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Is NHS Test and Trace exacerbating COVID-19 inequalities?

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The disproportionate effects of COVID-19 on deprived population groups are well documented.¹ Not only are case and fatality rates for COVID-19 higher than among people living in less deprived areas, policies that are aimed at preventing spread, such as social restrictions and lockdown, have a greater effect on vulnerable populations.²

NHS Test and Trace was launched on May 28, 2020, as a key part of the UK Government's strategy to control the spread of COVID-19. The test and trace system aims to reduce onward disease transmission by increasing the availability and speed of testing, and identifying close contacts of positive cases and asking them to isolate.³ However, ongoing testing delays and low levels of public adherence led to the UK Government's Scientific Advisory Group for Emergencies, in September, 2020, to describe the system as "having a marginal impact on transmission".⁴

Local governments in England can be grouped into 149 upper tier local authorities (UTLAs) that cover the whole country (for this analysis, the City of London is combined with the London Borough of Hackney, and the Isles of Scilly combined with Cornwall). We divided these 149 UTLAs into deprivation quintiles on the basis of average Index of Multiple Deprivation (IMD) scores from 2019. Using NHS Test and Trace reporting statistics from May 28 to Nov 18, 2020 (appendix), we analysed the reported percentage of all cases and contacts who were successfully contacted by the UTLAs in each deprivation quintile. This analysis included all cases with a known UTLA (ie, 99% of cases [1 072 551 of 1 080 501]) and all contacts with a known UTLA

who were not handled by Public Health England's specialist health protection teams (ie, 85% of contacts [2 369 588 of 2 797 547] for whom the associated case was not linked to a known outbreak in a specific high-risk setting).⁵

Since the launch of NHS Test and Trace, the percentage of positive cases and their contacts who have been successfully contacted was lower in the most deprived areas than in the least deprived (a graphical representation is shown in the appendix). In the least deprived areas (ie, the 20% of UTLAs with the lowest IMD scores), 86% of cases (131 677 of 153 567 cases) were successfully contacted compared with 83% (257 857 of 311 190 cases) in the most deprived areas (χ^2 , $p < 0.0001$). The difference was greater for contacts of positive cases: 62% of contacts (230 598 of 370 348 contacts) were successfully contacted in the least deprived areas compared with 56% (375 579 of 671 565 contacts) in the most deprived areas ($p < 0.0001$). The percentage of positive cases and their contacts who were successfully contacted decreased as deprivation increased.

Reasons underlying these differences are unclear. Applying IMD scores to UTLAs hides important variation in deprivation levels within local authorities, and we are unable to adjust our results for possible explanatory variables, such as age, sex, employment status, socioeconomic status, ethnicity, or type of residence, because these data are not publicly available. Nor is it possible to evaluate the effects of the time taken by NHS Test and Trace to successfully reach cases and contacts, or how performance has changed over time, and how these factors might relate to local infection rates and social restrictions. Finally, the correlation that was observed could be driven by systematic or structural issues, such as the approach to contact tracing and the role of contact-tracing systems

that are led by local authorities, or the levels of available support when isolating.⁶

Understanding these differences is crucial not only to improve NHS Test and Trace performance but to ensure that the inequalities that are exposed by COVID-19 are not exacerbated further.

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See Online for appendix

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