

1 in 5 people worldwide have an underlying health condition that could increase their risk of severe COVID-19

June 16 2020



How many people could be at increased risk of severe COVID-19 due to underlying health conditions?



estimated using GBD 2017 data and WHO, UK, and USA conditions guidelines. 'High risk' estimated using age-specific infection-hospitalisation ratios for COVID-19 estimated for mainland China and adjusted to reflect country differences.

Clark A, Jit M, Warren-Gash C, et al. Global, regional, and national estimates of the population at increased risk of severe COVID-19 due to underlying health conditions in 2020: a modelling study. *The Lancet Global Health* 2020. Published online June 15.

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How many people could be at increased risk of severe COVID-19 due to underlying health conditions? Credit: The Lancet Global Health



An estimated 1.7 billion people, 22% of the world population, have at least one underlying health condition that could increase their risk of severe COVID-19 if infected, according to a modelling study that uses data from 188 countries, published in *The Lancet Global Health* journal.

"As countries move out of lockdown, governments are looking for ways to protect the most vulnerable from a virus that is still circulating. We hope our estimates will provide useful starting points for designing measures to protect those at increased risk of severe disease. This might involve advising people with underlying conditions to adopt social distancing measures appropriate to their level of risk, or prioritising them for vaccination in the future," says Associate Professor Andrew Clark from the London School of Hygiene & Tropical Medicine (LSHTM), UK.

Although the estimates provide an idea of the number of people governments should prioritise for protective measures, not all individuals with these conditions would go on to develop severe symptoms if infected. The authors estimate that 4% of the world's population (349 million of 7.8 billion people) would require hospitalisation if infected, suggesting that the increased risk of severe COVID-19 could be quite modest for many with underlying conditions.

Guidelines published by the WHO and by public health agencies in the UK and USA identify <u>risk factors</u> for severe COVID-19, including cardiovascular disease, chronic kidney disease, diabetes and chronic respiratory disease. The new study provides global, regional and national estimates for the number of people with underlying health conditions. The authors caution that they focused on underlying chronic conditions and didn't include other possible risk factors for COVID-19 that are not yet included in all guidelines, such as ethnicity and socioeconomic deprivation. Their estimates are therefore unlikely to be exhaustive, but serve as a starting point for policy-makers.



The authors based their estimates on disease prevalence data from the Global Burden of Diseases, Injuries and Risk Factors Study (GBD) 2017, UN population estimates for 2020 and the list of underlying health conditions relevant to COVID-19, as defined by current guidelines. The authors point out that the GBD prevalence estimates are likely to be higher than those from national databases, because they're designed to capture cases that might be undiagnosed or not severe enough to be included in electronic health records. They analysed the number of people with an underlying condition by age group, sex and country for 188 countries.

To help determine the degree of increased risk, the researchers also provided separate estimates of the proportion of all people (with and without underlying conditions) who would require hospitalisation if infected. The authors calculated those at high risk using infection hospitalisation ratios for COVID-19 and made adjustments for differences between countries.

Countries and regions with younger populations have fewer people with at least one underlying health condition, while those with older populations have more people with at least one condition. For example, the proportion of the population with one or more <u>health condition</u> ranges from 16% in Africa (283 million people out of 1.3 billion) to 31% in Europe (231 million out of 747 million).

However, Associate Professor Clark cautions that the evidence needs to be carefully communicated to avoid complacency about risk in Africa: "The share of the population at increased risk of severe COVID-19 is generally lower in Africa than elsewhere due to much younger country populations, but a much higher proportion of severe cases could be fatal in Africa than elsewhere."

Small island nations with high diabetes prevalence, such as Fiji and



Mauritius, have among the highest proportion of people with an underlying condition. In Africa, countries with the highest HIV/AIDS prevalence, such as eSwatini and Lesotho, have a greater proportion of people with an underlying condition than countries with lower prevalence, such as Niger.

Globally, less than 5% of people aged under 20 years, but more than 66% of those aged 70 and above, have at least one underlying condition that could increase their risk of severe COVID-19. Among the working age population (15 to 64 years), 23% are estimated to have at least one underlying condition. The prevalence of one or more condition listed on current guidelines is similar between the sexes, but the authors assumed males were twice as likely as females to require hospitalisation if infected.

The authors estimate that 349 million people worldwide are at high risk of severe COVID-19, meaning they would require hospital treatment if infected. This risk varies from less than 1% of people under 20 to nearly 20% of those aged 70 or older, rising to more than 25% in males over 70. In all <u>age groups</u> under 65, around twice the number of men as women would require hospitalisation. Above 65 years, the ratio becomes less marked because women are over-represented in older age groups due to longer life expectancy.

"Our estimates suggest that age-based thresholds for shielding could play a role in reducing deaths and reducing the number of people who require hospital treatment, but the choice of threshold needs to be balanced against the proportion of people of working age affected, as well as the health and economic consequences that might be associated with long periods of isolation," says Dr. Rosalind Eggo from LSHTM. [21]

Writing in a linked Comment, lead author Professor Nina Schwalbe, MPH, (who was not involved in the study) from Columbia University



Mailman School of Public Health, USA, says: "An increased understanding of risk factors, including the effects of social determinants and their interplay, provides an opportunity to target mitigation strategies and helps to allay the popular misconception that everyone is at equal risk of severe illness. As the authors note, it is time to evolve from a one-size-fits-all approach to one that centres on those most at risk. This will need to happen at both the individual and community level. Considering the relevance of social determinants, such an approach requires urgently improving communication about COVID-19; increasing access to health services, including palliative care, for those already socially vulnerable; and providing economic support to cope with the mitigation."

More information: Andrew Clark et al, Global, regional, and national estimates of the population at increased risk of severe COVID-19 due to underlying health conditions in 2020: a modelling study, *The Lancet Global Health* (2020). DOI: 10.1016/S2214-109X(20)30264-3

Provided by Lancet

Citation: 1 in 5 people worldwide have an underlying health condition that could increase their risk of severe COVID-19 (2020, June 16) retrieved 28 April 2024 from https://medicalxpress.com/news/2020-06-people-worldwide-underlying-health-condition.html

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