Preventable and treatable mortality statistics

Statistics Explained

Data from April 2025.
Planned article update: April 2026.

Highlights

In 2022, the Netherlands and Sweden had the lowest death rates in the EU for treatable diseases or conditions (both 59.2 deaths per 100 000 inhabitants), followed by France and Luxembourg.

In the EU, mortality rates for both treatable and preventable diseases or conditions were higher for males than for females in 2022. This pattern was repeated in all but 1 of the EU countries, as the Netherlands had a higher rate for females for treatable diseases or conditions.

In the EU, 1.6 million people aged less than 75 years died in 2022; the total number of avoidable deaths among people aged less than 75 years was 1.1 million.

Among people aged less than 75 years, the 3 leading causes of avoidable deaths in 2022 in the EU were ischaemic heart diseases, lung cancer and cerebrovascular diseases.

This article presents statistics for the European Union (EU) on 2 indicators of avoidable mortality, namely deaths from treatable and preventable diseases or conditions. The concept of treatable and preventable mortality is based on the idea that certain deaths (for specific diseases or conditions defined by the ICD classification – see the Data sources section) could be 'avoided' among people aged less than 75 years. In other words, these avoidable deaths would not have occurred at this stage if there had been more effective public health and/or medical interventions in place[1].

- A disease/condition is considered as treatable if a death from this disease/condition could have been avoided through optimal quality health care .
- The concept of preventable deaths covers deaths which could have been avoided by public health interventions focusing on wider determinants of public health, such as behaviour and lifestyle factors, socioeconomic status, and environmental factors.
- The diseases or conditions that can be largely prevented and treated once they have occurred are attributed to the preventable category.
- In cases when there is no strong evidence of predominance of preventability or treatability diseases or conditions, they are allocated on a 50%-50% basis to the 2 categories.

This article is included in a set of statistical articles concerning health status in the EU which forms part of an online publication on Health in the European Union – facts and figures .

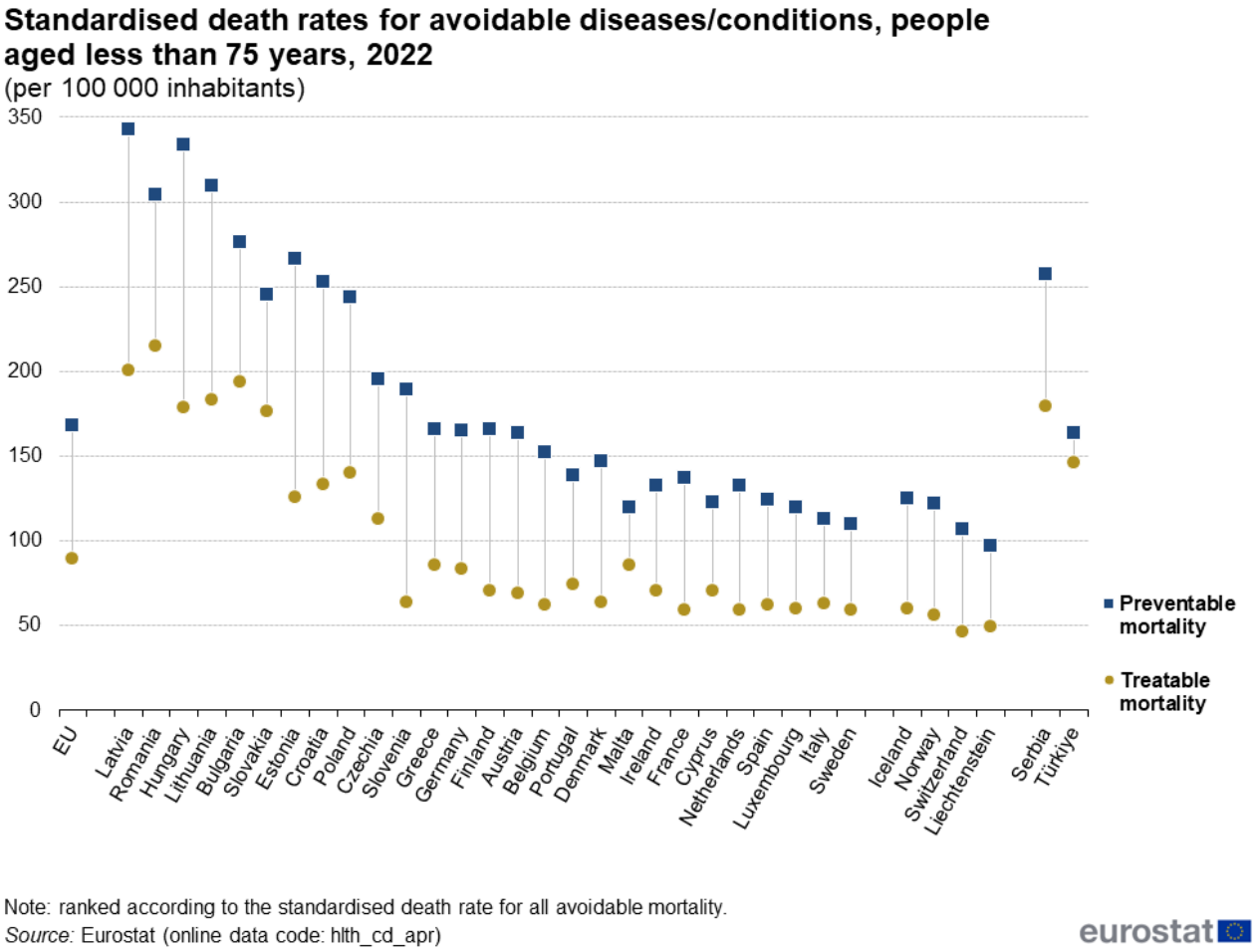
[1] See the discussions in Nolte E. and M. McKee (2004):*Does Health Care Save Lives? Avoidable Mortality Revisited* , Nuffield Trust, London; and Gay J. et al. (2011):*Mortality Amenable to Health Care in 31 OECD Countries* , OECD Health Working Papers No. 55, OECD.

Number and rate of avoidable deaths

In 2022, deaths from avoidable diseases or conditions among people aged less than 75 years amounted to 1.1 million in the EU

A total of 1.1 million deaths in 2022 among people aged less than 75 years – equivalent to a standardised death rate of 257.8 deaths per 100 000 inhabitants – could have been avoided in the EU. Over 386 700 of these deaths – equivalent to a standardised death rate of 89.7 deaths per 100 000 inhabitants – were deaths from diseases or conditions that are treatable, and almost 725 625 deaths – equivalent to 168.1 deaths per 100 000 inhabitants – could have been prevented. The number of preventable deaths was higher than the number of deaths from treatable diseases or conditions due to the broader definition of the former.

Figure 1 shows data for standardised death rates of avoidable mortality, comparing the rates for preventable diseases or conditions with those for treatable ones. These standardised death rates assume the same age distribution of the population for all countries.



Note: ranked according to the standardised death rate for all avoidable mortality.
Source: Eurostat (online data code: hlth_cd_apr)

Figure 1: Standardised death rates for avoidable diseases or conditions, people aged less than 75 years, 2022 Source: Eurostat (hlth_cd_apr)

In all EU countries, standardised death rates for treatable diseases or conditions were lower than for preventable diseases or conditions in 2022. The largest absolute gap was in Hungary, where there were 155.0 per 100 000 inhabitants more deaths from preventable than treatable diseases or conditions. The narrowest gap was in Malta, where the difference was 33.4 per 100 00 inhabitants. The lowest death rates for treatable diseases or conditions were recorded in the Netherlands and Sweden, at 59.2 per 100 000 inhabitants. France also recorded a rate under 60.0 per 100 000 inhabitants. The highest death rate for treatable diseases or conditions was 215.0 per 100 000 inhabitants in Romania. Latvia, Bulgaria, Lithuania, Hungary and Slovakia also recorded rates above 150.0 per 100 000 inhabitants.

The lowest death rate for preventable diseases or conditions was recorded in Sweden, at 110.2 per 100 000 inhabitants. Italy, Malta and Luxembourg also recorded rates under 120.0 per 100 000 inhabitants. The highest death rate for preventable diseases or conditions was 342.6 per 100 000 inhabitants in Latvia. Hungary, Lithuania and Romania also recorded rates above 300.0 per 100 000 inhabitants.

Avoidable death rates by sex

Mortality rates in the EU were higher for males than for females for avoidable diseases or conditions

In nearly all EU countries, mortality rates among people aged less than 75 years for treatable diseases or conditions in 2022 were higher for males than for females – see Figure 2. The Netherlands was the only EU country to report higher treatable mortality rates for females (59.3 per 100 000 inhabitants) than for males (59.1 per 100 000 inhabitants).

Among the EU countries, the narrowest gender gap (the difference between the rates for males and for females),in relative terms, for treatable diseases or conditions was observed for the Netherlands, followed by France, Belgium, Ireland and Italy. The widest gender gaps for treatable diseases or conditions were reported for 2 of the Baltic countries – Lithuania and Latvia – which were the only EU countries to report rates for males that were more than 2.0 times as high as the rates for females. For males, the Netherlands (59.1 per 100 000 inhabitants) reported the lowest death rate for treatable diseases or conditions, while Romania and Latvia (283.3 and 290.3 per 100 000 inhabitants, respectively) reported the highest rates. For females, the lowest mortality rate for treatable diseases or conditions was reported by Spain (51.1 per 100 000 inhabitants) and the highest rates by Bulgaria and Romania (140.9 and 154.1 per 100 000 inhabitants, respectively).

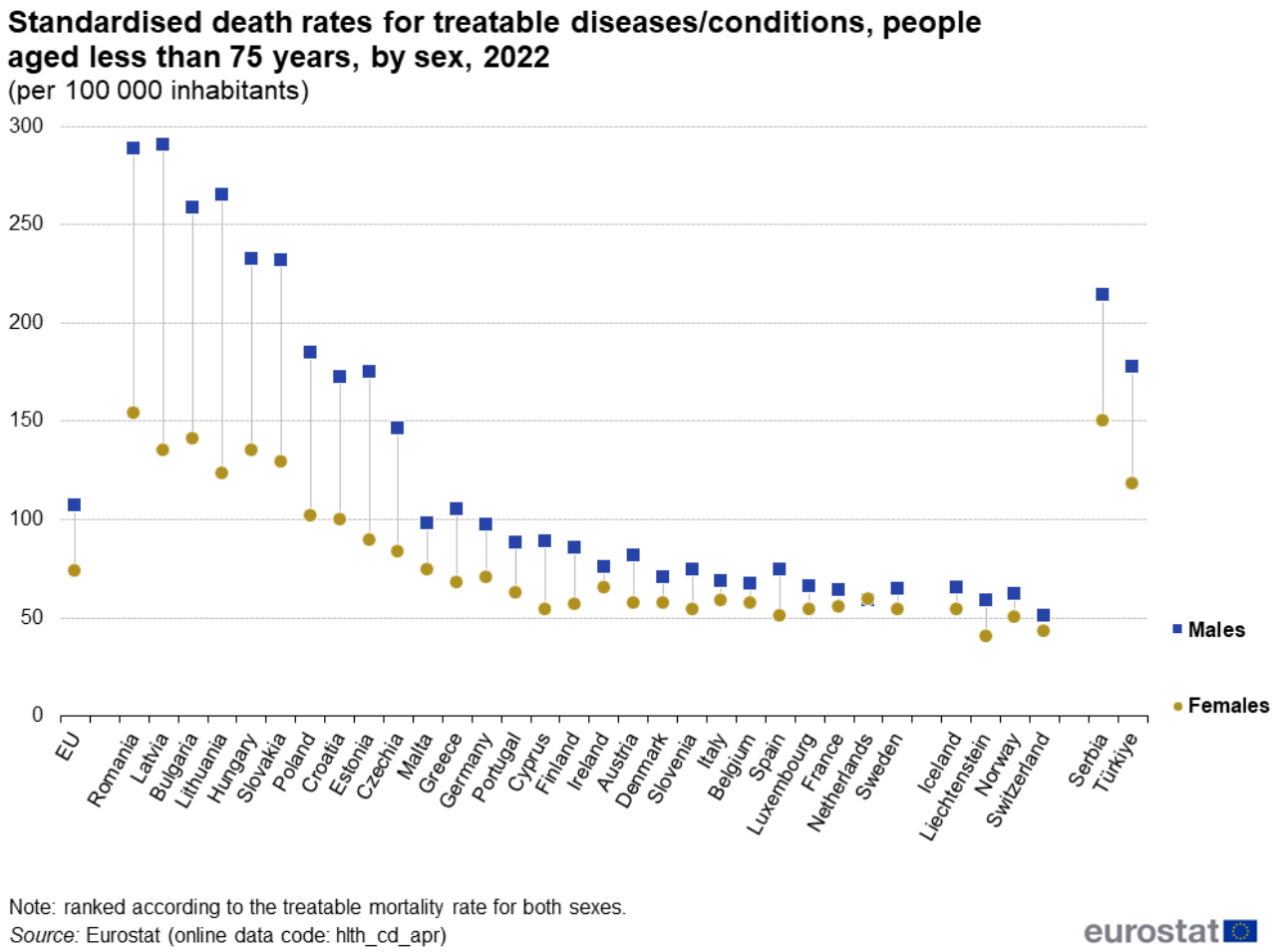


Figure 2: Standardised death rates for treatable diseases or conditions, people aged less than 75 years, by sex, 2022 Source: Eurostat (hlth_cd_apr)

In all of the EU countries, preventable mortality rates were higher for males than for females in 2022 – see Figure 3.

Gender gaps were wider for preventable diseases or conditions than for treatable ones. Among the EU countries, the narrowest gender gap (in relative terms) for preventable diseases or conditions was observed for the Netherlands, with the rate for males 1.6 times as high as the rate for females. In 23 of the EU countries, the death rate for preventable diseases or conditions for males was more than double the rate for females. In 6 of the EU countries, the rate for males was at least 3.0 times as high as the rate for females. The widest gender gap was recorded in Estonia, with the rate for males 3.4 times as high as the rate for females.

For males, Sweden (142.0 per 100 000 inhabitants) reported the lowest death rate among the EU countries for preventable diseases or conditions. Latvia (564.7 per 100 000 inhabitants) reported the highest rate. For females, the lowest mortality rate for preventable diseases or conditions was reported by Malta (64.1 per 100 000 inhabitants), whereas Hungary (200.1 per 100 000 inhabitants) reported the highest rate.

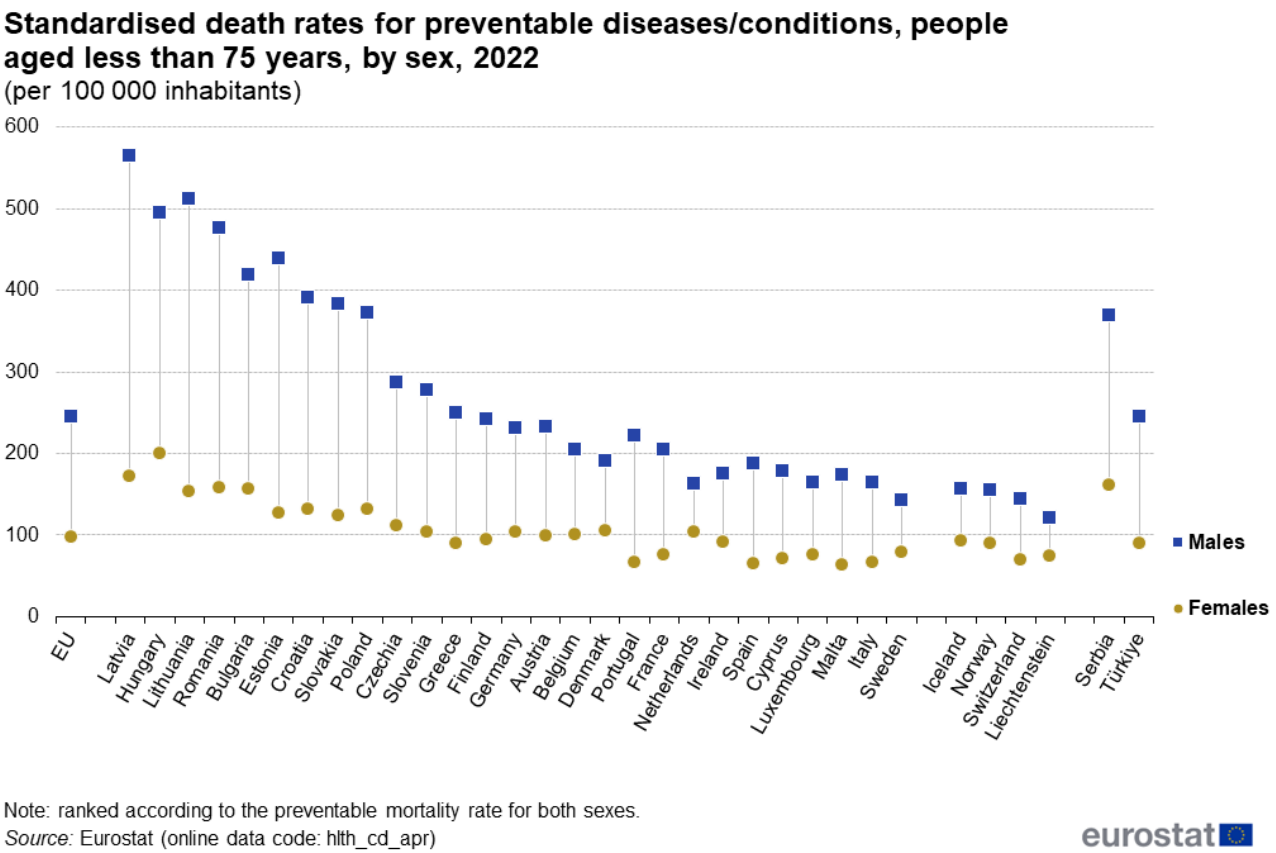


Figure 3: Standardised death rates for preventable diseases or conditions, people aged less than 75 years, by sex, 2022 Source: Eurostat (hlth_cd_apr)

Leading causes of avoidable deaths

Table 1 lists the main avoidable diseases or conditions in the EU in terms of their number of deaths in 2022. The 12 individual diseases or conditions that are listed collectively accounted for 70.6% of the total number of deaths from avoidable diseases or conditions. They accounted for 64.9% of deaths from treatable diseases or conditions and 73.6% of preventable deaths.

By far the most common causes of avoidable deaths in the EU were ischaemic heart diseases (155 408 deaths) and lung cancer (136 199 deaths). Ischaemic heart diseases are split between treatable and preventable diseases, while lung cancer is considered as a preventable cause of death. The largest numbers of deaths from purely treatable diseases or conditions were 57 476 from colorectal cancer and 40 970 from breast cancer (females only).

Number of deaths from the leading causes of avoidable deaths, people aged less than 75 years, EU, 2022
(number)

Disease/condition	Avoidable (treatable and/or preventable)	Treatable	Preventable
Total for all avoidable diseases/conditions	1 112 334	386 710	725 625
Ischaemic heart diseases	155 408	77 704	77 704
Malignant neoplasm of trachea, bronchus and lung	136 199	–	136 199
Cerebrovascular diseases	79 833	39 917	39 917
COVID-19, virus identified and not identified	71 919	–	71 919
Colorectal cancer	57 476	57 476	–
Alcohol-specific disorders and poisonings	54 440	–	54 440
Chronic obstructive pulmonary disorder	42 895	–	42 895
Malignant neoplasm of breast (females only)	40 970	40 970	–
Accidental injuries	40 648	–	40 648
Hypertensive diseases	36 361	18 181	18 181
Intentional self-harm (not relating to alcohol and drugs)	35 425	–	35 425
Diabetes mellitus	33 194	16 597	16 597
Others	327 566	135 866	191 701

Note: a dash (–) indicates that the particular disease/condition isn't included in the particular avoidable type (treatable or preventable).
Source: Eurostat (online data code: hlth_cd_apr)

eurostat

Table 1: Number of deaths from the leading causes of avoidable deaths, people aged less than 75 years, EU, 2022 (number) Source: Eurostat (hlth_cd_apr)

The leading cause of death for treatable diseases or conditions was ischaemic heart diseases

Figure 4 shows the leading causes of death in the EU for avoidable diseases or conditions in 2022.

The EU standardised rate of deaths from treatable diseases or conditions from ischaemic heart diseases was 17.9 per 100 000 inhabitants in 2022, equivalent to 19.9% of the total number of deaths from treatable diseases or conditions. Colorectal cancer (13.2 per 100 000 inhabitants), breast cancer among females only (9.5 per 100 000 inhabitants) and cerebrovascular diseases (9.2 per 100 000 inhabitants) were the next most common causes of death among treatable diseases or conditions. Collectively, the 7 treatable diseases or conditions shown in Figure 4 accounted for 71.7% of all deaths from treatable diseases or conditions in 2022.

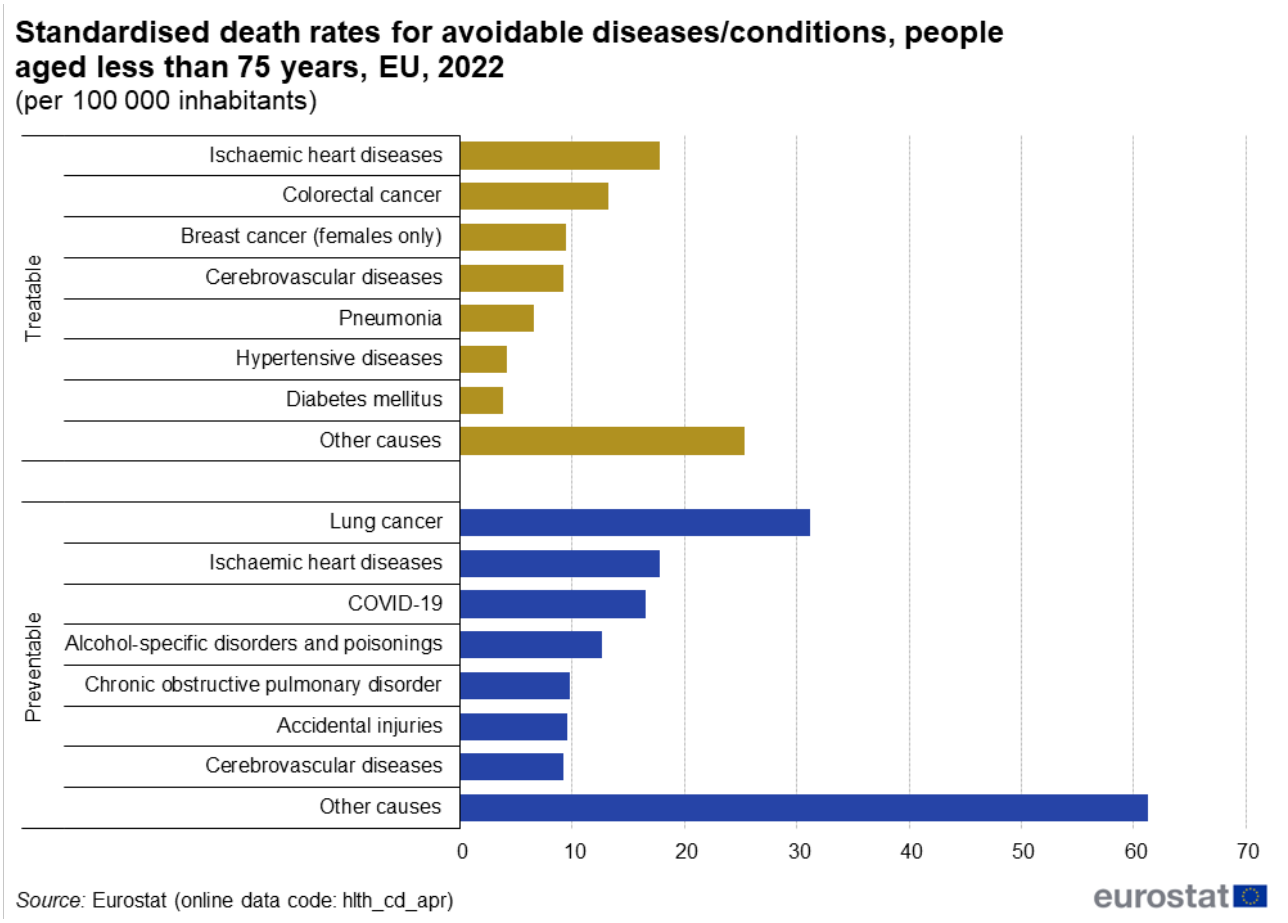


Figure 4: Standardised death rates for avoidable diseases or conditions, people aged less than 75 years, EU, 2022 Source: Eurostat (hlth_cd_apr)

The leading causes of preventable deaths were lung cancer, ischaemic heart diseases, COVID-19 and alcohol-specific disorders and poisonings

The EU standardised rate of preventable deaths for lung cancer was 31.2 per 100 000 inhabitants in 2022, equivalent to 18.5% of the total number of preventable deaths. Ischaemic heart diseases (17.9 per 100 000 inhabitants), COVID-19 (16.6 per 100 000 inhabitants) and alcohol-specific disorders and poisonings (12.7 per 100 000 inhabitants) were the next most common causes of preventable deaths. The 7 preventable diseases or conditions shown in Figure 4 collectively accounted for 63.6% of all preventable deaths in 2022.

Leading causes of avoidable death – analysis by sex

With the exceptions of some types of cancer that are exclusively or almost exclusively found among females, the leading causes of death from treatable diseases or conditions were broadly similar for males and females

In 2022, the distribution of treatable diseases or conditions in the EU varied somewhat for males and females, reflecting the fact that some of the major causes of death are sex specific to a large or even exclusive extent. Among females, the leading cause of death from treatable diseases or conditions was breast cancer: this disease alone was responsible for close to a quarter (24.7%) of all deaths from treatable diseases or conditions among females, reflecting a standardised death rate of 18.3 per 100 000 female inhabitants. Cancer of the uterus (3.7 per 100 000 female inhabitants) was also among the top causes of death shown in Figure 5 and is sex specific. For diseases common to males and females, the most frequent causes of death for treatable diseases or conditions in the EU were ischaemic heart diseases (28.2 per 100 000 male inhabitants and 8.4 per 100 000 female inhabitants) and colorectal cancer (17.2 per 100 000 male inhabitants and 9.6 per 100 000 female inhabitants). The largest difference between sexes was observed for ischaemic heart disease which had a standardised death rate that was

3.3 times as high among males than among females.

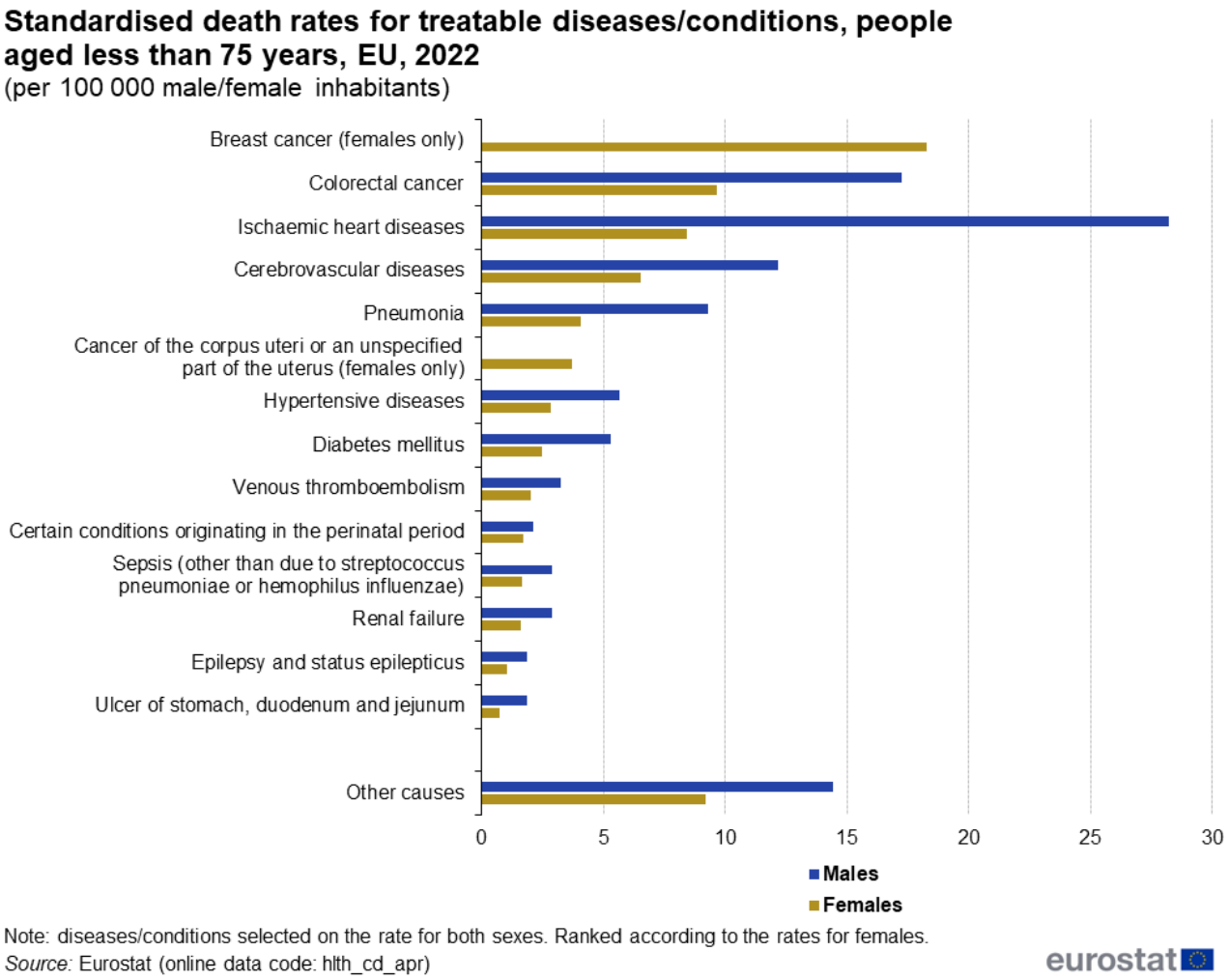


Figure 5: Standardised death rates for treatable diseases or conditions, people aged less than 75 years, EU, 2022 Source: Eurostat (hlth_cd_apr)

For preventable deaths, the 3 leading causes of death in the EU in 2022 were the same for males and for females: lung cancer, COVID-19 and ischaemic heart diseases. Standardised death rates were higher among males than among females for all of the diseases or conditions presented in Figure 6. The greatest difference between sexes was observed for lip, oral cavity and pharynx cancer, which was 4.1 times as high among males than among females (7.1 per 100 000 male inhabitants and 1.7 per 100 000 female inhabitants). Rates in males were 4.0 times as high for intentional self-harm (13.9 per 100 000 male inhabitants and 3.4 per 100 000 female inhabitants) and transport accidents (7.4 per 100 000 male inhabitants and 1.8 per 100 000 female inhabitants).

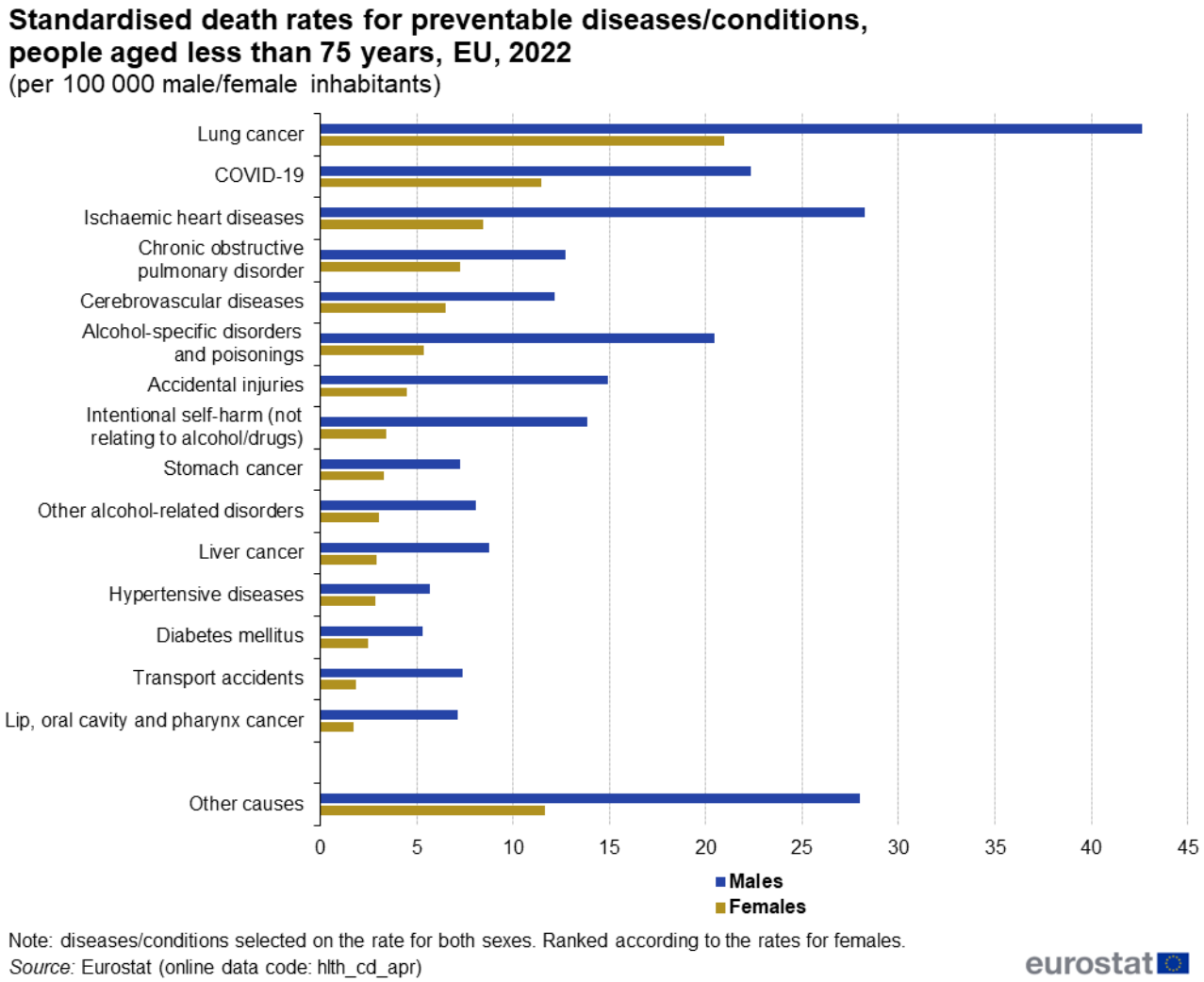


Figure 6: Standardised death rates for preventable diseases or conditions, people aged less than 75 years, EU, 2022 Source: Eurostat (hlth_cd_apr)

Leading causes of avoidable death – analysis by EU country

In 2022, the 5 most common causes of death in the EU from treatable diseases or conditions (ischaemic heart diseases, colorectal cancer, breast cancer, cerebrovascular diseases, and pneumonia) accounted for 62.8% of all such deaths. These 5 causes (as well as a residual category for all other causes) are presented in Figure 7. The share of these 5 common causes in all deaths ranged among the EU countries from 52.2% in Cyprus to 71.0% in Slovakia.

Among these 5 leading causes of death across the EU in 2022 from treatable diseases or conditions, ischaemic heart disease had the highest standardised death rate in 19 of the EU countries. In 7 others – Portugal, Spain, the Netherlands, Luxembourg, Denmark, Italy and France
– the highest rate was observed for colorectal cancer. In Bulgaria, the highest rate was for cerebrovascular diseases.

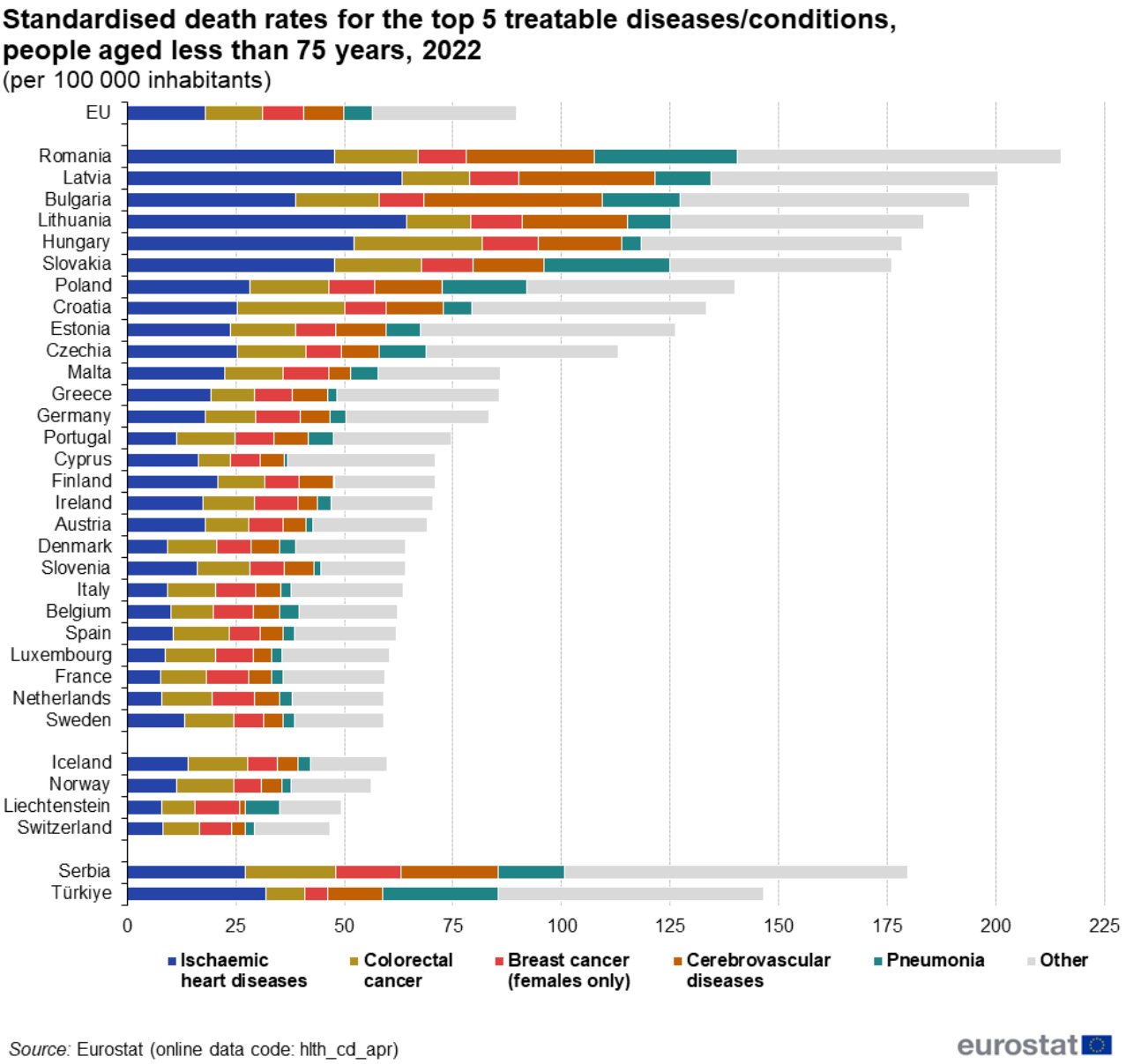


Figure 7: Standardised death rates for the top 5 treatable diseases or conditions, people aged less than 75 years, 2022 Source: Eurostat (hlth_cd_apr)

The 5 most common causes of preventable deaths (lung cancer, ischaemic heart diseases, COVID-19, alcohol-specific disorders and poisonings, and chronic obstructive pulmonary disorder in the EU in 2022 accounted for 52.4% of all such deaths. These are presented in Figure 8. The share of these 5 common causes in all deaths ranged among the EU countries from 41.4% in Romania to 61.9% in Hungary.

Among these 5 leading causes of preventable deaths in the EU in 2022, lung cancer had the highest standardised death rate in 17 of the EU countries. In Lithuania, Latvia, Romania, Slovakia and Malta, the highest rate was observed for ischaemic heart diseases. In Bulgaria, Greece and Slovenia, the high-
est rate was for COVID-19. In Estonia and Finland, the highest rate was for alcohol-specific disorders and poisonings.

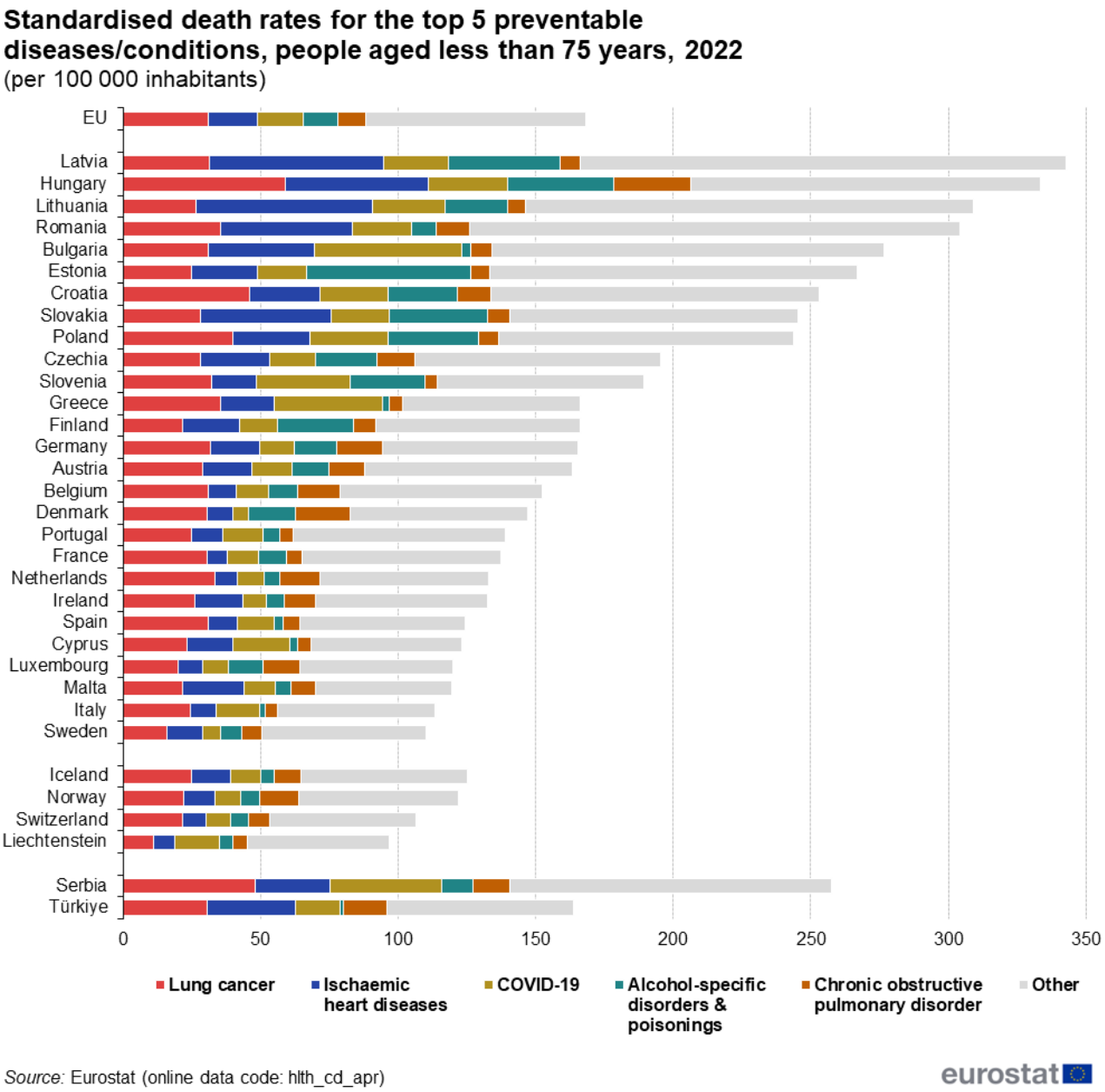


Figure 8: Standardised death rates for the top 5 preventable diseases or conditions, people aged less than 75 years, 2022 Source: Eurostat (hlth_cd_apr)

Source data for tables and graphs

- Preventable and treatable mortality statistics: tables and figures

Data sources

The definitions of avoidable deaths are based on the following.

- A disease/condition leading to a death is treatable if, in the light of medical knowledge and technology at the time of death, all or most deaths from that cause could be avoided through optimal quality health care.
- A disease/condition leading to a preventable death is a disease/condition which, in the light of understanding of the determinants of health at the time of death, all or most deaths from that cause could be avoided by public health interventions in the broadest sense.

To calculate treatable and preventable mortality, the initial step is to define which diseases or conditions cause deaths that could – potentially – have been avoided through optimal quality health care (deaths from treatable diseases or conditions) and through public health interventions (preventable deaths). In 2018, the OECD and Eurostat worked together with an expert group to develop new lists of treatable and preventable causes of mortality. These lists built on earlier work carried out by researchers (such as Nolte E. and M. McKee (2004 and 2011)), by some OECD countries and by Eurostat. The new OECD-Eurostat lists were approved during the OECD Working Party on Health Statistics in October 2018 and during the Eurostat Working Group on Public Health Statistics in December 2018. The list was slightly revised in November 2019. The complete list of diseases or conditions considered to cause avoidable deaths is available as an annex to the metadata for Eurostat's causes of death statistics. The age up to which a death can be considered avoidable is set at 74 years (inclusive) to reflect life expectancy. The list of diseases or conditions and the age limit reflect current health expectations, medical technology and knowledge, and developments in healthcare public policy. As such, they are subject to change. For example, the data for 2020, 2021 and 2022 include COVID-19 as a preventable disease.

The next step in the calculation of treatable and preventable mortality is the summation of all deaths within the age limit where the underlying cause of death was included in the list of diseases or conditions for avoidable deaths. The underlying statistics used to calculate avoidable mortality indicators are causes of death data; these include detailed information on the underlying cause of death of the deceased. More information on the methodology used for statistics on the causes of death is available in a background article on the methodology of causes of death statistics . The data for causes of death are included in an annual data collection with a legal basis requiring all EU countries to send complete data to Eurostat.

Note that some diseases or conditions are considered to be treatable and preventable. An example is ischaemic heart diseases, from which a death might be avoided through timely and effective health care (for example through thrombolytic therapy) and/or through effective public health intervention to reduce the underlying risk factors (for example reduced salt intake).

The causes of death that can be both largely prevented and treated once they have occurred are attributed to the preventable category on the rationale that if these diseases or conditions are prevented, there would be no need for treatment. The number of deaths for a specific disease/condition are generally not fractioned as being partly preventable and partly treatable given the lack of evidence to do this accurately and systematically. An exception is when there is no strong evidence of predominance, in which case a 50%-50% allocation is used. As such, any double counting of the same death between the 2 lists is avoided; therefore, the number of deaths according to the 2 lists can be aggregated to provide a broad assessment of the relative importance of prevention and healthcare interventions in reducing the number of avoidable deaths.

Annual data on the 2 types of avoidable deaths are provided in absolute numbers 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 a population's age structure: standardised death rates are calculated based on the European Standard Population . Note that the standardised death rates used in this article are calculated per 100 000 inhabitants aged less than 75 years.

Context

Assessing the performance of healthcare systems is of increasing importance in the EU. While avoidable mortality indicators are not meant to be a definitive measure of the quality of the health care in EU countries, they provide some indication of the quality and performance of health care and of (wider) public health policies. In addition to health care and public health policies, other factors related to the likelihood that individuals may contract a disease or seek medical advice – such as education, social background, health beliefs, levels of concern, costs of diagnosis and treatment – are likely to influence the number of avoidable deaths[2]. Improvements in health policies should translate into lower numbers of avoidable deaths. However, there is likely to be a long-time lag between implementation of health (care) policies and changes in mortality rates and therefore any conclusions need to be drawn with caution.

[2]See page 18 of Nolte E. and M. McKee (2004),*Does Health Care Save Lives? Avoidable Mortality Revisited* , Nuffield Trust, London.

Footnotes

Explore further

Other articles

- Health in the European Union – facts and figures
- Cancer statistics
- Cardiovascular diseases statistics
- Causes of death – monthly statistics
- Causes of death statistics
- Respiratory diseases statistics
- Specific cancers

Database

- Health (hlth)

Causes of death (hlth_cdeath)

Public health themes (hlth_cd_pbt)

Treatable and preventable mortality of residents by cause and sex (hlth_cd_apr)

Thematic section

- Health

Methodology

- Causes of death statistics (ESMS metadata file – hlth_cdeath_sims)
- Causes of death statistics manual – 2024 edition

External links

- European Commission, Directorate General Health and Food Safety , see
  - Public health
  - Health systems performance assessment