|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| % days that median Rt estimate from data source (A)  fell within 50% CI of Rt estimate from data source (B),  with 95% confidence interval | | | | | |
| (A) | Community cases | | Admissions | | |
| (B) | Admissions | Deaths | Deaths | Deaths, lag 7 days | Deaths, lag 14 days |
| *England* | 0.03  (0-0.06) | 0.22  (0.15-0.28) | 0.64  (0.55-0.72) | 0.68  (0.6-0.76) | 0.52  (0.44-0.61) |
| *North East and Yorkshire* | 0.19  (0.12-0.25) | 0.2  (0.14-0.27) | 0.43  (0.35-0.52) | 0.41  (0.32-0.5) | 0.16  (0.09-0.23) |
| *North West* | 0.1  (0.05-0.16) | 0.17  (0.11-0.24) | 0.34  (0.26-0.42) | 0.39  (0.3-0.48) | 0.13  (0.07-0.2) |
| *Midlands* | 0.13  (0.08-0.19) | 0.16  (0.1-0.22) | 0.31  (0.23-0.39) | 0.28  (0.2-0.35) | 0.11  (0.06-0.17) |
| *East of England* | 0.16  (0.1-0.22) | 0.12  (0.07-0.17) | 0.31  (0.23-0.4) | 0.35  (0.26-0.44) | 0.31  (0.22-0.39) |
| *London* | 0.27  (0.19-0.34) | 0.26  (0.19-0.33) | 0.52  (0.43-0.61) | 0.49  (0.4-0.58) | 0.41  (0.32-0.49) |
| *South East* | 0.19  (0.12-0.25) | 0.26  (0.19-0.33) | 0.51  (0.42-0.6) | 0.46  (0.37-0.55) | 0.3  (0.22-0.39) |
| *South West* | 0.14  (0.08-0.2) | 0.36  (0.28-0.44) | 0.43  (0.34-0.51) | 0.41  (0.32-0.5) | 0.59  (0.5-0.68) |

Table 1.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Difference between pairs of median Rt estimates,  mean (95% confidence interval) | | | | | |
|  | Community cases | | Admissions | | |
|  | Admissions | Deaths | Deaths | Deaths, lag 7 days | Deaths, lag 14 days |
| *England* | 0.08  (0.05-0.11) | 0.1  (0.06-0.14) | 0.03  (0.02-0.04) | 0.03  (0.02-0.04) | -0.01  (-0.05-0.02) |
| *North East & Yorkshire* | 0.07  (0.06-0.09) | 0.12  (0.09-0.14) | 0.03 (0.02-0.04) | 0.04  (0.03-0.05) | 0.03  (0.01-0.04) |
| *North West* | 0.07  (0.06-0.09) | 0.1  (0.07-0.13) | 0.02  (0.01-0.03) | 0.03  (0.01-0.04) | 0.02  (-0.01-0.04) |
| *Midlands* | 0.08  (0.07-0.1) | 0.13  (0.11-0.16) | 0.04  (0.03-0.06) | 0.05  (0.03-0.06) | 0.04  (0.02-0.06) |
| *East of England* | 0.06  (0.04-0.07) | 0.08  (0.04-0.11) | 0.06  (0.05-0.08) | 0.07  (0.05-0.09) | 0.07  (0.05-0.09) |
| *London* | 0.08  (0.06-0.1) | 0.11  (0.09-0.14) | 0.04  (0.03-0.06) | 0.03  (0.01-0.05) | 0.01  (-0.01-0.03) |
| *South East* | 0.06  (0.04-0.07) | 0.09  (0.06-0.12) | 0.04  (0.03-0.05) | 0.05  (0.03-0.06) | 0.04  (0.02-0.06) |
| *South West* | 0.07  (0.05-0.09) | 0.11  (0.09-0.13) | 0.04  (0.03-0.05) | 0.05  (0.04-0.06) | 0.05  (0.03-0.06) |

Table 2.

In theory, these three processes for generating data might be expected to beare evenly distributed through the general population, all acting as lagged, partial indicators of transmission from which Rt can be estimated. **This was the approach taken in UK government policy, with the Scientific Pandemic Influenza group on Modelling (SPI-M) presenting Covid-19 Rt estimates and forecasts from March 2020 (#**[**ref**](https://www.gov.uk/government/groups/scientific-pandemic-influenza-subgroup-on-modelling)**). UK research groups contributed Rt estimates derived from a variety of public and confidential data from healthcare and community settings. These were averaged to create an ensemble estimate. Assuming the proportion of cases that result in a positive test, hospital admission, or death, remains constant, then estimating Rt from any data source should give a similar result. This also depends on using comparable methods for estimating transmission, and properly accounting for varying sources of noise in the surveillance processes.**

Where…