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# COVID-19 and disparities affecting ethnic minorities

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Longstanding health disparities affecting ethnic minorities in the UK have been made acutely visible by the COVID-19 pandemic. The disproportionate effects of COVID-19 among minority ethnic groups were present from the beginning, with Black and Asian patients in the UK being over-represented among those with COVID-19 receiving advanced respiratory support.[1] Analysis of data from Public Health England later highlighted that deaths from COVID-19 among people from minority ethnic groups were two to four times greater than those among the White population in England.[2] Several reasons for these differences were considered, including a higher prevalence of comorbidities associated with poor COVID-19 outcomes (eg, type 2 diabetes among British South Asians), greater social deprivation, large multigenerational households, differences in occupational risk, and delayed access to health care, which all disproportionally affect minority ethnic groups.[3,4] Despite these concerns, public health recommendations specifically targeted for ethnic minority groups at the time were limited.

In *The Lancet*, Rohini Mathur and colleagues[5] clarify some of these issues through a cohort study using the OpenSAFELY platform, by analysing primary care electronic health records linked to COVID-19 PCR testing, hospitalisation, and death records from 17 288 532 adults in England (around 30% of the population). The authors studied up to 16 disaggregated minority ethnic groups covering two waves of the COVID-19 pandemic and comprehensively examined the spectrum of COVID-19 outcomes, from SARS-CoV-2 testing through to hospitalisation and death, to identify where the disproportionate effects on ethnic minorities lie.

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During wave 1 of the pandemic, Mathur and colleagues report, minority ethnic groups in England were younger and over-represented in deprived areas and large households, and were more likely to have diabetes. After adjustment for other risk factors, South Asian, Black, and mixed ethnic groups were all more likely to test positive for COVID-19 than were White people in England, and had higher rates of hospitalisation, intensive care unit (ICU) admission, and death due to COVID-19. In contrast to other minority ethnic groups, South Asians in England had the largest household size, with only 20·4% having a household size of less than three, and had around double the risk of testing positive—the highest among the minority ethnic groups. Importantly, when household size was adjusted for, the risk of death from COVID-19 in South Asians was attenuated (hazard ratio [HR] 1·26 [95% CI 1·15–1·37]) compared with estimates adjusted only for age, sex, deprivation, comorbidities, and clinical factors. This finding suggests that the risk of COVID-19-related death, and potentially other COVID-19 outcomes, is, in part, mediated through an increased risk of household transmission that disproportionately affects South Asians.

The risks of COVID-19 hospitalisation, ICU admission, and death were greater for Black and mixed ethnicity groups relative to the White group during wave 1, with adjusted HRs for death of 1·51 (1·33–1·71) in the Black group and 1·41 (1·11–1·81) in the mixed ethnicity group. However, during wave 2, these groups were no longer at increased risk of testing positive for SARS-CoV-2 infection compared with the White population, and their subsequent risks of poor COVID-19 outcomes were also attenuated, with HRs for death of 0·92 (0·73–1·16) in the Black group and 1·24 (0·85–1·83) in the mixed ethnicity group. Although the reduced risk among Black and mixed ethnic groups during wave 2 was positive, it is concerning that the opposite was observed for South Asians, in whom the risk of poor COVID-19 outcomes was exacerbated (1·87 [1·68–2·07] for COVID-19-related death). Reasons for these differences are complex, but policy measures introduced between the pandemic waves—such as access to COVID-19 testing, education, and tackling occupational risk—are likely to have been important. Despite the wealth of data and what we

believe to be generalisable study results across England, limitations of this study include the lack of some explanatory factors that are not routinely well captured in existing data sources, such as occupation. Further work is required to understand why these differences have occurred, and in other settings.

The pressing challenge is now ensuring that COVID-19 vaccination programmes are rolled out effectively in all minority ethnic groups. Key to this will be ensuring that the need for increased vaccine confidence is urgently addressed. There are reports of increased hesitancy among minority ethnic groups, including those working in front-line health and social care roles, who are known to face an increased risk of COVID-19.[6–8] Unless direct measures are taken to increase vaccine confidence, differential vaccine uptake could further exacerbate health inequalities faced by minority ethnic groups compared with White groups.

The value of being able to analyse routinely collected health data at scale to support the rapid implementation of public health and medicine regulatory recommendations using secure data platforms has been proven during the pandemic.[9,10] An ongoing issue remains the lack of adequate mandatory ethnic coding in National Health Service (NHS) medical records, compounding the difficulty in identifying the actual scale of health inequalities. A key recommendation, which is in line with those made by health experts and Public Health England, should therefore be to comprehensively mandate the collection and recording of ethnicity data routinely within NHS and social care data collection systems.[4,11] Mathur and colleagues' findings clearly demonstrate the public health importance of not only collecting such data, but also making it accessible for analysis.

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# Population immunity and vaccine protection against infection

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Vaccines act by two broad main mechanisms. They can block infection occurring entirely or they can halt the progression to symptoms after infection occurs.[1] The most direct pathway to population immunity is the first mechanism, also known as sterilising immunity. Because, if a person cannot get infected, they cannot transmit. For this reason, there has been tremendous interest in determining the extent to which COVID-19 vaccines block infection. By now, it is clear that the vaccines are remarkably effective against severe disease and some tantalising preliminary findings have suggested substantial protection against infection.[2–4] However, studies to date have mostly been from relatively small subgroups in trials, are ecological in design, or used proxies for asymptomatic infection rather than directly swabbing and testing individuals.

In December, 2020, the BNT162b2 mRNA (Pfizer–BioNTech) and ChAdOx1 nCOV-19 adenoviral (Oxford–AstraZeneca) vaccines received emergency use authorisation in the UK based on safety and efficacy data