

# COVID-19 EXCESS MORTALITY ESTIMATES: FAQs

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## **What process did the WHO follow to calculate the estimates?**

In February 2021, in collaboration with the United Nations Department of Economic and Social Affairs (UN DESA), WHO convened a Technical Advisory Group (TAG) on COVID-19 Mortality Assessment to advise on the development of analytical methods for estimating excess mortality in all countries. The COVID TAG is comprised of leading demographers, epidemiologists, data and social scientists and statisticians from a range of backgrounds and geographies.

Under Working Group I of the TAG (Working Group I: Global excess mortality estimates including COVID-19), members considered several statistical models and after assessing performance, interpretability as well as extensibility, the TAG proposed a Poisson regression model (parameterized to account for over-dispersion) to predict the total number of deaths from all causes for the year 2020 and first half of 2021, conditional on the monthly expected deaths over the period and a predicted relative rate parameter which is modelled using country-specific variables.

The model has been used by WHO to generate estimates for countries and WHO regions for which adequate input data were available for reliable inference and to predict estimates for countries with no data available.

In addition to determining levels of excess mortality attributable to COVID-19 for the years 2020 and 2021, the expertise of the TAG is also being leveraged to develop methods for disaggregating the estimated number of excess deaths by age and sex.

## **Who are the members of the Technical Advisory Group (TAG) on COVID-19 Mortality Assessment?**

The TAG is co-chaired by Professor Debbie Bradshaw (Chief Specialist Scientist, South African Medical Research Council), Dr Kevin McCormack (Head of Division for Sustainable Development Goals Indicators & Reports and Geographies, Irish Central Statistics Office) and Dr Oleg Chestnov (Fellow, Federal Research Institute for Health Organization and Informatics of the Ministry of Health of the Russian Federation). Member profiles and a list of observers can be found [here](#).

## **What is excess mortality?**

Excess mortality attributable to COVID-19 is used to quantify the direct and indirect impacts of the pandemic. Excess mortality is defined as the difference between the total number of deaths observed for a specific place and given time period and the number that would have been expected in the absence of the pandemic (no-COVID-19 scenario). This difference is assumed to include deaths attributable directly to COVID-19 as well as deaths due indirectly to the disease through impacts on health systems and society, minus any deaths that would have occurred under normal circumstances but were averted due to pandemic-related changes in social conditions and personal behaviours.

## **Why is excess mortality the preferred measure?**

While aggregate COVID-19 case and death numbers are being reported to WHO, they do not always provide a complete picture of the health burden attributable to COVID-19. In general, reported death numbers under-estimate the number of lives lost due to the pandemic, there are a number of reasons for this. They miss those who died without testing, they are contingent on the country correctly defining COVID as the cause-of-death and they miss the increases in other deaths that are related to the pandemic leading to overwhelmed health systems or patients avoiding care. A few countries have experienced lower than expected total deaths during the pandemic due to reduced contact and reduced mobility, which have led to reduced infectious disease related mortality as well as reduced transport and injury related fatalities. Reported COVID-19 death numbers do not account for this.

In light of the challenges posed by using reported data on COVID-19 cases and deaths, excess mortality is considered a more objective and comparable measure that accounts for both the direct and indirect impacts of the pandemic.

### **What are the challenges in calculating excess mortality including COVID-19?**

Mortality data to calculate actual deaths in real-time are available in only a subset of countries where reporting systems are functioning effectively, and historical datasets to calculate expected deaths are also often incomplete. Many countries do not have the mortality surveillance capacity to generate and collect data in a timely manner and these data gaps mean that excess mortality cannot be derived for all countries using standard methods.

The work of the TAG has been essential to establishing methodology to model excess deaths where data has been unavailable and/or incomplete. This methodology is still under development and will likely be revised based on Member State feedback during the country consultation process.

### **Where can I review the methodology used to calculate the estimates for each country?**

The methodology paper can be found [here](#). In light of the evolving situation surrounding the COVID-19 pandemic, the estimates and methods are works in progress and will be updated accordingly. Initial estimates up until the middle of 2021 are scheduled for release later this year.

### **What is a country consultation process and what will countries be consulted on?**

The purpose of the country consultation process is for Member States to review the draft estimates of COVID-19 excess mortality for their respective country. Nominated focal points for each Member State will also be requested to review the data sources and methods used to produce the estimates, and asked to provide advice on primary data sources that may not have been previously reported or used and share inputs or additional feedback as required.

In October 2021, the draft COVID-19 excess mortality estimates prepared for each country and the methodology applied to produce these estimates, will be available for download and accessible through WHO's Country Portal. The WHO COVID-19 excess mortality estimates provide a comprehensive and comparable set of country estimates from January 2020 to June 2021, and the estimates for 2020 include disaggregation by sex and age.

Designated national focal points from each Member State will review and upload supporting data and provide feedback on estimates within the WHO Country Portal. National focal points will be able to interact with the WHO Global Health Estimates team. Regional webinars and a Mission Briefing (for Permanent Missions in Geneva) will be organized to present the estimates and methodology and will provide opportunity to respond to any questions.

### **Where can I find the estimates for my country / when will these estimates be available?**

Initial estimates up until the middle of 2021 are scheduled for release later this year.

### **What are the next steps?**

The country consultation process will close in November 2021, after which time the methods and estimates will be finalized and made public in December 2021 / January 2022.

### **How is WHO supporting countries to strengthen national health information systems?**

At the heart of WHO's Transformation Agenda is a commitment to support countries in achieving the Triple Billion targets and health-related SDGs.

The SCORE for Health Data Technical Package (Survey, Count, Optimize, Review, Enable) identifies data gaps and provides countries with tools to close them. Based on findings from the first assessment of country health data and information systems, WHO is using an integrated approach to improve public health and disease surveillance, track Civil Registration and Vital Statistics (CRVS) data and optimize routine health information systems, including regular and reliable data from health facilities.

The following tools are available to countries:

- Our newly launched World Health Survey Plus (WHS+) is a multi-topic, multi-mode, multi-platform survey tool to gather health data quickly in standardized and cost effective ways in order to assess and improve health.
- The CRVS strategic implementation plan is focused on supporting countries so that over the next five years there will be substantial progress with accurate and timely tracking of births, deaths and causes of death.
- WHO's Routine Health Information Systems (RHIS) strategy aims to strengthen RHIS in countries through strengthened partnerships, improved data collection, and improved integration and interoperability of RHIS, along with building capacity and ensuring sustainability.
- The WHO Toolkit for Routine Health Information Systems Data strengthens facility data analysis through standardized indicators, visualizations and guidance, while promoting integrated routing data platforms.
- The WHO Harmonized Health Facility Assessment (HHFA) is a comprehensive facility survey providing data on the availability of health services and the resources and systems needed to improve quality.

These data solutions enable public health decision makers to improve essential health services and better respond to emergencies.

**For any questions, please contact: [ddi@who.int](mailto:ddi@who.int)**