Some observations on COVID-19 and Minorities in the UK

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The Problem

1. Published data on the prevalence of minority deaths in the USA has prompted speculation as to whether non-whites are more exposed to and/or more susceptible to the adverse effects of the infection, serious illness and mortality as a consequence of COVID-19. Media reports of the number of minority health workers who have died in the UK have given rise to similar speculation here.

2. As of today, we have very little reliable UK information on the topic. A report from the Intensive Care National Audit and Research Centre (ICNARC) from 04/04/20 suggests that outcomes for non-white patients admitted to critical care units are worse than average. But that doesn't tell us whether the number of those confirmed to be infected (87,022 as of 18/04/20) or those who have died (13,917 as of 18/04/20) display the same disproportionality; nor does it tell us anything about the predisposition of any minority group. The ICNARC survey studied 2,249 of those who are already seriously ill with COVID-19 itself; and since it is drawn from units located in areas where minorities over index in the general population, the results do not give us a true picture of what is going on nationally. Crucially, it tells us nothing at all about levels of compliance with public health messages.

3. For the past four weeks we have sought to extract data that, analysed with modern software of the type developed by our firm, might clarify the situation; principally complete lists of the patients tested, those found positive, those admitted to hospital and those who have died. So far we have been unsuccessful in obtaining such data – leading us to believe that it is not held in any single source, such as the Department of Health (DoH), National Health Service (NHS) or Public Health England (PHE).

4. It is already known that the disease is displaying very different impacts according to age and gender. We believe that it will be impossible to devise a successful picture of the spread of the virus without ascertaining whether its course is in any way dependent on population demographics with respect to ethnic and cultural background, and if so, whether these are independent, first-order variables or proxies for other factors (such as age) already taken into account in the predictive models being used.

5. Entirely aside from these technical considerations it will be essential to make clear to the public whether there is any truth in stories or theories which have been circulating for some weeks. Examples: *"black people have greater resilience to COVID-19"* and do not need to comply with public health guidance; that Vitamin D deficiencies may be causing ethnic variations; and that pre-existing health conditions make all minorities more likely to be carriers of the virus, and that they should therefore be made special objects of negative concern during any exit phase.

6. If there is any indication that a more complete understanding of ethnic and cultural data would help us to manage the crisis more effectively it will be vital for public authorities to make relevant data available to researchers for analysis and to engage with the data protection regulators to ensure that information can be shared in a way that would provide for detailed analysis and action by PHE, the NHS and the DoH.

7. This paper is an attempt to assist that process by using publicly available data, mostly at the level of Upper Tier Local Authorities (UTLAs), to identify any patterns that merit further, more detailed analysis based on better data. We have analysed the 32 UTLAs which had reported more than 500 COVID-19 cases by Easter Saturday (11/04/20). The geographical categories are based on the patients' own home postcodes, thus obviating variations due to the presence of more or fewer hospitals locally, or the clustering of minorities near particular hospitals.

8. We look at the following issues:

- Is there evidence to suggest that the ethnic composition of a local authority's population is correlated with frequency of COVID 19 infection?
- If there is such evidence can it be accounted for by socio-economic factors, population density (i.e. overcrowding), or other factors external to the BAME group or its behaviours?
- Are there any variations according to the composition of the BAME population in different local authorities?
- Are there any other factors that might give rise to variations by local authority and ethnicity?

9. In some commentary, the size of the minority population has been taken as the indicator of its influence. That, however, does not help to indicate whether ethnicity itself matters in the rate of spread, and impact of, the virus. To eliminate the size factor, we have ranked local authorities by the number of cases reported per 100,000 population (as of 18/04/20); we estimate the benchmark for England as a whole at an average of around 155.5 per 100,000 individuals. In this way, we can assess the impact on, and significance of, the presence of minorities, irrespective of the size of the population. It is of course possible that small concentrations of minority groups may have unusual characteristics, but in the key local authorities below, the clusters of minority populations are too large to be influenced significantly by small area effects, so we believe that the composition of UTLAs is a good proxy for the impact of (and on) ethnic minority populations.

10. According to our own (Origins) data, the size of minority populations in several local authorities has changed materially since the 2011 census, but for consistency we have used 2011 census statistics to assess the relative size of the minority population in each local authority; broadly speaking the total numbers of minority residents will have risen similarly across all the relevant geographies since 2011, so our overall rankings should not be significantly affected, though the mix of minority groups within each local authority area may have changed.
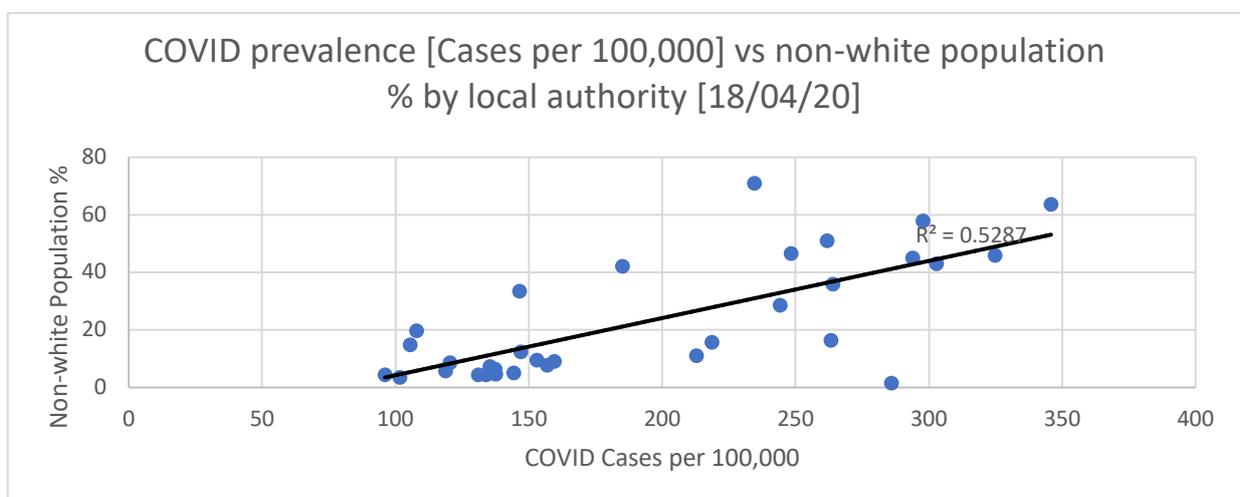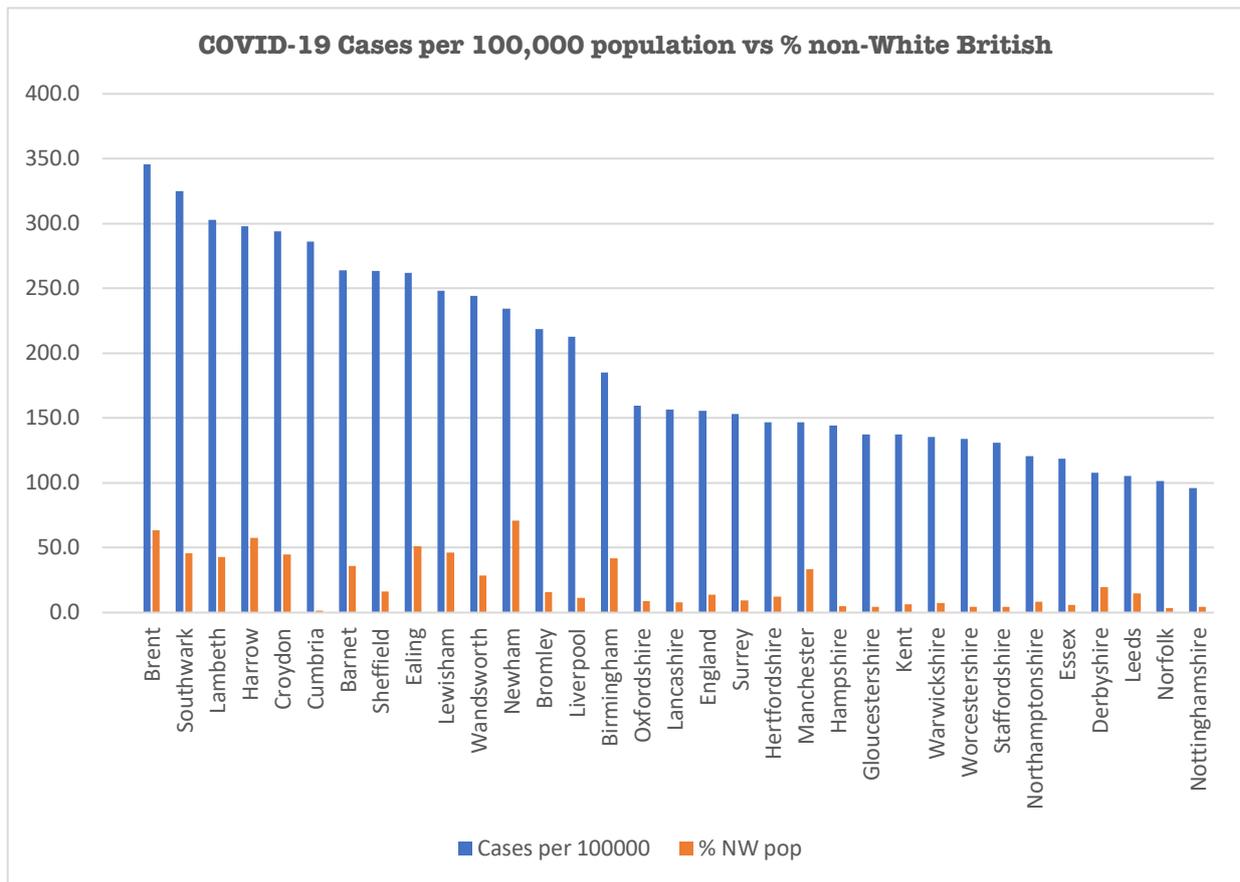
Does Race Matter To COVID-19?

11. **Yes.**

There are 17 COVID-19 local authority "hotspots" - which we are defining as local authorities with a prevalence above 156 per 100,000, the overall average for England and Wales. 13 of the 17 have non-white populations in excess of the national average of 14%. The exceptions are Liverpool (11.1% non-white), Oxfordshire (9.1%), Lancashire (7.7%) and Cumbria (1.5%).

Table 1 - COVID-19 prevalence & non-white population by local authority

	COVID-19 Cases per 100000	Non-white population %
Brent	345.8	63.7
Southwark	324.8	45.8
Lambeth	302.8	42.9
Harrow	297.9	57.8
Croydon	294.1	44.9
Cumbria	285.9	1.5
Barnet	264.0	35.9
Sheffield	263.3	16.3
Ealing	261.9	51.0
Lewisham	248.2	46.5
Wandsworth	244.3	28.6
Newham	234.6	71.0
Bromley	218.7	15.7
Liverpool	212.8	11.1
Birmingham	185.0	42.1
Oxfordshire	159.7	9.1
Lancashire	156.8	7.7
England (average)	155.5	14.0

12. The chart below suggests a clear association between COVID-19 infection frequency and the level of the non-white population in English boroughs reporting high levels of infection.

COVID-19 Cases per 100,000 population vs % non-White British

Legend: ■ Cases per 100000   ■ % NW pop

COVID prevalence [Cases per 100,000] vs non-white population % by local authority [18/04/20]

$R^2 = 0.5287$

Y-axis: Non-white Population %
X-axis: COVID Cases per 100,000

Possible Explanations

13. The explanations most frequently advanced are that these communities are characterised by a) low incomes; b) high population densities; (c) high levels of multi-generational households and overcrowding; d) pre-existing vulnerabilities; and e) occupations with a reliance on the use of public transport. We consider these in turn.

Income & Poverty

14. The local authorities which - so far - most strongly show the link between COVID-19 and ethnicity are London boroughs. This may reflect the spread of the disease in the UK; in time this pattern may alter. But working from the limited data we have so far, we can see that the most heavily affected boroughs are Brent, Southwark, Lambeth and Harrow, none of which figures in the top twenty most deprived indices drawn up by the government.[1] As Table 2 shows, 13 of the 17 COVID-19 hotspots have median incomes above average for the UK (£482 per week). Even in London (£589.40), 4 of the 11 cited local authorities have earnings above the capital's median income. The poorest (Newham) lies 12% below the capital's average, but is still above the national average. Because these are median numbers they are not influenced by the very high incomes of the most well-paid residents. It is possible that there are small pockets of minorities with very low incomes in these boroughs, but it is statistically unlikely that they would influence the overall finding significantly.

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[1]

https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/835115/IoD2019_Statistical_Release.pdf

Table 2 COVID & Median earnings

	Cases per 100K	Non-white population %	Median earnings (£ per week)
Brent	345.8	63.7	524
Southwark	324.8	45.8	623
Lambeth	302.8	42.9	634
Harrow	297.9	57.8	581
Croydon	294.1	44.9	560
Cumbria	285.9	1.5	457
Barnet	264.0	35.9	536
Sheffield	263.3	16.3	449
Ealing	261.9	51.0	532
Lewisham	248.2	46.5	553
Wandsworth	244.3	28.6	720
Newham	234.6	71.0	517
Bromley	218.7	15.7	641
Liverpool	212.8	11.1	453
Birmingham	185.0	42.1	435
Oxfordshire	159.7	9.1	527
Lancashire	156.8	7.7	530
England	155.5	14	479.1

15. Looking at the local authorities outside London which have an above average infection rate, for example, Sheffield (448.8), Birmingham (435.3) and Liverpool (452.5), they all have median incomes well above boroughs with high concentrations of poor minorities: for example, Burnley (430), Bradford (425) and Blackburn (399) none of which figures as a COVID-19 hot-spot. It would be hard to attribute the distribution of infection to lower incomes.

Overcrowding

16. Population density has also been cited as a possible cause. Webber Phillips does hold data on the distribution of large households by ethnicity; but for the purposes of this paper, we are relying on publicly available data. According to the Office for National Statistics, the 9 UTLAS with a population density of more than 10,000 per sq km are: Islington, Tower Hamlets, Hackney, Kensington and Chelsea, Lambeth, Camden, Westminster, Hammersmith and Fulham and Southwark. Only 2 of this list figure as COVID-19 hotspots – Lambeth and Southwark. Outside London, the local authorities with a significant minority presence which do figure as COVID-19 hot spots are not particularly overcrowded. Sheffield and Liverpool, for example, are the 35th and 107th most densely packed local authorities out of some 125 UTLAs.

Pre-existing Vulnerabilities

17. We have no useful information about pre-existing health vulnerabilities amongst ethnic groups at local authority level, though this is widely cited as a possible cause. However, whilst we imagine it could explain, in part, the high degree of severe illness amongst minority individuals *once they have contracted the virus,* it is difficult to see how biological factors can explain the overall prevalence of initial infection amongst minorities.

18. Taking, for example, Brent or Southwark and Lambeth, it would be hard to imagine that biological factors can explain a prevalence of infection that is around twice the national average – especially when the dominant minority in the former borough is Asian in origin, African in the second, whilst in the third no individual group predominates. And as we explain below, the very sharp difference in prevalence between local authorities where the dominant minority is Indian compared to those where it is Pakistani or Bangladeshi suggests that the causes of minority vulnerability are far more likely to be environmental or behavioural.

Does the Virus Affect Different Minorities Differently?

19. **Probably.** To try to answer this question, we looked in detail at the ethnic composition of the 13 local authorities which have a) a higher than average COVID-19 prevalence and b) a larger than average minority population by percentage. These are Brent, Southwark, Lambeth, Harrow, Croydon, Barnet, Sheffield, Ealing, Lewisham, Wandsworth, Newham, Bromley and Birmingham. They range from just under one-third to almost two-thirds non-white. However, the composition of the non-white group varies, with different sub-groups, (and in a couple of cases no sub-group) being dominant.

20. Most striking is the *absence* from this list of virtually all the English local authorities where the dominant minority group is Pakistani or Bangladeshi Muslim: Tower Hamlets, Luton, Slough, Redbridge, Waltham Forest and Blackburn. Only Birmingham (the lowest prevalence of infection amongst the 13) is present, and we believe that this is probably due to its sheer scale rather than its ethnic composition. Remarkably, Tower Hamlets – the borough with the highest proportion of Pakistani and Bangladeshi Muslim residents in the country - shows an infection prevalence of 214 per 100,000, well below the London average of 235; with 473 cases Tower Hamlets lies in the bottom third of London's 32 boroughs.

21. Significantly, several low-prevalence Pakistani and Bangladeshi Muslim areas abut areas which also have significant minority communities, but which by contrast show relatively high levels of COVID-19. Tower Hamlets (214/100,000) is next to Southwark's large African community (365/100,000); Slough (193/100,000) is adjacent to Hillingdon (208/100,000) which has a dominant Indian group.

Why We Need Better Data

22. In the absence of any persuasive data pointing in the direction of socio-economic, biological, or environmental factors it would be tempting to suggest that there are behavioural explanations for ethnocultural differences in impact – for example, differential rates of compliance with government guidance. However, there is no evidence - yet - to support such a proposition, and in any event, the patterns of infections discussed in this paper will have been established well before the "lockdown" policy took hold.

23. There are five further possible explanations, two of which would be extremely difficult to validate without intrusive data gathering. First, are patterns of foreign travel different between immigrant communities, and might it be possible that the virus, picked up abroad may have spread more quickly within some communities? Second, is a proximity to illegal immigrants putting some communities are greater risk? Aside from the difficulty inherent in assembling relevant data, we judge that neither of these explanations is likely to explain the variations we found.

24. There are three further explanations which we consider more likely to be significant, but which are impossible to explore without more and better data:

- Age: are some groups more likely to have had the virus asymptomatically *because they are younger*, and unwittingly infected older co-ethnics in the same household who go on to develop serious conditions?

- Compliance: did some communities adopt *isolation* earlier and faster than others (plausibly a consequence of pre-existing segregation); and have some communities been able to respond less completely than others to the government's advice? (considering *language* and communication barriers)

- Occupation: are some groups more at risk because their occupations put them in the front line (e.g. Indian doctors, black transport and security workers)? Or are some at less risk because they are more likely to be *economically inactive* and less likely to be using public transport on a daily basis?

25. Answers to each of these questions can probably be found if records for the following categories of individual were to be analysed by ethnicity, preferably as a time series and with relevant geographical and occupational data at postcode level:

- Persons tested, found positive;
- Persons admitted to hospital care;
- Persons admitted to ICUs;
- Persons recovered;
- Persons deceased.

26. If the relevant agencies were ready to cooperate with each other and with providers of relevant technologies there would be no obstacle to the technology addressing each of these questions.

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