

SPI-M-O

Medium-Term Projections and Scenarios

28th October 2020

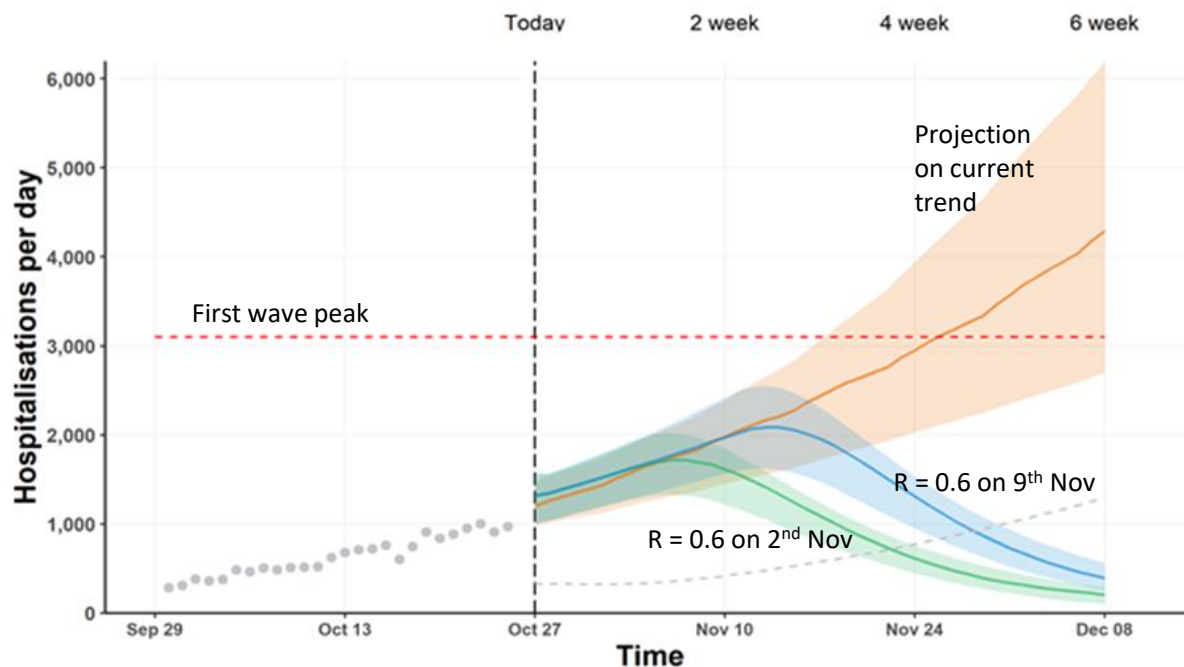
SPI-M-O medium-term projections and scenarios

- These projections represent SPI-M-O's **best assessment of the potential trajectory** of the epidemic over the next six weeks, based on current trends and the data available up to **26th October 2020**. Projections for **hospitalisations and deaths** are provided for **England and NHS England regions**. These projections will continue to be developed over the coming weeks.
- The projections **portray a range of possible futures** and are produced by fitting epidemiological models to trends in the past data. SPI-M-O members extrapolate forwards and use their expert judgements about how viral transmission will change **in the absence of additional government intervention or behavioural changes**.
- These projections **do not account for the impact of future policy changes**
- The delay between infection, developing symptoms, the need for hospital care, and death means **these projections cannot fully reflect changes in transmission which might have occurred over the past two to three weeks**, including any impact from the recently announced measures.
- **Making projections when the epidemic is changing is particularly challenging**. The lagged nature of many data streams makes it difficult to detect and interpret changes.
- Also included are scenarios showing the modelled trajectory if stringent interventions are put in place on 2nd November or 9th November. $R = 0.6$ in these scenarios. This is to illustrate the most optimistic scenario (in terms of minimising direct COVID-19 mortality and morbidity) that SPI-M-O consider to be plausible and is around the value of R seen in the community in early April.

Modelled projections based on trends to 26th October 2020, and two medium-term scenarios

New hospital admissions per day in England

These are projections based on current trends (orange) or illustrative scenarios (green, blue) and not forecasts



Orange shows the trajectory based on current trends, **not including the effects of past or future policy or behaviour changes that have yet to be reflected in data**. They cannot account for policy or behavioural changes in the 2-3 weeks prior to 26th October. **They are not predictions or forecasts.**

Green shows a scenario where stringent interventions are introduced on 2nd November that reduce R to 0.6 and blue shows a scenario where these are introduced on 9th November. In both scenarios, these measures are maintained for the rest of the period modelled. This is to illustrate the most optimistic scenario (in terms of minimising direct COVID-19 mortality and morbidity) that SPI-M-O consider to be plausible and is around the value of R seen in the community in early April.

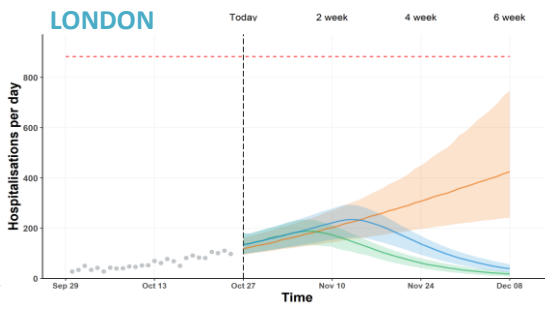
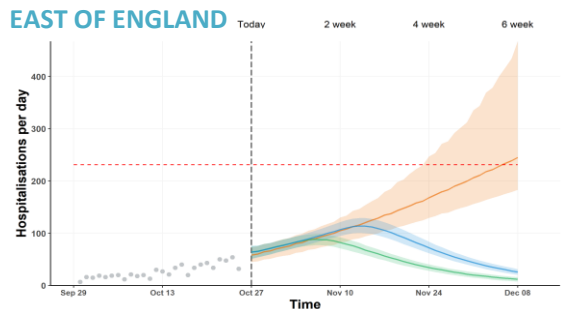
Horizontal dashed lines indicate the first wave peaks

Due to different slightly different combinations of models being used in each scenario, they do not perfectly align for the period before interventions have an effect. These differences lie well within the confidence intervals of the projections/scenarios.

Modelled projections based on trends to 26th October 2020, and two medium-term scenarios

New hospital admissions per day by region

These are projections based on current trends (orange) or illustrative scenarios (green, blue) and not forecasts

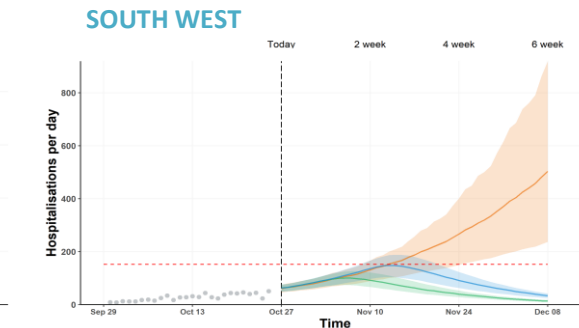
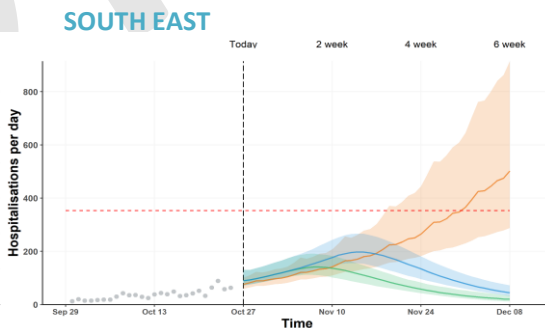
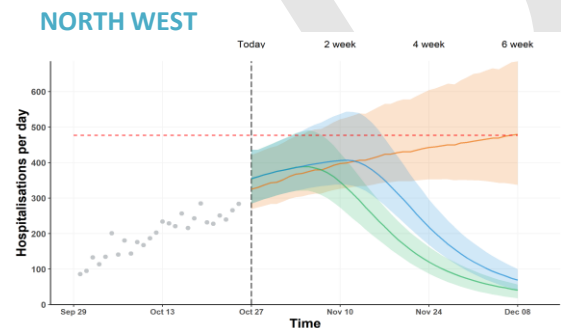
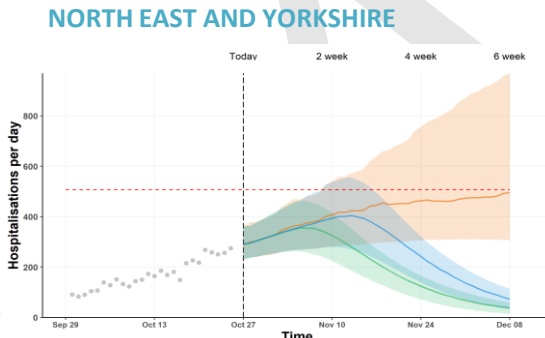
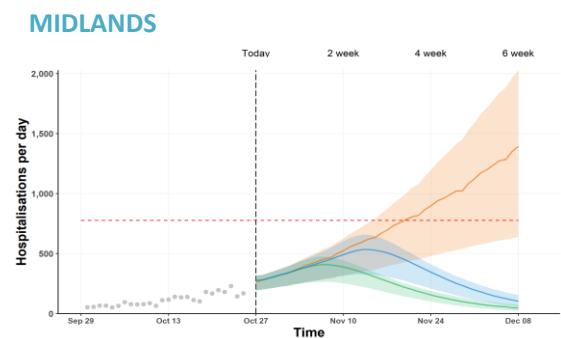


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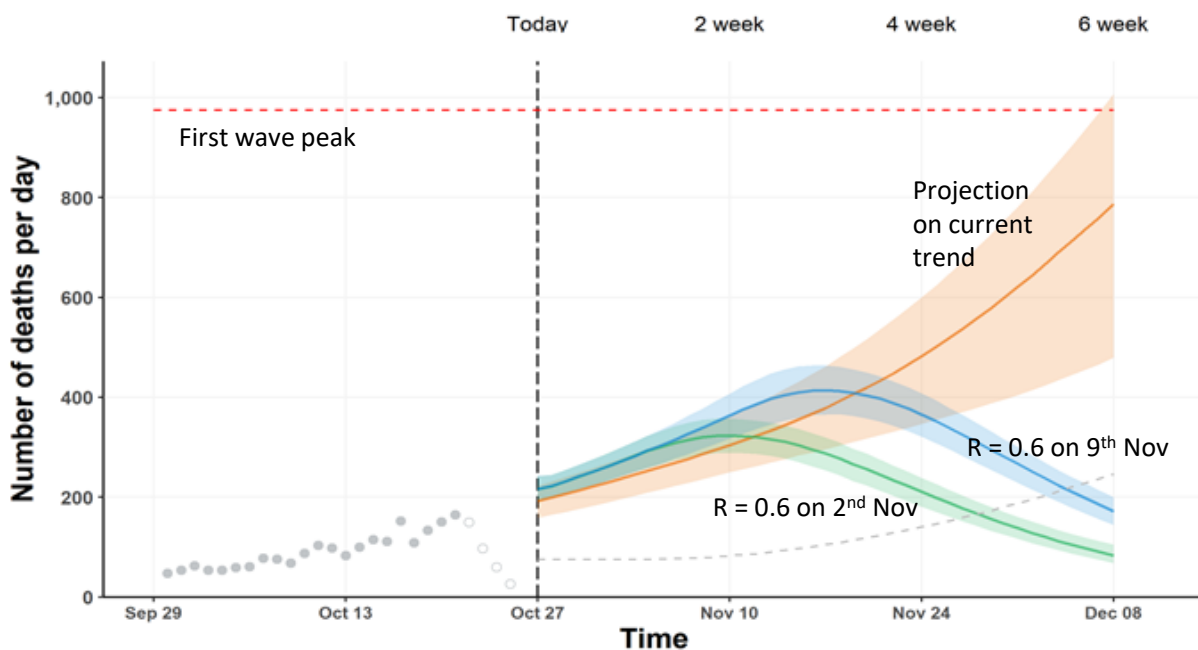


Footnote added for release: All trajectories show interquartile ranges of model combinations. The grey circles correspond to past data.

Modelled projections based on trends to 26th October 2020, and two medium-term scenarios

Deaths per day in England

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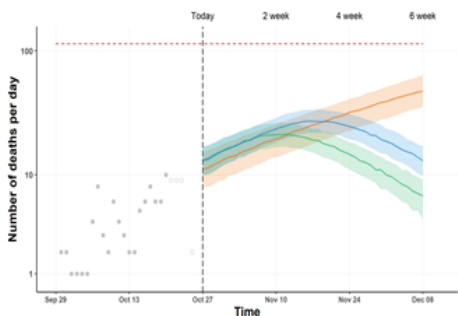
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Modelled projections based on trends to 26th October 2020, and two medium-term scenarios

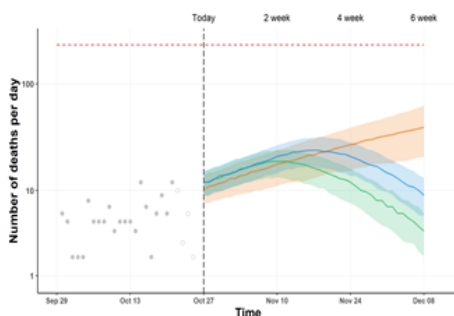
Deaths per day by region

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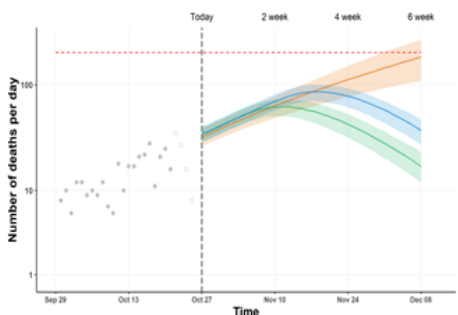
EAST OF ENGLAND



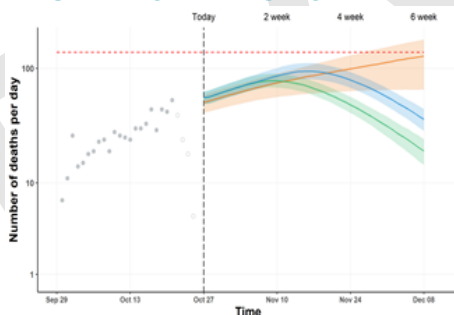
LONDON



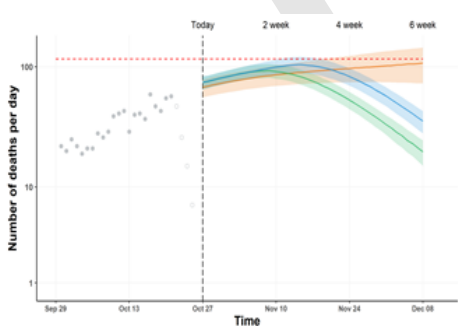
MIDLANDS



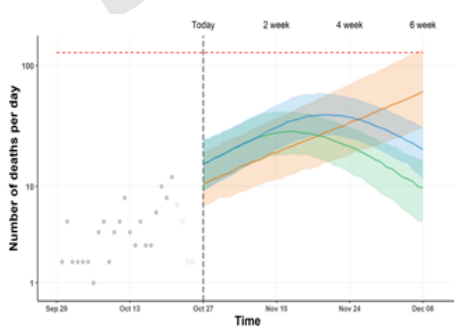
NORTH EAST AND YORKSHIRE



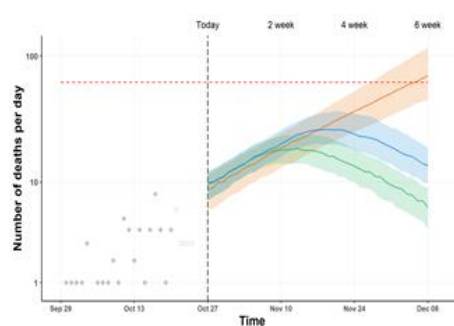
NORTH WEST



SOUTH EAST



SOUTH WEST



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Annex

- These following slides give more detail on the projections. They show the individual models which make up the combined projections. Each coloured bar represents one model's outputs 2, 4 or 6 weeks into the projection. The black bars give the combined projections.
- The grey bars in these slides show projections from previous weeks, demonstrating how accurate previous projections have been.

DRAFT

Modelled projections based on trends to 26th October 2020

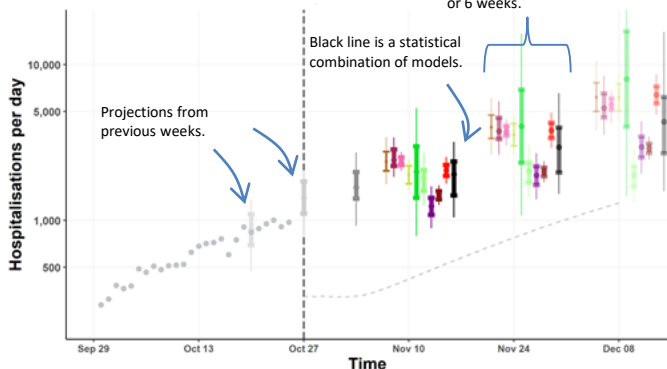
New hospital admissions per day LOG SCALE

These are projections based on current trends and not forecasts

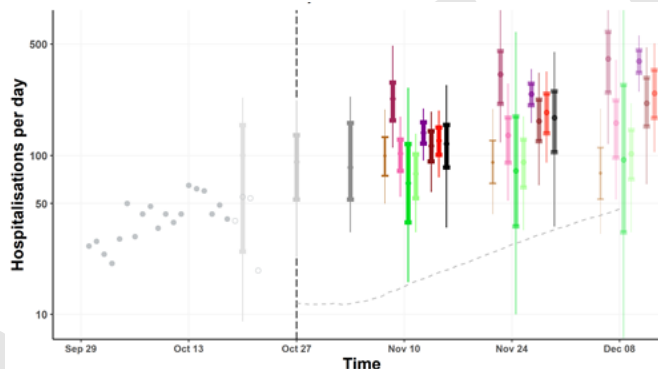
Key

- ● Real data
- ○ Expected to increase
- - - Today's date
- - - Reasonable Worst Case Scenario

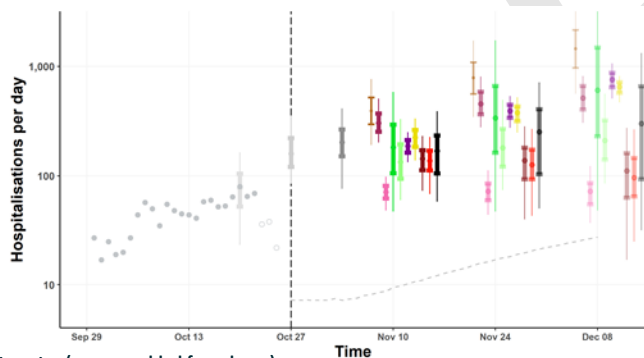
ENGLAND



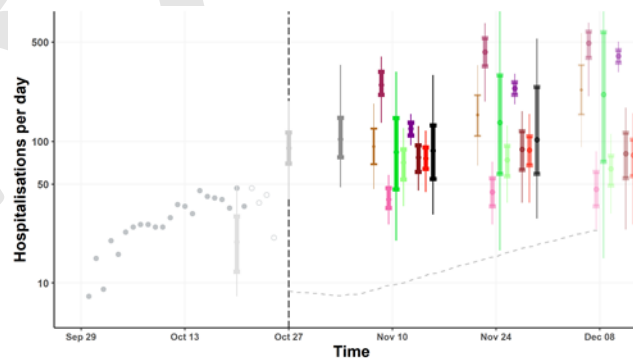
WALES



SCOTLAND



NORTHERN IRELAND



Each coloured bar is the output from a different epidemiological model assessed by SPI-M-O, giving projections at 2, 4 and 6 weeks from their production. The thick part of each bar shows the model's interquartile range, with the thin section showing the 90% credible interval. Black bars are statistical combinations of all models.

Projections cannot account for policy or behavioural changes in the 2-3 weeks prior to 26th October, as they will not be reflected in epidemiological data. Nor can they reflect future changes. They are not forecasts.

Different groups' projections are similar in the short term. Beyond this, the models diverge. This is because a) different messages are coming from different streams of data and b) in a period of exponential growth, small differences in growth rates quickly compound to large difference in outcomes after several weeks.

Data notes (sources added for release):

England: Number of patients admitted with confirmed COVID-19 and the number of inpatients diagnosed with COVID-19 in the past 24 hours. Taken from the NHSE COVID 19 Sitreps.

Wales: Number of patients admitted with confirmed COVID-19 and the number of patients diagnosed with COVID-19 on the day of admission. Provided by Public Health Wales.

Scotland: Number of patients admitted with confirmed COVID-19 and inpatients diagnosed with COVID-19 within 7 days of admission. Provided by Public Health Scotland.

Northern Ireland: Number of patients admitted with confirmed COVID-19 and the number of inpatients diagnosed with COVID-19. Provided by HSCNI.

For clarity, in some cases, y axes do not show complete extent of projections.

Footnote added for release: The reasonable-worst case scenario (RWCS) estimates for hospital admissions plotted for the four nations relate to the RWCS commissioned by the Cabinet Office Civil Contingencies Secretariat. However, please note that this RWCS was not agreed or used for planning by the Welsh Government, Scottish Government or Northern Ireland Executive.

Modelled projections based on trends to 26th October 2020

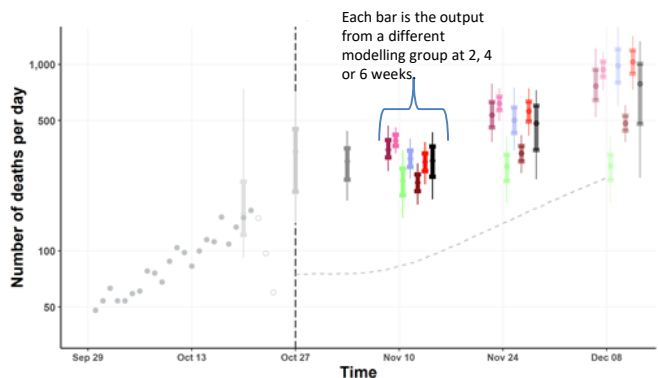
New deaths per day LOG SCALE

These are projections based on current trends and not forecasts

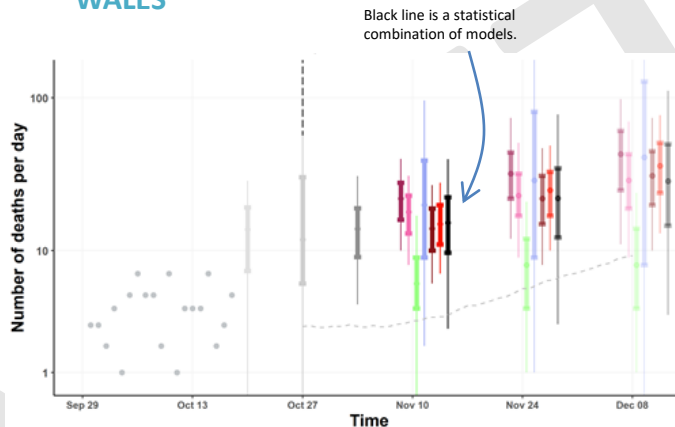
Key

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- - - Today's date
- - - Reasonable Worst Case Scenario

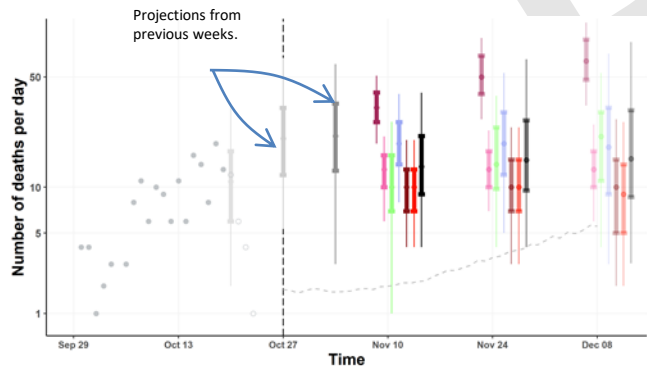
ENGLAND



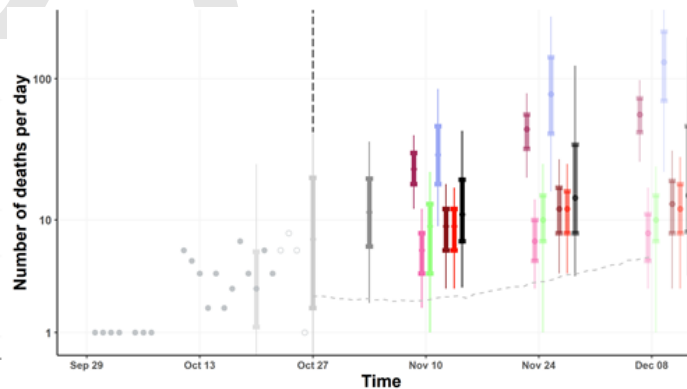
WALES



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Data Notes:

The number of COVID-19 deaths (by date of death) within 28 days of a positive test. The past data for England is taken from the PHE line list of deaths. The past data for Scotland, Wales and Northern Ireland is taken from the Coronavirus (COVID-19) in the UK dashboard on Gov.uk. For clarity, in some cases, y axes do not show complete extent of projections.

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