SPI-M-O: Consensus Statement on COVID-19

Date: 14th July 2021

All probability statements are in line with the framework given in the Annex.

Summary

1. SPI-M-O's best estimate for **R in England is between 1.2 and 1.4**. **R is estimated to be between 1.1 and 1.4 for Scotland, 1.2 and 1.5 for Wales, and 1.2 and 1.5 for Northern Ireland**. These estimates are based on data available up to 12th July, including hospitalisations, deaths, symptomatic testing, and longitudinal studies.
2. SPI-M-O estimates that there are between **18,000 and 66,000 new infections** per day in England.
3. Most regions are showing exponential growth in cases with doubling times of between one and two weeks. A variety of approaches are showing tentative signs of slowing or reduced growth in areas that have previously been concerning, such as the North West of England and Scotland.

Incidence and prevalence

4. Combined estimates from four SPI-M-O models, using data available up to 12th July, suggest there are between **18,000 and 66,000 new infections per day in England.**
5. During its most recent week (4th to 10th July), the ONS community infection survey estimates that an average of **577,700 people had COVID-19** in the community in England (95% credible interval **532,700** to **625,300**). The survey does not include people in care homes, hospitals, or prisons. Estimates from across the four nations of the UK are:

England	577,700 (95% credible interval 532,700 to 625,300)
Scotland	60,000 (95% credible interval 48,100 to 73,700)
Wales	8,400 (95% credible interval 5,000 to 12,900)
Northern Ireland	6,300 (95% credible interval 3,100 to 10,700)

Growth rate and reproduction number

6. For small daily changes, the growth rate is approximately the proportion by which the number of infections increases or decreases per day, i.e. the speed at which an epidemic is growing or shrinking[1].

[1] Further technical information on the growth rate can be found in Plus magazine

7. SPI-M-O's consensus estimates for the **growth rates in the four nations are:**

   England is between **+4% to +7% per day**,
   Scotland is between **+2% to +6% per day**,
   Wales is between **+3% to +7% per day**, and
   Northern Ireland is between **+3% to +8% per day**.

   SPI-M-O's national and regional estimates of growth rates are summarised in Table 1 and Figure 2.

8. The reproduction number (R) is the average number of secondary infections produced by a single infected individual; it is an average over time, geographies, viral variants, and communities.

9. SPI-M-O's best estimate for **R in England is between 1.2 and 1.4**. **R is estimated to be between 1.1 and 1.4 for Scotland, 1.2 and 1.5 for Wales, and 1.2 and 1.5 for Northern Ireland**. SPI-M-O's agreed national estimates are summarised in Table 1 and Figure 1, and these are based on the latest data available up to 12th July.

Table 1: Combined estimates of R values and growth rates in the four nations of the UK and NHS England regions (90% confidence interval)[2].

Nation	R	Growth rate per day	Doubling time[3]
England	1.2 to 1.4	+4% to +7%	11 to 16 days
Scotland	1.1 to 1.4	+2% to +6%	12 to 34 days
Wales	1.2 to 1.5	+3% to +7%	10 to 19 days
Northern Ireland	1.2 to 1.5	+3% to +8%	9 to 18 days
NHS England region	**R**	**Growth rate per day**	**Doubling time[3]**
East of England	1.2 to 1.5	+4% to +8%	9 to 17 days
London	1.2 to 1.4	+3% to +6%	12 to 20 days
Midlands	1.3 to 1.5	+5% to +8%	9 to 13 days
North East and Yorkshire	1.2 to 1.6	+5% to +9%	8 to 13 days
North West	1.0 to 1.3	+1% to +5%	17 days to flat
South East	1.3 to 1.6	+5% to +8%	9 to 12 days
South West	1.2 to 1.5	+4% to +8%	9 to 15 days

10. R is an indicator that lags by two to three weeks and therefore does not reflect any behavioural changes that have happened during this time. Regional estimates can be seen

[2] The estimated intervals for R and growth rate may not exactly correspond to each other due to the submission of different independent estimates and rounding in presentation.
[3] As R approaches 1, halving time (less than 1) or doubling time (greater than 1) rapidly tend towards infinity. Any estimates with a halving or doubling time of more than 40 days have been described as flat.

in Table 1 and Figure 3. In particular, this inherent lag means that it is possible that the value of R in Scotland may *now* be below 1.

11. At a finer spatial scale, multiple different approaches are showing indications that growth is slowing in some previous areas of concern in the North West of England. It is possible that these areas may begin to see plateauing or decreases in cases in the coming weeks. This, however, is not the case in the North East, where growth continues to increase.
12. It is difficult to attribute reasons behind this potential turnover of curves and its interplay with immunity. There is no current clear indication from observed local antibody prevalence data that herd immunity is driving this.
13. As cases continue to rise, it will become more challenging to ensure provision of testing at the scale and timeliness currently seen across England, either regionally or nationally, if testing capacity does not keep pace with increases in infections. Pillar 2 testing data have one of the shortest lags between infection and reporting and so any changes to this data stream could affect estimation of R value and growth rate in the future.
14. SPI-M-O have again considered how long individuals with COVID-19 spend in hospital and how many of them go on to die. Length of stay and Hospital Fatality Ratio (HFR) have varied considerably throughout the epidemic and continue to change as vaccination, treatments, and community prevalence changes. Most recent analyses have suggested that length of stay has increased for those who go on to die while shortened for those who are discharged. Given the various operational decisions that happen once a patient is admitted with COVID-19, SPI-M-O will continue to focus on hospital admissions in their modelling, rather than hospital bed occupancy.

Annex: PHIA framework of language for discussing probabilities

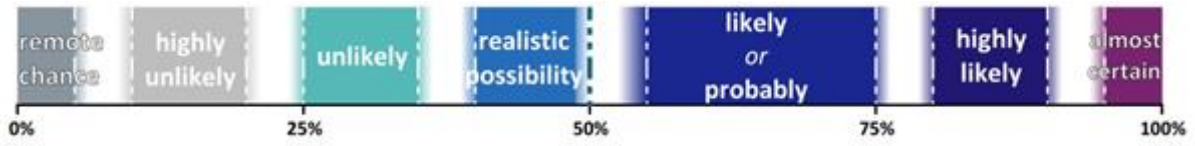

Figure 1: SPI-M-O groups estimates of median R in the four nations of the UK, including 90% confidence intervals. Bars represent different independent estimates. The grey shaded areas represent the combined numerical range and the black bars are the combined range after rounding to 1 decimal place.

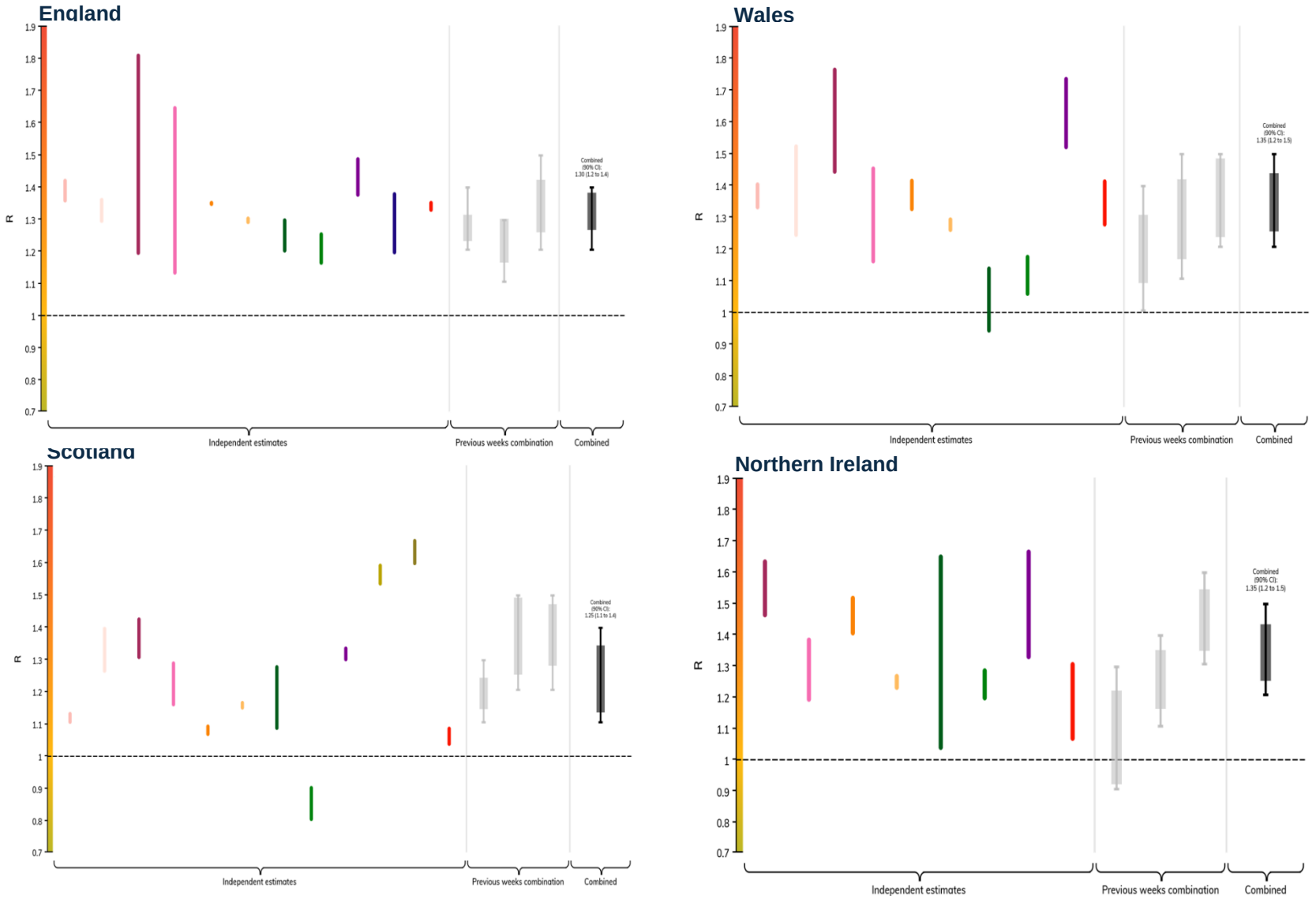

Figure 2: SPI-M-O groups' estimates of the growth rate in NHS England regions, including 90% confidence intervals. Bars represent different independent estimates. The grey shaded areas represent the combined numerical range and the black bars are the combined range after rounding to 2 decimal places.

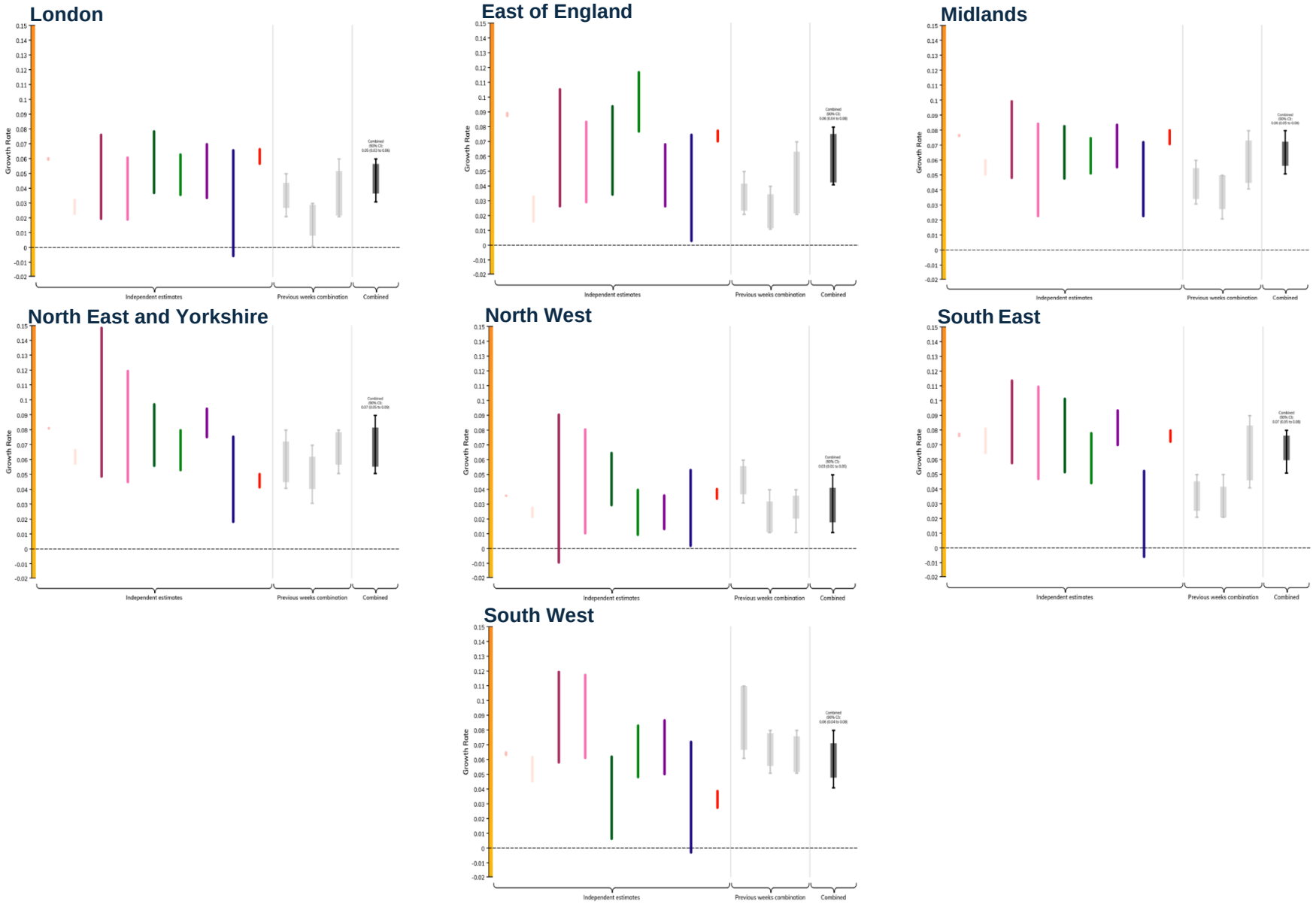

Figure 3: SPI-M-O groups' estimates of median R in the NHS England regions, including 90% confidence intervals. Bars represent different independent estimates. The grey shaded areas represent the combined numerical range and the black bars are the combined range after rounding to 1 decimal place.