

COVID-19 Scenario Modeling Hub Report

19 July, 2022

Scenario Modeling Hub Team¹

Executive Summary

This report presents the results of the fourteenth round of projections from the COVID-19 Scenario Modeling Hub. A consortium of seven modeling groups convened to generate week ahead projections of COVID-19 cases, deaths, and hospitalizations for a period of twelve months (weeks ending 2022-06-05 to 2023-06-03), given four scenarios of booster strategy and 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 Fourteenth Round

- Absent a new variant, COVID levels may continue to rise nationally and stay elevated through early fall. 50% projection intervals suggest that hospitalizations are unlikely to exceed 60% of the Omicron peak. However, this national pattern masks significant variation in projected trajectories between states.
- Not all models project a significant peak to result from the introduction of a new variant, however those that do project peaks in late fall or winter.
- Regardless of the presence of a new variant, over the first fifty weeks of the projection period an extended booster campaign is projected to lead to a greater than 15% reduction in hospitalizations and 10% reduction in deaths relative to the restricted booster scenario. This represents reductions of 348,000 (95% PI: -64,000-759,000) hospitalizations and 43,000 (95% PI: -23,000-108,000) deaths in the no variant scenario at the national level.
- Absent a new variant or change in vaccination policy, over the next fifty weeks 1.7 million (95% PI: 503,000-4.5 million) hospitalizations and 230,000 (95% PI: 29,000-873,000) deaths are projected, with **very broad uncertainty**.
- We are still in a period of substantial uncertainty about the future and there are significant qualitative differences between individual models, particularly in the long-term. The ensembling methodology may blunt the magnitude of the projected peaks when individual models differ in peak timing.
- As of the release of this report, hospitalization have tracked well with the ensemble projections while deaths have tended to be on the lower end of the projection interval.
- These key takeaways are subject to several limitations/caveats:
 - Not all models include BA4/5, and those that do are fit to limited observed data on their circulation.
 - Radical changes in case ascertainment and reporting are making models increasingly hard to fit and clouding the comparison between model projections and observed outcomes.
 - The efficacy of reformulated vaccines is unknown.
 - The new variant introduced in these scenarios is purely hypothetical, and any new variant that does emerge may have very different characteristics.

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

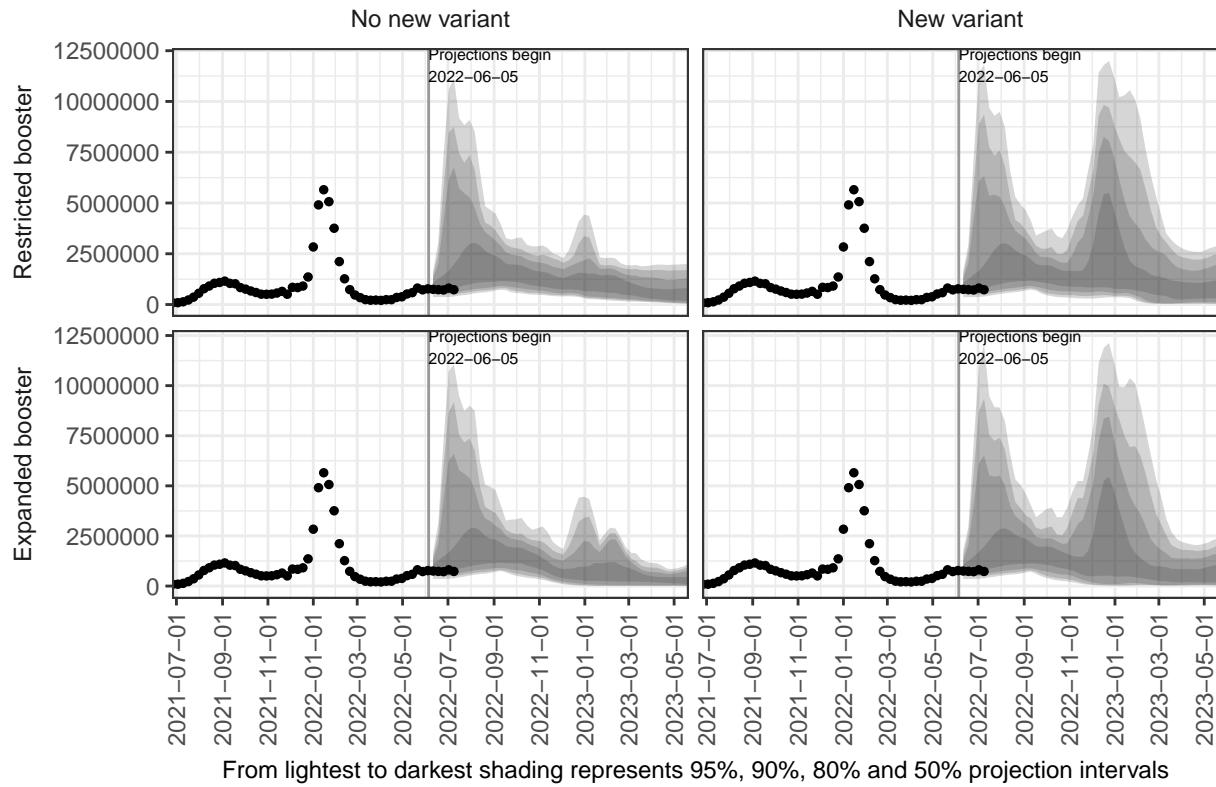
Round 14 Scenario Specifications

See detailed notes on each scenario below	<p>No new variant:</p> <ul style="list-style-type: none"> • No new variant • Protection from natural immunity and VE against infection decrease over time due to waning, but not due to variant mix • Risk of severe disease conditional on infection remains unchanged 	<p>New variant X:</p> <ul style="list-style-type: none"> • 50 infections with variant X seeded weekly from Sep 4th-Dec 24th (16 weeks) • Variant X has 40% immune escape against infection (applies to VE and to protection from natural immunity) • There is a 20% increased risk of hospitalization and death with variant X, relative to Omicron, conditional on infection and immune status.
<p>Continuation of risk-focused booster policy</p> <ul style="list-style-type: none"> • A third booster recommendation is issued October 1st, 2022 for adults 50+ and those with chronic conditions, with reformulated vaccines. • Booster uptake among the previously vaccinated is reduced by 15% compared to response to the first booster recommendation (x0.85 1st booster coverage). The distribution of who gets a booster among those for whom it is the 3rd, 4th or 5th dose of vaccine, and age differences in coverage within the 50+, is at the teams' discretion. • Recommended time between booster doses is maintained. 	Scenario A	Scenario B
<p>Expanded booster vaccination campaign</p> <ul style="list-style-type: none"> • A COVID-19 booster campaign starts on October 1st, 2022 for all adults 18+, with reformulated vaccines. • Coverage of boosters progresses throughout fall 2022 in different age groups at a 10% reduced coverage compared to the 2021-2022 flu vaccine coverage (x0.9 flu vaccine coverage). The distribution of who gets a booster among those for whom it is the 3rd, 4th or 5th dose of vaccine, and age differences in coverage within the 18+, is at the teams' discretion. • Boosters are recommended regardless of time since previous receipt of a booster. 	Scenario C	Scenario D

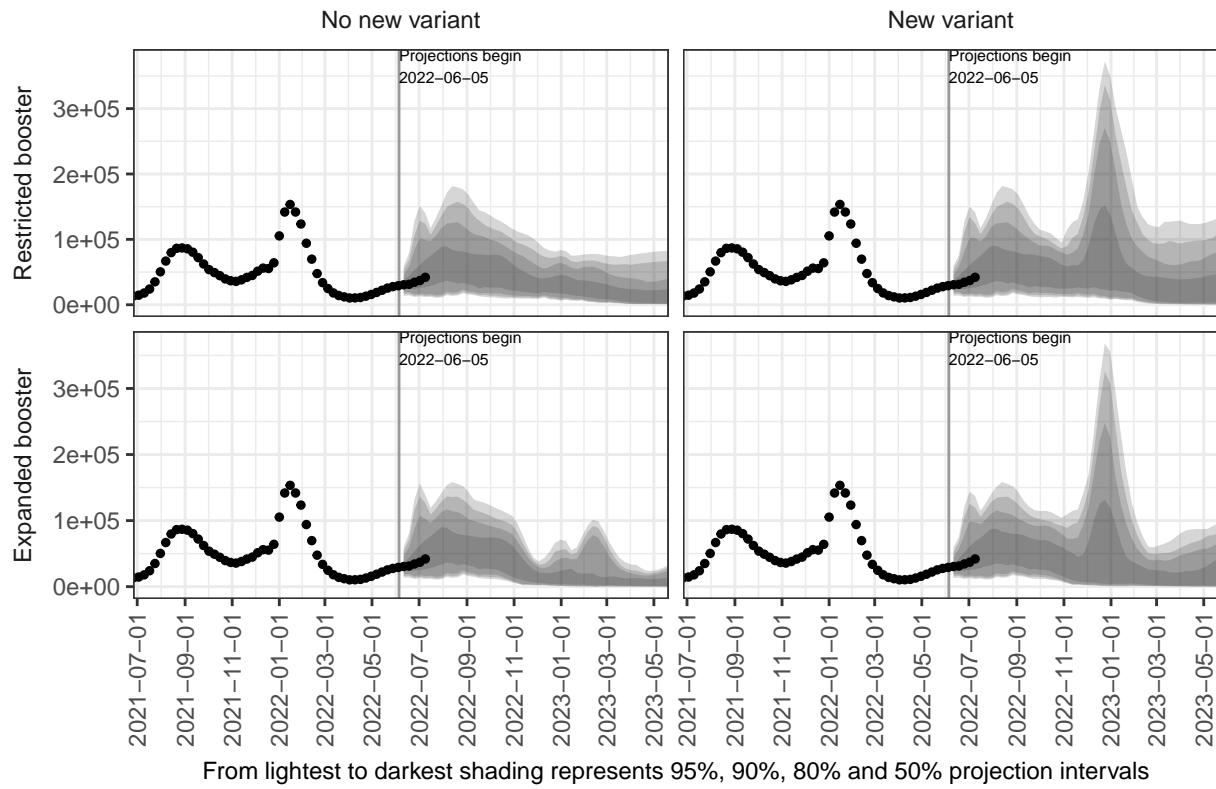
Figure 1: Round 14 Scenario Specifications

Ensemble projection intervals

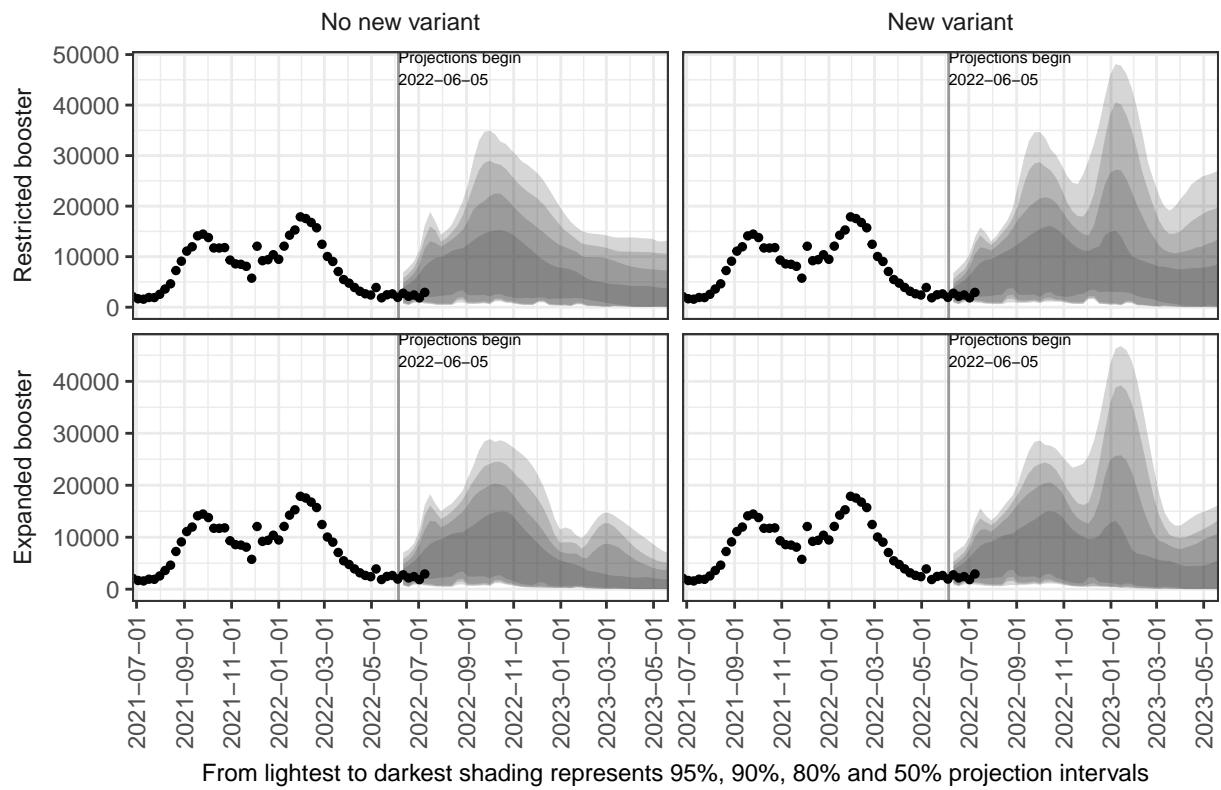
National ensemble projection intervals – Reported Cases



National ensemble projection intervals – Hospitalizations

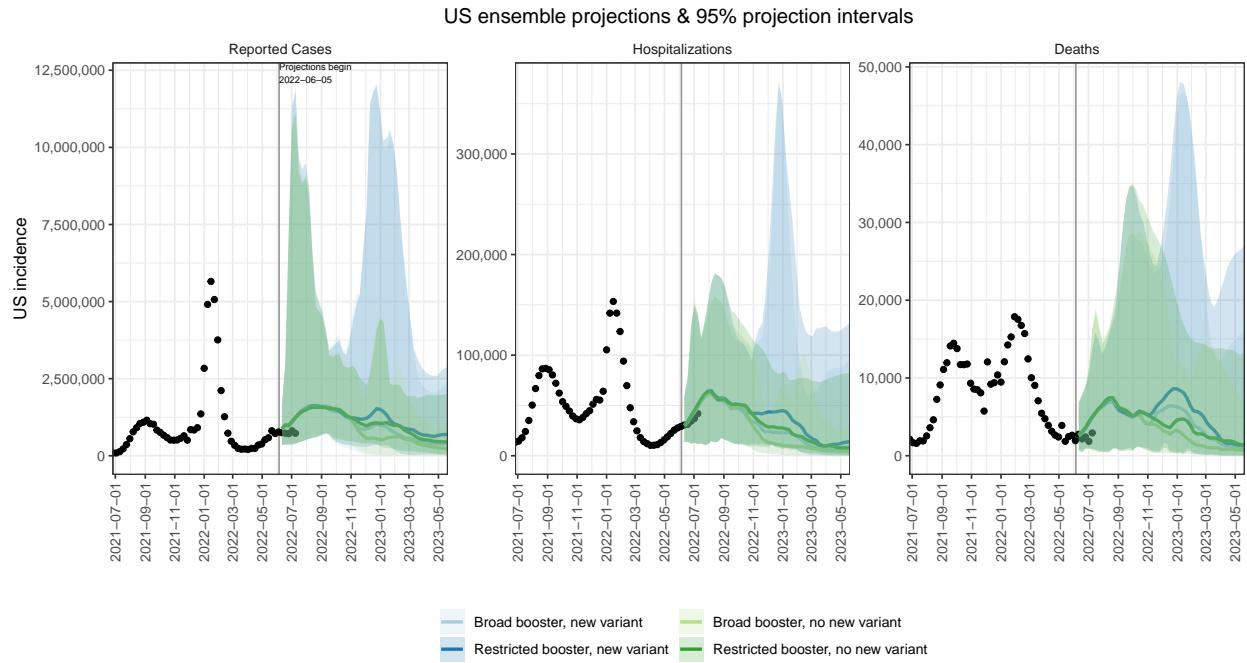


National ensemble projection intervals – Deaths



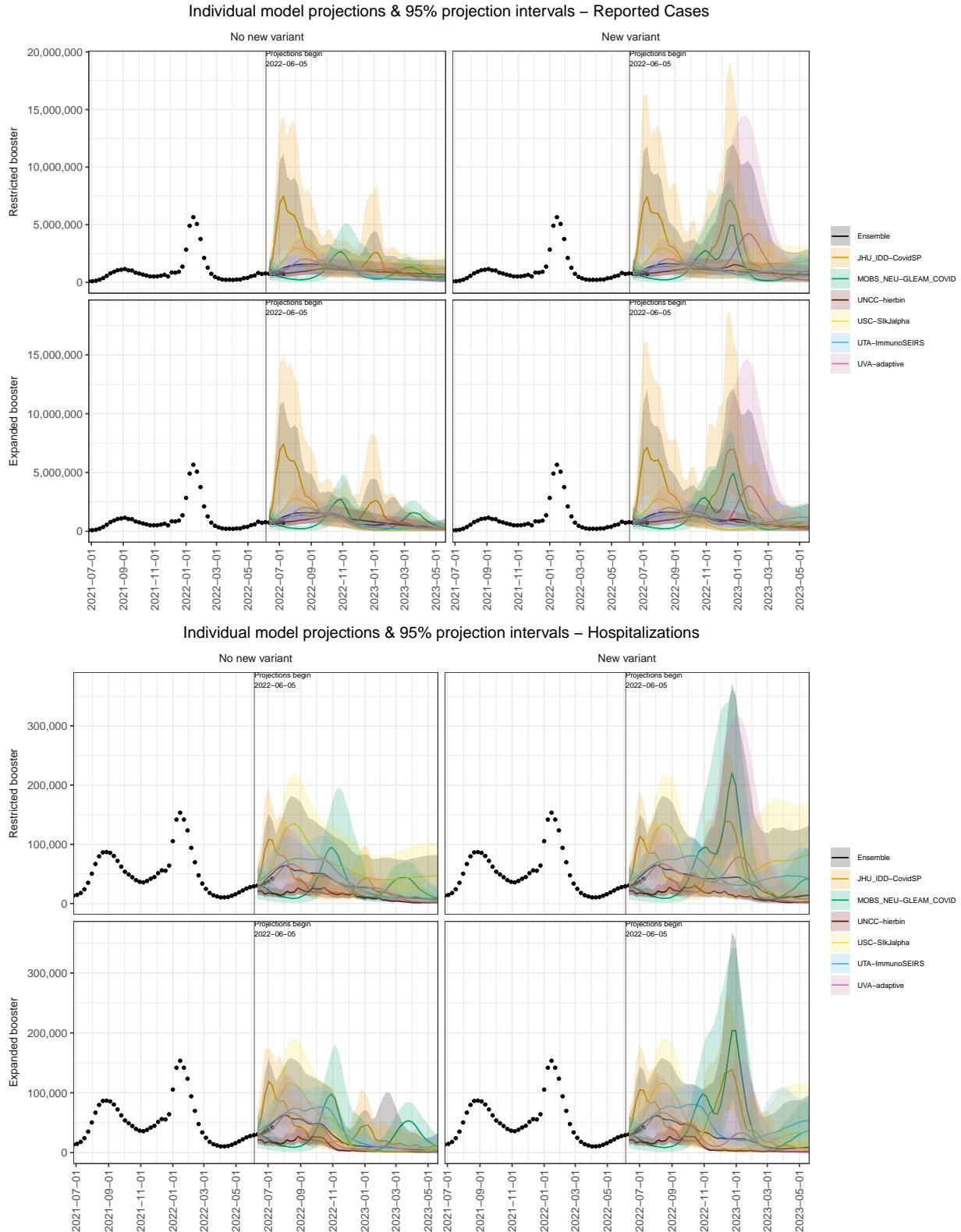
National ensemble projections

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

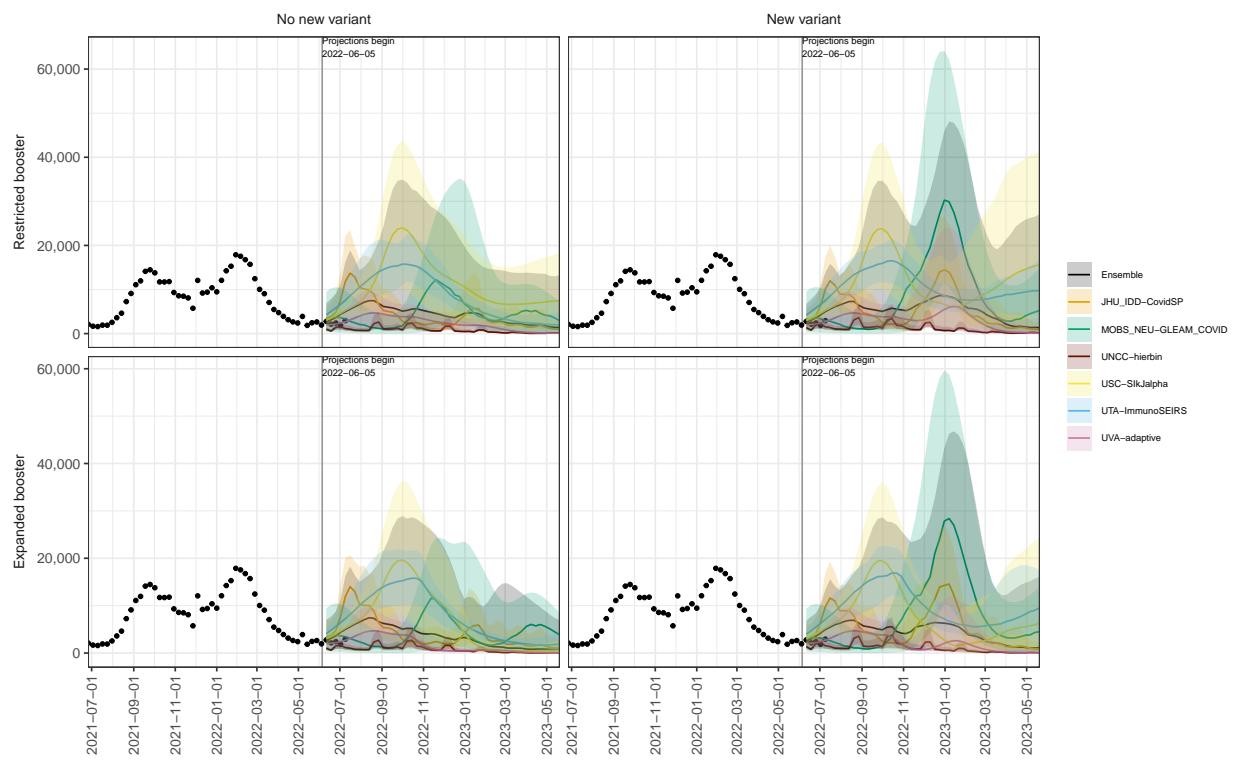


National individual model projections

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

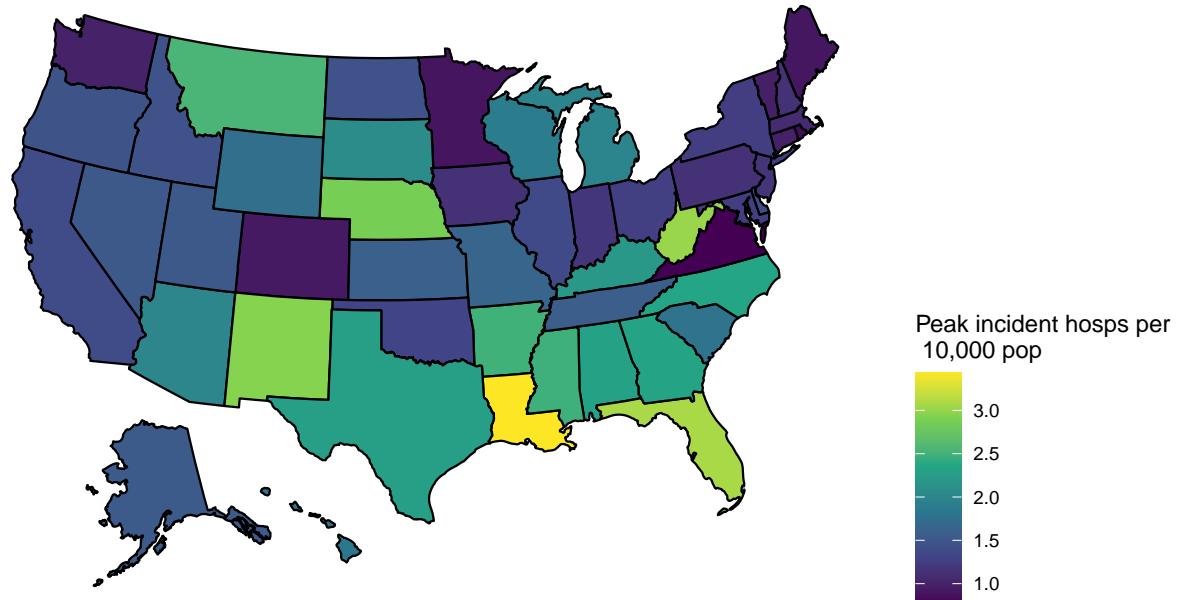


Individual model projections & 95% projection intervals – Deaths

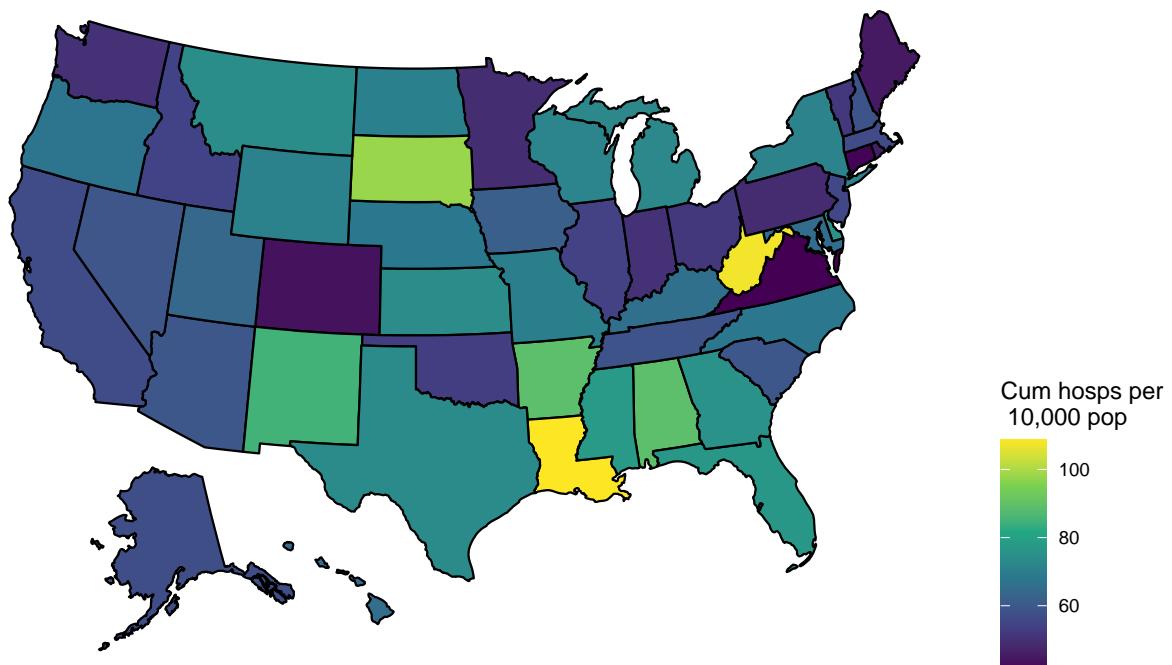


Risk maps

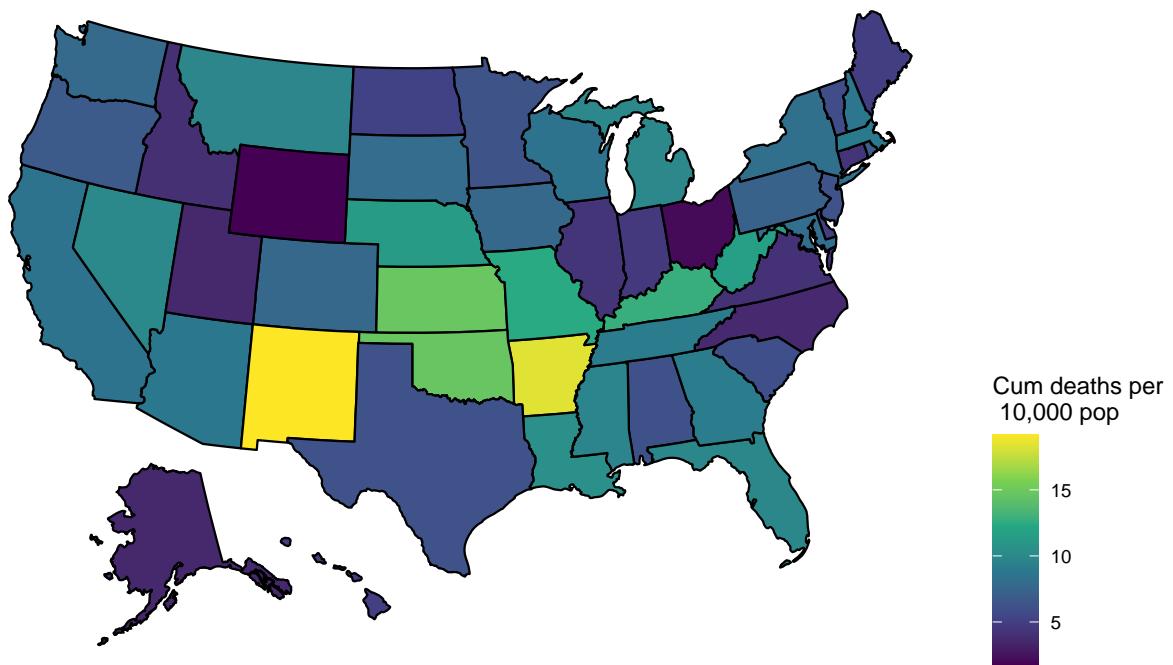
Peak incident reported hospitalizations per 10,000 population in scenario with restricted booster, and a new variant: June 05, 2022 to September 24, 2022



Cumulative reported hospitalizations per 10,000 population in scenario with restricted booster, and a new variant: June 05, 2022 to May 20, 2023

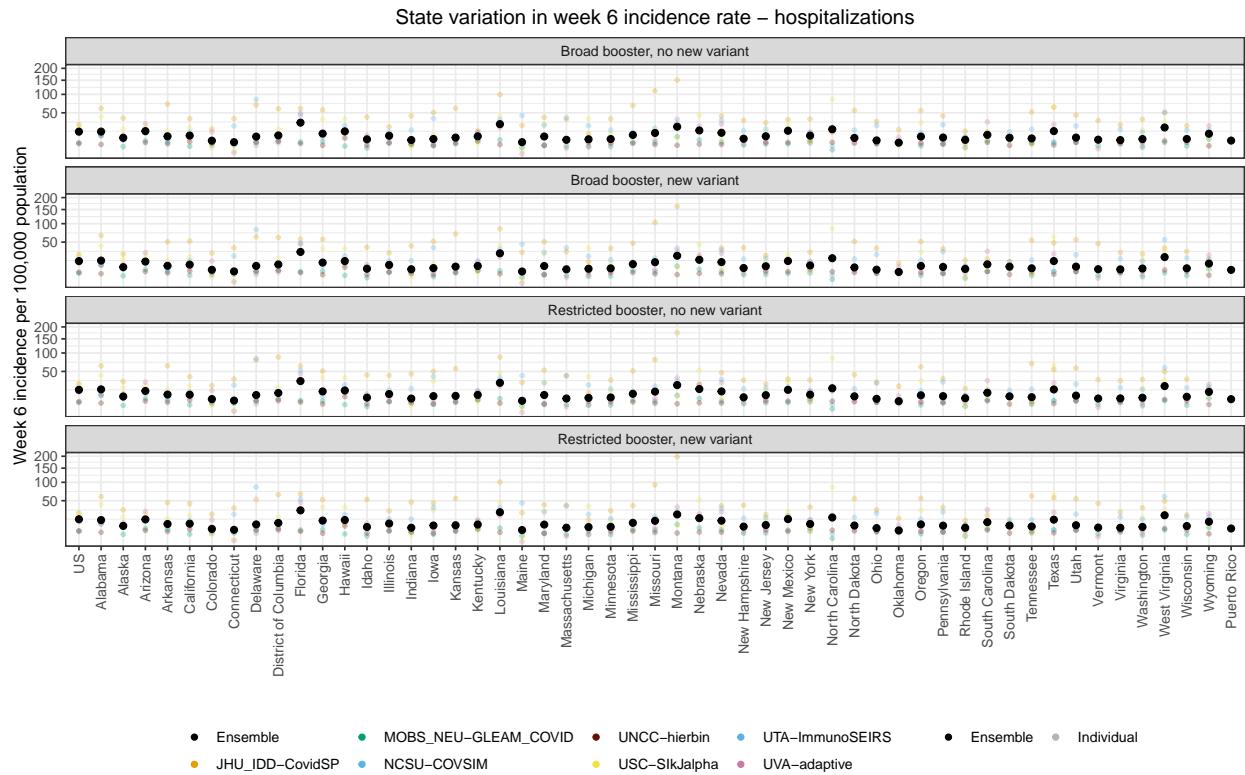


Cumulative deaths per 10,000 population in scenario with restricted booster,
and a new variant: June 05, 2022 to May 20, 2023

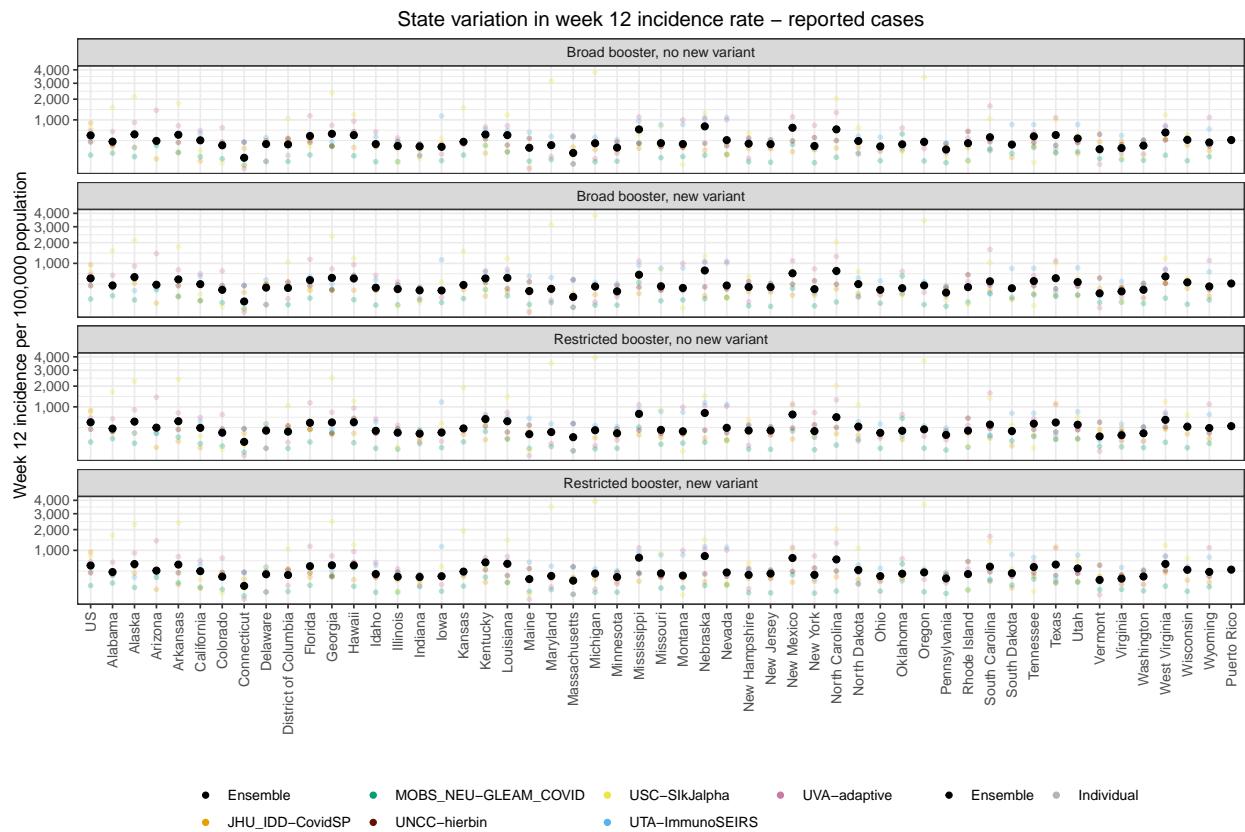


State-level deviation from national

Individual model and ensembles projections for state-level hospitalization incidence per 100,000 population at week 6.



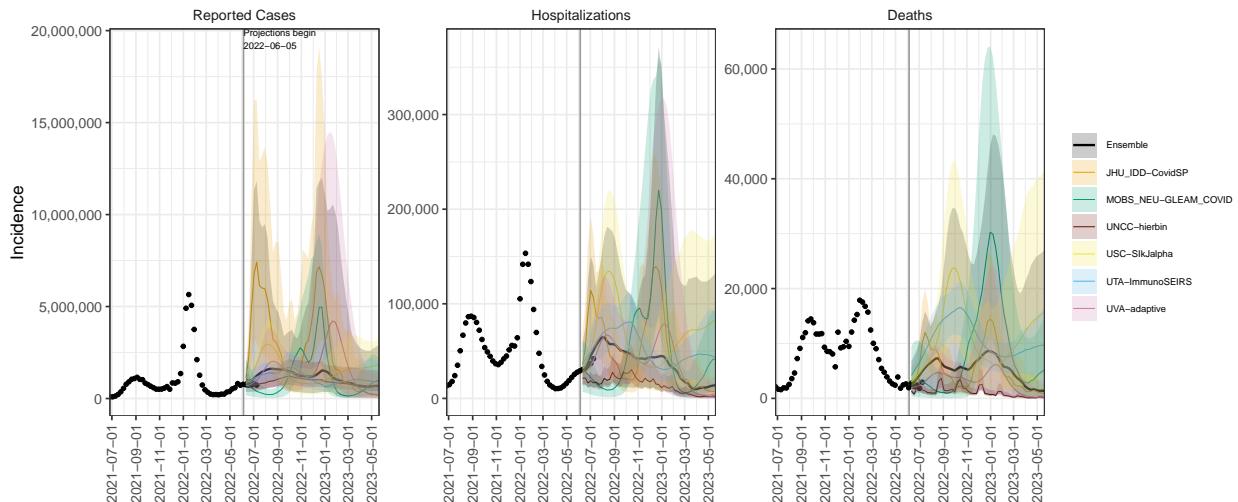
Individual model and ensembles projections for state-level incidence per 100,000 population at week 12.



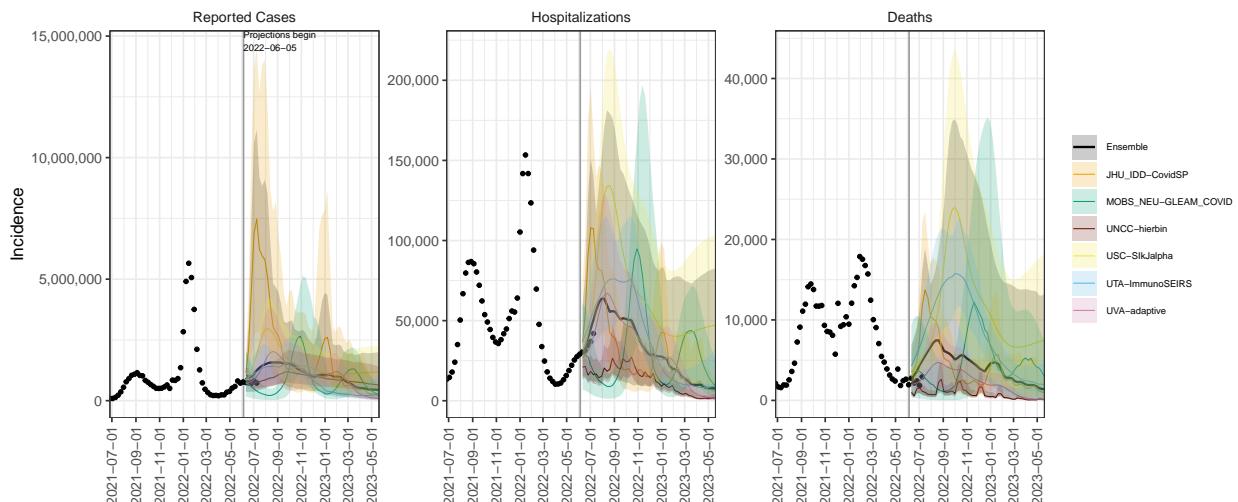
National model variation

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

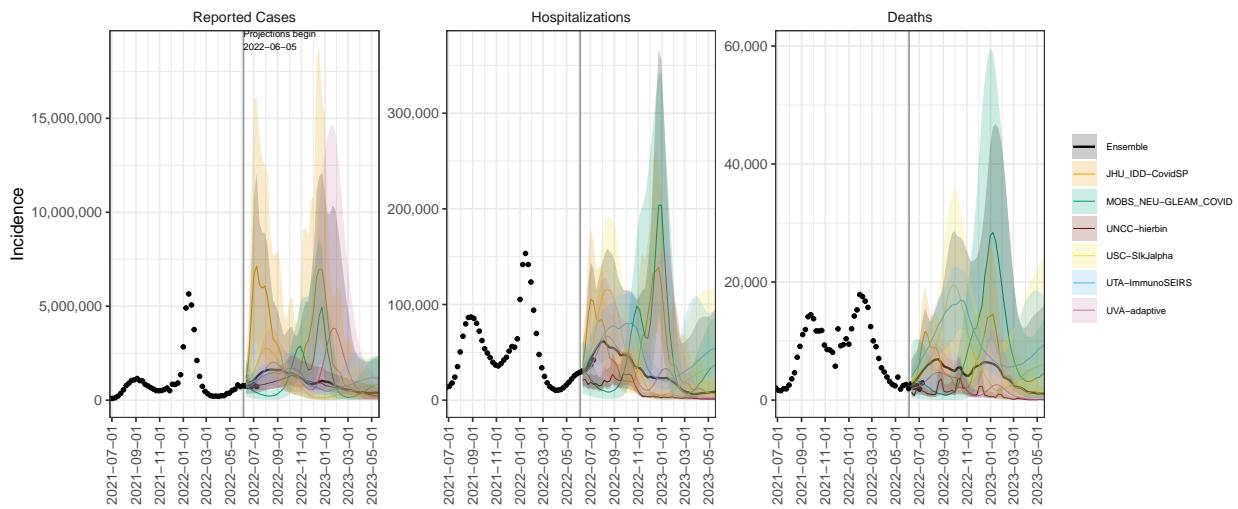
Individual model projections & 95% projection intervals – Restricted booster, new variant



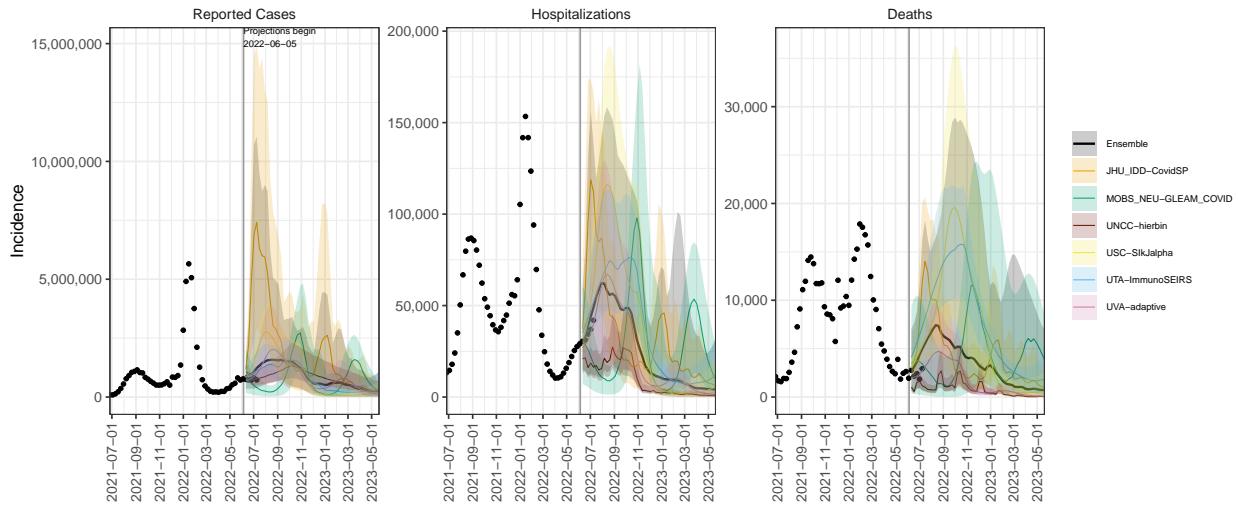
Individual model projections & 95% projection intervals – Restricted booster, no new variant



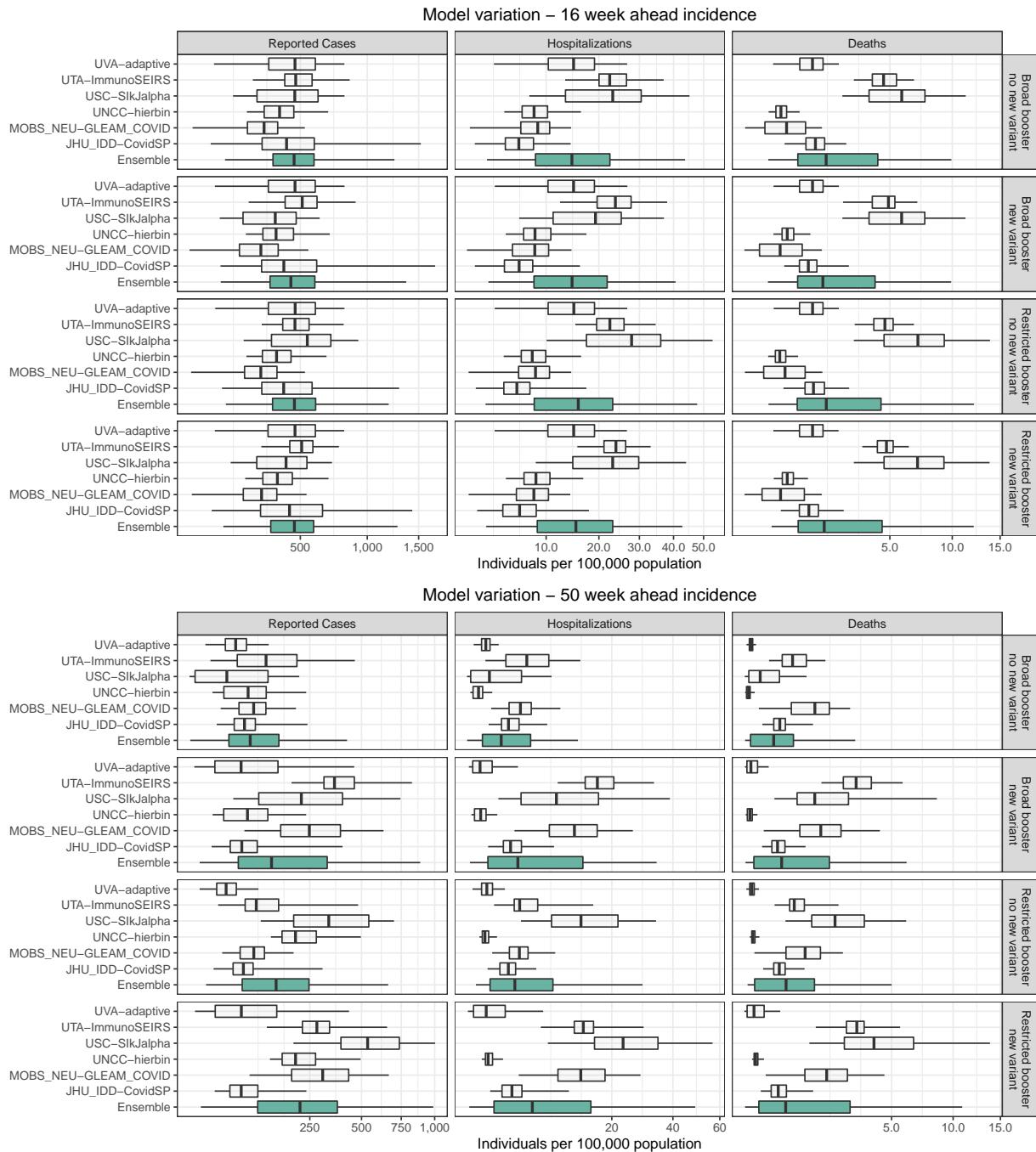
Individual model projections & 95% projection intervals – Broad booster, new variant



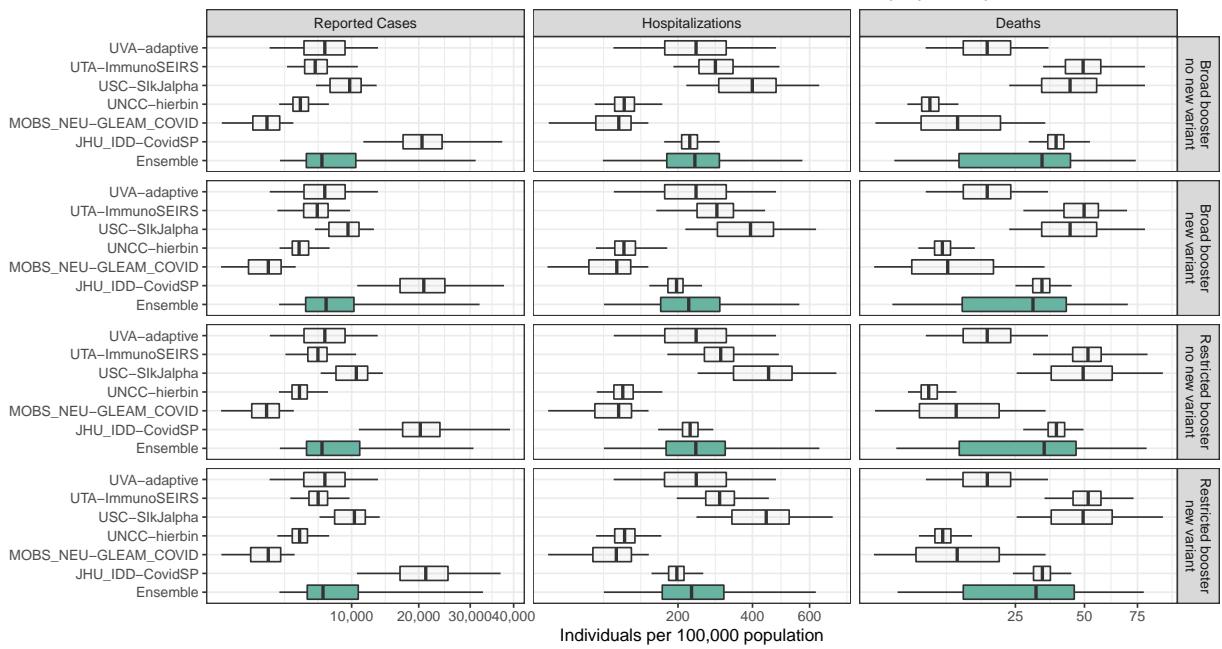
Individual model projections & 95% projection intervals – Broad booster, no new variant



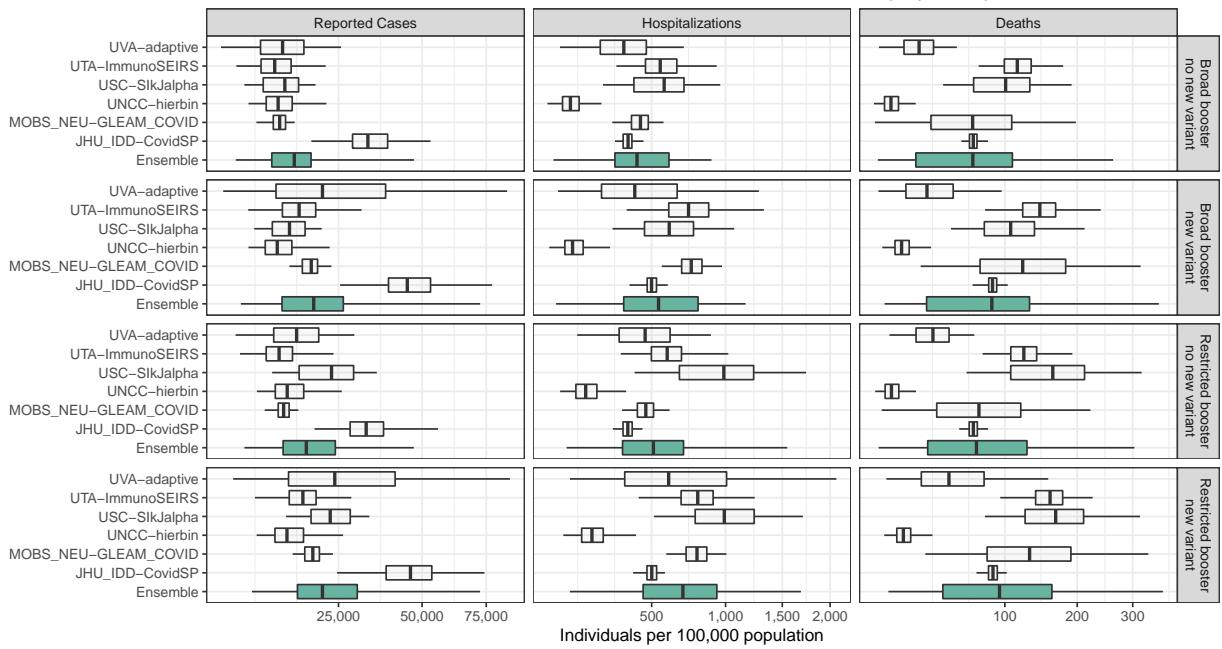
Projection distributions



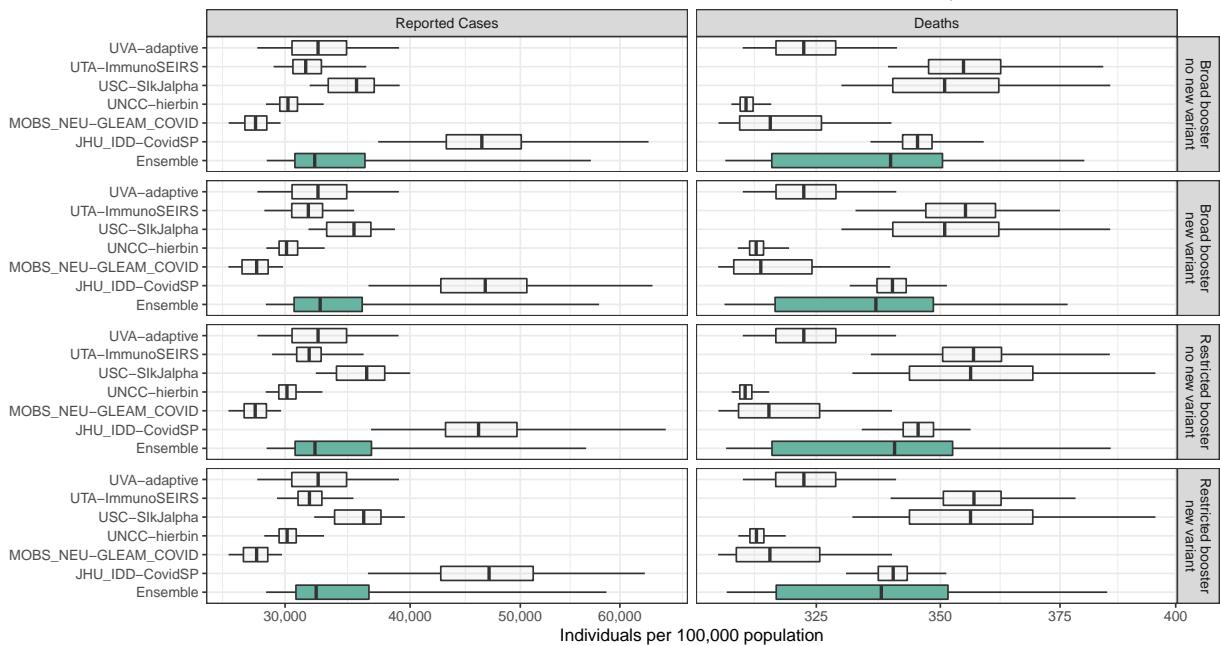
Model variation – 16 week ahead cumulative incidence over projection period



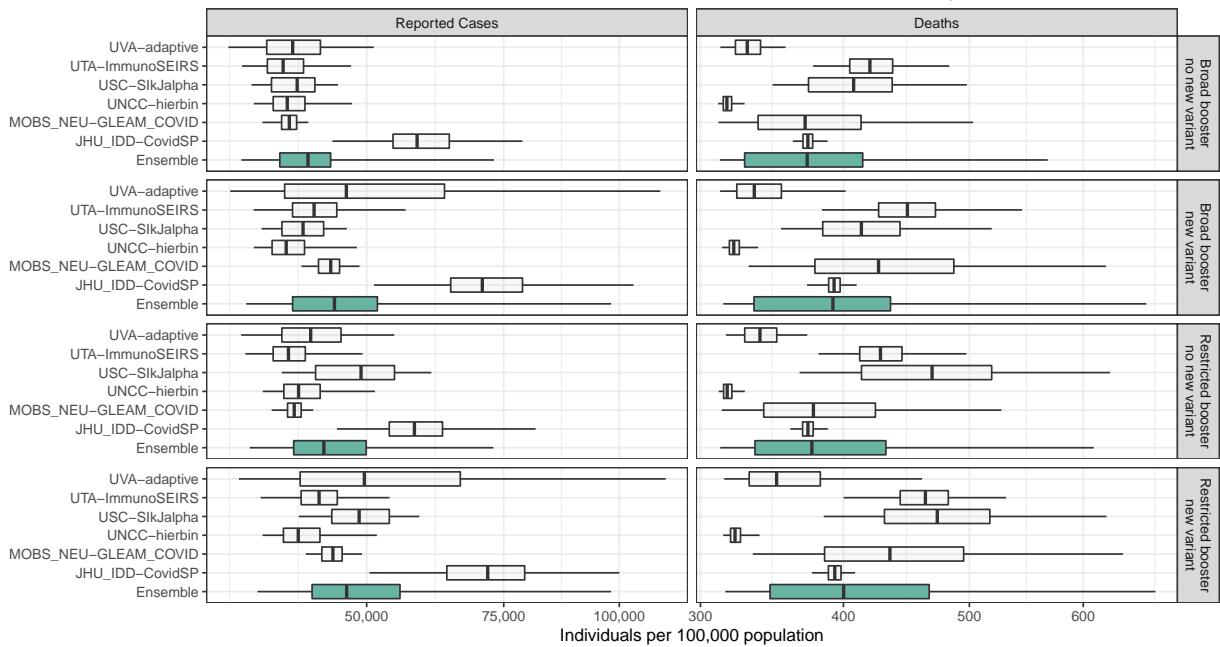
Model variation – 50 week ahead cumulative incidence over projection period



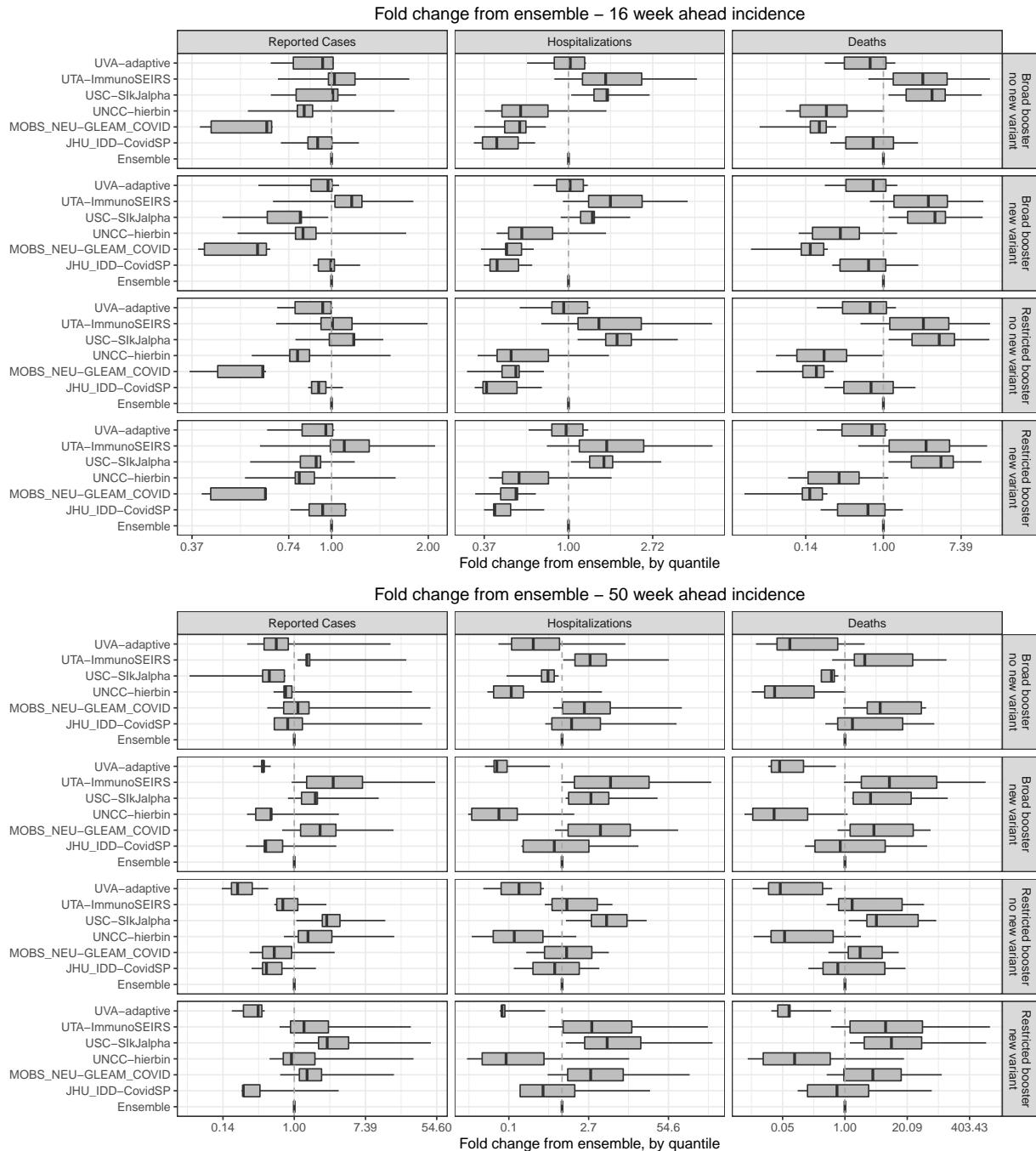
Model variation – 16 week ahead cumulative incidence over entire pandemic

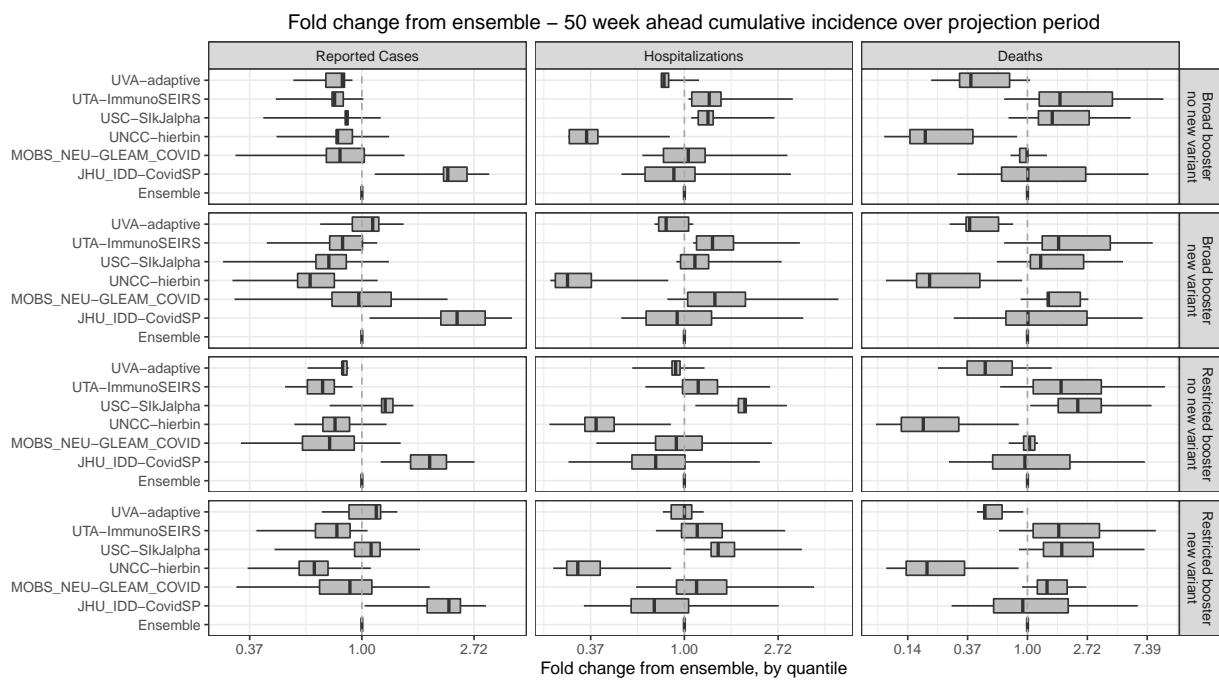
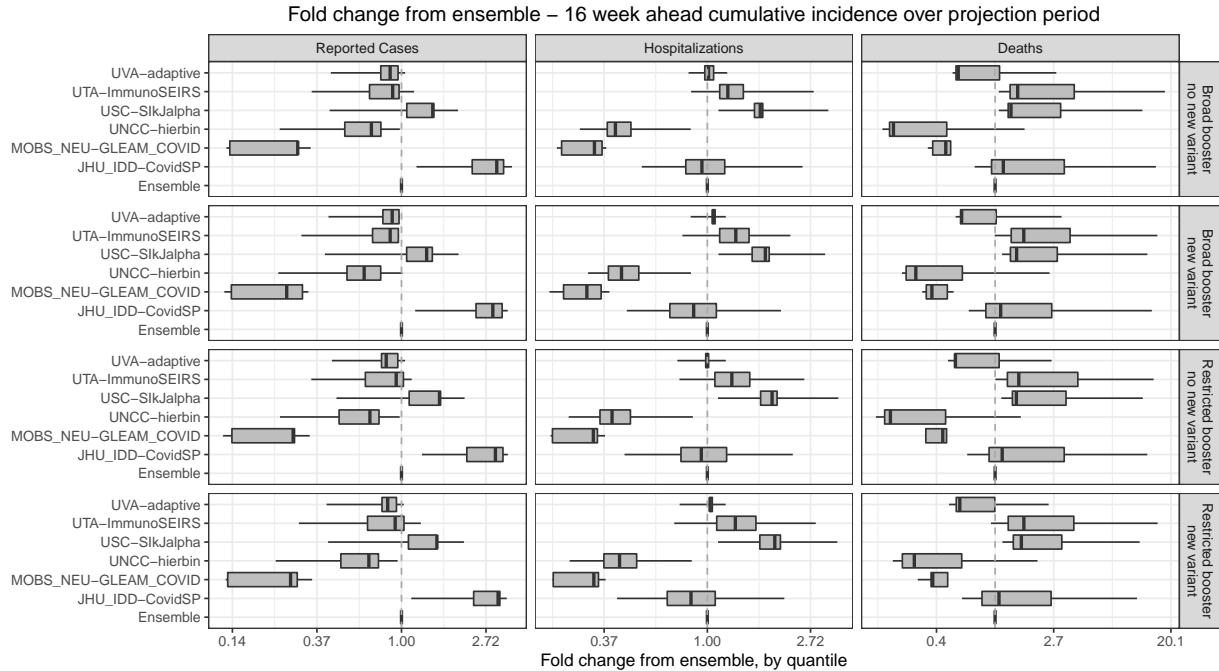


Model variation – 50 week ahead cumulative incidence over entire pandemic

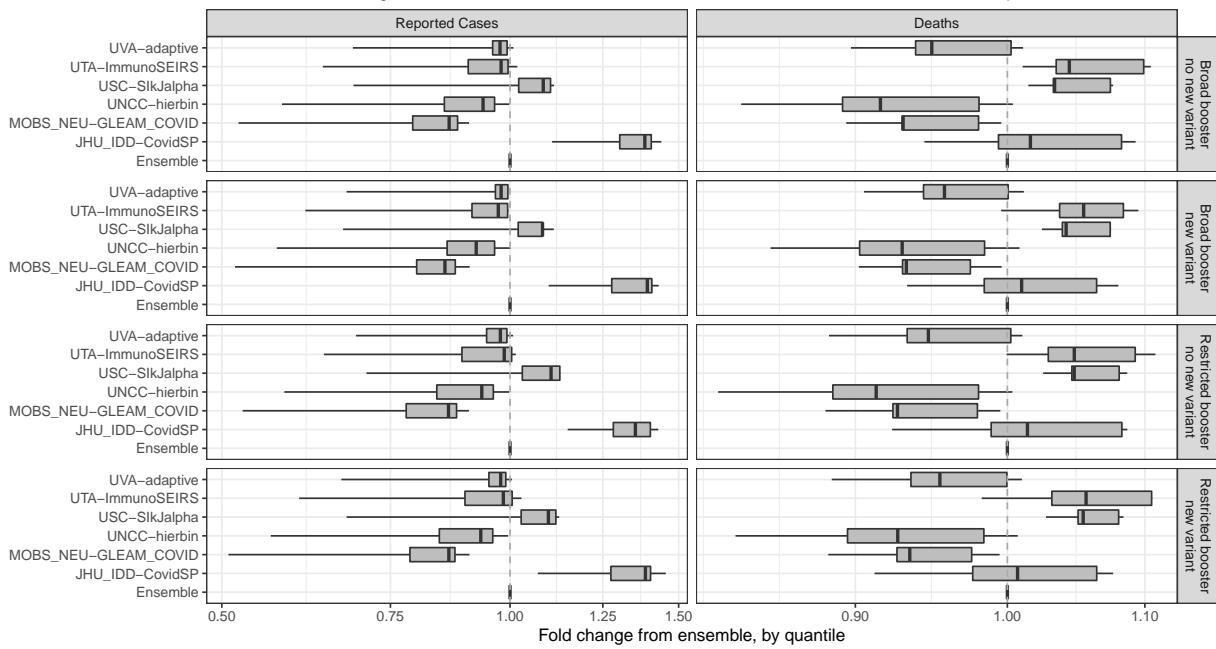


Difference between model and ensemble distributions

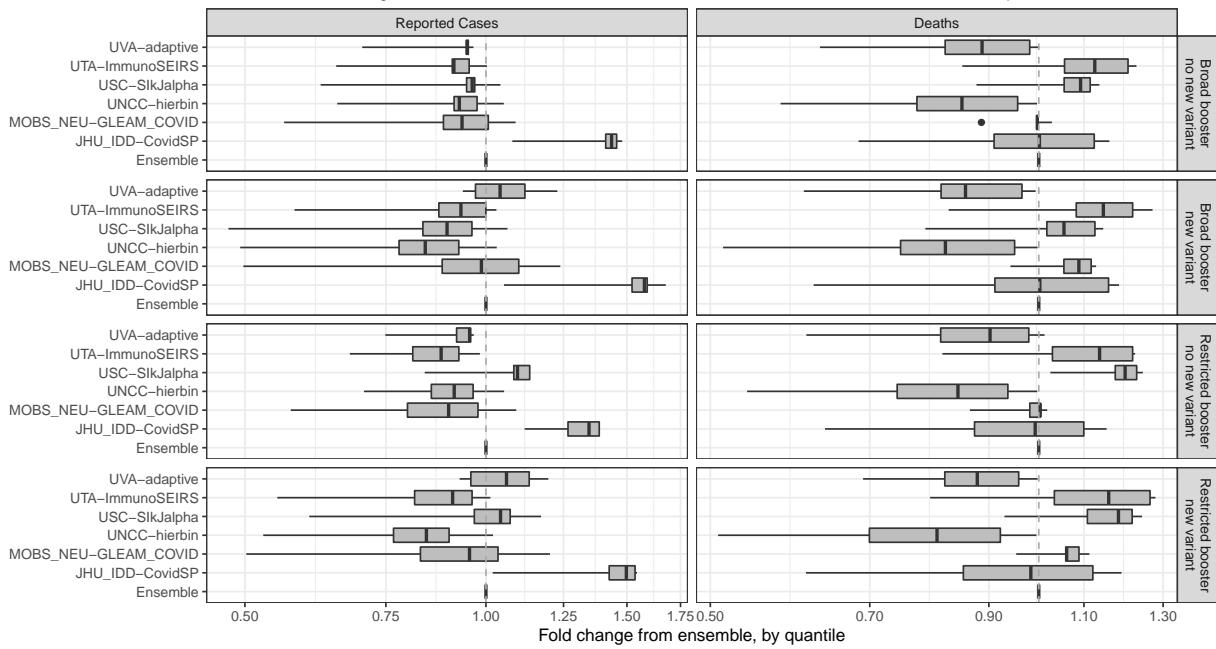




Fold change from ensemble – 16 week ahead cumulative incidence over entire pandemic



Fold change from ensemble – 50 week ahead cumulative incidence over entire pandemic



Model Abstracts

Northeastern University MOBS Lab — GLEAM COVID OT

Summary of results

- The model indicates the presence of recurring epidemic waves.
- BA.4/BA.5 limits the fall/winter surge in absence of Variant X
- The vaccine campaign in the fall has a benefit but does not seem to be able to curb the fall/winter wave especially in the case of variant X.
- In all scenarios, the emergence of variant X is increasing the surge peak.
- Differences and heterogeneity across states are observed.

Explanation of observed dynamics given model assumptions

The epidemic waves are mostly driven by the waning time scale of the natural infection/vaccine induced protection. The variant X scenarios show a pronounced increase of deaths and hospitalization (more than cases) because of the 20% increased risk of hospitalization/deaths relative to the current variants. The inclusion of the BA.4/BA.5 with growth advantage leads to increased epidemic activity in the summer and is a limiting factor (immunity build-up) for the fall/winter surge in the scenarios without variant X.

Model assumptions

Number/type of immune classes considered

We considered four different classes of immunity corresponding to pre and post omicron infection, boosted individuals and waned individuals. These classes are replicated in the multistrain model also for variant X.

Initial distribution of susceptibility if available

We define this through the calibration of the model on the Omicron wave data through an ABC approach. The distribution of the proportion of susceptible is depending on the scenario and geographic location.

Proportion of people that were infected with Omicron before June 15

We define this through the calibration of the model on the Omicron wave data through an ABC approach. The distribution of the proportion of susceptible is depending on the scenario and geographic location. #### Other N/A

Proportion of people that are naïve at start of projection (not vaccinated or infected)

We define this through the calibration of the model on the Omicron wave data through an ABC approach. The distribution of the proportion of susceptible is depending on the scenario and geographic location. #### Other N/A

Initial variant characteristics (including Omicron transmissibility, immune escape, whether BA4/BA5 were considered and how uncertainty or non-identifiability was handled)

Omicron transmissibility is obtained from calibration and varies across scenarios. We use a prior on effective transmissibility that accounts also for residual NPIs, seasonality and vaccine/prior exposure protection. BA.2 and BA.2.12.1 and BA.4/BA.5 are introduced with an effective increase in transmissibility (prevalence of the variants estimated using CDC tracker variant proportions nowcast model).

Process for setting/calibrating P(hosp given current infection) and P(death given current infection)

Calibrated by looking at deaths and hospitalizations during the Omicron wave.

Waning immunity details (including values used for the duration and level of protection against infection or symptomatic disease, whether a point estimate was used or a sample from the specified values, distribution used)

We use a gamma distribution for transitioning to the waned class. Waned protection measured with respect to prior Omicron infection and it has been calibrated to be between 3 to 4 months (median time).

Seasonality implementation

We use seasonal modulation of transmissibility. School calendars are also included in the model.

Emerging variant details (including introduction process and estimate of variant X emergence timing and variability)

We introduce the cases as indicated by the scenario specifications stochastically across counties according to international traffic. Domestic dispersion of cases is included mechanistically in the model through commuting patterns and domestic origin-destination traffic flows.

Nonpharmaceutical interventions

Status quo

Case ascertainment assumptions (including relation to infections, e.g., what value or values were used to translate to case estimates and how were they estimated)

The cases are rescaled to match the last empirical data point according to location.

Other updates in model assumptions from previous rounds (e.g., booster implementation)

We implemented the booster vaccination scheme according to the directions for each scenario. The model is a multistrain model. Calibration is driven by the hospitalization data. The deaths projections take into account the reporting delay through an additional stochastic process simulating the time from actual death to reporting.

University of North Carolina at Charlotte - UNCC-hierbin

Summary of results

We observed a steady drop of incident cases, hospitalization, and deaths in the first 8-9 week, followed by a substantial rebound in cases and hospitalization. There is a prominent 2nd peak from week 9 but gradually decline, before hitting another smaller peak due to new variant. Death dynamics has more temporal variability, possibly due to system stochasticity (i.e., small death numbers compared to case and hospitalization). Across all four simulated scenarios, restricted booster and introduction of new variant leads to the highest number of cases, hospitalization, and death, followed by restricted booster and no new variant. Broad booster with and without new variant do not differ much.

Explanation of observed dynamics given model assumptions

We suggest that broad vaccine booster has substantial impact on the overall dynamics that we observe (cases, hospitalization, and death) than introducing a new variant with higher immune escape. Broad booster not only reduces new infection but also reduces likelihood of transmission, hospitalization, and death.

Model assumptions

Number/type of immune classes considered

We considered a single immune class with continuous waning level instead of discrete full/partial immune classes. ## Initial distribution of susceptibility if available ### Proportion of people that were infected with Omicron before June 15 Not explicitly modeled. However, the proportion can be estimated from cumulative prevalence of infection on historical data. ### Proportion of people that are naïve at start of projection (not vaccinated or infected) Not explicitly modeled. ### Other NA ## Initial variant characteristics (including Omicron transmissibility, immune escape, whether BA4/BA5 were considered and how uncertainty or non-identifiability was handled) Transmissibility, immune escape, hospitalization, death rates are modeled as directed in the instruction. BA4/BA5 are not explicitly considered due to data-driven nature. However, BA4/BA5 cumulative prevalence in the population can be tracked via adding another variable when such data become available. ## Process for setting/calibrating P(hosp given current infection) and P(death given current infection) Moving average of hospitalization and death rates across states are used to calibrate the model. ## Waning immunity details (e.g., distribution used) Waning immunity is not explicitly modeled in this round 14. ## Seasonality implementation Seasonality is applied via transfer learning from 2021 data. ## Emerging variant details (including introduction process and estimate of variant X emergence timing and variability) Modeled as directed in the instruction (introduction number as daily new cases throughout the 16 week period). ## Nonpharmaceutical interventions NPI is modeled via transfer learning. ## Case ascertainment assumptions (including relation to infections, e.g., what value or values were used to translate to case estimates and how were they estimated) We do not explicitly consider under-reporting (i.e., infection/case ratio) due to testing capacity or other constraints. ## Other updates in model assumptions from previous rounds (e.g., changes in reporting outcomes due to Omicron) Our model focuses on projecting reported cases, hospitalization, and death. We assume that hospitalization and death are more stable metrics of the COVID-19 pandemic. If necessary, “true incident cases” can be adjusted by applying an under-estimating rate from published studies.

Summary of results

In all scenarios, peaks in all outcomes are observed in end of June or July. This peak is comparable to the omicron peak in January. Past this peak, outcomes rise again, more quickly in B and D compared to A and C, respectively, driven by variant X and waning immunity. In scenarios C and D the rise is significantly lower than A and B due to the increased third booster coverage.

Explanation of observed dynamics given model assumptions

The presence of BA.4 and BA.5 in the model is causing a sharp surge in June. The variant prevalence data for BA.4 and BA.5 is sparse at the moment, therefore, is likely to be uncertain. Another week of data can significantly improve the projections.

Model assumptions

Number/type of immune classes considered

The model explicitly accounts for various paths to partial immunity with infections and arbitrary number of vaccine doses and the time at which it was acquired. These include (1) 1st time infections, (2) 2nd+ time infections without any dose, (3) a dose without prior infection (4) infection after a dose, and a (5) dose after infection. The vaccine related states are (3)-(5) which are repeated for five doses (first, second, booster 1, booster2, and booster 3).

Initial distribution of susceptibility if available

Susceptibility is identified over the whole period since Jan 2020 by keeping track of each of the states listed above. Having these states over time, age groups and variants allows for precise computation of immunity in the population at a given time. As a result, we can track new infections among the observed data that have protection from a prior immunity (from vaccine/booster/infection), while accounting for waning immunity.
Proportion of people that were infected with Omicron before June 5 ~ 58.36% of all infections
Proportion of people that are naïve at start of projection (not vaccinated or infected) ~ 0

Initial variant characteristics (including Omicron transmissibility, immune escape, whether BA4/BA5 were considered and how uncertainty or non-identifiability was handled)

Ten variants are considered: BA.1, BA.1.1, BA.2, BA.2.12.1, BA.3, BA.4, BA.5, variant X, pre-omicron (all variants before the rise of omicron combined as one), and other (all other variants combined as one). All BA* except BA.4 and BA.5 are assumed to have 50% immune escape from the pre-omicron variant. BA.4 and BA.5 are assumed to be either 40% or 60% immune escape (contributing to uncertainty). Fixing the immune escape parameter, the model is able to learn the transmissibility of all the four omicron variants based on the observed data. Further, it is possible to get unusually large values for transmission of variants that have low prevalence but show significant growth advantage. We enforce that maximum transmissibility of BA.5 cannot exceed that of the most transmissible among the rest of the BA*. Thus, the advantage is driven by immune escape property.

Process for setting/calibrating P(hosp given current infection) and P(death given current infection)

Learned from observed data. The severity of X is set as provided in the scenarios.

Waning immunity details (including values used for the duration and level of protection against infection or symptomatic disease, whether a point estimate was used or a sample from the specified values, distribution used)

It is assumed that all waning happens through a time-dependent waning mechanism. The probability of transferring to a partially immune state by at time t is modeled as a gamma distribution such that: (i) the median is as per the scenario; (ii) the efficacy (given the partial immune protection against infection) after the first 60 days is the “initial” vaccine efficacy (e.g. 80% for 65+, 90% for <65). Protection against severe outcomes is derived from recently observed breakthrough surveillance data: < 65: protection against hospitalization 0.80, protection against death 0.91 65+ : protection against hospitalization 0.87, protection against death 0.93. Although, these numbers have no impact on the results as the severe outcome rates scales itself to account for this due to almost all population having protection due to vaccine or past infection.

Seasonality implementation

None

Emerging variant details (including introduction process and estimate of variant X emergence timing and variability)

It is assumed that 50 new weekly cases of the new variants are introduced distributed uniformly over seven days and proportional to state populations.

Nonpharmaceutical interventions

None

Case ascertainment assumptions (including relation to infections, e.g., what value or values were used to translate to case estimates and how were they estimated)

Wastewater data is used as a proxy for true cases. The time-series is smoothed and then scaled so that “true cases” in first half 2021 matches that obtained through seroprevalence data. Future probability of reporting is assumed to be the ratio seen over the last two weeks. The median reporting probability come out to be 0.34 across all the states.

Other updates in model assumptions from previous rounds (e.g., booster implementation)

The model has been updated to accommodate arbitrary number of boosters.

University of Texas at Austin - ImmunoSEIRS

Summary of results

Our projections predict that the emergence of variant X will coincide with a surge driven by BA.4/BA.5 emergence and Omicron-derived immunity waning. The magnitude of this surge will depend on the history of immunization and infection in each state. Variant X is expected to prolongate the duration of the wave and delay the decrease of infections in some states. It can also cause new waves in other states. In particular, we notice that in general, the states that were not affected by the BA.4/BA.5 surge will be the most vulnerable to variant X. That's because they did not build a sufficient level of population-immunity to contain the emergence of variant X.

We project that the broader booster administration will help in bringing the cases down rapidly upon the emergence of variant X, but the epidemic will take off again when the boosting campaign is complete. In the absence of variant X, we project that the number of cases will remain low until the end of the projection period. Although we observe signs of a new surge in May 2023 in most states.

Explanation of observed dynamics given model assumptions

The emergence of variant X will take place during the peak of the infection wave caused by BA.4/BA.5. As a result, there will be a high level of immunity in the population which will reduce the impact of variant X in some states. Due to the immune escape of variant X to Omicron-derived immunity, a portion of individuals who got infected during the BA.4/BA.5 wave or the previous Omicron surges will be reinfected with variant X. This will delay the fall of cases, hospital admissions, and deaths. In the states where the initial level of immunity are high, it is expected that the emergence of BA.4/BA.5 will not cause a big surge. However, these states will be most vulnerable to variant X, because the levels of population-immunity will be low at that moment.

The expanded booster coverage is effective in bring the cases down. However, it will also prevent the development of immunity derived from variant X infections. This type of population-mnunity is expected to be more effective in preventing infections with variant X. Thus, we project that the epidemic will take off as soon as the booster campaign stops because of the short waning period of immunity acquired by the boosters. The same dynamics is observed when the continued risk-focused booster is considered. However, the effectiveness of the booster campaign in bringing the number of infections down will be reduced. But this will help build more variant X-infection derived immunity which will slow down the growth of infections.

Model assumptions

Number/type of immune classes considered

We are using a new class of epidemiological models that explicitly tracks the level of population-immunity in the population and its impact of the susceptibility and severity of the circulating variants. In the current version of the model, we are considering fourteen types of of protection levels: seven against infection and seven against severe disease. The source of these immunities are as follows: - infections with Omicron BA.1, - infections with BA.2, - infections with BA.2.12.1, - infections with BA.4/BA.5, - infections with variant X, - primary vaccination, - booster vaccination (both first and second boosters).

Initial distribution of susceptibility if available

Proportion of people that were infected with Omicron before June 15

In the USA, the model estimates that around 62.5% of the population were infected at least once by an Omicron variant by June 15.

Proportion of people that are naïve at start of projection (not vaccinated or infected)

We fit the model to cases, hospital admissions, and deaths from Feb 22 to May 28, 2022. We use the CDC data from on the Nationwide COVID-19 Infection-Induced Antibody Seroprevalence to estimate the level of population-immunity from infections in each state on Feb 22, 2022. Then, we calculate the level of vaccination-derived population-immunity in each state, using available data for primary and booster vaccination coverages.

Other

N/A

Initial variant characteristics (including Omicron transmissibility, immune escape, whether BA4/BA5 were considered and how uncertainty or non-identifiability was handled)

We parameterized the variant characteristics according to best literature estimates on transmissibility, immune escape, and severity. In case of uncertainty, we have used the estimates which provided the most accurate predictions in our previous projections.

We assume that BA.1 is 155% more transmissible than Delta, and has 42.5%, 32%, 22% chances to escape protection against infection, hospitalization, and death, respectively, gained from infections with pre-Omicron variants and primary vaccination. We assume that BA.2 is 40% more transmissible than BA.1. We consider that BA.2.12.1 has 30% chances to escape protection against infection, gained from BA.1 and BA.2 infections. Lastly, we assume that BA.4/BA.4 have 40% chance to escape protection against infection, gained from all previous Omicron infections.

Process for setting/calibrating P(hosp given current infection) and P(death given current infection)

In the fitting period, we have considered the rate of hospitalization and death follow polynomial functions that we fit to data using the least square method. In the projection period, we keep the last estimate for both the hospitalization and death rates.

Waning immunity details (including values used for the duration and level of protection against infection or symptomatic disease, whether a point estimate was used or a sample from the specified values, distribution used)

The model considers exponential decay for the waning of all immunity types. We assume a half-life time for the waning of immunity derived from vaccination equal to 6 months against infection and 12 against severe disease. We assume that booster-derived immunity wanes with a half-life time equal to 3 months and 8 months for protections against infection and severe disease, respectively. The half-life time of the immunity derived from natural infection with all variants is assumed to be 4 months for protection against infection and 8 against severe disease.

Seasonality implementation

We don't assume any seasonal effect, except for the school closure from June to August of every year, and from December 18, 2022 to January 2, 2023.

Emerging variant details (including introduction process and estimate of variant X emergence timing and variability)

The growth function for the proportion of infections with variant X is calculated using a separate toy multi-strain SEIRS model. The model is parameterized using estimate for population-immunity in the US derived from the main model. One limitation of the current implementation is that we use the same growth function for variant X for all states.

Nonpharmaceutical interventions

We do not consider any non-pharmaceutical interventions in the projections.

Case ascertainment assumptions (including relation to infections, e.g., what value or values were used to translate to case estimates and how were they estimated)

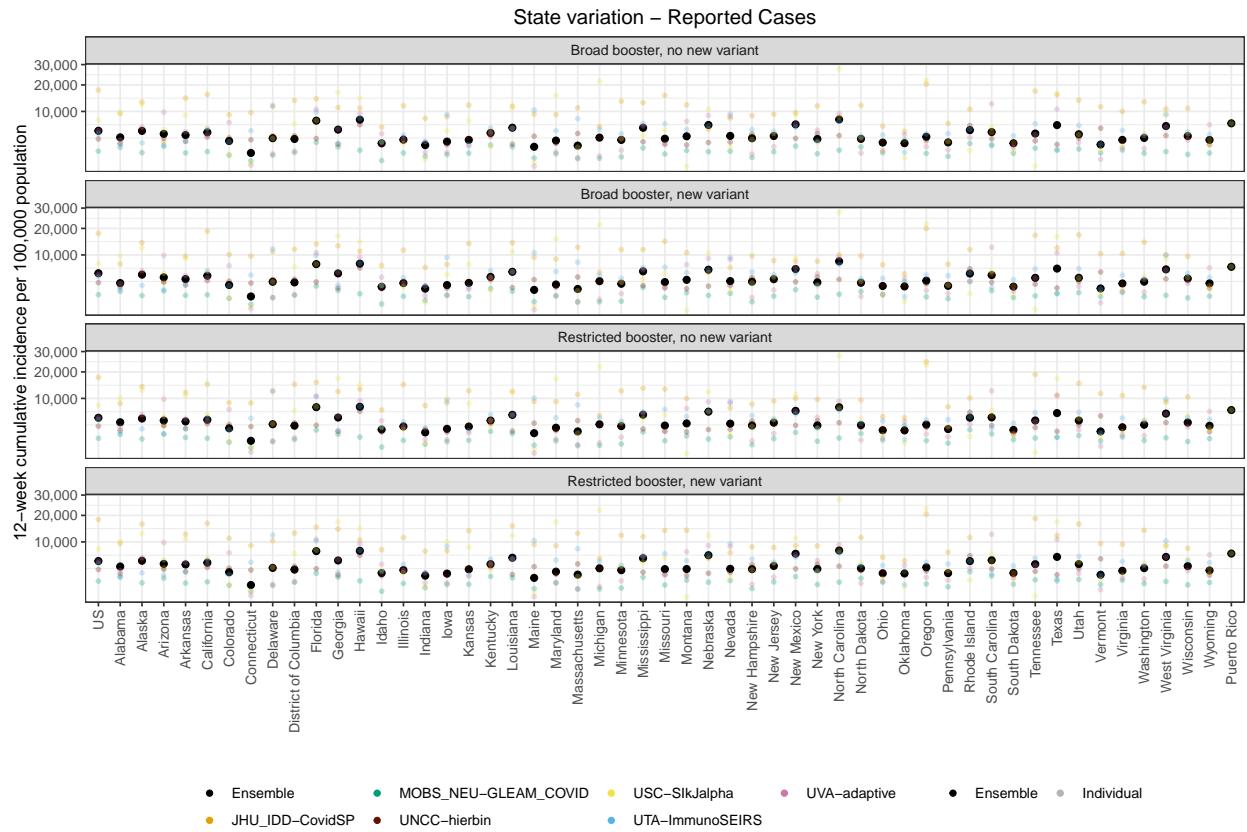
We consider a baseline reporting level of 20%, which means that one out of every five infections is reported. However, this ratio can change depending on the level of immunity in the population. Indeed, when immunity increases, there are fewer symptomatic cases and therefore less reported infections.

Other updates in model assumptions from previous rounds (e.g., booster implementation)

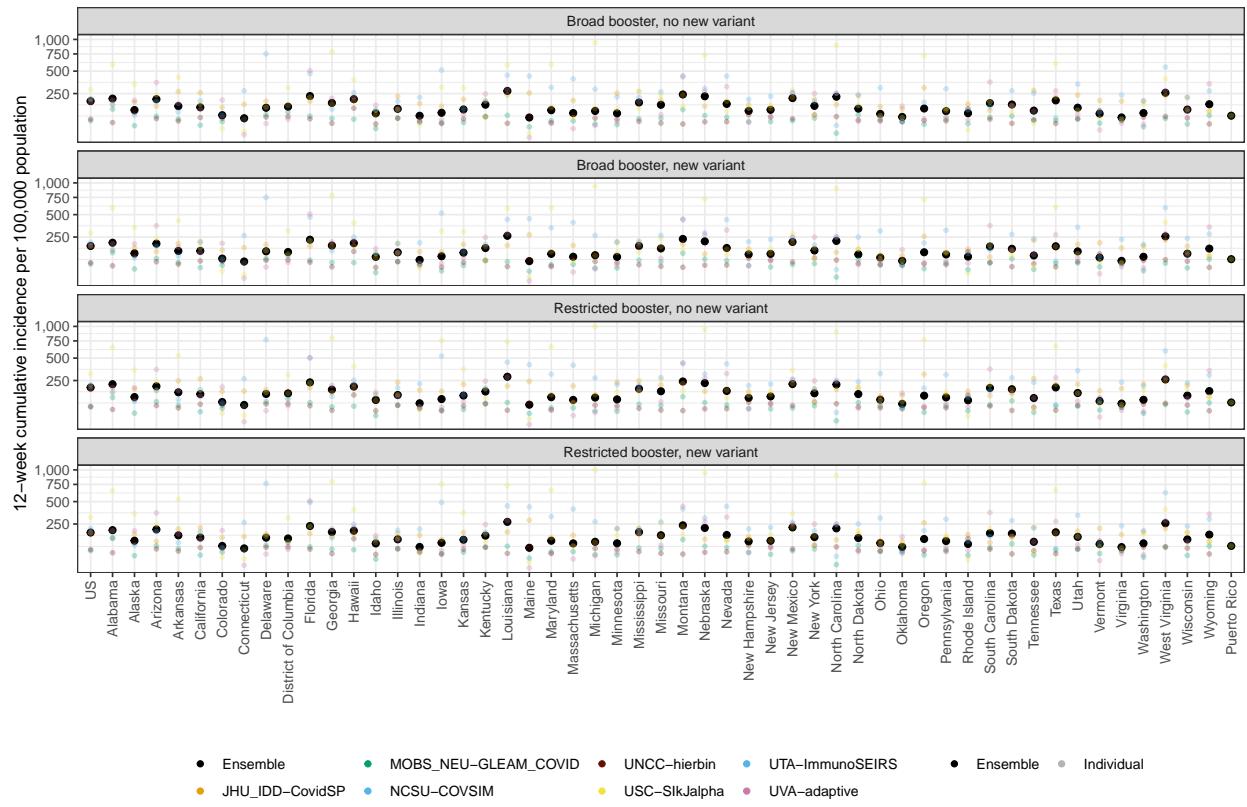
The new version incorporates the new variants BA.2.12.1, BA.4/BA.5, and X. At the moment, we do not make difference between the first and second boosters because we assume that newly boosted individuals have the same level of protection regardless of the booster order.

Supplemental Plots

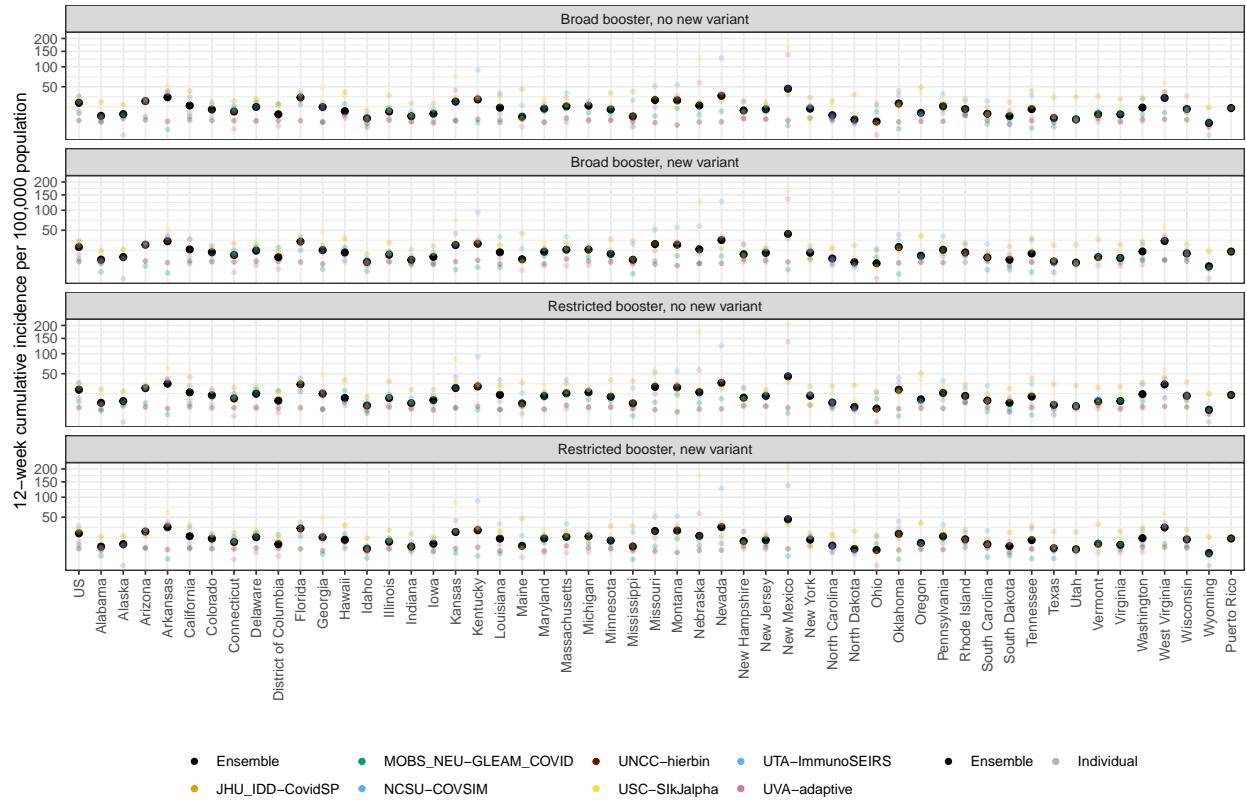
Individual model and ensembles projections for state-level cumulative incidence per 100,000 population over 12-week projection period.



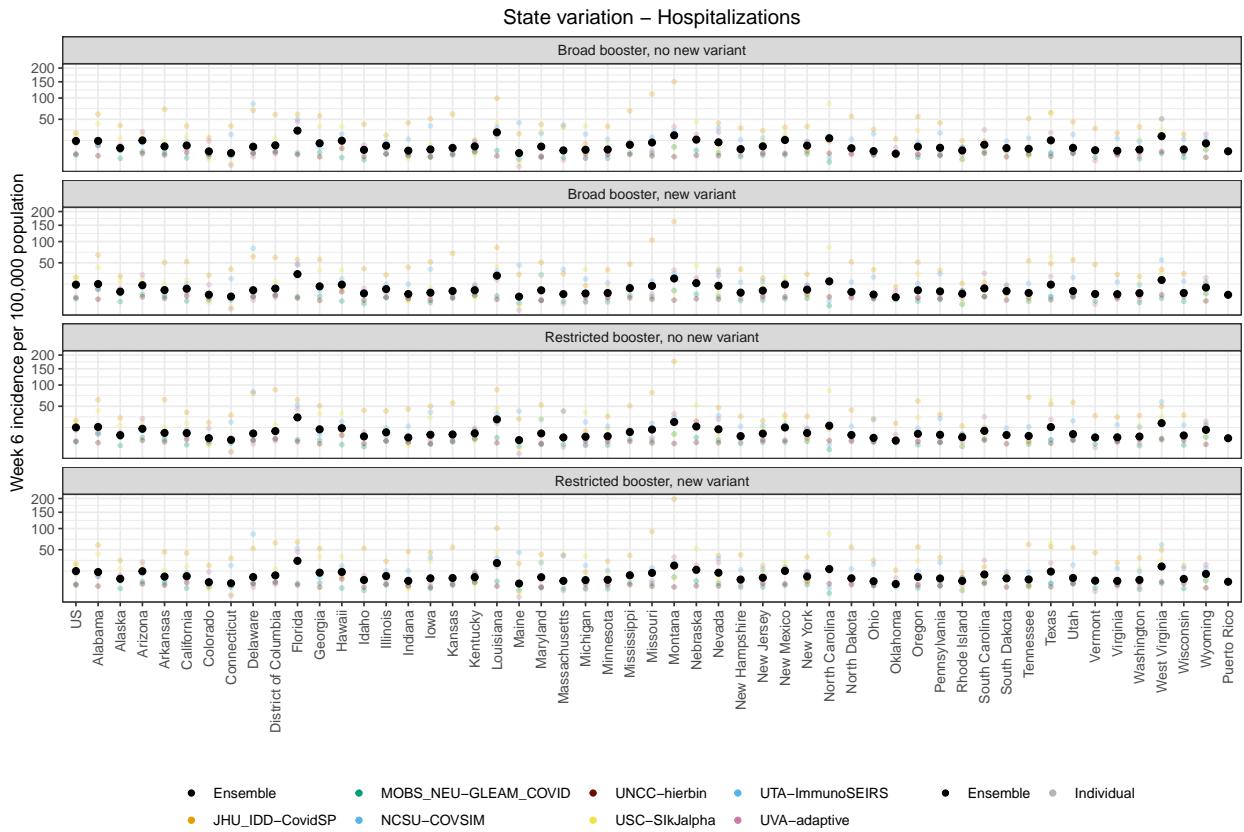
State variation – Hospitalizations

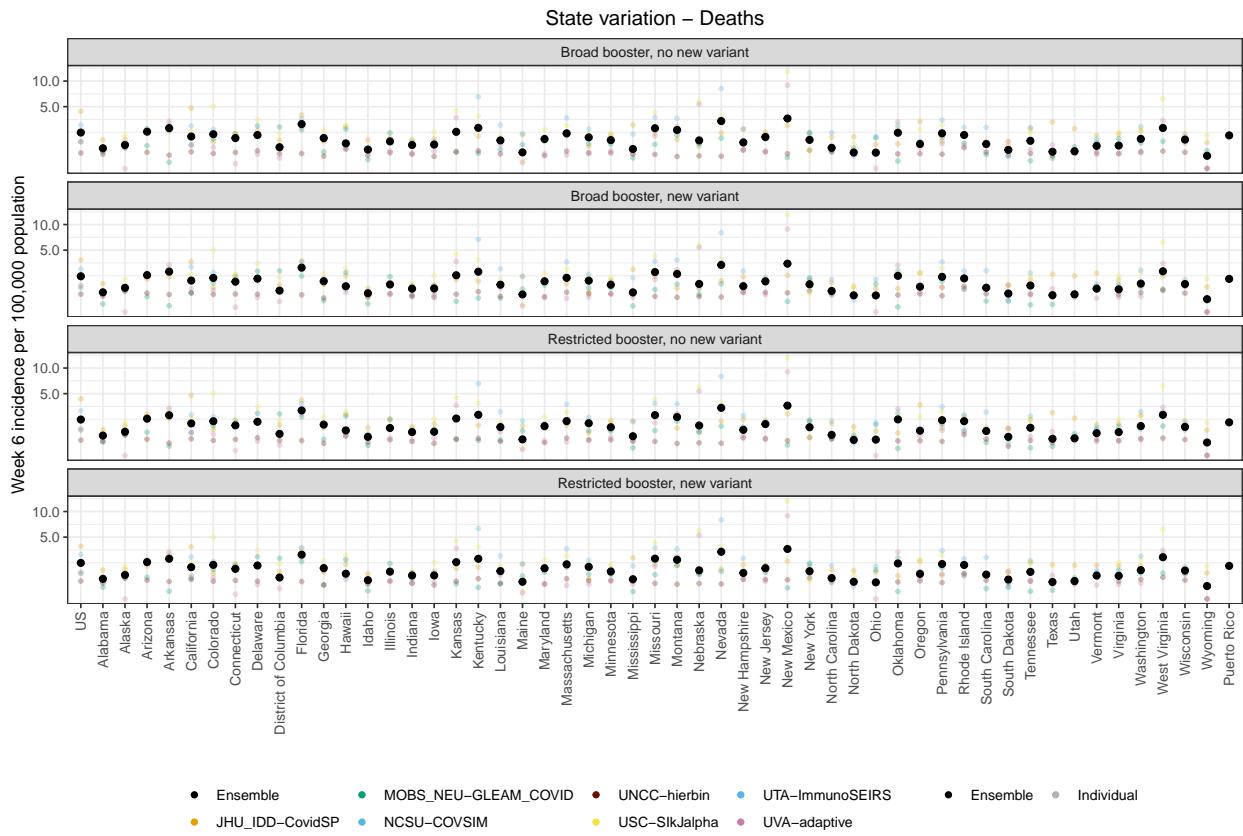


State variation – Deaths

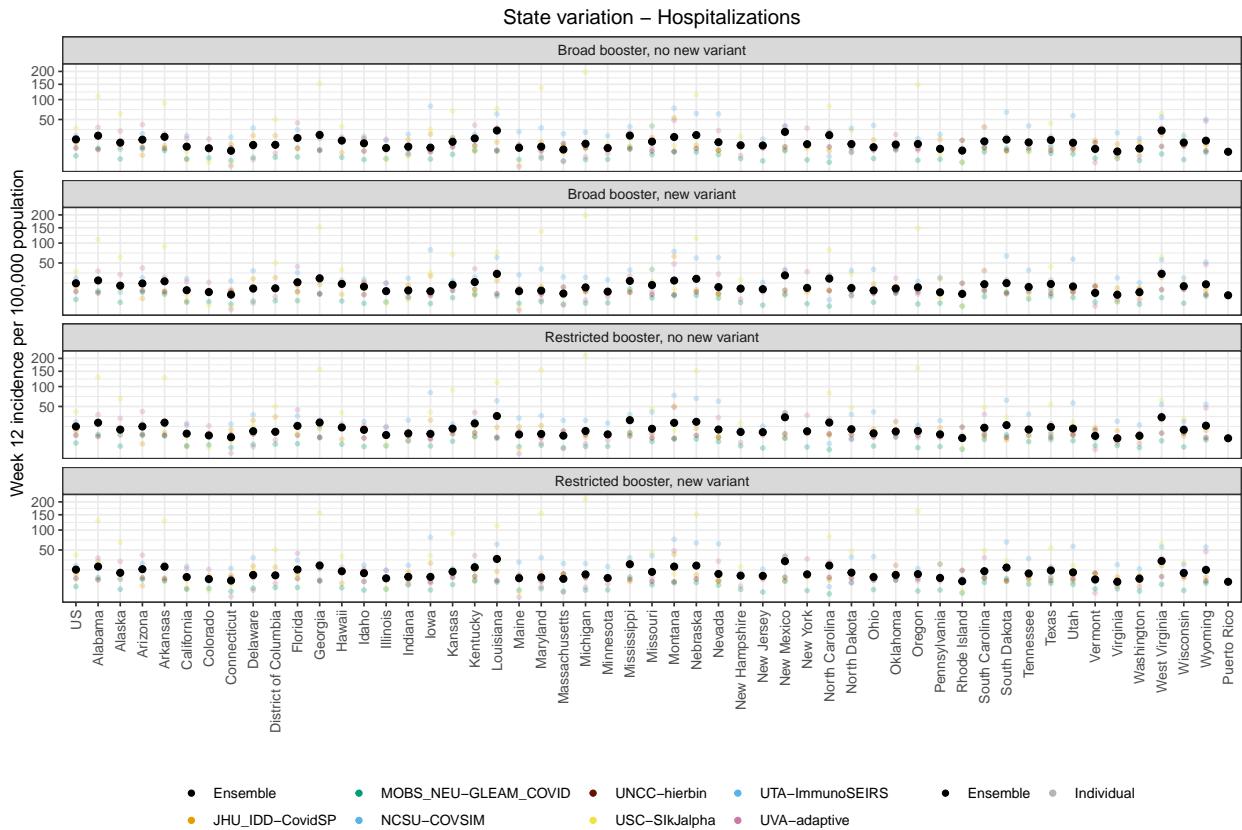


Individual model and ensembles projections for state-level death and hospitalization incidence per 100,000 population at week 6.

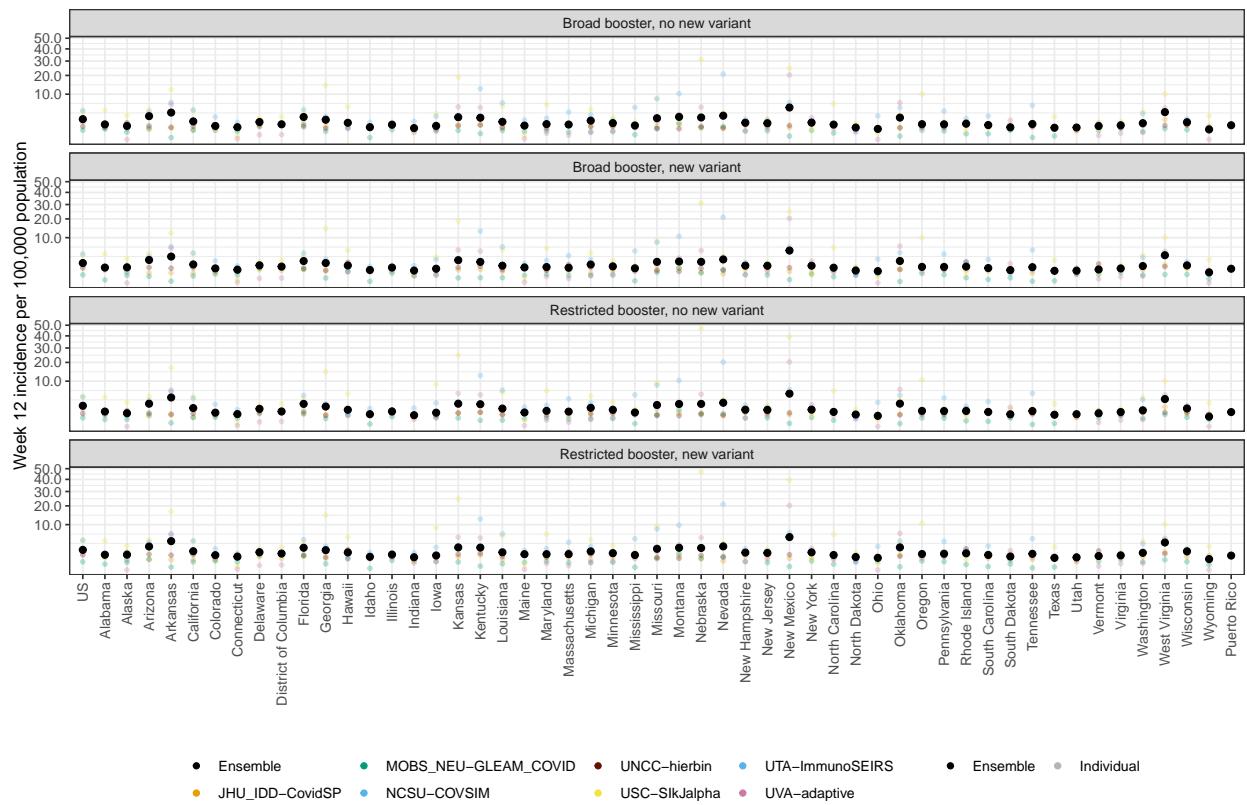




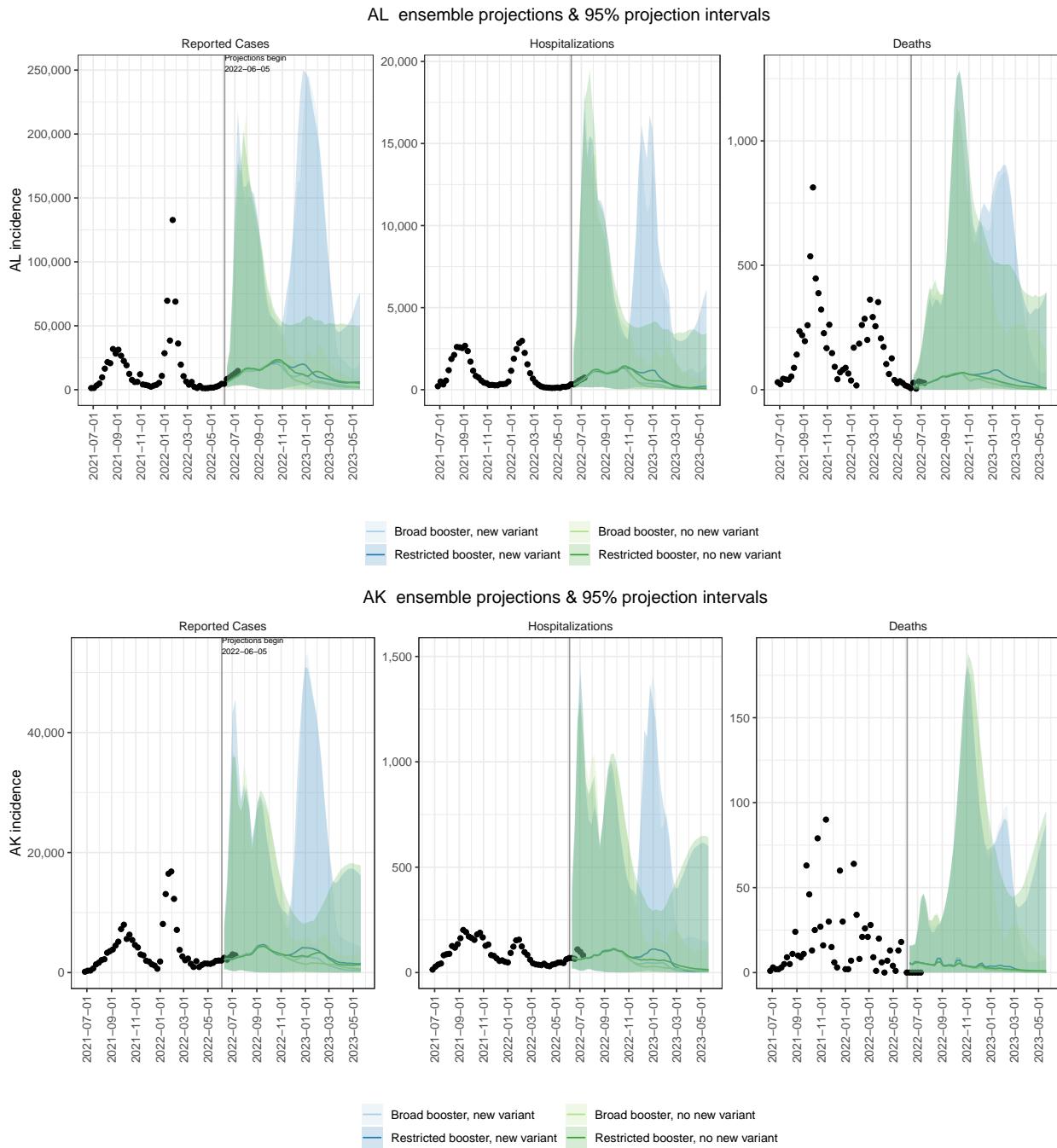
Individual model and ensembles projections for state-level incidence per 100,000 population at week 12.



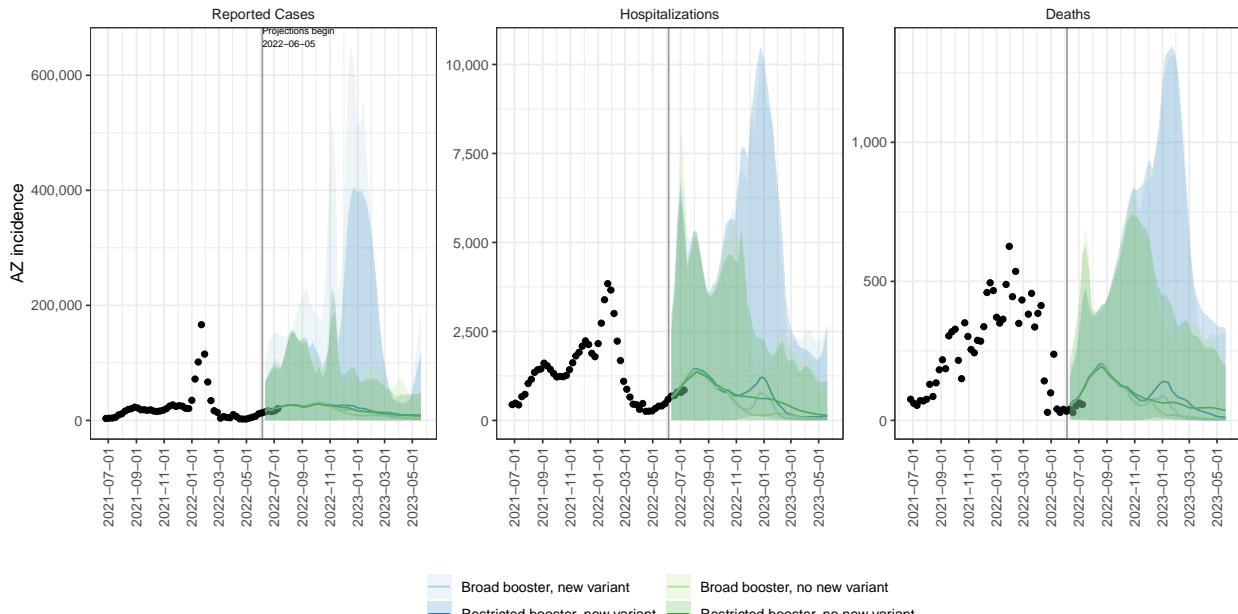
State variation – Deaths



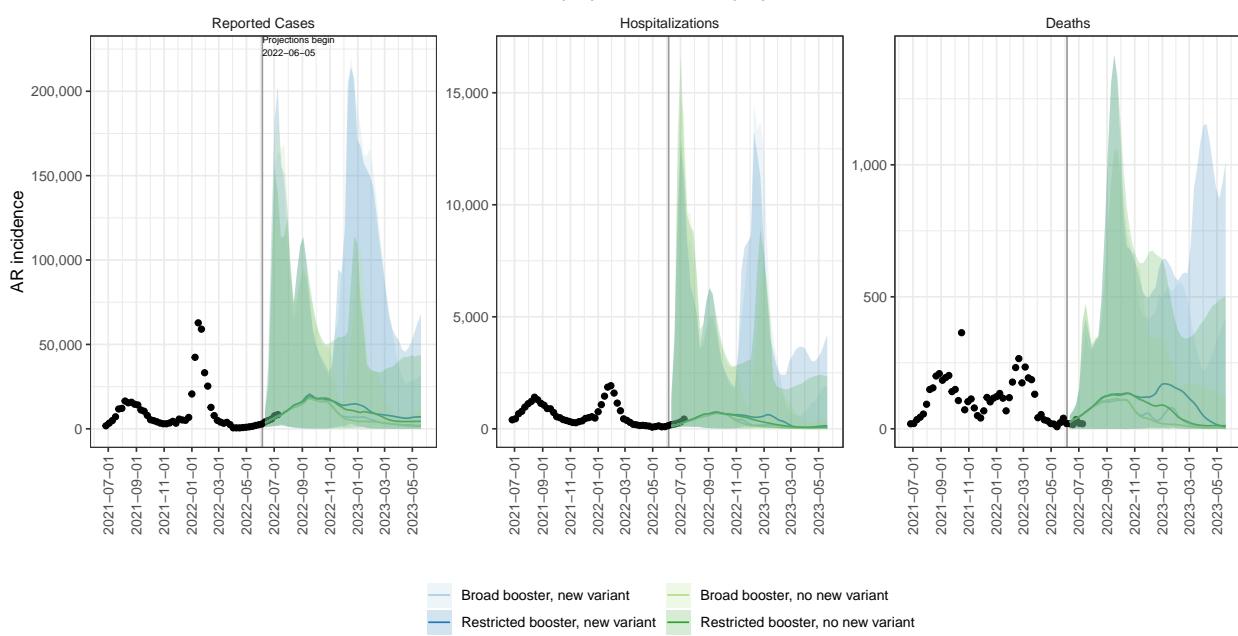
State-level ensemble plots



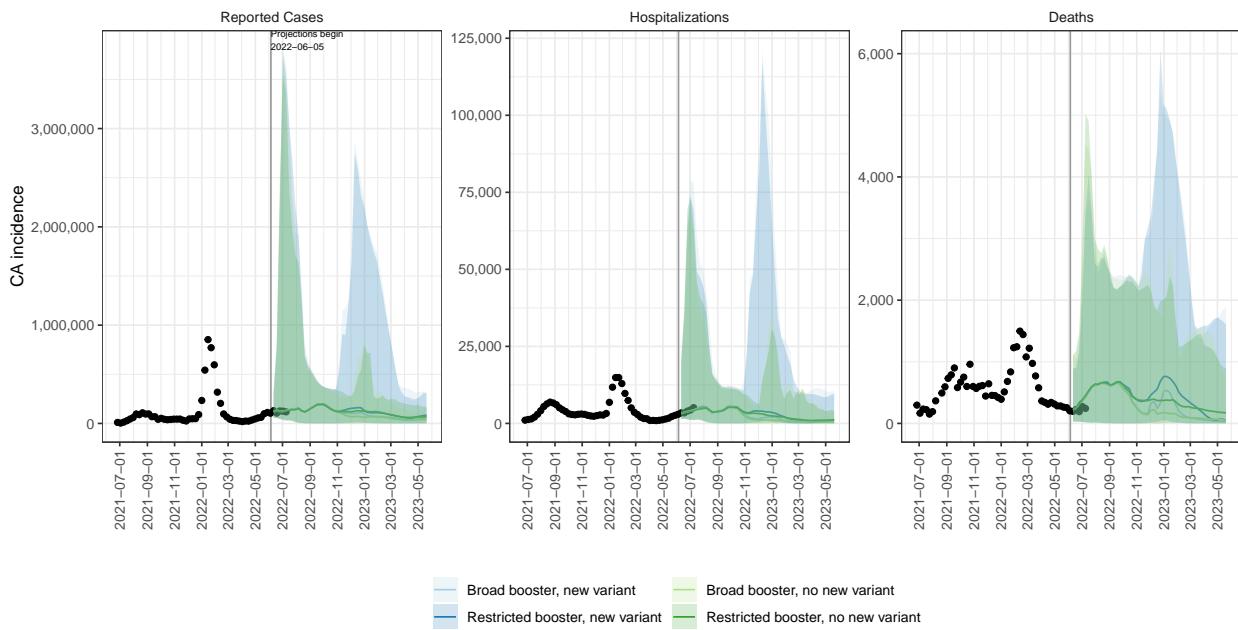
AZ ensemble projections & 95% projection intervals



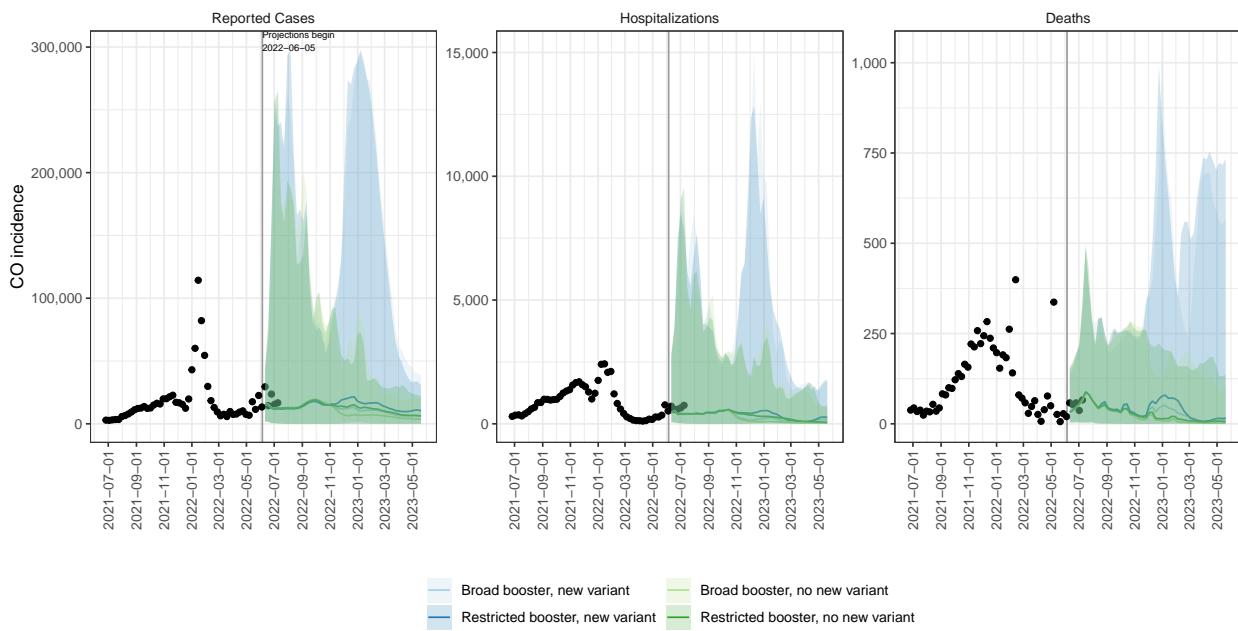
AR ensemble projections & 95% projection intervals



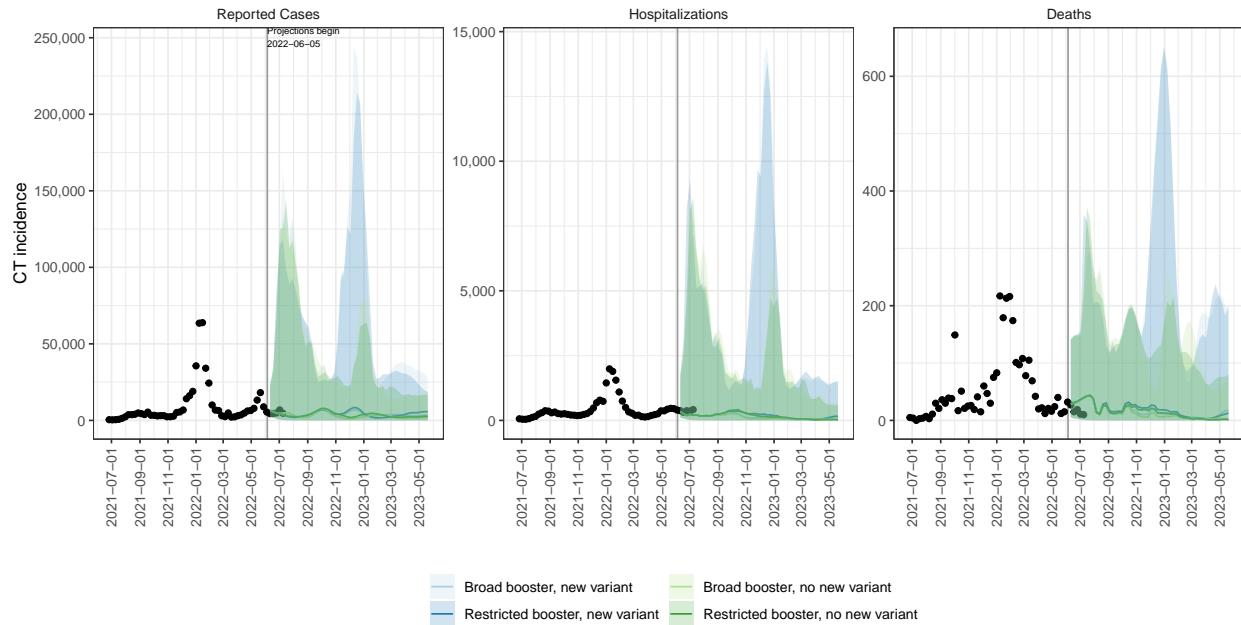
CA ensemble projections & 95% projection intervals



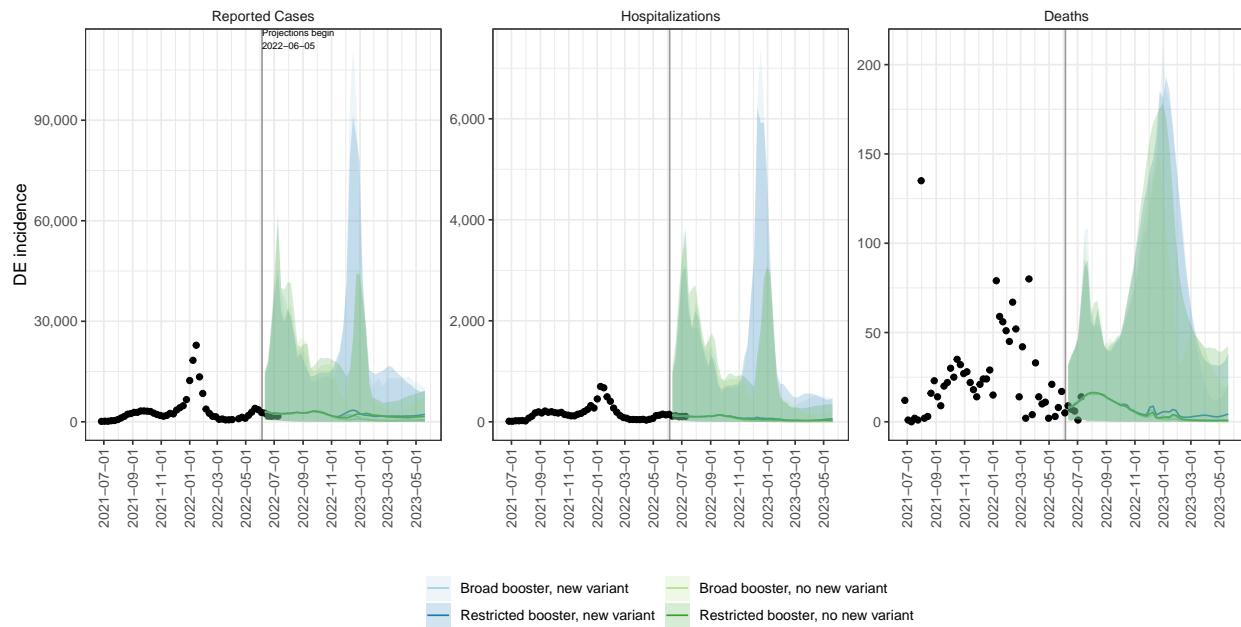
CO ensemble projections & 95% projection intervals



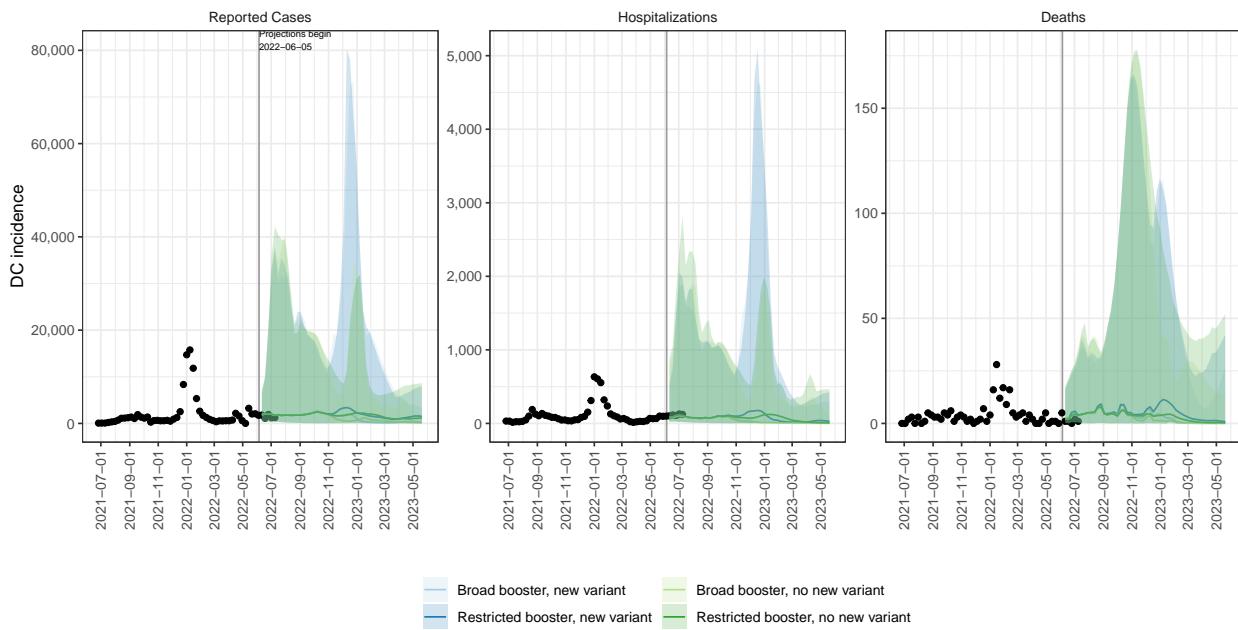
CT ensemble projections & 95% projection intervals



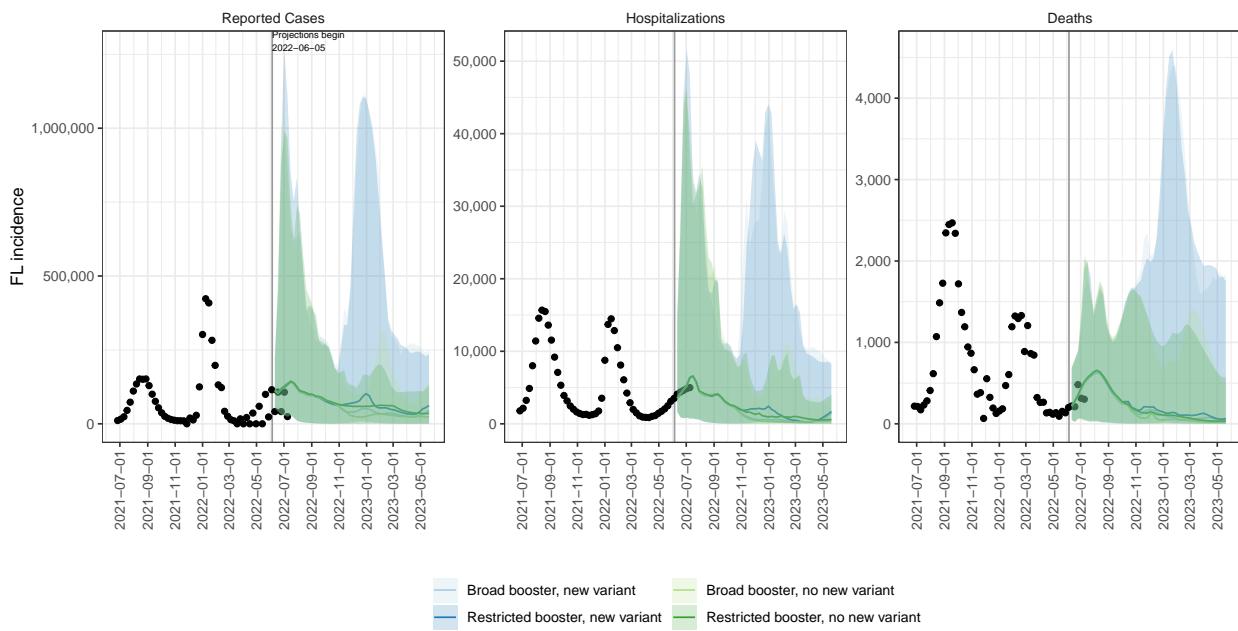
DE ensemble projections & 95% projection intervals



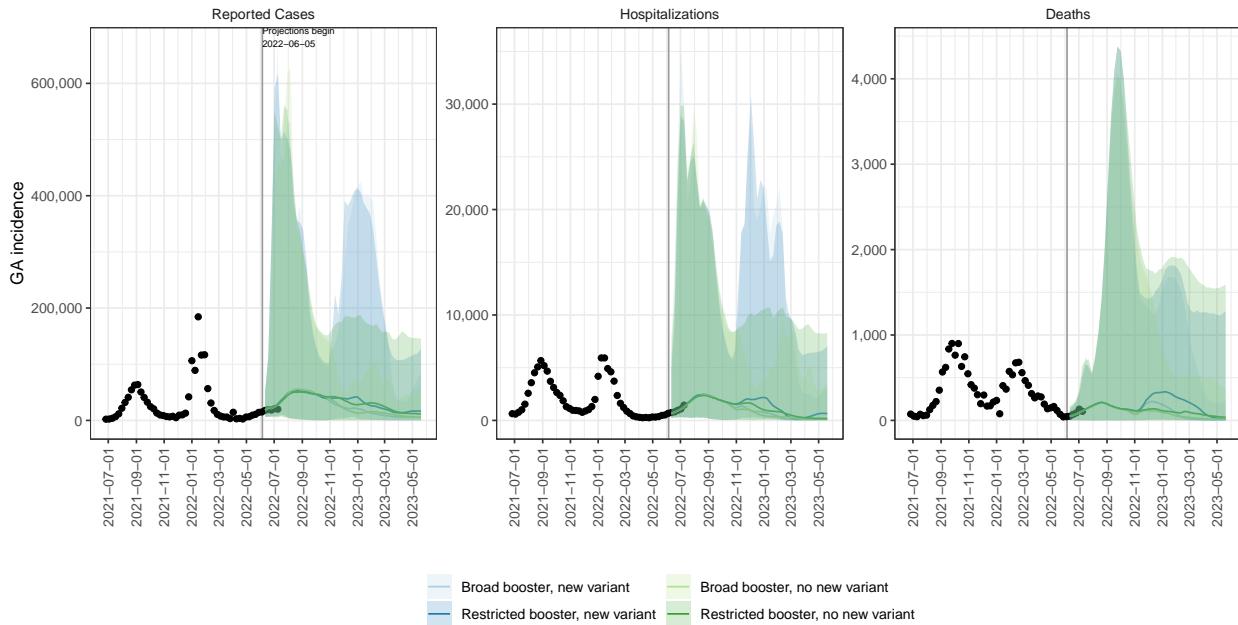
DC ensemble projections & 95% projection intervals



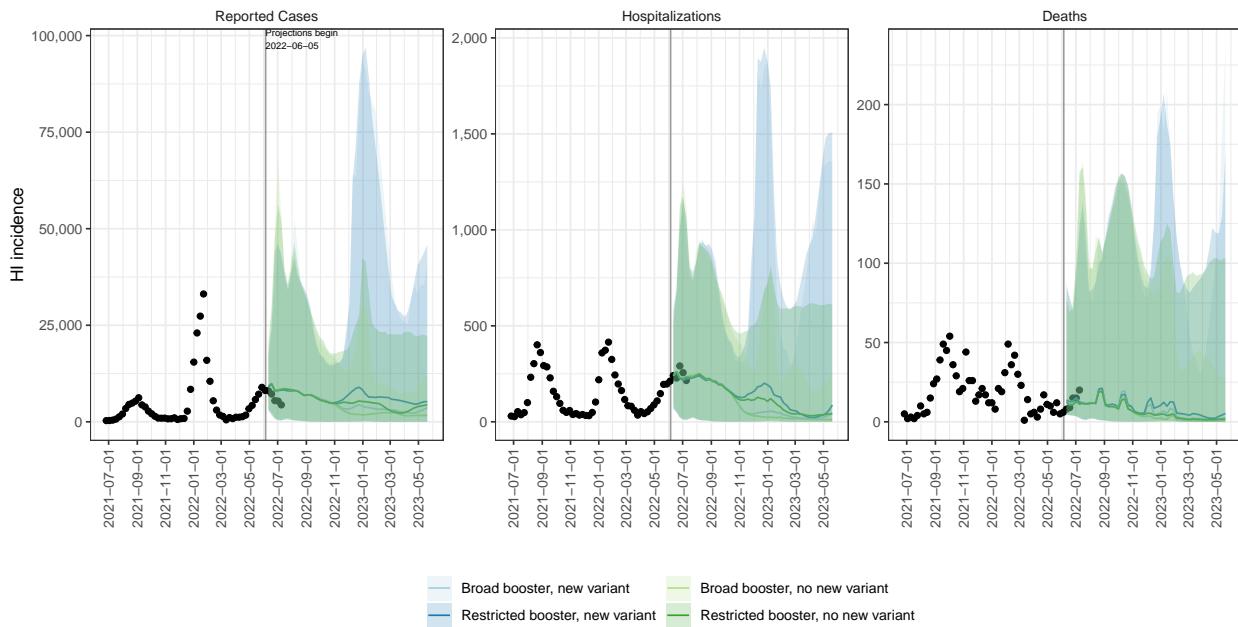
FL ensemble projections & 95% projection intervals



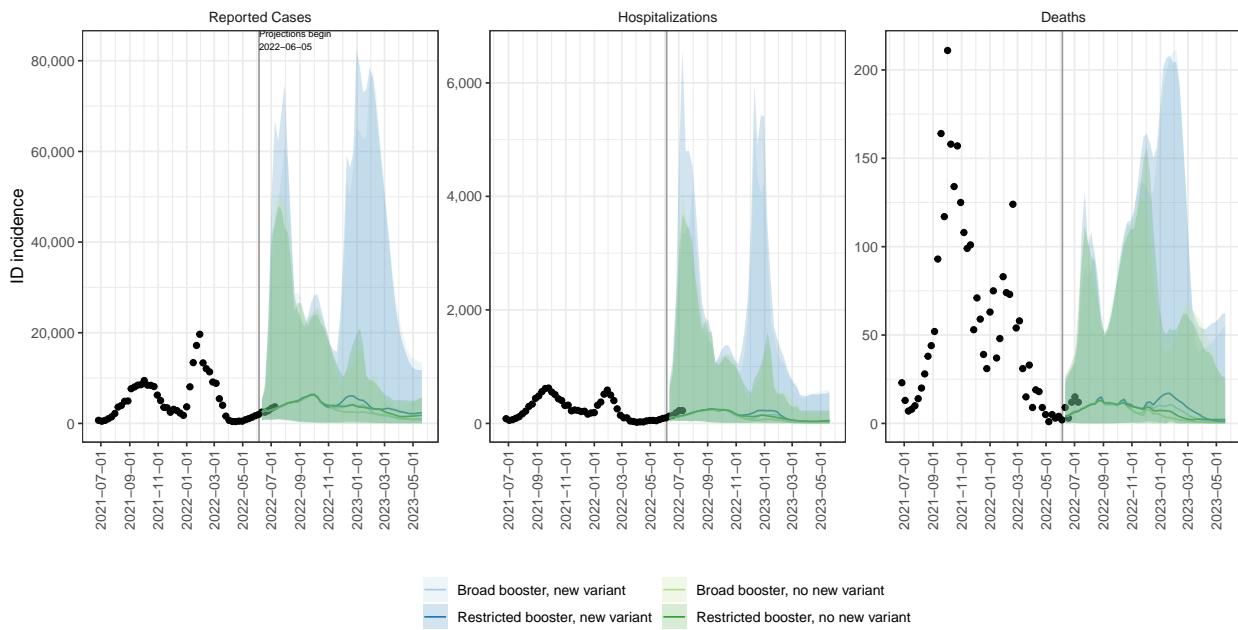
GA ensemble projections & 95% projection intervals



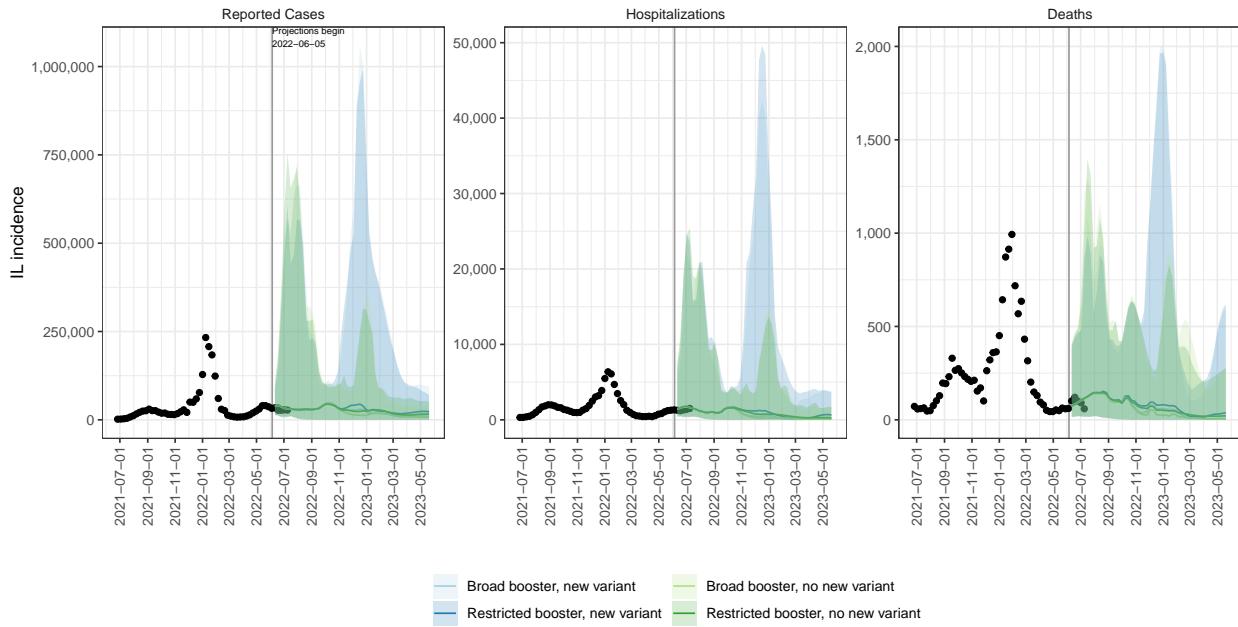
HI ensemble projections & 95% projection intervals



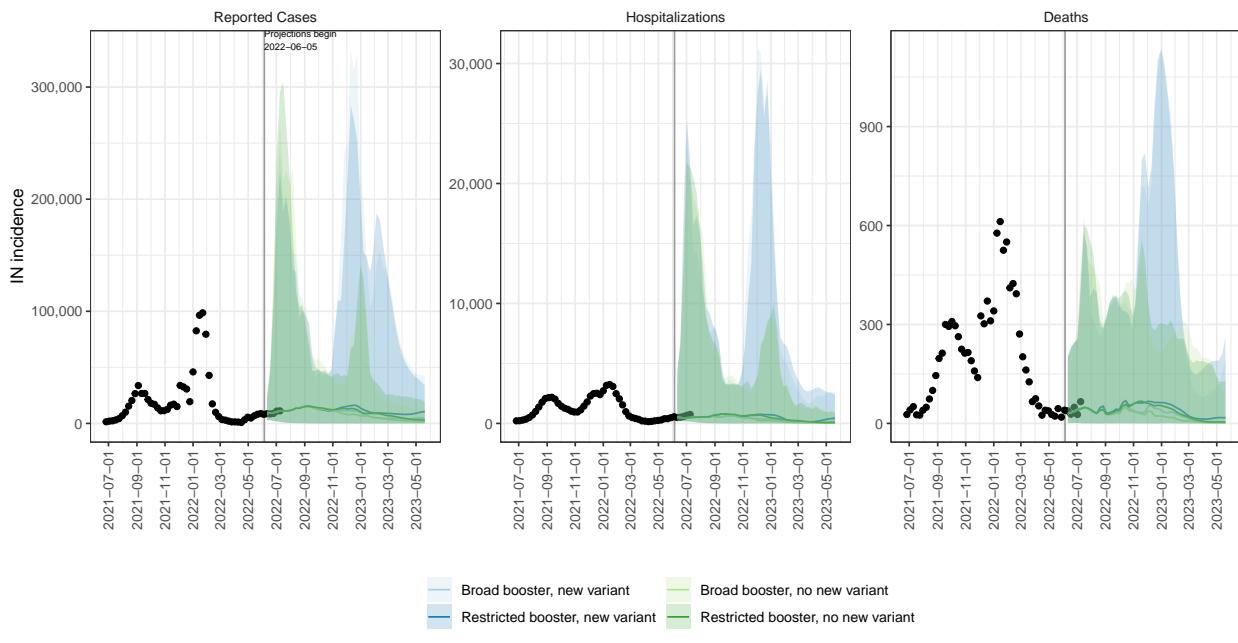
ID ensemble projections & 95% projection intervals



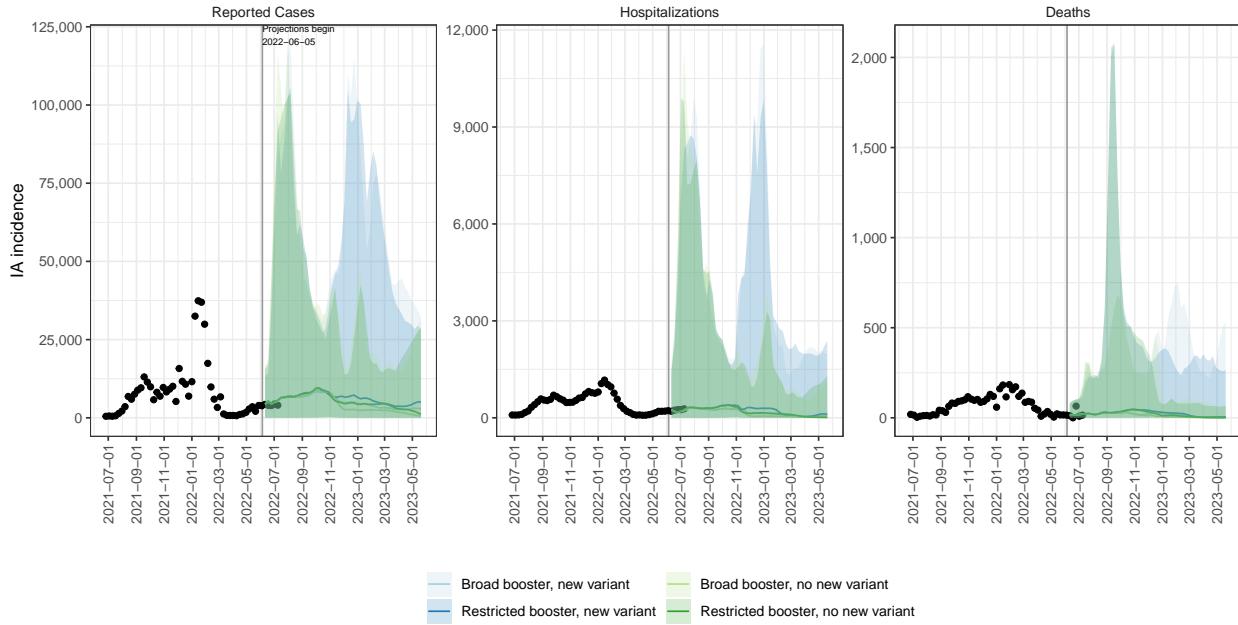
IL ensemble projections & 95% projection intervals



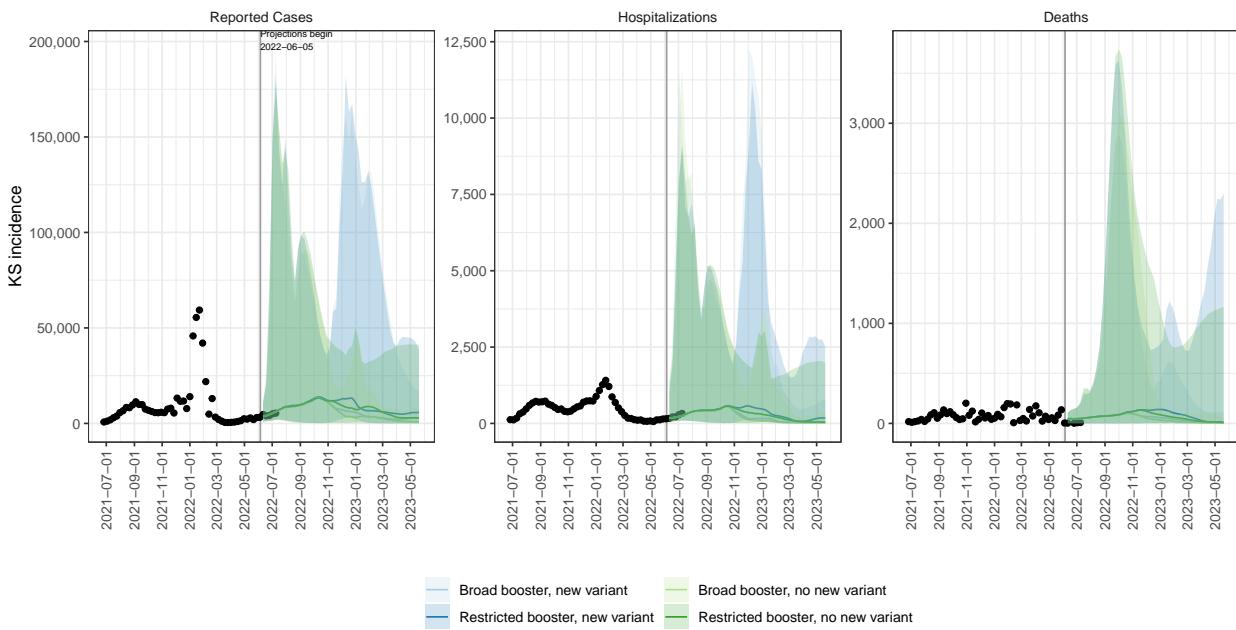
IN ensemble projections & 95% projection intervals



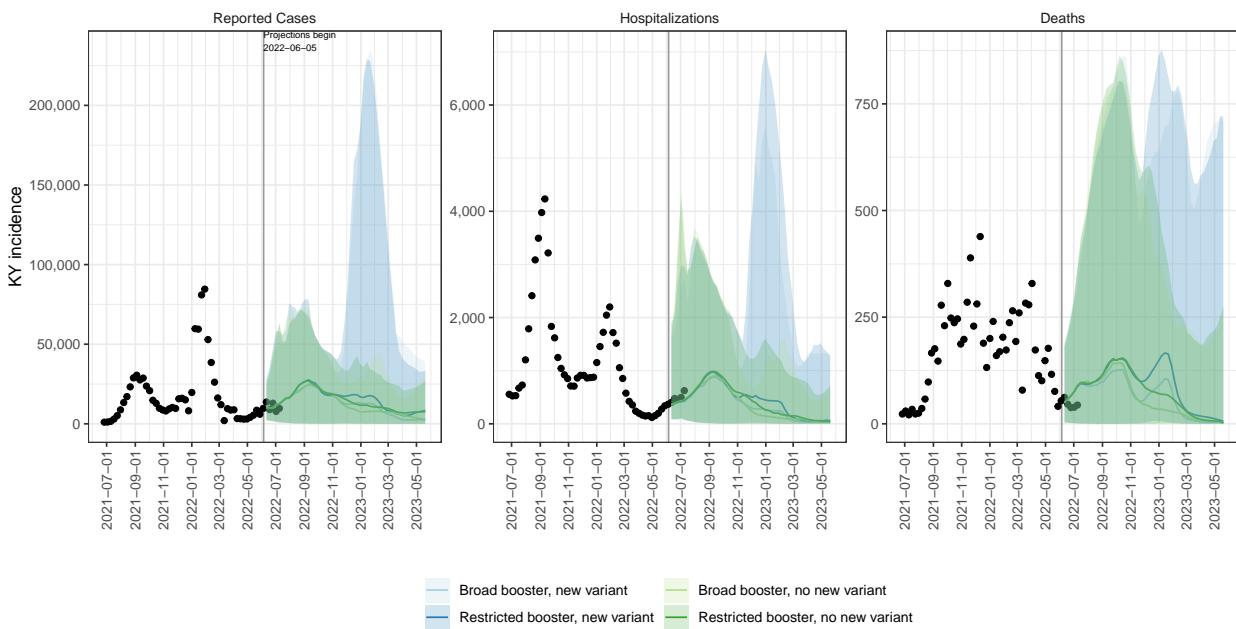
IA ensemble projections & 95% projection intervals



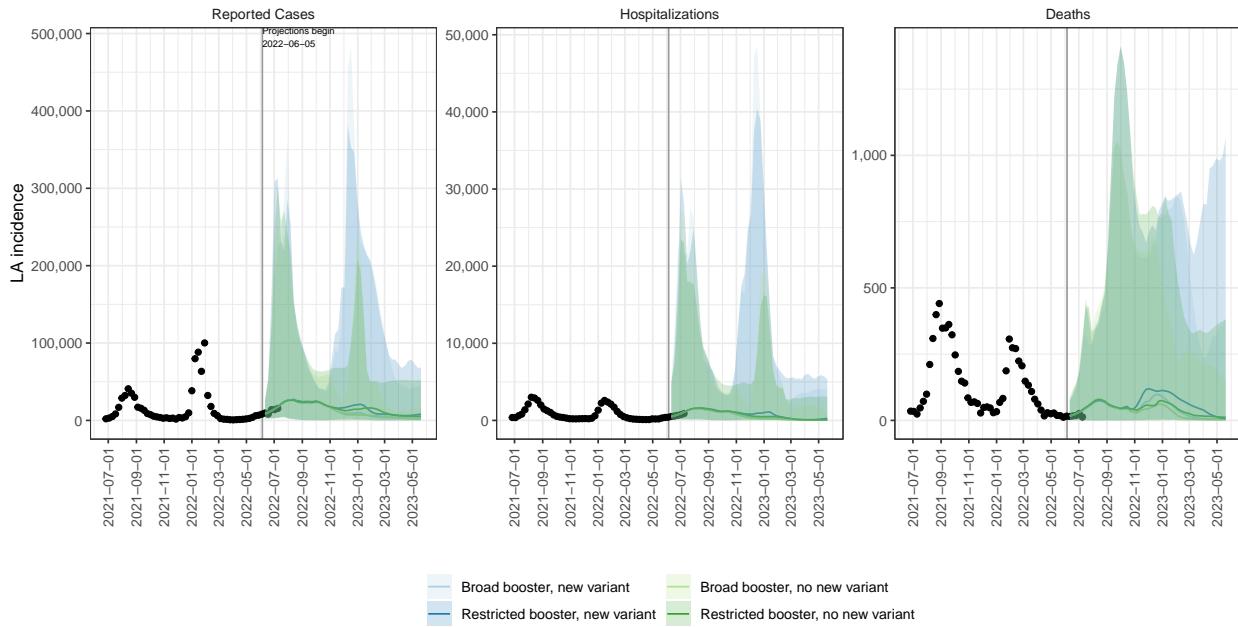
KS ensemble projections & 95% projection intervals



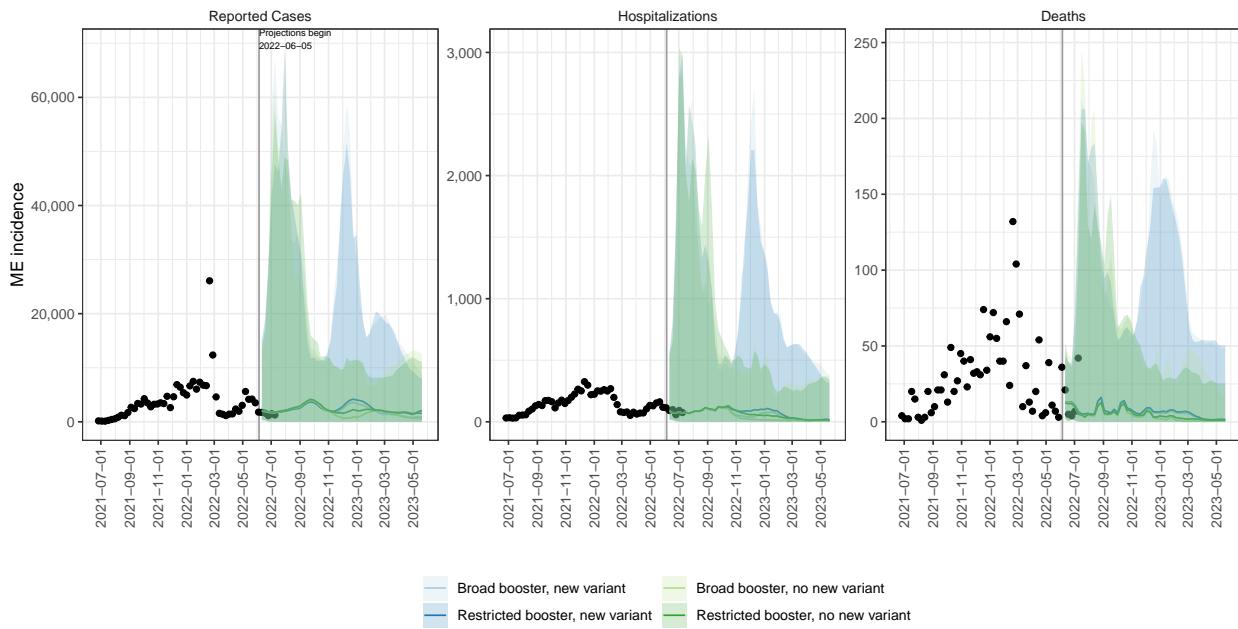
KY ensemble projections & 95% projection intervals



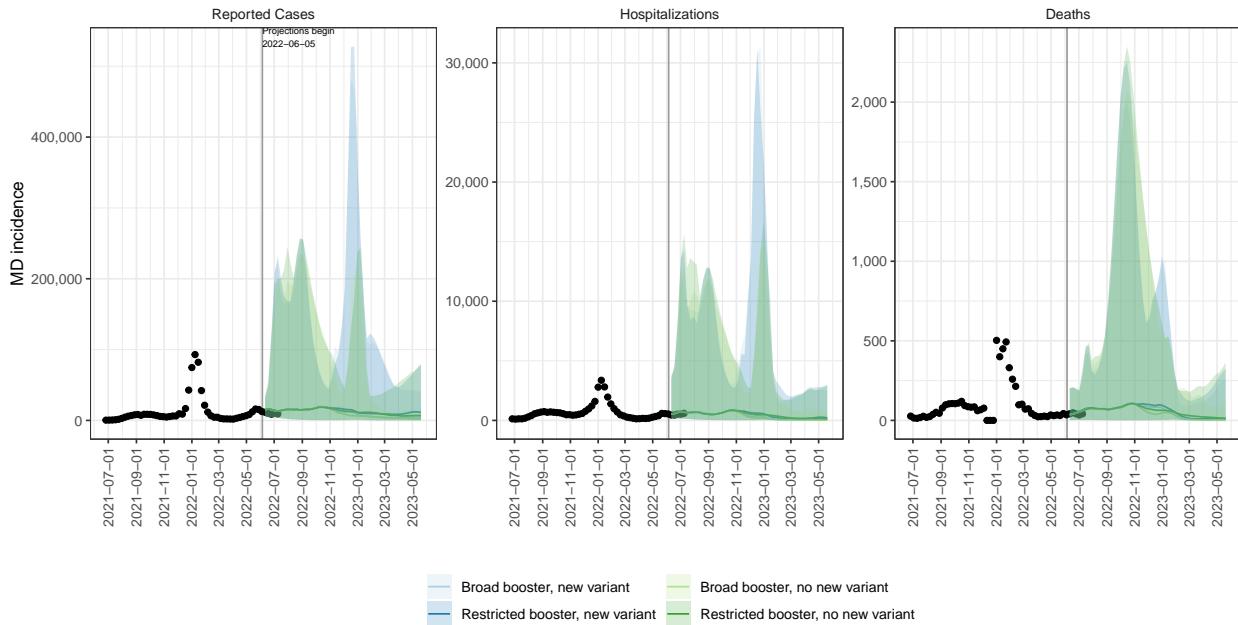
LA ensemble projections & 95% projection intervals



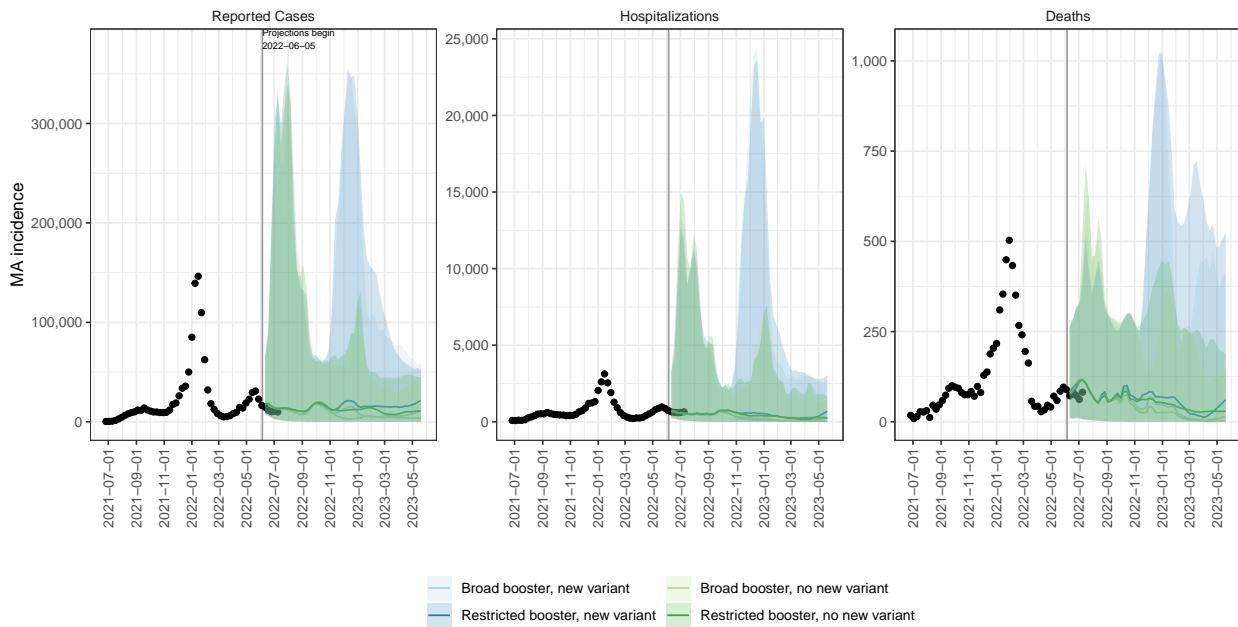
ME ensemble projections & 95% projection intervals



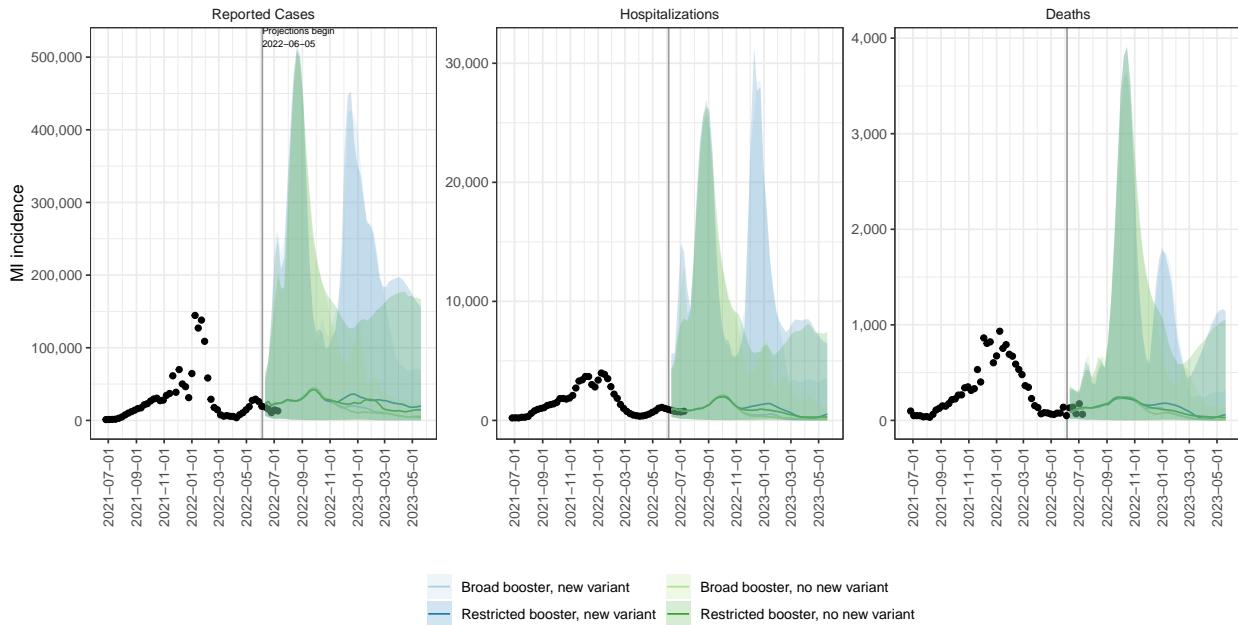
MD ensemble projections & 95% projection intervals



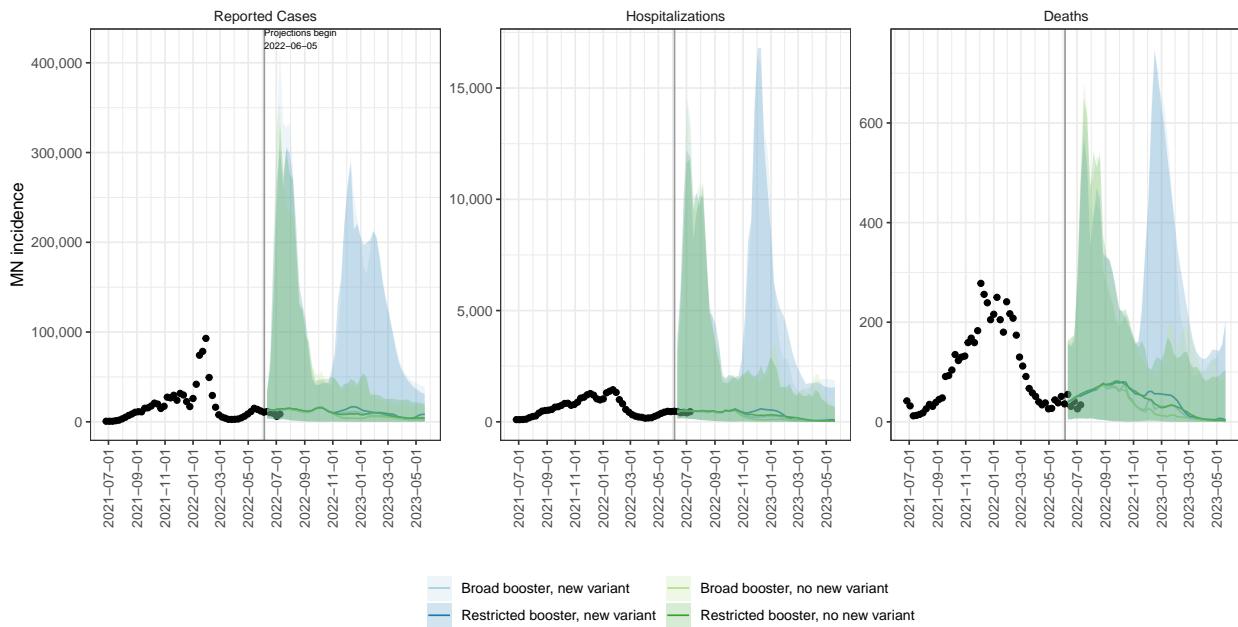
MA ensemble projections & 95% projection intervals



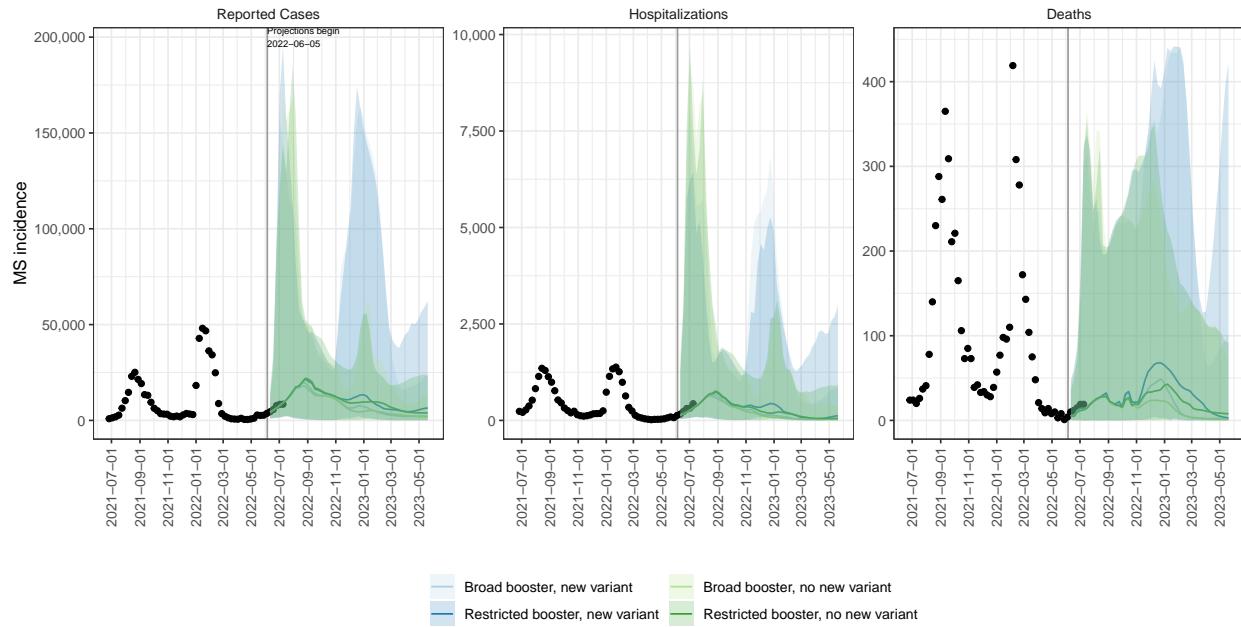
MI ensemble projections & 95% projection intervals



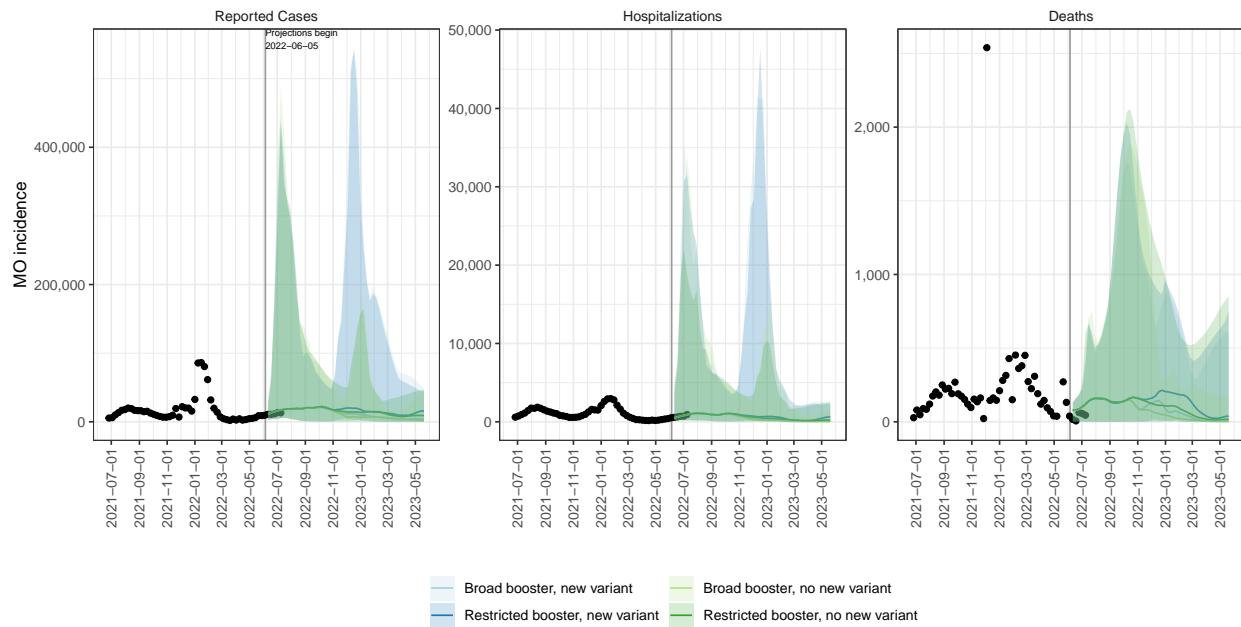
MN ensemble projections & 95% projection intervals



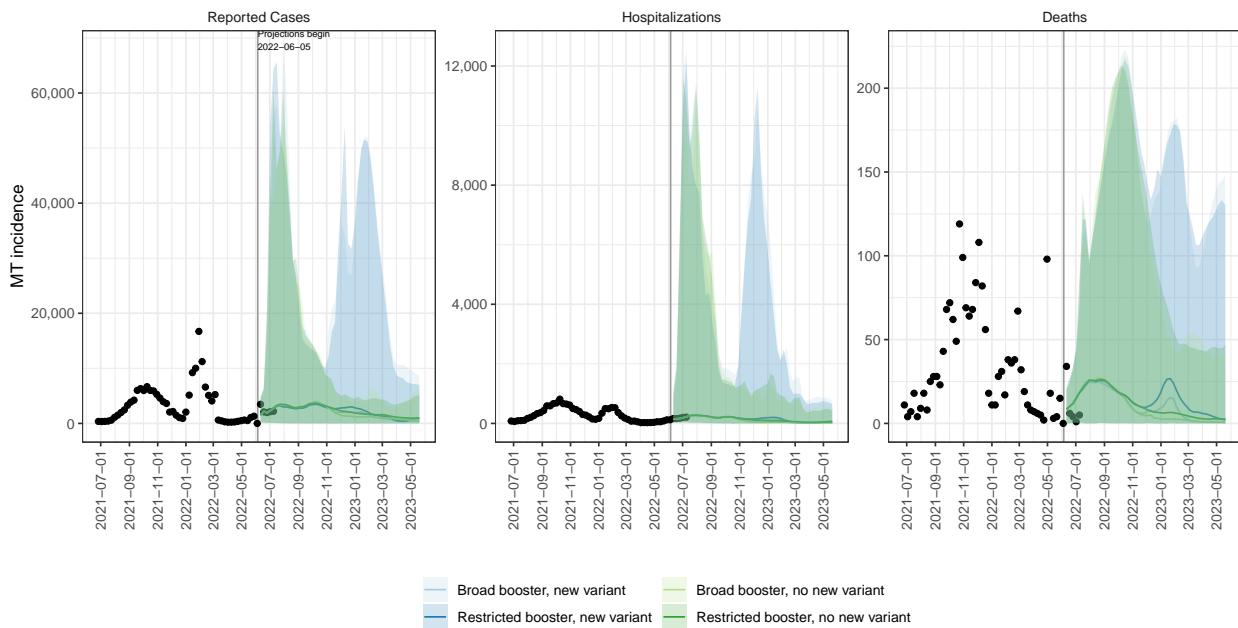
MS ensemble projections & 95% projection intervals



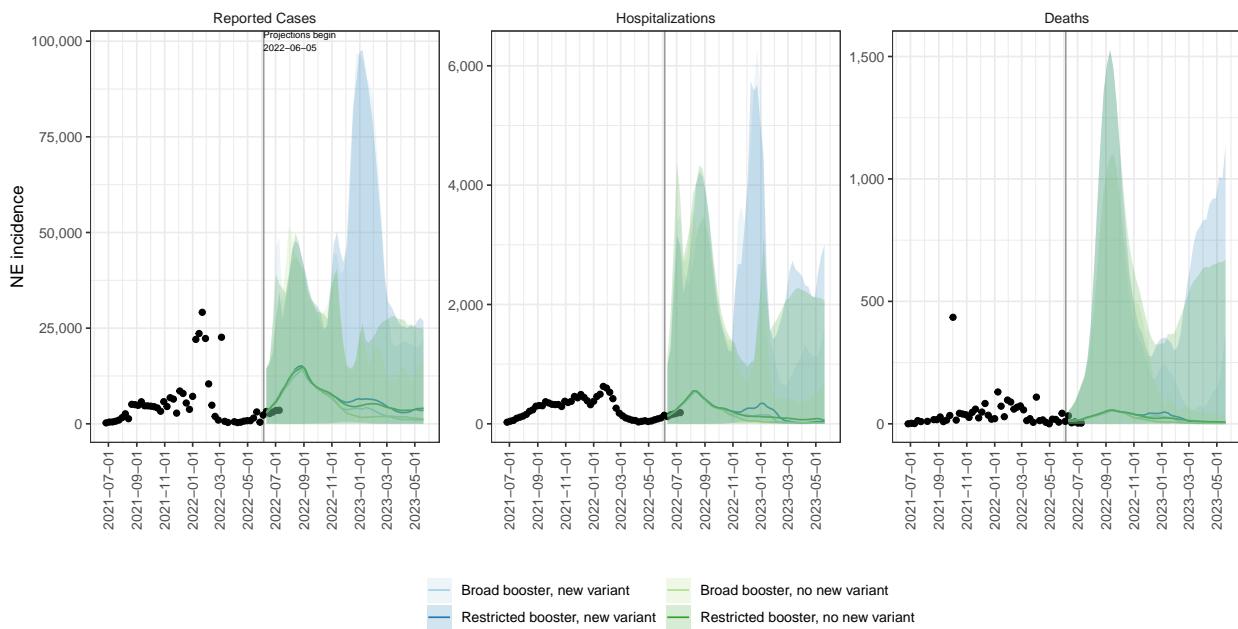
MO ensemble projections & 95% projection intervals



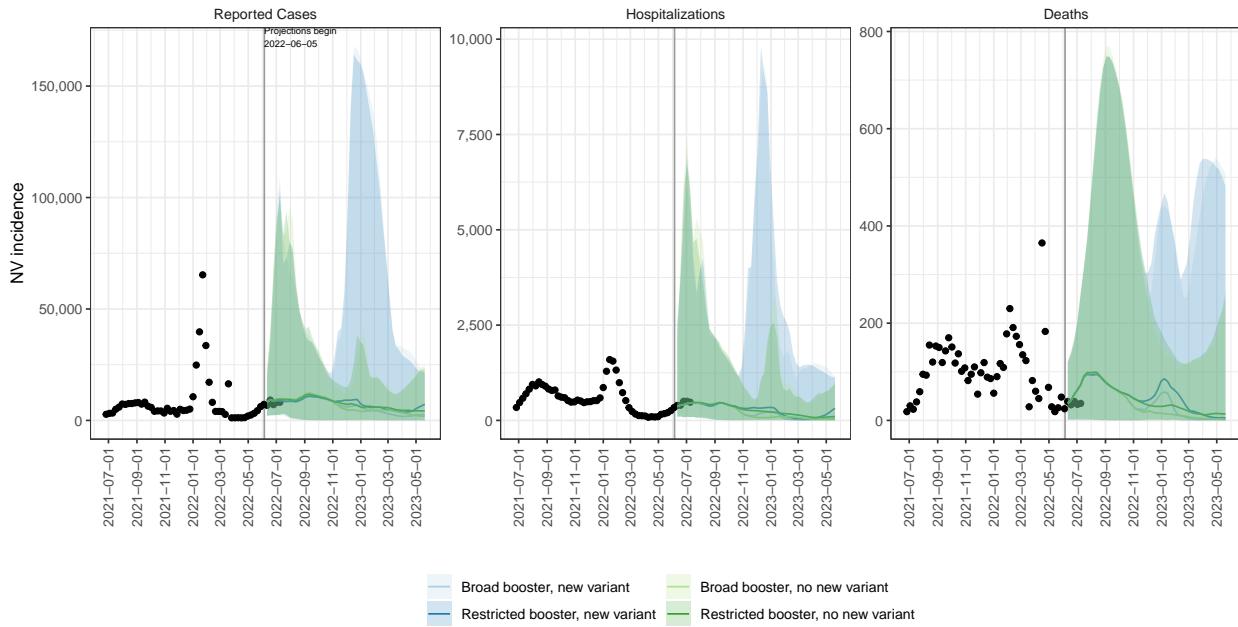
MT ensemble projections & 95% projection intervals



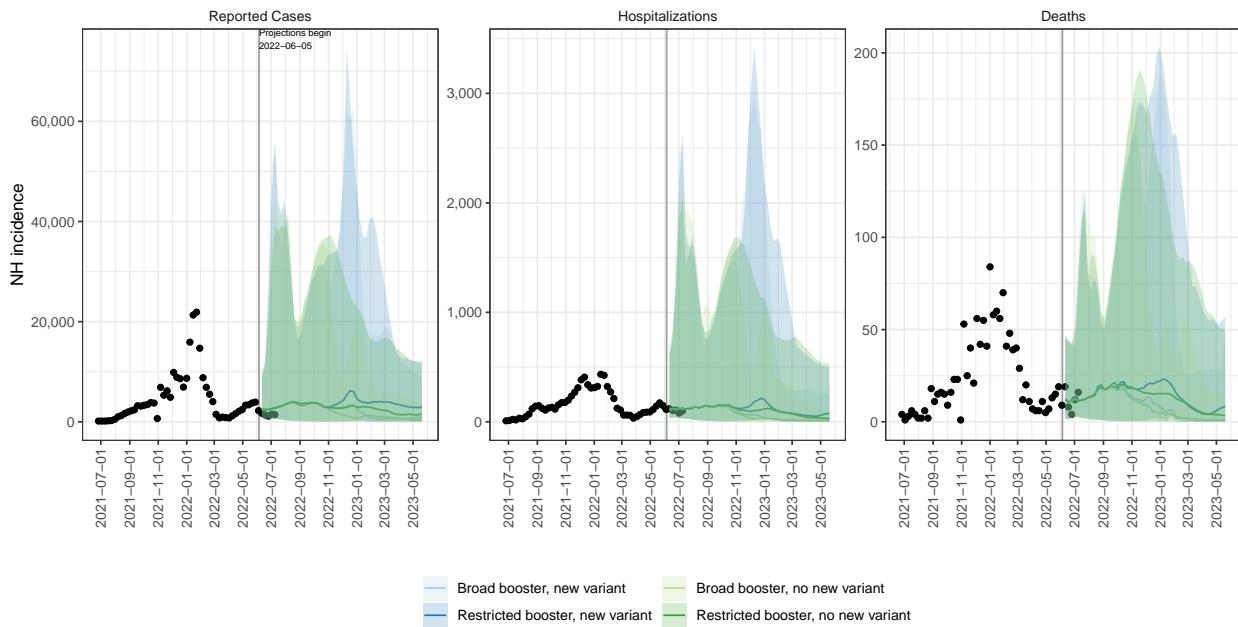
NE ensemble projections & 95% projection intervals



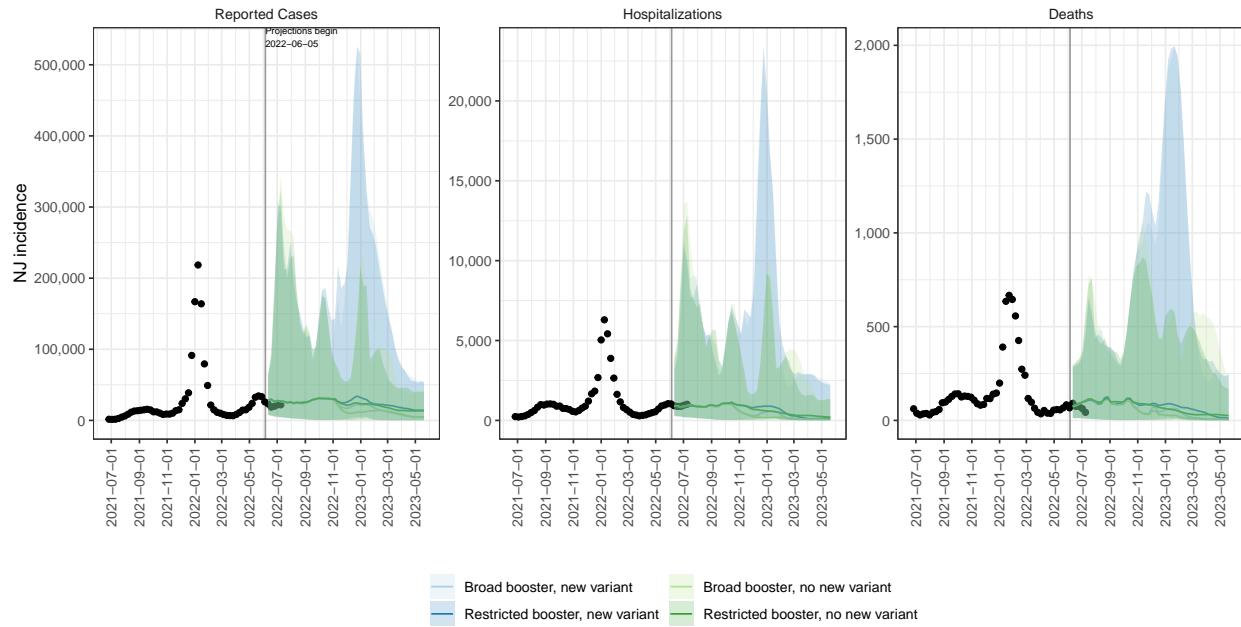
NV ensemble projections & 95% projection intervals



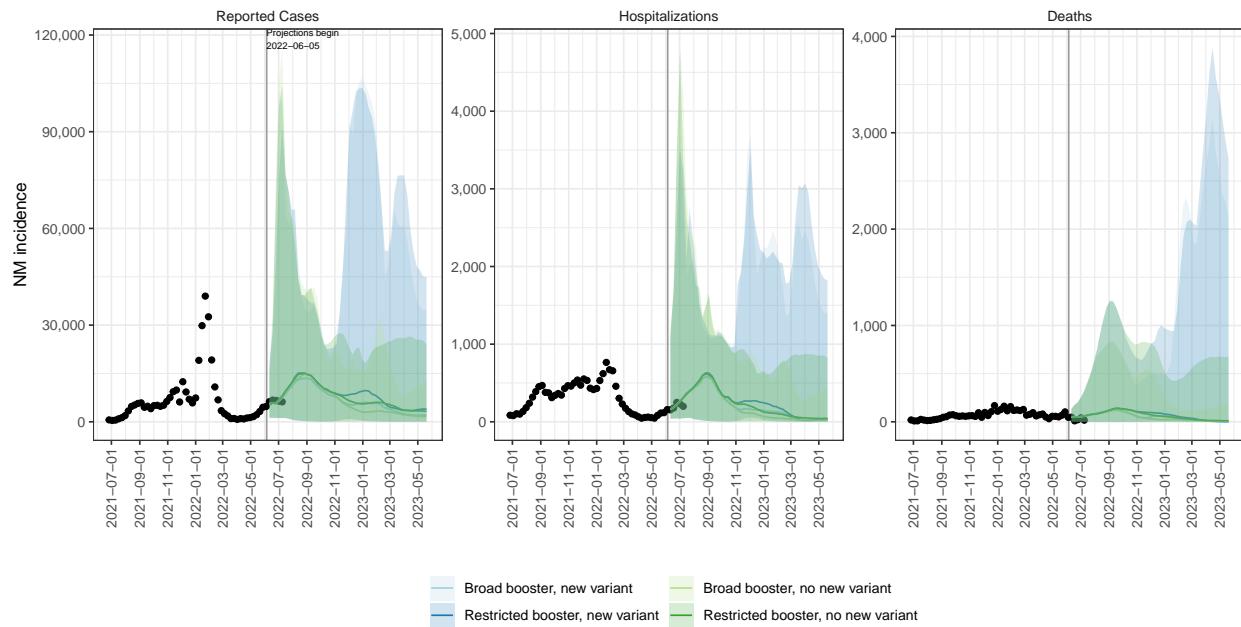
NH ensemble projections & 95% projection intervals



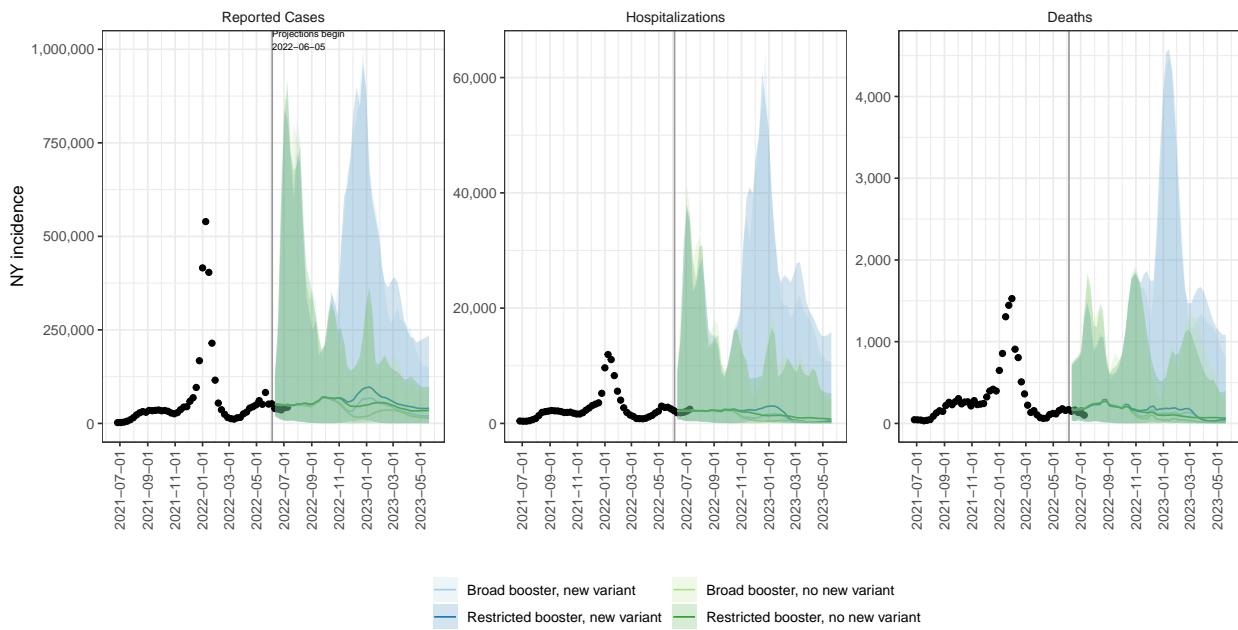
NJ ensemble projections & 95% projection intervals



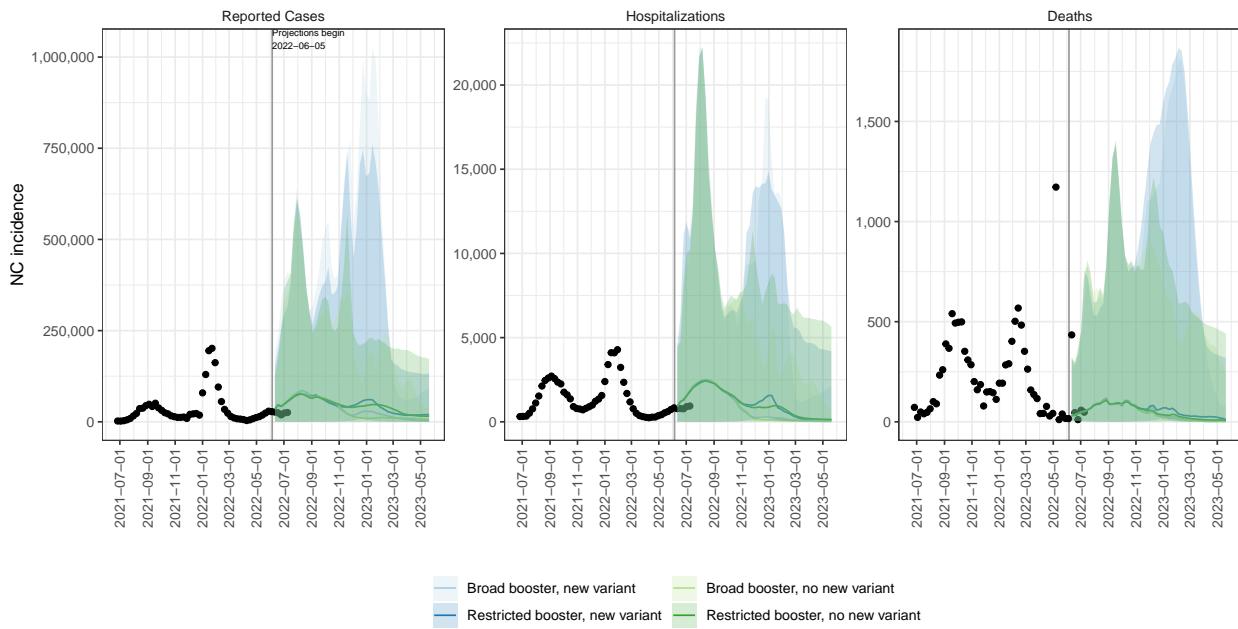
NM ensemble projections & 95% projection intervals



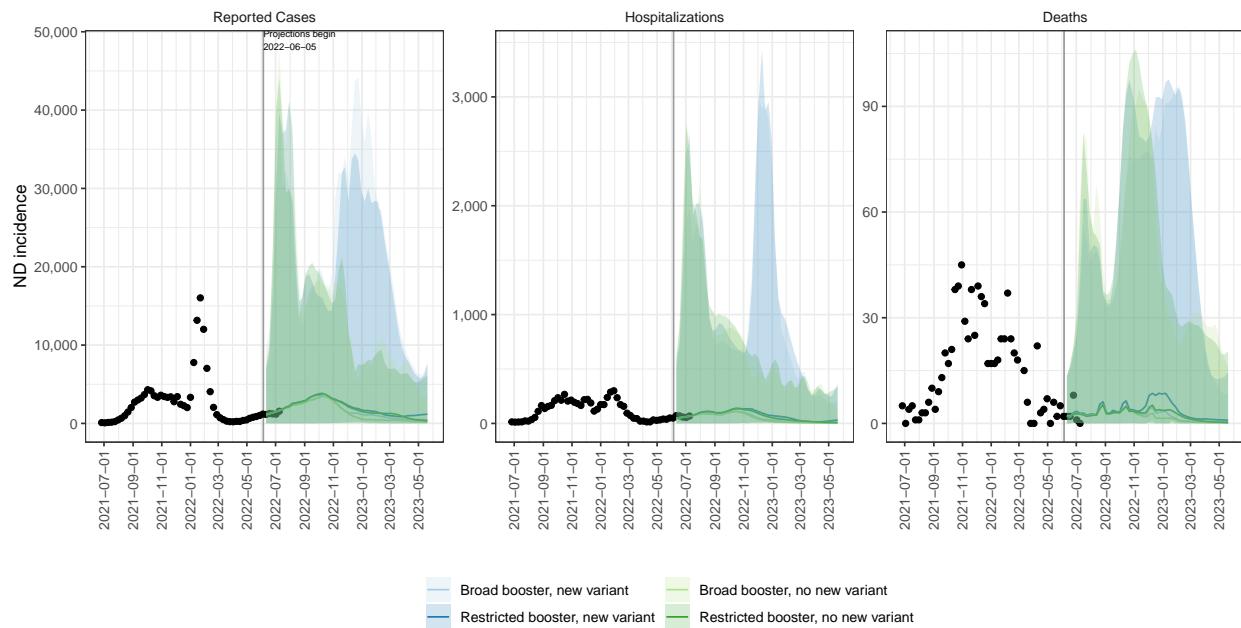
NY ensemble projections & 95% projection intervals



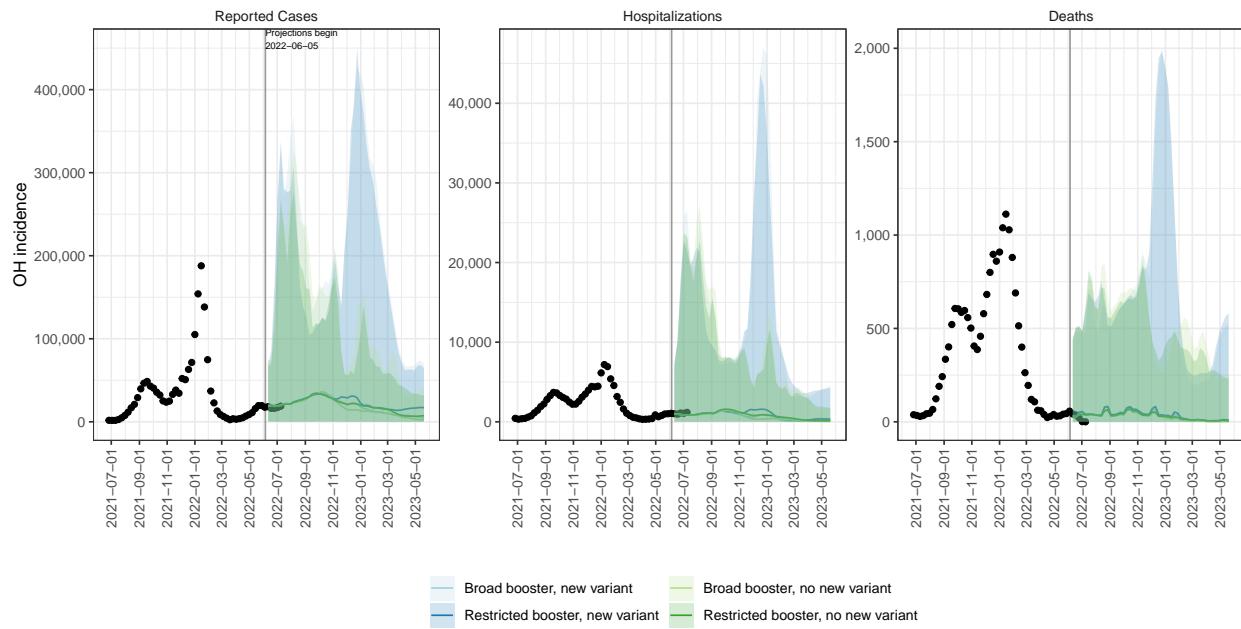
NC ensemble projections & 95% projection intervals



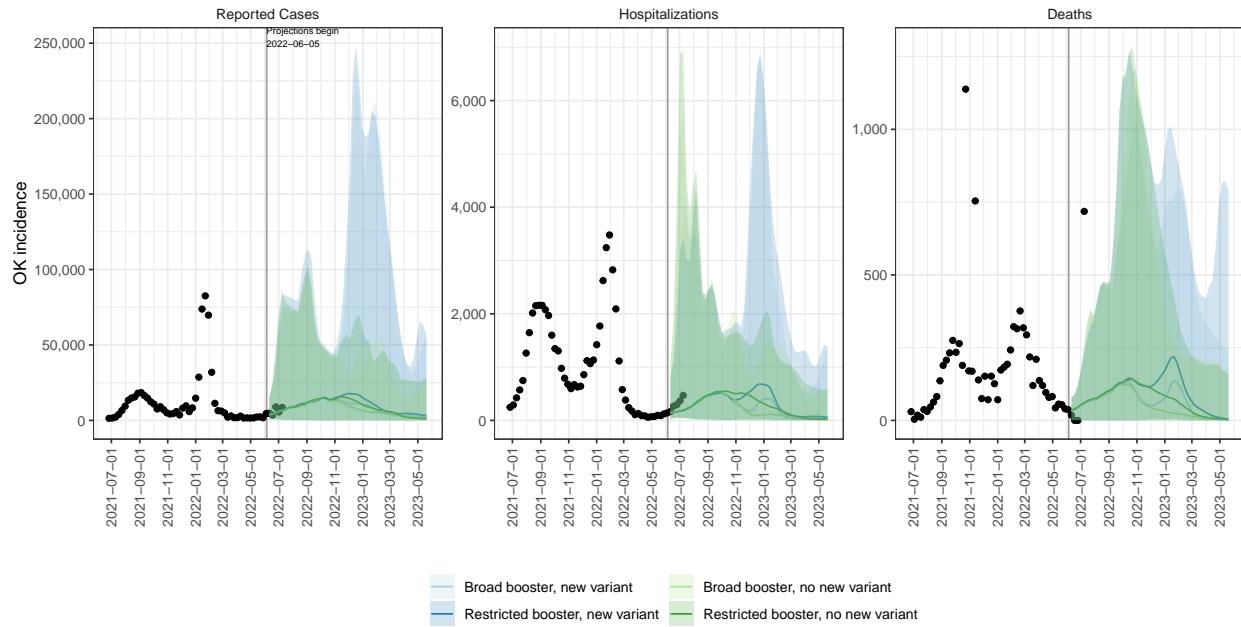
ND ensemble projections & 95% projection intervals



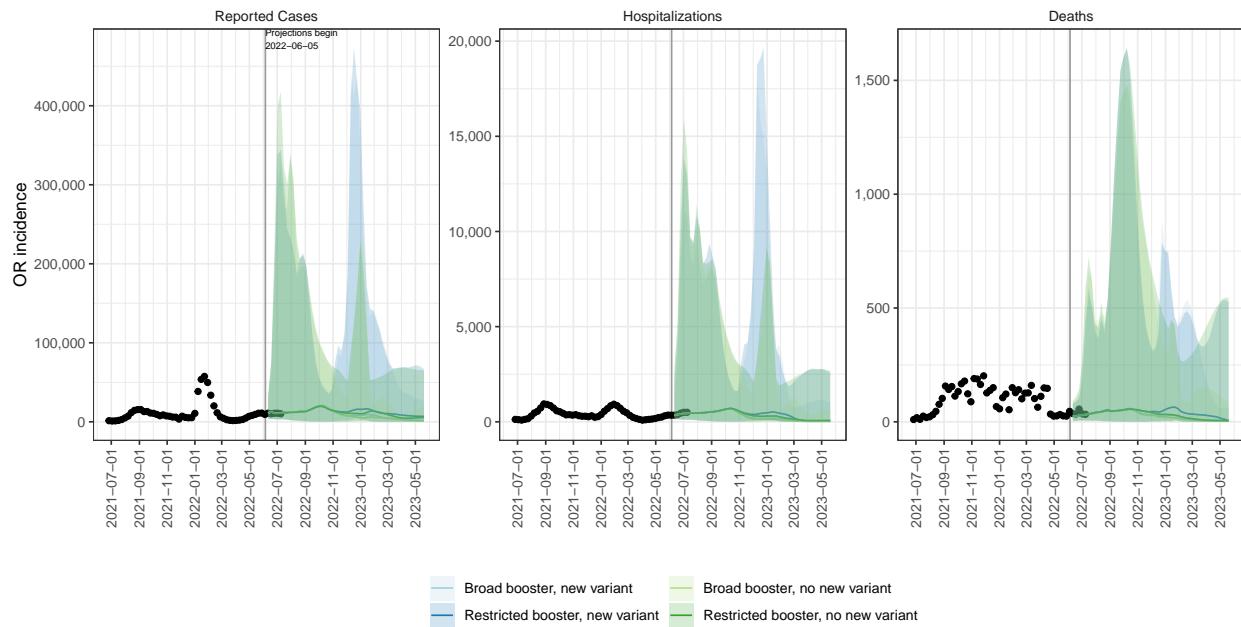
OH ensemble projections & 95% projection intervals



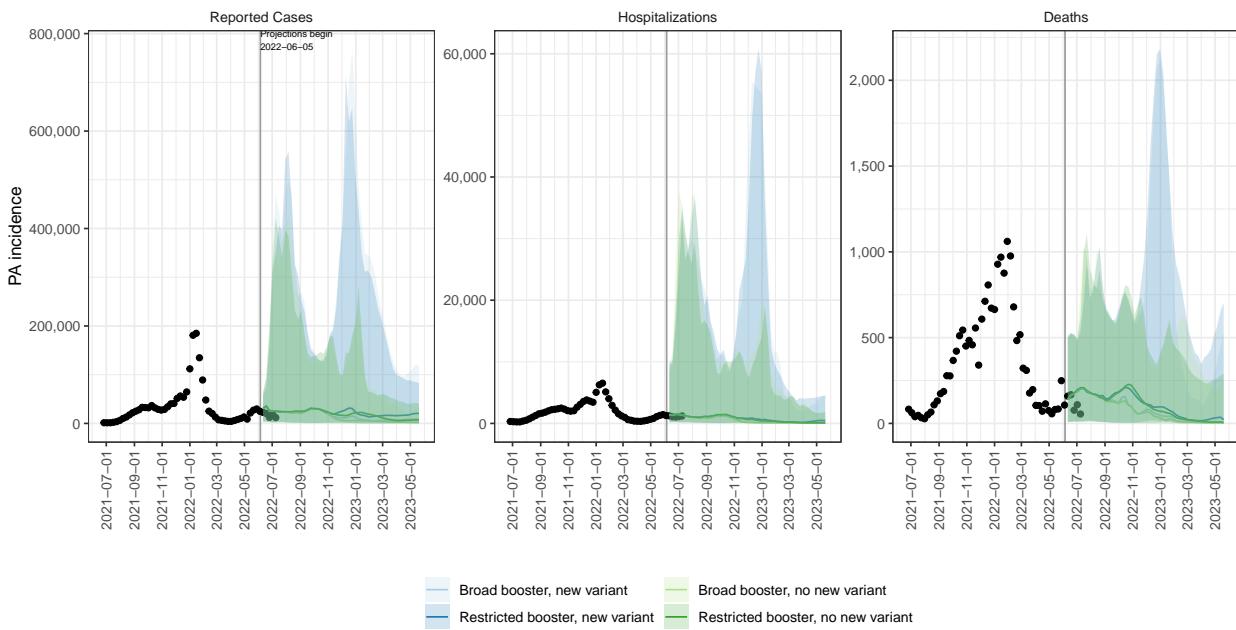
OK ensemble projections & 95% projection intervals



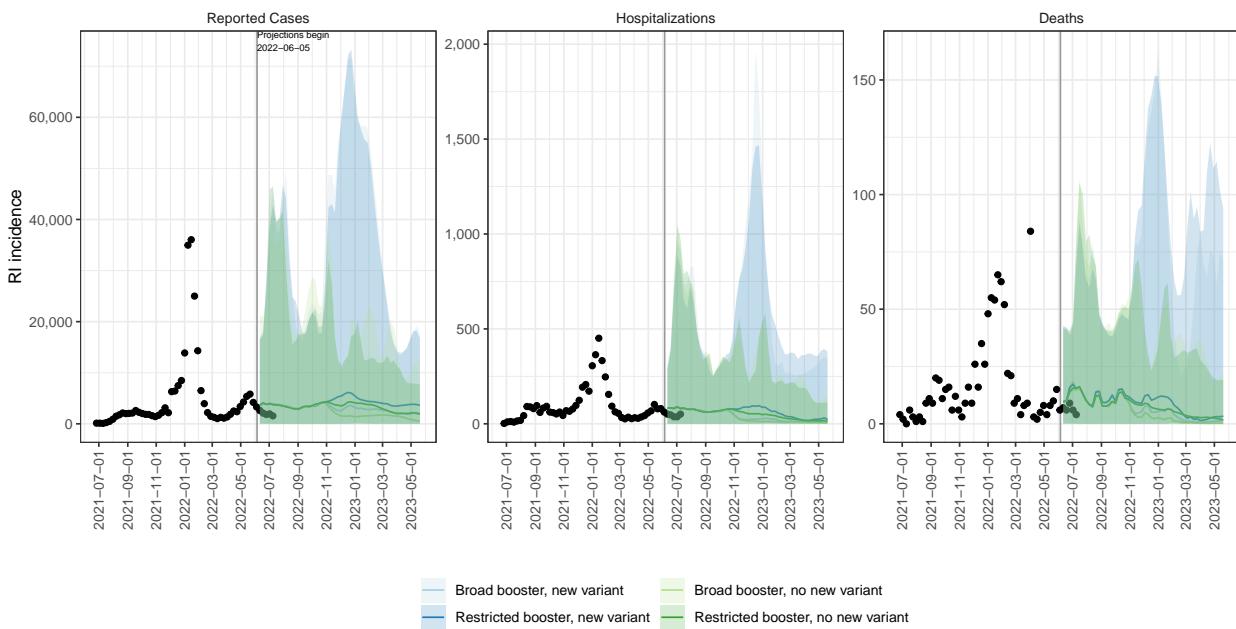
OR ensemble projections & 95% projection intervals



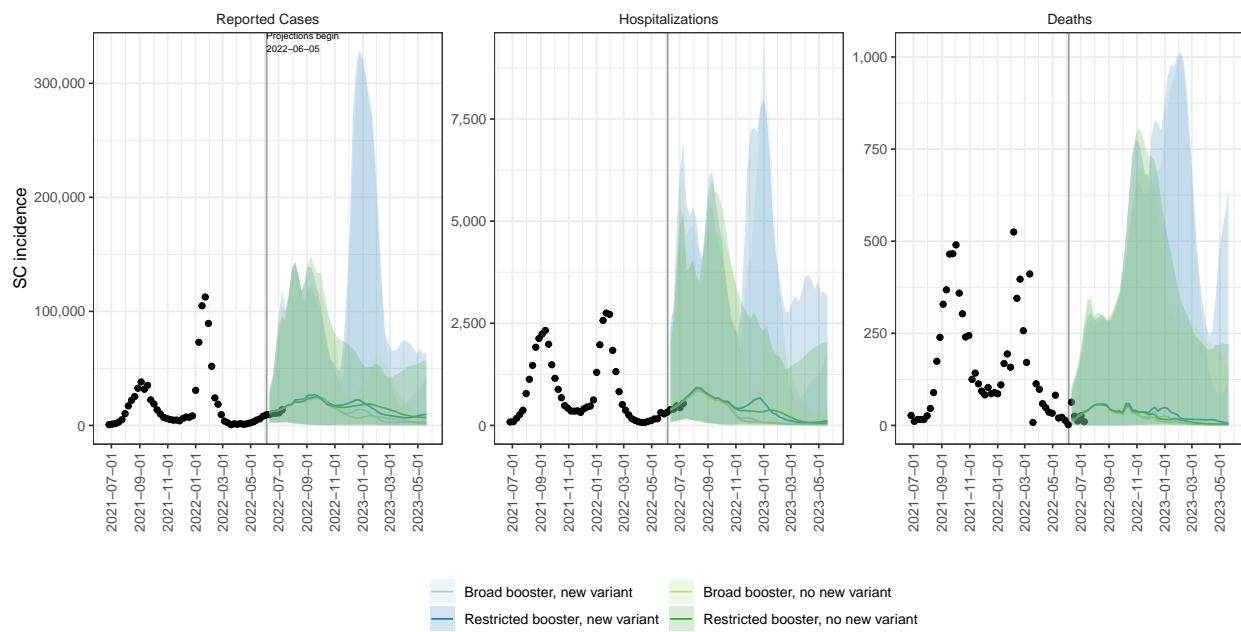
PA ensemble projections & 95% projection intervals



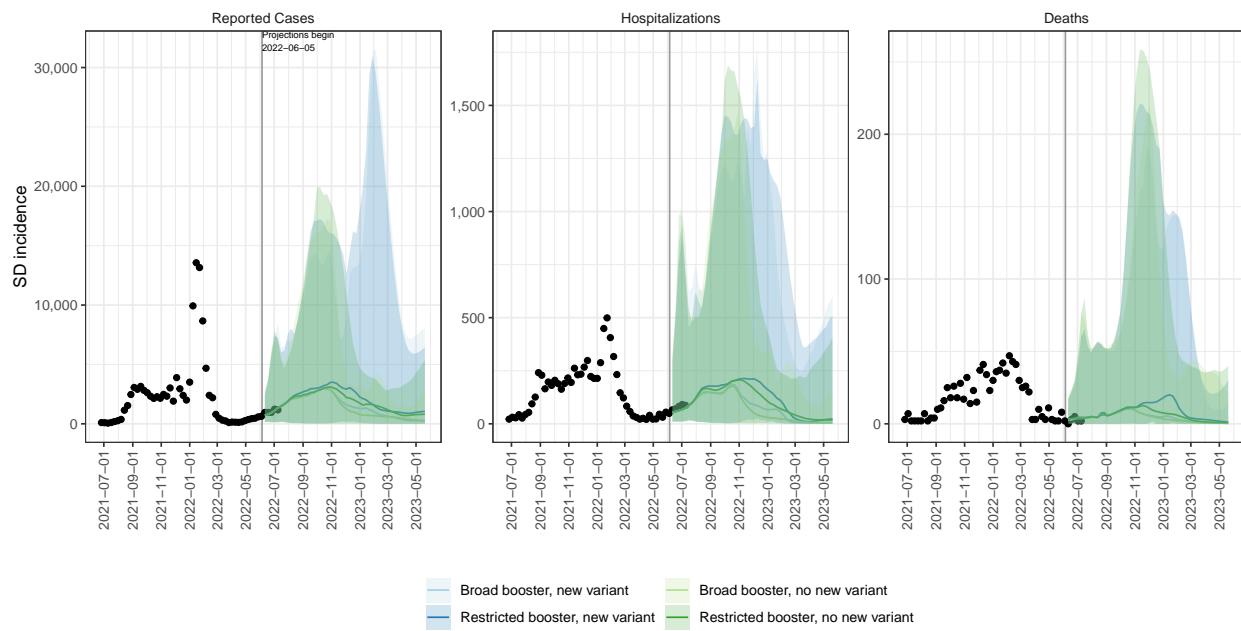
RI ensemble projections & 95% projection intervals



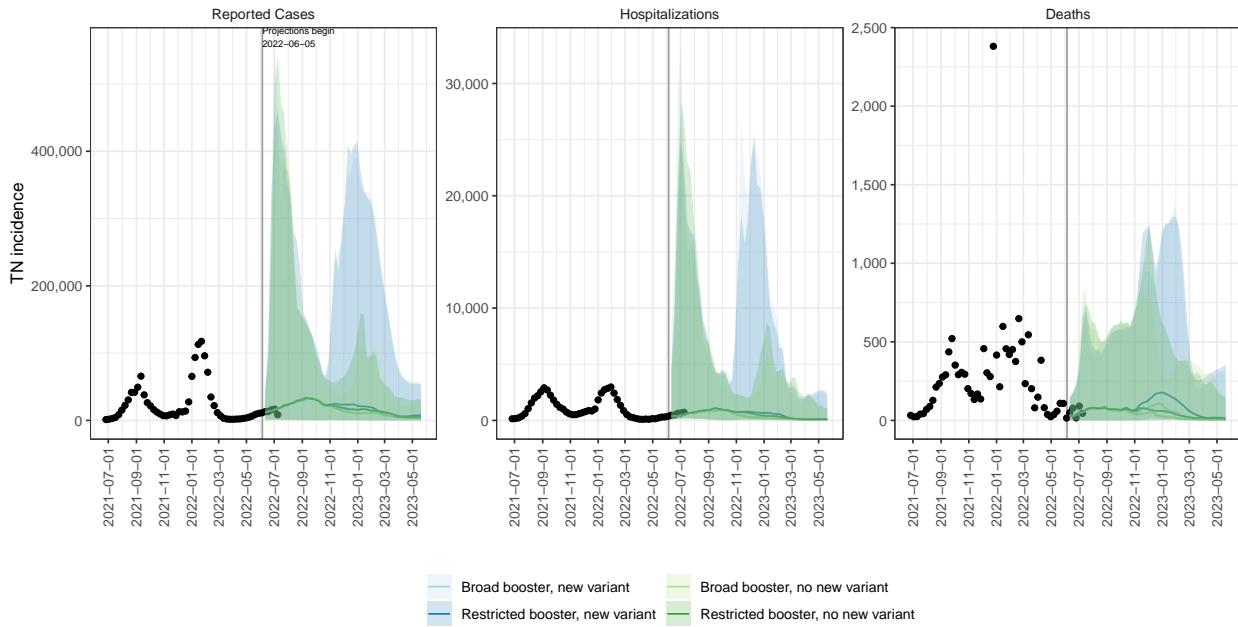
SC ensemble projections & 95% projection intervals



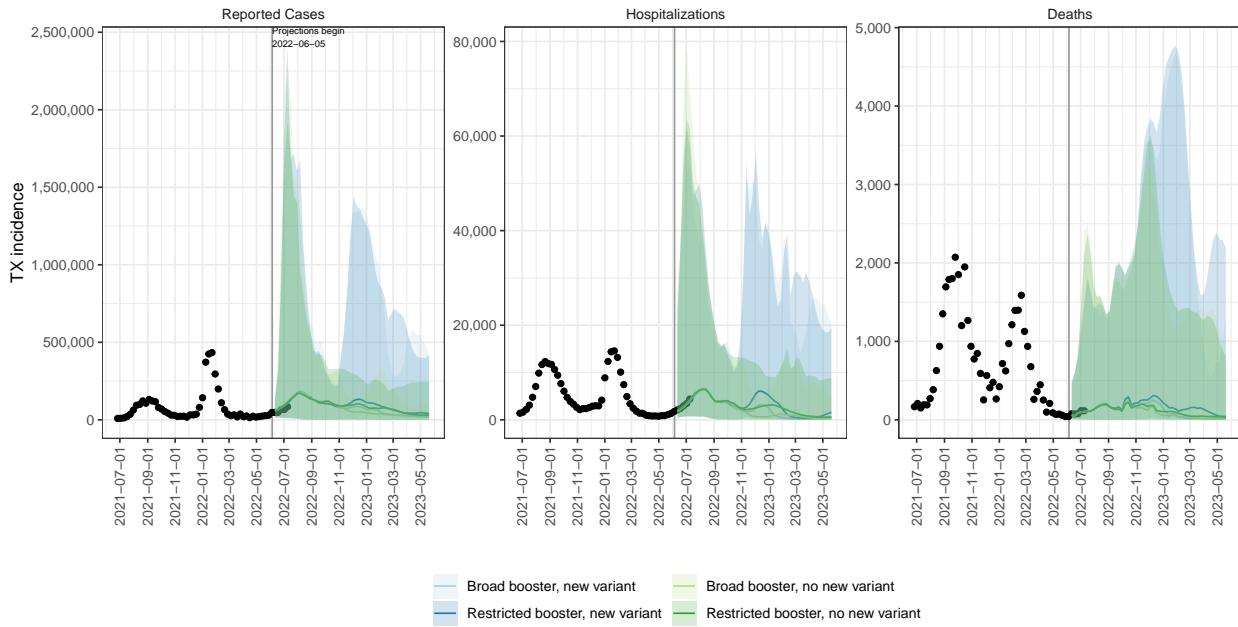
SD ensemble projections & 95% projection intervals



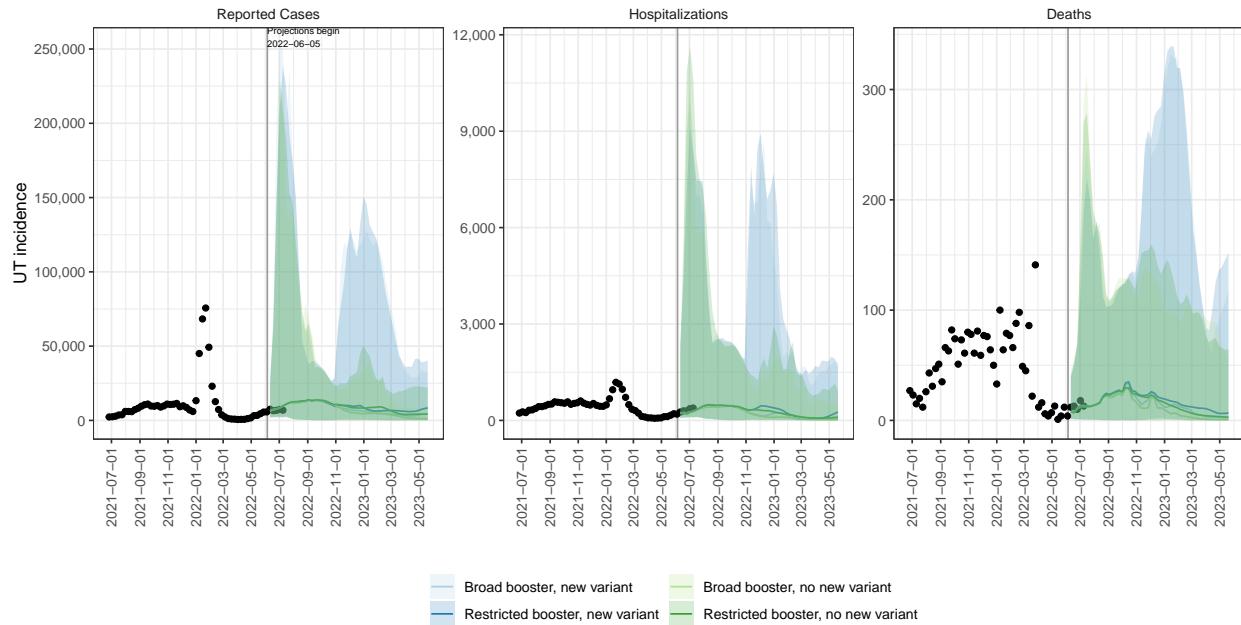
TN ensemble projections & 95% projection intervals



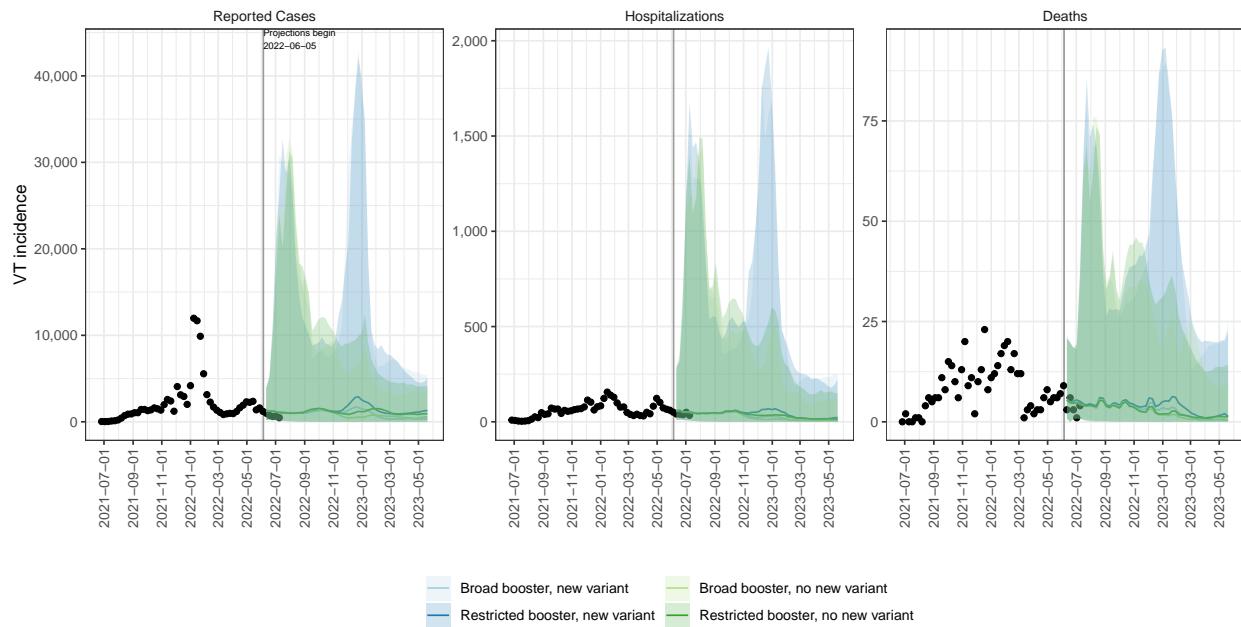
TX ensemble projections & 95% projection intervals



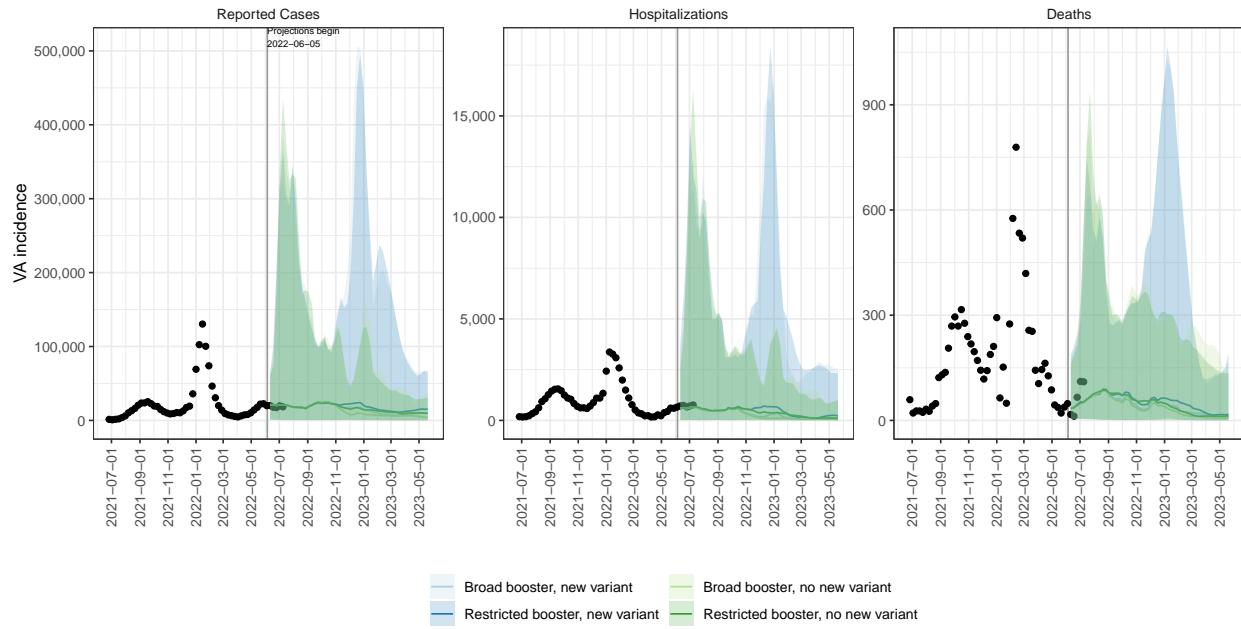
UT ensemble projections & 95% projection intervals



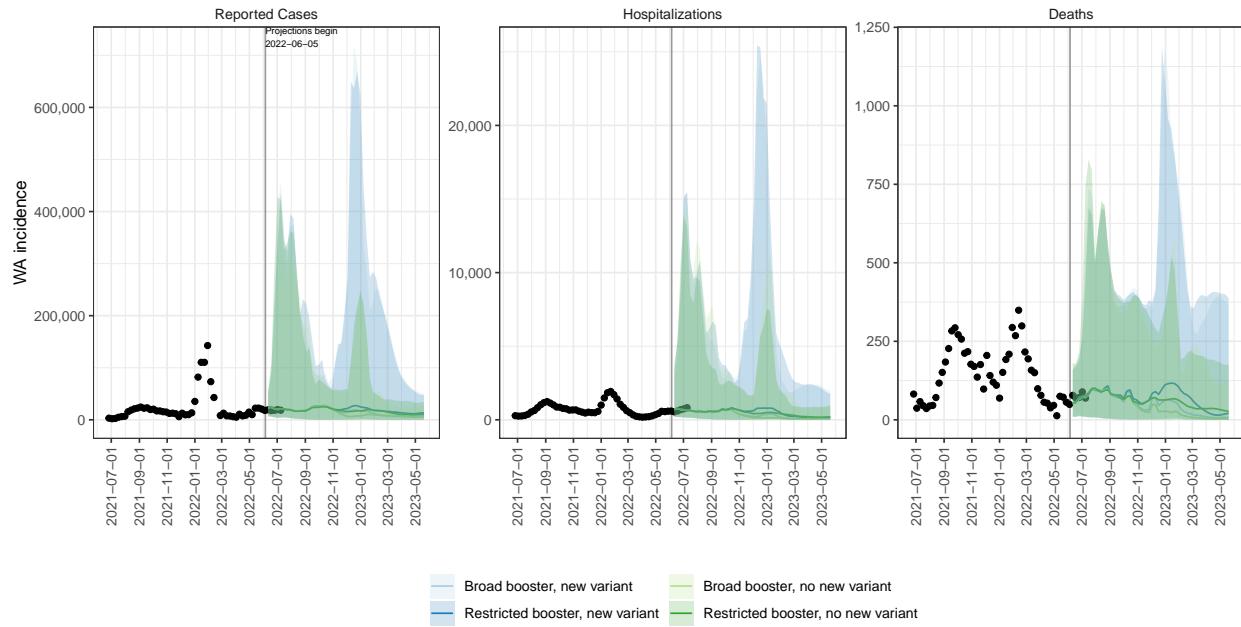
VT ensemble projections & 95% projection intervals



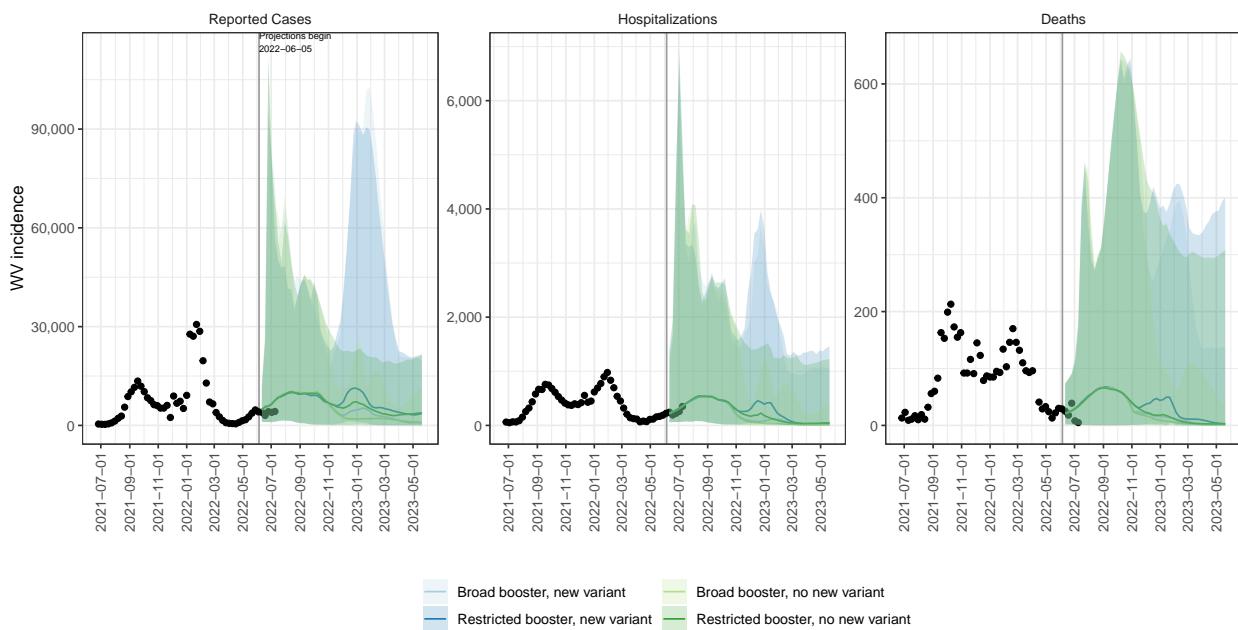
VA ensemble projections & 95% projection intervals



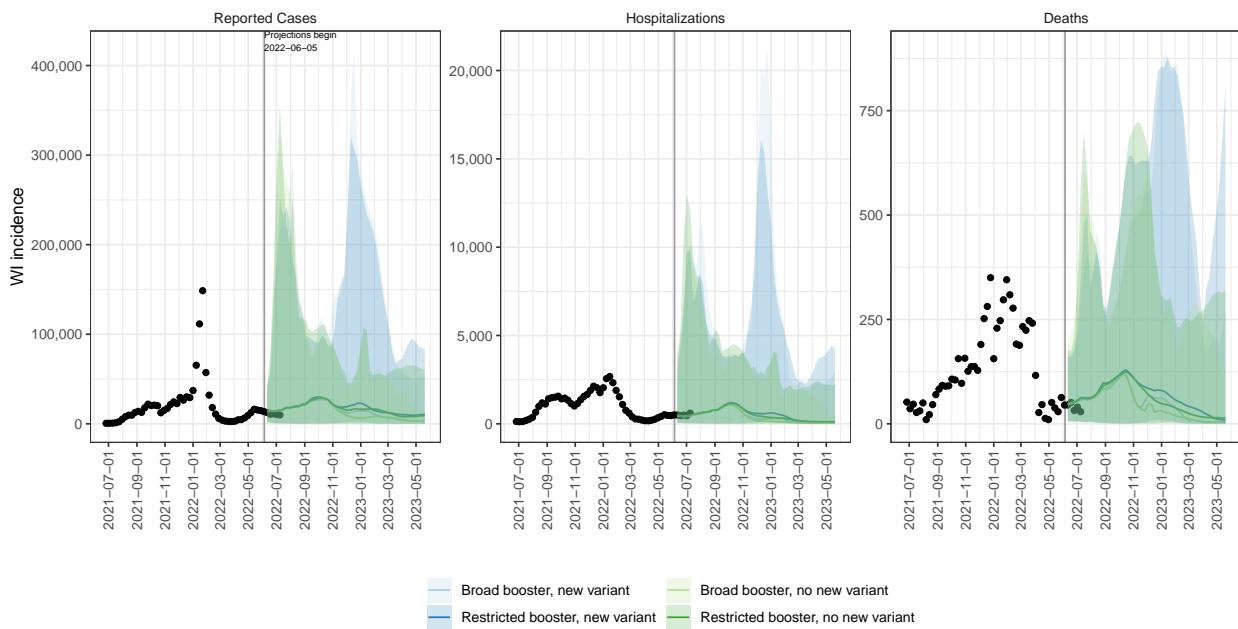
WA ensemble projections & 95% projection intervals



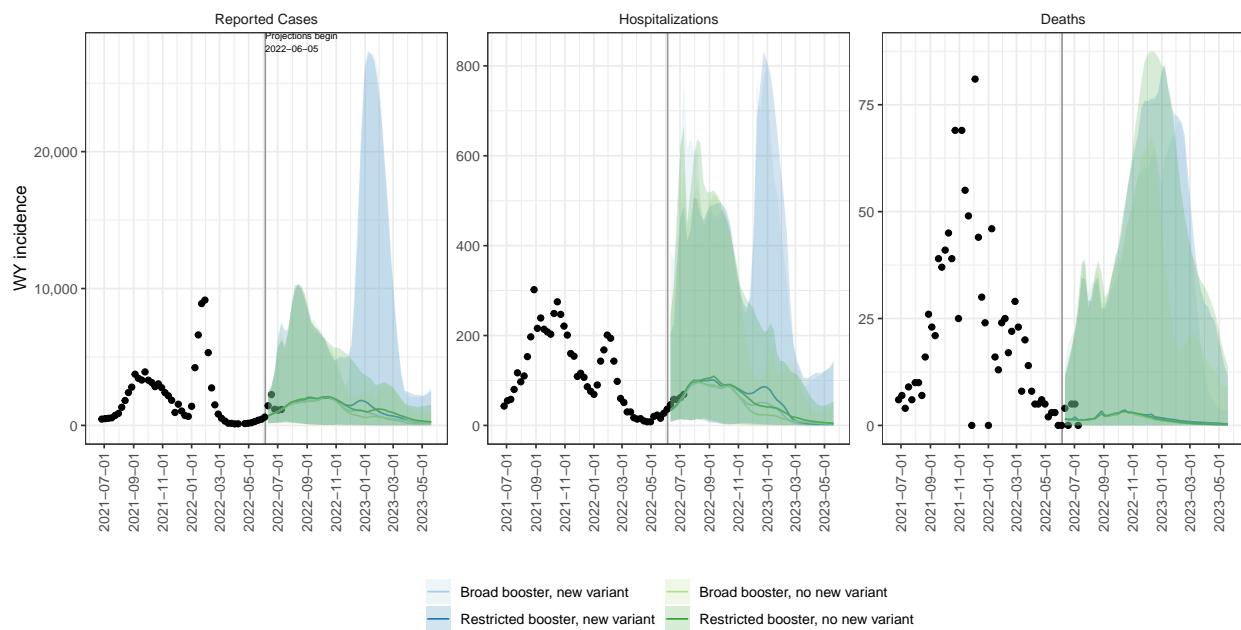
WV ensemble projections & 95% projection intervals



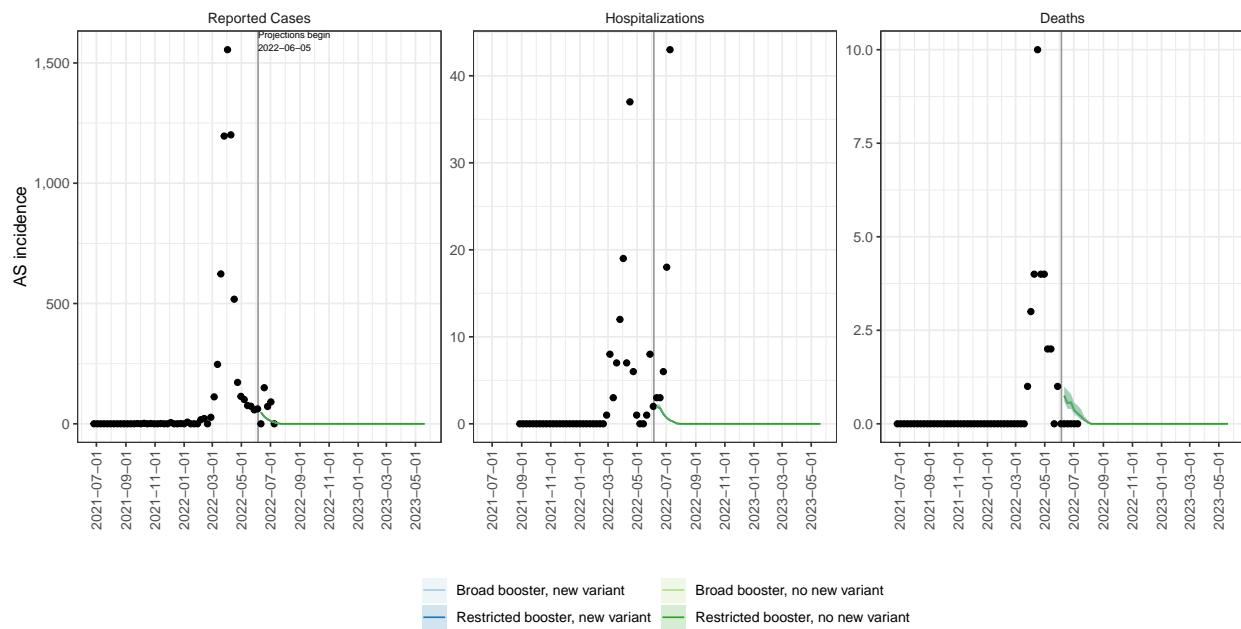
WI ensemble projections & 95% projection intervals



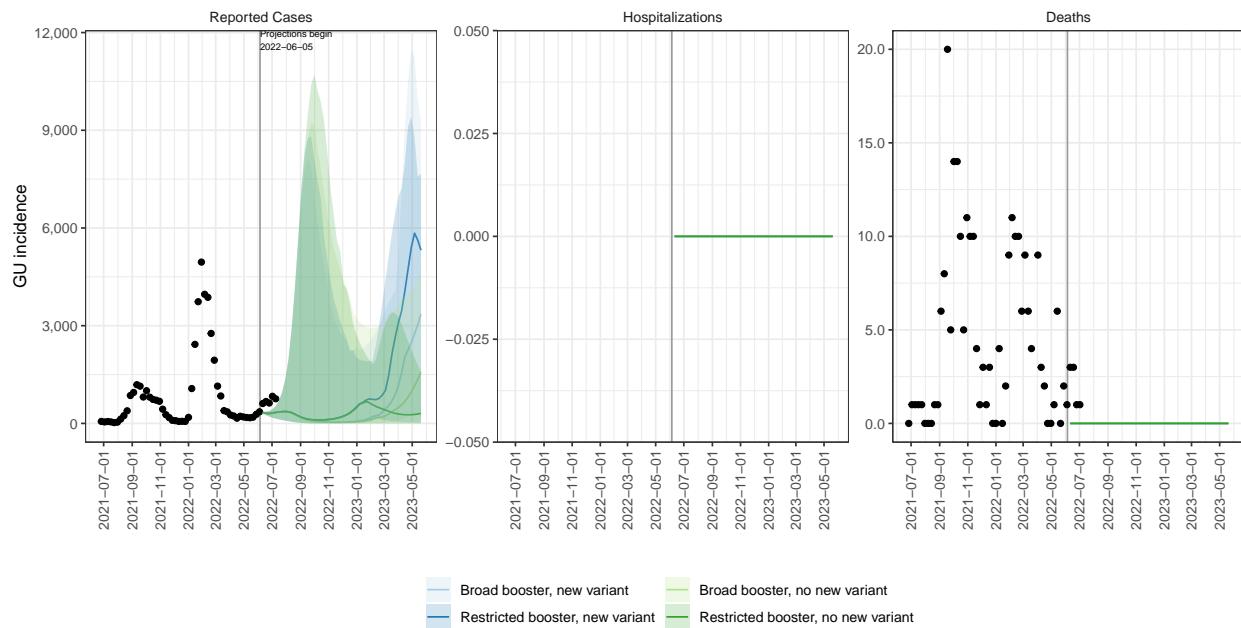
WY ensemble projections & 95% projection intervals



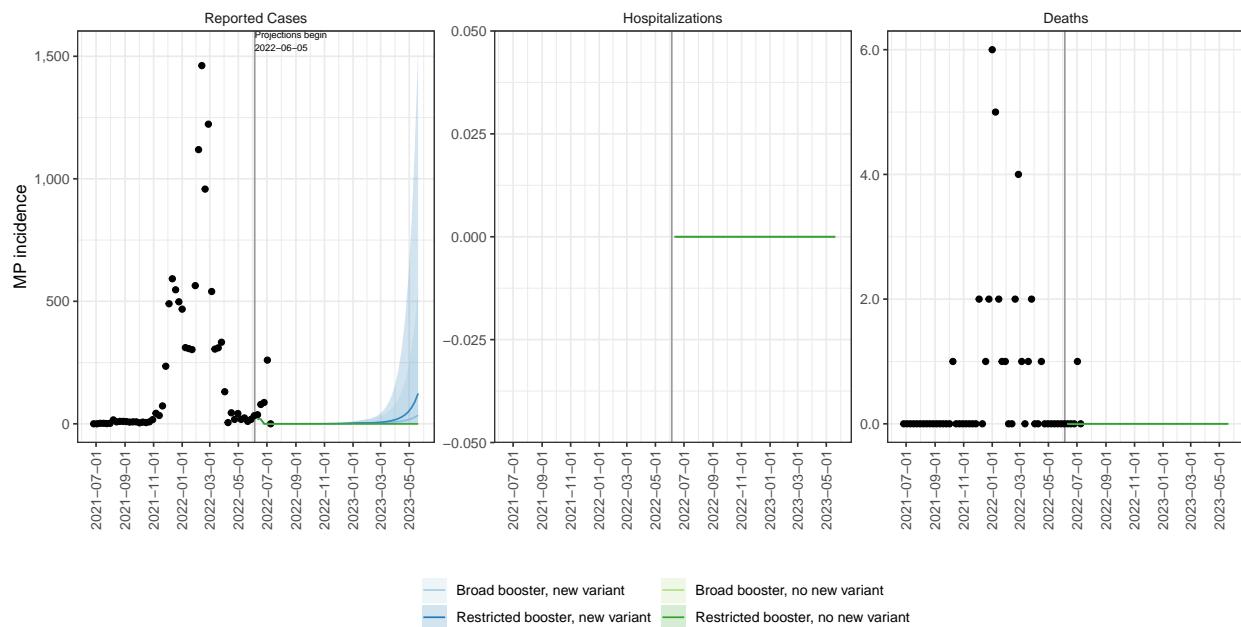
AS ensemble projections & 95% projection intervals



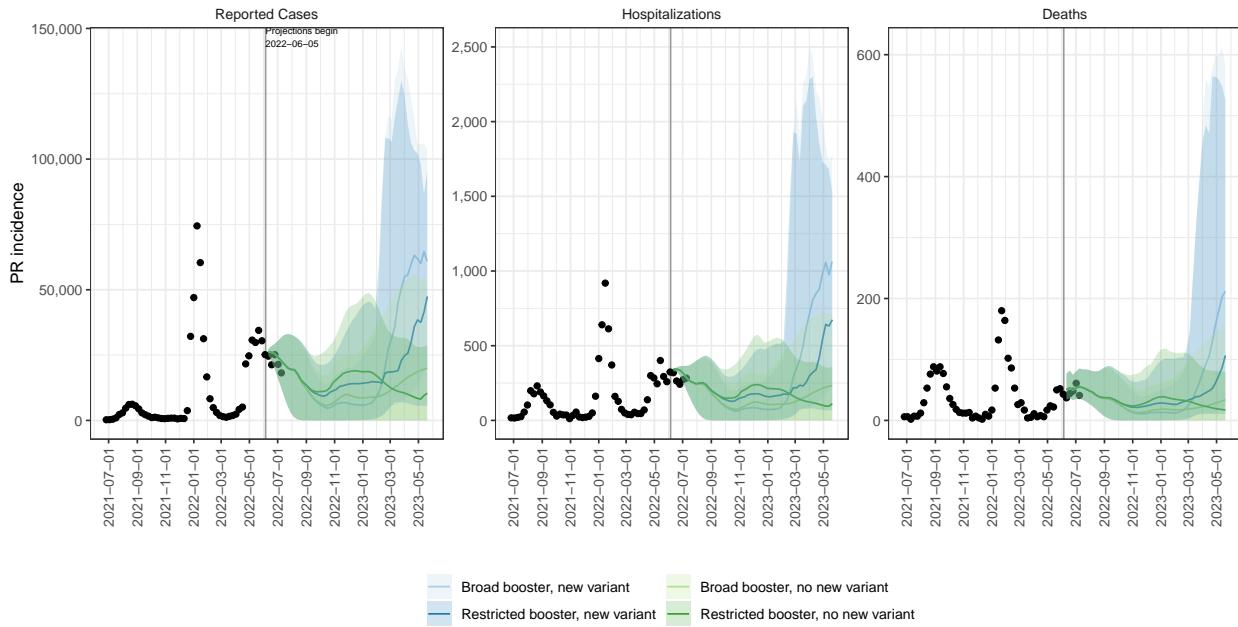
GU ensemble projections & 95% projection intervals



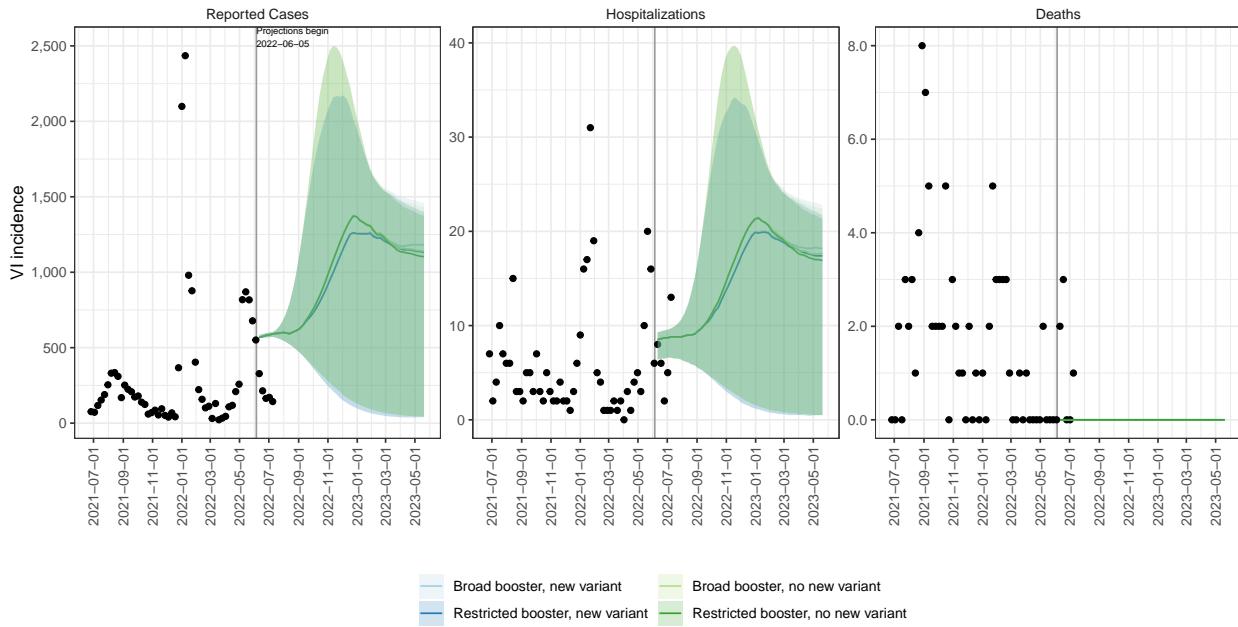
MP ensemble projections & 95% projection intervals



PR ensemble projections & 95% projection intervals



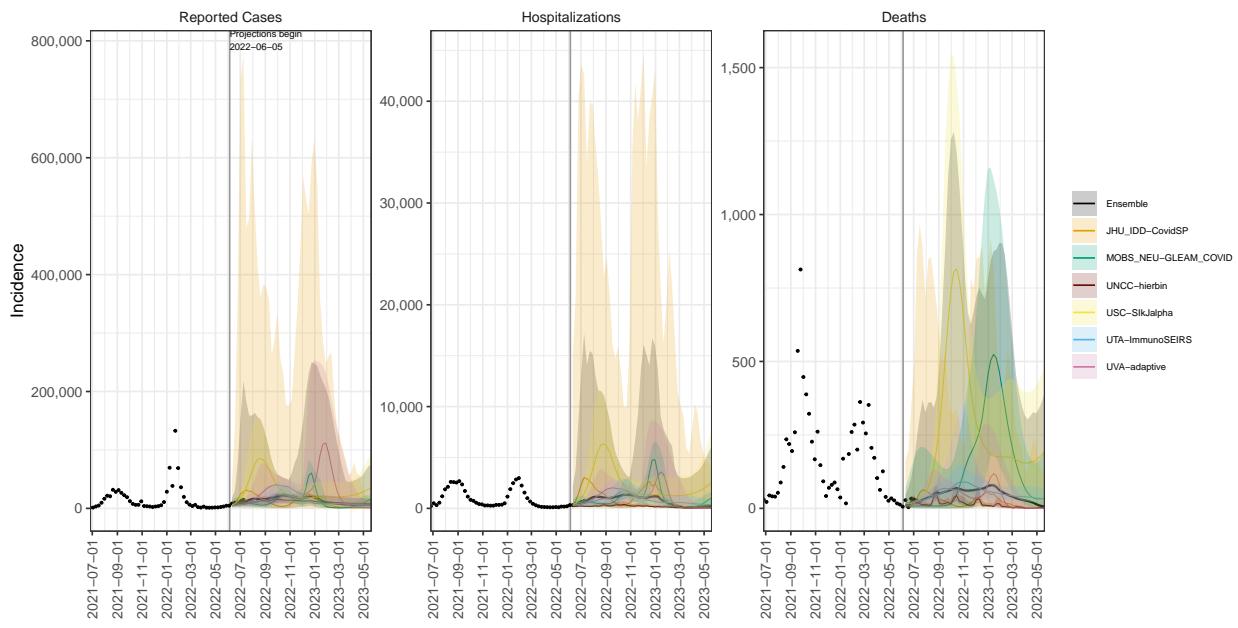
VI ensemble projections & 95% projection intervals



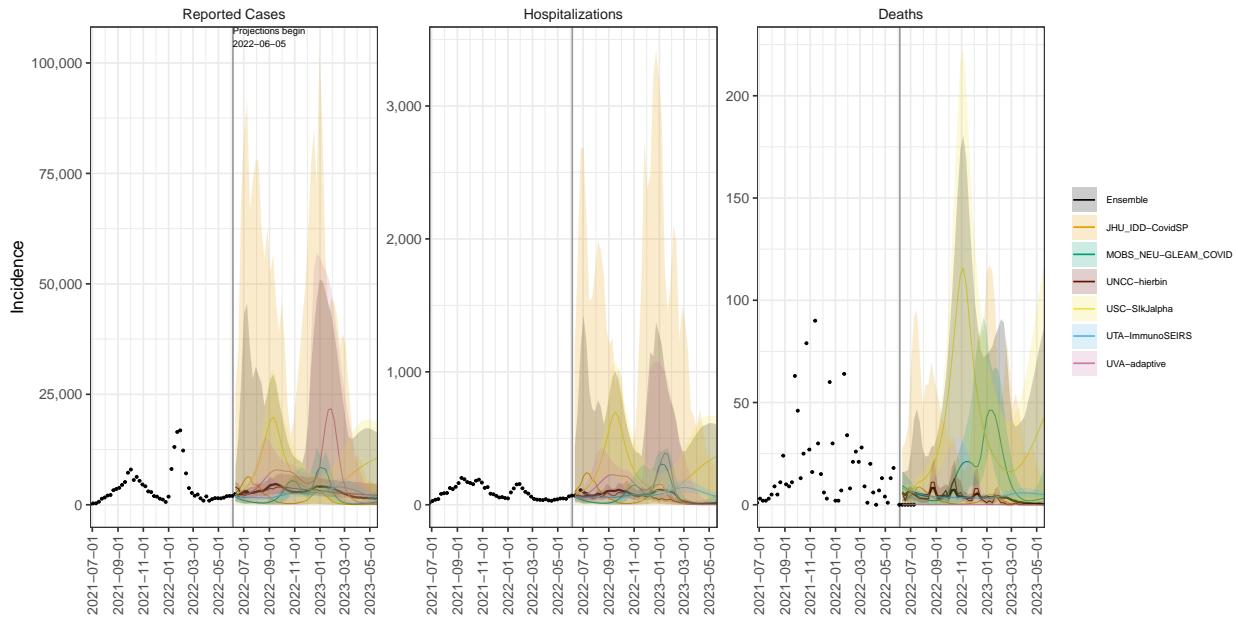
State-level model variation

National model variation for restricted booster, new variant scenario.

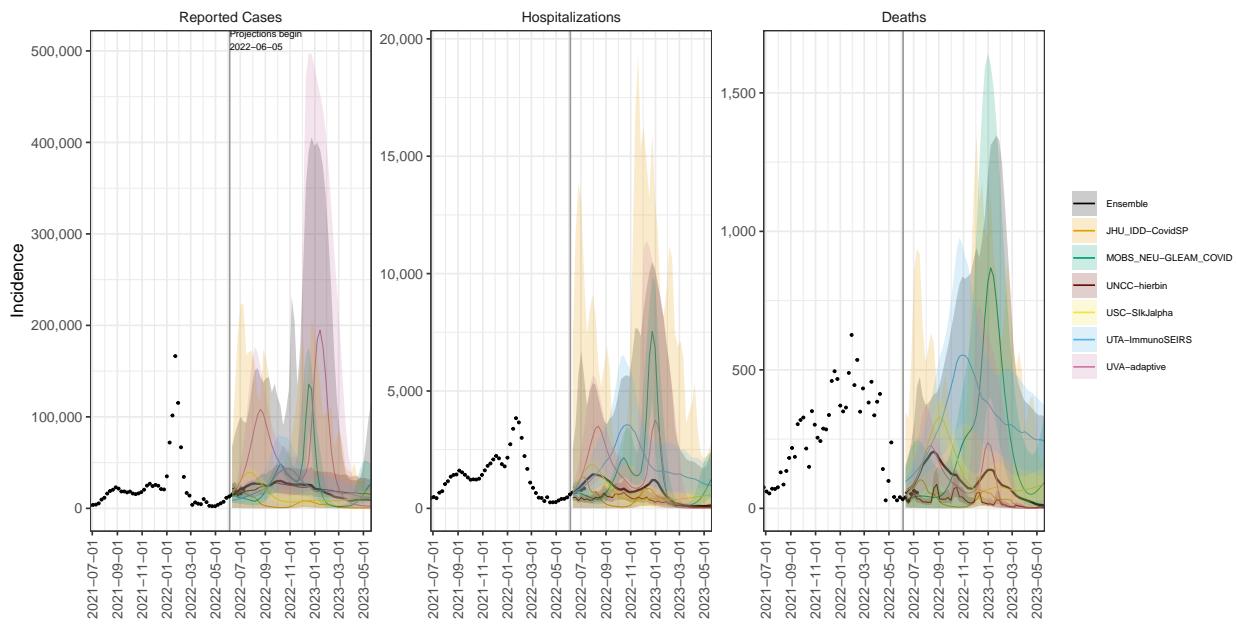
AL model variance & 95% projection intervals – Restricted booster, new variant



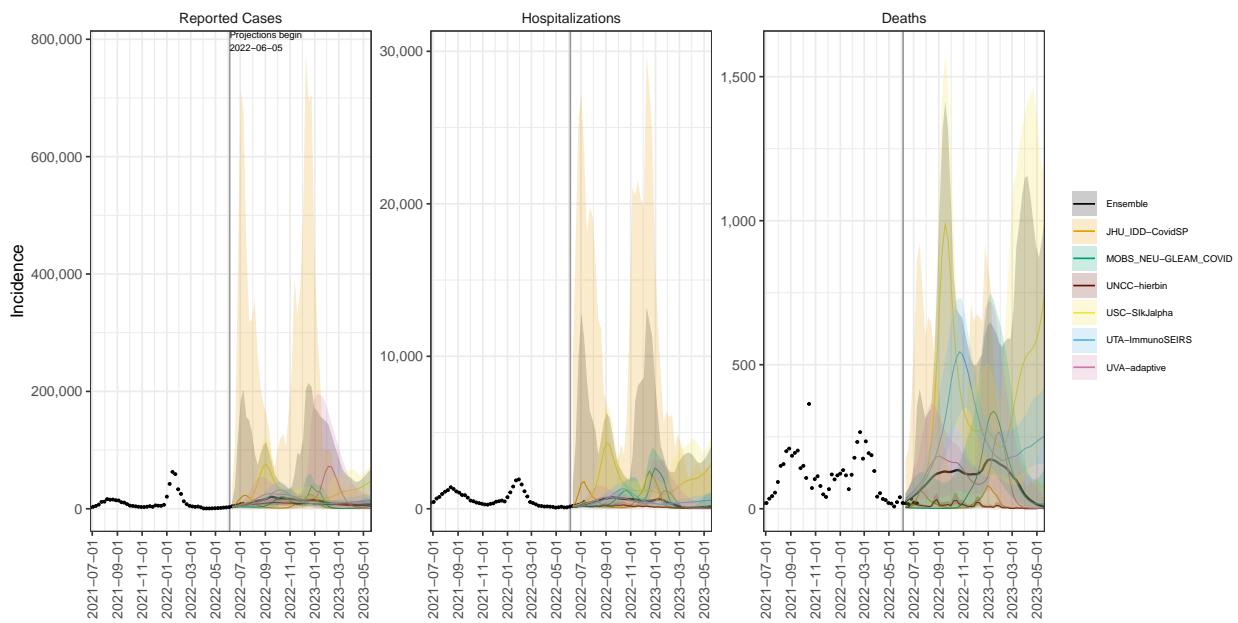
AK model variance & 95% projection intervals – Restricted booster, new variant



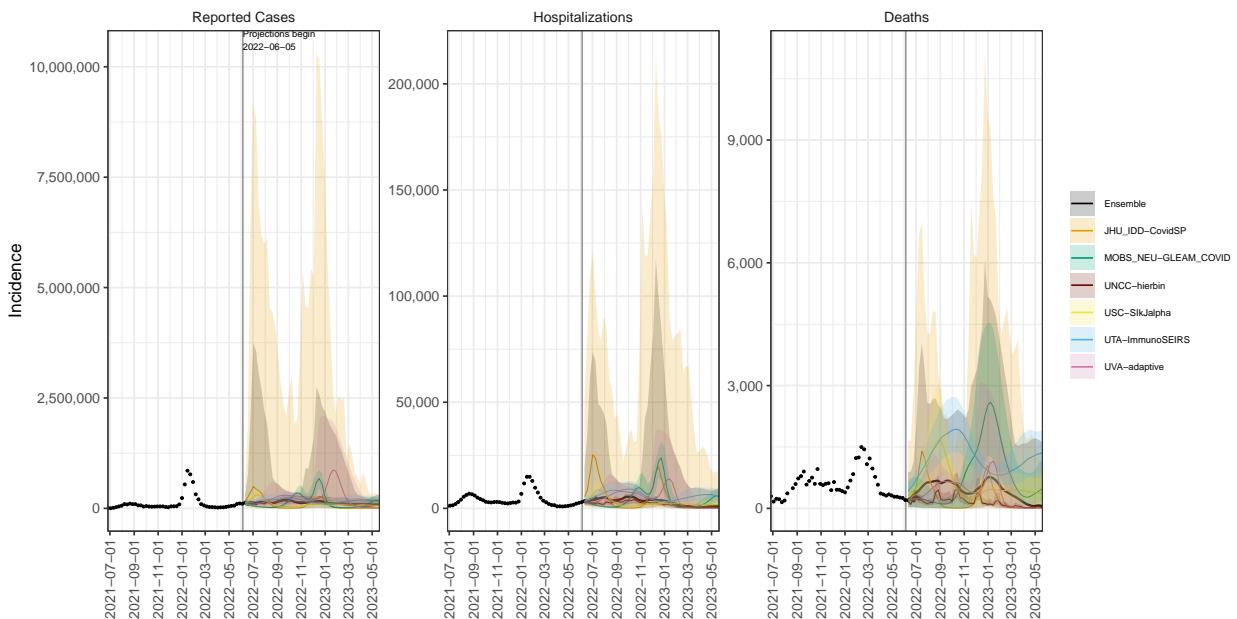
AZ model variance & 95% projection intervals – Restricted booster, new variant



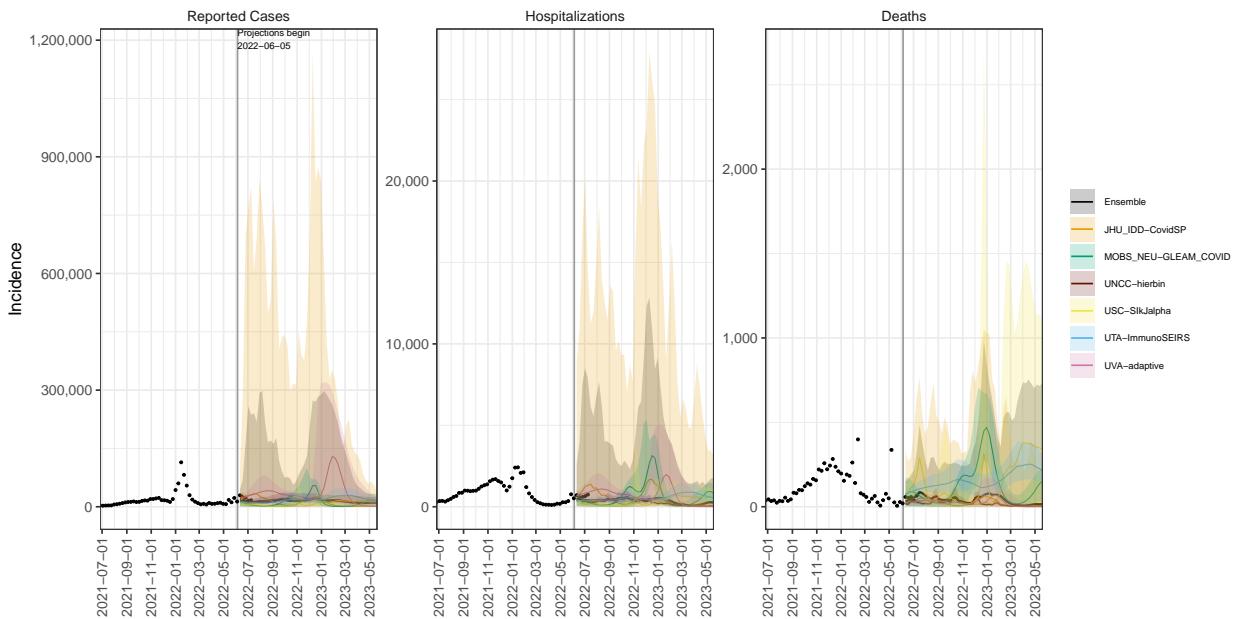
AR model variance & 95% projection intervals – Restricted booster, new variant



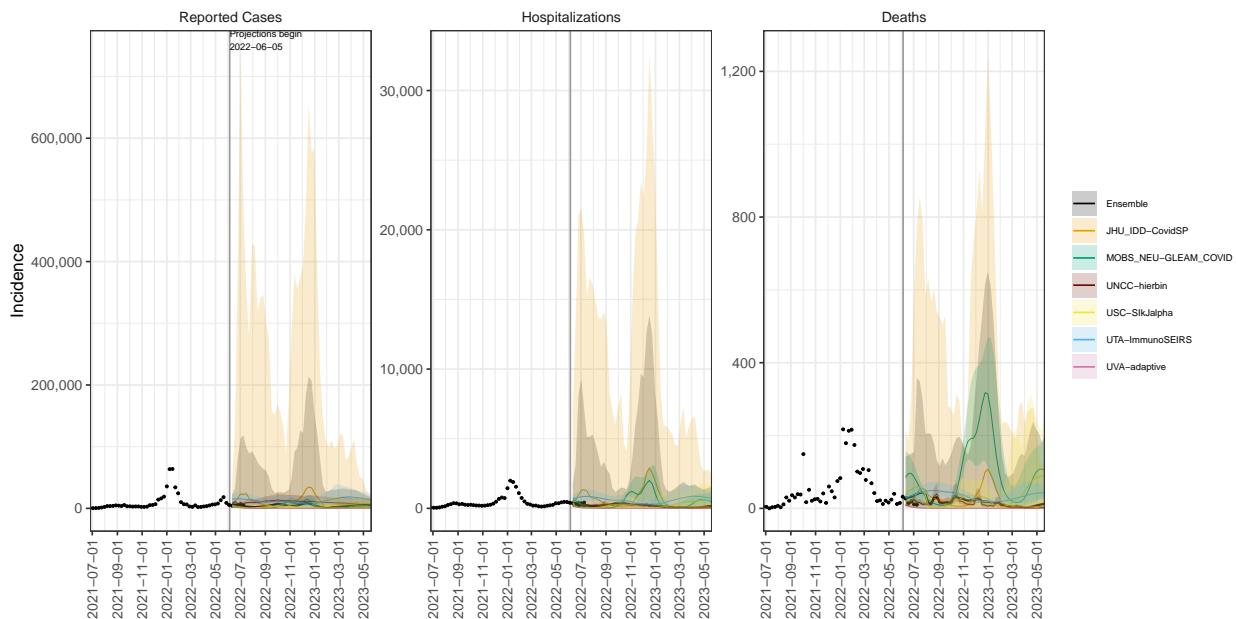
CA model variance & 95% projection intervals – Restricted booster, new variant



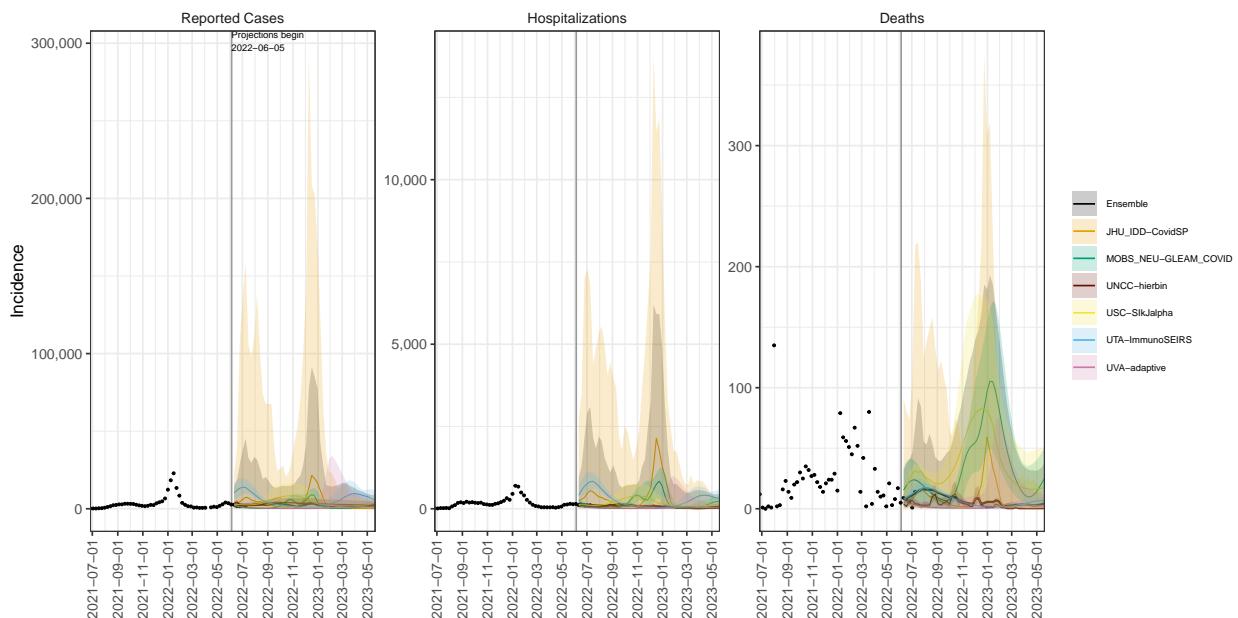
CO model variance & 95% projection intervals – Restricted booster, new variant



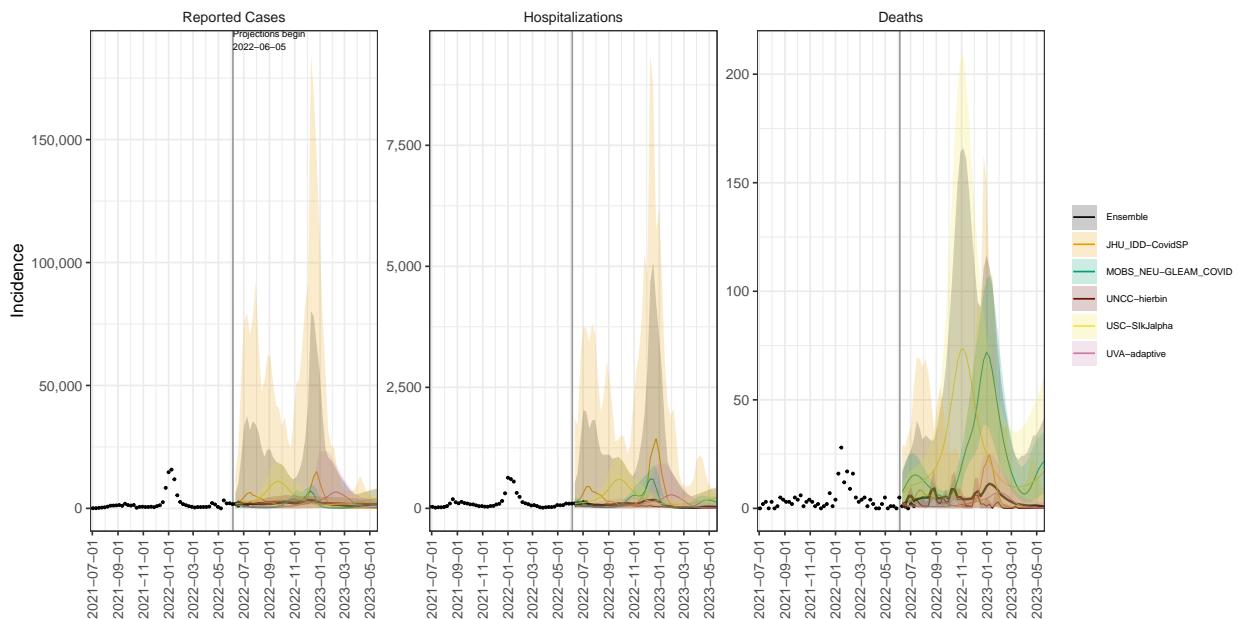
CT model variance & 95% projection intervals – Restricted booster, new variant



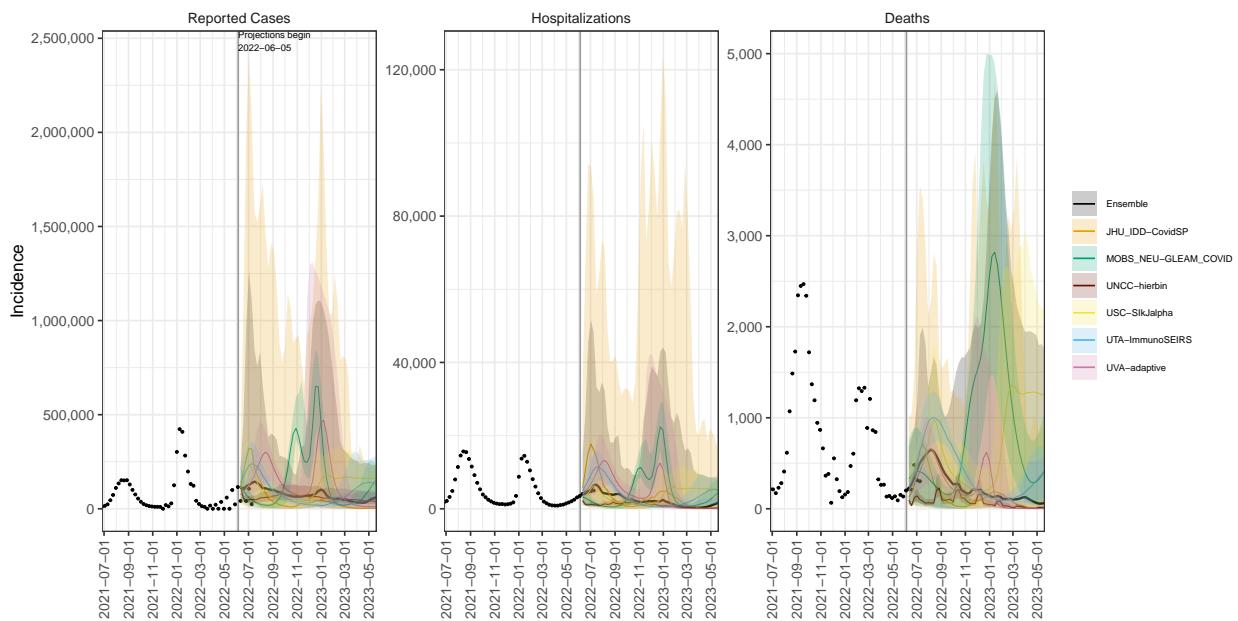
DE model variance & 95% projection intervals – Restricted booster, new variant



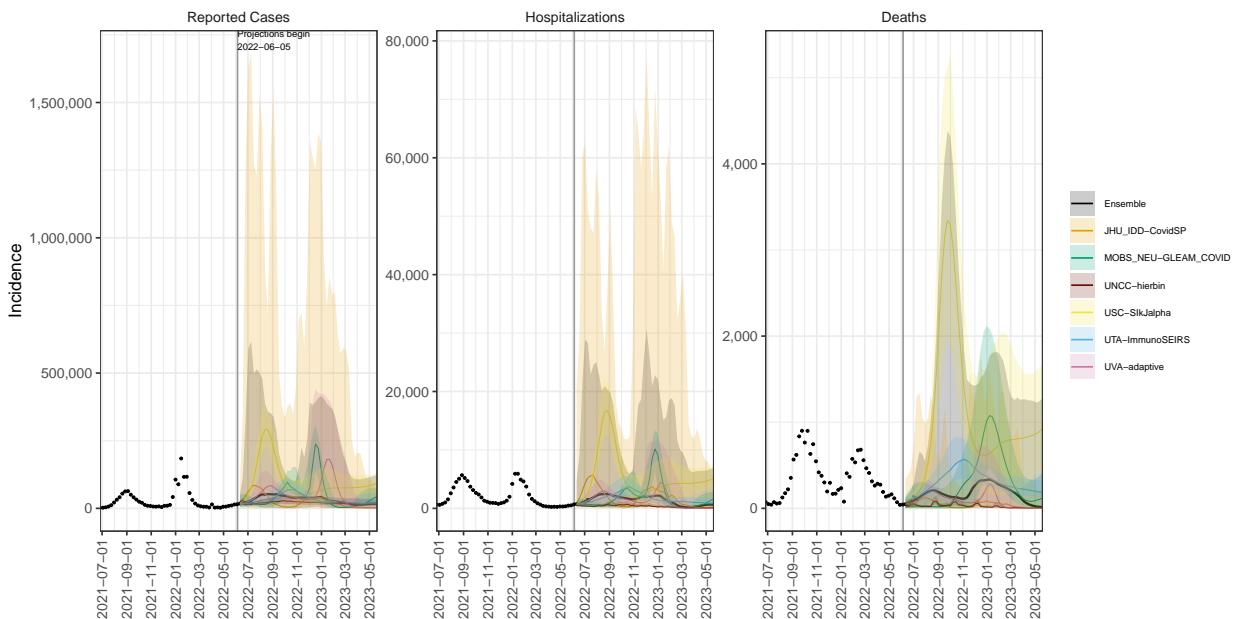
DC model variance & 95% projection intervals – Restricted booster, new variant



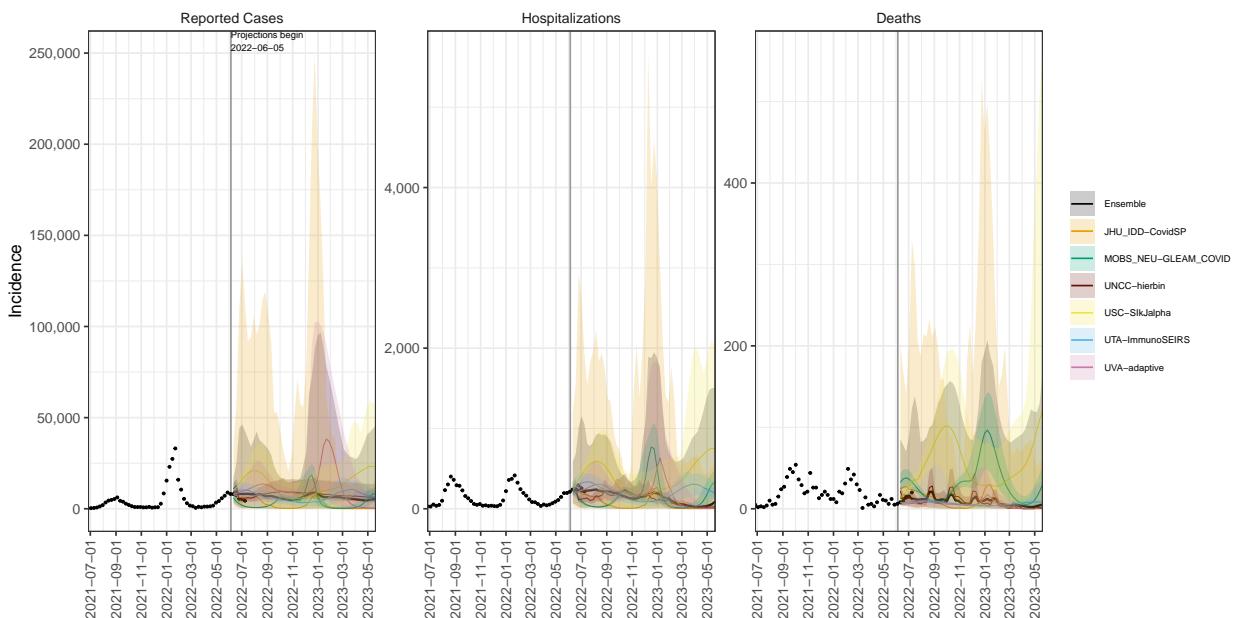
FL model variance & 95% projection intervals – Restricted booster, new variant



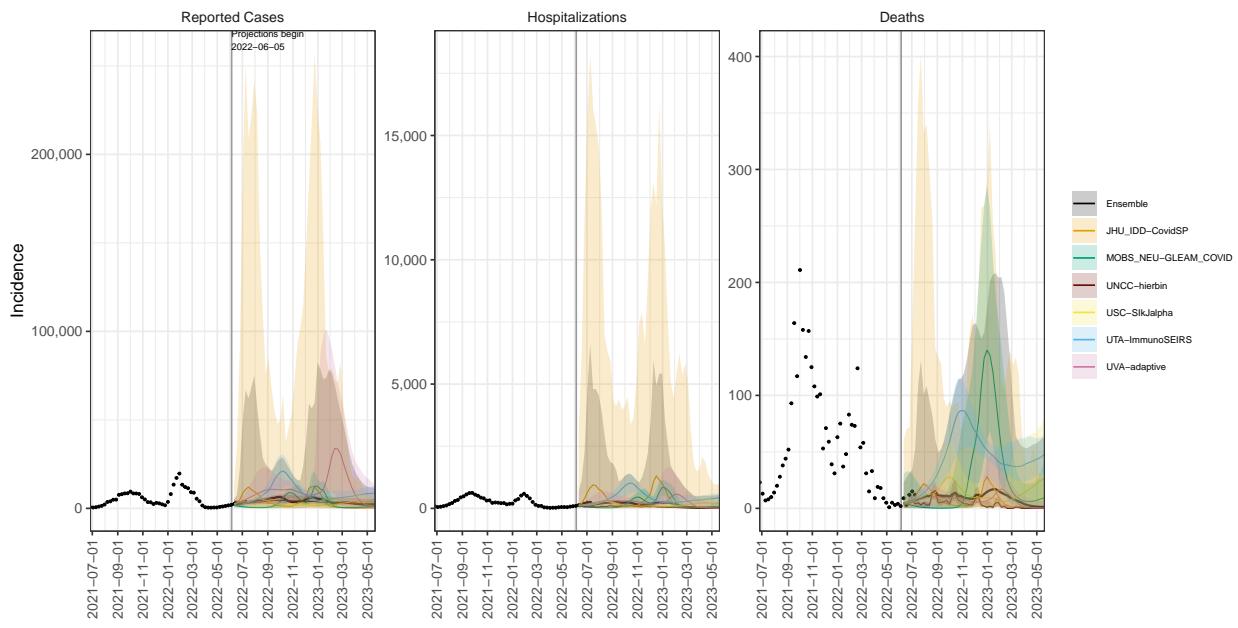
GA model variance & 95% projection intervals – Restricted booster, new variant



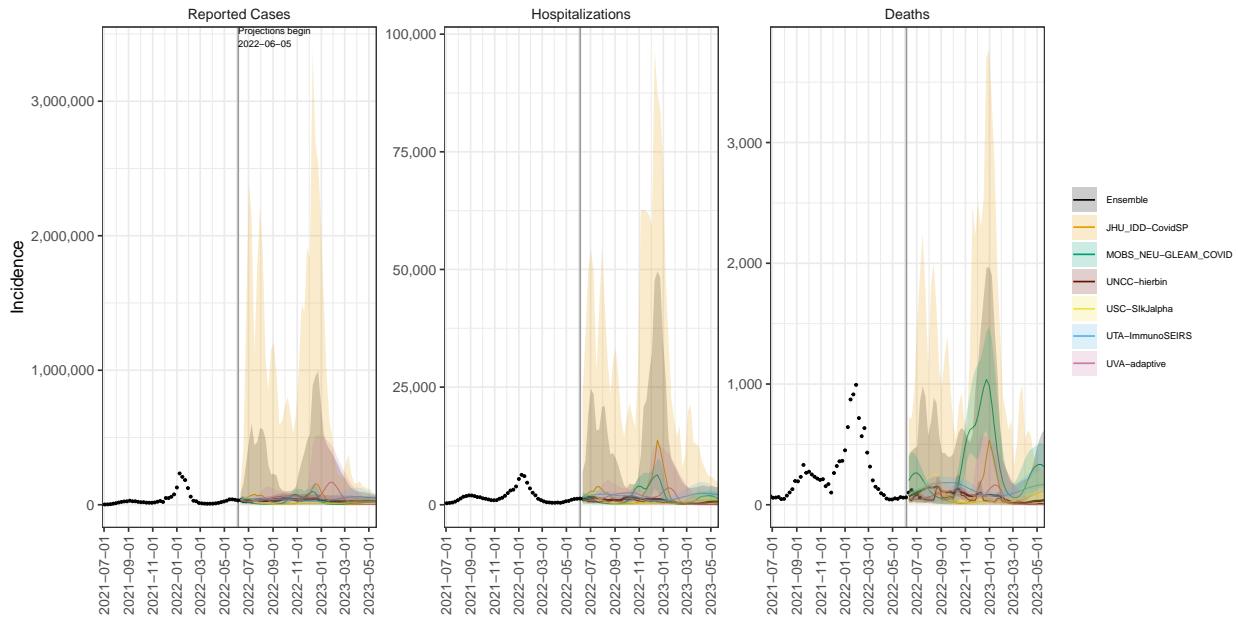
HI model variance & 95% projection intervals – Restricted booster, new variant



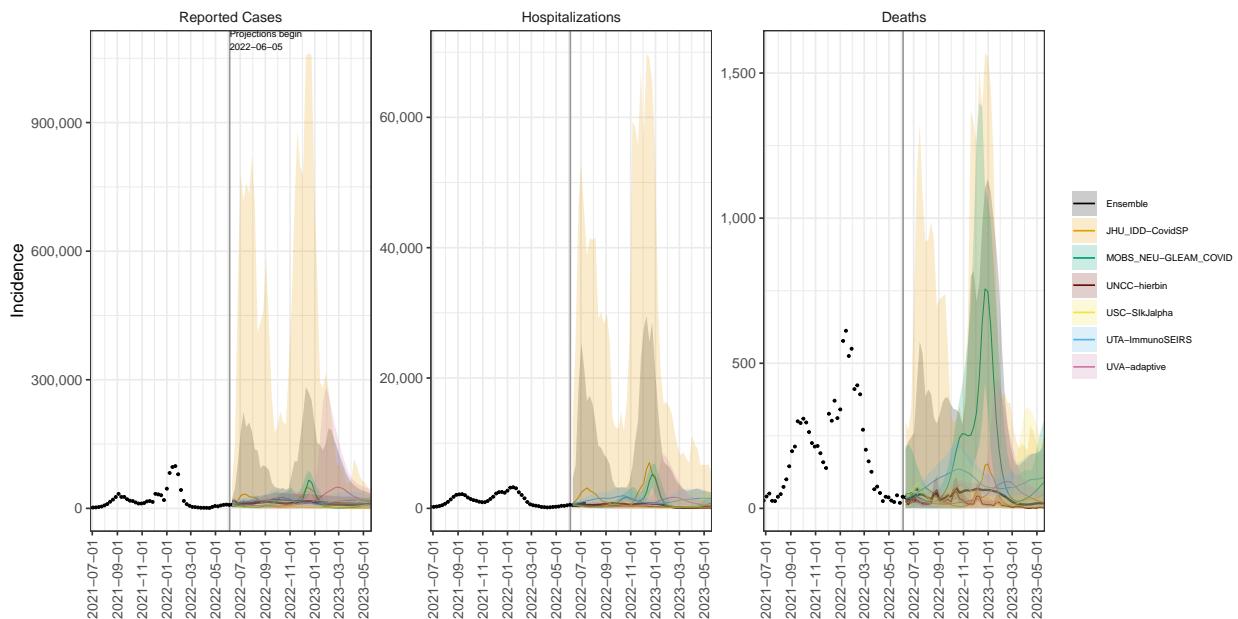
ID model variance & 95% projection intervals – Restricted booster, new variant



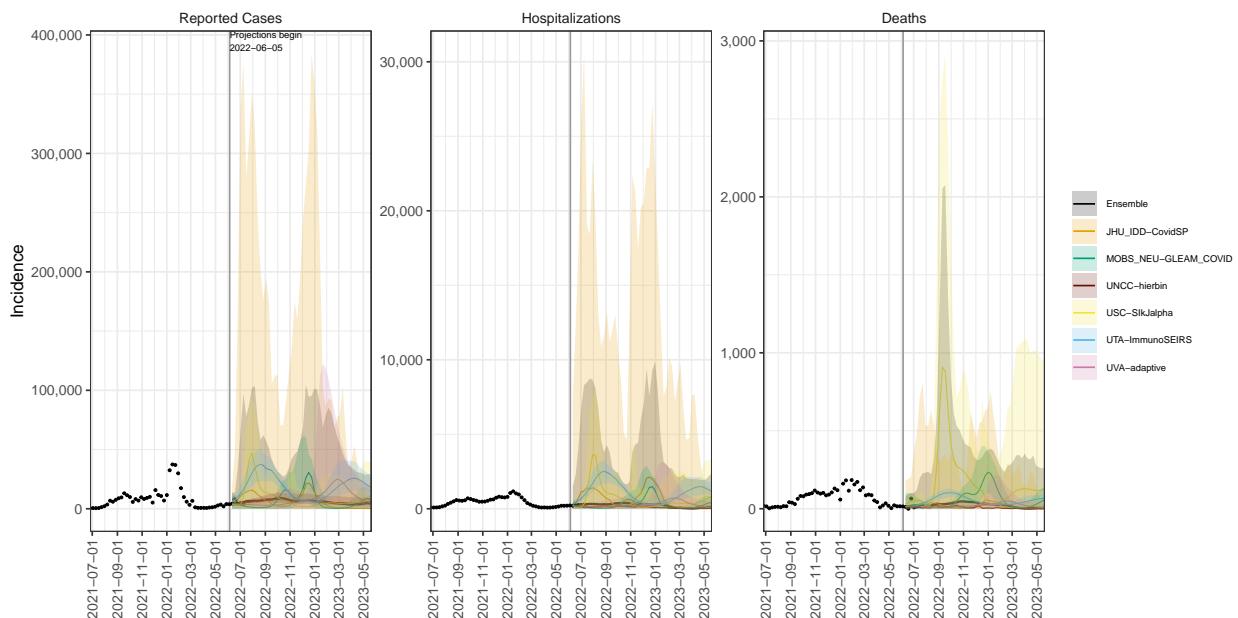
IL model variance & 95% projection intervals – Restricted booster, new variant



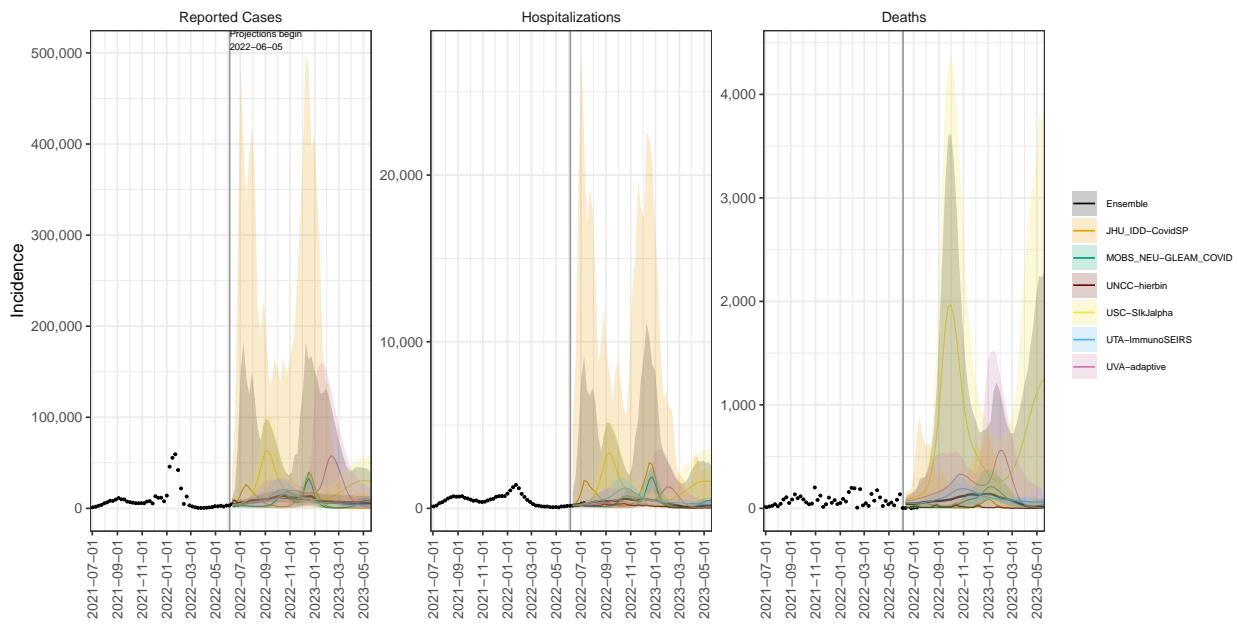
IN model variance & 95% projection intervals – Restricted booster, new variant



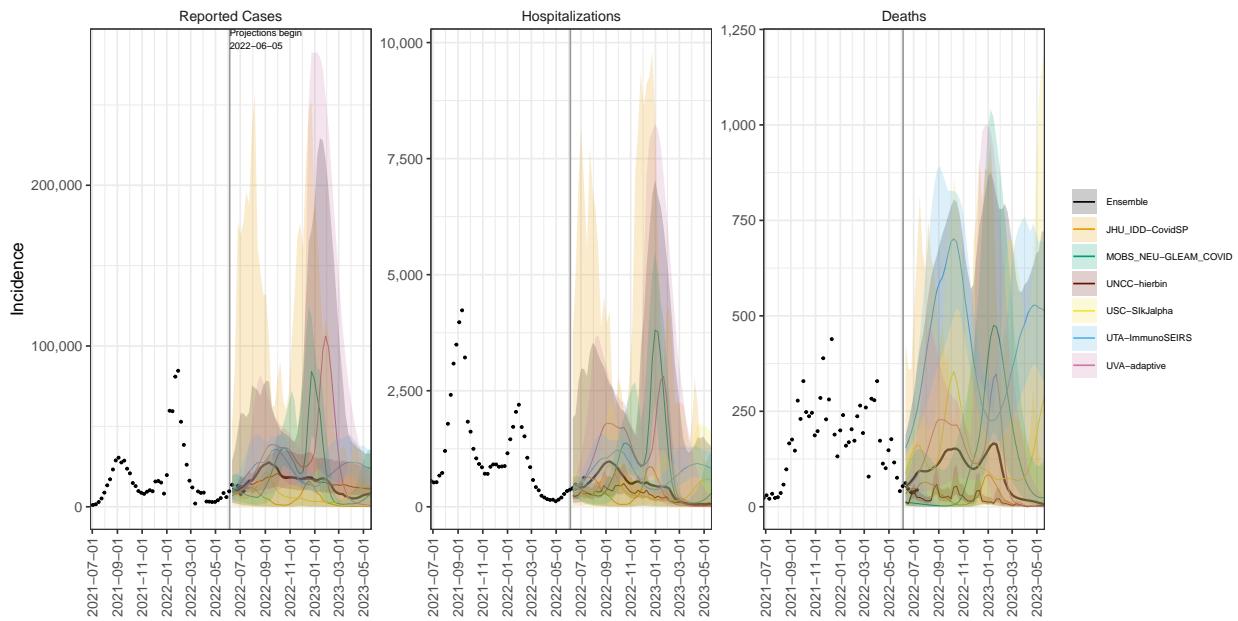
IA model variance & 95% projection intervals – Restricted booster, new variant



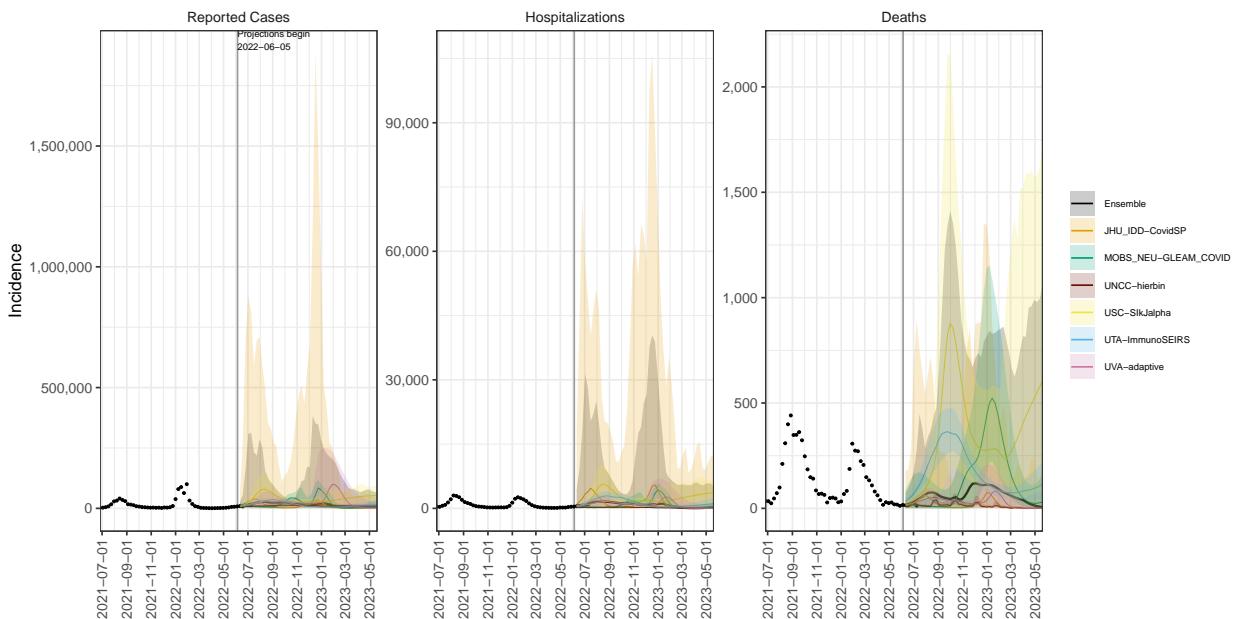
KS model variance & 95% projection intervals – Restricted booster, new variant



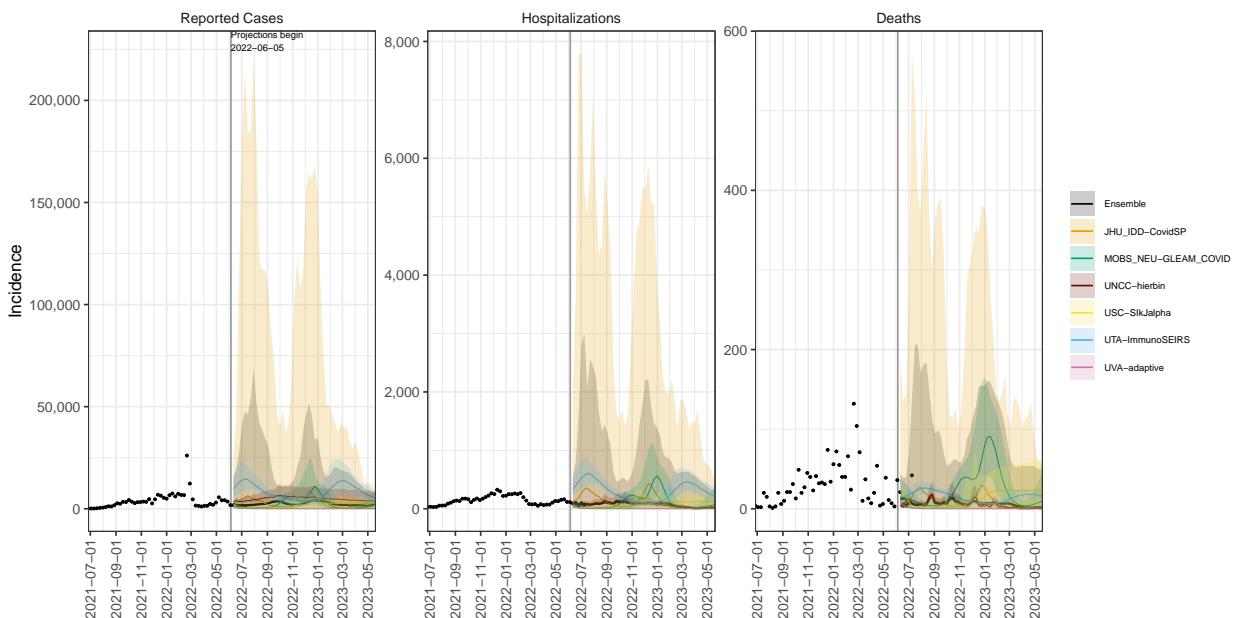
KY model variance & 95% projection intervals – Restricted booster, new variant



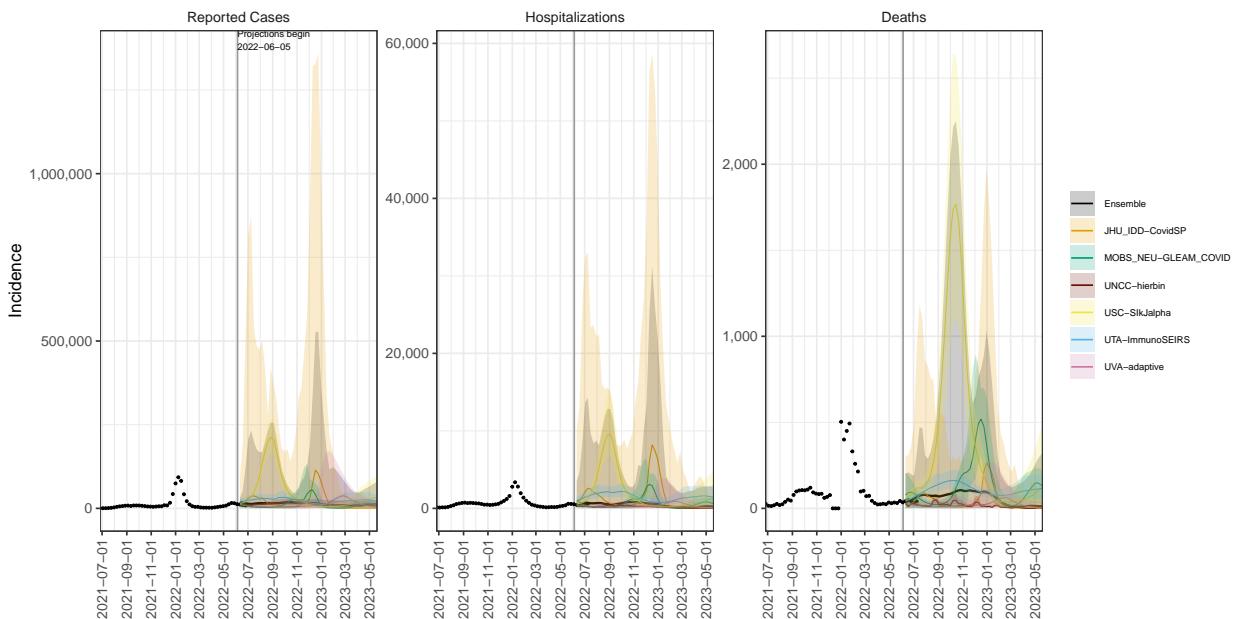
LA model variance & 95% projection intervals – Restricted booster, new variant



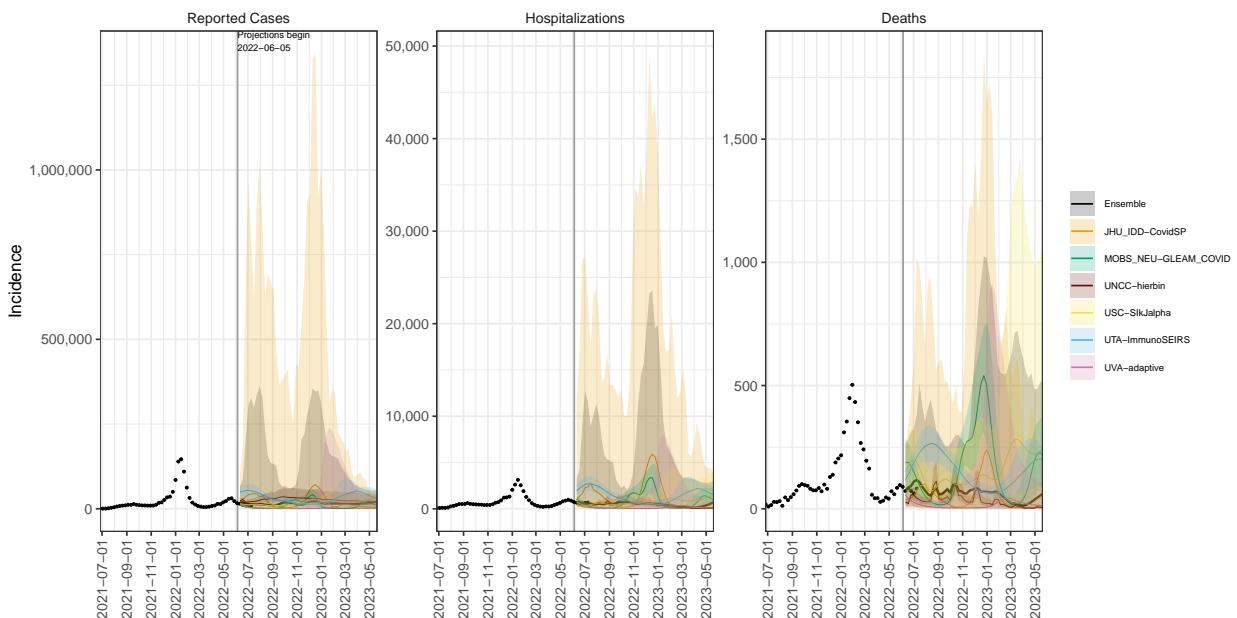
ME model variance & 95% projection intervals – Restricted booster, new variant



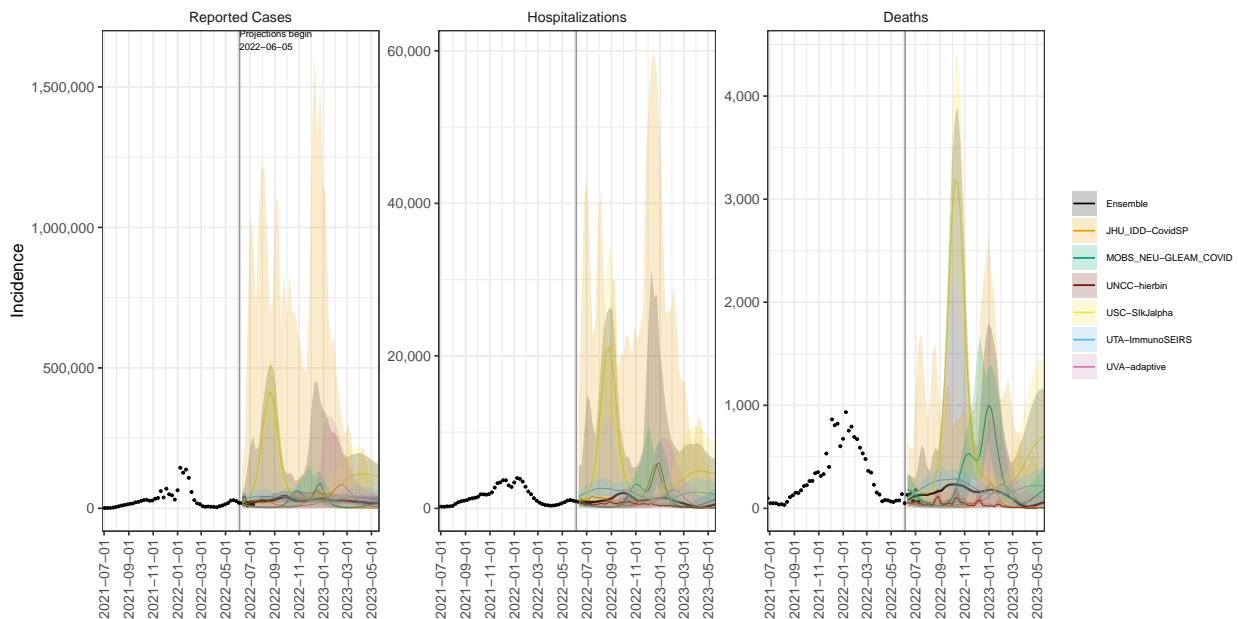
MD model variance & 95% projection intervals – Restricted booster, new variant



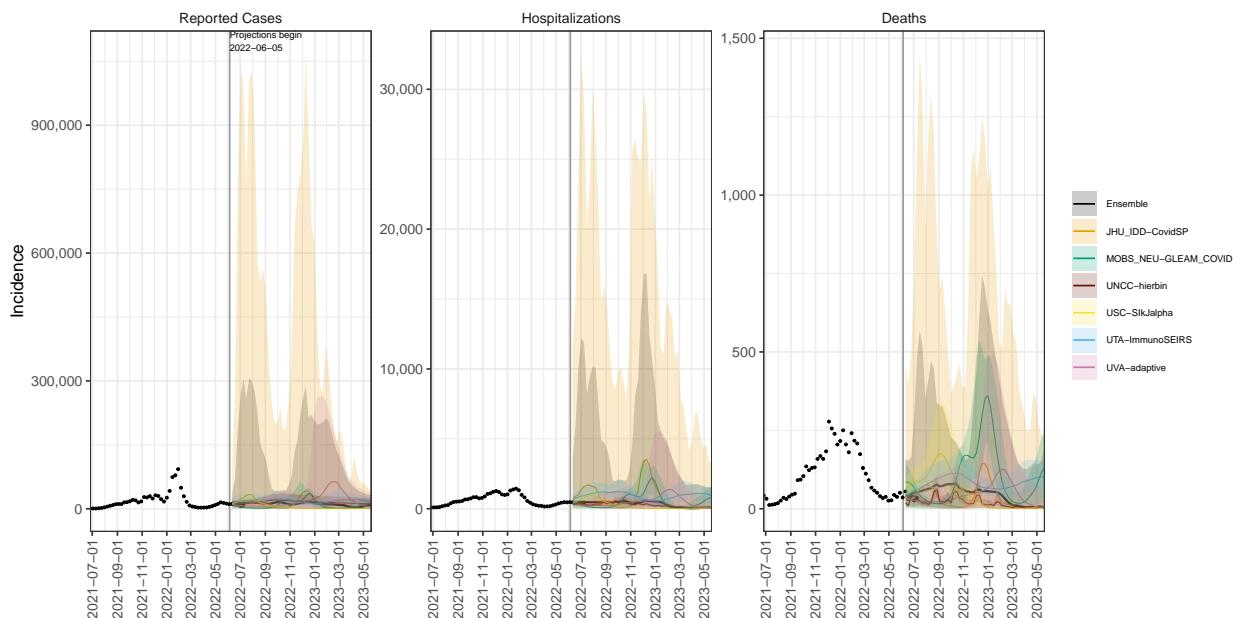
MA model variance & 95% projection intervals – Restricted booster, new variant



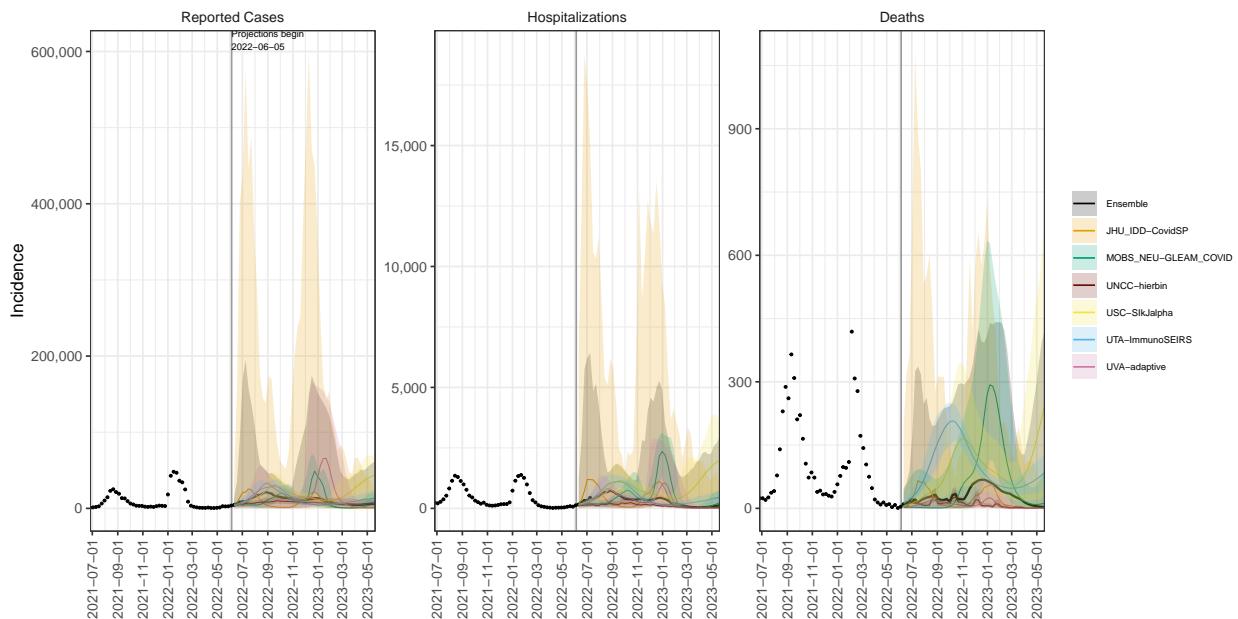
MI model variance & 95% projection intervals – Restricted booster, new variant



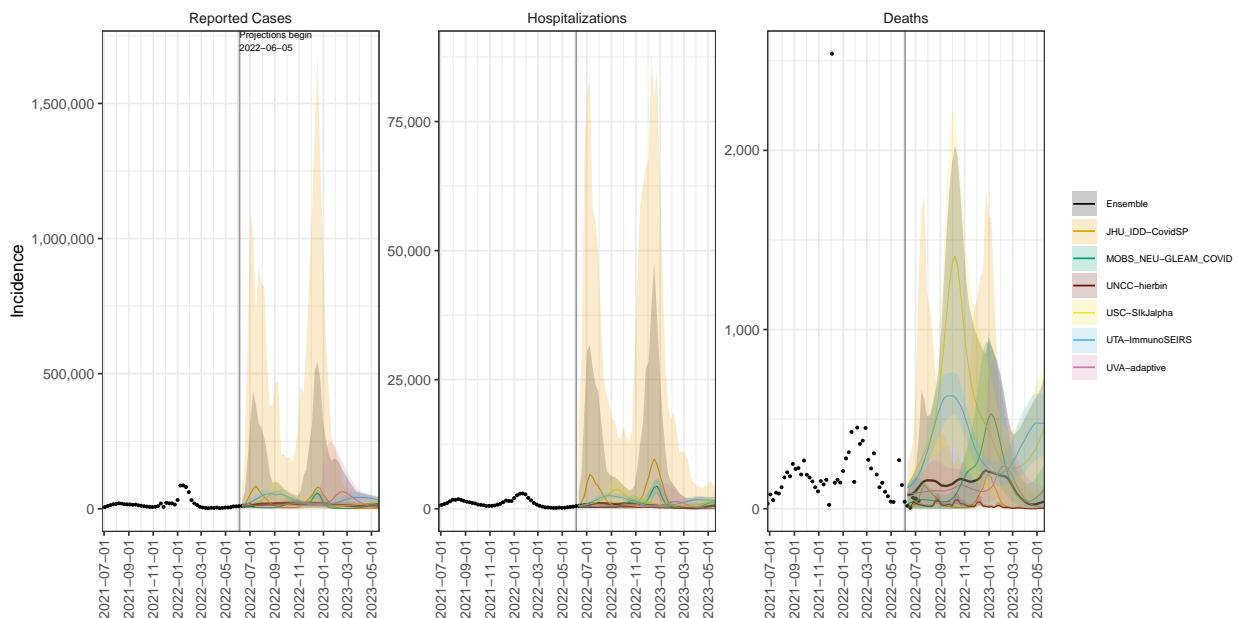
MN model variance & 95% projection intervals – Restricted booster, new variant



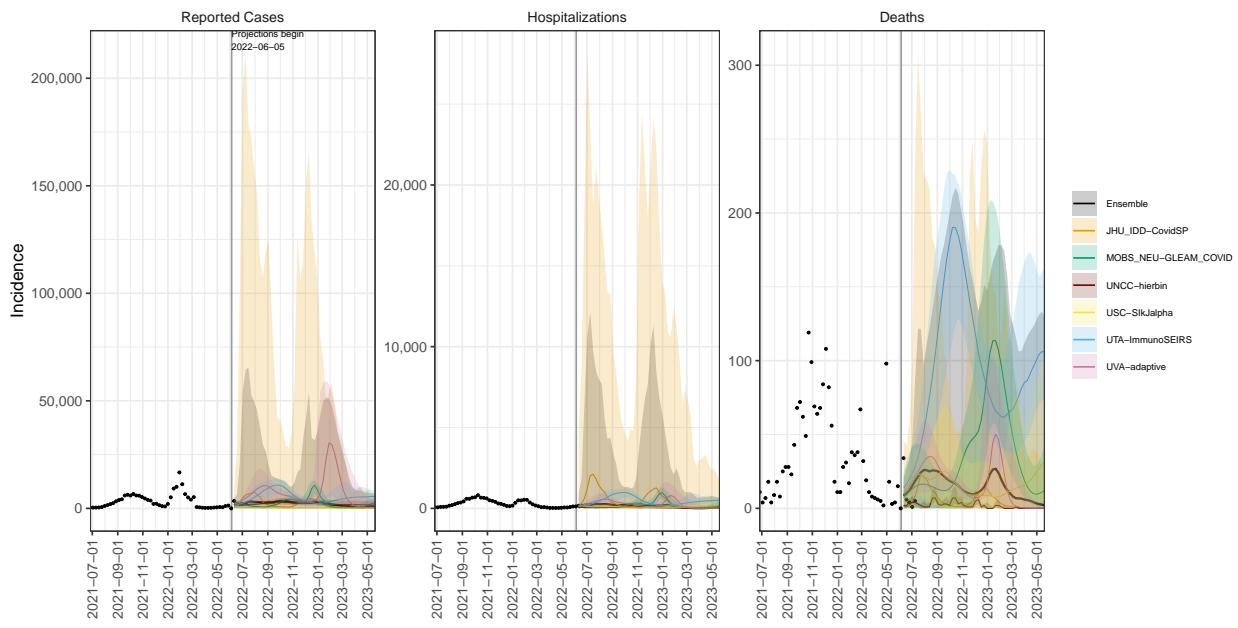
MS model variance & 95% projection intervals – Restricted booster, new variant



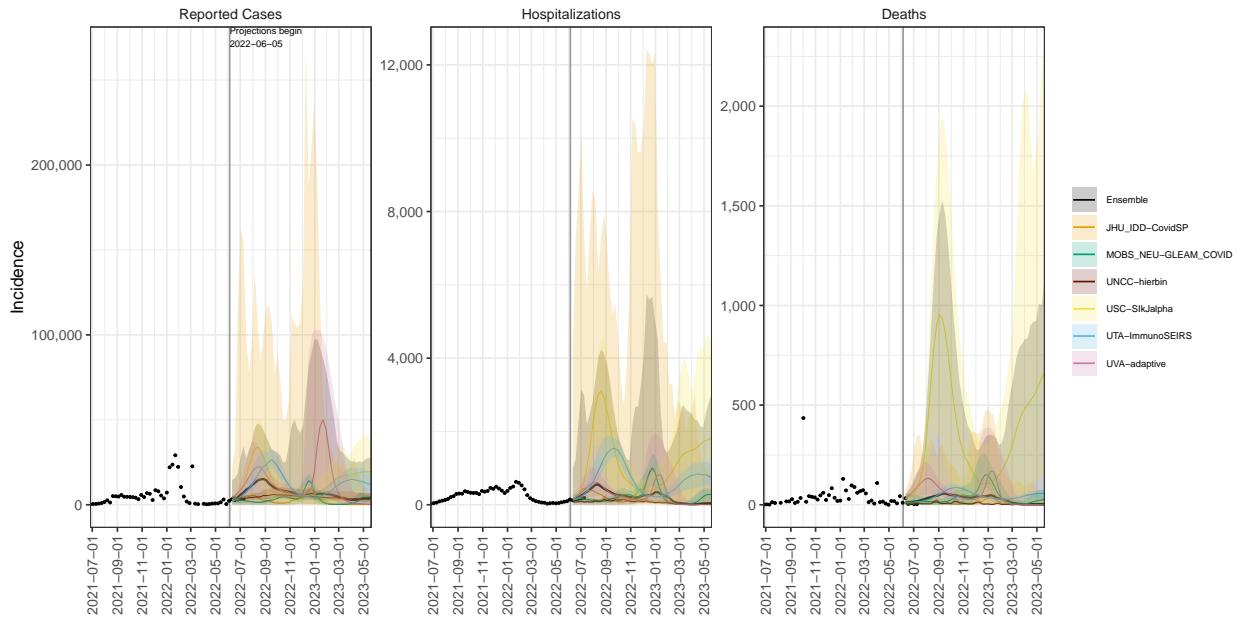
MO model variance & 95% projection intervals – Restricted booster, new variant



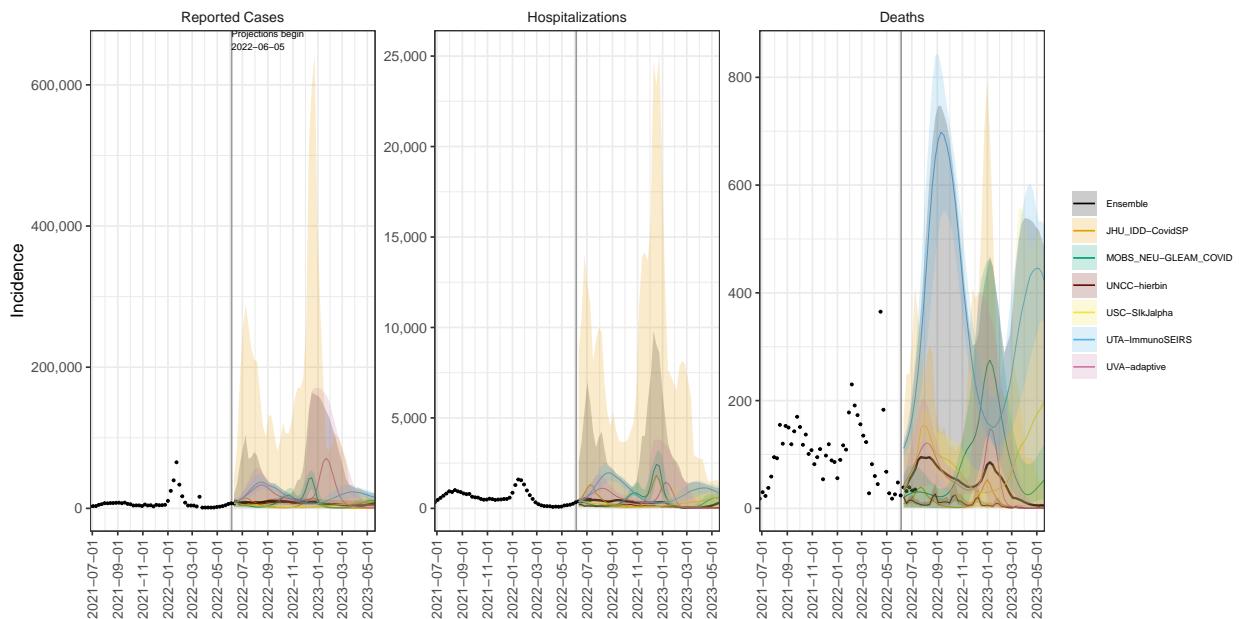
MT model variance & 95% projection intervals – Restricted booster, new variant



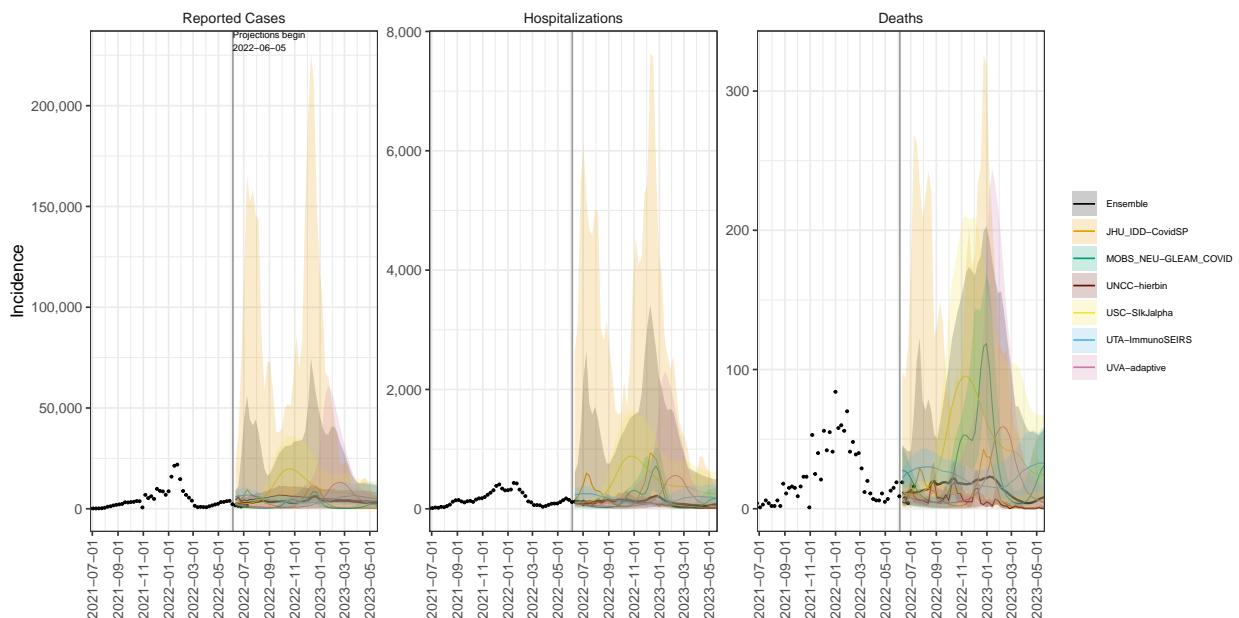
NE model variance & 95% projection intervals – Restricted booster, new variant



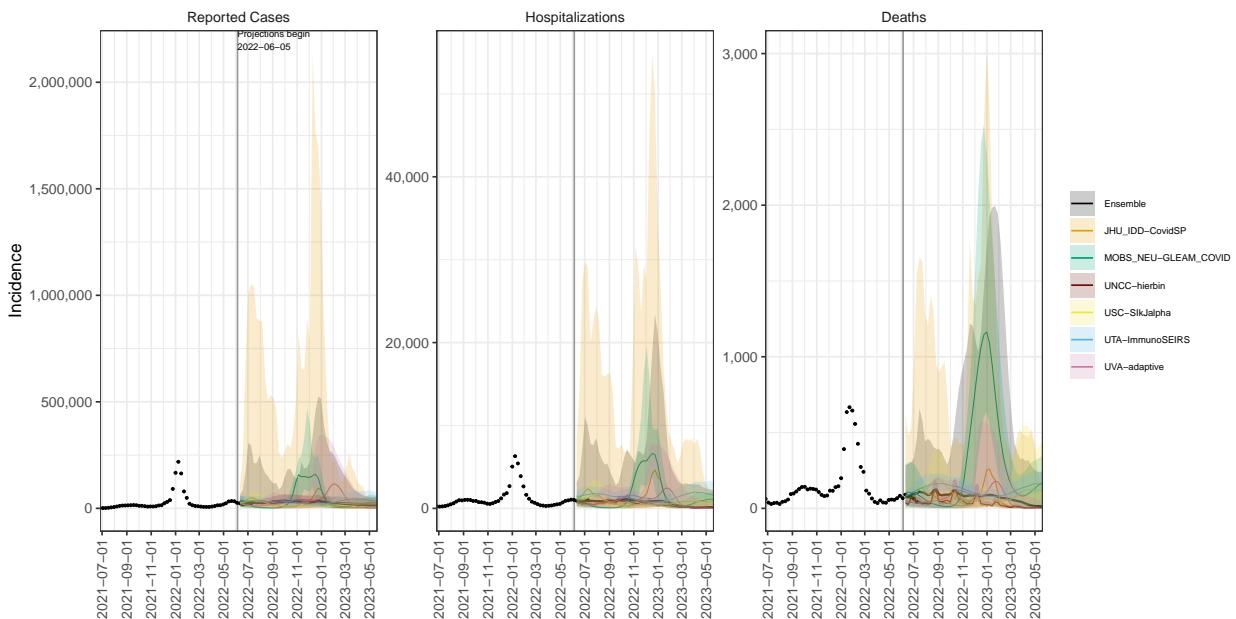
NV model variance & 95% projection intervals – Restricted booster, new variant



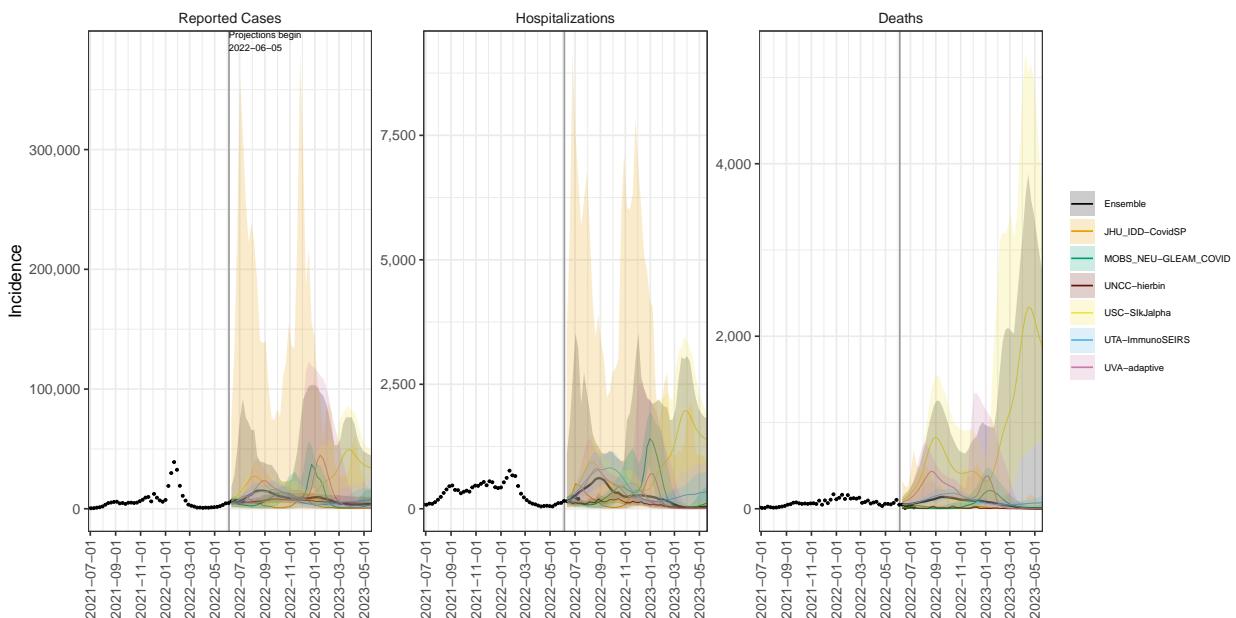
NH model variance & 95% projection intervals – Restricted booster, new variant



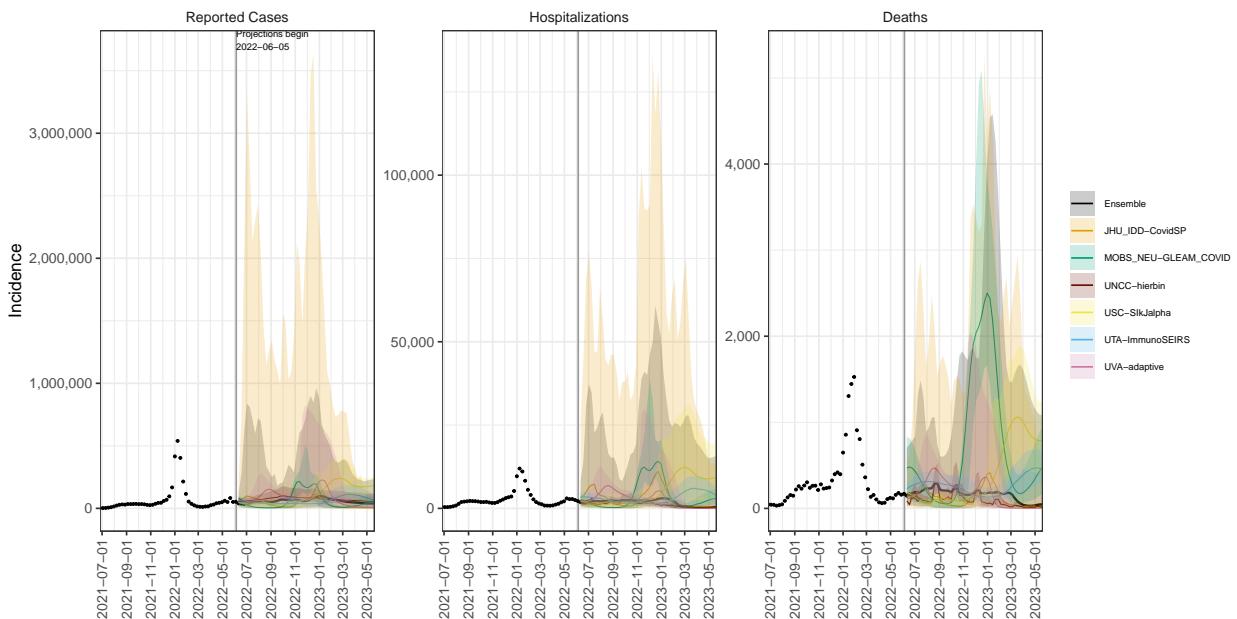
NJ model variance & 95% projection intervals – Restricted booster, new variant



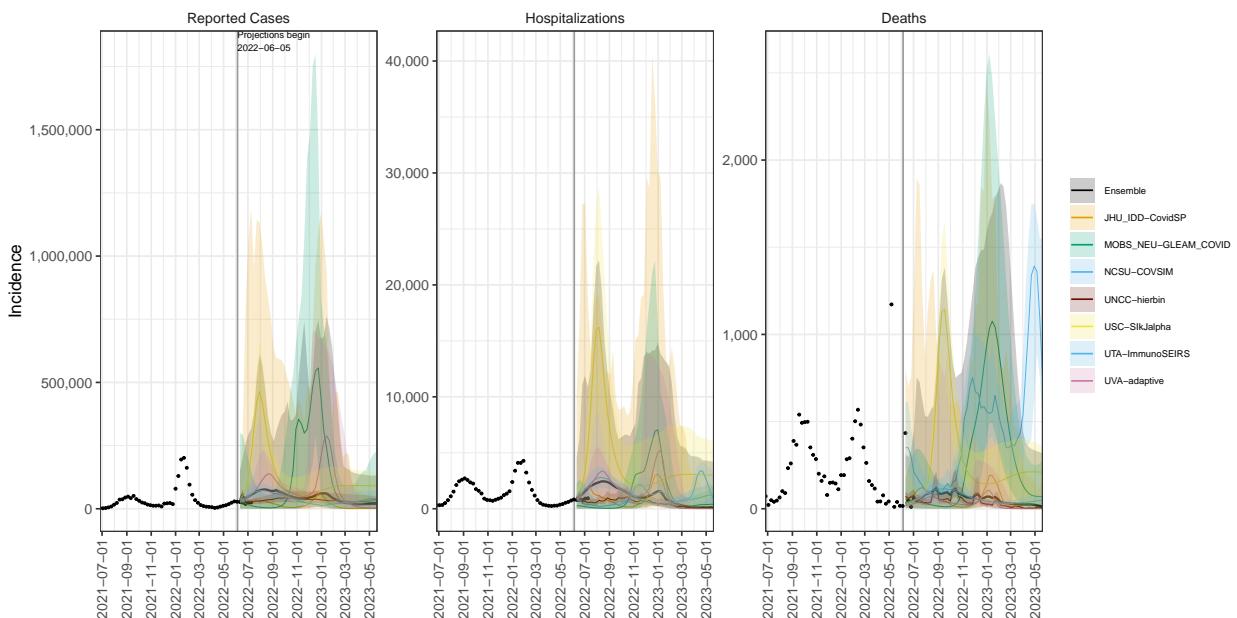
NM model variance & 95% projection intervals – Restricted booster, new variant



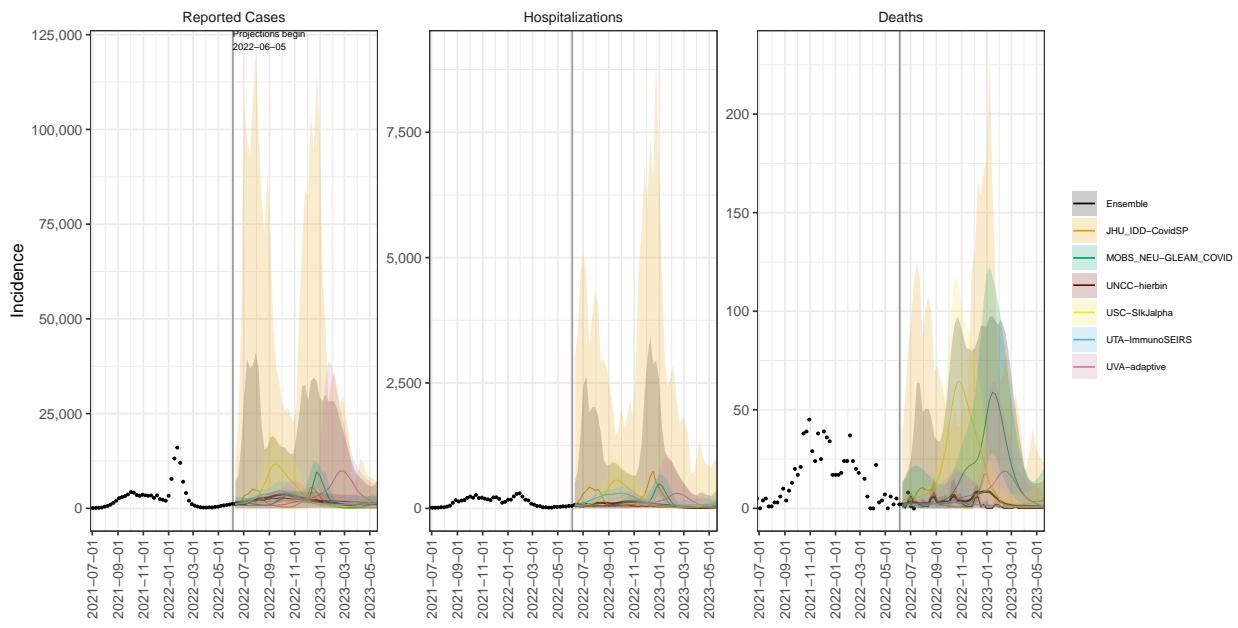
NY model variance & 95% projection intervals – Restricted booster, new variant



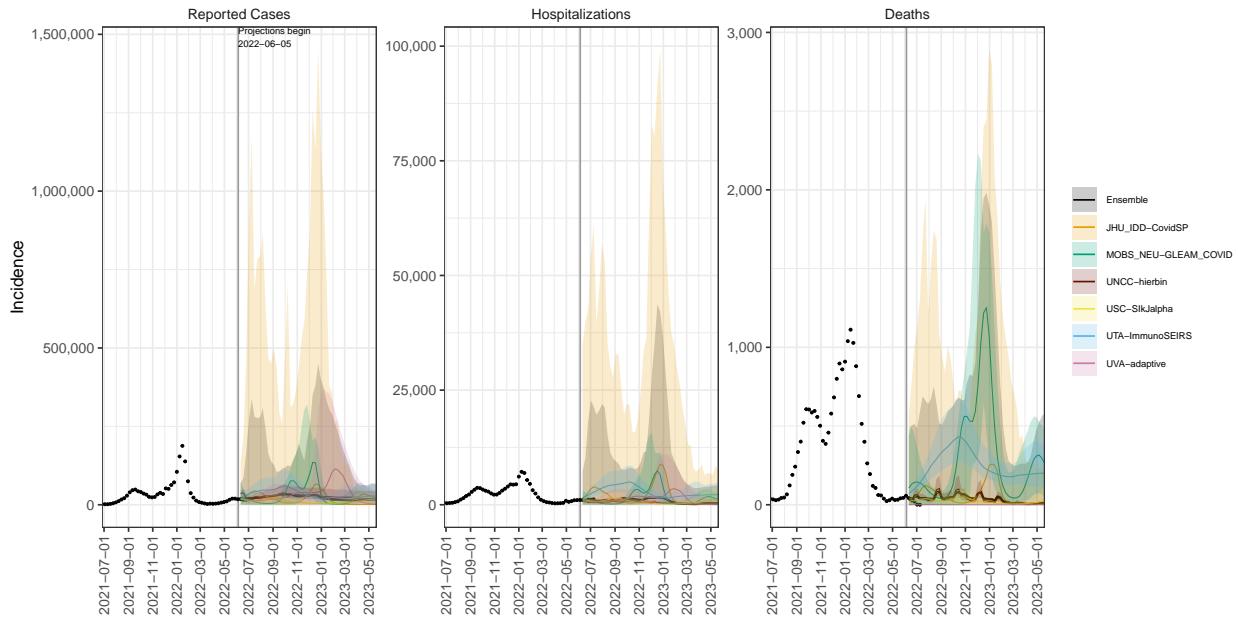
NC model variance & 95% projection intervals – Restricted booster, new variant



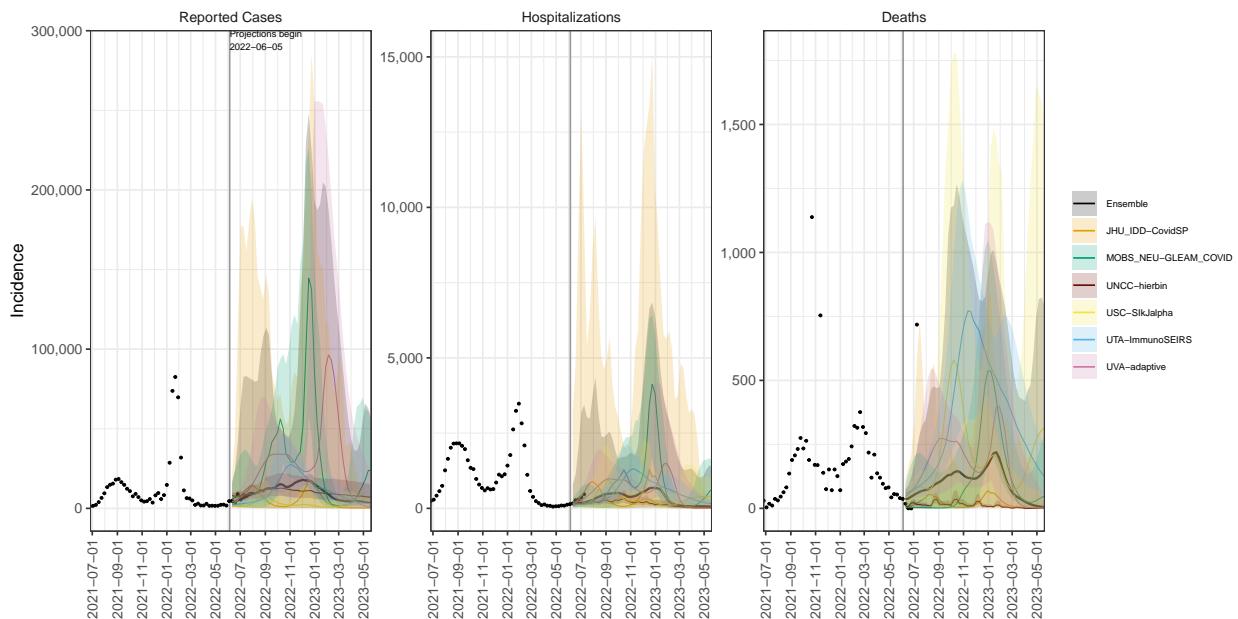
ND model variance & 95% projection intervals – Restricted booster, new variant



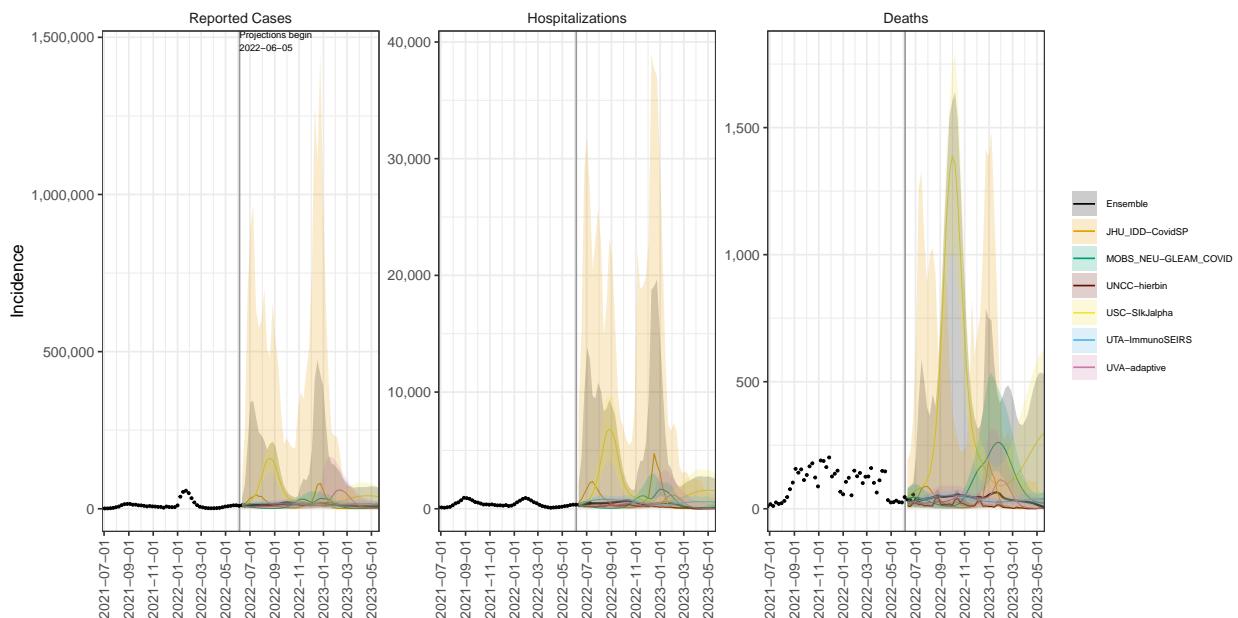
OH model variance & 95% projection intervals – Restricted booster, new variant



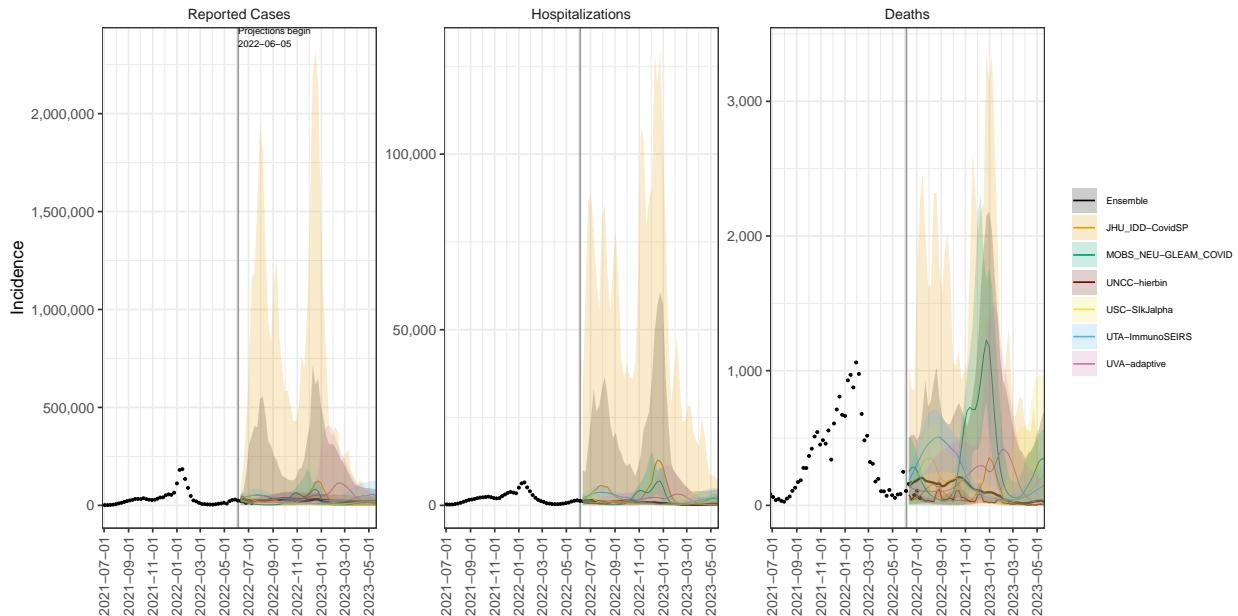
OK model variance & 95% projection intervals – Restricted booster, new variant



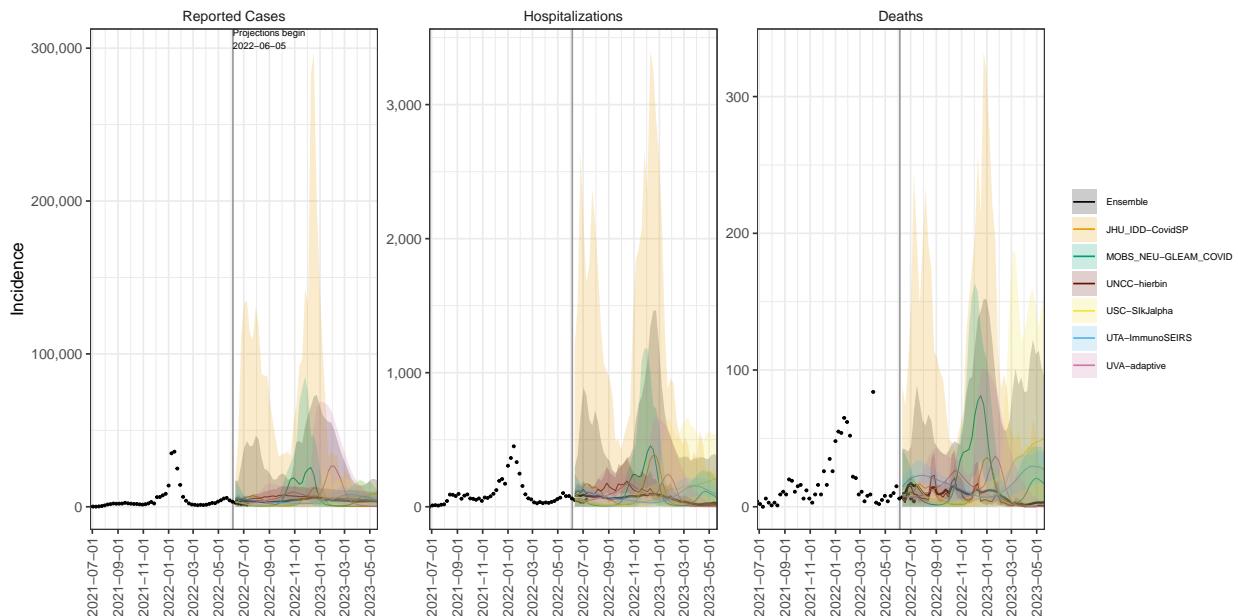
OR model variance & 95% projection intervals – Restricted booster, new variant



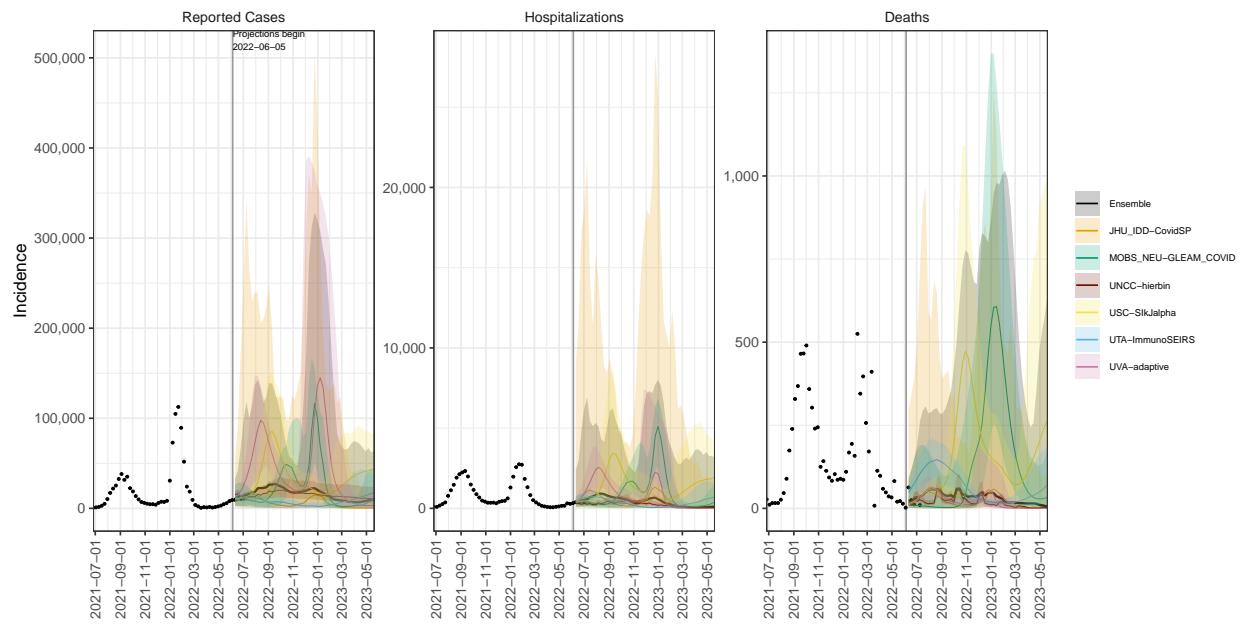
PA model variance & 95% projection intervals – Restricted booster, new variant



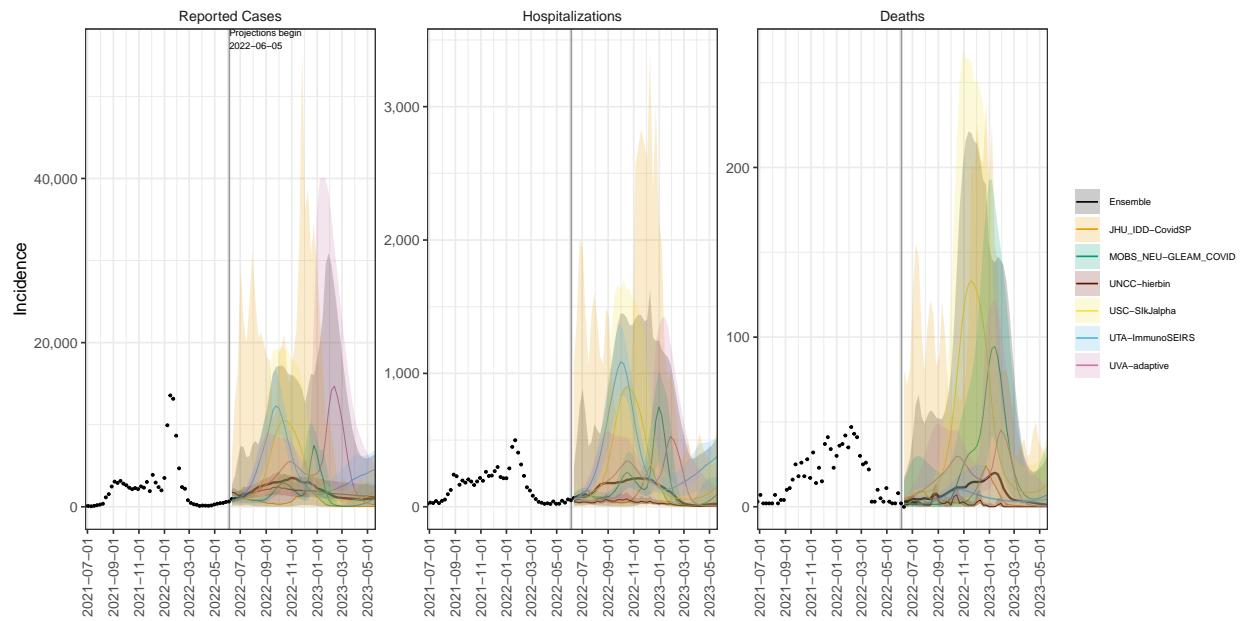
RI model variance & 95% projection intervals – Restricted booster, new variant



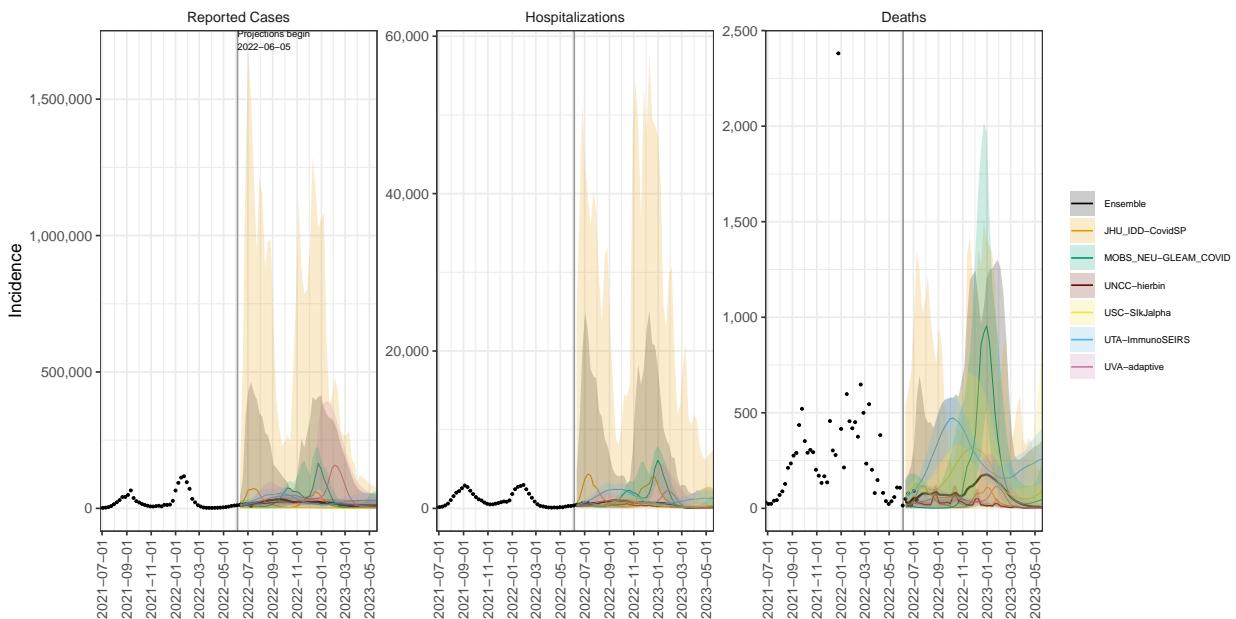
SC model variance & 95% projection intervals – Restricted booster, new variant



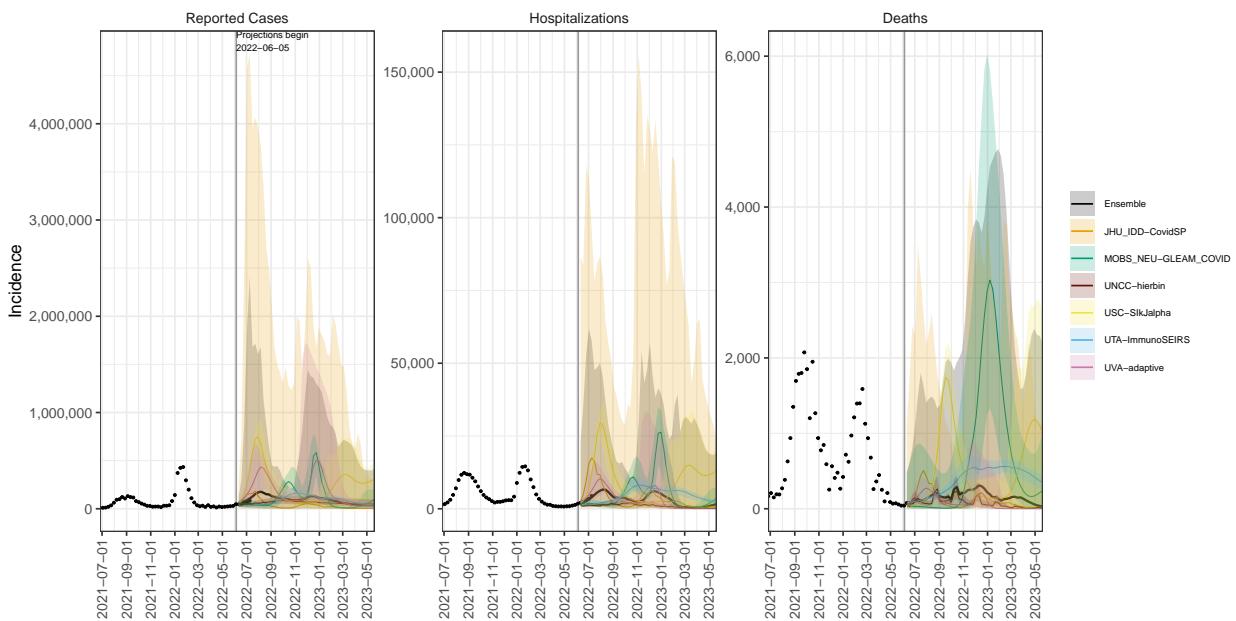
SD model variance & 95% projection intervals – Restricted booster, new variant



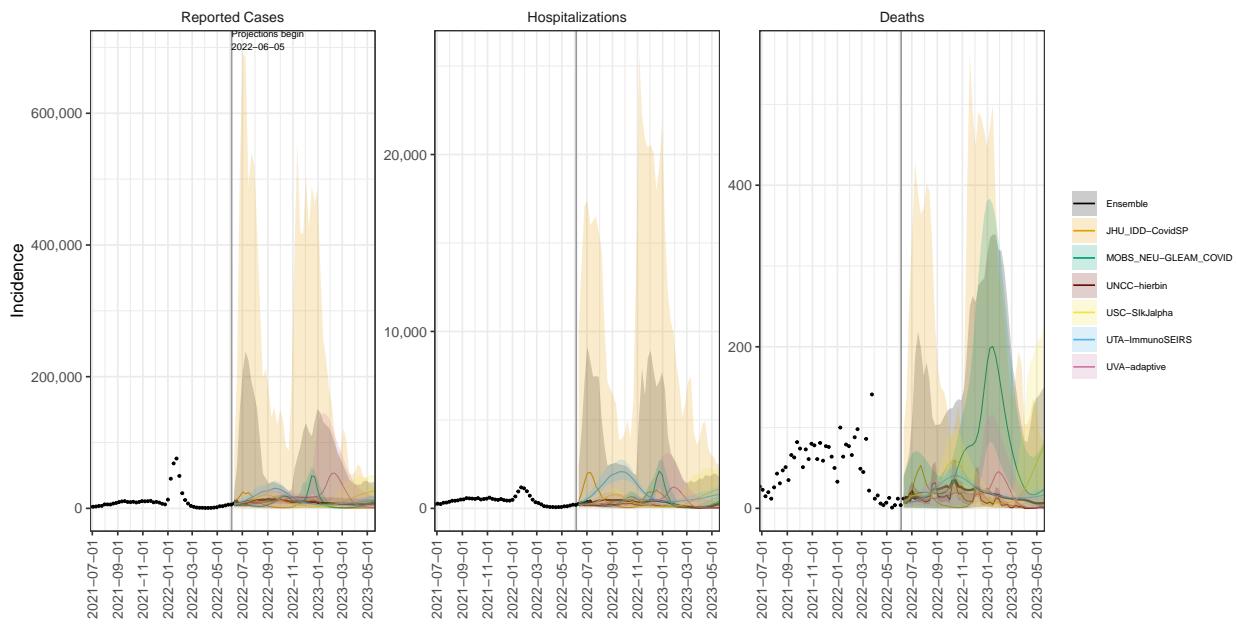
TN model variance & 95% projection intervals – Restricted booster, new variant



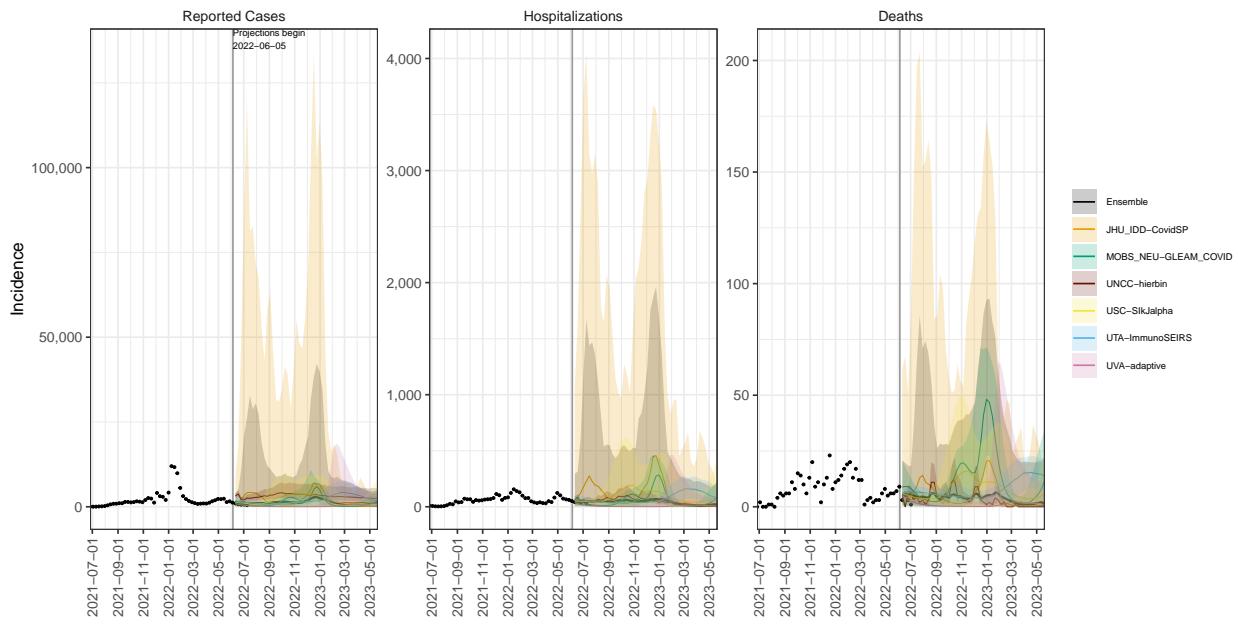
TX model variance & 95% projection intervals – Restricted booster, new variant



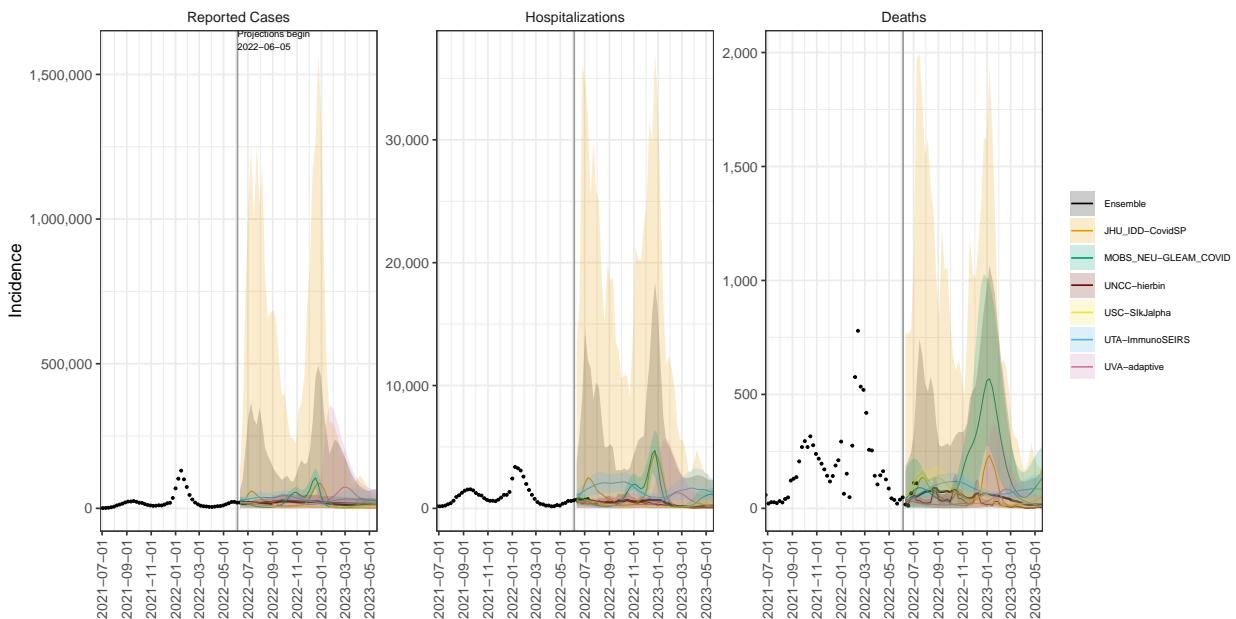
UT model variance & 95% projection intervals – Restricted booster, new variant



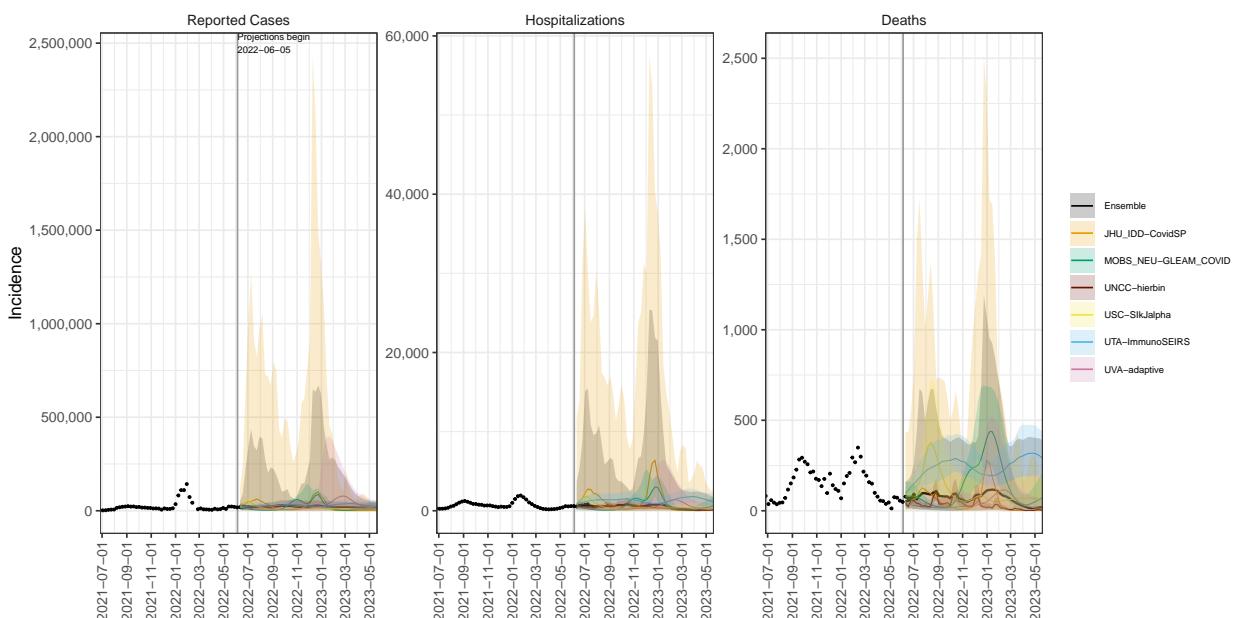
VT model variance & 95% projection intervals – Restricted booster, new variant



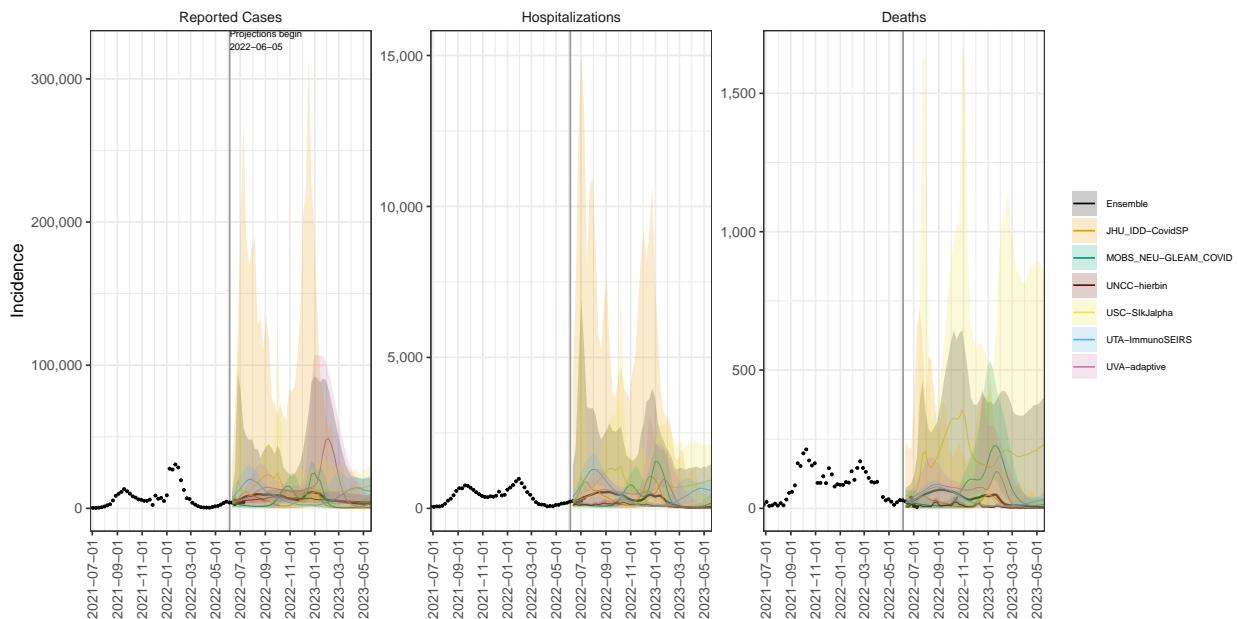
VA model variance & 95% projection intervals – Restricted booster, new variant



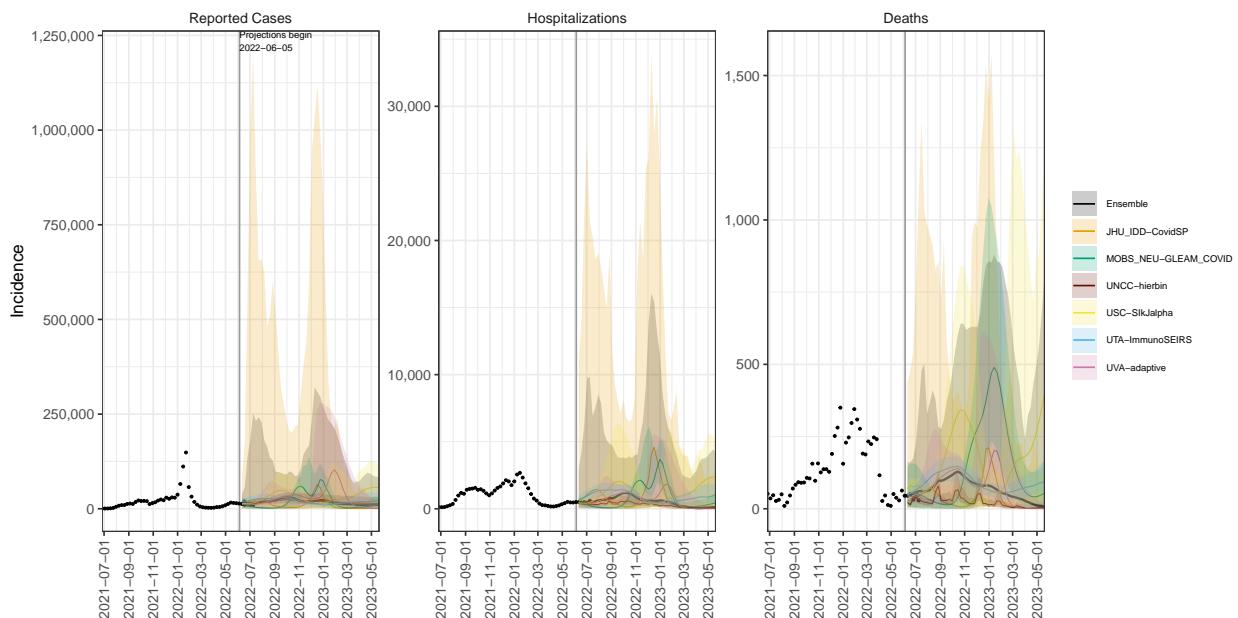
WA model variance & 95% projection intervals – Restricted booster, new variant



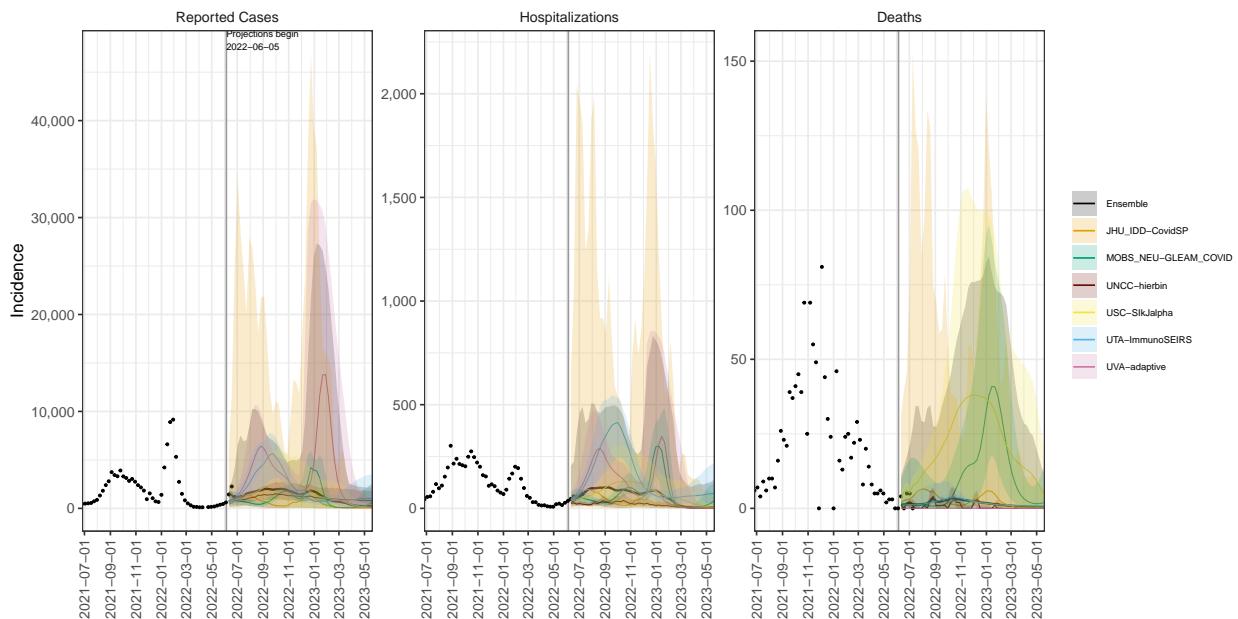
WV model variance & 95% projection intervals – Restricted booster, new variant



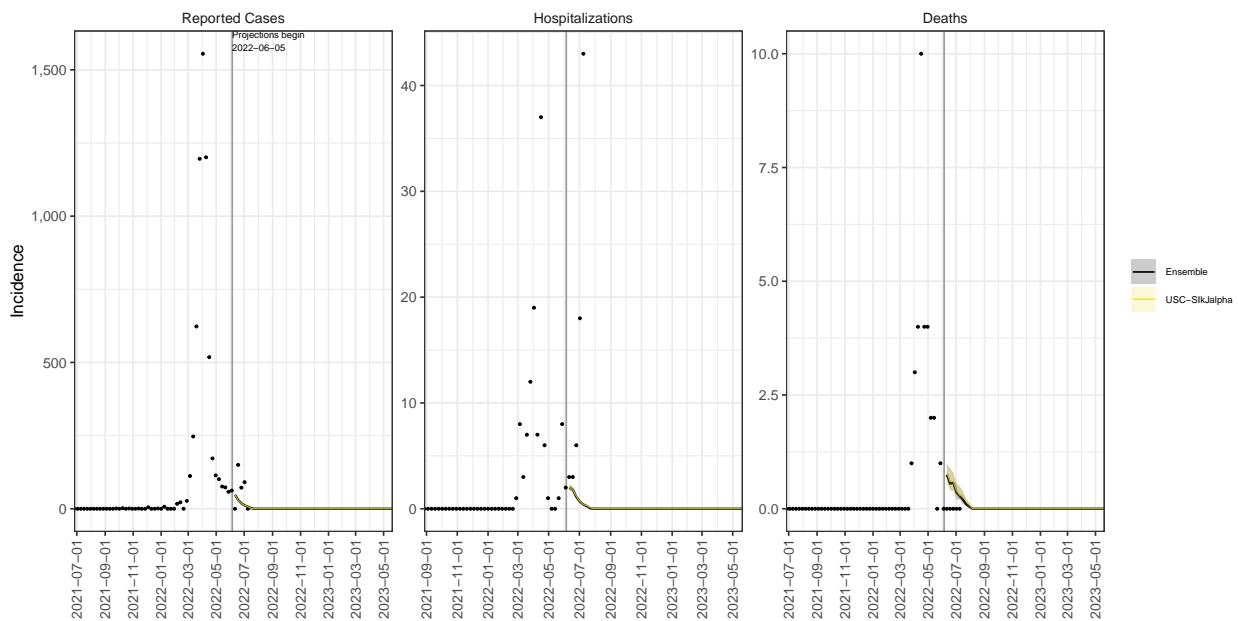
WI model variance & 95% projection intervals – Restricted booster, new variant



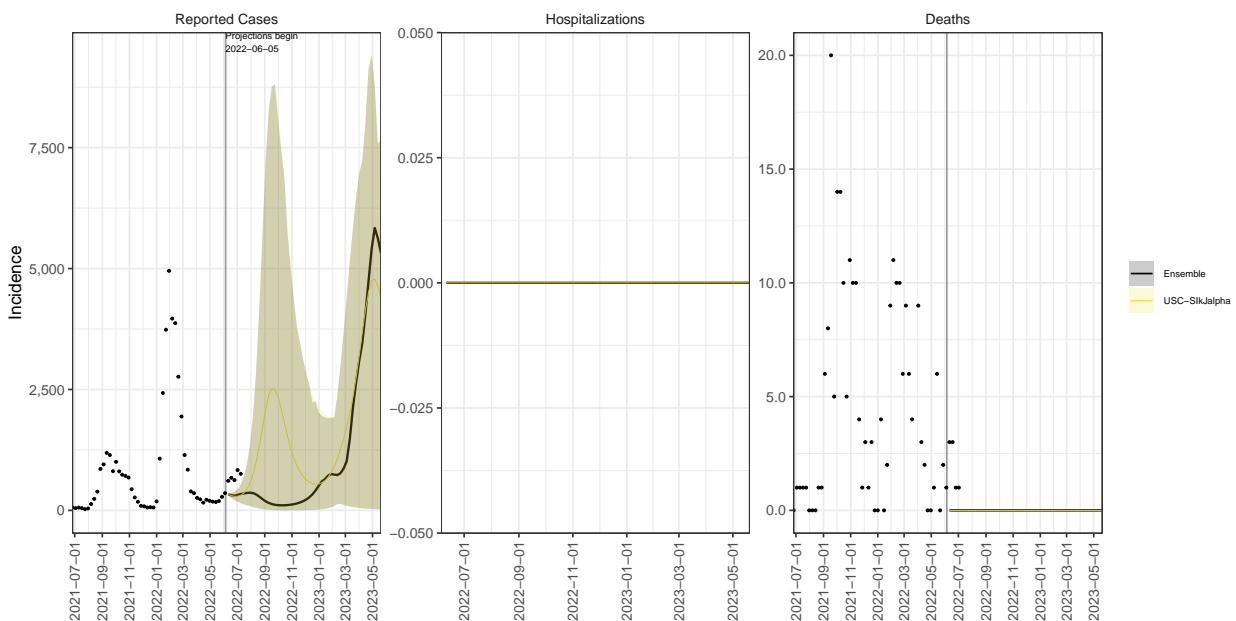
WY model variance & 95% projection intervals – Restricted booster, new variant



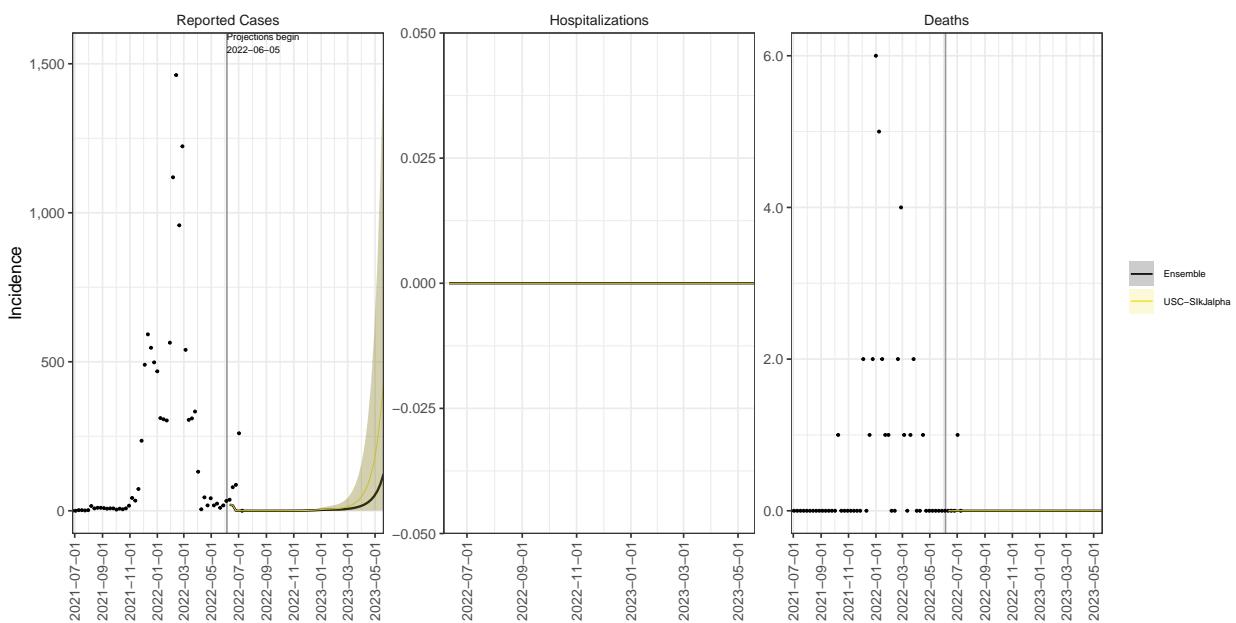
AS model variance & 95% projection intervals – Restricted booster, new variant



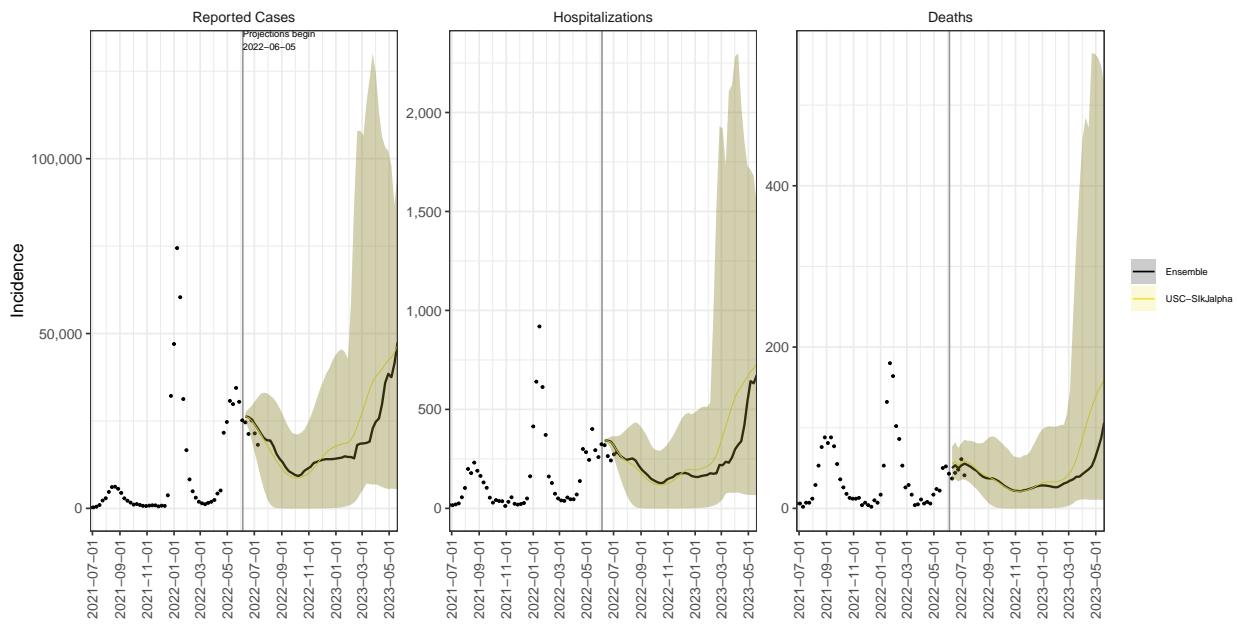
GU model variance & 95% projection intervals – Restricted booster, new variant



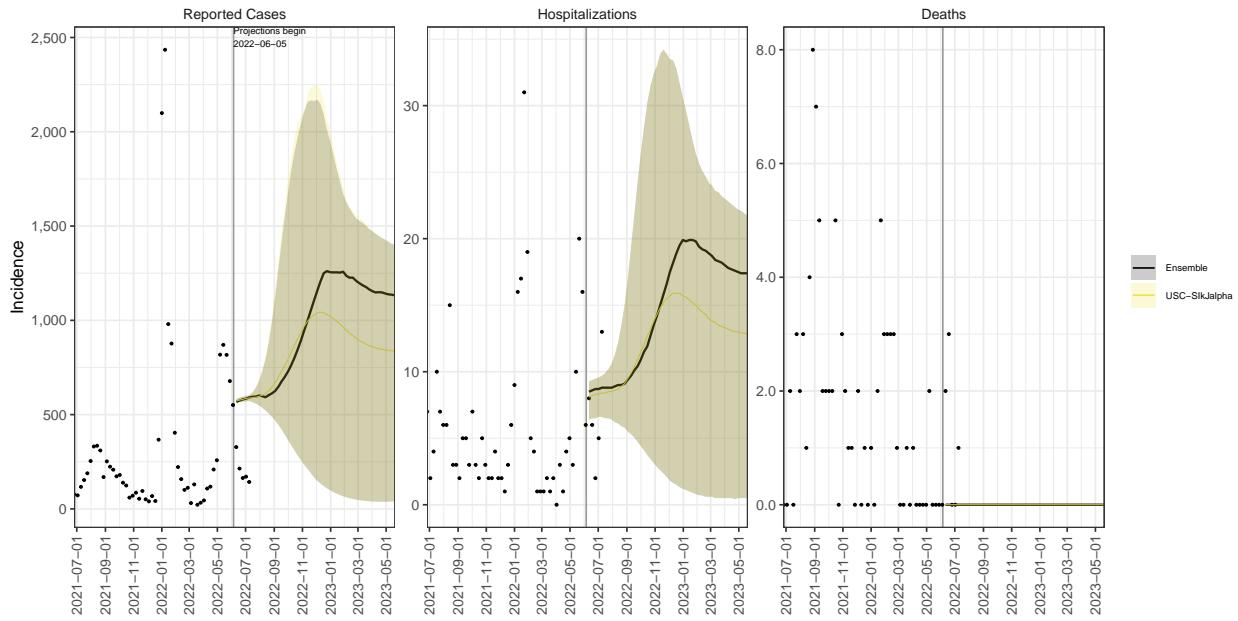
MP model variance & 95% projection intervals – Restricted booster, new variant



PR model variance & 95% projection intervals – Restricted booster, new variant

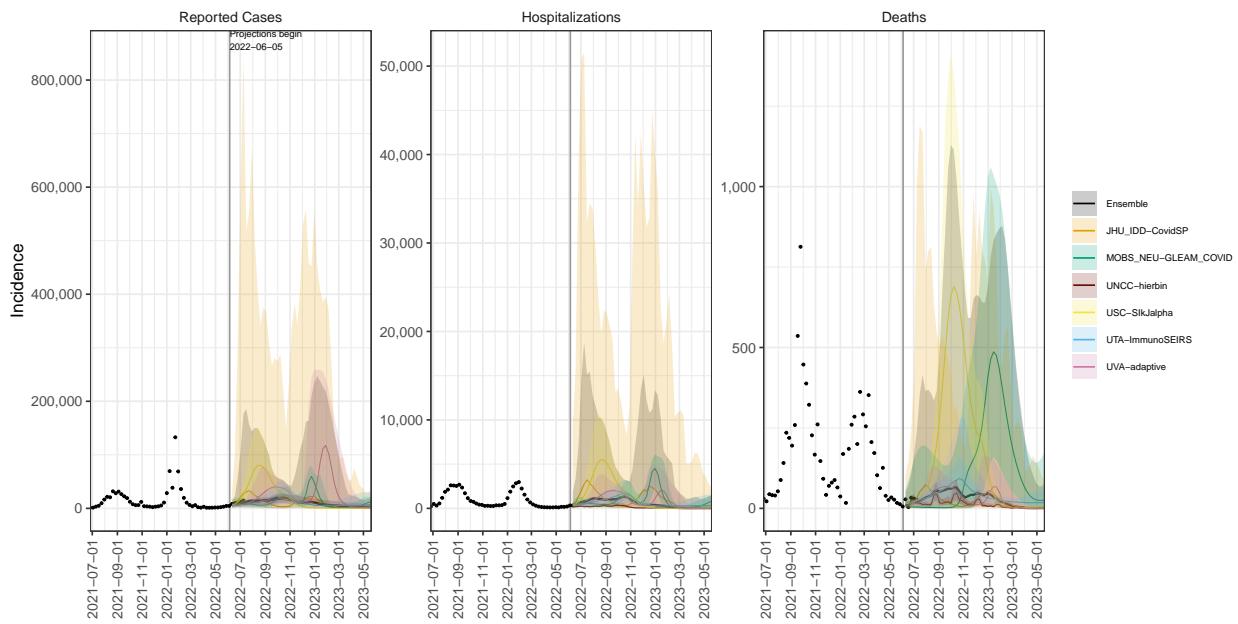


VI model variance & 95% projection intervals – Restricted booster, new variant

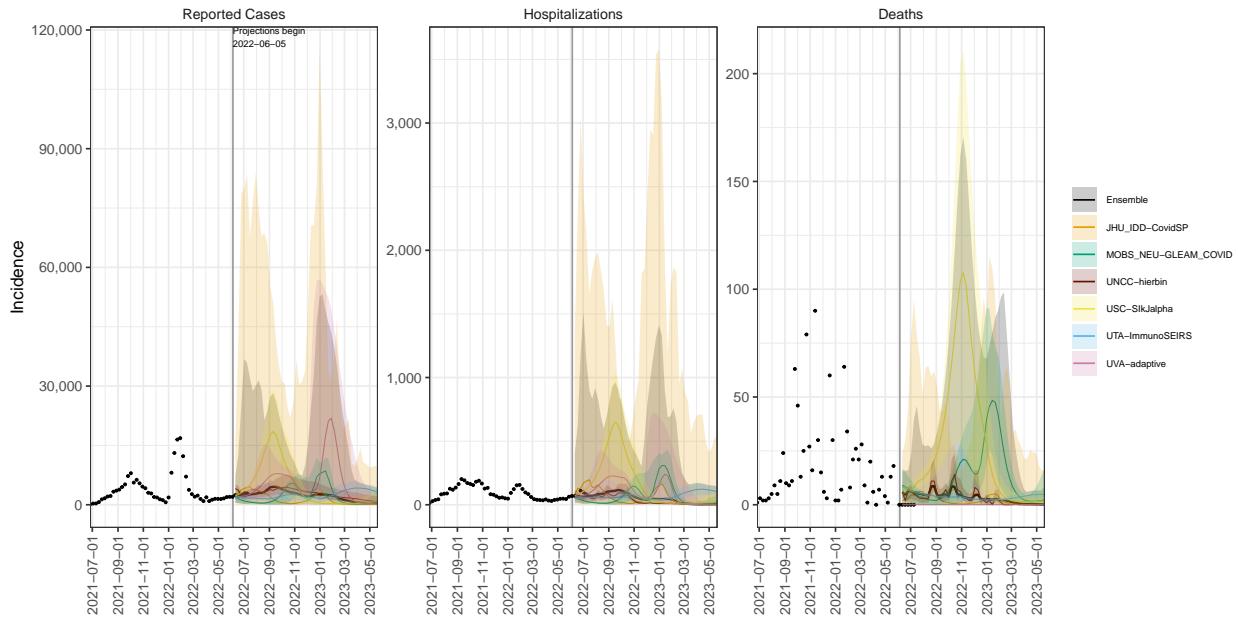


National model variation for broad booster, new variant scenario.

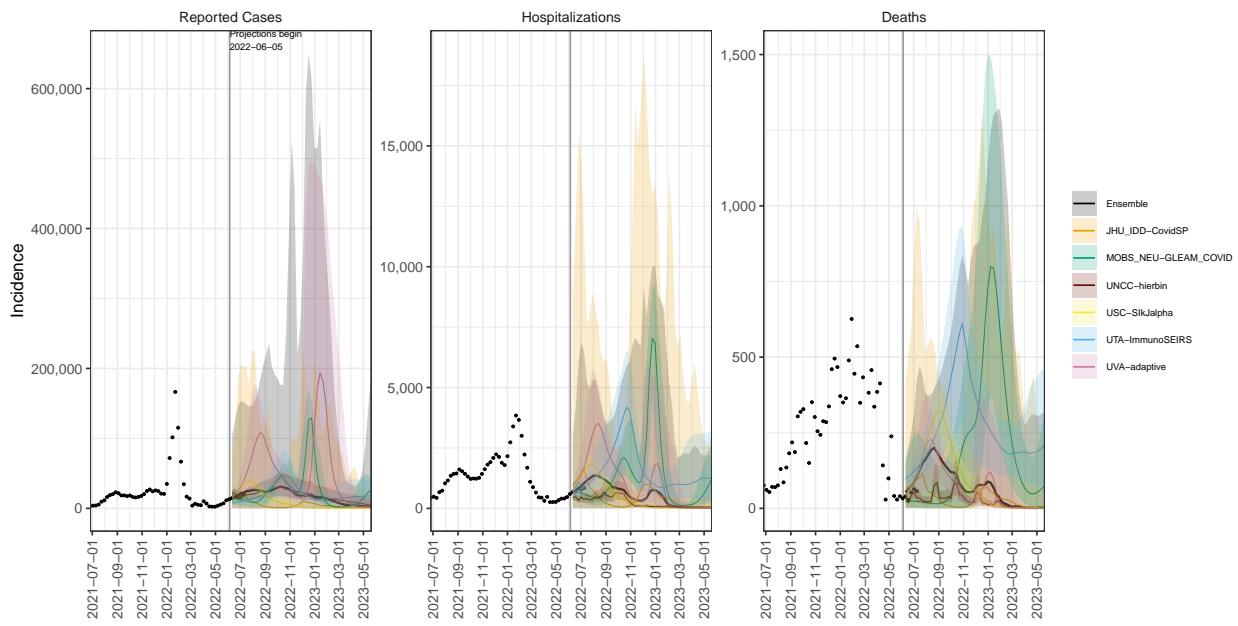
AL model variance & 95% projection intervals – Broad booster, new variant



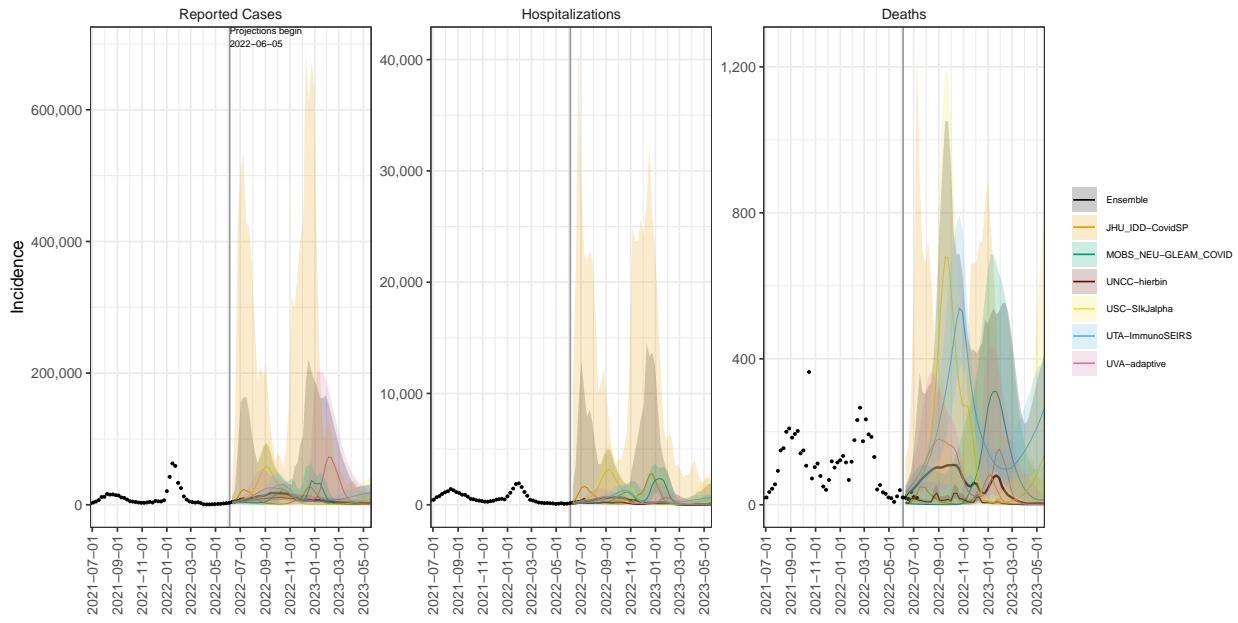
AK model variance & 95% projection intervals – Broad booster, new variant



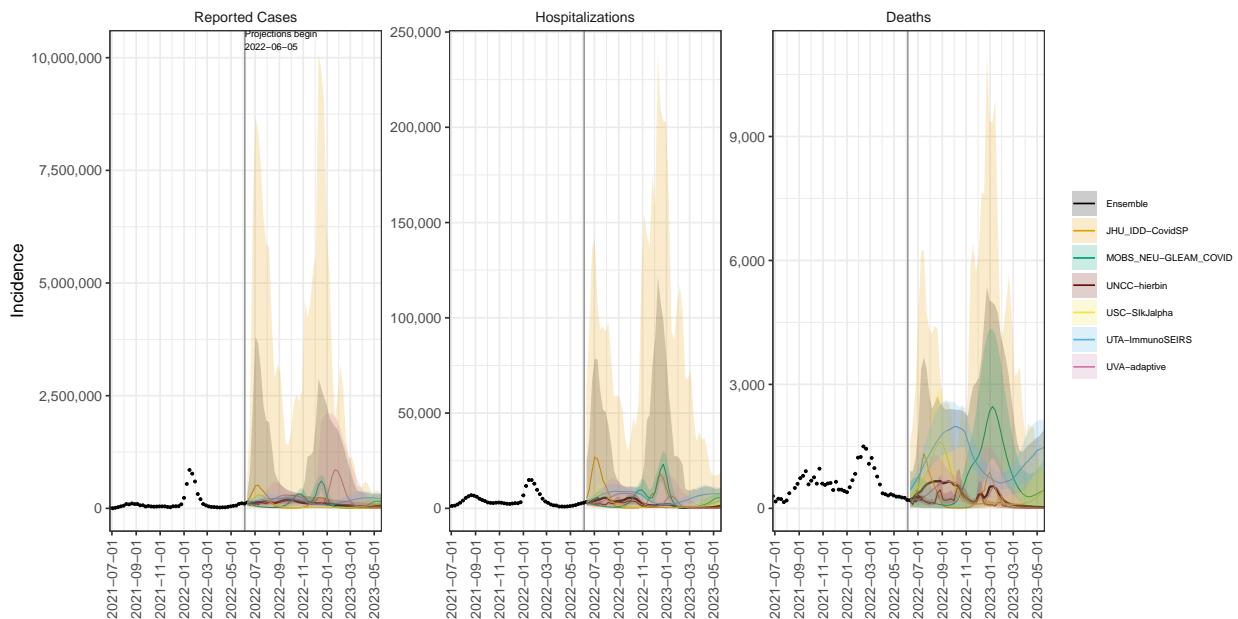
AZ model variance & 95% projection intervals – Broad booster, new variant



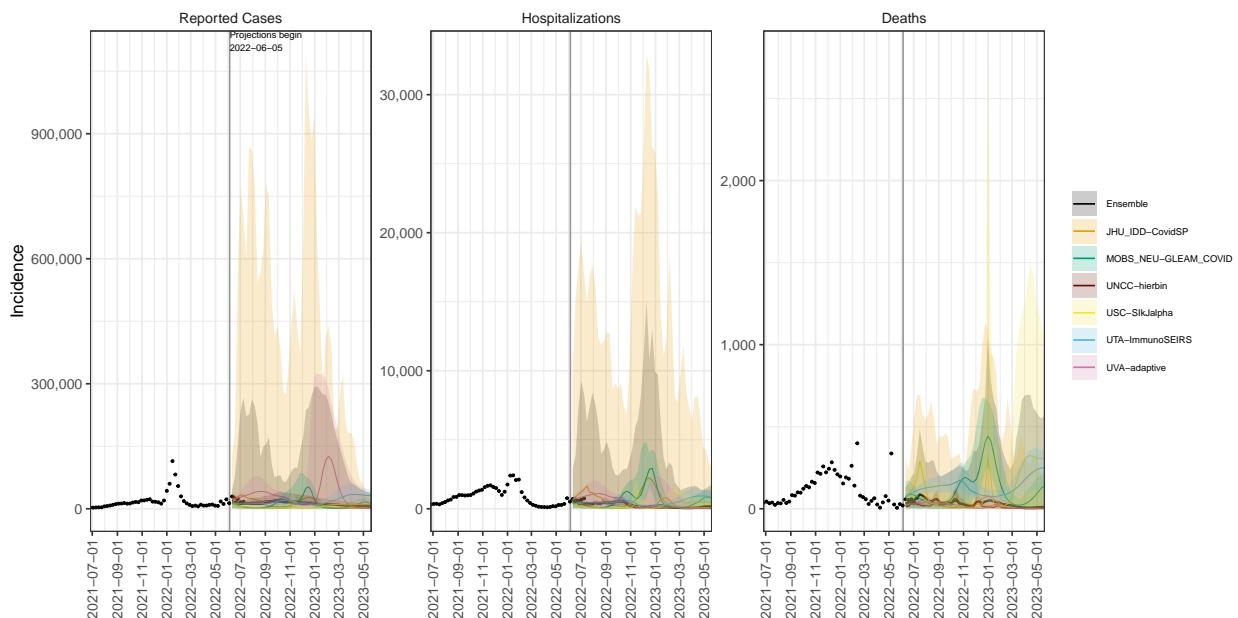
AR model variance & 95% projection intervals – Broad booster, new variant



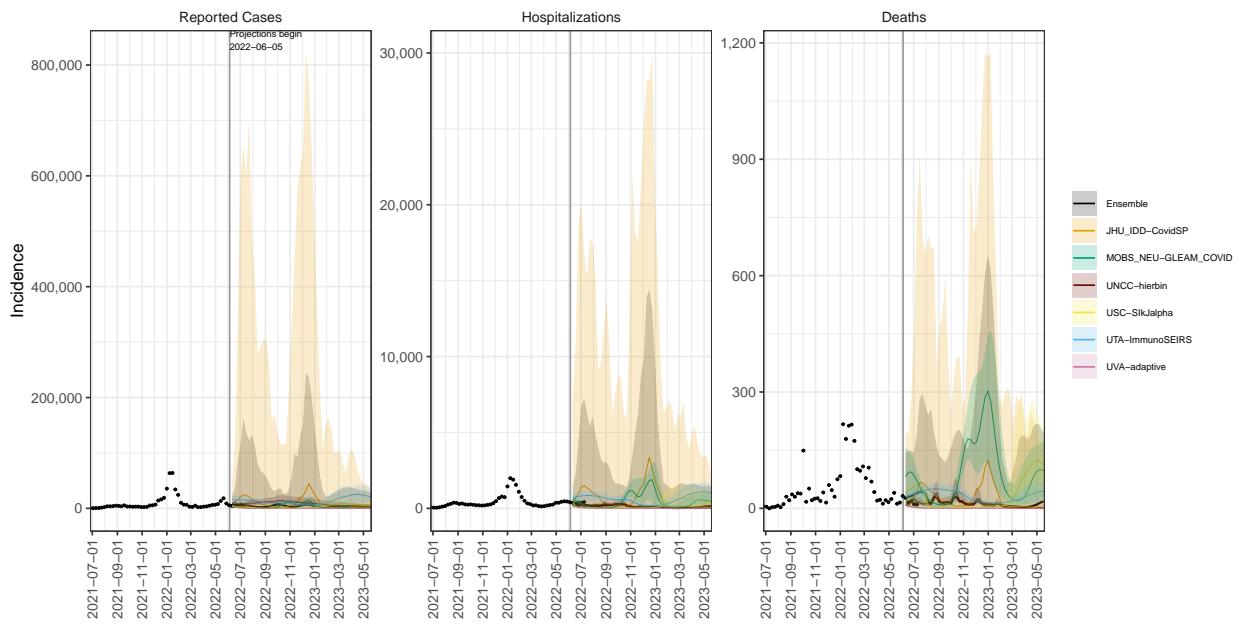
CA model variance & 95% projection intervals – Broad booster, new variant



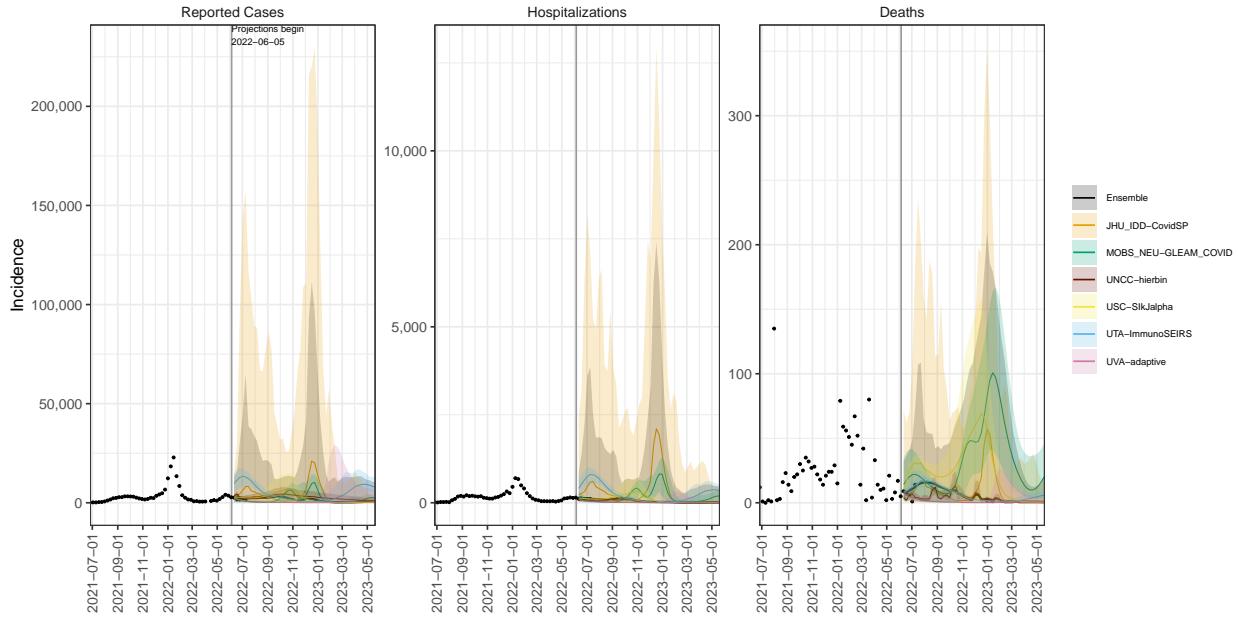
CO model variance & 95% projection intervals – Broad booster, new variant



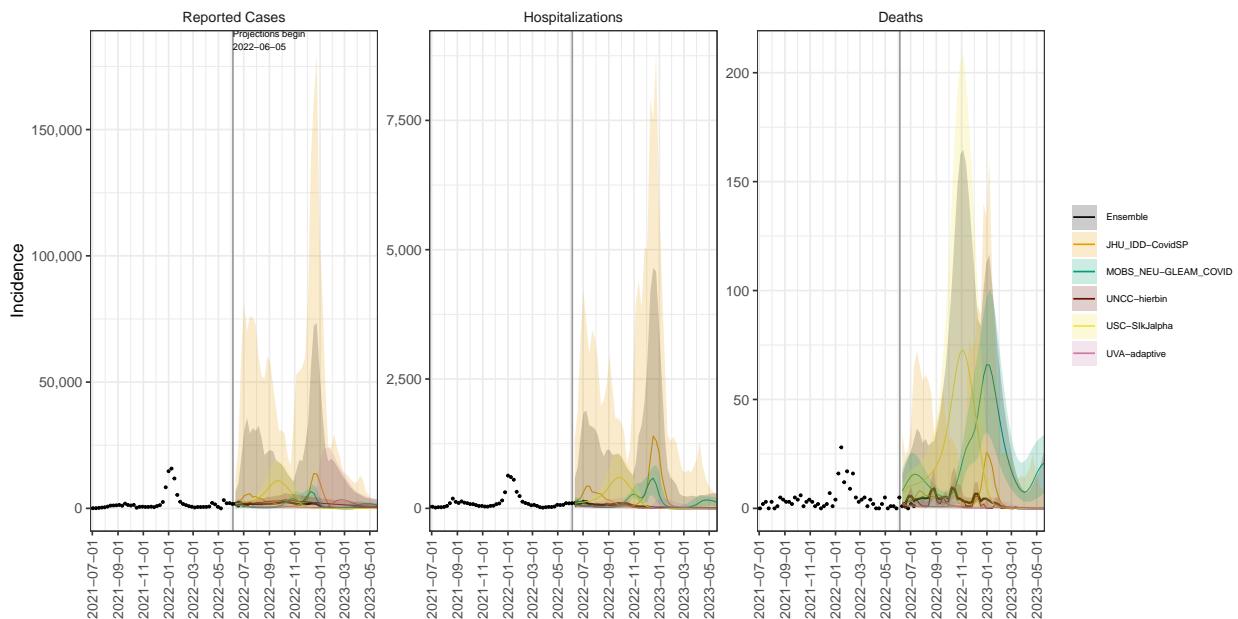
CT model variance & 95% projection intervals – Broad booster, new variant



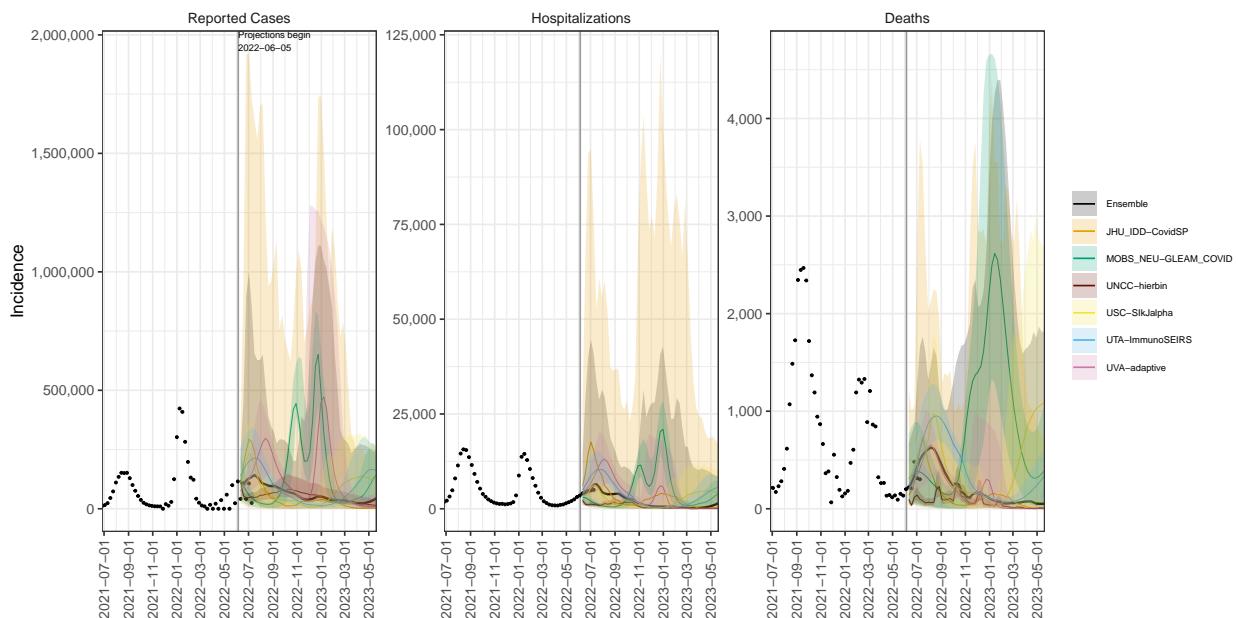
DE model variance & 95% projection intervals – Broad booster, new variant



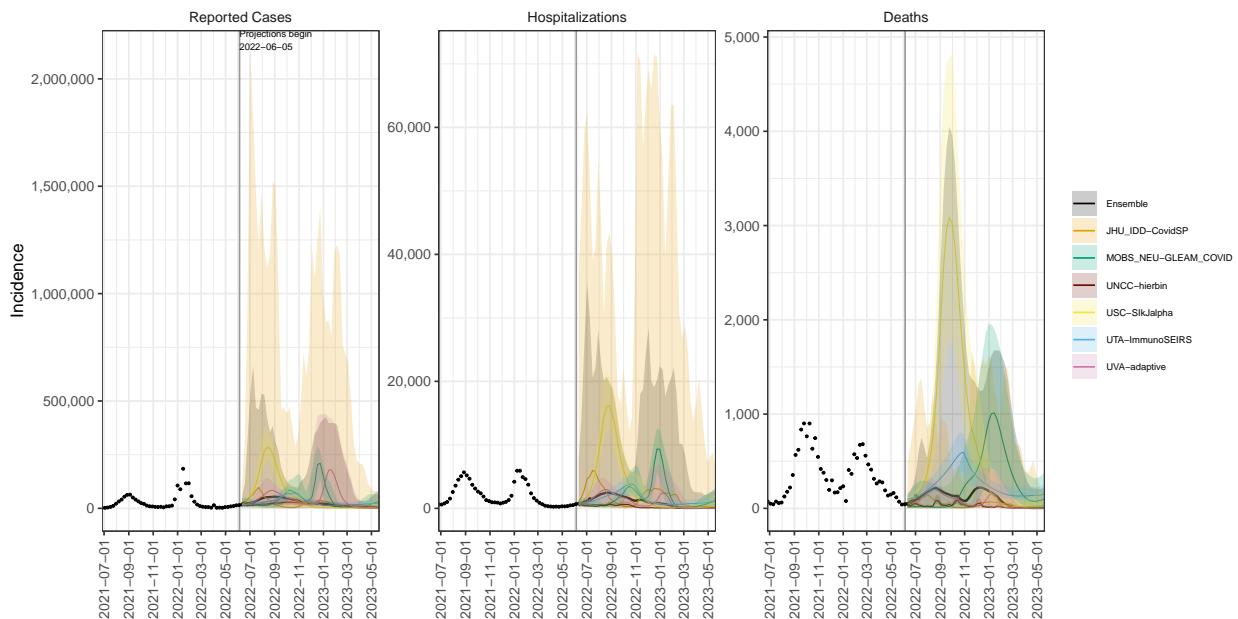
DC model variance & 95% projection intervals – Broad booster, new variant



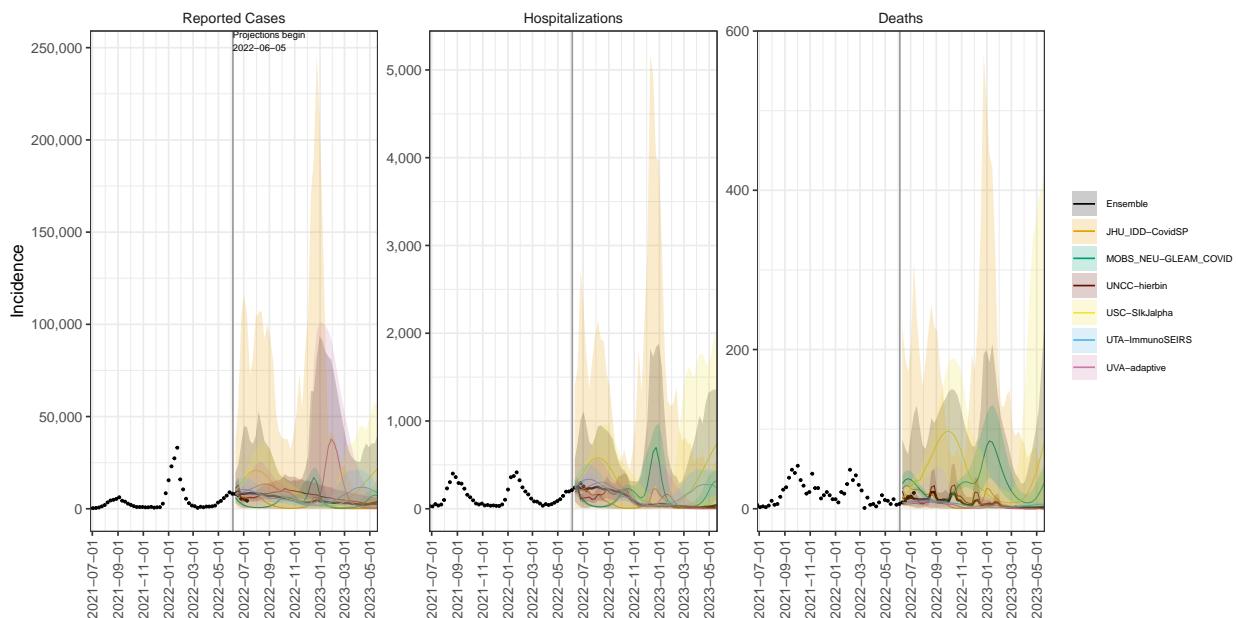
FL model variance & 95% projection intervals – Broad booster, new variant



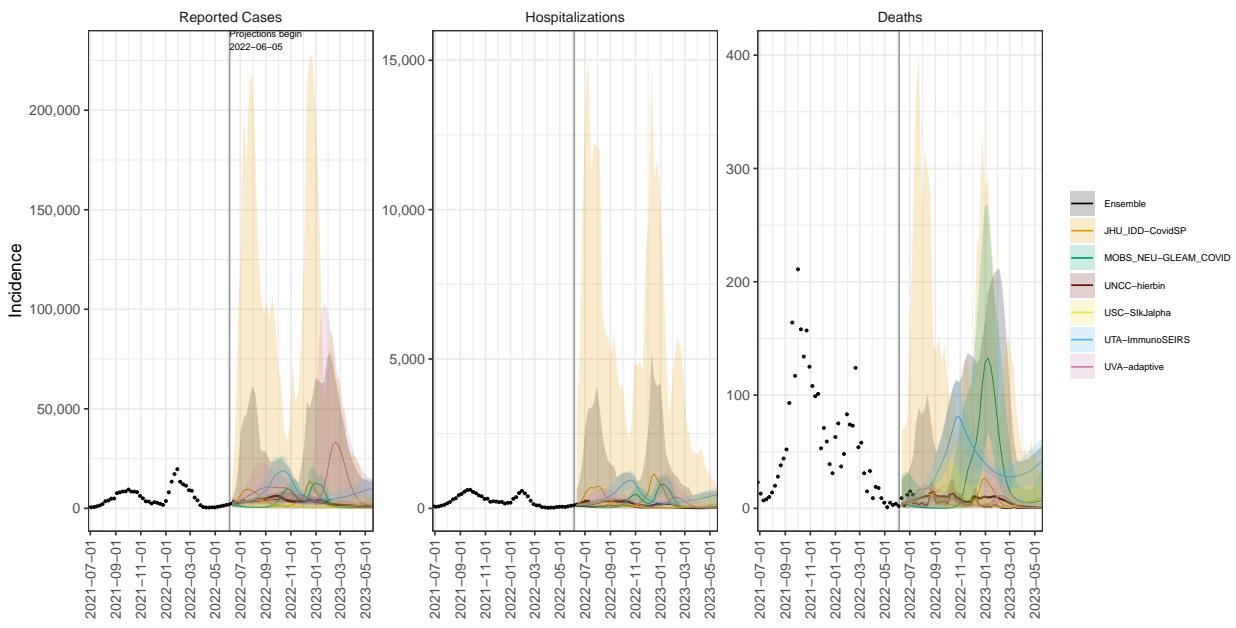
GA model variance & 95% projection intervals – Broad booster, new variant



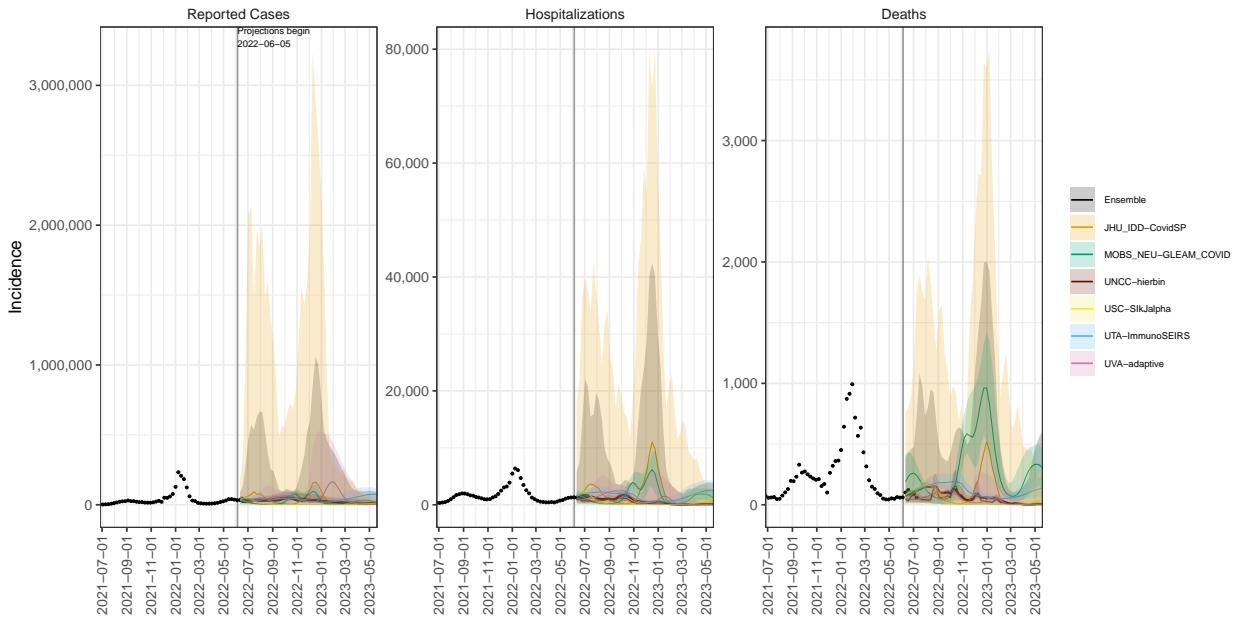
HI model variance & 95% projection intervals – Broad booster, new variant



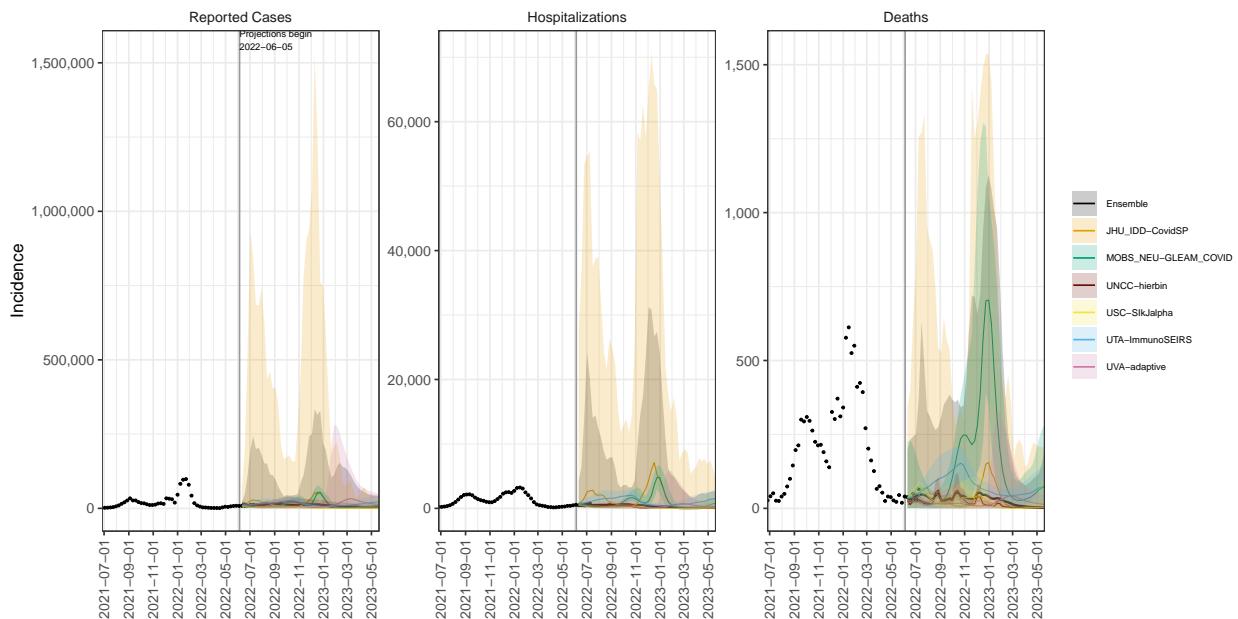
ID model variance & 95% projection intervals – Broad booster, new variant



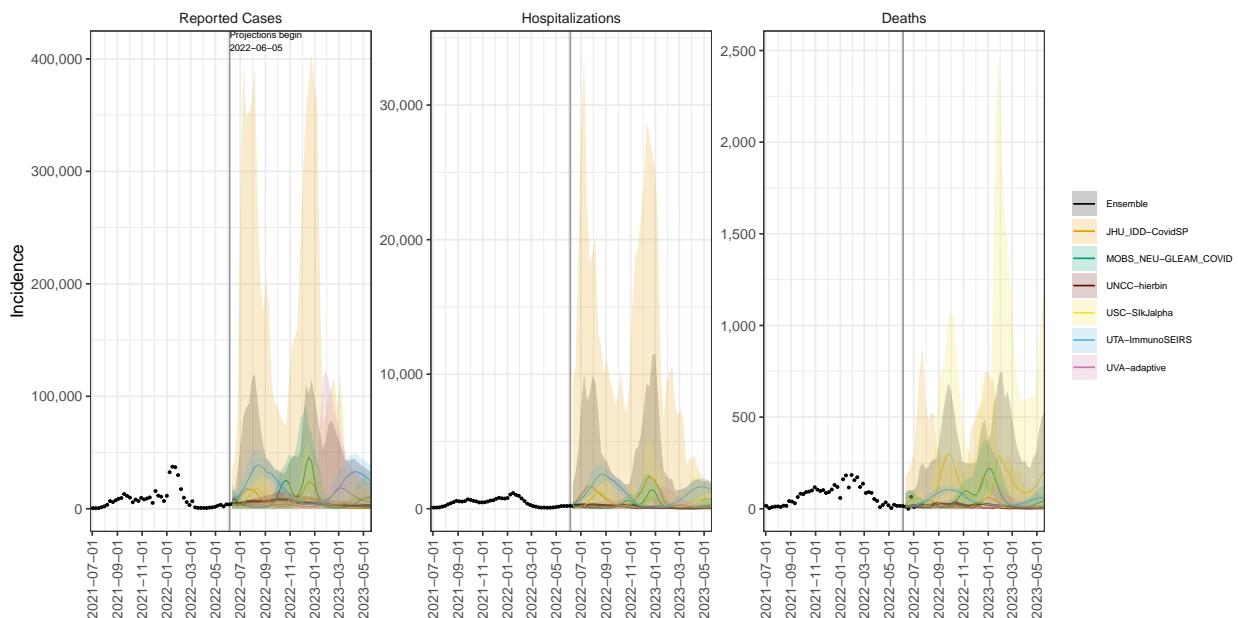
IL model variance & 95% projection intervals – Broad booster, new variant



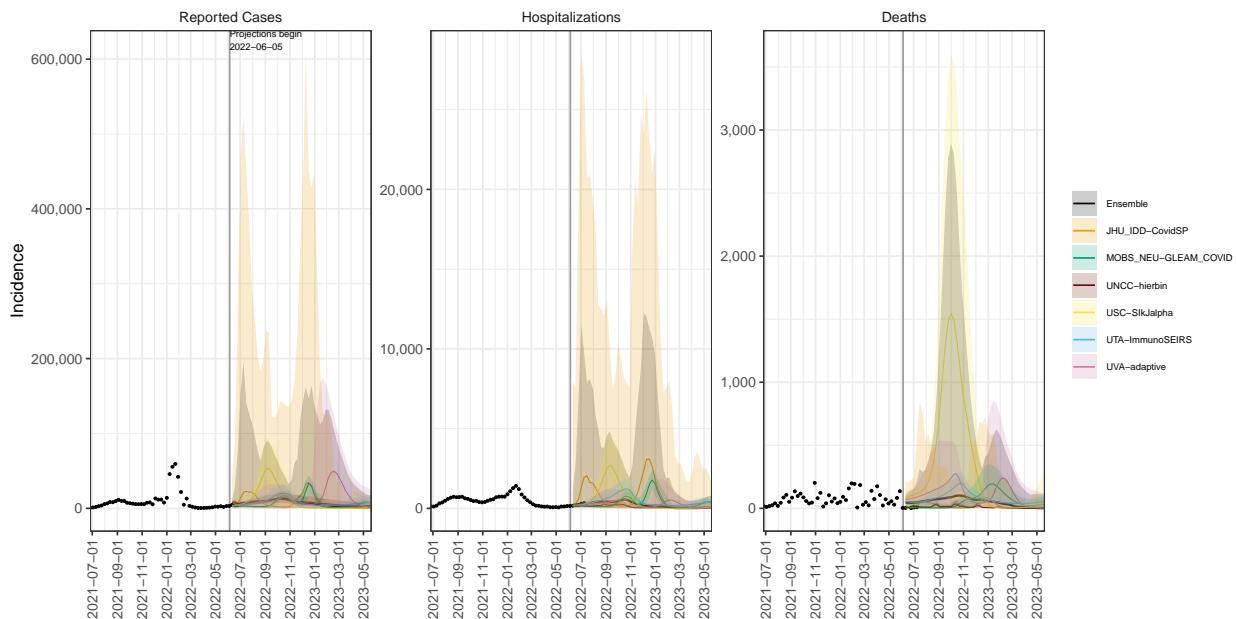
IN model variance & 95% projection intervals – Broad booster, new variant



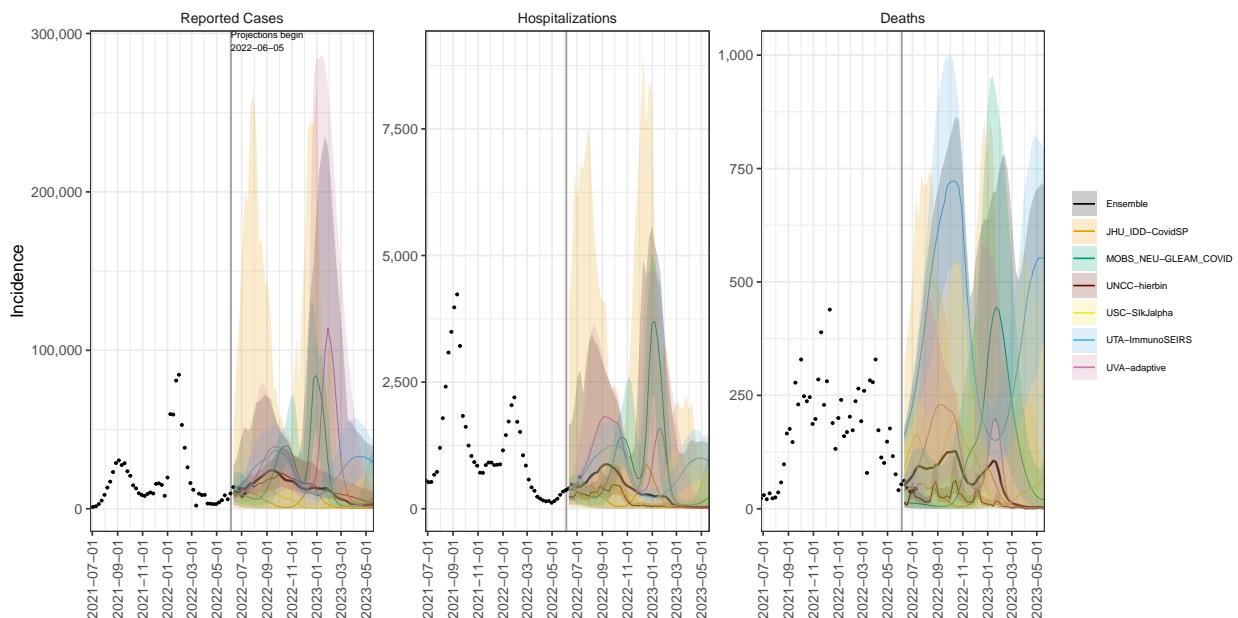
IA model variance & 95% projection intervals – Broad booster, new variant



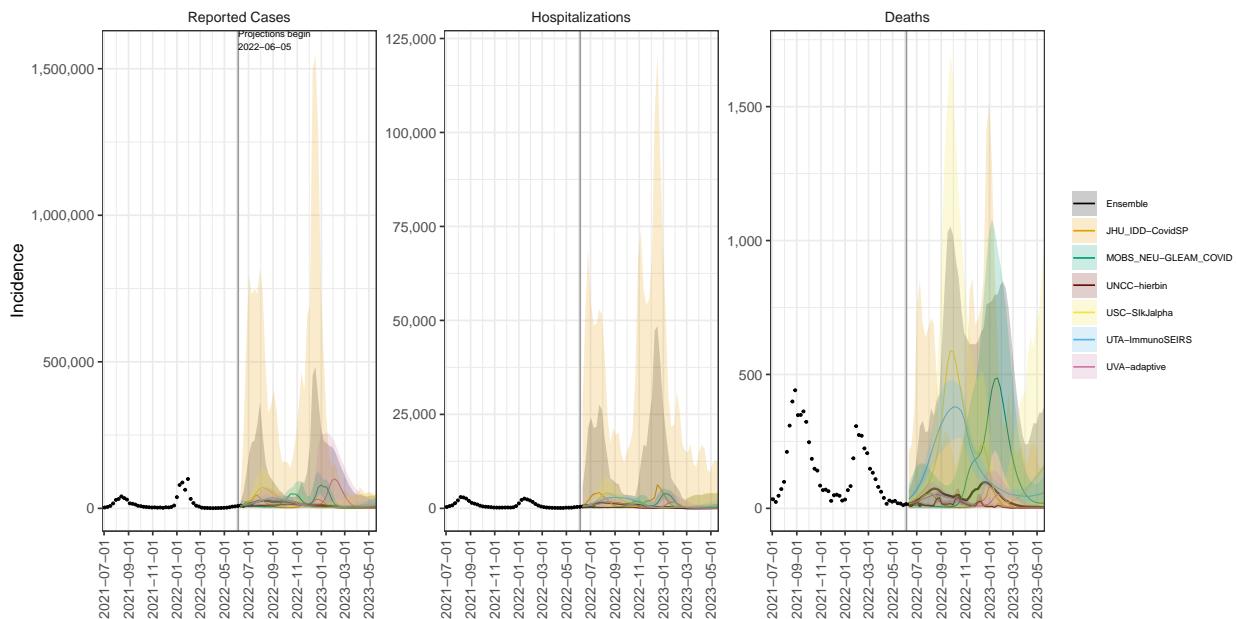
KS model variance & 95% projection intervals – Broad booster, new variant



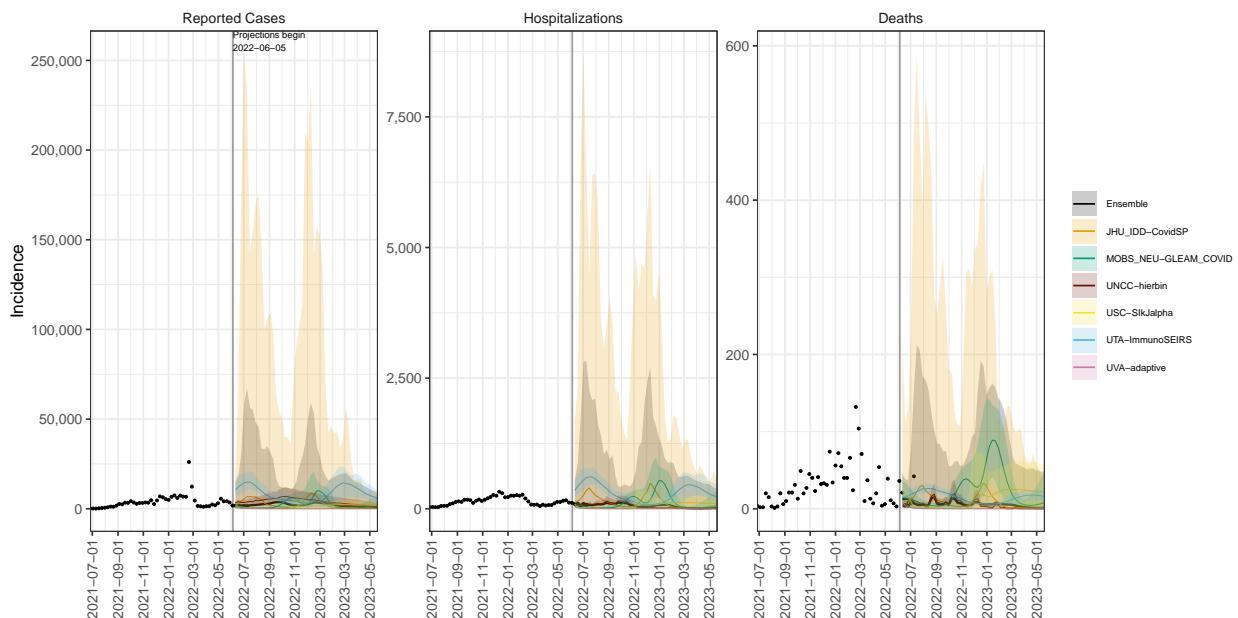
KY model variance & 95% projection intervals – Broad booster, new variant



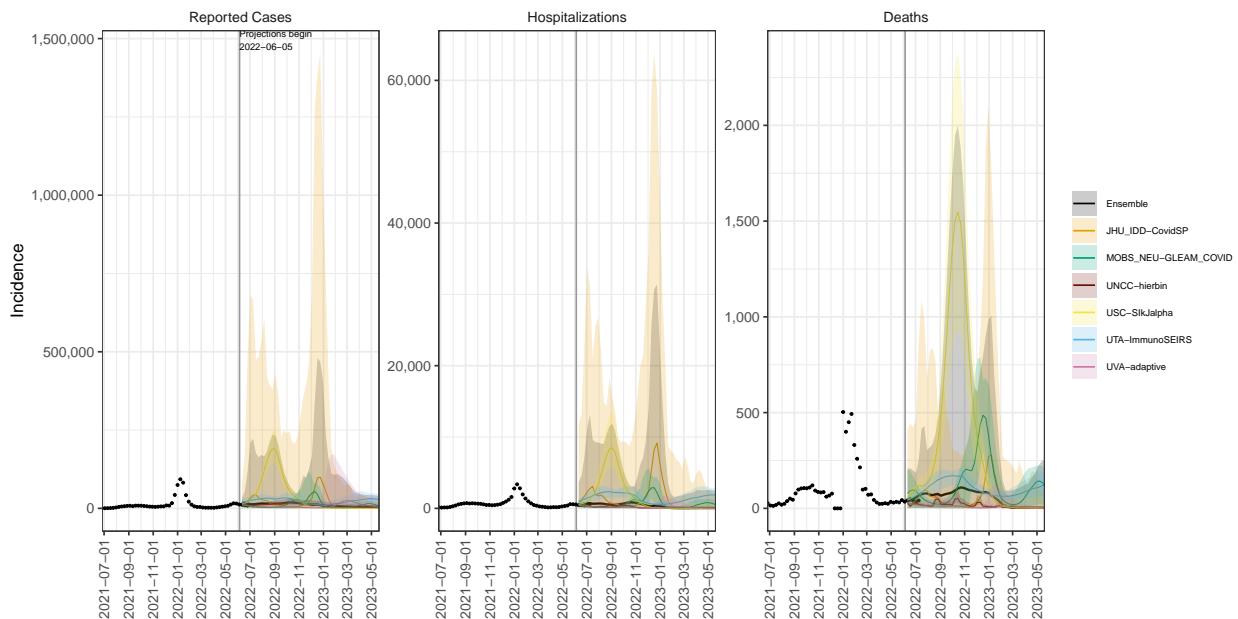
LA model variance & 95% projection intervals – Broad booster, new variant



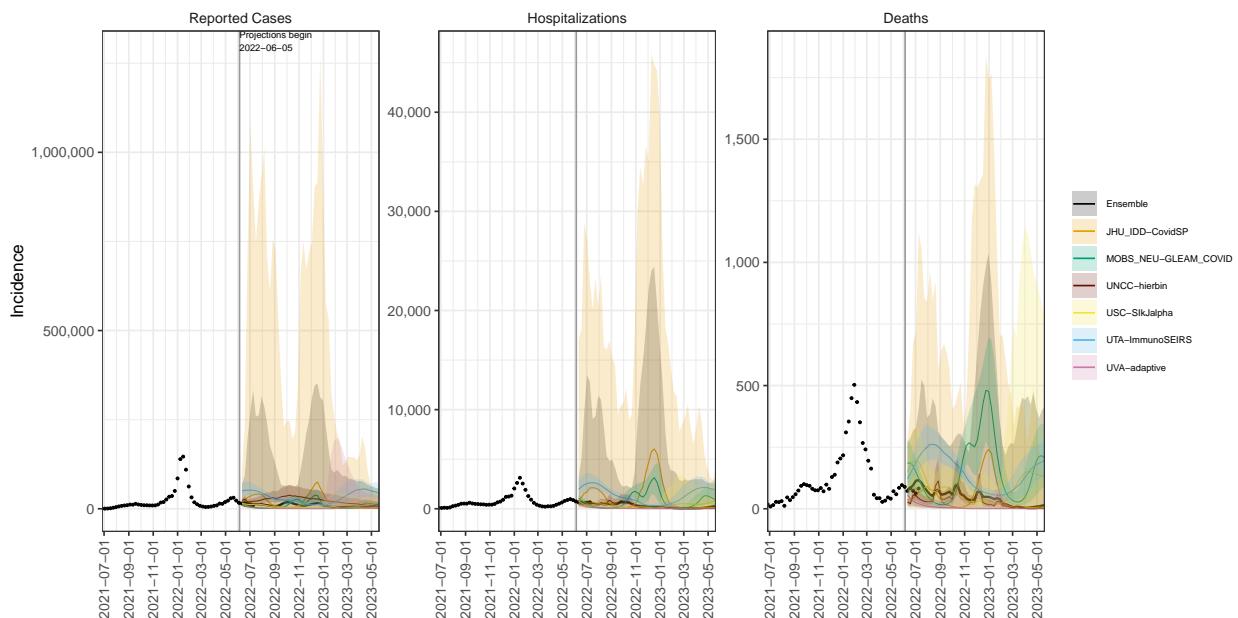
ME model variance & 95% projection intervals – Broad booster, new variant



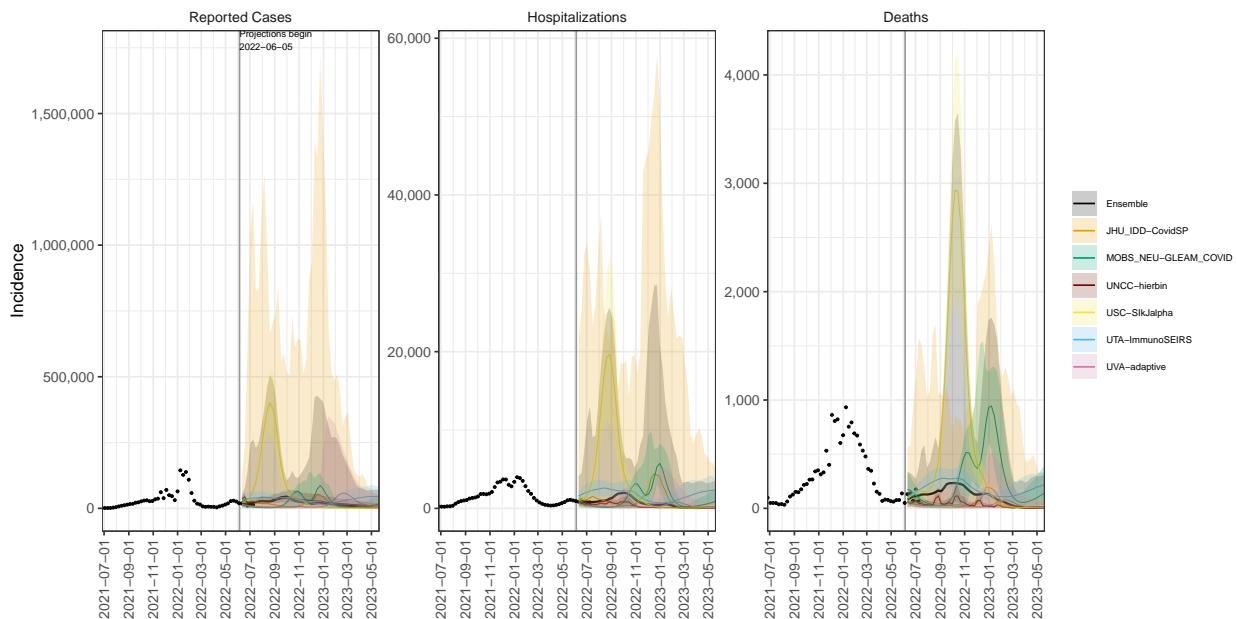
MD model variance & 95% projection intervals – Broad booster, new variant



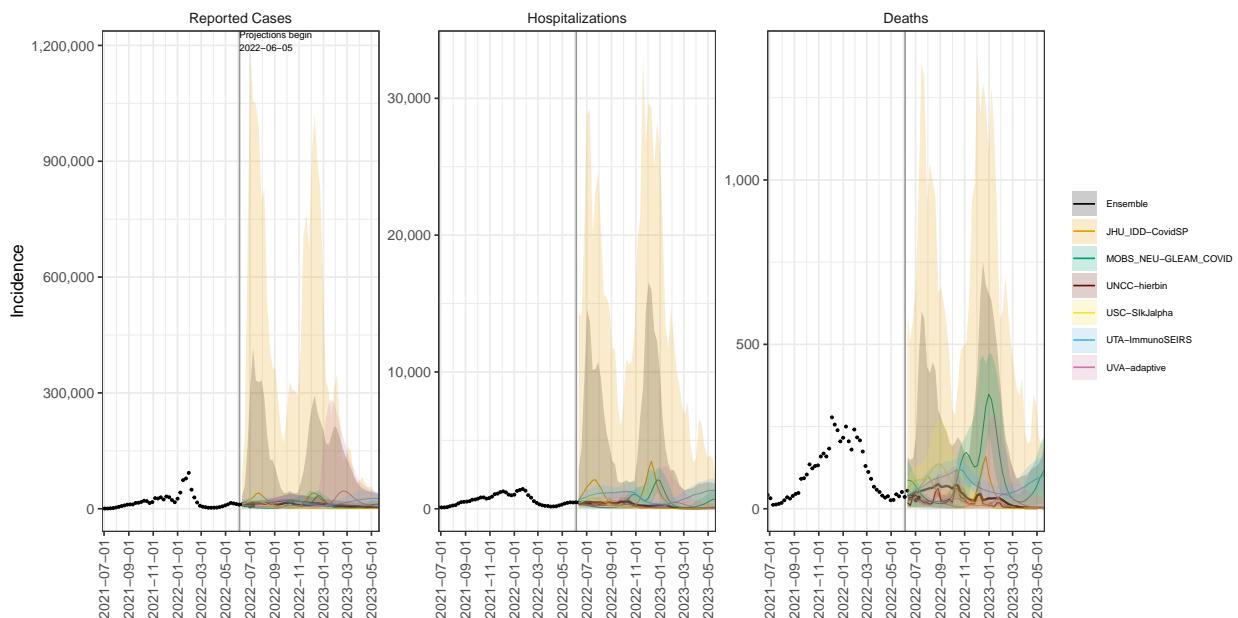
MA model variance & 95% projection intervals – Broad booster, new variant



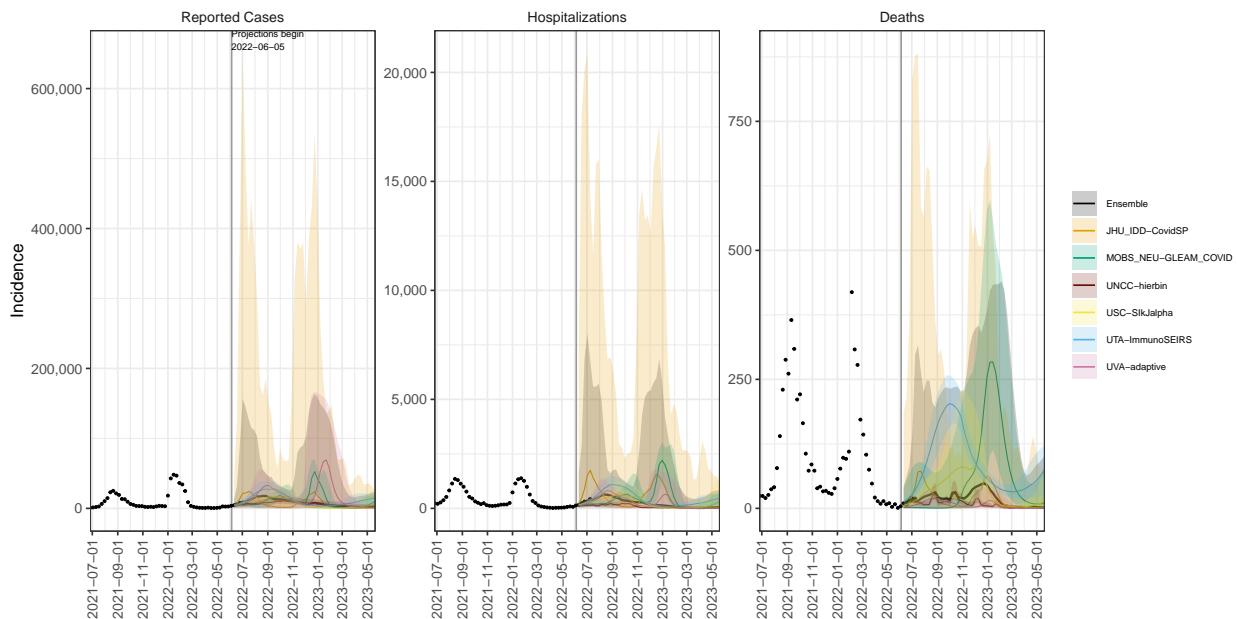
MI model variance & 95% projection intervals – Broad booster, new variant



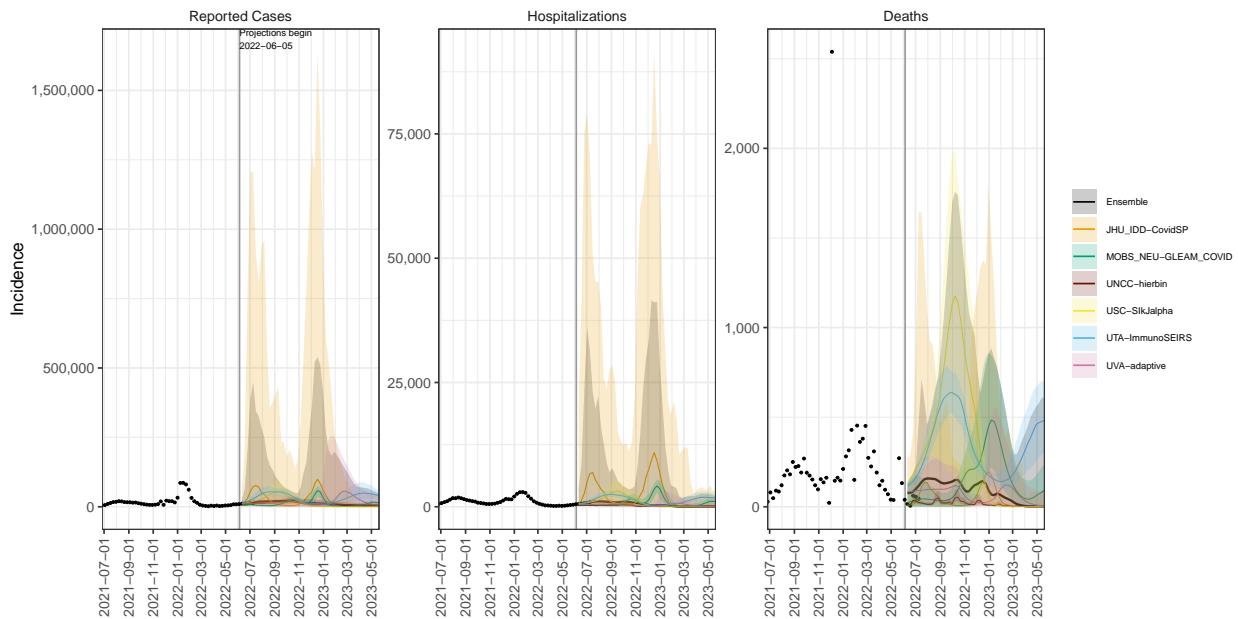
MN model variance & 95% projection intervals – Broad booster, new variant



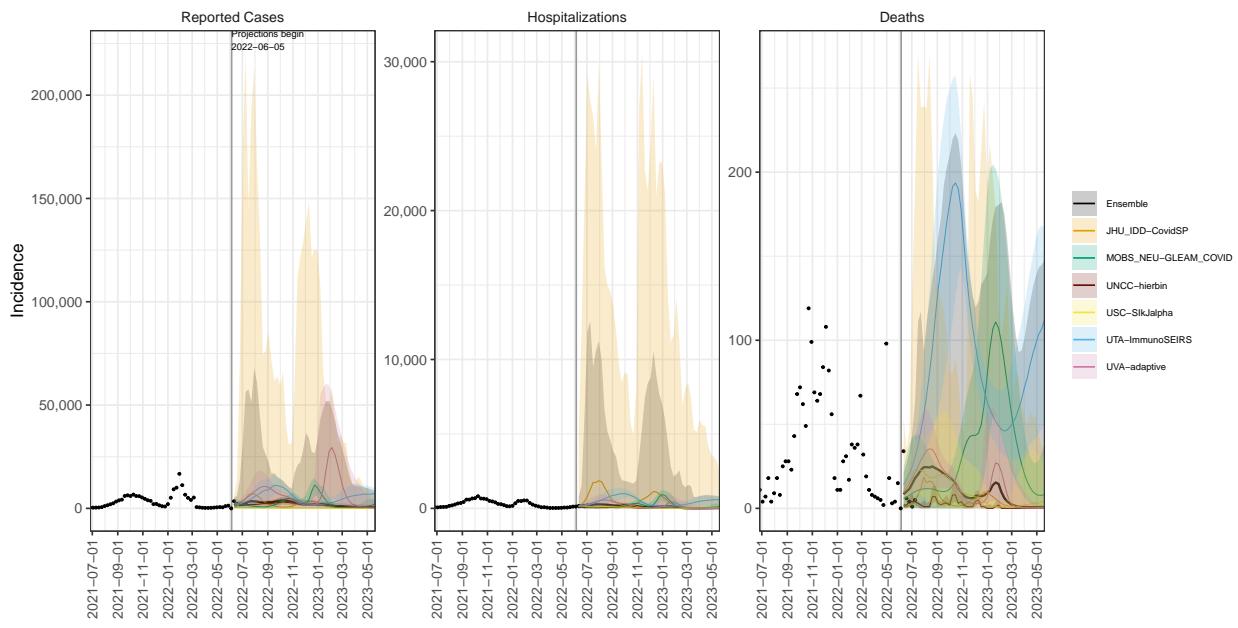
MS model variance & 95% projection intervals – Broad booster, new variant



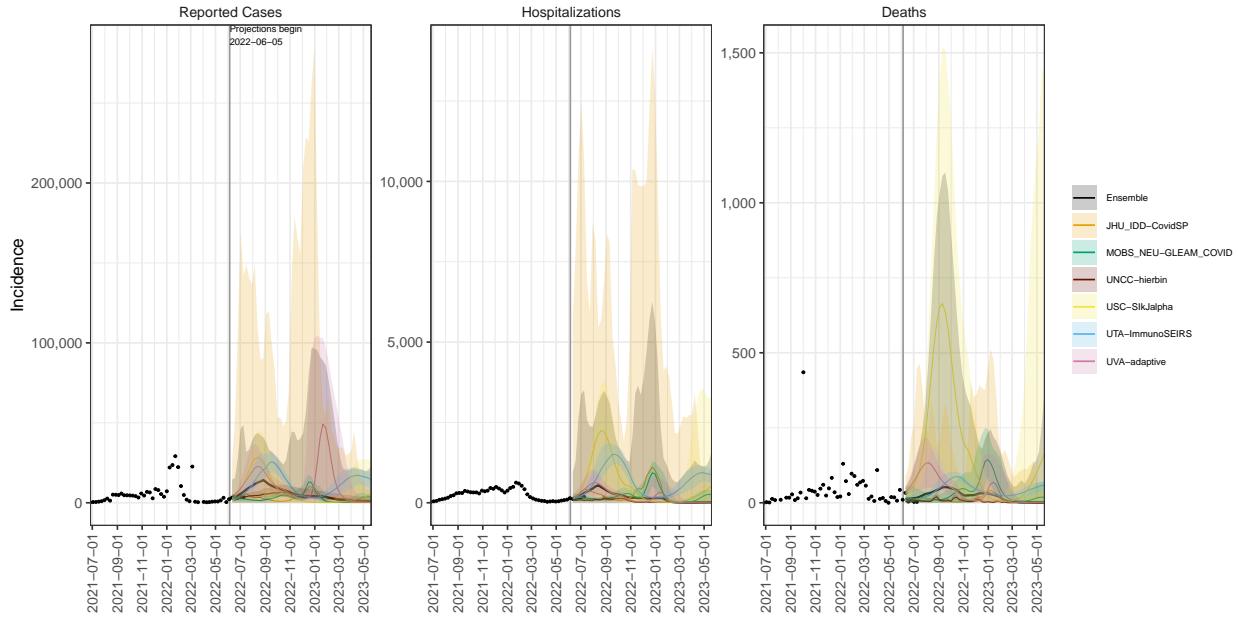
MO model variance & 95% projection intervals – Broad booster, new variant



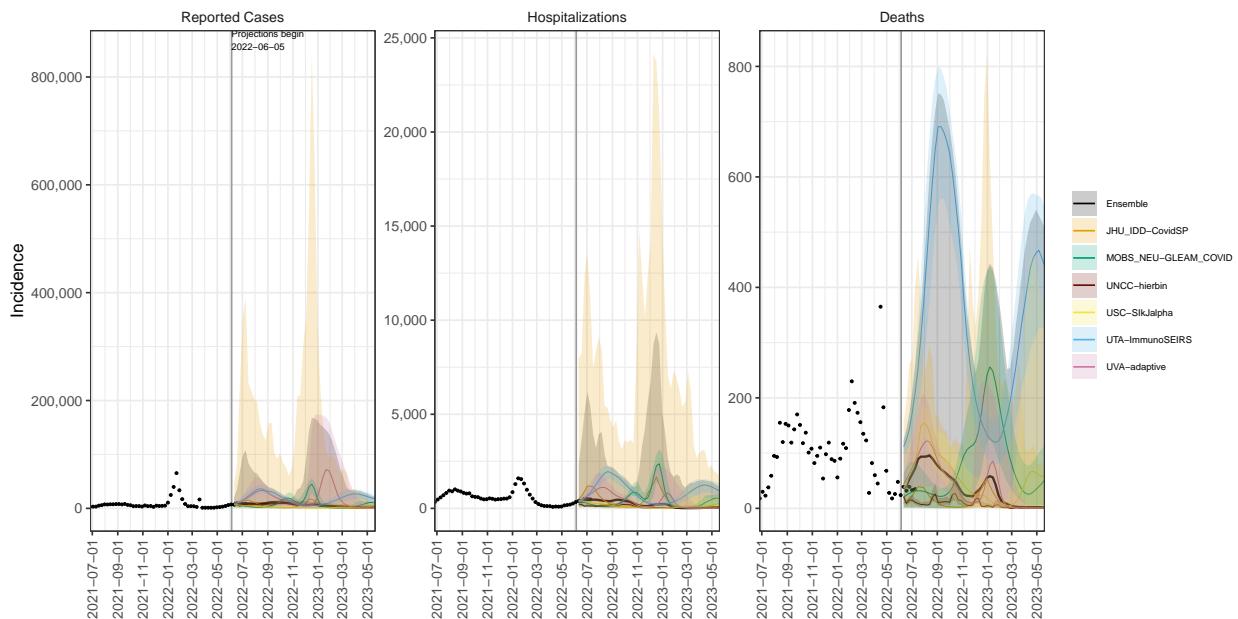
MT model variance & 95% projection intervals – Broad booster, new variant



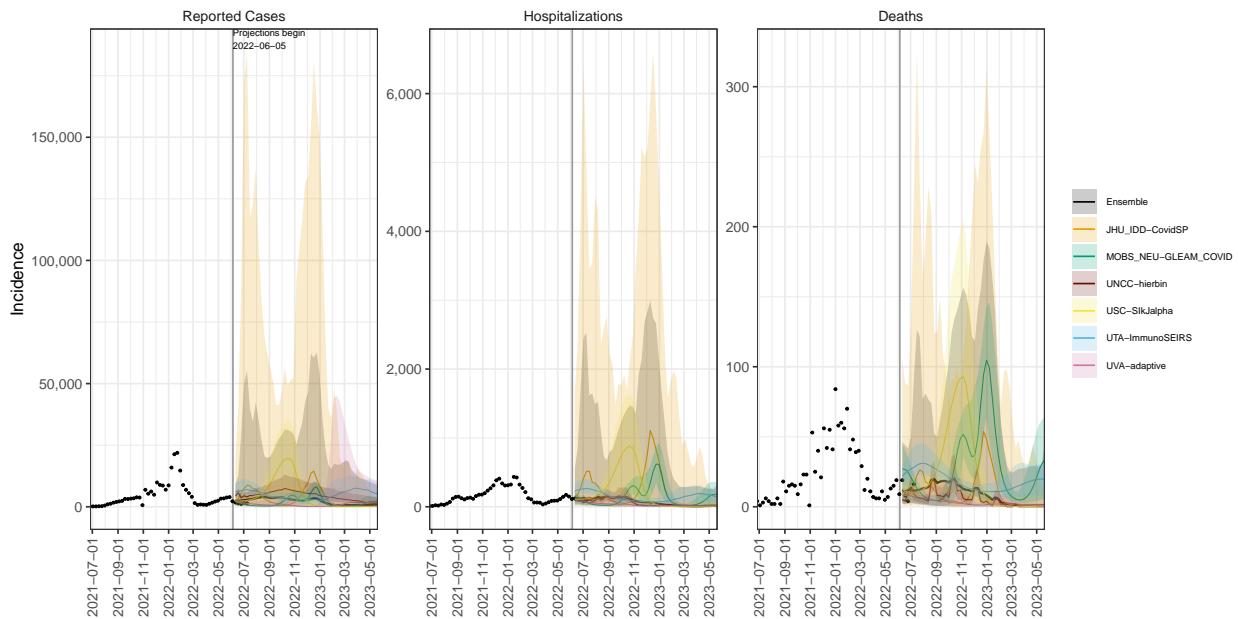
NE model variance & 95% projection intervals – Broad booster, new variant



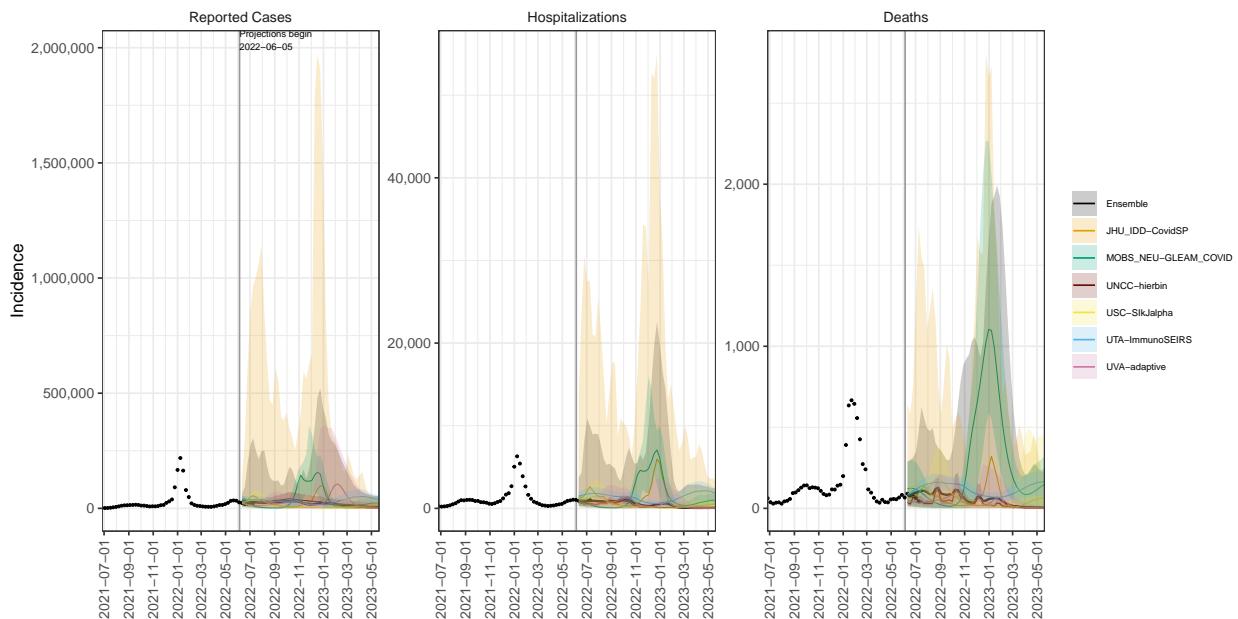
NV model variance & 95% projection intervals – Broad booster, new variant



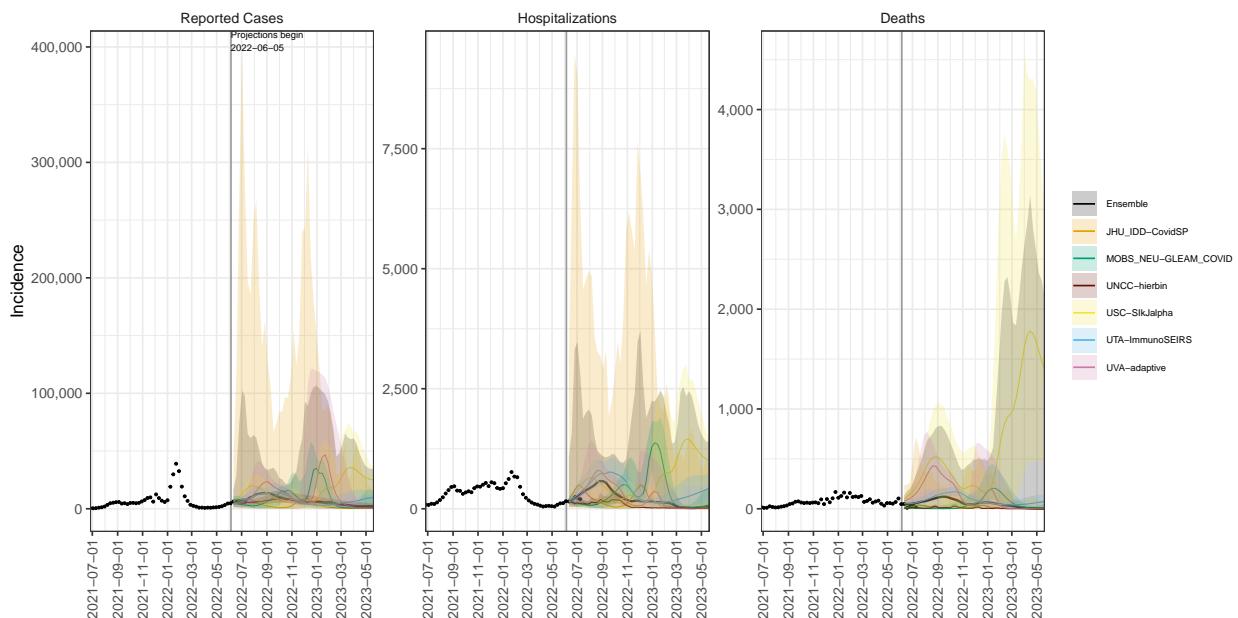
NH model variance & 95% projection intervals – Broad booster, new variant



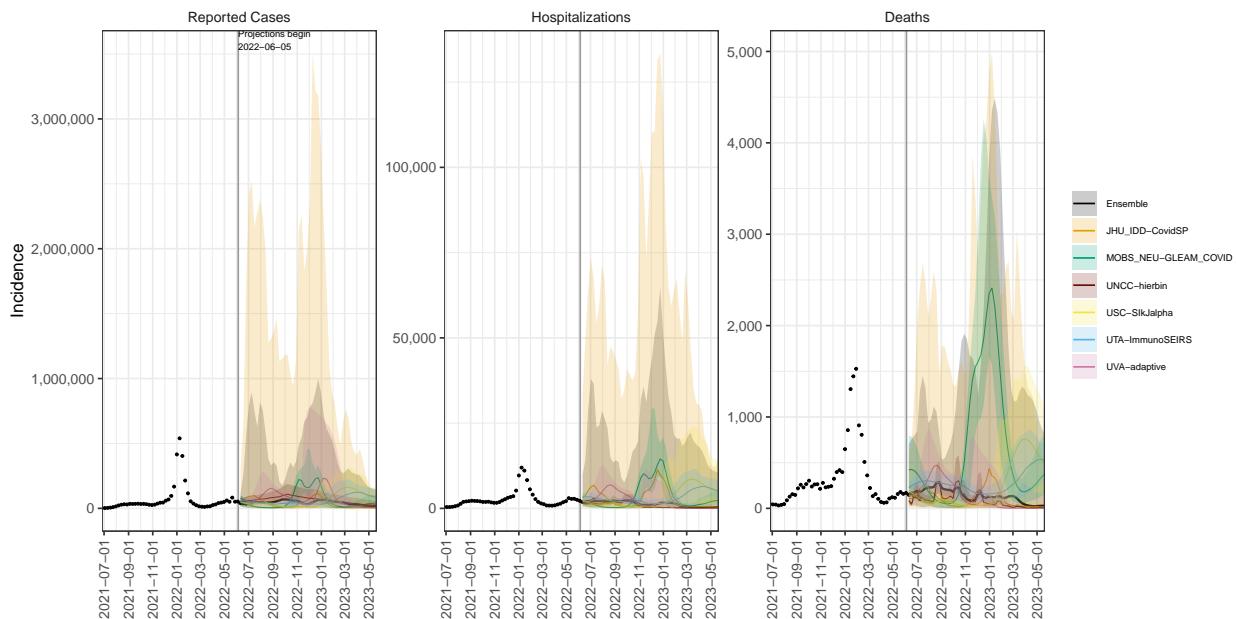
NJ model variance & 95% projection intervals – Broad booster, new variant



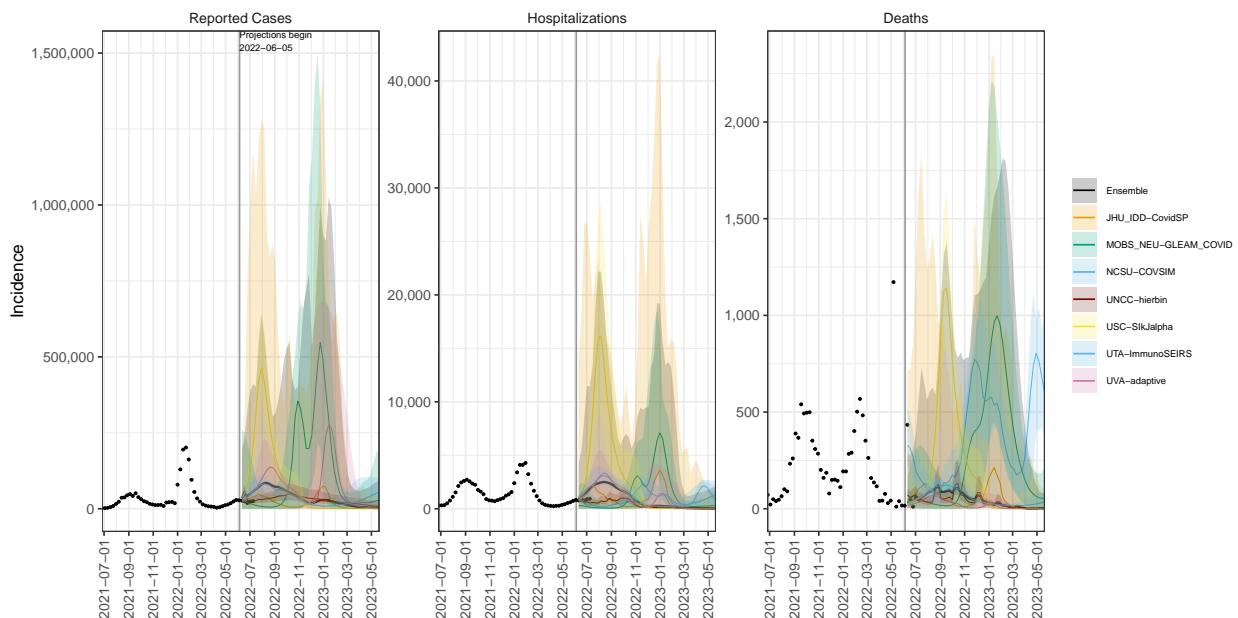
NM model variance & 95% projection intervals – Broad booster, new variant



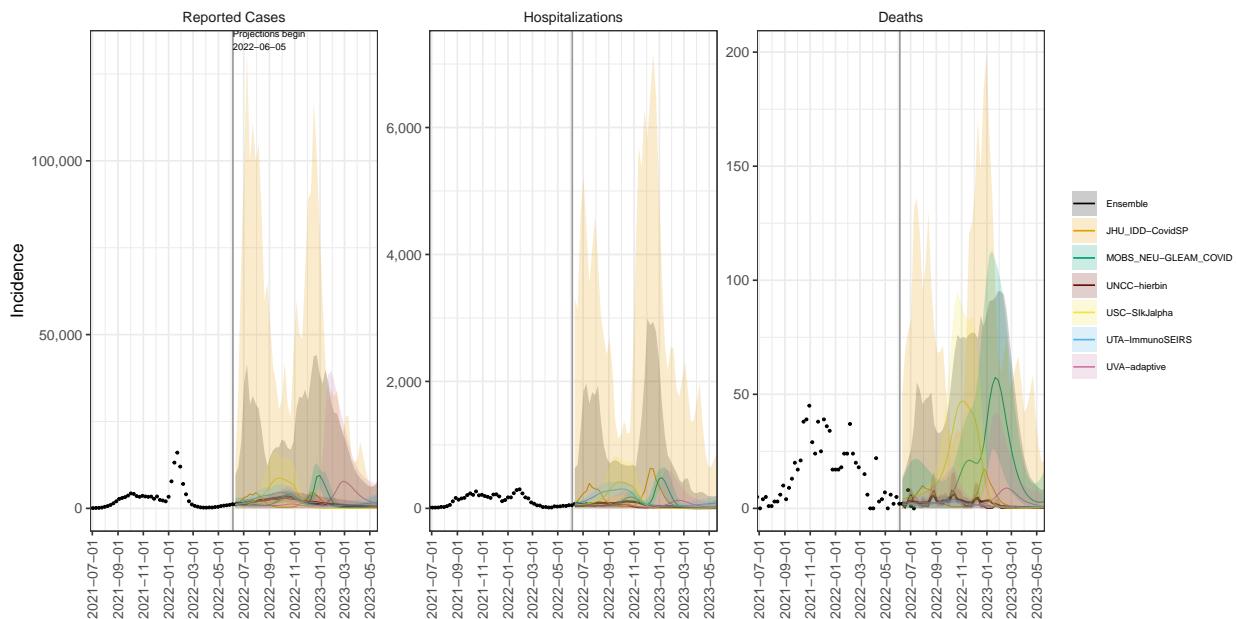
NY model variance & 95% projection intervals – Broad booster, new variant



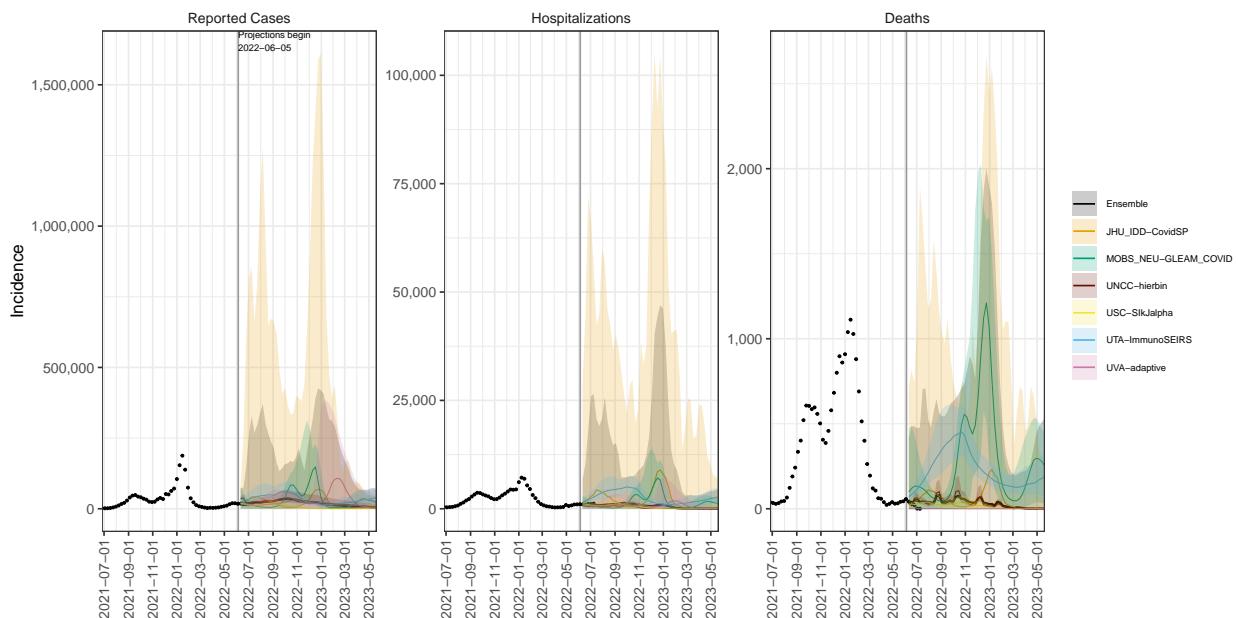
NC model variance & 95% projection intervals – Broad booster, new variant



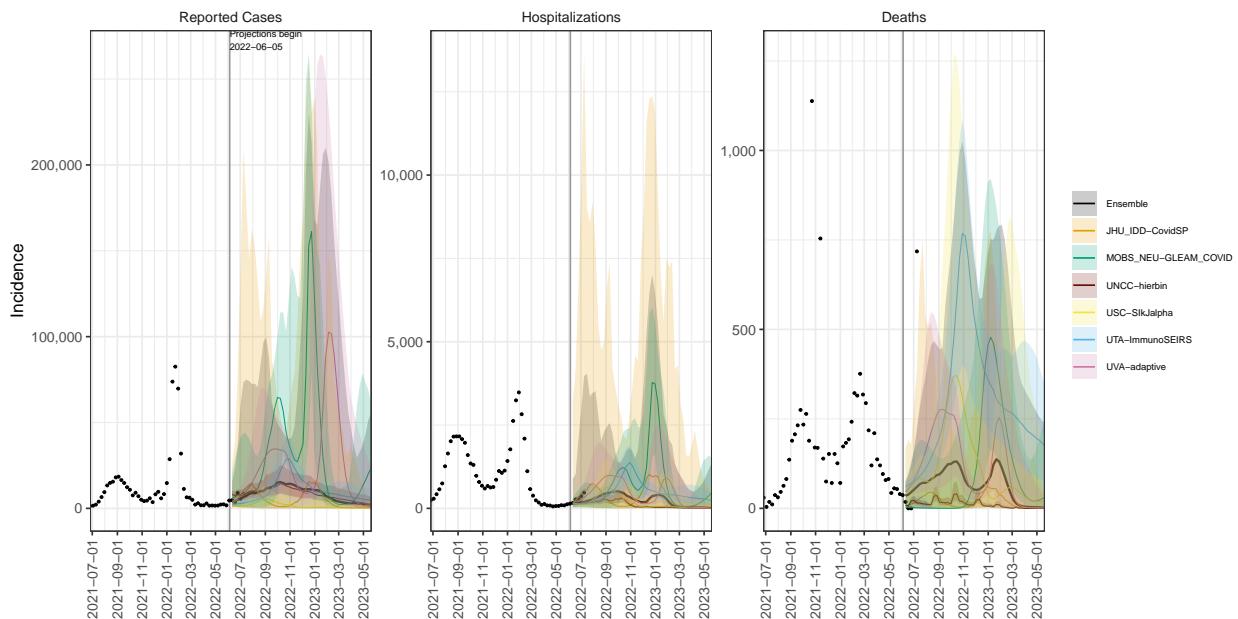
ND model variance & 95% projection intervals – Broad booster, new variant



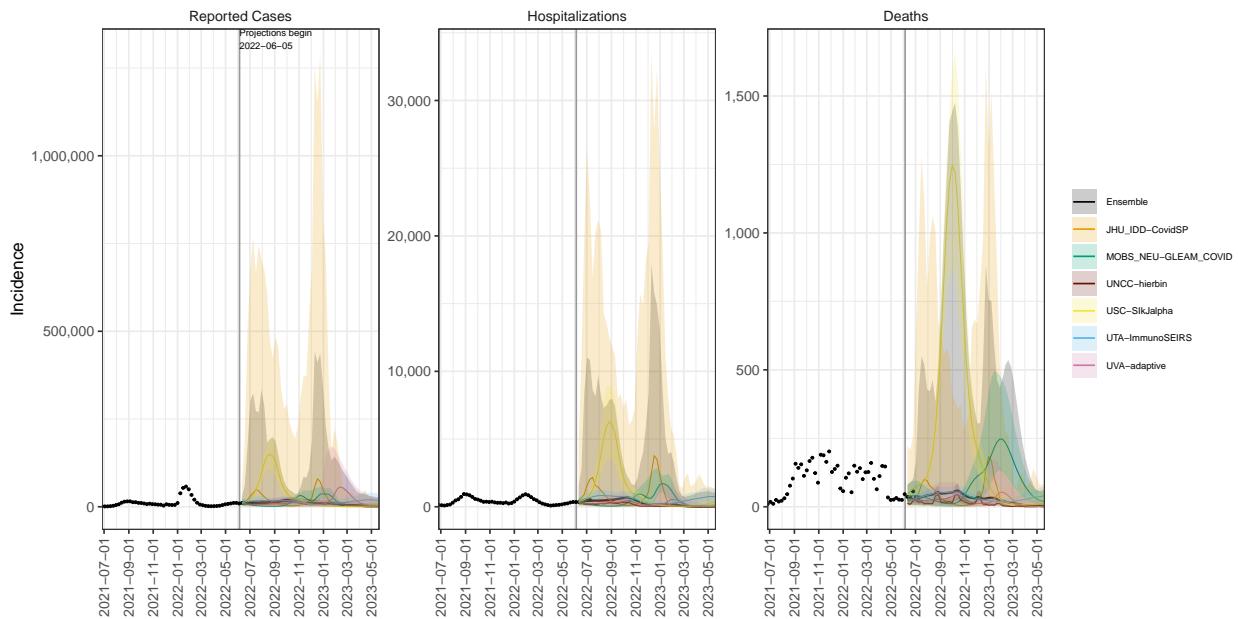
OH model variance & 95% projection intervals – Broad booster, new variant



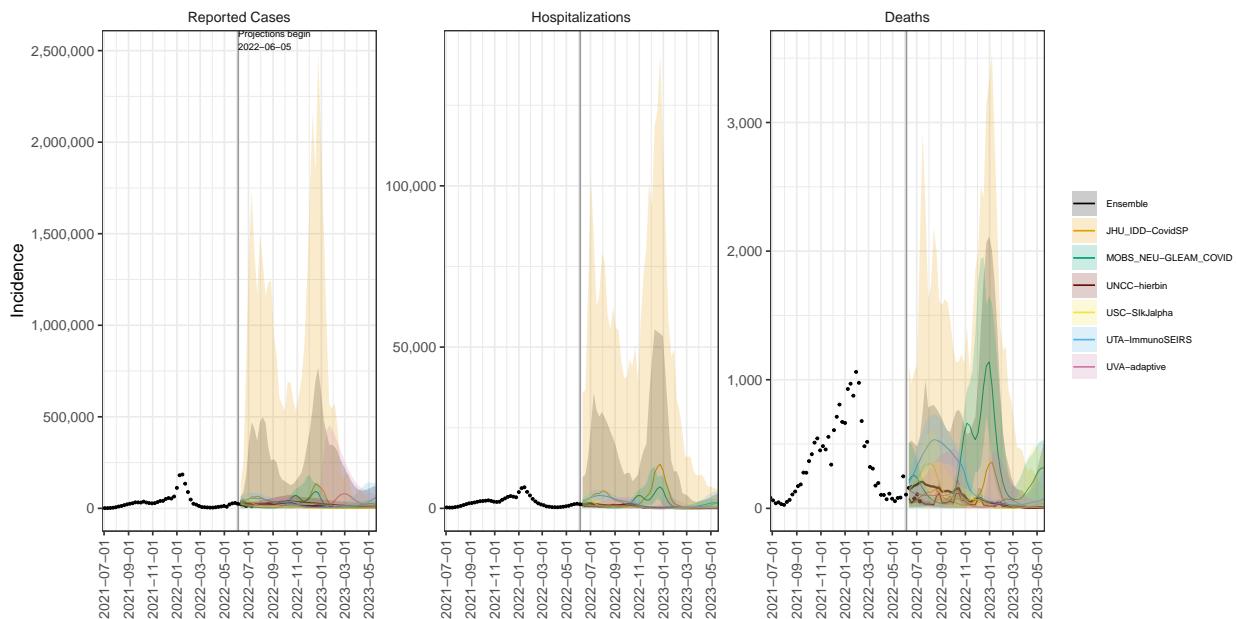
OK model variance & 95% projection intervals – Broad booster, new variant



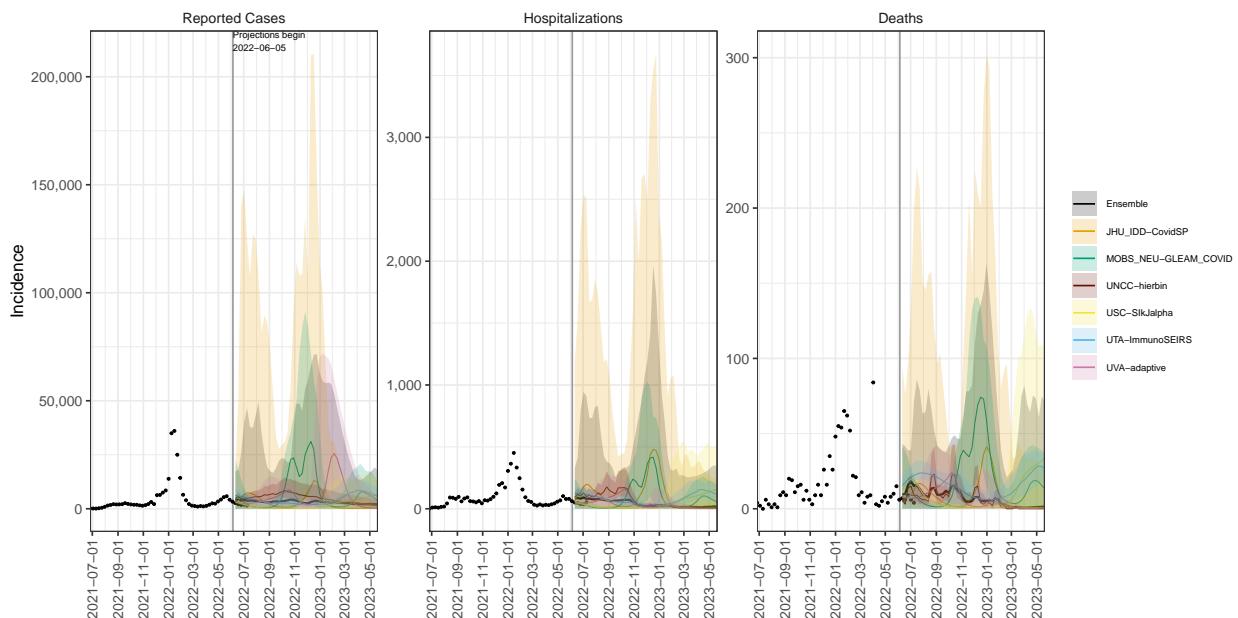
OR model variance & 95% projection intervals – Broad booster, new variant



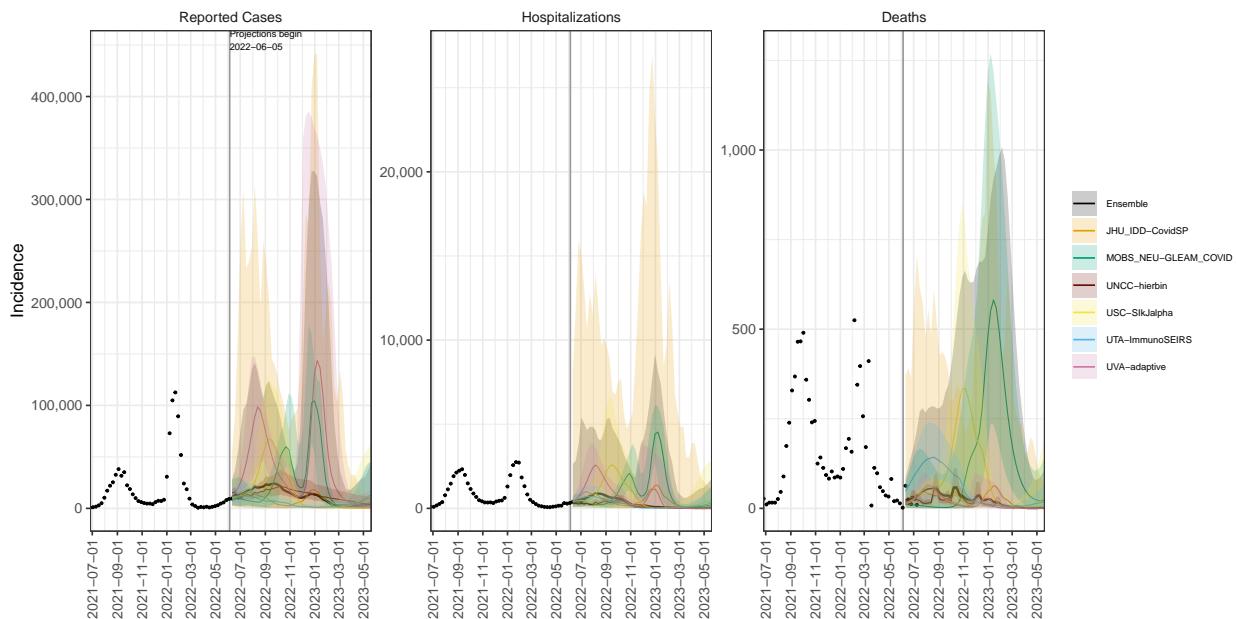
PA model variance & 95% projection intervals – Broad booster, new variant



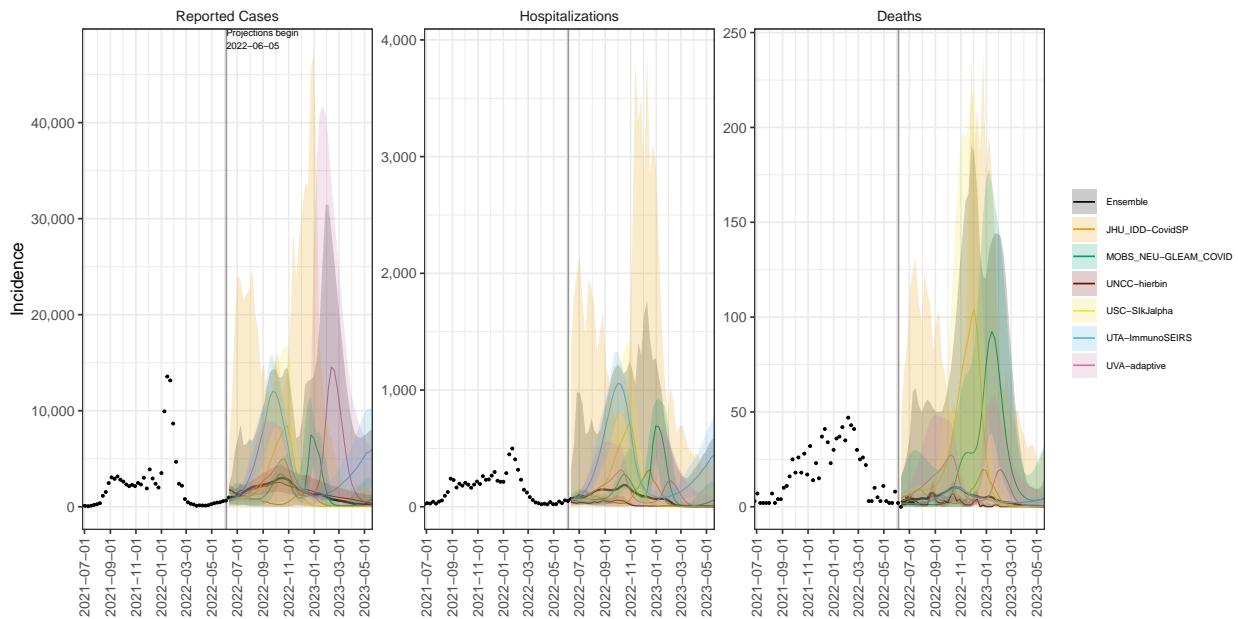
RI model variance & 95% projection intervals – Broad booster, new variant



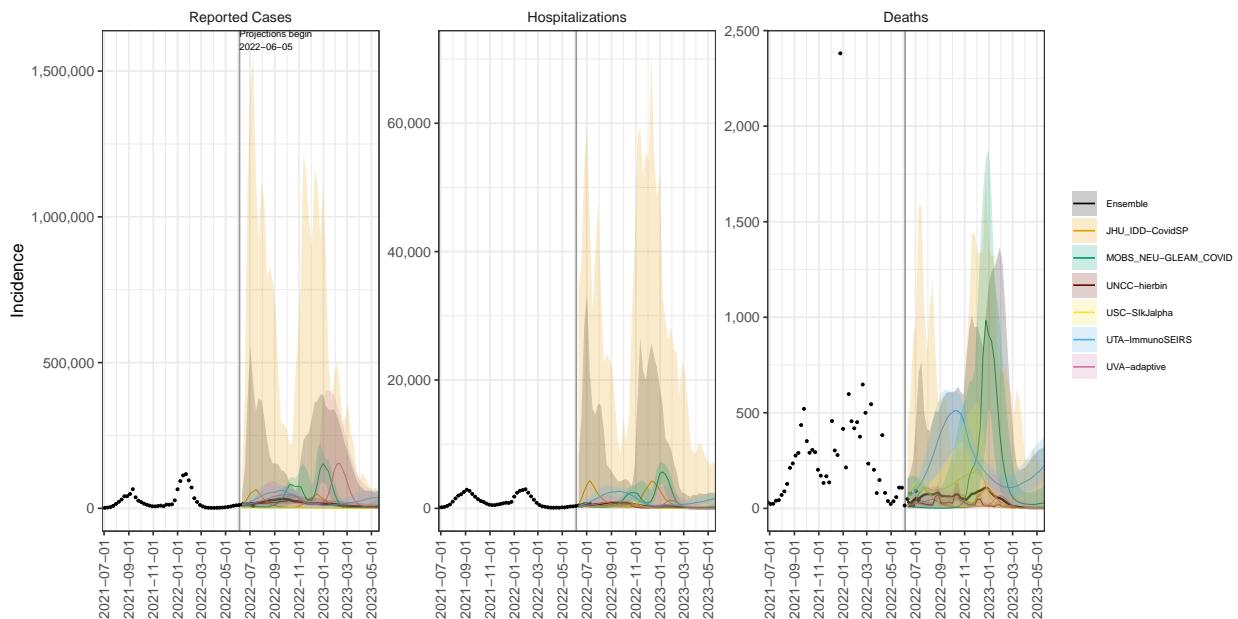
SC model variance & 95% projection intervals – Broad booster, new variant



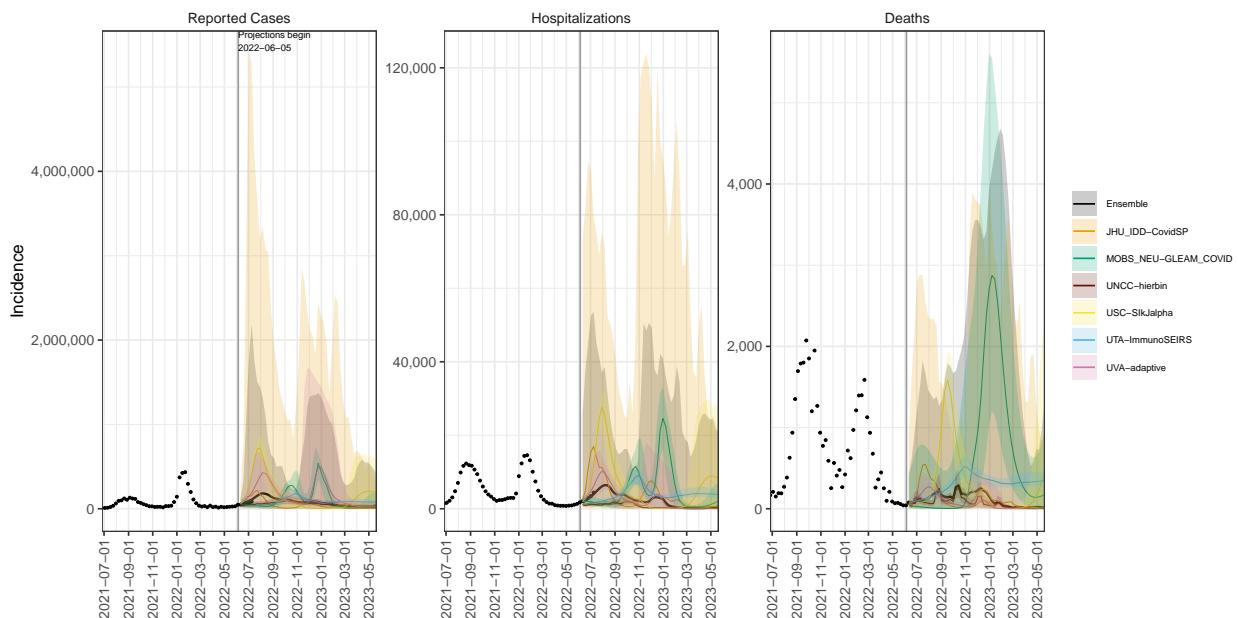
SD model variance & 95% projection intervals – Broad booster, new variant



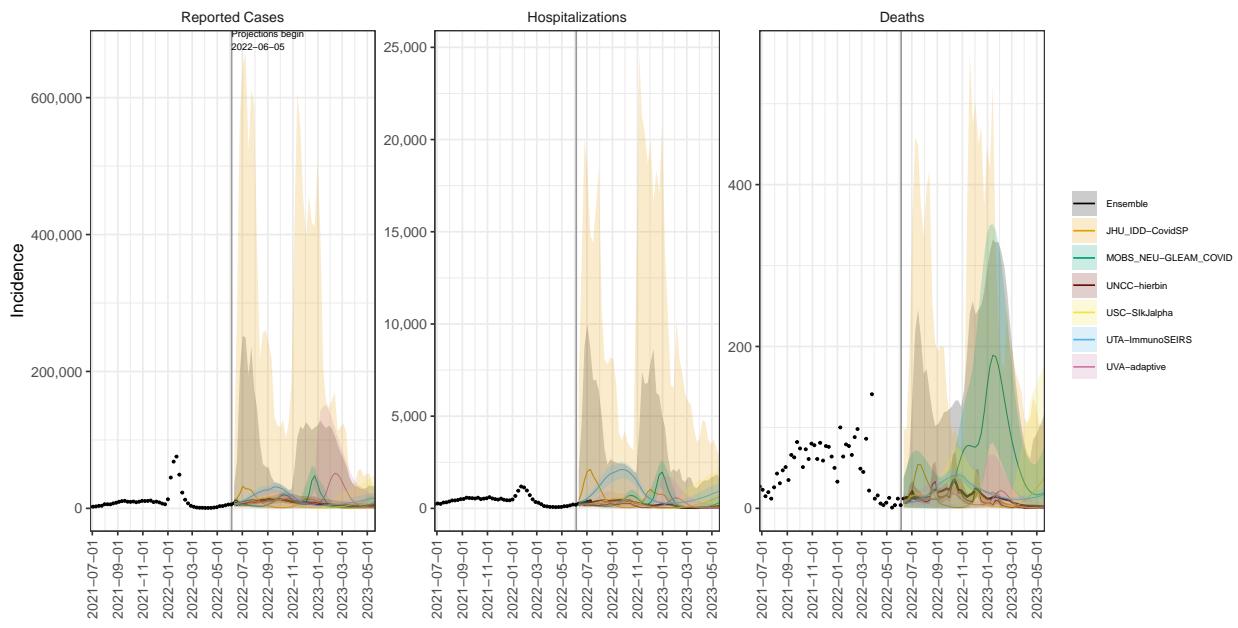
TN model variance & 95% projection intervals – Broad booster, new variant



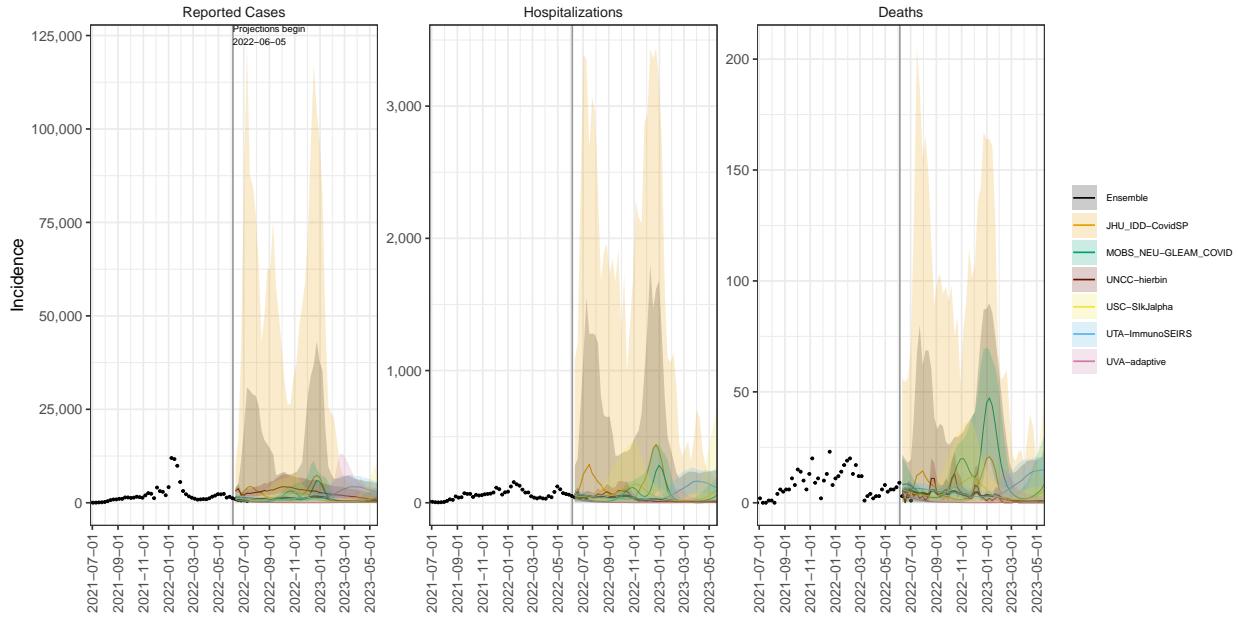
TX model variance & 95% projection intervals – Broad booster, new variant



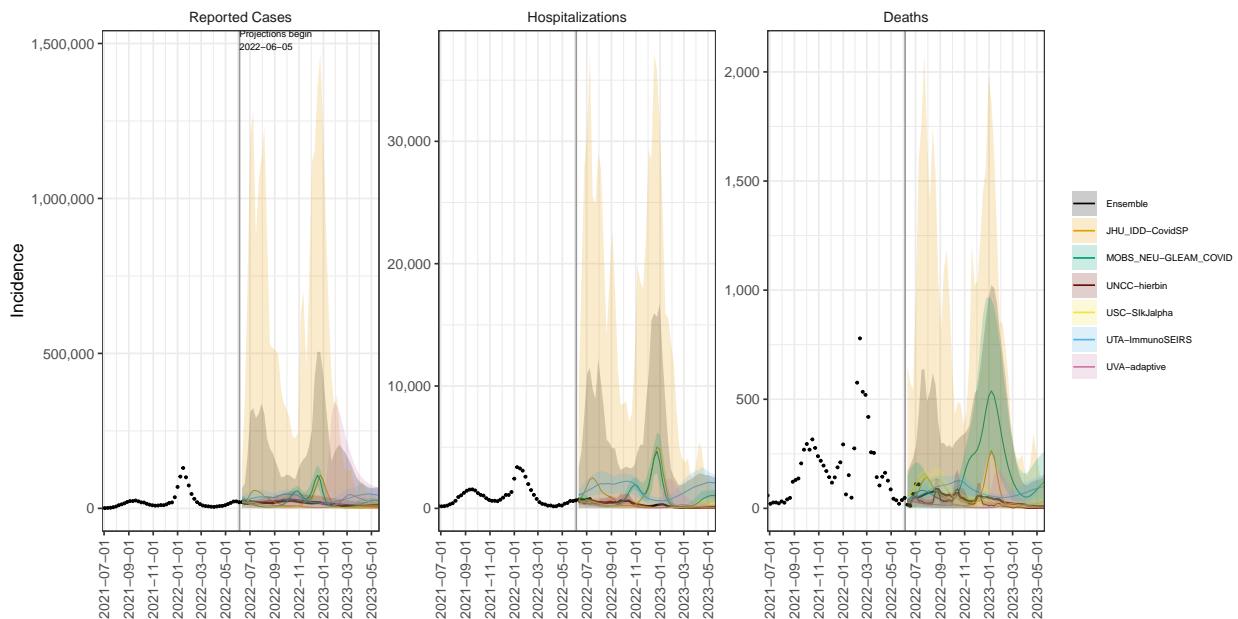
UT model variance & 95% projection intervals – Broad booster, new variant



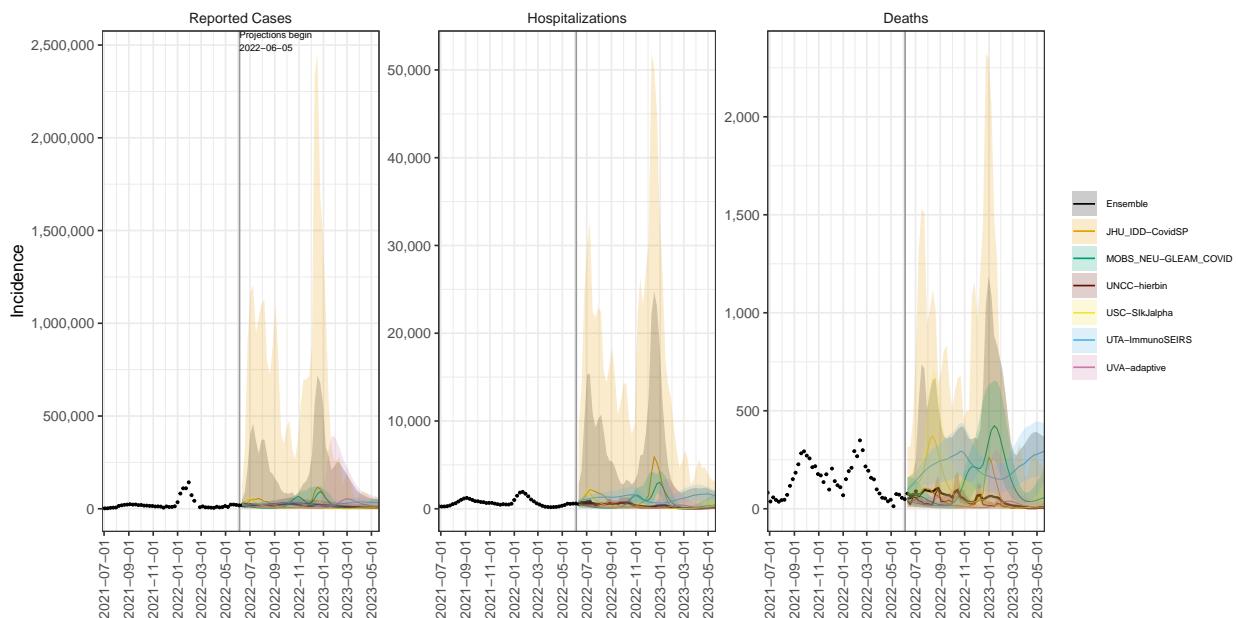
VT model variance & 95% projection intervals – Broad booster, new variant



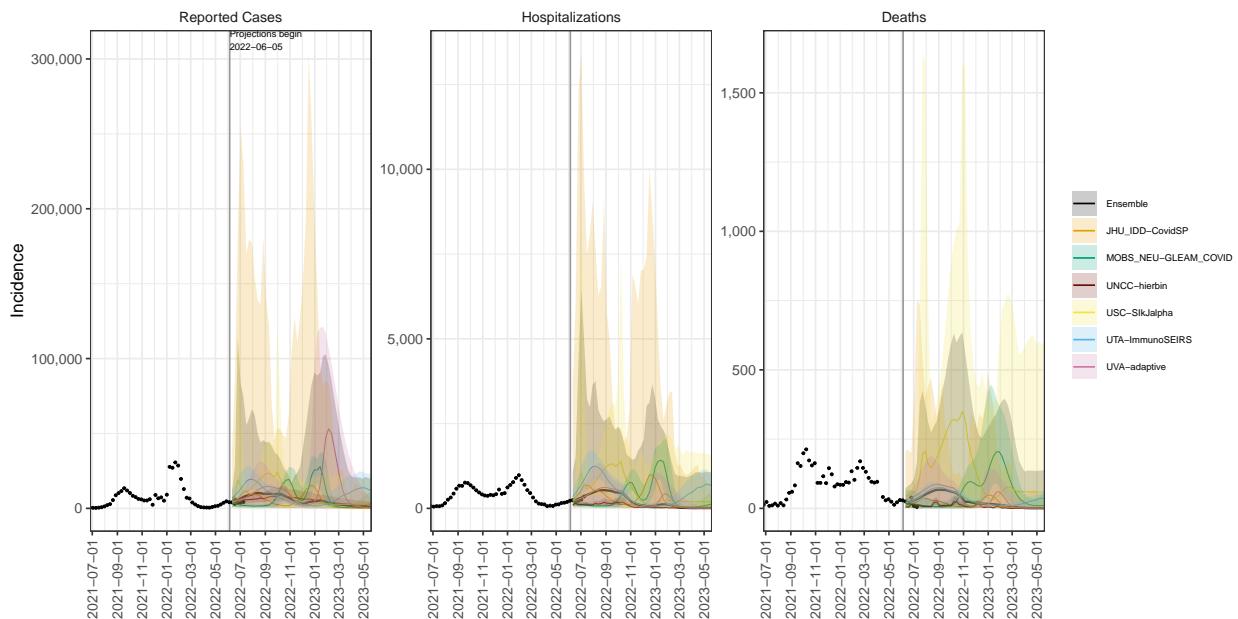
VA model variance & 95% projection intervals – Broad booster, new variant



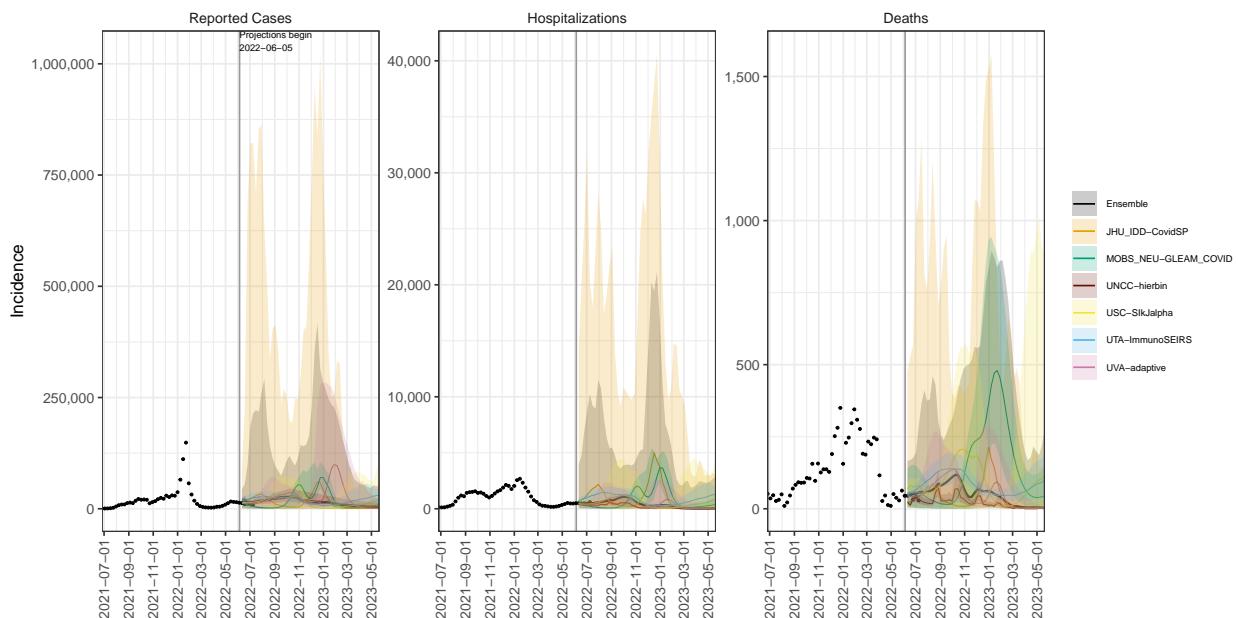
WA model variance & 95% projection intervals – Broad booster, new variant



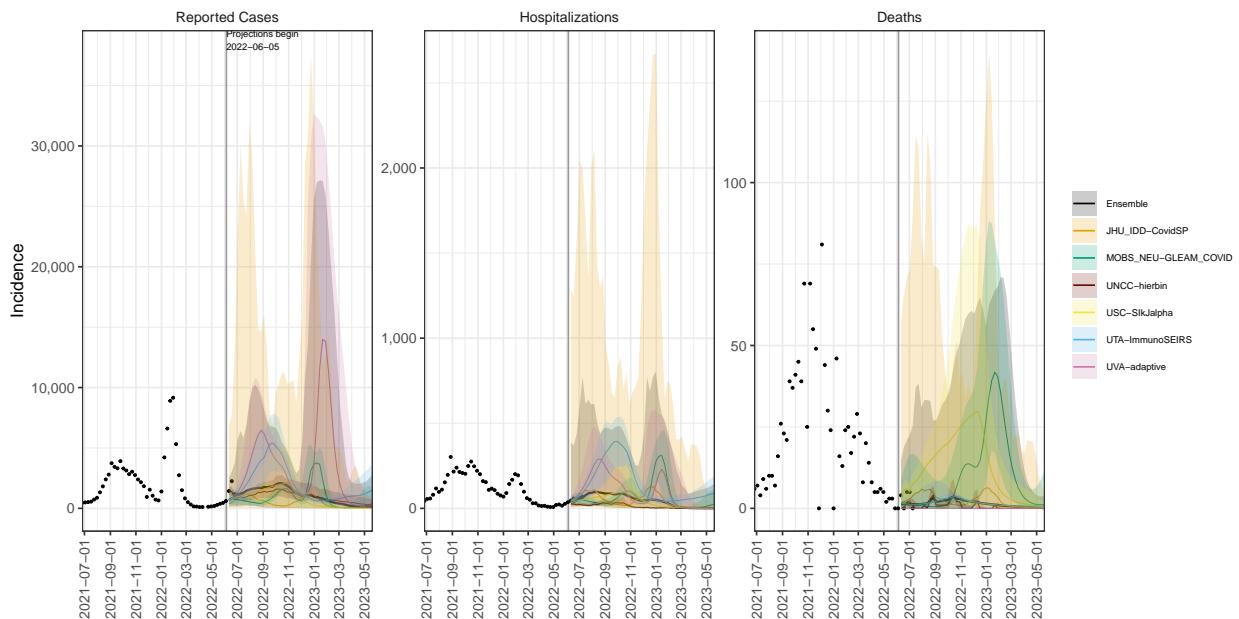
WV model variance & 95% projection intervals – Broad booster, new variant



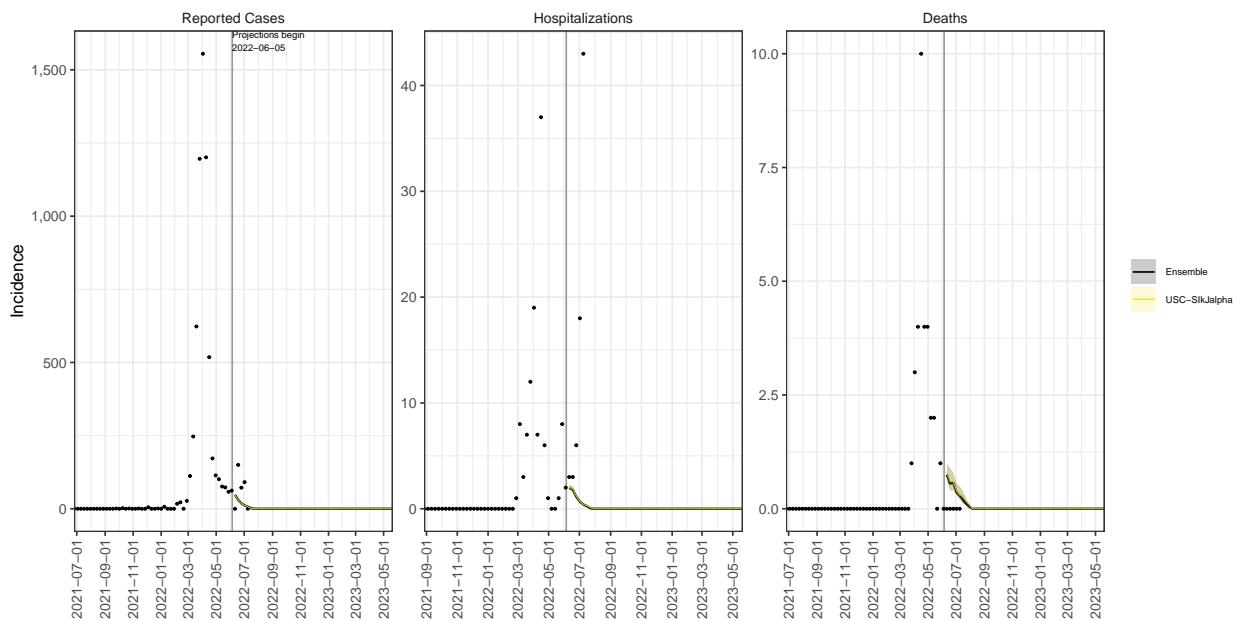
WI model variance & 95% projection intervals – Broad booster, new variant



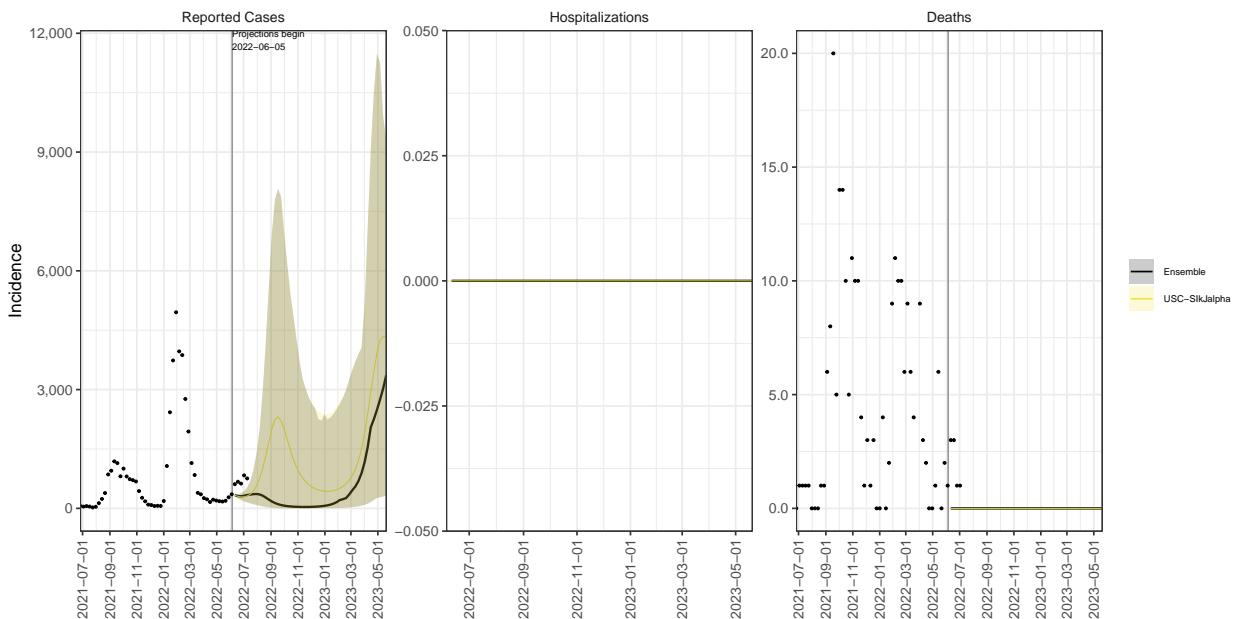
WY model variance & 95% projection intervals – Broad booster, new variant



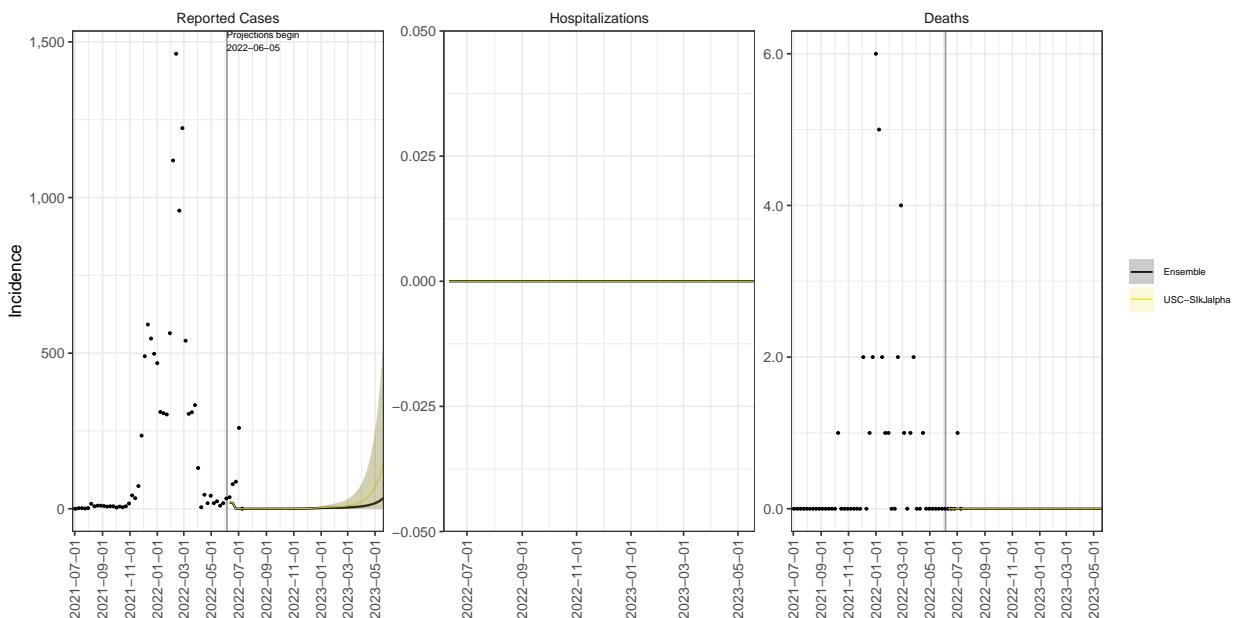
AS model variance & 95% projection intervals – Broad booster, new variant



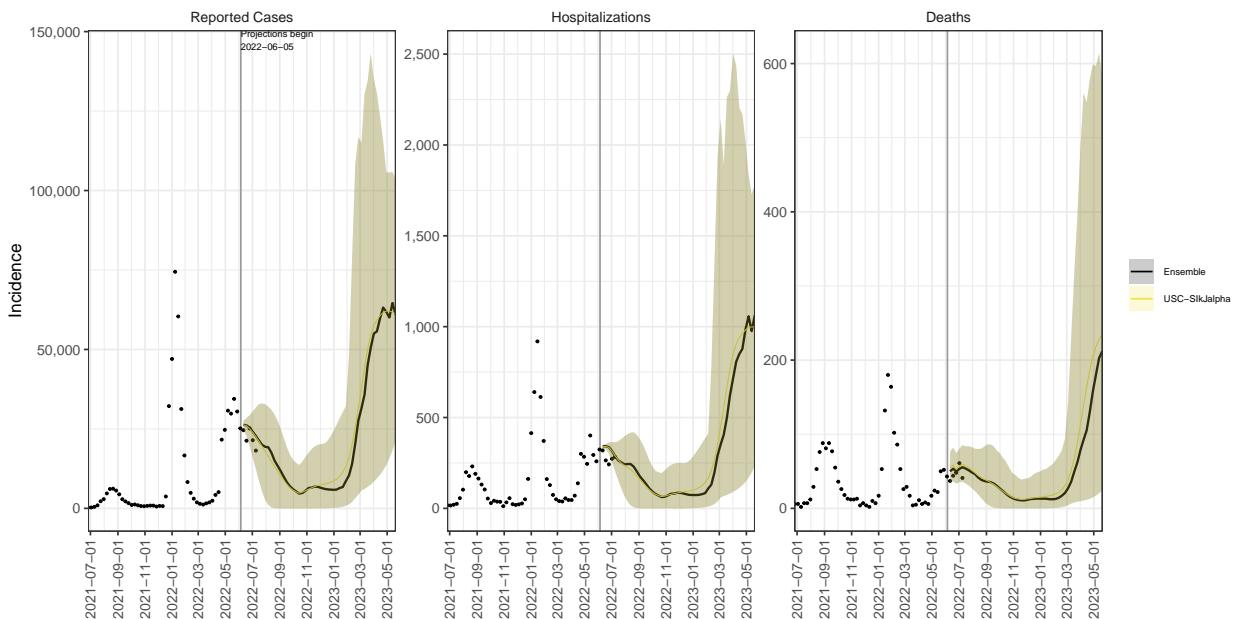
GU model variance & 95% projection intervals – Broad booster, new variant



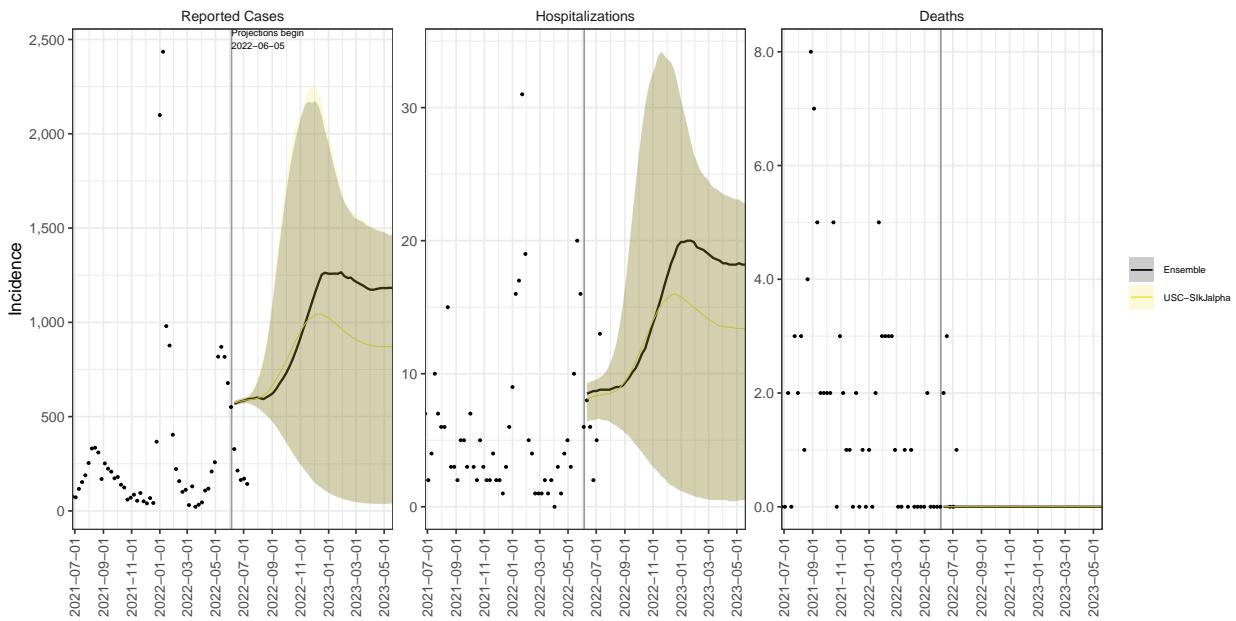
MP model variance & 95% projection intervals – Broad booster, new variant



PR model variance & 95% projection intervals – Broad booster, new variant

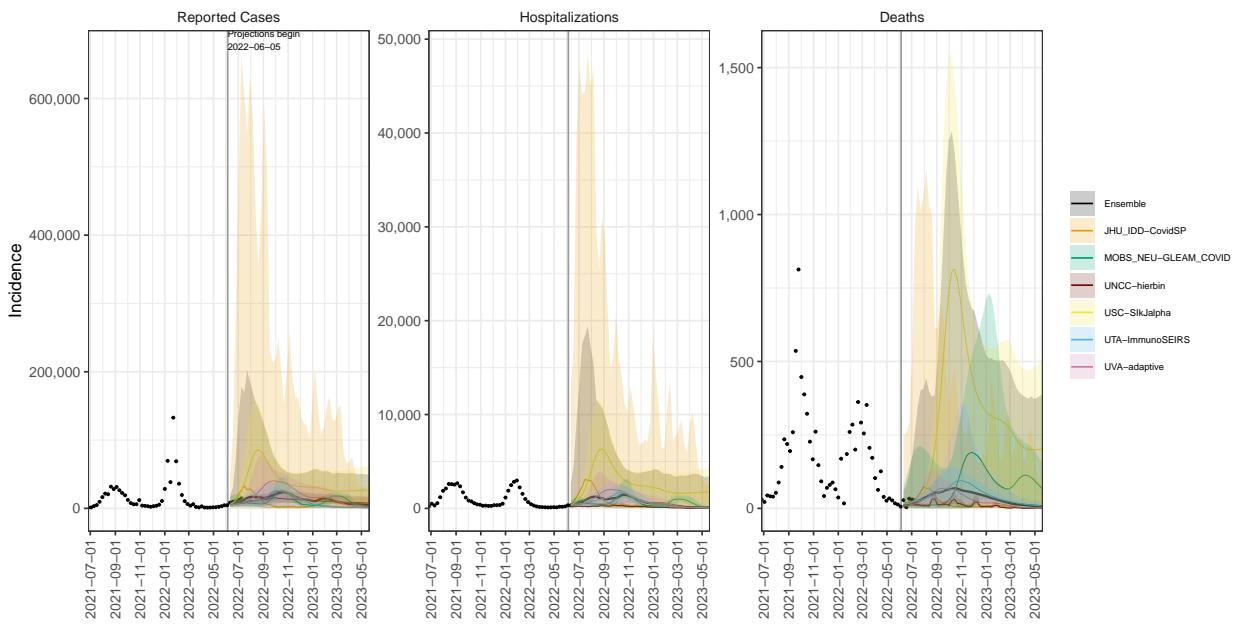


VI model variance & 95% projection intervals – Broad booster, new variant

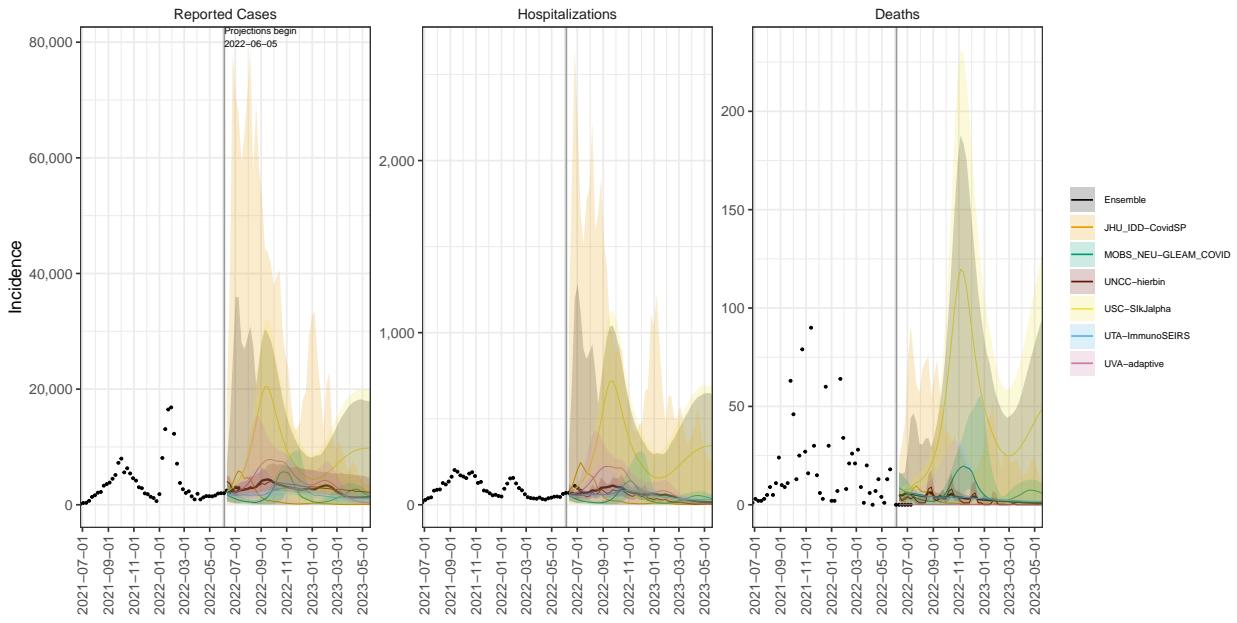


National model variation for the restricted booster, no new variant scenario

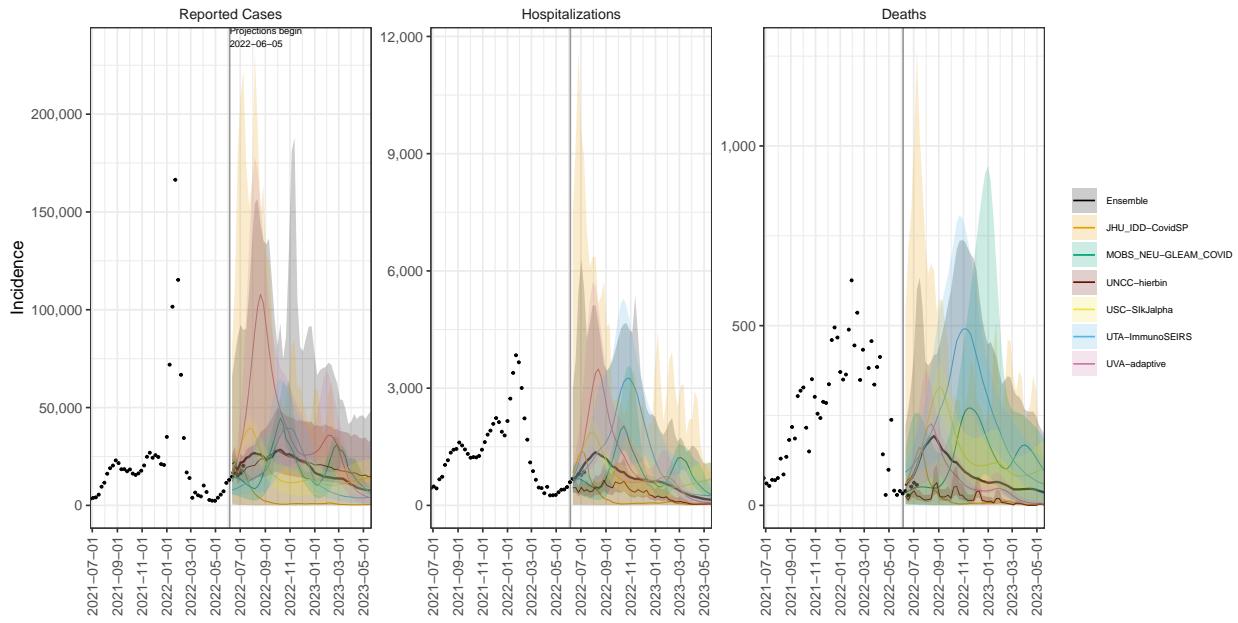
AL model variance & 95% projection intervals – Restricted booster, no new variant



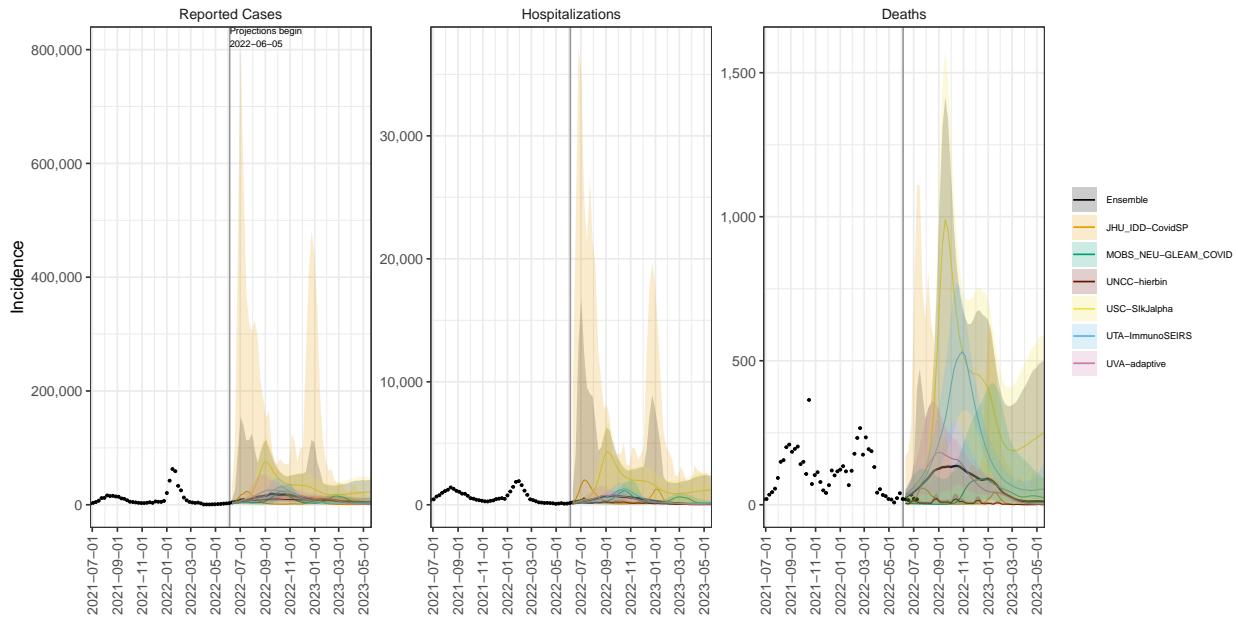
AK model variance & 95% projection intervals – Restricted booster, no new variant



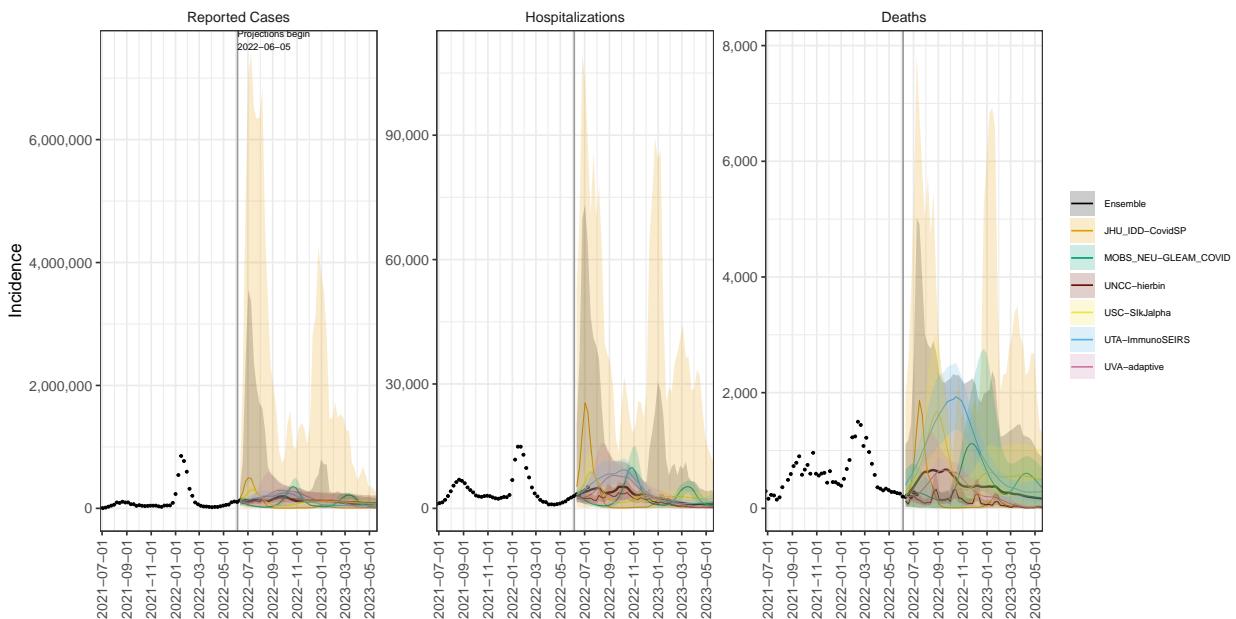
AZ model variance & 95% projection intervals – Restricted booster, no new variant



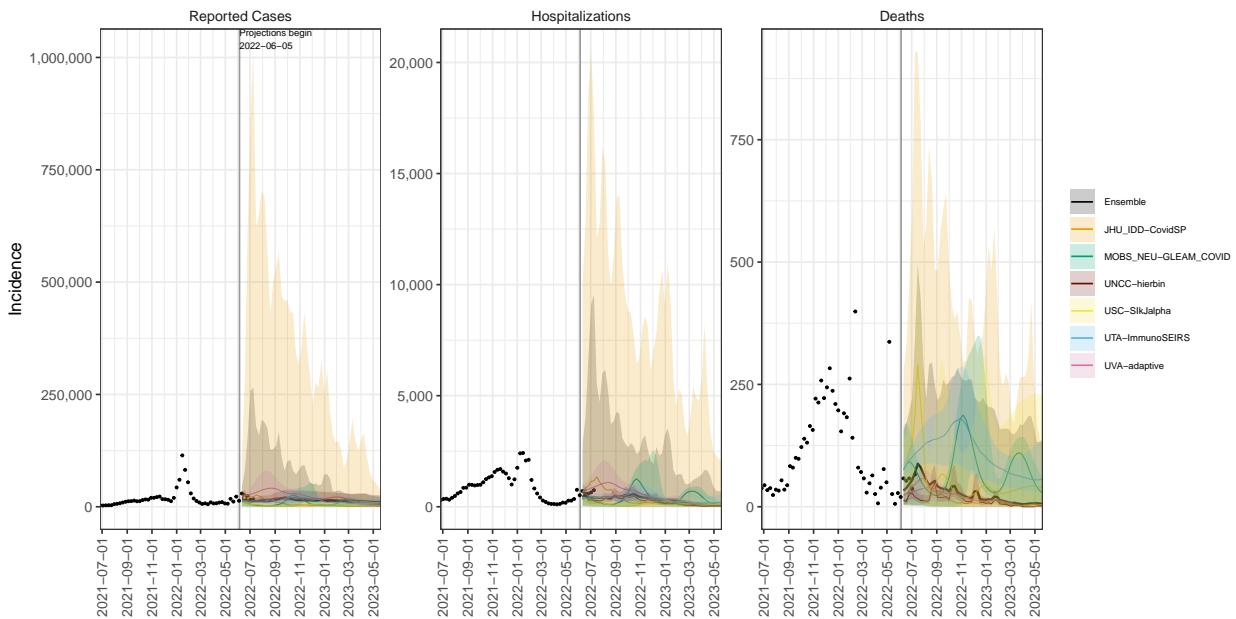
AR model variance & 95% projection intervals – Restricted booster, no new variant



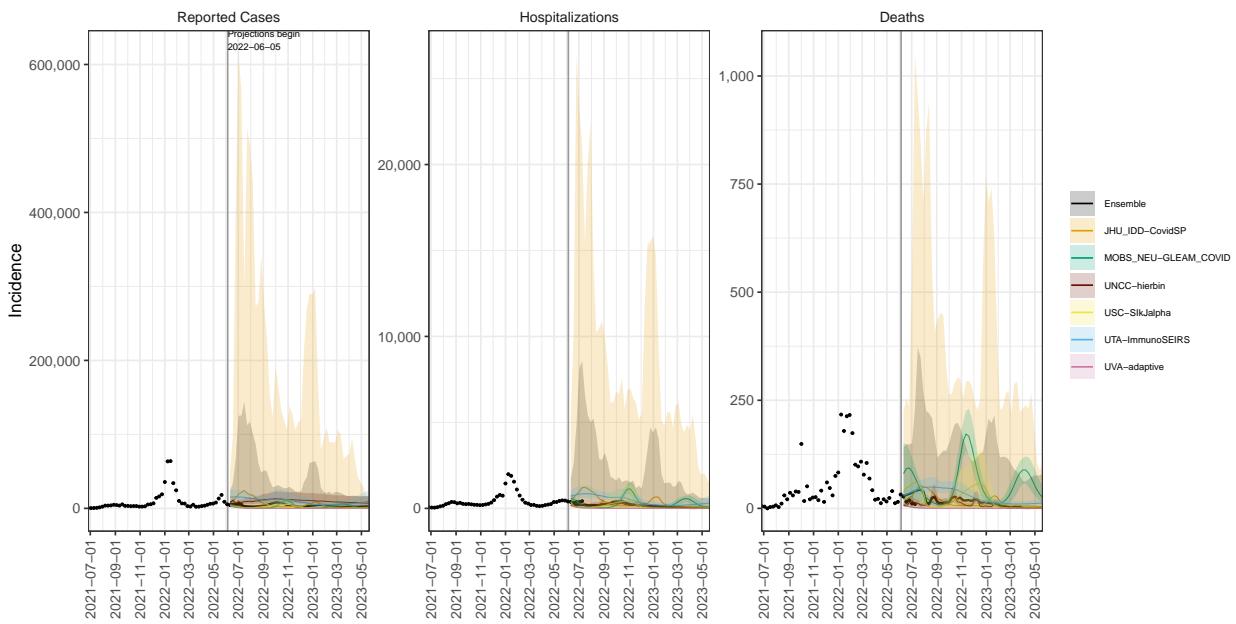
CA model variance & 95% projection intervals – Restricted booster, no new variant



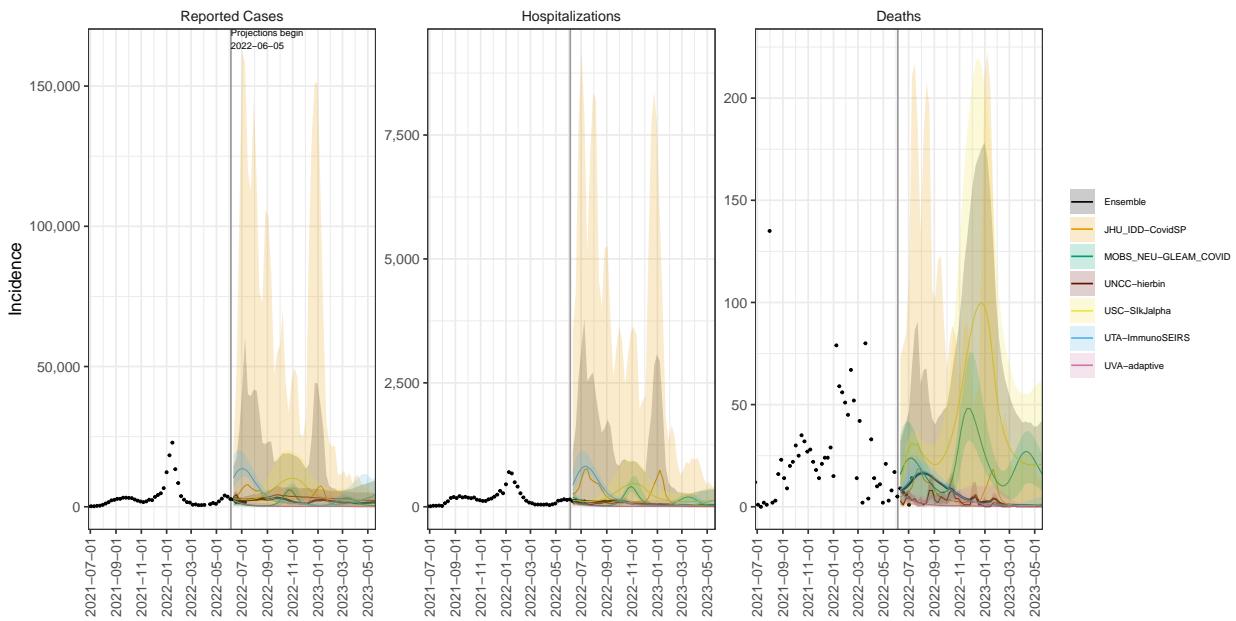
CO model variance & 95% projection intervals – Restricted booster, no new variant



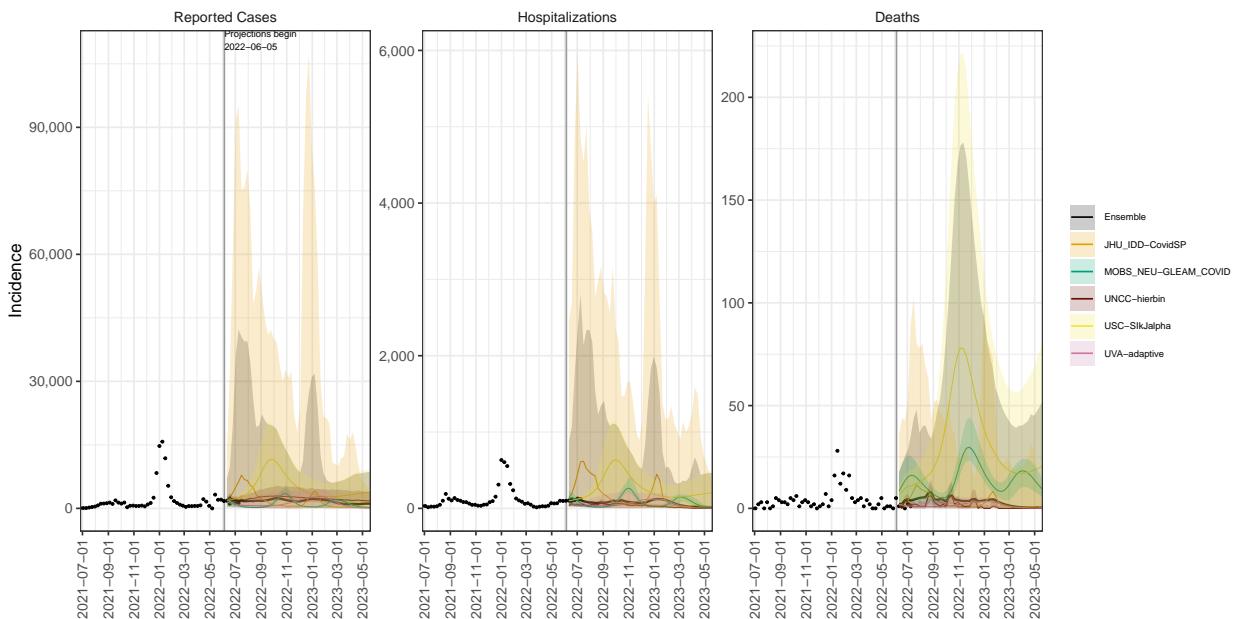
CT model variance & 95% projection intervals – Restricted booster, no new variant



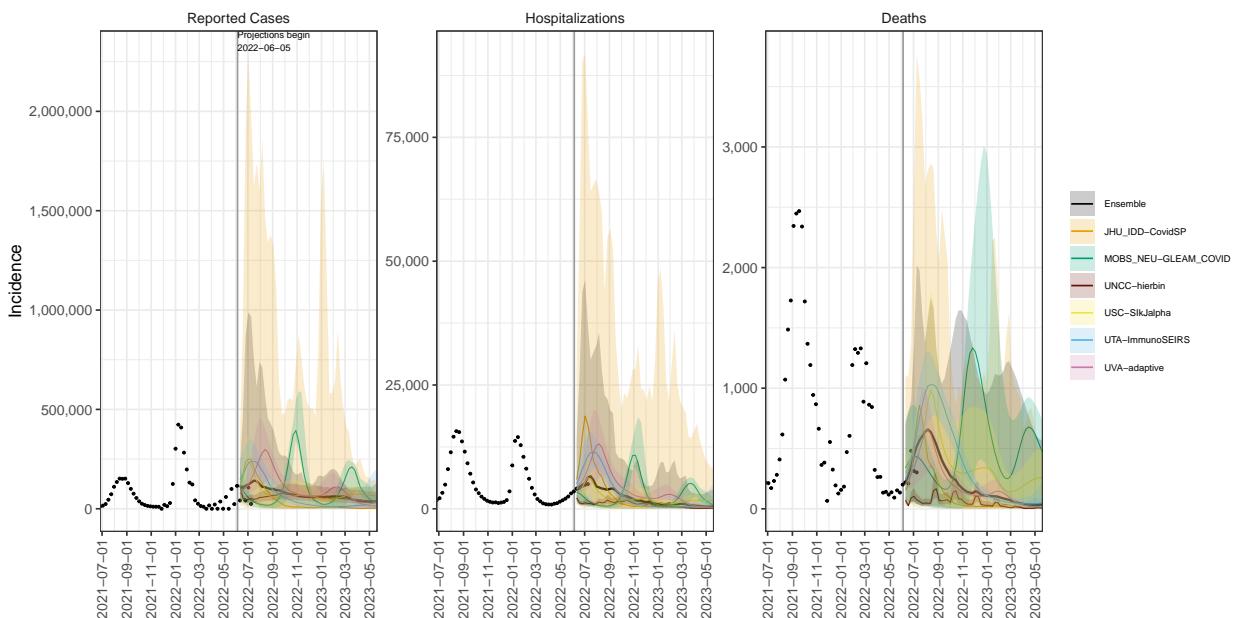
DE model variance & 95% projection intervals – Restricted booster, no new variant



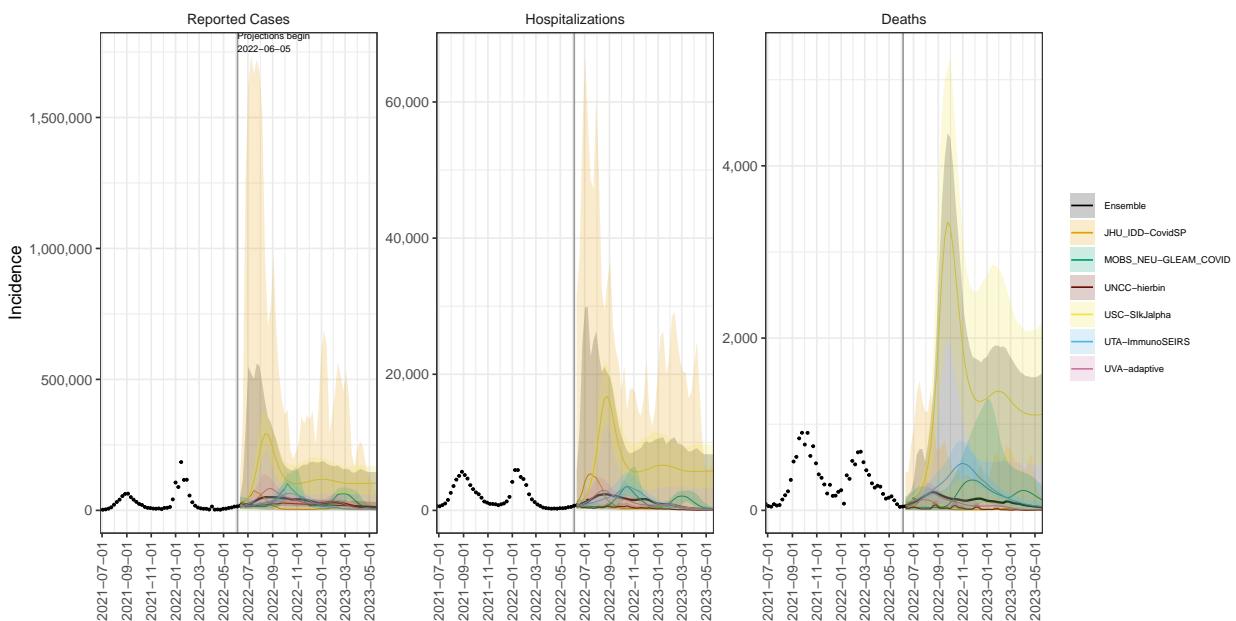
DC model variance & 95% projection intervals – Restricted booster, no new variant



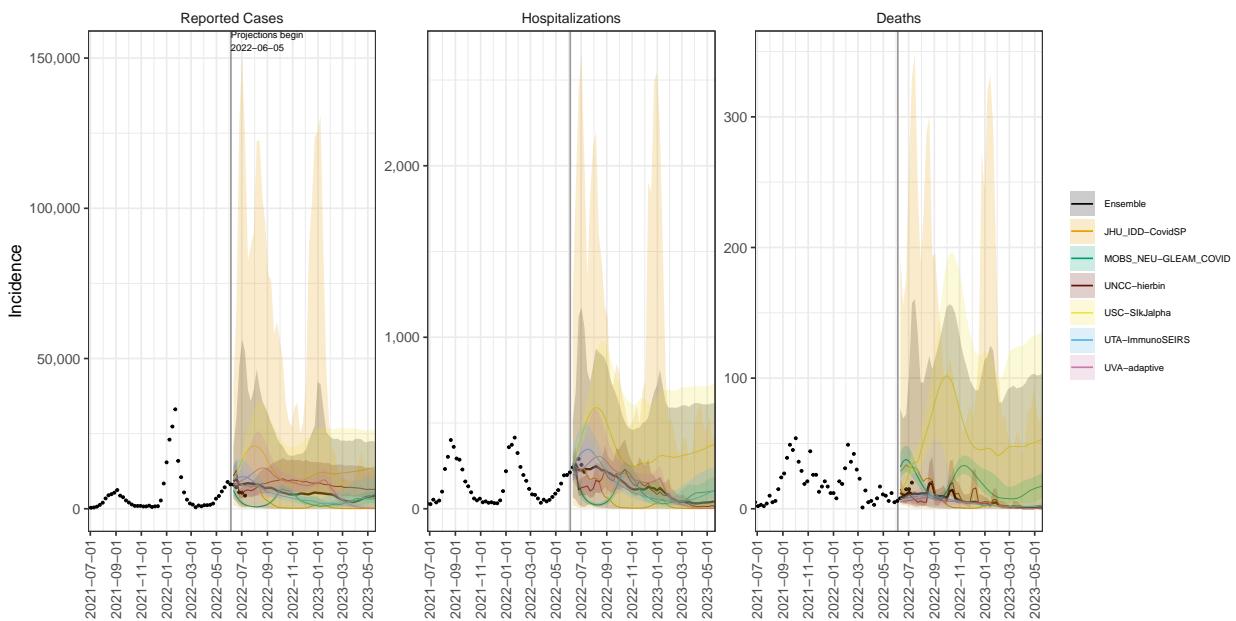
FL model variance & 95% projection intervals – Restricted booster, no new variant



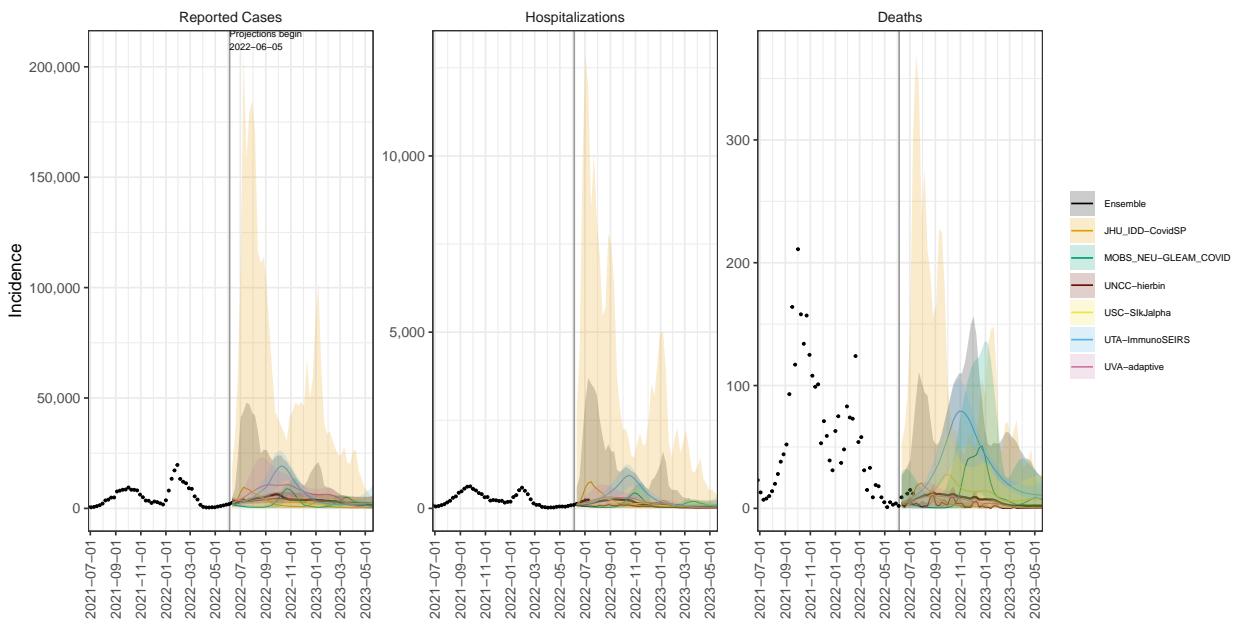
GA model variance & 95% projection intervals – Restricted booster, no new variant



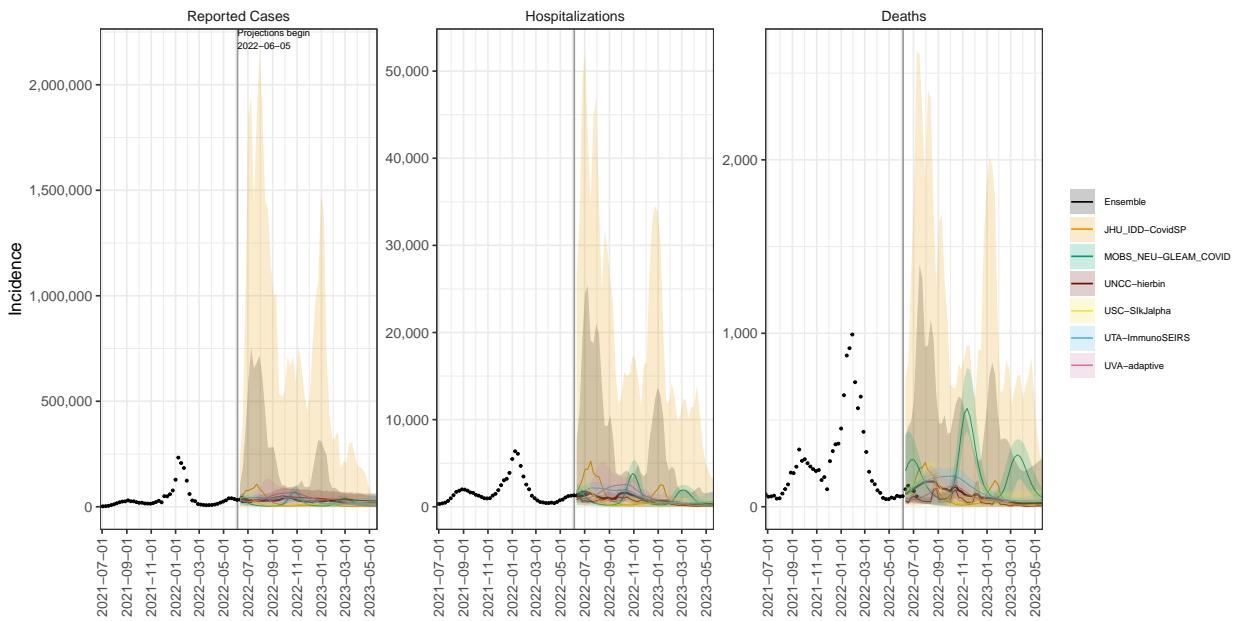
HI model variance & 95% projection intervals – Restricted booster, no new variant



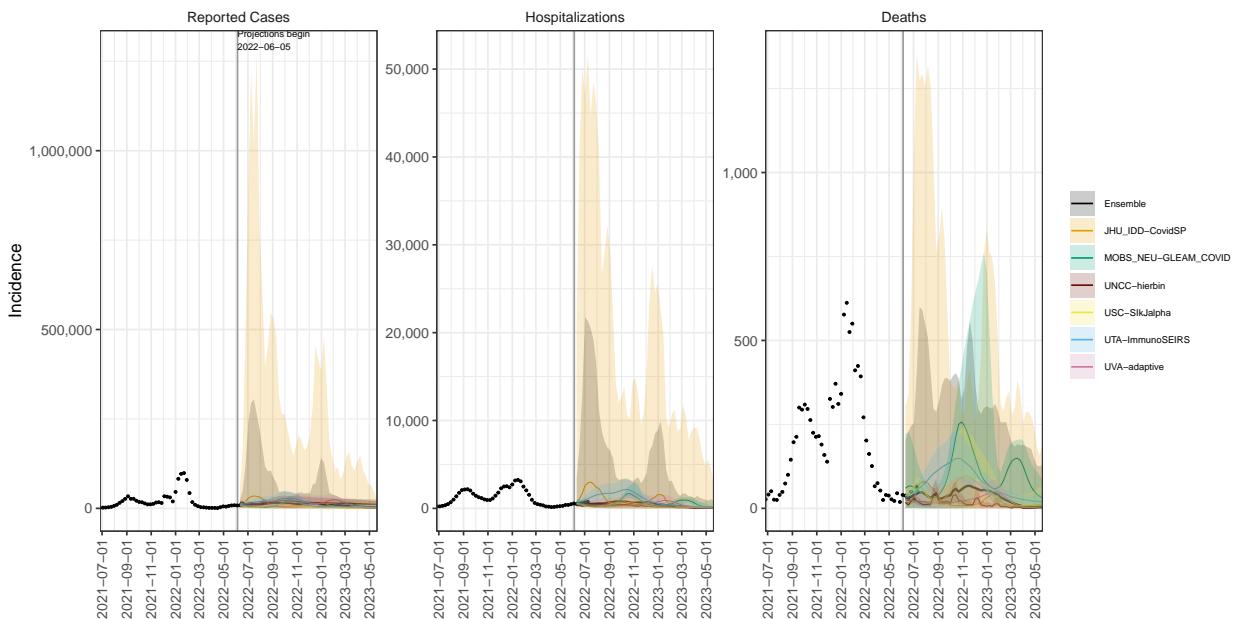
ID model variance & 95% projection intervals – Restricted booster, no new variant



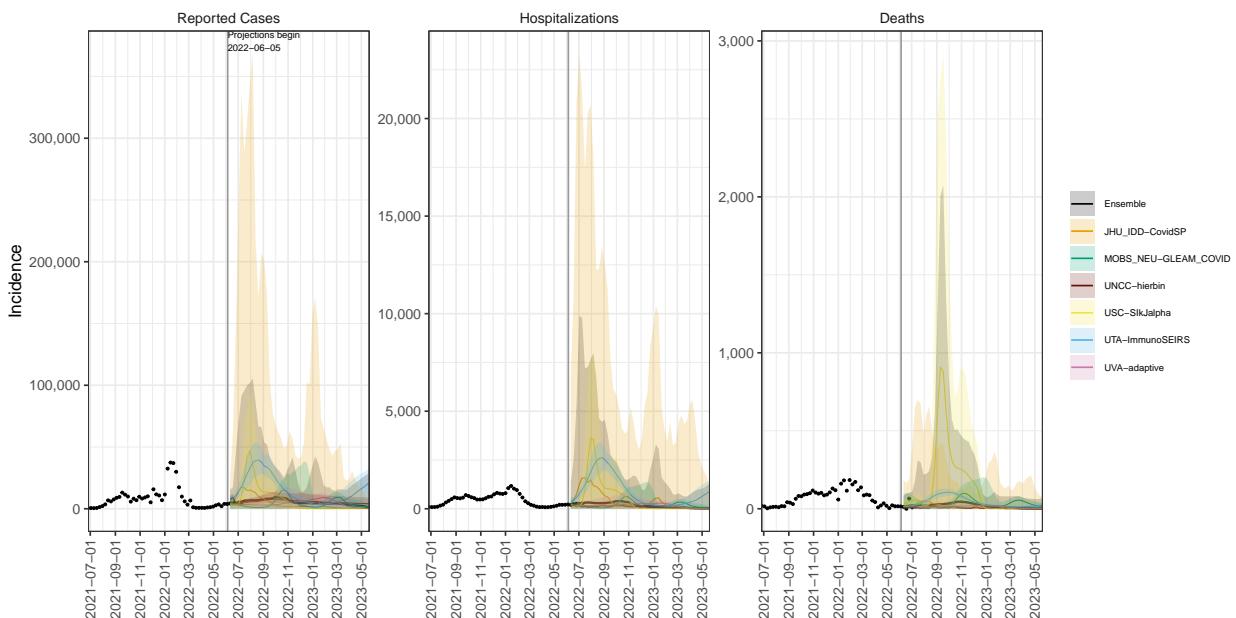
IL model variance & 95% projection intervals – Restricted booster, no new variant



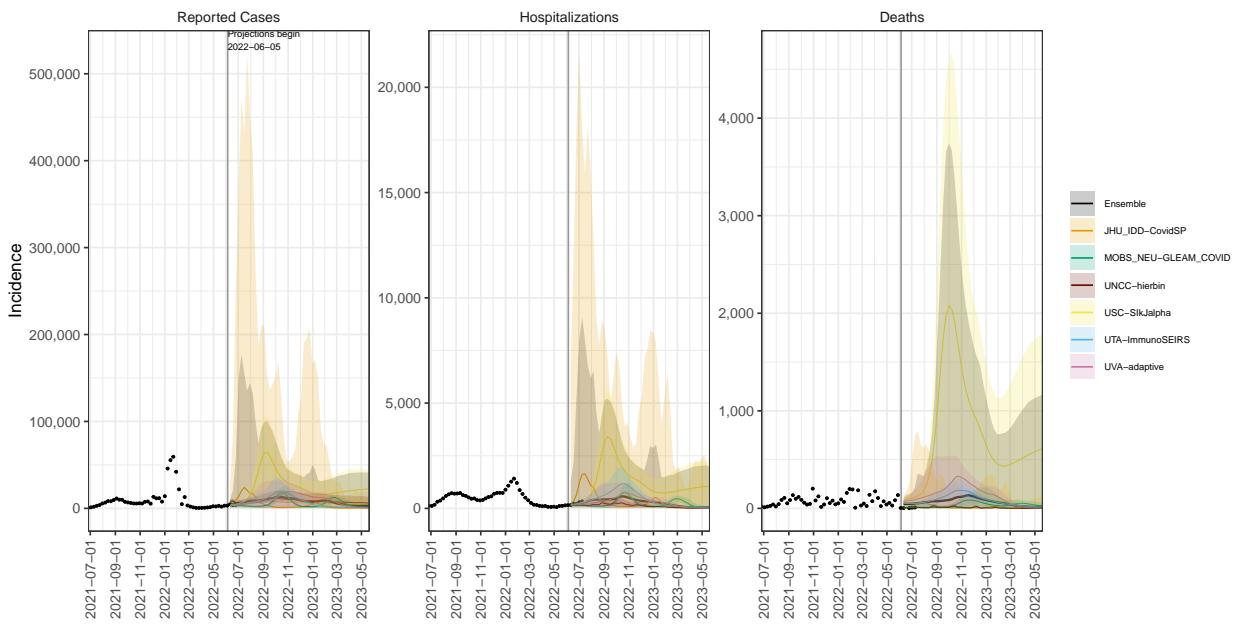
IN model variance & 95% projection intervals – Restricted booster, no new variant



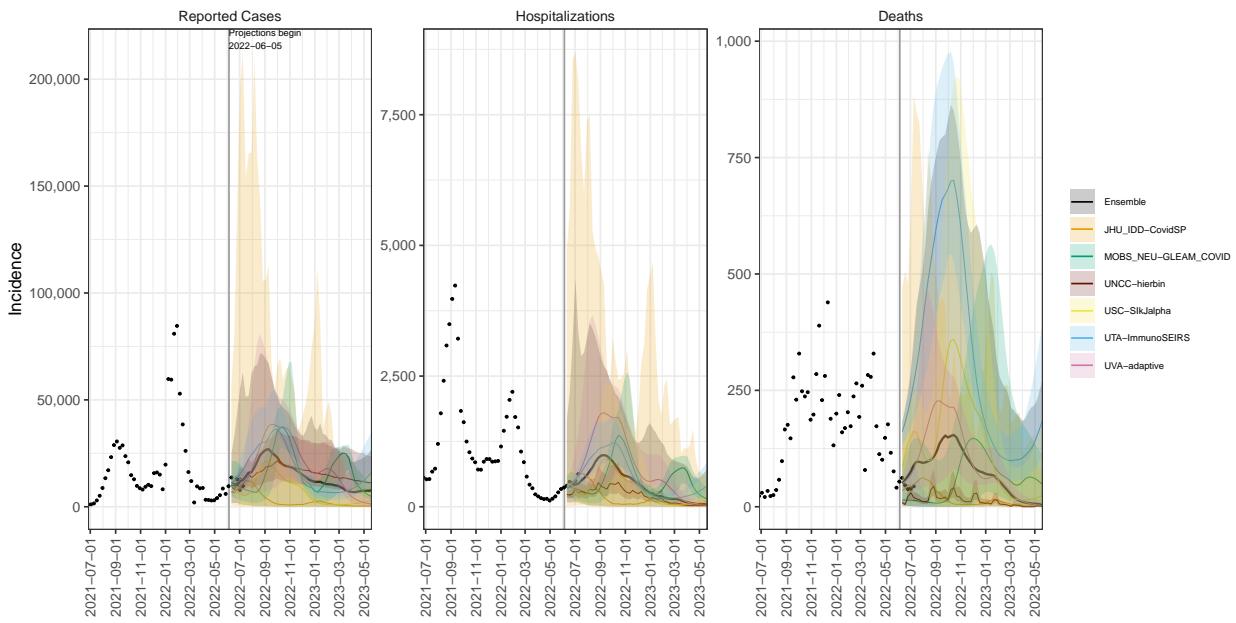
IA model variance & 95% projection intervals – Restricted booster, no new variant



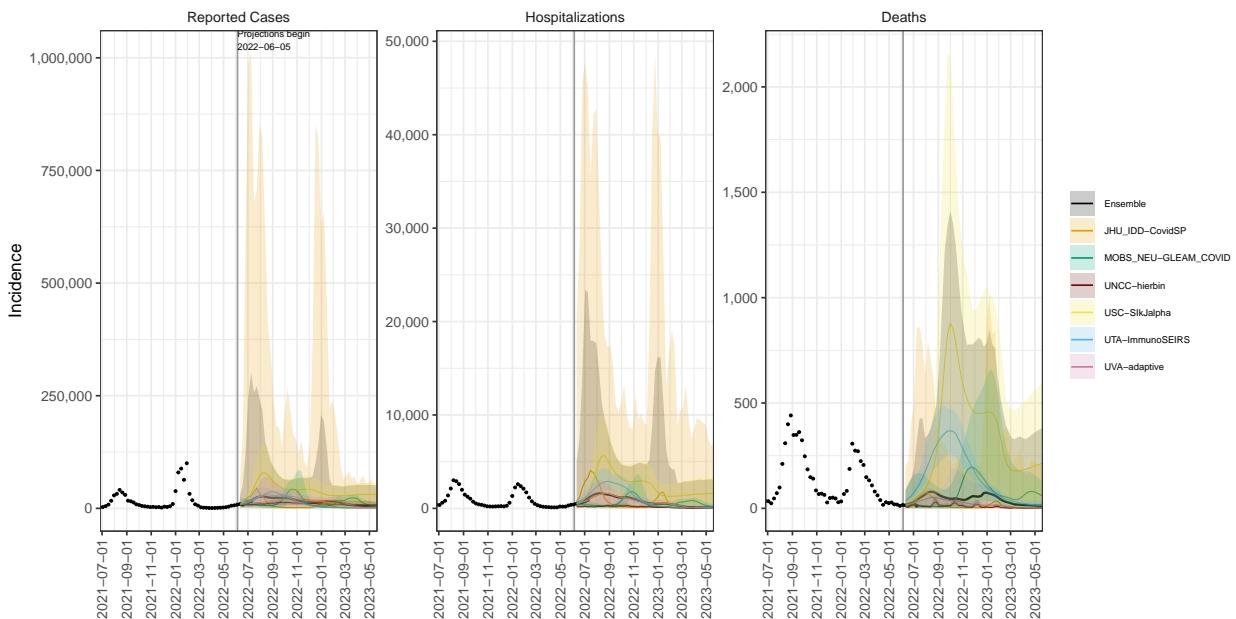
KS model variance & 95% projection intervals – Restricted booster, no new variant



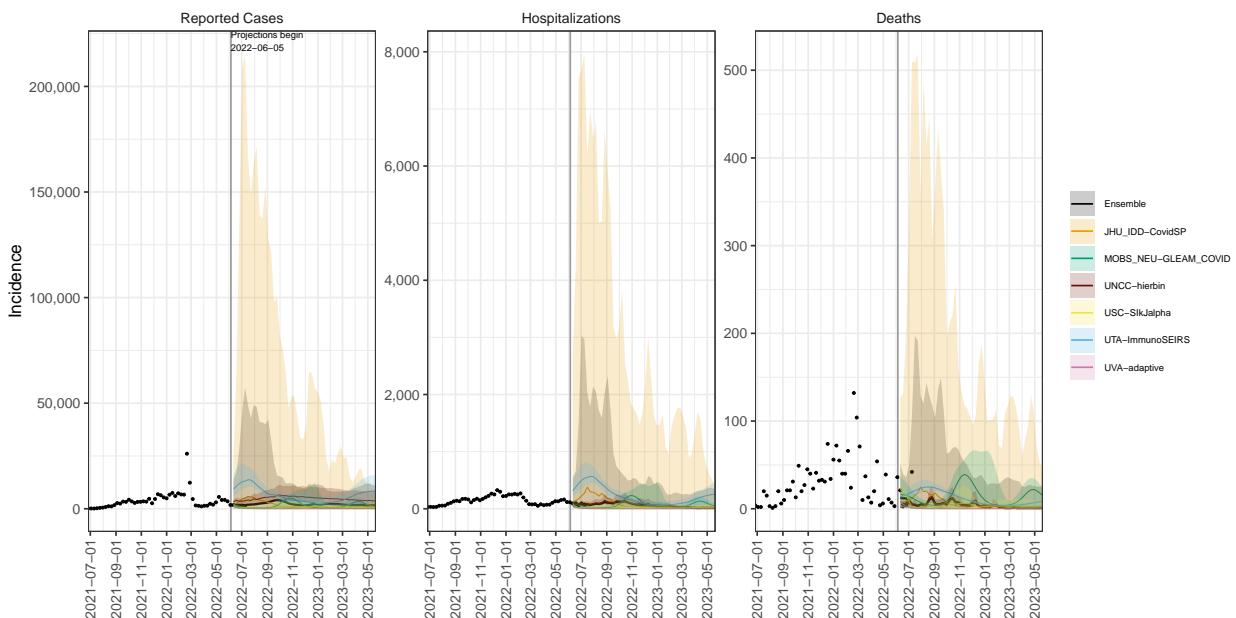
KY model variance & 95% projection intervals – Restricted booster, no new variant



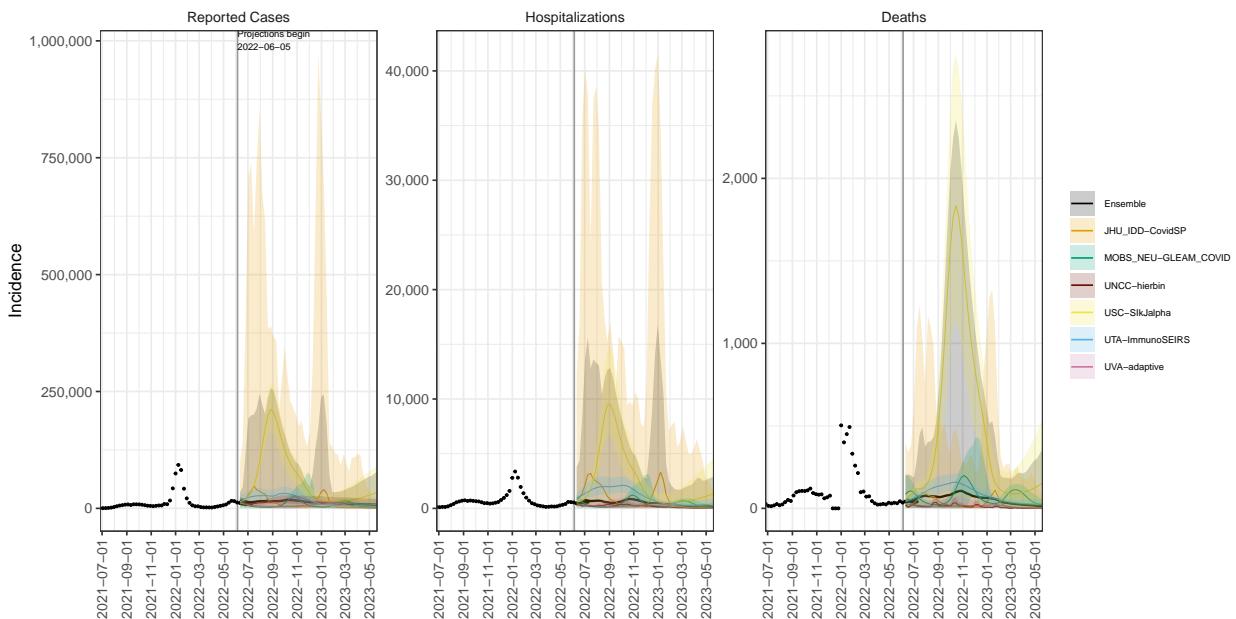
LA model variance & 95% projection intervals – Restricted booster, no new variant



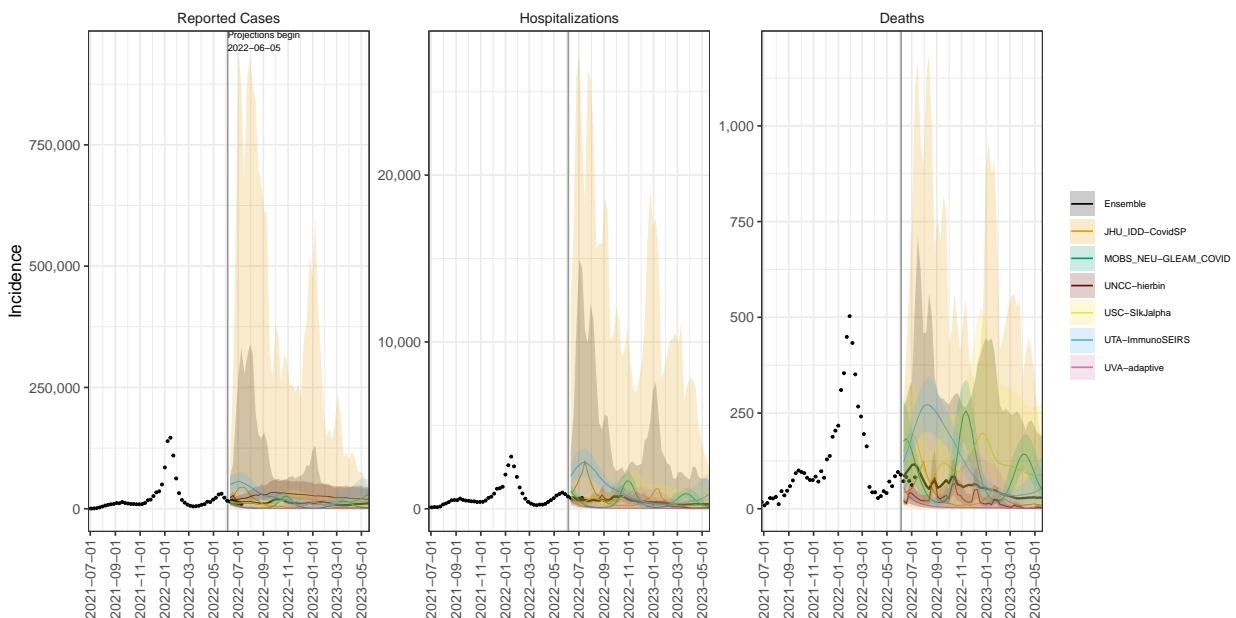
ME model variance & 95% projection intervals – Restricted booster, no new variant



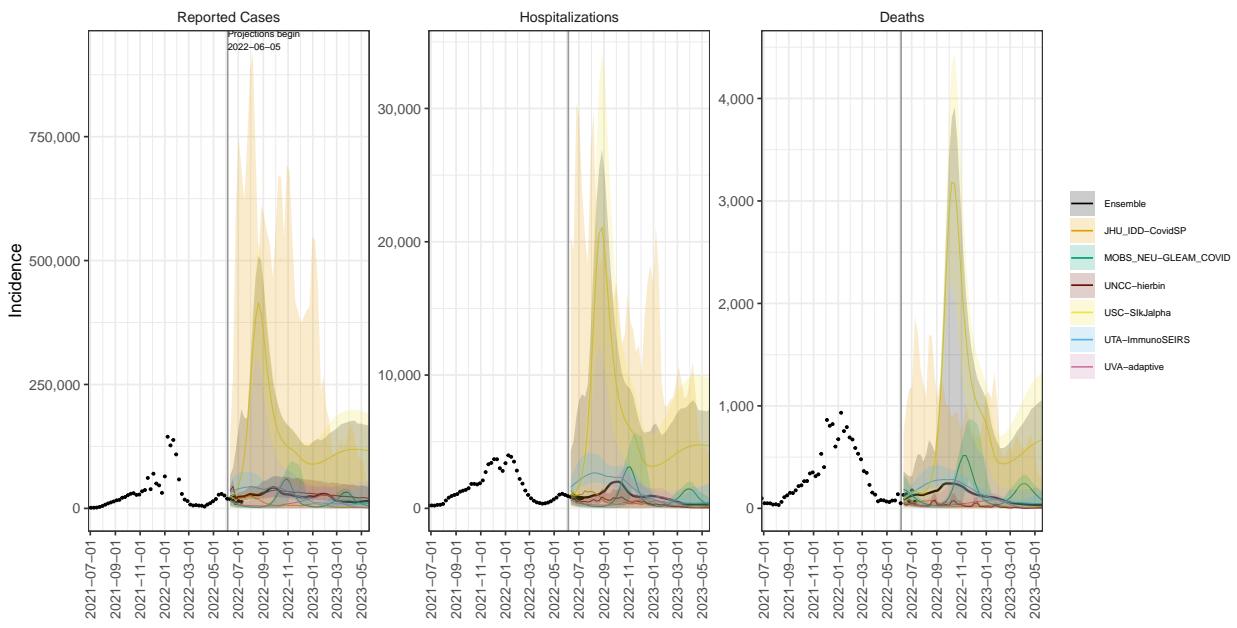
MD model variance & 95% projection intervals – Restricted booster, no new variant



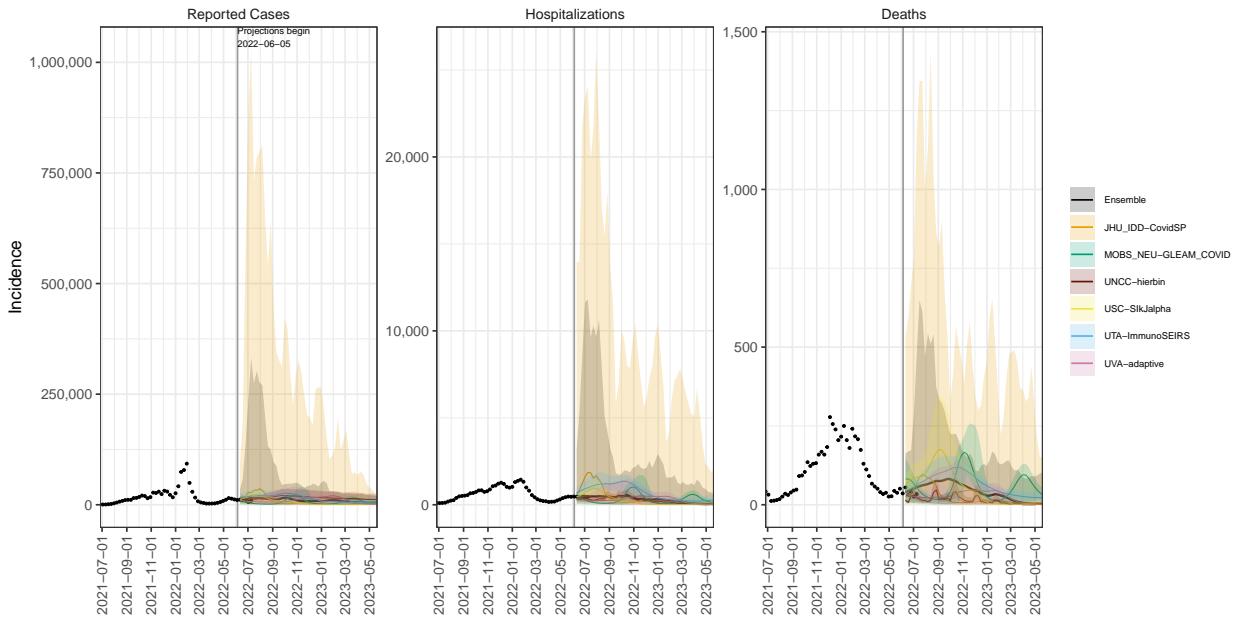
MA model variance & 95% projection intervals – Restricted booster, no new variant



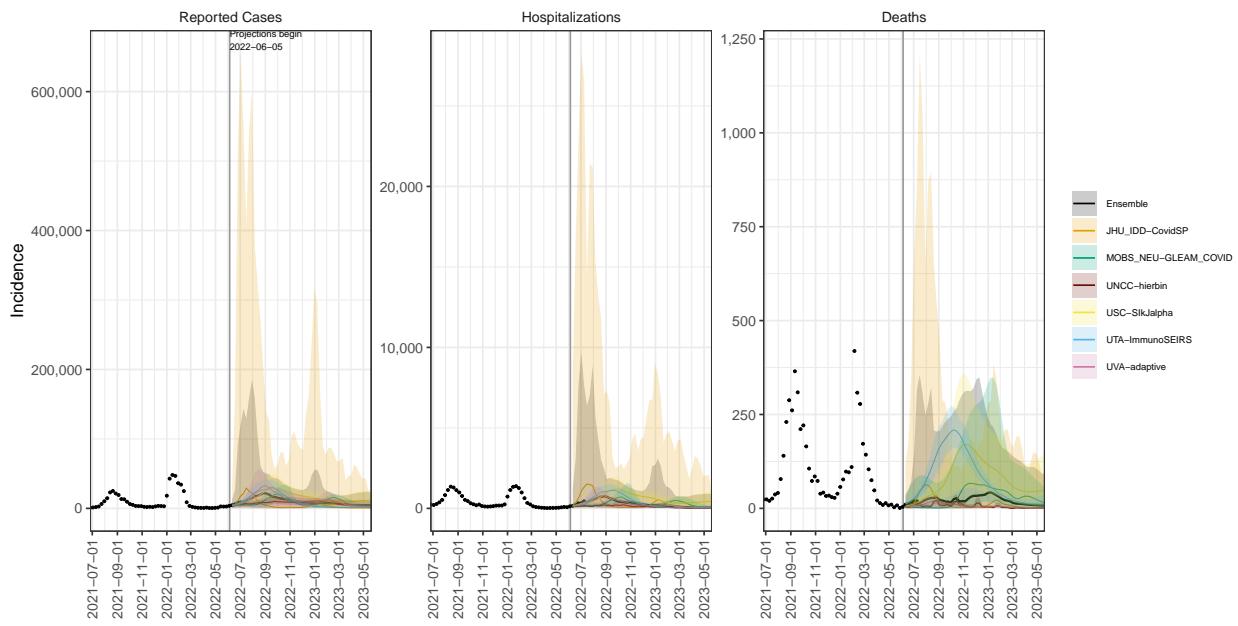
MI model variance & 95% projection intervals – Restricted booster, no new variant



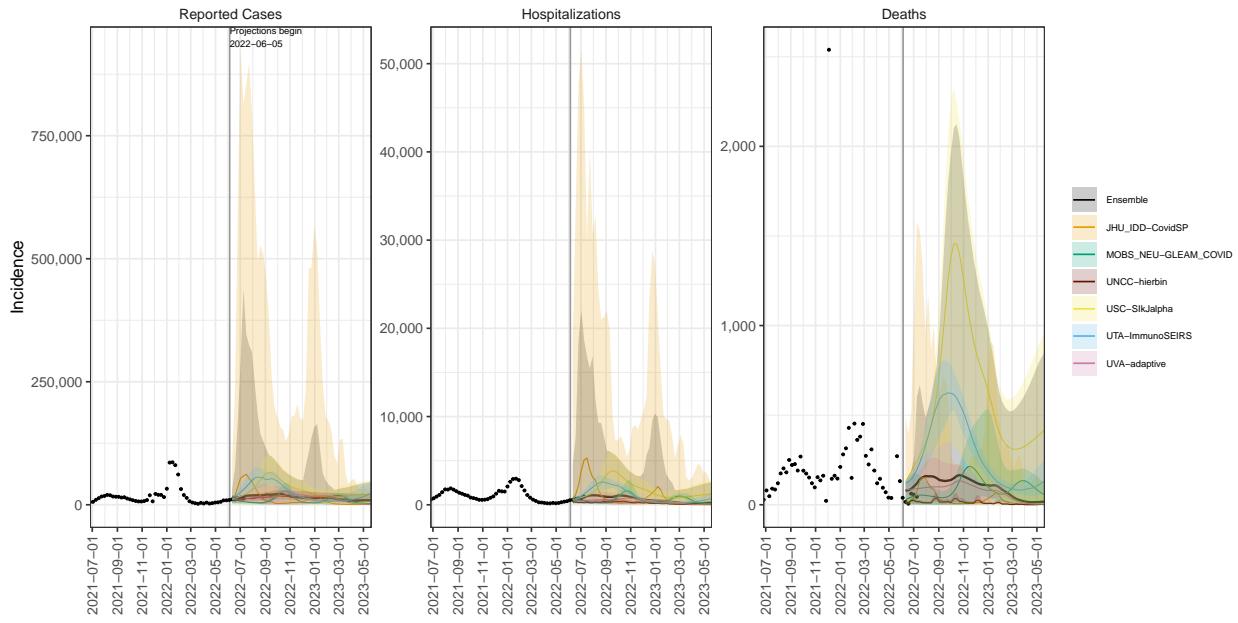
MN model variance & 95% projection intervals – Restricted booster, no new variant



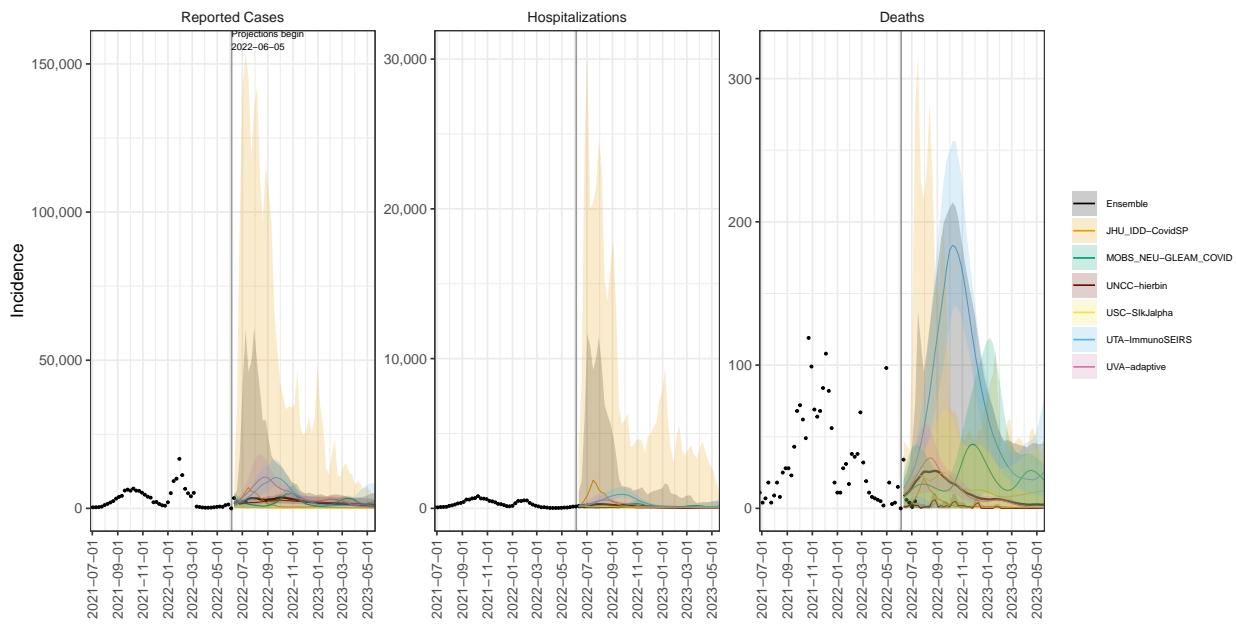
MS model variance & 95% projection intervals – Restricted booster, no new variant



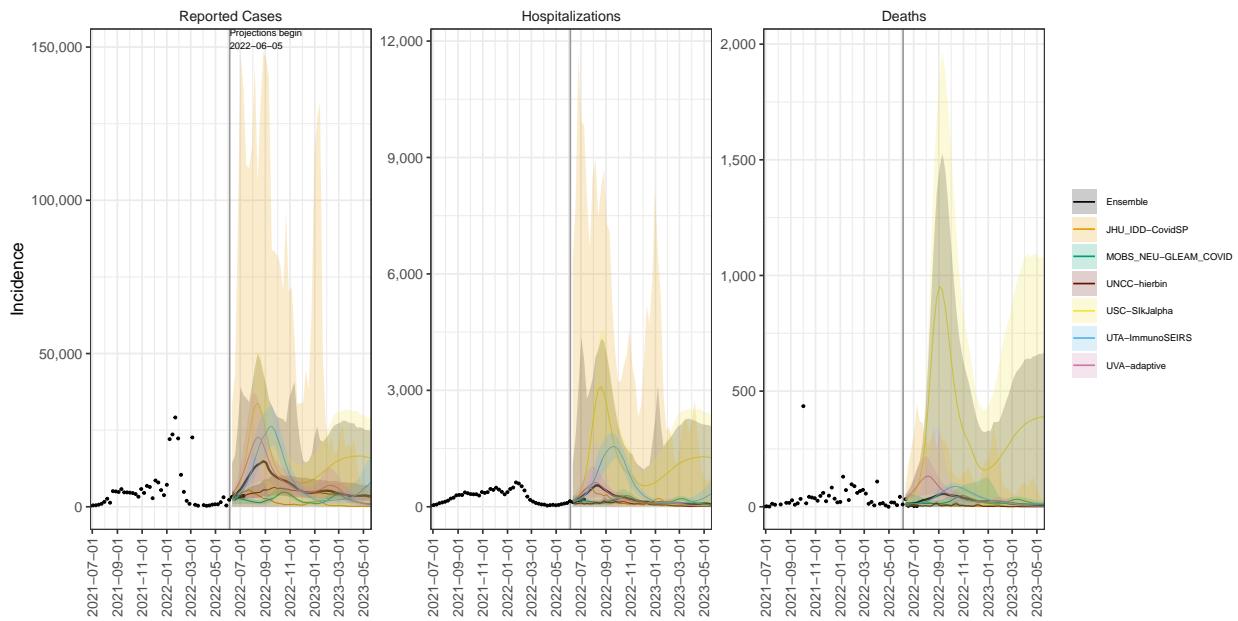
MO model variance & 95% projection intervals – Restricted booster, no new variant



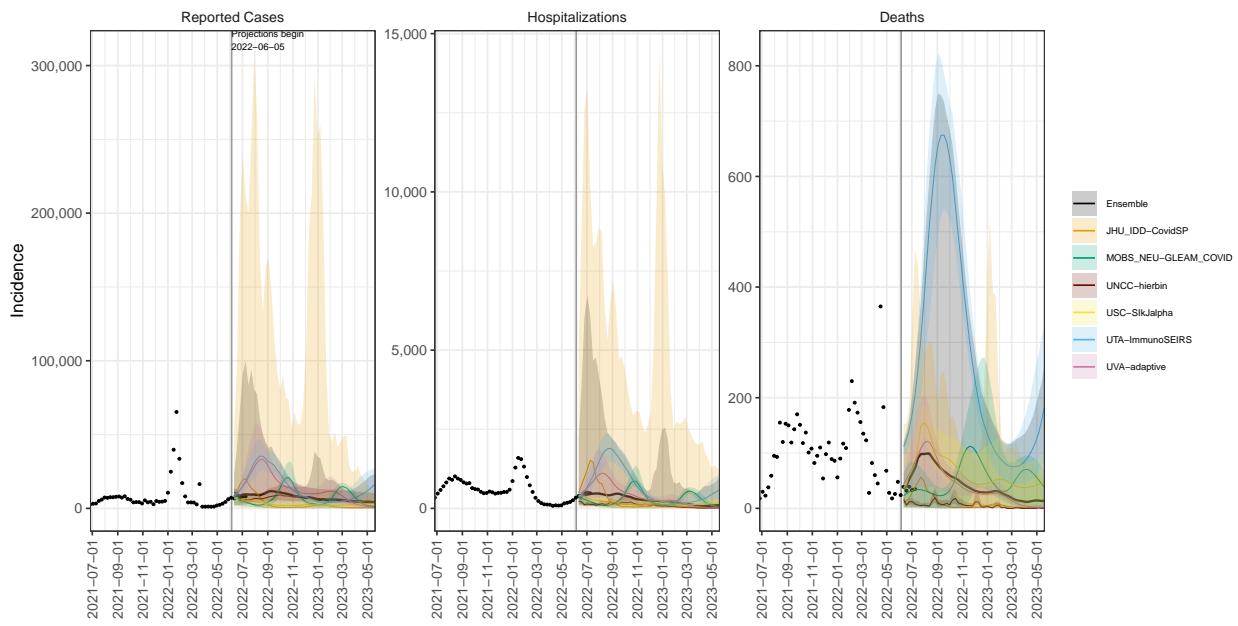
MT model variance & 95% projection intervals – Restricted booster, no new variant



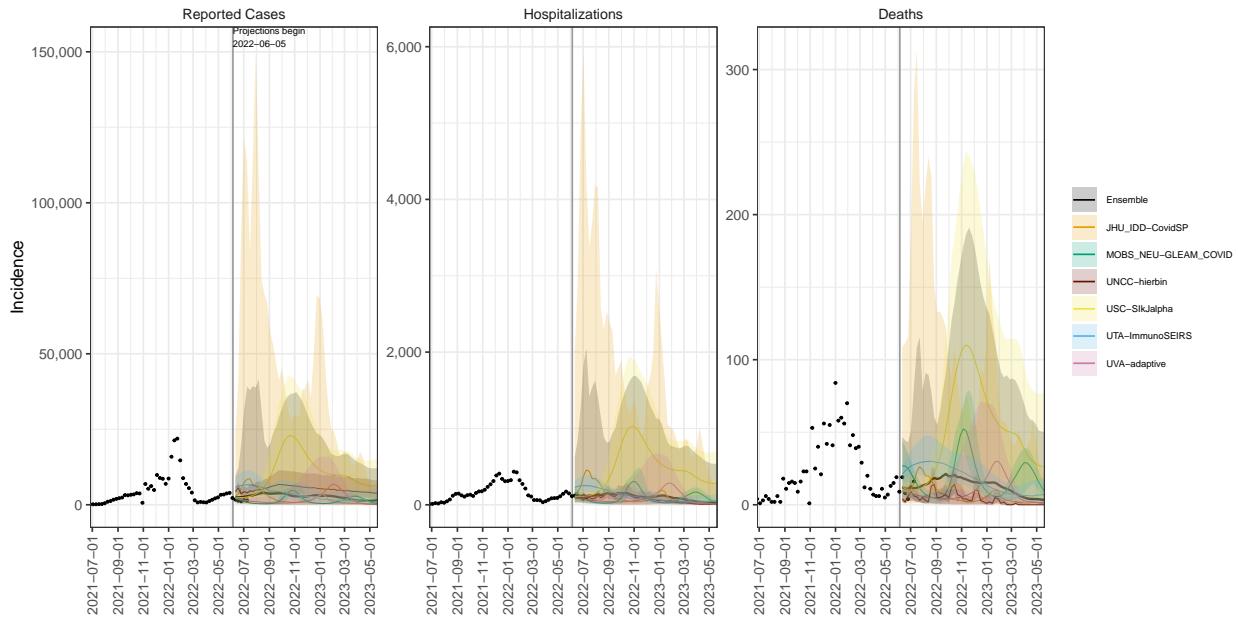
NE model variance & 95% projection intervals – Restricted booster, no new variant



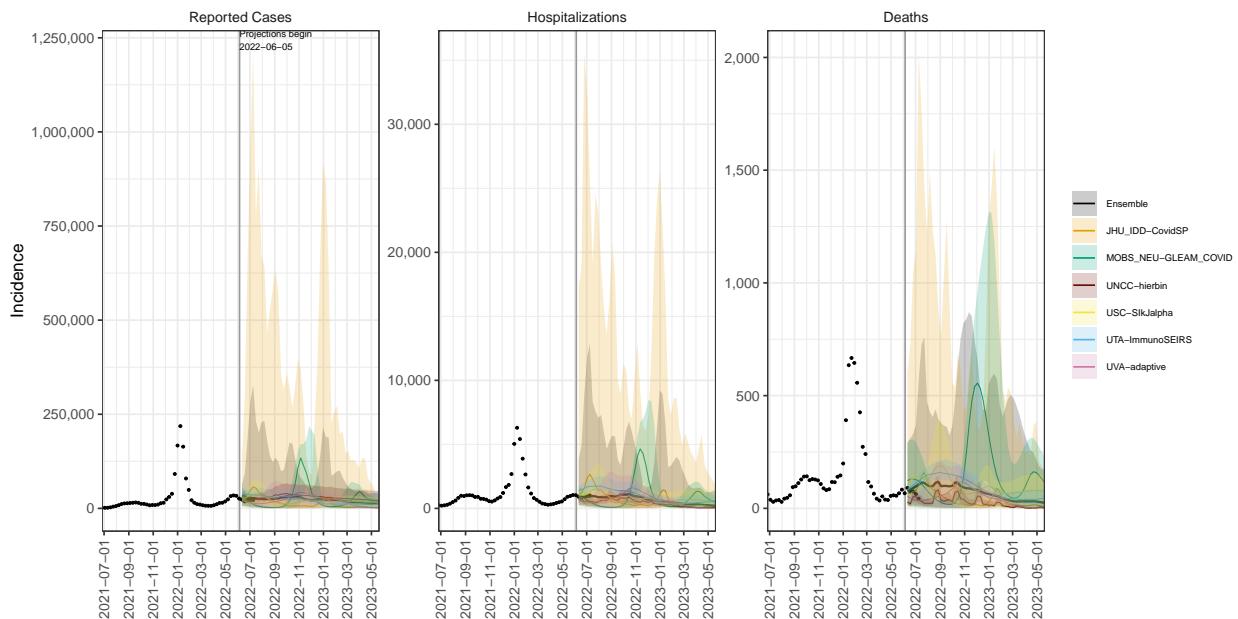
NV model variance & 95% projection intervals – Restricted booster, no new variant



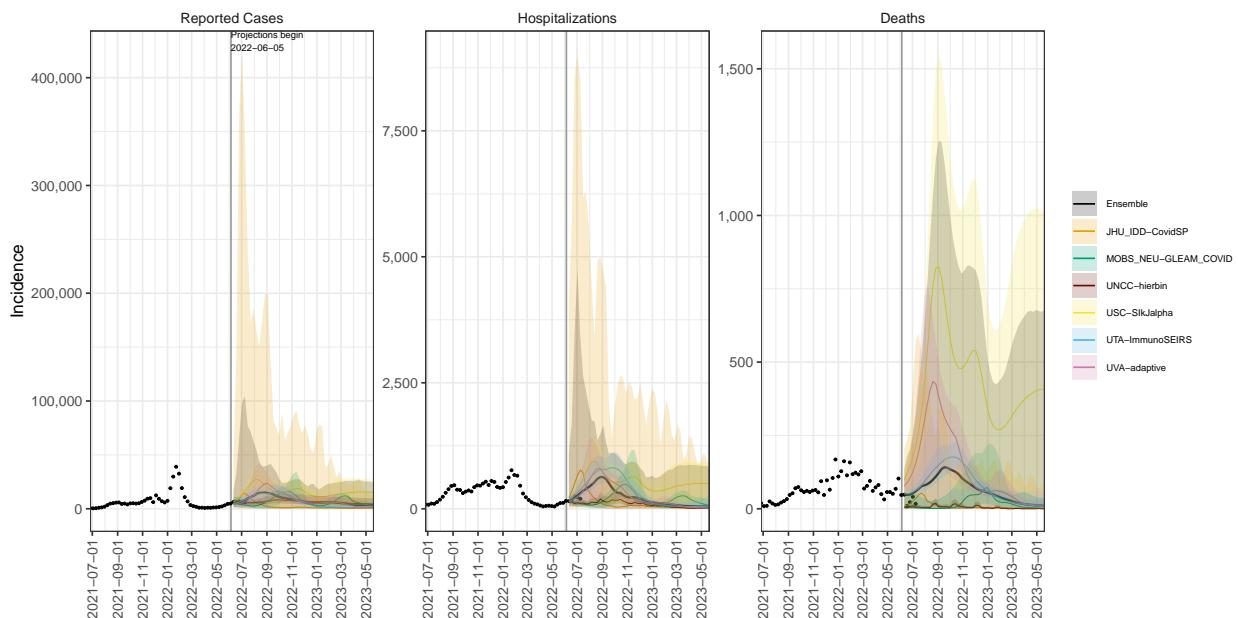
NH model variance & 95% projection intervals – Restricted booster, no new variant



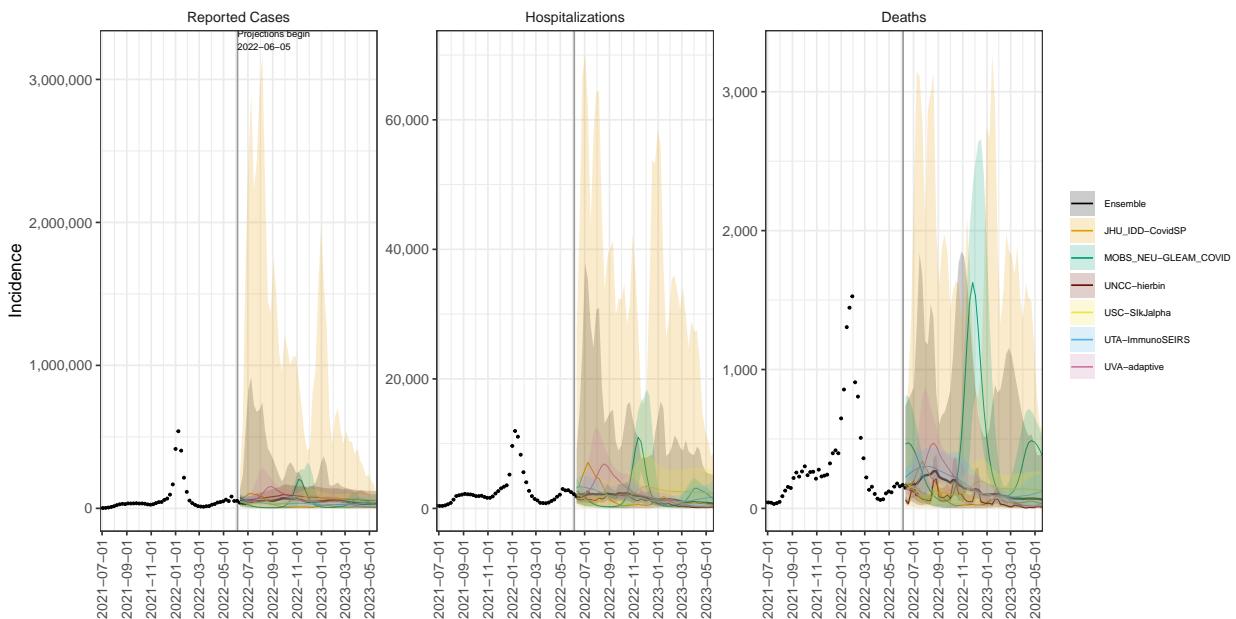
NJ model variance & 95% projection intervals – Restricted booster, no new variant



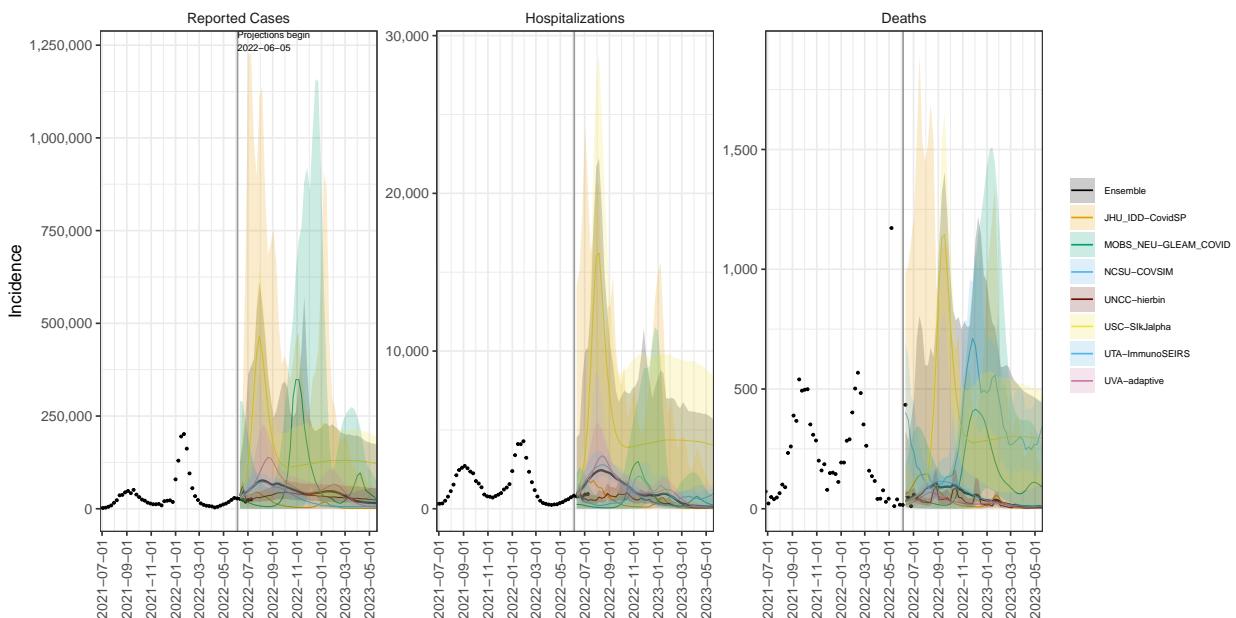
NM model variance & 95% projection intervals – Restricted booster, no new variant



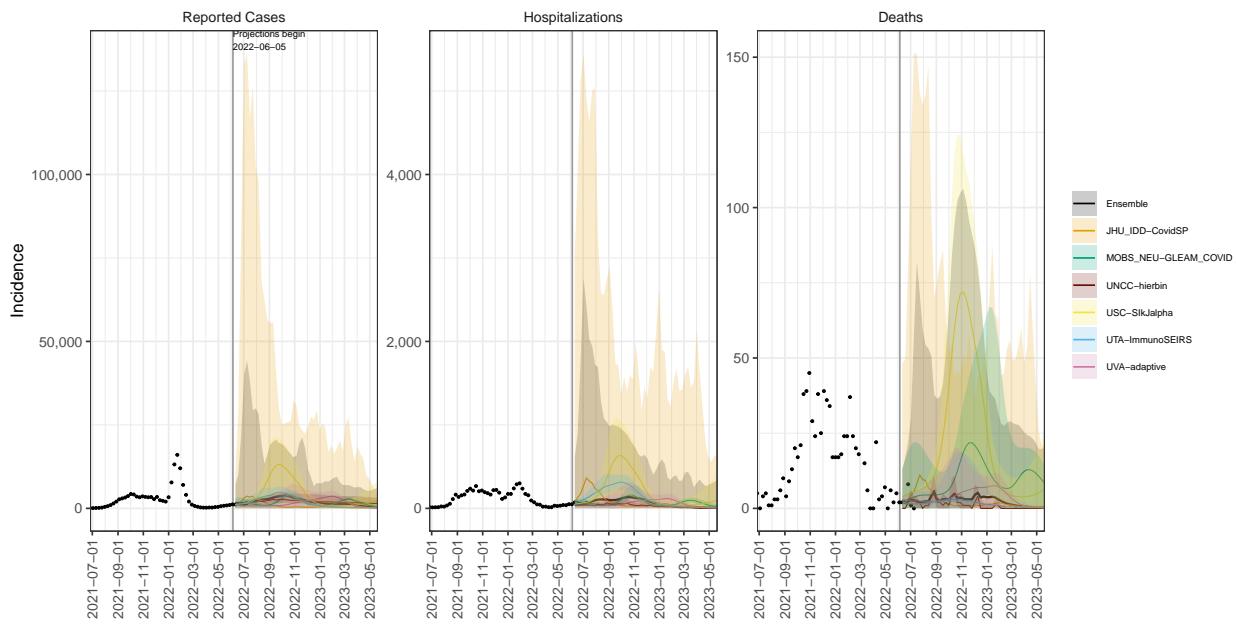
NY model variance & 95% projection intervals – Restricted booster, no new variant



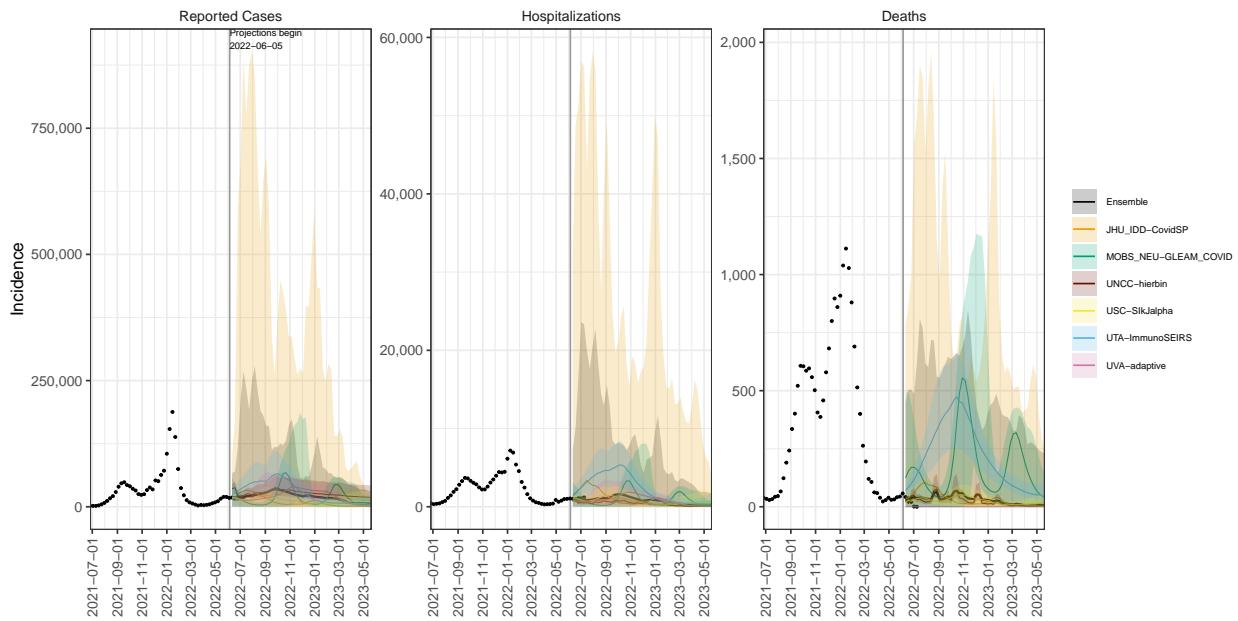
NC model variance & 95% projection intervals – Restricted booster, no new variant



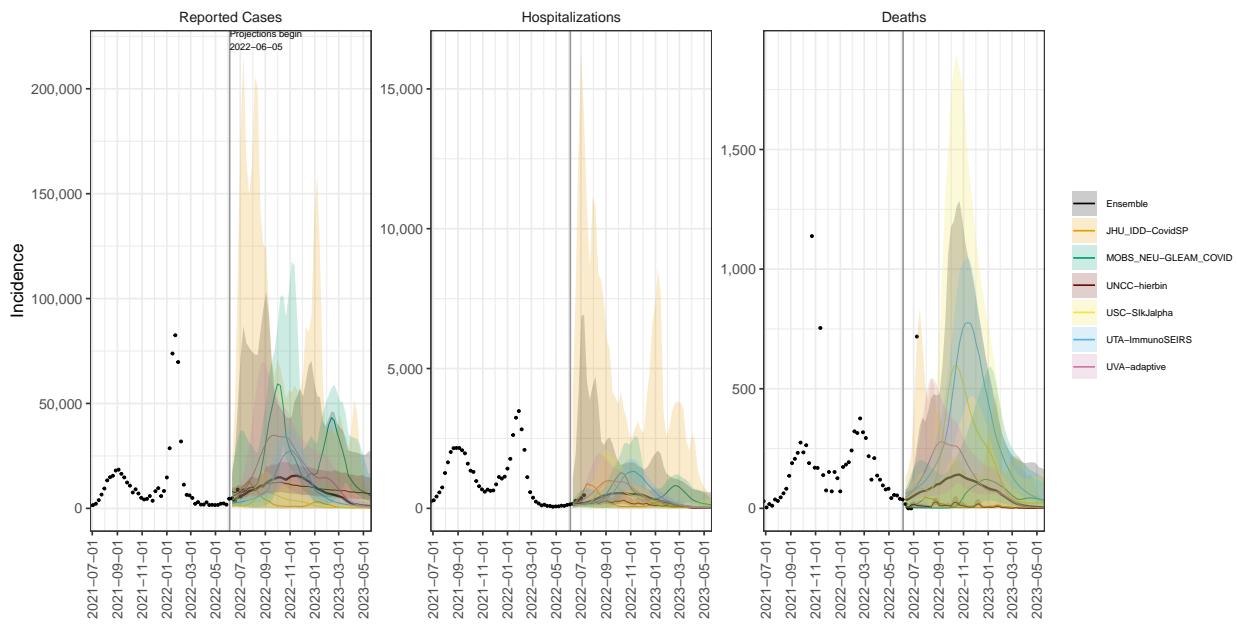
ND model variance & 95% projection intervals – Restricted booster, no new variant



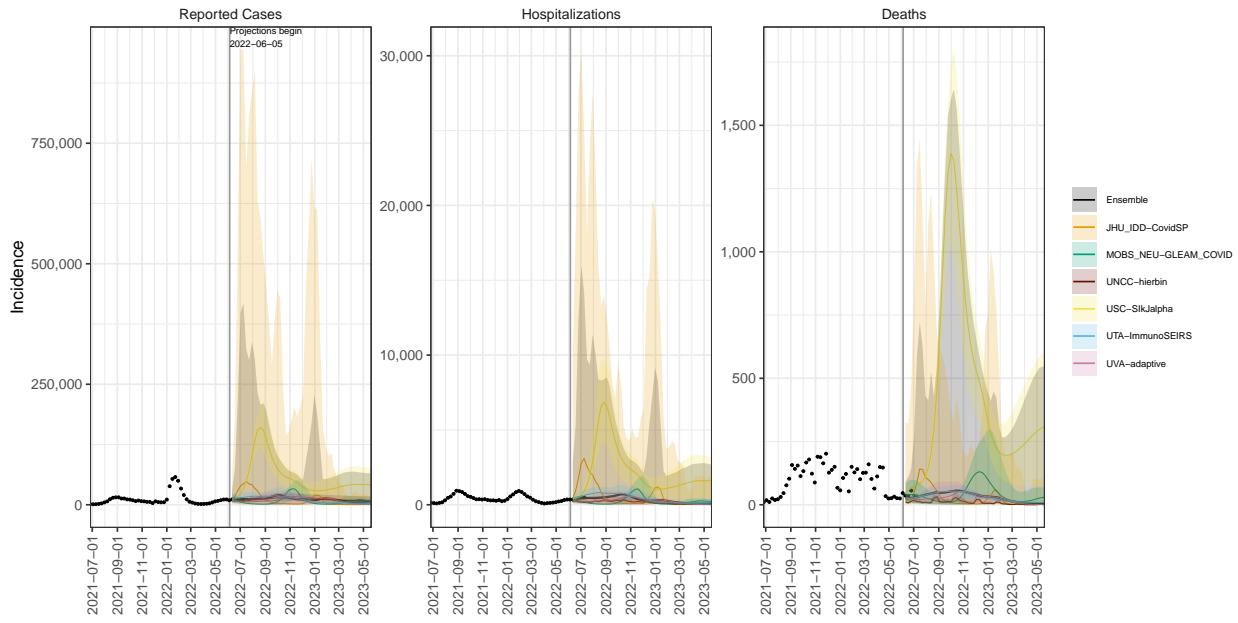
OH model variance & 95% projection intervals – Restricted booster, no new variant



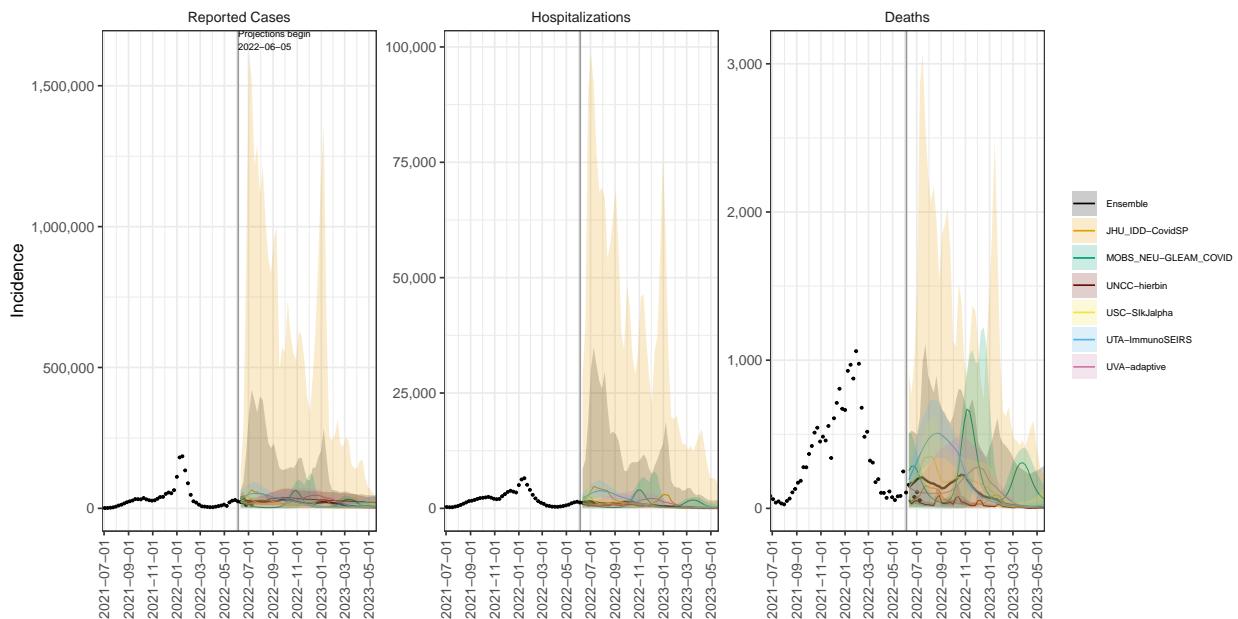
OK model variance & 95% projection intervals – Restricted booster, no new variant



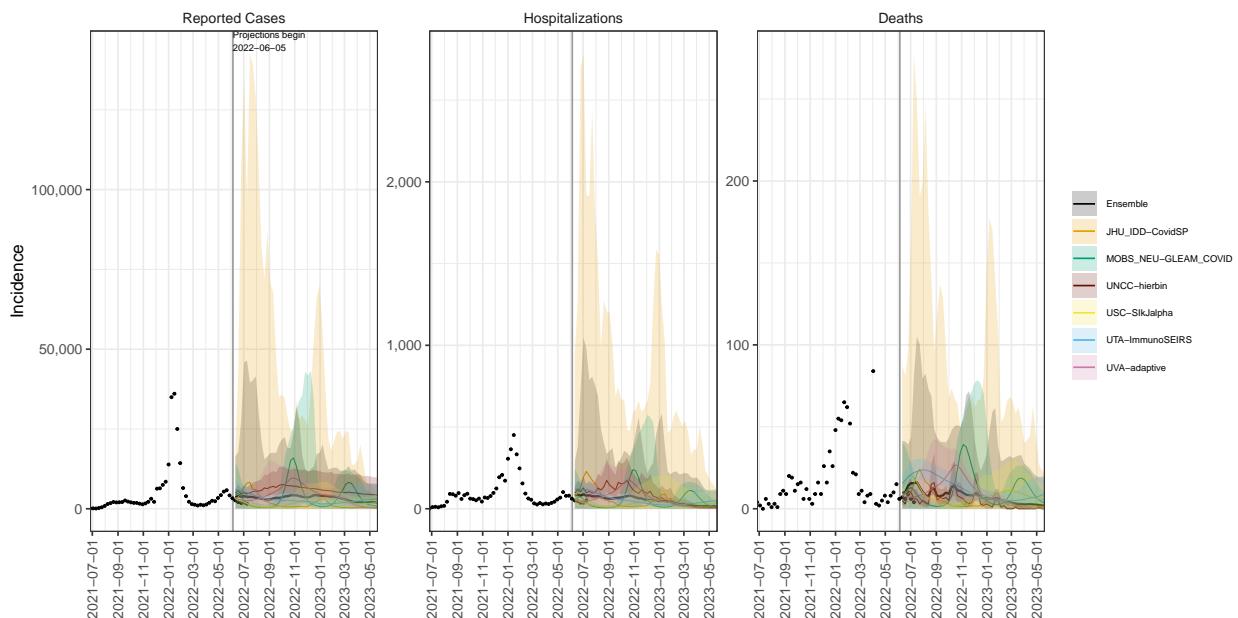
OR model variance & 95% projection intervals – Restricted booster, no new variant



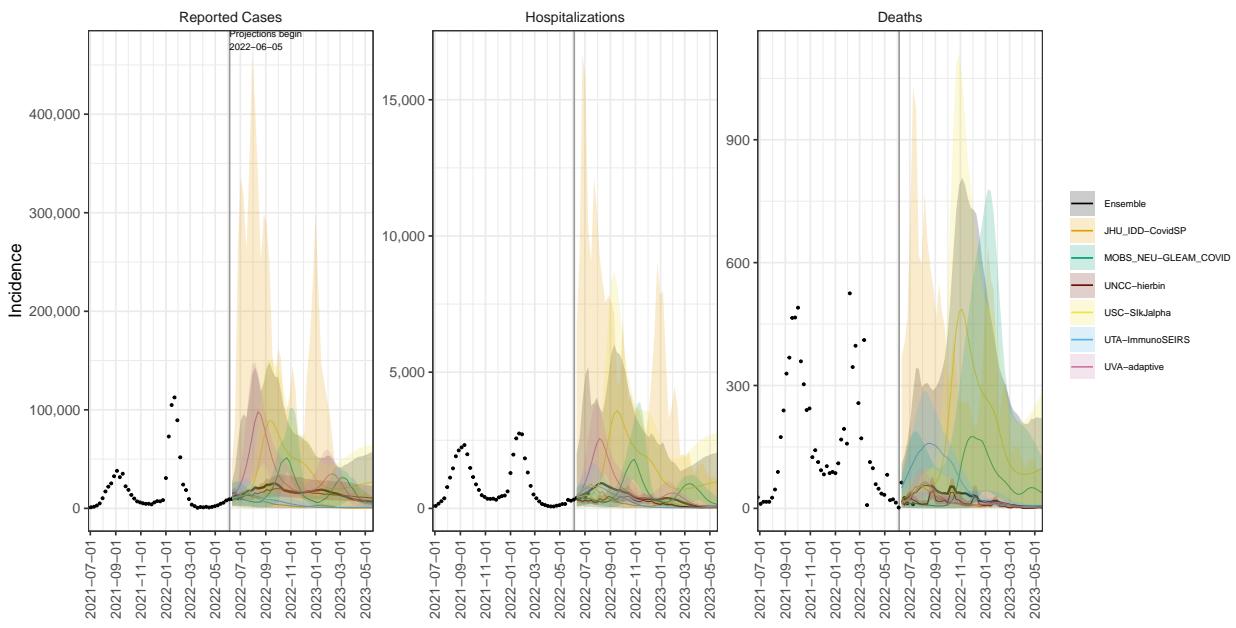
PA model variance & 95% projection intervals – Restricted booster, no new variant



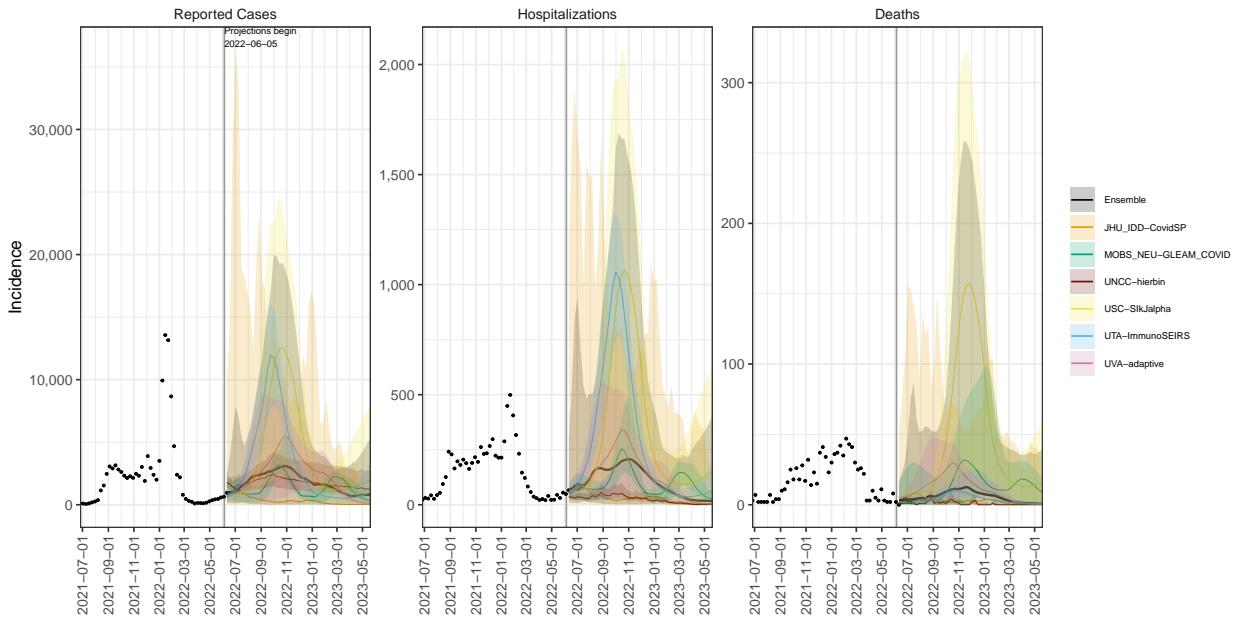
RI model variance & 95% projection intervals – Restricted booster, no new variant



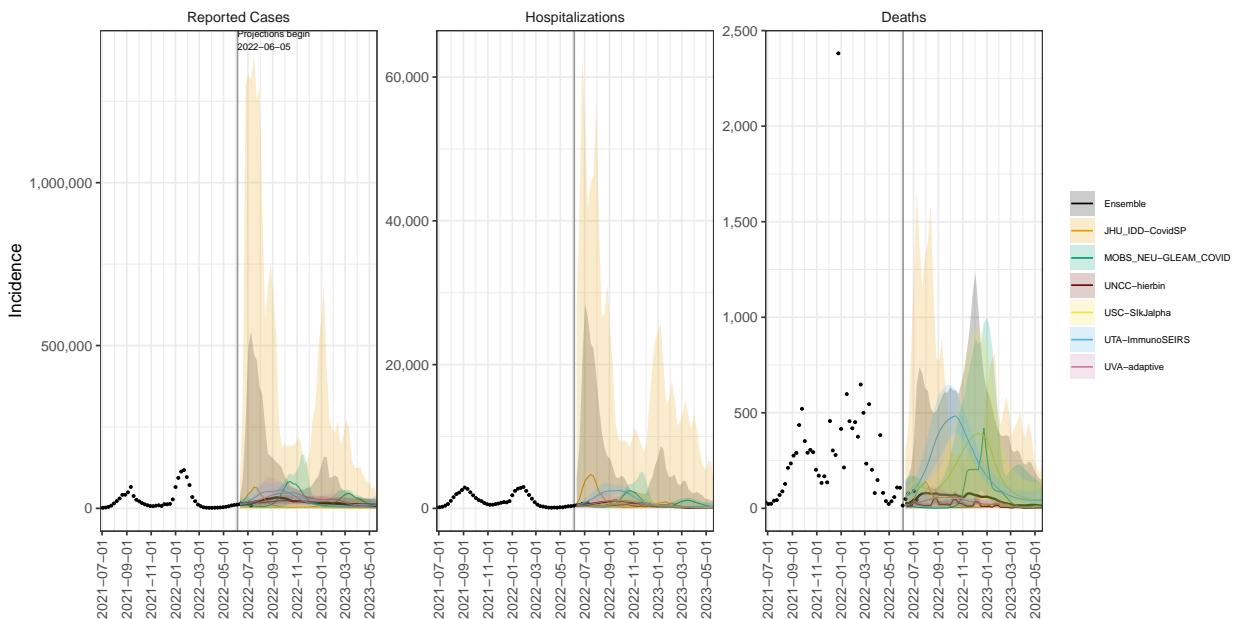
SC model variance & 95% projection intervals – Restricted booster, no new variant



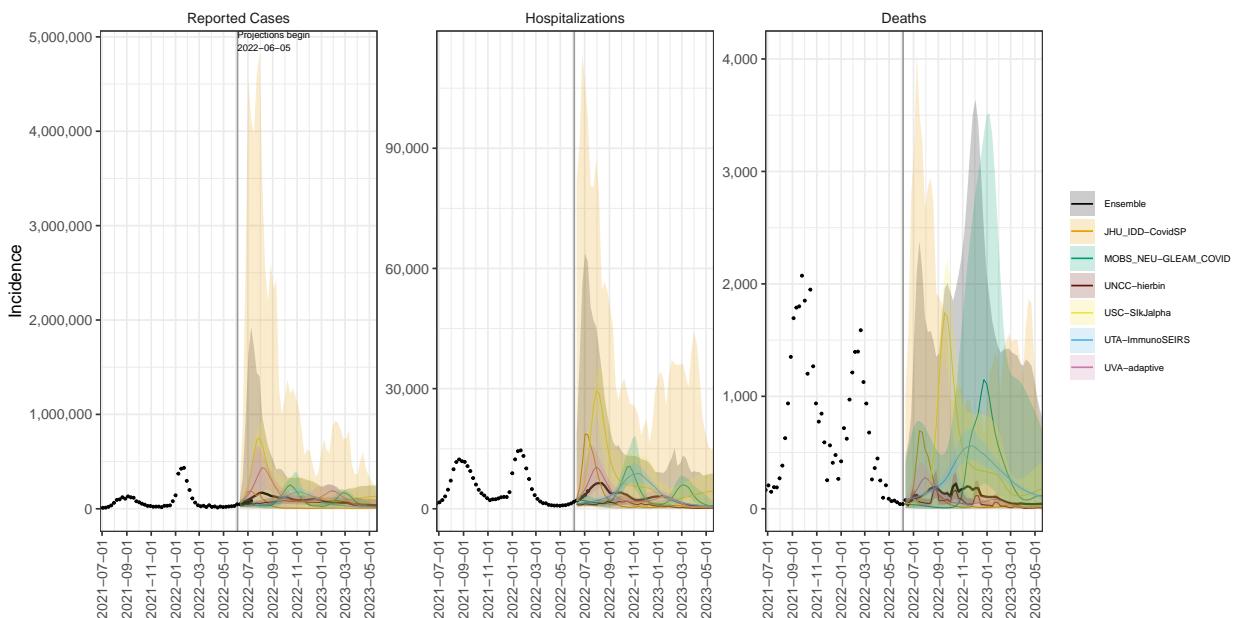
SD model variance & 95% projection intervals – Restricted booster, no new variant



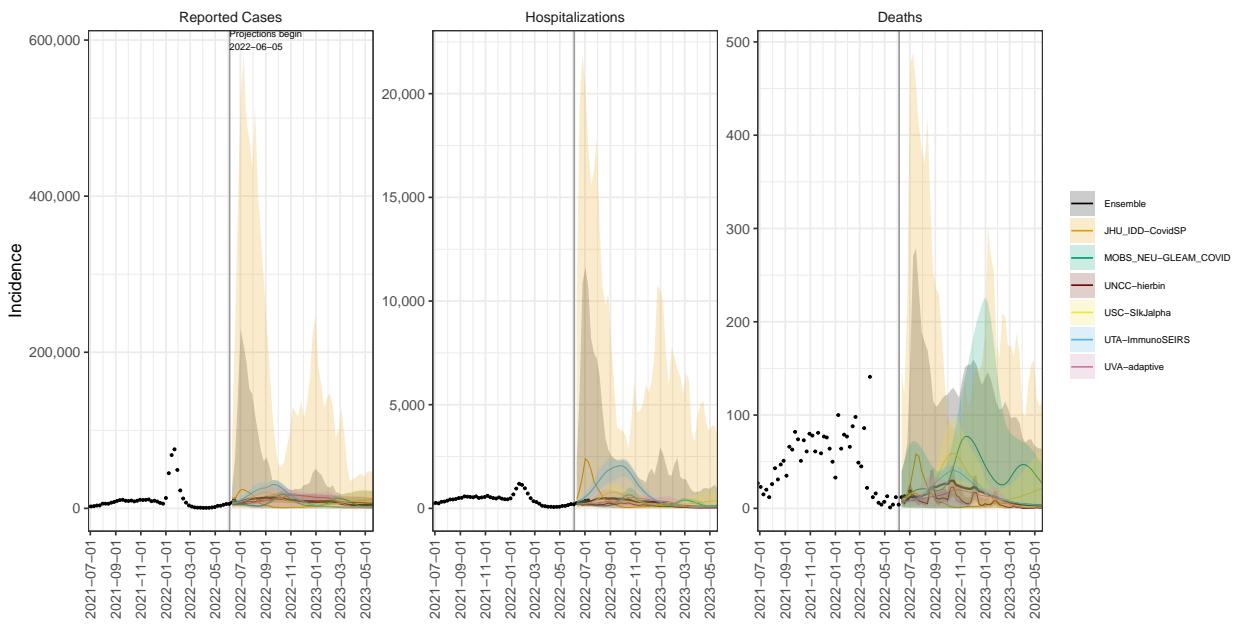
TN model variance & 95% projection intervals – Restricted booster, no new variant



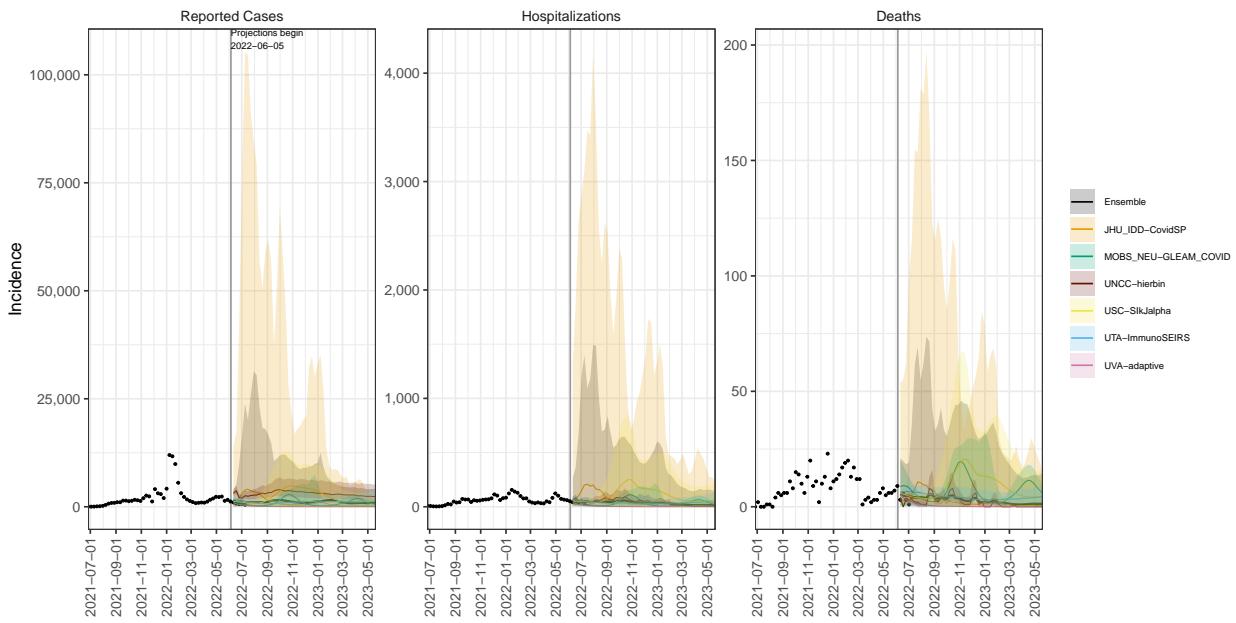
TX model variance & 95% projection intervals – Restricted booster, no new variant



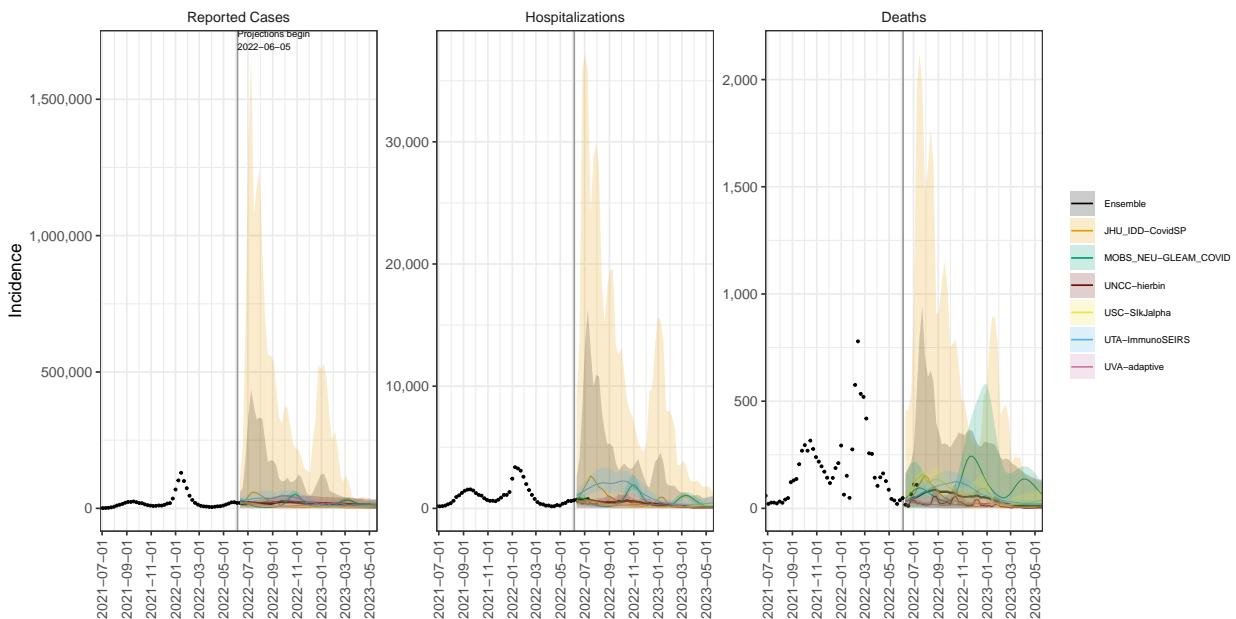
UT model variance & 95% projection intervals – Restricted booster, no new variant



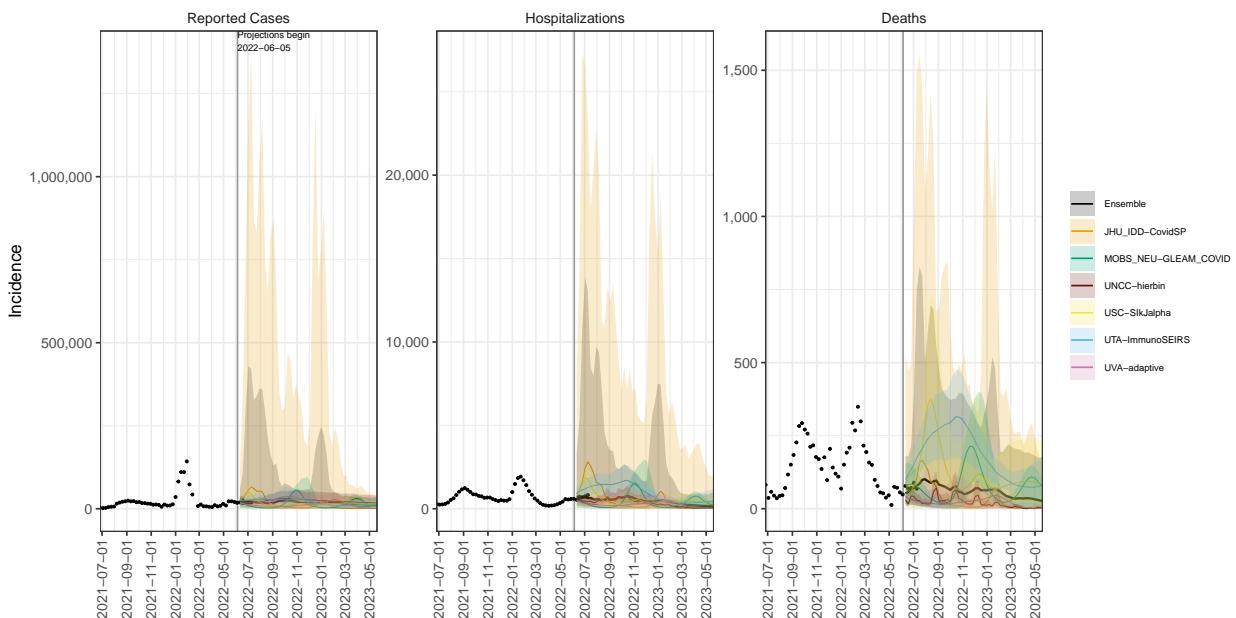
VT model variance & 95% projection intervals – Restricted booster, no new variant



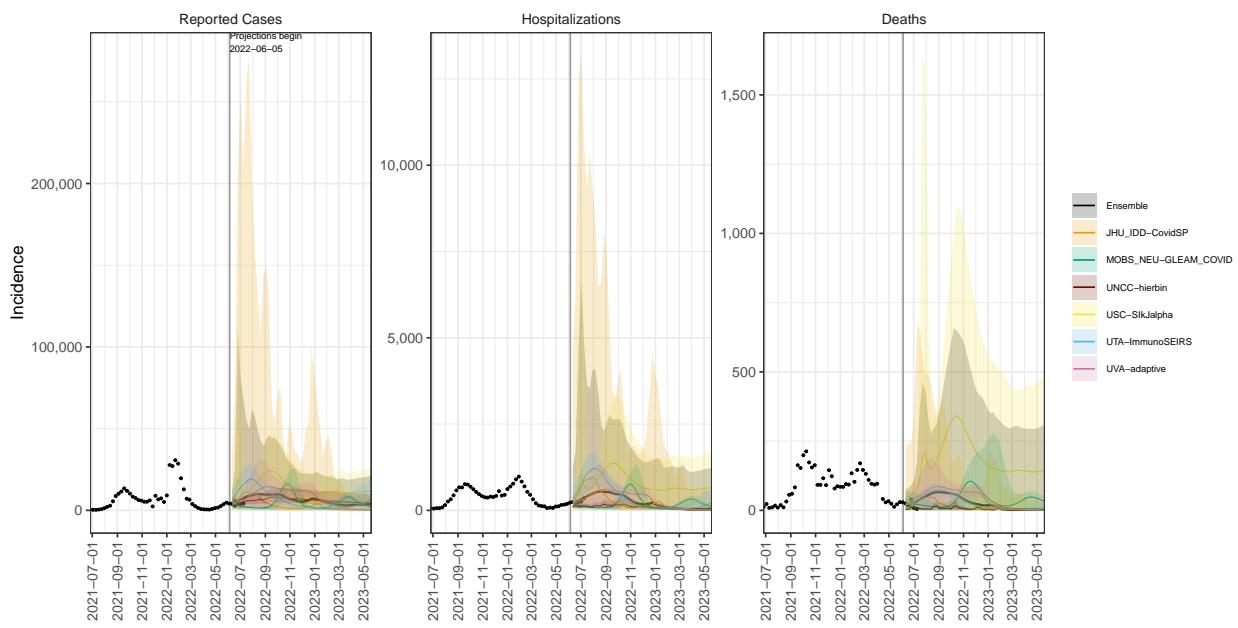
VA model variance & 95% projection intervals – Restricted booster, no new variant



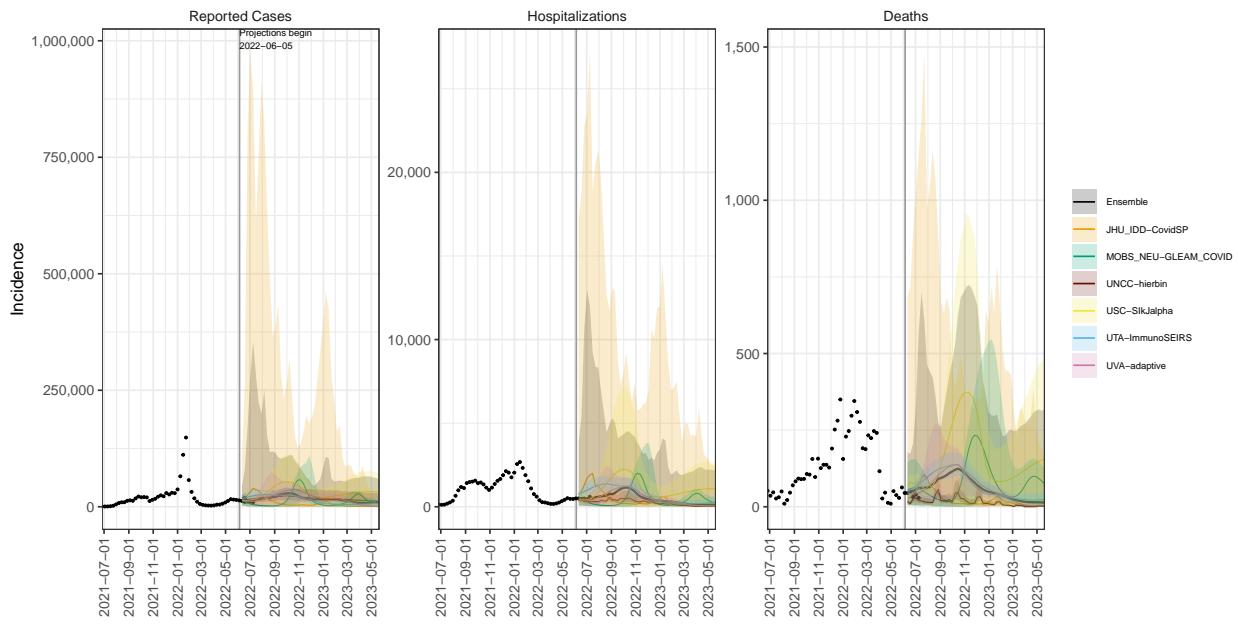
WA model variance & 95% projection intervals – Restricted booster, no new variant



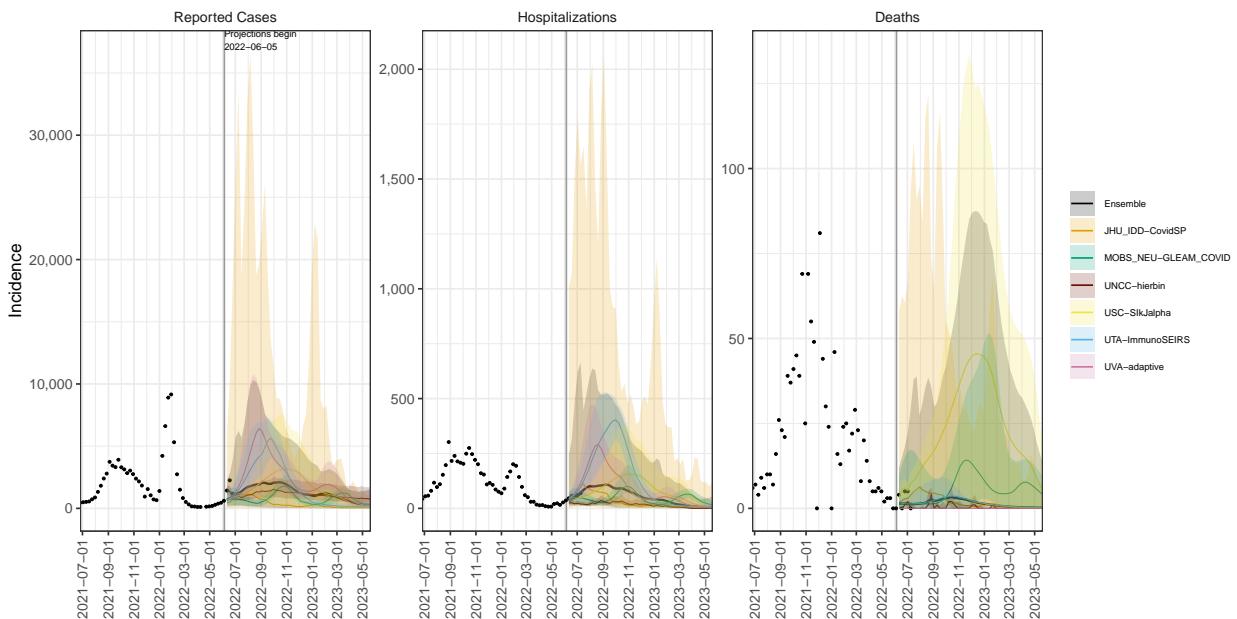
WV model variance & 95% projection intervals – Restricted booster, no new variant



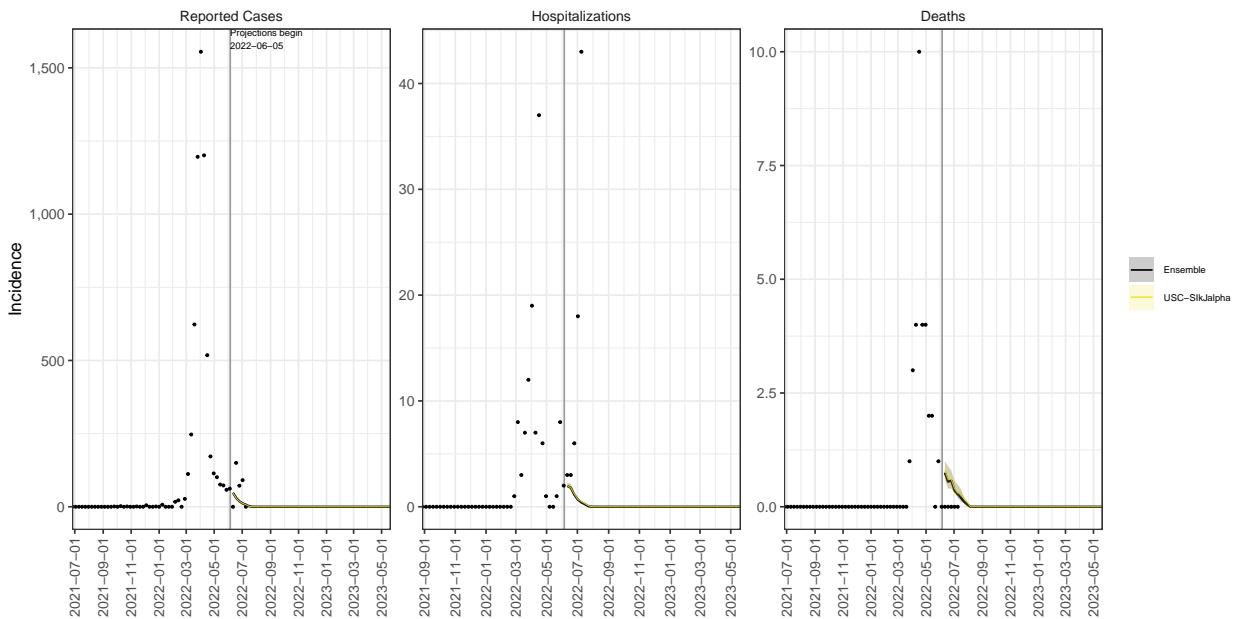
WI model variance & 95% projection intervals – Restricted booster, no new variant



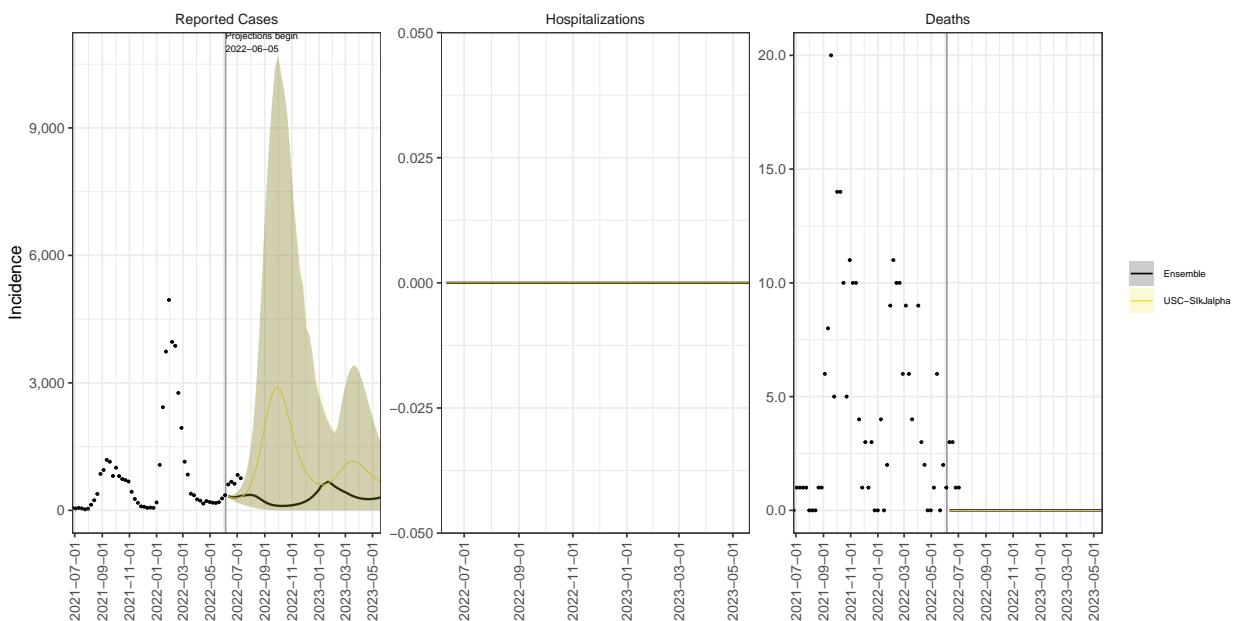
WY model variance & 95% projection intervals – Restricted booster, no new variant



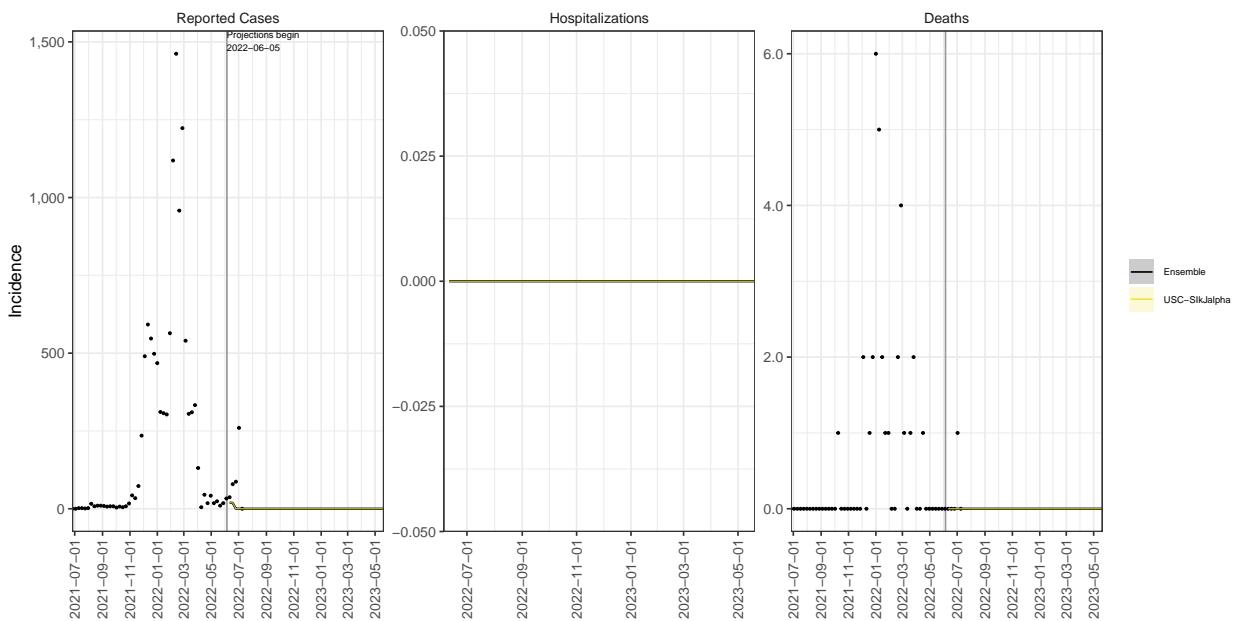
AS model variance & 95% projection intervals – Restricted booster, no new variant



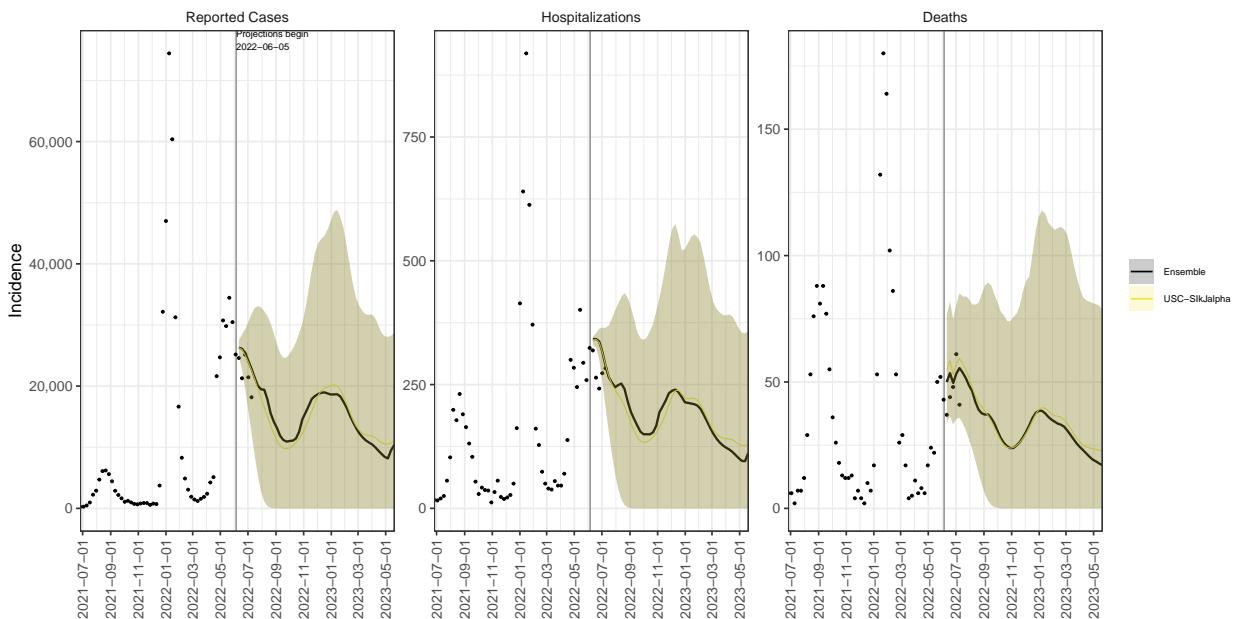
GU model variance & 95% projection intervals – Restricted booster, no new variant



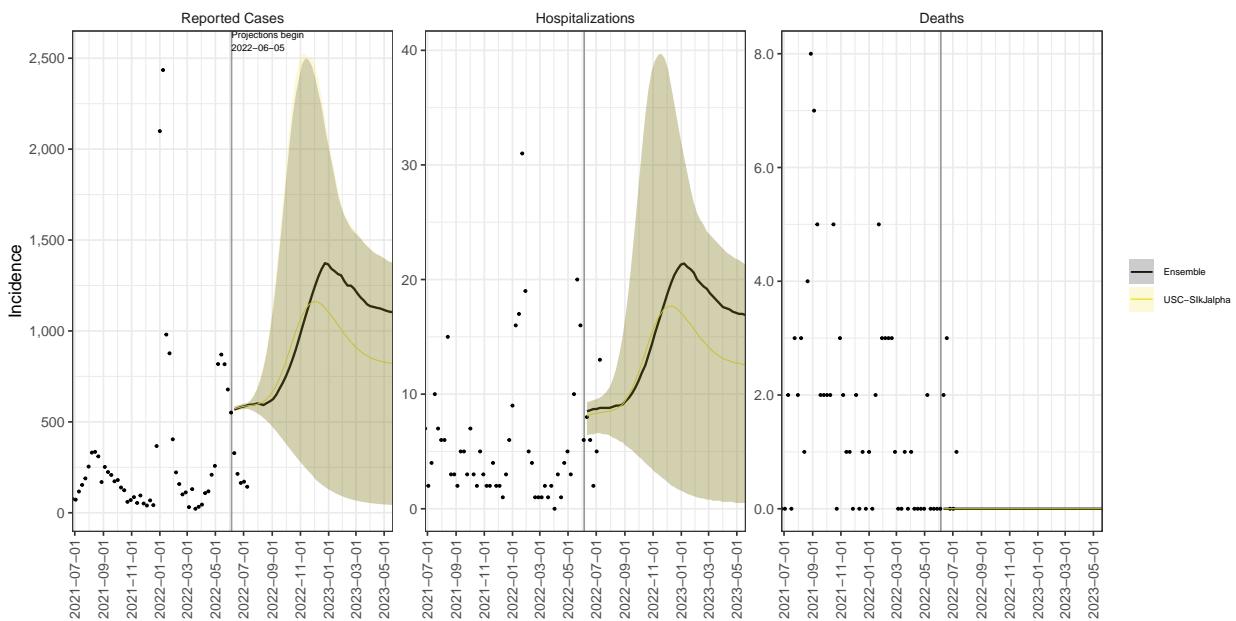
MP model variance & 95% projection intervals – Restricted booster, no new variant



PR model variance & 95% projection intervals – Restricted booster, no new variant

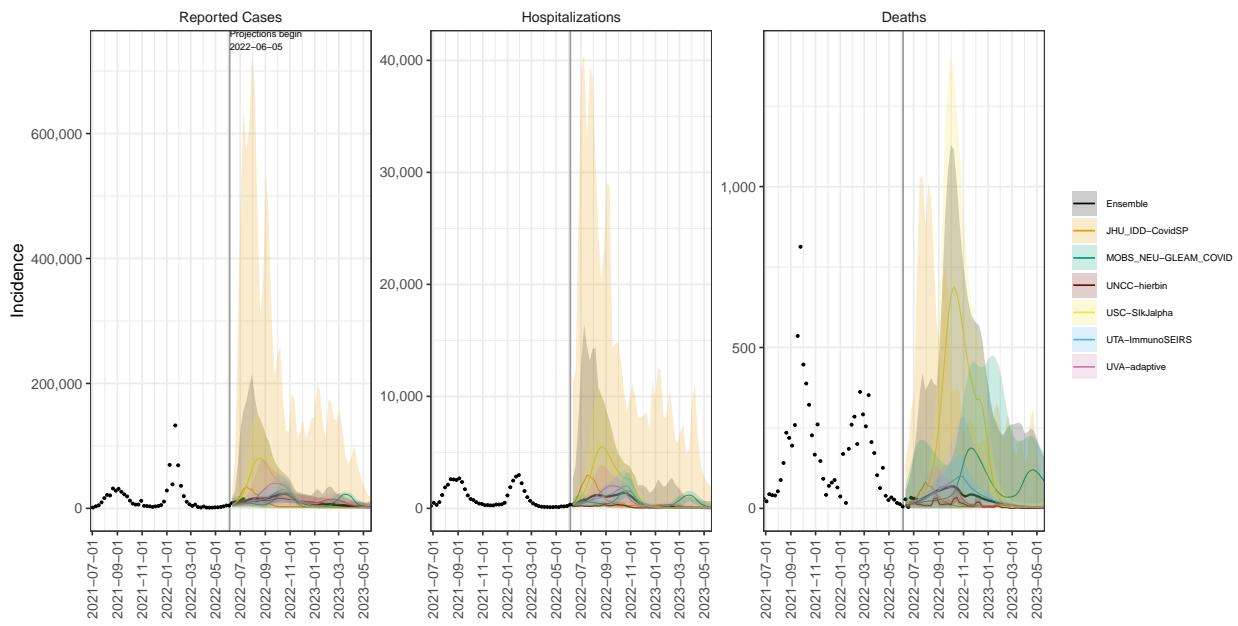


VI model variance & 95% projection intervals – Restricted booster, no new variant

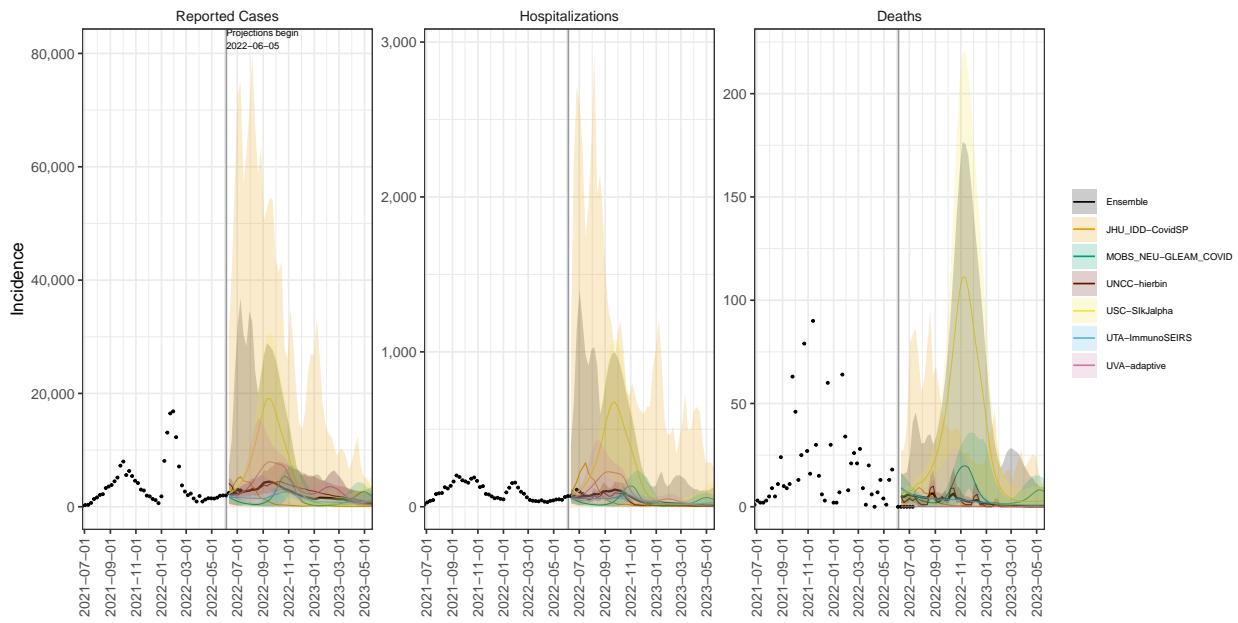


National model variation for the broad booster, no new variant scenario.

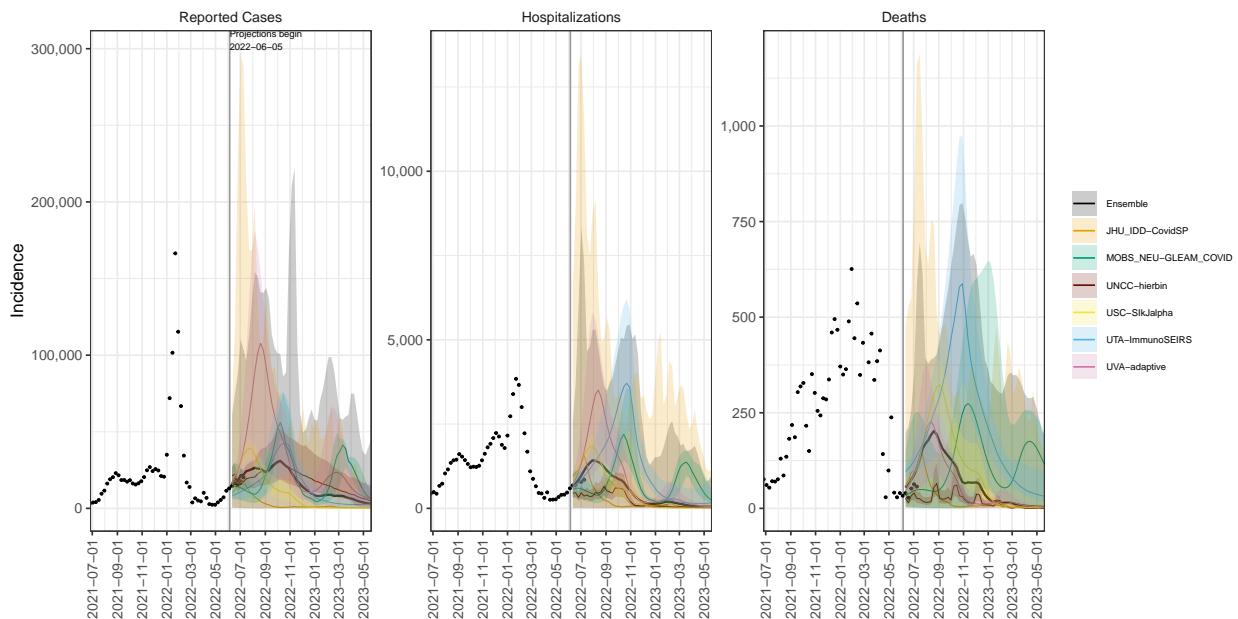
AL model variance & 95% projection intervals – Broad booster, no new variant



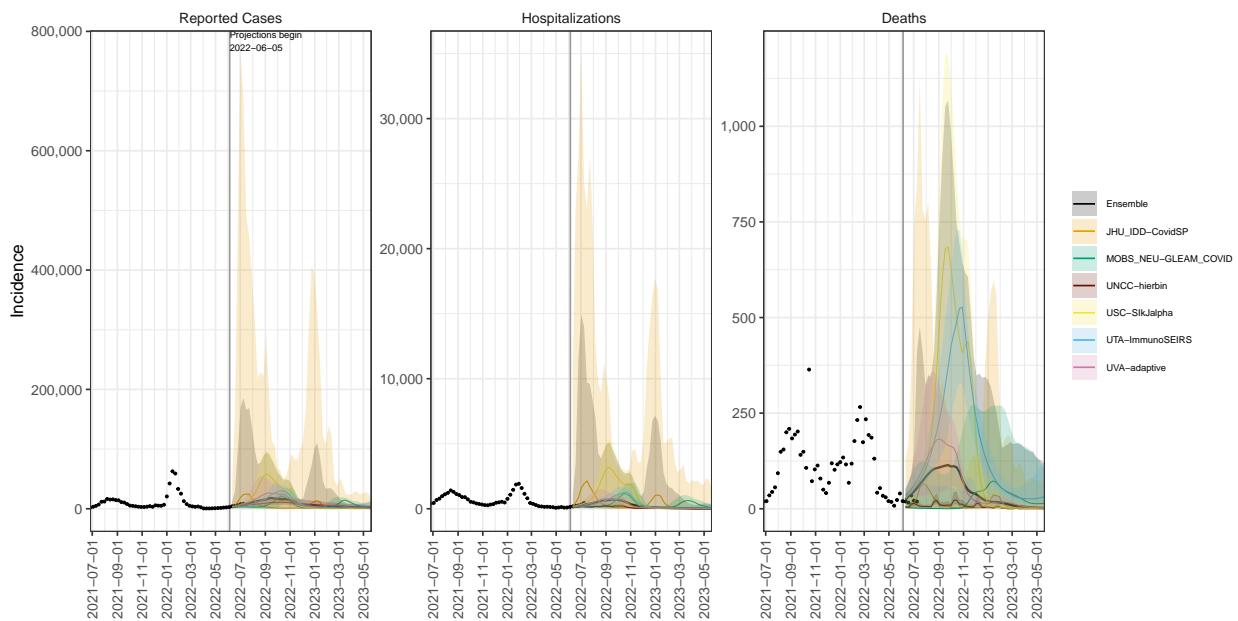
AK model variance & 95% projection intervals – Broad booster, no new variant



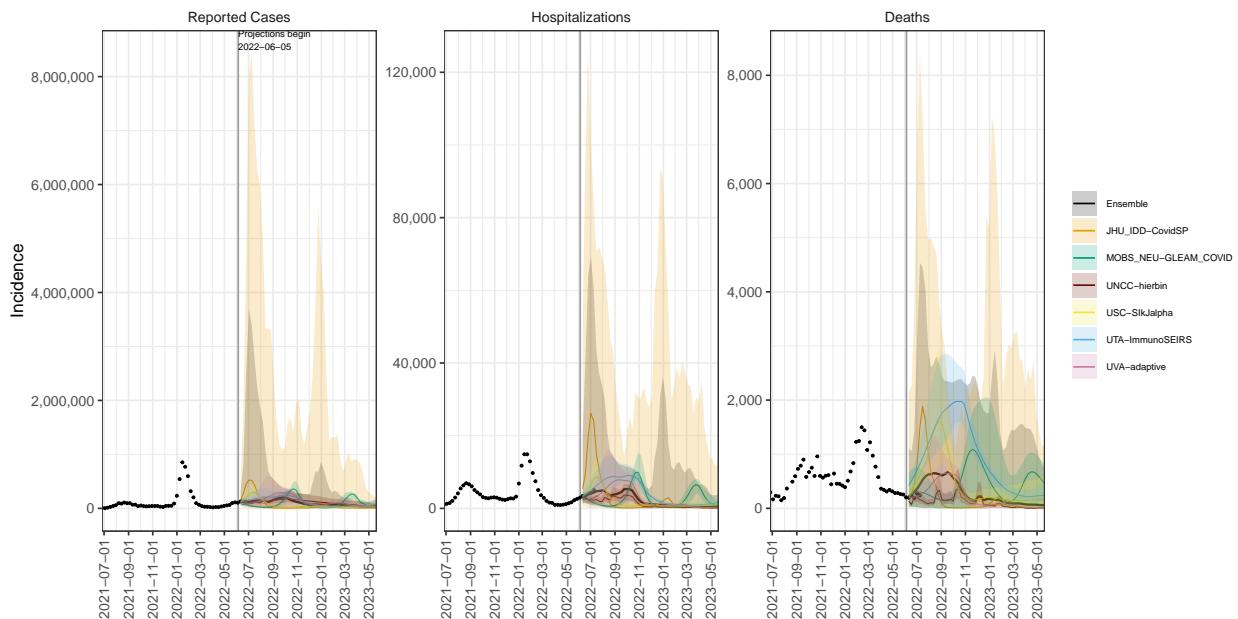
AZ model variance & 95% projection intervals – Broad booster, no new variant



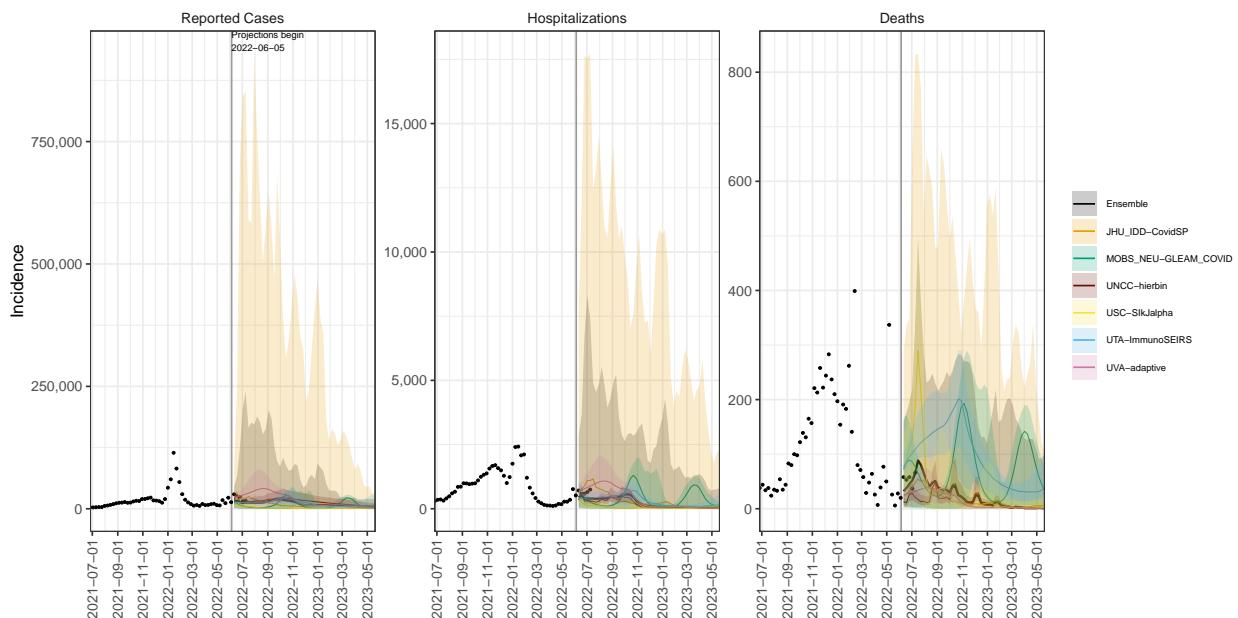
AR model variance & 95% projection intervals – Broad booster, no new variant



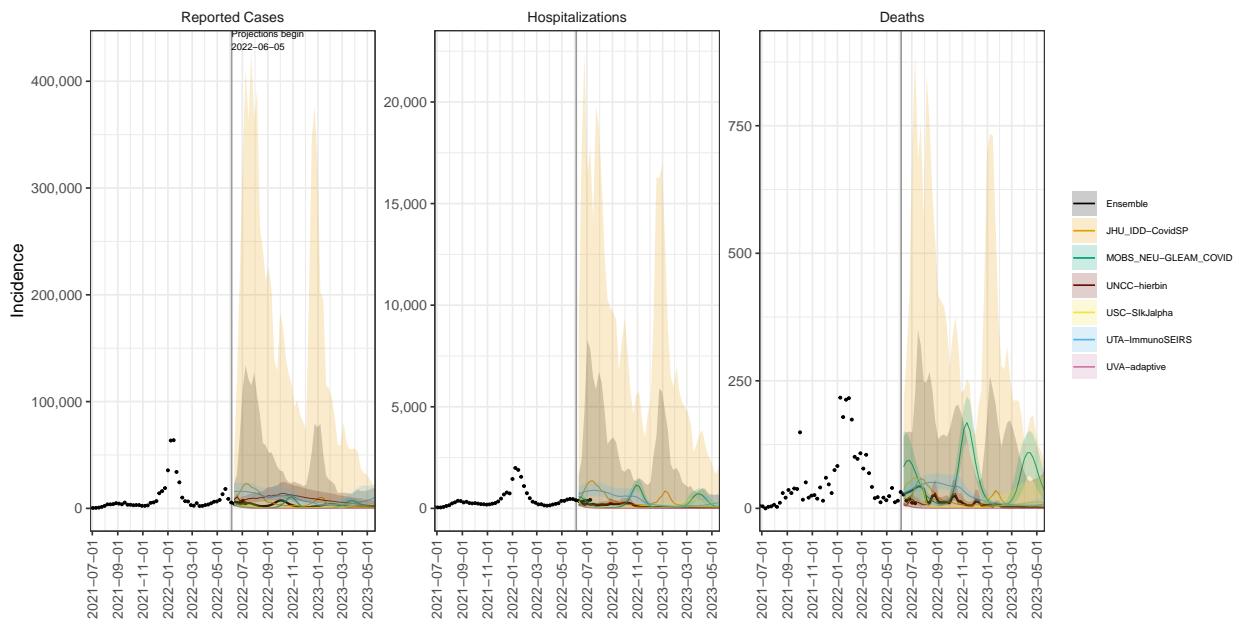
CA model variance & 95% projection intervals – Broad booster, no new variant



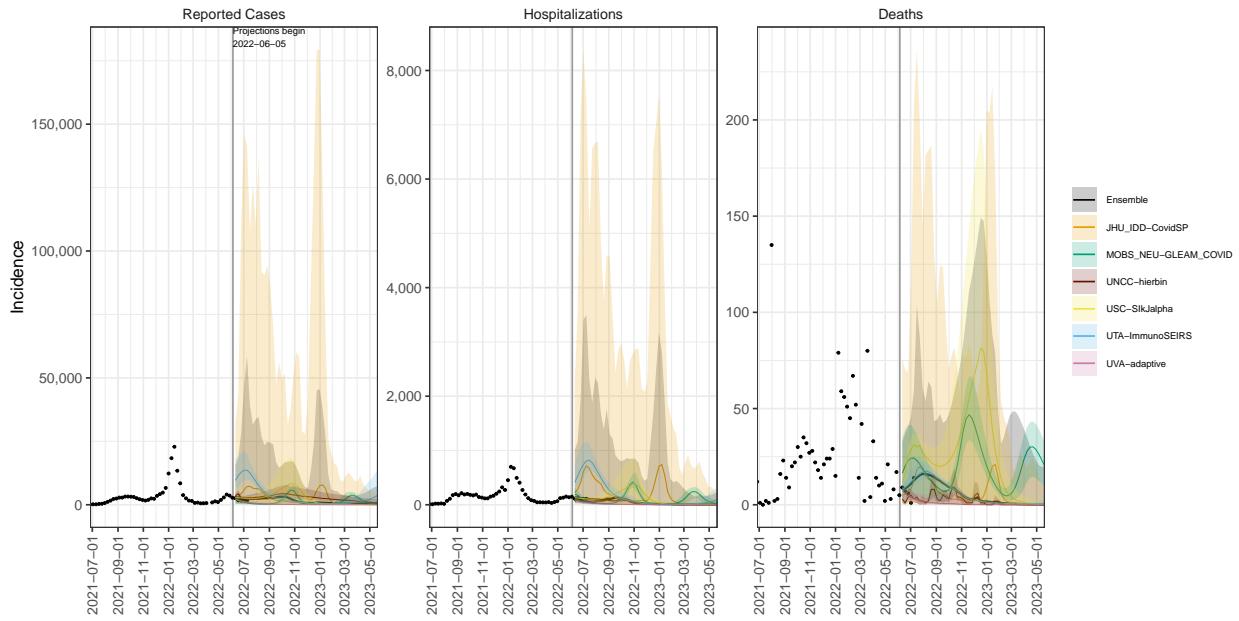
CO model variance & 95% projection intervals – Broad booster, no new variant



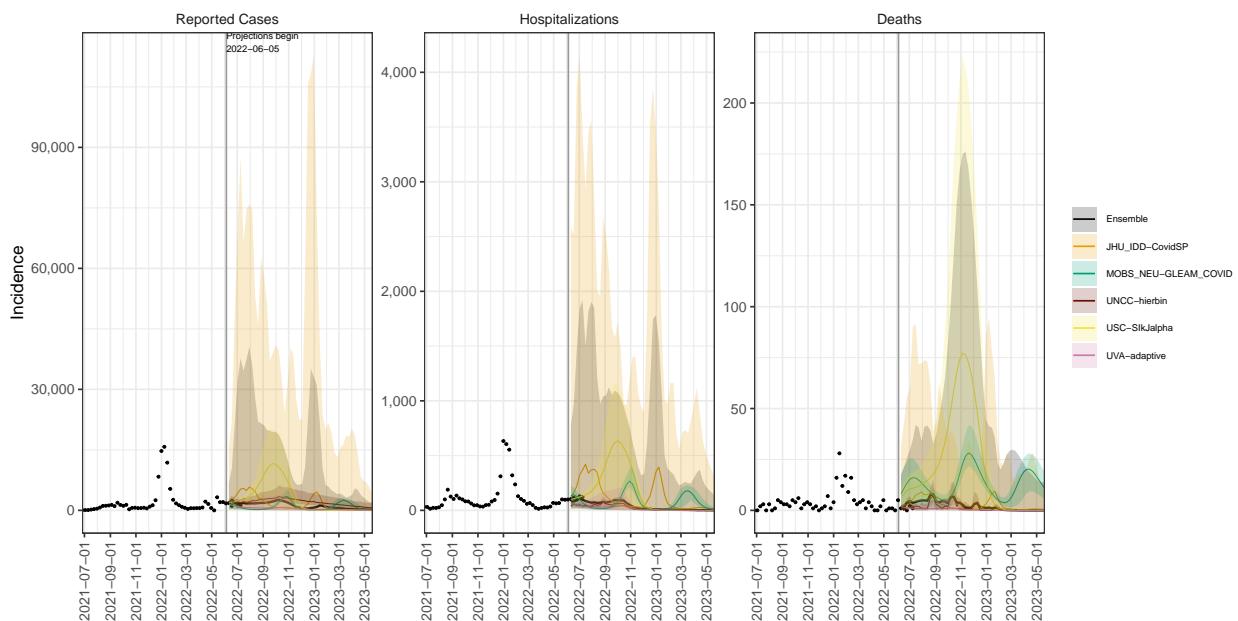
CT model variance & 95% projection intervals – Broad booster, no new variant



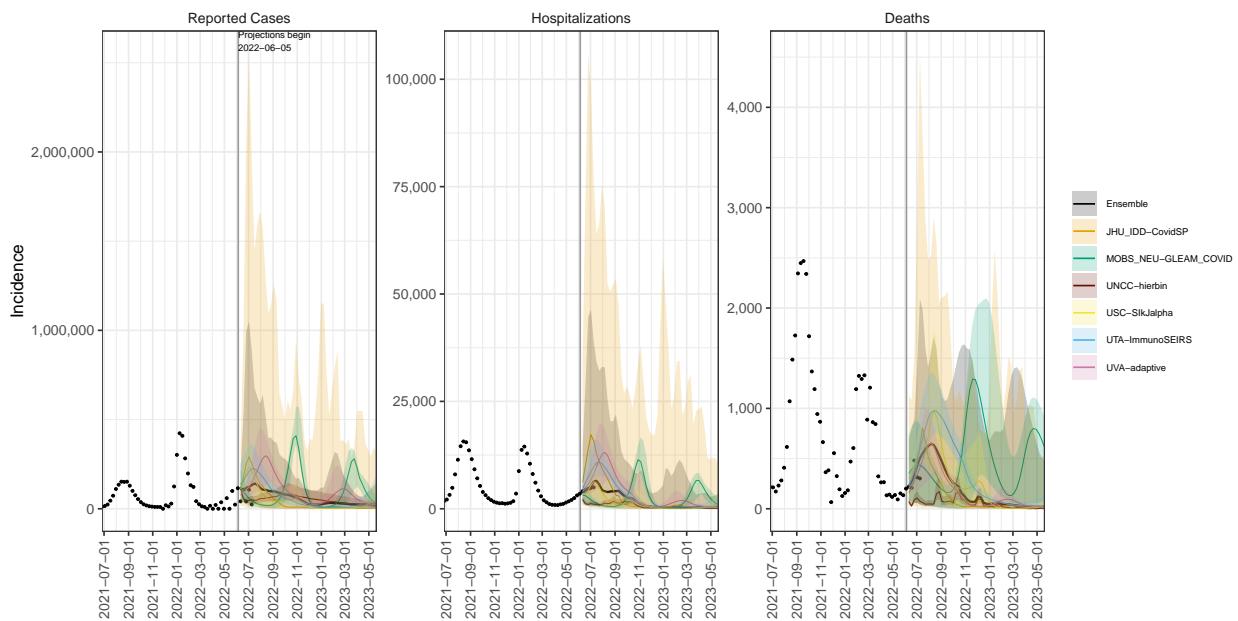
DE model variance & 95% projection intervals – Broad booster, no new variant



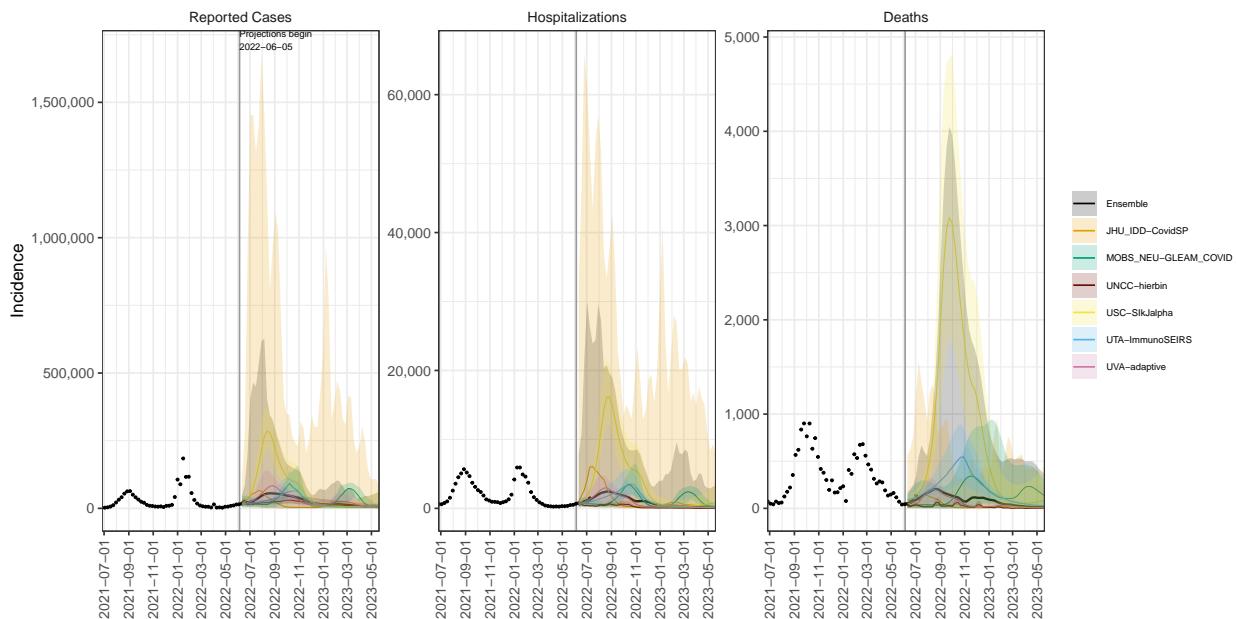
DC model variance & 95% projection intervals – Broad booster, no new variant



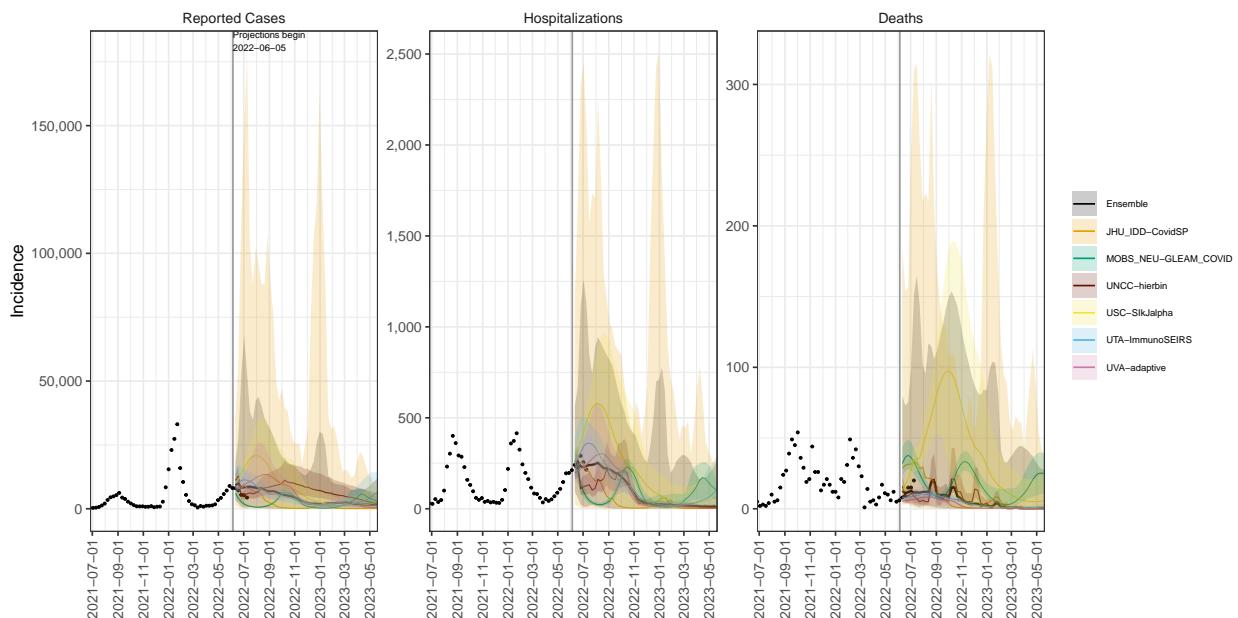
FL model variance & 95% projection intervals – Broad booster, no new variant



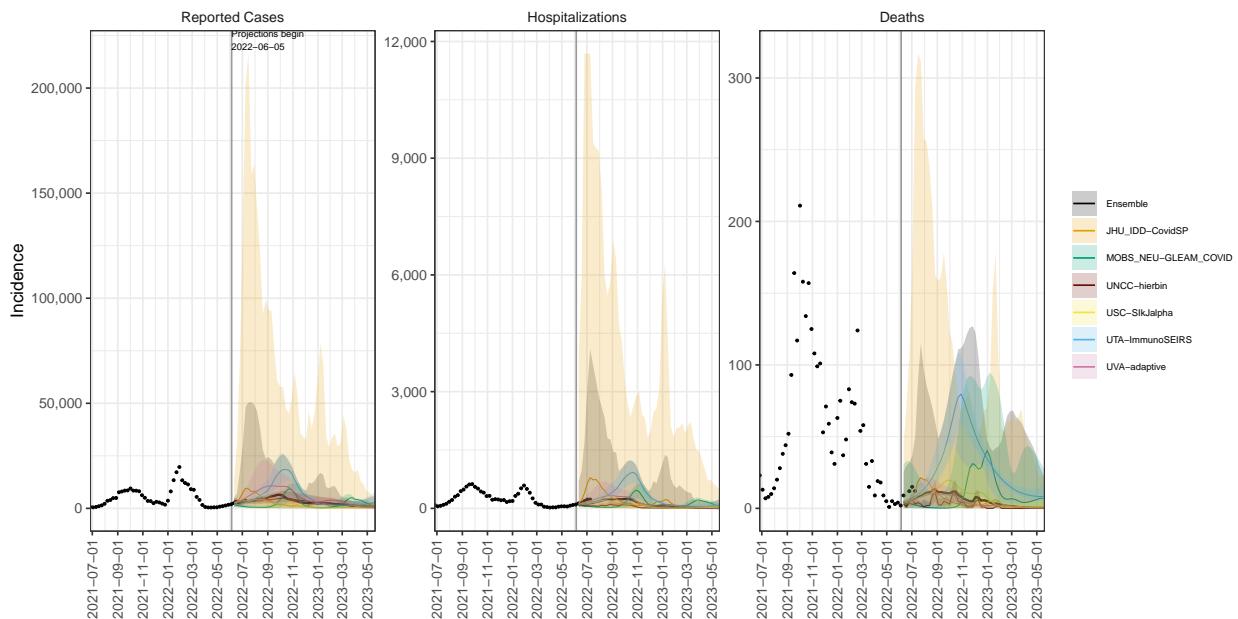
GA model variance & 95% projection intervals – Broad booster, no new variant



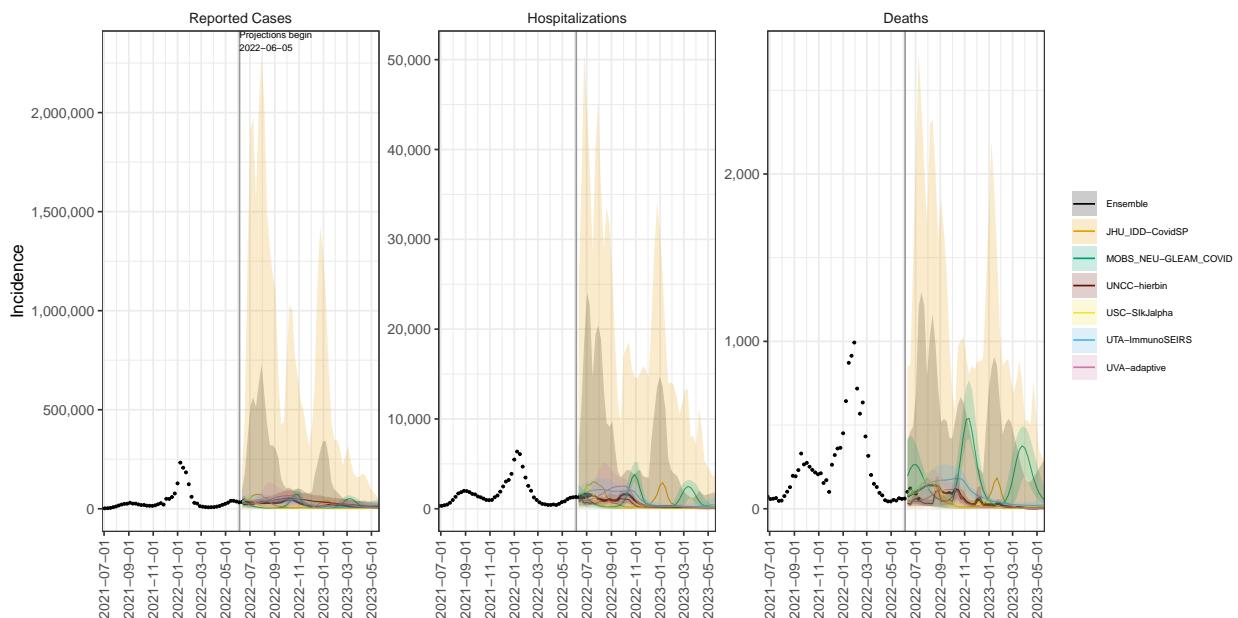
HI model variance & 95% projection intervals – Broad booster, no new variant



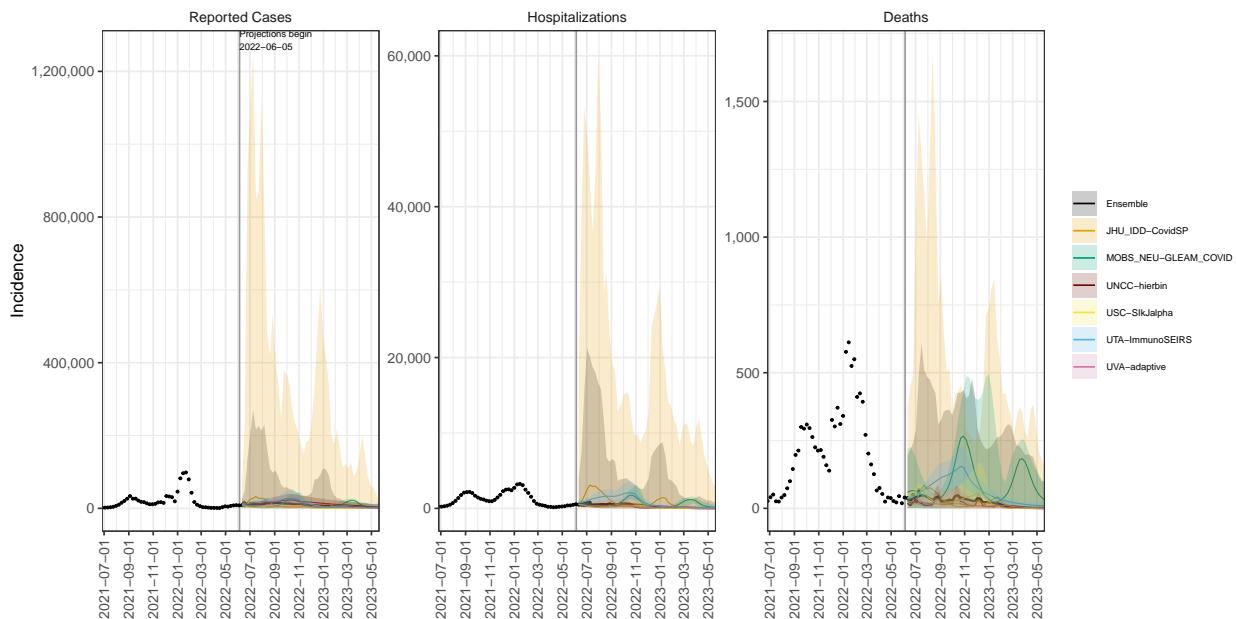
ID model variance & 95% projection intervals – Broad booster, no new variant



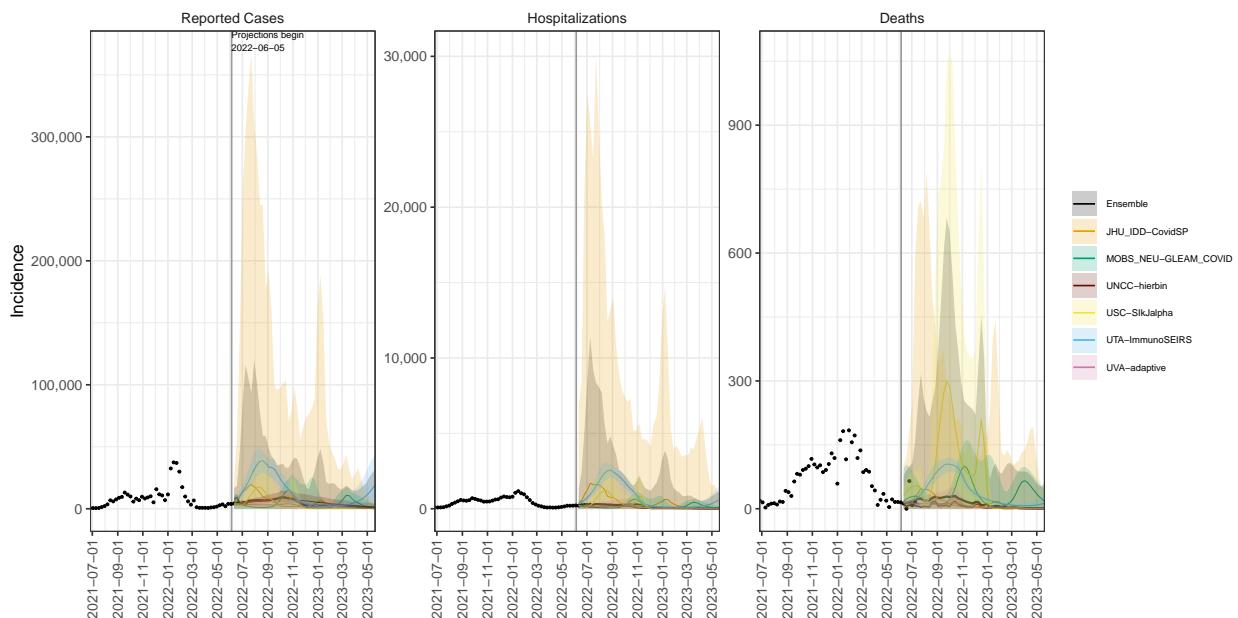
IL model variance & 95% projection intervals – Broad booster, no new variant



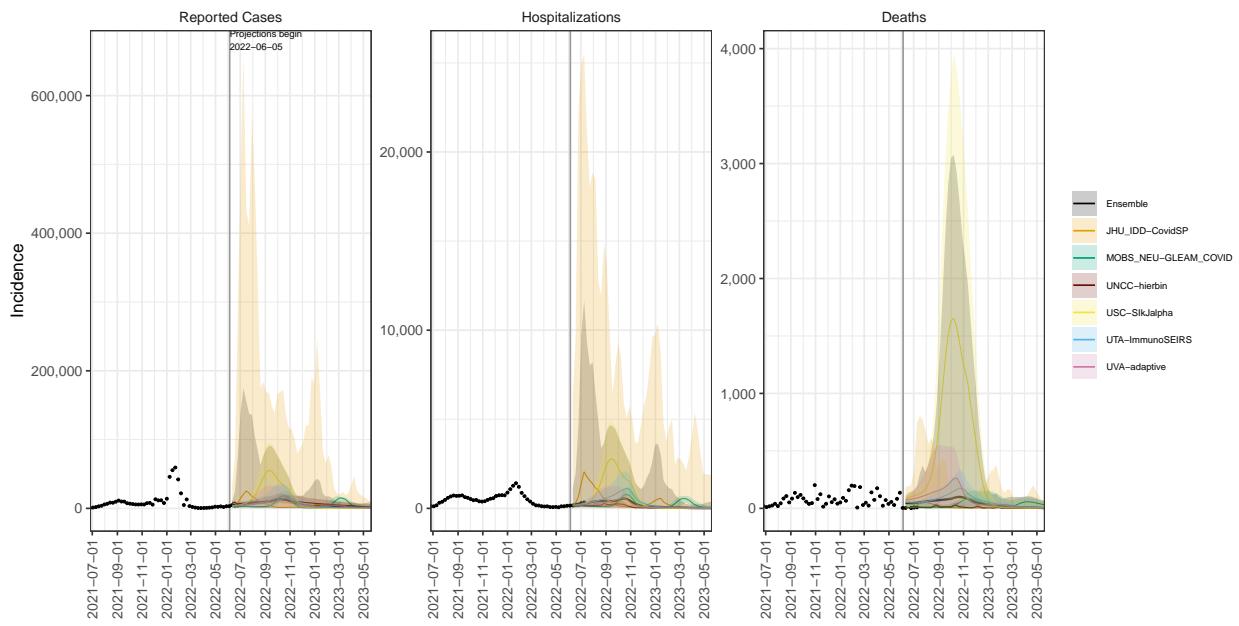
IN model variance & 95% projection intervals – Broad booster, no new variant



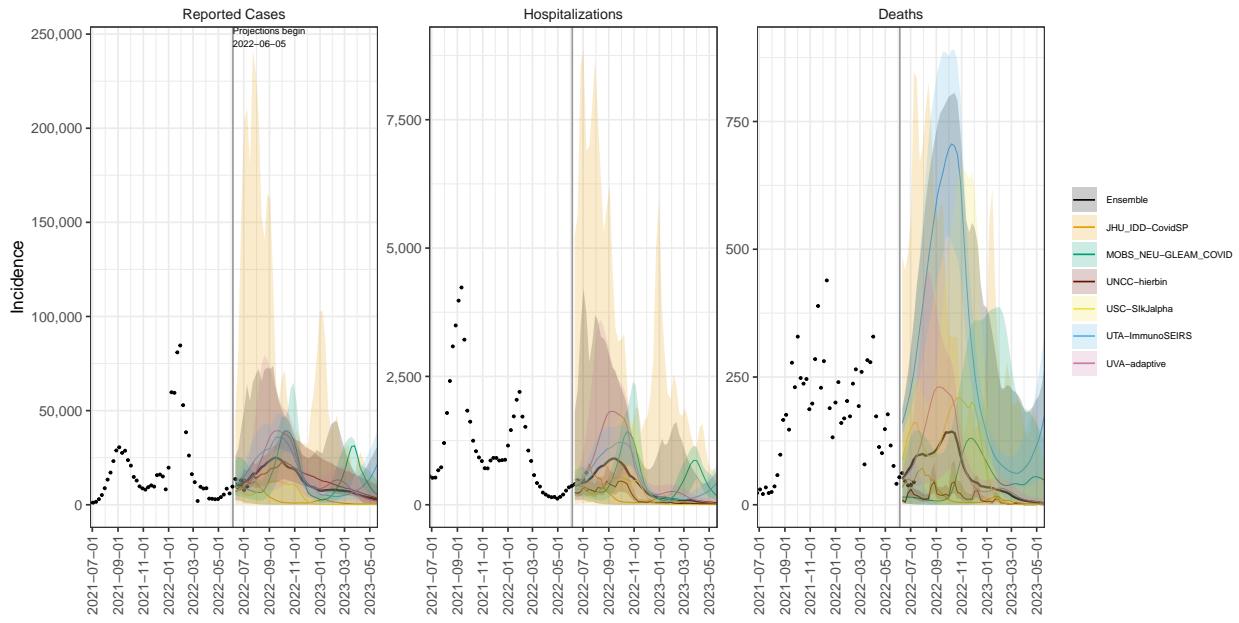
IA model variance & 95% projection intervals – Broad booster, no new variant



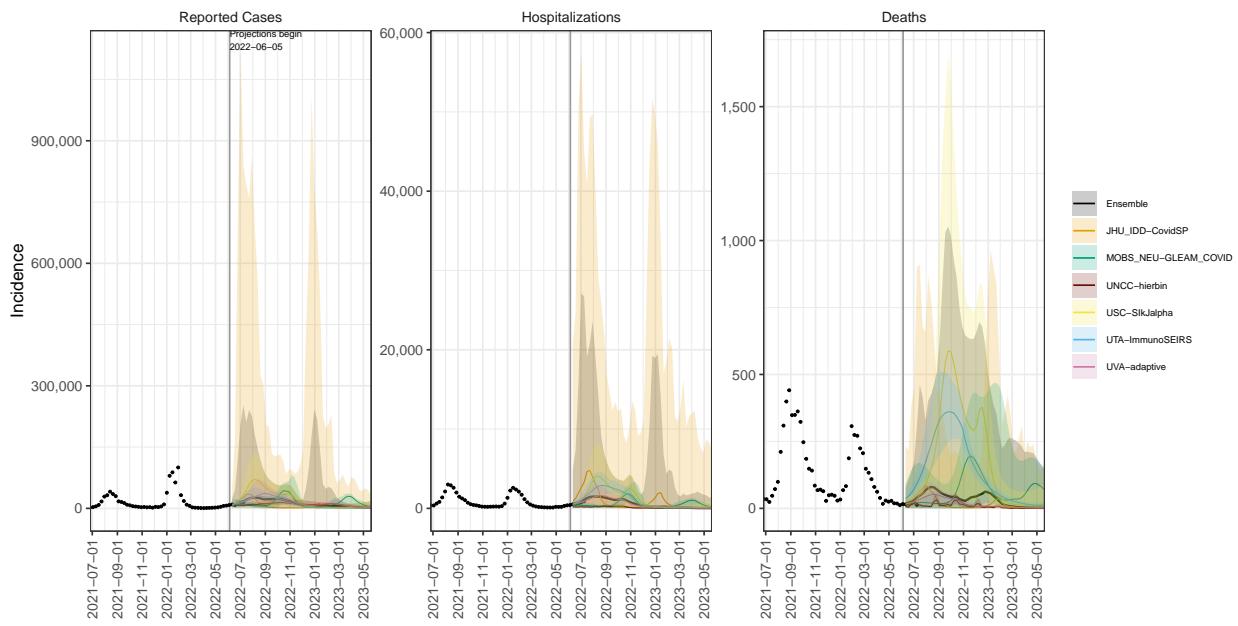
KS model variance & 95% projection intervals – Broad booster, no new variant



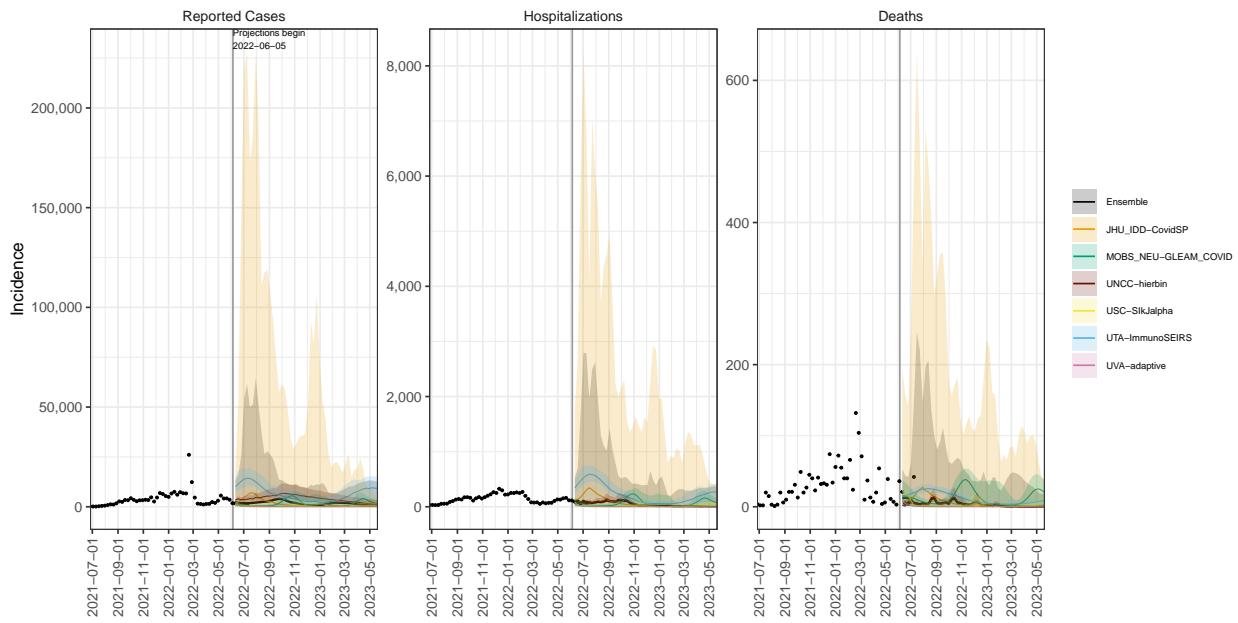
KY model variance & 95% projection intervals – Broad booster, no new variant



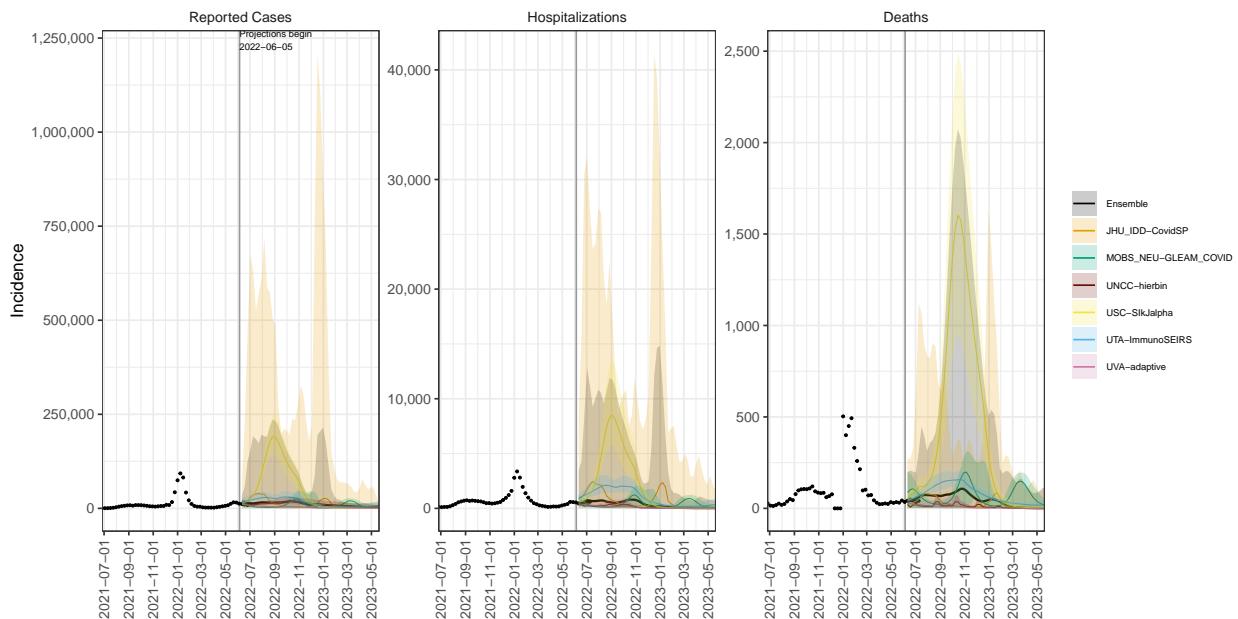
LA model variance & 95% projection intervals – Broad booster, no new variant



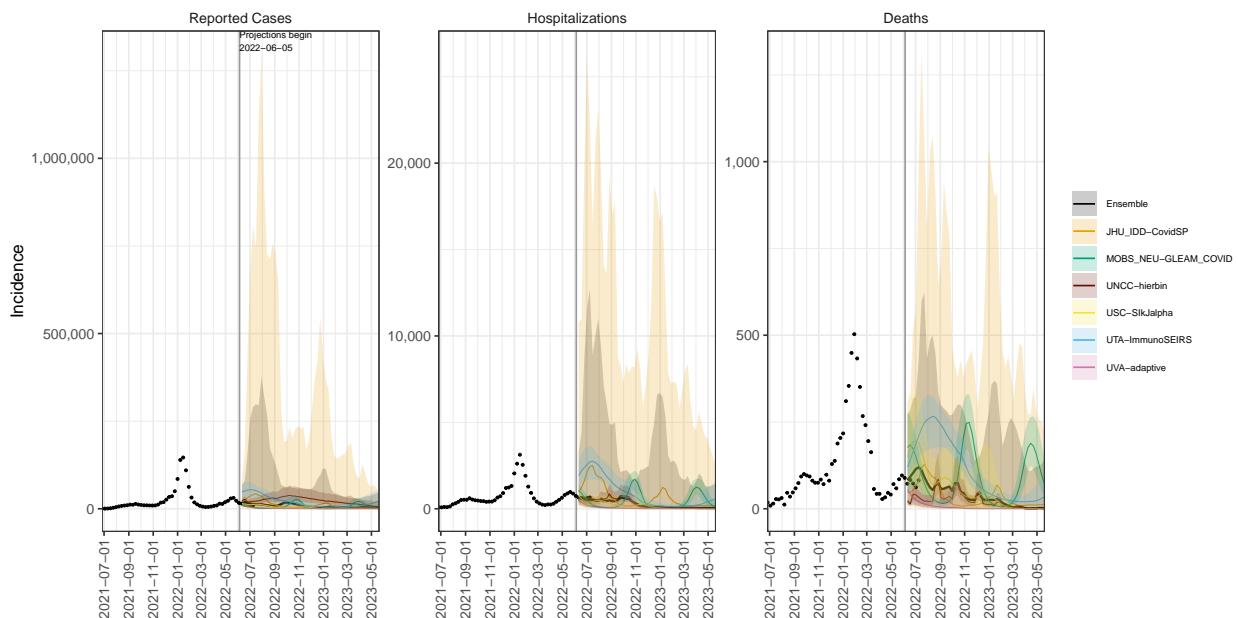
ME model variance & 95% projection intervals – Broad booster, no new variant



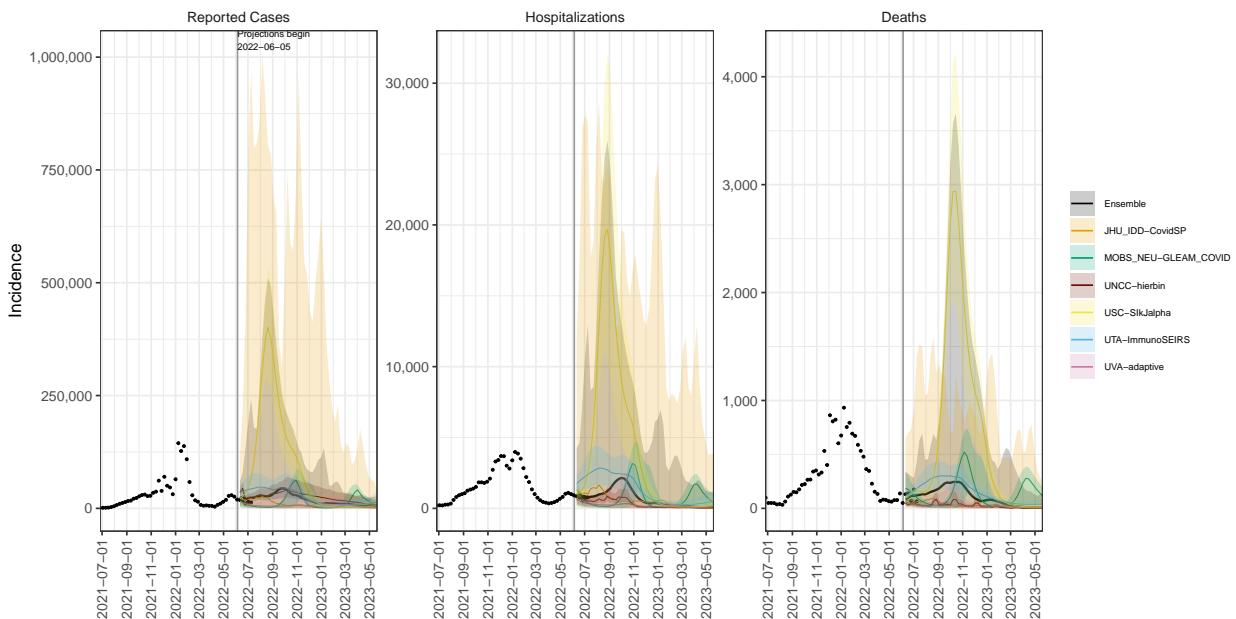
MD model variance & 95% projection intervals – Broad booster, no new variant



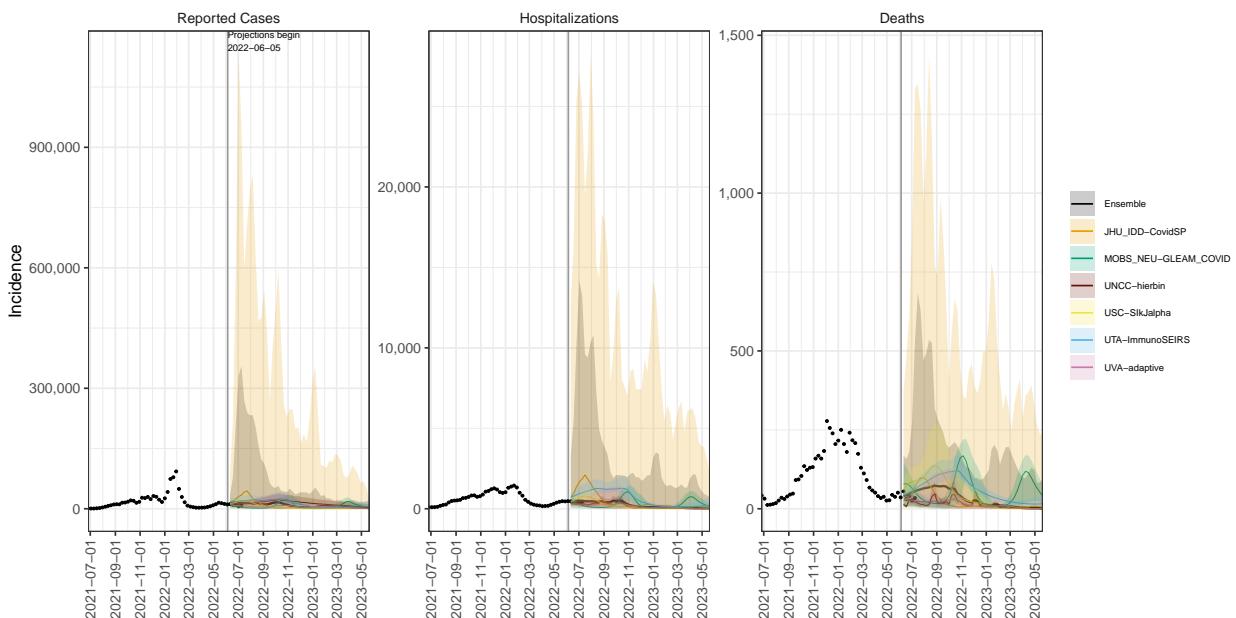
MA model variance & 95% projection intervals – Broad booster, no new variant



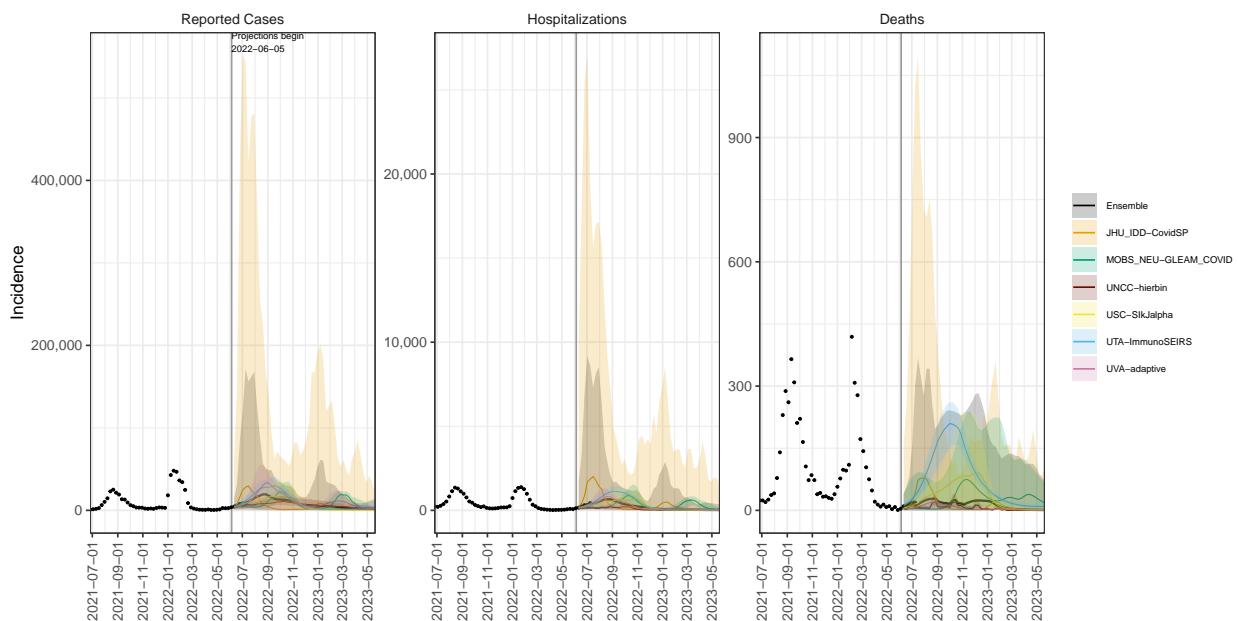
MI model variance & 95% projection intervals – Broad booster, no new variant



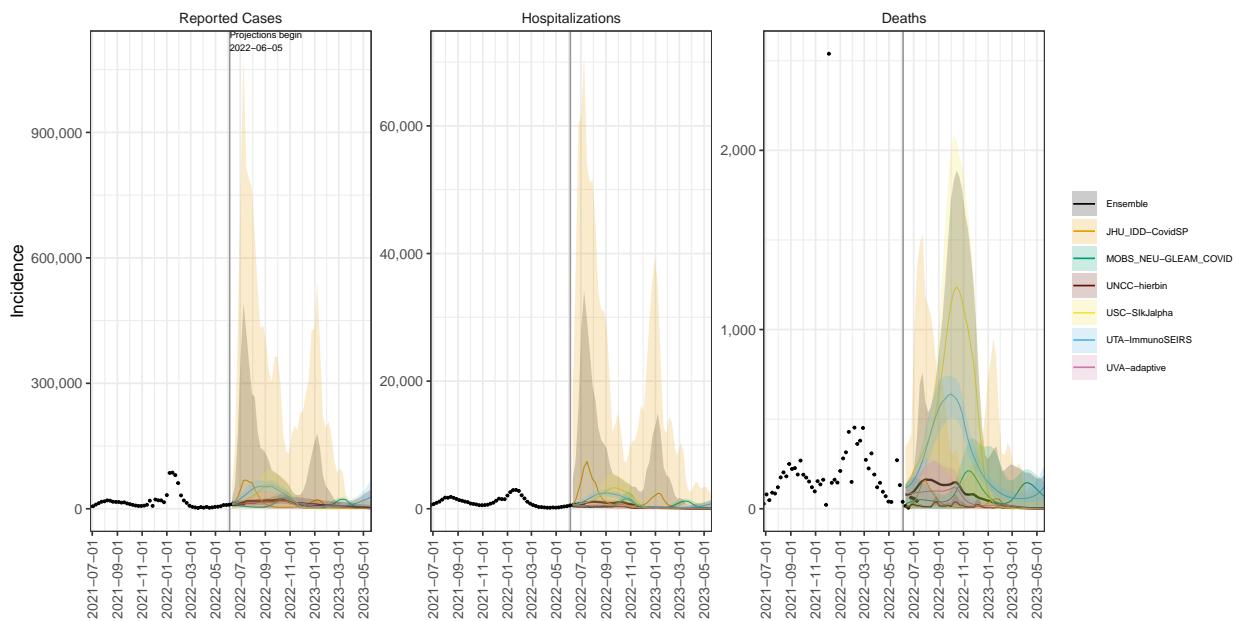
MN model variance & 95% projection intervals – Broad booster, no new variant



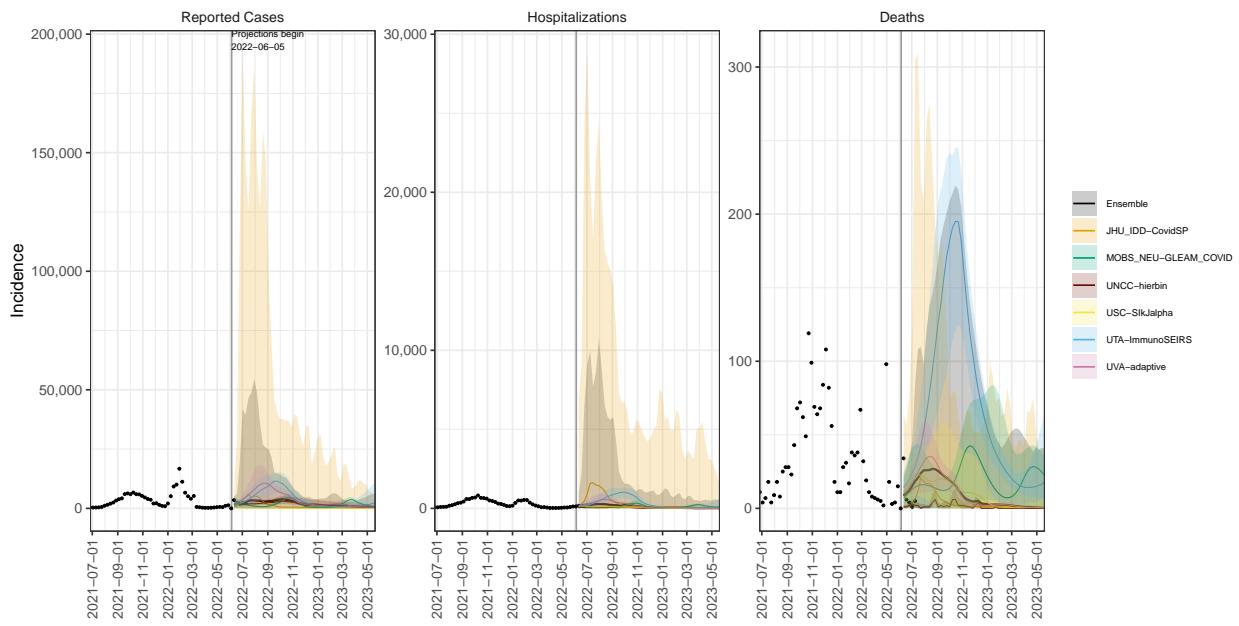
MS model variance & 95% projection intervals – Broad booster, no new variant



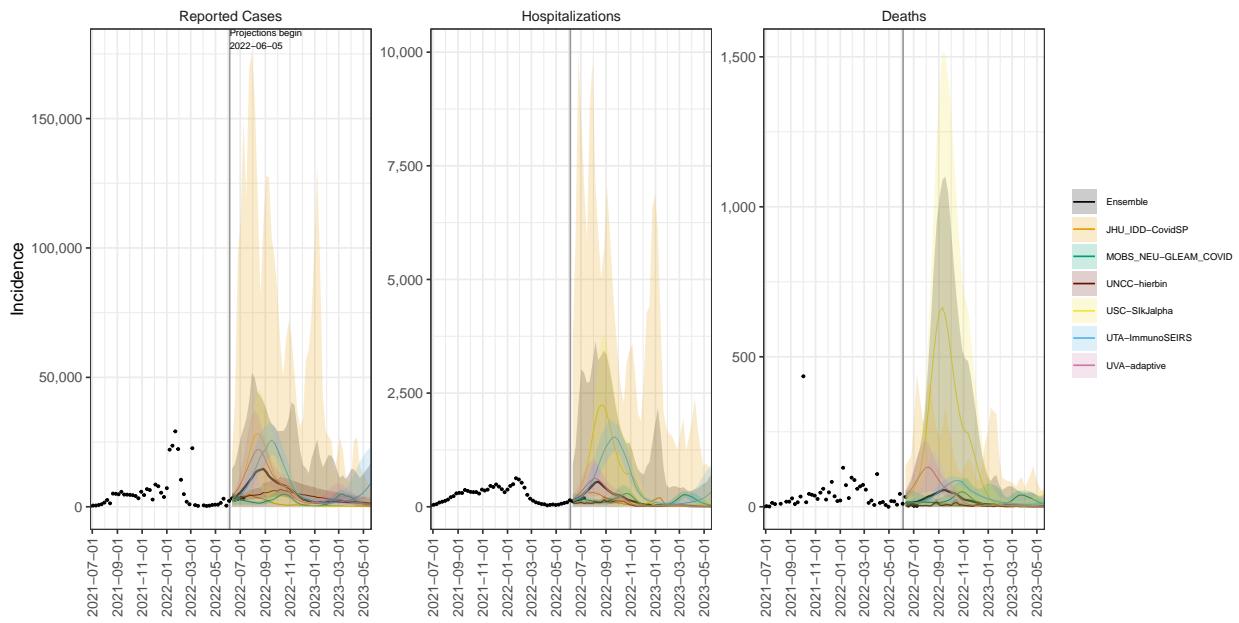
MO model variance & 95% projection intervals – Broad booster, no new variant



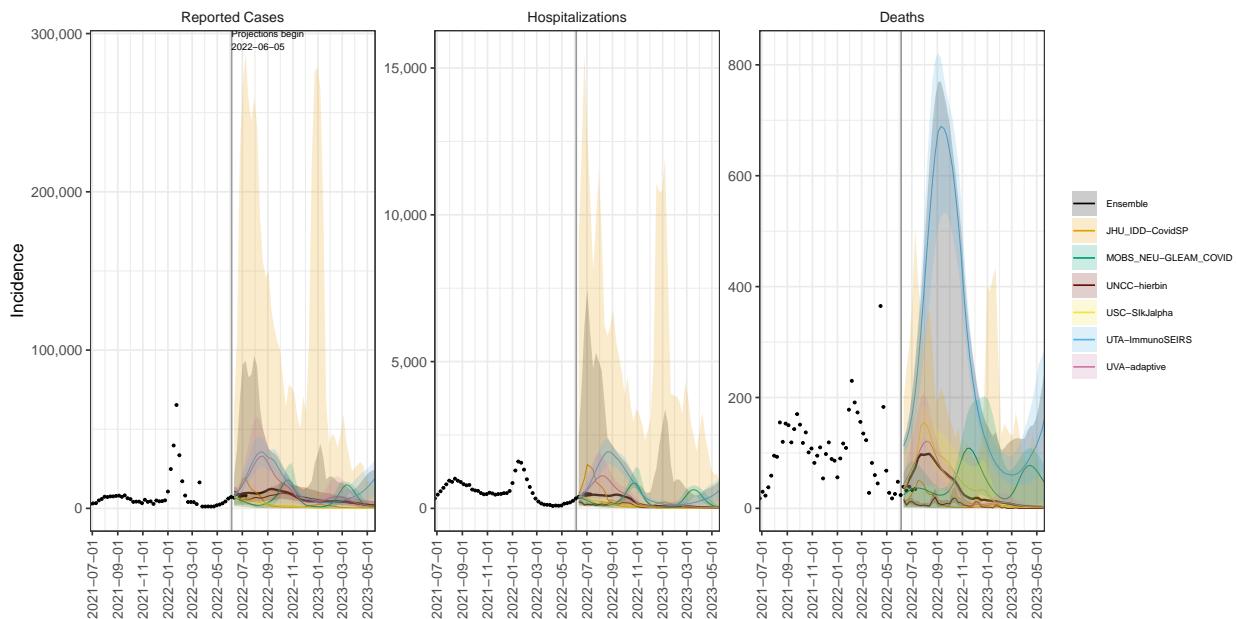
MT model variance & 95% projection intervals – Broad booster, no new variant



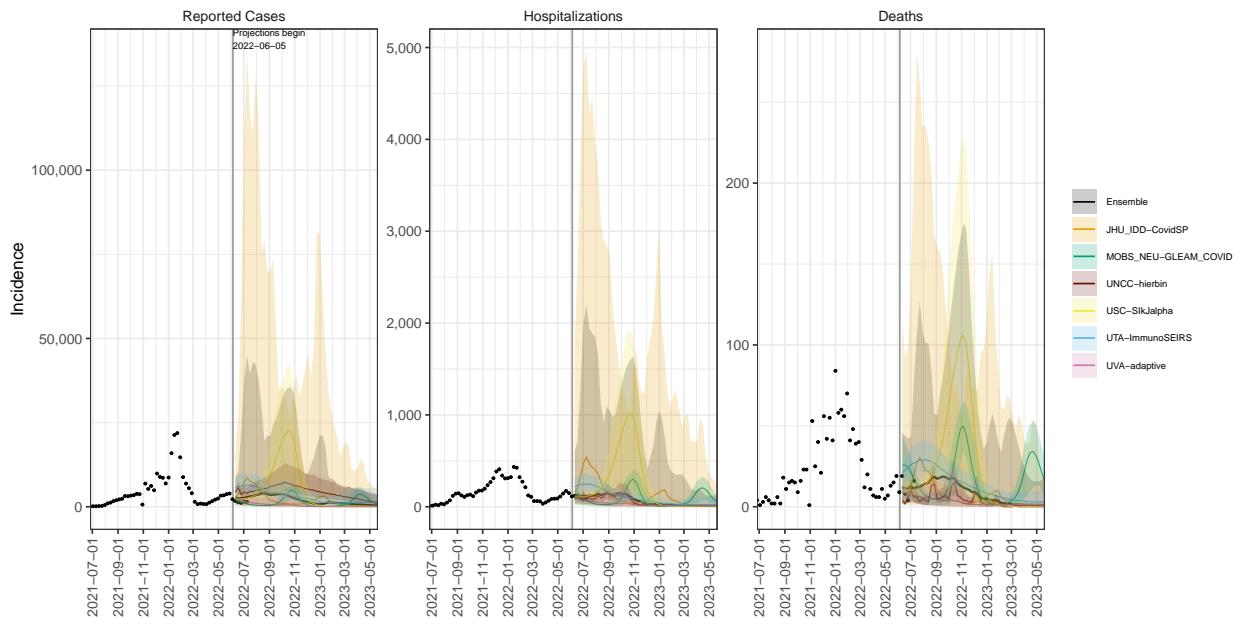
NE model variance & 95% projection intervals – Broad booster, no new variant



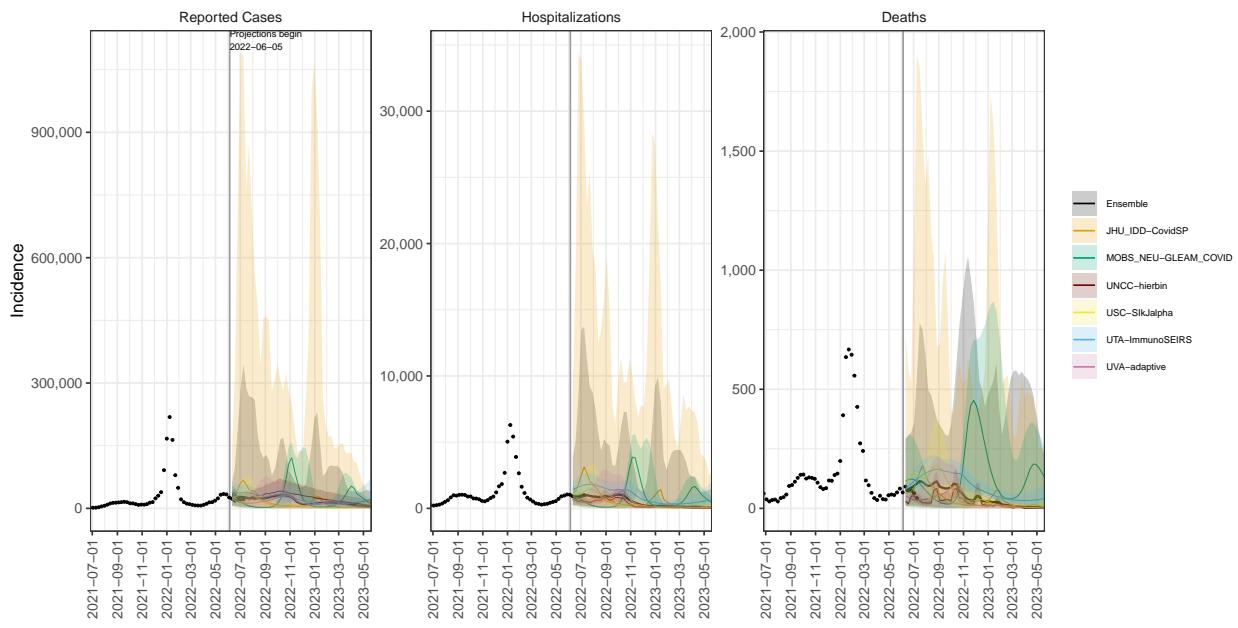
NV model variance & 95% projection intervals – Broad booster, no new variant



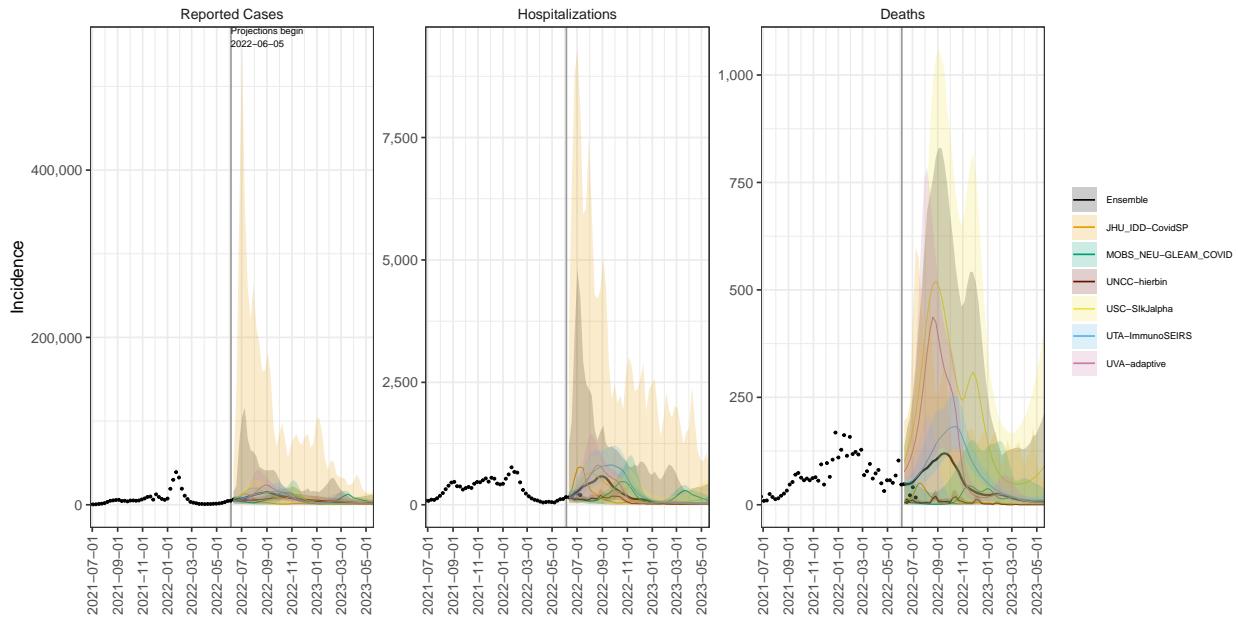
NH model variance & 95% projection intervals – Broad booster, no new variant



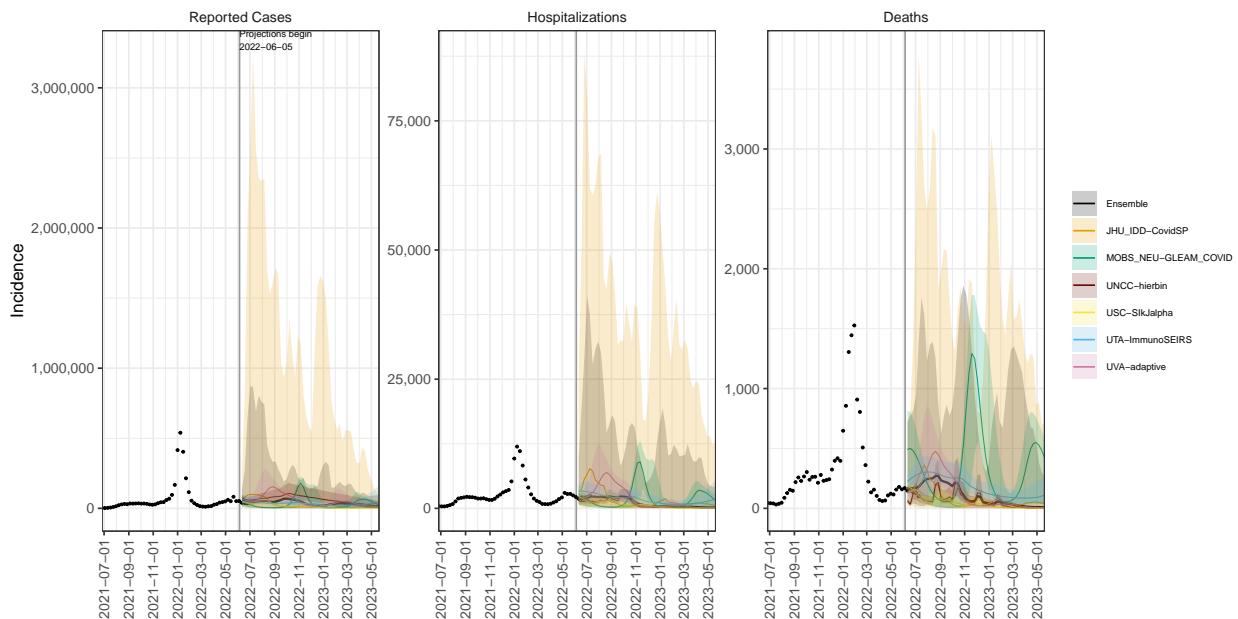
NJ model variance & 95% projection intervals – Broad booster, no new variant



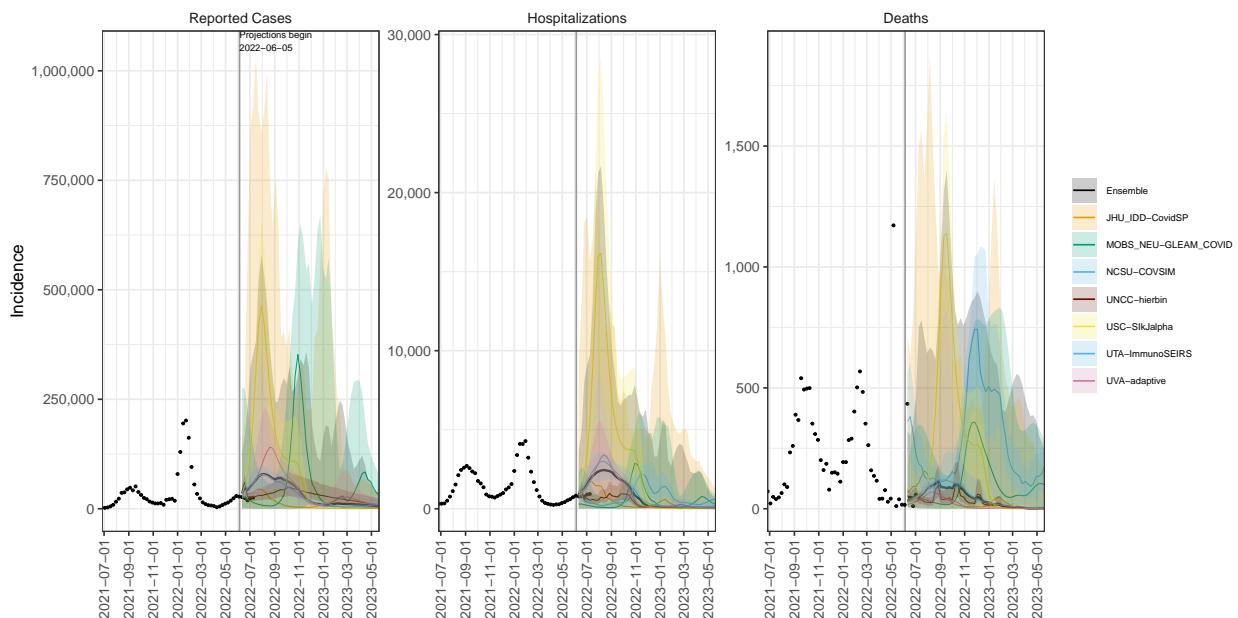
NM model variance & 95% projection intervals – Broad booster, no new variant



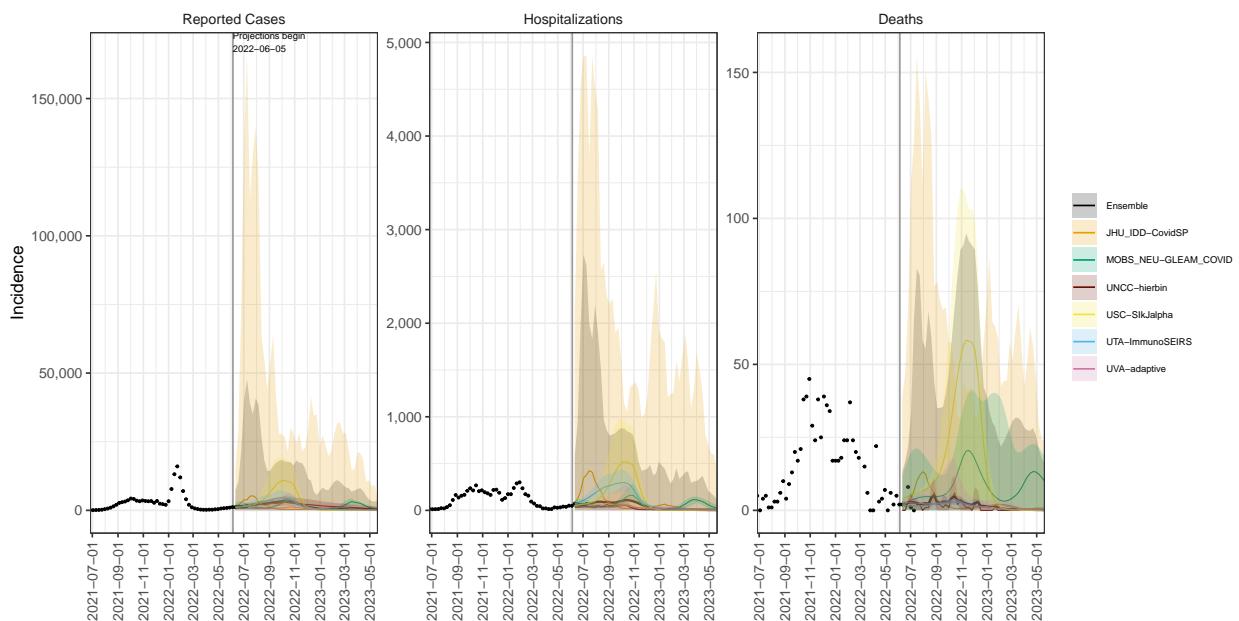
NY model variance & 95% projection intervals – Broad booster, no new variant



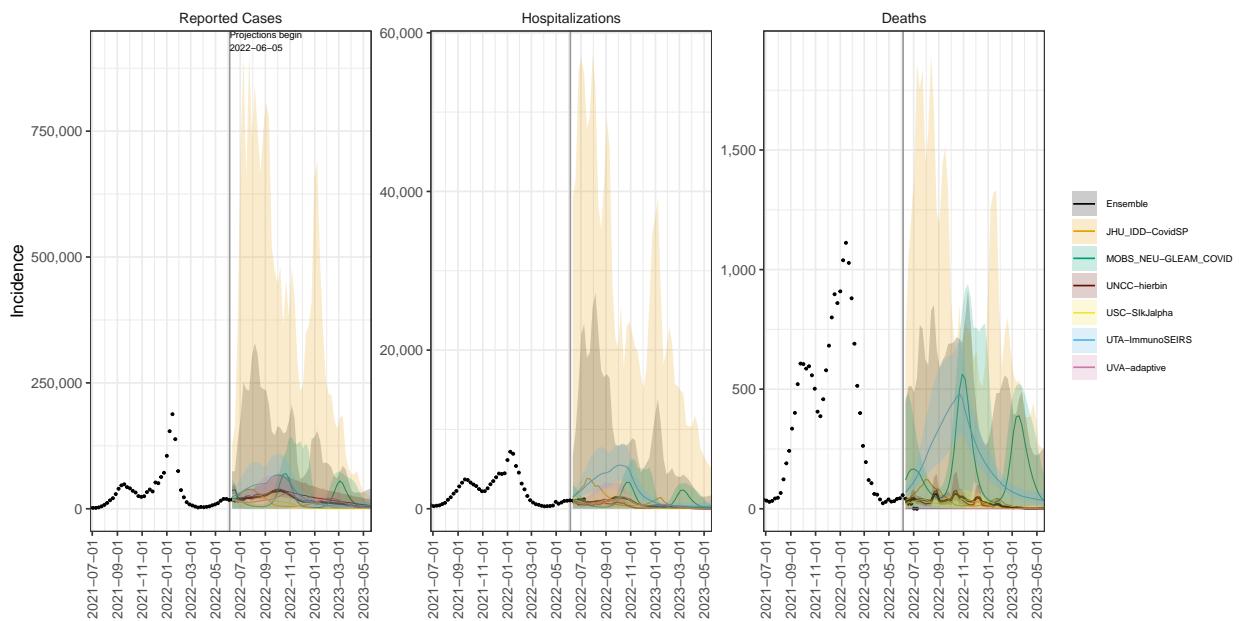
NC model variance & 95% projection intervals – Broad booster, no new variant



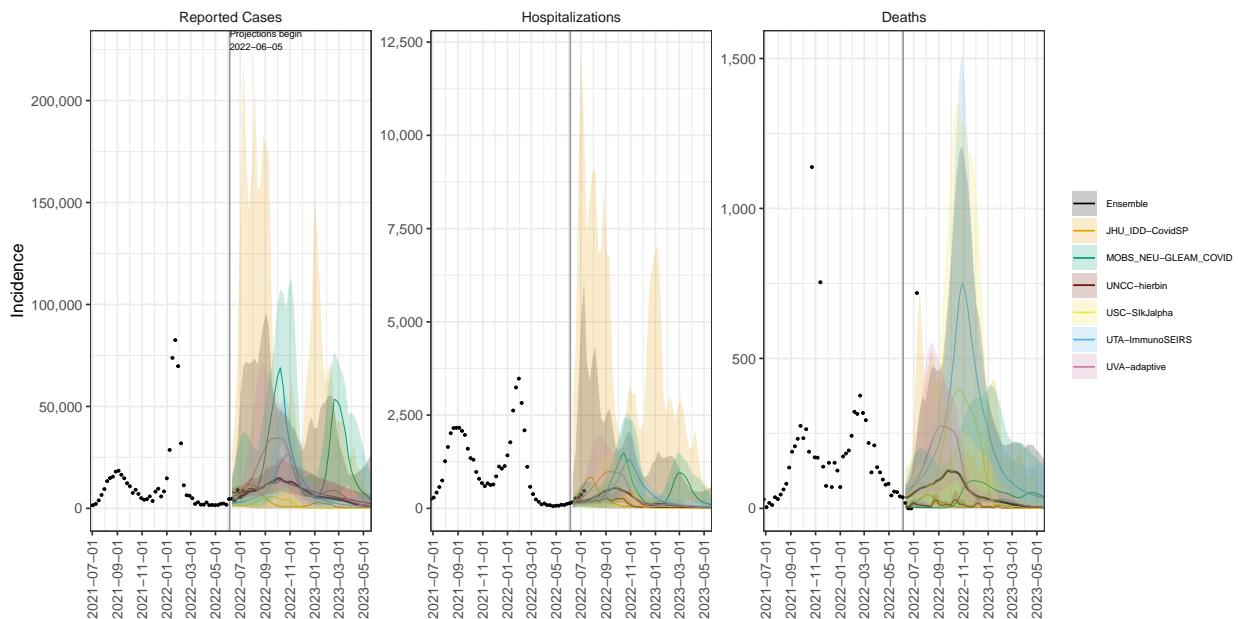
ND model variance & 95% projection intervals – Broad booster, no new variant



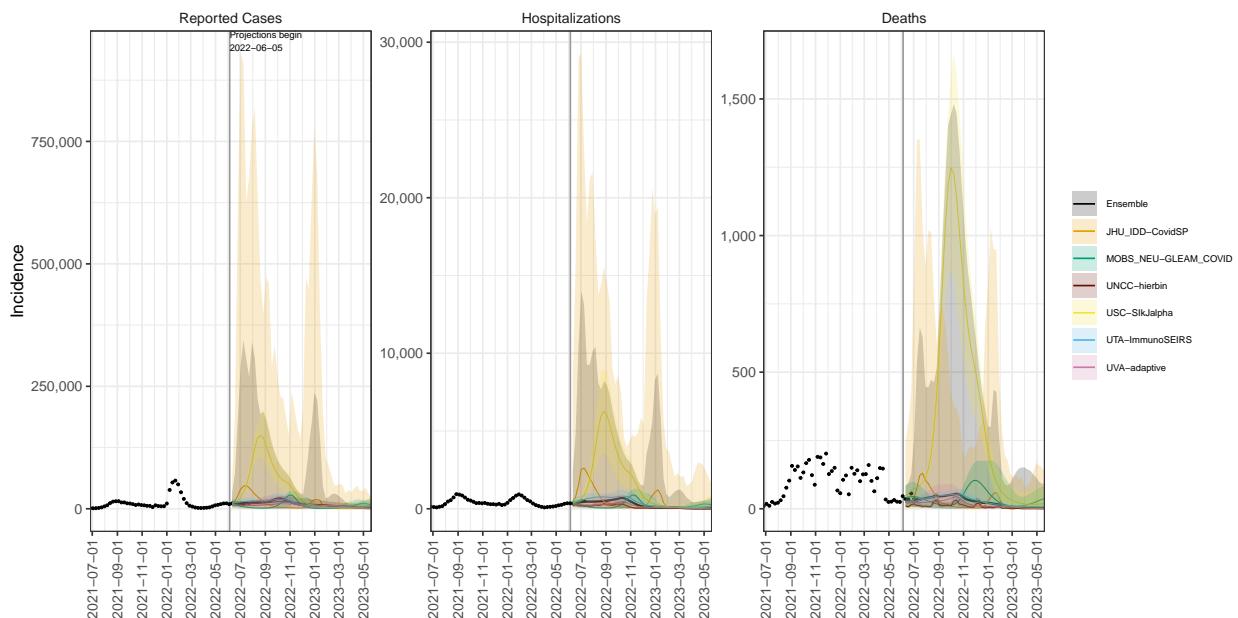
OH model variance & 95% projection intervals – Broad booster, no new variant



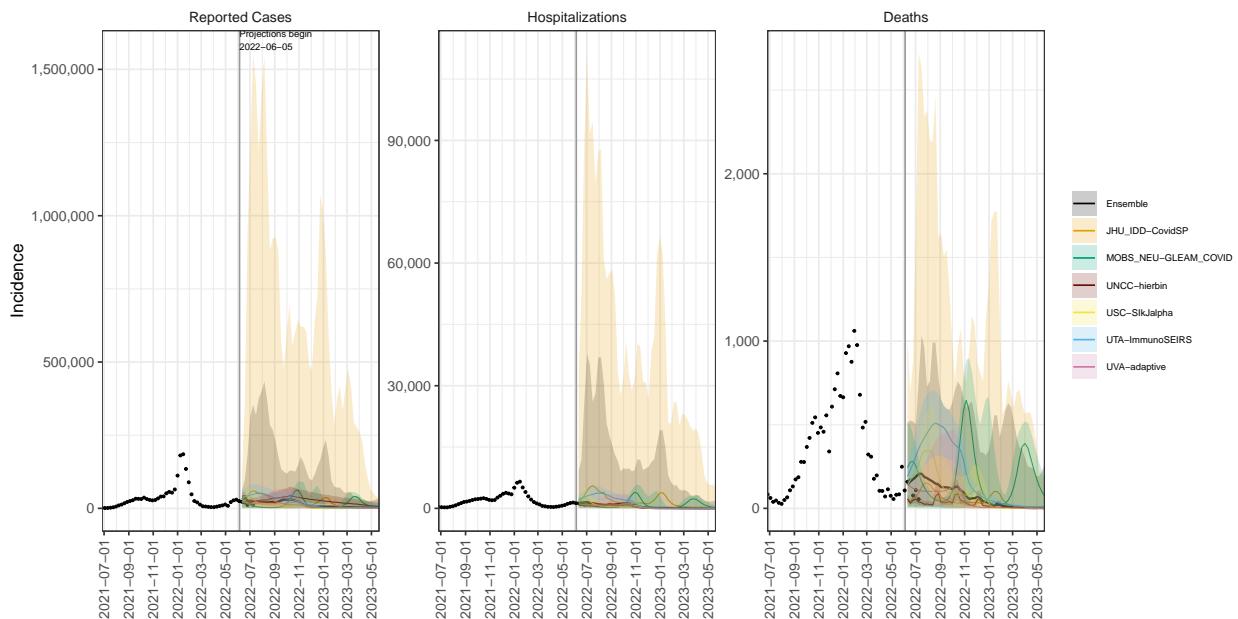
OK model variance & 95% projection intervals – Broad booster, no new variant



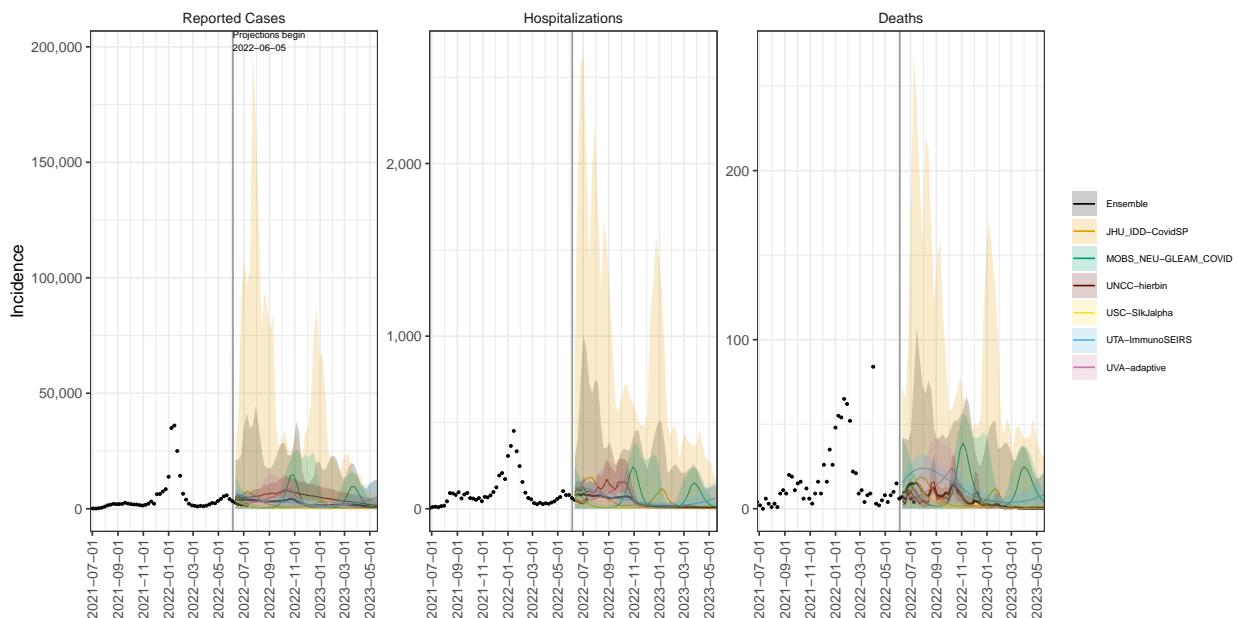
OR model variance & 95% projection intervals – Broad booster, no new variant



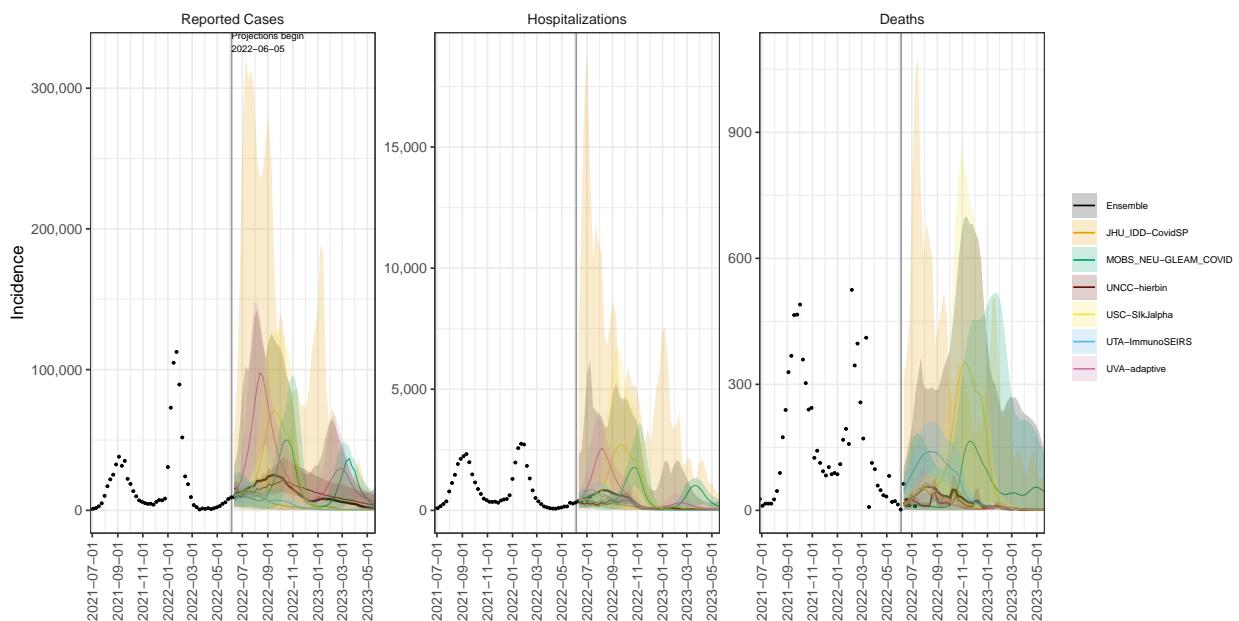
PA model variance & 95% projection intervals – Broad booster, no new variant



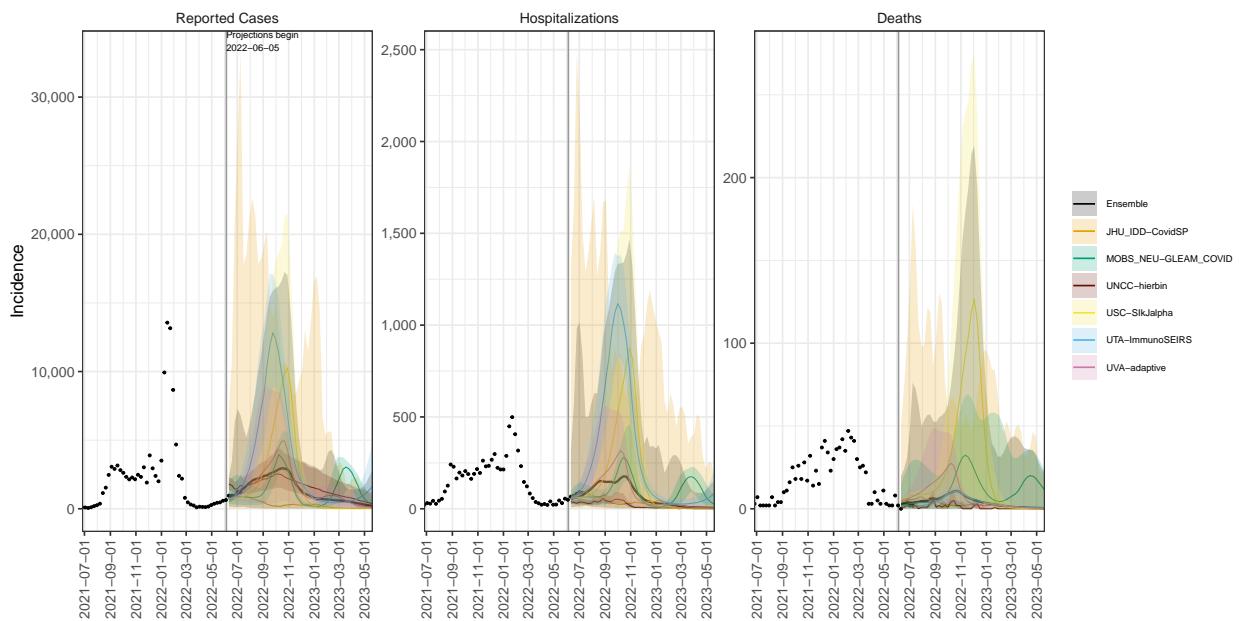
RI model variance & 95% projection intervals – Broad booster, no new variant



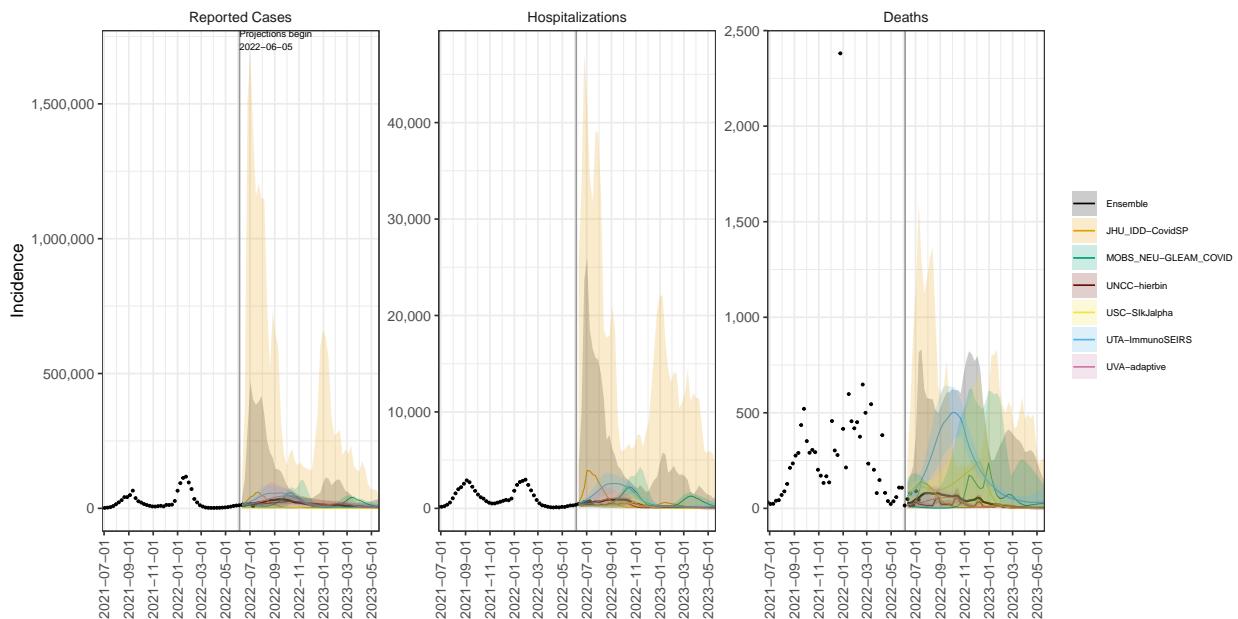
SC model variance & 95% projection intervals – Broad booster, no new variant



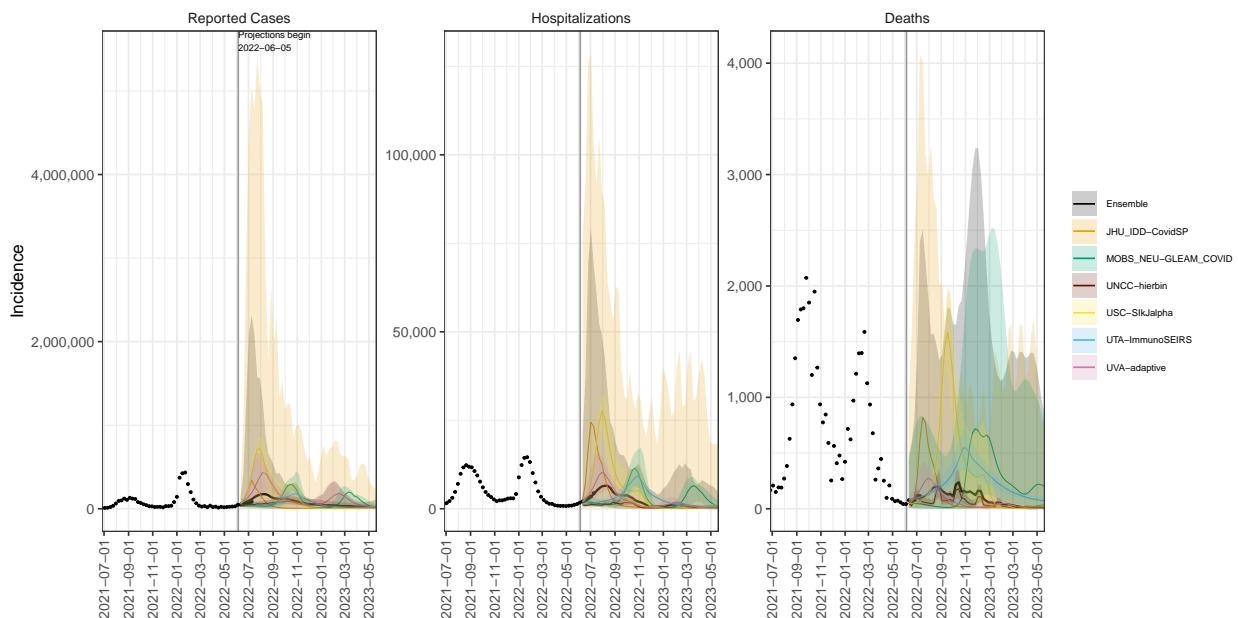
SD model variance & 95% projection intervals – Broad booster, no new variant



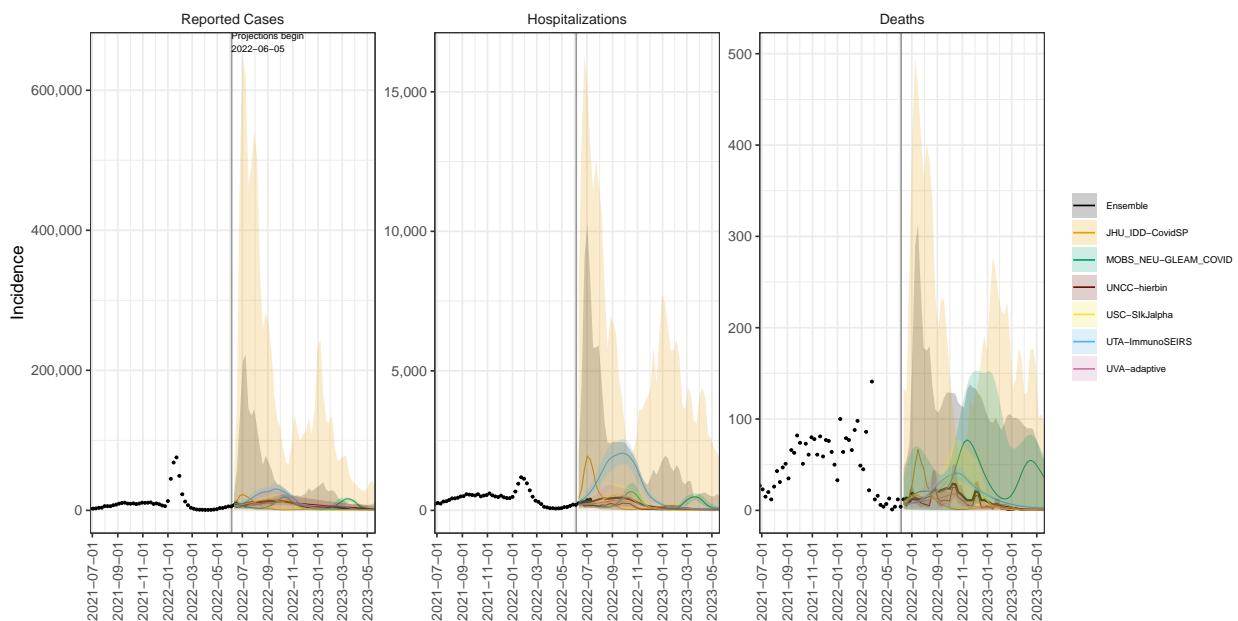
TN model variance & 95% projection intervals – Broad booster, no new variant



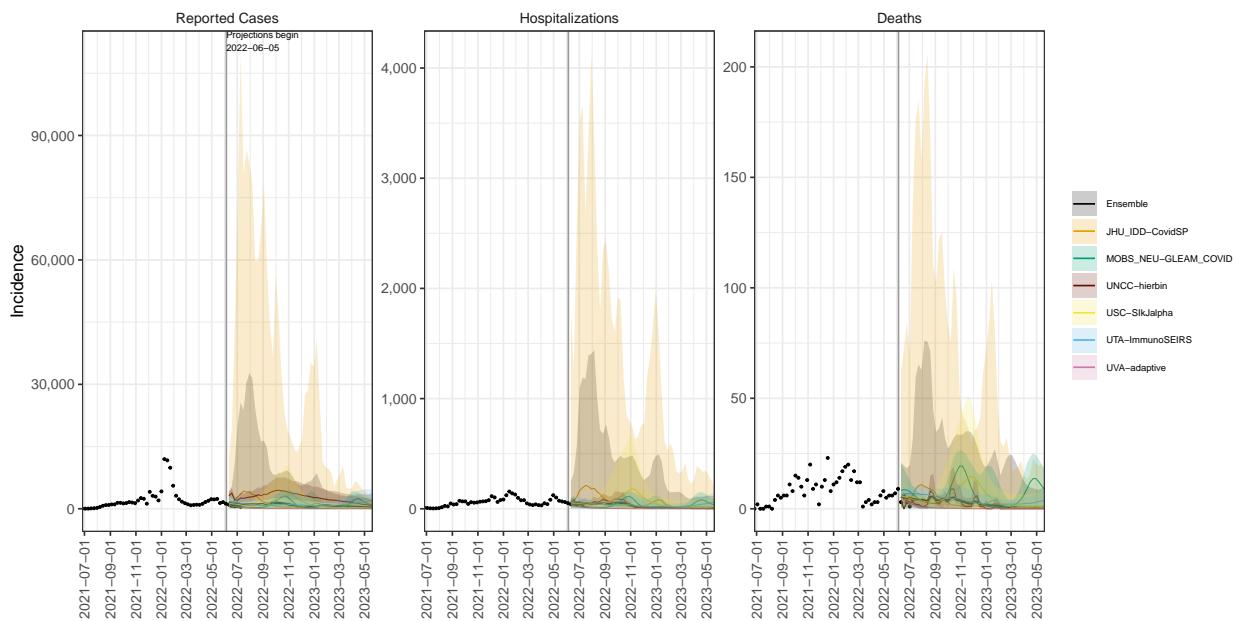
TX model variance & 95% projection intervals – Broad booster, no new variant



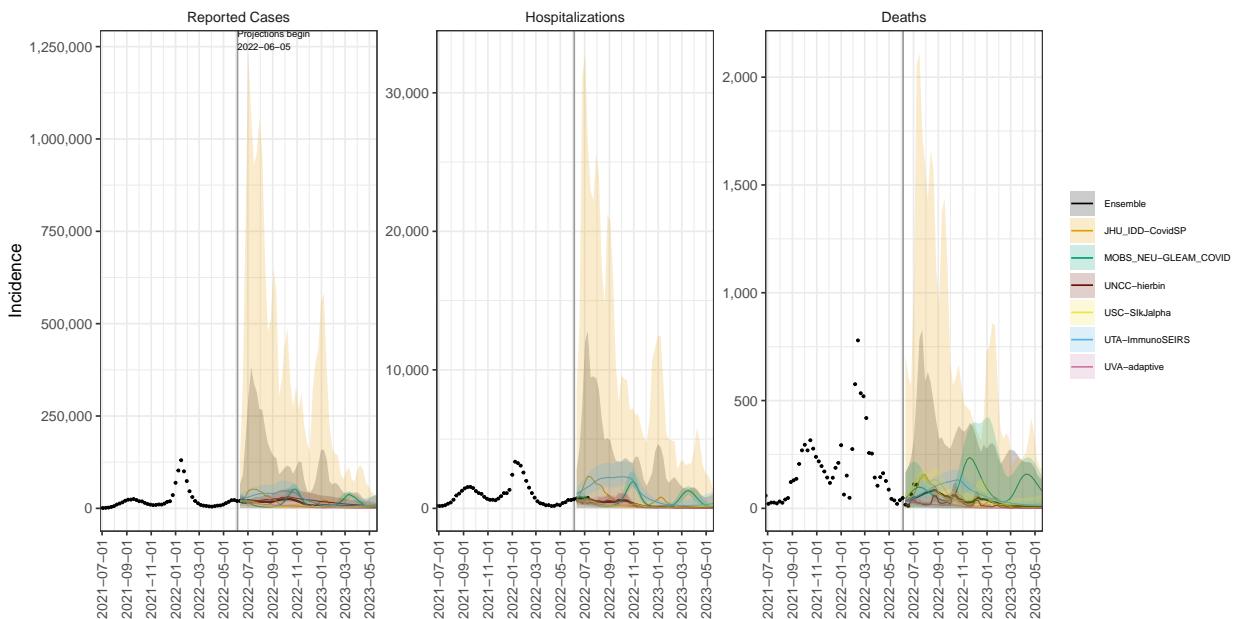
UT model variance & 95% projection intervals – Broad booster, no new variant



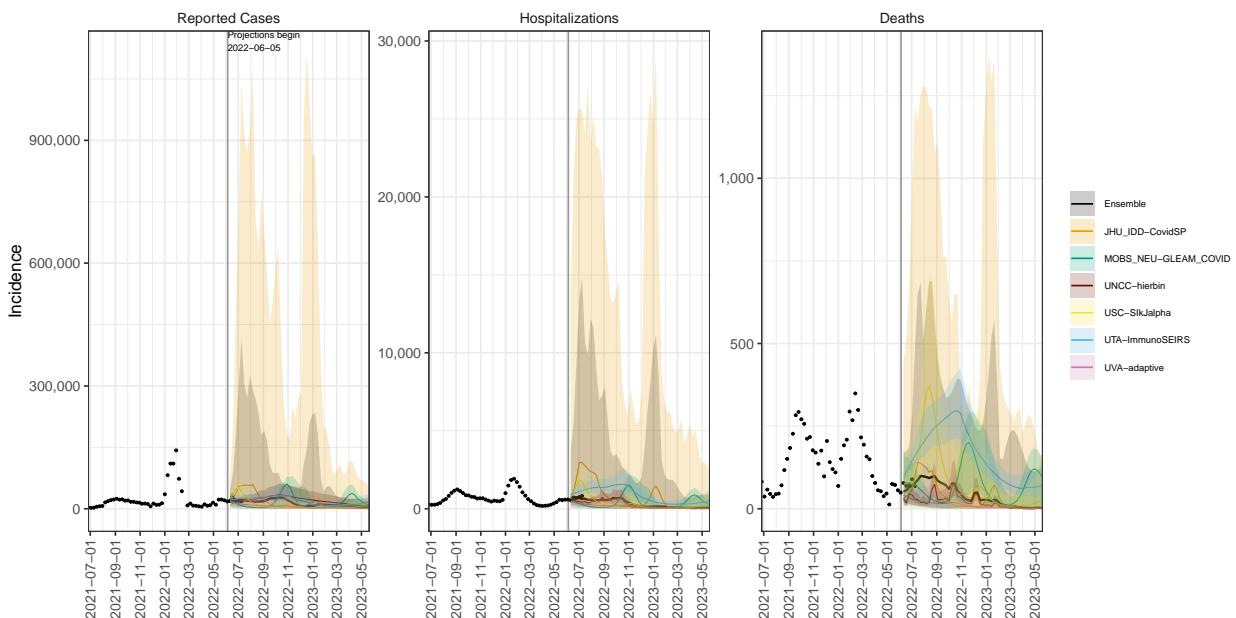
VT model variance & 95% projection intervals – Broad booster, no new variant



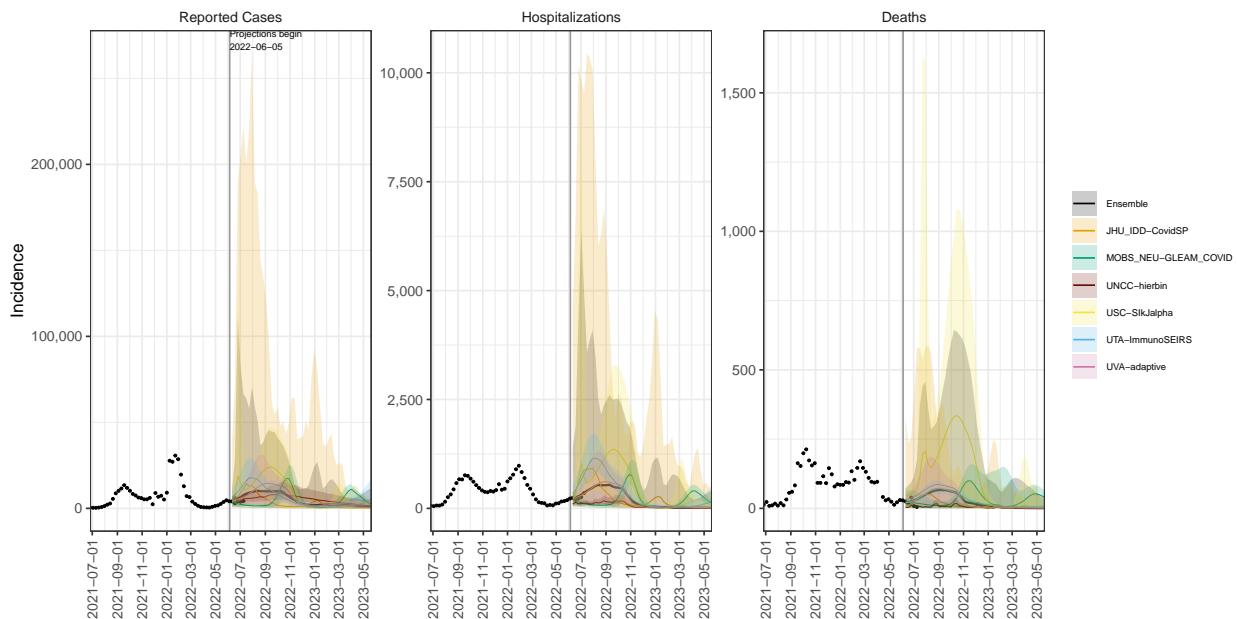
VA model variance & 95% projection intervals – Broad booster, no new variant



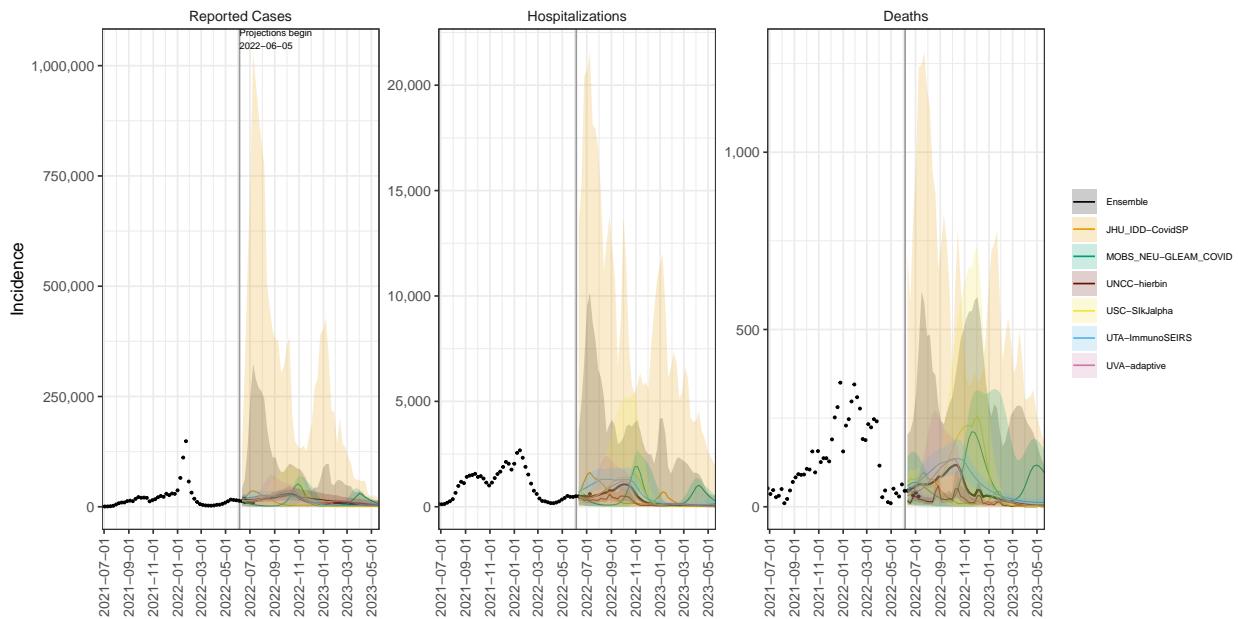
WA model variance & 95% projection intervals – Broad booster, no new variant



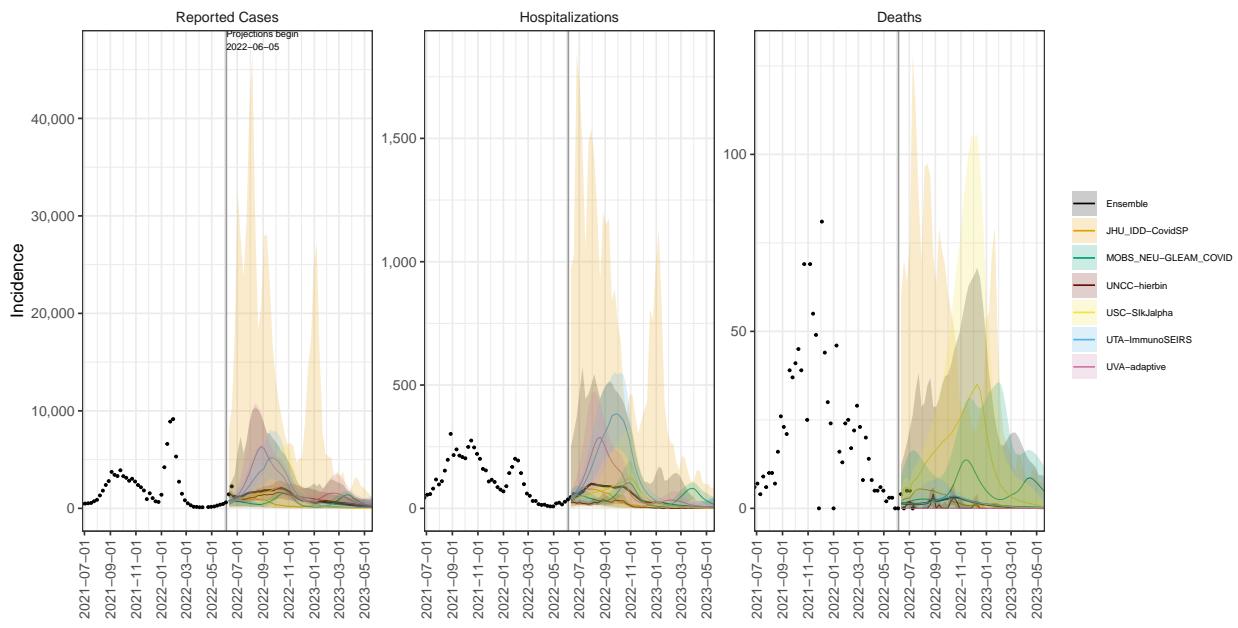
WV model variance & 95% projection intervals – Broad booster, no new variant



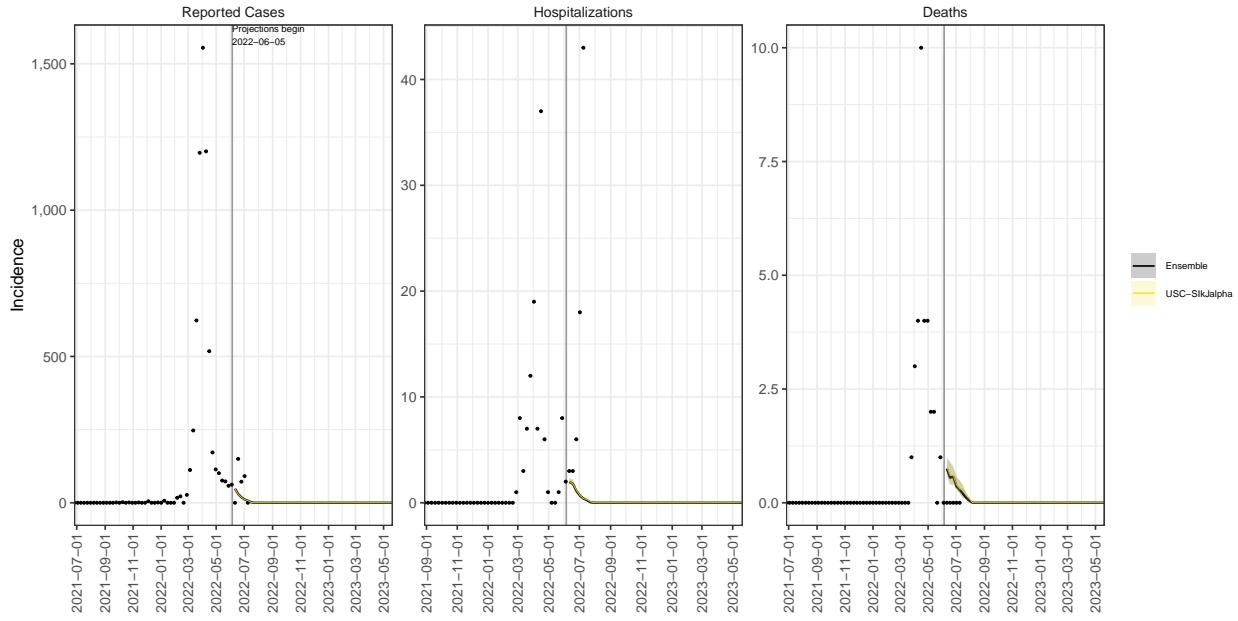
WI model variance & 95% projection intervals – Broad booster, no new variant



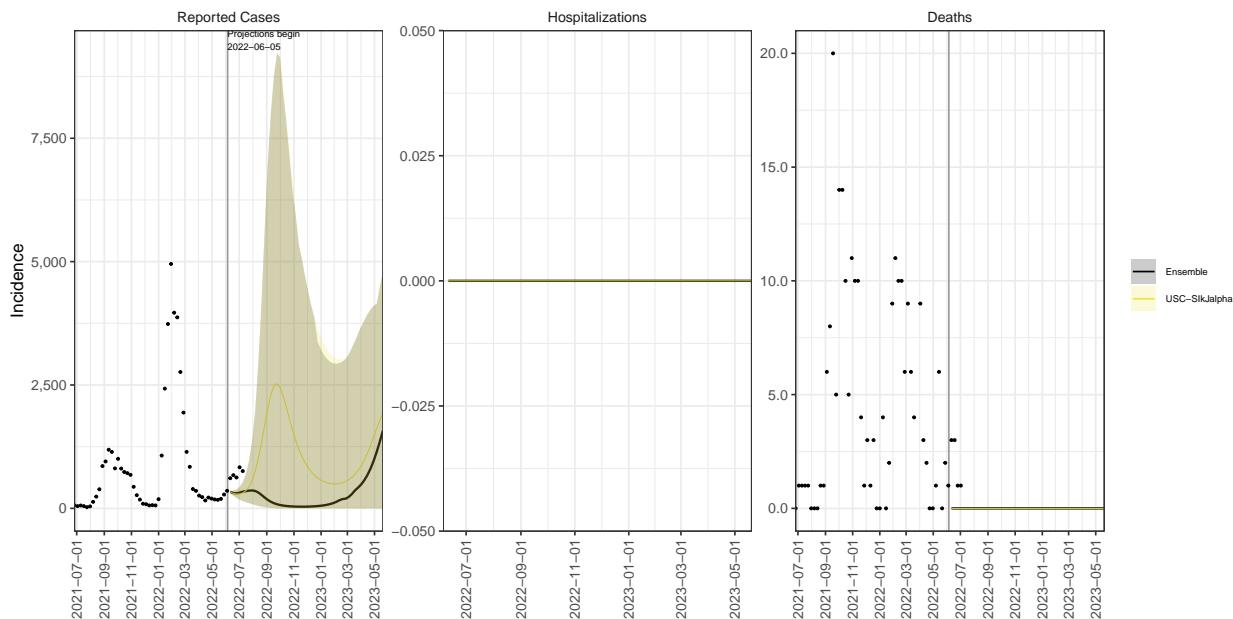
WY model variance & 95% projection intervals – Broad booster, no new variant



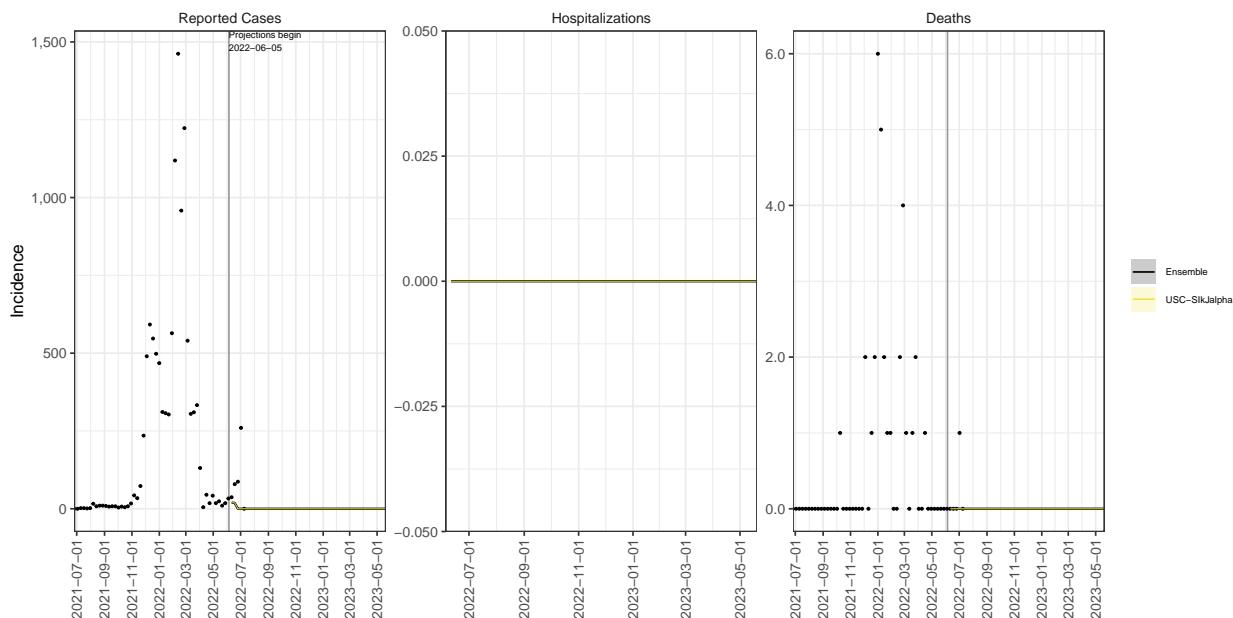
AS model variance & 95% projection intervals – Broad booster, no new variant



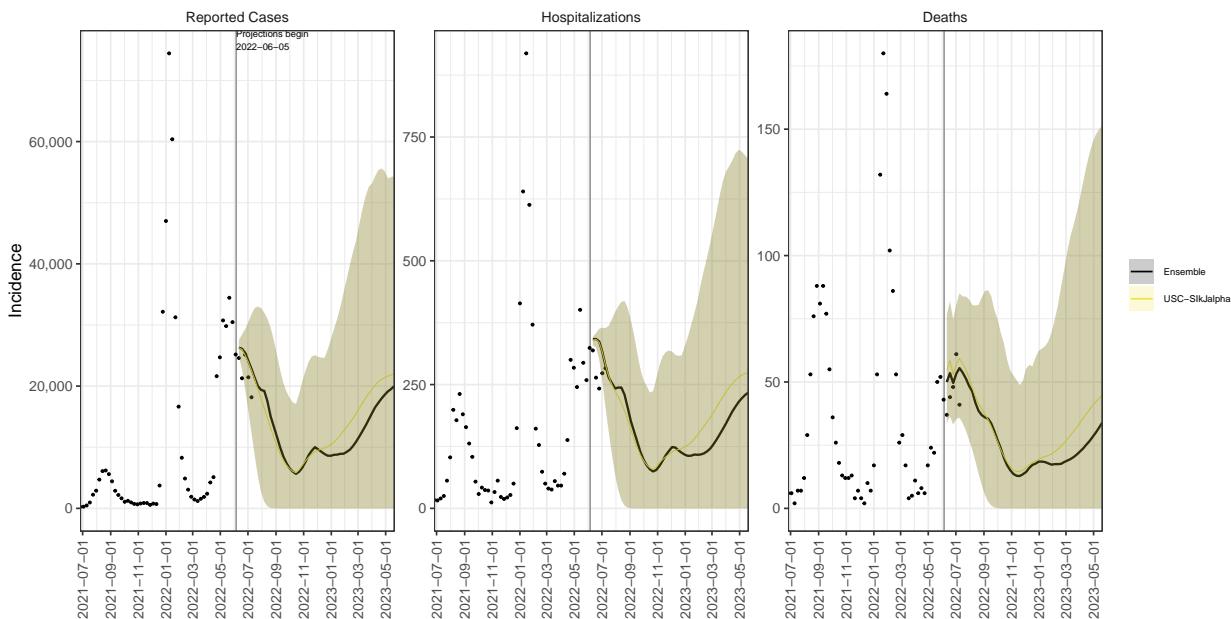
GU model variance & 95% projection intervals – Broad booster, no new variant



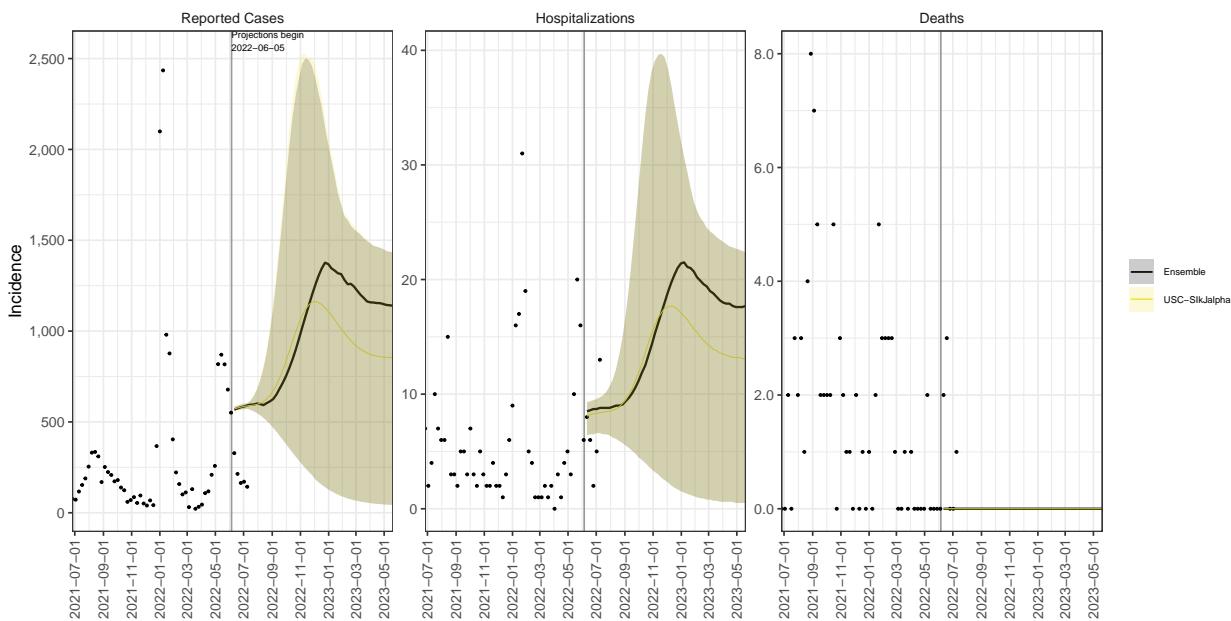
MP model variance & 95% projection intervals – Broad booster, no new variant



PR model variance & 95% projection intervals – Broad booster, no new variant



VI model variance & 95% projection intervals – Broad booster, no new variant



Teams and models

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