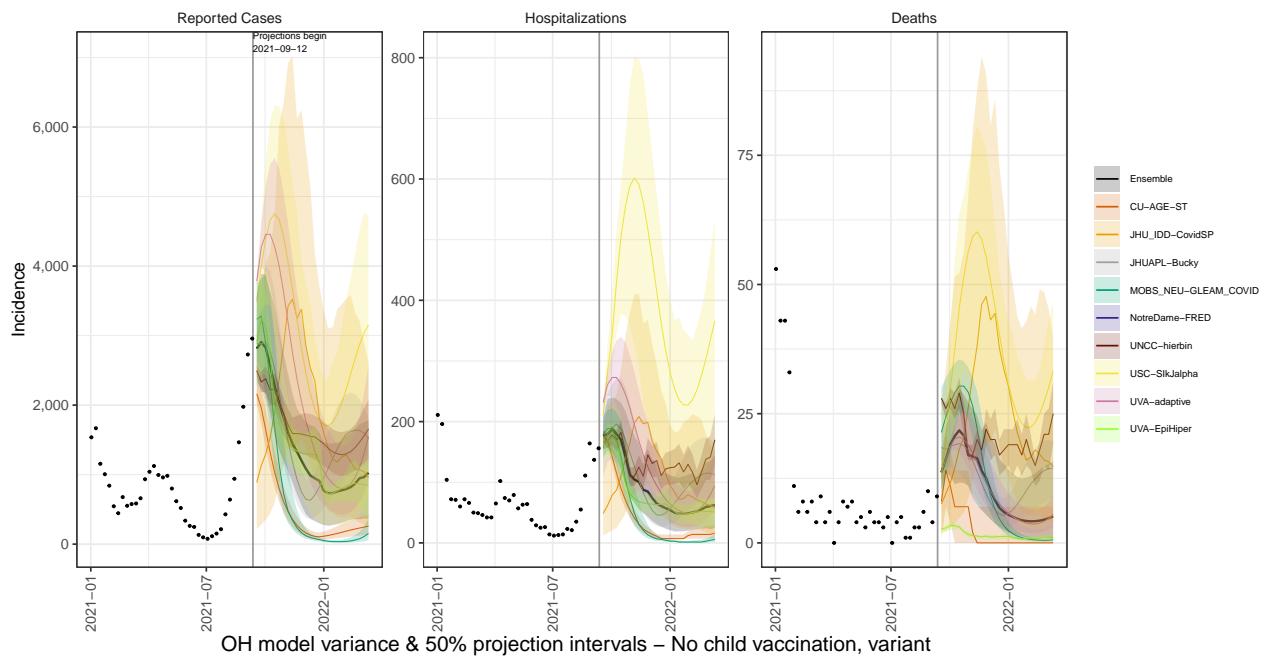
NY model variance & 50% projection intervals – No child vaccination, variant



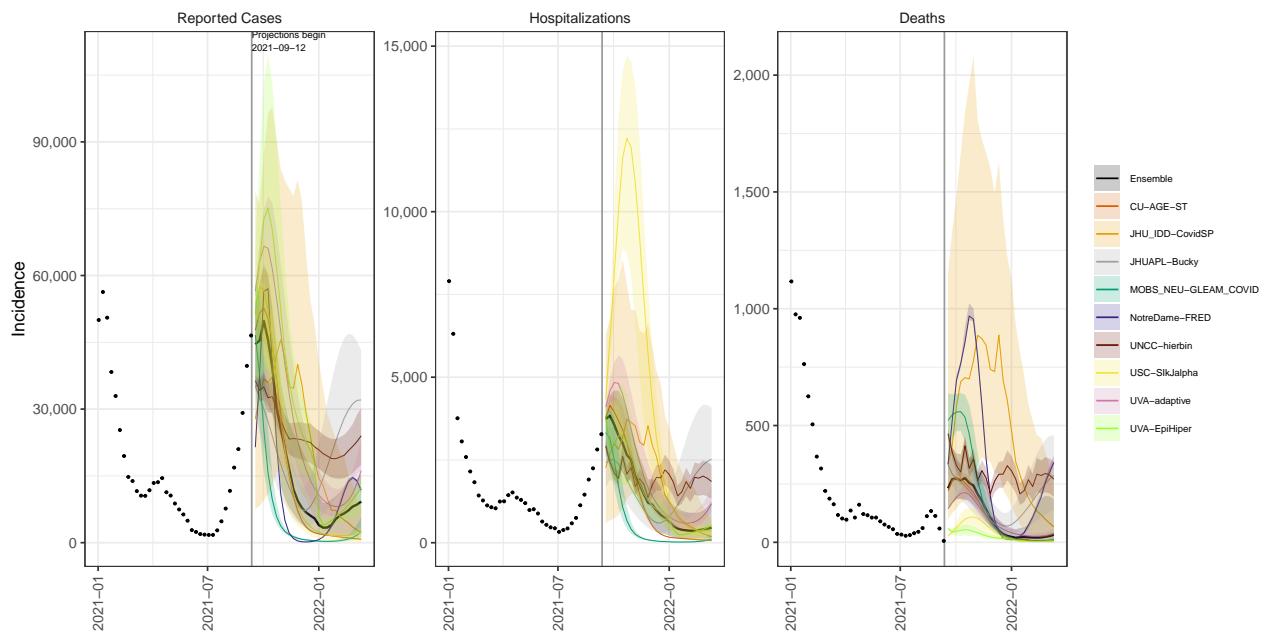
NC model variance & 50% projection intervals – No child vaccination, variant



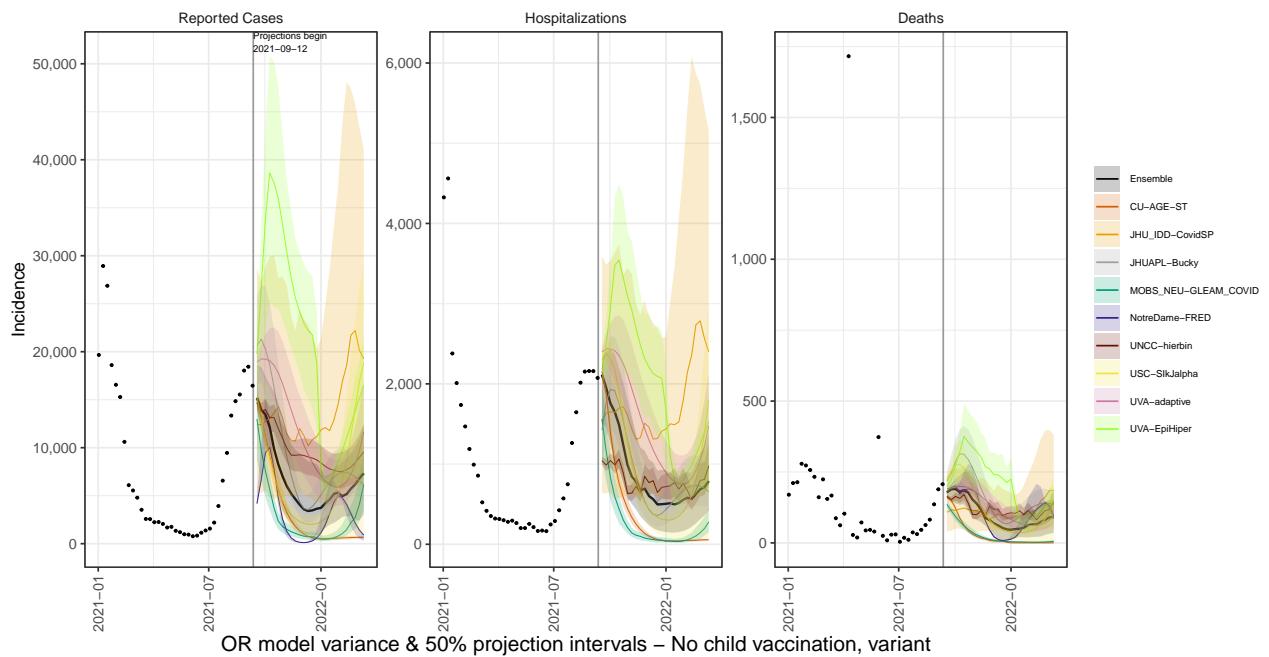
ND model variance & 50% projection intervals – No child vaccination, variant



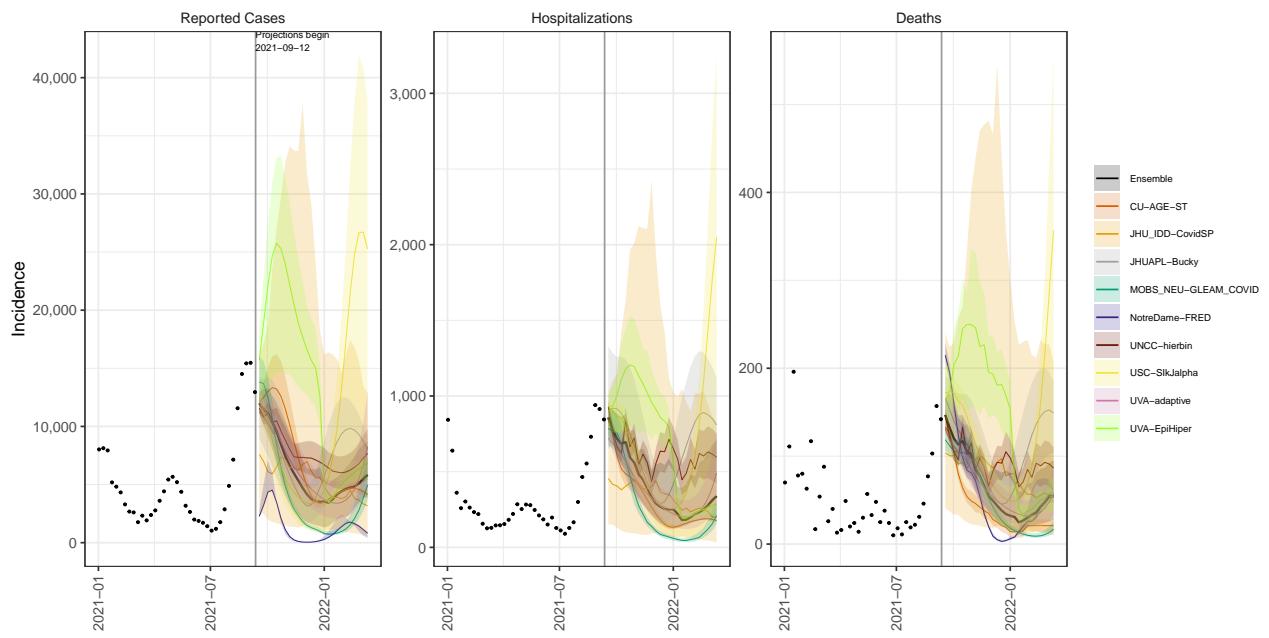
OH model variance & 50% projection intervals – No child vaccination, variant



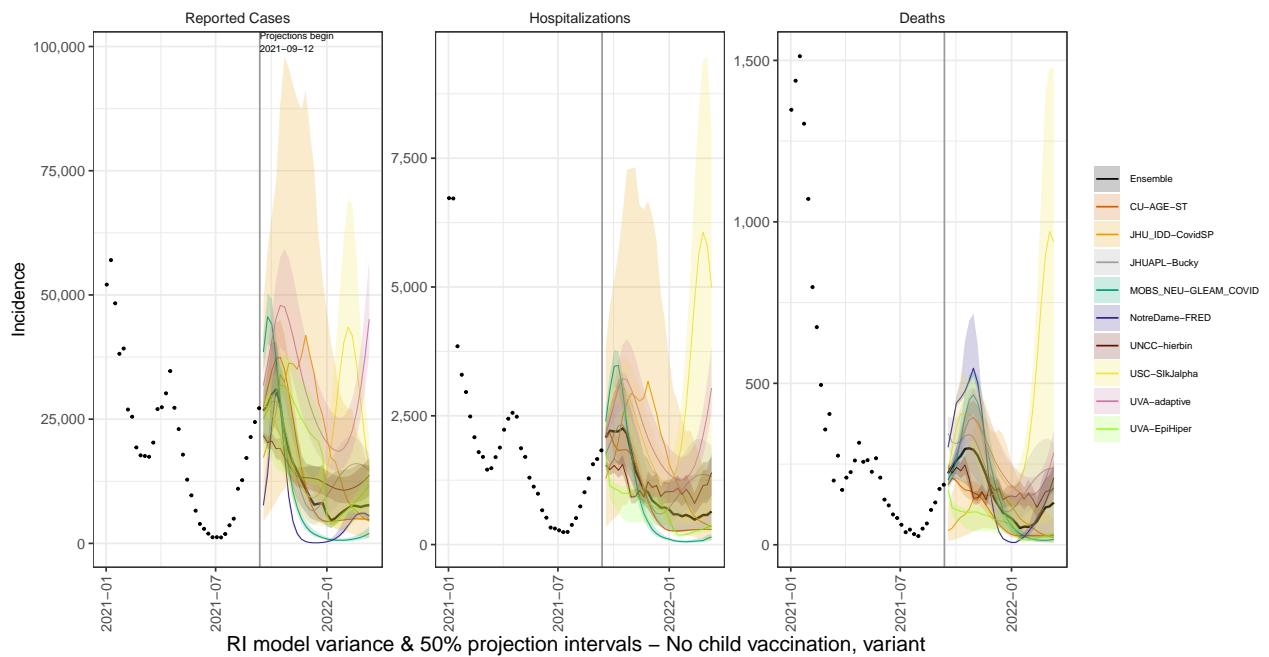
OK model variance & 50% projection intervals – No child vaccination, variant



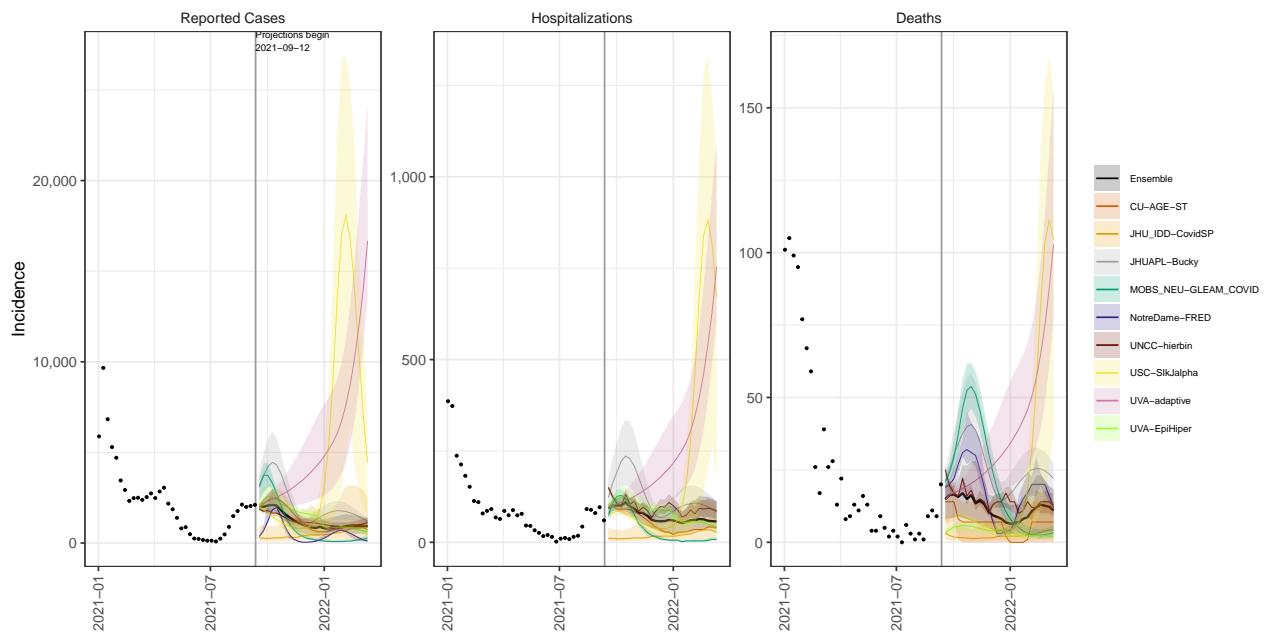
OR model variance & 50% projection intervals – No child vaccination, variant



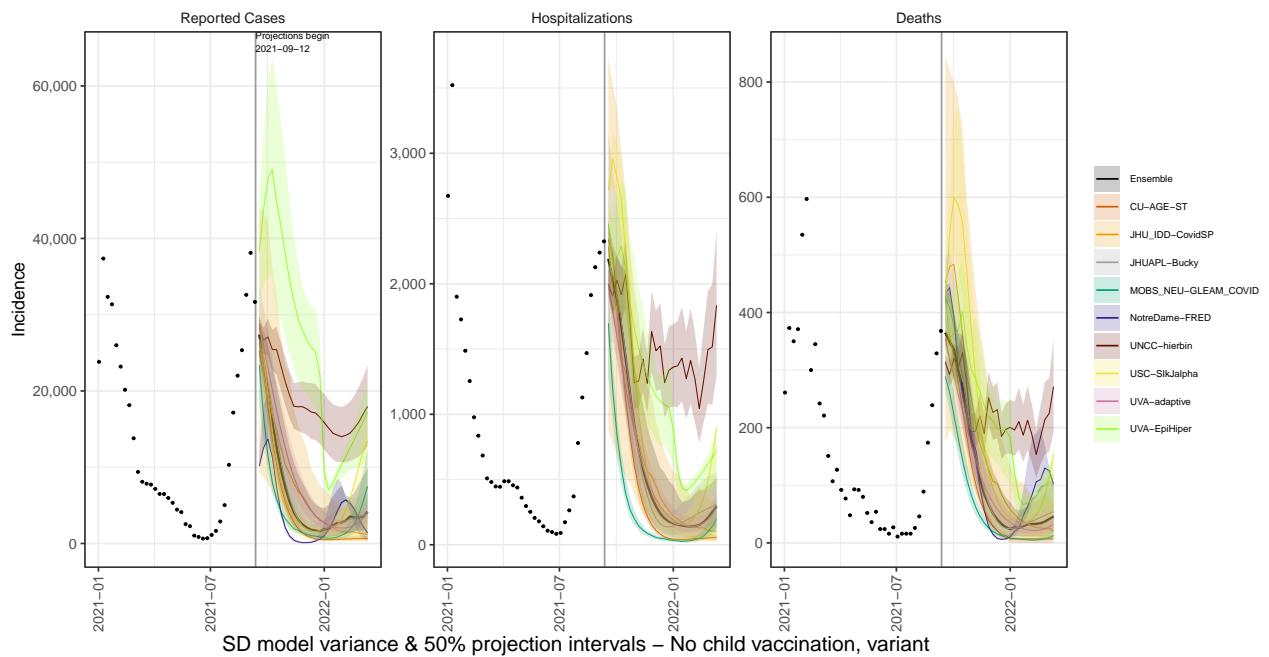
PA model variance & 50% projection intervals – No child vaccination, variant



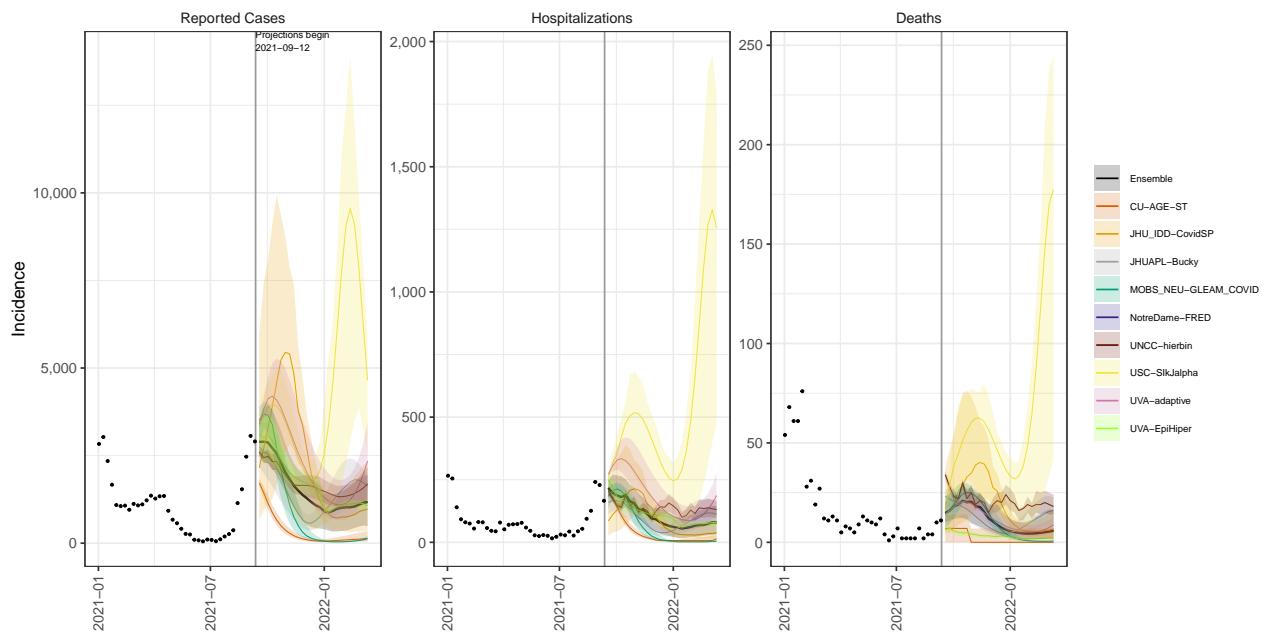
RI model variance & 50% projection intervals – No child vaccination, variant



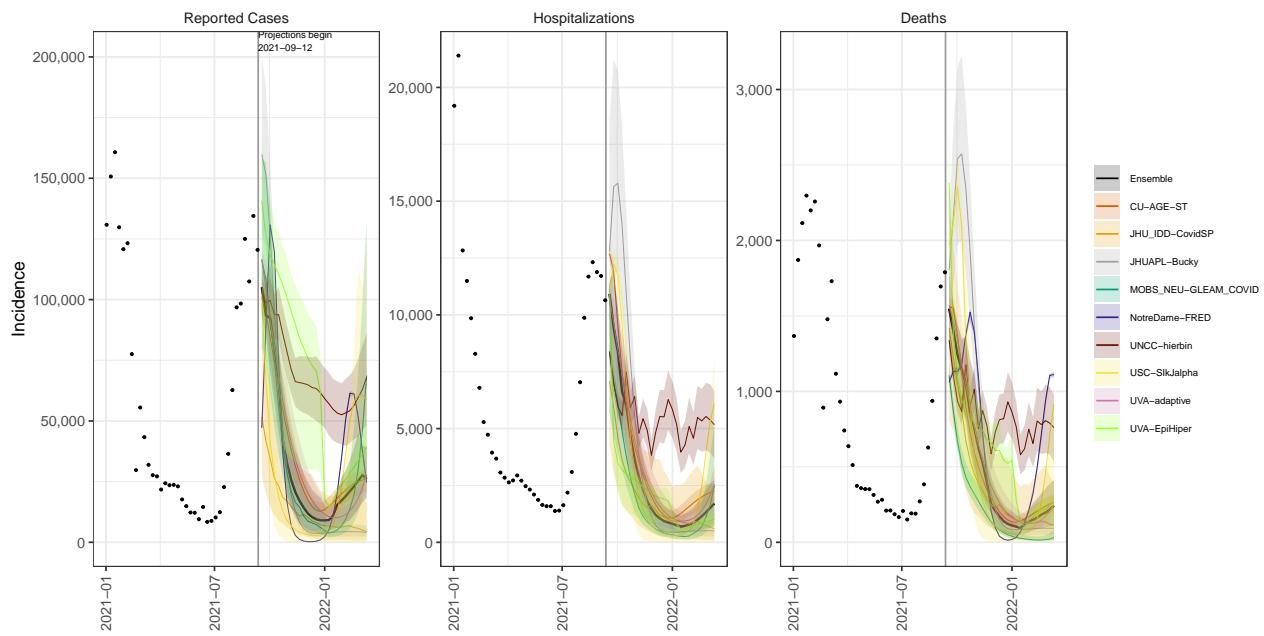
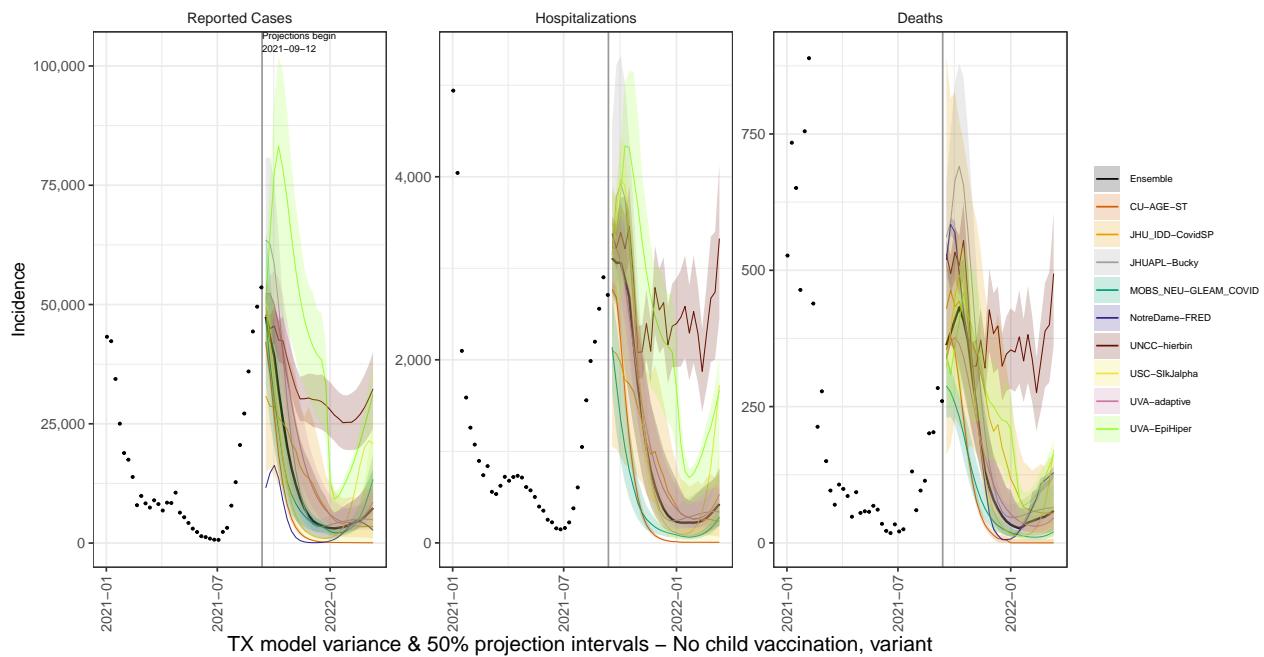
SC model variance & 50% projection intervals – No child vaccination, variant



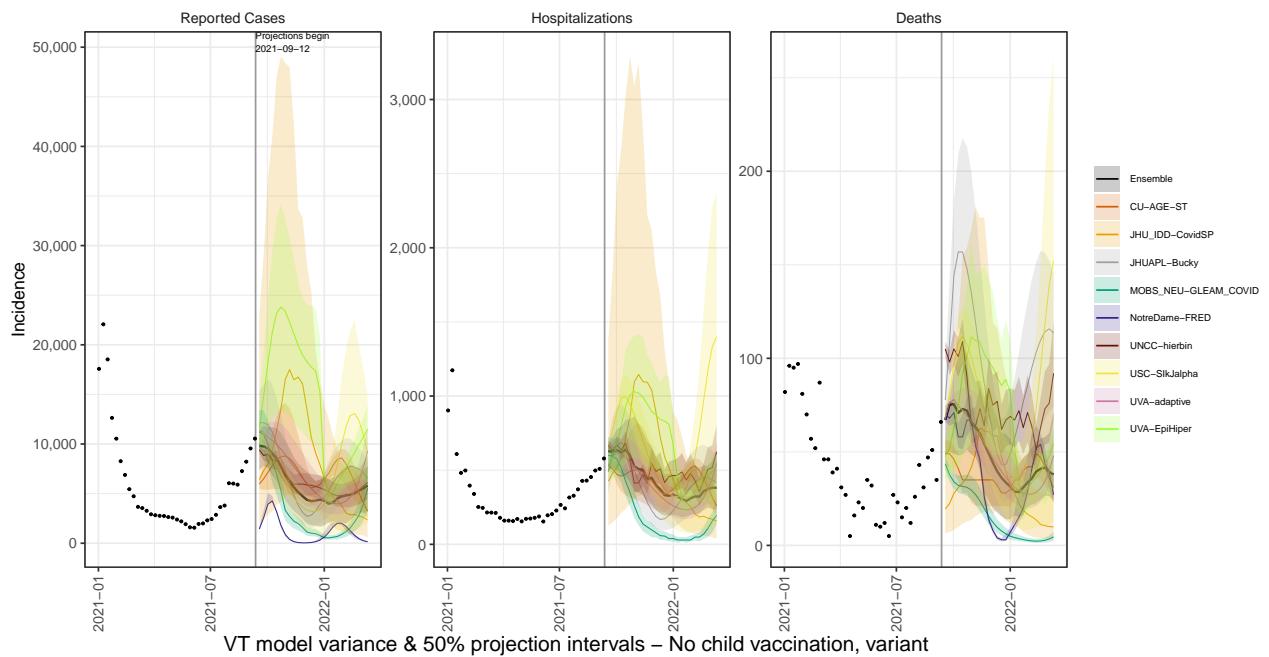
SD model variance & 50% projection intervals – No child vaccination, variant



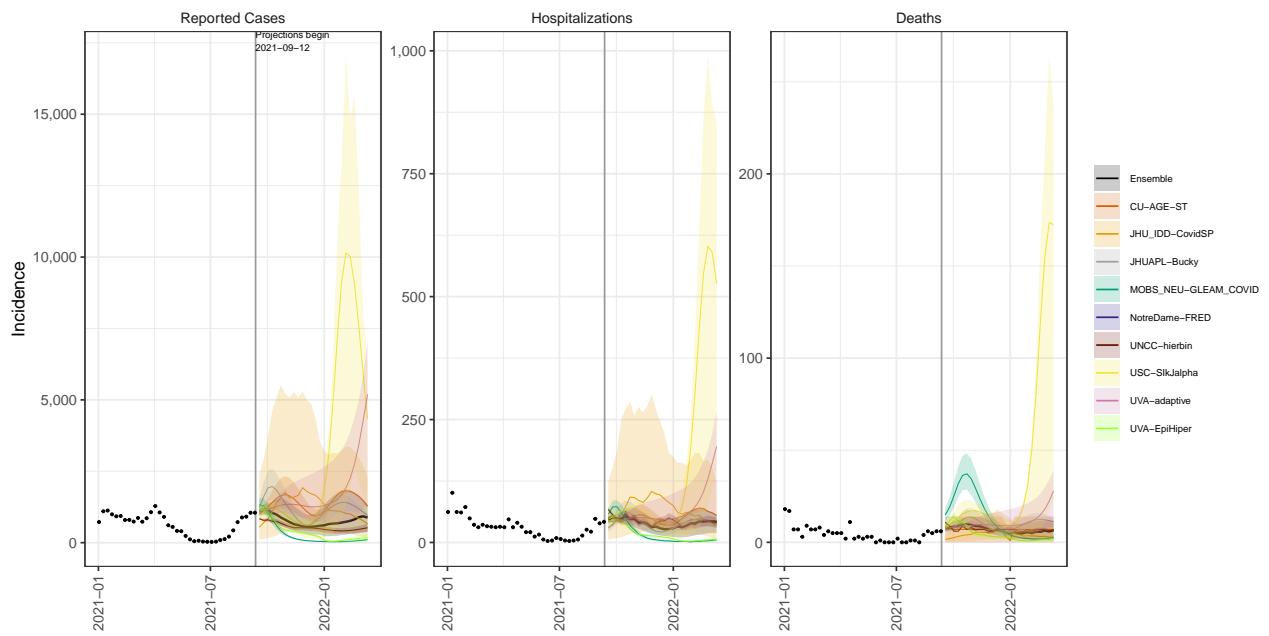
TN model variance & 50% projection intervals – No child vaccination, variant



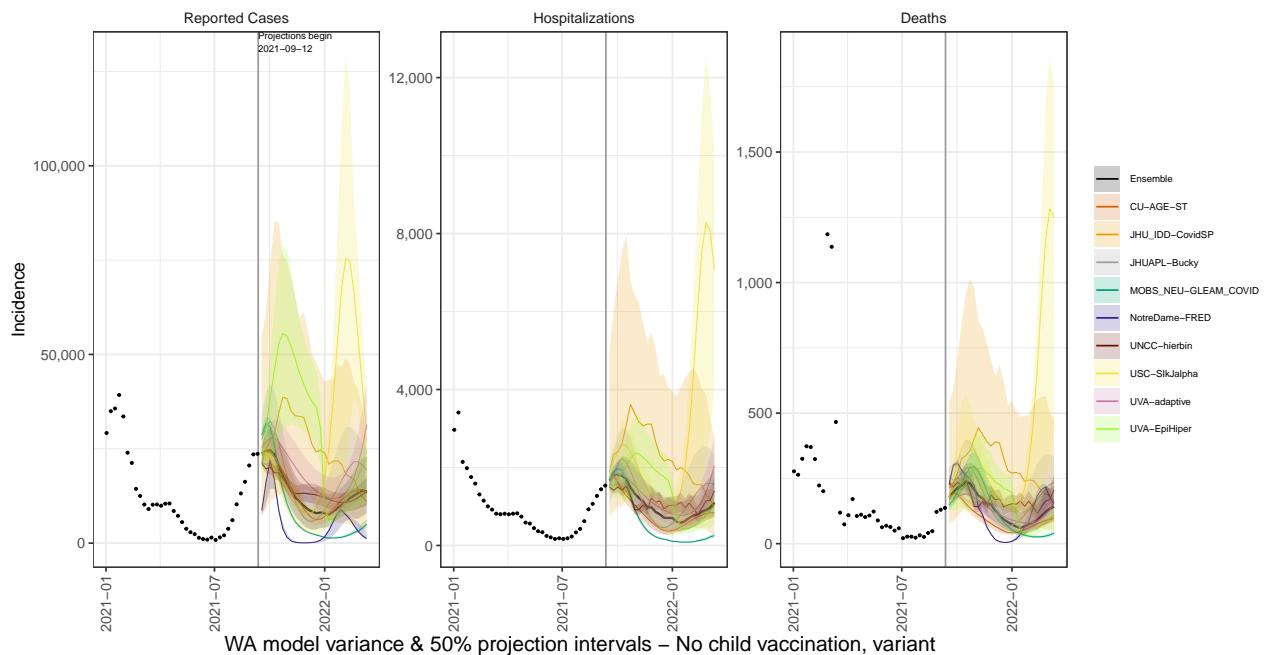
UT model variance & 50% projection intervals – No child vaccination, variant



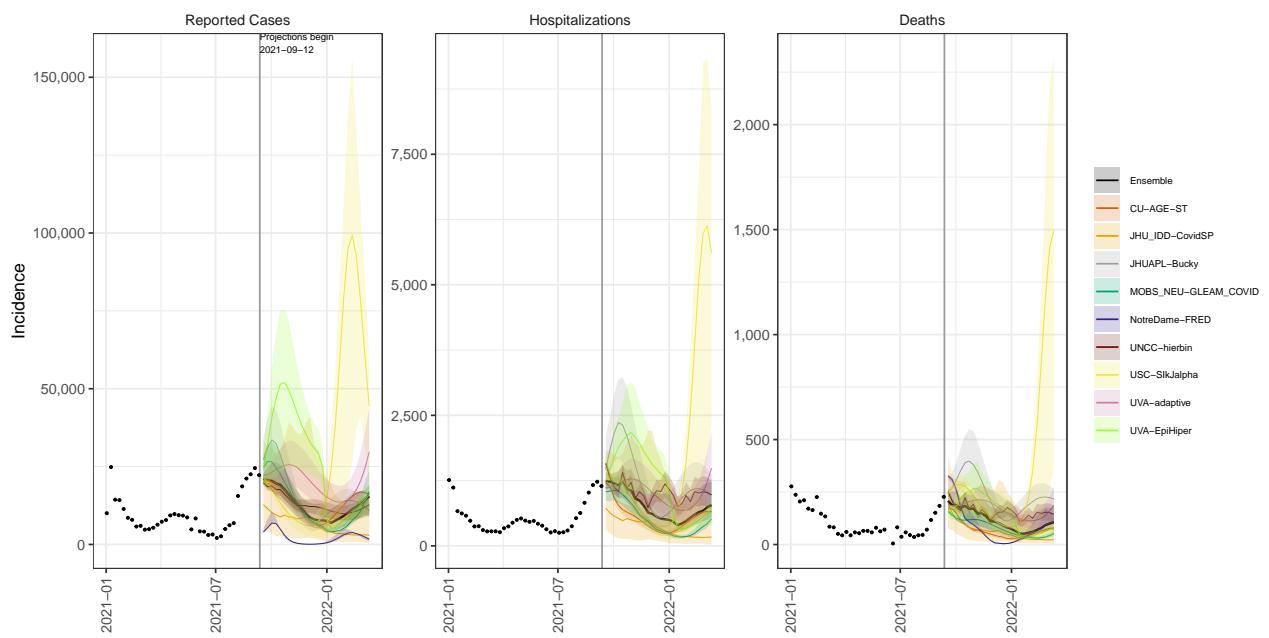
VT model variance & 50% projection intervals – No child vaccination, variant



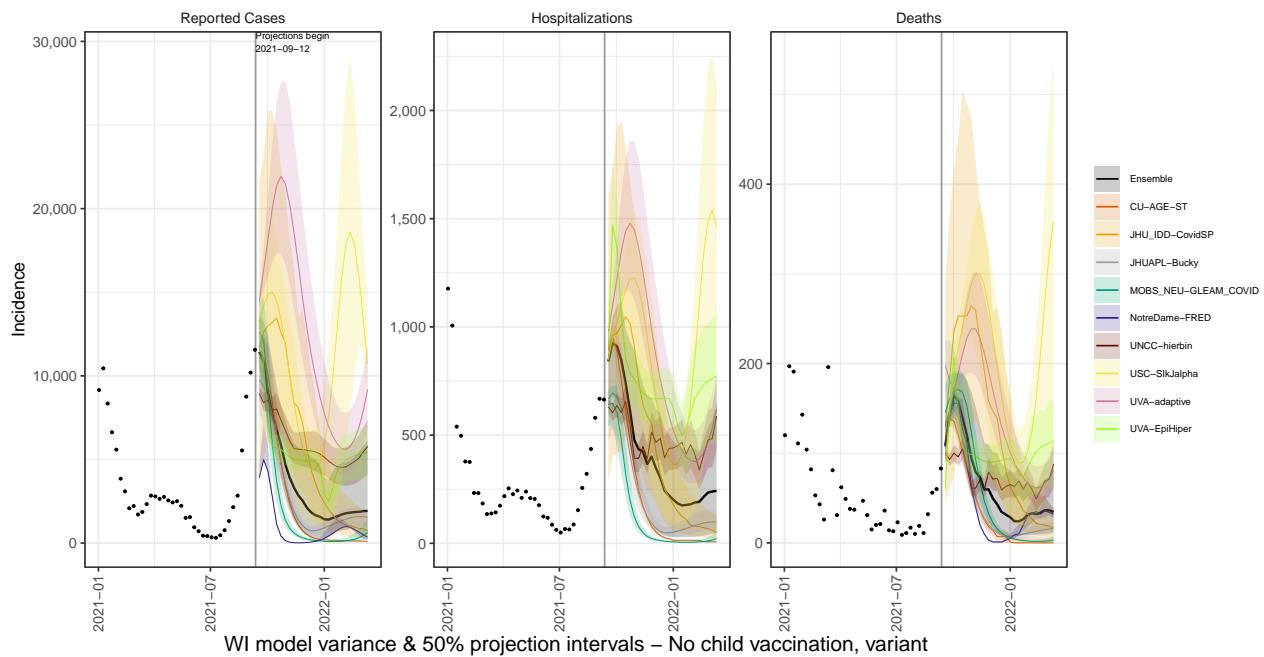
VA model variance & 50% projection intervals – No child vaccination, variant



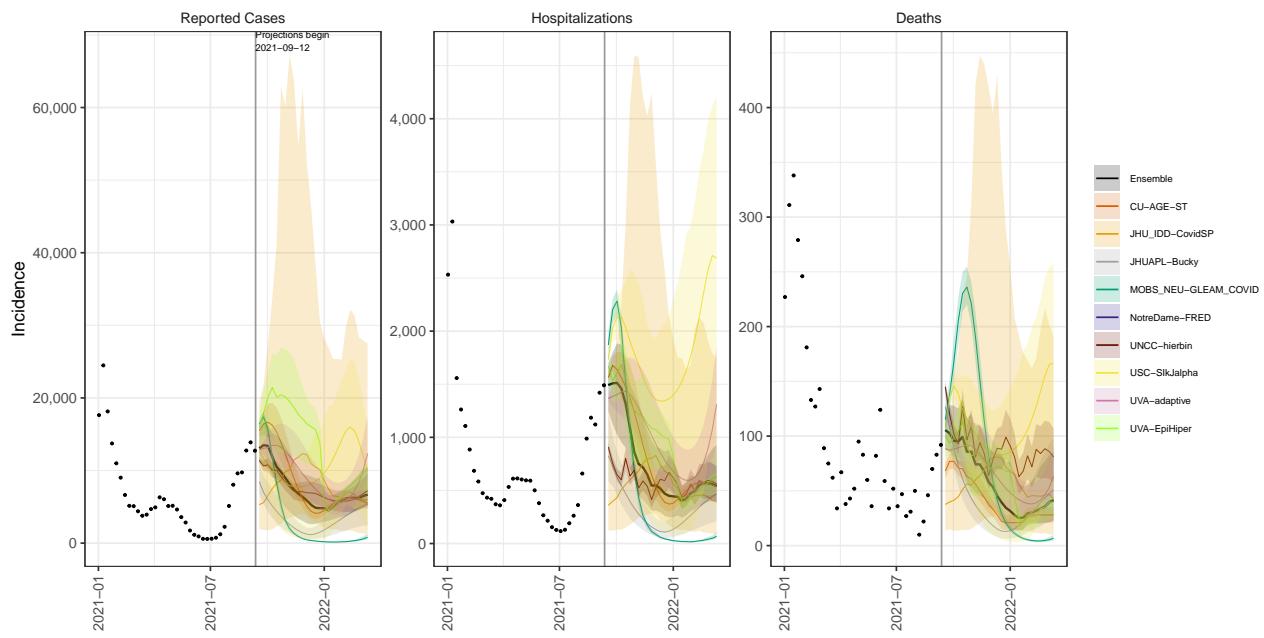
WA model variance & 50% projection intervals – No child vaccination, variant



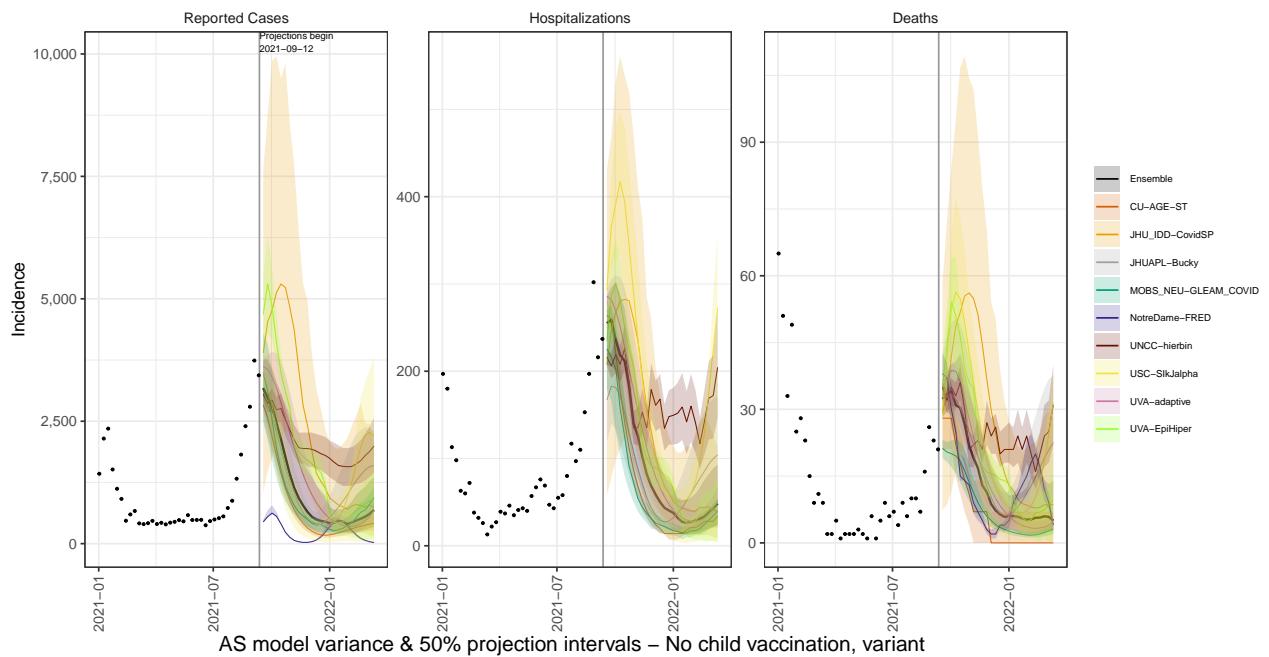
WV model variance & 50% projection intervals – No child vaccination, variant



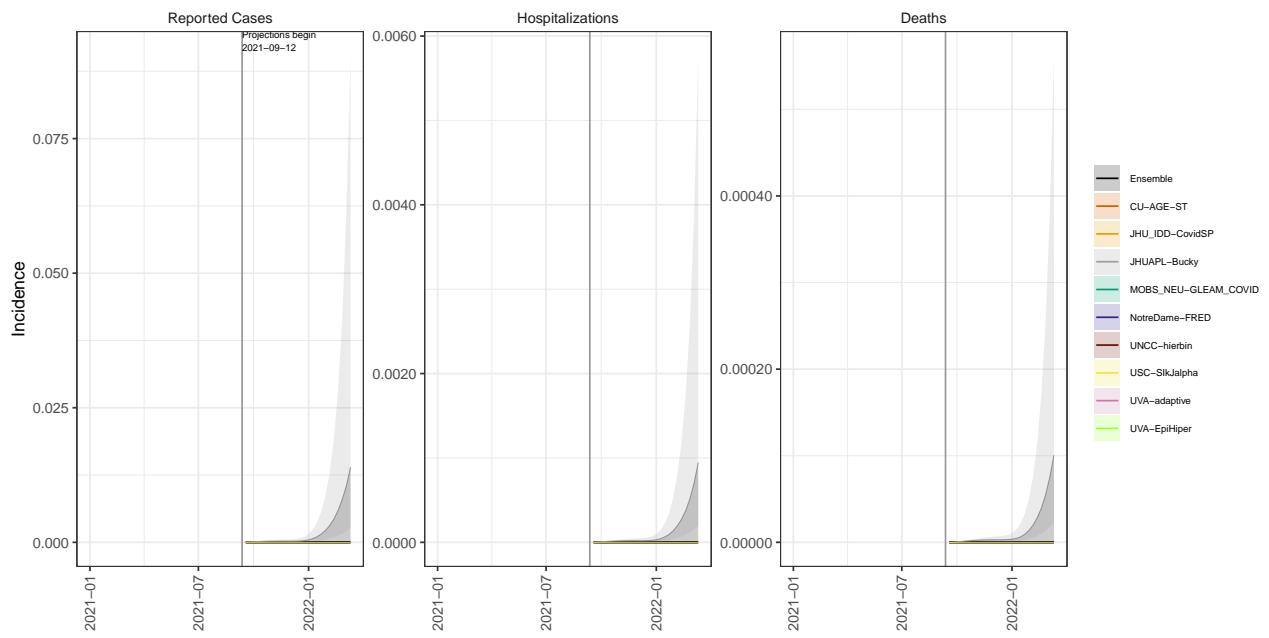
WI model variance & 50% projection intervals – No child vaccination, variant



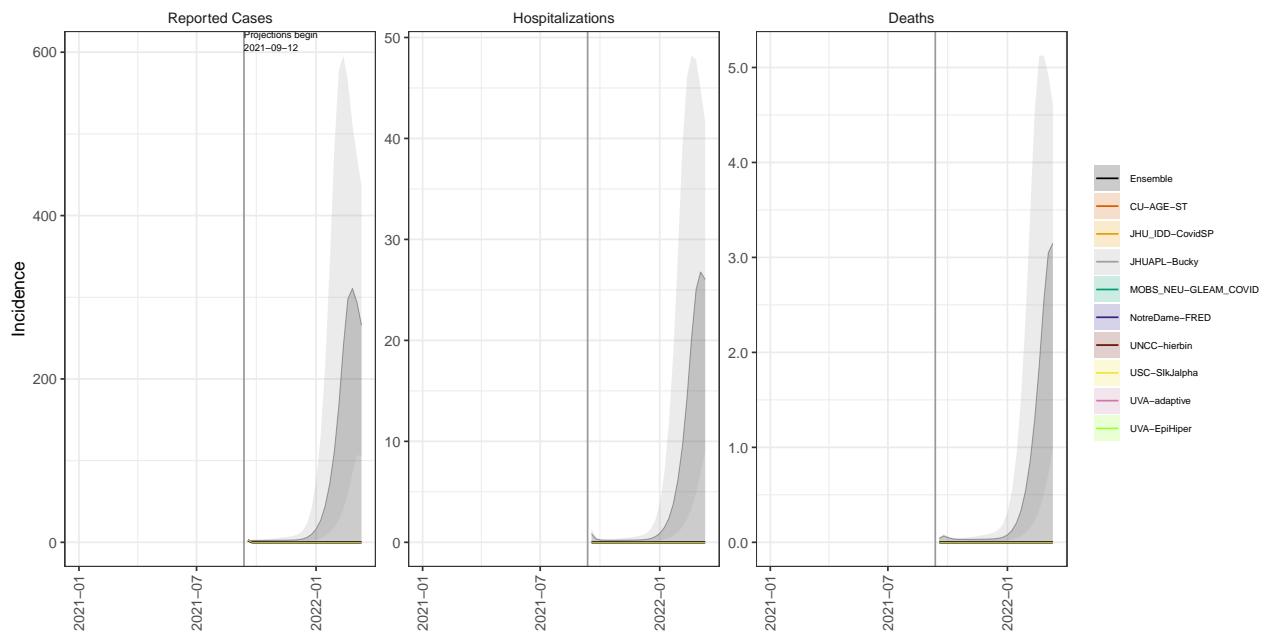
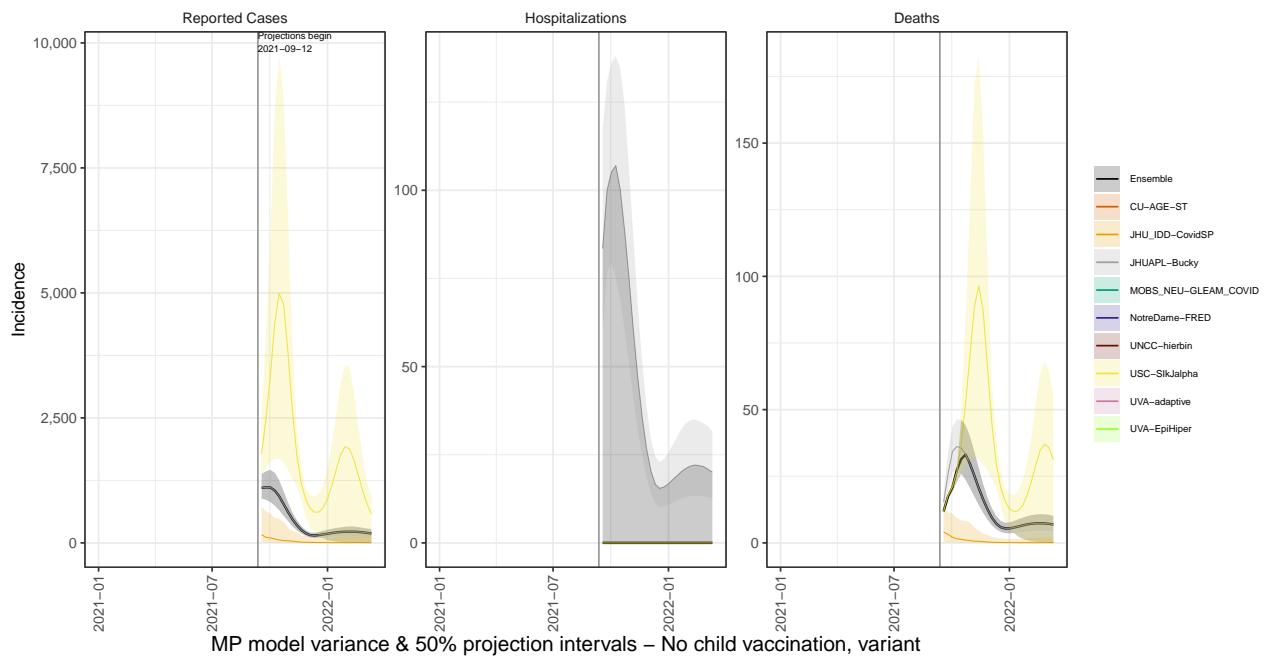
WY model variance & 50% projection intervals – No child vaccination, variant

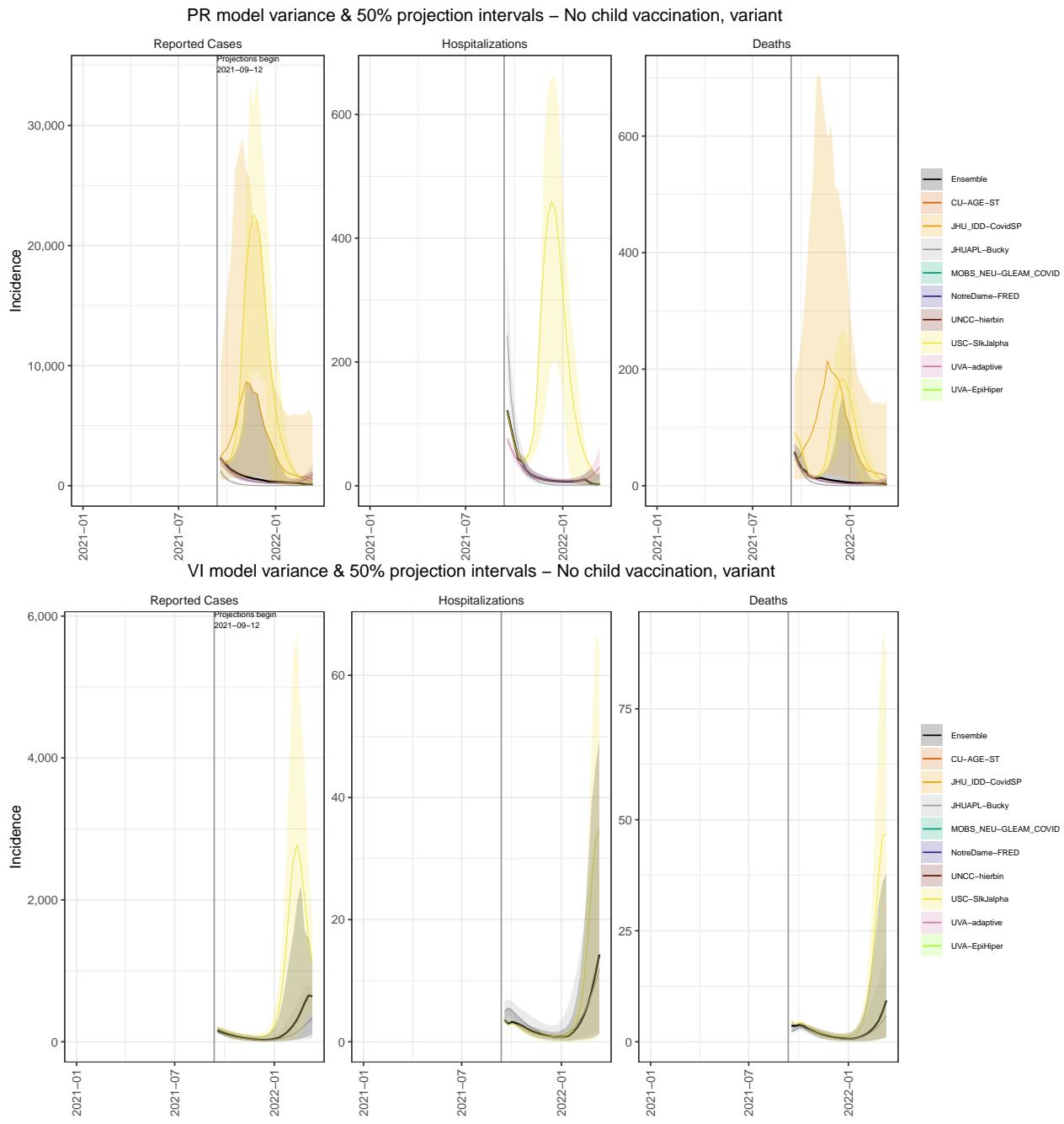


AS model variance & 50% projection intervals – No child vaccination, variant



GU model variance & 50% projection intervals – No child vaccination, variant





Teams and models

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