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Research and analysis

Third quarterly report on progress to address COVID-19 health inequalities

Updated 3 September 2021

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Introduction

Following publication of the [Public Health England \(PHE\) report COVID-19: review of disparities in risks and outcomes \(https://www.gov.uk/government/publications/covid-19-review-of-disparities-in-risks-and-outcomes\)](https://www.gov.uk/government/publications/covid-19-review-of-disparities-in-risks-and-outcomes) in June 2020, 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 to address the report's findings.

In line with the [terms of reference \(https://www.gov.uk/government/news/next-steps-for-work-on-covid-19-disparities-announced\)](https://www.gov.uk/government/news/next-steps-for-work-on-covid-19-disparities-announced), for this work the Minister for Equalities published her first progress report to the Prime Minister on 22 October 2020, and the second report on 26 February 2021. This third report provides a further update on cross-government work to address the disparities highlighted by the PHE report, ahead of the fourth and final quarterly report later this year.

Race Disparity Unit, Cabinet Office
May 2021

Executive summary

In June 2020, the Prime Minister and Secretary of State for Health and Social Care commissioned the Minister for Equalities, with support from the Cabinet Office Race Disparity Unit (RDU), to take forward work on the disproportionate impact of COVID-19 on ethnic minority groups. This commission included developing an understanding of the drivers of disparities in infection and death rates of COVID-19, reviewing the effectiveness of current actions being undertaken by the government to lessen disparities, and modifying or developing policy where needed.

This is the third of 4 quarterly reports to the Prime Minister and details the work undertaken across government since the minister's last report was published on 26 February 2021.

This report summarises work across government and through national and local partnerships, to improve vaccine uptake among ethnic minorities. A data-informed approach, targeted communication and engagement and flexible deployment models are the cornerstones of vaccine equalities delivery. This approach includes measures to support vaccinations during Ramadan, extending the use of places of worship as vaccination centres to around 50 different venues with many more acting as pop-up sites, delivering out of hours clinics, outreach into areas of lower uptake and encouraging family group vaccinations for those living in multi-generational homes who may be at increased risk of contracting and transmitting COVID-19 infection. In addition, at the end of February the NHS allocated £4.2 million of funding to local sustainability and transformation partnerships to enable targeted engagement in areas with health inequalities and with communities that are not vaccine confident. A further £3 million of additional funding was made available from 26 March.

This report also summarises progress with the Community Champions scheme that was launched in January, outlining activity across the 60 local authorities that received funding through this scheme. By the end of the second month, there were over 4,653 individual Community Champions working on the programme, who are playing a vital role in tackling misinformation and driving vaccine uptake. This work is being supported by 2 organisations, Strengthening Faith Institutions and Near Neighbours, which also received funding under the Community Champions scheme. These organisations are using their networks and local partnerships to those most at risk.

Communications and cross-government COVID-19 campaign activity over the last 3 months has continued to focus on encouraging vaccine uptake as the rollout expands. This has included using effective media channels and building on relationships established with influencers and local communities to reach ethnic minority groups with information about vaccines in multiple languages. The main activity in the government's vaccines confidence campaign this quarter has included:

- a video with Nadiya Hussain encouraging vaccine take-up amongst British Bangladeshi audiences
- an open letter from Sir Lenny Henry and others aimed at Black groups
- press partnerships featuring questions and answers from trusted clinical voices
- a social media campaign addressing vaccine misinformation

The main focus of engagement work over the last 3 months has also been on promoting vaccine uptake among ethnic minorities. This has included high-profile ministerial visits to pop-up vaccination centres in places of worship, hosting roundtables with faith groups, medical professionals and community leaders to consider how to increase vaccine uptake and other speaking engagements. Specific work is also being undertaken to address fertility concerns among women, especially from ethnic minorities, including a series of videos with midwives, health visitors and expectant mothers on the benefits of vaccination.

Taken together, these initiatives have led to increases in both positive vaccine sentiment and vaccine uptake over time across all ethnic groups, although variances still remain. Vaccine confidence has increased in 3 consecutive research periods and the vast majority of people say they have already been vaccinated, or would be likely to accept a vaccine. [Research by YouGov, in partnership with the Institute of Global Health Innovation at Imperial College London](https://ourworldindata.org/covid-vaccinations?country=GBR~FRA~DEU~ESP~ITA~DNK~JPN~NOR#source-information-country-by-country) (<https://ourworldindata.org/covid-vaccinations?country=GBR~FRA~DEU~ESP~ITA~DNK~JPN~NOR#source-information-country-by-country>), suggests that the UK continues to top the list of the 29 countries in the study, in terms of people who are willing to be, or already have been, vaccinated.

While positive vaccine sentiment has increased over time, there is still hesitancy to be addressed. The increase in the Black population is substantial but vaccine confidence is still lower in this group than any other. This remains a particular issue for Black healthcare workers. The Scientific Advisory Group for Emergencies (SAGE) has made a series of recommendations for improving both confidence and

uptake, including minimising stigma over lower uptake, providing educational resources and tackling disinformation, which form part of the government's strategy.

The second report considered how the direct impacts of COVID-19 changed for ethnic minority groups between the first wave of the pandemic and the early part of the second wave. This third report summarises the data for deaths in the second wave up to 31 January 2021, which was not available at the time of the second report. The latest data confirms the finding from the second report that people from South Asian ethnic groups, particularly the Pakistani and Bangladeshi groups, were at the greatest risk of death from COVID-19 during the second wave. Black African and Black Caribbean people were also at slightly higher risk, but this could be accounted for by geographical factors, socio-demographic characteristics and pre-pandemic health. In Black Caribbean men and women and Black African women there was no excess risk after accounting for these factors, but substantial excess risk remained for men and women from the Pakistani and Bangladeshi ethnic groups.

The second report explored why the second wave had such a disproportionate impact on Pakistani and Bangladeshi groups. The government and partner agencies have taken steps to tackle these disparities over the last quarter, including promoting vaccine uptake within these groups and issuing new guidance on reducing infection within multi-generational households (translated into Bengali and Urdu) and on how to install screens in taxis and private hire vehicles. It is also important to ensure that South Asian groups are not stigmatised, particularly as new variants of COVID-19 emerge, and the government has continued efforts to build trust among these groups. Surge testing and vaccination have also been put in place to improve penetration in areas experiencing a spike of more transmissible variants.

The data also shows that deprivation continues to be a major driver of the disparities in COVID-19 infection rates for all ethnic groups, including White groups, and this has been a particular focus of work in the last 3 months. Age-adjusted mortality rates are highest among those living in the most deprived areas, which some ethnic groups, such as Pakistani and Bangladeshi, are disproportionately likely to live in. The variance in mortality rate by deprivation appears to be greater during 'peaks' of the virus.

The government will consider these findings alongside the recommendations by the Commission on Race and Ethnic Disparities, whose [report to the Prime Minister was published on 31 March](https://www.gov.uk/government/publications/the-report-of-the-commission-on-race-and-ethnic-disparities) (<https://www.gov.uk/government/publications/the-report-of-the-commission-on-race-and-ethnic-disparities>). This includes the recommendation that the government should establish a new office to target health disparities in the UK.

Next steps

This report sets out the following next steps:

- the Minister for Equalities to share the findings of her third quarterly report with the Joint Committee on Vaccination and Immunisation.
- department of Health and Social Care (DHSC) to consider how to apply the findings of the review of experiences of frontline healthcare workers and the UK-REACH study.
- NHS England's published data on vaccination uptake by ethnicity should be further disaggregated to provide percentage uptake by vaccine priority group cohorts and sex. This should include levels of unknown ethnicity and an assessment of how this might affect the interpretation of vaccination uptake for different ethnic groups.
- NHS England and Improvement (NHSEI) should publish data about the use of the NHS COVID-19 app by different ethnic groups. This will inform activity to increase the uptake and continued use of the app.
- DHSC and the NHS should further investigate practical barriers to vaccine uptake by ethnicity to assess and address any intention-action gap.
- DHSC should ensure that NHS organisations and GPs are provided with clear guidance and protocols about how ethnicity should be requested and recorded in health records.
- RDU should engage with the Office for Statistics Regulation about priorities for improving the quality (including harmonisation, robustness and reliability) of ethnicity data on health records, drawing on others' expertise as appropriate, and report back in the final quarterly report
- the Minister for Equalities and the Minister for COVID-19 Vaccine Deployment will continue a programme of engagement in the next 3 months, focusing on promoting vaccine uptake and encouraging asymptomatic testing, particularly for those within higher risk occupations, as sectors reopen
- as the COVID-19 vaccine rollout continues, the government's Vaccine Confidence campaign will aim to inform, educate and empower those aged 18 to 50 to take up their vaccine. Using the tagline 'Every Vaccination Gives Us Hope' content will take an optimistic tone, aiming to reach and persuade younger audiences, including ethnic minority groups
- at each step of the government's roadmap out of lockdown, tailored guidance and communications will continue to be shared through community and media channels to maximise reach and impact

1. Measures to address COVID-19 disparities

Summary

This section provides an update on the Community Champions scheme, launched in 60 local authorities in January 2021. It also highlights developments with the COVID-19 vaccination programme and other new policy interventions to tackle the disproportionate impact the virus has had on ethnic minorities.

Approach and results

The focus for much of the work over the last quarter has been on those ethnic minority groups (Bangladeshi and Pakistani) worst affected by the second wave of the pandemic. In addition to the measures to drive vaccine uptake, the government has implemented other initiatives designed to benefit those at the greatest risk of infection and death from COVID-19.

In March, the Ministry of Housing, Communities and Local Government (MHCLG) published new guidance on [COVID-19: Shared and overcrowded housing - reducing the risk of infection](https://www.gov.uk/government/publications/covid-19-shared-and-overcrowded-housing-reducing-the-risk-of-infection) (<https://www.gov.uk/government/publications/covid-19-shared-and-overcrowded-housing-reducing-the-risk-of-infection>). This explains the additional steps people should consider to reduce the risk of catching or passing on COVID-19 in the home. This is particularly important for those living in multi-generational homes, which may be a factor behind the higher death rates seen in the Bangladeshi and Pakistani ethnic groups. The guidance was translated into a range of languages, including Bengali and Urdu.

Also in March, the Department for Transport issued [guidance to taxi and private hire vehicle drivers, owners and operators on installing safety screens in their vehicles](https://www.gov.uk/government/publications/coronavirus-covid-19-safety-screens-for-taxis-and-phvs/coronavirus-covid-19-safety-screens-for-taxis-and-phvs) (<https://www.gov.uk/government/publications/coronavirus-covid-19-safety-screens-for-taxis-and-phvs/coronavirus-covid-19-safety-screens-for-taxis-and-phvs>). This provides drivers with information on how to choose and safely install a screen, with accompanying diagrams. Office for National Statistics (ONS) data shows that taxi drivers are more at risk of dying from COVID-19, and around one-third of taxi drivers are from a Pakistani and Bangladeshi background. The March guidance is in addition to other measures introduced previously, including mandating passengers in taxis and private hire vehicles to wear a mask unless exempt from doing so.

Another group of workers with a higher risk of infection from COVID-19 is those working within the security industry, a significant proportion of whom are from an ethnic minority background (11% of male security officers and related occupations are from a Bangladeshi or Pakistani background). The Minister for Equalities convened a roundtable discussion with representatives from the security industry to hear about measures already being taken by the industry to protect workers, including roll out of asymptomatic testing, and to consider how to encourage vaccine uptake among the workforce, particularly through the use of social media.

Community Champions

The Community Champions scheme was announced in the first quarterly report as a means of enhancing existing communication strategies in a target group of councils and to fund work with grassroots advocates from those communities most at risk from COVID-19. The broader aim is to reduce the impact of the virus on all communities, beyond just the target areas, including promoting vaccine uptake and tackling misinformation. Following an expression of interest exercise, £23.75 million in funding was released to 60 local authorities on 25 January.

These 60 authorities are required to report back each month to MHCLG, which is responsible for the scheme. Early highlights of the scheme include:

- by the end of the programme's second month of delivery (31 March), local authorities reported recruitment of 4,653 individual Community Champions into the programme, either direct or via partner organisations
- local authorities reported having collaborated with 473 organisations over the first 2 months, with 128 organisations receiving micro-funding
- the 60 local authorities report having committed 78.5% of their allocated funding by the end of the programme's second month
- participating local authorities are also encouraged to share knowledge, resources and practical solutions with non-funded local authorities to ensure other areas and their local communities benefit indirectly. For example, MHCLG are partnering with the NHS to host an online forum for both funded and non-funded areas to come together, download resources and discuss methods and techniques to engage disproportionately impacted groups

Case study: Community Champions in Rochdale

Rochdale Council has developed its strategy in collaboration with a number of organisations, reporting through a newly formed Health Inequalities and Community Engagement Partnership.

By the end of the first month, the Council had engaged 14 programme delivery partners, mostly from community, voluntary, faith and social enterprise organisations, building on strong networks already in place. 1,050 Community Champions were in post before funding was secured, while a further 258 were recruited in the first month alone.

Rochdale Council is using data gathered by its Community Champions to determine locations to pilot pop-up vaccination sites in local community centres and places of worship.

Early successes of the scheme in Rochdale include developing culturally adjusted, bespoke communications, such as videos made by local community leaders. These communications have resulted in over 1,573 people from targeted communities engaging with health equality interventions in the first month of operation.

Rochdale Council also reported that over 483 people from ethnic minority groups had been vaccinated in the first month, who would not have done so without an intervention under the scheme.

As part of the Community Champions scheme, funding was also provided to Strengthening Faith Institutions (SFI) and Near Neighbours (NN) in order to utilise their networks with at-risk communities. Both organisations are partnering with a host of community organisations as well as Community Champions across England and are making a real difference in vaccine uptake.

Highlights of their work include:

- since January, SFI has produced a total of 195 media outputs across Facebook, Twitter, Instagram, WhatsApp and YouTube and has now developed a multi-media platform for its community resources
- these outputs have been published in 15 languages including in those for harder-to-reach communities such as Akan, Mirpuri and Yiddish
- SFI, in collaboration with community partners/champions, has organised 15 community-led webinars and roundtables to date. These include consultations with NHS Test and Trace for South Asian, Black, Jewish, Sikh and other groups, and webinars for Arab Muslim, Gujarati Khoja, Somali, Black Christian and Black Muslim groups
- SFI has worked closely with the British Islamic Medical Association to produce clinically accurate advice for Muslims
- SFI is working with ethnic minority comedians to engage younger communities, producing 2 comedy sketches about public health guidelines and broader vaccine/COVID-19 related issues
- SFI has linked in with Faith Action and its #GoodJab2021 campaign with short and informative videos about the vaccine
- NN received 230 small grant applications and has awarded £393,000 in funding. This includes funding the One Voice Blackburn project, which is dispelling myths around the COVID-19 vaccine by making videos in languages of harder-to-reach groups

The Community Champions scheme is undergoing evaluation by academics from the Independent Scientific Pandemic Insights Group on Behaviours ('SPI-B'). The evaluation is focused on the impact of Community Champions interventions on community links, engagement with public health messaging and vaccine uptake in 3 of the local authority areas participating in the scheme. The next evaluation report is due in June, with a final report scheduled for September.

Promoting vaccine uptake

On 26 February, the Joint Committee on Vaccination and Immunisation (JCVI) published an interim statement on Phase 2 of the vaccination programme. This advises deployment teams to actively promote vaccination uptake with people who are: male, those who are from an ethnic minority background, have a body mass index (BMI) of 30 or more, and those from areas of high socio-economic deprivation.

In March, the Minister for Equalities wrote to the JCVI, welcoming this interim guidance, which is in line with the findings from the first 2 quarterly reports. The minister also stressed her desire to explore further options for increasing uptake, such as allowing adult family members living in the same household to be vaccinated at the same time as a means of encouraging uptake particularly within multi-generational households where the risks of COVID-19 infection are likely to be higher.

Short-term pilots of family vaccines have now been completed in Luton, Newham, Slough, Liverpool, Sandwell, Oldham and Newcastle and the evaluation will be published shortly. These pilots were aimed at improving local responsiveness and vaccination uptake in underserved populations with a focus on multi-generational households. The pilots tested the benefits of a locally-led and clinically informed decision to vaccinate outside current cohort prioritisation to increase uptake.

The concept of family vaccinations was also reflected in guidance issued by the NHS on supporting vaccine uptake during Ramadan. The guidance (summarised in the box below) was published on 9 April and encouraged vaccine delivery partners to consider how to adapt vaccine delivery for maximum uptake, how to support the many Muslim members of staff working for the NHS, and how best to reach the Muslim population and disseminate vaccine messaging during Ramadan.

This was supported by a [joint statement from 2 leading Muslim figures](https://www.england.nhs.uk/2021/04/senior-nhs-figures-stress-muslims-can-get-covid-jab-in-ramadan/) (<https://www.england.nhs.uk/2021/04/senior-nhs-figures-stress-muslims-can-get-covid-jab-in-ramadan/>) working in the NHS, Imam Yunus Dudhwala, Head of Chaplaincy at Barts Health NHS Trust, and a senior GP, Dr Farzana Hussain, stressing that Ramadan should not stop anyone from getting vaccinated. It was also part of a [wider drive to maintain services and promote vaccination during Ramadan](https://www.sutton.gov.uk/covid19/ramadan/) (<https://www.sutton.gov.uk/covid19/ramadan/>), such as holding twilight clinics in Sutton for those concerned about breaking their fast. This is particularly important as recent [ONS data shows that vaccination rates are lowest among those who identify as Muslim](https://www.ons.gov.uk/peoplepopulationandcommunity/healthandsocialcare/healthinequalities/datasets/covid19vaccinationratesandoddsratiosbysociodemographicgroup) (<https://www.ons.gov.uk/peoplepopulationandcommunity/healthandsocialcare/healthinequalities/datasets/covid19vaccinationratesandoddsratiosbysociodemographicgroup>). Additionally, the [Muslim Census LIVE survey](https://muslimcensus.co.uk/vaccine/) (<https://muslimcensus.co.uk/vaccine/>), supported by NHSEI, which is currently live, is assisting understanding of vaccine uptake amongst young Muslims in the UK.

Supporting COVID-19 vaccine uptake during Ramadan

The NHS guidance proposed a number of means promoting vaccine uptake within the Muslim population including:

- pop-up, roving and temporary vaccination sites at places with a high Muslim population
- extended opening hours of vaccination sites during twilight hours in places with a high Muslim population
- outreach into homes to support those that are housebound
- flexibility to vaccinate where needed across Muslim groups, such as vaccinating members of multi-generational households on single visits

In terms of messaging, the guidance encouraged use of local Muslim health professionals and networks to enhance trust and credibility in the vaccination programme through routes such as:

- advertising multi-lingual messages on local faith-based community radio stations

- increased visibility in the mainstream media of vaccinations being delivered in places of worship
- providing content and considering sponsorship of messaging through the local council of mosques (or equivalent) and delivering coordinated daily messages and Friday sermon campaigns
- advertising vaccine information in Eid magazines and Ramadan timetables that are developed at regional and local levels

At the end of February, the NHS allocated £4.2 million of funding to local sustainability and transformation partnerships to be used to support and enable locally-led community engagement in all areas with health inequalities. This has enabled targeted engagement with communities that have been historically underserved or that are not vaccine confident, including:

- in central Liverpool, a pop-up vaccination clinic was established at the Pakistan Multicultural Youth and Community Centre. The vaccinators were medical students from ethnic minorities and faith and community leaders were engaged on-site
- a vaccination bus that visited locations across Crawley to drive uptake in the Hindu community. This travelled to specific locations, agreed through partnerships with the community, to support increased confidence and outreach to vulnerable patients

A further £3 million of additional funding was made available from 26 March.

In addition, NHSEI has introduced a number of measures to promote COVID-19 vaccine uptake including:

- publishing a problem-solving framework for implementing a range of interventions to ensure equitable access to vaccination and to drive uptake in underserved groups. The menu of interventions includes initiatives such as pop-up sites at local community venues or places of worship, mobile vaccination buses and outreach to areas of lower uptake
- launching a Vaccine Equalities tool to understand which ethnic and indices of multiple deprivation (IMD) groups need to be focused on at a local level to increase equitable vaccine delivery. The tool quantifies how many people in each group need to be vaccinated to enable equity and supports local planners to consider whether placing additional vaccination sites or improving accessibility may enable better access
- conducting an Equality Health Impact Assessment ahead of delivery of Phase 2 of the vaccine programme to outline the potential impact and barriers for various population groups with protected characteristics. This exercise also included proposing and developing approaches and solutions to overcoming vaccination barriers within the confines of activities permissible as per the JCVI guidance

In addition to the extensive communications activity summarised in the 'Communications' section, other activity over the last quarter to promote vaccine uptake includes:

- over 250 places of worship have expressed interest in becoming vaccination centres. Around 50 are now vaccination sites and many more are working in partnership with local pharmacies to provide pop-up services. Faith leaders reported that many people feel comfortable in these familiar and accessible environments
- faith leaders and trusted medical professionals from their respective communities have hosted conversations with their congregations via livestream to answer concerns on vaccine efficacy. Videos have alloted over 10,000 views
- an 8-week engagement programme focused on the Bangladeshi group, including targeted communications (through influencers and linking to the celebrations in March to mark the 50th anniversary of independence) and interventions in areas with lower vaccine uptake
- a programme to increase COVID-19 vaccine confidence in Black African and Caribbean groups in London. This included a partnership with predominantly African and Caribbean churches and others to develop a series of online community dialogues to provide factual information about the vaccine and create a safe place for questions and challenge. On average 400 people joined the live online dialogue sessions, which were also recorded and shared via social media
- MHCLG is working closely with Gypsy, Roma Traveller representatives, providing assurance to undocumented people that any details provided to access the vaccine will not be shared outside of the NHS
- creating a national bank of general resources that can be used at a local level (such as translated materials and multi-media) via a Vaccine Equalities Connect and Exchange Hub hosted on the FutureNHS Collaboration Platform. The Hub already has over 2,000 members across the country and information is being shared via initiatives such as lunch and learn sessions on topical areas of interest
- local partnership working between Clinical Commissioning Groups (CCGs), local directors of public health, Community Champions and the voluntary and community sector (see case study after this section)
- Reacting quickly to the recent rise in cases in North-West England, by increasing the delivery of vaccines through measures such as greater use of pop-up vaccination sites in community venues, an additional vaccine bus and mobile treatment units in Bolton to target walk-in appointments, extending opening hours at the Burnley vaccination centre and increasing community pharmacy provision in Blackburn, as well as an expanded, proactive communications campaign engaging local communities

Case study: Addressing low vaccine uptake in the Black Country and West Birmingham CCG

This area comprises the second most deprived integrated care system in England and serves a diverse population of more than 1.5 million people. Some of the local initiatives to drive vaccine uptake include:

- setting up a recall system for those from ethnic minority groups that declined their first opportunities to be vaccinated, with a call from their GP, a follow up

call from an ethnic minority peer and then a few days later a call from the public health team. While this pilot only reached a small number of people, it was highly effective (with an 80% conversion rate)

- understanding why people in Dudley were refusing to be vaccinated, moving beyond language barriers to listen to people's concerns about vaccination, tailoring conversations and imparting vaccine information in an understandable format, promoting positive messages (for example, about vaccination during Ramadan) and closing the loop with a follow up call. This small pilot resulted in a 60% conversion rate and is now being extended
- in Wolverhampton, using a range of approaches including pop-up clinics within the community, establishing a dedicated call centre to target people (using GP records) and to gather intelligence, knocking on the doors of those patients yet to book a vaccination, and tailoring messaging through the local Community Champions. Nearly 9,000 people have been contacted by the call centre so far, 79% of whom said that they were now willing to be vaccinated

Health and social care workers

Recognising the critical role that health and social care workers have played throughout the pandemic, the government has worked with partners to drive up vaccination rates within these cohorts. For social care workers, initiatives include:

- opening the National Booking Service to all social care workers in February, allowing them easy access to booking vaccinations. Since then, over one million bookings have been made for social care workers
- conducting a 4-visit cycle to all older adult care homes in England, maximising opportunities for vaccination access across the country

As a result, [82.6% of staff and 95% of all residents in older adult care homes](https://www.england.nhs.uk/statistics/statistical-work-areas/covid-19-vaccinations/) (https://www.england.nhs.uk/statistics/statistical-work-areas/covid-19-vaccinations/) have now received at least one dose of the vaccine.

For healthcare workers, initiatives include:

- the Chief People Officer of the NHS has put in place an extensive engagement and educational programme to support informed decision-making on the vaccine, and written to all NHS HR Directors promoting one-to-one conversations with all frontline staff about vaccination. The NHS has provided guidance to support those conversations
- disseminating guidance to healthcare workers to address specific concerns, including frequently asked questions on issues such as vaccine ingredients, which may be a concern for Muslim and ultra-orthodox Jewish staff
- sharing the numbers of people from Black or Asian backgrounds within the clinical trials for the COVID-19 vaccines, as a means of reassuring staff that vaccines are effective for ethnic minorities

As of 16 May, 87.8% of NHS Trust healthcare workers identified in the NHS Electronic Staff Record received at least one dose of vaccine, compared with 80.5% in early March.

In addition, in March 2021, DHSC commissioned the Cabinet Office COVID-19 Taskforce Field Team to undertake a review of the experiences of frontline healthcare workers during the first wave of the pandemic. This includes the extent to which (and reasons why) ethnic minority staff were less likely to report having access to personal protective equipment (PPE) and being tested for PPE, and more likely to report feeling pressured to work without adequate PPE. The review will include engagement with a range of staff in primary care, adult social care and acute care settings in a range of geographical locations.

DHSC will analyse the results of the review and consider how these could be applied going forward. This analysis may also take account of the findings from the [research study into ethnicity and COVID-19 outcomes in healthcare workers](https://uk-reach.org/main/) (<https://uk-reach.org/main/>) (the UK-REACH study), funded by the government and led by Dr Manish Pareek at the University of Leicester.

Next steps

- the Minister for Equalities to share the findings of her third quarterly report with the JCVI
- DHSC to consider how to apply the findings of the review of experiences of frontline healthcare workers and the UK-REACH study

2. Data and evidence

Summary

Vaccination deployment and communications have led to increases in both positive vaccine sentiment and vaccine uptake over time, but there are variances by ethnic group that could leave some populations more vulnerable to COVID-19.

Vaccine confidence (positive sentiment) has increased and the majority of people say they have already been vaccinated, or would be likely to accept a vaccine. Confidence is lowest among people in the Black ethnic group (at 70%), although there has been a substantial increase since December 2020.

Uptake shows a similar pattern. In earlier cohorts, which have been eligible for vaccination the longest, Black ethnic groups have lower rates of vaccination uptake. The Black African population has the lowest uptake of all, at 65.9% of 70 to 79 year olds and 65.6% of over-80s, compared with 96.8% and 97.4% respectively of White British people. People from the Indian ethnic group have the highest

uptake rates after White ethnic groups, at 90.4% of 70 to 79 year olds and 91.2% of over-80s.

The risk of mortality in the second wave, factoring in deaths during January 2021, looks much the same as reported in the second quarterly report. People from South Asian ethnic groups, particularly Pakistani and Bangladeshi people, were at the greatest risk of death from COVID-19 compared with White British people. Black African and Caribbean men and women were also at slightly higher risk during the second wave, but this excess risk was reduced compared with the first wave. For Black Caribbean men and women and Black African women, the increased risk in the second wave was largely accounted for by geographical factors, socio-demographic characteristics (such as deprivation, household composition and educational attainment) and pre-pandemic health.

Obesity, which is more common among Black people than White people, is a greater risk factor for severe COVID-19 outcomes in Black people compared with White people.

Age-adjusted mortality rates are highest among those living in the most deprived areas, in which some ethnic groups, such as Pakistani and Bangladeshi, are disproportionately likely to live. The variance in mortality rate by deprivation is greater during 'peaks' of the pandemic.

In one of the first studies of its kind, the ONS analysed the prevalence of self-reported long COVID in the UK population. Between 3 February and 6 March 2021, the prevalence rate was significantly lower among Asian people (0.83%) compared with White people (1.10%). However, statistical uncertainty in the study data largely precluded reliable comparisons between ethnic groups.

The first [progress update on improvements to the quality of health datasets](https://www.gov.uk/government/publications/third-quarterly-report-on-progress-to-address-covid-19-health-inequalities/appendix-b-quarterly-progress-report-on-improvements-to-health-datasets) (<https://www.gov.uk/government/publications/third-quarterly-report-on-progress-to-address-covid-19-health-inequalities/appendix-b-quarterly-progress-report-on-improvements-to-health-datasets>) has been published alongside this report. It describes PHE's work to develop a new method of choosing which ethnicity to use when patients report different ethnicities in different episodes of care, as the original method of assigning ethnicity has over-estimated the number of people in the 'Other' ethnic group.

This work is important because over-estimating the number of people in the 'Other' group will have an impact on the quality of data for all other ethnic groups (such as the Black and Asian groups) and will also lead to uncertainty about what conclusions can be drawn from the data.

Results

Vaccinations

Vaccinations have a critical role to play in the fight against COVID-19. Widespread vaccination could potentially address inequalities in the impact of COVID-19

between ethnic groups, but variance in uptake means that some groups could be doubly-hit; an increased risk of infection (related to occupations, living conditions and so on) and lower vaccine uptake would leave them disproportionately more vulnerable. The main concern would be pockets of low vaccine uptake, allowing the virus to circulate whilst elsewhere 'herd' immunity makes continual transmission impossible.

Data is available on vaccine sentiment, assessing the likelihood of uptake in the general population, and vaccine uptake, measuring actual uptake in cohorts of the population already eligible for vaccination.

Vaccine sentiment

Vaccine sentiment has improved since December 2020, when the UK first rolled out its vaccination programme. [Research by YouGov, in partnership with the Institute of Global Health Innovation at Imperial College London](#) (<https://ourworldindata.org/covid-vaccinations?country=GBR~FRA~DEU~ESP~ITA~DNK~JPN~NOR#source-information-country-by-country>), suggests that Britain continues to top the list of the 29 countries in the study, in terms of people who are willing to be, or already have been, vaccinated. Every ethnic group has seen increased vaccine confidence during this time, although Black ethnic groups have been consistently shown to have greater vaccine hesitancy than other broad ethnic groups. ONS survey data shows that despite a small, non-statistically significant decrease in the last month, overall vaccine confidence has increased from 49% (10 December 2020 to 10 January) to 70% (31 March to 25 April 2021)^[footnote 1], ^[footnote 2]. The vaccine confidence gap between Black people and people from other broad ethnic groups has narrowed since December. This finding of low vaccine confidence in the Black population is consistent with REACT-2 polling conducted 26 January to 8 February, which found that vaccine confidence among Black people was the lowest of all ethnic groups at 72.5%^[footnote 3], ^[footnote 4].

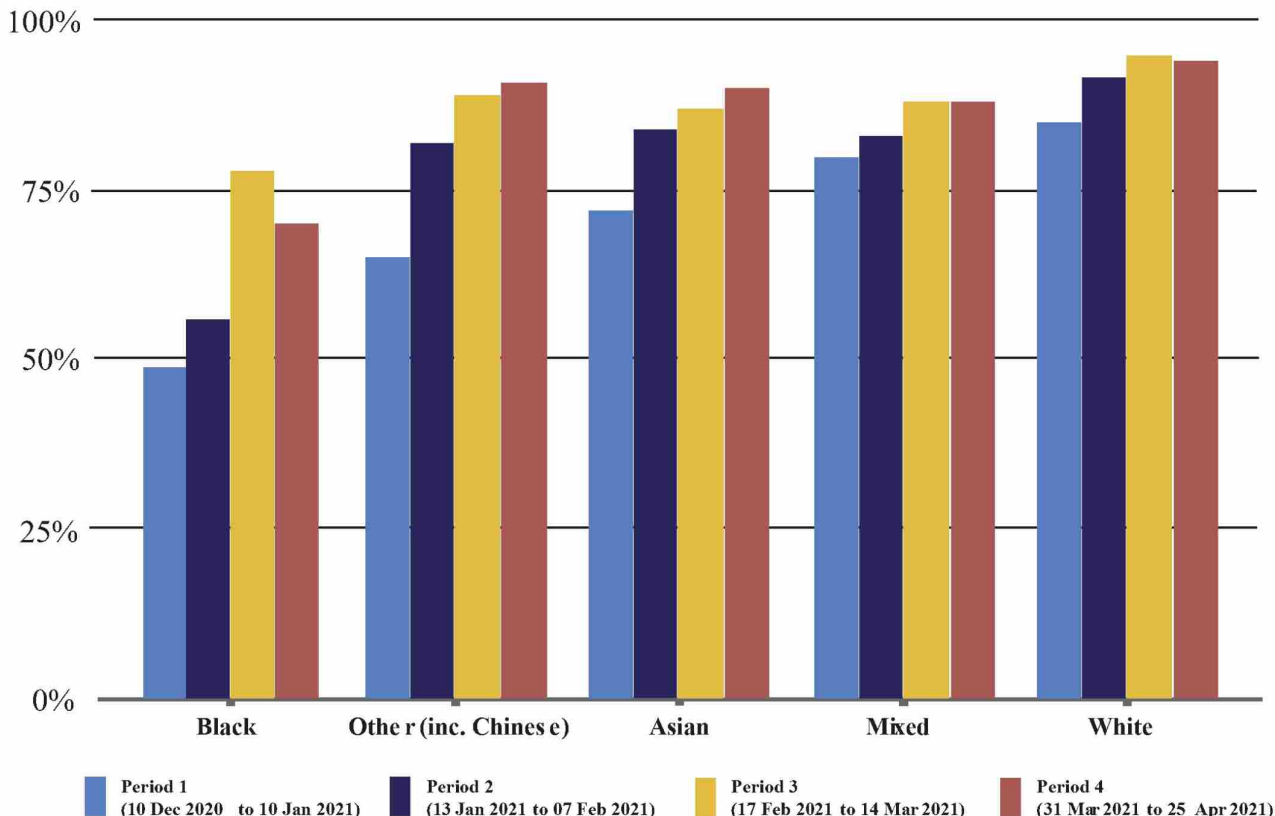


Figure 1: Percentage of people who said they were likely to accept or had already accepted the COVID-19 vaccine, by ethnicity and research period

Source: ONS Opinions and Lifestyle survey

The Asian or Asian British and Other ethnic group categories are not consistent between data collected during periods 1 to 3 and period 4. Prior to period 4, Chinese adults were included in the Other ethnic group.

‘Concern about side effects’, ‘long term effects on health’ and ‘wanting to wait to see how the vaccine works’ were [the most common reasons given for vaccine hesitancy between 13 January and 7 February 2021](https://www.ons.gov.uk/peoplepopulationandcommunity/healthandsocialcare/healthandwellbeing/bulletins/coronavirusandvaccinehesitancygreatbritain/13januaryto7february2021#reasons-for-reporting-negative-sentiment-towards-the-vaccine) (<https://www.ons.gov.uk/peoplepopulationandcommunity/healthandsocialcare/healthandwellbeing/bulletins/coronavirusandvaccinehesitancygreatbritain/13januaryto7february2021#reasons-for-reporting-negative-sentiment-towards-the-vaccine>). 64% of Asian people and 55% of Black people reporting vaccine hesitancy said they were worried about side effects.

[The REACT-2 cross-sectional community survey](https://www.medrxiv.org/content/10.1101/2021.02.26.21252512v1.full) (<https://www.medrxiv.org/content/10.1101/2021.02.26.21252512v1.full>) also identified particular concerns regarding the effect of the vaccine on pregnancy, future fertility and allergies.

Findings from RDU’s analysis of Understanding Society data (collected in January 2021) suggest that motivations^[footnote 5] to get vaccinated are largely individual-focused. The analysis categorised reasons for getting vaccinated in 3 ways: individual-focused (such as “to stop me catching the coronavirus or getting very ill

from it” and “to allow me to get the help or care I need at home”), family or work-focused (such as “to allow me to return to my workplace” and “to allow my social and family life to get back to normal”) and society-focused (such as “because the vaccine won’t work unless most people in the UK take it” and “to protect other people from catching the coronavirus”).

- people from the Black African (78.7%), Pakistani (77.0%) and Indian (71.8%) ethnic groups were significantly more likely than White British (60.9%) people to report individual-focused reasons, while those from the White Other (49.4%) and Asian Other (46.3%) groups were significantly less likely
- people from the Mixed White and Asian (27.3%) and White Irish (18.8%) ethnic groups were significantly more likely than White British (12.2%) people to report family or work-focused reasons, while those from the Indian (7.2%) ethnic group were significantly less likely
- people from the Pakistani (10.5%) ethnic group were significantly less likely than White British (19.7%) people to report society-focused reasons

[Virus Watch analysis \(https://www.medrxiv.org/content/10.1101/2021.03.22.21254130v\)](https://www.medrxiv.org/content/10.1101/2021.03.22.21254130v)

found that, of those who said that they would not, or were unsure about, accepting a vaccine in December 2020, 86% reported that they would accept or had already accepted a vaccine in February 2021. The magnitude of this shift was consistent across all ethnic groups measured, ranging from 72% of people from Mixed backgrounds to 90% of people from South Asian backgrounds, who were uncertain or intended to refuse a COVID-19 vaccine in December 2020 but went on to change their minds and planned to accept, or had already accepted, a vaccine in February 2021. This shift is also consistent across all levels of social deprivation, ranging from 79% in more deprived areas to 89% in the least deprived areas^[footnote 6].

RDU analysis of Understanding Society data found that 62.4% of people who said that they were unlikely to accept a vaccine in November 2020 subsequently reported (in January 2021) that they would be likely to accept or had already accepted a vaccine. This varied substantially by ethnic group, with some moving significantly towards vaccine confidence (87.6% of Indian people and 67.2% of White British people) and others remaining significantly more hesitant. 35.1% of Pakistani people, 40.1% of Black Caribbean people, 40.8% of Bangladeshi people and 50.3% of White Other people who were previously unlikely to get a vaccine went on to state they were likely to accept a vaccine, or had already accepted it. Among people who moved from negative to positive vaccine sentiment^[footnote 7], those from the Indian (86.2%), Black (81.2%), and combined Pakistani and Bangladeshi (64.9%) ethnic groups were significantly more likely to state an individual-focused reason for their positive sentiment than White British (44.1%) people.^[footnote 8]

Virus Watch and Understanding Society data produce different estimates, which is likely to be a consequence of differences in methodology and time periods. But what is consistent between the 2 is that large proportions of people who reported being vaccine hesitant have gone on to change their minds.

Healthcare workers are one of the occupations at increased risk of COVID-19 mortality. UK-REACH findings from 4 December 2020 to 19 February 2021 show that variances in vaccine hesitancy are evident in healthcare workers^[footnote 9],^[footnote 10]. Black Caribbean healthcare workers were more than 3 times more likely to be vaccine-hesitant than White British healthcare workers. Black African healthcare workers were approximately twice as likely and White Other healthcare workers were approximately one and a half times more likely. Other independent predictors of hesitancy were younger age, female sex, higher score on a COVID-19 conspiracy beliefs scale, lower trust in employer, lack of influenza vaccine uptake in the previous season, previous COVID-19, and pregnancy.

UK-REACH also provided a qualitative analysis using a combination of interviews and focus groups as well as long-form answers from participants of the survey^[footnote 11]. Overall there were 99 participants, of whom almost half were from an ethnic minority (48%) (<https://www.ethnicity-facts-figures.service.gov.uk/workforce-and-business/workforce-diversity/nhs-workforce/latest>) - more than 3 times the representation of ethnic minorities in the wider population, and twice that of the NHS workforce. They found that the main concerns about the vaccine related to its efficacy, side effects and long-term outcomes because of the speed with which it was developed. One of the more notable findings of the research was that, as healthcare workers, participants' confidence in the vaccine was influenced by colleagues as well as family and friends. In particular, if a senior colleague did not adhere to guidance, participants' confidence was reduced.

Vaccine uptake

Estimates of vaccine uptake are broadly consistent with the patterns seen in vaccine sentiment. Black ethnic groups have the lowest uptake in each vaccination cohort. OpenSAFELY estimates that 65.9% of Black African 70 to 79 year olds and 65.6% of Black African over-80s had received a vaccine up to 14 April 2021 (<https://opensafely.org/research/2021/covid-vaccine-coverage/>); this was the lowest uptake of all ethnic groups. Among Black Caribbean people, 75.2% of 70 to 79 year olds and 77.7% of over-80s had received a vaccine. This is consistent with ONS analysis, using ethnicity derived from 2011 Census data (<https://www.ons.gov.uk/peoplepopulationandcommunity/healthandsocialcare/healthinequalities/datasets/covid19vaccinationratesandoddsratiosbysociodemographicgroup>) linkage, which found that vaccine uptake in over-70s was lowest among Black African people, with 71.1% having received a vaccine between 8 December 2020 and 12 April 2021, compared with 95.0% of White British over-70s.

It is important to recognise that different ethnic groups have different age profiles and this will affect the percentage of the population within each group who have been vaccinated. For example, 30% of Black Caribbean people are aged 50 or over, compared with 10% of Black African people. There are similar differences amongst South Asian groups where 23% of Indian people are aged 50 or over, compared with 10% of Bangladeshi people. However, the highest percentage of people aged 50 or over is among White people at 38%. As older people have been prioritised for vaccinations, a larger percentage of the White group as a whole will have received vaccinations compared with the ethnic groups with younger age profiles.

The ONS analysis also found that adjusting for differences in age, sex, region, care home residency, urban or rural area, deprivation, educational attainment, self-reported disability, BMI categories and underlying health conditions does not fully explain the lower vaccination rates among ethnic minority groups. These factors account for around 30% of the difference in odds of vaccination by ethnicity. As reported in the second quarterly report, there is a history of variance in uptake of vaccinations by ethnicity^[footnote 12].

[Ethnic minority groups consistently have lower COVID-19 vaccine uptake than White British people \(https://opensafely.org/research/2021/covid-vaccine-coverage/\)](https://opensafely.org/research/2021/covid-vaccine-coverage/), and this is particularly pronounced in Black, Mixed White and Black, and some South Asian ethnic groups. However, despite ethnic minority groups having lower levels of uptake, uptake rates in all ethnic groups have increased over time and some ethnic minority groups, for example Indian, have relatively high uptakes. OpenSAFELY estimates that uptake among people from the Indian group is the highest after White ethnic groups (90.4% of 70 to 79 year olds and 91.2% in over-80s as at 14 April 2021). As at 4 February 2021, the Bangladeshi population was one of the 5 ethnic groups with the lowest uptake in those aged over 80. However uptake in the Bangladeshi population has notably increased since then – between 4 February and 14 April, uptake in Bangladeshi over-80s increased from 54.6% to 81.3%, and they are no longer in the 5 ethnic groups with the lowest vaccine uptake. By way of comparison, vaccine uptake among over-80s in the Black Other group increased from 53.4% to 72.3%.

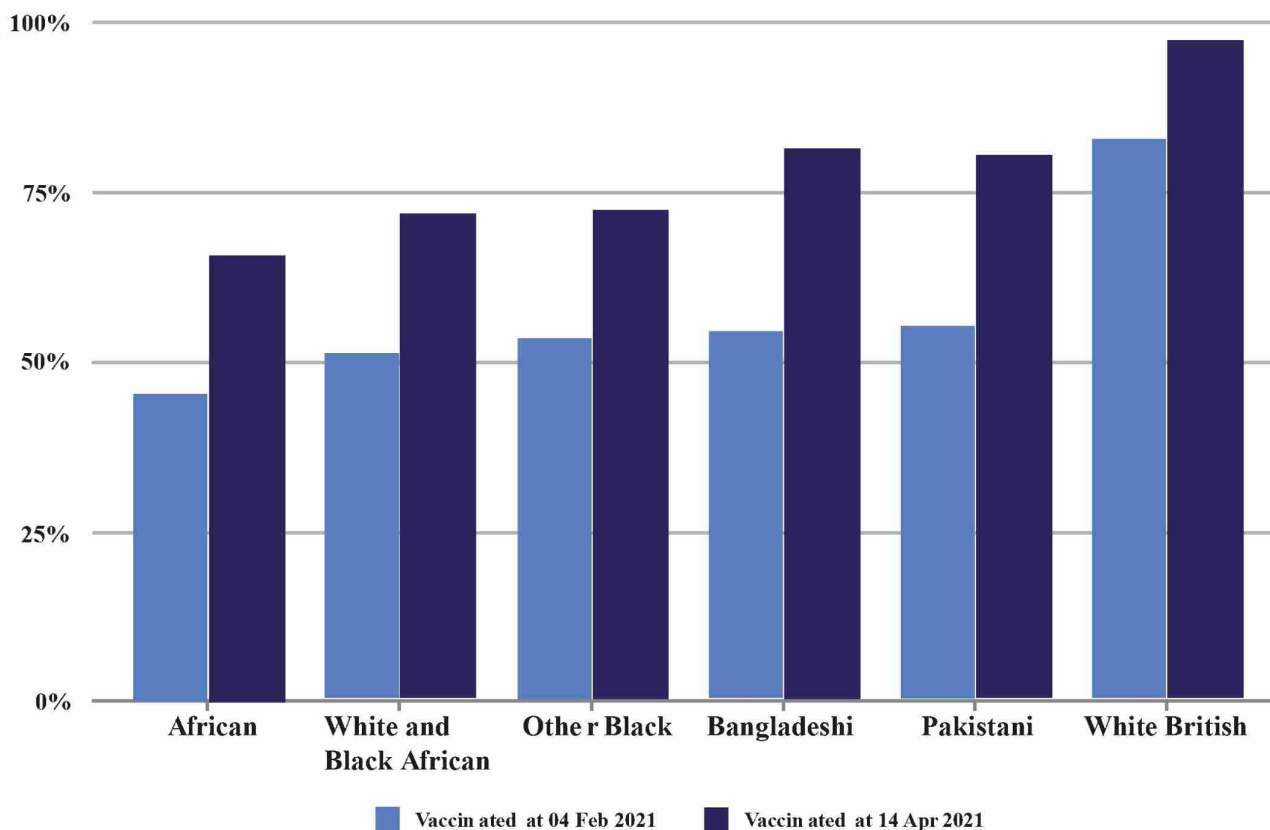


Figure 2: Percentage of over-80s who had received at least one COVID-19 vaccination by 4 February 2021 and by 14 April 2021, by ethnicity

Source: OpenSAFELY

Data is shown for the 5 ethnic groups with the lowest vaccination rates as at 4 February, plus White British

The NHS has now started to [publish percentage uptake in those aged over 50, by ethnic group](https://www.england.nhs.uk/statistics/statistical-work-areas/covid-19-vaccinations/) (<https://www.england.nhs.uk/statistics/statistical-work-areas/covid-19-vaccinations/>), using population data from the National Immunisation Management System (NIMS). These uptake figures are broadly consistent with those seen in other sources, ranging from 61.6% of Black Caribbean over-50s to 93.8% of White British over-50s having received a vaccine. However, the lack of disaggregation by vaccine priority group cohort means that comparing like-for-like with other vaccination uptake estimates is not possible. Extending these published uptake estimates to be disaggregated by priority group cohort, region and sex would help understand variation in uptake between different population groups and between different sources.

Barriers to vaccination uptake

Lower vaccine uptake rates among some ethnic minority groups may be due to an 'intention-action gap'; that is, people may have positive vaccine sentiment but do not follow through to getting vaccinated. In February 2021, the Behavioural Insights Team (BIT) ran an online experiment to gauge the extent of an 'intention-action gap' [\[footnote 13\]](#), [\[footnote 14\]](#). They found that 29% of people who had not received a vaccine could not overcome at least one practical barrier to getting vaccinated. The most common barrier (19%) was having at least 30 minutes to travel to and attend a vaccination appointment; reasons included being unable to take time off work or losing income by doing so, as well as childcare and other caring commitments. Other barriers included being unable to book an appointment online or on the phone, and not having the means to travel safely to the appointment. The results have not been disaggregated by ethnicity, so it is unclear whether some groups are more likely to face these barriers. Further research into the practical barriers faced by ethnic minority groups is required to fully understand the intention-action gap for these groups.

Differences in COVID-19 mortality between the first wave and the second wave

[The second quarterly report](#)

<https://www.medrxiv.org/content/10.1101/2021.02.03.21251004v1.full>) set out the differences between the first wave of the pandemic (24 January 2020 to 31 August 2020) and the early second wave (1 September 2020 to 28 December 2020) using ONS analysis of COVID-19 mortality. Analysis has now been updated to include COVID-19 deaths during January 2021 and looks at mortality during the second wave from 1 September 2020 to 31 January 2021.

This section uses hazard ratios to quantify the risk of death from COVID-19 for ethnic minorities, relative to the risk experienced by White British people [\[footnote 15\]](#).

[The pattern reported in the second quarterly report](#)

<https://www.ons.gov.uk/peoplepopulationandcommunity/healthandsocialcare/healthinequality>

[ies/adhocs/13211modelestimatesofdeathsinvolvingcovid19byethnicgroupforpeopleinprivatehouseholdsengland1september2020to31january2021](#)) remains much the same when comparing the first wave with the second wave to 31 January 2021. Men and women from Bangladeshi and Pakistani backgrounds were at greater risk of death involving COVID-19 compared with those of White British ethnicity, as shown in Figure 3b. Compared with White British men and women of the same age, Bangladeshi men and women were 6.1 and 6.3 times as likely to die from COVID-19. Pakistani men and women were 4.4 and 3.8 times as likely to die from COVID-19. Adjusting for geography, socio-economic factors and pre-pandemic health^[footnote 16] reduced the elevated risks of men and women from Bangladeshi (2.7 and 2.9) and Pakistani (2.3 and 1.8) backgrounds. This is [a larger excess risk than in the first wave when Bangladeshi men and women and Pakistani men and women had fully adjusted hazard ratios of 1.5, 1.2, 1.5, and 1.3 respectively.](#) (<https://link.springer.com/article/10.1007/s10654-021-00765-1>)

Compared with White British men and women of the same age, Black African men and women were 2.0 and 1.6 times as likely to die from COVID-19 respectively, and Black Caribbean men and women were 1.6 and 1.5 times as likely to die from COVID-19 respectively. After adjusting for geography, socio-economic factors and pre-pandemic health, Black African men were 1.6 times as likely to die as White British men. Black African women and Black Caribbean men and women had a similar risk of COVID-19 death to White British men and women (1.0, 1.1 and 0.88 respectively). The excess risk for Black African men is smaller than in the first wave when the fully adjusted hazard ratio was 2.7, as shown in Figure 3a. [Black African women and Black Caribbean men and women do not experience excess risk after adjustment but faced higher risk during the first wave, with fully adjusted hazard ratios of 1.9, 1.6, and 1.2 respectively.](#) (<https://www.medrxiv.org/content/10.1101/2021.02.03.21251004v1.full>)

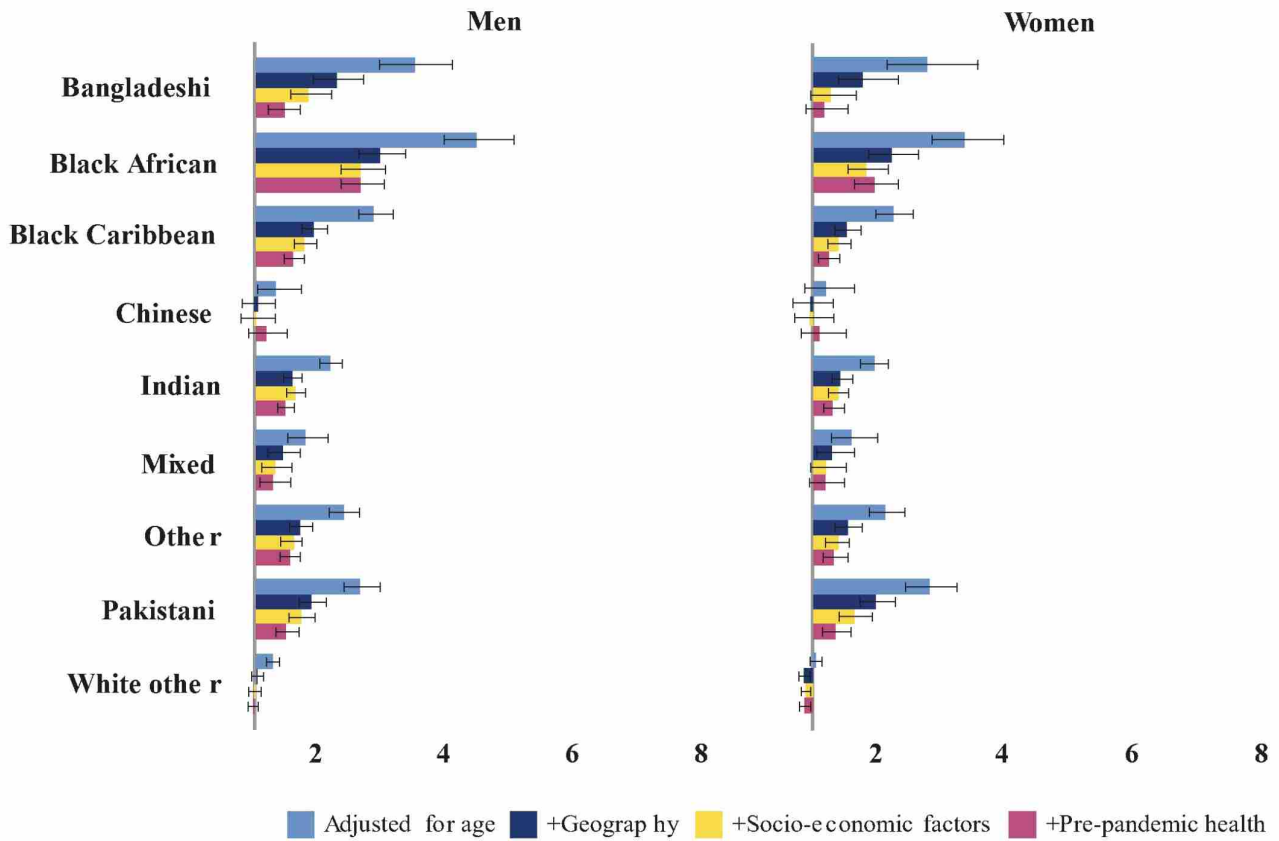


Figure 3a: Risk of death involving COVID-19 compared with White British people, expressed as hazard ratios, by ethnicity and sex during the first wave of the pandemic (24 January 2020 to 31 August 2020)

Source: Office for National Statistics

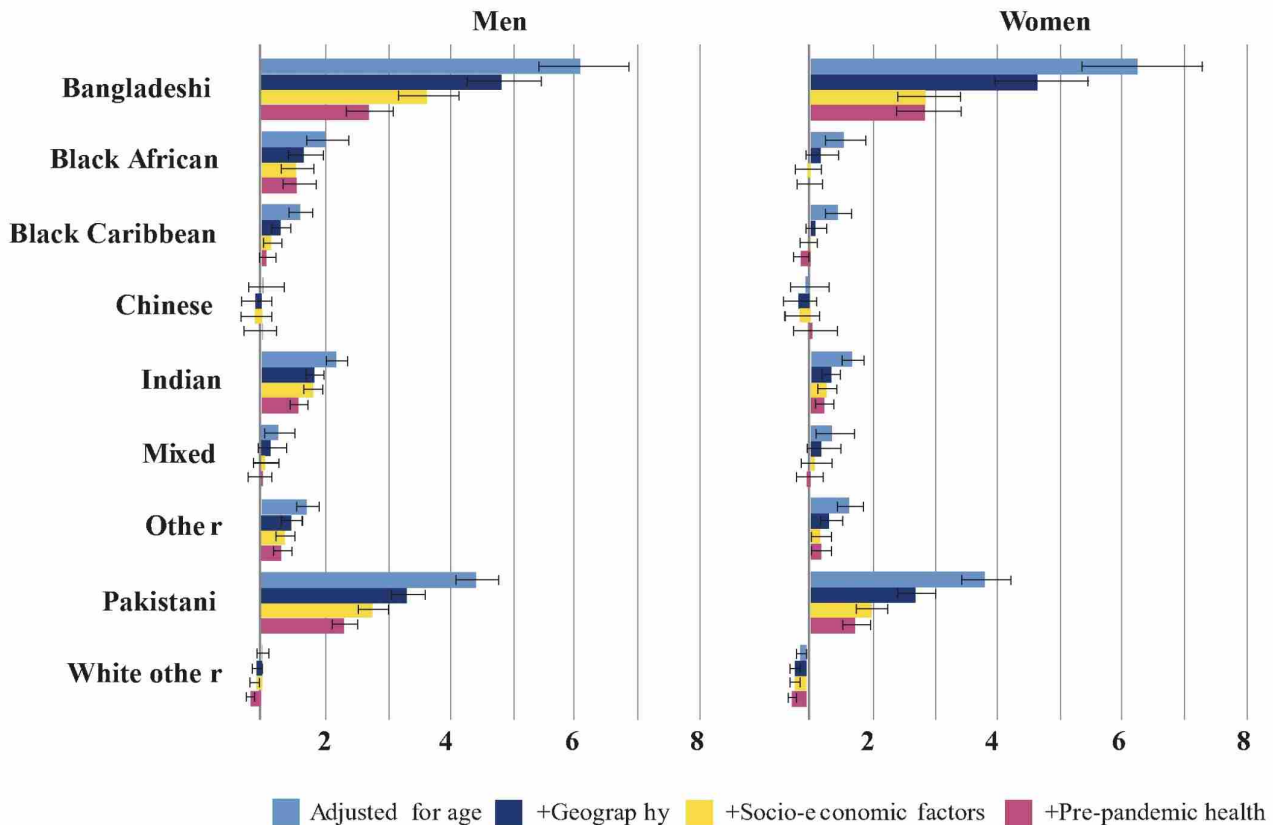


Figure 3b: Risk of death involving COVID-19 compared with White British people, expressed as hazard ratios, by ethnicity and sex during the second wave of the pandemic (1 September 2020 to 31 January 2021)

Source: Office for National Statistics

Risk factors

The increased risk of COVID-19 mortality in men and women from the Pakistani and Bangladeshi ethnic groups is likely to be largely driven by an increased risk of infection, reasons for which include living in larger households and more deprived neighbourhoods, and the likely role of geographic patterns in both ethnic minority clustering and COVID-19 hotspots over time. These risk factors were explored in the second quarterly report. [People from ethnic minority groups \(https://www.ons.gov.uk/employmentandlabourmarket/peopleinwork/employmentandemployeetypes/datasets/homeworkingintheuklabourmarket\)](https://www.ons.gov.uk/employmentandlabourmarket/peopleinwork/employmentandemployeetypes/datasets/homeworkingintheuklabourmarket) are more likely to experience various risk factors for infection, which include geography, age, living in overcrowded or large households, working in certain occupations particularly those that are public-facing or in those that cannot be undertaken from home and lifestyle factors. Risk factors for being critically ill or dying from COVID-19 (once infected) include factors such as age, sex, pre-existing health conditions and disabilities. In addition a gene cluster identified as a risk factor for severe coronavirus symptoms is carried by approximately 50% of people in South Asia, compared with 16% of people in Europe. [This gene cluster is associated with a risk of respiratory failure and may partially explain why the Bangladeshi population has the poorest survival rates \(https://www.nature.com/articles/s41586-020-2818-3\)](https://www.nature.com/articles/s41586-020-2818-3). Detailed information on these risk factors can be found in the second quarterly report.

The first quarterly report noted that “Each successive publication of results [of research and analysis] is filling the gaps in the evidence base and refining our previous understanding of the impact of different risk factors”. This process continues. [Recent analysis of OpenSAFELY data from 1 February 2020 to 3 August 2020](https://www.thelancet.com/journals/lancet/article/PIIS0140-6736(21)00634-6/fulltext#seccestitle10) ([https://www.thelancet.com/journals/lancet/article/PIIS0140-6736\(21\)00634-6/fulltext#seccestitle10](https://www.thelancet.com/journals/lancet/article/PIIS0140-6736(21)00634-6/fulltext#seccestitle10)) found that, in South Asian groups, adjusting for clinical characteristics (including comorbidities, BMI, blood pressure and smoking status) led to the largest attenuation in hazard ratios for testing positive for COVID-19, hospitalisation and ICU admission due to COVID-19. Adjusting for deprivation and household size led to the largest attenuation in hazard ratios for COVID-19 mortality, in South Asian populations. In all other minority ethnic groups, adjusting for social deprivation led to the largest attenuation of hazard ratios for all outcomes (after adjusting for sex and age).

[The second quarterly report](https://www.gov.uk/government/publications/second-quarterly-report-on-progress-to-address-covid-19-health-inequalities/second-quarterly-report-on-progress-to-address-covid-19-health-inequalities#data-and-evidence-1) (<https://www.gov.uk/government/publications/second-quarterly-report-on-progress-to-address-covid-19-health-inequalities/second-quarterly-report-on-progress-to-address-covid-19-health-inequalities#data-and-evidence-1>) noted that South Asian ethnic groups were more likely to live in large and multi-generational households. [ONS data](https://www.ons.gov.uk/peoplepopulationandcommunity/healthandsocialcare/conditionsanddiseases/articles/whyhaveblackandsouthasianpeoplebeenhithardestbycovid19/2020-12-14) (<https://www.ons.gov.uk/peoplepopulationandcommunity/healthandsocialcare/conditionsanddiseases/articles/whyhaveblackandsouthasianpeoplebeenhithardestbycovid19/2020-12-14>) shows that Bangladeshi and Pakistani over-70s are much more likely to have contact with adults and school age children within the same household (56.4% and 34.7% respectively, compared with 1.5% of White adults). [CoMix reporting finds that there have been larger increases in the R rate](https://cmmid.github.io/topics/covid19/reports/comix/Comix%20Survey%20Contact%20matrices%20-%20Week%2056.pdf) (<https://cmmid.github.io/topics/covid19/reports/comix/Comix%20Survey%20Contact%20matrices%20-%20Week%2056.pdf>) when schools have been opened. Pakistani and Bangladeshi over-70s, more likely to live with school aged children, may be disproportionately impacted by this increased transmission. In the first wave, [there was no association between living with children and COVID-19 outcomes in adults aged over 65 of all ethnicities](https://www.bmj.com/content/372/bmj.n628) (<https://www.bmj.com/content/372/bmj.n628>), however in the second wave there was an associated increased risk of infection, ICU admission and COVID-19 mortality, possibly related to schools being opened in the second wave (until end December 2020 and then again in March 2021).

Religion may be another factor that is associated with the differences seen in the second wave. According to ONS the [patterns of excess COVID-19 mortality risk by religious group have changed over the course of the pandemic](https://www.ons.gov.uk/peoplepopulationandcommunity/birthsdeathsandmarriages/deaths/articles/deathsinvolvingcovid19byreligiousgroupengland/24january2020to28february2021) (<https://www.ons.gov.uk/peoplepopulationandcommunity/birthsdeathsandmarriages/deaths/articles/deathsinvolvingcovid19byreligiousgroupengland/24january2020to28february2021>). After adjustments (for differences in location, measures of disadvantage, occupation, living arrangements, and pre-existing health conditions), the Hindu population and Muslim men were disproportionately affected throughout the pandemic^[footnote 17]. For other religious groups, the excess risk relative to the Christian group was only observed in the first wave (Jewish and Buddhist men) or second wave^[footnote 18] (Sikh men and women and Muslim women). For some religious groups, there is considerable overlap with ethnic background, which makes it difficult to separate the observed association between COVID-19 mortality risk and religion from the risk associated with ethnic background. For example, in

the [2011 Census \(https://www.nomisweb.co.uk/query/construct/summary.asp?menuopt=200&subcomp=\)](https://www.nomisweb.co.uk/query/construct/summary.asp?menuopt=200&subcomp=), 76% of Hindus and 74% of Sikhs had Indian ethnicity, while 38% and 15% of Muslims had Pakistani and Bangladeshi ethnicity.

[Analysis of UK Biobank data from 16 March 2020 to 31 August 2020](https://bmcpublichealth.biomedcentral.com/track/pdf/10.1186/s12889-021-10839-0.pdf)

(<https://bmcpublichealth.biomedcentral.com/track/pdf/10.1186/s12889-021-10839-0.pdf>)

found a significant association between being a health worker and the odds of getting severe COVID-19^[footnote 19], ^[footnote 20]. Health workers were 2.32 times as likely as people who are not health workers to get severe COVID-19^[footnote 21]. White and South Asian health workers were more likely (2.03 and 5.98 respectively) than White and South Asian people who are not health workers to get severe COVID-19. The odds of getting severe COVID-19 tended to be larger in South Asian health workers, but this finding was not significant. [The UK-REACH study will investigate how, and why, ethnicity affects COVID-19 outcomes in health workers. \(https://uk-reach.org/main/\)](https://uk-reach.org/main/)

Shift working was also found to be a risk factor for COVID-19 infection^[footnote 22], ^[footnote 23]. Analysis of people employed in shift work in 2017 found that shift workers were at increased risk of infection (4.48 times as likely as people not working shifts.^[footnote 24] It is difficult to explain the exact cause of this association, some possible causes might include reduced social distancing at work and how shift work impacts the immune system and the body's responses to infection. Shift work has also [historically been linked to health conditions such as diabetes, obesity, asthma and fibrosis that have been associated with increased COVID-19 risk \(https://www.bmj.com/content/371/bmj.m3731\).](https://www.bmj.com/content/371/bmj.m3731)

A [UK Research and Innovation \(UKRI\) and National Institute for Health Research \(NIHR\) funded project \(https://www.nature.com/articles/s41366-021-00771-z\)](https://www.nature.com/articles/s41366-021-00771-z), led by Professor Thomas Yates, found new insights about obesity and walking pace (a proxy measure of physical fitness) that suggest both factors are independently associated with the risk of severe COVID-19 infection^[footnote 25] and COVID-19 mortality:

- compared with normal weight brisk walkers, the odds of severe COVID-19 infection were higher for slow walkers (regardless of obesity status), and for overweight or obese average walkers
- compared with normal weight brisk walkers, the odds of COVID-19 mortality were higher for average walkers and slow walkers (regardless of obesity status)

It is not known whether walking pace varies by ethnicity but [evidence suggests that overall physical activity does vary by ethnicity \(https://www.sportengland.org/know-your-audience/data/active-lives/active-lives-data-tables\)](https://www.sportengland.org/know-your-audience/data/active-lives/active-lives-data-tables). At 67.9%, the Mixed ethnic group has the highest percentage of people who are physically active out of all ethnic groups, as shown in Figure 4. The percentage of physically active people in the Asian, Black, Chinese and Other ethnic groups is lower than the national average (61.4%), ranging from 49.5% to 56.7%. In the White British, Asian and Black ethnic groups, women are less likely to be physically active than men. Evidence also suggests that [obesity prevalence differs by ethnicity \(https://www.ethnicity-facts-figures.service.gov.uk/health/diet-and-exercise/overweight-](https://www.ethnicity-facts-figures.service.gov.uk/health/diet-and-exercise/overweight-)

[adults/latest](#)). Compared with the White British group, obesity prevalence is higher in Black adults and lower among Asian, Mixed and Other ethnic groups. According to a [recent study by Nuffield Department of Primary Care Health Sciences researchers \(https://www.thelancet.com/journals/landia/article/PIIS2213-8587\(21\)00089-9/fulltext#seccestitle150\)](#) , BMI is a greater risk factor for severe COVID-19 outcomes for Black people than for White people (increase in risk of hospitalisation with COVID-19 per unit increase in BMI: Black 7% vs White 4%; increase in risk of COVID-19 death: Black 8% vs White 4%). There was no evidence that the risks for other ethnic groups differed from those of people in the White group.

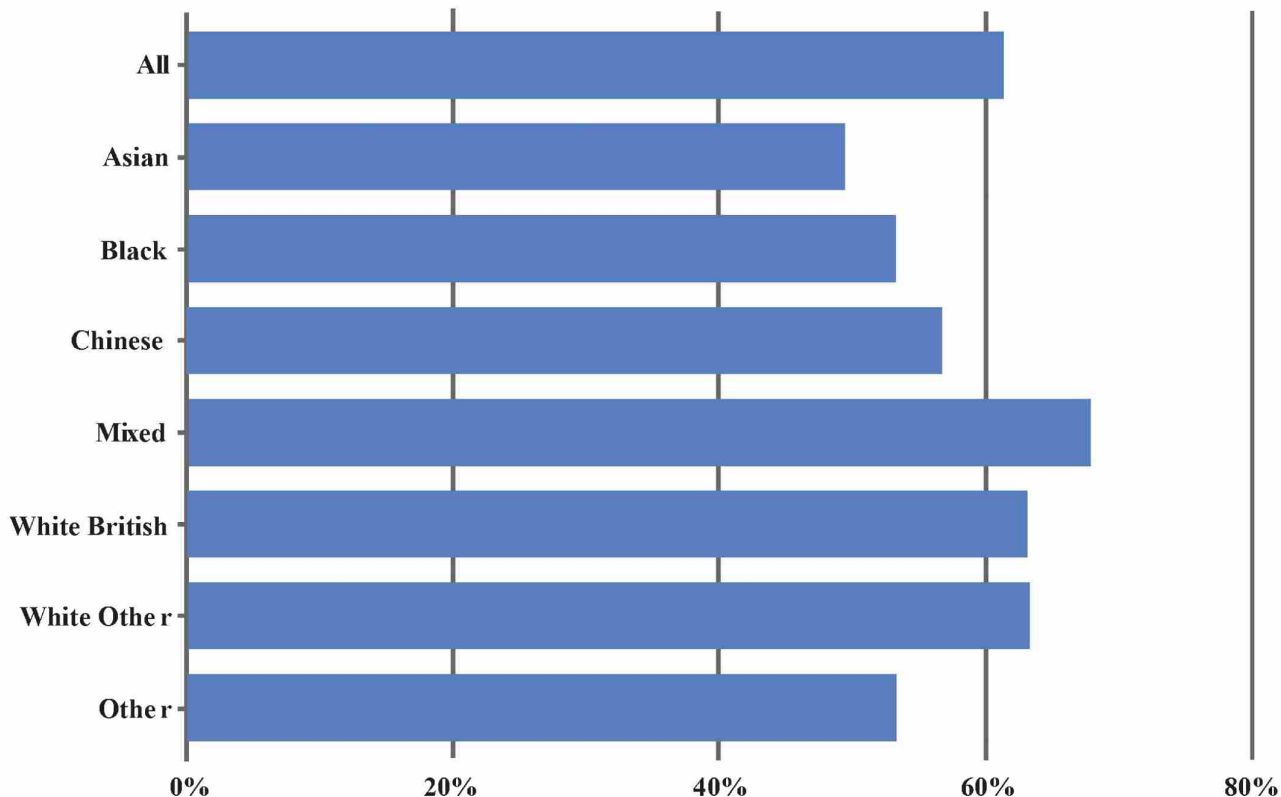


Figure 4: Percentage of people aged 16 and over who were physically active, by ethnicity (November 2019 to November 2020)

Source: Sport England Active Lives Adult Survey

Deprivation is known to be associated with both COVID-19 infection and mortality, and has been discussed in previous quarterly reports. However, recent [PHE analysis of COVID-19 deaths illustrates how the age-adjusted annualised mortality rate is highest among those living in the most deprived areas \(https://www.gov.uk/government/publications/covid-19-reported-sars-cov-2-deaths-in-england/covid-19-confirmed-deaths-in-england-to-31-march-2021-report#deprivation\)](#), with a gradual decrease in mortality rate seen with decreasing levels of deprivation. As seen in Figure 5 , mortality rates in the 2 most deprived quintiles appear to have increased more steeply leading up to the virus ‘peaks’ (the November 2020 peak at the start of the second wave and the January 2021 peak) than rates in the other 3 (less deprived) quintiles. Throughout February and March 2021, as the number of new deaths fell, the absolute gaps in mortality rate by deprivation quintile narrowed. Towards the end of March, there was little difference in the mortality

rates between the 3 least deprived quintiles. [Evidence shows that people from the Pakistani \(49.7%\) and Bangladeshi \(45.6%\) ethnic groups disproportionately live in the most deprived 20% of areas \(https://www.ethnicity-facts-figures.service.gov.uk/uk-population-by-ethnicity/demographics/people-living-in-deprived-neighbourhoods/latest#overall-most-deprived-10-of-neighbourhoods-by-ethnicity\).](#)

[Analysis of NHS Test and Trace data \(https://www.bmj.com/content/372/bmj.n608\)](#) has revealed that financial hardship, deprivation, lower socio-economic status, and having a dependent child in the household show a pattern of associations with lower adherence to full self-isolation, not requesting a test, and poorer symptom recognition. Also the same paper mentions that key workers and people from minority ethnic backgrounds^[footnote 26] were less likely to identify common symptoms of COVID-19, and not intending to share details of close contacts was associated with preferring not to disclose ethnicity.

[Analysis of the NHS COVID-19 app data \(https://www.nature.com/articles/s41586-021-03606-z_reference.pdf\)](#) suggests that a large number of COVID-19 cases were averted by contact tracing via NHS app, ranging from approximately 100,000 to 900,000. Roughly 1.7 million notifications were sent as a result of 560,000 app users testing positive between 24 September and the end of December 2020. The analysis also estimated that an increase of 1 percentage point in the number of users of the app meant a 2.3% decrease in COVID-19 cases. Greater app use is associated with areas being more rural, with less poverty and greater local Gross Domestic Product.^[footnote 27] [People from ethnic minorities, especially the Pakistani and Bangladeshi groups, are more likely to live in the most deprived areas or in poverty \(https://www.ethnicity-facts-figures.service.gov.uk/work-pay-and-benefits/pay-and-income/people-in-low-income-households/latest#by-ethnicity\).](#) However, no firm conclusions can be drawn from the analysis on app use by ethnic minority groups, or the impact on them of contact tracing via the app, as ethnicity information is not collected as part of it. However, RDU understands that the NHS Test and Trace team monitors the app's usage by different groups.

A new analysis "[Effect of COVID-19 on inequalities in premature mortality in England: an analysis of excess mortality by deprivation and ethnicity \(https://www.medrxiv.org/content/10.1101/2021.05.18.21256717v1\)](#)", was published shortly before the publication of this report. The new analysis – which includes data up to 26 February 2021 – explores excess mortality by ethnic group in each deprivation quintile. Further details will be included in the fourth and final quarterly report.

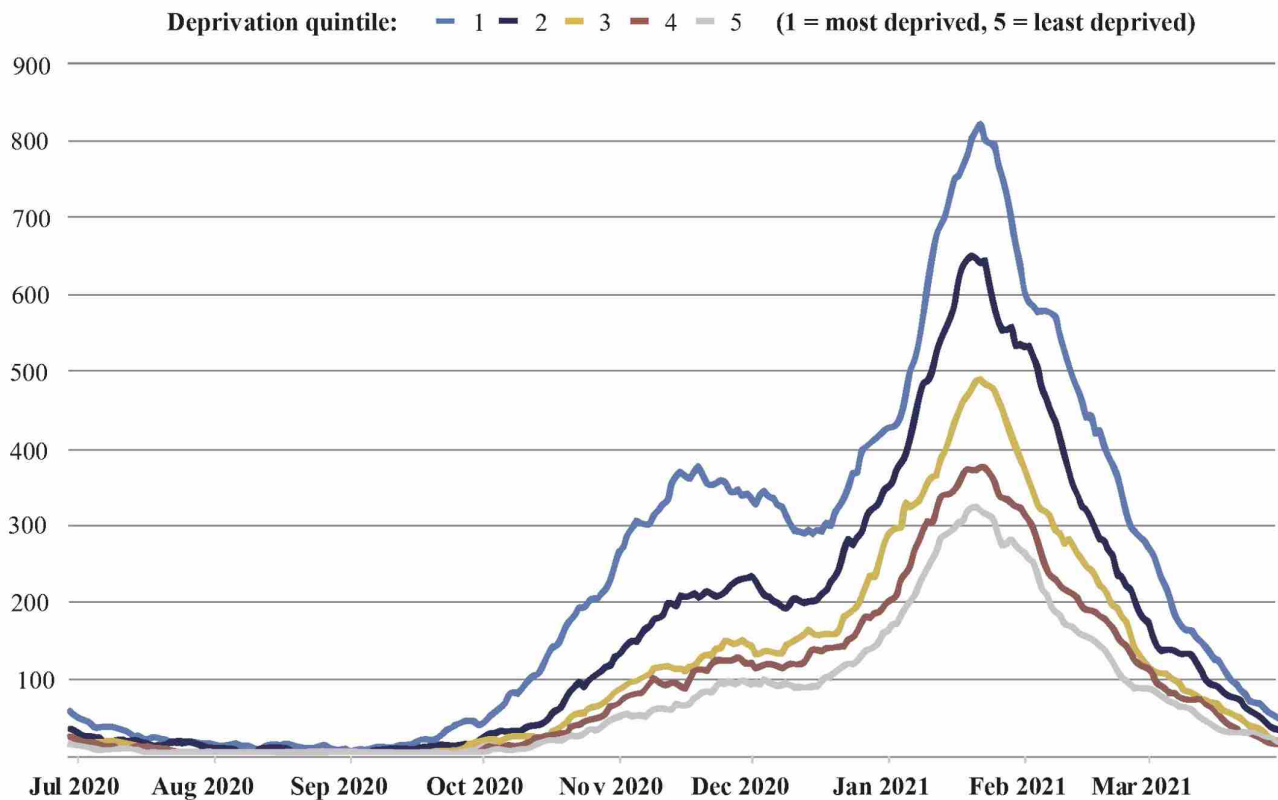


Figure 5: Age-adjusted annualised mortality rate per 100,000 people per year in confirmed COVID-19 cases, by deprivation quintile (29 June 2020 to 31 March 2021)

Source: PHE

Deaths within 60 days of a positive COVID-19 test or where COVID-19 is mentioned on the death certificate. Figures are seven-day rolling averages.

Long COVID

'Long COVID', a colloquial term used to describe signs and symptoms that continue or develop after the acute phase of the virus, is an emerging phenomenon that is not yet fully understood. [ONS analysis](#)

(<https://www.ons.gov.uk/peoplepopulationandcommunity/healthandsocialcare/conditionsanddiseases/bulletins/prevalenceofongoingsymptomsfollowingcoronaviruscovid19infectionintheuk/1april2021>) shows that, out of all socio-demographic characteristics (age, sex, ethnic group, area deprivation, employment sector, and pre-existing health status), the prevalence rates for self-reported long COVID were highest for (a) people with a pre-existing, activity-limiting health condition and (b) health and social care workers.

The [ONS analysis](#)

(<https://www.ons.gov.uk/peoplepopulationandcommunity/healthandsocialcare/conditionsanddiseases/datasets/alldatarelatetoprevalenceofongoingsymptomsfollowingcoronaviruscovid19infectionintheuk>) also shows that, between 3 February and 6 March 2021, 1.08% of people reported that they had long COVID ^[footnote 28]. Those in the White ethnic group had the highest prevalence rate of long COVID, at 1.10%, whilst the rate of

long COVID in the Asian ethnic group was significantly lower, at 0.83%. The prevalence rates of long COVID in the Black (0.95%), Mixed (0.94%) and Other (0.91%) ethnic groups were not statistically significantly different from the rate for the White group. This pattern of long COVID prevalence by ethnicity is different to the patterns of COVID-19 infection rates and mortality throughout the pandemic, where South Asian groups have seen higher infection and mortality rates than White people. However, statistical uncertainty in the study data largely precluded reliable comparisons of prevalence rates of self-reported long COVID between ethnic groups. The UKRI and the NIHR are funding 4 new research studies into long COVID. Their aim is to [enable a better understanding of the longer-term effects of COVID-19 on health](https://www.ukri.org/news/18-5-million-to-tackle-long-covid-in-the-community/) (<https://www.ukri.org/news/18-5-million-to-tackle-long-covid-in-the-community/>).

Further [ONS analysis](https://www.bmj.com/content/372/bmj.n693) (<https://www.bmj.com/content/372/bmj.n693>) of the outcomes for COVID-19 patients discharged from hospital by 31 August 2020 in England shows that non-White patients were 11.4 times as likely to experience respiratory disease as those in a matched control group selected from the general population (rather than hospital admissions for other conditions)^{[[footnote 29](#)]}. This likelihood was significantly higher than for White patients, who were 5.2 times as likely to experience respiratory disease as those in a matched control group from the general population. Non-White patients were 4.4 times as likely to be readmitted to hospital as those in a matched control group from the general population. This likelihood was also significantly higher than for White patients, who were 3.3 times as likely to be readmitted to hospital as those in a matched control group from the general population.

Data quality

Vaccination data quality

This report summarises the data quality of the following datasets that provide information about vaccination uptake and vaccine sentiment:

Vaccine uptake

- OpenSAFELY
- NHS estimates of vaccine uptake

Vaccine sentiment

- ONS's Opinions and Lifestyle Survey (OPN)
- REACT-2 study
- Virus Watch analysis
- Understanding Society
- UK-REACH

There are strengths and limitations to each of the sources being considered here, and some of these are as follows.

Coverage of the data sources

- there are very large cohorts of patients in administrative datasets compared with surveys, but there can be issues with coding of ethnicity in administrative datasets that have been outlined in previous quarterly reports. New methodologies outlined in the quarterly progress update, and recommendations in this and previous quarterly reports will help improve coding in the large administrative health datasets
- surveys have different sample sizes and representativeness (in terms of the proportion that are in each ethnic group in the sample) which will have impacts on the robustness of estimates derived from the data. Small sample sizes for some ethnic groups might occur because either the overall sample of the survey is smaller, or response rates for those groups are lower. Some quality improvement work is going on in this area, for example the ONS project described in the second quarterly report under the 'Data quality' section outlined work going on to improve survey coverage of ethnic minority groups in the OPN
- similarly, the coverage of administrative datasets might not be complete
- there can also be differences in the geographical coverage. In the sources being considered here, the highest level of geographical coverage differs. They include England only, England and Wales, Great Britain and the UK

Missing ethnicity data

- different sources might have varying levels of missing ethnicity data. Missing data tends to be higher for administrative datasets, and generally lower for surveys. Linking datasets to fill in missing information will help in this regard

Classification issues

- different questions might be used in different surveys used to identify people who are vaccine hesitant. This could be a strength or a limitation. While it means that figures might differ between sources, sometimes it is useful to have a different take on the same issue in the interests of robustness
- there can be differing levels of detail in the ethnic groups that can be analysed (usually either the 5 category classification, or the 18 category classification). In surveys, the classification used for analysis and reported on is often dependent on the sample size available
- the ethnicity classification used might not be the GSS harmonised standard. The quarterly reports have consistently stated the importance of harmonisation to help address this point

Undertaking more complex analysis

- data on vaccine sentiment within a survey can be analysed by other questions asked within the survey (not necessarily just demographic questions) to generate more insight
- some datasets are able to be used for more complex analyses and control for other factors such as age, deprivation, economic status, housing tenure and pre-existing health conditions

- data quality will be impacted by how datasets and analyses develop over time, for example with one-off or ongoing sample boosts; or whether the data collection or analysis is regular and continuous, or a one-off

Impact of data quality strengths and limitations

The impact on a given analysis of some of these strengths and limitations will be context specific. For example, a smaller survey sample size might not necessarily be a problem if a user is only interested in analysing vaccine hesitancy for White people (who might constitute more than 90% of the sample). Likewise, depending on the analysis being undertaken, a relatively high proportion of people with unknown ethnicity might be more or less problematic. Finally, the lack of harmonisation of ethnicity classifications in a specific dataset might be problematic when trying to compare with other datasets measuring vaccine uptake and hesitancy.

The supplementary table published alongside this report outlines some data quality aspects of each of the data sources in more detail, and summarised here:

OpenSAFELY

- [OpenSAFELY \(https://www.england.nhs.uk/statistics/wp-content/uploads/sites/2/2021/03/COVID-19-weekly-announced-vaccinations-11-March-2021.pdf\)](https://www.england.nhs.uk/statistics/wp-content/uploads/sites/2/2021/03/COVID-19-weekly-announced-vaccinations-11-March-2021.pdf) is the secure analytics platform for electronic patient records built on behalf of NHS England to deliver urgent academic and operational research during the pandemic
- regular weekly reports on COVID-19 vaccination coverage in England are produced on OpenSAFELY using data from 40% of general practices that use TPP electronic health record software and cover 23.4 million people registered with GPs surgeries
- the analysis produced by OpenSAFELY focuses on the vaccine priority groups, and data is shown for a 5+1 category of: White, Mixed, Black, South Asian and Other (and Unknown). In some priority vaccine groups the 16 ethnicity categories used in the [2001 Census for England and Wales \(https://www.ethnicity-facts-figures.service.gov.uk/style-guide/ethnic-groups#2001-census\)](https://www.ethnicity-facts-figures.service.gov.uk/style-guide/ethnic-groups#2001-census) are shown
- for the vaccine priority groups analysed, the proportions of people with missing ethnicity ranged between 2.6% and 12.1%

NHS uptake data

- this [data source \(https://github.com/opensafely/nhs-covid-vaccination-coverage/blob/master/released-outputs/opensafely_vaccine_report_overall.pdf\)](https://github.com/opensafely/nhs-covid-vaccination-coverage/blob/master/released-outputs/opensafely_vaccine_report_overall.pdf) gives information on the number of COVID-19 vaccinations provided by NHS England, both in total since vaccinations began and to the current eligible population
- ethnicity data is derived from data extracted by NHS Digital as part of their GP extraction service (GPES), GPES Data for Pandemic Planning and Research (GDPPR) and Hospital Episode Statistics (HES) datasets
- as noted in the first and second quarterly reports, ethnicity is based on the 2001 Census classifications so data will not be collected for all groups, such as Gypsy

and Irish Traveller

- for all first doses (as at 16 May 2021, announced on 20 May 2021), 12.0% of people had unknown ethnicity, 71.0% were White British, and 17.1% were from another ethnic group

ONS Opinions and Lifestyle Survey

- the [ONS Opinions and Lifestyle Survey \(OPN\)](https://www.ons.gov.uk/peoplepopulationandcommunity/healthandsocialcare/healthandwellbeing/datasets/coronavirusandvaccinehesitancygreatbritain) (<https://www.ons.gov.uk/peoplepopulationandcommunity/healthandsocialcare/healthandwellbeing/datasets/coronavirusandvaccinehesitancygreatbritain>) is an ONS survey which, since March 2020, has been carried out weekly to try and capture insight into how the pandemic is affecting life in Britain, including vaccine sentiment
- the coverage of the survey is residents of England, Wales and Scotland who are aged 16 and over
- the latest publication covers the period 31 March to 25 April 2021. In this reporting period, the total number of people in the survey was 16,360, of which 15,240 (93.2%) were from the White ethnic group and 1,100 (6.7%) from the other ethnic groups in total (note that data is rounded in the ONS tables)
- the ethnicity classification used is ONS 5+1 (2011)
- ONS have calculated confidence intervals and reported them in the data files included as part of the publication
- Data is not available for detailed ethnic groups from the OPN data due to small sample sizes. It is therefore not possible to compare how vaccine sentiment varies between the Pakistani and Indian groups, for example

REACT-2

- the vaccine sentiment data has been collected from the cross-sectional community survey in England undertaken between 26 January and 8 February 2021 as the fifth round of the Real-time Assessment of Community Transmission-2 (REACT-2) programme. Each round of study includes a random, non-overlapping community sample from the adult population 18 years and older
- 10,476 (6.1%) of the total sample of 172,099 people were from ethnic minority groups (other than White minorities), and 1,254 had missing ethnicity (0.7%).
- data on vaccine sentiment is shown for 5 categories: White, Mixed, Black, Asian and Other, and data on antibody response is shown for the 18 ethnic groups in the 2011 harmonised standard, plus 'Prefer not to say'
- REACT-2 have calculated confidence intervals and reported them in the data files included as part of the publication

Virus Watch

- this analysis was based on a [household study of COVID-19 infection across England and Wales](https://www.medrxiv.org/content/10.1101/2021.03.22.21254130v1) (<https://www.medrxiv.org/content/10.1101/2021.03.22.21254130v1>) comprising 22,500 households and 46,500 people
- people aged 16 and over could enrol in Virus Watch if all household members agreed to participate and at least one household member had access to the internet, an email address, and could read English^[footnote 30]

- 14,713 participants responded to the survey question “Would you accept a COVID-19 vaccine if offered?” in December 2020 and again in February 2021
- ethnic minority (other than White minority) participants comprised 8.0% of the overall Virus Watch sample
- 12.3% of respondents had missing ethnicity
- the analysis uses an 8-category ethnicity classification based on: White British, White Irish, White Other, South Asian, Other Asian, Black, Mixed, Other

Understanding Society data

- the main [Understanding Society study](https://www.understandingsociety.ac.uk/documentation/covid-19) (<https://www.understandingsociety.ac.uk/documentation/covid-19>) is a longitudinal survey of the members of approximately 40,000 households in the United Kingdom, which in its current form has been run annually since 2009. Since April 2020, participants from this study have been invited on a regular basis to complete a short survey about the changing impact of the pandemic on their lives, the lives of their family members and on their wider communities
- the latest wave for which there is available data is wave 7 (January 2021). There were 11,968 respondents in this wave, of which 10,054 (84.0%) were White British, and 1,629 (13.6%) were from ethnic minority groups
- 2.4% of the respondents had missing ethnicity
- the Understanding Society ethnicity classification uses the GSS Harmonised Standard based on 2011 Census categories
- 1,535 people stated in wave 6 (November 2020) that they were either ‘unlikely’ or ‘very unlikely’ to get a vaccine when offered and then went on to participate in wave 7 (January 2021) of the survey. In wave 6, respondents were asked “Imagine that a vaccine against COVID-19 was available for anyone who wanted it. How likely or unlikely would you be to take the vaccine?” In wave 7 (January 2021), they were asked “When you are offered the coronavirus vaccination, how likely or unlikely would you be to take it?” (only if they had not already had a vaccine or booked an appointment for one)

UK-REACH

- this analysis of healthcare workers^[footnote 31] ^[footnote 32] is from the baseline questionnaire of the UK-REACH prospective cohort study (administered online from 4 December 2020 with interim data downloaded 19 February 2021). The study took place in healthcare settings in all 4 nations of the UK with clinical and non-clinical healthcare workers from diverse ethnic backgrounds
- the overall project encompasses 6 studies to understand the impact of COVID-19 on healthcare workers from diverse ethnic backgrounds
- the analysed sample was formed of 11,584 participants
- 38.5% of the respondents were from an ethnic minority group, including 18.9% from the Asian group. 1.8% of participants had missing ethnicity

The quality of data about long COVID

Long COVID is still relatively poorly understood, and as such there is not a universally agreed definition of the term. The studies quoted in this report take 2 different approaches to classifying the prevalence of long COVID among different ethnic groups. The [ONS' Coronavirus Infection Survey \(CIS\) - used for ONS analysis](https://www.ons.gov.uk/peoplepopulationandcommunity/healthandsocialcare/conditionsanddiseases/bulletins/prevalenceofongoingsymptomsfollowingcoronaviruscovid19infectionintheuk/1april2021#strength-and-limitations) (<https://www.ons.gov.uk/peoplepopulationandcommunity/healthandsocialcare/conditionsanddiseases/bulletins/prevalenceofongoingsymptomsfollowingcoronaviruscovid19infectionintheuk/1april2021#strength-and-limitations>) of the prevalence of long COVID - asks its participants to self-report whether they have long COVID symptoms (such as fatigue, breathing difficulty, and cognitive impairment)^[footnote 33]. The [study published in the British Medical Journal \(BMJ\)](https://www.bmj.com/content/372/bmj.n693) (<https://www.bmj.com/content/372/bmj.n693>) instead looks at the subsequent outcomes, including death, readmission, and diagnosed organ dysfunction, of people who survived hospitalisation with COVID-19.

Some of the important limitations to these approaches, as discussed by the authors of the studies, are as follows:

Long COVID in the Coronavirus Infection Survey (CIS)

- the data measure self-reported long COVID (study participants' self-perception of long COVID) as opposed to long COVID which has been clinically diagnosed. Differences in the prevalence of long COVID between ethnic groups may be partly explained by different groups being more or less likely to identify and report a condition such as long COVID. For example, some groups may be more aware of long COVID than others
- the estimates made by ONS of the prevalence of long COVID are weighted for non-response. However, if the likelihood of participating in the study is related to long COVID (for example, participants being unable to respond because of their symptoms) then this may bias the estimates

Long COVID in the BMJ study

- the study analyses COVID-19 patients discharged from hospital by 31 August 2020 and so only considers people who contracted COVID-19 during the first wave of the pandemic
- the authors could not access testing data, which means that some people who had COVID-19 (and possibly experienced serious adverse outcomes) but were not admitted to hospital might have been in the control group that was used for comparison. This could have an impact on the reliability and accuracy of the rate ratios and comparisons between the study group and control group
- the authors of the BMJ study also acknowledge that their analysis is “unlikely to fully capture the lived experiences of people with post-COVID syndrome who were possibly asymptomatic and untested at the time of infection”

Progress update on improvements to health data

The second quarterly report recommended that NHSEI, DHSC and others work to produce a progress update on improvements to health datasets.

The first of these [updates has been published alongside this report](https://www.gov.uk/government/publications/third-quarterly-report-on-progress-to-address-covid-19-health-inequalities/appendix-b-quarterly-progress-report-on-improvements-to-health-datasets) (<https://www.gov.uk/government/publications/third-quarterly-report-on-progress-to-address-covid-19-health-inequalities/appendix-b-quarterly-progress-report-on-improvements-to-health-datasets>). It describes PHE's work to develop a new method of choosing which ethnicity to take when patients may report different ethnicities in different episodes of care. It has become evident that the original method of assigning ethnicity has over-estimated the number of people in the 'Other' ethnic group.

This work is important because this over-estimated number of people in the 'Other' group will have an impact on the quality of data for all other groups (such as the Black and Asian ethnic groups) and will also lead to uncertainty about what conclusions can be drawn from the data.

Related to this, the Nuffield Trust project mentioned in the second quarterly report has investigated data quality issues associated with ethnicity coding in the Hospital Episode Statistics. The aims of the project, which will report in May, are (a) to inform data users of the data quality issues, and (b) to make recommendations for improving the quality of the underlying data. A stakeholder workshop, including ONS and PHE, was held on 30 March, and the [papers for this meeting are available here](https://www.nuffieldtrust.org.uk/project/ethnicity-coding-in-english-health-service-datasets#project-outputs) (<https://www.nuffieldtrust.org.uk/project/ethnicity-coding-in-english-health-service-datasets#project-outputs>). Some select preliminary findings from the Nuffield analysis are:

- data quality problems include incomplete coding and invalid and inconsistent use of codes
- importantly, data quality problems affect records for ethnic minority patients disproportionately
- these, and the other data quality problems identified, will accordingly impair the validity of any epidemiological analyses of ethnic differences
- action to improve data quality at source by providing up to date guidance on ethnicity coding for health service providers and GPs is currently lacking but urgently needed, especially given the intention of including ethnicity in death certification

ONS work on understanding data quality of health datasets

In addition, ONS is starting a project, in collaboration with the Wellcome Trust and NHS Digital, to better understand the quality of ethnic classification in health data by benchmarking recorded ethnicity in a variety of NHS datasets against self-reported ethnicity for the same people in the 2011 Census. The project will propose methods to improve the comparability of analyses and reliability of statistics based on inconsistent and imperfect ethnic classification.

Harmonisation of ethnicity data

In the second quarterly report, the next step for departments and agencies on harmonisation was to publish a statement setting out when they plan to update their data collections to the new harmonised standard. The quarterly reports have focused on the harmonisation of ethnicity classifications due to its fundamental importance to allowing comparable data to be used for analysis.

ONS is still in the process of developing the new harmonised standard for ethnicity. In the meantime the RDU is developing the approach for collecting the information for the statement from departments. RDU will be outlining what will be required from them once the new harmonised standard has been agreed.

A further harmonisation improvement was implemented on 26 March when Government Digital Service, working in collaboration with RDU and ONS, [published an updated design pattern based on harmonised standards](https://design-system.service.gov.uk/patterns/equality-information/) (<https://design-system.service.gov.uk/patterns/equality-information/>). Using these standards to collect equality information in a consistent way across the public sector makes the data more useful.

Approaches to improving ethnicity recording

The work PHE, by Nuffield Trust and ONS, as well as on harmonisation, points to a two-part approach to improve the recording of ethnicity in health records.

First, the development of methods for analysing existing data to address some of the data quality issues. The PHE approach recommended in the progress update has provided a pragmatic way of making the current data more usable, to overcome, for example, the problem with over-coding of 'Other' groups and also how to reduce the significant proportions of records with ethnicity 'Not Stated'.

It's quite likely that over-coding of 'Other' reflects ethnicity being ascribed by staff rather than being self-reported, as noted in the second quarterly report. While such approaches provide a way of making current data more usable, improvements in data collection at source would be more helpful.

So secondly, it is important to improve the quality of coding so that the need for adjustments after data collection is minimised and to ensure that the underlying source data is as accurate as possible.

The quality of coding could be improved if NHS organisations, staff and GPs receive clear guidance and protocols about how ethnicity should be requested and recorded in health records. RDU endorses such a move. Such guidance was last given to the NHS through a [Dataset Change Notice \(DSCN\) in 2001](https://nhs-prod-global.ssl.fastly.net/binaries/content/assets/legacy/excel/m/0/isns-and-dscns-archive.xlsx) (<https://nhs-prod-global.ssl.fastly.net/binaries/content/assets/legacy/excel/m/0/isns-and-dscns-archive.xlsx>) and GPs have not subsequently been given similar guidance. Updated guidance could include:

- that ethnicity should be self-reported using a relevant set of categories (for example, a set based around the harmonised ethnicity categories)
- that "not stated" (or similarly "prefer not to say") is a valid response - patients should be able to legitimately not give a response if they choose to do so
- there should be rules to account for situations in which the patient is incapacitated in some way, and unable to respond.

It is clear that a wide range of work is in train, or being planned, to improve different aspects of the quality of ethnicity data in health records (and other sources of health data). Given the range of organisations with different

responsibilities for different sources of data, it is difficult to establish priorities for quality improvement across the health system. Discussions with the Office for Statistics Regulation, which has commented previously on the fragmented nature of the English health statistics system, might be beneficial.

Updates to Ethnicity facts and figures

In the second quarterly report, RDU committed to working with departments to provide timely updates to priority datasets related to risk factors and secondary impacts of COVID-19. All updates due to be published by the end of March are live on the website. There are 2 updates scheduled in April and one in May, which are on course for publication.

The COVID-19 priority updates timetable can also be found in the Ethnicity and COVID-19 section of Ethnicity facts and figures.

Next steps

- NHS England's published data on vaccination uptake by ethnicity should be further disaggregated to provide percentage uptake by vaccine priority group cohorts and sex. This should include levels of unknown ethnicity and an assessment of how this might affect the interpretation of vaccination uptake for different ethnic groups
- NHSEI should publish data about the use of the NHS COVID-19 app by different ethnic groups. This will inform activity to increase the uptake and continued use of the NHS COVID-19 app
- DHSC and the NHS should further investigate practical barriers to vaccine uptake by ethnicity to assess and address any intention-action gap
- DHSC should ensure that NHS organisations and GPs are provided with clear guidance and protocols about how ethnicity should be requested and recorded in health records
- RDU should engage with the Office for Statistics Regulation about priorities for improving the quality (including harmonisation, robustness and reliability) of ethnicity data on health records, drawing on others' expertise as appropriate, and report back in the final quarterly report.

3. Stakeholder engagement

Summary

This section summarises the engagement that has taken place over the last quarter, with a particular focus on promoting vaccine uptake. This includes engagement led by the Minister for Equalities, both within government and externally, and the Minister for COVID-19 Vaccine Deployment.

Approach

Within the government, the Minister for Equalities and the RDU have shared the findings from the second quarterly report through meetings and correspondence. In that report, the Minister for Equalities provided an update on Policy Lab's deep dive into the experiences during the pandemic of 12 people from different ethnic minority backgrounds. Since then, the RDU has been disseminating the findings of this work to other government departments through focused sessions and is preparing a summary report for publication.

In terms of external engagement, the main focus this quarter has been on promoting vaccine uptake across ethnic groups, and in particular those groups that have been disproportionately impacted by the second wave of the pandemic (Pakistani and Bangladeshi groups) and those showing lower levels of vaccine uptake (Black Caribbean and Black African groups).

This engagement has been with a variety of people and organisations with a broad understanding and reach within a number of ethnic minority groups and faith organisations. There has been a significant focus on engaging medical professionals and organisations, faith leaders, and community groups on how to increase vaccine uptake within ethnic minority groups.

The Minister for Equalities has led a programme of engagement including:

- hosting a roundtable with Black and Asian community leaders on improving vaccine uptake
- alongside the Minister for COVID-19 Vaccine Deployment, providing evidence to the Women and Equalities Committee as part of its inquiry into 'Take up of the COVID-19 vaccines in BAME communities and women'
- alongside the Minister for Social Care, meeting representatives from the BAME Communities Advisory Group to consider vaccine uptake among those working in adult social care
- holding a roundtable with Black African and Black Caribbean Faith Leaders and GPs just before Easter, recognising the important role that churches play in promoting vaccine uptake amongst their congregations
- meeting Dr Bola Owolabi, Director, Health Inequalities at NHSEI to discuss tackling wider health inequalities
- hosting a roundtable with representatives from the security industry to consider ways of mitigating the disproportionate impact COVID-19 has had on security officers
- meeting Julie Jay Charles, Founder and Executive Director of Start Change, a new community interest organisation that is helping some of the most deprived and disadvantaged people in society
- meeting representatives from the NHS Confederation to discuss the findings of research conducted by the Confederation's BAME Leadership Network into the disproportionate impact COVID-19 has had on ethnic minority groups, including frontline healthcare workers

- holding a roundtable with High Commissioners from countries with large diaspora networks in the UK, in order to promote vaccine uptake among those groups with lower rates of vaccination
- giving the keynote speech at an event to discuss progress implementing the recommendations from the Turning the Tide report, which assessed the disproportionate impact COVID-19 was having on ethnic minority staff working in NHS maternity services, and on ethnic minority patients

She was supported in this work by Dr Raghib Ali, one of the government's independent advisers on COVID-19 and ethnicity. As well as his extensive media activity (such as interviews on BBC, LBC, Sunrise radio and Brit Asia TV and articles in the South Asian media) he has participated in a number of webinars and question and answer (Q&A) sessions to tackle disinformation and promote vaccine uptake. These include events with the British Pakistan Foundation, the NHS Muslim network and Muslim Doctors Association, and numerous faith groups and community organisations.

Alongside this, the Minister for COVID-19 Vaccine Deployment is conducting an ongoing series of visits to places of worship and community-based organisations and hosting a series of roundtables. Events undertaken so far include:

- visits to the vaccine pop-up clinics at the Central Mosque of Brent, Jesus House Church in Brent (alongside the Prime Minister) and the Gardens of Peace Cemetery
- hosting regular roundtables with CEOs of patients' charities (such as Asthma UK), the NHS Chief People Officer's Faith and Pastoral roundtable, a round table with homelessness charities and the London Faith Leaders vaccine roundtable
- speaking at a Voice4Change event to discuss vaccine uptake, at a Nigerian Schools Foundation UK event and at a vaccine uptake event with the Royal African Society
- visiting the Ramadan Twilight Vaccination Hub in Sutton, which held 2 outreach clinics during Tarawih for those worried about invalidating their fast by being vaccinated during fasting hours
- speaking at the 'Having a safe Eid' event, organised by the British Islamic Medical Association
- a webinar with frontline adult social care workers, tackling misinformation about vaccination and fertility
- engagement with ethnic minority business owners, including via an All-Party Parliamentary Group event, about the potential impact of vaccine hesitancy on their businesses and communities and what they can do to encourage vaccine uptake as employers.

The Communities Minister has also taken forward a series of roundtables with different faith groups to support vaccine uptake among ethnic minority groups. These events have allowed faith leaders to share issues affecting their communities, providing valuable insights that are informing the government's Vaccine Confidence campaign activity. For example, insight gained from sessions

with Islamic leaders has helped remove potential barriers faced by communities in accessing the vaccine, through adapting vaccination settings in Keighley, West Yorkshire. Local GP groups teamed up with Keighley Association for Women and Children's Centre to create a women-only vaccination hub. This addressed cultural barriers that may have prevented some women from taking up the vaccine.

Officials in the Cabinet Office also held engagement events with faith and ethnic minority stakeholders as part of the review into whether COVID-status certification could play a role in reopening parts of the economy, reducing restrictions on social contact and improving safety. It is important to ensure that those groups who have been worst affected by COVID-19 – including disabled people, ethnic minorities and those living in the most deprived areas – would not be disproportionately affected by a system of certification.

This engagement demonstrates the government's commitment to encouraging vaccine uptake across all groups and settings – working with and recognising the invaluable role of community and faith leaders in delivering the COVID-19 vaccine to their local communities

On tackling wider health disparities, the Minister for Equalities also promoted the [call for evidence for the Women's Health Strategy](https://www.gov.uk/government/news/government-launches-call-for-evidence-to-improve-health-and-wellbeing-of-women-in-england) (<https://www.gov.uk/government/news/government-launches-call-for-evidence-to-improve-health-and-wellbeing-of-women-in-england>) with ethnic minority people and organisations. This includes a [blog on GOV.UK](https://equalities.blog.gov.uk/2021/03/26/have-your-say-on-how-maternity-services-can-work-for-you/) (<https://equalities.blog.gov.uk/2021/03/26/have-your-say-on-how-maternity-services-can-work-for-you/>).

Next steps

- the Minister for Equalities and the Minister for COVID-19 Vaccine Deployment will continue a programme of engagement in the next quarter, focusing on promoting vaccine uptake and encouraging asymptomatic testing, particularly for those within higher risk occupations, as sectors reopen

4. Communications

Summary

Communications and campaign activity in this period has continued to focus on encouraging COVID-19 vaccine uptake as the vaccination rollout programme expands. This activity has built on relationships established with influencers and local communities, and uses effective media channels to reach ethnic minority groups with information about vaccines. The main activity in the government's vaccines confidence campaign this quarter has included a video with Nadiya

Hussain encouraging vaccine take-up amongst British Bangladeshi audiences; an open letter from Sir Lenny Henry and others aimed at Black groups; press partnerships featuring questions and answers from trusted clinical voices and a social media campaign addressing vaccine misinformation.

As discussed in the data and evidence section, surveys conducted by the ONS have shown an increase in vaccine confidence amongst ethnic minority groups during this quarter.

In addition to supporting the vaccine rollout, communications in this period continue to inform the public on national restrictions, the steps of the government's roadmap out of lockdown, what they need to do to keep safe, get tested or receive the support they need.

To deliver this, the government has sustained a tailored approach to communicating with ethnic minority groups, taking into account cultural and religious considerations; providing information in multiple languages, and working with trusted stakeholders and media channels.

Approach

Multi-channel media activity to build vaccine confidence

To build vaccine confidence amongst ethnic minority groups, the government has further developed strong relationships across a wide range of media outlets that have a high reach with various ethnic minority audiences. These include:

- a partnership with 12 community radio stations has delivered important messages about vaccines in 13 different languages to an audience of 1.5 million people
- radio interviews secured this period include the Minister for COVID-19 Vaccine Deployment promoting vaccine uptake among British Asians in an interview with Lyca Radio, reaching an audience of more than 160,000
- television partnerships have been developed with 21 multicultural TV networks. These partnerships use well-known personalities from stations including the Islam Channel and GEO to deliver 30 second adverts on 43 TV stations in 9 languages, reaching approximately 3 million people each week

The government has also developed press partnerships with print titles targeting ethnic minorities, including African Voice, Asian Express, Bangla Post, Catholic Universe and Jewish Chronicle. These feature informative Q&As with trusted clinical voices from within the community, along with case studies sharing experiences of people who have had the COVID-19 vaccine. Content from these media partnerships has been shared and amplified across online platforms.

In addition to media partnerships, the government is continuing to work closely with ethnic minority medical professionals to act as trusted spokespeople promoting facts and dispelling myths about the COVID-19 vaccine online. Examples from this period include a series of videos with Dr Amir Khan, a GP from Yorkshire, whose

video on the vaccine being halal reached more than 330,000 people and was retweeted nearly 500 times.

A number of prominent ethnic minority celebrities and influencers have stepped forward over recent months with calls to their communities to take up the vaccine. These include videos shared across social media platforms, many of which have also subsequently generated widespread media coverage across print, broadcast and online media.

For example, Great British Bake Off star Nadiya Hussain's video backing the [NHS COVID-19 vaccine drive \(https://www.england.nhs.uk/2021/03/bake-off-star-nadiya-backs-nhs-covid-vaccine-drive/\)](https://www.england.nhs.uk/2021/03/bake-off-star-nadiya-backs-nhs-covid-vaccine-drive/) aimed to increase uptake amongst the British Bangladeshi community. Released in March, the video was posted on NHS England Twitter and has received 4,800 engagements and 32,000 video views, receiving many positive comments.

Other celebrity chefs [supporting the vaccine campaign included Dr Saliha Mahmood Ahmed \(https://twitter.com/NHSEngland/status/1368180844104454150?s=20\)](https://twitter.com/NHSEngland/status/1368180844104454150?s=20). The campaign has been widely picked up by both mainstream media and outlets targeting Asian groups. [The initiative builds on the campaign led by Adil Ray \(https://twitter.com/adilray/status/1362751634711998465?s=20\)](https://twitter.com/adilray/status/1362751634711998465?s=20) and other celebrities such as Moeen Ali, which aimed to dispel misinformation and increase vaccine confidence. NHS England have also commissioned further videos to support healthcare workers and younger British Black people along this same theme.

Additionally, [an open letter signed by Sir Lenny Henry \(https://www.gov.uk/government/news/sir-lenny-henry-urges-black-britons-to-take-covid-19-vaccine\)](https://www.gov.uk/government/news/sir-lenny-henry-urges-black-britons-to-take-covid-19-vaccine) and a range of high-profile celebrities from across the arts, entertainment, business, science and medicine encouraged Black adults in the UK to make informed decisions about the vaccine. Supported by the NHS, the letter was turned into a short film directed by BAFTA award winner Amma Asante and aired across Sky, BT Sport, Viacom, Discovery, A&E and ROK, as well as on digital platforms. The letter generated almost blanket coverage across all areas of media, with substantial segments on all major broadcasters and Sir Lenny trending on Twitter on the morning of release. The film has had more than 865,000 views on the NHS YouTube channel to date (as at 15 April).

In March, the [Department for Digital, Culture, Media and Sport \(DCMS\) launched a new social media campaign \(https://www.gov.uk/government/news/government-targets-false-vaccine-information-on-social-media\)](https://www.gov.uk/government/news/government-targets-false-vaccine-information-on-social-media) to tackle false vaccine information shared amongst ethnic minority groups. The campaign is fronted by trusted local community figures such as Imams, pastors and clinicians in short, shareable videos, which include simple tips on how to spot misinformation and what to do to stop its spread. The critical message is to ['check before you share', signposting to the NHS \(https://www.nhs.uk/conditions/coronavirus-covid-19/coronavirus-vaccination/coronavirus-vaccine/\)](https://www.nhs.uk/conditions/coronavirus-covid-19/coronavirus-vaccination/coronavirus-vaccine/) for the best source of information.

The assets are designed to be shared via WhatsApp and Facebook community groups, as well as Twitter, YouTube and Instagram, to tackle false information spread through private channels.

To support this, the government worked with [NHS England to commission short animations \(https://coronavirusresources.phe.gov.uk/covid-19-vaccine/resources/disinformation-eng-translations-social-cutdowns/\)](#) in [17 different languages and a longer video \(https://coronavirusresources.phe.gov.uk/covid-19-vaccine/resources/disinformation-eng-translations-video-content/\)](#) which were shared via the PHE Campaign Resource Centre. They also produced a suite of social media materials and regularly added to infographics, quote cards and social media content, all shared with NHS comms teams.

The government also worked with [NHS England to further support healthcare workers, including videos featuring nurses \(https://twitter.com/NHSEngland/status/1376941078163623944\)](#) reaching 56,000 impressions, 8,800 views and over 1,200 engagements) and [junior doctors \(https://twitter.com/WRES_team/status/1369238737708802048?s=20\)](#) (reaching 80,000 impressions and 8,000 views). NHS England also produced a video with Chief Midwifery Office Professor Jacqueline Dunkley-Bent and midwives around the county to address worries regarding pregnancy and infertility.

There has also been a series of social media videos featuring Dr Ali, one of the government advisers on COVID-19 and ethnicity, to tackle disinformation surrounding COVID-19 and the vaccine, and encouraging vaccine take up among ethnic minorities. Published on the Government Equalities Office social media channels, the videos reached a combined audience of 136,000 people, with the vaccine video alone reaching 66,000 people.

National restrictions, testing, roadmap and beyond

Given the public health emergency and the need to ensure members of the public know what they need to do to follow the latest COVID-19 requirements, the government continues to produce translations and accessible versions of both communications and guidance. The government is working with partners, influencers and media channels who resonate and are trusted by ethnic minority groups, extending the reach and efficacy of messaging. Most recently, this has included [information on vaccines, testing and the policy changes announced in the government's COVID-19 Response – Spring 2021 \(https://www.gov.uk/government/publications/covid-19-response-spring-2021\)](#) which sets out the roadmap out of the lockdown for England.

The government has built on its successful partnerships with trusted community media outlets – covering print, radio and TV channels – outlined in the second quarterly report. In this period, this has included:

- working with TV and radio partners to co-create content specific to each station and community audience. For example, in March the Multicultural Radio Partnership focused on the return of schools and colleges, and twice-weekly testing. This resulted in 30 station-specific, 3-minute items speaking with teachers and other educational community members in 11 different languages. This content was then syndicated to a further 19 stations. Messaging also ran in presenter-led sections across 30 stations, as well as Facebook and Twitter. The content was produced in Bengali, Chinese, English, Filipino, Gujarati, Hindi,

Mirpur, Polish, Punjabi, Tagalog and Urdu. Live for 3 weeks across the 49 stations, it reached an audience of 1.5 million people each week

- from mid-March, delivering the Multicultural TV Partnership reaching 3 million people with information on the new twice-weekly COVID-19 testing. Adverts lasting 24 – 30 seconds were played on 43 stations in 9 languages (Hindustani, Hindi, Urdu, Bengali, Punjabi, Arabic, Farsi, Mandarin, and Portuguese)
- the government has also continued work with BBC Asian Network and BBC World Service to produce COVID-19 videos on important questions from South Asian groups in Urdu, Punjabi, Tamil, Gujarati, and Sylheti, shared on BBC websites and social media channels

While the government has continued to translate communications assets into a wide range of languages, local authorities can request translations into additional languages to meet the needs of their residents.

This quarter, NHS England has shared guidance on celebrating religious events safely. This includes [Ramadan workforce guidance](https://www.england.nhs.uk/coronavirus/publication/supporting-covid-19-vaccine-uptake-during-ramadan/) (<https://www.england.nhs.uk/coronavirus/publication/supporting-covid-19-vaccine-uptake-during-ramadan/>) sent to more than 100 Clinical Commissioning Groups and over 220 NHS Trusts, gaining 85,000 webpage impressions. A video commissioned through the [British Islamic Medical Association](https://twitter.com/BritishIMA/status/1380590083938643968) (<https://twitter.com/BritishIMA/status/1380590083938643968>) shared with local teams achieved 4,200 views. A video featuring [Jewish clinicians and Rabbis with Passover guidance](https://twitter.com/NHSEngland/status/1375472589729058817) (<https://twitter.com/NHSEngland/status/1375472589729058817>) gained more than 25,000 views. Additionally, Vaisakhi information and workforce guidance was shared via Sikh Channel TV and Asian Voice, with an estimated readership of 250,000 in the UK.

Next steps

- as the COVID-19 vaccine rollout continues, the government's Vaccine Confidence campaign will aim to inform, educate and empower those aged 18 to 50 to take up their vaccine. Using the tagline 'Every Vaccination Gives Us Hope' content will take an optimistic tone, aiming to reach and persuade younger audiences, including ethnic minority groups
- at each step of the government's roadmap out of lockdown, tailored guidance and communications will continue to be shared through community and media channels to maximise reach and impact

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1. <https://www.ons.gov.uk>
(<https://www.ons.gov.uk/peoplepopulationandcommunity/healthandsocialcare/healthandwellbeing/datasets/coronavirusandvaccinehesitancygreatbritain>)
2. <https://www.ons.gov.uk>
(<https://www.ons.gov.uk/peoplepopulationandcommunity/healthandsocialcare/healthandwellbeing/bulletins/coronavirusandthesocialimpactsongreatbritain/29january2021#attitudes-to-covid-19-vaccination>)
3. <https://www.medrxiv.org/content/10.1101/2021.02.26.21252512v1.full>
(<https://www.medrxiv.org/content/10.1101/2021.02.26.21252512v1.full>)
4. ONS and REACT-2 use different survey questions so the levels of vaccine confidence would be expected to be different, but the relative positions of different groups - and trends over time - would be expected to be similar between the 2 sources
5. Participants in the Understanding Society COVID-19 survey are asked to state their main reason why they would get a COVID-19 vaccine. Participants can therefore only state one reason.
6. There is likely selection bias resulting in a disproportionately higher number of concerned respondents in the sample but “nevertheless, the magnitude and consistency of the change in vaccine intention observed in this study is likely to outweigh possible bias”
7. Defined as those who stated in Nov ‘20 that they were either ‘unlikely’ or ‘very unlikely’ to get a vaccine when offered one, but in Jan ‘21 stated that they were either ‘likely’ or ‘very likely’ to get a vaccine when offered one (the likelihood question was only asked in Jan ‘21 of those who had not already had a vaccine or accepted one)
8. Some ethnic groups have been aggregated in this analysis due to small sample sizes
9. <https://www.medrxiv.org/content/10.1101/2021.04.26.21255788v1.full-text>
(<https://www.medrxiv.org/content/10.1101/2021.04.26.21255788v1.full-text>)
10. The study population is broadly representative of healthcare workers in the NHS. Respondents were, in the main, sampled and invited to take part by healthcare regulatory bodies from a sample frame. A smaller proportion joined the survey directly through open invitation.
11. The qualitative research was with a self-selected sample, so the results may not be representative of the views of all healthcare workers. Furthermore, the

authors note that the sample contained few ancillary staff who are more likely to be from ethnic minorities

12. [Page 27 - https://www.gov.uk/government/publications/second-quarterly-report-on-progress-to-address-covid-19-health-inequalities](https://www.gov.uk/government/publications/second-quarterly-report-on-progress-to-address-covid-19-health-inequalities)
(<https://www.gov.uk/government/publications/second-quarterly-report-on-progress-to-address-covid-19-health-inequalities>)
13. <https://www.bi.team/blogs/practicalities-are-the-most-significant-impediments-to-people-getting-a-covid-vaccine-and-the-easiest-to-address/>
(<https://www.bi.team/blogs/practicalities-are-the-most-significant-impediments-to-people-getting-a-covid-vaccine-and-the-easiest-to-address/>)
14. A sample of 4,085 UK adults was selected from a panel of potential respondents who have opted to be involved in online surveys. Quota sampling was used to ensure the sample was representative by age, sex, geography and ethnicity. There is potentially selection bias towards people more willing to take part in online surveys and who are more internet-literate.
15. Deaths of care home residents are not included
16. Adjustments are cumulative – adjustments for socio-economic factors builds upon adjustments for geography and age
17. The pandemic in this analysis dates between 24 January 2020 and 28 February 2021
18. The second wave in this analysis dates between 12 September 2020 and 28 February 2021
19. Severe COVID-19 is defined in this analysis as cases where a positive test was obtained in a hospital setting, or cases that resulted in death.
20. Characteristics of participants, including health worker and shift worker status, were measured between 2006 and 2010 and may have changed by the time of the study period (March to August 2020).
21. The analysis included health workers and shift workers separately, however the comparator is 'neither health nor shift workers'
22. <https://thorax.bmj.com/content/thoraxjnl/early/2021/03/30/thoraxjnl-2020-216651.full.pdf> (<https://thorax.bmj.com/content/thoraxjnl/early/2021/03/30/thoraxjnl-2020-216651.full.pdf>)
23. Based on data from UK Biobank, shift workers tended to be ethnic minority, younger, male, have a higher BMI, smoke more, have a lower alcohol intake and higher levels of deprivation. They were also more likely to have comorbid disease.
24. When the following covariates were controlled for: age, sex, ethnicity, Townsend Deprivation Index, sleep duration, smoking history, alcohol history, body mass index (BMI), hypertension, diabetes, cardiovascular disease, renal failure, liver disease, asthma, chronic obstructive pulmonary disease (COPD) and chronotype

25. Severe COVID-19 was defined as a positive test result from an in-hospital setting
26. The paper recoded ethnicity into 3 categories owing to small numbers of cases: White British (reference category), White Other, and Black, Asian, Mixed, or Other (people who preferred not to say were excluded)
27. Gross domestic product (GDP) is a monetary measure of the market value of all the final goods and services produced in a specific time period.
28. Those who reported they had long COVID had first had (or suspected they had had) COVID-19 at least 12 weeks previously.
29. The control group comprised people from the general patient population who matched the COVID-19 cases in the study on baseline demographics and clinical characteristics. Those in the control group had had at least one recent interaction with the health service and had not been diagnosed with COVID-19 in hospital.
30. As noted in the data analysis section of this report, there is likely to be selection bias because of the disproportionately high number of concerned respondents in the sample. The authors argue that “nevertheless, the magnitude and consistency of the change in vaccine intention observed in this study is likely to outweigh possible bias”
31. <https://www.medrxiv.org/content/10.1101/2021.04.26.21255788v1.full.pdf>
(<https://www.medrxiv.org/content/10.1101/2021.04.26.21255788v1.full.pdf>)
32. The study population is broadly representative of healthcare workers in the NHS. Respondents were, in the main, sampled and invited to take part by healthcare regulatory bodies from a sample frame. A smaller proportion joined the survey directly through open invitation.
33. The survey question is: “Would you describe yourself as having ‘long COVID’, that is, you are still experiencing symptoms more than 4 weeks after you first had COVID-19, that are not explained by something else?”

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