Causes of death statistics

Data extracted in May 2016. Most recent data: Further Eurostat information, Main tables and Database. Planned article update: May 2017.

This article gives an overview of recent statistics on causes of death in the European Union (EU). By relating all deaths in the population to an underlying cause of death, the risks associated with death from a range of specific diseases and other causes can be assessed; these figures can be further analysed by age, sex, country where the death occurred / residency of the deceased, and region (NUTS level 2), using standardised death rates.

Main statistical findings

The latest estimated information for the EU-28 relating to causes of death is available for the 2013 reference period. Table 1 shows that diseases of the circulatory system and cancer (malignant neoplasms) were, by far, the leading causes of death in the EU.<

![Table 1: Causes of death — standardised death rate, 2013(per 100 000 inhabitants)Source: Eurostat (hlthcdasdr2)]
Standardised death rates for cancer, ischaemic heart disease and transport accidents followed a downward path between 2004 and 2013

Between 2004 and 2013, there was an 11.0 % reduction in EU-28 standardised death rates relating to cancer for men and a 5.9 % reduction for women — see Figures 1 and 2. Larger declines were recorded in relation to deaths from ischaemic heart disease, where death rates fell by 30.6 % for men and 33.4 % for women, while even greater reductions were recorded for deaths from transport accidents where rates fell by 45.3 % for men and 47.0 % for women. The standardised death rate for breast cancer fell by 10.1 % for women, also in excess of the overall change for cancer. By contrast, death rates for diseases of the nervous system increased for men by 18.9 % and for women by 25.1 %. Lung cancer (including also cancer of the trachea and bronchus) shows diverging trends: for men the standardised death rate decreased by 20.8 % while for women it increased by 71.9 %.

Figure 1: Causes of death — standardised death rate per 100 000 inhabitants, men, EU-28, 2004–13 (1)(2009 = 100)Source: Eurostat (hlthcdasdr) and (hlthcdasdr2)
Figure 2: Causes of death — standardised death rate per 100 000 inhabitants, women, EU-28, 2004–13 (1)(2009 = 100)Source: Eurostat (hlthcdasdr) and (hlthcdasdr2)

The standardised death rate for ischaemic heart disease in the EU-28 was 132 deaths per 100 000 inhabitants in 2013. Diseases of the circulatory system include those related to high blood pressure, cholesterol, diabetes and smoking; the most common causes of death from diseases of the circulatory system are ischaemic heart diseases and cerebrovascular diseases. Ischaemic heart diseases accounted for 132 deaths per 100 000 inhabitants across the EU-28 in 2013. The EU Member States with the highest standardised death rates from ischaemic heart disease were Lithuania, Latvia, Slovakia, Hungary, and the Czech Republic — all above 350 deaths per 100 000 inhabitants in 2013. At the other end of the range, France, Portugal, the Netherlands, Spain, Belgium, Denmark, Luxembourg and Greece, as well as Liechtenstein, had the lowest standardised death rates from ischaemic heart disease — below 100 deaths per 100 000 inhabitants in 2013.

Hungary reported the highest standardised death rate for lung cancer and for colorectal cancer. Cancer was a major cause of death, averaging 265 deaths per 100 000 inhabitants across the EU-28 in 2013. The most common forms of cancer — all with standardised death rates in excess of 10 per 100 000 inhabitants — included malignant neoplasms of the: trachea, bronchus and lung; colon, rectosigmoid junction, rectum, anus and anal canal; breast; pancreas; stomach and liver and bile ducts.

Hungary, Croatia, Slovakia, Slovenia, Denmark and Latvia were most affected by cancer — with 300 or more deaths per 100 000 inhabitants in 2013. Hungary recorded, by far, the highest standardised death rate from lung cancer among EU Member States in 2013 (89 deaths per 100 000 inhabitants), followed by Denmark (72 deaths per 100 000 inhabitants) Poland (68 per 100 000 inhabitants) and the Netherlands (68 per 100 000 inhabitants); Serbia also reported a standardised death rate of 70 per 100 000 inhabitants. The highest standardised death rate for colorectal cancer was also observed in Hungary, 56 deaths per 100 000 inhabitants, while Slovakia and Croatia also recorded standardised rates of 50 or more deaths per 100 000 inhabitants.

Respiratory diseases were the third most common cause of death in the EU-28. After circulatory diseases and cancer, respiratory diseases were the third most common cause of death in the EU-28, with an average of 83 deaths per 100 000 inhabitants in 2013. Within this group of diseases, chronic lower respiratory diseases were the most common cause of mortality followed by pneumonia. Respiratory diseases are age-related with the vast majority of deaths from these diseases recorded among those aged 65 or more.
The highest standardised death rates from respiratory diseases among the EU Member States were recorded in the United Kingdom (144 per 100,000 inhabitants), Ireland (131 per 100,000 inhabitants), Denmark (128 per 100,000 inhabitants) and Portugal (124 per 100,000 inhabitants).

Finland had by far the highest standardised death rate for diseases of the nervous system

As noted above, standardised death rates for diseases of the nervous system increased in recent years. In 2013, the overall rate for the EU-28 was 38 deaths per 100,000 inhabitants. Finland had by far the highest rate among the EU Member States for diseases of the nervous system, as its rate of 141 deaths per 100,000 inhabitants was more than double the next highest rate which was 56 per 100,000 inhabitants in the Netherlands.

Lowest standardised death rates from suicide in Greece and Malta

External causes of death include, among others, deaths resulting from intentional self-harm (suicide) and transport accidents. Although suicide is not a major cause of death and the data for some EU Member States are likely to be under-reported, it is often considered as an important indicator of issues that need to be addressed or considered by society. On average, there were 11.7 deaths per 100,000 inhabitants resulting from suicide in the EU-28 in 2013. The lowest standardised death rates for suicide in 2013 were recorded in Greece (4.8 deaths per 100,000 inhabitants) and Malta (5.1), and relatively low rates — of less than 8 deaths per 100,000 inhabitants — were also recorded in Cyprus, Italy and the United Kingdom, as well as in Turkey and Liechtenstein. The standardised death rate from suicide in Lithuania (36.1 deaths per 100,000 inhabitants) was three times the EU-28 average, while the rate in Slovenia and Hungary (21.7 and 21.2 deaths per 100,000 inhabitants, respectively) was close to double of the EU average.

Lowest standardised death rates from transport accidents in the United Kingdom

Although transport accidents occur on a daily basis, the frequency of deaths caused by transport accidents in the EU-28 in 2013 (a standardised death rate of 5.9 per 100,000 inhabitants) was lower than the frequency of suicides. Romania, Lithuania, Poland and Croatia had the highest standardised death rates (10.0 or more deaths per 100,000 inhabitants) resulting from transport accidents in 2013, while the United Kingdom reported 2.7 deaths from transport accidents per 100,000 inhabitants. Among the non-member countries shown in Table 1, Liechtenstein (2.3 per 100,000 inhabitants) recorded a relatively low death rate from transport accidents and the rates in the other EFTA countries for which data are available were also below the EU-28 average.

Standardised death rates were higher for men than for women for nearly all of the main causes of death

Except for breast cancer, EU-28 standardised death rates were higher for men than for women for all of the main causes of death in 2013 — see Figure 3. The standardised death rates for alcohol abuse, intentional self-harm and drug dependence were around four times as high for men as for women, while death rates among men for lung cancer were almost three times as high as those for women.
While deaths from cancer were generally higher for men than for women, there are a number of cancers which are prevalent among only one of the sexes, such as breast cancer in women, while some other cancers are exclusive to one of the sexes, such as cancer of the uterus for women, or prostate cancer for men. Breast cancer accounted for 33.2 deaths per 100 000 female inhabitants across the EU-28 in 2013. The highest rates were recorded for Croatia (41.3 per 100 000 female inhabitants) and Malta (40.5 per 100 000 female inhabitants). At the other end of the range, there were less than 30.0 deaths from breast cancer per 100 000 female inhabitants in 2013 in Spain, Portugal, Estonia, Finland and Sweden, as well as in Turkey and Norway.

The Baltic Member States reported the highest incidence of ischaemic heart disease among men

The incidence of death from ischaemic heart disease was systematically higher for men in each of the EU Member States — see Figure 4. The highest standardised death rates from these diseases among men were recorded in Lithuania and Latvia, and along with Estonia the three Baltic Member States also recorded the largest gender gaps. The lowest incidence of deaths from ischaemic heart disease among both men and women were registered in France.

Note. The figure is ranked on the average of women and men. Note the difference in the scales employed between the two parts of the figure.

(*) Age group ’85+’ was used for calculating the crude death rates.
In a similar manner, the standardised death rates for suicide were systematically higher for men than for women — see Figure 5. The largest gender gap was in Lithuania, where the rate for men was 66.3 per 100 000 inhabitants compared with 11.7 per 100 000 inhabitants for women. However, taking a simple ratio between the rates for men and women showed that in Malta the rate for men (9.7 per 100 000 inhabitants) was 24 times as high as the rate for women (0.4 per 100 000 inhabitants). This ratio between the sexes was also relatively high in Cyprus and Slovakia (8.5 and 7.4 times as high for men, respectively) and Poland (7.1), while it was lowest in Luxembourg where the standardised death rate for suicide for men was 1.9 times as high as that for women.
Analysis by age

For people below 65 years of age the leading causes of mortality were somewhat different in terms of their relative importance (see Table 2). Cancer was the most prominent cause of death within this age group — averaging a standardised death rate of 80.8 deaths per 100,000 inhabitants in the EU-28 in 2013 — followed by diseases of the circulatory system. Contrary to the data for the whole of the population, diseases of the respiratory system did not figure among the three most prevalent causes of mortality for those aged less than 65: for example, the standardised rate for diseases of the respiratory system was lower than the death rate for suicide.
Table 2: Causes of death — standardised death rate of people aged less than 65, 2013 (per 100,000 inhabitants aged less than 65) Source: Eurostat (hlthcdasdr2)

EU-28 death rates for persons aged less than 65 fell between 2004 and 2013 for each of the main causes of death with the exception of lung cancer, as shown in Figure 6. This was particularly the case for transport accidents and ischaemic heart diseases, where the incidence of death fell by 31.2% and 26.3% respectively.
Figure 6: Causes of death — standardised death rate per 100 000 inhabitants aged less than 65, EU-28, 2004–13 (1)(2009 = 100)Source: Eurostat (hlthcdasdr) and (hlthcdasdr2)

Data sources and availability

Statistics on causes of death provide information on mortality patterns, supplying information on developments over time in the underlying causes of death. This source is documented in more detail in this background article which provides information on the scope of the data, its legal basis, the methodology employed, as well as related concepts and definitions.

Eurostat began collecting and disseminating mortality data in 1994. Currently data are analysed by:

- the European shortlist of 86 causes of death based on the International Statistical Classification of Diseases and Related Health Problems (ICD), developed and maintained by the World Health Organisation (WHO);
- sex;
- age;
- geographical region (NUTS level 2).

Annual data are provided in absolute numbers, as crude death rates and as standardised death rates. Since most causes of death vary significantly by age and according to sex, the use of standardised death rates improves comparability over time and between countries as death rates can be measured independently of the population’s age structure.

In April 2011, European Commission Regulation 328/2011 on statistics on causes of death was adopted specifying in detail the variables, analysis (breakdowns) and metadata that EU Member States must deliver.

For country specific notes on this data collection, please refer to this background information document.

Data sources

Statistics on the causes of death are based on two pillars: medical information contained on death certificates, which may be used as a basis for ascertaining the cause of death; and the coding of causes of death following the WHO - ICD system. All deaths in the population are identified by the underlying cause of death, in other words "the disease or injury which initiated the train of morbid events leading directly to death, or the circumstances
of the accident or violence which produced the fatal injury’ (a definition adopted by the World Health Assembly).

The validity and reliability of statistics on the causes of death rely, to some degree, on the quality of the data provided by certifying physicians. Inaccuracies may result from several reasons, including:

- errors when issuing the death certificate;
- problems associated with the medical diagnosis;
- the selection of the main cause of death;
- the coding of the cause of death.

Sometimes there is ambiguity in the cause of death: besides the illness leading directly to death, the medical data on the death certificate should also contain a causal chain linked to the suffering of the deceased. Other substantial health conditions may be indicated, which did not have a link to the illness leading directly to death, but may have unfavourably affected the course of a disease and thus contributed to the fatal outcome. Indeed, there is sometimes criticism that the coding of only one illness as a cause of death appears more and more unrealistic in view of the increasing life expectancy and associated changes in morbidity. For the majority of the deceased of 65 years and over the selection of just one out of a number of possible causes of death may be somewhat misleading. For this reason, some of the EU Member States have started to consider multiple-cause coding. Eurostat has supported EU Member States in their efforts to develop a joint automated coding system called IRIS for the improvement and better comparability of causes of death data in Europe.

**Revised European standard population**

The number of deaths from a particular cause of death can be expressed relative to the size of the population. A standardised (rather than crude) death rate can be compiled which is independent of the age and sex structure of a population: this is done as most causes of death vary significantly by age and according to sex and the standardisation facilitates comparisons of rates over time and between countries.

The European standard population used for the standardisation of crude rates dated back to 1976 and so it was necessary to adapt it to changes in the age-structure of the EU population that had occurred since the mid-1970s. A revised European Standard Population (ESP) was agreed with the Member States and includes the EU-27 Member States and the EFTA countries on the basis of population projections that were made in 2010 for the period 2011–30; it has been in use since the summer of 2013.

**Context**

Statistics on causes of death, which are among the oldest medical statistics available, provide information on developments over time and differences in causes of death between EU Member States. These statistics play a key role in the general information system relating to the state of health in the EU. They may be used to determine which preventive and medical-curative measures or which investments in research might increase the life expectancy of the population.

As there is a general lack of comprehensive European morbidity statistics, data on causes of death are often used as a tool for evaluating health systems in the EU and may also be employed for evidence-based health policy.

The EU promotes a comprehensive approach to tackling major and chronic diseases, through integrated action on risk factors across sectors, combined with efforts to strengthen health systems towards improved prevention and control, through:

- making national statistics as reliable and comparable as possible, so they can serve as a good guide to policy effectiveness;
- supporting campaigns related to raising public-awareness and disease-prevention that actively target high-risk groups and individuals;
- systematically integrating policy and action to reduce inequalities in health;
- providing partnerships in relation to specific diseases, for example, cancer.
See also

Online publications

- Health in the European Union – facts and figures
- Disability statistics

Causes of death

- Causes of death statistics — people over 65

Health status — selected diseases and related health problems

- Cardiovascular diseases statistics
- Cancer statistics
- Cancer statistics — specific cancers
- Respiratory diseases statistics
- Mental health and related issues statistics
- Accidents and injuries statistics

Methodology

- Causes of death statistics - methodology

General health statistics articles

- Health statistics introduced
- Health statistics at regional level — causes of death: Main statistical findings
- Health statistics at regional level — causes of death: Data sources and availability
- Healthy life years statistics
- Mortality and life expectancy statistics
- The EU in the world — health

Further Eurostat information

Publications

- 1 in 4 deaths caused by cancer in the EU-28 — Lung cancer main fatal cancer — News release 179/2014
- Causes of death in the EU-28 in 2010 — Circulatory diseases main cause of death for men and women aged 65 years and over — News release 178/2013
- Circulatory diseases — Main causes of death for persons aged 65 and more in Europe, 2009 — Statistics in focus 7/2012
- Causes of death in the EU — Statistics in focus 10/2006
- Health statistics — Atlas on mortality in the European Union

Main tables

- Causes of death (thlthcdeath)

Database

- Causes of death (hlthcdeath)
Dedicated section

- Health
- Causes of death

Methodology / Metadata

- Causes of death statistics (ESMS metadata file — hlthcdeathesms)

Source data for tables and figures (MS Excel)

- Causes of death statistics: tables and figures

External links

- European Commission — Directorate-General for Health and Food Safety — Mortality
- European Commission — Directorate-General for Health and Food Safety — Major and chronic diseases
- European Commission — Directorate-General for Health and Food Safety — European Core Health Indicators (ECHI), ECHI 13 'Disease-specific mortality'
- Joint OECD / European Commission report 'Health at a Glance: Europe 2014'
- WHO Global Health Observatory (GHO) — Mortality and global health estimates

View this article online at http://ec.europa.eu/eurostat/statistics-explained/index.php/Causes_of_death_statistics