SPI-M-O
Medium-Term Projections

21th April 2021

SPI-M-O Medium-term Projections

- **These projections are not forecasts or predictions**. They represent a scenario in which the trajectory of the epidemic continues to follow the trends that were seen in the data up to 19th April.
- The delay between infection, developing symptoms, the need for hospital care, and death means **they will not fully reflect the impact of behavioural changes in the two to three weeks prior to 19th April.** This means the projections cannot account for recent changes to policy, such as Step 2 of the Roadmap in England. They do include an estimate for the effect of the return of schools after Easter.
- **These projections include the impact of vaccines given in the next four weeks.** This has been based on a rollout scenario provided by Cabinet Office for modelling purposes; it assumes an average of 4.2 million doses are administered per week across the UK. These doses will have limited impact over this timescale, given lags between vaccination and protection, and between infection and hospital admission.
- The projections assume vaccinations are administered according to JCVI's priority order, with 95% coverage in the over 50s and 90% coverage in under 50s.
- Modelling groups have used their expert judgement and evidence from Public Health England, Scottish universities and Public Health Scotland and other published efficacy studies when making assumptions about vaccine effectiveness. A table summarising these assumptions is available in the annex.
- Modelling groups have used data from contact surveys, previous findings, and their own expert judgement to incorporate the impact of re-opening schools and the Easter holidays on transmission. **The projections do not include the effects of any other future policy or behavioural changes.**
- The number of new cases, hospitalisations and deaths are reaching very low levels in some nations and regions. In some regions the number of hospitalisations has flattened over recent weeks while other data streams have continued to decline. Projecting forwards is difficult when numbers fall to very low levels and different data streams have different trajectories.
- Not all modelling groups produce projections for both hospitalisations and deaths so there will be some differences between the models included in the combined projections for each metric.

Metrics:

- **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 April 2021

New hospital admissions per day

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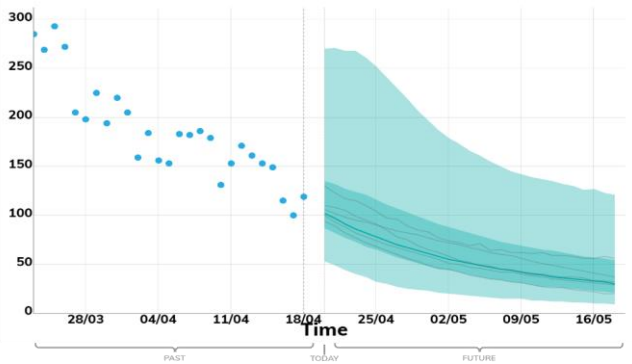
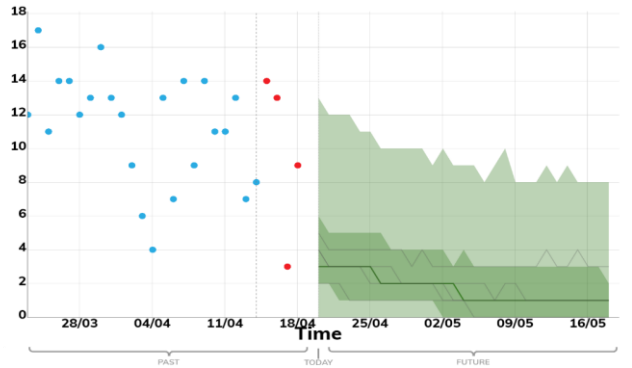
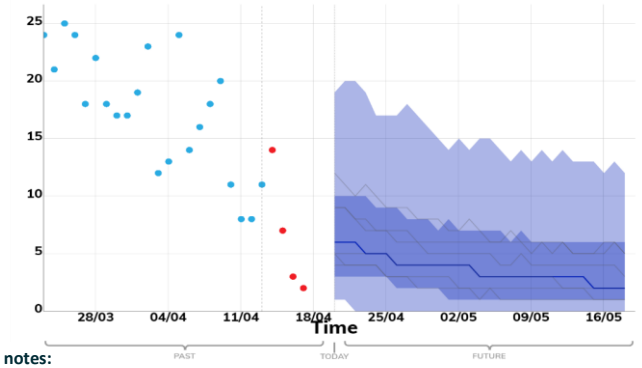
ENGLAND



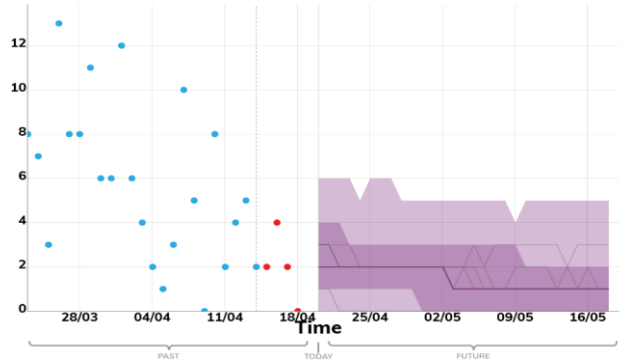
WALES



SCOTLAND



NORTHERN IRELAND



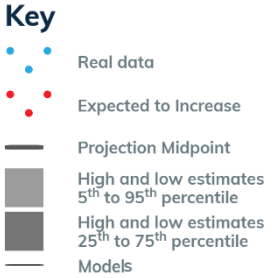
Data notes:

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 NHSE COVID-19 Situation reports.

Wales: Number of patients admitted with confirmed COVID-19 and inpatients diagnosed with COVID-19. Provided by Public Health Wales.

Scotland: Number of patients who tested positive for COVID-19 in the 14 days prior to admission, on the day of admission, or during their stay in hospital. Readmissions within 14 days of a positive test are excluded. Provided by Public Health Scotland.

Northern Ireland: Number of patients admitted with confirmed COVID-19 and inpatients diagnosed with COVID-19. Provided by Health and Social Care Northern Ireland.



These fan charts show the **90% credible interval and interquartile range** of the combined projections based on current trends. They cannot account for the impact of policy or behavioural changes in the two to three weeks prior to 19th April, as these will not yet have been reflected in epidemiological data.

These projections *include* the potential impact of vaccines given in the next four weeks. This has been based on a rollout scenario provided by Cabinet Office for modelling purposes; with 95% coverage in the over 50s and 90% in under 50s. The vaccine effectiveness assumptions used by each group are summarised in the annex. These doses will have limited impact over this timescale, given lags between vaccination and protection, and between infection and hospital admission.

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Modelled projections based on trends to 19th April 2021

New hospital admissions per day

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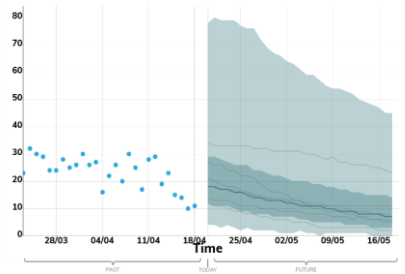
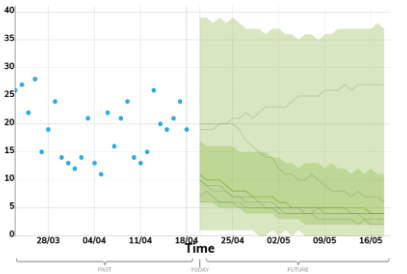
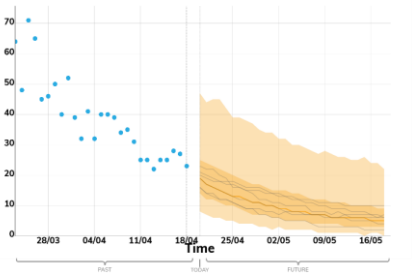
LONDON



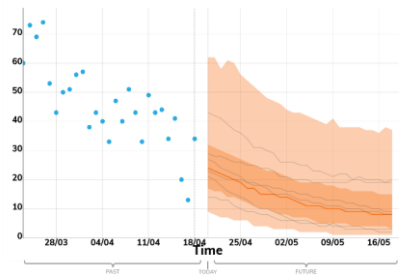
EAST OF ENGLAND



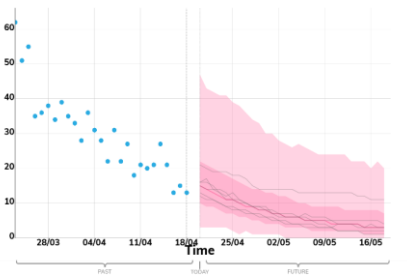
MIDLANDS



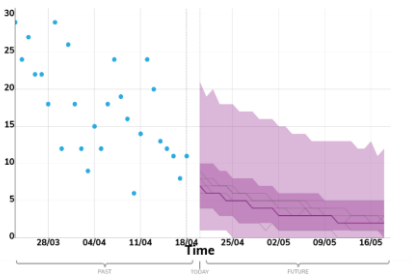
NORTH EAST AND YORKSHIRE



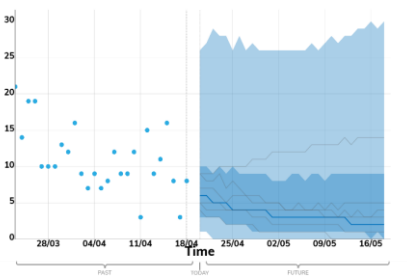
NORTH WEST



SOUTH EAST



SOUTH WEST



Data notes:
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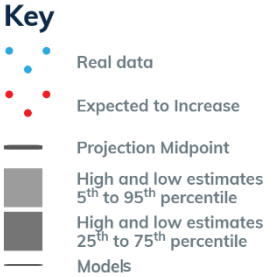

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New deaths per day

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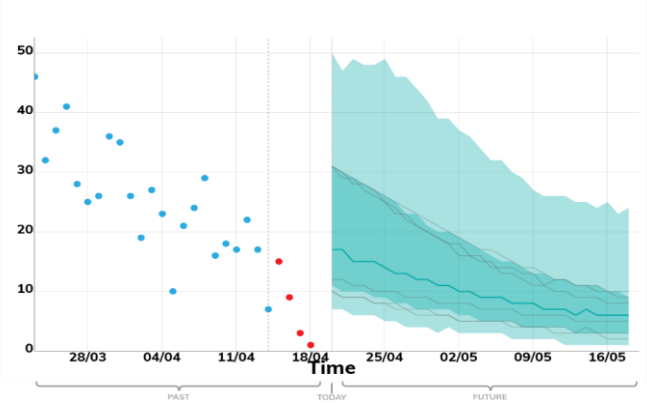
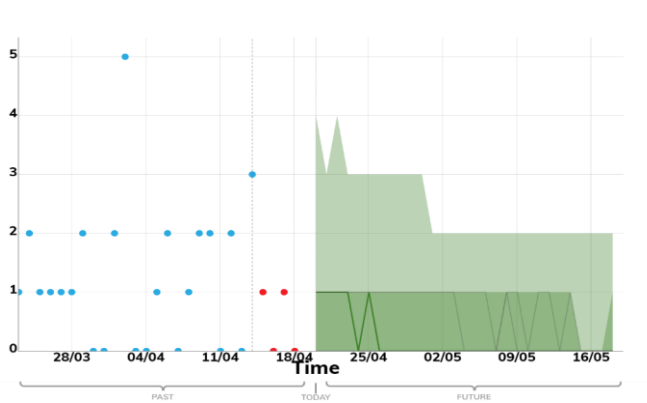
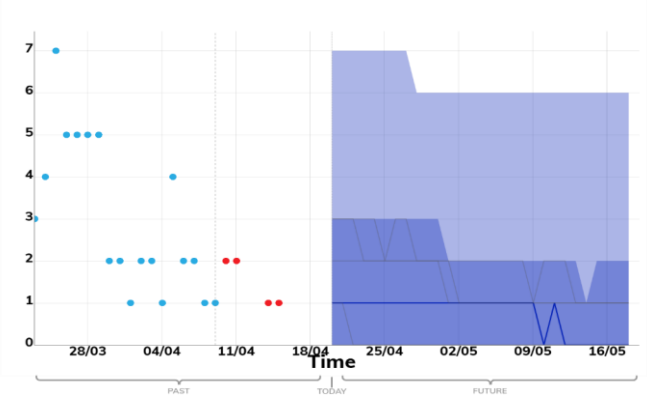


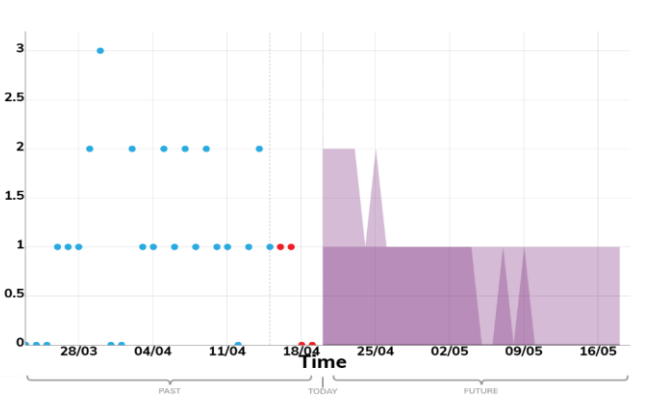
WALES



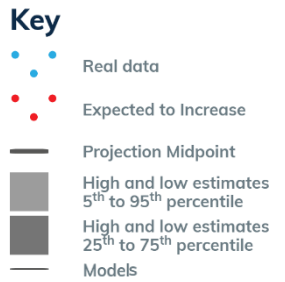
SCOTLAND



NORTHERN IRELAND



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.



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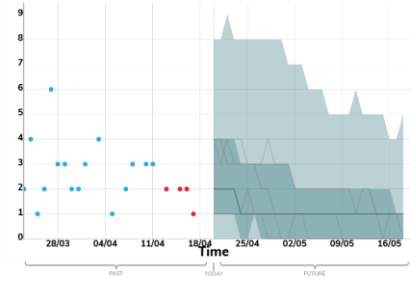
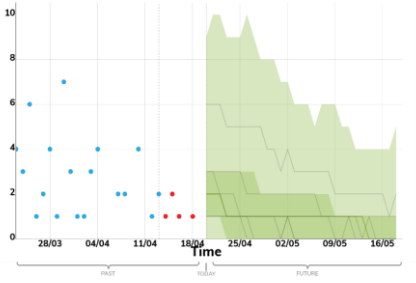


EAST OF ENGLAND



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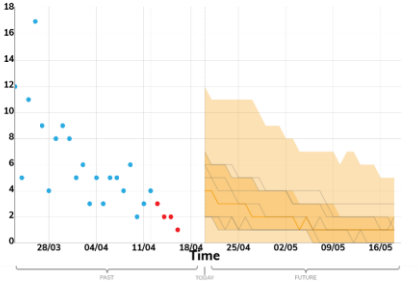

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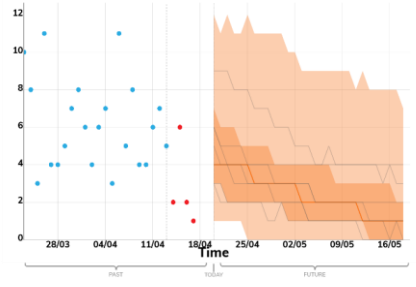
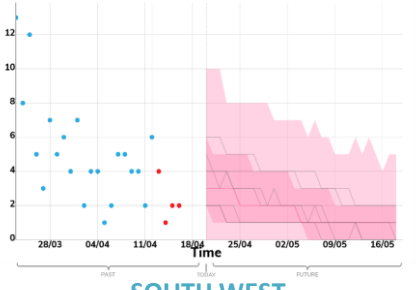
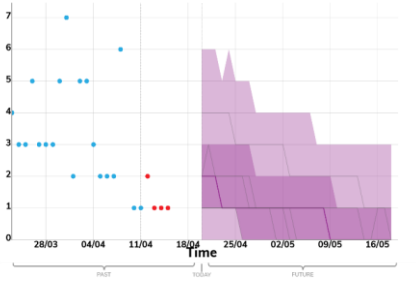


NORTH WEST



SOUTH EAST



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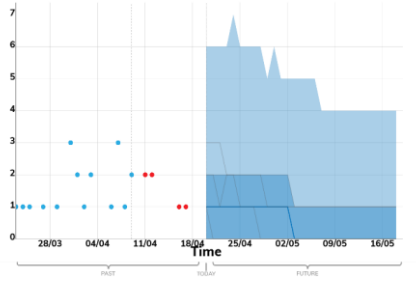

Data Notes:
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Key

- Real data
- Expected to Increase
- Projection Midpoint
- High and low estimates 5th to 95th percentile
- High and low estimates 25th to 75th percentile
- Models

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Annex: SPI-M-O Vaccine Effectiveness Assumptions

Table 1: Vaccine reduction in risk of hospitalisation or death							
		LSHTM	Imperial	Manchester [1]	Warwick [2]	PHE	Scottish Government
Pfizer-BioNTech	1st Dose	91%	80%	75%	80%	80%	94%
	2nd Dose	98%	98%	75%	90%	95%	97%
Oxford-AstraZeneca	1st Dose	87%	80%	75%	80%	50%	88%
	2nd Dose	93%	80%	75%	90%	70%	93%

Table 2: Vaccine reduction in risk of infection							
		LSHTM	Imperial	Manchester [1]	Warwick [2]	PHE	Scottish Government
Pfizer-BioNTech	1st Dose	70%	65%	75%	60%	48%	60%
	2nd Dose	85%	94%	75%	71%	60%	75%
Oxford-AstraZeneca	1st Dose	67%	63%	75%	60%	48%	60%
	2nd Dose	68%	65%	75%	71%	60%	75%

[1] Manchester's model doesn't split vaccine effectiveness by vaccine type or different doses.
[2] Warwick's vaccine effectiveness assumptions are based on a weighted average of the two vaccines.