

Disparities in the risk and outcomes of COVID-19 by Public Health England, June 2020

Executive summary

Impact of COVID-19 has replicated existing health inequalities and, in some cases, has increased them. Risk factors include Age and Sex, Deprivation, Ethnicity, Occupation, Inclusion health groups, People in Care Homes, Co-morbidities.

Inequalities largely replicate existing inequalities in mortality rates, except for BAME groups. At higher risk are:

- those born outside the UK and Ireland;
- those in a range of caring occupations including social care and nursing auxiliaries and assistants;
- those who drive passengers in road vehicles for a living including taxi and minicab drivers and chauffeurs;
- those working as security guards and related occupations;
- and those in care homes.

These analyses do not take into account the existence of comorbidities, which are strongly associated with the risk of death from COVID-19 and could explain some of these differences.

When this data was analysed, the majority of testing had been offered to those in hospital with a medical need. Confirmed cases therefore represent the population of people with severe disease, rather than all of those who get infected.

Nonetheless, relevant guidance, certain aspects of recording and reporting of data, and key policies should be adapted to recognise and wherever possible mitigate or reduce the impact of COVID-19 on the population groups that are shown in this review to be more affected by the infection and its adverse outcomes.

As the numbers of new COVID-19 cases decrease, monitoring the infection among those most at risk will become increasingly important, in order to control the spread of COVID-19.

Age and sex

COVID-19 diagnosis rates **increased with age** for both males and females (slightly older age distribution, particularly for males).

Working age males diagnosed with COVID-19 were twice as likely to die as females. Those who were 80 or older (compared with those under 40) were seventy times more likely to die.

These disparities do not account for the effect of comorbidities or occupation, which may explain some of the differences.

Geography

Local authorities with the highest diagnoses and death rates are mostly urban. Death rates in London from COVID-19 were more than three times higher than in the region with the lowest rates, the South West.

Deprivation

People who live in deprived areas have higher diagnosis rates and death rates (more than double, for both males and females). than those living in less deprived areas.

High diagnosis rates may be due to geographic proximity to infections or a high proportion of workers in occupations that are more likely to be exposed.

These disparities do not account for the effect of comorbidities or occupation, which may explain some of the differences.

Ethnicity

Death rates from COVID-19 were highest among people of Black and Asian ethnic groups. People of Bangladeshi ethnicity had around twice the risk of death than people of White British ethnicity. People of Chinese, Indian, Pakistani, Other Asian, Caribbean and Other Black ethnicity had between 10 and 50% higher risk of death when compared to White British.

These analyses did not account for the effect of occupation, comorbidities or obesity. These are important factors because they are associated with the risk of acquiring COVID-19, the risk of dying, or both. Other evidence has shown that when comorbidities are included, the difference in risk of death among hospitalised patients is greatly reduced.

Occupation

A total of 10,841 COVID-19 cases were identified in nurses, midwives and nursing associates registered with the Nursing and Midwifery Council (4% of Asian ethnic groups, 3.1% of Other ethnic groups, 1.7% of White ethnic groups and 1.5% of both Black and Mixed ethnic groups). This may (or may not) be driven by factors like geography or nature of individuals' roles.

ONS reported that 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, and men and women working in social care had significantly high rates of death from COVID-19.

Inclusion health groups

A larger increase in deaths among people born outside the UK and Ireland, in particular, for people born in Central and Western Africa, the Caribbean, South East Asia, the Middle East and South and Eastern Africa.

1.5% of men and 2% women with no fixed abode, were diagnosed with COVID-19. Data is of poor quality, but this suggests a much higher diagnoses rate when compared to the general population.

People in care homes

Data from the Office for National Statistics (ONS) shows that deaths in care homes accounted for 27% of deaths from COVID-19 up to 8 May 2020. The number of deaths in care homes peaked later than those in hospital, in week ending 24 April.

The analyses show that there have been 2.3 times the number of deaths in care homes than expected between 20 March and 7 May when compared to previous years, which equates to around 20,457 excess deaths. The number of COVID-19 deaths over this period is equivalent to 46.4% of the excess suggesting that there are many excess deaths from other causes or an under-reporting of deaths from COVID-19.

Comorbidities

Higher percentage of death linked to diabetes, hypertensive diseases, chronic kidney disease, chronic obstructive pulmonary disease and dementia (especially for obese or morbidly obese people and BAME groups).

Limitations

- These analyses are mostly descriptive and compare disparities in diagnosis and death from COVID-19 across a range of data sources (limits the conclusions that can be drawn about the reasons for the disparities shown).
- Confirmed cases represent the population of people with severe disease only, rather than all of those who get infected.
- The numbers of cases and diagnosis rates are likely to be strongly influenced by case definition and testing policy, both of which have changed since the first cases were identified, may vary between geographical areas, and must be interpreted under that light.
- Reporting varies by trusts and the majority of trusts in London do not consistently report which will impact on the representativeness of the hospitalised cases. The data must be interpreted with caution.
- The analyses of ONS mortality data are based on records which have been provided to PHE very shortly after they have been registered. These data are therefore provisional and small changes will be likely after data have been finalised. However, these changes are unlikely to affect the conclusions drawn from the data.
- Ethnicity information for cases and deaths was derived from (with a mismatch between) two sources (hospital records, census data). It is possible that there are proportionally more people assigned to the Other ethnic group in the hospital data than there are in the census data. This may explain the high diagnosis and mortality rates in the Other group, which requires further investigation and no firm conclusions can be drawn about this group.
- It was not possible to obtain ethnicity information for some records, resulting in possible bias (excluding people who are less likely to have a hospital record or ethnicity recorded in their records).
- The linked datasets used do not currently include all data (e.g. information about household composition or genetic factors), which may help to explain some of the findings.
- Information on vulnerable groups is lacking (e.g. migrants, sex workers or people experiencing homelessness or rough sleeping). These analyses therefore do not allow us to accurately assess the impact of COVID-19 on the most vulnerable groups of the population.
- Occupational data is not currently available for all diagnosed cases. Robust data are available for those who have died and have been included in this report. Analysis of diagnosed cases has currently only been undertaken for nurses, midwives and nursing assistants registered with the

NMC. This data will continue to be analysed and further work of other healthcare workers is being planned.

- The analysis of comorbidities presented in this report is currently limited to an analysis of death certificates and other published sources of data on obesity. Very few datasets contain information on height and weight to calculate BMI and link to diagnosed cases and deaths.

A more thorough analysis is required to fully understand the relationships between comorbidities including obesity, sociodemographic characteristics such as ethnicity and occupation and the risk of diagnosis and death to understand these disparities further.

There are some complexities in interpretation, but it may be possible to improve this when other data become available.

Some of the papers referenced in this report have not been peer reviewed and should therefore be interpreted with some caution. However, many are authored by academics from multiple institutions which may give more confidence in the approach taken and conclusions drawn.

Conclusion

The results of this review need to be widely discussed and considered. Relevant guidance, certain aspects of recording and reporting of data, and key policies should be adapted to recognise and wherever possible mitigate or reduce the impact of COVID-19 on at risk groups.

As the numbers of new COVID-19 cases decrease, monitoring the infection among those most at risk will become increasingly important. It seems likely that it will be difficult to control the spread of COVID-19 unless these inequalities can be addressed.