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

Date: 24th March 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 0.9.** Estimates for **England, Scotland, and Northern Ireland are between 0.8 and 1.0**. **For Wales, R is between 0.7 and 0.9**. These estimates are based on the latest data, available up to 22nd March, including hospitalisations and deaths as well as symptomatic testing and prevalence studies, and do not *fully* reflect the re-opening of schools in England.

2. SPI-M-O estimates that R remains below 1 across all NHS England regions, although the upper limit of the range is 1 for five of the seven areas, with recent drops beginning to level off.

3. Transmission remains highly heterogeneous more locally, and these areas will be important for future patterns as restrictions are eased. While R is below 1, prevalence remains high across the country.

4. SPI-M-O estimates that there are between **8,000 and 12,000 new infections per day in England.**

5. A subset of the same SPI-M-O models that are used to produce medium-term projections have been used to explore the possible impact of easing restrictions from 29th March. Scenarios assume R values of 0.8, 1.1, and 1.3 over the next four weeks. The overlapping confidence intervals of these scenarios demonstrate that it will difficult to differentiate between these scenarios ahead of any further easing decisions.

Incidence and prevalence

6. Combined estimates from seven SPI-M-O models, using data available up to 22nd March, suggest there are between **8,000 and 12,000 new infections per day in England**.

7. The ONS community infection survey for the most recent week of the study (14th to 20th March) estimates that an average of **162,500 people had COVID-19** in the community in England (credible interval **143,200** to **183,100**); this is in line with the previous week's data,

and suggests a flattening off in prevalence. The survey does not include people in care homes, hospitals, or prisons. Estimates from across the four nations of the UK are:

England	162,500 (credible interval 143,200 to 183,100)
Scotland	21,500 (credible interval 15,600 to 28,500)
Wales	6,700 (credible interval 3,900 to 10,400)
Northern Ireland	5,800 (credible interval 3,100 to 9,500)

Reproduction number and growth rate

8. 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].

9. SPI-M-O's consensus estimate for the **growth rate in the UK is between -5% and -2% per day and in England, it is between -4% and 0% per day**. SPI-M-O's national and regional estimates of growth rates are summarised in Table 1 and Figure 4.

10. 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.

11. SPI-M-O's best estimate for **R in the UK is between 0.7 and 0.9.** Estimates for **England, Scotland, and Northern Ireland are between 0.8 and 1.0**. **For Wales, R is between 0.7 and 0.9**. SPI-M-O's agreed national estimates are summarised in Table 1 and Figures 2 and 3. R is an indicator that lags by two to three weeks and, therefore, do not yet *fully* reflect the latest measures across the four nations, including the re-opening of schools in England from 8th March. These estimates are based on the latest data available up to 22nd March.

12. SPI-M-O estimates that R remains below 1 across all NHS England regions, although the upper limit of the range for five of the seven areas is 1; only London and the South West are fully below 1. The regional R estimates can be seen in Table 1 and Figure 5.

13. There continues to be significant heterogeneity at a sub-regional level, and it is important that these areas are carefully monitored as measures start to be relaxed. This is especially key as the initial signals of growth are seen.

14. Prevalence remains high, so relaxation of measures needs to be conducted carefully.

15. From this week, SPI-M-O has normalised their approach to combining the reproduction number, growth rate, and number of daily infections, so that modelling groups now submit

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

estimates for a given date rather than their most recent estimates; previously these may have been different dates between individual modelling groups. SPI-M-O has analysed the difference between these two methods over the last few weeks and found very little to no difference between these combined estimates while making the estimates more consistent and robust.

16. SPI-M-O will continue to monitor these two methods over the coming weeks to ensure continuing coherence between methods and that earlier R estimates are still comparable. The analysis by individual groups that underpin the consensus range remains unchanged.

Signals to be cautious of on easing

17. Due to the effects of vaccination, epidemiological indicators based on infection rates can no longer provide an unambiguous signal for the need to slow relaxation of restrictions. Rising hospitalisations, however, would be a clear indication of increased transmission in relevant vulnerable individuals or age groups. Particular attention should be given to outbreaks and clusters either in particular settings or in geographical locations and regions. Modelling will continue to inform the medium-term implications of observed viral activity.

Medium-term scenarios for the next four weeks

18. SPI-M-O continues to produce projections for the medium term, combining estimates from several independent models. These are *not* forecasts nor predictions and cannot fully reflect recent changes in transmission that have not yet filtered through into surveillance data, such as cases, hospital admissions, and deaths. They represent a scenario in which the trajectory of the epidemic continues to follow the trends that were seen in the data up to 22nd March. They do, however, include the impact of vaccinations and modelling groups have used data from contact surveys, previous findings[2], and their own expert judgement to incorporate the impact of re-opening schools. Projections are particularly uncertain during periods of transition and as a result, these projections only extend over the next three weeks.

19. A subset of the same SPI-M-O models that are used to produce the medium-term projections have been used to explore the potential impact of the relaxation of restrictions to be introduced on 29th March in England. These scenarios assume R values of 0.8, 1.1, and 1.3, and run for four weeks until 20th April to illustrate what SPI-M-O consider to be a plausible range of possible trajectories for COVID-19 hospital admissions in England. The

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[2] SPI-M-O: Statement on relaxation of NPIs and the re-opening of schools; SAGE 78, 28 January 2021

overlapping confidence intervals of these scenarios demonstrate that it will difficult to differentiate between these scenarios ahead of any further easing decisions in England. As with SPI-M-O's medium-term projections, these scenarios include the impact of vaccines and take into consideration the estimated impact of school openings and Easter holidays on transmission.

20. Figure 1 shows the combined scenarios for hospital admissions over a range of R values (0.8 – blue; 1.1 – yellow; 1.3 – red) in England and are run over a four-week period from 23rd March. SPI-M-O's medium-term projection of the epidemic is included (grey band) to provide context if the current restrictions were maintained without the impact of any further easements, however, it is almost directly aligned with the blue band.

21. Even under the scenario where transmission increases substantially to R = 1.3, there is not a substantial increase in hospitalisations. Consequently, it will not be possible to determine from this data stream before 20th April what the impact of 29th March relaxations has been.

Figure 1: Four-week scenarios for daily hospital admissions in England over a range of R values (0.8 – blue; 1.1 – yellow; 1.3 – red) reflecting the possible impact of the easements planned for 29th March. All scenarios show interquartile ranges of model combinations as the shaded band.
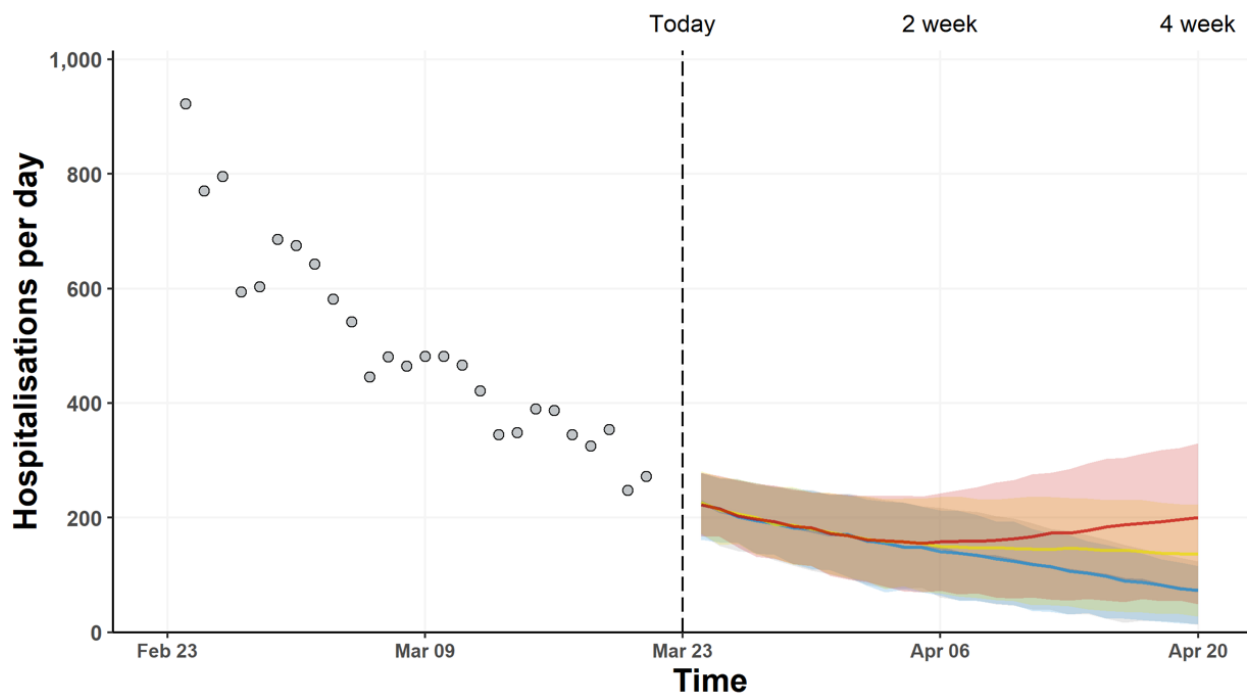
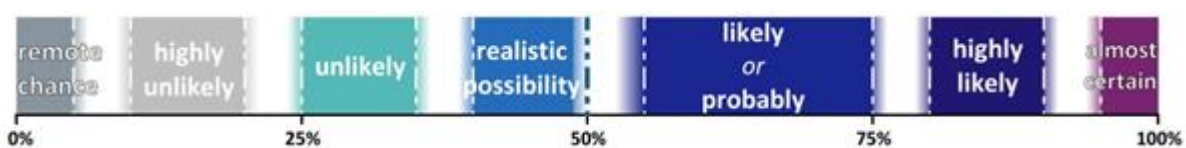## Annex: PHIA framework of language for discussing probabilities

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

Nation	R	Growth rate per day
England	0.8 to 1.0	-4% to 0%
Scotland	0.8 to 1.0	-4% to -1%
Wales	0.7 to 0.9	-6% to -2%
Northern Ireland	0.8 to 1.0	-4% to -1%
UK	**0.7 to 0.9**	**-5% to -2%**

NHS England region	R	Growth rate per day
East of England	0.7 to 1.0	-5% to 0%
London	0.7 to 0.9	-5% to -1%
Midlands	0.7 to 1.0	-5% to 0%
North East and Yorkshire	0.8 to 1.0	-4% to 0%
North West	0.7 to 1.0	-4% to -1%
South East	0.7 to 1.0	-5% to 0%
South West	0.7 to 0.9	-6% to -1%

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[3] 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. R estimate intervals for the UK may not exactly correspond to its constituent nations for the same reason.

Figure 2: 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.
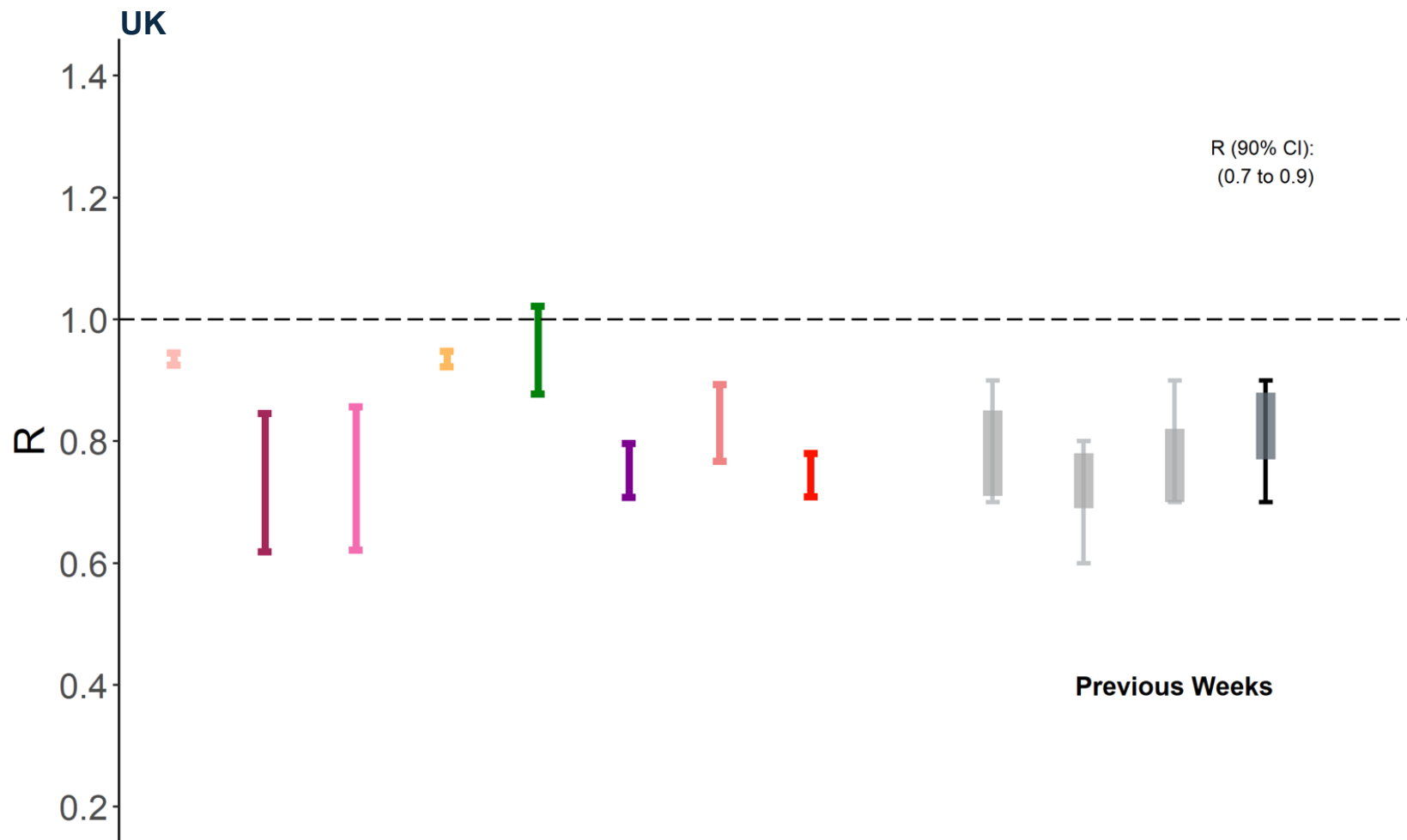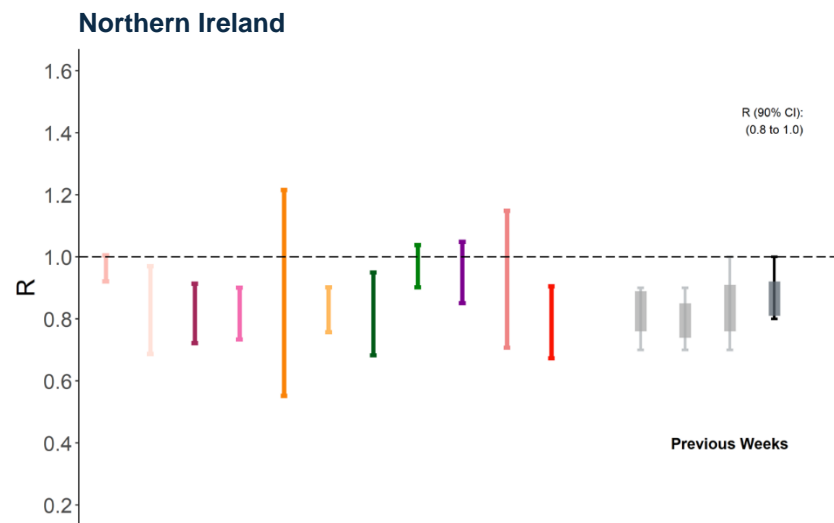
Figure 3: SPI-M-O groups estimates of median R in the four nations of the UK, including 90% confidence intervals. Bars represent different independent estimates. The grey shaded areas represent the combined numerical range and the black bars are the combined range after rounding to 1 decimal place.
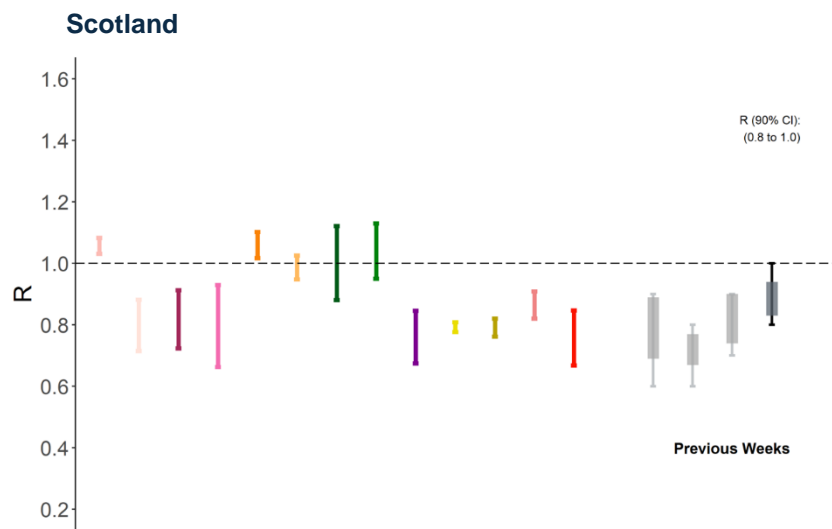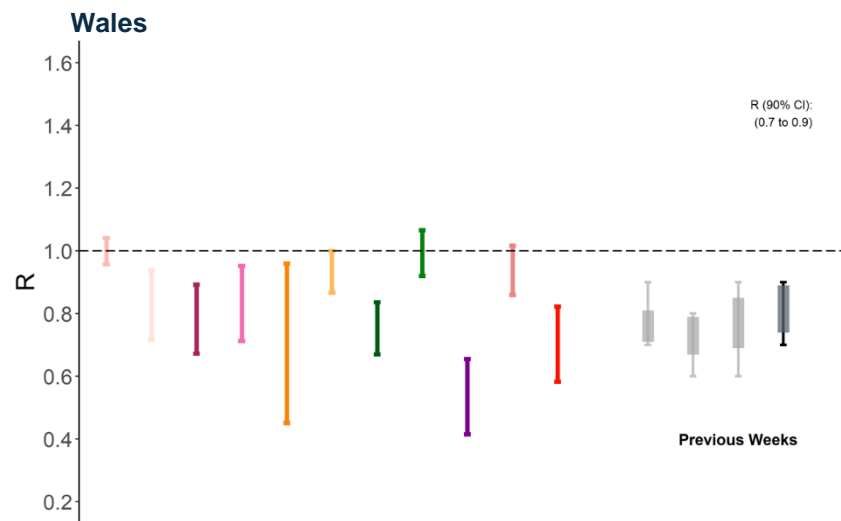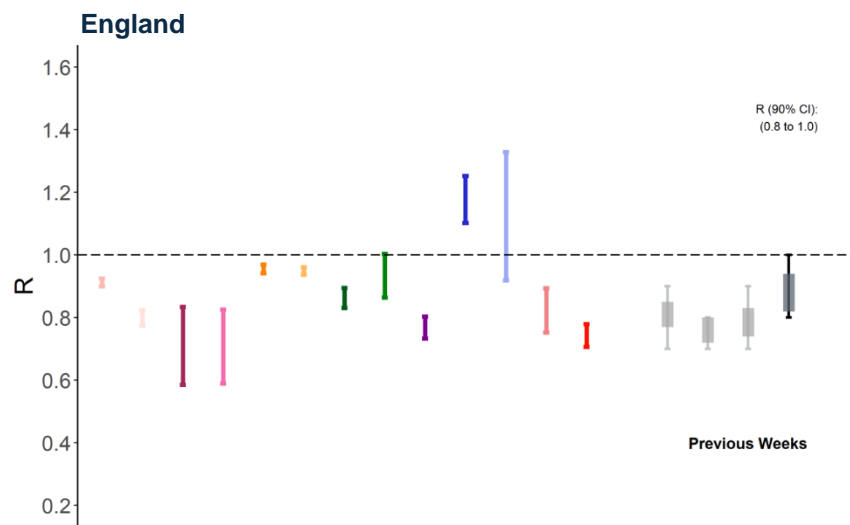
Figure 4: SPI-M-O groups' estimates of the growth rate in NHS England regions, including 90% confidence intervals. Bars represent different modelling groups. The grey shaded areas represent the combined numerical range and the black bars are the combined range after rounding to 2 decimal places.
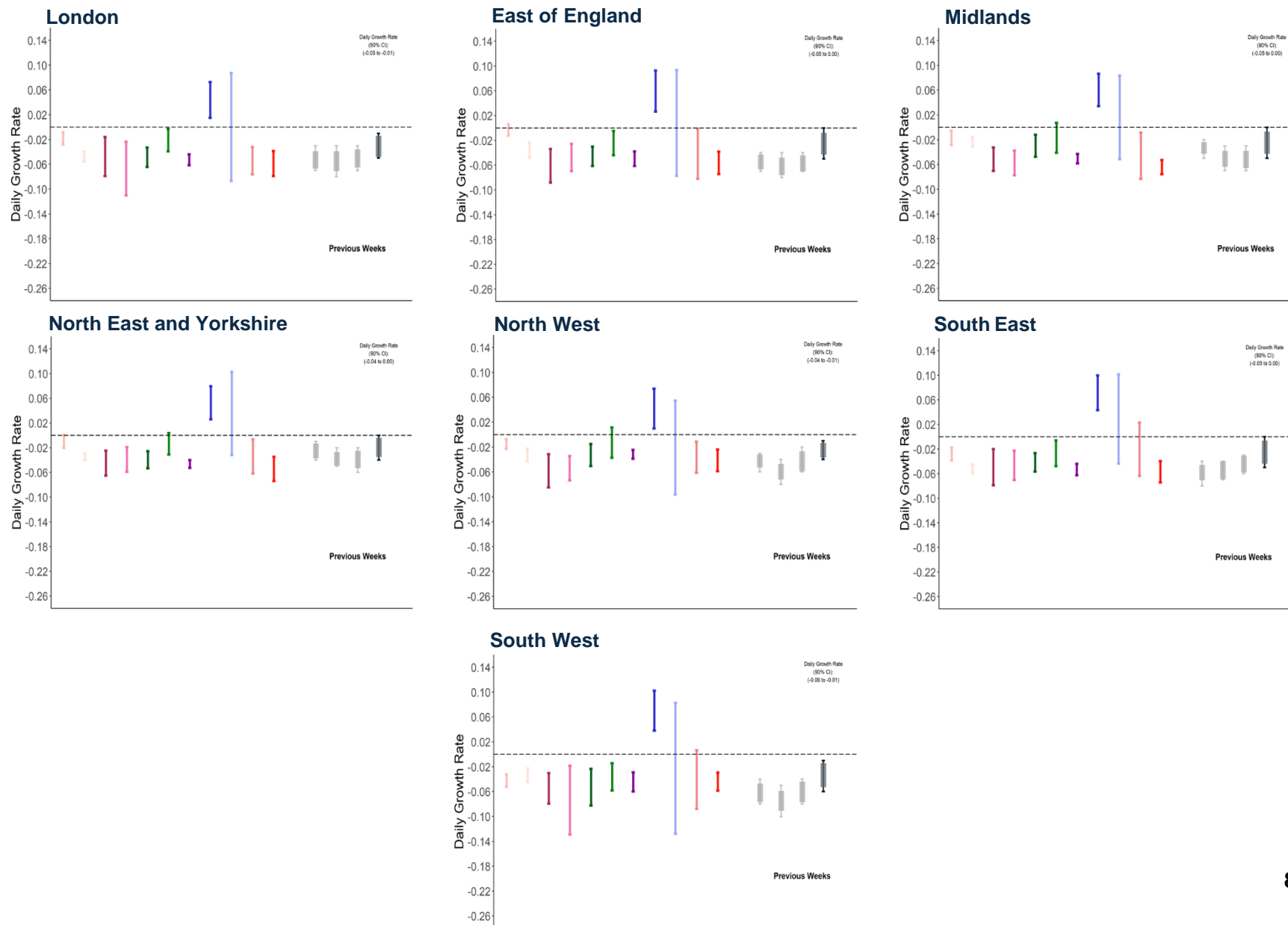
Figure 5: SPI-M-O groups' estimates of median R in the NHS England regions, including 90% confidence intervals. Bars represent different independent estimates. The grey shaded areas represent the combined numerical range and the black bars are the combined range after rounding to 1 decimal place.