

The demographic impact of the first phase of Covid-19 in London, February-June 2020

3 July 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 during the first phase of the pandemic in the UK, from February to June 2020. This briefing covers what is known about Covid-19 cases, before looking at mortality. It provides comparisons with other cities, exploring some of the issues which affect the accuracy of such comparisons, it summarises the evidence of unequal impacts for different demographic groups, especially around ethnicity, deprivation and workers in particular occupations, and looks at the data on current and past infections.

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 11th February 2020 and the first death reported in the first week of March
- Prior to lockdown on 23rd March, nearly 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 2nd April
- In the first phase of the Covid-19 pandemic in the UK, there have been more than 33,000 confirmed cases in London, including those tested through NHS and commercial partners
- Whilst around 0.4 per cent of Londoners have tested positive for Covid-19, the true figure is closer to 15 per cent of the population, according to estimates from antibody testing.
- Infection rates have fallen rapidly since April, but there is some suggestion that they may have risen marginally during June.
- The number of cases testing positive in London has fallen dramatically, with the number of new daily cases below 50 each day since the last week in May.
- Between February and June 2020, there were 600 confirmed cases for each 10,000 London women aged 90 or over, compared with less than 100 for each 10,000 residents in any age group below 75.
- Around 18 per cent of London's adult population had symptoms of Covid-19 in April, but just two per cent were tested.
- Young adults are more likely to have had Covid-19 infection and symptoms than those aged 50 or over.
- Croydon and Brent had the highest total number of confirmed cases by borough
- Up to 19th June, 8,374 London residents were registered as having died with Covid-19 mentioned on their death certificate, measured by ONS weekly deaths estimates

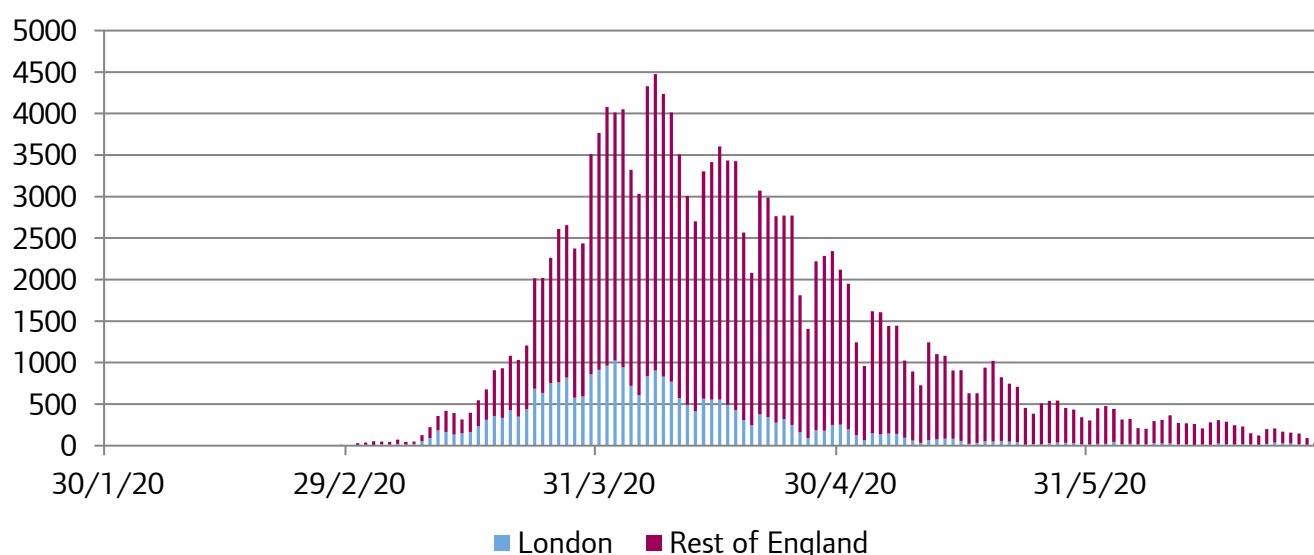
- In London, the peak week for Covid-19 related deaths occurred during the week ending 10th April, with 1,945 in a single week (a week later than the peak for cases)
- The number of deaths in London has fallen consistently through May and June and fewer than 50 Covid-19 related deaths have been recorded in each of the first two weeks of June.
- Of the total Covid-19 related deaths recorded, 74 per cent of London deaths have occurred in hospitals, 16 per cent in care homes, with 8 per cent at home and two per cent in a hospice or elsewhere, which would include other communal establishments such as prisons.
- Mortality rates increase sharply with age after around age 50 among those who have tested positive for Covid-19 and are higher for men than women in all age groups below age 90.
- Based on the sixteen weeks between 29th February and 19th June, Barnet, Brent, Croydon and Ealing each recorded more than 400 Covid-19 related deaths. This was almost half of all deaths in Brent over this period, higher than for any other local authority in England.
- Adjusting for the size and the age and sex of the population, nine of the ten local authorities with the highest mortality rates due to Covid-19 were in London
- 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 more than 60,000 excess deaths in England and nearly 8,000 in London between the beginning of March and 19th June.
- The weekly number of deaths from all causes has been below the five-year average from the last week of May.
- More of the excess deaths in hospitals occurred earlier in the pandemic in London, while the latest figures show there are still more deaths occurring at home than average.
- 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.
- Public Health England found that diagnosis was much higher among England's residents of a Black ethnic background, with Black men three times as likely as White men to have a confirmed diagnosis.
- Among those with confirmed cases, deaths were twice as high for the Bangladeshi community compared with the White British population, while most other BAME groups also had a higher than average rate of deaths.
- Contributory factors to an increased risk of infection came from living in overcrowding housing as well as large and multigenerational households. The PHE report also found that racism and discrimination may have contributed towards BAME populations having higher risk of exposure to Covid-19 infection. This, alongside a greater prevalence of underlying conditions among Londoners from some ethnic groups, contributed to worse outcomes of infection.
- ONS analysis confirmed the higher risk of death among Black men in particular.
- Mortality rates from Covid-19 among Jewish men are twice as high as among Christian men.
- Women with health problems or disabilities that limited their activities a lot showed mortality rates 2.4 times those of women without such limits.
- Occupations of workers make a difference to exposure to Covid-19 with nurses and care workers, security guards, taxi and bus drivers having much higher numbers of deaths relating to Covid-19.
- Mortality rates from Covid-19 are higher for residents in more deprived areas. Even after adjusting for age differences, people in the most deprived areas are twice as likely to die from Covid-19 as those in the least deprived areas.
- Infection rates were higher among healthcare and care workers and also higher for others working outside the home than for those working from home, and there is some evidence that the 20-49 age group had higher infection rates than the 50-69 age group.
- Around 6 per cent of Londoners were shielding.
- Nearly half of those clinically extremely vulnerable had not left home at all since receiving a letter advising them to shield.

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 11th February 2020. Prior to lockdown on 23rd March, there were 3,523 cases of Covid-19 in London which had tests with a positive result. At that point, 39 per cent 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 reached its daily peak of 1,025 tests with a positive result on 2nd April, whereas for the rest of England, the peak was 3,574 cases testing positive on April 7th.

As reported to 30 June, there have been 27,670 confirmed cases in London, with tests carried out in Public Health England (PHE) labs and NHS hospitals for those with clinical need and health and care workers. These are described as Pillar 1 tests under the Government's testing strategy. This number is just over 17 per cent of all cases testing positive in England, though the figures are subject to change, particularly for the most recent dates. London had an earlier peak of infections than in the rest of England, but as the testing capacity and eligibility for testing were very limited early on in the UK's Covid-19 experience, it is likely that this is an underestimate affecting the figures for London more than elsewhere.

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



Source: PHE COVID-19 Dashboard (snapshot taken on 30th June – data to 29/6)

* Includes only tests carried out under Pillar 1 of the Government's testing strategy

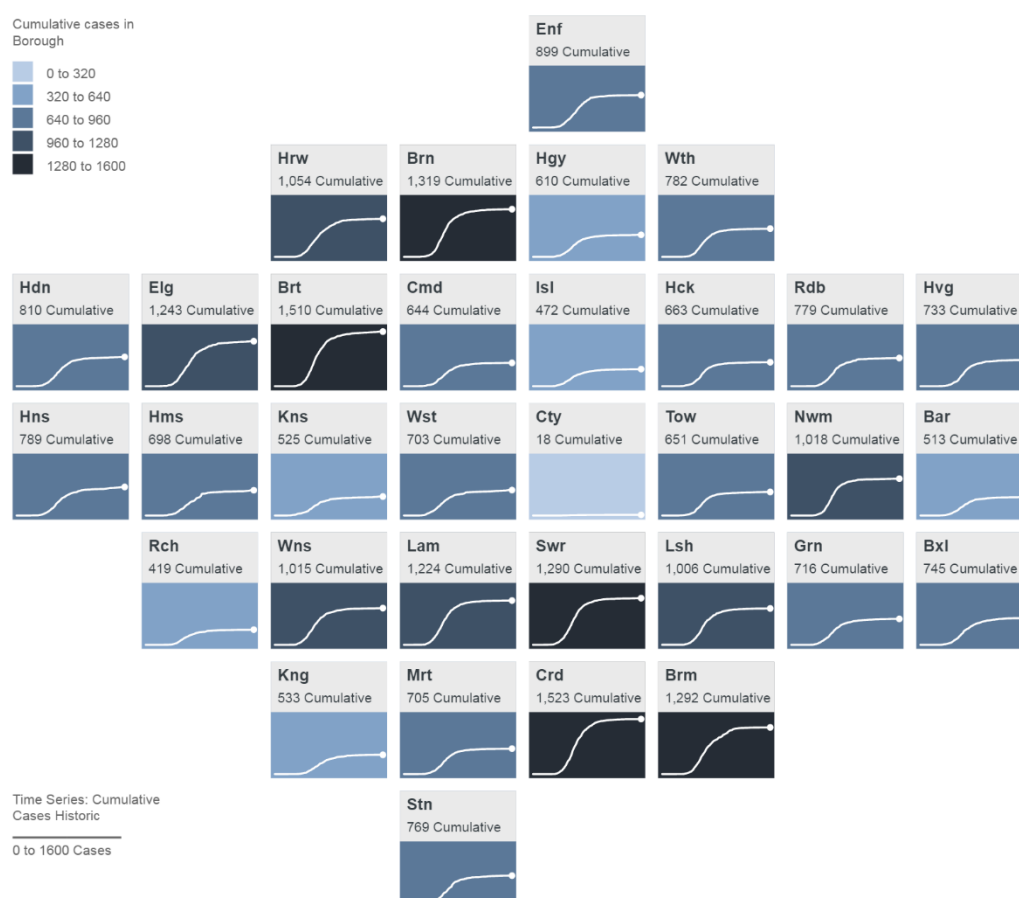
Testing capacity increased over time, but the largest increases in testing capacity were seen after the infections appeared to be reducing. The figures reported during the whole period from February to the end of June for the number of cases with a positive test result have only included those tested under Pillar 1, ie they have not included many of the tests carried out on the general public under Pillar 2 of the Government's testing strategy at, for example, drive through testing centres. In London, this means that around 6,000 cases are not included in these figures, with most of those cases being tested in the second half of April and through to the end of May. The total number of cases with a positive test result in London to the end of June was more than 33,000. The shortfall recorded by including Pillar 1 testing only has been much larger in some other parts of England, again due to the course of the pandemic and the different testing regimes in place at different times. In the East Midlands, for example, there have been more positive tests carried out under Pillar 2 testing than Pillar 1 testing, so the number of cases now reported as confirmed has more than doubled, increasing by over 10,000 on the previously available figures. 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, but it can be assumed to be a large number.

From the last week in May through June, the daily number of new cases confirmed has maintained a low level in London, with fewer than 50 Londoners testing positive on any day through the Pillar 1 testing and less than five in 100,000 testing positive each week through either of the two testing routes. This is lower than for any region of England other than the South West, though there is a hint of a slight increase in numbers in the last week of June. At the peak, there had been around 70 Londoners in 100,000 testing positive in a single week.

The number of confirmed cases varies widely by borough, as shown in Figure 2. This includes only those tested under Pillar 1 as numbers tested under Pillar 2 have not been published for lower geographies at the time of writing, though as the total is relatively small for London and is unlikely to change the overall picture by borough. 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 Harrow, Southwark and Bromley. Islington, Richmond, Tower Hamlets and Haringey are among those with relatively low numbers of cases with positive test results.

Figure 2 Covid-19 Cases by London Borough (2020-02-11 to 2020-06-29)
Displaying cumulative count (all historic) at: 2020-06-29



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

As well as having a differential impact in different parts of London, the number of confirmed cases varied by age and sex. Figure 3 shows the total number of confirmed cases, combining both the Pillar 1 and Pillar 2 testing data. It reveals that there were relatively few confirmed cases among London's children and young people aged under 20. Between ages 25 and 90+, numbers of confirmed cases in each 5-year age group ranged from just below 2,000 among the 65-69 group to 2,800 among the 50-54 and 55-59 age groups. There were more confirmed cases among younger adult women up to age 34 than among men of the same age groups, but more among men than women in the age groups between 50 and 85. While the number of cases is relatively even across most adult age groups, this does not reflect the population structure within London. Figure 4 shows the number of confirmed cases as a proportion of the population in each age group, which reveals a very different perspective of the low rates of confirmed cases among all age groups below age 75, with fewer than 100 in 10,000 confirmed cases in these age groups, but rising rapidly to more than 600 per 10,000 women aged 90 or over. It is clear that the testing strategy and eligibility criteria in addition to the nature of the virus, with more mild and asymptomatic cases among younger people, have impacted in these figures. Other sources, discussed in other sections below, show that the levels of infection are much more evenly spread across the population.

Figure 3 Total number of confirmed cases by age and sex, London

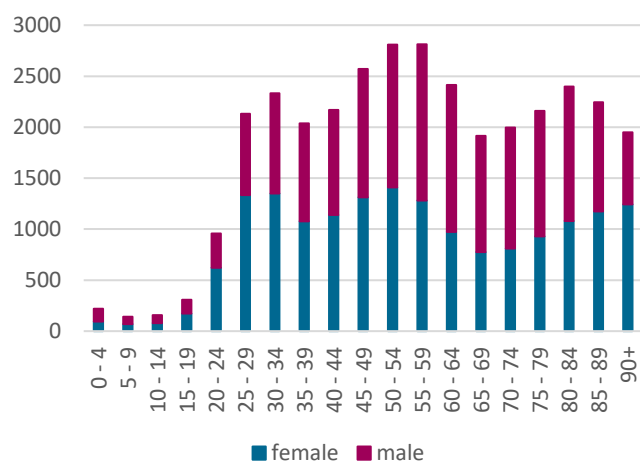
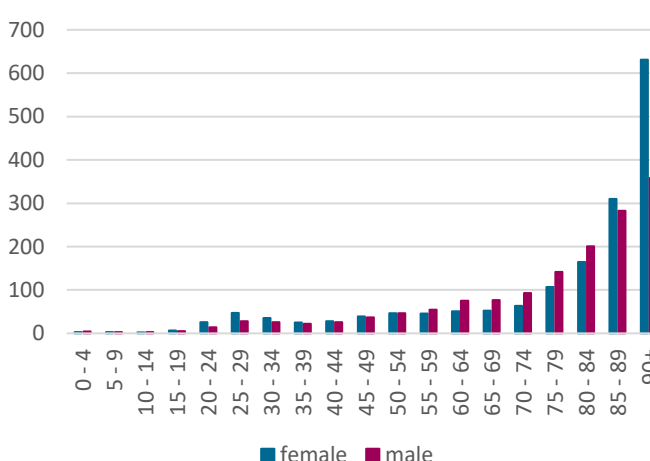


Figure 4 Rate of confirmed cases by age and sex per 10,000 population, London



Source: PHE cumulative numbers of cases by region, including Pillar 1 and Pillar 2

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, though see findings from the sero-prevalence study below. For some who are infected, the disease is more serious and can lead to admission to hospital. The numbers of hospital patients with illness related to Covid-19 in London was more than 4,800 at the peak in early April, falling steadily so that by the end of May the number was below the 819 recorded for 20th March when the first data became available, and less than half that in the second half of June. In all other regions and parts of the UK, the number on 25th June, the latest available, was still higher than for 20th March, again showing the different timing and spread of the disease in different parts of the UK.

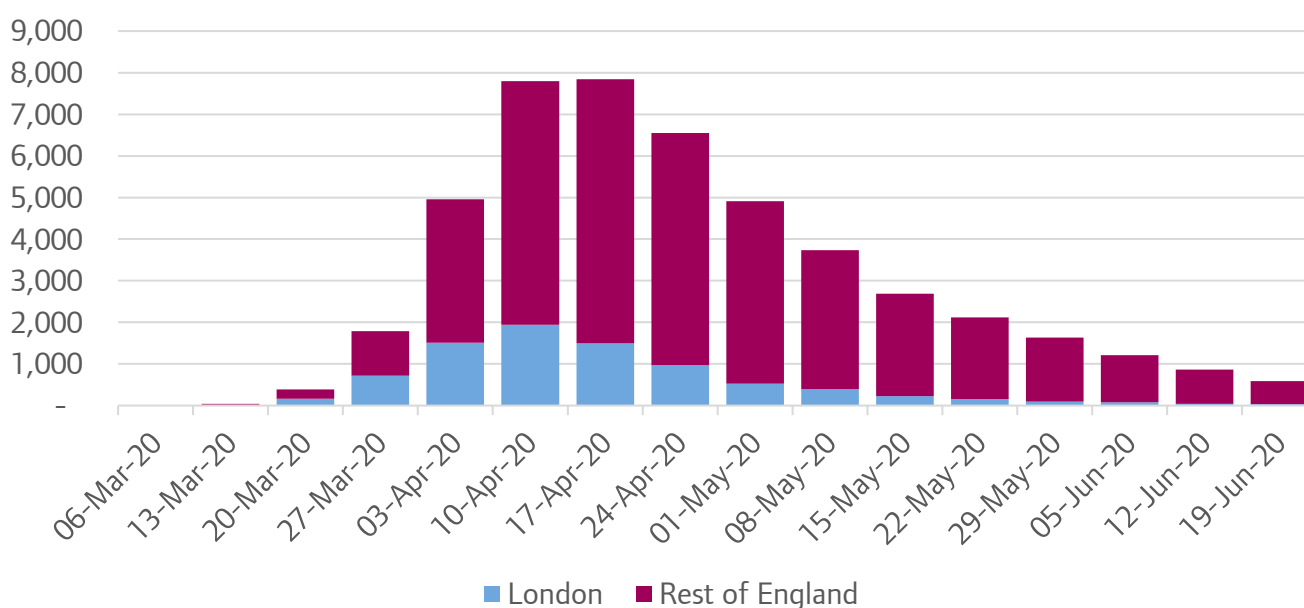
Some people are affected so badly that Covid-19 leads to death either directly or through other infections, such as pneumonia or worsening of other conditions such as heart disease. Globally, estimates of the mortality rates have ranged from around one per cent to ten per cent of those infected. This 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 4 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 10th April, with 1,945 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 19th June, the number of deaths from COVID-19 recorded in London so far was 32, which is the second week with fewer than 50 deaths recorded. In total, up to 19th June, 8,374 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 around nine 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 31st March, relating to Covid-19 will have been missed.

Figure 5 Deaths recorded in each week of 2020 by date of occurrence, London, Rest of England



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

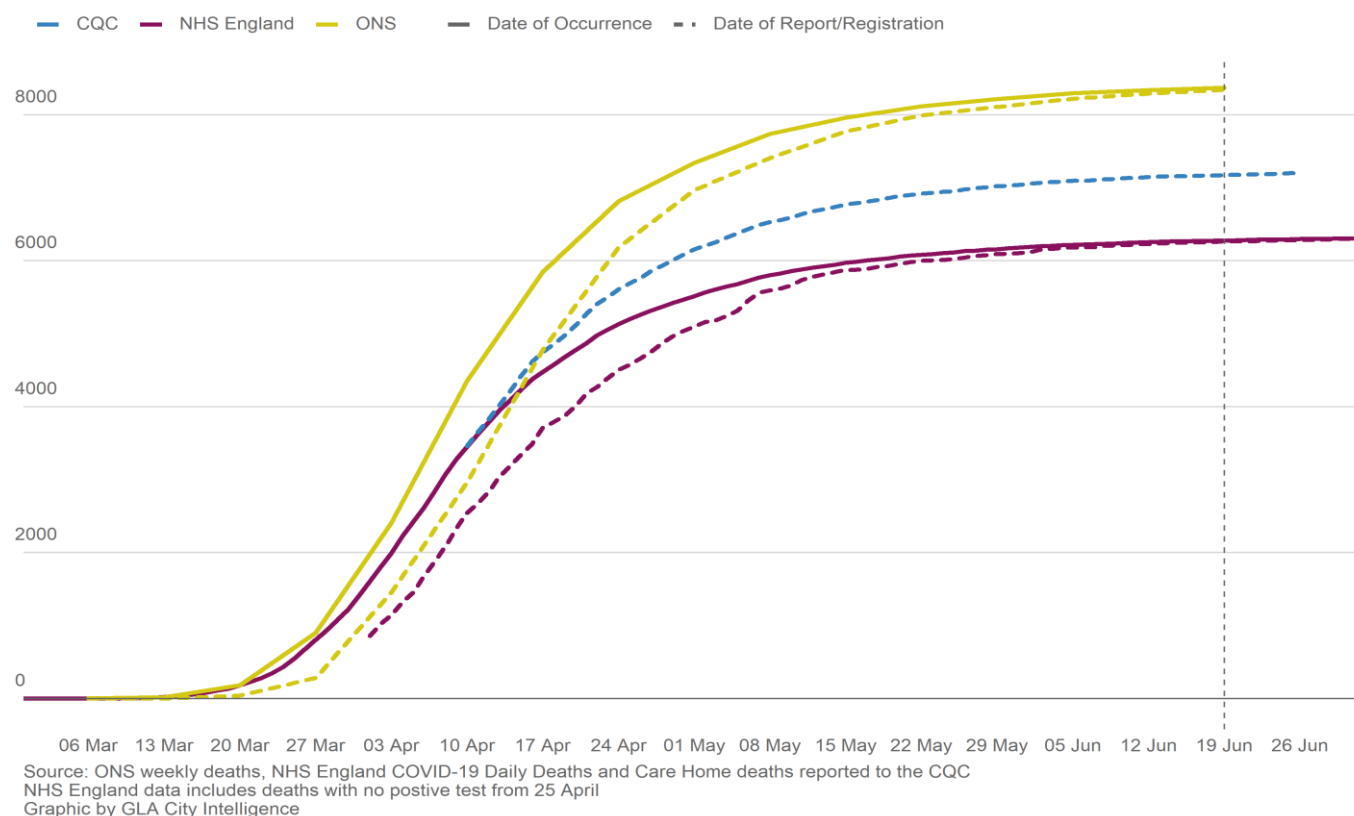
This number of deaths is higher than for any other region in the UK and represents almost 17 per cent of all deaths due to Covid-19 in England. The timeline of deaths occurring in the rest of England reflects that of the cases, with the peak number of deaths so far recorded occurring in the week after 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 only five per cent of all deaths mentioning covid-19 for the latest week being Londoners. The proportion of the total population that are registered by 19th June as dying with Covid-19 mentioned on the death certificate is much higher for London (9.34 per 10,000) than for the South West of England (5.05 per 10,000). The proportions for the North East, the North West and the East Midlands are higher than for London, – over 10 per 10,000 in the North East and North West and 9.51 people per 10,000 residents in the West Midlands

having died due to Covid-19. These figures are provisional and are subject to change as further death registrations are completed.

Out of all the deaths recorded from Covid-19, 74 per cent of London deaths (6,130) have occurred in hospitals, 16 per cent in care homes, with 8 per cent at home and 2 per cent in a hospice or elsewhere, which would include other communal establishments such as prisons. The numbers in all settings peaked at different times, with the largest number of deaths due to Covid-19 in London's care homes a week later than the peak in the numbers dying in hospital or at home. Across England as a whole, 63 per cent of Covid-19 related deaths have been in hospital and 30 per cent in care homes.

The number of deaths occurring daily in hospitals is available from the beginning of April, while the daily number of deaths in care homes are available from later in April. The number of deaths reported in London's hospitals with a positive Covid-19 test result was 6,106 (as at 2nd July), with a further 208 where Covid-19 was mentioned on the death certificate; this equates to just over one in five of the total 29,950 Covid-19 related hospital deaths in England between March and June. A total of 904 (reported to 26th June) deaths relating to Covid-19 have been reported to the Care Quality Commission as taking place among care home residents across London with less than one each day averaged across the second half of June.

Figure 6 Cumulative deaths from Covid-19 in London, showing different sources of data



Deaths from Covid-19, as has been widely reported, have not impacted evenly across the whole population, with mortality increasing with age. Figure 7 shows deaths among those who had tested positive for Covid-19. Even in London, where the population is much younger than average, the number of deaths among younger age groups has been low, with fewer than 150 in total among people aged less than 45 who had tested positive, but increasing numbers with age for both men and women. More men than women have died in each age group below 90. The rates per 10,000 residents, in Figure 8, show an even more marked age differential. Comparing the numbers of deaths to the number of confirmed cases shows that for each age group, the rate of deaths among males was higher than among females. Even among the over 90 age group, where the mortality rate at 280 deaths per 10,000 women was higher than for men, (233 per

10,000), almost two thirds of men who tested positive had died, compared with less than half of the women in that age group with a confirmed Covid-19 infection.

Figure 7 Total number of deaths among confirmed cases by age and sex, London

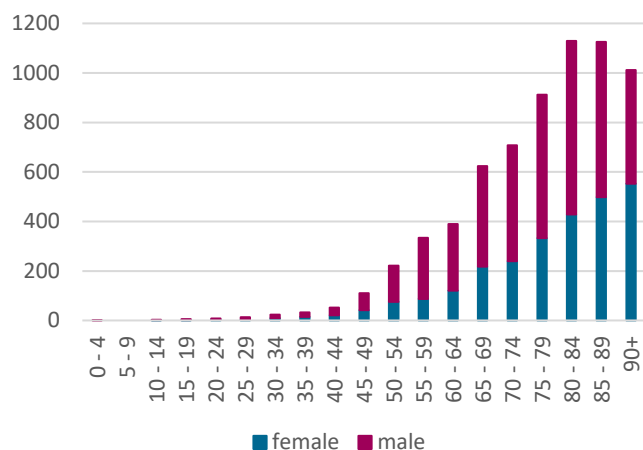
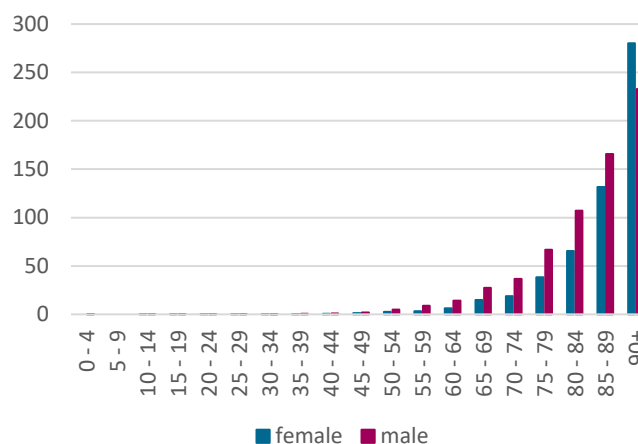


Figure 8 Rate of deaths of onfirmed cases by age and sex per 10,000 population, London



Source: PHE cumulative numbers of deaths among NHS patients with a positive Covid-19 test by region

Mortality by borough

Data for the number of deaths registered in each borough with Covid-19 mentioned on the certificate is also available covering the period 29th February to 19th June. Over this period, Brent and Croydon recorded more Covid-19 related deaths than any other borough. Of the total of 8,374 deaths in London, four boroughs had more than 400 each, with 486 in Croydon, 484 in Brent, 452 in Barnet and 403 in Ealing, with a further 396 in Harrow, clearly showing a particularly high number in the boroughs of North West London. The lowest number of deaths recorded in this period in any London borough from the pandemic, apart from the City of London, was 123 deaths in Kensington & Chelsea, with Kingston at 130 and a further eight boroughs with fewer than 200 Covid-19 related deaths.

The different population sizes and structures of London boroughs mean that figures for the numbers of deaths are difficult to interpret, so a simple method to compare areas is to compare deaths registered with Covid-19 mentioned on the death certificate with deaths in that area from all causes. As the number of deaths from Covid-19 moves further past the peak, this proportion reduces, so the time frame for comparison is critical.

Between March and early June, more than half of all deaths in Brent mentioned Covid-19 on the death certificate. This has started to fall in Brent and London-wide, but over the 16 week period to 19th June, there were just 17 local authorities in England with a higher proportion of all deaths due to Covid-19 than the London average; all but one, Hertsmere, were in London. Table 1 gives the figures for all London boroughs.

As shown above, people in older age groups have higher mortality rates from Covid-19, so comparing the Covid-19 related deaths to deaths from all causes mitigates population differences to a large extent. However, using Age Standardised Mortality Rates (ASMRs) allows for comparisons which take into account the full differences in the age and sex across the populations of different areas. These are available for March, April and May, but are not yet available for June. Over the three months as a whole, there is a high correlation between the proportion method used above and the ASMRs from Covid-19 related deaths in the ordering of the London boroughs. The bulk of deaths occurred in April in all London boroughs, so the overall pattern mostly reflects that for April. The borough with the highest ASMR for March was Lambeth,

closely followed by Southwark and Newham. Newham also had the second highest ASMR behind Brent for April, while Southwark was much lower. Harrow, Croydon and Waltham Forest had the highest ASMRs among the London boroughs during May. These reflect some differences in the overall timing of the pandemic with sharper rises and falls in some boroughs and longer tail-offs in other boroughs. Figure 9 shows the ASMRs relating to Covid-19 for the combined three month period for the London boroughs.

Table 1 Deaths between 29th February and 5th June in London Boroughs

	All causes	COVID 19	Percentage of all deaths that are related to Covid-19
Brent	992	484	48.8
Harrow	868	396	45.6
Haringey	630	266	42.2
Newham	728	305	41.9
Ealing	1010	403	39.9
Hackney	554	221	39.9
Hammersmith and Fulham	421	167	39.7
Southwark	623	247	39.6
Lewisham	739	291	39.4
Croydon	1244	486	39.1
Tower Hamlets	482	186	38.6
Lambeth	743	285	38.4
Kensington and Chelsea	330	123	37.3
Barnet	1230	452	36.7
Waltham Forest	677	248	36.6
Westminster	505	184	36.4
Enfield	1072	384	35.8
Redbridge	879	310	35.3
Camden	464	160	34.5
Hounslow	665	226	34.0
Merton	589	200	34.0
Hillingdon	918	309	33.7
Wandsworth	649	213	32.8
Islington	473	150	31.7
Barking and Dagenham	527	164	31.1
Bromley	1094	337	30.8
Greenwich	743	223	30.0
Richmond upon Thames	490	147	30.0
Sutton	629	176	28.0
Bexley	823	225	27.3
Kingston upon Thames	485	130	26.8
Havering	1019	272	26.7
City of London	18	4	22.2
London	23313	8374	35.9

Source: Death registrations and occurrences by local authority and health board, ONS (published 30th June)

Figure 9 Age Standardised Mortality Rates relating to Covid-19, March-May, London Boroughs and selected other local authorities in England



Source: ONS Deaths involving COVID-19 by local areas and deprivation, deaths occurring between March and May 2020, [published 12 June](#)

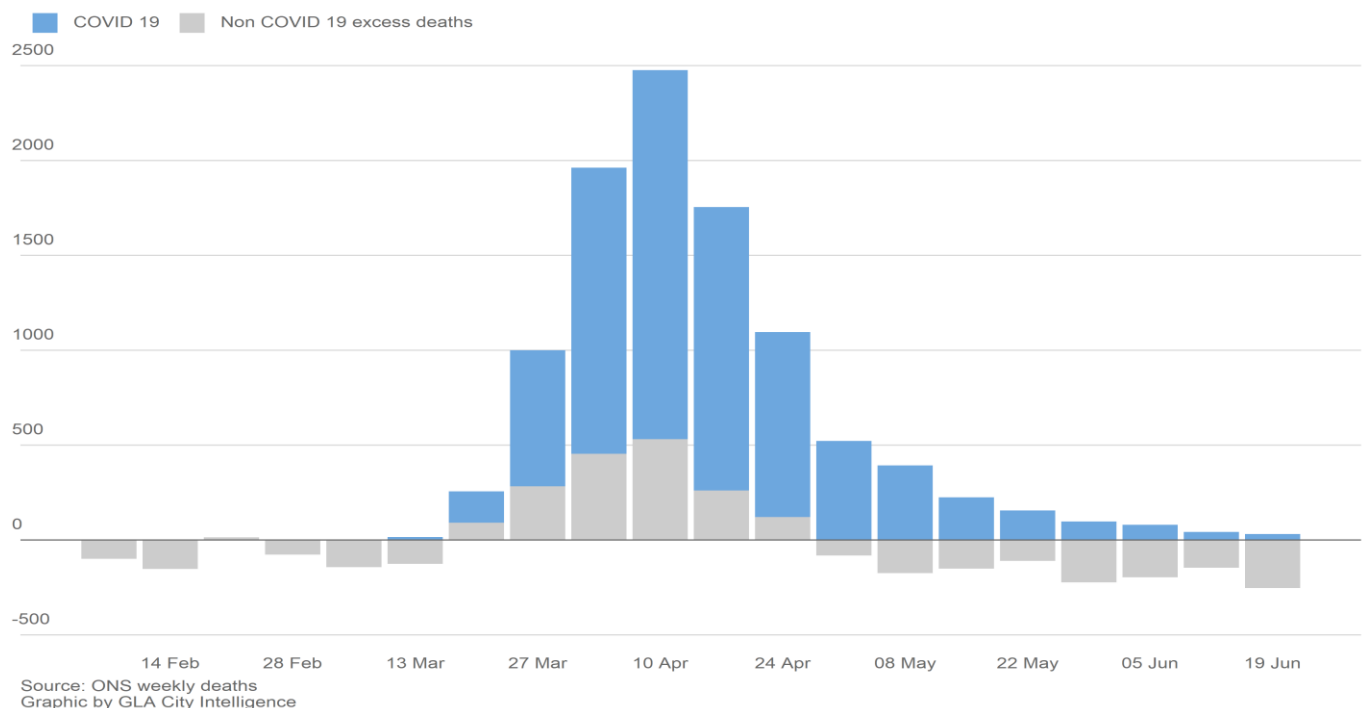
ONS Excess weekly deaths estimates

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. 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 3,438 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 7 below.

In total, taking the deaths occurring during the weeks from 21st March (the first week with excess deaths) to 19th June (the latest available), almost 60,000 “excess” deaths have occurred during the pandemic in England. From the 14th March (the first week of excess deaths in London), there were nearly 8,800 excess deaths in London, though this has fallen from more than 9,300 as the number of non-Covid-19 related deaths has dropped below average. In total, there were 427 more deaths than average over the 14 week period that did not mention Covid-19 on the death certificate, with excess deaths not mentioning Covid-19 in just six weeks and below average in almost all other weeks of 2020 to 19th June.

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 difficulties¹. Despite this, it does seem likely that some deaths attributable to Covid-19 have been missed from those recorded, particularly in the early weeks of the pandemic. The overall number of deaths was below average for each week since the last week in May.

Figure 10 Weekly excess deaths in London, compared with average for 2015-2019

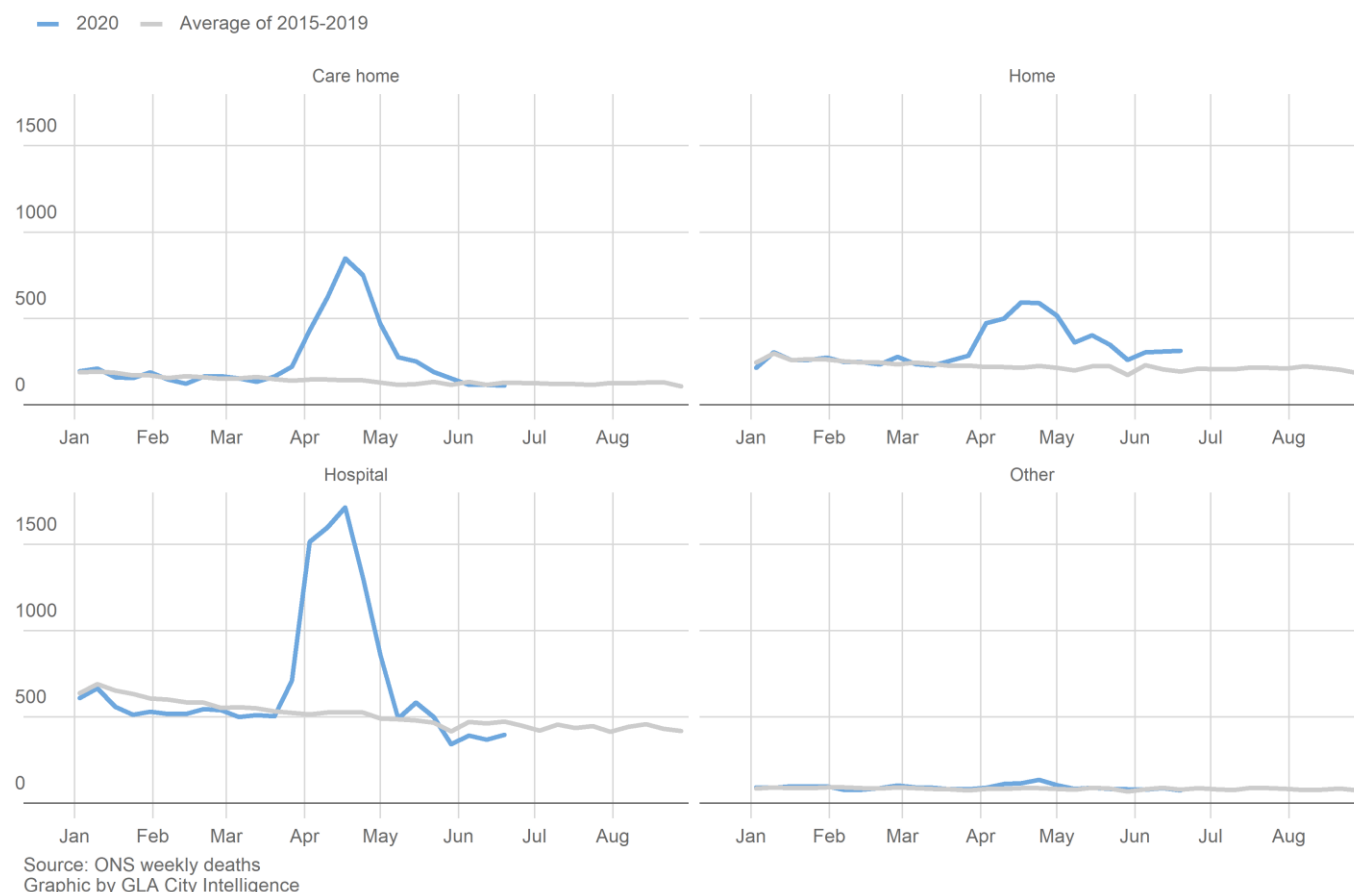


¹ See <https://medium.com/wintoncentre/covid-and-excess-deaths-in-the-week-ending-april-10th-20ca7d355ec4> for an exploration of measuring excess deaths in relation to Covid-19

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.

Data released from ONS also allows us to look at where excess deaths have occurred relative to other years². The charts in figure 11 show that most of the excess deaths occurred in hospitals, particularly in the early part of April, with more in care homes in the second half of April. Both these continued to fall through May and were close to or below average in June, while there were still more deaths occurring at home in London than in most years.

Figure 11 Deaths in London by location – all causes by date of registration



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. Analysis by the Centre for Cities³, using data on confirmed cases available to 30th June, shows that Cardiff was the city within England and Wales with the highest rate, with 612 per 100,000 residents, while Sunderland had the highest rate within England at 500 cases per 100,000 residents. Many of the large cities and some major towns in England had higher cumulative rates than London as a whole (304 per 100,000) including Sheffield, Newcastle, Birmingham, Liverpool, Oxford, Luton, Manchester and Middlesbrough, while others, including Nottingham, Leeds, Bradford and Southampton had lower rates, though the differential testing regimes at different points in the spread of the virus across the UK and the lack of local information on Pillar 2 testing (such as that carried out at drive through centres) mean that these figures do not tell the whole story.

The numbers of Covid-19 related deaths up to 19th June were higher in some of the very large local authorities, such as Birmingham, Leeds, County Durham, Liverpool and Sheffield, than in individual London

² These figures are for date of registration rather than date of occurrence, so are generally a few days after death occurred, and in some cases, significantly after the death occurred. When bank holidays fall can have a particular effect on dates of registration.

³ <https://www.centreforcities.org/data/coronavirus-cases-uk-cities-large-towns/>

boroughs. However, at 1,198 Covid-19 related deaths in Birmingham (population 1.2 million) is still just 14 per cent of the deaths seen in London overall (population 9 million). For Birmingham, this represents 31 per cent of total deaths from 29th February to 19th June, which covers the fourteen weeks from the start of the pandemic in the UK to the most recent data available. This is still lower than the London proportion (36 per cent) and lower than the proportion in most London boroughs. 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 and Watford, which border on to Harrow, Barnet and Enfield remain the only English local authorities outside London in the top 24, ranked by proportion of all deaths in this sixteen-week period that mention Covid-19. Salford, Reading, Bury and Luton are the others outside London in the top thirty on this measure. City local authorities that rank in the top fifty include Middlesbrough, Northampton, Cheltenham, Derby and Birmingham.

Using the Age Standardised Mortality Rate (ASMR) data that covers March-May, as can be seen in figure 6, Middlesbrough ranks much higher, with just five London boroughs having ASMRs above that for Middlesbrough. Generally, those areas noted above with higher levels of deaths and cases have the higher ASMRs. Just seven local authorities outside London have higher ASMRs than the London average, while the ASMR for Manchester is only just below that for London as a whole. Oxford and Blackpool, however, have seen relatively few deaths and have lower ASMRs than all London boroughs except the City of London. While deaths were higher in London during March and April than in the rest of England, the data shows that for May, the age-adjusted rates have been lower in London than most other areas, and half those seen for the North East during May.

Regional analysis of data on various aspects, such as confirmed cases, hospital patients and deaths shows that while the number of cases peaked in the first few days of April in London and the North East, 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 and as seen above, numbers are still increasing rapidly in some areas, such as Blackpool. As London's timeline for the spread of Covid-19 was ahead of, and possibly shorter than 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 seems that London has experienced a higher proportion of excess deaths than any other region.

Comparing London with other international cities

Using a similar 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 23rd June), the Financial Times shows that London, with a population around 9 million, has recorded 10,000 or 99 per cent excess deaths⁴, compared with 81 per cent or 11,600 excess deaths for Ile de France, with a population of 12.2 million, incorporating Paris. Madrid (16,200 excess deaths, population 6.6 million) and bordering Castilla la Mancha (5,300 excess deaths) in Spain each have higher proportions of excess deaths than London, while Stockholm has so far recorded 2,300 excess deaths (67 per cent above average). Meanwhile, New York City with a population similar to that of London is recorded in the FT report⁵ as having 25,600 excess deaths, more than 3.5 times as many as normal. The New York metro

⁴ The FT analysis for UK figures uses deaths by date of registration rather than date of occurrence. Using date of registration throws up particular issues around bank holidays.

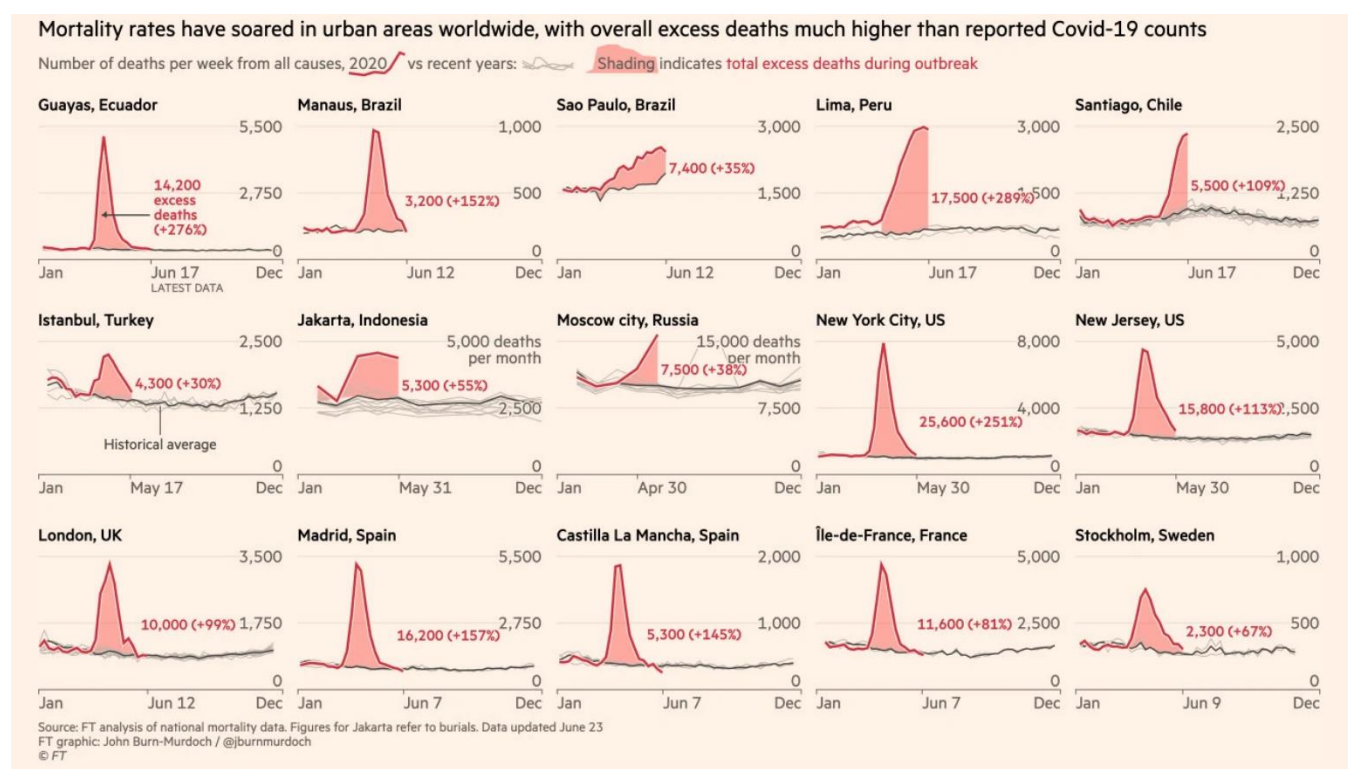
⁵ <https://www.ft.com/content/a26fbf7e-48f8-11ea-aeb3-955839e06441>

area, has seen more than 40,000 excess deaths. Several regions and cities in South America have now recorded higher levels of excess deaths than London.

However, the charts appearing in the FT, as shown in figure 12, 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 interpreted⁶. Paris, for example, is further past the peak than London, so the proportion of excess deaths has now decreased substantially. 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. 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 earlier in the FT is how much the pandemic was contained within each country. In the UK, while London had been the worst hit, the excess deaths measure shows that most other regions have also seen at least 50 per cent more deaths than usual. This difference has decreased during June as London moves further past the peak and there have been fewer than usual deaths overall. 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, with around half of the other mainland regions experiencing 50 per cent excess deaths and in Italy, the outbreak was largely contained in the north of the country, although that area was very badly affected, with around 17,000 excess deaths in Lombardy region.

Figure 12



⁶ 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, Ethnicity and other population groups

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.¹

Another form of inequality which has become apparent 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.

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.

A report by the Intensive Care National Audit and Research Centre (ICNARC) which was published on 29th 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 9,347 patients who had been admitted to intensive care units with coronavirus in the UK, and found that 67 per cent of those with ethnicity information were White, while the remaining 33 per cent were from a BAME group. Given that only 13 per cent 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, have been hardest-hit during 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 15 per cent of patients with an Asian ethnicity were being hospitalized compared with 12 per cent of the population in these areas, while ten per cent of the intensive care patients were Black, compared with roughly six per cent of the population living in these areas. This replicates similar studies undertaken earlier, which showed no difference for the Asian ethnic group, but a larger difference between the proportion of Black patients and residents.

Public Health England (PHE) have reported on the disparities in risk and outcomes of Covid-19⁷, investigating a number of aspects, including age, sex, geographical differences, deprivation, ethnicity and occupation. This found that the rates of diagnosis among Black women were more than double compared to White women, and almost three times as high among Black men as among White men, after adjusting for age and sex differences in the population.

Taking into account differences in age, sex, deprivation and region, for the time frame of the analysis, the report finds that among confirmed cases, “people of Bangladeshi ethnicity had around twice the risk of death when compared to people of White British ethnicity.” Almost all groups had a higher risk of death

⁷ https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/889195/disparities_review.pdf

than the White British group, and for Chinese, Indian, Pakistani and the Black Other (not including Caribbean or African), the rates were between 20 per cent and 35 per cent higher.

Compared to previous years, the death rates from all causes for the same period was almost four times higher than usual among Black men, three times higher for Asian men and twice as high for White men. The ratios among women followed similar patterns, but were slightly lower. It is important to note that this analysis does not take into account differences in occupation, which are known to have differential risks (see below) or differences in underlying health conditions, though other evidence has shown that these factors also have disparities between ethnic groups which may account for at least some of the differences found in this analysis.

The PHE report also looks at various vulnerable groups, finding higher rates of diagnosis among homeless men and women than the general population and that among people born outside the UK and Europe deaths reported between 21st March and 8th May were more than 2.5 times a five year average, compared with 1.7 times the average for people born in the UK. Most notably, deaths among people born in Central and Western Africa were more than four times the average. A study looking further at these factors has reviewed a wider range of evidence and found that longstanding inequalities between different groups within the population have been exacerbated by Covid-19, with many people from BAME groups at higher risk of being exposed to Covid-19 infection through occupation, where they live, particularly population density, use of public transport, household composition and housing conditions. Racism and discrimination has led to these underlying factors and probably also to differences in underlying health conditions which impact on the severity and outcome of the infection.

Analysis from ONS released on 19th June backed up the earlier studies from ONS, PHE and others, finding similar differences in both the prevalence of infection and the risk of dying from Covid-19 among different ethnic groups, after accounting for region, population density, socio-demographic and household characteristics and age, with Black men twice as likely to die from Covid-19 as their White counterparts, while the risk for Black women was 1.4 times that for White women and the risks for Indian, Pakistani and Bangladeshi men were 1.5-1.6 times higher than for White men, while there no differences between the risks for women from these ethnic groups.

Comparable analyses looking at religion and disability found that Muslims, Jews, Hindus and Sikhs all had higher rates of death from Covid-19 than the Christian population, while those of no religion had the lowest rates. Taking account of other factors, including region, population density, socio-economic and household characteristics explained the differences seen for most groups, but even after adjusting for these attributes, Jewish men were twice as likely to die from Covid-19 as Christian men, and Jewish women also had elevated risk.

Women whose daily activities were limited a lot by a health problem or disability had mortality rates 2.4 times higher than for those who had no such limits, whereas for men the rate was 1.9 times, after adjusting for the attributes noted above.

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; the individuals they come into contact with are more likely to have a disease and 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 a 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.

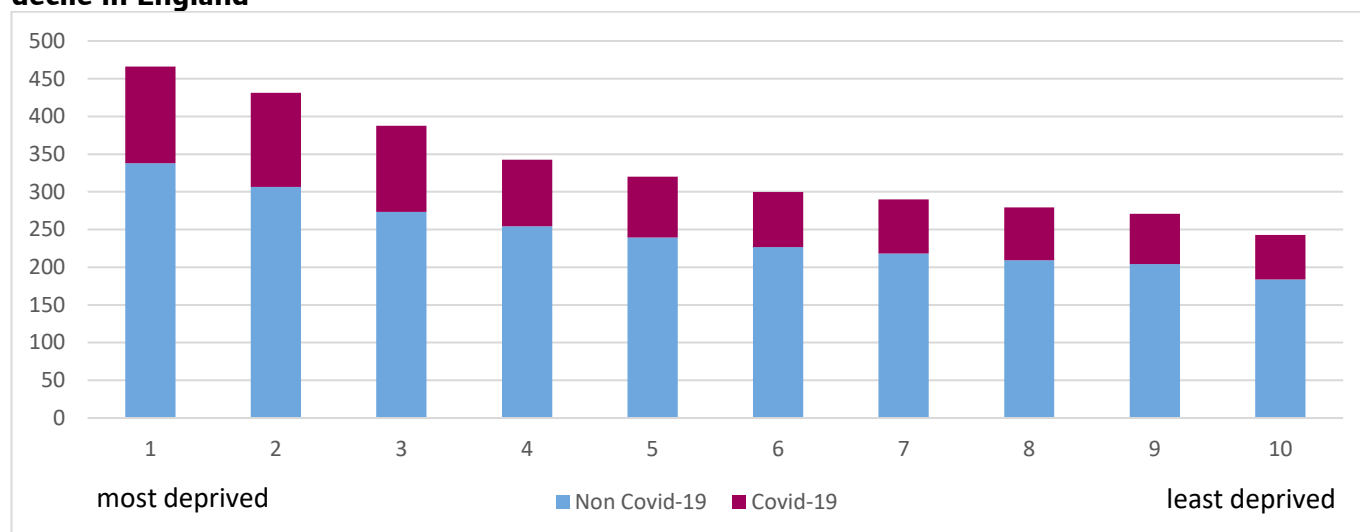
The PHE report on disparities (see above) also notes the ONS work on occupation and shows that while nearly two per cent of nurses, midwives and nursing associates⁸ were infected with Covid-19. There were again ethnic disparities in these figures, with nearly four per cent of Asians in these occupations and three per cent from the Other ethnic groups infected, compared with 1.7 per cent among White and 1.5 per cent among Black and Mixed ethnic groups from these occupational groups.

⁸ As registered with the Nursing and Midwifery Council

Covid-19 and deprivation

As part of their analysis producing Age Standardised Mortality Rates (ASMRs), ONS have compared deaths from Covid-19 and other deaths across England by looking at the deprivation decile, taken from the English Index of Multiple Deprivation, in which the people lived. Overall, this analysis shows that there were more deaths during March-May from all causes in more deprived areas, increasing across the deprivation deciles, after adjusting for the age profile of the residents. The ASMR from Covid-19 related deaths increased across the deprivation deciles to an even greater extent, with the ASMR for deaths involving Covid-19, at 128.3 deaths per 100,000 population in the most deprived areas, more than double the ASMR in the least deprived areas (58.8), as illustrated in figure 13.

Figure 13 Age Standardised Mortality Rates relating to Covid-19, March-May, by deprivation decile in England

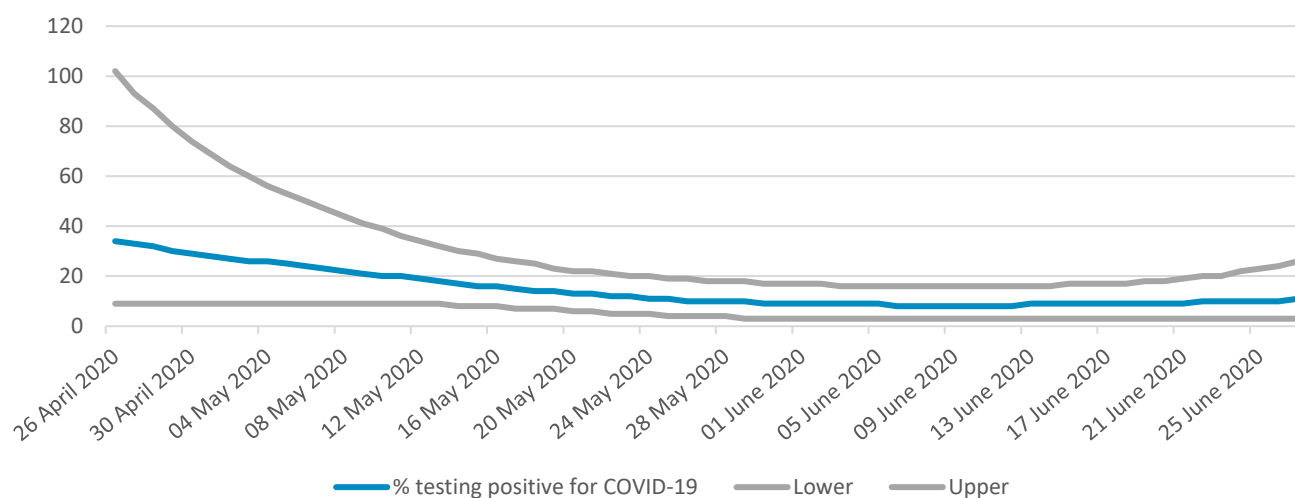


Source: ONS Deaths involving COVID-19 by local areas and deprivation, deaths occurring between March and May 2020, [published 12 June](#)

Infection rates in the UK

In response to the pandemic, ONS started conducting an infection survey at the end of April across England to estimate the real number of infections. This estimates that the rate of infection across England has fallen from just over 30 in 10,000 of the community population, that is excluding people in hospitals, care homes and other institutional settings had Covid-19 at the end of April to 7 in 10,000 two months later. Regional estimates show that infection rate in London at the end of April was marginally above that for England as a whole at a little over 30 in 10,000 and fell through May in line with the national figures, but showed a slight increase from mid-June. However, it should be noted that ONS publish quite a wide “95 per cent credible interval” for these figures, as illustrated in Figure 14, which suggest that the infection rate in London at the beginning of the survey period in April could have been as high as 100 people in 10,000 or as low as 9 people in 10,000, and while this uncertainty was much lower from the middle of May to mid June, it started to increase towards the end of the month. It is important to note that the infection rate is estimated for the household population, excluding people living with no fixed address or in communal establishments, including care homes, which are known to have a relatively high rate of infections, so overall this might underestimate the true level of infection in the total population. Nevertheless, it is clear that a very large proportion of the number of people with a Covid-19 infection are not included in the figures for the confirmed cases.

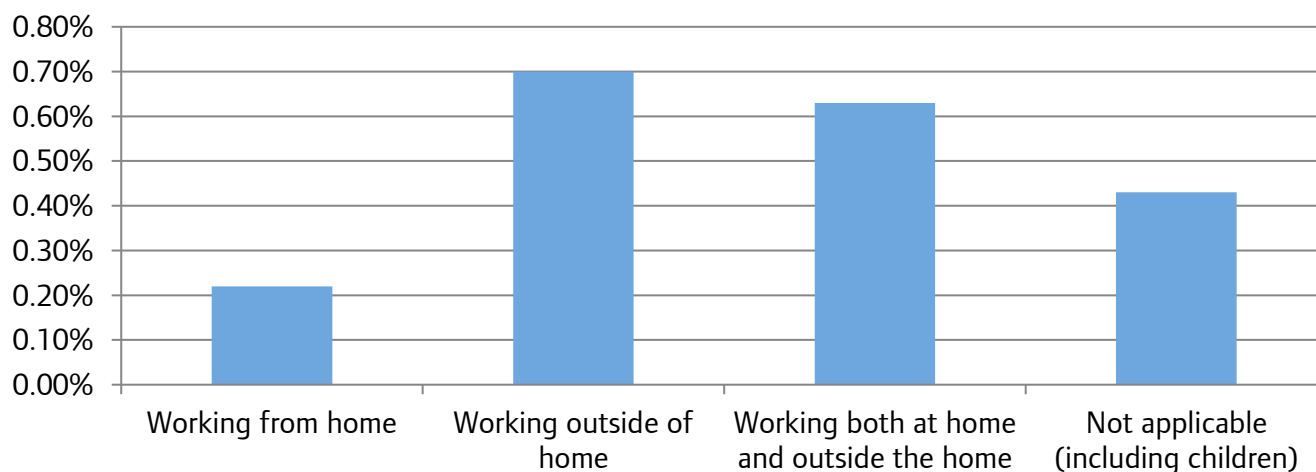
Figure 14 Modelled estimate of Londoners testing positive for Covid-19, rate per 10,000 in the household population



Source: ONS Coronavirus (Covid-19) Infection Survey

The survey, from 26th April to 7th June, suggests, as do other studies that the infection rate was highest among younger adults, decreasing with age, but the differences were not statistically significant. However, it found that patient-facing healthcare workers and resident-facing social care workers show higher rates of positive tests than people not working in these roles (1.9 per cent, compared with 0.3 per cent). Over all workers who are working outside the home, the study found significantly higher rates of infection than among workers who were working only from home during the same time period.

Figure 15 Estimated % testing positive for COVID-19 by working location, England (unweighted) between 26th April- 7th June 2020



Source: ONS Coronavirus (Covid-19) Infection Survey

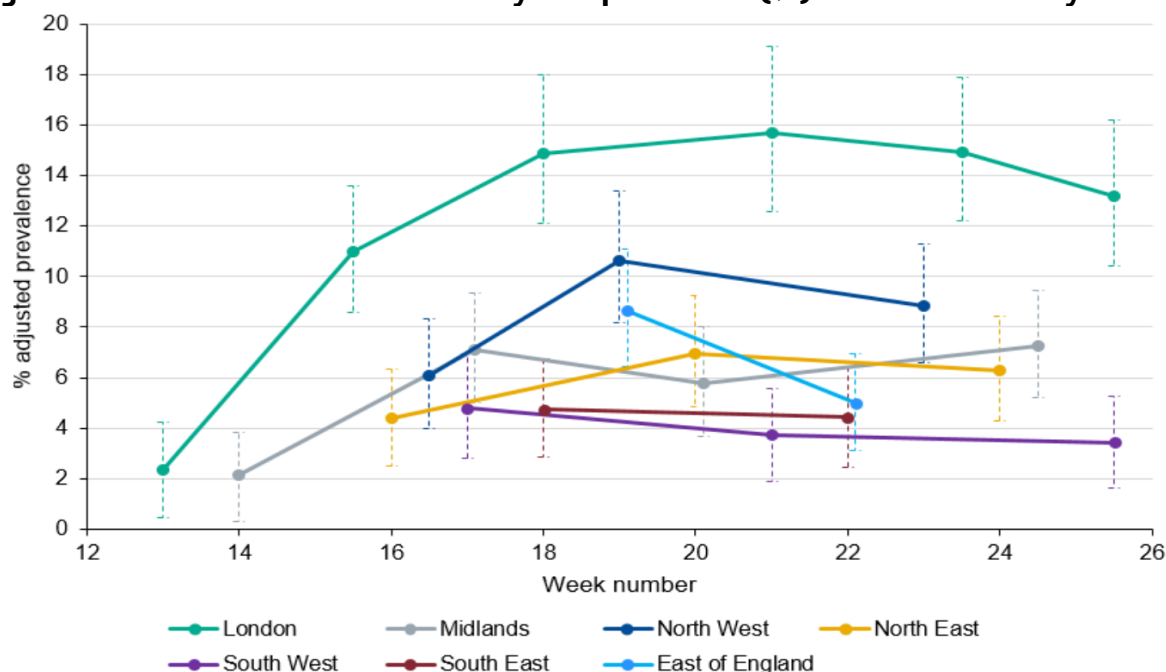
Another aspect of this study looks at antibodies, which found that as of 29th June, 6.3 per cent of the individuals in England from whom a blood sample was taken tested positive for antibodies to Covid-19. These can be detected from two-three weeks after infection, so these individuals would have been infected earlier in the pandemic.

Sero-surveillance of COVID-19

Public Health England have also published estimates of the proportion of the English population which has tested positive for the presence of Covid-19 antibodies in their blood, but this uses a different type of testing. The results are broken down by English region, but no figure is given for England as a whole, and it is not comparable with the results of the ONS study above. Understanding the total level of infection in England (including asymptomatic and mild cases of Covid-19) is important to help achieve a number of different goals, such as estimating the true number of infections within the general population to understand transmission, to inform control measures such as social distancing and school closures and to provide a denominator for the estimation of severity measures such as infection fatality and infection hospitalisation ratios.

These data should be treated with caution, as they are based on blood samples taken from people who have voluntarily donated their blood to the NHS, so it is difficult to gauge how representative this sample is of the general population living in England. In addition, there are specific rules for potential donors who have had any symptoms of coronavirus, meaning that they cannot give blood for a number of weeks after having symptoms. It is also important to stress that there remains considerable uncertainty regarding the degree of immunity from future re-infection which the presence of Covid-19 antibodies conveys on an affected individual.

Figure 16 Overall SARS-CoV-2 antibody Seroprevalence (%) in blood donors by PHE centres



Source: Public Health England sero surveillance study⁹, updated 2nd July
Dashed lines represent 95% confidence intervals

The most recent estimates derived from this data that cover London, which are based on blood samples collected during week 26 of 2020 (ending 28th June), suggested that 13.2 per cent of London's population would test positive for the presence of Covid-19 antibodies in their blood. This represents an increase from 1.5 per cent in week 13, but is lower than the level found in week 21 of 15.4 per cent, though the difference is not statistically significant. Given that the antibody response takes at least two weeks to

⁹ The study uses Euroimmun test adjusted for sensitivity (79%) and specificity (99%) and to represent the age and sex distribution of the population

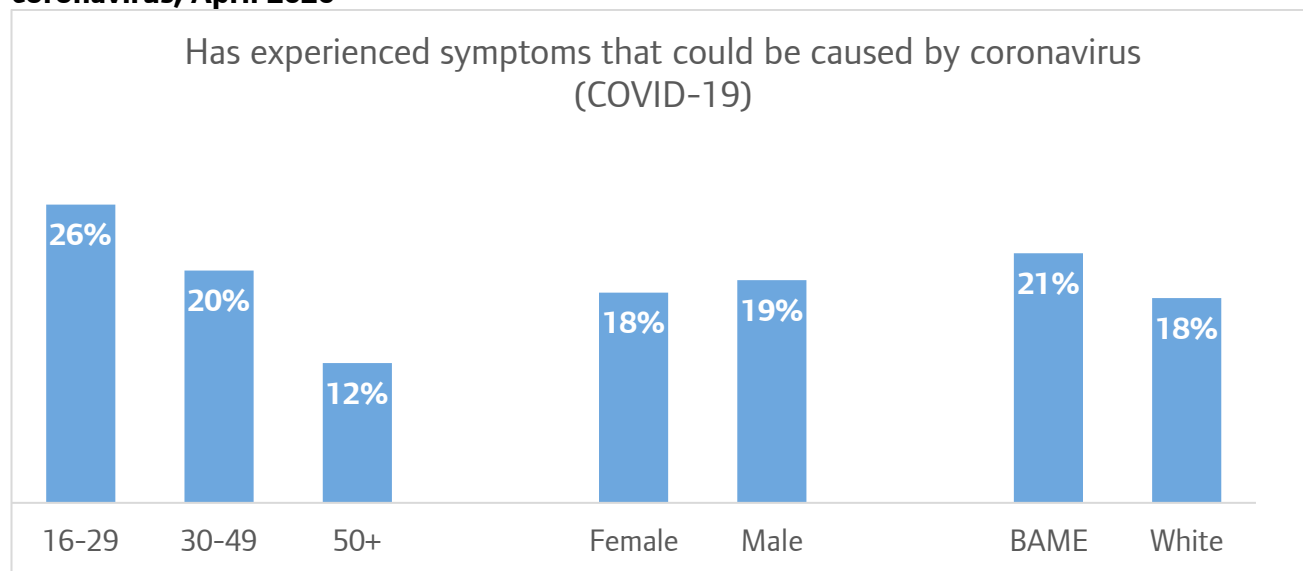
become detectable, those displaying a positive result in weeks 26 are likely to have become infected before the end of May, and even then, would not have been able to donate blood if they had shown symptoms during the previous month. The estimated prevalence rates for London appear much higher than for those for any other English region, though the most recent figure for the North West, three weeks earlier than the figure for London, shows overlapping confidence intervals, which means that we cannot be certain that the true level of antibodies in the population of London is higher than for the North West.

Decreases in the prevalence in some areas, such as the East of England is thought to be due to the sampling of higher numbers of individuals from areas where lower numbers of known cases have been seen, with a trend of increased prevalence with proximity to London. The sero-prevalence surveillance also found antibodies more often in the blood of younger blood donors, decreasing with age, from around 10 per cent of 17-29 year olds nationally to around 5-6 per cent of the 60-69 age group.

Covid-19 in Understanding Society

During April, as part of the Understanding Society project¹⁰ a survey asked questions relating to many aspects of Covid-19, among them were questions around symptoms, testing and shielding behaviour. These found that 18 per cent of Londoners aged 16 or over said they had had symptoms of Covid-19, although just two per cent of the whole age group had been tested. This figure is close to the level who showed antibodies among blood donors, but we also know that the ONS infection survey showed that around 12 per cent of people with one of the three main symptoms tested positive for Covid-19 and less than five per cent of people with any symptoms tested positive, while there are many reports showing that a large proportion of people infected with the disease have no symptoms. The Understanding Society survey shows that among Londoners aged 16 and over, the proportion with symptoms reduced with age with half as many of the 50 and over age group saying they had experienced symptoms as among the 16-29 age group. There was little difference between men and women, but a slightly higher proportion of BAME Londoners had had some symptoms than of White Londoners.

Figure 17 Proportion of 16+ Londoners who have experienced symptoms that could be cause by coronavirus, April 2020



Source: University of Essex, Institute for Social and Economic Research. (2020). Understanding Society: COVID-19 Study, 2020

The study includes further information on giving and receiving support, loneliness, work, finances and food.

¹⁰ Understanding Society is a long running panel study run by the Institute for Social and Economic Research at the University of Essex

Shielding and Covid-19

The Understanding Society survey also found that six per cent of Londoners had received a letter saying they were in the shielded group, while over the whole of the UK, around 3.3 per cent of the population were identified by the NHS as being clinically extremely vulnerable and advised to shield. As elsewhere, Understanding Society found that older Londoners are more likely to be shielded – the 50 and over age group are four times as likely to be shielded as the 16-29 age group, which is consistent with the higher rate of symptoms among younger age groups. Social renters are also more likely to be in the shielded group than private renters or owner occupiers. An ONS study looks at behaviours nationally among this group and found that among those surveyed between 9th and 18th June, nearly half of this group had not left home at all since being advised to shield, while just over 90 per cent said they were completely or mostly following the shielding guidance. Around 16 per cent, however, had received a visitor other than nurse, support or care worker in the last seven days. These were similar to the figures for the previous survey period covering 28th May-3rd June. This survey also looks at reasons for leaving home, employment and physical and mental health. While many of the support mechanisms available such as phone or video calls, food and prescription deliveries were helpful, a large proportion of the shielding group who were currently or had previously received treatment for their mental health reporting a worsening in their mental health.

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