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

Date: 16th June 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 1.2 and 1.4 for Scotland, 1.1 and 1.4 for Wales, and 0.8 and 1.2 for Northern Ireland**. These estimates are based on data available up to 14th June, including hospitalisations, deaths, symptomatic testing, and longitudinal studies.

2. SPI-M-O estimates that there are between **10,000 and 16,000 new infections** per day in England.

3. Estimates of epidemic metrics, such as R, are at least two weeks out of date, due to natural delays in data streams, and are yet to *fully* reflect the recent rapid increases of transmission due to B.1.617.2[1] (henceforth referred to as delta).

Incidence and prevalence

4. Combined estimates from four SPI-M-O models, using data available up to 14th June, suggest there are between **10,000 and 16,000 new infections per day in England.**

5. During its most recent week (6th to 12th June), the ONS community infection survey estimates that an average of **105,000 people had COVID-19** in the community in England (95% credible interval **88,500** to **124,000**). The survey does not include people in care homes, hospitals, or prisons. Estimates from across the four nations of the UK are:

England	105,000 (95% credible interval 88,500 to 124,000)
Scotland	8,800 (95% credible interval 4,900 to 14,000)
Wales	2,000 (95% credible interval 700 to 4,200)
Northern Ireland	3,000 (95% credible interval 1,100 to 5,900)

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[2].

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[1] The World Health Organisation recently recommended using letters of the Greek alphabet when referring to SARS-CoV-2 variants. Current variants of concern labelling stands as B.1.1.7 as alpha, B.1.351 as beta, P.1 as gamma, and B.1.617.2 as delta.

[2] 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 **+3% to +6% per day**,
   Scotland is between **+3% to +6% per day**,
   Wales is between **0% to +5% per day**, and
   Northern Ireland is between **-4% to +2% 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. This should be considered when interpreting the R estimate for England, given the current local heterogeneity in epidemiological situations.

9. SPI-M-O's best estimate for **R in England is between 1.2 and 1.4. R is estimated to be between 1.2 and 1.4 for Scotland, 1.1 and 1.4 for Wales, and 0.8 and 1.2 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 14th June.

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, nor can it reflect the *full* impact of the rapid emergence of the delta variant. The relaxation of measures on 17th May and the changes in behaviour at that time are largely reflected. Regional estimates can be seen in Table 1 and Figure 3.

Table 1: Combined estimates of R values and growth rates in the four nations of the UK and NHS England regions (90% confidence interval)[3]

Nation	R	Growth rate per day	Doubling time[4]
England	1.2 to 1.4	+3% to +6%	12 to 22 days
Scotland	1.2 to 1.4	+3% to +6%	12 to 19 days
Wales	1.1 to 1.4	0% to +5%	14 days to flat
Northern Ireland[5]	0.8 to 1.2	-4% to +2%	-19 days to +37 days
NHS England region	R	Growth rate per day	Doubling time[4]
East of England	1.1 to 1.3	+1% to +5%	16 days to flat
London	1.1 to 1.4	+2% to +6%	13 to 32 days
Midlands	1.0 to 1.3	+2% to +6%	12 to 32 days
North East and Yorkshire	1.0 to 1.3	+1% to +6%	13 days to flat
North West	1.3 to 1.5	+5% to +8%	9 to 14 days
South East	1.0 to 1.3	+1% to +5%	15 days to flat
South West	1.0 to 1.5	+1% to +9%	8 days to flat

11. Growth in cases continues to happen faster than the growth in hospitalisations across England. SPI-M-O considers there to be several possible reasons for this, such as infection predominantly in younger age groups; a continuing transition from initial growth in certain areas to more sustained, widespread transmission; or possibly due to a mix of B.1.1.7 (alpha)[1] and delta variants. Clinical and operational considerations for hospital admission over the course of the epidemic will also affect this relationship, for example more treatment of COVID-19 cases in the community, rather than in hospital, would also reduce the proportion of cases that are hospitalised. SPI-M-O does not have access to the necessary primary care data to be able to factor this into their modelling.

12. It is unlikely that the current wave of infection has reached its equilibrium growth state. The age distribution is still evolving, and this will influence the hospitalisation rate and impact of vaccination.

13. Whilst the proportion of cases that go on to require hospitalisation is now very much lower, their rates of change are still linked. Once the system is at its stable age and stage distribution, if the number of cases double, a week or so later the number of

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[3] 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.
[4] 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.
[5] Particular care should be taken when interpreting these estimates as they are based on low numbers of cases, hospitalisations, or deaths and / or are dominated by clustered outbreaks and so should not be treated as robust enough to inform policy decisions alone.

hospitalisations is expected to double. If, however, the per capita growth rate of infections is much higher in a group unlikely to need hospitalisation, such a pattern would not be expected to emerge until the age distribution stabilises (i.e. infections are growing at the same per capita rate in all age groups).

14. There continues to be significant regional heterogeneity in growth of both cases and hospital admissions. Each area will have its own local dynamics, and this will make projecting the timing and size of any peak (both regionally and nationally) very difficult and imprecise. Lack of synchronisation across localities could make any national peak appear flatter and last for longer than scenarios recently modelled by SPI-M-O[6]. The peak is unlikely to happen simultaneously or homogeneously and so understanding local situations, as well as the national one, will be critical over the coming weeks; it may not be possible to detect the peak until two weeks after it has passed.

Annex: PHIA framework of language for discussing probabilities

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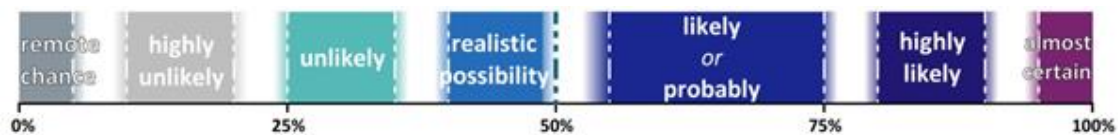
[6] SPI-M-O: Summary of further modelling of easing restrictions – roadmap Step 4; SAGE 92, 9th June 2021

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.
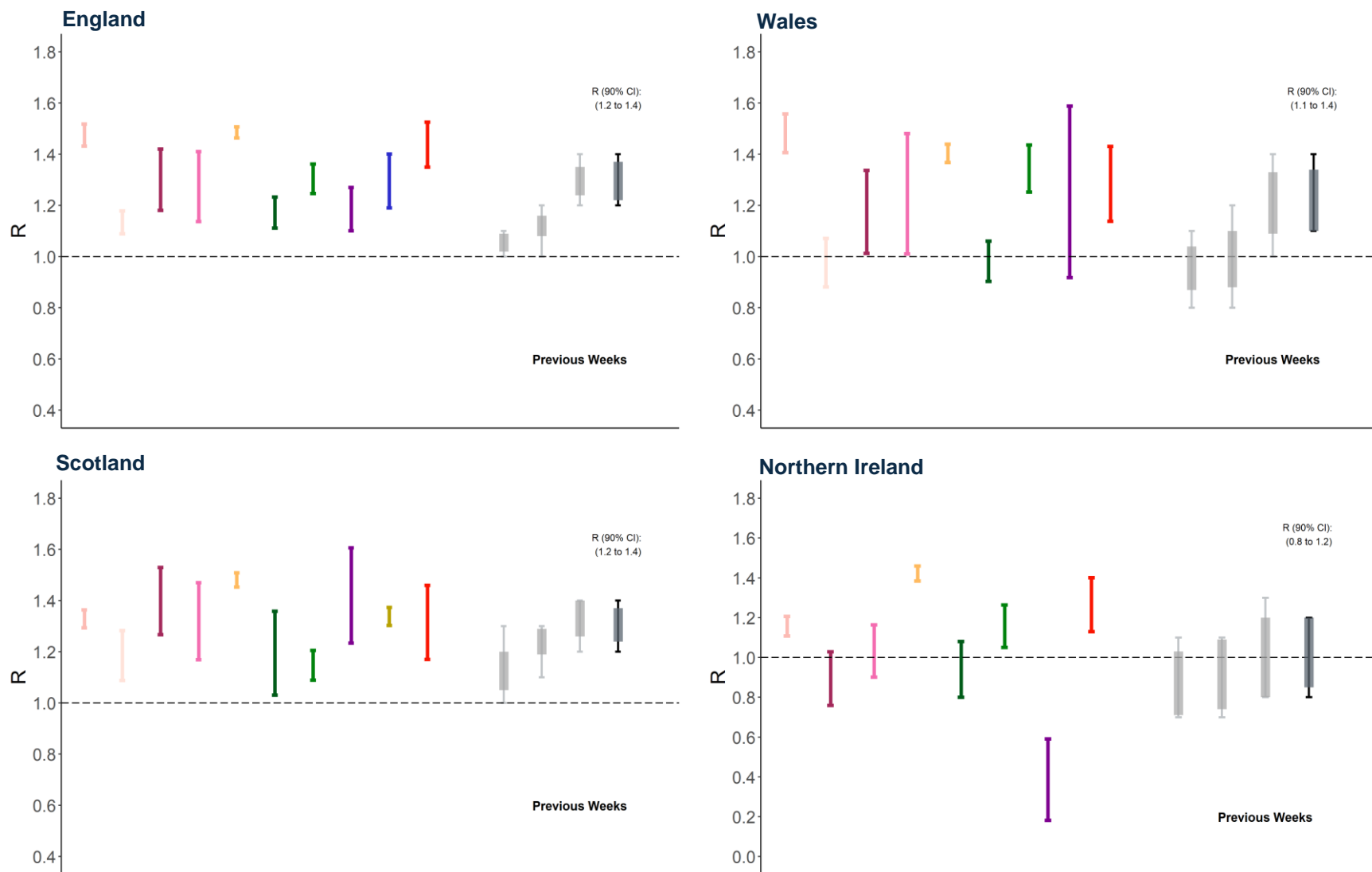
Figure 2: SPI-M-O groups' estimates of the growth rate in NHS England regions, including 90% confidence intervals. Bars represent different independent estimates. The grey shaded areas represent the combined numerical range and the black bars are the combined range after rounding to 2 decimal places.
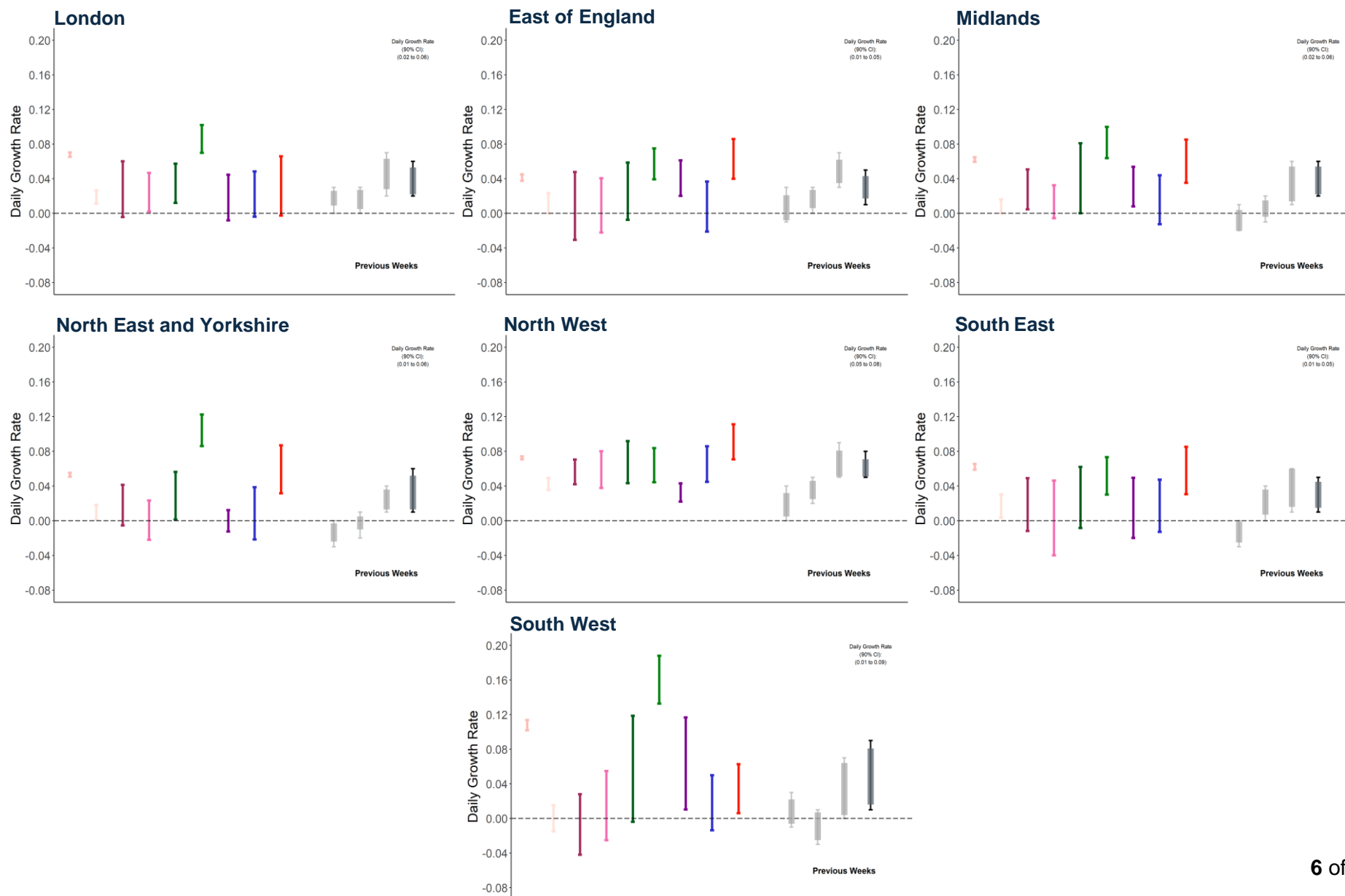
Figure 3: SPI-M-O groups' estimates of median R in the NHS England regions, including 90% confidence intervals. Bars represent different independent estimates. The grey shaded areas represent the combined numerical range and the black bars are the combined range after rounding to 1 decimal place.