

## The demographic impact of Covid-19 in London

13 May 2020

### Introduction

This briefing brings together a range of data published on the demographic impact of Covid19 to understand how the city has been affected. This briefing covers what is known about Covid-19 cases, before looking at mortality. It provides comparisons with other cities and some of the issues which affect the accuracy of such comparisons. And it summarises the emerging evidence of unequal impacts for different demographic groups, especially ethnicity and workers in particular occupations.

### Key findings

- London emerged as an epicentre of the pandemic early in its spread across the UK, with a first positive test result on the 11<sup>th</sup> February 2020 and the first death reported in the first week of March
- Prior to lockdown on 23<sup>rd</sup> March, 40% of England's confirmed cases were in London.
- London reached its daily peak of just over 1,000 tests with a positive result on 2<sup>nd</sup> April
- As of 12<sup>th</sup> May, there had been a total of 25,890 confirmed cases in London – now representing less than 20% of all confirmed cases in England
- Croydon and Brent have the highest total number of confirmed cases by borough
- Up to 1<sup>st</sup> May 7,157 London residents were registered as having died with Covid-19 mentioned on their death certificate, measured by ONS weekly deaths estimates
- In London, the peak week for Covid-19 related deaths occurred during the week ending 10<sup>th</sup> April, with 1,916 in a single week (a week later than the peak for cases)
- In the week to 1<sup>st</sup> May, the number of deaths was quarter that of the peak
- Of the total Covid-19 related deaths recorded, 76 per cent of London deaths have occurred in hospitals, 15 per cent in care homes, with 7 per cent at home and two per cent in a hospice or elsewhere, which would include other communal establishments such as prisons
- Based on the seven weeks between 1<sup>st</sup> March and 17<sup>th</sup> April, Brent recorded more Covid-19 related deaths than any other borough.
- Using Age Standardised Mortality Rates (ASMRs) to take into account age differences across the populations of different areas, the ASMR for London up to 17<sup>th</sup> April (85.7) was much higher than for England (36.6)

- Excess deaths, comparing the average number of deaths in previous years with the total number of deaths from all causes for the same period this year, show a total of 50,000 excess deaths in the UK and 9,000 in London up to 12<sup>th</sup> May
- The Financial Times has used the measure of excess deaths to compare major world cities. As of 12<sup>th</sup> May, this shows that London has recorded 135 per cent more deaths than average, compared with 137 per cent for Ile de France, incorporating Paris. Madrid has had more than 200 per cent excess deaths. Meanwhile, New York City is recorded in the FT report as having 17,300 excess deaths, over 400 per cent more than normal
- The Covid-19 outbreak in the UK has had unequal impacts on different groups of the population. It quickly became well-established that older people, men, and people who have underlying health conditions (particularly diabetes, obesity, heart disease and chronic lung conditions) were at disproportionate risk of developing a severe infection and dying.
- However, an increasing body of evidence has merged to show how Black and Minority Ethnic (BAME) groups are over-represented both among the patients who are being hospitalised with serious cases of Covid-19 and also in relation to deaths
- Analysis published on 7 May by the Office for National Statistics shows that the mortality rates for Black, Indian, Pakistani, Bangladeshi and Other ethnic groups are several times higher than for the White ethnic group.
- These differences in mortality still exist once differences were controlled for by a large range of factors including the different age, sex, region, rural-urban structures of the population, and also socio-economic factors such as area-based deprivation, household composition, highest qualification and socio-economic class.
- After controlling for all these factors, they found Black men still had a mortality rate almost double that of White men (1.9 times), and mortality rates were almost as high for Bangladeshi/Pakistani men. There was a similar picture for women.
- This difference is not yet totally understood but reflects a complex picture of structural inequality. But it is not yet clear that it can be explained by health and wider socioeconomic inequalities alone.
- Occupations of workers make a difference to exposure to Covid-19 with some people still working in occupations that bring them into close contact with many people but with no special protection.
- Deaths relating to Covid-19 of people in some of these occupations have been much higher than in the general population, most notably security guards, taxi and bus drivers, chefs and shop workers.
- Covid-19 related deaths among care workers are also higher than average, but not among healthcare workers, including doctors and nurses.
- One in 400 people in the private household population of the UK had the Covid-19 infection at any given time between 27<sup>th</sup> April and 10<sup>th</sup> May
- Infection rates are higher among healthcare and care workers, but there is no difference in the infection rates of different age groups

### **Key changes in the last week**

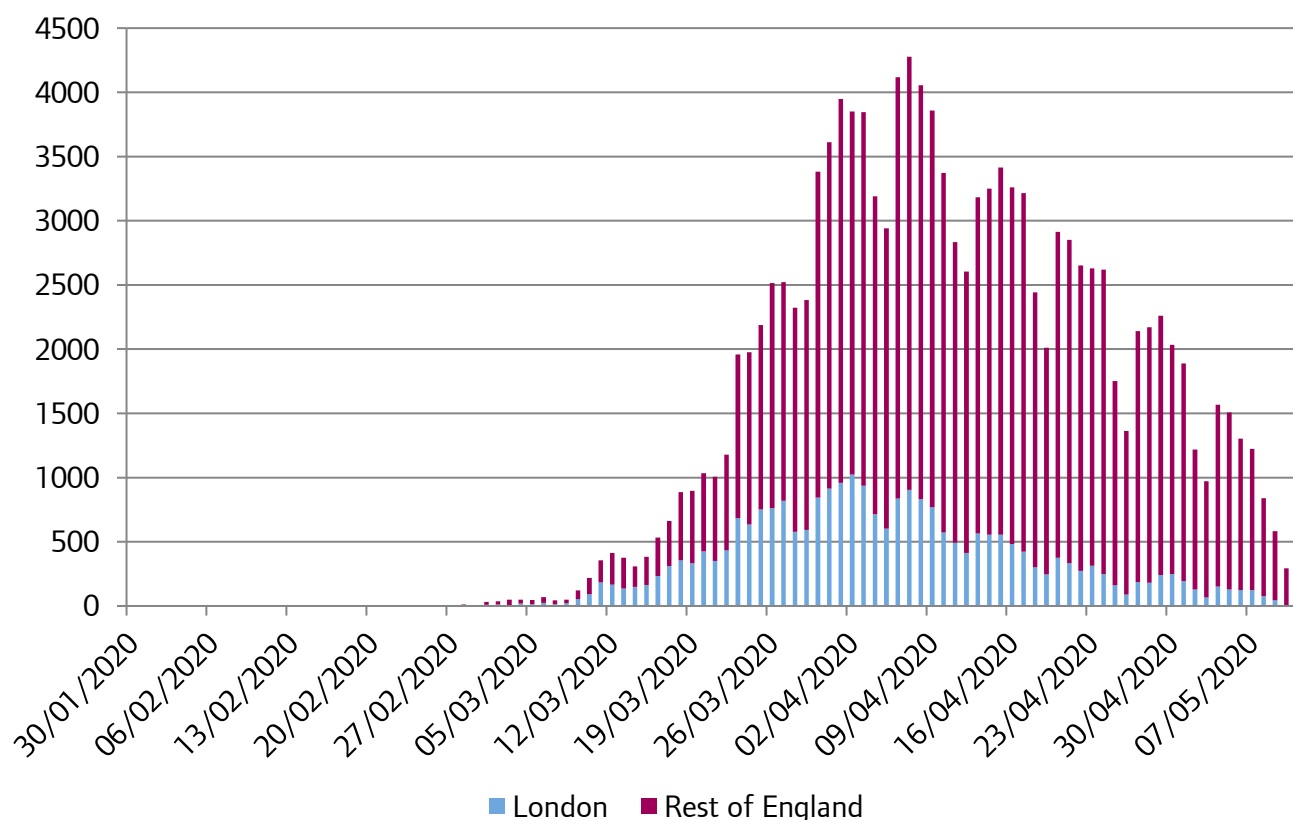
- The number of cases testing positive in London has fallen further, with the number of new daily cases probably falling below 100.
- The weekly number of deaths in London with Covid-19 mentioned on the death certificate has fallen below 500 for the week ending 1<sup>st</sup> May. The proportion of these dying in care homes rose marginally to 15 per cent.
- New analysis has look at Covid-19 and occupation exposure and deaths
- First results of a national Infection Survey have been released, though currently no regional results are available

## The spread of Covid-19 cases

Although the first confirmed cases of the Covid-19 pandemic in the UK were outside the capital, London emerged as an epicentre of the pandemic early in its spread across the UK. The first case in London tested with a positive result was on 11<sup>th</sup> February 2020. Prior to lockdown on 23<sup>rd</sup> March, there were 3,517 cases of Covid-19 in London which had tests with a positive result. At that point, 40% of England's confirmed cases were among people who lived in London. After this date, the cases with a positive test result in the rest of England grew more rapidly than in London. London appears to have reached its daily peak of 1,023 tests with a positive result on 2<sup>nd</sup> April, whereas for the rest of England, the peak was 3,375 cases testing positive on April 7<sup>th</sup>.

To date, there are 25,890 confirmed cases in London, which is just under 20 per cent of all cases testing positive in England (as at 11<sup>th</sup> May), though the figures for the most recent dates may still change. London appears to have had an earlier peak of infections than in the rest of England, but as the testing capacity was very limited early on in the UK's Covid-19 experience this is likely to have been a factor in the number of confirmed cases leading to an underestimate that may have impacted even more on the figures for London than elsewhere. Many people with relatively mild symptoms or no symptoms were not tested at all. It is important to note that those with symptoms who were assumed to have Covid-19 but were not tested were not recorded and are not included in these figures. Estimates of these may never be known. Testing capacity increased over time, but the largest increases in testing capacity were seen after the infections appeared to be reducing. Data for the most recent dates shows that the number of new cases is decreasing rapidly and has probably fallen below 100 new cases per day in London.

**Figure 1 Confirmed cases of Covid-19 by date of swab, London and Rest of England**

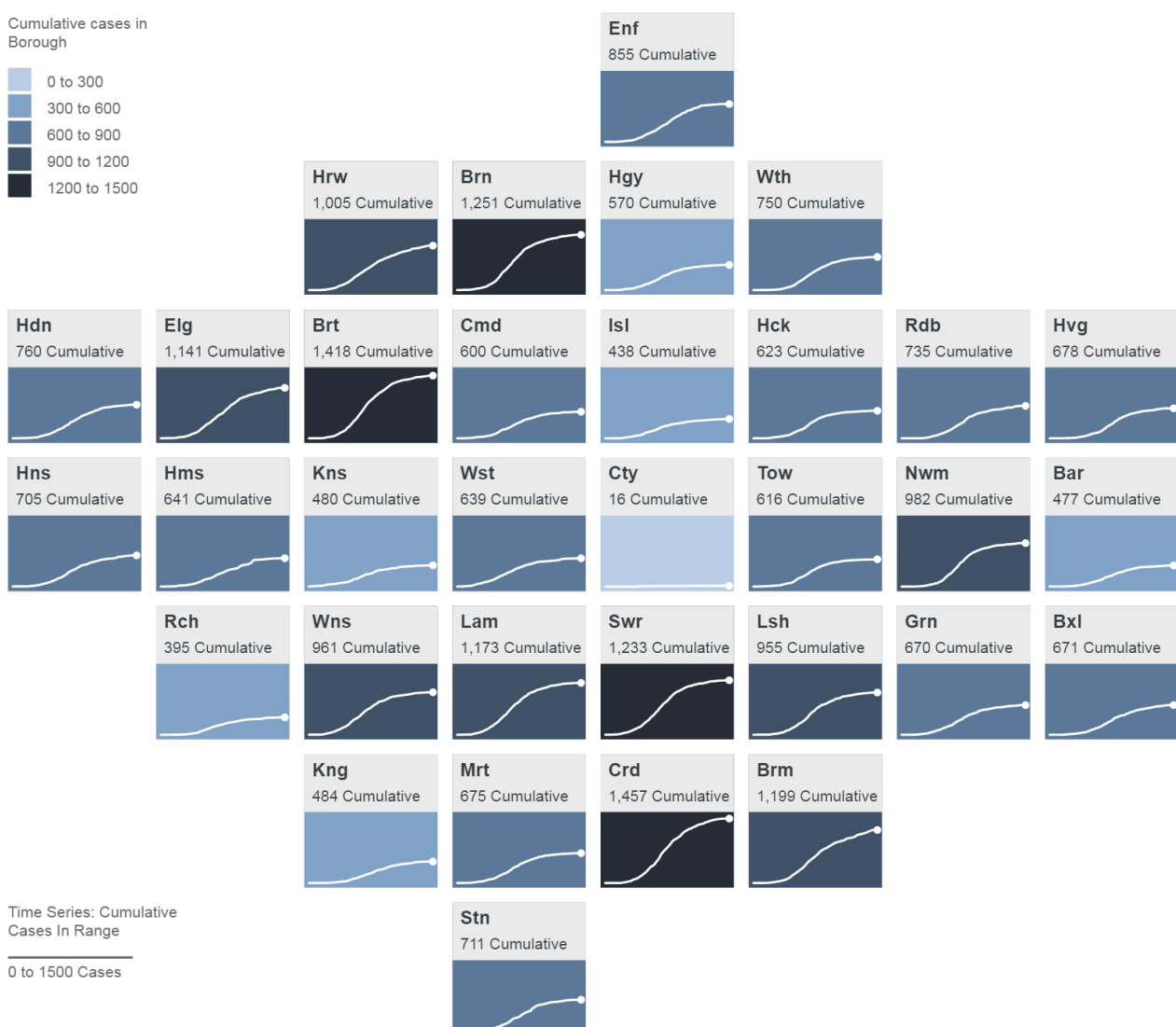


Source: PHE COVID-19 Dashboard (snapshot taken on 12th May – data to 10/5)

The number of confirmed cases varies widely by borough, as shown in Figure 2. Understanding the implications is far from straightforward, as again, many cases were not tested and therefore not confirmed. In addition, the total population of boroughs ranges from around 160,000 to 400,000. Croydon and Brent have the highest number of confirmed cases, and though both also have large populations, they still have among the highest proportion of confirmed cases per capita, along with Southwark and Harrow. Islington, Richmond, Tower Hamlets and Haringey are among those with relatively low numbers of cases with positive test results. There are no obvious differences between boroughs in the timeline of infections that were tested positive for Covid-19 other than that the boroughs with the highest numbers of confirmed cases look to still have an increasing number whereas those boroughs with fewer cases have seen the curve flatten earlier.

**Figure 2**

Covid-19 Cases by London Borough (2020-03-01 to 2020-05-11)  
Displaying cumulative count (within date range) at: 2020-05-11



Source: <https://coronavirus.data.gov.uk/> - Note: Data for most recent 5 days may be incomplete.  
Graphic by GLA City Intelligence | London Squared Format by After The Flood

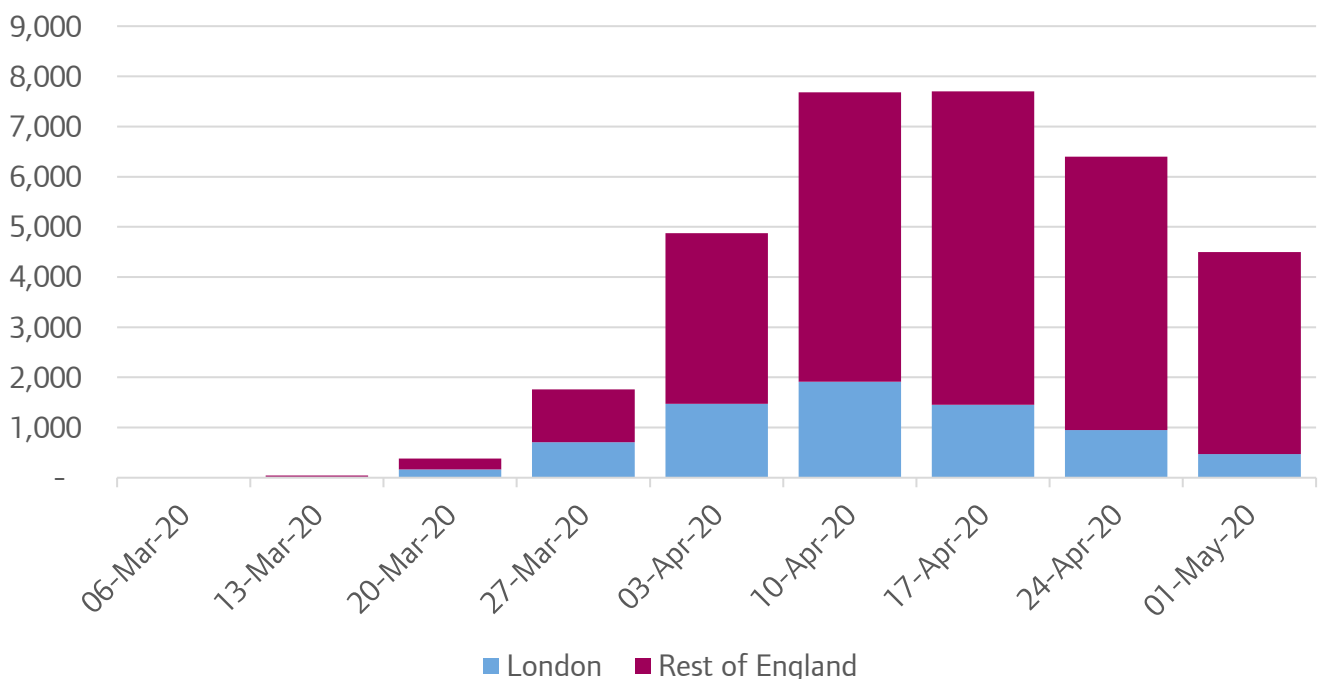
## Outcomes of Covid-19 infections

The vast majority of those who contract the disease recover, particularly those who suffer with mild symptoms. There are, however, no numbers available for this in the UK. For some who are infected, the disease is more serious and can lead to death either directly or through other infections, such as pneumonia or worsening of other conditions such as heart disease. Globally, estimates of the mortality rates have ranged from around one per cent to ten per cent of those infected. This uncertainty is due to the fact that not everyone with the disease is tested, particularly those who do not show any of the recognised symptoms and demonstrates the difficulties in measuring any aspect of Covid-19. The most widespread estimates seem to be a mortality rate of around three per cent.

### Mortality in numbers

In the UK, the numbers of deaths are reported in different ways and so the number of deaths due to Covid-19 is equally difficult to give precise figures for. The first deaths of Londoners recorded as having Covid-19 occurred in the first week of March, the same week that 3 other deaths in the UK occurred due to the disease. In London, the peak week for Covid-19 related deaths occurred during the week ending 10<sup>th</sup> April, with 1,916 in a single week in London. This is just one week after the peak number of tests carried out in London testing positive for Covid-19. For the latest available week, ending 1<sup>st</sup> May, the number of deaths recorded so far was half that seen the previous week, ending 24<sup>th</sup> April and a quarter of those at the peak. In total, up to 1<sup>st</sup> May, 7,157 London residents were registered as having died with Covid-19 mentioned on their death certificate. This number is still subject to change as more deaths are registered. Not everyone with Covid-19 mentioned on their death certificate will have been tested, so in some cases it is suspected rather than confirmed, and in some cases Covid-19 may have been a supplementary or contributory infection, but not the direct cause of death. This figure represents more than eight deaths for every ten thousand residents in London. It is also worth noting that guidance on completing death certificates and how the deaths were counted changed so for some of the deaths earlier in the pandemic, prior to 31<sup>st</sup> March, relating to Covid-19 will have been missed.

**Figure 3 Weekly deaths by date of occurrence, London and Rest of England**



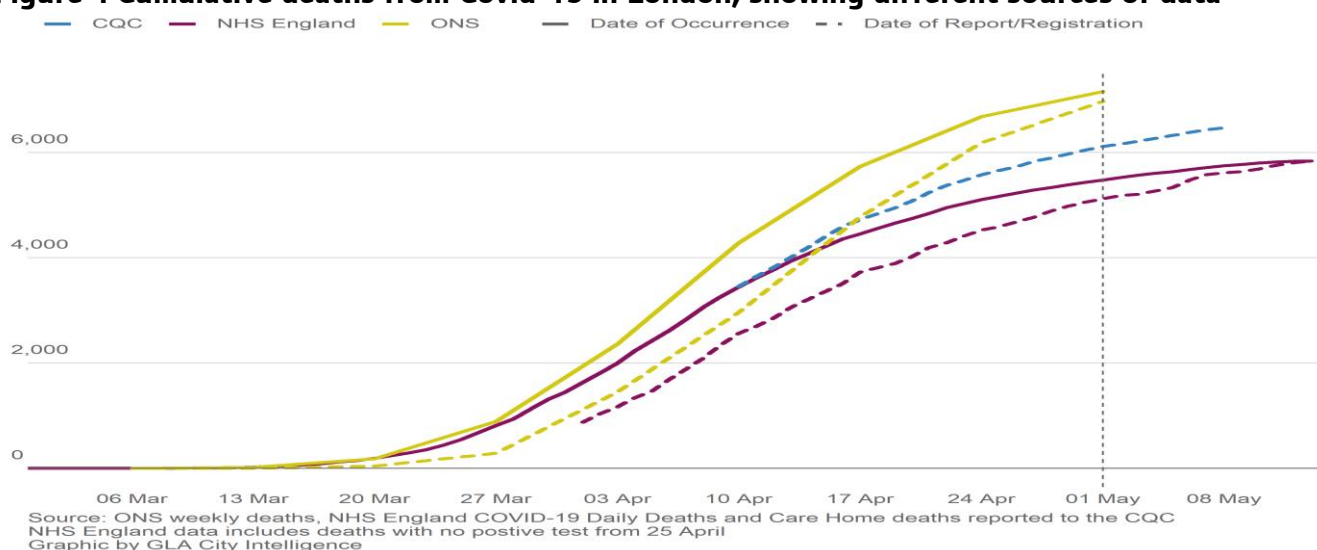
Source: ONS weekly deaths with Covid-19 mentioned on death registration

This number of deaths is higher than for any other region in the UK. The timeline of deaths occurring in the rest of England reflects that of the cases, with the peak number of deaths so far recorded occurring in the week after the peak number of deaths in London.

While these figures provide a more complete picture of deaths where Covid-19 was a factor, there is a time lag due to delays in formally registering deaths and so these data are only available to 1<sup>st</sup> May and are subject to change as further death registrations are completed. Of the total weekly deaths recorded, 76 per cent of London deaths (5,436) have occurred in hospitals, 15 per cent in care homes, with 7 per cent at home and two per cent in a hospice or elsewhere, which would include other communal establishments such as prisons. The percentage that have died in care homes has increased marginally. Nationally, 68 per cent of Covid-19 related deaths have been in hospital and 25 per cent in care homes.

The number of deaths occurring in hospitals is also reported daily, and more recently, the number of deaths in care homes is also reported daily. The number of deaths reported in London's hospitals with a positive Covid-19 test result is 5,664 (as at 11<sup>th</sup> May), with a further 96 where Covid-19 was mentioned on the death certificate. which is 24% of the total Covid-19 related hospital deaths in England. A total of 721 (reported to 8<sup>th</sup> May) deaths relating to Covid-19 have been reported to the Care Quality Commission as taking place in care homes across London. 85 of the deaths in care homes and 700 of the hospital deaths<sup>1</sup> have been reported since 1<sup>st</sup> May, though due to some administrative corrections, a significant number of these relate to deaths occurring prior to that date.

**Figure 4 Cumulative deaths from Covid-19 in London, showing different sources of data**

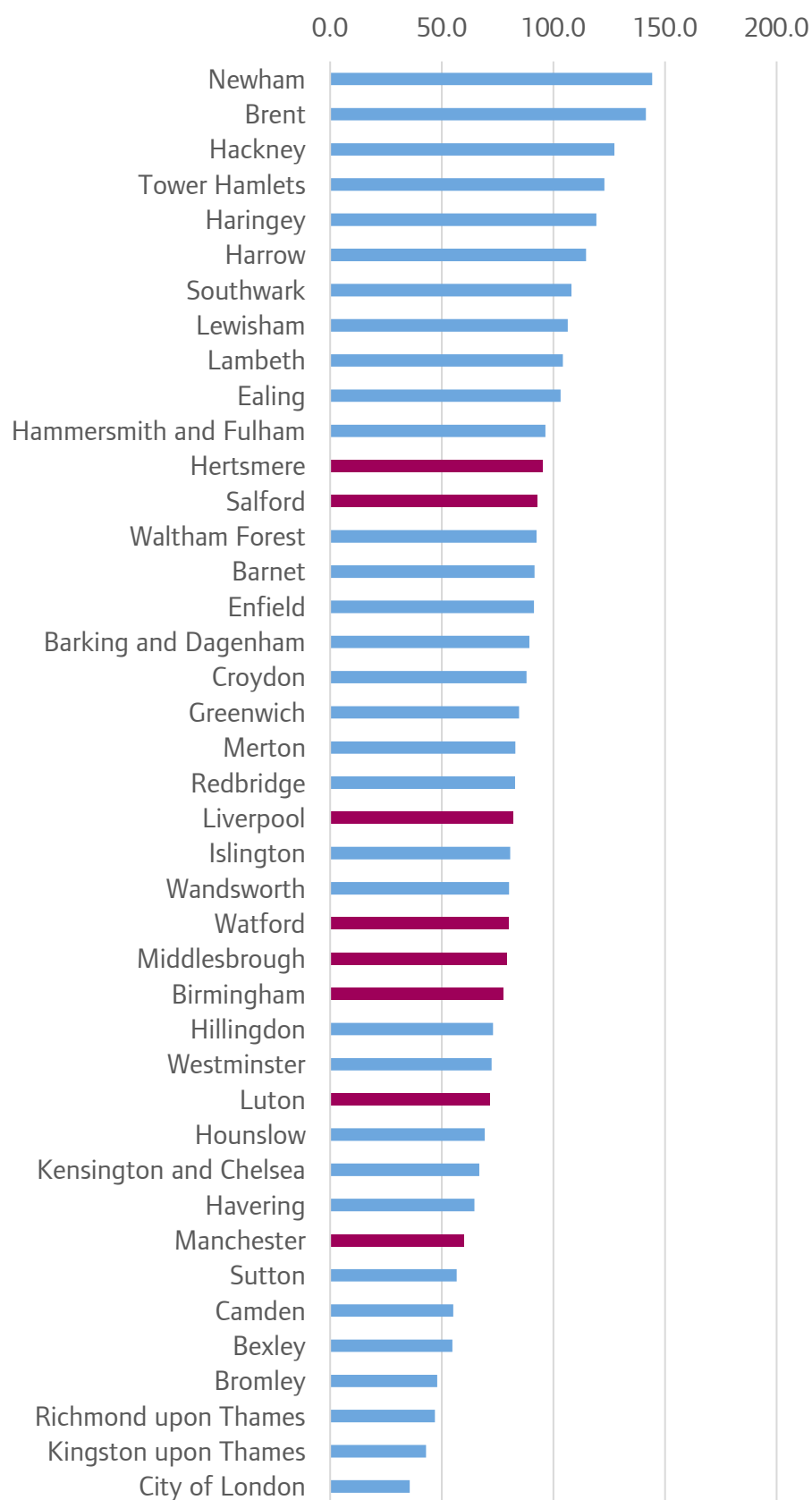


## Mortality by borough

Data for the number of deaths registered in each borough with Covid-19 mentioned on the certificate is available covering the period 1<sup>st</sup> March to 17<sup>th</sup> April. This was past the peak of deaths in London overall, but the timeline may vary between boroughs, so the figures should be treated with some caution. Over this seven week period, Brent recorded more Covid-19 related deaths than any other borough. Of the total of 4,950 deaths in London, 304 were in Brent, with 287 in Barnet, 252 in Croydon and 241 in Harrow. The lowest number of deaths recorded in this period in any London borough from the pandemic was 57 deaths in Kingston upon Thames.

<sup>1</sup> These figures differ from the weekly figures in several ways. They are reports of deaths in hospitals in London, so do not include all Covid-19 related deaths occurring outside of hospital settings. They could include non-London residents being treated in hospitals within London and miss some London residents being treated outside the capital, but these numbers are likely to be small. Most deaths involving Covid-19 have occurred in hospitals, but while these appear to be past the peak, and reducing rapidly, Covid-19 related deaths in care homes have made up a much higher proportion of all Covid-19 deaths in London in the most recent figures available.

**Figure 5 Age Standardised Mortality Rates, London Boroughs and selected other local authorities in England**



Source: ONS Deaths involving COVID-19 by local areas and deprivation, deaths occurring between 1 March and 17 April, published 1 May 2020

The different population sizes and structures of London boroughs mean that these figures are difficult to interpret, as it is well known that people in older age groups have higher mortality rates from Covid-19. Using Age Standardised Mortality Rates (ASMRs) allows for comparisons which take into account such differences across the populations of different areas. For England, the ASMR for Covid-19 deaths the period up to 17<sup>th</sup> April was 36.6, while the rate for London was much higher, at 85.7. Some of this difference is likely to be due to the different timeline of the spread of the virus which as noted earlier was earlier in London than in much of the rest of England, meaning that the rates and the relative differences would be expected to change over time. Nevertheless, the rate for London is substantially higher than overall for England. All London boroughs with the exception of the City of London had ASMRs for this period relating to Covid-19 deaths higher than the England average. Looked at nationally, London occupies all of the top 11 places when local authorities of all levels are ranked by Covid-19 related ASMR, as seen in figure 5. Just seven of the London local authorities are not among England's 40 local authorities nationally with the highest ASMR for Covid-19 up to 17<sup>th</sup> April. Figure 5 shows the Covid-19 related ASMR for London boroughs and selected other local authorities<sup>2</sup>.

Even within London there are very large differences with Newham and Brent standing out as having the highest rates of over 140 – nearly four times the national average.

### ONS Excess weekly deaths estimates

Another perspective on deaths due to Covid-19 is to look at the number of deaths taking place in each week compared with the “usual” number of deaths in the same week in other years. As the number does vary, looking at deaths in 2020 in relation to the previous five years' deaths shows that on average, there are around 1,000 deaths each week in London at this time of year. The number tends to be a little lower in the summer and higher in the winter, with at least some of the variation due to flu during the winter months. The winter of 2017/18 was a particularly level of deaths due to flu in London, raising the average slightly. With total deaths reaching a peak of 3,356 in a single week, it is clear that not all the “excess” deaths are directly accounted for in those recorded as Covid-19 related cases. The number of deaths from all causes in London was a little below average during the first 11 weeks of the year. As Covid-19 related deaths started to impact, the underlying number of deaths also increased, as illustrated in figure 6 below.

In total, to 12<sup>th</sup> May, around 50,000 “excess” deaths have occurred during the pandemic across the whole of the UK. Of these, 9,000 were in London.

This method of trying to understand the impacts of Covid-19 by comparing with previous years to give a measure of excess deaths is also not without its own difficulties<sup>3</sup>. Despite this, it does seem likely that some deaths attributable to Covid-19 have been missed from those recorded, though this appears to be reduced in the most recent weeks.

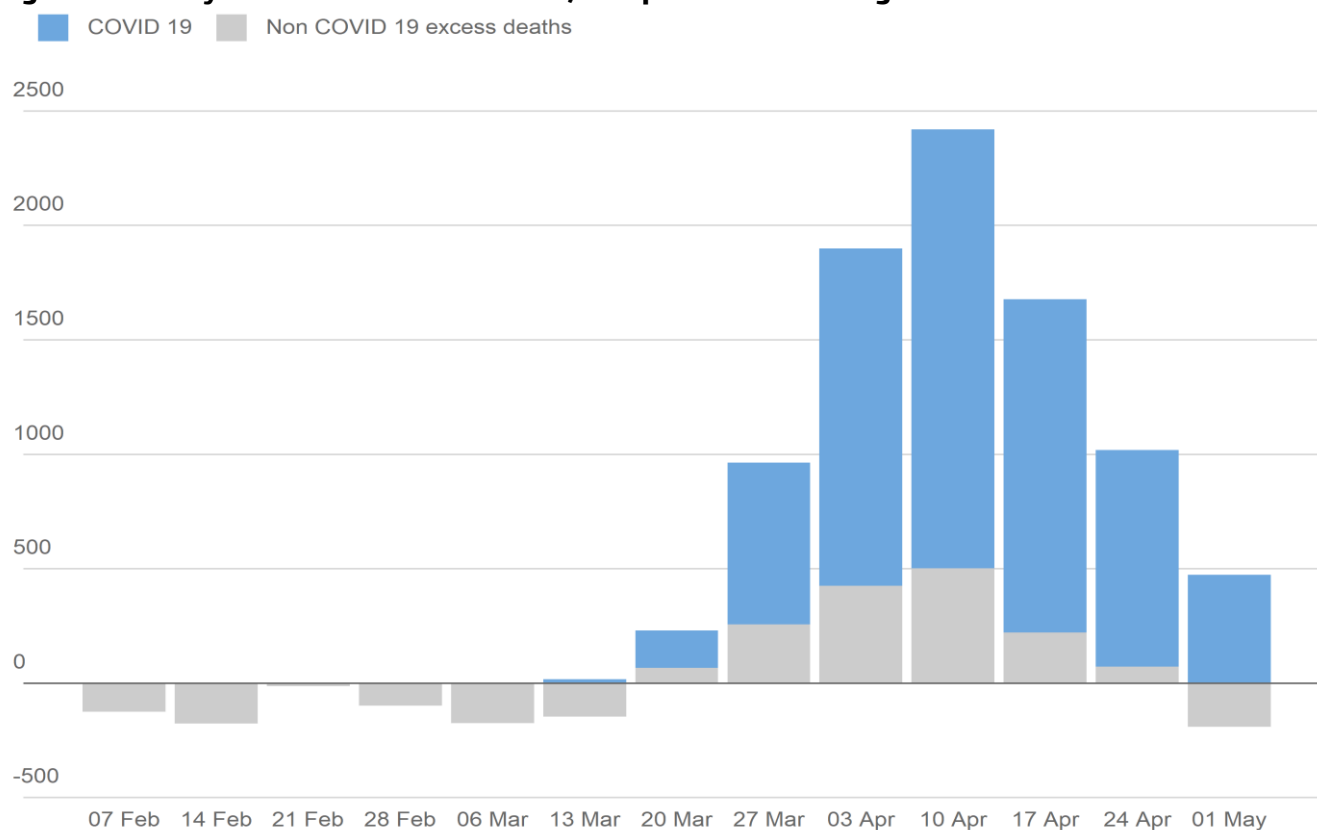
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<sup>2</sup> These estimates have a margin of error due to uncertainties in the estimates of the population and its age structure and are likely to change as more deaths are taken into account. Additionally, population figures on which these are based would include some groups not in the underlying population since the lockdown, or earlier.

<sup>3</sup> See <https://medium.com/wintoncentre/covid-and-excess-deaths-in-the-week-ending-april-10th-20ca7d355ec4> for an exploration of measuring excess deaths in relation to Covid-19  
In addition, changes to London's underlying population, with an overall increase of around 80,000 people per year and an ageing population means that the expected number of deaths would naturally increase over time.



**Figure 6 Weekly excess deaths in London, compared with average for 2015-2019**



Source: ONS weekly deaths  
Graphic by GLA City Intelligence

## London's Covid-19 experience in context of other cities in the UK

Urban areas have been hit harder than rural areas both in the UK and globally. Based on the data on Covid-19 related deaths in England to April 17, Birmingham, Liverpool and Middlesbrough are the major cities outside the capital with the highest levels of deaths relative to their population, with ASMRs over 70, compared with 85.7 for London. The comparable ASMR for Manchester is 55.5. Other towns and cities with high rates include Salford and Walsall, both with ASMRs over 100, though these are still well below the ASMRs seen in several of the London boroughs. Watford and Hertsmere, which border onto Harrow and Barnet, two of the worst affected London boroughs also have high ASMRs, as seen in the chart above.

Regional analysis of confirmed cases shows that while London and the North East peaked in the first few days of April, all other regions of England were still increasing cases at that time, reaching a peak in the following week. However, given the nature of the spread of the disease, the experience of individual local authorities, towns and cities and areas within those will show different patterns. As London's timeline for the spread of Covid-19 is ahead of most of the rest of the country, the figures above are likely to evolve as more data becomes available. Comparisons with Wales Scotland and Northern Ireland are also more complex because of different rules and data collection methods in those parts of the UK, but as the numbers of deaths are decreasing in all parts of the UK, it is clear that London has a much higher proportion of excess deaths than any other region.

## Comparing London with other international cities

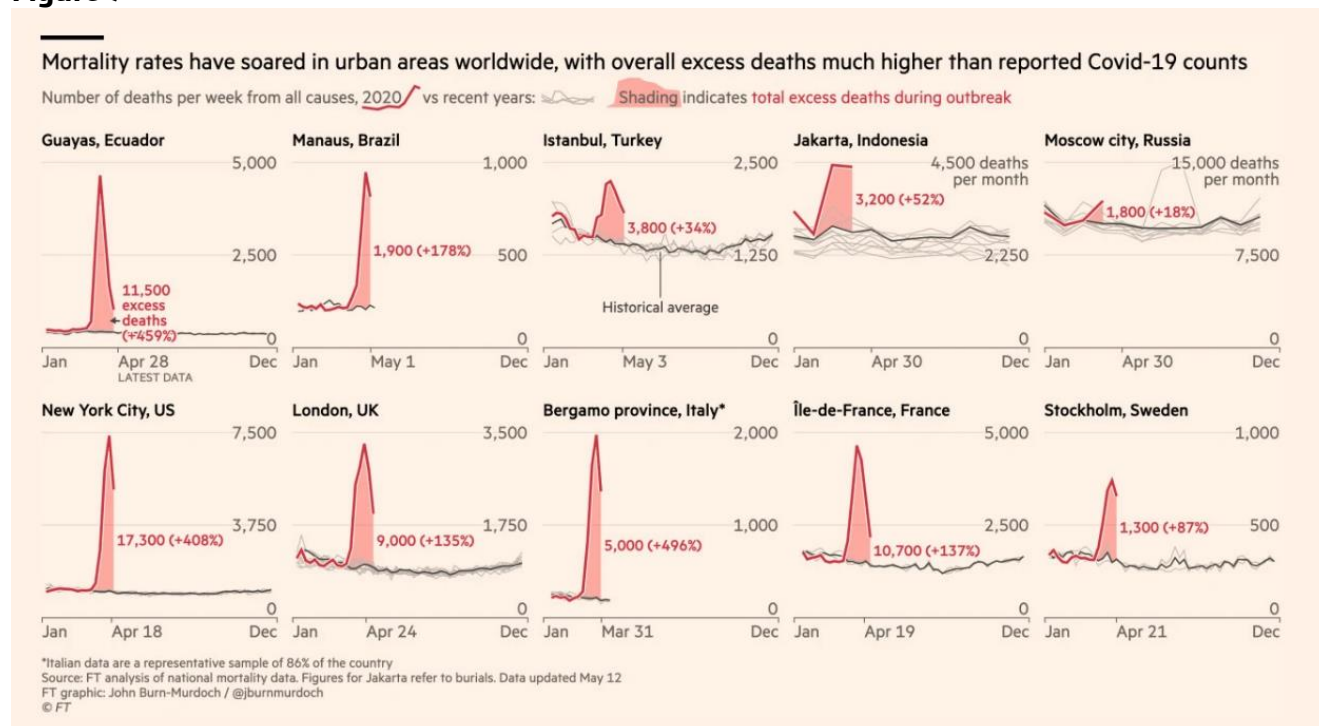
Using the measure of excess deaths allows for comparisons between cities in different parts of the world, and the Financial Times has adopted this approach to compare various countries and some of the world's worst-hit areas.

In its report (as at 12 May), the Financial Times shows that London, with a population around 9 million, has recorded 9,000 or 135 per cent excess deaths, compared with 137 per cent or 10,700 excess deaths for Ile de France, with a population of 12.2 million, incorporating Paris. Madrid (11,600 excess deaths, population 6.6 million) and Bergamo province in Italy (5,000 excess deaths, population 1.1 million) show even higher proportions of excess deaths. Meanwhile, New York City with a population more than double that of London is recorded in the FT report<sup>4</sup> as having 17,300 excess deaths, nearly 400 per cent more than normal.

However, the charts appearing in the FT, as shown in figure 7, also reveal that these figures relate to different points in the timelines of the pandemic's progress in different cities, and this will impact on how these figures can be interpreted<sup>5</sup>. There are also other issues with conducting this approach, some of which are outlined above, such as using an average which may have other factors at play, including changing underlying population around the way data is recorded and reported for different countries. For example, Italy's data is based on a sample of 86 per cent of the country. It is clear that until the pandemic is under control everywhere, and figures are finalised, making such comparisons, even on this basis, is subject to change.

A further consideration discussed in the FT is how much the pandemic was contained within each country. In the UK, while London was the worst hit, the excess deaths measure shows that most other regions have also seen at least 50 per cent more deaths than usual. In France, the outbreak was relatively contained, with only one region outside Ile de France showing more than 50 per cent excess deaths. In Spain, again the capital was the worst hit, but three other regions have experienced more than double their expected number of deaths.

**Figure 7**



<sup>4</sup> <https://www.ft.com/content/a26fbf7e-48f8-11ea-aeb3-955839e06441>

<sup>5</sup> Excess deaths and the percentage above the "normal" depends on the period of accounting, so for a place whose data is reported for a timepoint just past the peak of daily deaths from the outbreak, the excess will appear higher in percentage terms than for somewhere that deaths are still increasing or that the number of deaths has returned close to the average measured over a longer time period.

## **Covid-19 and Ethnicity**

Much of the coverage of the Covid-19 outbreak in the UK has focused on the unequal impacts which it is having on people who belong to different groups within the population. It quickly became well-established that older people, men and people who have underlying health conditions (particularly diabetes, obesity, heart disease and chronic lung conditions) were at disproportionate risk of developing a severe infection and dying.<sup>1</sup>

However, a form of inequality which has begun to attract attention more recently is differences in the number of cases and deaths from Covid-19 by ethnicity. An increasing body of evidence has emerged to show how Black and Minority Ethnic (BAME) groups are over-represented both among the patients who are being hospitalised with serious cases of Covid-19 and also in relation to deaths. There is also media coverage of similar issues in other countries, such as the USA and countries in Europe.

However, working out whether the numbers really are as skewed as they first appear, and attempting to explain why this might be happening, is not straightforward. This is because ethnicity is only one of many socio-economic factors which contribute to making an individual more vulnerable to Covid-19. Gaining a better understanding of why these ethnic differences in Covid-19 exist is important for developing a coherent policy response to addressing them. This briefing summarises the findings from research published in the UK, as well as identifying some of the remaining gaps in our knowledge and suggesting how they could be filled.

### **Are BAME groups disproportionately affected by COVID-19?**

Following media reporting of the apparent early disproportion in BAME deaths among patients and healthcare staff, a report<sup>2</sup> by the Intensive Care National Audit and Research Centre (ICNARC) which was published on 4 April revealed that BAME patients were over-represented among those being admitted to intensive care with severe symptoms of Covid-19. This study looked at 2,249 patients who had been admitted to intensive care units with coronavirus in the UK, and found that 65% of them were white, while the remaining 35% were BAME. Given that that only 13% of the UK population was estimated to be BAME following the 2011 census, this suggests that ethnic minorities are over-represented among those being hospitalized with Covid-19.

However, a simple comparison like this fails to control for several important factors, particularly the influence of geography. BAME groups disproportionately live in cities, which were also the places which, as noted above, were hardest-hit during the early stages of the Covid-19 outbreak in the UK, therefore you would expect a larger share of them to have contracted it severely; when the ICNARC researchers compared the ethnicity of these patients with the ethnic mix of the local authority wards they lived in, they found that patients with an Asian ethnicity were being hospitalised in direct proportion to their share of the population in these areas. However, even when the ethnic composition of the local population was controlled for, patients with a Black ethnicity were still over-represented: 14 per cent of the intensive care patients were Black, compared with roughly 7 per cent of the population living in these areas.

Further evidence has since emerged which looks at mortality rates of different ethnic groups and controls for factors that might affect this. The most comprehensive analysis published on 7 May by the Office for National Statistics provided findings from two models showing that the mortality rates for Black, Indian, Pakistani, Bangladeshi and Other ethnic groups were several times higher than for the White ethnic group.

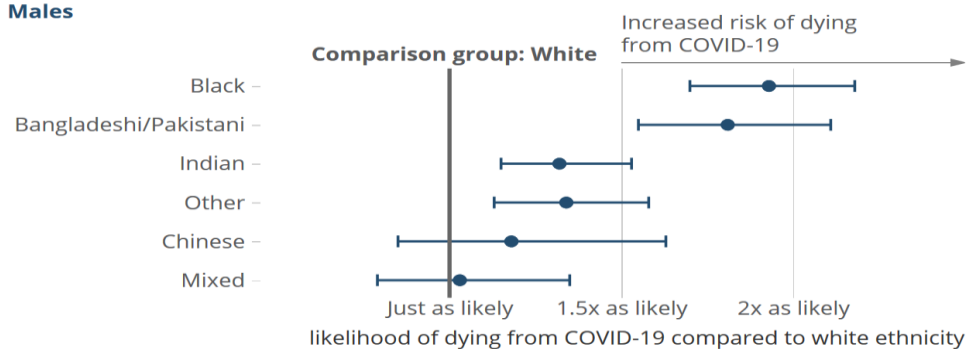
In particular, these differences in mortality still exist once differences were controlled for by a large range of factors including the different age, sex, region, rural-urban structures of the population, and also socio-economic factors such as area-based deprivation, household composition, highest qualification and socio-economic class.

After controlling for all these factors, they found Black men still had a mortality rate almost double that of White men (1.9 times), and mortality rates were almost as high for Bangladeshi/Pakistani men. There was a similar picture for women. People of a mixed ethnic background had a similar rate to the White population, and Chinese women had a lower mortality rate than White women.

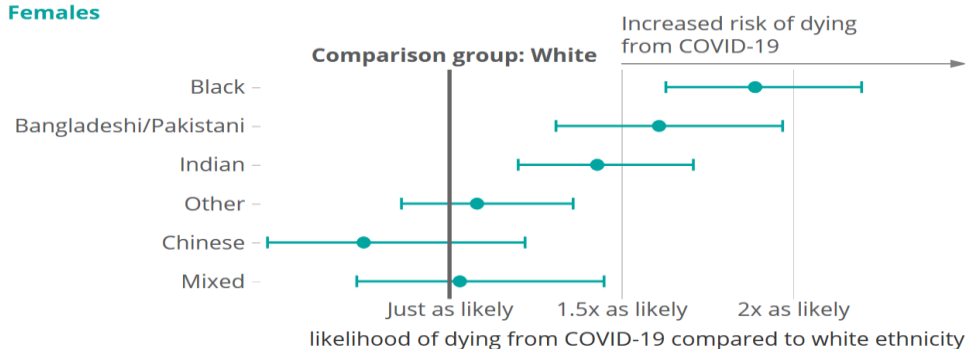
**Figure 8**

**Panel B - Fully adjusted model**

**Males**



**Females**



Source: Office for National Statistics

**Why are BAME groups disproportionately affected by Covid-19?**

A variety of different explanations have been proposed that have attempted to explain why BAME groups are being disproportionately affected by Covid-19, although it seems doubtful that there is a single overarching reason. Undertaking research which investigates these inequalities is complicated by a number of factors, including our relative lack of knowledge regarding what is still a novel disease, the difficulty and sensitivity of obtaining reliable data on patients' ethnicity and linking it to other datasets, the socially constructed nature of ethnicity itself, and the high degree of association between many of the potential causal factors which might be implicated.

It has been suggested that genetic factors may play a role in creating susceptibility to Covid-19 among BAME groups: an editorial in the British Medical Journal argued that *"possible susceptibilities include an increased risk of admission for acute respiratory tract infections, an increased prevalence of Vitamin D deficiency, vaccination policies in their country of birth and immune effects, increased inflammatory burden, and higher prevalence of cardiovascular risk factors such as insulin resistance and obesity than white populations. Some of these are also risk factors for increased disease severity in Covid-19."*<sup>4</sup>

However, there is a large body of previous research on inequality in public health and the structural inequalities which lie behind these. Some ethnic groups have higher prevalence than the white population of

underlying medical conditions which have been associated with developing severe Covid-19, such as Type 2 diabetes among people of South-East Asian origin and Hypertension within the Black community.<sup>5</sup> However, disentangling these genetic risk factors from the social determinants of health such as deprivation and poor nutrition is very difficult, given that most BAME groups are also disproportionately likely to be economically deprived in comparison to the White British majority.

The analysis by ONS found that once some of these socio-economic inequalities were controlled for, the differences in mortality rates between ethnic groups were lower, showing that these do partially explain the impact. When only gender and age were controlled for, Black men had a mortality rate which was 4.2 times that of White men.

Another factor which may help to explain some of the inequalities between ethnic groups is differences in the amount of social exposure that people in BAME groups have to other people who are infected. For example, cultural factors such as larger numbers of intergenerational households in certain BAME groups have been implicated in spreading the disease between different generations who are sharing the same home.<sup>6</sup> However, social exposure is also highly influenced by socio-economic divides; BAME groups are disproportionately likely to work in low-paid service roles which may bring them into face-to-face contact with people carrying an infection (they are particularly over-represented in low-level roles within both the NHS and social care sectors, where this problem may be exacerbated),<sup>7</sup> and are also disproportionately likely to be self-employed or working in the “gig economy”, which may have compelled BAME workers to carry on working as normal once social-distancing restrictions started being imposed because they were concerned about losing income.

The ONS analysis has established a clear relationship between ethnicity and mortality rates from Covid-19. The relationship between someone’s ethnicity and the risk of dying from Covid-19 is clearly a complicated one which is affected by a wide range of different explanatory factors. It appears that it can partially be explained by socio-economic inequalities between different ethnic groups, but there are also likely to be cultural and possibly also genetic factors which may play a role. There is clearly a need for new sources of medical data which are broken down by ethnic group and linked to other information about the people who have lost their lives to Covid-19, in order to enable researchers to investigate these questions in more detail.

## **Covid-19 and occupation**

Exposure to Covid-19, and thus the risk of contracting the disease is not equal across the population. Beyond that, the severity of the infection varies, as is well-documented, with age, sex and underlying health conditions having a strong association with the risk of death. As discussed above, ethnicity also appears to be correlated with the risk of dying of Covid-19, and one of the suggested contributors to that has been the occupations of those groups. ONS have conducted some research to help consider the impact of occupation on the risk of exposure to Covid-19.

In general, factors influencing the risk of exposure to a disease might be the number of people that an individual in a particular occupation is likely to come into contact with, how close that contact is, for how long and under what conditions, and the chance that those individuals would have a disease. The ONS analysis is based on research into some of these factors and occupations originally carried out in the US.

Not surprisingly, healthcare workers such as nurses and care assistants have higher risks that the individuals they come into contact with are likely to have a disease, the contact is fairly frequent and close, whereas a pharmacist generally has less close contact but high exposure to disease, while a physiotherapist is less likely to have high exposure to disease, even though they may work closely with many people. Personal protective equipment is designed to mitigate some of these risks during the pandemic.

Some occupations involve interacting with large numbers of people, sometimes at close range, but in normal times, those people have low exposure to diseases. Examples of this type of occupation can be in elementary, service, retail and hospitality roles including, such as, hairdressers, shop workers, taxi drivers and bar staff. Many of these occupations are relatively poorly paid. While some of these workers have been furloughed, that is not true for all of this group, with some shop workers and taxi drivers particularly, left with relatively high risk of contact with the disease in an enclosed space.

Many of the individuals in some of the jobs with less exposure risk – because they don't come into close contact with many other people and those they do see are relatively unlikely to have diseases in normal times – are also often higher paid and this group are also more likely to be able to work from home.

The ONS research also sets out for the highest exposure risk occupations the proportion that are women, that are over 55 and that are from one of the BAME groups. Overall, women make up a very large proportion of people in these occupations, the over 55 group has a similar proportion as in the overall working population, and BAME groups are nearly twice as likely to be in one of these occupations. However, this analysis does not include shop workers and transport workers who may still be working with relatively high risk of exposure and without protective equipment, and which also account for a relatively high proportion of BAME workers in London.

A further piece of research from ONS, looking at deaths from Covid-19 by occupation found that nearly 2,500 of the deaths involving Covid-19 in England and Wales up to 20 April were in the working age population aged 20-64. Adjusting for age and sex differences, covid-19 related deaths were twice as high among men in the lowest-skilled occupations as among all working-age men, and more than twice as high again among men working as security guards.

Both men and women working in social care had significantly raised rates of deaths mentioning Covid-19, while healthcare workers, including doctors and nurses, did not have higher rates of death from Covid-19 than the general population, when adjusted for age and sex.

People working in some of the categories described above as bringing them into contact with a large number of people, though usually not with high levels of diseases, that have continued to work, notably taxi drivers, bus drivers, chefs and sales and retail assistants have higher rates of death involving Covid-19 than the general population.

## **Infection rates in the UK**

A new study, published on 14<sup>th</sup> May reports on an infection survey carried out across England as a whole to estimate the real number of infections shows that at any given time between 27<sup>th</sup> April and 10<sup>th</sup> May, an average of 0.27 per cent of the community population, that is excluding people in hospitals, care homes and other institutional settings had Covid-19.

For people working in patient-facing healthcare or resident-facing social care roles, the rate was nearly five times as high as the average, but there was no evidence of differences in infection rates for different age groups.

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