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

Date: 27th January 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 the UK is between 0.7 and 1.1, while England is between 0.7 and 1.0**. Estimates of R for Scotland, Wales, and Northern Ireland are between **0.7 and 1.0**, **0.7 and 0.9**, and **0.7 and 1.1 respectively**. R is a lagging indicator and these estimates are based on the latest data, available up to 25th January, including hospitalisations and deaths as well as symptomatic testing and prevalence studies.
2. SPI-M-O estimates that R remains below 1 in the East of England, London and the South East. All other NHS England regions have estimates that span 1 and SPI-M-O are not confident that the epidemic is shrinking in these areas.
3. SPI-M-O estimates that there are between **56,000 and 130,000 new infections per day in England.**
4. There is significant regional variation and it is not clear why Pillar 2 testing data are falling much more rapidly than ONS's Community Infection Survey and the REACT study. It is noteworthy that positivity rates in Pillar 2 data have stabilised in many regions and have not fallen since the first week of the year.
5. SPI-M-O is working on estimation of the proportion of the population that remain susceptible to infection. Current estimates are that 20%-40% of the population have experience a primary infection or been vaccinated, peaking in young adults and lowest in the youngest and oldest age groups. The proportion immune to infection is slightly lower due to waning or partial immunity.

Incidence and prevalence

6. Combined estimates from seven SPI-M-O models, using data available up to 25th January, suggest there are between **56,000 and 130,000 new infections per day in England**.
7. The ONS community infection survey for the most recent week of the study (17th to 23rd January) estimates that an average of **1,018,700 people had COVID-19** in the community in England (credible interval **976,200 to 1,061,600**). The survey does not include people in care homes, hospitals or prisons. Estimates from across the four nations of the UK are:

England	1,018,700 (credible interval 976,200 to 1,061,600)
Scotland	48,500 (credible interval 41,900 to 55,700)

Wales	43,600 (credible interval 36,100 to 51,600)
Northern Ireland	36,800 (credible interval 30,500 to 43,900)

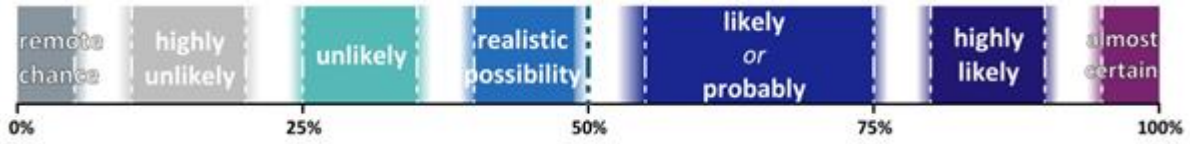
8. Different data streams present conflicting messages on how the epidemic is changing. Pillar 2 testing data show the number of confirmed cases dropping significantly. This has not been reflected in the latest ONS and REACT data, which suggest a near-flat or slowly declining epidemic nationally, with notable regional variation. Although these swabbing surveys do not measure the same metrics as testing data (ONS and REACT are essentially measures of community *prevalence*, whereas Pillar 2 data show new cases or *incidence*), SPI-M-O is unable to fully explain the extent of the differences in these trends and advise caution. The scope for safely easing lockdown in the medium term is critically dependent on whether prevalence is truly dropping.
9. Furthermore, data describing Pillar 2 positivity by region show that, after initial falls around the New Year, several regions now have a constant proportion of tests that are positive. This is particularly noticeable for the North East and Yorkshire and the Midlands. This means that the fall in the number of people testing positive can be explained by a fall in the number of people coming forward to be tested, among other explanations.
10. Heterogeneity between NHS England regions is still relatively high, yet the data streams are now fully capturing the impact of the national lockdown so this is largely a difference in the impact of current measures. There is also heterogeneity within regions.

Reproduction number and growth rate

11. The reproduction number is the average number of secondary infections produced by a single infected individual. R is an average value over time, geographies, and communities. This should be considered when interpreting the R estimate for the UK given the differences in policies across the four nations.
12. **SPI-M-O's best estimates for R in the UK is between 0.7 and 1.1, while England is between 0.7 and 1.0**. Estimates of R for Scotland, Wales, and Northern Ireland are between **0.7 and 1.0**, **0.7 and 0.9**, and **0.7 and 1.1 respectively**. SPI-M-O's agreed national estimates are summarised in Table 1 and Figures 1 and 2. R is a lagging indicator and these estimates are based on the latest data available up to 25th January.
13. SPI-M-O is confident that R is below 1 in the East of England, London, and South East, and thus confident that the epidemic is shrinking in these areas. R for all other regions is estimated to span 1; SPI-M-O is therefore not confident that the epidemic is shrinking in these other regions of England. The regional R estimates can be seen in Table 1 and Figure 4.

14. 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 rate at which an epidemic is growing or shrinking[1].
15. SPI-M-O's consensus estimate is that the **growth rate in the UK is between -5% and 0% per day**, and between **-4% and 0% in England**. SPI-M-O's national and regional estimates of growth rates are summarised in Table 1 and Figure 3.

Annex: PHIA framework of language for discussing probabilities



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

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

Nation	R	Growth rate per day
England	0.7 to 1.0	-4% to 0%
Scotland	0.7 to 1.0	-5% to -1%
Wales	0.7 to 0.9	-6% to -1%
Northern Ireland	0.7 to 1.1	-6% to +1%
UK	**0.7 to 1.1**	**-5% to 0%**

NHS England region	R	Growth rate per day
East of England	0.7 to 0.9	-6% to -2%
London	0.6 to 0.9	-7% to -2%
Midlands	0.8 to 1.1	-3% to +1%
North East and Yorkshire	0.8 to 1.1	-3% to +2%
North West	0.8 to 1.1	-4% to +1%
South East	0.7 to 0.9	-6% to -1%
South West	0.8 to 1.1	-4% to +1%

[2] The estimate 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.

Figure 1: SPI-M-O groups' estimates of median R in the UK, including 90% confidence intervals. Bars represent different independent estimates. The grey shaded area represents the combined numerical range and the black bar is the combined range after rounding to 1 decimal place. The UK estimate of R is the average over very different epidemiological situations and should be regarded as a guide to the general trend rather than a description of the epidemic state.

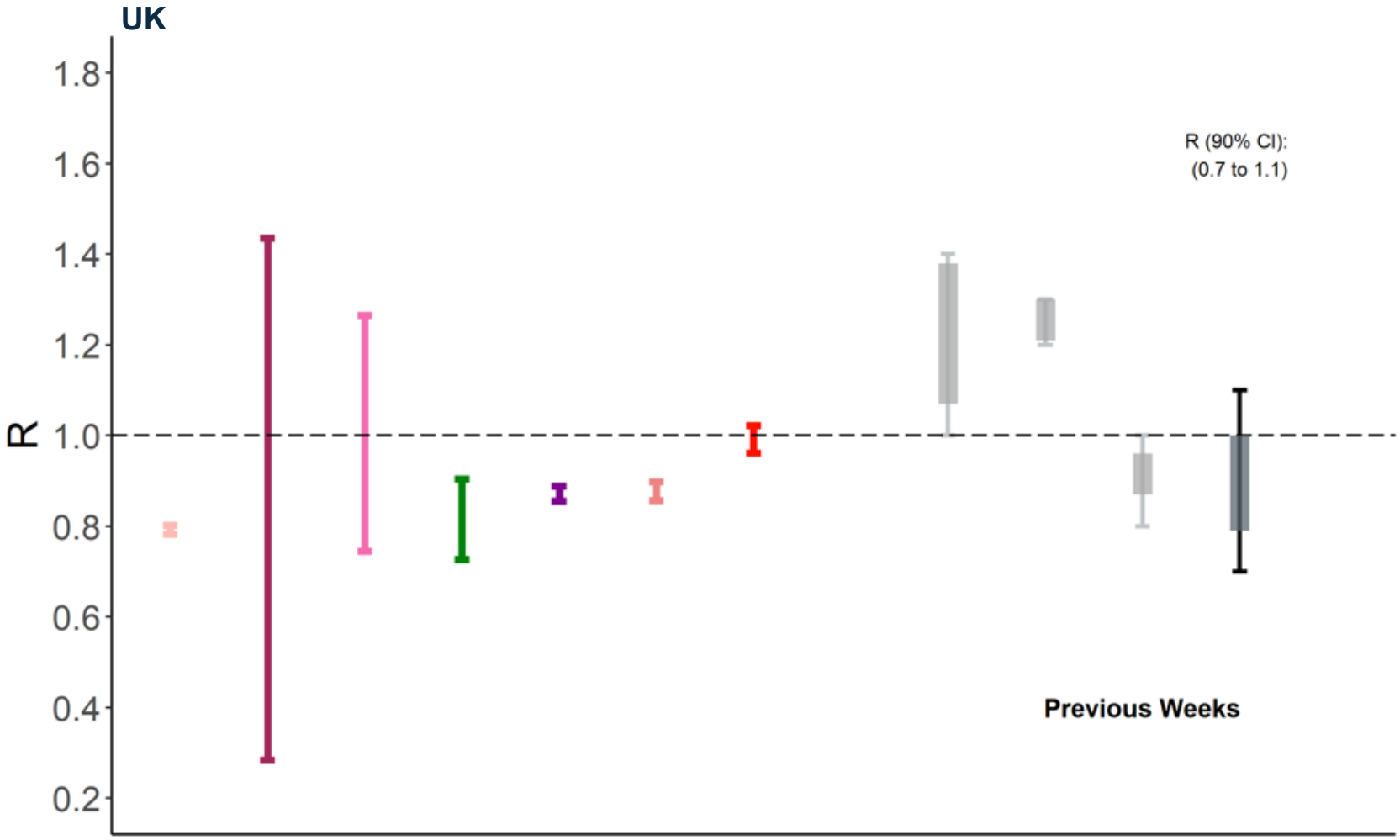


Figure 2: SPI-M-O groups estimates of median R in the four nations of the UK, including 90% confidence intervals. Bars represent different independent estimates. The grey shaded areas represent the combined numerical range and the black bars are the combined range after rounding to 1 decimal place.

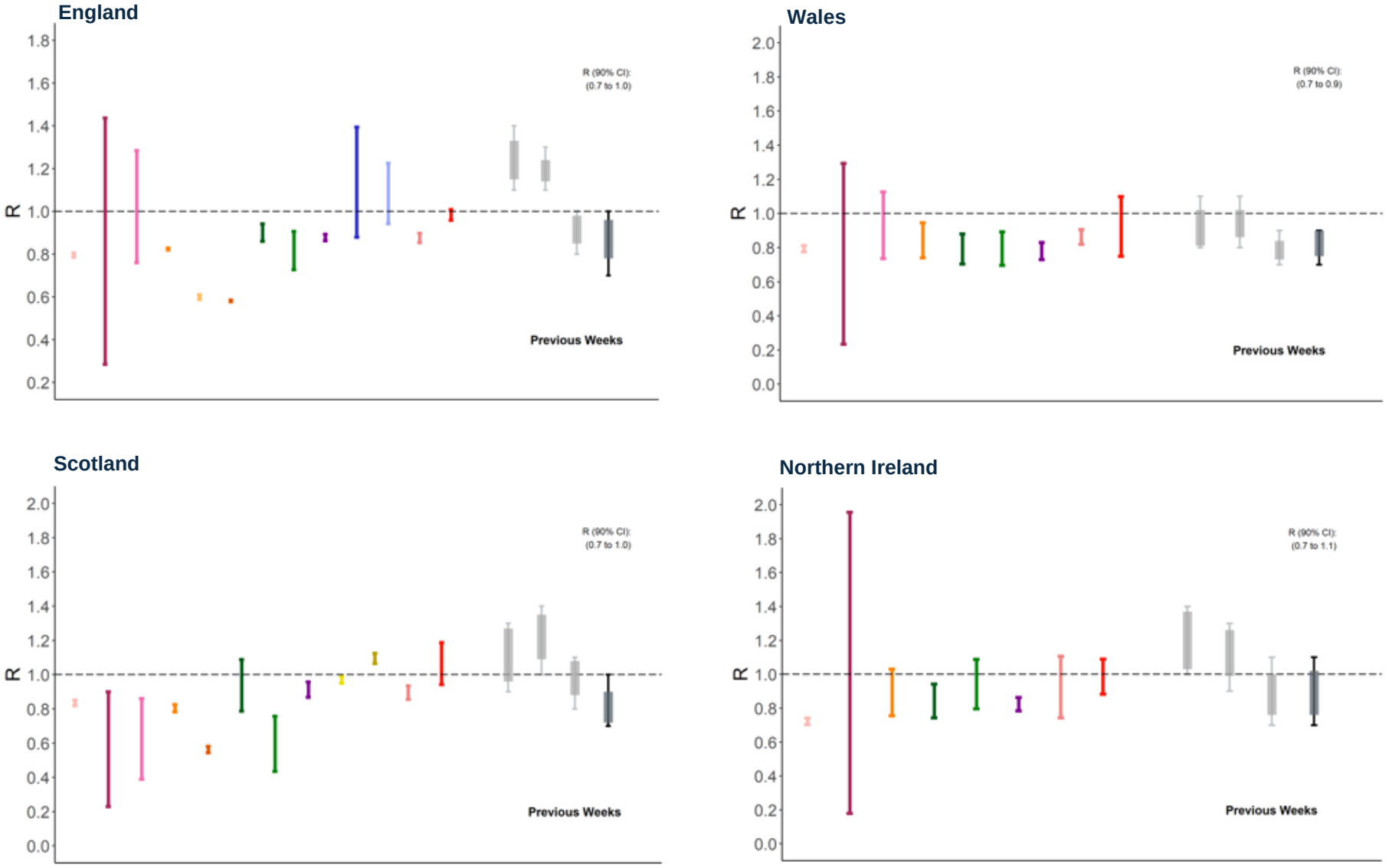


Figure 3: SPI-M-O groups' estimates of the growth rate in NHS England regions, including 90% confidence intervals. Bars represent different modelling groups. The grey shaded areas represent the combined numerical range and the black bars are the combined range after rounding to 2 decimal places.

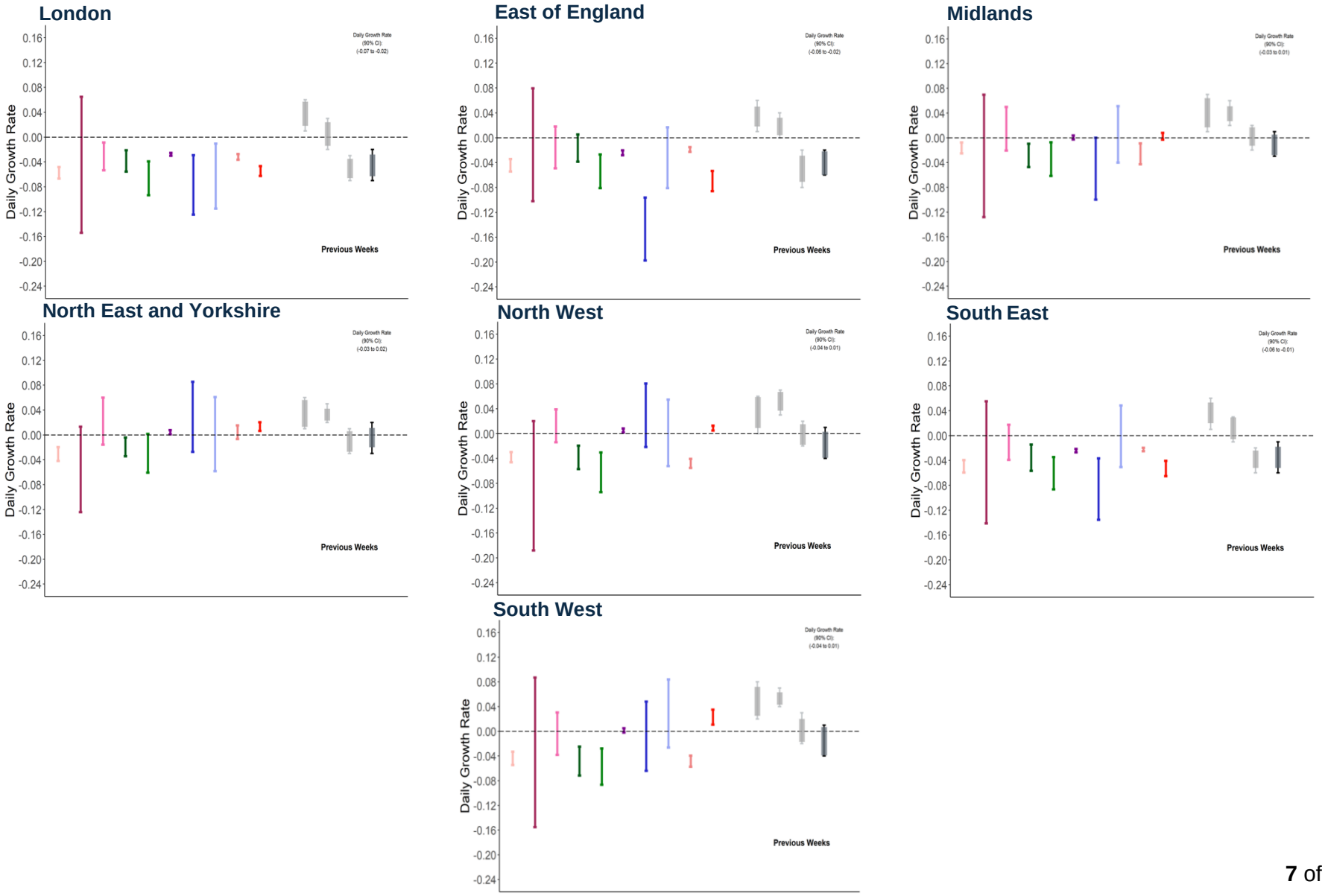


Figure 4: SPI-M-O groups' estimates of median R in the NHS England regions, including 90% confidence intervals. Bars represent different independent estimates. The grey shaded areas represent the combined numerical range and the black bars are the combined range after rounding to 1 decimal place.