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 findings

The latest estimated information for the EU-28 relating to causes of death is available for the 2015 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.
Developments between 2005 and 2015

Standardised death rates for cancer, ischaemic heart disease and transport accidents followed a downward path between 2005 and 2015.

Between 2005 and 2015, there was an 11.5 % reduction in EU-28 standardised death rates relating to cancer for men and a 6.1 % 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 30.3 % for men and 34.3 % for women, while even greater reductions were recorded for deaths from transport accidents where rates fell by 43.3 % for men and 44.3 % for women. The standardised death rate for breast cancer fell by 10.1 % for women, which was in excess of the overall change for all cancers. By contrast, death rates for diseases of the nervous system increased for men by 25.9 % and for women by 31.9 %. Although the standardised death rate for lung cancer (including also cancer of the trachea and bronchus) increased for men and for women, the rate of change differed greatly: for men the rate increased by 3.9 % (with a downward trend since 2009) while for women it increased by as much as 56.0 %.

Table 1: Causes of death — standardised death rate, 2015 (per 100 000 inhabitants)

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Figure 1: Causes of death — standardised death rate per 100 000 inhabitants, males, EU-28, 2005-2015 (2010 = 100)

Source: Eurostat (hlth_cd_asdr) and (hlth_cd_asdr2)

Note: 2005 and 2010, provisional; 2011-2013: for the age standardisation, among older people, the age group aged 85 and over was used rather than separate age groups for 85-89, 90-94 and 95 and over.

Source: Eurostat (online data codes: hlth_cd_asdr and hlth_cd_asdr2)
Causes of death — standardised death rate per 100 000 inhabitants, females, EU-28, 2005-2015 (2010 = 100)

Figure 2: Causes of death — standardised death rate per 100 000 inhabitants, females, EU-28, 2005-2015 (2010 = 100) Source: Eurostat (hlth_cd_asd and hlth_cd_asdr2)

Causes of death in 2015 by country

The standardised death rate for ischaemic heart disease in the EU-28 was 127 deaths per 100 000 inhabitants in 2015.

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 127 deaths per 100 000 inhabitants across the EU-28 in 2015. The EU Member States with the highest standardised death rates from ischaemic heart disease were Lithuania, Latvia, Slovakia and Hungary — all close to or above 400 deaths per 100 000 inhabitants in 2015. At the other end of the range, France, the Netherlands, Portugal, Spain, Belgium, Luxembourg and Denmark had the lowest standardised death rates from ischaemic heart disease — below 100 deaths per 100 000 inhabitants in 2015; this was also the case in Liechtenstein, Norway and Switzerland.

Hungary reported the highest standardised death rate for lung cancer and for colorectal cancer.

Cancer was a major cause of death, averaging 261 deaths per 100 000 inhabitants across the EU-28 in 2015. 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; prostate; stomach; and liver and bile ducts.

People in Hungary, Croatia, Slovakia, Slovenia and Poland were most affected by cancer — with 300 or more deaths per 100 000 inhabitants in 2015; in Estonia, Latvia and Denmark, as well as in Serbia, death rates were very close to this level. Hungary recorded, by far, the highest standardised death rate from lung cancer among EU Member States in 2015 (89 deaths per 100 000 inhabitants), followed by Poland (70 deaths per 100 000 inhabitants) Denmark (69 per 100 000 inhabitants), the Netherlands (66 per 100 000 inhabitants) and Croatia.
(65 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, 54 deaths per 100 000 inhabitants, while Croatia recorded a standardised rate of 50 deaths per 100 000 inhabitants and Slovakia a rate of 49 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 88 deaths per 100 000 inhabitants in 2015. 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 over.

The highest standardised death rates from respiratory diseases among the EU Member States were recorded in the United Kingdom (142 per 100 000 inhabitants), Ireland (135 per 100 000 inhabitants), Portugal (126 per 100 000 inhabitants), Greece (122 per 100 000 inhabitants) and Denmark (118 per 100 000 inhabitants).

**Lowest standardised death rates from suicide in Cyprus and Greece**

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 deaths per 100 000 inhabitants resulting from suicide in the EU-28 in 2015. The lowest standardised death rates for suicide in 2015 were recorded in Cyprus and Greece (respectively 4 and 5 per 100 000 inhabitants), and relatively low rates — of less than 8 deaths per 100 000 inhabitants — were also recorded in Italy, the United Kingdom, Spain and Malta; among EFTA and candidate countries, particularly low rates were recorded in Liechtenstein and Turkey. The standardised death rate from suicide in Lithuania (30 deaths per 100 000 inhabitants) was nearly three times the EU-28 average.

**Lowest standardised death rates from transport accidents in Sweden, Malta, Ireland and the United Kingdom**

Although transport accidents occur on a daily basis, the frequency of deaths caused by transport accidents in the EU-28 in 2015 (a standardised death rate of 5.8 per 100 000 inhabitants) was lower than the frequency of suicides. Romania, Latvia, Croatia and Lithuania had the highest standardised death rates (10.0 or more deaths per 100 000 inhabitants) resulting from transport accidents in 2015, while at the other end of the range, Sweden, Malta, Ireland and the United Kingdom each reported less than 3.6 deaths from transport accidents per 100 000 inhabitants; among the EFTA countries Liechtenstein and Norway reported similarly low rates.

**Causes of death in 2015 by sex**

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 2015 — see Figure 3. The standardised death rates for alcohol abuse and drug dependence were more than four times as high for men as for women, while death rates among men for intentional self-harm and HIV were between three and four 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 32.7 deaths per 100 000 female inhabitants across the EU-28 in 2015. The highest standardised death rates were recorded for Croatia (43.1 per 100 000 female inhabitants), Slovakia (40.6 per 100 000 female inhabitants) and Hungary (39.3 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 2015 in Spain, Finland, Portugal, Sweden and the Czech Republic, as was also the case in Norway among the EFTA countries and Turkey among the candidate countries.

Lithuania, Latvia, Slovakia and Hungary reported the highest incidences of ischaemic heart disease among men and women.

The highest standardised death rates from ischaemic heart disease among both men and women were recorded in Lithuania, Latvia, Slovakia and Hungary, while the lowest incidences of deaths from ischaemic heart disease among both men and women were registered in France and the Netherlands. The incidence of death from ischaemic heart disease was systematically higher for men in each of the EU Member States — see Figure 4 — with the largest gender gaps recorded in the three Baltic Member States.
In a similar manner, standardised death rates for suicide were systematically higher for men than for women — see Figure 5. The largest gender gap in 2015 was in Lithuania, where the rate for men was 56.3 per 100,000 inhabitants compared with 10.1 per 100,000 inhabitants for women. However, taking a simple ratio between the rates for men and women showed that in Poland and Romania, the rates for men were more than six times as high as the rates for women. This ratio between the sexes was lowest in Sweden, Belgium, Luxembourg, Denmark and the Netherlands where standardised death rates for suicide for men were less than 3.0 times as high as those for women.
Causes of death in 2015 of people below 65 years of 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 rate of 78 deaths per 100 000 inhabitants in the EU-28 in 2015 — followed by diseases of the circulatory system (46 deaths per 100 000 inhabitants). 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: the standardised rate for diseases of the respiratory system was lower than the death rate for diseases of the digestive system and was only slightly higher than the death rate for suicide.
Table 2: Causes of death — standardised death rate, 2015 (per 100 000 inhabitants aged less than 65)

Source: Eurostat (hlth_cd_asdr2)

EU-28 death rates for persons aged less than 65 fell between 2005 and 2015 for each of the main causes of death with the exception of lung cancer, as shown in Figure 6. The fall was particularly strong for transport accidents and ischaemic heart diseases, where the incidence of death fell by 46.7 % and 31.9 % respectively during the period under consideration.
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 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 EU Member States and includes the EU-27 Member States (not including Croatia) and the EFTA countries on the basis of population projections that were made in 2010 for the period 2011-2030; 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.

**Other articles**

**Online publications**

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

**Causes of death**

- Causes of death statistics — people over 65

**Health status**

- Healthy life years statistics
- Mortality and life expectancy statistics
Specific health conditions

- 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
- The EU in the world — health

Publications

- Health statistics — Atlas on mortality in the European Union

Main tables

- Causes of death (t_hlth_cdeath)

Database

- Causes of death (hlth_cdeath)

Dedicated section

- Health
- Causes of death

Methodology

- Causes of death (ESMS metadata file — hlth_cdeath_esms)

External links

- European Commission — Directorate-General for Health and Food Safety — Non-communicable 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
- 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