Preventable and treatable mortality statistics

Statistics Explained

Data from March 2026
Planned article update: April 2027

Highlights

In the EU, 1.56 million people aged less than 75 years died in 2023; the total number of avoidable deaths within this cohort was 1.03 million.

Among people aged less than 75 years, the 3 leading causes of avoidable deaths in 2023 in the EU were ischaemic heart diseases, lung cancer and cerebrovascular diseases.

In the EU, standardised mortality rates for both treatable and preventable diseases or conditions were higher for males than for females in 2023. This pattern was repeated in all of the EU countries.

In 2023, Luxembourg had the lowest standardised death rate in the EU for treatable diseases or conditions (51.7 deaths per 100 000 inhabitants), followed by Sweden, France and Belgium, all with rates between 58.4 and 58.8 deaths per 100 000 inhabitants.

This article presents statistics for the European Union (EU) on 2 indicators of avoidable mortality, namely deaths from treatable and deaths from 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].

- The concept of preventable causes of death 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 that can also be treated once they have occurred are attributed to the preventable category.
- A disease/condition is considered as treatable if a death from this disease/condition could have been avoided through optimal quality health care .
- In cases where 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 the online publication *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 2023, deaths from avoidable diseases or conditions among people aged less than 75 years amounted to 1.03 million in the EU

A total of 1.03 million deaths in 2023 among people aged less than 75 years – equivalent to a standardised death rate of 237.7 deaths per 100 000 inhabitants – could have been avoided in the EU. Some 376 000 of these deaths – equivalent to a standardised death rate of 86.8 deaths per 100 000 inhabitants – were deaths from diseases or conditions that are treatable; 655 000 deaths – equivalent to 150.9 deaths per 100 000 inhabitants – could have been prevented.

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 are compiled using the European standard population .

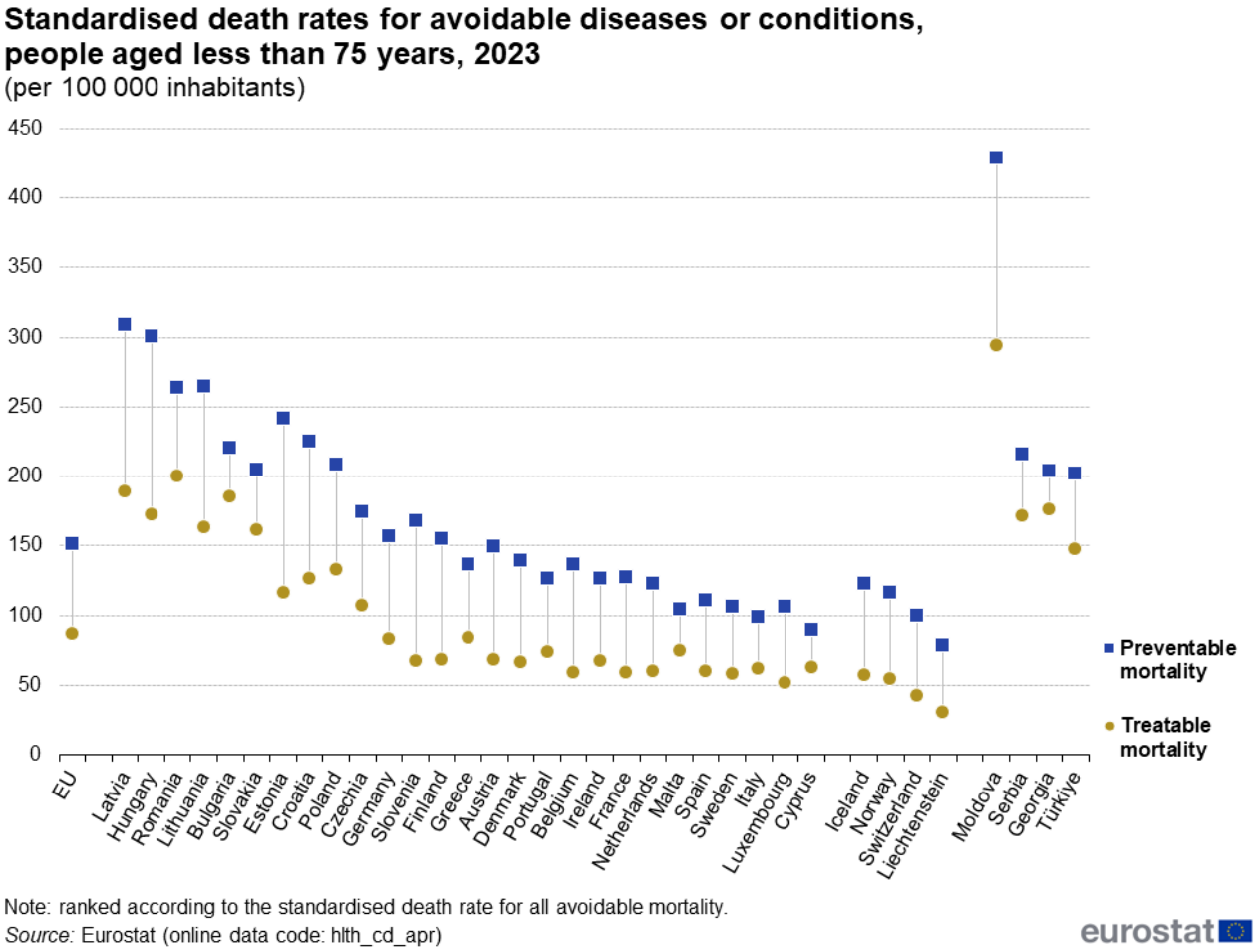


Figure 1: Standardised death rates for avoidable diseases or conditions, people aged less than 75 years, 2023 Source: Eurostat (online data code: hlth_cd_apr)

In all EU countries, standardised death rates for treatable diseases or conditions were lower than for preventable diseases or conditions in 2023.

The largest absolute gap in 2023 was recorded in Hungary, where there were 128.0 more deaths per 100 000 inhabitants from preventable than treatable diseases or conditions. The narrowest gap was in Cyprus, where the difference was 26.8 deaths per 100 00 inhabitants. The lowest death rate for treatable diseases or conditions was recorded in Luxembourg, at 51.7 per 100 000 inhabitants. The highest death rate for treatable diseases or conditions was 199.7 per 100 000 inhabitants in Romania. Latvia, Bulgaria, Hungary, Lithuania and Slovakia also recorded rates above 160.0 per 100 000 inhabitants.

In 2023, the lowest death rate for preventable diseases or conditions was recorded in Cyprus, at 89.7 per 100 000 inhabitants. Italy, Malta, Sweden, Luxembourg and Spain also recorded rates under 120.0 per 100 000 inhabitants. The highest death rates for preventable diseases or conditions were 309.0 per 100 000 inhabitants in Latvia and 300.4 per 100 000 inhabitants in Hungary. Lithuania and Romania also recorded rates above 250.0 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 2023, mortality rates for treatable diseases or conditions among people aged less than 75 years were consistently higher for males than for females – see Figure 2. Among the EU countries, the narrowest gap between the 2 sexes (the difference between the rates for males and for females), in relative terms, was observed for the Netherlands, followed by Malta, Luxembourg, France, Belgium, Italy, Ireland and Sweden. The widest gaps for treatable diseases or conditions were reported for the Baltic countries – Latvia, Lithuania and Estonia – which were the only EU countries to report rates for males that were at least 2.0 times as high as those for females.

For males, Luxembourg (53.5 per 100 000 inhabitants) reported the lowest death rate for treatable diseases or conditions in 2023, while Latvia and Romania (272.2 and 267.2 per 100 000 inhabitants, respectively) reported the highest rates. For females, the lowest mortality rate for treatable diseases or conditions was reported by Spain (49.5 per 100 000 inhabitants) and the highest rates by Romania and Bulgaria (143.6 and 131.9 per 100 000 inhabitants, respectively).

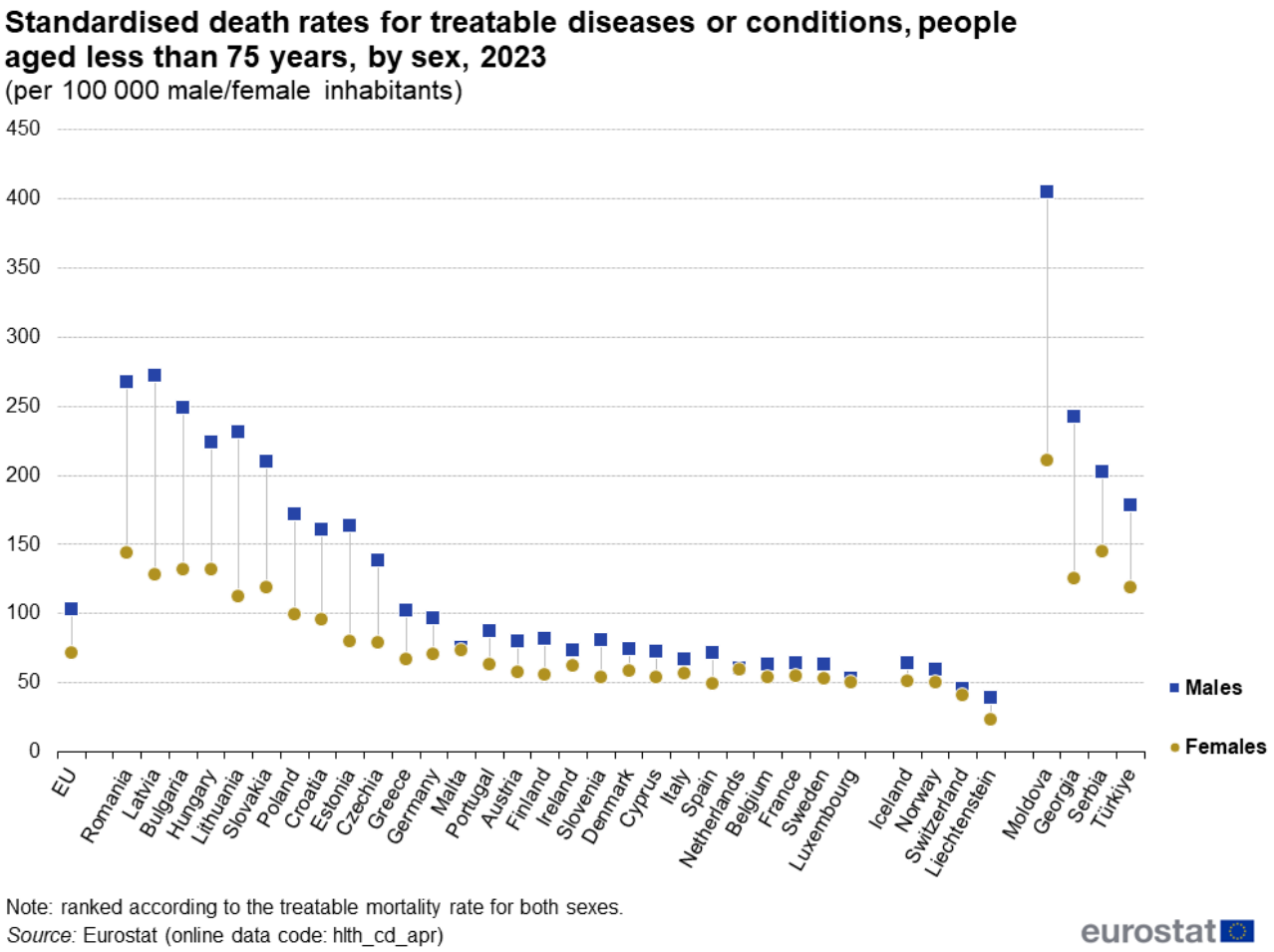


Figure 2: Standardised death rates for treatable diseases or conditions, people aged less than 75 years, by sex, 2023 Source: Eurostat (online data code: hlth_cd_apr)

Preventable mortality rates were also consistently higher for males than for females in 2023 – see Figure 3. Gaps between the 2 sexes were wider for preventable diseases or conditions than for treatable ones. Among the EU countries, the narrowest 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 22 of the EU countries, the death rate for preventable diseases or conditions for males was more than double the rate for females. In 9 of the EU countries, the rate for males was at least 3.0 times as high as the rate for females. The widest gap was recorded in Latvia, with the rate for males 3.6 times as high as the rate for females.

For males, Sweden (135.1 per 100 000 inhabitants) reported the lowest death rate among the EU countries for preventable diseases or conditions in 2023. Latvia (519.7 per 100 000 inhabitants) reported the highest rate. For females, the lowest mortality rate for preventable diseases or conditions was reported by Cyprus (44.8 per 100 000 inhabitants), whereas Hungary (181.1 per 100 000 inhabitants) reported the highest rate.

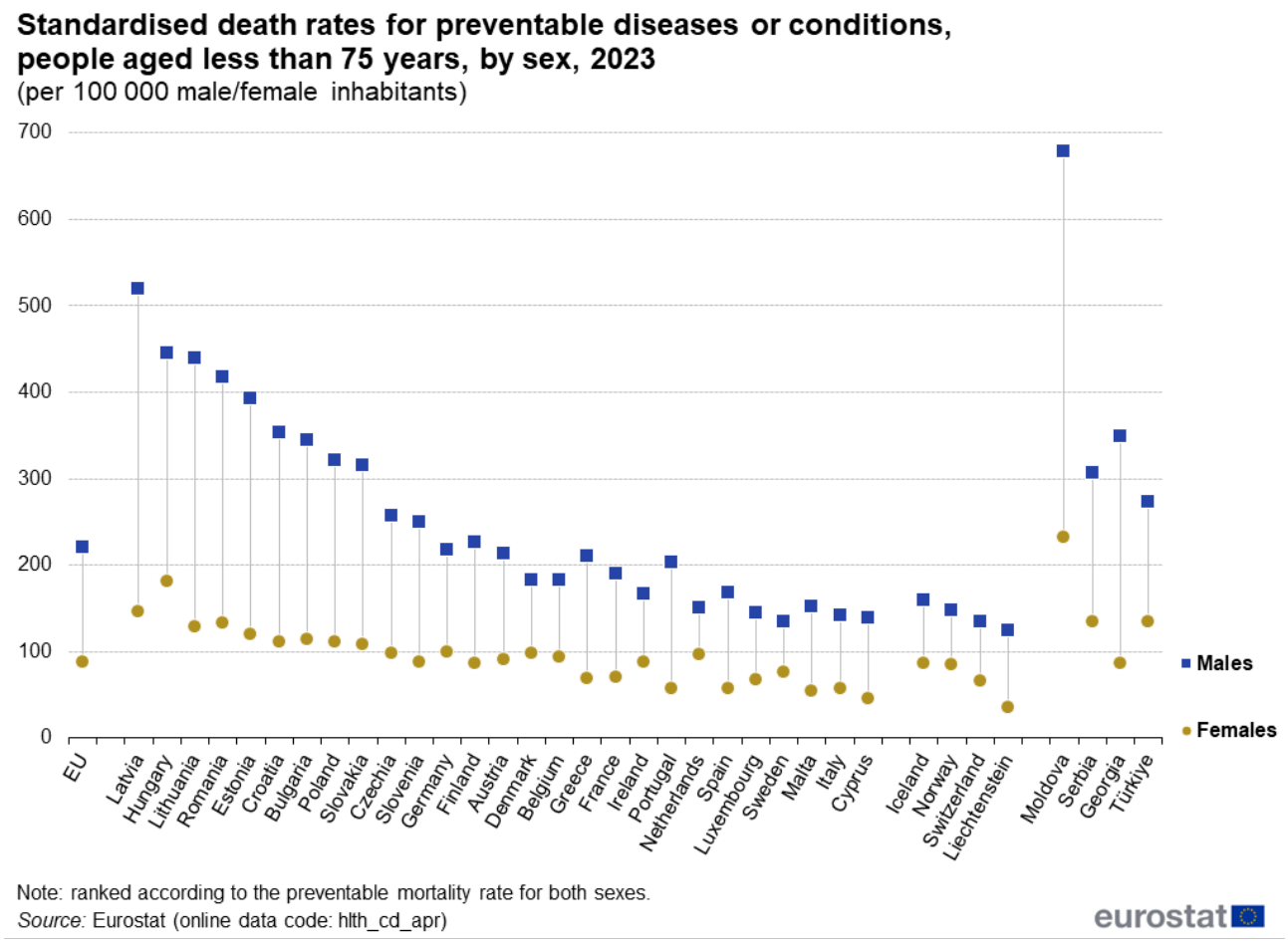


Figure 3: Standardised death rates for preventable diseases or conditions, people aged less than 75 years, by sex, 2023 Source: Eurostat (online data code: hlth_cd_apr)

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 2023. The 12 individual diseases or conditions that are listed collectively accounted for 69.4% of the total number of deaths from avoidable diseases or conditions. They accounted for 71.5% of all deaths from treatable diseases or conditions and 68.3% of all preventable deaths.

By far the most common causes of avoidable deaths in the EU were ischaemic heart diseases (146 000 deaths) and lung cancer (136 000 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 57 000 from colorectal cancer and 40 000 from breast cancer (females only).

Leading causes of avoidable deaths, people aged less than 75 years, EU, 2023
(number)

Disease or condition	Avoidable (treatable and/or preventable)	Treatable	Preventable
Total for all avoidable diseases/conditions	1 031 754	376 434	655 321
Ischaemic heart diseases	145 689	72 845	72 845
Malignant neoplasm of trachea, bronchus and lung	135 584	–	135 584
Cerebrovascular diseases	75 490	37 745	37 745
Colorectal cancer	56 993	56 993	–
Alcohol-specific disorders and poisonings	50 593	–	50 593
Chronic obstructive pulmonary disorder	43 836	–	43 836
Malignant neoplasm of breast (females only)	39 989	39 989	–
Accidental injuries	38 948	–	38 948
Hypertensive diseases	35 165	17 583	17 583
Intentional self-harm (not relating to alcohol and drugs)	34 600	–	34 600
Diabetes mellitus	31 288	15 644	15 644
Pneumonia, not elsewhere classified or organism unspecified	28 239	28 239	–
Others	315 340	107 397	207 944

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

eurostat

Table 1: Leading causes of avoidable deaths, people aged less than 75 years, EU, 2023 Source: Eurostat (online data code: hlth_cd_apr and hlth_cd_aro)

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 2023.

The EU standardised rate of deaths from treatable diseases or conditions from ischaemic heart diseases was 16.6 per 100 000 inhabitants in 2023, equivalent to 19.1% of the total death rate from treatable diseases or conditions. Colorectal cancer (13.0 per 100 000 inhabitants), breast cancer among females only (9.2 per 100 000 inhabitants) and cerebrovascular diseases (8.6 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 70.9% of the overall standardised death rate from treatable diseases or conditions.

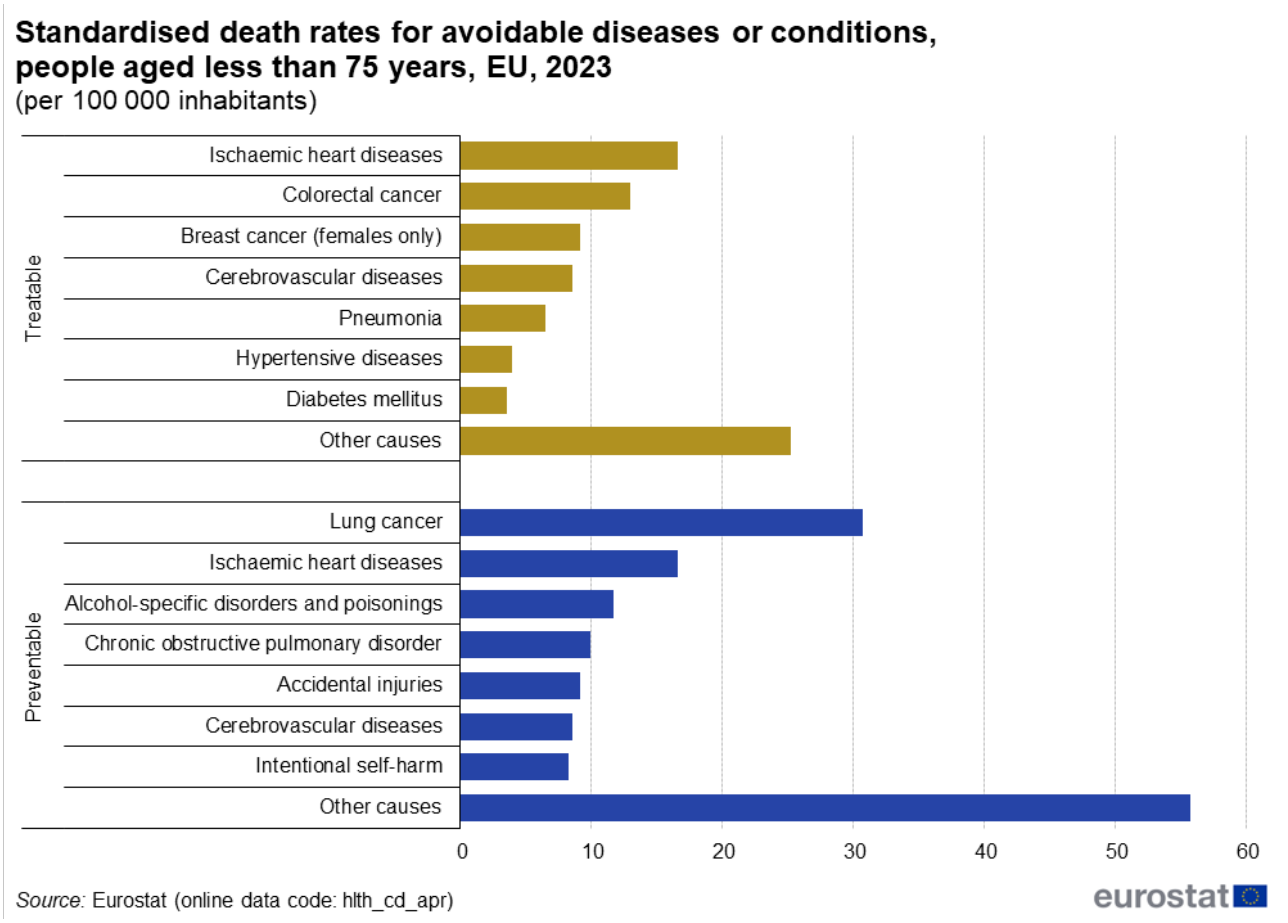


Figure 4: Standardised death rates for avoidable diseases or conditions, people aged less than 75 years, EU, 2023 Source: Eurostat (online data code: hlth_cd_apr)

The leading causes of preventable deaths were lung cancer and ischaemic heart diseases

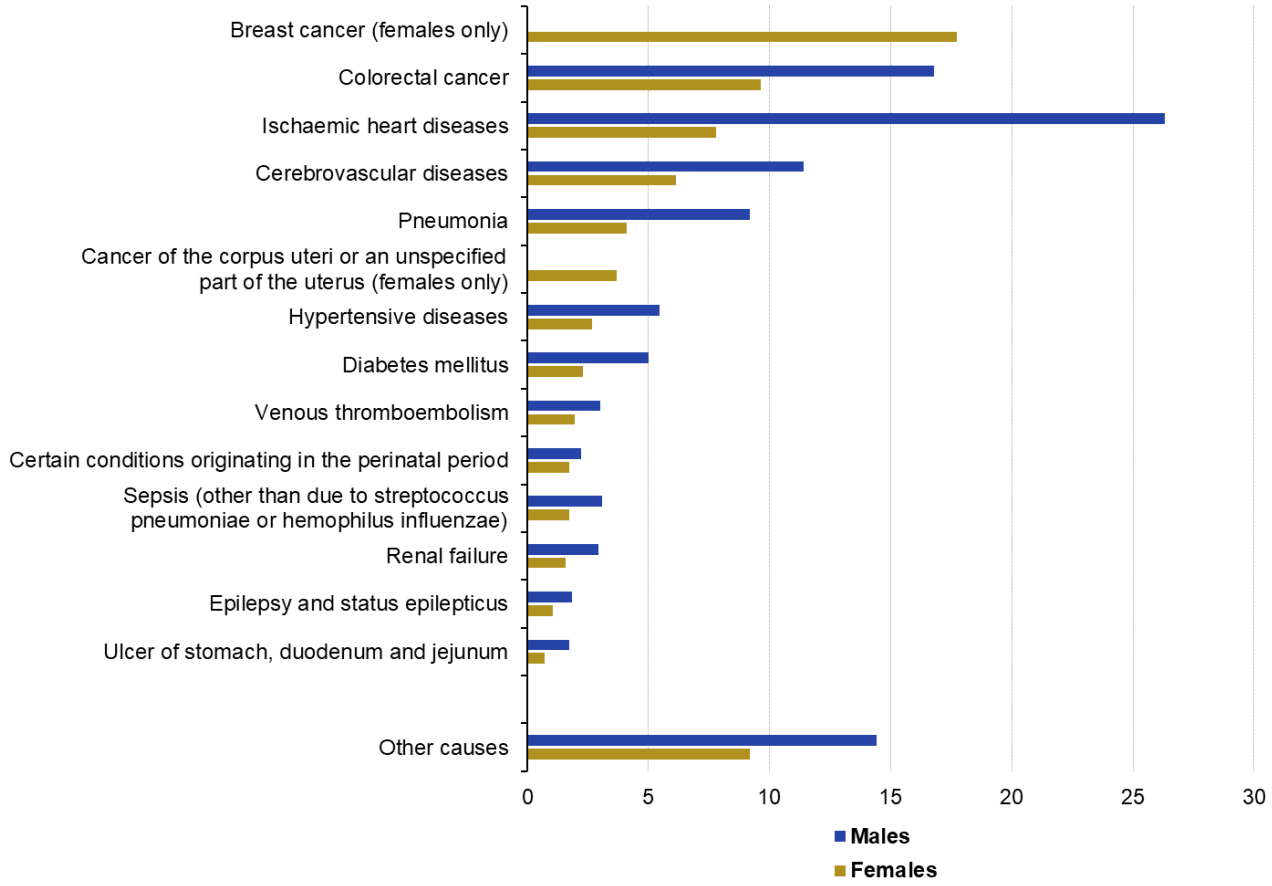
The EU standardised rate of preventable deaths for lung cancer was 30.8 per 100 000 inhabitants in 2023, equivalent to 20.4% of the total death rate from preventable deaths. Ischaemic heart diseases (16.6 per 100 000 inhabitants), alcohol-specific disorders and poisonings (11.7 per 100 000 inhabitants) and chronic obstructive pulmonary disorder (10.0 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 63.1% of the overall death rate from preventable diseases or conditions.

Leading causes of avoidable death – analysis by sex

In 2023, 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 (24.6%) of the death rate from all treatable diseases or conditions among females, reflecting a standardised death rate of 17.7 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 (26.3 per 100 000 male inhabitants and 7.8 per 100 000 female inhabitants) and colorectal cancer (16.8 per 100 000 male inhabitants and 9.7 per 100 000 female inhabitants). The largest difference between sexes was observed for ischaemic heart disease which had a standardised death rate that was 3.4 times as high among males as among females.

Standardised death rates for treatable diseases or conditions, people aged less than 75 years, EU, 2023
(per 100 000 male/female inhabitants)

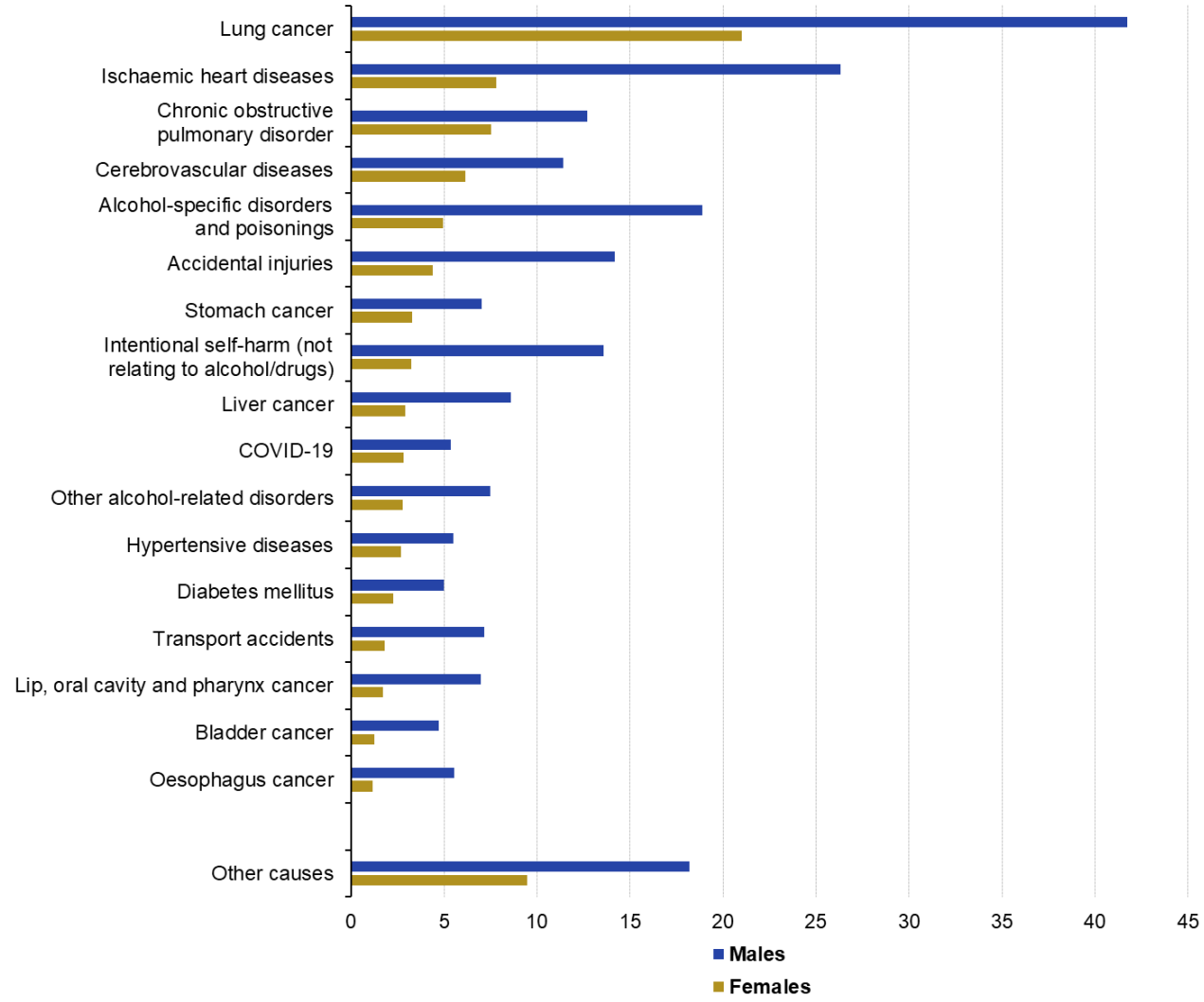


Note: diseases/conditions selected on the rate for both sexes. Ranked according to the rates for females.
Source: Eurostat (online data code: hlth_cd_apr)

Figure 5: Standardised death rates for treatable diseases or conditions, people aged less than 75 years, EU, 2023 Source: Eurostat (online data code: hlth_cd_apr)

For preventable deaths, the 2 leading causes of death in the EU in 2023 were the same for males and for females: lung cancer 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 the sexes was observed for oesophagus cancer, which was 4.8 times as high among males as among females (5.5 deaths per 100 000 male inhabitants and 1.2 deaths per 100 000 female inhabitants). Rates for males were 4.2 times as high for intentional self-harm (13.6 deaths per 100 000 male inhabitants and 3.2 deaths per 100 000 female inhabitants), 4.1 times as high for lip, oral cavity and pharynx cancer (7.0 per 100 000 male inhabitants and 1.7 per 100 000 female inhabitants), and 4.0 times as high for transport accidents (7.1 per 100 000 male inhabitants and 1.8 per 100 000 female inhabitants).

Standardised death rates for preventable diseases or conditions, people aged less than 75 years, EU, 2023
(per 100 000 male/female inhabitants)



Note: diseases/conditions selected on the rate for both sexes. Ranked according to the rates for females.
Source: Eurostat (online data code: hlth_cd_apr)

Figure 6: Standardised death rates for preventable diseases or conditions, people aged less than 75 years, EU, 2023 Source: Eurostat (online data code: hlth_cd_apr)

Leading causes of avoidable death – analysis by EU country

In 2023, 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 62.2% of the death rate for all treatable diseases or conditions. 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 49.7% in Estonia to 70.3% in Slovenia.

In 2023, among these 5 leading causes of death across the EU from treatable diseases or conditions, ischaemic heart disease had the highest standardised death rate in 20 EU countries. In the remaining 7 – Croatia, Denmark, France, Italy, the Netherlands, Portugal and Spain – the highest rate was observed for colorectal cancer.

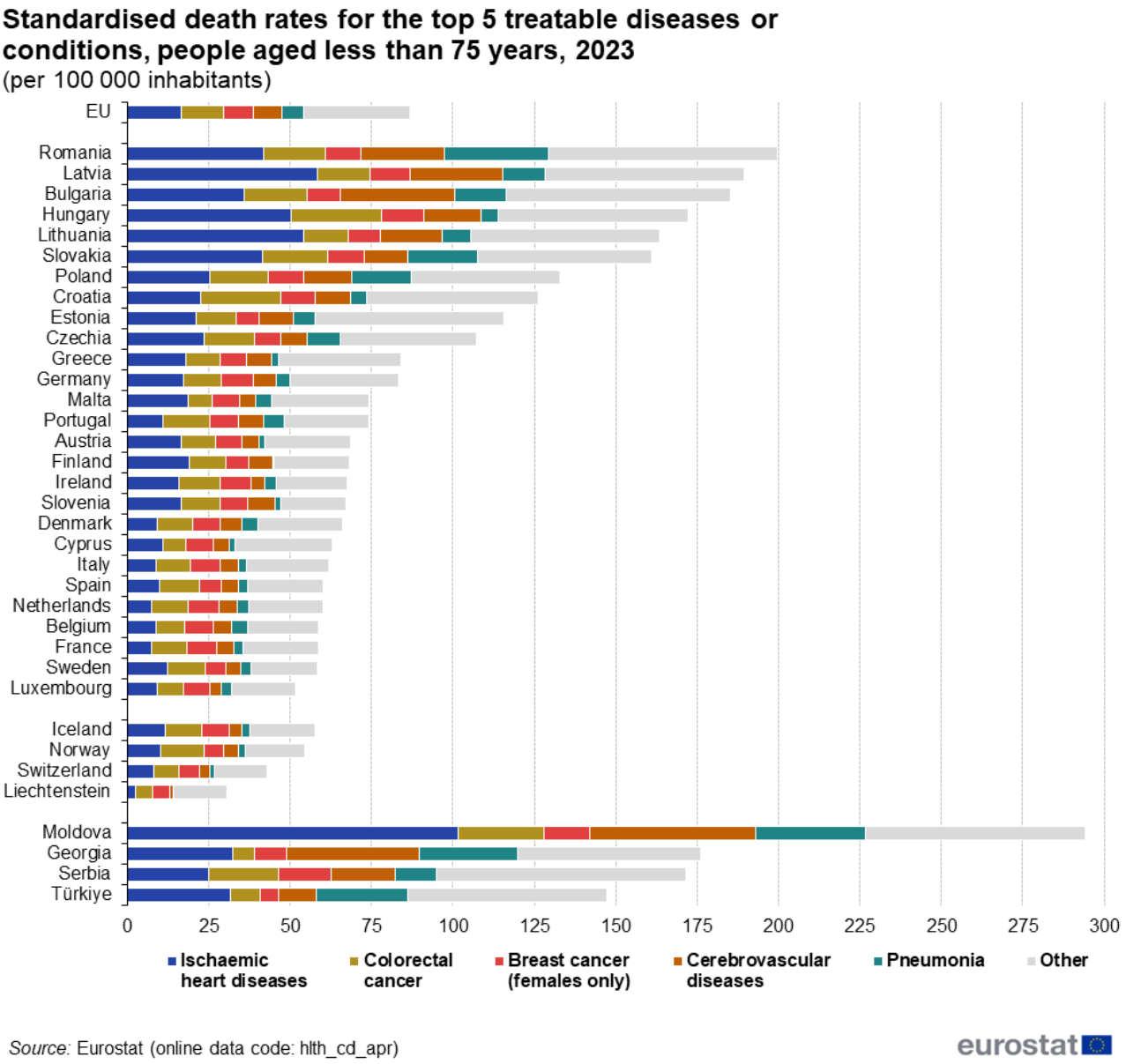


Figure 7: Standardised death rates for the top 5 treatable diseases or conditions, people aged less than 75 years, 2023 Source: Eurostat (online data code: hlth_cd_apr)

The 5 most common causes of preventable deaths (lung cancer, ischaemic heart diseases, alcohol-specific disorders and poisonings, chronic obstructive pulmonary disorder, and cerebrovascular diseases) in the EU in 2023 accounted for 51.5% of the death rate for all preventable deaths. These 5 cases (as well as a residual category for all other causes) are presented in Figure 8. The share of these 5 common causes in all deaths ranged among the EU countries from 43.0% in Portugal to 63.3% in Hungary.

Among these 5 leading causes of preventable deaths in the EU in 2023, lung cancer had the highest standardised death rate in 20 EU countries. In Bulgaria, Latvia, Lithuania, Romania and Slovakia, the highest rate was observed for
ischaemic heart diseases. In Estonia and Finland, the highest rate was for alcohol-specific disorders and poisonings.

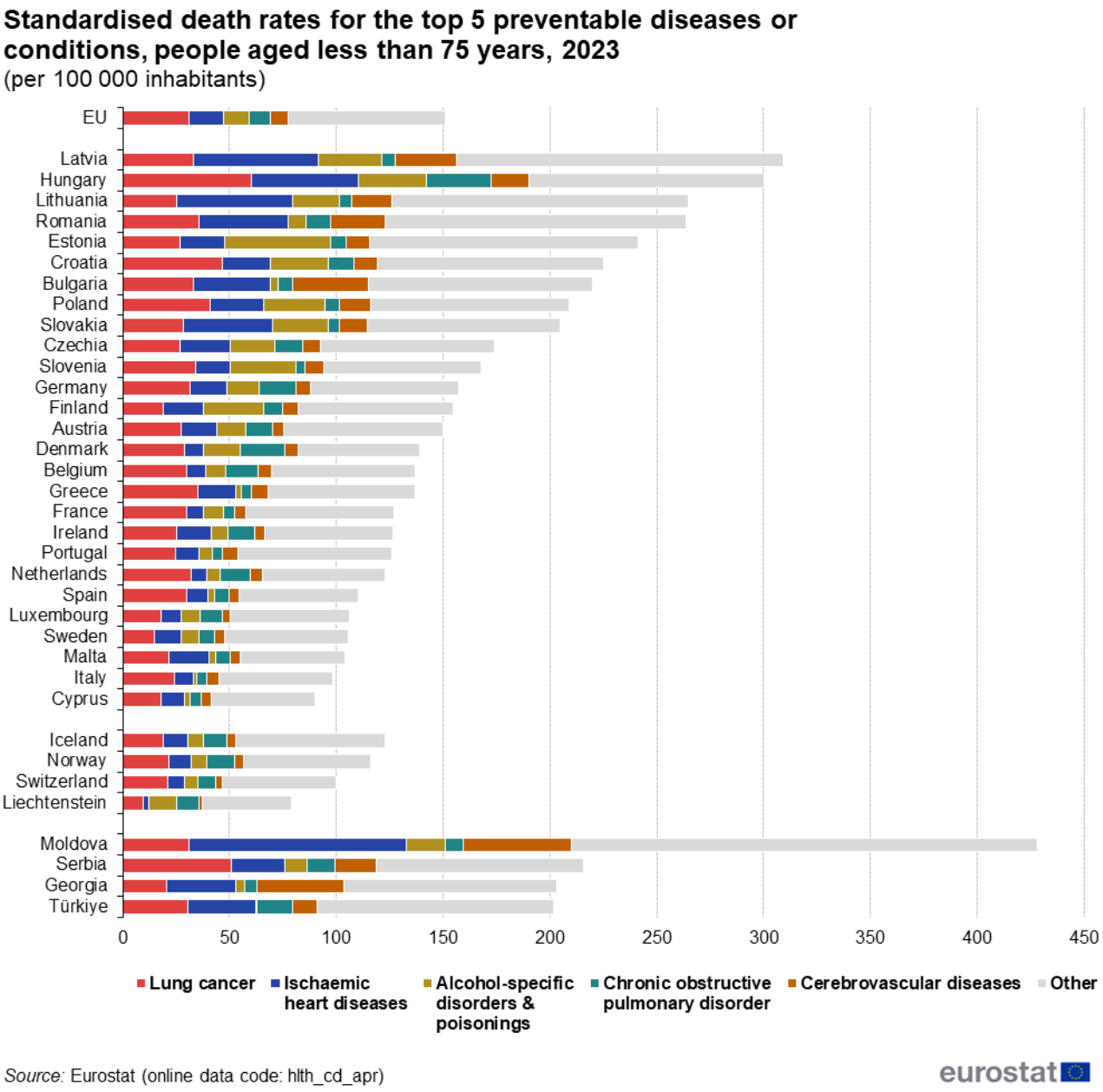


Figure 8: Standardised death rates for the top 5 preventable diseases or conditions, people aged less than 75 years, 2023 Source: Eurostat (online data code: hlth_cd_apr)

Potential years of life lost in the EU in 2023

As noted earlier, 1.03 million EU residents died in 2023 from avoidable (preventable or treatable) causes, equivalent to 66.3% of all deaths before the age of 75 years. Over the course of 2023, a total of 3 166 potential years of life were lost per 100 000 inhabitants through avoidabel causes of deaths of EU residents aged less than 75 years. This rate is calculated by summing the number of years between the age at death and 75 years for each premature death from preventable or treatable causes and then expressing this total relative to the size of the age-standardised population aged less than 75 years. A total of 2 015 potential years of life were lost per 100 000 inhabitants through preventable deaths, while 1 151 potential years of life were lost per 100 000 inhabitants through treatable deaths.

In 2023, the highest rates of potential years of life lost were generally observed among Baltic and eastern EU countries, while lower rates were generally observed in Nordic , western and southern EU countries; an exception was Slovenia, which had a lower rate than those of Finland and Germany. Among EU countries, the highest number of potential years of life lost through preventable or treatable deaths was 7 158 per 100 000 inhabitants in Latvia; the lowest was 1 974 per 100 000 inhabitants in Luxembourg.

In 2023, preventable deaths consistently accounted for more than half of all potential years of life lost among deaths before the age of 75 years. The lowest share for preventable deaths was 54.9% in Bulgaria, while the highest share was 73.8% in Estonia; the share across the whole of the EU was 63.6%.

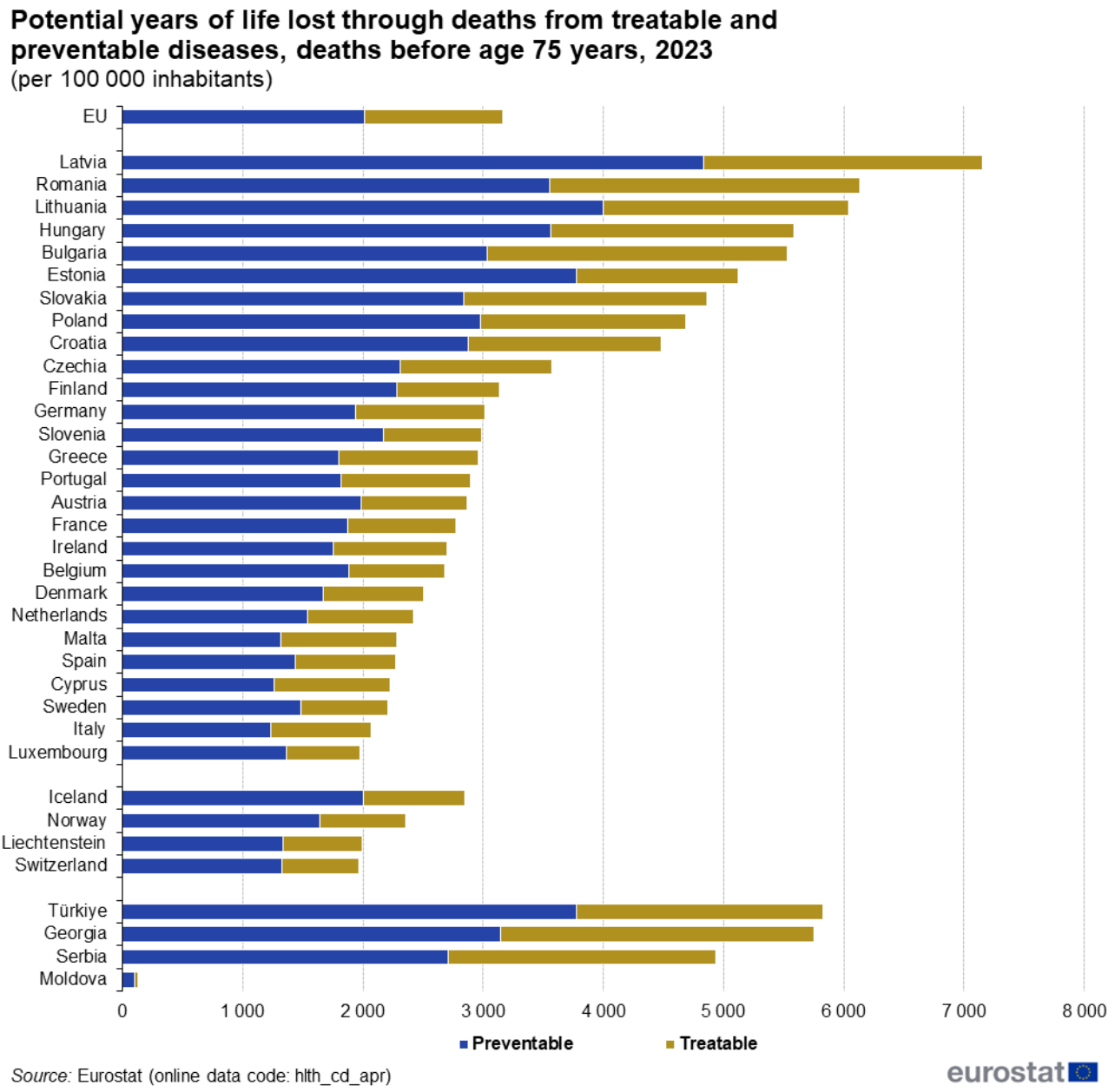


Figure 9: Potential years of life lost through deaths from treatable and preventable diseases, deaths before age 75 years, 2023 Source: Eurostat (online data code: hlth_cd_ptpyll)

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 an ad-hoc Eurostat task force. 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 2023 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 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 that can be 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

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

translate into lower numbers of avoidable deaths. However, there is often 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.

View this article online at https://ec.europa.eu/eurostat/statistics-explained/index.php?title=Preventable_and_treatable_mortality_statistics

Footnotes

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- Cardiovascular diseases statistics
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Causes of death (hlth_cdeath)

Public health themes (hlth_cd_pbt)

Treatable and preventable mortality of residents by cause and sex (hlth_cd_apr)
Causes of death - potential years of life lost by treatable and preventable diseases (hlth_cd_ptpyll)

Thematic section

- Health

Methodology

- Causes of death statistics (ESMS metadata file – hlth_cdeath_sims)
- Causes of death statistics manual – 2025 edition

External links

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