

## The demographic impact of Covid-19 in London

20 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 19<sup>th</sup> May, there had been a total of 26,529 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 8<sup>th</sup> May 7,576 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 1,921 in a single week (a week later than the peak for cases)
- In the week to 8<sup>th</sup> May, the number of deaths had reduced to 352
- Of the total Covid-19 related deaths recorded, 75 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 ten weeks between 29<sup>th</sup> February and 8<sup>th</sup> May, Brent recorded more Covid-19 related deaths than any other borough, at 446. This was 54 per cent of all deaths in the borough over this period. More than half of the deaths in Harrow and Haringey in this period were also recorded as being related to Covid-19
- No local authorities outside London showed a higher proportion of all deaths over the ten weeks as being due to Covid-19 than the figures for London as a whole of 42 per cent

- 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 54,000 excess deaths in the UK and 9,300 in London up to 8<sup>th</sup> May
- The Financial Times has used the measure of excess deaths to compare major world cities. As of 20<sup>th</sup> May, this shows that London has recorded 142 per cent more deaths than average, compared with 108 per cent for Ile de France, incorporating Paris. The figure for Paris is decreasing as it moves further past the peak.
- New York City is recorded in the FT report as having 20,700 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**

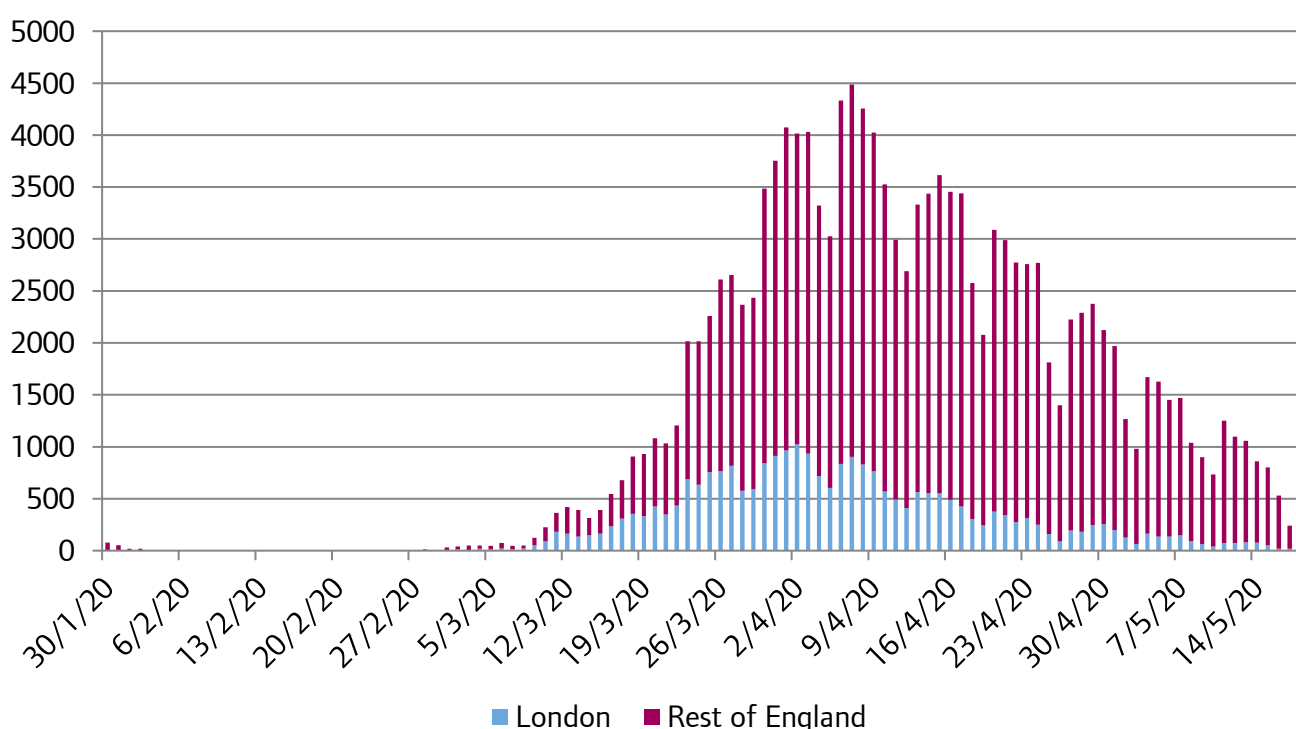
- The number of cases testing positive in London has fallen further, with the number of new daily cases below 100 each day.
- The weekly number of deaths in London with Covid-19 mentioned on the death certificate has fallen below to 352 for the week ending 8<sup>th</sup> May. The proportion of these dying in care homes was 23 per cent.
- Comparison of Covid-19 related deaths to all deaths since 29<sup>th</sup> February show more than half of deaths in three London boroughs mentioned Covid-19 on the death certificate.
- The infection survey across England as a whole found that between 4<sup>th</sup> May and 17<sup>th</sup> May, 0.25 per cent of the population living in private households had Covid-19 at any given time. This is likely to be slightly lower in London. There were no differences found by age, sex or occupation.

## 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 3,583 cases testing positive on April 7<sup>th</sup>.

To date, there are 26,529 confirmed cases in London, which is 18.3% of all cases testing positive in England (as at 18<sup>th</sup> May), though the figures for the most recent dates may still change. London 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 been below 100 new cases per day in London for each day in the last ten days, and below 50 in the last few days, though these numbers may change.

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



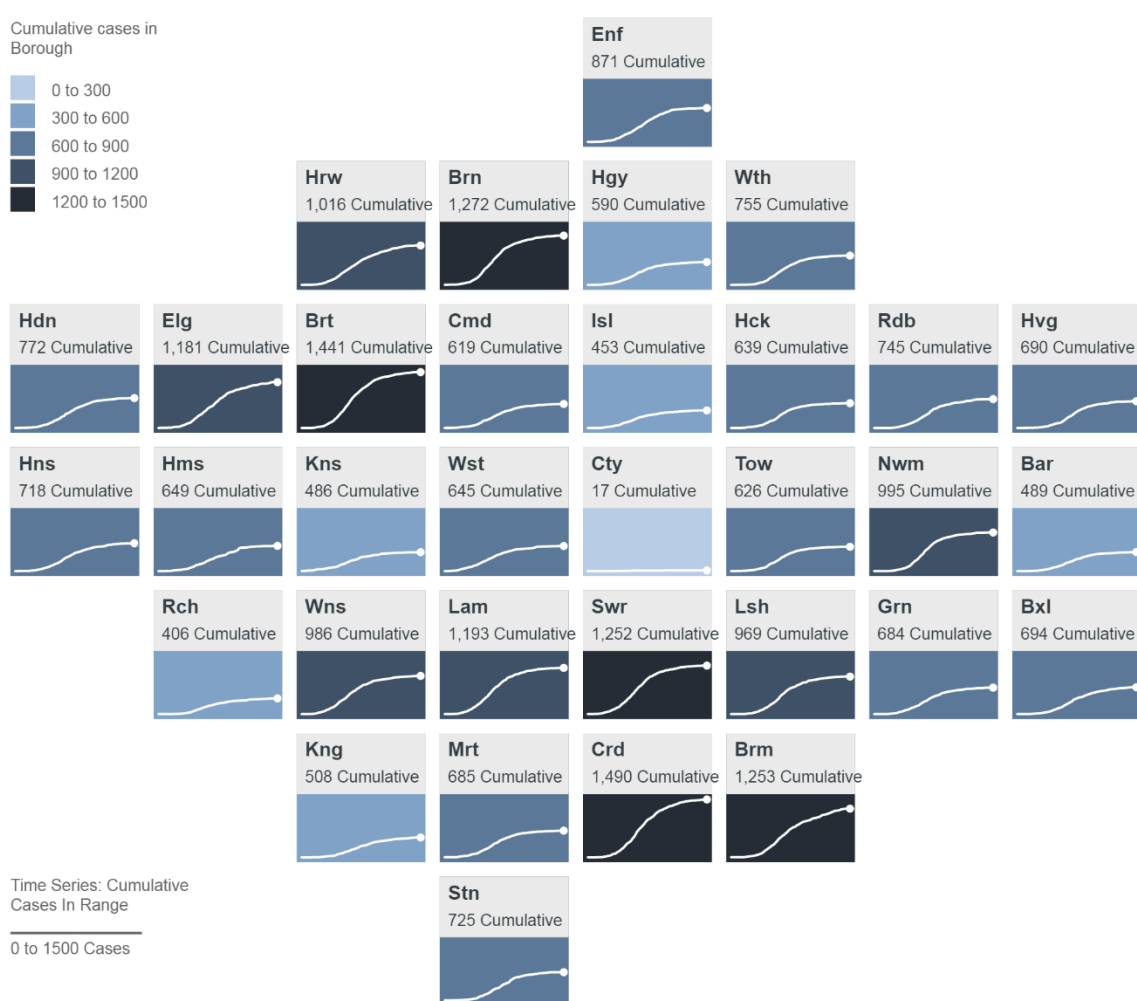
Source: PHE COVID-19 Dashboard (snapshot taken on 19th May – data to 18/5)

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, 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, with all boroughs seeing an increase in the number of confirmed cases over the last week, though the numbers of new cases are getting smaller. The largest increases in confirmed cases reported in the last week are for Bromley and Ealing.

**Figure 2**

### Covid-19 Cases by London Borough (2020-03-01 to 2020-05-18)

Displaying cumulative count (within date range) at: 2020-05-18



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

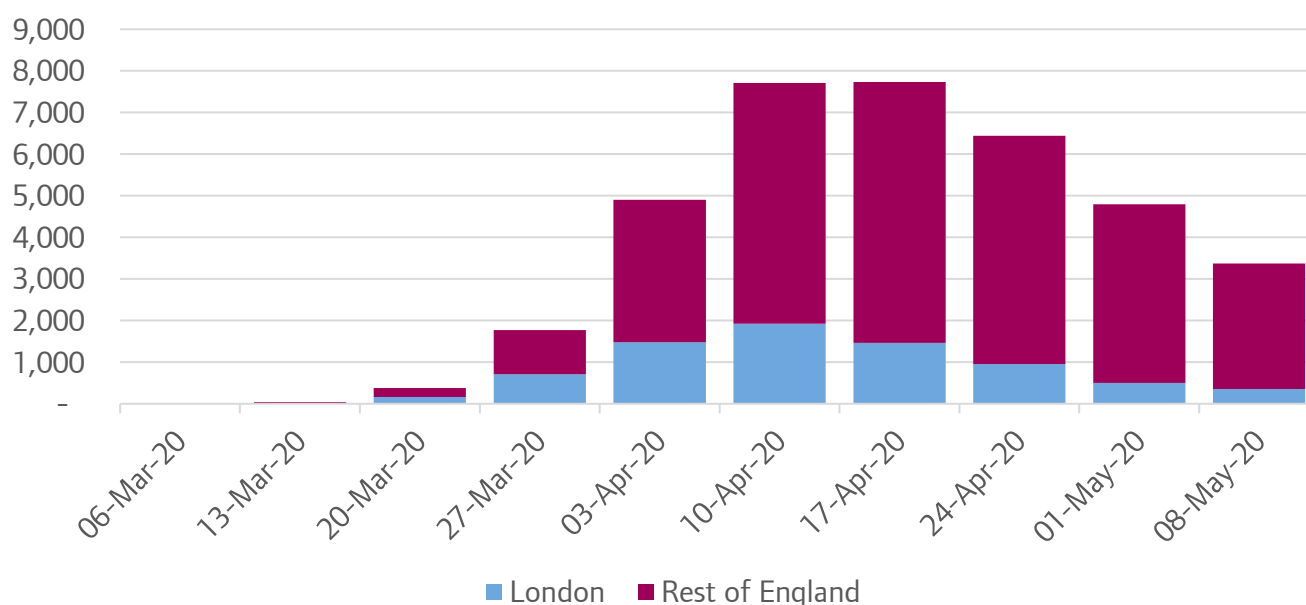
The vast majority of those who contract the disease recover, particularly those who suffer with mild symptoms. There are, however, no numbers available for this in the UK. For some who are infected, the disease is more serious and can lead to death either directly or through other infections, such as 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 or lower of people with the disease.

### 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 1,921 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 8<sup>th</sup> May, the number of deaths recorded so far was 352, continuing to decrease over the previous week, but less steeply than seen over the previous two weeks. In total, up to 8<sup>th</sup> May, 7,576 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*

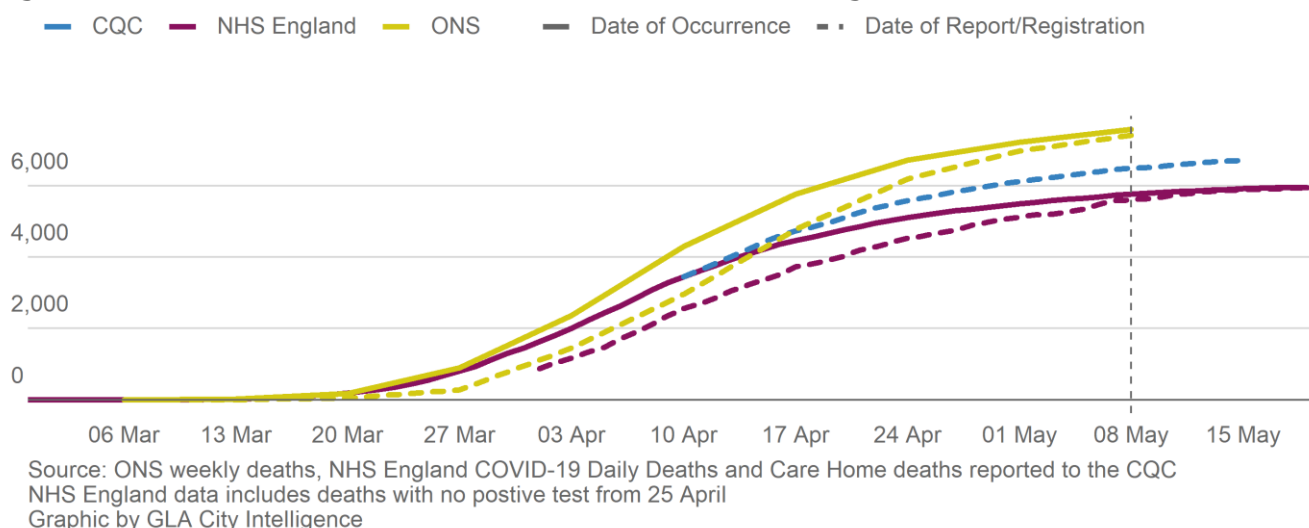
This number of deaths is higher than for any other region in the UK. The timeline of deaths occurring in the rest of England reflects that of the cases, with the peak number of deaths so far recorded occurring in the week after the peak number of deaths in London. The proportion of deaths registered as involving Covid-19 in England that were in London has followed a similar pattern to the cases, with 40 per cent in the first few weeks but less than 10 per cent of all deaths mentioning covid-19 for the latest week being Londoners. The proportion of the total population that are registered as dying with Covid-19 mentioned on the death certificate is twice as high for London (8.5 in 10,000) as for the South West of England (4 in 10,000), but

for the North East, North West and West Midlands the figure is closer to that for London (all between 7.5 and 7.9 per 10,000), and these areas continue to report higher numbers of new cases than 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 8<sup>th</sup> May and are subject to change as further death registrations are completed. Of the total weekly deaths recorded, 75 per cent of London deaths (5,699) have occurred in hospitals, 15 per cent in care homes, with 7 per cent at home and 2 per cent in a hospice or elsewhere, which would include other communal establishments such as prisons. Across England as a whole, 66 per cent of Covid-19 related deaths have been in hospital and 27 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 5,819 (as at 19<sup>th</sup> May), with a further 131 where Covid-19 was mentioned on the death certificate, which is 22% of the total Covid-19 related hospital deaths in England. A total of 801 (reported to 15<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. 75 of the deaths in care homes and 160 of the hospital deaths<sup>1</sup> have been reported since 8<sup>th</sup> May, though due to some administrative corrections, some of these relate to deaths occurring prior to that date. The number of deaths in hospitals is seeing a rapid decrease, whereas the number of deaths in care homes is decreasing, but more slowly.

**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 29<sup>th</sup> February to 8<sup>th</sup> May. 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 ten week period, Brent recorded more Covid-19 related deaths than any other borough. Of the total of 7,576 deaths in London, 446 were in Brent, with 287 in Barnet, 422 in Croydon and 420 in Barnet. This represented 55 per cent of all deaths in Brent, but 43 and 44 per cent of deaths in the other two boroughs. Harrow and Haringey were the only other boroughs where more than half of deaths were recorded with

<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.

Covid-19 on the death certificate. The lowest number of deaths recorded in this period in any London borough from the pandemic, apart from the City of London, was 110 deaths in Kingston upon Thames. This was 29 per cent of all deaths in the borough. These compare with 42 per cent of all deaths in London occurring during the same ten week period as a whole being registered as related to Covid-19.

**Table 1 Deaths between 29<sup>th</sup> February and 8<sup>th</sup> May in London Boroughs**

	Covid-19	All causes	Percentage of all deaths that are related to Covid-19
Brent	446	812	54.9
Harrow	359	696	51.6
Haringey	241	475	50.7
Newham	284	581	48.9
Hammersmith and Fulham	159	332	47.9
Southwark	223	473	47.1
Tower Hamlets	175	374	46.8
Kensington and Chelsea	116	248	46.8
Ealing	370	796	46.5
Hackney	204	441	46.3
Lewisham	258	568	45.4
Lambeth	251	565	44.4
Croydon	422	955	44.2
Westminster	171	399	42.9
Barnet	420	981	42.8
Waltham Forest	214	514	41.6
Enfield	355	866	41.0
Camden	145	355	40.8
Hounslow	206	508	40.6
Redbridge	279	695	40.1
Hillingdon	289	732	39.5
Wandsworth	194	504	38.5
Merton	177	461	38.4
Islington	136	355	38.3
Barking and Dagenham	152	400	38.0
Greenwich	205	557	36.8
Richmond upon Thames	133	375	35.5
Bromley	290	845	34.3
Sutton	153	473	32.3
Havering	249	778	32.0
Bexley	187	594	31.5
Kingston upon Thames	110	375	29.3
City of London	3	12	25.0
<b>London</b>	<b>7,576</b>	<b>18,095</b>	<b>41.9</b>

*Source: Death registrations and occurrences by local authority and health board, ONS (as published 19 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. The figures comparing the Covid-19 related deaths to deaths from all causes mitigate this to some extent, but

using Age Standardised Mortality Rates (ASMRs) allows for comparisons which take into account such differences across the populations of different areas. These are currently only available for the period up to 17<sup>th</sup> April.

For England, the ASMR for Covid-19 deaths 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>.

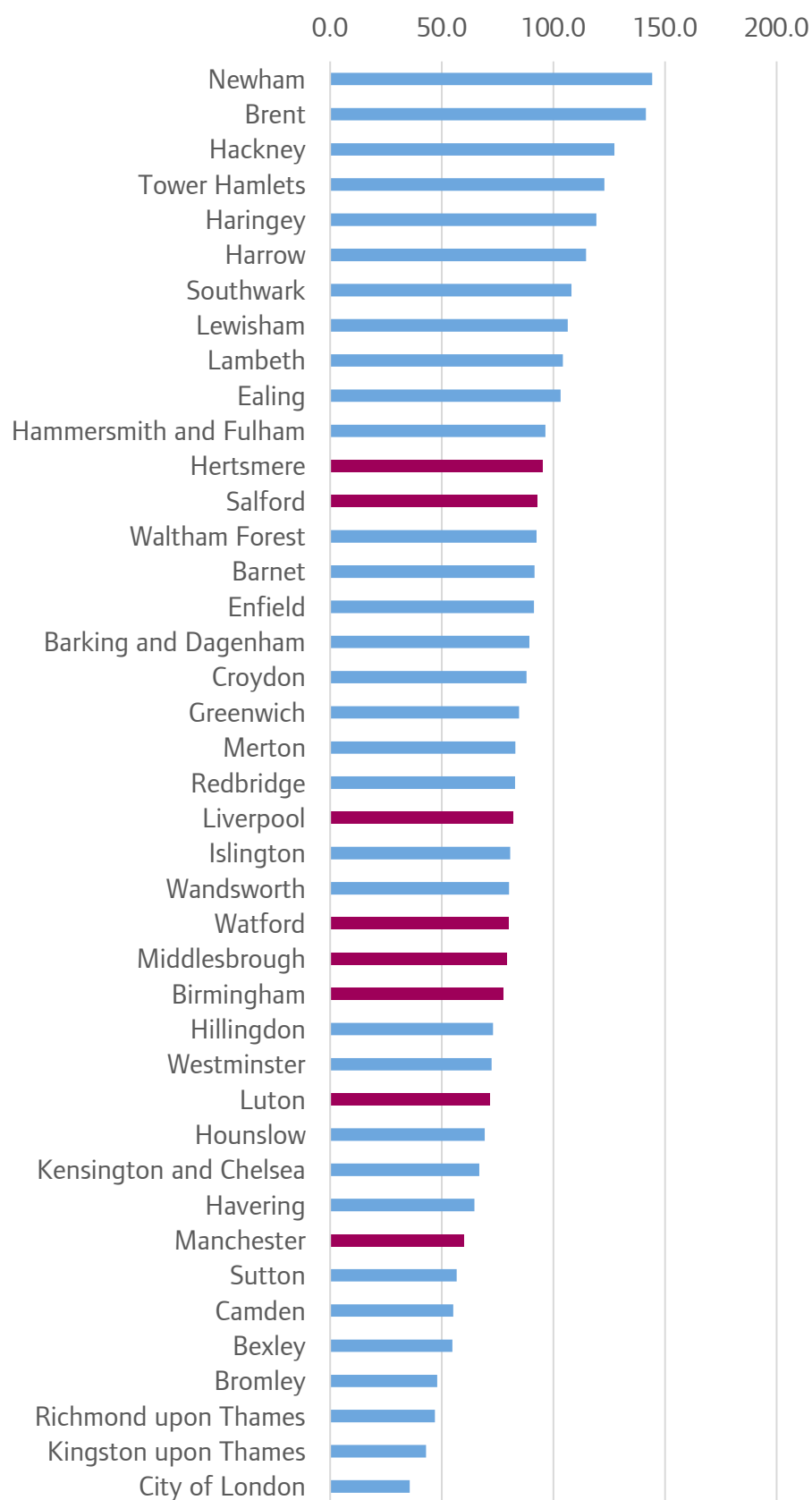
Even within London there are very large differences with Newham and Brent standing out as having the highest rates of over 140 – nearly four times the national average. The differences between this measure and the proportion of all deaths that are related to Covid-19 seen in Table 1 may be to do with the different time period as well as the different method of analysis.

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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.



**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

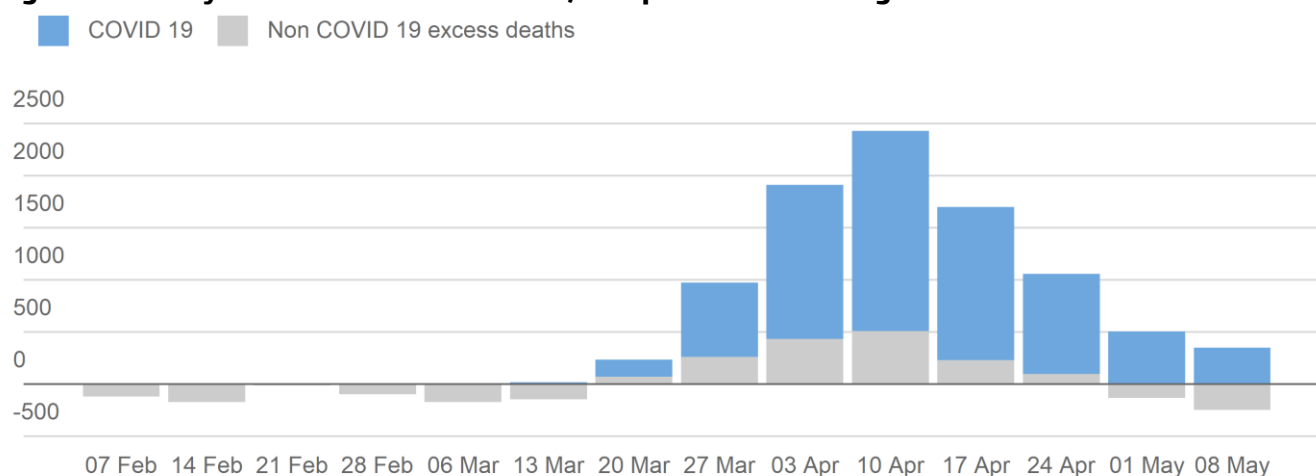
## ONS Excess weekly deaths estimates

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 saw a particularly high 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 8<sup>th</sup> May, around 54,000 “excess” deaths have occurred during the pandemic across the whole of the UK. Of these, 9,300 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. The number of non Covid-19 deaths in London has been lower than average for the last two weeks.

**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. The numbers of Covid-19 related deaths up to 8<sup>th</sup> May are higher in some of the very large local authorities, such as Birmingham, Leeds, Liverpool and County Durham than in individual London boroughs, but the number in Birmingham is still just 13.5 per cent of the deaths seen in London overall, and is 35 per cent of total deaths from 29<sup>th</sup> February to 8<sup>th</sup> May, which covers the ten weeks from the start of the pandemic in the UK to the most

<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.

recent data available. Taking the same proportion over the same time period for all local authorities in England shows that there is no local authority outside London with a higher proportion of deaths being registered as related to Covid-19 than the London average. Hertsmere, which borders on to Harrow, Barnet and Enfield is the only English local authority outside London in the top twenty, ranked by proportion of all deaths in this ten week period that mention Covid-19. Salford, Watford and Tewkesbury are the only others outside London in the top thirty on this measure. City local authorities that rank in the top fifty include Reading, Cheltenham, Birmingham, Middlesbrough, Derby and Liverpool.

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 was 55.5. Other towns and cities with high rates include Salford and Walsall, both with ASMRs over 100, though these were still well below the ASMRs seen in several of the London boroughs. Watford and Hertsmere also have high ASMRs, as seen in chart 5 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 show different patterns. As London's timeline for the spread of Covid-19 was ahead of most of the rest of the country, the figures above are still 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 20 May), the Financial Times shows that London, with a population around 9 million, has recorded 9,300 or 142 per cent excess deaths, compared with 108 per cent or 11,000 excess deaths for Ile de France, with a population of 12.2 million, incorporating Paris. Madrid (12,000 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 similar to that of London is recorded in the FT report<sup>4</sup> as having 20,700 excess deaths, nearly 400 per cent more than normal. The New York metro area, has seen more than 30,000 excess deaths.

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>. Paris, for example, is further past the peak than London, so the proportion of excess deaths is now decreasing. 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.

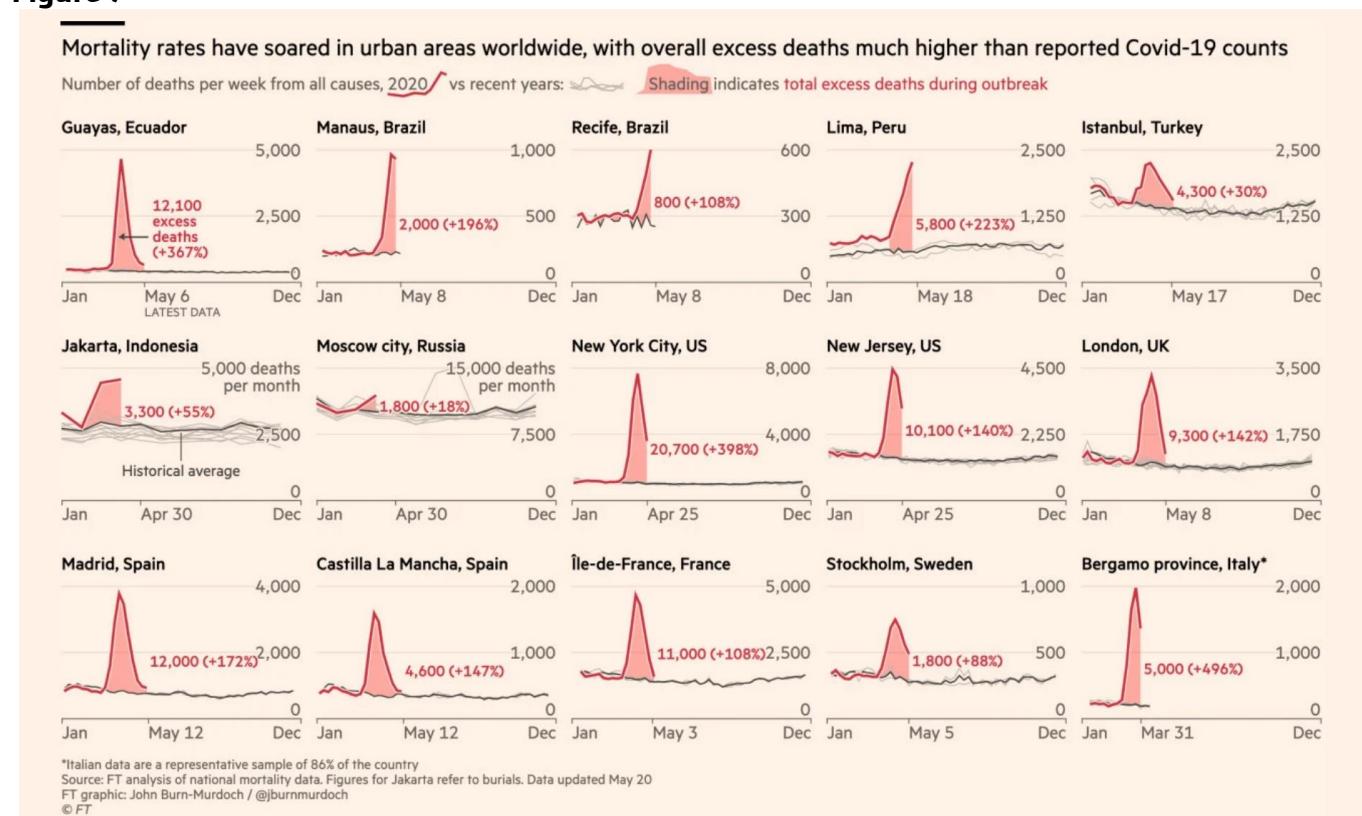
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<sup>4</sup> <https://www.ft.com/content/a26fbf7e-48f8-11ea-aeb3-955839e06441>

<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.

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 60 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 experienced more than double their expected number of deaths, though the proportions are now falling as they move further past the peak. More cities in South America are now among those with the highest proportions of excess deaths.

**Figure 7**



## 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 by the Intensive Care National Audit and Research Centre (ICNARC) which was published on 15th May revealed that BAME patients were over-represented among those being admitted to intensive care with severe symptoms of Covid-19. This study looked at 8,699 patients who had been admitted to intensive care units with coronavirus in the UK, and found that 67% of them were white, while the remaining 33% 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.

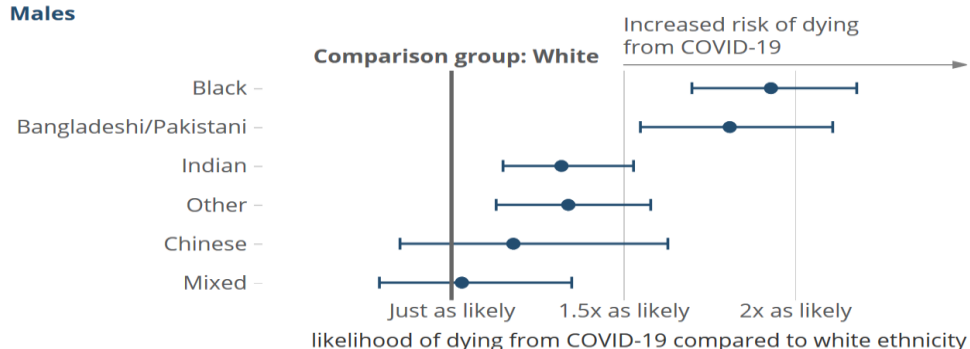
In particular, these differences in mortality still exist once differences were controlled for by a large range of factors including the different age, sex, region, rural-urban structures of the population, and also socio-economic factors such as area-based deprivation, household composition, highest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

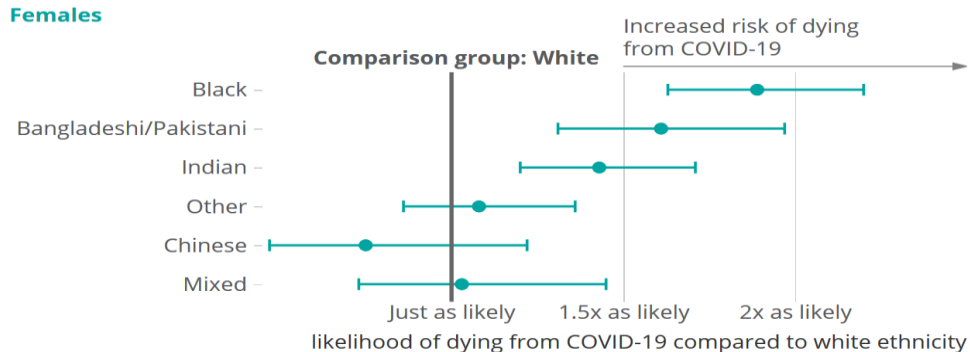
**Figure 8**

**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**

An infection survey carried out by ONS, published on 21<sup>st</sup> May carried out across England as a whole to estimate the real number of infections shows that at any given time between 4<sup>th</sup> May and 17<sup>th</sup> May, an average of 0.25 per cent of the community population, that is excluding people in hospitals, care homes and other institutional settings had Covid-19. This is slightly lower than the figure reported the previous week of 0.27 per cent infected for the period between 27<sup>th</sup> April and 10<sup>th</sup> May. The figure is likely to be lower in London as the number of new cases being confirmed is lower than the rest of England, but regional figures from the infection study are not available.

In the latest release from the study, there was no evidence that the rate of infection varied for any groups considered – by sex, age or between people working in patient-facing healthcare or resident-facing social care roles, and not working in such roles, whereas the previous release had found the infection rate was nearly five times as high as the average among those in patient-facing roles.



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