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## Rising numbers of positive covid-19 tests in the UK

### How concerned should we be?

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The covid-19 pandemic has shaken the world. In addition to the direct consequences of the disease, the outbreak has had a devastating social and economic impact. In the UK, the numbers of hospital admissions and deaths caused by the disease peaked in April.<sup>1</sup> Strict social distancing measures contributed to a decline in reported cases,<sup>2</sup> which has been followed by a gradual reopening of society. However, the number of positive test results has risen over the past two months. What does this tell us about the nature of the “second wave,” and how should we respond?

### Careful handling

The present scale of the infection is nowhere near as bad as it was in the late spring. The current number of positive test results in the UK is around half that at the peak in mid-April.<sup>1</sup> However, the testing conditions are now different from those earlier in the pandemic, and comparisons are misleading if conducted across the whole history of the pandemic.

In April, government administered tests were mostly available to people in hospitals and care settings. At that point, Golding and colleagues estimated that the number of positive tests represented around 7-10% of the total number of infections in the UK.<sup>3</sup> Modelling of infection incidence tells a similar story: the incidence in England peaked on 23 March at 352 000 (95% credible interval 279 000 to 454 000), while the number on 31 July was 3200 (1700 to 5800).<sup>4</sup> Community based surveys by the Office for National Statistics reported that 148 000 people (94 000 to 222 000) in England had covid-19 at any given point between 27 April and 10 May<sup>5</sup> and that only 39 700 people (29 300 to 52 700) in England and Wales had covid-19 at any given point between 30 August and 5 September.<sup>6</sup> Additionally, positive test results are increasingly being seen in younger people, who are less susceptible to severe illness.<sup>7</sup>

On the other hand, evidence is mounting that the rise in numbers of positive tests represents a real rise in the number of infected people. Data collected on 120 000-160 000 people in England showed stable levels of community infection in May and June but increasing levels of infection in July and August, with most recent figures suggesting a doubling time for infections of 7.7 (95% credible interval 5.5 to 12.7) days.<sup>8</sup> Although this is slower than the doubling time around the time of lockdown in late March, which has been estimated at 2.8 (2.6 to 3.0) days,<sup>9</sup> the situation needs to be handled carefully.

### Returning to normality

Steps taken to move closer towards “normal” life (such as the reopening of schools) have both short term and long term consequences. In the short term,

the number of infections is expected to rise at each step because of increased social contact. Once social networks have been established (or re-established), the long term consequences of viral transmission patterns in the new social network can be observed.

An effective response system based on testing, contact tracing, and household quarantine can help control viral spread in a second wave.<sup>10</sup> Adherence to such control measures is critical for reversing the upturn in positive cases. Given that current levels of infection are relatively low, a temporary increase in infection rates is likely to be manageable. If we see a sustained increase in numbers of positive tests without additional steps towards normal life, then further action will be necessary until control is achieved.

Although we can perhaps meaningfully compare positive test numbers today with those from one day ago, or even one week ago, it is not appropriate to compare them to those from four months ago. However, the rising numbers of positive test results are a real cause for concern, and even more so if they are sustained beyond the phase of adaption to reopening of society. Adherence to government policies that reduce viral spread is necessary to ensure that the second wave is controlled while balancing a return towards normality.

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- 1 UK Government. Coronavirus (COVID-19) in the UK: healthcare. 2020. <https://coronavirus.data.gov.uk/healthcare>
- 2 Chu DK, Akl EA, Duda S, Solo K, Yaacoub S, Schünemann HJ. COVID-19 Systematic Urgent Review Group Effort (SURGE) study authors. Physical distancing, face masks, and eye protection to prevent person-to-person transmission of SARS-CoV-2 and COVID-19: a systematic review and meta-analysis. *Lancet* 2020;395:1973-87. doi: 10.1016/S0140-6736(20)31142-9 pmid: 32497510
- 3 Golding N, Russell TW, Abbot S, Hellewell J, Pearson CAB, van Zandvoort K, et al. Reconstructing the global dynamics of under-ascertained COVID-19 cases and infections. *medRxiv* 2020.07.07.20148460. [Preprint.] doi: 10.1101/2020.07.07.20148460.
- 4 Birrell P, Blake J, van Leeuwen E; MRC Biostatistics Unit COVID-19 Working Group. Report on nowcasting and forecasting—6th August 2020. 2020. <https://www.mrc-bsu.cam.ac.uk/now-casting/report-on-nowcasting-and-forecasting-6th-august-2020/>.
- 5 Office for National Statistics. Coronavirus (COVID-19) infection survey pilot: England, 14 May 2020. <https://www.ons.gov.uk/peoplepopulationandcommunity/healthandsocialcare/conditionsanddiseases/bulletins/coronavirus-covid19infectionsurvey/pilot/england14may2020>
- 6 Office for National Statistics. Coronavirus (COVID-19) infection survey pilot: England and Wales, 11 September 2020. <https://www.ons.gov.uk/peoplepopulationandcommunity/healthandsocialcare/conditionsanddiseases/bulletins/coronavirus-covid19infectionsurvey/pilot/englandandwales11september2020>

- 7 Public Health England. Weekly coronavirus disease 2019 (COVID-19) surveillance report. Week 35. 2020. [https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment\\_data/file/912973/Weekly\\_COVID19\\_Surveillance\\_Report\\_week\\_35\\_FINAL.PDF](https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/912973/Weekly_COVID19_Surveillance_Report_week_35_FINAL.PDF)
- 8 Riley S, Ainslie KEC, Eales O, Walters CE, Wang H, Atchison CJ, et al., Resurgence of SARS-CoV-2 in England: detection by community antigen surveillance. *medRxiv* 2020.09.11.20192492. [[Preprint.] doi: 10.1101/2020.09.11.20192492.
- 9 Jit M, Jombart T, Nightingale ES, Endo A, Abbott S, Edmunds WJLSHTM Centre for Mathematical Modelling of Infectious Diseases COVID-19 Working Group. Estimating number of cases and spread of coronavirus disease (COVID-19) using critical care admissions, United Kingdom, February to March 2020. *Euro Surveill* 2020;25. doi: 10.2807/1560-7917.ES.2020.25.18.2000632. pmid: 32400358
- 10 Aleta A, Martin-Corral D, Pastore Y Piontti A, et al. Modelling the impact of testing, contact tracing and household quarantine on second waves of COVID-19. *Nat Hum Behav* 2020. [Epub ahead of print.] doi: 10.1038/s41562-020-0931-9. pmid: 32759985

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