In this article, *excess mortality* refers to the number of deaths from all causes measured during a crisis, above what could be observed under 'normal' conditions. The excess mortality indicator simply takes the number of people who died from any cause, in a given period, and compares it with a historical baseline from previous years in a period which was not affected by the pandemic. In this case, the baseline consists of the average number of deaths that occurred in each month during the period 2016-2019. The higher the value, the higher the amount of additional deaths compared to the baseline. In the case of a negative indicator, this means that fewer deaths occurred in a particular month compared with the baseline period.

This indicator – which is part of the [European Statistical Recovery Dashboard](https://ec.europa.eu/eurostat/statisticsexplained) - highlights the magnitude of the health crisis by providing a comprehensive comparison of additional deaths among the European countries, allowing further analysis of its causes. While the international comparability of data directly associated with COVID-19 deaths may be arguable due to different rules for causes of death classification, as well as several under-coverage issues, this approach provides a general measure of the impact of the crisis on the mortality rate because it includes all deaths regardless of their cause.

The excess mortality indicator is based on a newly introduced data collection, in which national statistical institutes from the European Union (EU) and the European Free Trade Association (EFTA) transmit weekly deaths data to Eurostat on a voluntary basis. The weekly deaths dataset that Eurostat publishes regularly is used to compute the monthly excess mortality indicator by mapping the deaths of each week to a full month. The data covered in this analysis include all deaths that have occurred since January 2020.

**Excess mortality in the European Union between January 2020 and January 2022**

During the month of March 2020, the number of deaths rose rapidly in some European countries when compared with the average number of deaths in the period 2016 to 2019. The COVID-19 pandemic affected every part of the EU; however, its impact was not evenly spread. The highest peaks of a higher-than-average number of deaths during the first increase in COVID-19 cases in March-April were initially recorded in Italy and Spain, followed by France, Belgium and the Netherlands.

During the period May to July 2020, mortality rates gradually returned to normal across the EU as a whole. At the end of summer 2020, beginning in August and September, a second wave of excess mortality began, with the total EU value reaching 40.0 % in November (the highest rate for the whole year) before decreasing to 29.7% in December 2020. In this second wave, the excess mortality rose in all Member States, this time with a geographical prevalence in the eastern part of Europe (Poland, Bulgaria and Slovenia reached an excess of more than 90 % in
In the period between March 2020 and February 2021, the EU experienced two waves of excess mortality: the first between March and May 2020 (reaching a 25.2 % excess rate in April) and a second between August 2020 and the end of the year (reaching a 40.0 % excess rate in November 2020). A gradual decline was recorded at the beginning of 2021.

In 2021, excess mortality reached a third peak in April (21.0 %) then decreased in May and fell to a low of 5.7 % in July, with several countries reaching levels close to zero or even negative. During summer 2021, the downward trend reversed again and the EU rate increased to reach 12.9 % over the baseline period in September. Finally, in autumn-winter 2021, there was a fourth wave of excess mortality, this time with the EU rate reaching 26.3 % in November and 22.7 % in December 2021. In January 2022, the EU excess mortality rate fell to 7.7 %.

Peaks in 2021 seemed to follow a slightly different pattern, less prominent in comparison with the previous year (see Figure 1). This could be due to several factors mentioned by health experts (impact of the COVID-19 vaccination campaign, social distancing and restriction measures, etc.).

According to the weekly deaths record, between January 2020 and the end of January 2022, slightly over 1.2 million additional deaths were recorded in the EU and EFTA countries, compared with the average number for the same period in 2016-2019 (see Weekly death statistics - Statistics Explained).

The annual demographic balances published in July 2021 confirmed the results of the weekly deaths rapid exercise. In 2020, the population of the EU slightly decreased from 447.3 million to 447.0 million, interrupting a long growth mostly due to positive net migration. This time, the negative natural change (more deaths than births) outnumbered the positive net migration. The annual excess mortality for the EU as a whole, in 2020, was 11.9 % higher than the 2016-2019 average, with a variety of national differences (from Poland, Slovenia, Italy and Spain showing rates around 18 %, down to Estonia, Denmark and Latvia with less than 2 %). More detailed information on population change is available in the respective article.
The peaks of the outbreak vary greatly across Member States

European countries were not affected in the same way or at the same time by the different excess deaths waves. Table 1, below, highlights the monthly rates of excess mortality in 2020-2021 and in January 2022. The comparison of the number of deaths with data from the period 2016-2019 shows - at aggregate level - the exceptional situation that started in the first months of 2020. The first two months of the year presented lower values than those observed in previous years. However, while mortality normally starts declining at the beginning of March, in 2020 – on the contrary – the number of deaths started to rise sharply. In March 2020, the values largely exceeded those recorded in the previous years, and this gap was at its height in April, while in the following month there was a sharp decrease. Values for the summer period of 2020 showed a lower level of mortality, compared with the average of the previous period, but a new upward trend started at the end of August and increased in October, reaching its peak in November at 40.0 %, the highest rate in 2020-2021. This second wave continued until January-February 2021, and it was more geographically balanced than the first one, with a prevalence of higher excess mortality rate in the eastern regions.

During the initial phase of the COVID-19 pandemic, the highest excess mortality rates in the EU were recorded in Spain (80.8 %), Belgium (73.1 %) and the Netherlands (53.8 %). Four other countries exceeded a 35 % increase in the number of deaths in April, namely Italy (41.7 %), although the highest increase had already occurred in March at 49.6 %, Sweden (38.2 %), Ireland (38.0 %) and France (36.4 %). Several countries, however, spiked in excess mortality in other months of 2020: Malta (16.7 %) in March, Cyprus (25.0 %) in May, Lithuania (8.2 %) and Slovenia (9.5 %) in June, and Portugal (25.8 %) in July. In these countries, a relatively stable early summer period (compared with the 2016-2019 baseline) followed the high increase of mortality in spring. Then, a second sharp increase took place in most Member States, even in those not particularly concerned by springtime peaks. More than a 10 % increase, compared with the baseline, was registered for the first time in Romania in July, in Poland in August, and in Czechia and Greece in September 2020. Starting from September 2020, the increase was higher and more widespread, reaching new peaks in November, with significant rates in Poland (97.0 %), Bulgaria (94.0 %), Slovenia (91.3 %), Czechia (75.8 %), Romania (62.6 %) and Hungary (59.2 %). Countries with high values in spring 2020 recorded high excess mortality rates again in November: see Belgium (58.8 %), Italy (51.6 %), Austria (47.8 %), Malta (38.3 %), France (31.3 %) and Spain (24.4 %).

| Table 1: Excess mortality indicator Source: Eurostat (demo_mexrt) |

In January and February 2021, a slight decrease in the excess mortality was observed for most countries, continuing the trend at the end of 2020. A third smaller spike then followed in March and April 2021, reaching 21.0 % of excess mortality in April 2021, compared with the baseline period 2016-2019. Some countries had very high rates, with excess mortality rates above 50 % in Bulgaria (77.3 %), Poland (65.3 %), Czechia (62.1 %), Slovakia (55.0 %) and Hungary (50.7 %), while others had no excess deaths at all. In May, June and July 2021, the overall number of deaths in the European Union declined further, reaching an overall rate of 5.7 % in July 2021, the lowest rate since July 2020. Between September and November 2021, while the overall rate increased for a fourth time to reach 26.3 % in November, excess mortality continued to vary considerably across the EU Member States. In October and November 2021, while some Member States (Romania, Bulgaria, Slovenia, Czechia, Hungary,.
Slovakia, Poland, Estonia, Latvia and Lithuania) recorded excess mortality rates higher than 40% (with Romania reaching 110% in October), others recorded rates below 20%, or even leaning towards a zero-excess rate (Table 1). In December 2021, excess mortality declined slightly to 22.7% but continued to vary across EU Member States: from 4.4% in Sweden to 53.8% in Slovakia and 69.0% in Poland. In January 2022, the fourth wave seemed to lose strength, with the overall rate falling to 7.7%.

In the tool below, you may select the country you would like to analyse.

Further releases
Data for the most recent months are provisional and subject to revision. This article and related table are regularly updated on a monthly basis.

Source data for tables and figures
Excess mortality data

Data sources
The excess mortality indicator, covering EU and EFTA countries, is based on weekly deaths data transmitted to Eurostat by Member States on a voluntary basis. Data are classified by sex, five-year age groups and NUTS regions, and are continuously updated with more recent weeks of mortality statistics. These weekly data are then attributed pro-rata to months for computing the excess mortality indicator. For the purpose of the excess mortality indicator, the death figures for the latest weeks available in a Member State are corrected for incompleteness. Data for 2021 remain provisional and subject to revision with the next releases.

Thirty-one countries provide weekly mortality data: Belgium, Bulgaria, Czechia, Denmark, Germany, Estonia, Ireland, Greece, Spain, France, Croatia, Italy, Cyprus, Latvia, Lithuania, Luxembourg, Hungary, Malta, the Netherlands, Austria, Poland, Portugal, Romania, Slovenia, Slovakia, Finland, Sweden, Iceland, Liechtenstein, Norway and Switzerland. Data received from candidate and neighbouring countries are not present in this article.

Due to missing or incomplete data from some countries, Eurostat estimated the EU aggregate for January 2022, based on the latest available statistics.

Data from Ireland were not included in the first phase of the excess mortality release: official timely data were not available because deaths in Ireland can be registered up to three months after the date of death. Because of the COVID-19 pandemic, the Central Statistics Office (CSO) of Ireland began to explore experimental ways of obtaining up-to-date mortality data. At the end of April 2021, CSO started publishing a time series from October 2019 until the most recent weeks, using death notices (see CSO website). For the purpose of this release, Eurostat is comparing the new 2020-2021 web-scraped series with a 2016-2019 baseline built using official data. CSO is periodically assessing the quality of these data.

Context
The COVID-19 pandemic has triggered tremendous interest in statistics. Hence, in April 2020, in cooperation with the national statistical institutes of the European Statistical System, Eurostat set up a special data collection on weekly deaths, in order to support the policy and research efforts related to the pandemic. National statistical institutes regularly and voluntarily transmit data to Eurostat on weekly deaths, up to the latest available week.

‘Excess mortality’ has been identified as the most useful indicators for assessing additional deaths, complementing the other indicators contained in the European Statistical Recovery Dashboard. In order to capture the dynamics of mortality changes in a more stable way, the excess mortality indicator is calculated for each month, no later than 45 days after the end of the reference period (depending on data available to Eurostat from the national statistical
institutes). The indicator provides additional insight into the impact the COVID-19 crisis has had on European societies. It should be stressed again that, while a substantial increase largely coincides with a COVID-19 outbreak in each country, the indicator does not make a distinction between causes of death and does not differentiate sex or age class. Statistics on excess deaths provide information about the burden of mortality potentially related to the COVID-19 pandemic, thereby covering not only deaths that are directly attributed to the virus but also those indirectly related to it. In addition to confirmed deaths, excess mortality captures COVID-19 deaths that were not correctly diagnosed and reported, as well as deaths from other causes that may be attributed to the overall crisis situation. It also accounts for the partial absence of deaths from other causes like accidents that did not occur due, for example, to the limitations in commuting or travel during the lockdown periods.

See also

- Weekly death statistics
- Causes of death statistics
- Causes of death statistics by age group
- Mortality and life expectancy statistics

Database

- Mortality (demo_mor), see:
  - Excess mortality - monthly data (demo_mexrt)

- Mortality (demo_mor), see:
  - Weekly deaths - special data collection (demomwk)

Dedicated section

- Population and health
- Population and Demography overview

Methodology

- Excess mortality (ESMS metadata file — demo_mexrt)

Visualisations

- Data Browser (Excess mortality line chart) - select geopolitical entity and time
- Data Browser (Excess mortality bar chart) - select time (below)