

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

Date: 7th October 2020

FINAL

Summary

1. SPI-M-O's best estimate for **R in the UK is between 1.2 and 1.5**. SPI-M-O's national and regional estimates suggest **R is almost certainly above 1 in England, Scotland, Wales, Northern Ireland, and all regions of England**. There is substantial variation in epidemiology within the UK estimate and R is an average rather than a description of the epidemic state in every location.
2. **In England, we are breaching the number of infections and hospital admissions in the Reasonable Worst Case planning scenario that is based on COVID-S's winter planning strategy. The number of deaths is also highly likely to exceed Reasonable Worst Case levels within the next two weeks.** Were the number of new infections to fall in the very near future, this exceedance of the reasonable worst case scenario could be modest and short-lived, but if R remains above 1 then the epidemic will further diverge from the planning scenario.
3. With continued difficulties in interpreting testing data, estimates of doubling times remain uncertain. SPI-M-O's modelled consensus is a **doubling time in the UK for new infections of between 8 and 16 days**. There is significant heterogeneity across geographies and the potential for faster doubling times in certain areas.
4. The delay between initial infection, developing symptoms, the need for hospital care, and death means these estimates **cannot fully reflect recent changes in transmission which might have occurred over the past two to three weeks, including any impact from the recently announced measures**.
5. There is complete consensus in SPI-M-O that the current outlook for the epidemic's trajectory is concerning, if there are no decisive interventions or behavioural changes in the near term.
6. There is clear evidence from a well-designed case control study¹ from the USA that shows restaurants and bars are particularly risky environments. Any further interventions should focus on what is known to work, for example increasing adherence to self-isolation and

¹ <https://www.cdc.gov/mmwr/volumes/69/wr/mm6936a5.htm>

contact tracing, and those things which are likely to work, for example closing bars and restaurants.

Reproduction number

7. 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. Therefore, these estimates should be used as a guide to the general trend rather than a description of the epidemic state in all places.
8. **SPI-M-O's best estimate is that R is between 1.2 and 1.5 in the UK.** SPI-M-O's agreed national and regional estimates are summarised in **Table 1** and **Figures 1, 2, and 4**. These suggest R is almost certainly above 1 in England, Scotland, Wales, Northern Ireland, and all regions in England.
9. SPI-M-O's consensus R and growth rate estimates are based on a range of models that use a variety of data sources including deaths, hospital admissions, and number of individuals testing positive. The delay between initial infection, developing symptoms and the need for hospital care, means that, **such estimates cannot yet fully reflect the most recent changes in transmission from the past two to three weeks**, including any impact from the measures recently announced.
10. SPI-M-O remain concerned that data flowing from testing systems is limited in terms of its utility for understanding the epidemiology. Demand for symptomatic testing and testing delays continue to make interpreting trends in the data difficult. This week is particularly concerning due to the correction to the data stream on positive cases. Different groups may have focused on different sources of data compared to previous weeks, which subsequently has led to greater heterogeneity between individual model estimates (**Figures 1 to 4**). While this leads to greater uncertainty about the precise value of estimates for e.g. R, there is complete consensus that the probability of R being greater than 1 is almost certain and that the epidemic is growing exponentially. University students may be confusing the data further, as they may have two residencies, one in term time and one outside of it and their location recorded in the testing system may not reflect their actual location.
11. There are known data issues following the return of students to universities that make data from both testing and ONS's community infection survey more difficult to interpret than usual.

12. There is consensus that it is almost certain that the epidemic continues to grow.

While there are tentative indications that the rate of growth of the epidemic might have slowed slightly, there remains too much uncertainty, regional variation and inconsistency in data streams to conclude this with any degree of certainty. Results from the latest REACT round and the ONS infection survey both substantial increases in prevalence in the population. Consequently, both are consistent with SPI-M-O modelling results and the epidemic continues to grow in all regions of England and Countries of the Kingdom.

Growth rates and doubling times

13. 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 shrinking².

14. SPI-M-O's consensus estimate is that **growth rate in the UK is between +4% to +9% per day**. SPI-M-O's national and regional estimates are summarised in **Table 1** and **Figure 3**. This growth rate suggests **the number of new daily infections was doubling in the recent past every 8 to 16 days in the UK**. As mentioned above, these estimates cannot fully reflect any changes in transmission which might have occurred over the past two to three weeks. As with R, there is uncertainty in estimates of growth rate and doubling time, although there is less variability between different group's estimates of these measures.

Reliability

15. As the number of infections is increasing across the UK, SPI-M-O's view is that there is less variability in the R and growth rate estimates compared to those made two to three months ago. There may still be high degrees of variability in, for example, a localised outbreak, however, **SPI-M-O considers all this week's estimates to be reliable**.

16. Care should still be taken when interpreting R and growth rate estimates for the UK, due to their inherently lagged nature, and as these figures mask variation in the number of infections and how transmission is changing in some parts of the country.

² Further technical information on the growth rate can be found in [Plus magazine](#).

Incidence

17. Combined estimates from five SPI-M-O models suggest there are between **27,000 and 57,000 new infections per day in England**. This is above the profile of the reasonable worst-case scenario, where the number of daily infections in England remained between 12,000 – 13,000 from mid-September and throughout October.
18. Modelling from the ONS swabbing survey for the most recent week of the study (25th September to 1st October) estimates that an average of **224,400 people had COVID-19** in the community in England (credible interval 203,800 to 245,700) – this is a significant increase on their previous estimate. In Wales, ONS estimate that an average of **6,100 people had COVID-19** during this period (credible interval 1,900 to 14,600). The study also estimates that, during the same week, there were **17,200 new infections per day in England** (credible interval of 13,800 to 22,900).
19. As the ONS survey estimates are based on survey results collected 1 to 2 weeks ago, it is **highly likely that the epidemic has continued to grow since** and, therefore, the number of new infections each day is likely to be higher than estimated by the swabbing survey.
20. The REACT study is due to report on round 5 in the next few days. It is an important data stream, and the three principal information sources (REACT, ONS and modelling estimates) should be considered together,

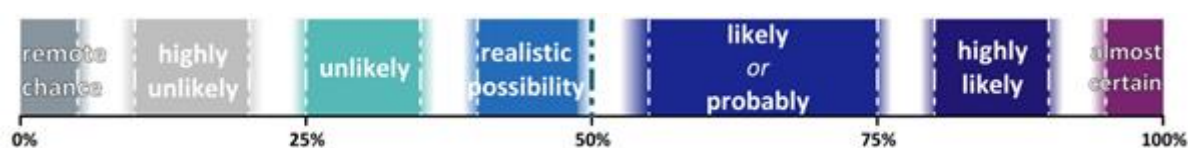
Medium-term projections

21. SPI-M-O are developing medium term projections, looking ahead to the next six weeks. Projections from a range of groups are given in the accompanying document. They show the range of hospital admissions and deaths per day for each UK nation that might be expected, based on current trends, assuming no further policy or behavioural changes occur. **In England, we are breaching the number of infections and hospital admissions in the Reasonable Worst Case planning scenario that is based on COVID-S's winter planning strategy. The projections indicate that the number of deaths is also highly likely to exceed Reasonable Worst Case levels within the next two weeks.**
22. **Beyond two weeks projections become more uncertain and there is more variability between models.** This reflects the inconsistency between different data streams and the large differences that can result from even small differences in the estimated growth rate and current incidence. **Projections in the nearer term, however, are more certain;** for

example, those who are projected to die from COVID-19 in two weeks' time are likely to already be infected. **There is consensus that well over 100 new deaths per day will occur within 2 weeks, even if strict new interventions are put in place immediately.**

23. These projections should not be interpreted as forecasts or predictions of what will happen but are intended to project potential outcomes based on current trends. They do not include the impact of any measures that have not yet been detected in observed data, including any national and local measures introduced in the last 1-2 weeks, or any future changes that might be implemented. Nor do they reflect the impact of any recent changes such as the return of universities.
24. There is complete consensus in SPI-M-O that the current outlook for the trajectory of the epidemic is concerning, if there are no decisive interventions in the near term. Evidence from CoMix suggests that individuals have not changed their behaviours recently and continue to have a similar number of contacts as they did in the past two months. SPI-M-O reiterate that the frequency of interhousehold contacts needs to be reduced to curtail transmission, whereas limiting group size alone has only a marginal effect (the composition of groups is as important). Any further interventions should focus on what is known to work, for example increasing adherence to self-isolation. There is clear evidence from a well-designed case control study³ from the USA that shows restaurants and bars are particularly risky environments and so there is a strong case that any evidence-based attempts to halt the growth in the epidemic should include closing bars and restaurants to anything but take-away service.

Annex: PHIA framework of language for discussing probabilities



³ <https://www.cdc.gov/mmwr/volumes/69/wr/mm6936a5.htm>

Table 1: Combined estimate of R and the growth rate in the UK, four nations and English NHS regions (90% confidence interval)

Nation	R	Growth rate per day
England	1.2 – 1.5	+4% to +8%
Scotland	1.3 – 1.6	+6% to +9%
Wales	1.0 – 1.4	+2% to +7%
Northern Ireland	1.2 – 1.5	+3% to +7%
UK	1.2 – 1.5	+4% to +9%

NHS England region	R	Growth rate per day
East of England	1.3 – 1.6	+5% to +11%
London	1.2 – 1.4	+2% to +6%
Midlands	1.2 – 1.5	+4% to +8%
North East and Yorkshire	1.3 – 1.5	+4% to +8%
North West	1.2 – 1.4	+4% to +7%
South East	1.2 – 1.4	+2% to +7%
South West	1.3 – 1.6	+3% to +8%

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.

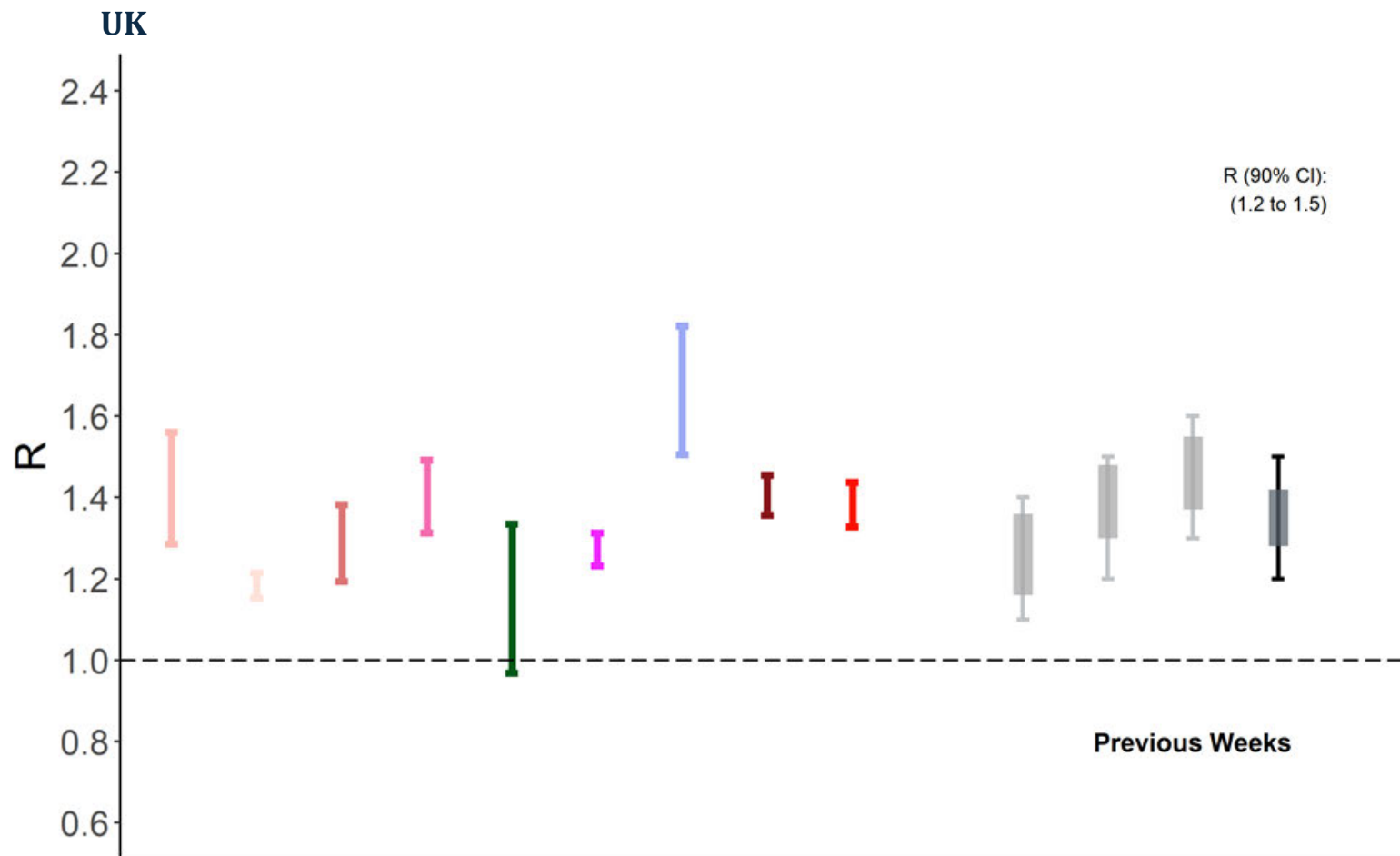


Figure 2: SPI-M-O groups estimates of median R in the four nations of the UK, including 90% confidence intervals. Bars represent different independent estimates. The grey shaded areas represent the combined numerical range and the black bars are the combined range after rounding to 1 decimal place.

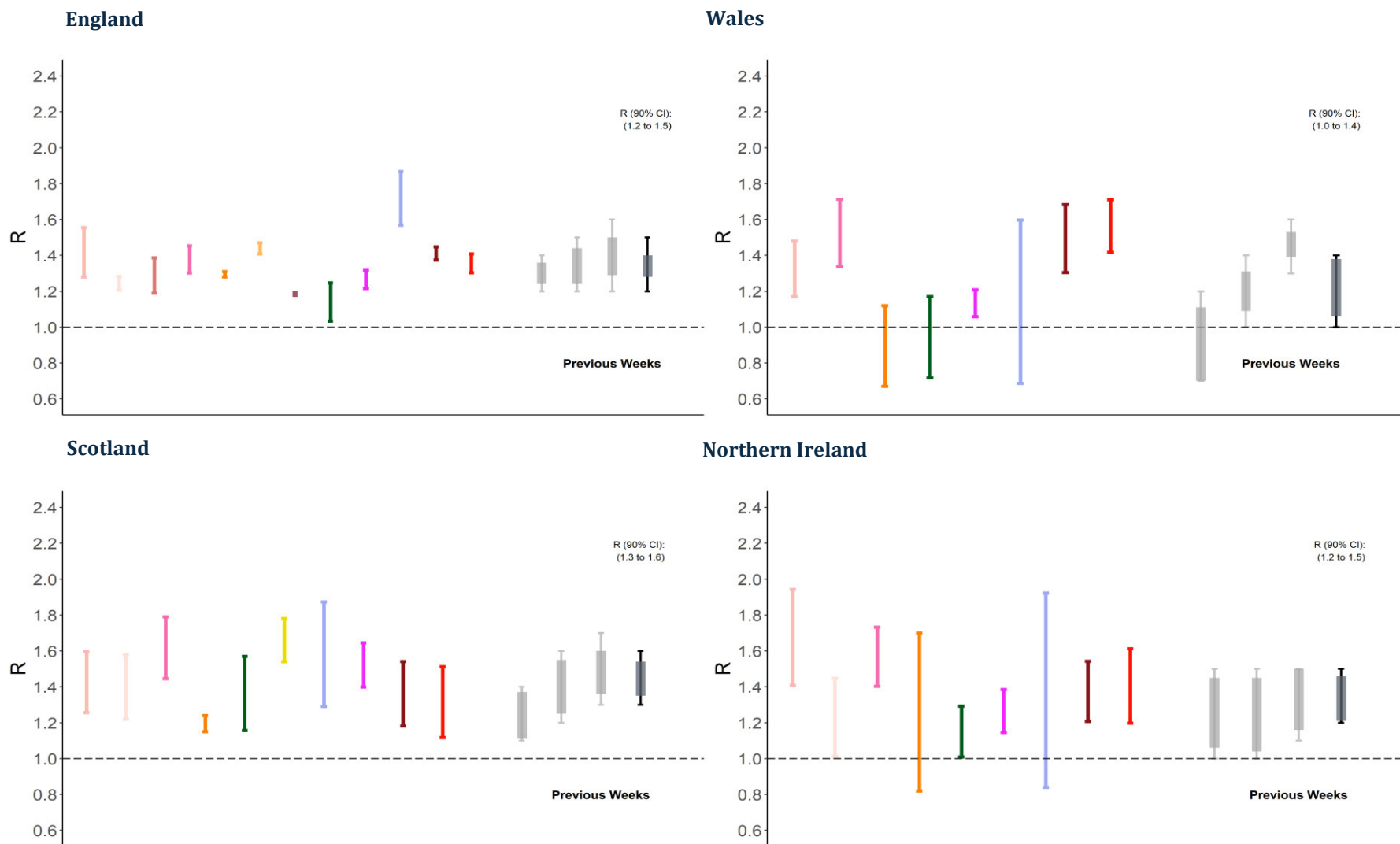


Figure 3: SPI-M-O groups estimates of the growth rate in NHS England regions, including 90% confidence intervals. Bars represent different modelling groups. The grey shaded areas represent the combined numerical range and the black bars are the combined range after rounding to 2 decimal places.

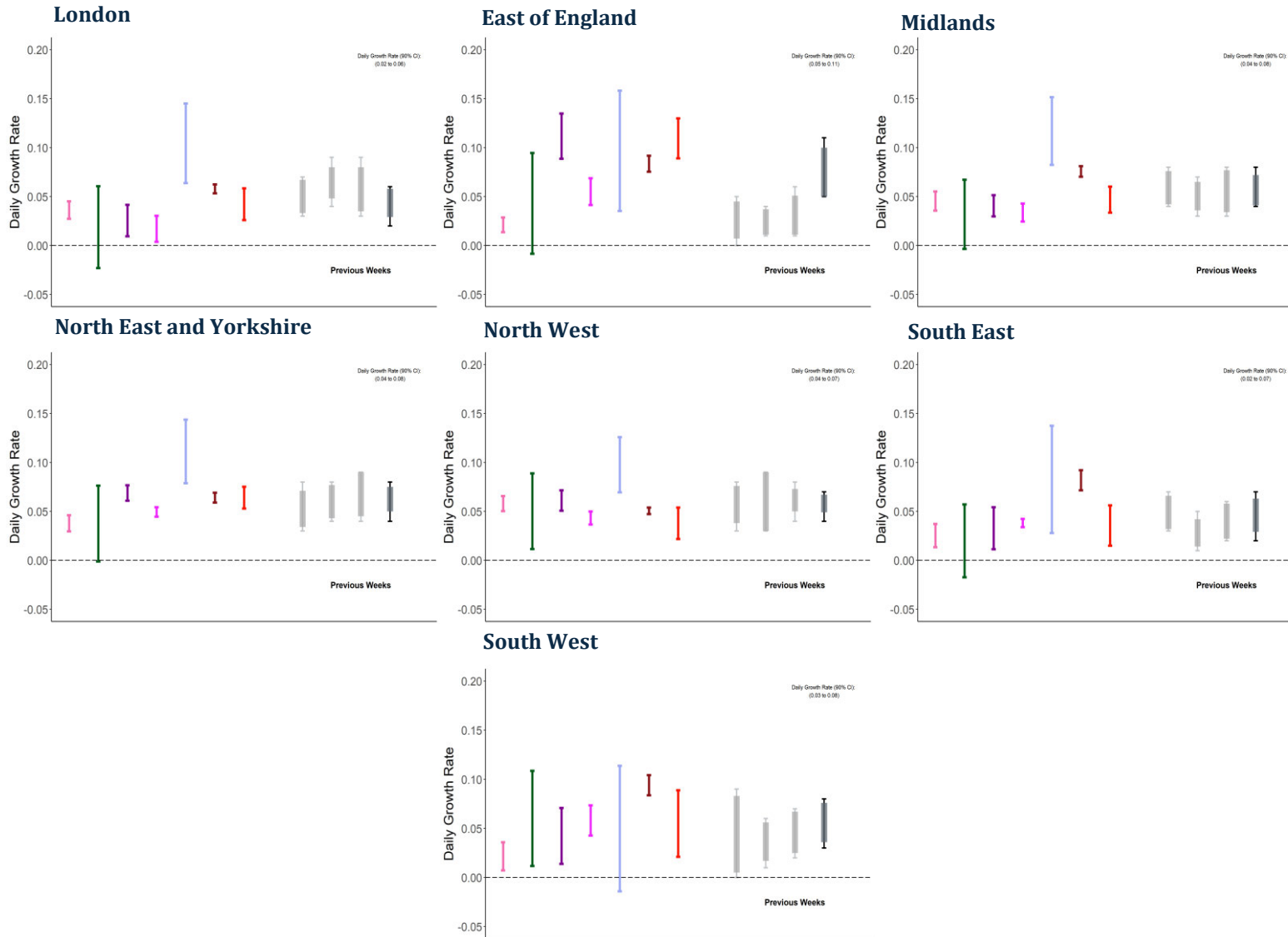


Figure 4: SPI-M-O groups estimates of median R in the NHS England regions, including 90% confidence intervals. Bars represent different independent estimates. The grey shaded areas represent the combined numerical range and the black bars are the combined range after rounding to 1 decimal place.

