

**SPI-M-O**

# **Medium-Term Projections**

**5<sup>th</sup> May 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 30<sup>th</sup> April.
- The delay between infection, developing symptoms, the need for hospital care, and death means **they will not fully reflect the impact of policy or behavioural changes in the two to three weeks prior to 30<sup>th</sup> April.**
- **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. The rollout of 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 50 year olds and over, and 90% coverage in the 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 the Easter holidays and reopening of schools 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 have fallen to very low levels in some nations and regions. Projecting forwards is difficult when numbers fall to very low levels, therefore SPI-M-O have decided to pause producing medium-term projections where this is the case. **The small numbers can also introduce apparent inconsistency as regions are aggregated.**
- 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:

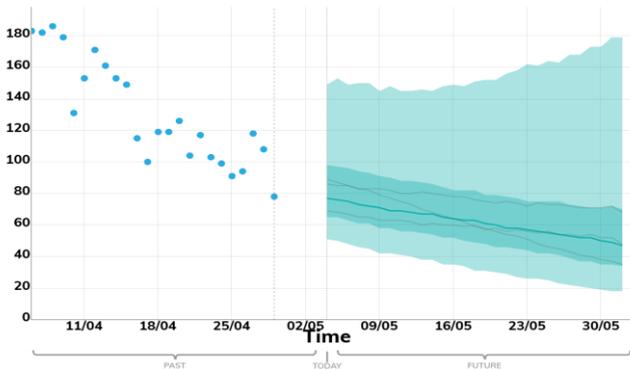
- **New hospitalisations per day:** Number of individuals admitted with COVID-19 and inpatients newly diagnosed with COVID-19. Data definitions differ slightly across all four nations.
- **New deaths per day (by date of death):** The number of COVID-19 deaths within 28 days of a positive test. Data definitions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

# Modelled projections based on trends to 30<sup>th</sup> April 2021

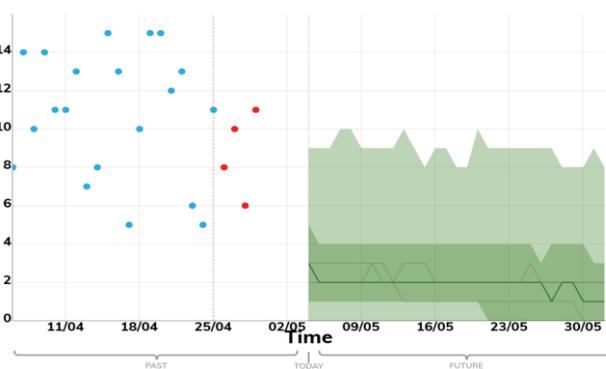
## New hospital admissions per day

These projections are based on current trends and will not fully reflect the impact of policy or behavioural changes over the past two to three weeks. They are not forecasts or predictions.

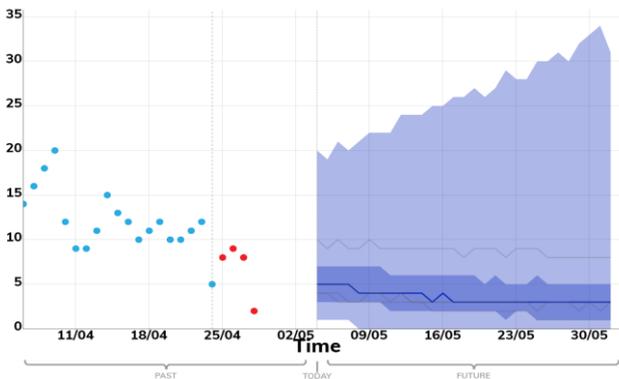
### ENGLAND



### WALES



### SCOTLAND



### NORTHERN IRELAND

SPI-M's consensus view is that the number of hospital admissions in Northern Ireland will remain very low over the next four weeks.

### Key

- • • Real data
- • • Expected to Increase
- Projection Midpoint
- High and low estimates 5<sup>th</sup> to 95<sup>th</sup> percentile
- High and low estimates 25<sup>th</sup> to 75<sup>th</sup> percentile
- Models

The 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 30<sup>th</sup> April, as these will not yet have been reflected in epidemiological data.

These projections **include the potential impact of vaccines to be given over the next four weeks**. This has been based on a rollout scenario provided by Cabinet Office for modelling purposes; with 95% coverage in 50-year olds and over, and 90% in the under 50s. These doses will have limited impact over this timescale, given lags between vaccination and protection, and between infection and hospital admission.

The projections do not include the effects of any future policy or behavioural changes.

#### 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.

# Modelled projections based on trends to 30<sup>th</sup> April 2021

## New hospital admissions per day

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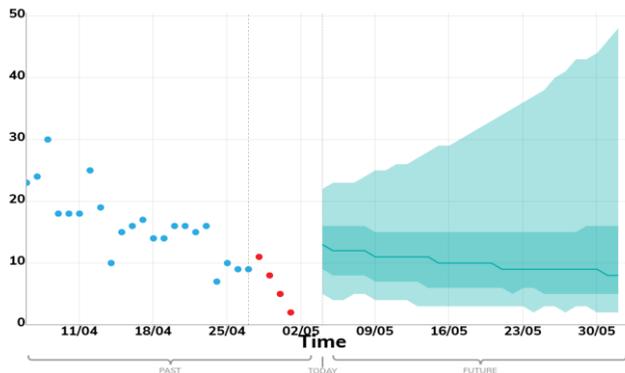
**Data notes:**  
England: Number of patients admitted with confirmed COVID-19 and the number of inpatients diagnosed with COVID-19 in the past 24 hours. The past data is taken from the NHS England COVID-19 Sitreps.

# Modelled projections based on trends to 30<sup>th</sup> April 2021

## New deaths per day

These projections are based on current trends and will not fully reflect the impact of policy or behavioural changes over the past two to three weeks. They are not forecasts or predictions.

### ENGLAND



### SCOTLAND

SPI-M's consensus view is that the number of deaths in Scotland will remain very low over the next four weeks.

### WALES

SPI-M's consensus view is that the number of deaths in Wales will remain very low over the next four weeks.

### NORTHERN IRELAND

SPI-M's consensus view is that the number of deaths in Northern Ireland will remain very low over the next four weeks.

### Key

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- Projection Midpoint
- High and low estimates 5<sup>th</sup> to 95<sup>th</sup> percentile
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The projections do not include the effects of any future policy or behavioural changes.

### 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.

# Modelled projections based on trends to 30<sup>th</sup> April 2021

## New deaths per day

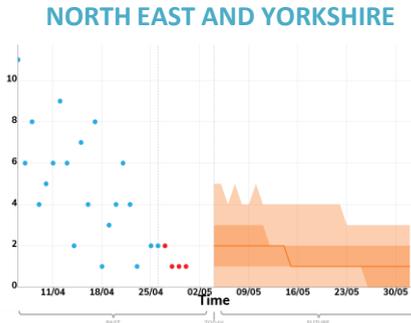
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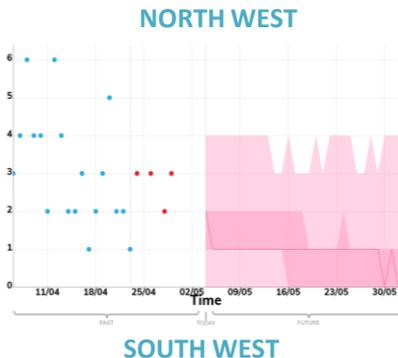
### LONDON

SPI-M's consensus view is that the number of deaths in London will remain very low over the next four weeks.

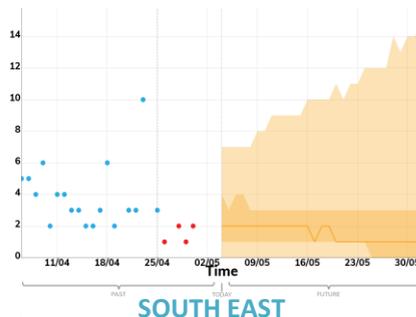


### EAST OF ENGLAND

SPI-M's consensus view is that the number of deaths in the East of England will remain very low over the next four weeks.



### MIDLANDS



SPI-M's consensus view is that the number of deaths in the South East will remain very low over the next four weeks.

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These projections *include* the **potential impact of vaccines to be given over the next four weeks**. This has been based on a rollout scenario provided by Cabinet Office for modelling purposes; with 95% coverage in 50-year olds and over, and 90% in the under 50s. These doses will have limited impact over this timescale, given lags between vaccination and protection, and between infection and hospital admission.

The projections do not include the effects of any future policy or behavioural changes.

SPI-M's consensus view is that the number of deaths in the South West will remain very low over the next four 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.

# Annex: SPI-M-O Vaccine Effectiveness Assumptions

Table 1: Vaccine reduction in risk of hospitalisation or death [3]						
		Imperial	Manchester [1]	Warwick [2]	PHE/ Cambridge	Scottish Government
Pfizer-BioNTech	1 Dose	80%	75%	80%	80%	91%
	2 Doses	95%	75%	90%	95%	95%
Oxford-AstraZeneca	1 Dose	80%	75%	80%	80%	88%
	2 Doses	80%	75%	90%	95%	93%

Table 2: Vaccine reduction in risk of infection [3]						
		Imperial	Manchester [1]	Warwick [2]	PHE/ Cambridge	Scottish Government
Pfizer-BioNTech	1 Dose	65%	75%	60%	65%	55%
	2 Doses	86%	75%	73%	85%	70%
Oxford-AstraZeneca	1 Dose	63%	75%	60%	65%	55%
	2 Doses	63%	75%	73%	65%	70%

Table 3: Vaccine reduction in onward transmission, in addition to reduction from lower infection risk [3]						
		Imperial	Manchester [4]	Warwick	PHE/ Cambridge [4]	Scottish Government [4]
Pfizer-BioNTech	1 Dose	45%	-	50%	-	-
	2 Doses	45%	-	50%	-	-
Oxford-AstraZeneca	1 Dose	45%	-	40%	-	-
	2 Doses	45%	-	50%	-	-

[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 three vaccines (Pfizer-BioNTech, Oxford-AstraZeneca and Moderna).

[3] The assumed delay between vaccination and protection varies between 10 and 21 days for dose 1 and between 7 and 21 days for dose 2 across the modelling groups.

[4] The Manchester, PHE and Scottish Government models do not include a reduction in the risk of onwards transmission after receiving either vaccine.