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

Date: 10th March 2021

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

Summary

1. SPI-M-O's best estimates for **R in the UK, England, Scotland, and Wales are between 0.6 and 0.8**. **For Northern Ireland, R is between 0.6 and 0.9.** These estimates are based on the latest data, available up to 8th March, including hospitalisations and deaths as well as symptomatic testing and prevalence studies.
2. SPI-M-O is confident that R remains below 1 across all NHS England regions. The epidemic continues to decrease across all nations and regions, but transmission remains heterogeneous more locally, contributing to the variation in R estimates; these will be important for future patterns as restrictions are eased. While R is below 1, prevalence is still high across the country with levels above estimates seen between early May and late September 2020.
3. SPI-M-O estimates that there are between **5,000 and 12,000 new infections per day in England.**
4. SPI-M-O has considered the relative merits of at home versus assisted testing. This critically depends on behavioural factors and the strategic goal.

Incidence and prevalence

5. Combined estimates from seven SPI-M-O models, using data available up to 8th March, suggest there are between **5,000 and 12,000 new infections per day in England**.
6. The ONS community infection survey for the most recent week of the study (28th February to 6th March) estimates that an average of **200,600 people had COVID-19** in the community in England (credible interval **180,200** to **222,900**). The survey does not include people in care homes, hospitals, or prisons. Estimates from across the four nations of the UK are:

England	200,600 (credible interval 180,200 to 222,900)
Scotland	16,600 (credible interval 11,700 to 22,400)
Wales	8,300 (credible interval 5,400 to 11,800)
Northern Ireland	5,900 (credible interval 3,400 to 9,200)

Reproduction number and growth rate

7. 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].
8. SPI-M-O's consensus estimate for the **growth rate in the UK is between -7% and -4% per day and in England, it is between -6% and -4% per day**. SPI-M-O's national and regional estimates of growth rates are summarised in Table 1 and Figure 3.
9. 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.
10. SPI-M-O's best estimates for **R in the UK, England, Scotland, and Wales are each between 0.6 and 0.8**. **For Northern Ireland, R is between 0.6 and 0.9.** SPI-M-O's agreed national estimates are summarised in Table 1 and Figures 1 and 2. R is an indicator that lags by two to three weeks, and these estimates are based on the latest data available up to 8th March.
11. SPI-M-O is confident that R is below 1 in all NHS England regions. The regional R estimates can be seen in Table 1 and Figure 4, with a consistent pattern of R below 1 and hence constant decreasing infections. Various sub-regional analyses identify areas of concern: sometimes these are consistent across approaches, sometimes not. These highlight that there continues to be heterogeneity at a sub-regional level. It is important that these areas are monitored carefully over the coming weeks, particularly once measures start to be relaxed. It is advisable to learn more about communities and settings that have slower rates of decline and where the areas with the first signs of growth are.
12. Although R is below 1, prevalence remains high so relaxation of measures needs to be conducted carefully.

Asymptomatic testing at home or at assisted testing sites

13. SPI-M-O has previously considered mass testing of whole asymptomatic populations[2,3,4,5]. Different testing regimes may have varied impacts on viral transmission and different

[1] Further technical information on the growth rate can be found in Plus magazine
[2] SAGE consensus statement on mass testing 27 August 2020
[3] SPI-M-O: Statement on population case detection 9 September 2020
[4] Work considered at SAGE on 16 November by LSHTM and LSHTM and University of Manchester/Alan Turing Institute
[5] SPI-M-O: Mass testing of the whole population 25 November 2020

routes for people to take such tests may have differential effects. By allowing self-administered tests in the home, there may be greater adherence thanks to this being more convenient and having greater equity of access. Benefits of increased uptake, however, could be lost with the risk of incorrect testing or lack of reporting, relative attrition rates when regular repeated testing is needed, or delays in the system. Supervised testing at a test site may lead to better swabbing (and thus reduce false negatives) but is also likely to be less accessible. SPI-M-O has considered these different situations and their potential impact.

14. Maximising the epidemiological impact of mass testing asymptomatic people through any route requires the strategic aim of such a programme to be clearly defined. A balance needs to be struck between the benefit for the population against the benefit for the individual. The reasoning for the mass testing needs to be clear as 'testing-to-protect' the vulnerable will have very different aims from 'testing-to-release' sooner from quarantine, which again will be different from 'testing-to-enable' a return to restricted activities.
15. If the aim is to control and reduce prevalence of infection then this is achieved by having the greatest proportion of infected people in isolation, which will inevitably mean that some people are isolated incorrectly (i.e. false positives). Any means of reducing the proportion of false positives (such as confirmatory testing) will reduce the impact on transmission (i.e. false negatives).
16. Viral dynamics of infection and infectiousness of individuals will affect the efficacy of any mass asymptomatic testing. Viral load changes dramatically from day-to-day so waiting a day or two for a repeat test can change the likelihood of testing positive. SPI-M-O cannot advise on the relative merits of test at home followed by a further confirmatory test or test taken at an assisted testing site without a clear understanding of the strategic intent of each.
17. SPI-M-O agreed that there are three aspects of any testing strategy that are vital; speed of isolation, frequency of tests, and uptake of testing across the population.
18. Increasing delays in the contact tracing process reduces its effectiveness therefore waiting for a confirmatory PCR test to initiate tracing is not epidemiologically beneficial. This could be mitigated through the use of a second lateral flow test instead to reduce delays; this has its own issues as behaviour in self-testing settings may not be consistent between tests.
19. It seems likely that individuals will perform swabbing better at a test site than at home, however, any gain in accuracy for swabs from a test site would need to be weighed against the inherent risk in asking potentially infectious individuals to leave the home, and the respective uptake levels for each testing setting.

20. Basic metrics are also needed for SPI-M-O to be able to estimate the impact on wider transmission of changes to testing strategies. These include:
    - What proportion of people requesting a test because they have symptoms had already been told to isolate after being identified as a contact of a case in the previous week?
    - What proportion of people being admitted to hospital had been told to isolate because they were identified as a contact in the three to four weeks previous?

21. If NHS Test and Trace were able to collect and publish these and similar metrics, it would become clear how much impact the Test and Trace system is having on the spread of infection. Without such information, it is not possible to make robust calculations about the differential impact of small adjustments to the delivery of testing.

22. **Assumptions on people's behaviour and willingness to adhere to guidance is critical to any testing strategy**. This is particularly crucial if, for example, there are any financial incentives attached to particular routes or when there are choices for the individual being tested to make. If isolation is a very unattractive prospect, then there is little motivation to test. SPI-M-O identified several unknown behavioural and operational aspects that would significantly affect any modelling, for example:
    - If the aim is to improve uptake by providing testing at home versus a testing site, this would not remove difficulties to isolating for individuals, if positive.
    - Those attending assisted testing sites or testing at home may be those who would likely take part and adhere to guidance under any circumstances. Those who cannot or would not test may still not partake in home testing *more* than those using an assisted testing site.
    - How many people might isolate, and to what degree, on symptoms without a test?

23. Analysis of current and past testing strategies and the associated data, along with advice from SPI-B, would be needed for SPI-M-O to make any further in-depth analysis of testing strategies. If the relevant data do not exist, well-designed and developed pilot studies may provide some insight.

Annex: PHIA framework of language for discussing probabilities

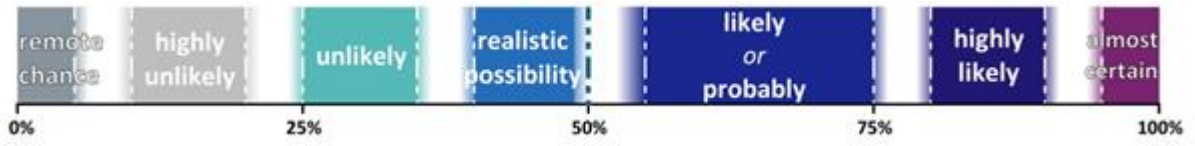

Table 1: Combined estimates of R values and growth rates in the UK, four nations, and NHS England regions (90% confidence interval)[6]

Nation	R	Growth rate per day
England	0.6 to 0.8	-6% to -4%
Scotland	0.6 to 0.8	-6% to -4%
Wales	0.6 to 0.8	-7% to -4%
Northern Ireland	0.6 to 0.9	-6% to -3%
UK	**0.6 to 0.8**	**-7% to -4%**

NHS England region	R	Growth rate per day
East of England	0.6 to 0.8	-9% to -5%
London	0.6 to 0.8	-8% to -4%
Midlands	0.6 to 0.8	-8% to -4%
North East and Yorkshire	0.7 to 0.9	-6% to -3%
North West	0.6 to 0.8	-8% to -5%
South East	0.6 to 0.8	-8% to -4%
South West	0.5 to 0.8	-10% to -6%

[6] 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 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.

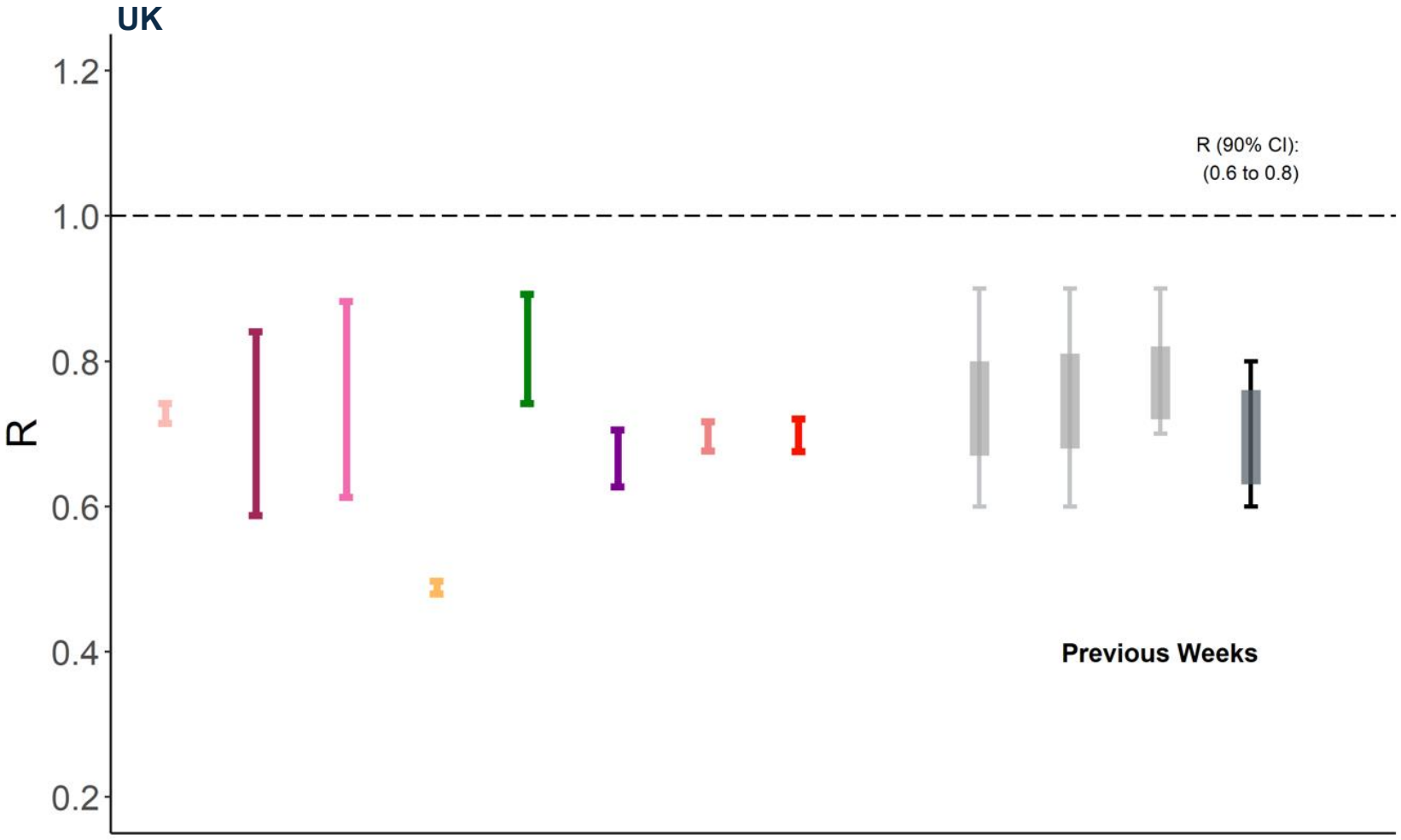

Figure 2: SPI-M-O groups estimates of median R in the four nations of the UK, including 90% confidence intervals. Bars represent different independent estimates. The grey shaded areas represent the combined numerical range and the black bars are the combined range after rounding to 1 decimal place.

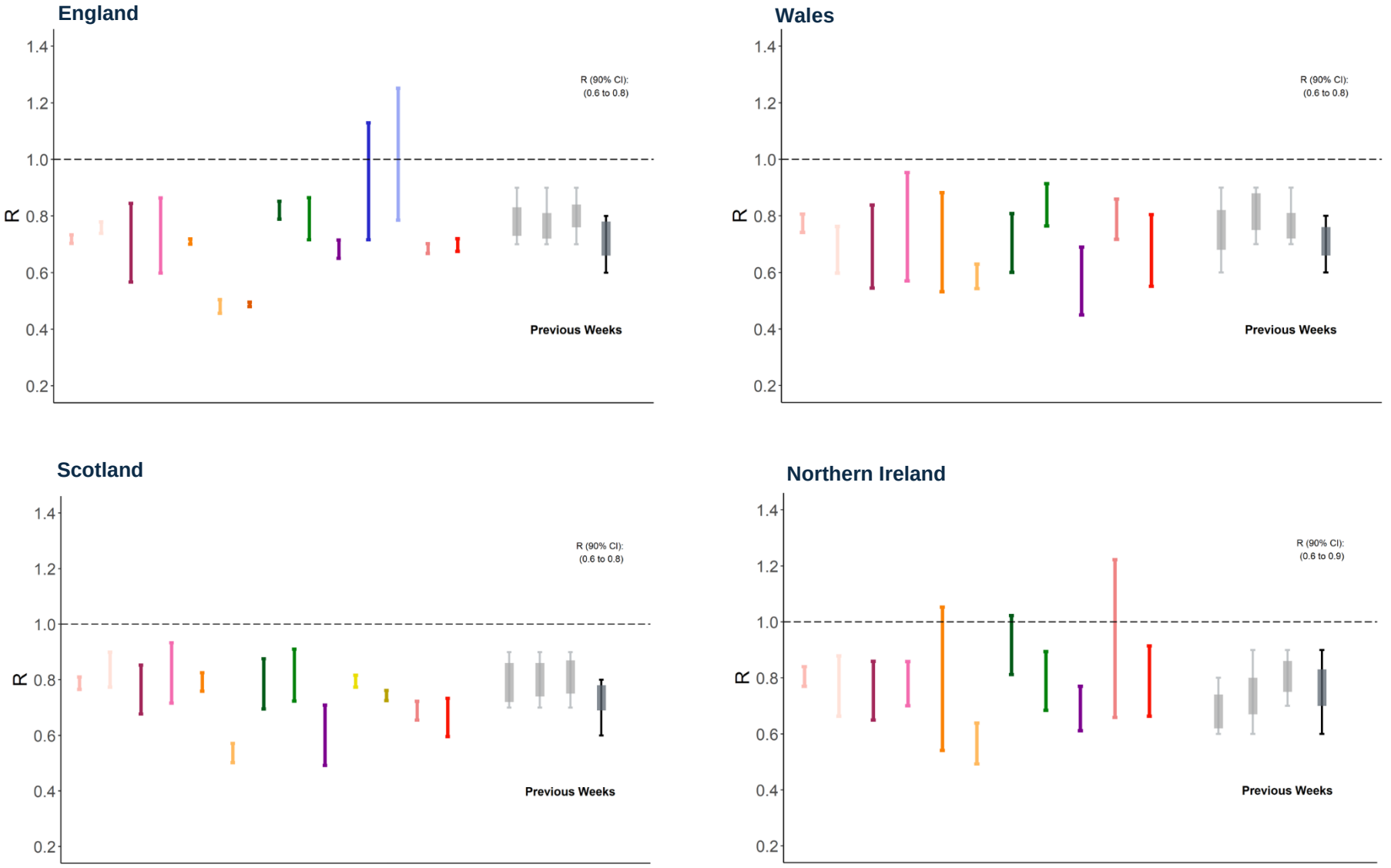

Figure 3: SPI-M-O groups' estimates of the growth rate in NHS England regions, including 90% confidence intervals. Bars represent different modelling groups. The grey shaded areas represent the combined numerical range and the black bars are the combined range after rounding to 2 decimal places.

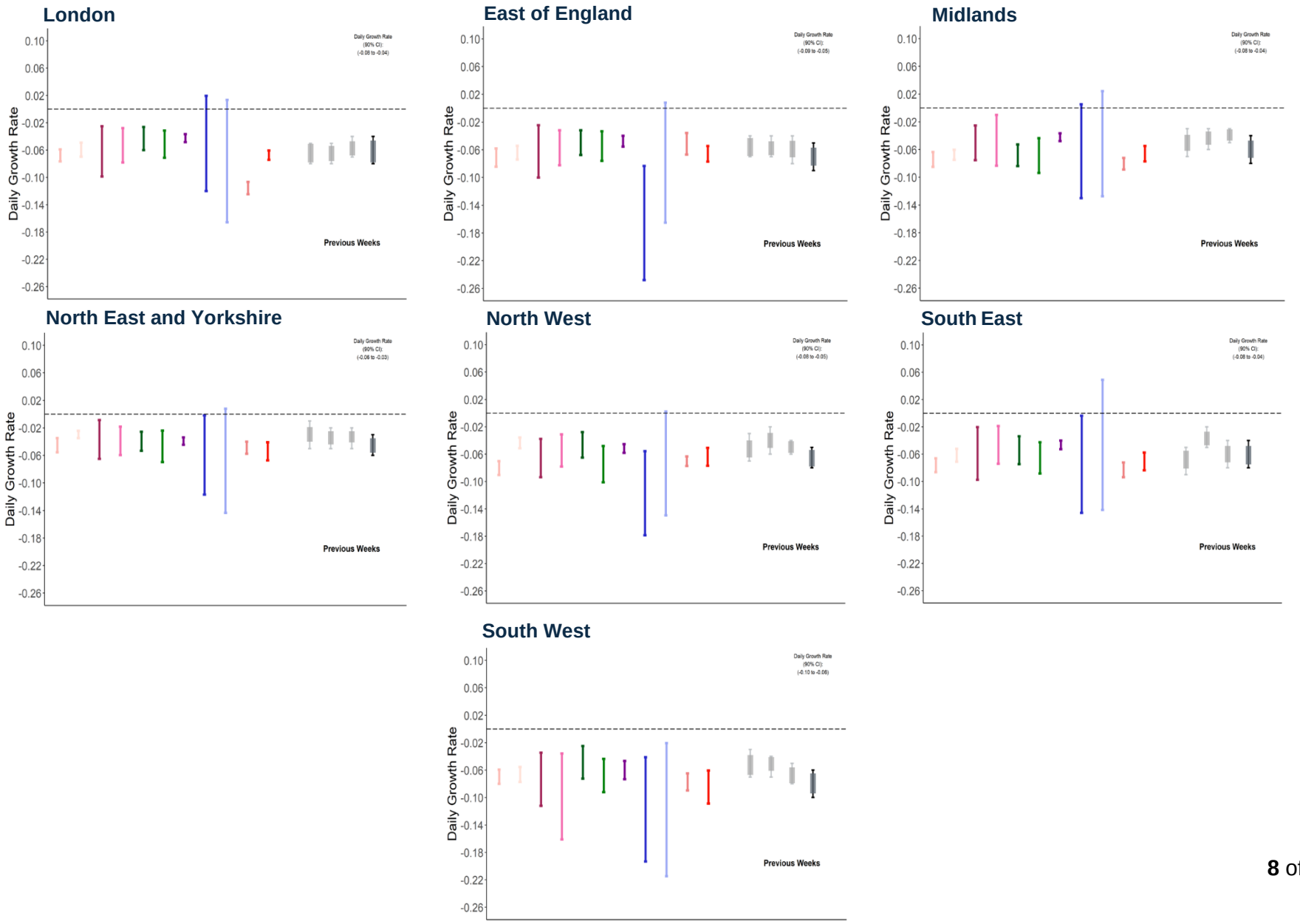

Figure 4: SPI-M-O groups' estimates of median R in the NHS England regions, including 90% confidence intervals. Bars represent different independent estimates. The grey shaded areas represent the combined numerical range and the black bars are the combined range after rounding to 1 decimal place.