



HM Government

Quarterly report on progress to address COVID-19 health inequalities

October 2020

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Introduction

Following publication of the Public Health England (PHE) report *COVID-19: review of disparities in risks and outcomes*¹, the Prime Minister and the Secretary of State for Health and Social Care asked the Minister for Equalities, Kemi Badenoch MP, to lead cross-government work on next steps.

The terms of reference² for this work were announced on 4 June. The Race Disparity Unit (RDU) in the Cabinet Office is supporting the Minister for Equalities with this work.

The PHE review indicated that a range of people, including the elderly, men and those who are most deprived or from ethnic minority backgrounds, were most disproportionately impacted by COVID-19. Given the stark findings in relation to ethnicity, the RDU's main focus has been to consider why this virus has had such a disproportionate impact on people from ethnic minority groups, and in particular men from within those groups. A separate strand of work within government is considering other disproportionately impacted groups.

This report is the first quarterly update on progress to the Prime Minister and the Secretary of State for Health and Social Care, as required by the final term of reference. Progress is summarised against each of the terms of reference in turn.

PHE also published a rapid literature review and results of stakeholder engagement, *Beyond the Data: Understanding the impact of COVID-19 on BAME groups*³ which made a number of recommendations. Many of these have already been delivered against or have been subsumed into the work already underway by the RDU. The table at **Annex A** summarises progress against each of these recommendations.

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¹ <https://www.gov.uk/government/publications/covid-19-review-of-disparities-in-risks-and-outcomes>

² <https://www.gov.uk/government/news/next-steps-for-work-on-covid-19-disparities-announced>

³ <https://www.gov.uk/government/publications/covid-19-understanding-the-impact-on-bame-communities>

Executive summary and recommendations

Summary

This report summarises the work undertaken across government since the report of the PHE review was published on 2 June.

The PHE review set out some of what was known at the time about COVID-19 and ethnicity. It told us what the disparities in risks and outcomes were, but not why they had arisen or what could be done about them. The Race Disparity Unit (RDU) has been working collaboratively across government and with the Office for National Statistics (ONS), and is liaising with universities and researchers to build the evidence base and to get a better understanding of what is driving these disparities.

The current evidence clearly shows that a range of socioeconomic and geographical factors such as occupational exposure, population density, household composition and pre-existing health conditions contribute to the higher infection and mortality rates for ethnic minority groups, but a part of the excess risk remains unexplained for some groups. Each successive publication of results is filling the gaps in the evidence base and refining our previous understanding of the impact of different risk factors. This is set to continue over the months ahead.

Alongside this work, the RDU has supported the Minister for Equalities to review the actions that government departments and their agencies have put in place to mitigate the impacts of COVID-19. This work to date is summarised in **Annex B** to the report.

There has also been a significant amount of work to improve the reach and understanding of public health communications on COVID-19, with a particular focus on targeting those parts of the community who may be at greatest risk. To augment this, the government is now introducing a new *Community Champions* scheme to enhance existing communication strategies in a target group of councils and fund work with grassroots advocates from affected communities. The scheme will also provide funding for voluntary and community groups who specialise in working with communities most at risk from COVID-19.

Recommendations

The Minister for Equalities has also made the following recommendations to the Prime Minister, which have been accepted in full:

Recommendation 1: NHS England must ensure that Trusts implement NHS plans for the next stage of the pandemic, and that these plans continue to reflect the latest evidence about ethnic disparities and risk factors.

Recommendation 2: departments must put in place arrangements for the effective monitoring of the impacts their policies are having on people from ethnic minority backgrounds including:

- the uptake of particular COVID-19 policies or grants of funding by ethnic minority individuals and groups;
- monitoring and assessing the level of infection, hospitalisation and mortality rates across ethnicities, where appropriate; and
- assessing how effectively these policies have been understood by those people at whom they are targeted.

Recommendation 3: there should be a rapid, light-touch review of action taken by local authorities and Directors of Public Health to support people from ethnic minority backgrounds, in order to understand what works at a local level.

Recommendation 4: Departments should continue to work at pace to develop new policy interventions to mitigate COVID-19 disparities, informed by the latest evidence.

Recommendation 5: Support should be given to the development and deployment of a risk model to understand individual risk that is being developed from research commissioned by the CMO by an expert subgroup of academic, scientific and clinical experts and the University of Oxford.

Recommendation 6: Ensure that new evidence uncovered during this review relating to the clinically extremely vulnerable is incorporated into health policy.

Recommendation 7: Government departments and academics should prioritise linkage between health, social and employment data to build a complete picture of ethnic group differences in COVID-19 risk and outcomes.

Recommendation 8: RDU should introduce and publish a new "Summary of evidence about COVID-19 and ethnicity" report, working collaboratively with external experts, which would be updated every time (significant) new statistics and research are published.

Recommendation 9: The recording of ethnicity as part of the death certification process should become mandatory, as this is the only way of establishing a complete picture of the impact of the virus on ethnic minorities. This would involve making ethnicity a mandatory question for healthcare professionals to ask of patients, and transferring that ethnicity data to a new, digitised Medical Certificate Cause of Death which can then inform ONS mortality statistics.

Work is underway across government to develop a solution, taking into account legal, digital and methodological processes, and this must be given sufficient priority.

Recommendation 10: Minister for Equalities to work with ministerial colleagues to establish metrics for assessing the impact of their policies to tackle COVID-19 disparities.

Recommendation 11: There should be a series of roundtables over the coming months involving faith leaders and other community representatives and focussing on those groups that are most at risk from COVID-19.

Recommendation 12: work must continue on improving public health communication to enable the successful delivery of existing and new interventions to all parts of the

community including hard-to-reach groups, especially those at greatest risk in areas of local lockdown and rising concern. This should include:

- Increasing and diversifying a programme of activities for ministers across government to improve engagement with people from ethnic minority backgrounds.
- Continuing to improve our understanding of ethnic minority audiences and interests of each ethnic minority outlet to ensure messaging is targeted and nuanced, and build on the existing communications programme with respected third party voices to improve reach, understanding and positive health behaviours. Disaggregation of audience and channel approach will support this aim.
- A more streamlined approach across government and locally to improve local translations so that those who do not have English as a first language are more likely to be able to understand and act on public health advice.
- More emphasis on promotion of existing NHS guidance on minimising transmission within households, sharing these messages widely and in the range of languages and formats needed. Recent figures show that in-house transmissions have played a significant part in the increase in infections we are seeing this autumn and as we head into winter people will spend more time indoors.

Recommendation 13: further work is needed to dispel myths, reduce fear and build confidence among ethnic minority people. Over the coming months, the COVID Communications Hub in the Cabinet Office will need to keep sharpening its focus on rebuilding trust in government messaging, tackling misinformation and anti-vaccination narratives and encouraging engagement with NHS services.

Term of Reference 1: Review the effectiveness and impact of current actions being undertaken by relevant government departments and their agencies to directly lessen disparities in infection and death rates of COVID-19

Summary

1. Departments and their agencies acted quickly to address the PHE review's findings, although many of these actions are targeted at the population as a whole rather than focused solely on those from ethnic minority backgrounds. While it may be too soon to evaluate the effectiveness of some of these interventions, departments must ensure that they have in place appropriate systems for monitoring the impacts their policies are having.

Approach

2. RDU officials have worked closely with their colleagues across other government departments and agencies, and in particular the Department of Health and Social Care (DHSC), PHE, the Cabinet Office and the Ministry of Housing, Communities and Local Government (MHCLG), to assess current initiatives to lessen the disparities highlighted by the PHE report, with a particular emphasis on ethnic minority groups.
3. The RDU requested an initial set of returns from departments in June, seeking details of their actions and the department's assessment of their effectiveness. This was followed by a second request in August, in which RDU provided feedback on the previous set of returns, identified any gaps in these and sought updates by the beginning of September. The Minister for Equalities wrote to relevant ministerial colleagues on 28 July, just before the launch of the second round, encouraging them and their officials to engage in this exercise.
4. The RDU analysed the second set of returns and a summary of this work is set out in **Annex B**. The RDU will provide feedback to individual departments on their returns and this will be reinforced through a letter from the Minister for Equalities to relevant ministerial colleagues. The RDU will continue to monitor cross-government activity, seeking further updates from departments and sharing lessons learned.
5. This term of reference is based on the work of government departments. There is a significant amount of work being carried out at a local authority level and by Directors of Public Health which is not currently being captured centrally. Capturing this will be a focus in the coming months.

Results

6. RDU had returns from all relevant departments and their agencies⁴. These showed that there is a significant amount of work underway. The general approach has been to mitigate the impact of COVID-19 across the population, with some specific actions focused on ethnic minority groups where appropriate.
7. In particular, the plans for the third phase of the NHS's response to COVID-19, announced at the end of July, included commitments to accelerating the return of non-COVID health services, preparation for winter demand pressures, and taking action on health inequalities. Progress against these commitments will be assessed in future versions of this report.
8. For some policies, departments have yet to establish effective metrics and monitoring arrangements. While this is understandable with more recent initiatives, this must be a priority for departments over the coming months. That will enable the RDU to monitor and assess short and longer term impacts and to assess which interventions are most effective.

Recommendations

Recommendation 1: NHS England must ensure that Trusts implement NHS plans for the next stage of the pandemic, and that these plans continue to reflect the latest evidence about ethnic disparities and risk factors.

Recommendation 2: departments must put in place arrangements for the effective monitoring of the impacts their policies are having on people from ethnic minority backgrounds including:

- the uptake of particular COVID-19 policies or grants of funding by ethnic minority individuals and groups;
- monitoring and assessing the level of infection, hospitalisation and mortality rates across ethnicities, where appropriate; and
- assessing how effectively these policies have been understood by those people at whom they are targeted.

Recommendation 3: there should be a rapid, light-touch review of action taken by local authorities and Directors of Public Health to support people from ethnic minority backgrounds, in order to understand what works at a local level.

⁴ Returns were commissioned from those departments with a direct policy or operational interest in this work. The exercise was limited to England and Wales only.

Term of Reference 2: Modifications to existing, or development of new policy, should be considered and discussed with the relevant ministers responsible. This ongoing work will include looking at the extensive guidance that is already currently available

Summary

9. The RDU has sought to influence the development of new policy and guidance across Whitehall. The main focus of this work in the first quarter was guidance on occupational risk, although this is now turning towards development of new policy interventions.

Approach

- *Occupational risk*
10. There is considerable work underway on how best to assess occupational risk. This is because of the need to ensure people are able to return to work in the safest way possible. The government's position on occupational risk has been informed, in part, by work commissioned by the Scientific Advisory Group for Emergencies (SAGE) and led by PHE, the Faculty of Occupational Medicine and the Health and Safety Executive (HSE).
 11. The consensus from this work is that risk assessments should be applied equally and consistently across the workforce, in any workplace, and the controls that are necessary should protect all individuals, so the risk of infection is managed and reduced, so far as is reasonably practicable. The risk assessment and control measures it identifies should take account of all relevant factors and not just a person's ethnicity. Singling out all ethnic minority members of staff for additional risk assessments could be stigmatising and could deny them opportunities.
 12. The current government guidance on occupational risk was updated by the HSE in July and again in September, incorporating the findings of the PHE review and subsequent developments. The HSE is considering whether further changes are needed to this in light of the work commissioned by SAGE and ongoing work by others in this area.
- *Individual risk model*
13. Alongside this, the Chief Medical Officer (CMO) commissioned an expert group to explore whether a new predictive risk model could be developed, that takes into account a wider range of factors now known to increase risk of infection and serious outcomes from COVID-19 infection including age, sex, body mass index (BMI), pre-existing medical conditions, deprivation and ethnicity. This work is being led by the University of Oxford. While the model will not predict an individual's precise risk of serious illness or death from catching COVID-19, it could potentially be used within clinical settings to facilitate individualised discussions between a patient and their

clinician about COVID-19 risk. The model is expected to be launched in the autumn. A second peer reviewed paper has recently been published in the British Medical Journal⁵.

- *Development of new policies*

14. The RDU's approach is now turning towards development of new policies, as and when findings from the data emerge. In particular, RDU officials are working closely with the newly-appointed Whitehall Senior Responsible Owner for coordinating government work on those disproportionately impacted by COVID-19, Dr Emran Mian, and the new SAGE ethnicity sub-group.
15. One immediate priority is to work with local communities to improve the reach of official public health guidance, rules and other messaging or communications about the virus into specific places and groups most at risk from COVID-19. **The government is therefore implementing a new 'Community Champions' scheme.** This includes up to £25m in funding to local authorities and the voluntary and community sector to improve the reach of official public health guidance, and other messaging or communications about the virus into specific places and groups most at risk from COVID-19.
16. The funding will support those groups at greater risk of COVID-19, to ensure key public health advice is understood and safer behaviours are followed. This will help to build trust, reduce transmission and ultimately play a part in helping to lower death rates in the targeted areas and beyond.
17. The funding, for a target group of councils, will enable them to do more of what they know works, but also to go further, by enhancing existing schemes. This could include running helplines that are responsive to the needs of communities and enable them to access key public help advice, and creating bespoke materials that simplify key public health messages and signpost to the local and national support available. Learning from the Community Champions scheme will be shared with all councils and across all relevant government departments – enabling government and local authorities to hear directly from individuals in communities on the impact of the crisis.
18. The RDU will work with MHCLG to develop and implement the new scheme. The RDU will also continue to work with other government departments to develop new policy interventions.

⁵ <https://www.bmj.com/content/371/bmj.m3731> 20/10/2020

Recommendations

Recommendation 4: Departments should continue to work at pace to develop new policy interventions to mitigate COVID-19 disparities, informed by the latest evidence.

Recommendation 5: Support should be given to the development and deployment of a risk model to understand individual risk that is being developed from research commissioned by the CMO by an expert subgroup of academic, scientific and clinical experts and the University of Oxford.

Recommendation 6: Ensure that new evidence uncovered during this review relating to the clinically extremely vulnerable is incorporated into health policy.

Term of Reference 3: Commission further data, research and analytical work by the Equality Hub to clarify the scale, and drivers, of the gaps in evidence highlighted by the report

Summary

19. The PHE review summarised some of what was known at the time about COVID-19 and ethnicity, highlighting what the disparities in risks and outcomes were, but not why they had arisen. The work under this term of reference has focused on understanding the key drivers of the disparities and the relationships between the different risk factors. Because no single dataset holds all the variables needed to gain a full understanding, different organisations have been linking datasets over the last 4 months to shed light on the effect of different risk factors. Each successive publication of results is filling the gaps in the evidence base and refining our previous understanding of the impact of different risk factors. This is set to continue over the months ahead.
20. The current evidence clearly shows that a range of socioeconomic and geographical factors such as occupational exposure, population density, household composition and pre-existing health conditions contribute to the higher infection and mortality rates for ethnic minority groups. A part of the excess risk remains unexplained for some groups. Further analysis of potential risk factors is planned for the coming months. This is explored in more detail below and in **Annex C**.

Approach

21. In June it was clear that there was a higher likelihood of a death involving COVID-19 relative to those of White ethnicity for all ethnic minority groups. For example, analysis by the ONS⁶ revealed that after adjusting for age, sex, region, population density, socio-demographic and household characteristics, the increased risk of death involving COVID-19 for people of Black ethnic background of all ages together was 2.0 times greater for males and 1.4 times greater for females compared with those of White ethnic background.
22. The RDU developed a plan that set out (a) what the data gaps are (for example, the occupations of COVID-19 fatalities, by ethnicity, which was not available when PHE undertook its original analysis), and (b) whether the data could be produced, for example by linking datasets, with a view to then filling the gaps.
23. Recognising the urgent need to increase understanding of the impact of COVID-19 on ethnic minorities, the RDU also initiated further research and analysis that can fill the evidence gaps (specifically, the relationship between comorbidities, ethnicity and

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<https://www.ons.gov.uk/peoplepopulationandcommunity/birthsdeathsandmarriages/deaths/articles/coronaviruscovid19relateddeathsbyethnicgroupenglandandwales/2march2020to15may2020>

mortality from COVID-19), and engaged with others already working on this topic and other evidence gaps.

24. This approach has involved engaging with other government departments, the ONS and a wide range of academics who are researching the links between ethnicity and COVID-19. The RDU is also working with the new SAGE ethnicity sub-group, to help make the best use of all available data.

25. Further detail on the workstreams under this term of reference is set out in **Annex C**.

Results

Risk factors and outcomes related with COVID-19 and ethnicity

26. RDU's work to date has focused on identifying the risk factors related to higher rates of COVID-19 diagnosis, hospitalisation and mortality for COVID-19. A brief summary of the risk factors is provided below.

- Risk factors linked to infection or diagnosis. Analysis from the REACT-2 study⁷ found that the prevalence of COVID-19 antibodies (indicating previous infection) was higher among Black and Asian (mainly South Asian) people than it was for White people. That result was supported by the recent OpenSAFELY analysis⁸. Future analysis of the risk of infections will be vital, as the higher risk of infection in ethnic minority groups may explain their increased risk of hospitalisation and mortality from COVID-19⁹.

Of the many risk factors being investigated, there are a few that are particularly relevant to ethnic minorities testing positive with COVID-19.

- People from ethnic minorities tend to live in urban areas¹⁰ with high population density¹¹ where COVID-19 transmission may have been higher¹².
- Evidence from REACT-2¹³ found that there was an association between adjusted prevalence of antibodies and household size ranging from 4.7% in single occupancy households to 13.0% in households with 7 or more occupants. People from ethnic minorities are more likely to live in

⁷ <https://www.gov.uk/government/publications/react-2-study-of-coronavirus-antibodies-june-2020-results/react-2-real-time-assessment-of-community-transmission-prevalence-of-coronavirus-covid-19-antibodies-in-june-2020>

⁸ <https://www.medrxiv.org/content/10.1101/2020.09.22.20198754v1.full.pdf>

⁹ <https://www.medrxiv.org/content/10.1101/2020.08.12.20173690v2.full.pdf>

¹⁰ <https://www.ethnicity-facts-figures.service.gov.uk/uk-population-by-ethnicity/national-and-regional-populations/regional-ethnic-diversity/latest>

¹¹ <https://www.ethnicity-facts-figures.service.gov.uk/uk-population-by-ethnicity/national-and-regional-populations/regional-ethnic-diversity/latest>

¹²

https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/921561/Weekly_COVID19_Surveillance_Report_week_39_FINAL.pdf

¹³ <https://www.gov.uk/government/publications/react-2-study-of-coronavirus-antibodies-june-2020-results/react-2-real-time-assessment-of-community-transmission-prevalence-of-coronavirus-covid-19-antibodies-in-june-2020>

overcrowded households¹⁴, large households, and in households with poor housing conditions¹⁵.

- Some occupations carry a higher risk of getting infected¹⁶ with COVID-19 as the job cannot be undertaken at home; people still need to commute to work in order to provide essential services for the community. 1.4 million key workers were from ethnic minorities, making up 14% of all key workers¹⁷ (5% of the total workforce) and 20% of those in high risk occupations compared to their 11% involvement in the total workforce.
- Risk factors linked to being seriously ill or dying from the disease. 33.9% of people who were critically ill with confirmed COVID-19 (up to 31 August) were from ethnic minority (excluding White minorities) backgrounds. In addition, as at August 2020¹⁸, the risk of death from COVID-19 was significantly higher for ethnic minorities compared to the White population in England and Wales. For example, the hazard ratio for the South Asian ethnic group for dying from COVID-19 was 1.27 after adjusting for age and sex and socioeconomic factors and health factors; this is consistent with previous analysis from the International Severe Acute Respiratory and Emerging Infection Consortium (ISARIC)¹⁹.
 - Analysis from ONS²⁰, PHE²¹ and academia²² revealed that differences in COVID-19 mortality between ethnic groups were largely attenuated by geographical and socio-economic factors. Figure 1 reveals how much the estimated risk of death decreases when accounting for known characteristics of individuals - location (region, population density, area deprivation), household composition, socio-economic position, highest qualification held, household tenure, multigenerational household flags and occupation indicators (including key workers and exposure to others) in 2011, and health (self-reported health and disability status in March 2011, and hospital-based comorbidities since April 2017).

¹⁴ <https://www.ethnicity-facts-figures.service.gov.uk/housing/housing-conditions/overcrowded-households/latest>

¹⁵ <https://www.ethnicity-facts-figures.service.gov.uk/housing/housing-conditions/non-decent-homes/latest>

¹⁶

<https://www.ons.gov.uk/employmentandlabourmarket/peopleinwork/employmentandemployeetypes/articles/whichoccupationshavethehighestpotentialexposuretothecoronaviruscovid19/2020-05-11>

¹⁷

<https://www.ons.gov.uk/employmentandlabourmarket/peopleinwork/earningsandworkinghours/articles/coronavirusandkeyworkersintheuk/2020-05-15>

¹⁸ <https://www.medrxiv.org/content/10.1101/2020.09.22.20198754v1>

¹⁹ https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3618215

²⁰

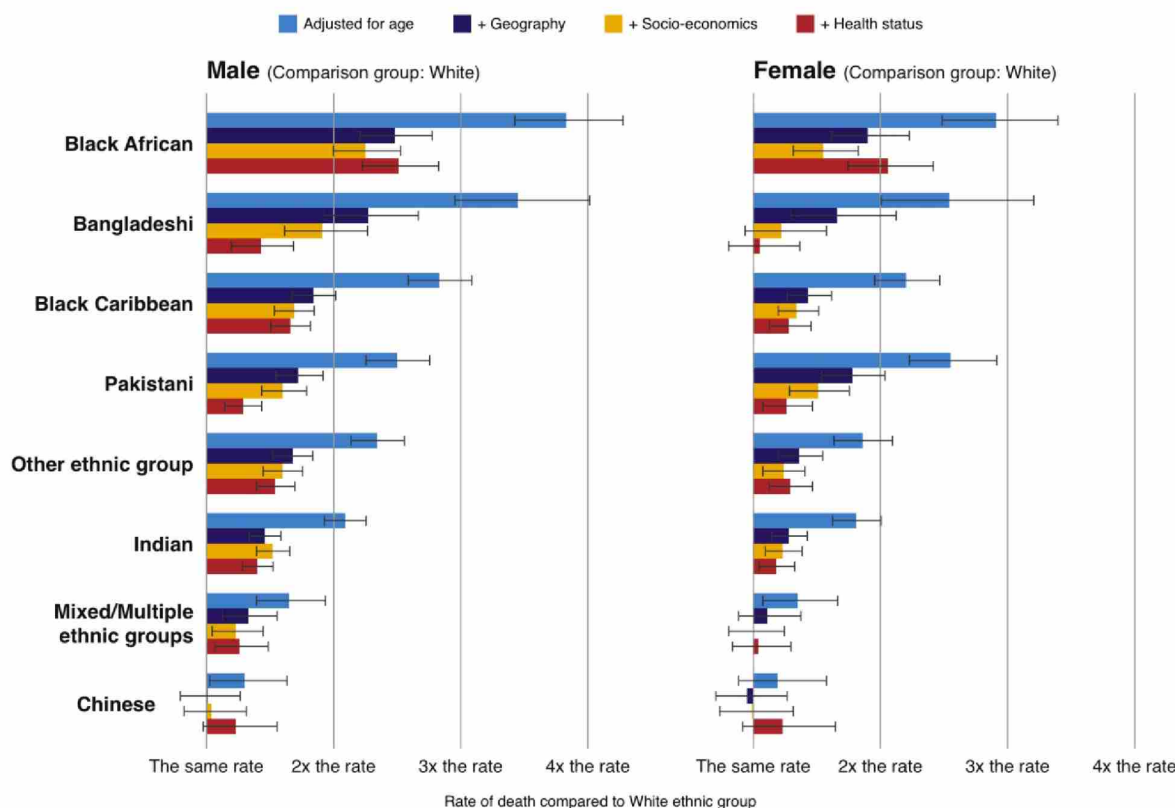
<https://www.ons.gov.uk/peoplepopulationandcommunity/birthsdeathsandmarriages/deaths/articles/coronaviruscovid19relateddeathsbyethnicgroupenglandandwales/2march2020to15may2020>

²¹

https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/908434/Disparities_in_the_risk_and_outcomes_of_COVID_August_2020_update.pdf

²² <https://www.medrxiv.org/content/10.1101/2020.08.03.20167122v1.full.pdf>

Figure 1: Rate of death involving COVID-19 by ethnic group and sex relative to the White population, England and Wales, 2 March to 28 July 2020



Source: ONS

Note: 1) this study did not adjust for: lifestyle factors (such as smoking); overcrowded housing (as opposed to multi-generation housing); Vitamin D; air pollution. Detailed notes about the analysis can be found in ONS publication

Note: 2) Error bars not crossing the x axis at value 1.0 denote a statistically significant difference in relative rates of death

- In addition, an OpenSAFELY study²³ found that ethnic differences persisted even after accounting for key explanatory factors such as socio-demographic factors, clinical comorbidities, geographic region, care home residency, and household size.
- Obesity is more strongly associated with death from COVID-19 for ethnic minorities (mostly 'South Asian' and 'AfroCaribbean') than it was for White groups²⁴.
- There was no difference between the White group and all other ethnic groups in the risk of death from all causes during the study period. This is because the risk of death from non-COVID related causes reduced by 13-28% for all other ethnic groups compared with the White group. The large

²³ <https://www.medrxiv.org/content/10.1101/2020.09.22.20198754v1>

²⁴ https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/907966/PHE_insight_Excess_weight_and_COVID-19_FINAL.pdf

number of non-COVID deaths (84,872 in the study period) means the overall average risk of death masks the differences in COVID-related deaths by ethnicity.

- Lockdown was associated with reductions in excess mortality risk in ethnic minority populations.²⁵

27. In summary, the evidence shows an increased risk for Black and South Asian ethnic groups. However, the relative risk of COVID-19 mortality is reduced when taking into account socioeconomic and geographical factors associated with different ethnic groups. Where people live, particularly in London and other cities, has had a large effect on the risk of individuals catching COVID-19. The current evidence clearly shows that a range of socioeconomic and geographical factors such as occupational exposure, population density, household composition and pre-existing health conditions may contribute to the higher infection and mortality rates for ethnic minority groups. Deprivation is a good marker of many of these factors.

28. Most of the increased risk for ethnic minorities is readily explained by these factors but it is not fully explained for some groups such as Black men. A number of additional socioeconomic factors are under investigation.

Data and evidence gaps

29. While factors such as deprivation and underlying health conditions explain part of the disparities affecting ethnic minorities related to COVID-19, more evidence and data are needed in order to investigate in detail whether a range of other factors account for differences in infection, hospitalisation or mortality rates. These include: overcrowding; highly networked households (those with large numbers of members residing under one roof, with large social support and/or kinship networks); the occupations of people who have been infected or died; access to protective equipment; lifestyle and behavioural factors; and access to healthcare.

30. In addition, further data and evidence are needed in order to understand what actually causes the COVID-19 risk factor disparities, the relative importance of different factors to each other, and the reasons why different people who are infected experience different outcomes. The government has given Prof Thomas Yates (University of Leicester) funding to examine whether the increased risk of developing severe COVID-19 in ethnic minority groups is explained by differences in underlying health status, lifestyle behaviours such as physical activity, and environmental factors including measures of social inequality. The study will help to build a picture of how the increased risk in ethnic minority communities may be prevented or managed and help to tailor public health policy in the future.

31. Not all of the data needed to fully understand the risk and impacts of COVID-19 exists in a single dataset, so the data has to be newly collected or created by linking existing datasets. Data linkage was required to create new datasets to analyse the impact of comorbidities on COVID-19 outcomes by detailed ethnic groups. Data linkage is often complicated and takes time, but government departments and academics are speeding up the process. To address this, the government has given funding to Prof Julia Hippisley-Cox (University of Oxford) and Dr Hajira Dambha-Miller (University of

²⁵ <https://www.medrxiv.org/content/10.1101/2020.08.03.20167122v1.full.pdf>

Southampton) to determine the risk of infection and death from COVID-19 in individual ethnic groups, and explain why these differences might exist. Further data linkage will be a priority for the coming months.

- 32. That information will be vital so that new interventions and approaches to care can be developed to target the ethnicities most at risk.
- 33. In practice some of the data that would be valuable, such as knowing more about people's behaviours during the first wave, is unavailable as this cannot be captured retrospectively. However, more can be done to understand this during the second wave.

Further planned research and analysis

- 34. As noted above, each successive publication of new data is filling the gaps in the evidence base and refining our previous understanding of the impact of different risk factors. For example, by mid-November the RDU will know more about the relationship between specific comorbidities and the higher risk of diagnosis and mortality from COVID-19 for ethnic minorities, as a result of ongoing research.
- 35. By the end of the year we expect to have more information about the relationship between some of the risk factors mentioned above (such as occupation and housing), ethnicity and diagnosis from COVID-19 based on information from the ONS' Coronavirus Infection Survey, Viruswatch and the REACT studies.
- 36. While new data and evidence are vitally important, there is a risk that people might misunderstand the implications of new research or might simply be unaware of it. The introduction of a "running log" summarising the latest available evidence would help to reduce this risk.

Recommendations

Recommendation 7: Government departments and academics should prioritise linkage between health, social and employment data to build a complete picture of ethnic group differences in COVID-19 risk and outcomes.

Recommendation 8: RDU should introduce and publish a new "Summary of evidence about COVID-19 and ethnicity" report, working collaboratively with external experts, which would be updated every time (significant) new statistics and research are published.

Term of Reference 4: Consider where and how the collection and quality of data into the disparities highlighted can be improved on, and take action to do so, working with the Equality Hub, government departments and their agencies

Summary

37. The RDU is working with colleagues across Whitehall to understand the areas of general concern about data quality, such as the harmonisation of ethnic group classifications across sources, and is considering a range of areas where change is likely to be required.

Approach

38. The RDU's approach to this term of reference consists of 4 strands of work:

- Understanding data quality and where it might be improved, which RDU is addressing by asking for input and advice from data owners and researchers who have expertise in particular data sources;
- Supporting existing quality improvement and data linkage work being undertaken across government to understand the ethnicity of deceased people;
- Developing two methods and quality reports to help data suppliers and data users understand different aspects of data quality with regard to ethnicity and other protected characteristics, working with methodologists in ONS and subject matter specialists across government; and
- Producing a schedule for publishing new and improved data on the 'Ethnicity facts and figures' website.

Results

39. Based on the information RDU currently has from external academics and government departments, the emerging picture points to the areas of general concern about data quality that are listed below and a range of areas where commensurate change is likely to be required. The RDU is discussing these with the data owners.

40. The areas of data quality currently being considered cover methods of linking data, data collection, and the use of harmonised data standards that allow for easy comparison between sources.

- **Data linkage**

- The Census 2011 is a good source of ethnicity populations and other data for linkage purposes. Coverage rates for the Census population that were linked to the patient register from 2011 to 2013 were high (96%) overall.
- However, while linkage rates between the Census, mortality and hospital activity datasets exceeded 80% for all ethnic groups, they were lowest for some ethnic minority and religious groups. These may be driven by the difference in age profile of the different groups, as young people were less likely to be linked.
- The Census populations also importantly do not include two groups of people: those who have arrived since Census day in March 2011, or those born after March 2011.
 - People in these two groups were not included in the populations for the ONS analysis of COVID-19 related deaths by ethnic group²⁶. This analysis linked the death record to the 2011 Census to obtain the ethnic group of the deceased person. The analysis was restricted to people aged 9 years old or over. The impact of this on the analysis is small, as there was a very small number of Covid-19 deaths recorded of children aged under 9.
 - Any death of someone who arrived in England and Wales after the Census would also not be included in the ONS analysis. However, this is unlikely to introduce a large bias into the estimated differences in Covid-19 mortality presented in this analysis, due to the use of age-standardised mortality rates and because those arriving after the Census are typically younger (more than 95% are aged less than 50 years old) and less than 2% of COVID-19 related deaths have occurred in this age group.
 - In the ONS analysis, any unlinked death records and changes to the population for different groups will have some impact on the relative mortality rates. However, it is difficult to assess the direction and magnitude of the effect between ethnic groups presented in this analysis.

- **Data collection**

- Some ethnicity information is supplied to PHE on positive COVID-19 test results in England via the Second Generation Surveillance System (SGSS). However, it is very incomplete and not harmonised. The SGSS is linked to the Hospital Episode Statistics (HES) to obtain better information about ethnicity.

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<https://www.ons.gov.uk/peoplepopulationandcommunity/birthsdeathsandmarriages/deaths/articles/coronaviruscovid19relateddeathsbyethnicgroupenglandandwales/2march2020to15may2020>

- Data on deaths in positive cases in England are collated by PHE from a number of different sources and are also linked to HES. A limitation of both of these linked datasets is that a large proportion of people are classified as “Other Ethnic Group”. This is a result of the way in which this information is collected.
 - While many sources collect demographic characteristics such as ethnicity from respondents, often the sample sizes are not big enough to support robust analysis of these variables that can detect changes over time or differences between groups. This becomes even more difficult when trying to analyse multiple variables (for example ethnicity, sex and geography together).
 - A number of sources do not collect demographic information for some groups at all, or not in a consistent way. For example, data might be captured inconsistently on migration and place of birth. The latter is particularly important in assessing the health impact of early life effects.
- **Data methods and classifications**
 - The Equality Hub’s preferred standards for collection and publication of data for the protected characteristics is the GSS harmonised principles. For [ethnicity](#), they are based on the 2011 Census and have 18 groups. Not all datasets collect information at this level of detail; some do not record ethnicity consistently; and some use a different classification. For example, the HES data uses 2001 Census classifications.

41. The following areas for development are currently being addressed:

- **Data linkage**
 - In England, Wales and Northern Ireland, the ethnicity of the deceased is not recorded on the death certificate. It is captured on a voluntary basis as part of the death registration process in Scotland.
 - Work is underway to make recording of ethnicity as part of the death certification process mandatory, to establish a complete picture of the impact of the virus on ethnic minorities. This would involve making ethnicity a mandatory question for healthcare professionals to ask of patients, and transferring that ethnicity data to a new, digitised Medical Certificate Cause of Death which can then inform ONS mortality statistics.
 - ONS is linking the COVID-19 Infection Survey to other ONS surveys for validation and augmentation of ethnicity and potentially other characteristics.
 - ONS are considering the potential of linking primary care data to the Census, mortality and hospital activity dataset. This means that demographic characteristics from the Census, including ethnicity, can be assigned using the harmonised classifications. It also offers the potential for analysis of other

health outcomes.

- PHE is improving the COVID-19 hospital in England surveillance system (CHESS) that collects information on patients hospitalised at all levels of care and critical care from NHS Acute Trusts. PHE is linking CHESS with HES and other datasets to supplement and validate ethnicity, comorbidities, outcomes (deaths) and dates.
- PHE is also adding occupation as a data field to the CHESS system

- **Data collections**

- ONS is monitoring response rates to the COVID-19 Infection Survey and reviewing the survey in order to ensure the sample of different community population groups is representative.
- ONS is also increasing the size of the sample for the COVID-19 Infection Survey as part of a national scale-up in the survey to enable more robust and detailed analyses of risk of COVID-19 infection rates and antibodies for people with different characteristics.
- Furthermore, the REACT-1 study uses test results and feedback from over 150,000 participants each month to examine the prevalence of the virus causing COVID-19 in the general population. It focuses on national, regional and local areas, as well as age, sex, ethnicity, socio-economic factors, employment type, contact with known cases, symptoms and other factors.
- Findings from the ONS Infection Survey and the REACT-1 study will provide the government with a better understanding of the virus's transmission and the risks associated with different population subgroups throughout England.
- PHE has added ethnicity to the NHS Test and Trace web-tool so that this information is collected during contact tracing. This complements other demographic data on age, sex, postcode and occupation sector.
- RDU will consider the availability of data on migration and place of birth, and what might be gathered through data linkage in line with international recommendations²⁷.

- **Data standards and classifications**

- The Unified Information Standard for Protected Characteristics (UISPC) process is a commission from DHSC to NHS England designed to enable the DHSC and the wider NHS to identify viable options for improving the consistency, detail and quantity of equality data, including ethnicity. There are multiple recommendations from the commission, including developing new data standards for a variety of protected characteristics, including ethnicity, which should be updated to reflect the most accurate picture of

²⁷ https://unstats.un.org/unsd/demographic-social/Standards-and-Methods/files/Principles_and_Recommendations/International-Migration/SeriesM_58rev1-E.pdf

ethnicity in this country.

- RDU will continue with its commitment to support departments to move to harmonised ethnicity classifications as outlined in its Quality Improvement Plan.
- ONS is creating a tool that allows regular monitoring of how representative the COVID-19 Infection Survey is of different groups in the community population
- PHE is also liaising with NHS Digital to support data quality assurance and improve engagement with Trust information leads
- Finally, PHE is also improving the CHES system by adding a specific action about completing hospitalisation data submissions (including retrospectively) in the NHS Pandemic Phase 3 Plan which has a focus on reducing inequalities.

Recommendations

Recommendation 9: The recording of ethnicity as part of the death certification process should become mandatory, as this is the only way of establishing a complete picture of the impact of the virus on ethnic minorities. This would involve making ethnicity a mandatory question for healthcare professionals to ask of patients, and transferring that ethnicity data to a new, digitised Medical Certificate Cause of Death which can then inform ONS mortality statistics.

Work is underway across government to develop a solution, taking into account legal, digital and methodological processes, and this must be given sufficient priority.

Term of Reference 5: Lead engagement on the disparities highlighted with departmental ministers

Summary

42. The Minister for Equalities has engaged colleagues across Whitehall on the disparities highlighted by the PHE Review, bilaterally on particular issues such as Test and Trace, and collectively on identifying actions taken to address the disparities highlighted by the PHE Review. The plan is to step up this engagement in the next quarter, with a particular focus on development of new policy.

Approach

43. Work to date includes:

- Highlighting the key findings from the PHE Review to ministerial colleagues to ensure these are reflected in departmental policy
- Urging colleagues to encourage their officials to participate fully in RDU's work to capture the actions the government is taking to mitigate the disparities highlighted by the PHE Review
- Leading the effort across departments to improve the communication of important public health messages to all local residents and build trust in the government's messaging on COVID-19

44. Going forward, the Minister for Equalities will continue to work closely with ministerial colleagues through bilateral meetings and through meetings of the equalities ministers to share the findings of RDU's work and to disseminate learning from returns on terms of reference 1 and 2.

Results

45. The Minister for Equalities:

- Appeared before the Women and Equalities Select Committee (WESC) with the Minister for Prevention, Public Health and Primary Care and the Minister for Housing on 15 July. This was an oral evidence session as part of the WESC sub-inquiry looking at the unequal impact of COVID-19 on ethnic minority people. It was an opportunity for each minister to outline the work they are taking to address COVID-19 disparities.
- Wrote to ministerial colleagues on 28 July urging them to encourage their officials to participate fully in RDU's work to capture the actions the government

is taking to mitigate the disparities that the Review highlighted. This resulted in a positive response from 10 departments and agencies.

- Worked closely with the Minister for Innovation and the Minister for Prevention, Public Health and Primary Care on Test and Trace communications to improve public health messaging for all parts of the community.
- Convened a cross-government effort which resulted in an ethnic minority engagement communications plan that was submitted to Number 10 in time for the Eid Al Adha holiday at the end of July.
- Attended the COVID Operations Committee meeting on disadvantaged groups on 24 September, reporting the early findings from her work on COVID-19 and ethnicity.

Recommendations

Recommendation 10 - Minister for Equalities to work with ministerial colleagues to establish metrics for assessing the impact of their policies to tackle COVID-19 disparities.

Term of Reference 6: Build on and expand the stakeholder engagement undertaken by PHE, to consolidate and develop the qualitative insights gained and how they may support further actions that should be taken to address the disparities highlighted

Summary

46. One of the Minister for Equalities' main priorities has been to build on the extensive engagement undertaken by PHE as part of the '*beyond the data*' work. This includes establishing her own network of stakeholders and commissioning qualitative research of citizens' experiences of COVID-19. The Minister is now undertaking a programme of engagement that will inform the government's approach to tackling the disparities.

Approach

47. To date, the Minister has:

- Within a week of launching the terms of reference, hosted a Health Inequalities virtual roundtable on 12 June, alongside the Minister for Prevention, Public Health and Primary Care.
- Written to all of the PHE stakeholders on 10 August thanking them for their contribution. She also asked whether they wished to be involved in future engagement and also sought their views on how to improve the communication of public health messages so that these reach all groups in local communities. A number of organisations have responded saying they would like to be involved in the engagement work going forward and the RDU has developed an engagement plan for the autumn including a series of roundtables.
- Co-hosted a discussion on maternal mortality rates for ethnic minority women on 2 September. While this was focussed more on tackling a clear health inequality, there was also a COVID-19 angle to this, given that COVID-19 has fundamentally changed the way women access maternal services during this time. And a small-scale study by Oxford University showed that 55% of the pregnant women admitted to hospital with COVID-19 were from an ethnic minority background²⁸.

48. The RDU has also commissioned the Policy Lab²⁹ to conduct qualitative research in relation to the impact of COVID-19 and people from ethnic minority groups. The

²⁸ Between 1 March 2020 and 14 April 2020 - <https://www.bmj.com/content/369/bmj.m2107>

²⁹ <https://openpolicy.blog.gov.uk/category/policy-lab/>

primary focus of this research is to gain a deeper insight into the experiences of citizens from an ethnic minority background, utilising the insights going forward into the next phase of responding to COVID-19. This goes beyond the PHE work, which relied on information from stakeholder groups rather than the individuals themselves. Understanding how ethnic minority people have experienced COVID-19 will help to inform future policy and communications.

49. The government has also funded other work, including that led by Prof Shaun Treweek at the University of Aberdeen, which will help researchers reduce barriers that may be preventing ethnic minority participants in clinical trials.
50. Going forward, the Minister for Equalities will step up engagement with stakeholders in a series of roundtables to gain further qualitative insights in relation to COVID-19 and ethnic minority groups in the UK. This will then inform policy design and implementation.
51. The RDU will also link in with the work undertaken by the health sub-group of the new Commission on Race and Ethnic Disparities³⁰, which is looking at disparities in health outcomes more generally, sharing lessons learned from these respective strands of work.

Results

52. The RDU has established an extensive network of stakeholders and has prepared a comprehensive plan of engagement over October and November.
53. The RDU is also collaborating with DHSC in their work to support the development of a risk model and has ensured that a broader range of ethnic minority stakeholder groups is consulted as the model is developed.
54. The maternal mortality roundtable co-hosted by the Minister for Equalities was an opportunity to assure stakeholders of the Government's interest in this issue, confirm engagement will continue on maternal health inequalities, and seek to assist stakeholders to make connections and develop appropriate solutions to benefit pregnant women during this period.

Recommendations

Recommendation 11: There should be a series of roundtables over the coming months involving faith leaders and other community representatives and focussing on those groups that are most at risk from COVID-19.

³⁰ <https://www.gov.uk/government/organisations/commission-on-race-and-ethnic-disparities>

Term of Reference 7: Strengthen and improve public health communications to ensure they can reach all communities across the country

Summary

55. The Minister for Equalities has worked with the COVID Communications Hub in the Cabinet Office and ministerial colleagues to build on the way that public health messages are effectively delivered to ethnic minority people. In addition to the central marketing campaign, approximately another £4m (March to July) has been spent to reach ethnic minority people through tailored messaging, strategically chosen channels and trusted voices. The ethnic minority influencer programme has reached over 5 million people. Key messages are translated into local community languages across all local areas of concern as part of ongoing engagement with local councils.

Approach

56. The strategy for improving ethnic minority communication includes:

- An ongoing multichannel communications strategy to address language and cultural barriers, with a particular focus on targeted community engagement and adapted versions of the national marketing campaign. This is supported by approximately £4 million additional marketing investment dedicated to targeting ethnic minority audiences.
- Working with specialist marketing agencies and targeting audiences based on language and religious holiday interest with bespoke creative and messaging. Core marketing materials are translated into multiple languages by central teams and, where bespoke translations are requested by local authorities and external stakeholder groups, these are funded centrally.
- Continued use of press partnerships, which includes 600 national and regional titles and 65 ethnic minority titles (the combined circulation of these is 1.5 million), to communicate key messages like *Hands, Face, Space* and *Test and Trace*.
- Working with existing influencers and continuing to recruit new ones that can communicate public health messages with credibility and impact among those less likely to trust or respond to government sources. Micro-influencers are also used on a local level for more targeted communications.

- Reiterating health messaging around key calendar moments, such as religious festivals that ethnic minority people are partaking in, forms a core pillar of the central COVID-19 marketing strategy. Roundtables are regularly held with religious leaders to advise on, co-create and share communications for specific festivals to their wider communities. Most recently, this has included a translation of safe worshipping and gathering guidance into Yiddish ahead of Yom Kippur and Sukkot.
- The Minister for Equalities also reached out to embassies and high commissions from countries whose nationals were most at risk to utilise their knowledge and insight to identify specific ways in which to build on the government's communications approach among diaspora groups. A number have responded to this request and their recommendations have been integrated into the strategy.
- PHE's *Better Health* campaign to tackle obesity as a way to increase resilience against COVID-19 was launched on 27 July with ethnic minority people included as a key target audience among others.
- PHE's Campaign Resource Centre, accessible across the country, is an online platform that is being used to host all national and local marketing materials including translations into languages spoken among ethnic minority audiences.
- Test and Trace language translation services, including for those requiring British Sign Language, are now available both on 119 via the phone and at testing sites. The new app is available in 11 languages with more to follow. This makes it easier for all people, including those who are not proficient in English, to understand and access these vital services. Promotion of Test and Trace has included community ethnic minority radio stations in England.
- Ongoing polling and focus groups with ethnic minority audiences to better understand how government communications are being received and how this affects COVID-safe behaviours. This research provides detailed analysis on key insights including the awareness of social distancing guidance and recognition of public health campaigns, and perceptions of localised campaigns. Insights gained from this workstream are fed into future communications to improve awareness of health messages and compliance.
- The Minister for Equalities took part in interviews with BBC Asian Network and BBC Radio Manchester in August, following the then local northern lockdowns, reaching out to people from ethnic minority backgrounds in those areas, reassuring them, and spreading awareness of the government's messaging.

57. The priority going forward will be to establish robust benchmarks for assessing behaviours and attitudes amongst people from ethnic minority backgrounds. This will be achieved through stand-alone online polling, supplemented with focus groups amongst individual ethnic minority groups, including those who do not speak sufficient English to participate in online polling. This will enable further disaggregation of the audience analysis underpinning communications targeting, building on the nuances in attitude and behaviours between different groups that were observed in Leicester lockdown research. As part of the re-procurement of all Cabinet Office quantitative and qualitative research, we will appoint agencies with significant research of minority groups' experience to carry out this research. We will use this information to understand how effectively our messages are reaching people.
58. The government will also learn the lessons from the work being led by Prof Aftab Ala, which aims to design culturally relevant health messages for Black and South Asian groups and deliver these messages through specific and trusted communications channels. This project, which has received significant government funding, is looking at influencing behaviours that reduce the transmission of COVID-19, such as perceived risks and susceptibility, proximity and social distancing, and infection control.

Results

59. Highlights of the approach to date include:

- Working without paid spend with influencers and celebrities including Dele Alli, Beverley Knight, Adil Ray and Marcus Rashford to deliver key public health messages primarily targeting ethnic minority audiences. Over 5 million people have been reached through the ethnic minority influencer programme.
- Test and Trace campaign on TikTok and Snapchat primarily targeting ethnic minority audiences generated 2 million active engagements.
- Engaged micro-influencers in Leicester as part of a local lockdown campaign, including students whose content reached 732,000 people and posts from a local footballer that achieved 45,000 active engagements.
- 3 million reached through ethnic minority media by the end of June and spontaneous awareness of government communications on COVID-19 came in line with that of the general population by the same date.

Recommendations

Recommendation 12: work must continue on improving public health communication to enable the successful delivery of existing and new interventions to all parts of the community including hard-to-reach groups, especially those at greatest risk in areas of local lockdown and rising concern. This should include:

- Increasing and diversifying a programme of activities for ministers across government to improve engagement with people from ethnic minority backgrounds.
- Continuing to improve our understanding of ethnic minority audiences and interests of each ethnic minority outlet to ensure messaging is targeted and nuanced, and build on the existing communications programme with respected third party voices to improve reach, understanding and positive health behaviours. Disaggregation of audience and channel approach will support this aim.
- A more streamlined approach across government and locally to improve local translations so that those who do not have English as a first language are more likely to be able to understand and act on public health advice.
- More emphasis on promotion of existing NHS guidance on minimising transmission within households, sharing these messages widely and in the range of languages and formats needed. Recent figures show that in-house transmissions have played a significant part in the increase in infections we are seeing this autumn and as we head into winter people will spend more time indoors.

Recommendation 13: further work is needed to dispel myths, reduce fear and build confidence among ethnic minority people. Over the coming months, the COVID Communications Hub in the Cabinet Office will need to keep sharpening its focus on rebuilding trust in government messaging, tackling misinformation and anti-vaccination narratives and encouraging engagement with NHS services.

Annex A: Implementation of the recommendations from the 'Beyond the Data' paper

PHE Recommendation 1: Mandate comprehensive and quality ethnicity data collection and recording as part of routine NHS and social care data collection systems, including the mandatory collection of ethnicity data at death certification, and ensure that data are readily available to local health and care partners to inform actions to mitigate the impact of COVID-19 on BAME communities

DHSC, working with NHS England and NHS Improvement (NHSEI) and NHSX/NHS Digital, is committed to improving the quality and completeness of ethnicity data collection in NHS and adult social care data sets.

Adult social care

The Adult Social Care surveys on users and carers collect data on ethnicity using the ONS 2011 '18+1' ethnicity categories³¹. Work is underway to increase the representativeness of these surveys.

DHSC and key external stakeholders are developing a client-level dataset to record activity data, and it is proposed that local authorities record data on ethnicity using the ONS 2011 18+1 ethnicity categories.

NHS

The Third Phase NHS response to COVID-19³² includes urgent actions to ensure datasets are complete and timely, to underpin an understanding of and response to inequalities. All NHS organisations have been asked to proactively review and ensure the completeness of patient ethnicity data by no later than 31 December, with general practice prioritising those groups at significant risk of COVID-19 from 1 September.

For the longer term, NHSEI has submitted a draft report regarding updating the Unified Information Standard for Protected Characteristics (UISPC) including to reflect 2021 Census categories for ethnicity, and whether collection should be mandatory in the NHS.

Mandatory collection of ethnicity data at death

DHSC is contributing to work underway with the Home Office, Ministry of Justice, RDU and ONS to consider an overall solution which would result in ethnicity data transferring from NHS patient data (as defined by the patient when they are alive) through the death certification and registration system and ultimately informing ONS mortality statistics.

³¹

<https://www.ons.gov.uk/methodology/classificationsandstandards/measuringequality/ethnicgroupnationalidentityandreligion>

³² <https://www.england.nhs.uk/publication/implementing-phase-3-of-the-nhs-response-to-the-covid-19-pandemic/>

In the short term, PHE is updating methods for assigning ethnicity to COVID-19 cases and deaths based on linkage.

PHE recommendation 2: Support community participatory research, in which researchers and community stakeholders engage as equal partners in all steps of the research process, to understand the social, cultural, structural, economic, religious, and commercial determinants of COVID-19 in BAME communities, and to develop readily implementable and scalable programmes to reduce risk and improve health outcomes

National Institute for Health Research (NIHR)

The NIHR, funded by DHSC, is the nation's largest funder of health and care research. The NIHR engages and involves patients, carers and the public in all the processes by which research is identified, prioritised, designed, conducted, evaluated and disseminated, in order to improve the reach, quality and impact of their research.

In July, the NIHR and UK Research and Innovation announced funding of £4.3m for 6 projects investigating the association between ethnicity and COVID-19 incidence and adverse health outcomes³³. In the call for research projects, proposals were encouraged that focus on groups who may be more vulnerable, such as frontline health and social care staff and other groups of key workers, those who recover from COVID-19, people from ethnic minority backgrounds, and those experiencing social inequality such as lack of employment, housing or existing health inequalities.

The NIHR also has an ongoing call for research, the Policy Research Programme's Recovery, Renewal and Reset call, with a final round of applications due to be submitted at the end of October. A highlight notice for research evidence on: the causes of disparities in health outcomes for minority ethnic groups in relation to the impact of COVID-19; measures to combat the spread of the virus; and solutions to mitigate poor outcomes for Black, Asian and minority ethnic populations was issued in July. All applications must be co-produced with service commissioners, providers and service users to better ensure findings are of immediate utility in policy and practice. For existing COVID-19 studies, the NIHR has produced [resources](#) to support and encourage people from ethnic minority backgrounds to take part in the research³⁴.

NHS Race and Health Observatory

NHSEI with NHS Confederation have set up the NHS Race and Health Observatory³⁵. This will be hosted by the NHS Confederation, will identify and tackle the specific health challenges facing people from ethnic minority backgrounds.

RDU

As noted above (under the work on term of reference 6), the RDU has commissioned qualitative research in relation to the impact of COVID-19 and people from ethnic minority groups. The primary focus of this research is to gain a deeper insight into the lived experiences of citizens from an ethnic minority background.

³³ <https://www.ukri.org/news/multimillion-investment-to-investigate-covid-19-and-ethnicity/>

³⁴ <https://bepartofresearch.nihr.ac.uk/COVID-19-Research/COVID-19-for-BAME-communities/>

³⁵ <https://www.nhsconfed.org/news/2020/05/race-health-observatory>

PHE recommendation 3: Improve access, experiences and outcomes of NHS, local government and integrated care systems commissioned services by ethnic minority communities including: regular equity audits; use of health impact assessments; integration of equality into quality systems; good representation of black and minority ethnic communities among staff at all levels; sustained workforce development and employment practices; trust-building dialogue with service users

The overarching goal of this recommendation is fully aligned with DHSC's policy. This recommendation also extends to local government services, including schools, early years services, children's social services and housing.

NHS

Alongside the Third Phase NHS response to COVID-19, the NHS People Plan for 2020/21 was published on 30 July³⁶. Chapter 3 of the plan outlines further measures to improve equality and diversity in the NHS. The Chief People Officer is leading work on supporting our ethnic minority NHS staff and implementing the NHS Workforce Race Equality Standard.

Also as part of the Third Phase work, NHS England published 8 urgent actions to address inequalities in NHS provision and outcomes. These include:

- Protect the most vulnerable from COVID-19, with enhanced analysis and community engagement, to mitigate the risks associated with relevant protected characteristics and social and economic conditions; and better engage those groups who need most support.
- Restore NHS services inclusively, so that they are used by those in greatest need. This will be guided by new, core performance monitoring of service use and outcomes among those from the most deprived neighbourhoods and from Black and Asian groups, by 31 October. Develop digitally enabled care pathways in ways which increase inclusion, including reviewing who is using new primary, outpatient and mental health digitally enabled care pathways by 31 March.
- Accelerate preventative programmes which proactively engage those at greatest risk of poor health outcomes. This should include more accessible flu vaccinations, the better targeting of long-term condition prevention and management programmes, obesity reduction programmes including referral to the NHS Diabetes Prevention Programme, health checks for people with learning disabilities, and increasing the continuity of maternity carers including for ethnic minority women and those in high risk groups.
- Strengthen leadership and accountability, with a named executive Board member responsible for tackling inequalities in place in September in every NHS organisation. Each NHS board to publish an action plan showing how over the next 5 years its board and senior staffing will in percentage terms at

³⁶ <https://www.england.nhs.uk/wp-content/uploads/2020/07/We-Are-The-NHS-Action-For-All-Of-Us-FINAL-24-08-20.pdf>

least match the overall ethnic minority composition of its overall workforce, or its local community, whichever is the higher.

- Ensure datasets are complete and timely, to underpin an understanding of and response to inequalities. All NHS organisations should proactively review and ensure the completeness of patient ethnicity data by no later 31 December, with general practice prioritising those groups at significant risk of COVID-19 from 1 September.

Adult social care

DHSC published its COVID-19 winter plan 2020 to 2021 for Adult Social Care³⁷ on 18 September, setting out the government's 3 overarching priorities for adult social care as we approach winter:

- ensuring everyone who needs care or support can get high-quality, timely and safe care throughout the autumn and winter period;
- protecting people who need care, support or safeguards, the social care workforce, and carers from infections including COVID-19; and
- making sure that people who need care, support or safeguards remain connected to essential services and their loved ones whilst protecting individuals from infections including COVID-19.

The aim of this winter plan is to set out DHSC's approach to supporting the adult social care sector by:

- detailing what the government's national support will be;
- establishing expectations of other parts of the system, including local authorities, NHS organisations, and care providers;
- putting into practice the recommendations of the [Social Care Sector COVID-19 Support Taskforce](#), including input from a black, Asian and minority ethnic advisory group; and
- providing a stimulus for further local winter planning and preparedness.

DHSC is committed to developing and implementing a Workforce Race Equality Standard (WRES) for adult social care, which will require employers to demonstrate progress against indicators of workforce race equality, akin to NHS's WRES. The Chief Social Worker's Office will be holding a summit in October 2020 with key stakeholders, to consider and agree a framework and governance structures for a WRES.

³⁷ <https://www.gov.uk/government/publications/adult-social-care-coronavirus-covid-19-winter-plan-2020-to-2021/adult-social-care-our-covid-19-winter-plan-2020-to-2021>

The government has also allocated £3.2 billion in extra funding for local authorities, including for social care provision.

Education

To ensure the quality of educational services, and ensure that there is sufficient join up between educational establishments and broader community and care systems, the government has taken a number of steps including launching a £7 million boost to the support offered to 11,300 Year 11 pupils in alternative provision making the transition into post-16 education.

PHE recommendation 4: Accelerate the development of culturally competent occupational risk assessment tools that can be employed in a variety of occupational settings and used to reduce the risk of employee's exposure to and acquisition of COVID-19, especially for key workers working with a large cross section of the general public or in contact with those infected with COVID-19

Occupational risk

PHE is working with the HSE and the Faculty of Occupational Medicine in response to a commission from SAGE³⁸.

Based on the findings of the PHE Review, BEIS and HSE have updated relevant guidance to help employers identify higher risk groups and consider them in their overall approach to risk management.

PHE has also worked with the Department for Environment, Food and Rural Affairs and the Food Standards Agency to develop simplified, easy to translate resources for employers in the food industry to help reduce employee exposure and mitigate risk.

PHE is also working with RDU to support other government departments around risk management to protect their staff from COVID-19.

NHS workforce

All NHS employers were directed on 24 June by NHSEI to make significant progress in deploying risk assessments. Each organisation has been asked to publish metrics on suitable forums for their own staff. The metrics include the percentage of risk assessments completed for all staff, all ethnic minority staff and all at risk staff, for their workforce.

NHSEI is working with regional teams to ensure risk assessment delivery and data publication continues to be prioritised and will make recommendations to the executive group on how risk assessments should be delivered and assured going forward.

³⁸ https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/895864/S0537_Fortieth_SAGE_meeting_on_Covid-19.pdf

The Faculty of Occupational Medicine published a risk reduction framework outlining risk factors in light of available scientific evidence. NHSEI website contains practical tools and case studies on deploying risk assessments in primary and secondary care.

In addition, the government has provided significant funding to support the UK Research Study into Ethnicity And COVID-19 outcomes in Healthcare workers (UK-REACH). This will calculate the risk of contracting and dying from COVID-19 for ethnic minority healthcare workers, with access to over 2 million healthcare records held by national healthcare organisations. This group of healthcare workers will include non-clinical staff integral to the day to day running of healthcare institutions including cleaners, kitchen staff and porters.

The research will follow a group of healthcare workers from ethnic minority backgrounds over 12 months to see what changes occur in their physical and mental health. In addition, the study will interview a smaller group of healthcare workers to understand the risks of their jobs, and how they may have changed their professional and social behaviours in response to COVID-19.

A stakeholder group is helping the team (led by Dr Manish Pareek of the University of Leicester) to conduct the research and to provide evidence to policymakers so that decisions can be made in near real time.

Adult social care workforce

There was an urgent demand from the sector for guidance to be put in place for reducing the risk to staff at higher risk. In response, DHSC issued a Risk Reduction Framework for employers and asked Directors of Adult Social Services to reassure themselves that employers are carrying out risk assessments. Easy read and translated versions of the Risk Reduction Framework have been produced to ensure that it is widely accessible.

Risk-assessment model

Work led by the University of Oxford is underway to develop a new predictive risk model that takes into account a wider range of factors now known to increase risk of infection and serious outcomes, including ethnicity.

PHE recommendation 5: Fund, develop and implement culturally competent COVID-19 education and prevention campaigns, working in partnership with local ethnic minority and faith communities to reinforce individual and household risk reduction strategies; rebuild trust with and uptake of routine clinical services; reinforce messages on early identification, testing and diagnosis; and prepare communities to take full advantage of interventions including contact tracing, antibody testing and ultimately vaccine availability

The response below should be read alongside the work on improving public health communications set out above, under term of reference 7 (see pages 28-31).

NHS Test and Trace

NHS Test and Trace has a specific equality, diversity and inclusion mission: *To build an innovative, inclusive culture by listening to the communities we serve, and continuously adapting our ways of working. Become an exemplar model of a community-led public institution that facilitates equitable access to trust enhancing services.*

The NHS Test and Trace and COVID-19 communications for mass gatherings such as religious festivals are coordinated through a cross-government working group, working particularly closely with MHCLG and Cabinet Office to ensure messages are culturally sensitive and relevant. Activity has been delivered around Eid, Ashura, Rosh Hashanah and Yom Kippur and upcoming communications are in development for Diwali.

Long-term partnerships have been developed with the Premier League and English Cricket board to reach priority audiences, particularly young men and South Asian groups.

Since 16 July 2020, language translation services have been made available at all testing sites (including regional testing sites, local test sites, and mobile testing units). This supports translation into 250 dialects and languages.

Non-English speakers who are contacted by the NHS Test and Trace contact tracing services are referred to contact tracers who have access translation services to use as required.

NHS

The Third Phase NHS response to COVID-19 sets out priorities for the rest of 2020/21 which focus on:

- accelerating the return of non-COVID health services
- preparation for winter demand pressures, alongside continuing vigilance on COVID-19
- doing the above in a way that takes account of lessons learned during the first COVID-19 peak, locks in beneficial changes, and explicitly tackles fundamental challenges including support for staff, and action on inequalities and prevention.

The [letter to the NHS](#) is available. In particular, it sets out the aim to restore NHS services inclusively, so that they are used by those in greatest need. This will be guided by new, core performance monitoring of service use and outcomes among those from the most deprived neighbourhoods and from Black and Asian groups, by 31 October. The implementation document³⁹ gives further detail.

³⁹ https://www.england.nhs.uk/wp-content/uploads/2020/08/C0716_Implementing-phase-3-v1.1.pdf

PHE

PHE's Primary Care and Interventions Unit is developing a common infection self-care leaflet, including guidance on COVID-19, which will be translated into the 10 most commonly spoken languages in the UK.

As part of the increased focus on the flu vaccination programme this winter, PHE is conducting bespoke research with ethnic minority groups who are more at risk from COVID-19 to ensure the social marketing campaign is relevant and addresses any particular concerns they may have about getting the flu vaccination.

DHSC

Efforts are underway to ensure guidance is provided in appropriate languages and formats to meet the needs of all our citizens. For example, specific stay at home guidance and guidance for multi-generational households was produced in relevant languages for Leicester residents in the lockdown area to ensure they were clear about what they could and could not do, with a view to ensuring the lockdown was as short as possible.

PHE Recommendation 6: Accelerate efforts to target culturally competent health promotion and disease prevention programmes for non-communicable diseases promoting healthy weight, physical activity, smoking cessation, mental wellbeing and effective management of chronic conditions including diabetes, hypertension and asthma

Obesity

The obesity strategy (Tackling obesity: empowering adults and children to live healthier lives⁴⁰) was published in July 2020 setting out a series of measures to reduce obesity.

A *Better Health* campaign was also launched by PHE in July, with a focus on reaching ethnic minority groups. The campaign specifically targets ethnic minority groups that have higher rates of obesity. Advertising has been translated into Hindi, Gujarati, Urdu, Bengali Arabic and Somali and is representative of the English population featuring people from all areas of our diverse society. Campaign development was informed by research with people from ethnic minority backgrounds. Insights were sought from local authorities, and PHE worked with charities that promote good health in at risk groups, multi-cultural specialists and experts in specific areas such as nutrition.

PHE qualitative research is planned in order to understand key ethnic minority group responses and awareness of the campaign. Media performance will be reviewed post campaign in October 2020.

Smoking

The Tobacco Control Plan (TCP), published in 2017, focused on communities where smoking prevalence remains stubbornly high. The Plan recognises the

⁴⁰ <https://www.gov.uk/government/publications/tackling-obesity-government-strategy/tackling-obesity-empowering-adults-and-children-to-live-healthier-lives>

variations in smoking rates across some ethnic minority groups and encourages local councils to identify the groups and areas with the highest smoking prevalence within their local communities, and take focused action, aimed at making reductions in health inequalities caused by smoking in their population.

Diabetes

The Diabetes Programme is widening access to the *Healthier You* NHS Diabetes Prevention Programme⁴¹ through a direct-to-consumer model, supported by targeted marketing and communications activities for at risk groups.

Reflecting the fact that those of Black and South Asian backgrounds are at both greater risk of developing Type 2 diabetes and dying from COVID-19, NHS England has developed a focused marketing and promotion campaign, aimed at those who are Black and South Asian. NHS England is also positioning the Diabetes Prevention Programme as part of its NHS staff offer through the *Living Well* programme⁴², again with a focus on its Black and South Asian workforce.

The NHS Health Check restart preparation document⁴³ reinforces existing messages that, when checks restart, groups at greatest risk of cardiovascular disease should be prioritised.

Mental health

A highlight notice on COVID-19 and mental health research was also published in June. In this call, proposals were encouraged that focus on groups who may be more vulnerable, such as frontline health and social care staff and other groups of key workers, people with existing mental health problems, those who recover from COVID-19, people from ethnic minority backgrounds, and those experiencing social inequality such as lack of employment, housing or existing health inequalities. The panel for this call met on 9 July.

Other PHE public health campaigns

PHE has published translations of updated core public health guidance into the 10 most commonly spoken languages (other than English) in the UK. These were published on 13 July and in the following languages: Arabic, Bengali, Chinese (Traditional), Chinese (Simplified), French, Gujarati, Polish, Portuguese, Punjabi and Urdu.

Recommendation 7: Ensure that COVID-19 recovery strategies actively reduce inequalities caused by the wider determinants of health to create long term sustainable change. Fully funded, sustained and meaningful approaches to tackling ethnic inequalities must be prioritised

It is generally accepted that the health and care sector accounts for between 10% and 25% of the inequalities in health; the vast majority of the impact comes from

⁴¹ <https://preventing-diabetes.co.uk/>

⁴² <https://www.nhs.uk/live-well/>

⁴³ <https://www.healthcheck.nhs.uk/commissioners-and-providers/national-guidance/>

wider factors such as poverty, education, housing, etc. There is work underway across government departments to address these key underlying issues.

PHE Activity

PHE continues to contribute its expertise in understanding, communicating and addressing these factors in any 'recovery' strategy.

PHE published a suite of resources in partnership with the Local Government Association and the Association of Directors of Public Health to support local authorities to identify the health inequalities arising from the direct impact of COVID-19 and the actions taken in response to the pandemic⁴⁴. These help local areas to identify their local inequalities, the risks that they face and provide links to guidance and resources to take mitigating action. The resources cover people from ethnic minority backgrounds and other groups.

In March 2020, PHE published "*Improving access to greenspace*", a resource which includes a literature review on inequalities and access to greenspace.

Other government activity

There is a range of activity underway across government to reduce inequalities as part of COVID-19 recovery strategies. Some of this work is summarised in Annex B to this report.

Commission on Race and Ethnic Disparities

In July, the Government established the independent Commission on Race and Ethnic Disparities. The Commission is reviewing inequality in the UK, focusing on areas including poverty, education, employment, health and the criminal justice system. It will set out a new, positive agenda for change, balancing the needs of individuals, communities and society, maximising opportunities and ensuring fairness for all.

In September, the Commission set out the priority areas that each of its sub-groups is considering⁴⁵. The sub-groups cover health, education, crime and policing and employment and enterprise.

The health sub-group's main focus is on exploring:

- NHS workforce diversity and career progression
- Disparities in health outcomes – including mental health; specific areas will be identified following an extensive evidence review and consideration of where work is already being undertaken elsewhere in government.

⁴⁴ <https://www.local.gov.uk/our-support/coronavirus-information-councils/covid-19-service-information/covid-19-public-health>

⁴⁵ <https://www.gov.uk/government/publications/commission-on-race-and-ethnic-disparities-sub-group-priorities/commission-on-race-and-ethnic-disparities-sub-group-priorities>

Annex B: Summary of government actions to address COVID-19 disparities

Department	Action undertaken
Civil Service HR	Civil Service HR issued the COVID-19 Individual Risk Indicator at the end of July, encouraging all government departments to consider how this might fit with their wider return to workplace strategy. This was accompanied by supporting line manager and employee guidance and is designed to prompt and support informed conversations around returning to the workplace. The risk indicator includes a number of factors including age, sex, BMI and ethnicity.
UK Parliament	The Parliamentary authorities developed a risk assessment tool designed to ensure MPs and staff find out if they are at higher risk of developing more serious symptoms if they come into contact with COVID-19, and guidance on how to return to work safely in the House of Commons. These were sent out to all pass-holders at the start of July with periodic reminders since. All staff have been strongly encouraged to undertake (and then re-take if circumstances change) an individual risk assessment.
Department for Business, Enterprise and Industrial Strategy (BEIS)	Based on the PHE findings, BEIS updated 9 pieces of guidance to help employers identify higher risk groups and consider them in their risk assessments. The higher-risk groups include older males, those with a high BMI, those with health conditions such as diabetes, those from some ethnic minority backgrounds. The safer workplace guidance has received 2 million unique page views since May and was last updated on 24 September.
	BEIS issued updated guidance for all employees on how to raise a concern with HSE.
	BEIS has had extensive engagement with the beauty industry to discuss additional protective measures.
Health and Safety Executive (HSE)	<p>In July, and again in September, the HSE issued revised guidance to employers, drawing attention to the disparities highlighted by PHE in relation to vulnerable workers. This included the following publications:</p> <ul style="list-style-type: none"> • Working safely during the COVID-19 outbreak • COVID Talking with your Workers toolkit • COVID working safely risk assessment • COVID working safely short guide

Department for Education (DfE)	DfE published guidance to educational settings on reopening including a PHE-endorsed system of controls.
	DfE launched a £7 million boost to the support offered to 11,300 Year 11 pupils in alternative provision making the transition into post-16 education.
	The DfE has undertaken significant engagement across sectors on mitigating the risks to ethnic minority staff and students.
Department for Health and Social Care (DHSC)	DHSC expanded targeted testing of occupations and groups at higher risk. As of 31 July, almost all ethnic minority staff in NHS trusts and the overwhelming majority of ethnic minority staff in primary care had individual risk assessments completed and mitigating steps agreed.
	Women and ethnic minority individuals, among others, have reported practical difficulties with the feasible use of some personal protective equipment (PPE). DHSC are committed to understanding staff's needs and following anecdotal feedback, NHSEI have launched a project led by the Deputy Chief Nursing Officer to gather robust evidence and data to understand any problems and take action.
	The FFP3 fit-testing project collected data from 5,557 participants across 47 Trusts from a range of diverse backgrounds. Informed by this data, the project will support manufacturers to design FFP3 respirator masks to improve mask fit.
	As part of DHSC's efforts to collate PPE requirement data from across Government, departments have been asked to provide information on: how potential inequalities have been considered; the demographics of both their workforce and the public their workforce face which has proved significant in the use of PPE; and incompatibilities or difficulties observed between any of the PPE used by their workforce. This will ensure the demand model reflects the different combination and size of equipment required to meet different user needs.
	UK Research and Innovation (UKRI) and the National Institute for Health Research (NIHR) awarded £4.3m funding in July for 6 new research projects to investigate COVID-19 and ethnicity.
	NHSEI published Phase 3 of its COVID-19 response at the end of July. This urged all NHS Trusts to work collaboratively with local communities and partners to take urgent action to increase the scale and pace of progress of reducing health inequalities and regularly assess this progress. It recommended urgent actions, developed by an expert national advisory group including:

	<ul style="list-style-type: none"> • Protect the most vulnerable from COVID-19, with enhanced analysis and community engagement, to mitigate the risks associated with relevant protected characteristics • Restore NHS services inclusively, so that they are used by those in greatest need, guided by new, core performance monitoring of service use and outcomes among those from the most deprived neighbourhoods and from Black and Asian groups, by 31 October • Accelerate preventative programmes which proactively engage those at greatest risk of poor health outcomes. This should include more accessible flu vaccinations, the better targeting of long-term condition prevention, obesity reduction programmes including self-referral to the NHS Diabetes Prevention Programme • All NHS organisations should proactively review and ensure the completeness of patient ethnicity data by no later 31 December, with general practice prioritising those groups at significant risk of COVID-19 from 1 September.
	<p>The Diabetes Programme is widening access to the Healthier You NHS Diabetes Prevention Programme based on NHSEI analysis on the risk of COVID-19 for people living with diabetes and the risk factors for ethnic minority groups. DHSC Equality Matters Network held a roundtable to hear from colleagues affected by the PHE disparities report and feed into the DHSC draft Race Equality Plan.</p> <p>DHSC is running a significant communications campaign, with media spend upweighted to target ethnic minority audiences. This has included use of key influencers to leverage the campaign on online platforms, Test and Trace press partnerships, displaying marketing in GP surgeries to reach priority audiences and using trusted community voices to share messaging within community channels.</p> <p>DHSC published 'Tackling obesity: empowering adults and children to live healthier lives' in July 2020, which sets out a strategy to reduce obesity. PHE launched accompanying campaigns to reach those in more deprived areas and ethnic minority groups.</p>
Department for Digital, Culture, Media and Sport (DCMS)	The National Emergencies Trust (NET) and Comic Relief have ring-fenced £5.2m in funding for ethnic minority-led charities and groups.

	The Office for Civil Society is working with the Cabinet Office and voluntary and community sector to improve engagement and disseminate effective health messages and support for people from ethnic minority backgrounds.
Department for Transport (DfT)	Following the findings of the PHE Review, DfT issued updated guidance for operators about workplace risk assessments, namely guidance that operators should facilitate “COVID-conversations” between managers and employees to explain risk reduction measures that have been put in place (August 2020).
	During August, DfT held roundtables with transport operators, trade associations and trade unions to discuss guidance and share best practice in relation to COVID-19 risks in the workplace.
	Face coverings for taxi and private hire vehicle (PHV) passengers became mandatory on 23 September. (Taxi and PHV drivers are 98% male and 53% are from an ethnic minority background. They are therefore at greater risk from COVID-19.)
Ministry of Justice	An HMPPS (Her Majesty’s Prisons and Probation Service) COVID emergency fund of £300k, administered by Clinks, has proactively sought applications from small ethnic minority-led organisations.
	HMPPS’s strategy for the management of COVID-19 in prisons has built on PHE and Public Health Wales advice and includes the following measures: <ul style="list-style-type: none"> • the implementation of effective isolation • reducing the number of incoming prisoners • shielding vulnerable prisoners • restricting regimes to prevent social contact in custody • reducing the movement of prisoners and staff between prisons to prevent the “seeding and feeding” of infection
Department for Work and Pensions (DWP)	DWP has led activity to support ethnic minority employment through local Jobcentres developing solutions that meet the needs of local communities. The quarterly ethnic minority employment data published in August shows that ethnic minority employment rate continued to rise in 2020 and reached a record high of 67.5%, while the ethnic minority unemployment rate reached a record low of 6.3%.
	DWP is introducing risk assessment measures that highlight and consider the disproportionate impact of COVID-19 on some groups, to protect staff working in DWP offices.

Ministry of Defence (MoD)	<p>The Joint Medical Group released guidance in relation to the medical risk assessment for defence personnel working on tasks involving COVID-19 medical related processes or with COVID-19 patients in June 2020.</p> <p>This guidance references the evidence from the PHE Review. It suggests appropriate steps to take in the risk assessment process which is aligned with current HSE, PHE, Defence Safety Authority, Royal College of Physicians and Faculty of Occupational Medicine guidance on COVID-19 and reflects extant tri-service expert advice. This includes advice on work-process based risk assessments with the option to seek suitably qualified advice in order to better assess and mitigate risk where appropriate, as well as return to work processes post a COVID-19 infection.</p>
Ministry of Housing, Communities and Local Government (MHCLG)	<p>MHCLG issued updated government guidance for landlords, tenants and local authorities on 1 June, which offers advice to tenants who are vulnerable or shielding and who are in overcrowded or shared accommodation.</p> <p>MHCLG appointed a 'Places of Worship Taskforce' of senior faith leaders in May to advise on guidance to re-open places of worship safely. MHCLG funded FaithAction to support the taskforce to gather intelligence on challenges and run focus groups with harder-to-reach groups and communicate finalised guidance.</p> <p>MHCLG published guidance on places of worship opening for individual prayer guidance in June.</p> <p>MHCLG funded <i>Strengthening Faith Institutions</i> to provide in depth training on COVID-19 secure measures for hard to reach faith groups. Over 150 organisations have been provided with training.</p> <p>MHCLG produced the initial Places of Worship and Marriage guidance, translated into 10 community languages spoken across different faith groups.</p> <p>To ensure that people from ethnic minority backgrounds are protected during local lockdowns, MHCLG produced an events checklist for religious festivals to encourage faith leaders to prepare contingency plans for future events affected by local lockdowns.</p>
Home Office	<p>The Home Office has taken a number of measures to protect asylum seekers including:</p> <ul style="list-style-type: none"> • Increased screening facilities across the UK to facilitate asylum applications

	<ul style="list-style-type: none"> • Temporarily suspended face-to-face interviews • Ensured that asylum seekers who would otherwise be unable to support themselves are provided with free, furnished accommodation. Between March and August this included those who would ordinarily have their support stopped because their claim has been determined. This arrangement is now slowly being lifted in a careful and considered manner in line with Public Health Guidance
	<p>The Home Office has taken specific steps to protect occupants of Immigration Removal Centres (IRCs) and asylum accommodation including:</p> <ul style="list-style-type: none"> • Reviewing all individuals in detention to see if they are at a heightened risk from COVID-19 in detention, with interim guidance available on GOV.UK • Introducing full 'reverse cohorting' consistent with PHE guidance in all IRCs, requiring new arrivals to be isolated from the main population for 14 days to verify that each individual is asymptomatic • Introducing measures such as protective shielding, improved hygiene and use of personal protective equipment (PPE) to minimise the risk of COVID-19 spreading in the detention estate • Pausing social visits in line with government advice on social distancing. As part of the roadmap to recovery, social visits recommenced on 1 August 2020 <p>The High Court ruled that the Home Office is taking sensible, precautionary measures in relation to COVID-19 and immigration detention.</p> <p>Other measures include:</p> <ul style="list-style-type: none"> • Housing newly arrived asylum seekers with symptoms in dedicated hotels to complete their self-isolation period • Asylum accommodation providers have limited residents' access to communal areas, sequenced food service, served food to rooms, provided translated public health guidance and instruction to service users

Annex C: Detail of the 4 work streams underpinning Term of Reference 3

Work streams

RDU officials have identified and addressed gaps in the relevant data and research and have established a cross-Whitehall analytical working group to ensure that analytical plans within Whitehall are joined up.

1. Prioritising risk factors

RDU has prepared a full summary of risk factors, distinguishing between those related to the risk of infection and the risk of being seriously ill or dying from COVID-19.

- The register of risk factors has been combined with information from a scoping review on risk factor analysis, allowing for easy monitoring of persisting gaps in risk factor analysis.
- The risk factors have been prioritised according to which factors are known to be the biggest drivers. Consequently, the register works as a clear guide to where the RDU should focus research efforts to fill data gaps.
- The combined risk factors and research register has been shared with the term of reference 3 working group and the SAGE ethnicity sub group.

2. Understanding the “gaps” landscape

RDU has conducted a scoping review to identify which organisations are doing what in relation to data and evidence gaps, and identified actions on how to fill them. RDU officials have collaborated extensively with a range of academic and research teams, and with government departments.

2.1 Academics and researchers

RDU has reached out to and worked with academics conducting research and developing data sources about the relationship between COVID-19 and ethnicity:

- RDU is participating in the SAGE ethnicity sub-group and is sharing its expertise on data and evidence gaps and data quality. RDU sees the subgroup as being best placed to coordinate research on ethnicity across academia.

- Engagement with OpenSAFELY⁴⁶: The aims of their study are: first, to detail ethnic differences across the full trajectory of the COVID-19 pathway, from suspected to confirmed infection, to hospitalisation, treatment and mortality; second, to explore whether ethnic differences in downstream outcomes are due to higher risk of infection or poorer prognosis once infected; and third, to explore the role of household composition, deprivation and underlying conditions on ethnic patterning of COVID-19 infection and outcomes.
- Viruswatch (from UCL), funded by UK Research and Innovation (UKRI), and by the Department of Health and Social Care through the National Institute for Health Research (NIHR), is recruiting 12,000 people from ethnic minorities to examine infection incidence among ethnic minority groups and the contribution of factors such as overcrowding, immigration status and occupation. Preliminary results are expected at the beginning of November. RDU supported their work and communicated with Facebook in order for Viruswatch's advertising recruitment campaign to be prioritised.
- Prof Melinda Mills from University of Oxford is leading projects on international comparisons to stress test ethnicity as a risk factor in COVID-19 infection and mortality (that is, is it actually ethnicity?). They are interested in social and demographic factors such as occupations, intergenerational households, population densities, deprivation. RDU mediated for Prof Mills to get access to ONS data and to progress with her future analysis. She expects to undertake the analysis on it over the next few months.
- RDU has been working with WebberPhillips to explore the potential of Origins software to identify small geographical areas with relatively high proportions of people of different heritages. RDU is exploring the potential of this approach to be able to target public health communications to particularly at-risk areas and communities. Exploration of whether a correlation exists between certain risk factors and rate of COVID-19 incidence will conclude in end of October, after which we may be in a position to recommend using these risk factors as predictors in order to target support as early as possible.

2.2 Government departments

RDU approached relevant teams in ONS, DHSC, NHS and MHCLG in late July for a summary of any research and analysis they are doing in the topic area, who they

⁴⁶ OpenSAFELY is a new secure analytics platform for electronic health records in the NHS, created to deliver urgent results during the global COVID-19 emergency.

are working with, barriers they face to doing the intended analysis and when they plan to have results:

- The ONS Centre for Equalities and Inclusion are looking at the Understanding Society COVID module to explore the impacts of COVID-19 on different ethnic groups and are aiming to publish any findings in November. RDU is working with them on this.
- MHCLG would like to look at outcomes from the shielding programme by ethnicity, but data on ethnicity is not readily available.
- DHSC have undertaken a scoping review and identified gaps in the evidence for vulnerable groups such as sex workers, rough sleepers and migrants. They also identified the same 'gaps' in data on COVID-19 risk factors as the RDU has (obesity, comorbidities, overcrowded households etc). They are planning research into: health inequalities and ethnicity, obesity in children with ethnicity and deprivation analysis, and inequalities in maternal and neonatal health outcomes with ethnicity analysis.

3. Monitoring newly published analyses in order to understand the relationship between the risk factors for ethnic minority people.

This section summarises some key statistical and research evidence published since July 2020.

- Analysis by OpenSAFELY reported in Nature (8 July) as *Factors associated with COVID-19-related death using OpenSAFELY*⁴⁷. Key points include:
 - Primary care records of 17 million adults were pseudonymously linked to almost 11 thousand COVID-19-related deaths.
 - For the general population COVID-19-related death was associated with: greater age; being male; deprivation; diabetes; severe asthma; and various other medical conditions.
 - Compared with people of White ethnicity, Black and South Asian people were at higher risk, even after adjustment for other factors.
 - Only a small part of the excess risk of COVID-19 infection and poor outcomes experienced by ethnic minorities is explained by a higher prevalence of medical problems such as cardiovascular disease or diabetes

⁴⁷ <https://www.nature.com/articles/s41586-020-2521-4#Sec8>

among people from ethnic minorities, or by higher levels of deprivation.

- The large population may not be fully representative: only 17% of general practices in London, where many of the earlier cases of COVID-19 occurred, were included, owing to the substantial geographical variation in the choice of electronic health record system.
- Analysis of the relationship between *obesity and being critically ill or dying from COVID-19*, including analysis by ethnicity, published by PHE on 25 July⁴⁸.
 - a. Obesity is associated with a higher risk of testing positive for, and dying from, COVID-19 for all ethnic groups
 - i. However, in the period between 16 May and 14 June 2020, the risk of testing positive for COVID-19 was higher for ethnic minorities at the higher values of BMI⁴⁹, than it was for White groups. For example, at a BMI of 35, ethnic minority people were more than 2 times as likely to test positive for COVID-19 as White people. At a BMI of 25 there was no such difference.
 - b. A higher percentage of ethnic minority people with BMI values 18.5-<25 and 25-<30 were critically ill with COVID-19 than White people:
 - i. 23.0% of White patients and 30.0% of ethnic minority patients had a BMI of 18.5-<25
 - ii. 33.7% of White patients and 36.0% of ethnic minority patients had a BMI of 25-<30
 - c. An increased BMI was more strongly associated with death from COVID-19 for ethnic minorities⁵⁰ (mostly 'South Asian' and 'AfroCaribbean') than it was for White groups (16 March to 31 May 2020)
- Analysis of the relationship between *air pollution and COVID-19 mortality*, including analysis by ethnicity, published by ONS on 13 August⁵¹;
 - Ethnicity is strongly correlated with pollution exposure, with ethnic minorities more likely to live in polluted areas.

⁴⁸ <https://www.gov.uk/government/publications/excess-weight-and-covid-19-insights-from-new-evidence>

⁴⁹ <https://dom-pubs.onlinelibrary.wiley.com/doi/full/10.1111/dom.14125>

⁵⁰ <https://www.sciencedirect.com/science/article/pii/S1871402120302307?via%3Dihub>

⁵¹

<https://www.ons.gov.uk/economy/environmentalaccounts/articles/doesexposuretoairpollutionincreasetheriskofdyingfromthecoronaviruscovid19/2020-08-13>

- Without controlling for ethnicity, ONS found that long-term exposure to air pollution could increase the risk of contracting and dying from COVID-19 by up to 7%. However, when controlling for ethnicity, air pollution exposure has no statistically significant impact on COVID-19 deaths.
- That result may appear because of the high correlation between air pollution and ethnic minority groups, as ethnic minority groups are more likely than those of White ethnicity to live in inner city areas (that are more polluted).
- An article⁵² from a team of academics and ONS about the associations between ethnicity and COVID-19 mortality concluded that:
 - Differences in COVID-19 mortality between ethnic groups were largely attenuated by geographical and socio-economic factors, although some residual differences remained.
 - For example, the rate of death involving COVID-19 adjusted for age was 3.13 times greater for Black males than White males, and 2.40 times greater for Black females than White females. People of Bangladeshi and Pakistani, Indian, Mixed and Other ethnic backgrounds also had raised rates of death involving COVID-19 compared with those of White ethnicity.
 - Taking account of the COVID-19 mortality rate in each local authority and controlling for population density substantially reduced the estimated differences in the rate of death involving COVID-19 across ethnic groups. The attenuating effect of controlling for geography was greatest for Chinese males and Indian females, for whom the excess risk relative to the White group decreased by 89% and 84% respectively, relative to the age-adjusted model.
 - Further adjusting for deprivation and socio-economic position, household composition and occupational exposure had a small impact on the hazard ratios, but not negligible for people of Bangladeshi and Pakistani background and Black males.
 - Controlling for health and disability status at the time of the 2011 Census reduced the estimated hazard ratios for some groups, especially individuals of Bangladeshi or Pakistani (combined) or Indian ethnicity.
 - Taken together, the characteristics in the fully adjusted model for females statistically explained the differences in risk compared to the White population for all ethnic minority groups except those of Black ethnicity, as their hazard ratio remained at 1.29 after adjustment.
 - Lockdown measures were associated with substantial reductions in excess mortality risk in ethnic minority populations, possibly due to behavioural

⁵² <https://www.medrxiv.org/content/10.1101/2020.08.03.20167122v1>

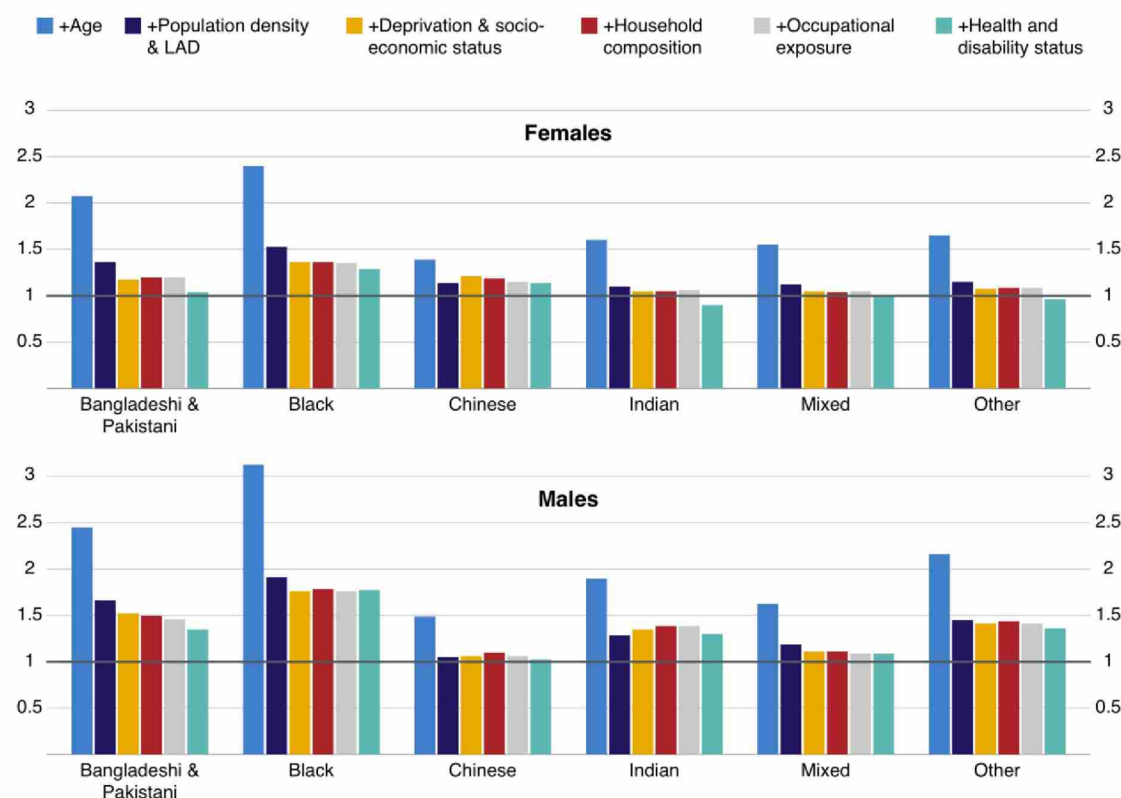
change throughout society and shielding from the virus among the most vulnerable.

- This finding has major implications in the event of a second wave of infection or local spikes in incidence, namely that placing restrictions on freedom of movement and activity may be seen as a “leveller” in terms of COVID-19 mortality rates between ethnic groups.

As mentioned in the section of term of reference 3, most of the increased risk for ethnic minorities is readily explained by socioeconomic and geographical factors but it is not fully explained for some ethnic groups. Figure 2 (below) shows that the rate of death involving COVID-19 adjusted for age was 3.13 times greater for Black males than White males, and 2.40 times greater for Black females than White females. People of Bangladeshi and Pakistani, Indian, Mixed and Other ethnic backgrounds also had raised rates of death involving COVID-19 compared with those of White ethnicity.

After taking into account the COVID-19 mortality rate in each local authority, controlling for population density, and adjusting for deprivation and socioeconomic position, household composition and occupational exposure, health and disability at the time of the 2011 Census - the excess risk of mortality from COVID-19 compared with that of the White ethnic group was reduced for all ethnic minority groups, especially for Black and the combined Pakistani and Bangladeshi ethnic groups.

Figure 2: Hazard ratios for COVID-19 related death for ethnic minority groups compared to the White population, stratified by sex



Source: based on *Ethnic minority groups in England and Wales - factors affecting the size and timing of elevated COVID-19 mortality: a retrospective cohort study linking Census and death records*⁵³

Furthermore, existing research suggests that biological factors such as genetics are unlikely to explain the inequalities in ethnic groups from COVID-19. According to existing research on genetics, the health disparities among ethnic groups are largely explained by underlying social differences rather than genetic differences.⁵⁴

In addition, recent studies did not find any relationship between vitamin D and COVID-19, suggesting that lack of vitamin D for ethnic minorities cannot explain the disparities.⁵⁵

According to SAGE advice⁵⁶, ethnicity is a multi-dimensional concept which includes culture, language, religion, migrant status and physical appearance (race), with

⁵³ <https://www.medrxiv.org/content/10.1101/2020.08.03.20167122v1.full.pdf>

⁵⁴ <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC1449500/>; <https://academic.oup.com/ije/article/40/4/1130/685261>;
<https://science.sciencemag.org/content/351/6273/564>

⁵⁵ <https://www.medrxiv.org/content/10.1101/2020.08.09.20171280v2>

⁵⁶ <https://www.gov.uk/government/publications/drivers-of-the-higher-covid-19-incidence-morbidity-and-mortality-among-minority-ethnic-groups-23-september-2020>

considerable diversity within and between ethnic minority groups.⁵⁷ Different dimensions of ethnicity could each affect COVID-19 risks through a variety of mechanisms, leading to risks potentially being different along different stages of the disease⁵⁸. Further data, research and analysis on the above factors is needed to fully understand the disparities from COVID-19 to ethnic minorities.

Similarly, a recent report by OpenSAFELY⁵⁹ recommends that we need better, and more readily available, linked data to be able to characterise ethnic disparities in more detail, and investigate in detail whether discrimination, access to protective equipment, lifestyle, behavioural factors, or access to healthcare are important factors in order for us to fully understand the disparities.

In summary, the evidence shows an increased risk for Black and South Asian ethnic groups. Where people live, particularly London and other cities, has had a large effect on the risk of individuals catching COVID-19. The current evidence clearly shows that a range of socioeconomic and geographical factors such as occupational exposure, population density, household composition and pre-existing health conditions may contribute to the higher infection and mortality rates for ethnic minority groups. Deprivation is a good marker of many of these factors.

Most of the increased risk for ethnic minorities is readily explained by these factors. A number of additional socioeconomic factors are under investigation.

4. Improving knowledge about the relationship between comorbidities, diagnosis and mortality from COVID-19, and ethnicity.

Given the significant interest in the potential impact of comorbidities, this section provides further information about specific pieces of research. The RDU is aware of, and engaging with, 3 different teams exploring the impact of comorbidities: OpenSAFELY, National Institute for Health Protection (NIHP), and the Office for National Statistics (ONS).

The RDU is in discussion with NIHP and ONS about the feasibility of publishing their statistical releases at the same time, along with an overarching report, to help user interpretation of each separate release. If not possible, an overarching report alongside the second set of statistics would serve the same purpose.

⁵⁷ <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC1732794/pdf/v058p00441.pdf>

⁵⁸ <https://www.gov.uk/government/publications/drivers-of-the-higher-covid-19-incidence-morbidity-and-mortality-among-minority-ethnic-groups-23-september-2020>

⁵⁹ <https://www.medrxiv.org/content/10.1101/2020.09.22.20198754v1>

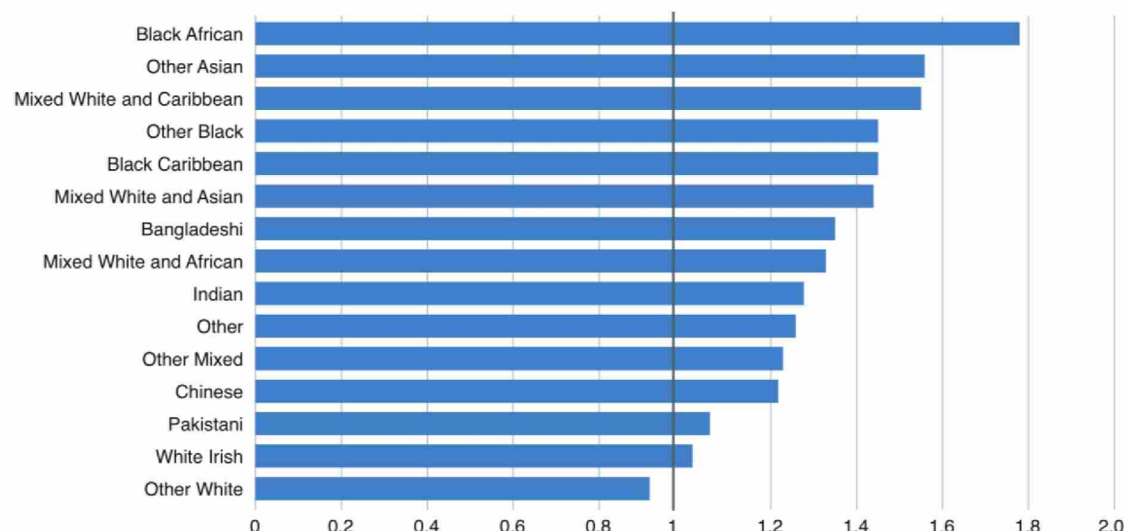
4.1 OpenSAFELY

The OpenSAFELY study⁶⁰ looked at a large general population cohort in England using linked primary care records of 17.5 million adults between 1 February 2020 and 3 August 2020 who self-reported their ethnicity.

- The study found that ethnic differences persisted even after accounting for key explanatory factors such as socio-demographic factors, clinical comorbidities, geographic region, care home residency, and household size.
- Compared with the White British ethnic group:
 - The relative risk of COVID-19 death was highest in the Black African group; the risk was increased by 78%.
 - Indian, and Black African groups were at higher risk of all outcomes studied compared to White British; namely, being tested for and testing positive for SARS-CoV-2, being admitted to ICU for COVID-19, and dying from COVID-19.
 - Pakistani and Bangladeshi groups were less likely to be tested for COVID-19, but more likely to test positive, be admitted to ICU and die from COVID-19 compared to White British.
 - Black Caribbean groups were equally likely to receive a test for SARS-CoV-2 but had higher risk of all other outcomes compared to White British.
- The report recommended that we need better, and more readily available, linked data to be able to characterise ethnic disparities in more detail, and investigate in detail whether discrimination, access to protective equipment, lifestyle, behavioural factors, or access to health care are important factors.

⁶⁰ <https://www.medrxiv.org/content/10.1101/2020.09.22.20198754v1.full.pdf>

Figure 3. Risk of COVID-19 mortality by ethnic group compared to White British



Source: derived from OpenSAFELY data

Note: 1) The graph presents hazard ratios after adjusting for age, sex, deprivation quintile, all pre-specified clinical co-morbidities, categories of BMI, HbA1c, and systolic and diastolic blood pressure, number of primary care consultations in the 12 months prior, household size, care home residency, and stratification by STP region.

2) If hazard ratio=1 the ethnic minority group has equal risk of death from COVID-19 compared with White British. If hazard ratio >1 the ethnic group has higher risk of death from COVID-19 compared with White British.

4.2 Office for National Statistics

ONS investigated the role of comorbidities using linked Census, deaths and Hospital Episode Statistics linked dataset, published on 16 October. This analysis enhanced the previous work of ONS about COVID-19 deaths by ethnicity with more robust data on comorbidities than previously used.

- Considering deaths up to 28 July 2020, a large proportion of the difference in the risk of COVID-19 mortality between ethnic groups can be explained by demographic, geographical and socioeconomic factors, such as where you live or the occupation you're in. ONS also found that although specific pre-existing conditions place people at greater risk of COVID-19 mortality generally, it does not explain the remaining ethnic background differences in mortality.
- Taking into account age, sex, geography, socio-economic characteristics and health measures, including pre-existing health conditions, males of Black African

background retained a 2.5 times higher rate than those of White background, while for females a 2.1 times greater risk remained.

- For males, all ethnic minority groups other than Chinese retained a raised rate of COVID-19 mortality following adjustments; for females, all other than Bangladeshi, Chinese and Mixed ethnic groups retained a raised rate of COVID-19 mortality following adjustments.
- Looking separately at the care home population, males of Asian ethnic background and females of Black and Asian ethnic backgrounds (using broader ethnic groupings) also had a raised rate of death involving COVID-19 compared with people of White ethnic background after taking account of geography and health measures.
- These findings show that ethnic differences in mortality involving COVID-19 are most strongly associated with demographic and socio-economic factors, such as place of residence and occupational exposures, and cannot be fully explained by pre-existing health conditions using hospital data or self-reported health status.
- Mental health conditions (60% of which were Alzheimer's disease and dementia) had the strongest association with COVID-19 mortality; males of Black Caribbean, Bangladeshi and Mixed ethnic backgrounds had the highest prevalence rates of these disorders, while those of Chinese background had the lowest. For females, those of Bangladeshi, Pakistani and Black Caribbean ethnic background had significantly higher prevalence than all other ethnic groups.
- Males and females of South Asian ethnic groups show a higher prevalence of cardio-vascular and metabolic (diabetes) conditions, which are associated with a raised risk of death involving COVID-19

4.3 PHE

To complement the above work, RDU formally commissioned new analysis of the relationship between comorbidities, diagnosis and mortality from COVID-19 and ethnicity from PHE, in early September. That analysis will complement previous work on comorbidities by providing detailed statistics on COVID-19 outcomes by ethnicity, specific comorbidities (mentioned below) and gender which are vital for policy decisions.

The analysis will use available surveillance data and will provide:

- a. A description of diagnosis rates and mortality rates from COVID-19 by ethnicity and comorbidities. Depending on sample sizes, it will provide

analysis by gender and a range of specific comorbidities.

- b. A survival analysis among confirmed COVID-19 cases for ethnic minority groups by taking into account age, sex, geography, deprivation, and comorbidities.

The comorbidities in question are⁶¹:

- Cardiovascular disease
- Diabetes
- Hypertensive diseases
- Chronic kidney disease
- Chronic lower respiratory disease
- Dementia

The multivariate survival analysis will look at the following variables:

- Age
- Sex
- Geography
- Deprivation (taking into account different aspects of deprivation such as population density and overcrowding)
- 1 or more previous hospital admissions in the last 5 years for comorbidities shown to be associated with increased risk of COVID-19 adverse outcomes (using the above list of comorbidities)

The analysis will include positive tests results for Pillar 1 and Pillar 2. Pillar 1 includes all those tested in NHS hospitals due to clinical need and some NHS staff. Pillar 2 includes wider population testing. These 2 sets of data contain people with very different comorbidity profiles and may need to be analysed separately. At the beginning of the pandemic, all testing was under Pillar 1.

The analysis will be finalised at the end of October and plans for publication will be discussed in the following weeks.

The following table provides an overview of the risk factors that were evaluated by a series of academic and government studies. Building on this type of analysis RDU will explore the feasibility of preparing a 'history' of the way that our understanding of the impact of different risk factors has developed since the beginning of the pandemic. RDU will also prepare a report summarising the latest evidence, which it will maintain as further data and evidence is published.

⁶¹ Obesity is not added in the scope of the analysis as timely BMI data are not linked with the dataset used for the analysis. There is ongoing work on linking more data and future analysis will include obesity.

Table 1: risk factors adjusted mentioned in selected academic and other papers

	Study PHE ¹	ONS ²	ISARIC ³	Opensafely ⁴	Kings ⁵	UKBB ⁶	IFS ⁷	QE Hospital ⁸	Opensafely ² ⁹
Confounders adjusted for:									
Age and sex	✓	✓	✓	✓	✓	✓	✓	✓	✓
Deprivation and socio-economic factors	✓	✓	✓	✓	✓	✓	✓	✓	✓
Comorbidities including:									
Obesity			✓	✓	✓	✓	✓		✓
Diabetes		✓	✓	✓	✓	✓	✓	✓	✓
Hypertension		✓	✓	✓	✓	✓	✓	✓	✓
Others		✓				✓			✓
Number of primary care consultations in last 12 months									✓
Clinical Frailty Score								✓	
Lifestyle factors, for example smoking			✓	✓		✓		✓	✓
Occupation		✓					✓		
Geography		✓	✓	✓			✓		✓
Population Density		✓							
Multi-generational households		✓				✓			
Vitamin D						✓			
Household overcrowding						✓		✓	
Air pollution								✓	
Care home		✓							✓

References

¹ PHE. Disparities in the risk and outcomes of COVID-19.2020.

https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/892085/disparities_review.pdf

² Updating ethnic contrasts in deaths involving the coronavirus (COVID-19), England and Wales: deaths occurring 2 March to 28 July 2020

<https://www.ons.gov.uk/peoplepopulationandcommunity/birthsdeathsandmarriages/deaths/articles/updatingethniccontrastsindeathsinvolvingthecoronaviruscovid19englandandwales/deathsoccurring2marchto28july2020>

³ Ethnicity and Outcomes from COVID-19: The ISARIC CCP-UK Prospective Observational Cohort Study of Hospitalised Patients https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3618215

⁴ Factors associated with COVID-19-related death using OpenSAFELY

<https://www.nature.com/articles/s41586-020-2521-4>

⁵ Impact of ethnicity on outcome of severe COVID-19 infection. Data from an ethnically diverse UK tertiary centre.

<https://www.medrxiv.org/content/10.1101/2020.05.02.20078642v3.full.pdf>

⁶ Greater risk of severe COVID-19 in Black, Asian and Minority Ethnic populations is not explained by cardiometabolic, socioeconomic or behavioural factors, or by 25(OH)-vitamin D status: study of 1326 cases from the UK Biobank.

<https://academic.oup.com/jpubhealth/article/42/3/451/5859581>

⁷ Are some ethnic groups more vulnerable to COVID-19 than others?

<https://www.ifs.org.uk/inequality/wp-content/uploads/2020/04/Are-some-ethnic-groups-more-vulnerable-to-COVID-19-than-others-V2-IFS-Briefing-Note.pdf>

⁸ To what extent are social determinants of health, including household overcrowding, air pollution and housing quality deprivation, modulators of presentation, ITU admission and outcomes among patients with SARS-COV-2 infection in an urban catchment area in Birmingham, United Kingdom?

https://www.researchgate.net/publication/342814465_To_what_extent_are_social_determinants_of_health_including_household_overcrowding_air_pollution_and_housing_quality_deprivation_modulators_of_presentation_ITU_admission_and_outcomes_among_patients_wit

⁹ Ethnic differences in COVID-19 infection, hospitalisation, and mortality: an OpenSAFELY analysis of 17 million adults in England <https://www.medrxiv.org/content/10.1101/2020.09.22.20198754v1.full.pdf>