Ethnicity and COVID-19 – endorsed view as of SAGE 40 – 04/06/2020

The below is a summary of a discussion on ethnicity and COVID-19 risk, endorsed by SAGE in its 40th meeting. The papers considered as input are listed in Annex A. It was noted that there was a high level of consistency between the papers.

- Evidence suggests a significantly higher likelihood of being tested, testing positive (i.e. increased chance of catching COVID-19), admission to critical care, and death for ethnic minorities, particularly Black and South Asian groups (high confidence). A significant part of the increased risk of contracting COVID-19 is likely to be due to a complex, interconnected range of factors including socioeconomic deprivation, involvement in high contact/risk occupations, geography, household size and composition, and comorbidities (high confidence).
- For hospitalised patients, even with similar disease severity and duration of symptoms on admission, and after adjustment for deprivation and comorbidities, there is an increased risk of critical care admission for South Asian, Black and Other Ethnic Minority groups. The South Asian group has higher mortality which is partly mediated by pre-existing diabetes (medium confidence). This in-hospital effect is not explained by socioeconomic factors and may be due to biological factors including increased cardiovascular disease risk. BAME patients have tended to be younger and have higher rates of diabetes (type 1 and 2).
- There remains uncertainty around the risk not attributable to known factors such as deprivation and comorbidity, and more work is needed to understand this, particularly:
  - Data linkage and analysis to further understand any links to high risk occupations, household composition and size, faith practices, geography and others.
  - Further research on potential biological differences impacting outcome, for example the role of cardiovascular risk factors, including subsequent/longer-term risks.
- All-cause mortality (COVID-19 and non-COVID deaths) is also elevated in BAME groups. This is the opposite of previous years (2014-18) where rates of death from all causes are higher in the White group.
- The quality and granularity of data available is a significant issue – for example data on exposure risk in individual occupations may not capture differences within occupations. ONS will be able to update analysis with occupation data for mid-June and hold useful information such as the proximity measure. Considerable differences also exist within current ethnic categories such as 'South Asian'.
- The importance of social science research, as well as qualitative data and engagement to provide context to quantitative analysis was noted. Work was discussed that highlighted the importance of faith practices, differences in patterns of healthcare usage, willingness of communities to engage with prevention, and other factors such as access to outdoor space. Different messaging, including health messages tailored specifically for different ethnic groups was highlighted as being particularly important.
- The importance of increased engagement with and participation of communities during research was noted.
- It was noted by SAGE that tailored messaging alone cannot overcome all structural obstacles and fundamental sociological factors that may contribute to increased risk. Important issues to understand include health-seeking behaviours within BAME groups; discrimination within occupations and healthcare roles (e.g. differential access to PPE); and trust, social stigmatisation and their behavioural impacts during and after the epidemic (including for social cohesion, inclusion, job seeking, in employment).
- In general, COVID-19 has increased all health inequalities – of which those related to ethnicity are one important example.
- Consideration of any targeted protective measures should take into account (i) likelihood of catching the disease is mostly due to the wider socioeconomic and occupational factors (ii) the higher in hospital morbidity and mortality is more likely to represent a biological increased risk (iii) the impact of any measures, and subsequent impacts on behaviour or other factors, regarding any potential COVID-19 related stigmatisation.

Annex A: Summary of papers considered

CO-CIN - Ethnicity and outcomes from COVID-19: the ISARIC CCP-UK prospective observational cohort study of hospitalised patients (submitted, Lancet)

- Covers 34,986 hospitalised patients in England, Wales and Scotland (40% inpatient population). All results / analyses are for this population only (i.e. not patients prior to hospital admission). **Ethnic minority and white groups had similar disease severity on admission and similar duration of symptoms.** Ethnic minorities (recorded South Asian, East Asian, Black, Other Ethnic Minority) were younger and more likely to have diabetes (type 1/type 2) but had fewer other comorbidities (e.g. dementia or chronic heart disease) than the white group.
- **Critical care admission was more common in South Asian** (OR 1.28; 95% CI 1.09-1.52), **Black** (1.36; 1.14-1.62) **and Other Ethnic Minority** (1.29; 1.13-1.47) **groups** compared to the white group after adjusting for age, sex and location. This was broadly unchanged after adjustment for deprivation and comorbidities. **Higher adjusted mortality was seen in the South Asian group** compared to the white group (HR 1.19; 95% CI 1.05-1.36), but not in other groups. 18% (95% CI, 9-56%) of excess mortality in South Asians was mediated by pre-existing diabetes.

ONS - 'Coronavirus (COVID-19) related deaths by ethnic group, England and Wales: 2 March 2020 to 10 April 2020'

- Comparison of deaths where COVID-19 was mentioned on the death certificate by age, sex and ethnic group using linked census and mortality records. Controlled for geography, level of deprivation in the area, household composition, socio-economic characteristics, and some measures of health.
- **After taking account of several socio-demographic characteristics, the risk of a COVID-19-related death for those of Black ethnicity was 1.9 times more likely than for those of White ethnicity. Similarly, males in the Bangladeshi and Pakistani ethnic group were 1.8 times more likely to have a COVID19-related death than White males.**
- People of Bangladeshi and Pakistani, Indian, and Mixed ethnicities also had statistically significant raised risk of death involving COVID-19 compared with those of White ethnicity.

PHE – COVID-19 Review of Disparities in Risks and Outcomes

- Findings are based on surveillance data available to PHE to mid-May including linkage to health data sets. Analyses account for age, sex, deprivation but not occupation or comorbidities (inc. obesity).
- **People from Black ethnic groups were most likely to be diagnosed. Death rates from COVID-19 were highest among people of Black and Asian ethnic groups.** This is the opposite of what is seen in previous years, when the mortality rates were lower in Asian and Black ethnic groups than White ethnic groups
- An analysis of survival among confirmed COVID-19 cases and using more detailed ethnic groups, shows that after accounting for the effect of sex, age, deprivation and region, **people of Bangladeshi ethnicity had around twice the risk of death than people of White British ethnicity. People of Chinese, Indian, Pakistani, Other Asian, Caribbean and Other Black ethnicity had between 10 and 50% higher risk of death when compared to White British.**

Niedzwiedz et al. - Ethnic and socioeconomic differences in SARS-CoV-2 infection: prospective cohort study using UK Biobank

- Data from 392,116 people who took part in UK Biobank were linked to PHE test results. Analysis investigated if ethnicity and socioeconomic position were associated with having a positive test. Adjustment was made for covariates including age, sex, social variables, behavioural risk factors and baseline health.
- **Black and south Asian groups were more likely to test positive** (RR 3.35 (95% CI 2.48–4.53) and RR 2.42 (95% CI 1.75–3.36) respectively), **with Pakistani ethnicity at highest risk within the south Asian group** (RR 3.24 (95% CI 1.73–6.07)). These ethnic groups were more likely to be hospital cases compared to the white British. Adjustment for baseline health and behavioural risk factors led to little change, with only modest attenuation when accounting for socioeconomic variables.

Willamson et al. - OpenSAFELY: factors associated with COVID-19-related hospital death in the linked electronic health records of 17 million adult NHS patients.

- Electronic health care records of 17.4m people linked to patient-level data were analysed (1st Feb-25th April 2020) to investigate death in hospital among people with confirmed COVID-19. An age/sex adjusted model was used as well as multiple adjustment for wider co-variates selected prospectively based on clinical interest (inc. BMI, deprivation).
- **Compared to people with ethnicity recorded as white, black people were at higher risk of death**, with only partial attenuation in hazard ratios from the fully adjusted model (age-sex adjusted HR 2.17 95% CI 1.84-2.57; fully adjusted HR 1.71 95% CI 1.44-2.02); **with similar findings for Asian people** (age-sex adjusted HR 1.95 95% CI 1.73-2.18; fully adjusted HR 1.62 95% CI 1.43-1.82).

Alaa et al. – Ethnicity and Outcomes of COVID-19 Patients in England

- 5 data sets were linked covering 72,358 COVID-19 patients with ethnicity information and analysed to investigate relationship between ethnic group (White, Asian, Black, and Other Ethnic Background) and outcome to April 20th 2020.
- Compared to the overall population, **individuals from a BAME background were more likely to be diagnosed with COVID-19, more likely to be admitted to hospital and intensive care, and more likely to die. Findings suggest that increased prevalence of COVID-19 amongst individuals from a BAME background is at least partially explained by the geographical distribution of COVID in England, deprivation and occupational exposure. The findings also suggest that BAME patients, and particularly those with an Asian background, are at an elevated risk of mortality.**