Public Health England

Protecting and improving the nation's health

# Disparities in the risk and outcomes of COVID-19

For queries relating to this document, please contact:
coviddisparitiesreview@phe.gov.uk

# Introduction

- This slide pack summarises the findings of the descriptive review of data on disparities in the risk and outcomes from COVID-19.
- These findings are based on surveillance data available to PHE at the time of its publication, including through linkage to broader health data sets.
- It confirms that the impact of COVID-19 has replicated existing health inequalities and, in some cases, has increased them.
- These results improve our understanding of the pandemic and will help in formulating the future public health response to it.

Public Health England

Protecting and improving the nation's health

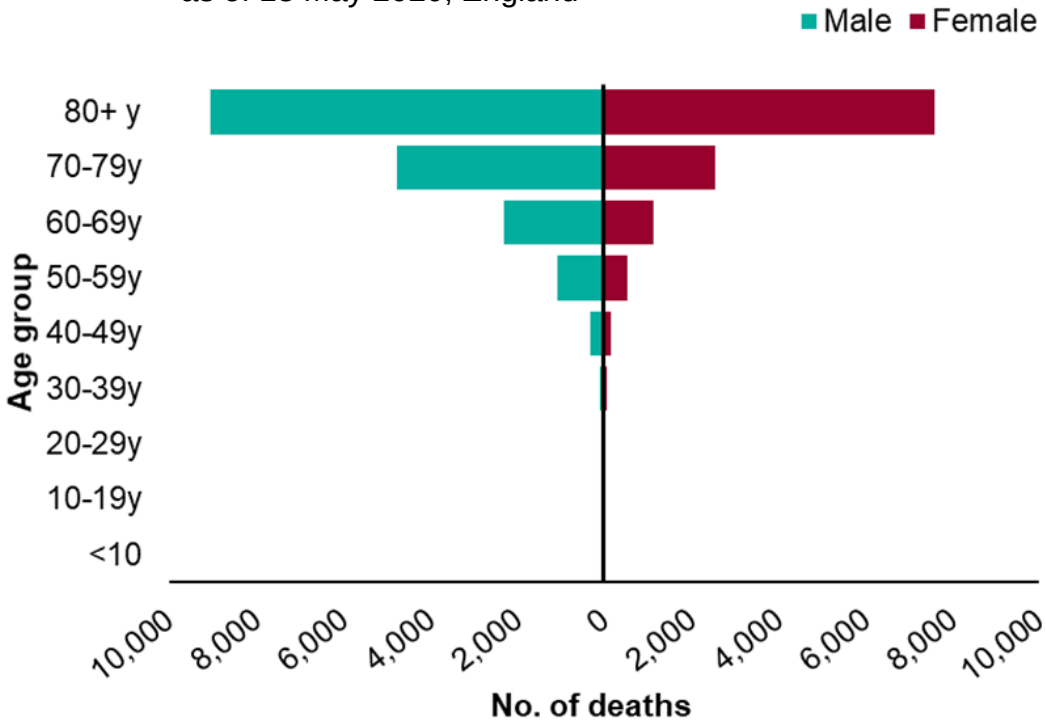
# Age and sex

# Age and sex

As of 13 May, there had been 17,598 deaths in confirmed cases among males (59.3%) and 12,075 in females (40.7%)

56.3% of deaths were among people 80 years and older

Figure 1.4. Age sex pyramid of laboratory confirmed COVID-19 deaths as of 13 May 2020, England




Source: Public Health England Second Generation Surveillance System

# Age and sex

An analysis of survival among people with confirmed COVID-19 adjusted for sex, ethnicity, deprivation and region, showed that, compared with people under 40, the probability of death was about:

- 3 times higher among those aged 40 to 49
- 9 times higher among those aged 50 to 59
- 26 times higher among those aged 60 to 69
- 50 times higher among those aged 70 to 79
- 70 times higher among those aged 80 and over

Public Health England

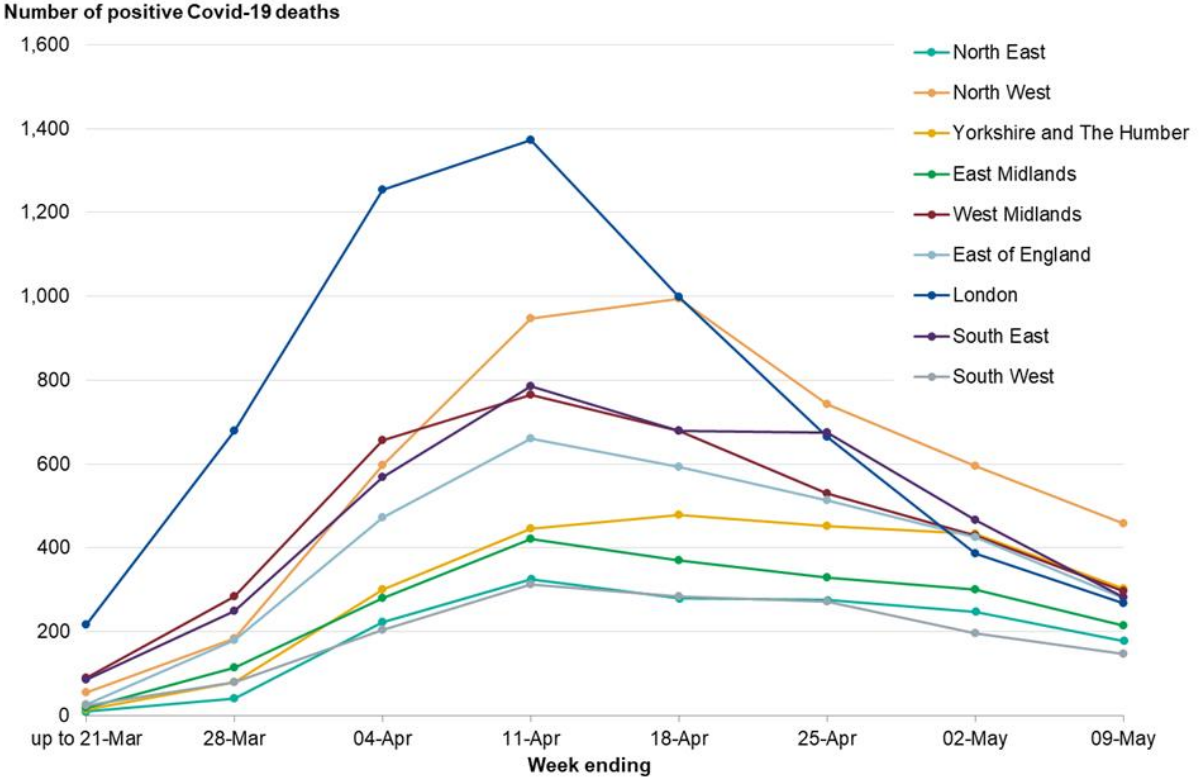
Protecting and improving the nation's health

# Geography

# Geography

London had the highest number of deaths in confirmed cases every week up until week ending 18 April, after which the North West had the highest number of deaths

Figure 2.4: Number of deaths in laboratory confirmed COVID-19 cases by region and week, as of 9 May 2020, England




Source: Public Health England COVID-19 Specific Mortality Surveillance System

Public Health England

Protecting and improving the nation's health

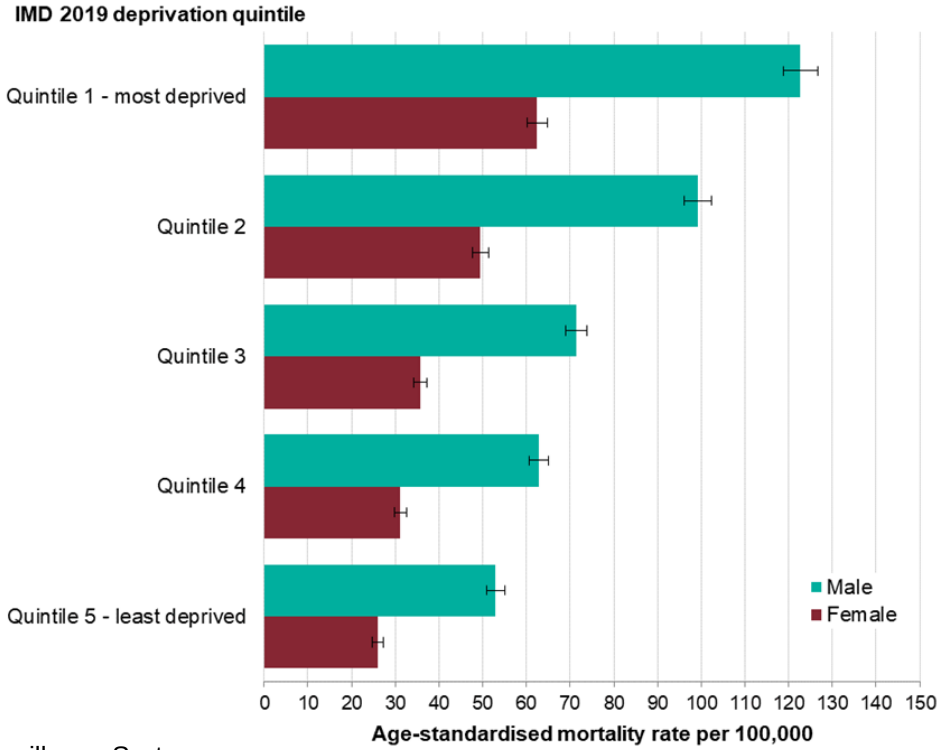
# Deprivation

# Deprivation

For both sexes, age standardised death rates in confirmed cases were highest in the most deprived quintile and lowest in the least deprived

The rate in the most deprived quintile was 2.3 times the rate in the least deprived for males, and 2.4 times the rate for females

Figure 3.4: Age standardised death rates in laboratory confirmed COVID-19 cases by deprivation quintile and sex, as of 13 May 2020, England




Source: Public Health England COVID-19 Specific Mortality Surveillance System

# Deprivation

- An analysis of survival among people with confirmed COVID-19 by sex, age group, ethnicity, deprivation and region, shows that, among people of working age (20 to 64), **people living in the most deprived areas of the country were almost twice as likely to die than those living in the least deprived**

- For older adults (65 and over) the disparity remains significant but is much lower, with people in the most deprived areas having approximately 9% higher risk of death when compared to people in the least deprived areas

Appendix A Tables A2 and A3. Multivariable hazard ratios for death among those with laboratory confirmed COVID-19 and between 20 and 64 years of age, and over 64 years of age. Data up to 13 May, England

Source: Public Health England Second Generation Surveillance System

Public Health England

Protecting and improving the nation's health

# Ethnicity

# Ethnicity

The relationship between ethnicity and health is complex and likely to be the result of **a combination of factors**.

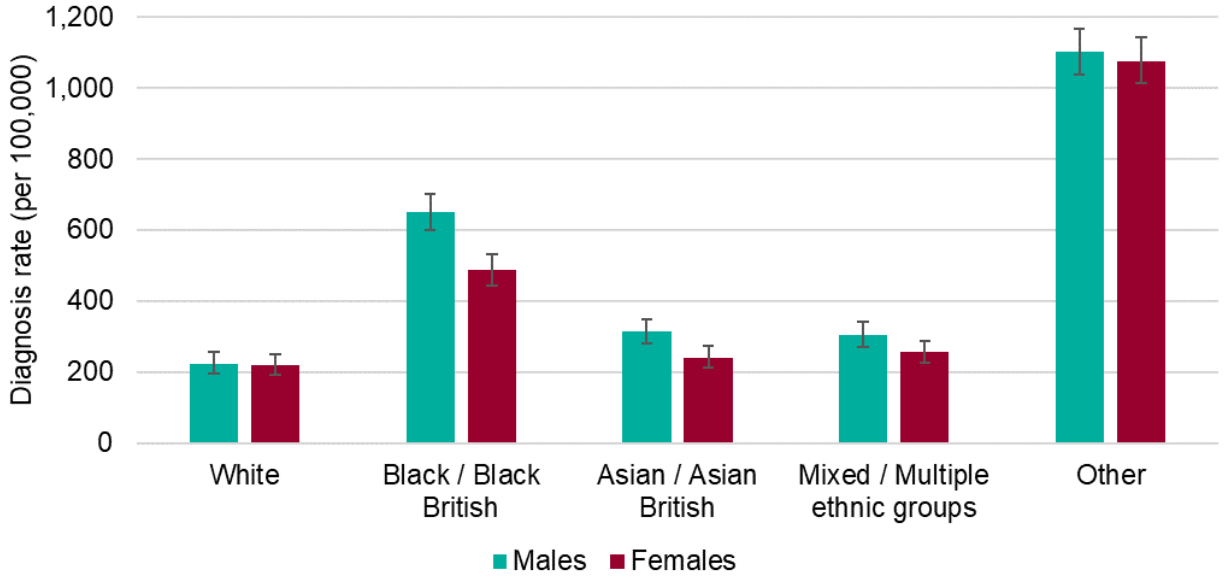
People of BAME communities are likely to be at **increased risk of acquiring** the infection because BAME people are more likely to live in urban and deprived areas, and in overcrowded households.

People in BAME groups are also **more likely to have jobs that expose them** to higher risk and are more likely than people of White British ethnicity to be born abroad, which means they may face additional **barriers in accessing services** that are created by, for example, cultural and language differences.

# Ethnicity

The highest age standardised diagnosis rates of COVID-19 were in people in the Other and Black ethnic groups, and the lowest rates were in the White ethnic groups

Figure 4.2: Age standardised diagnosis rates by ethnicity and sex, as of 13 May 2020, England




The rates in the Other ethnic group are likely to be an overestimate due to the difference in the method of allocating ethnicity codes to the cases data and the population data used to calculate the rates

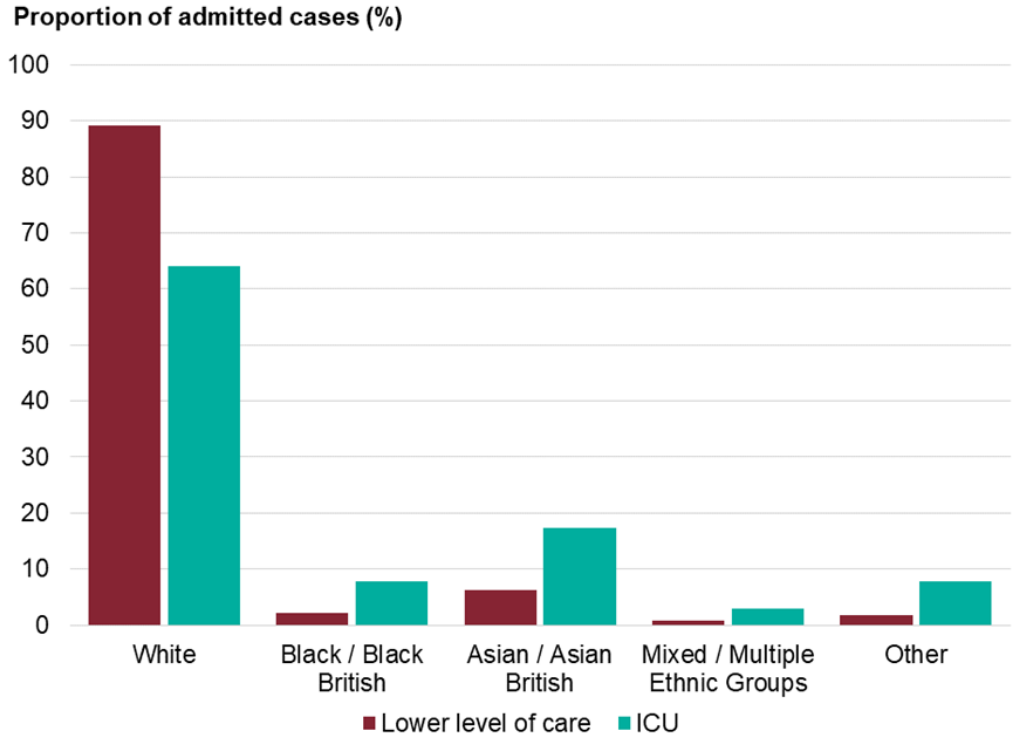
Source: Public Health England Second Generation Surveillance System

# Ethnicity

Among hospitalised confirmed cases, in lower level of care 11% were of Black, Asian and other Minority Ethnic (BAME) groups

This proportion was 36% for those admitted to critical care

Figure 4.3. Laboratory confirmed admissions for COVID-19 to acute trusts, by level of care and ethnicity, England, as of 19 May 2020

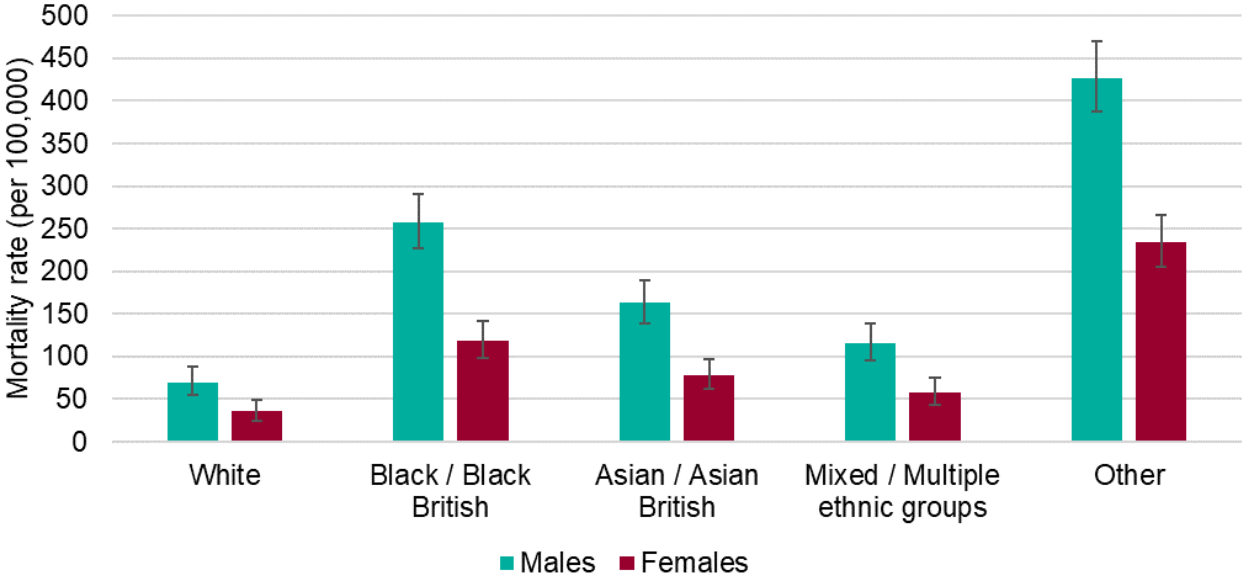



Source: Public Health England COVID-19 Hospitalisations in England surveillance system (CHESS)

# Ethnicity

The highest age standardised death rates in confirmed cases were in people in the Other and Black ethnic groups, and were lowest in the White ethnic groups

Figure 4.5: Age standardised mortality rates in laboratory confirmed COVID-19 cases by ethnicity and sex, as of 13 May, England




The rates in the Other ethnic group are likely to be an overestimate due to the difference in the method of allocating ethnicity codes to the cases data and the population data used to calculate the rates

Source: Public Health England COVID-19 Specific Mortality Surveillance System

# Ethnicity

An analysis of **survival among people** with confirmed COVID-19 adjusted for sex, age group, deprivation and region, showed that, compared with people in the White British ethnic group, the probability of death was about:

- 2.0 times higher for the Bangladeshi group
- 1.4 times higher for the Pakistani group
- 1.3 times higher for the Chinese group
- 1.2 times higher for the Indian group
- 1.1 times higher for the Other Asian group
- 1.1 times higher for the Black Caribbean group
- 1.4 times higher for the Other Black group
- Other ethnic groups were not significantly different to the White British group

Appendix A Table A1. Multivariable hazard ratios for death among those with laboratory confirmed COVID-19. Data up to 13 May, England

Source: Public Health England Second Generation Surveillance System

# Ethnicity

- **The survival analyses were not able to include the effect of occupation**
  - **This is an important shortcoming because occupation is associated with risk of being exposed to COVID-19 and we know some key occupations have a high proportion of workers from BAME groups**
- **The survival analyses were also not able to include the effect of comorbidities or obesity**
  - **These are also important factors because they are associated with the risk of death and are more commonly seen in some BAME groups**
  - **Other evidence has shown that when these are included, the difference in risk of death among hospitalised patients is greatly reduced.**

Public Health England

Protecting and improving the nation's health

# Occupation

# Occupation

Those with significantly high rates of death from COVID-19 identified by ONS

Men working as:

- security guards
- taxi drivers and chauffeurs
- bus and coach drivers
- chefs
- sales and retail assistants
- lower skilled workers in construction and processing plants

- Men and women working in social care

# Occupation

All cause deaths registered in England in between 21 March to 8 May 2020 were compared with same period in 2014 to 2018, for people aged 20-64

Deaths in this age group in 2020 were 1.5 times higher than the average, but three occupation groups were significantly higher than this

| Occupation | Deaths 2014-18 average all causes | Deaths 2020 all causes | Relative increase between 2014-18 and 2020 | Relative increase compared to total (statistical significance) | COVID-19 deaths |
|---|---|---|---|---|---|
| Caring Personal Services | 414 | 760 | 1.8 | Higher | 255 |
| Elementary Security Occupations | 117 | 267 | 2.3 | Higher | 116 |
| Road Transport Drivers | 384 | 694 | 1.8 | Higher | 285 |

# Occupation

Within the 3 broad groups, 3 more detailed occupational groups had a significantly higher than average relative increase in deaths.

| Occupation (unit group) | Deaths 2014-18 average all causes | Deaths 2020 all causes | Relative increase between 2014-18 and 2020 | Excess deaths in 2020 | Proportion of excess due to COVID-19 |
|---|---|---|---|---|---|
| Taxi and cab drivers and chauffeurs | 87 | 217 | 2.5 | 130 | 94.1 |
| Security guards and related occupations | 80 | 209 | 2.6 | 129 | 77.6 |
| Nursing auxiliaries and assistants | 52 | 128 | 2.5 | 76 | 67.1 |

Public Health England

Protecting and improving the nation's health

# Inclusion health groups

# Inclusion health groups

- Populations who are socially excluded, such as people who experience homelessness and vulnerable migrants, tend to have the poorest health outcomes. This is a consequence of being exposed to multiple, overlapping risk factors, such as facing barriers in access to services, stigma and discrimination.

- People who are socially excluded are not consistently recorded in electronic records, often making them effectively invisible for policy and service planning purposes

- These analyses therefore do not allow us to accurately assess the impact of COVID-19 on the most vulnerable groups of the population

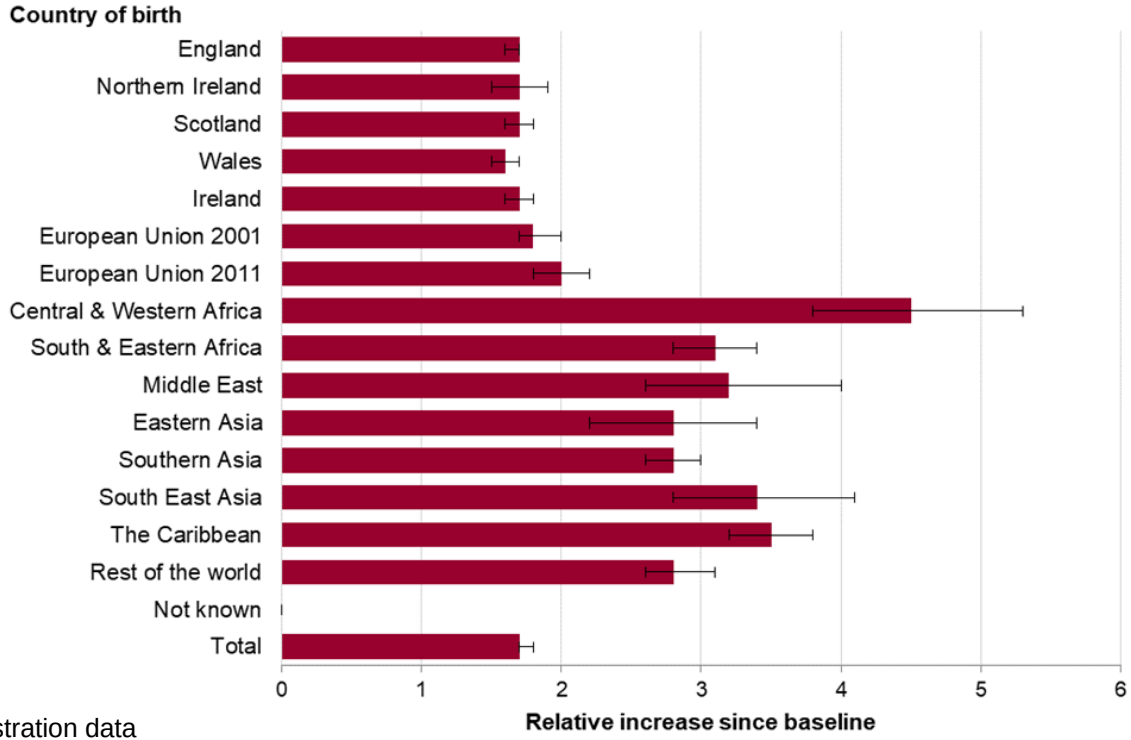
# Inclusion health groups

The number of deaths between 21 March to 8 May 2020 was 1.7 higher than same period in earlier years

For people born in UK countries and Ireland, the relative increase was similar to this

Biggest relative increases were for people born in Central and Western Africa, the Caribbean, South East Asia, the Middle East and South and Eastern Africa

Figure 6.1: Relative increase in total deaths registered in England in 2020 compared to the average for 2014 to 2018, 21 March to 8 May, by country of birth




Source: Public Health England analysis of ONS death registration data

Public Health England

Protecting and improving the nation's health

# Comorbidities

# Comorbidities

The latest report from the Intensive Care National Audit and Research Centre (ICNARC) used data up to 21 May 2020 and showed **that 7.7% of patients critically ill in intensive care units (ICU) with confirmed COVID-19 were morbidly obese, compared with 2.9% of the general population (after adjusting for age and sex).** This disparity was also seen when looking at white and non-white patients separately.

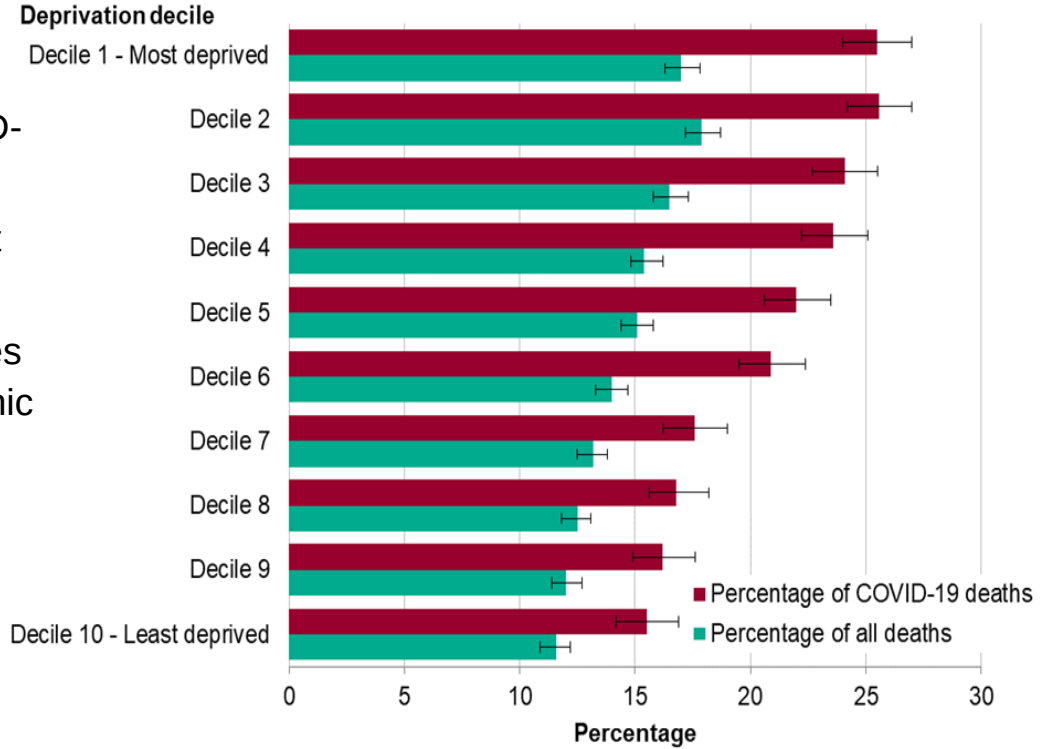
# Comorbidities

Diabetes was more likely to be mentioned on the death certificate in more deprived areas

- In the most deprived areas, 26% of COVID-19 deaths also mentioned diabetes
- This is significantly higher than in the least deprived areas (16%)

The proportion of COVID-19 deaths where diabetes was mentioned ranged from 18% in the White ethnic group to 43% in the Asian group and 45% in the Black group

Figure 8.1: Percentage of COVID-19 deaths where diabetes was also mentioned on the death certificate, by deprivation decile, 21 March and 1 May 2020, England

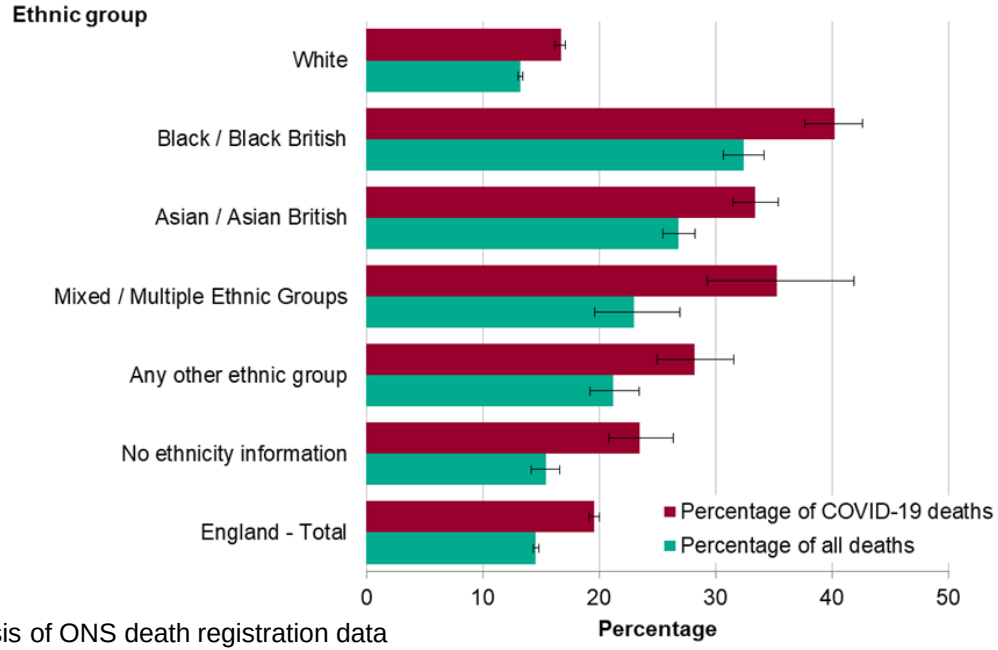



Source: Public Health England analysis of ONS death registration data

# Comorbidities

The proportion of COVID-19 deaths where hypertensive disease was mentioned ranged from 17% in the White ethnic group to 40% in the Black group, but was also high in the Asian and Mixed groups

Figure 8.2: Percentage of COVID-19 deaths where hypertensive disease was also mentioned on the death certificate, by broad ethnic group, 21 March to 1 May 2020, England




Source: Public Health England analysis of ONS death registration data

# Questions

The review and accompanying data available here:

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

For queries relating to the review document, please contact: coviddisparitiesreview@phe.gov.uk