

SPI-M-O

Medium-Term Projections

21st October 2020

SPI-M-O medium-term projections

- These projections represent SPI-M-O's **best assessment of the potential trajectory** of the epidemic over the next 6 weeks, based on current trends and the data available up to **19th October 2020**. Projections for **infections, hospitalisations and deaths** are provided for **England, Scotland, Wales, Northern Ireland 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**, such as the circuit breaker recently announced for Wales or additional local interventions in England.
- 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. Projections in the nearer term, however, are more certain; for example, those projected to die from COVID-19 in two weeks' time are likely to already be infected.
- **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.

Metrics:

- **Incidence per day:** Number of new symptomatic and asymptomatic COVID-19 infections per day.
- **New hospitalisations per day:** Number of individuals admitted with COVID-19 and inpatients newly diagnosed with COVID-19. Data definitions differ slightly across all four nations.
- **New deaths per day (by date of death):** The number of COVID-19 deaths within 28 days of a positive test. Data definitions differ slightly across all four nations.

Modelled Projections based on trends to 19th October 2020

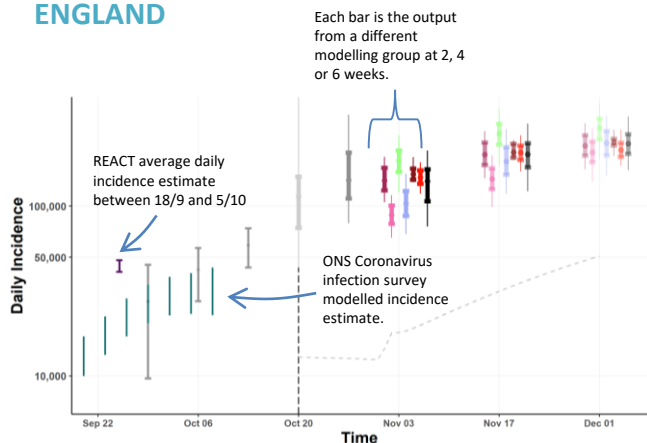
Incidence per day LOG SCALE

These are projections based on current trends and not forecasts

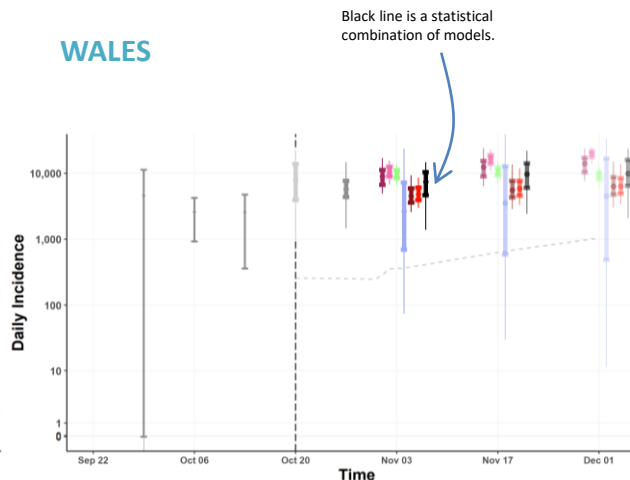
Key

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

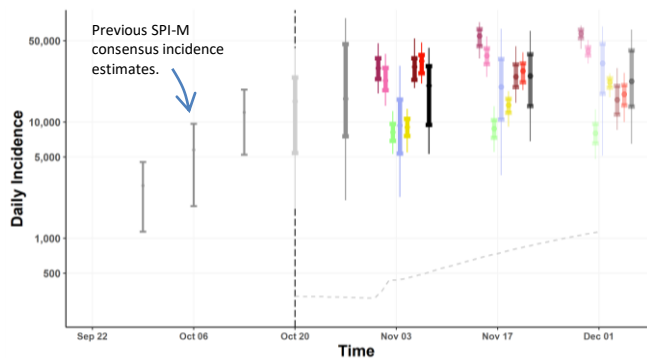
ENGLAND



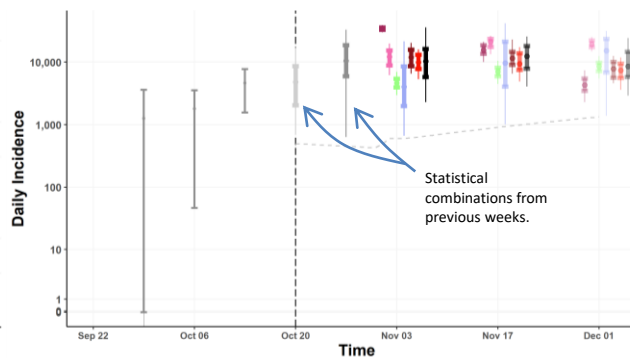
WALES



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 19th October, as they will not be reflected in epidemiological data. Nor can they reflect future changes. They are not forecasts.

Modelling groups' incidence projections can vary substantially. It is impossible to measure the true number of infections, meaning there is an absence of historic incidence data to fit models to. This, coupled with different infection fatality rate and infection hospitalisation rate assumptions, can result in substantially different incidence estimates.

Data notes:

Incidence per day: Number of new symptomatic and asymptomatic COVID-19 infections per day. 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 incidence 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 19th October 2020

New hospital admissions per day LOG SCALE

These are projections based on current trends and not forecasts

Key

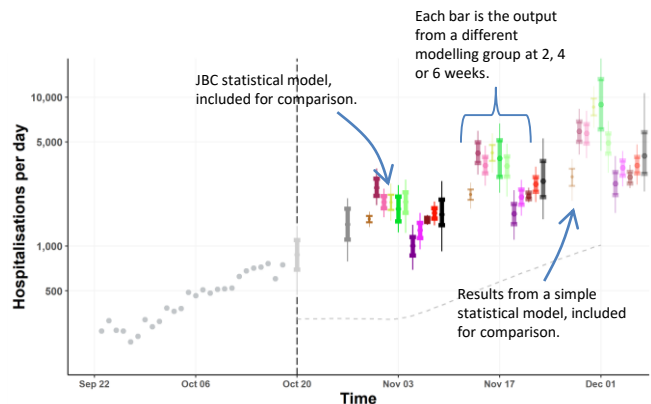
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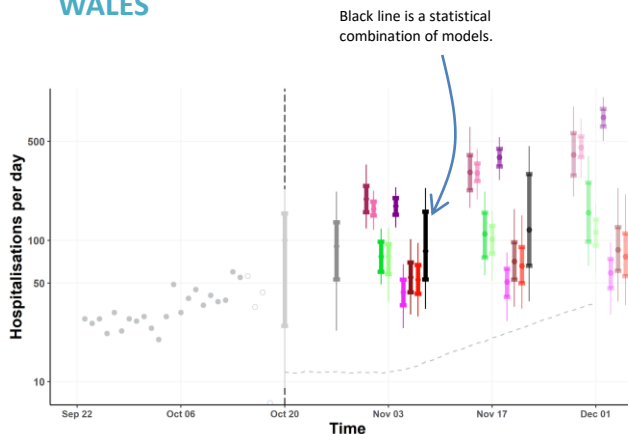
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Different groups' projections are similar in the short term. Beyond this, the models diverge. This is because a) different messages are coming from different streams of data and b) in a period of exponential growth, small differences in growth rates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

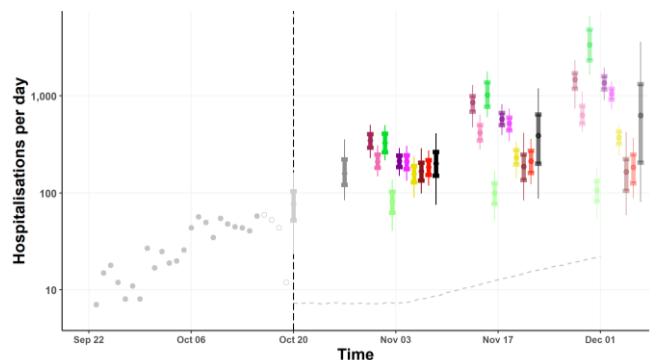
ENGLAND



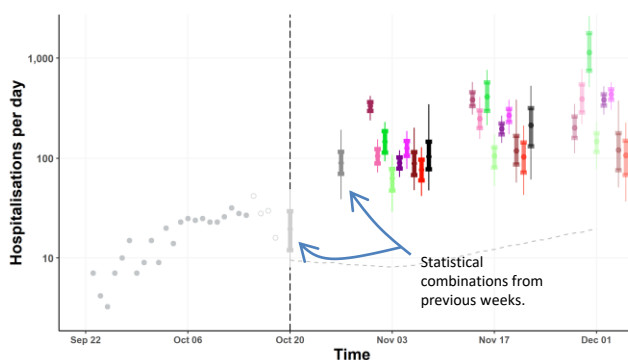
WALES



SCOTLAND



NORTHERN IRELAND



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.

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Modelled Projections based on trends to 19th October 2020

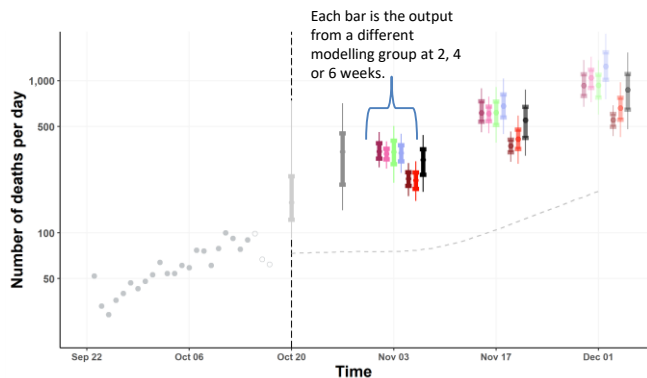
New deaths per day LOG SCALE

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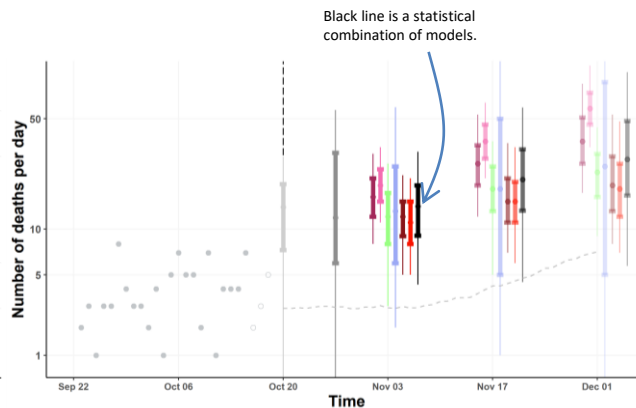
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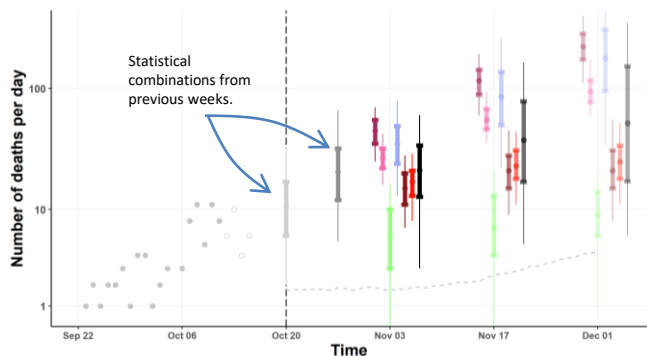
ENGLAND



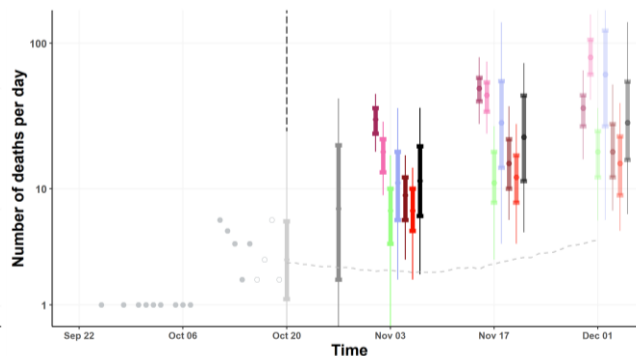
WALES



SCOTLAND



NORTHERN IRELAND



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Projections cannot account for policy or behavioural changes in the 2-3 weeks prior to 19th 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:

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.

Footnote added for release: The reasonable-worst case scenario (RWCS) estimates for deaths 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.

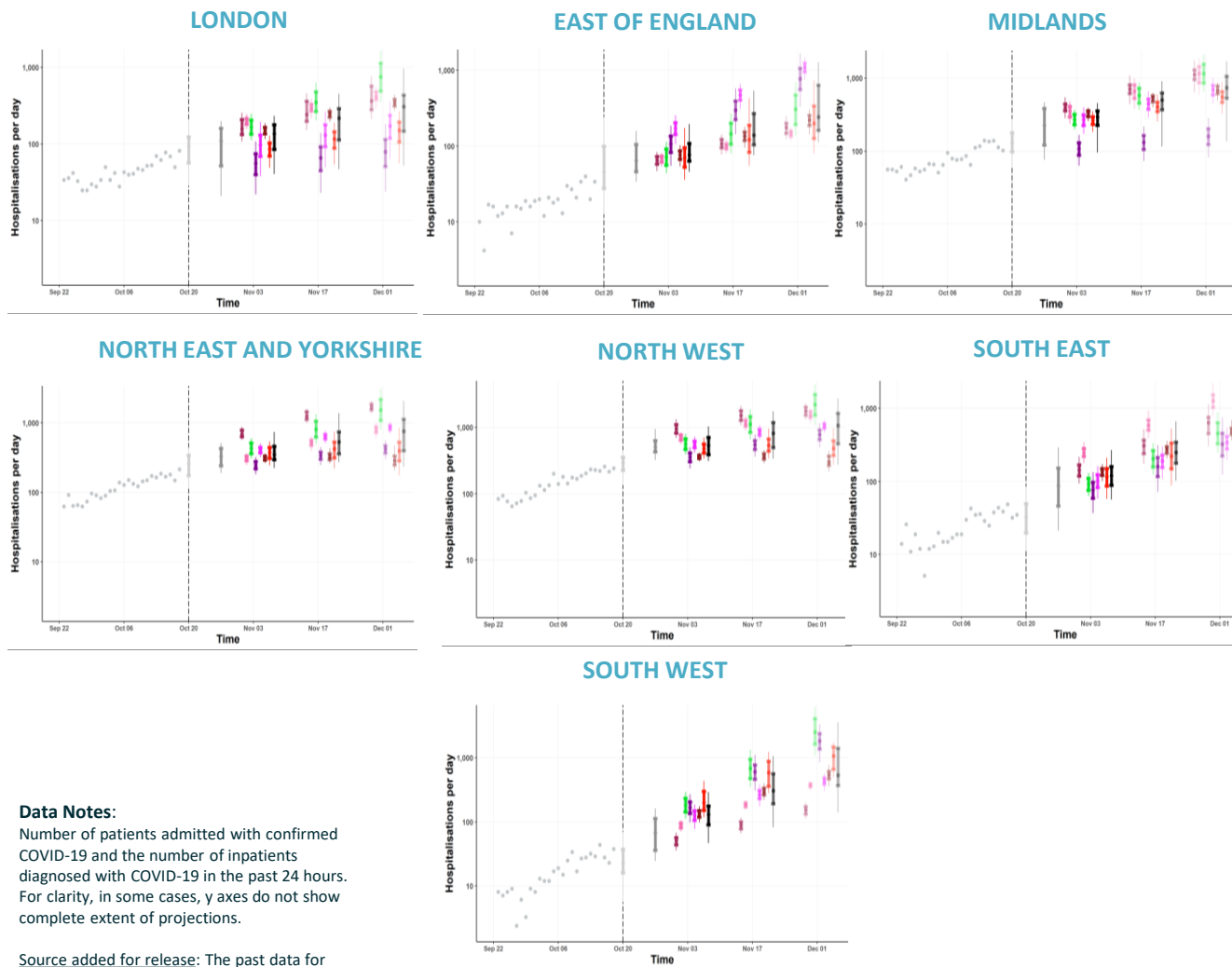
Modelled Projections based on trends to 19th October 2020

New hospital admissions per day LOG SCALE

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Data Notes:

Number of patients admitted with confirmed COVID-19 and the number of inpatients diagnosed with COVID-19 in the past 24 hours. For clarity, in some cases, y axes do not show complete extent of projections.

Source added for release: The past data for England taken from the NHS England SitReps

Modelled Projections based on trends to 19th October 2020

New deaths per day LOG SCALE

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- - - Today's date

LONDON

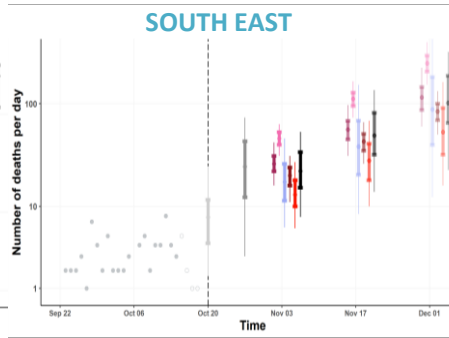
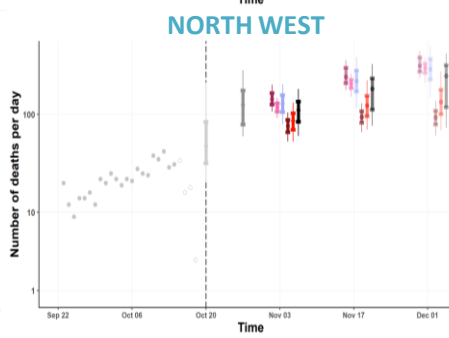
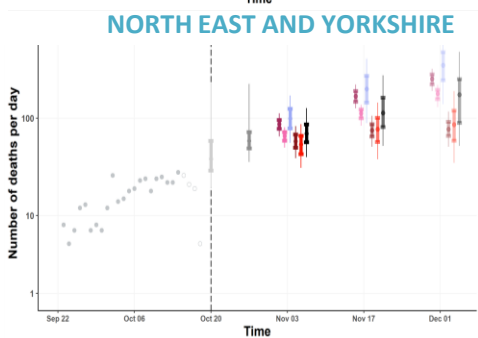
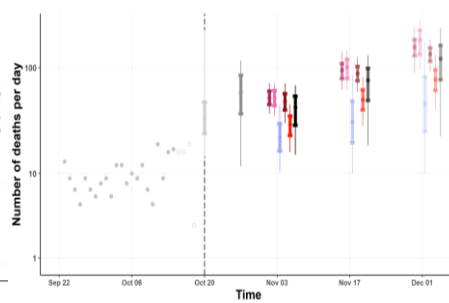
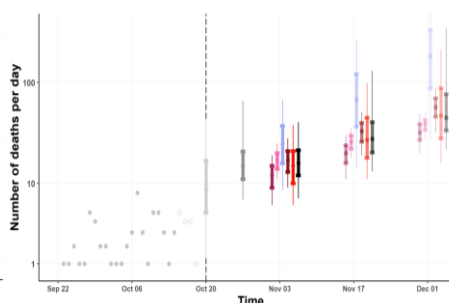
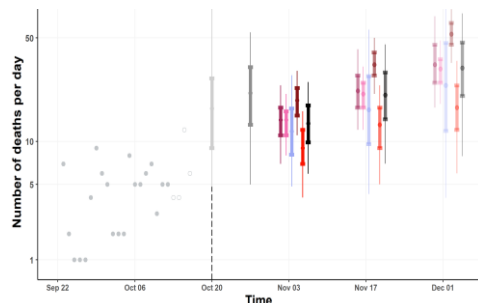
EAST OF ENGLAND

MIDLANDS

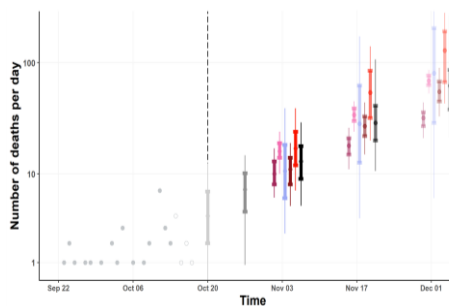
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SOUTH WEST



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