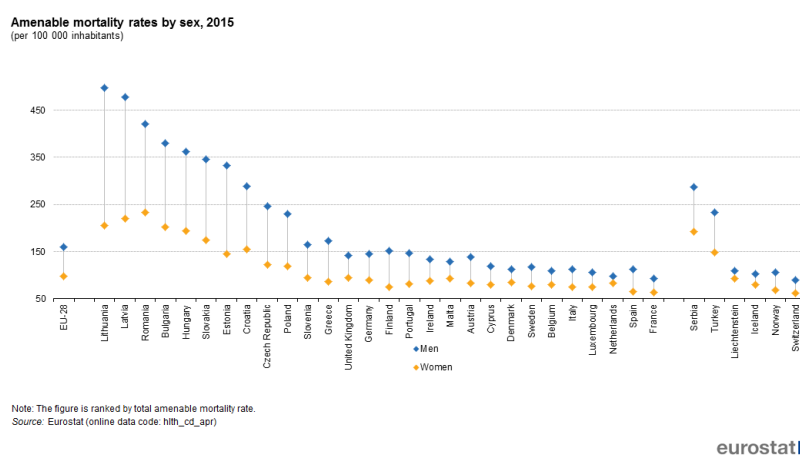


Amenable and preventable deaths statistics

Statistics Explained

Data from June 2018
Planned article update: July 2019



This article presents statistics on two different indicators of **avoidable mortality** : **amenable** and **preventable deaths** . The concept of amenable and preventable mortality is based on the idea that certain deaths (for specific age groups and according to specific diseases as defined by the [ICD classification](#) , see the section *Data sources*) could be 'avoided', that means would not have occurred at this stage, if there had been more effective public health and medical interventions in place.¹A death can be considered as **amenable** if it could have been avoided through optimal **quality health care** . The concept of **preventable** deaths is broader and includes 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.

This article is one of a set of statistical articles concerning [health status](#) in the EU which forms part of an online publication on [health](#) statistics.

Overview

In 2015, over 570 000 deaths in the EU could have potentially been avoided with health care systems offering timely and effective medical treatments (amenable deaths) and more than 1 million deaths could have been

¹See the discussions in Nolte E. and M. McKee (2004): "Does Health Care Save Lives? Avoidable Mortality Revisited", Nuffield Trust, London, 1-93; and Gay et al. (2011): "Mortality Amenable to Health Care in 31 OECD Countries". OECD Health Working Papers No. 55, OECD.

prevented through better public health interventions (preventable deaths). The total number of potentially avoidable deaths - which accounts for the fact that certain diseases are both preventable and amenable – is more than 1.2 million in 2015.²The leading cause of avoidable mortality was ischaemic heart diseases.

571 000 deaths from potentially avoidable causes

In 2015, deaths from potentially avoidable causes in the EU amounted to 571 000

In the European Union (EU), 1.7 million persons aged less than 75 years died in 2015. Among them, around 571 000 deaths (or 127 deaths per 100 000 inhabitants) could have been avoided in the light of better healthcare systems (amenable deaths). The change compared to 2014 is negligible, showing that these figures are rather stable in the short run.

Across EU Member States a substantial number of deaths can be considered as potentially avoidable and variations depend on Member States' population size. Table 1 shows data for standardized death rates of amenable mortality, which takes into account the population structure of countries. Among EU Member States, the lowest amenable mortality rates in 2015 are found for France, Spain, the Netherlands and Luxembourg. At the other end of the spectrum are Lithuania, Latvia, Romania and Bulgaria, with high rates of potentially amenable deaths.

²Avoidable deaths are all deaths that are defined as preventable, amenable or both, and where each death is counted only once. Note that some diseases and conditions are included in both amenable and preventable death, since certain conditions are considered as both treatable and preventable. An example would be deaths due to ischaemic heart diseases, which might be successfully avoided through timely and effective health care (e.g. through thrombolytic therapy) and simultaneously through effective public health intervention to reduce the underlying risk factors (e.g. high blood pressure or reduced salt intake)

Amenable and preventable mortality, standardized deaths rates, 2014 and 2015
(per 100 000 inhabitants)

	Amenable mortality		Preventable mortality	
	2014	2015	2014	2015
EU-28	126.2	127.1	213.9	216.3
Belgium	94.9	94.0	216.0	216.4
Bulgaria	289.7	282.3	270.6	271.1
Czech Republic	176.7	179.5	266.6	284.7
Denmark	99.3	97.8	217.5	205.6
Germany	112.9	116.1	209.0	214.7
Estonia	234.6	224.1	325.4	307.4
Ireland	112.4	110.5	202.2	188.5
Greece	124.8	127.0	178.6	182.2
Spain	88.6	87.6	159.1	158.6
France	77.7	77.8	181.0	184.3
Croatia	207.3	216.4	320.3	326.9
Italy	90.3	93.0	149.7	151.0
Cyprus	92.5	98.4	153.8	155.0
Latvia	331.7	325.6	422.8	414.7
Lithuania	310.8	325.9	438.7	445.9
Luxembourg	87.3	90.9	199.0	195.8
Hungary	266.1	267.7	414.3	418.0
Malta	122.7	110.3	174.8	163.3
Netherlands	88.0	90.6	181.6	188.8
Austria	108.7	109.2	216.9	220.9
Poland	169.9	168.5	277.0	276.0
Portugal	115.2	111.0	188.4	186.4
Romania	318.6	318.0	363.0	362.7
Slovenia	122.7	128.1	251.3	265.3
Slovakia	242.9	250.0	349.8	362.2
Finland	114.4	111.3	220.4	213.3
Sweden	98.0	96.7	175.2	173.9
United Kingdom	116.1	117.4	207.9	211.3
Iceland	86.2	91.2	165.8	177.6
Liechtenstein	51.2	100.6	139.6	123.3
Norway	89.2	87.1	186.9	182.4
Switzerland	76.2	75.2	163.3	163.4
Serbia	233.7	235.6	273.9	276.4
Turkey	190.0	189.1	234.4	230.9

Source: Eurostat (online data code: hlth_cd_apr)



Table 1: Amenable and preventable mortality, standardized deaths rates, 2014 and 2015 (per 100 000 inhabitants) Source: Eurostat (hlth_cd_apr)

More than a million deaths could have been prevented by public health interventions.

The figures for preventable mortality are higher than those for amenable mortality, due to the broader definition of preventable deaths (see Table 1). In 2015, more than 1 million deaths (or 216 deaths per 100 000 inhabitants) could have been prevented through better public health interventions (see Table 2). These figures are again very similar to 2014 data. The Member States with the lowest preventable mortality rates in 2015 are Italy, Cyprus, Spain and Malta; while Member States with the highest levels of potentially preventable deaths are Lithuania, Hungary, Latvia and Romania.

The total number of deaths that could have potentially been avoided through effective public health and medical interventions was just over 1.2 million in 2015 (Table 2).³

³Note that the total number of avoidable deaths does not equal the sum of amenable and preventable. See note in Table 2.

Disease / condition	Avoidable mortality	Amenable mortality	Preventable mortality
Total	1 216 863	570 794	1 003 027
Selected invasive bacterial and protozoal infections	13 262	13 262	NI
Tuberculosis	2 548	2 548	2 548
Hepatitis C	3 059	3 059	3 059
HIV disease	3 370	3 370	3 370
Malignant neoplasm of lip, oral cavity, pharynx	22 298	NI	22 298
Malignant neoplasm of oesophagus	19 081	NI	19 081
Malignant neoplasm of stomach	27 570	NI	27 570
Colorectal cancer	66 847	66 847	66 847
Malignant neoplasm of liver and intrahepatic bile ducts	27 659	NI	27 659
Malignant neoplasm of trachea, bronchus and lung	168 422	NI	168 422
Malignant melanoma of skin	9 574	9 574	9 574
Mesothelioma	4 252	NI	4 252
Breast cancer (*)	49 854	49 854	49 854
Malignant neoplasm of cervix uteri	7 782	7 782	7 782
Malignant neoplasm of bladder	14 523	14 523	NI
Malignant neoplasm of thyroid gland	1 706	1 706	NI
Hodgkin disease	1 474	1 474	NI
Lymphoid and acute myeloblastic leukaemia	1 785	1 785	NI
Benign neoplasms	1 698	1 698	NI
Diabetes mellitus	2 135	2 135	2 135
Alcohol related diseases, excluding external causes	73 563	NI	73 563
Drug dependence, toxicomania	1 697	NI	1 697
Epilepsy, status epilepticus	5 947	5 947	NI
Rheumatic and other valvular heart disease	3 127	3 127	NI
Hypertensive diseases	30 403	30 403	NI
Ischaemic heart diseases	180 520	180 520	180 520
Thrombosis with pulmonary embolism	13 221	NI	13 221
Cerebrovascular diseases	89 629	89 629	NI
Aortic aneurysm and dissection	10 085	NI	10 085
Influenza (including swine flu)	1 382	1 382	1 382
Pneumonia	25 977	25 977	25 977
Chronic obstructive pulmonary disorder	50 388	NI	50 388
Asthma and status asthmaticus	2 140	2 140	NI
Ulcer of stomach, duodenum and jejunum	5 201	5 201	NI
Acute abdomen, appendicitis, intestinal obstruction, cholecystitis/lithiasis, pancreatitis, hernia	9 759	9 759	NI
Nephritis and nephrosis	10 371	10 371	NI
Obstructive uropathy and prostatic hyperplasia	699	699	NI
Complications of perinatal period	9 679	9 679	NI
Congenital malformations, deformations and chromosomal abnormalities	10 853	10 853	NI
Transport accidents	29 183	NI	29 183
Other external causes of accidental injury	128 283	NI	128 283
Suicide and self-inflicted injuries	65 588	NI	65 588
Assault	3 502	NI	3 502
Misadventures to patients during surgical and medical care	5 187	5 187	5 187

Note: NI indicates that the particular disease/condition is not counted into the particular avoidable type (i.e. amenable or preventable)
 (*) Including deaths of men and women.

Table 2: Avoidable, amenable and preventable mortality in the EU-28, 2015 (number)Source: Eurostat (hlth_cd_apreu)

Amenable mortality rates higher for men than women in EU

Consistently throughout Europe, amenable mortality rates for men are higher than those for women (see Figure 1). The smallest gender gaps (compared to the total amenable mortality rate) are observed for the Netherlands, Denmark, France and Belgium. Similar results are obtained for preventable mortality rates (not shown in this article).

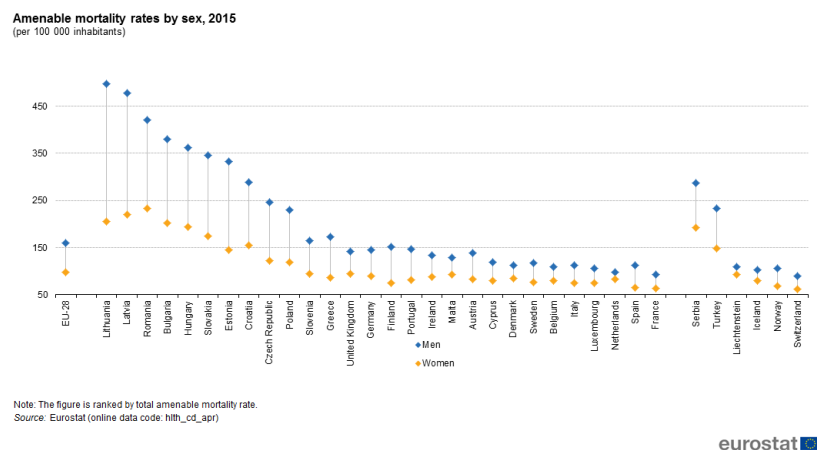


Figure 1: Amenable mortality rates by sex, 2015 (per 100 000 inhabitants)Source: Eurostat (hlth_cd_apr)

Heart diseases leading cause of amenable and preventable deaths

As shown in Figure 2, the six leading causes of amenable mortality are the following diseases or conditions (with decreasing importance): ischaemic heart diseases, cerebrovascular diseases, colorectal cancer, breast cancer, hypertensive diseases and pneumonia (a full overview of the diseases and conditions included in amenable

mortality is presented in Table 2). In total, over 77 % of all deaths classified as amenable in the EU were caused by the aforementioned diseases. Heart diseases alone accounted for over 31 % of amenable deaths. As can be seen in Figure 2, all causes of amenable mortality had a slight increase in 2015, with the exception of cerebrovascular and breast cancer which had a slight decrease.

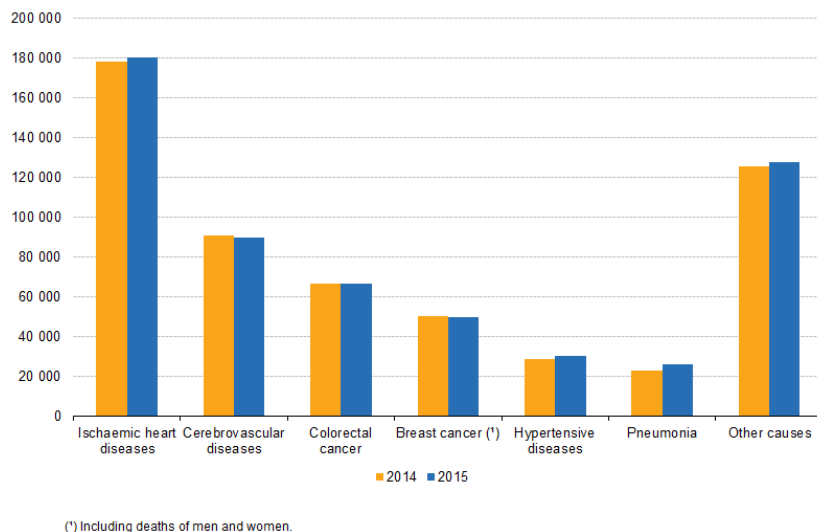


Figure 2: Leading causes of amenable mortality in the EU-28, 2014 and 2015 (number) Source: Eurostat (hlth_cd_apreu)

Leading causes for preventable deaths

The leading causes for preventable deaths are ischaemic heart diseases, lung cancer, injuries and alcohol related diseases

Over 73 % of preventable deaths in the EU are attributable to the following diseases and conditions (with decreasing importance): ischaemic heart diseases, lung cancer, accidental injuries, alcohol related diseases, colorectal cancer, suicides and self-inflicted injuries and chronic obstructive pulmonary disorder (a full overview of the diseases and conditions included in preventable mortality is presented in Table 2). Again, the split of deaths over these diseases had a slight increase in 2015, except the suicides, which had a small decrease (see Figure 3).

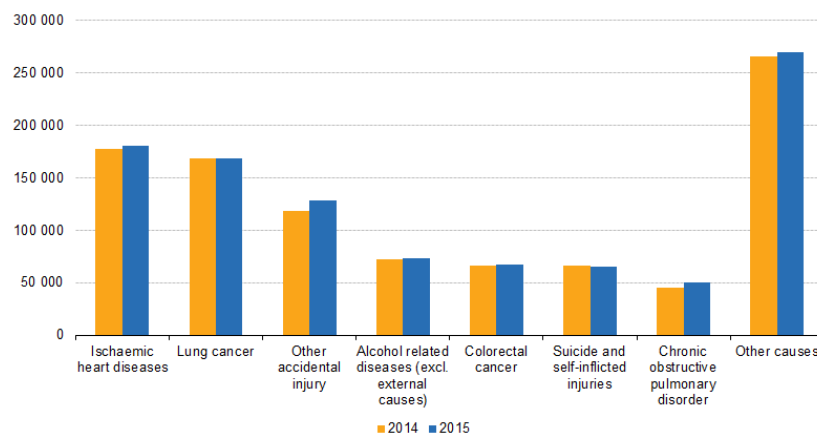


Figure 3: Leading causes of preventable mortality in the EU-28, 2014 and 2015 (number) Source: Eurostat (hlth_cd_apreu)

Similar leading causes of amenable mortality for men and women

Similar leading causes of amenable mortality for men and women, with the exception of breast and cervical cancer for women

The distribution of diseases and conditions causing both amenable and preventable deaths varies slightly for men and women. While for men the leading cause of amenable mortality in percentage terms is ischaemic heart diseases, for women it is breast cancer (Figure 4).

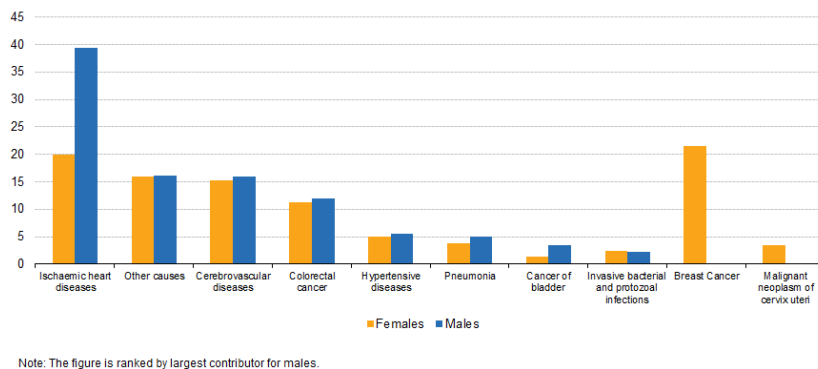


Figure 4: Different causes of amenable mortality for men and women in the EU-28, 2015(% of total deaths) Source: Eurostat (hlth_cd_apreu)

For preventable mortality, the leading cause for men is again ischaemic heart diseases followed by lung cancer, while accidental injuries, lung and breast cancer are equally important causes of preventable deaths for women (Figure 5).

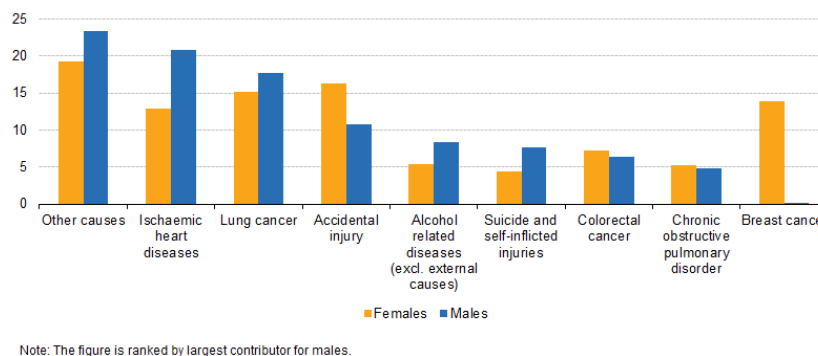


Figure 5: Different causes of preventable mortality for men and women in the EU, 2015(% of total deaths) Source: Eurostat (hlth_cd_apreu)

Source data for tables and graphs

- [Amenable and preventable deaths statistics - graphs and tables](#)

Data sources

The definitions of amenable and preventable death are as follows⁴:

- A death is amenable 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.

⁴See definition from the [Office for National Statistics \(ONS\), UK, 2011](#)

- A death is preventable if, 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 amenable and preventable mortality, one has to define, in a **first step**, which diseases and conditions could have been potentially avoided through optimal quality health care (amenable deaths) and through public health interventions (preventable deaths). To do this, Eurostat set up a **Task Force** composed of **health care experts** to define a list of precise conditions and diseases, which in the light of the current medical knowledge and technology could have been avoided. The **complete list of diseases and conditions** counted in either amenable or preventable deaths can be found [here](#). The list also includes specifications on the age up to which a death can be considered as either amenable or preventable. The main age limit is set at 74 years to reflect the current life expectancy. In addition, for certain deaths the age limit is lower due to uncertainties in the treatment of the diseases. For example, if an individual aged below 50 years suffers from diabetes, then timely health care is very likely to be effective in preventing this individual dying of diabetes. However, since the effectiveness of medical treatment for diabetes in patients of older ages (above 50 years) remains controversial, the deaths of individuals aged 50 years and above due to diabetes are not included in the amenable mortality figures.

The list of diseases and conditions and age groups to calculate amenable and preventable deaths was approved by the Members of Eurostat's Working Group on Public Health Statistics. However both, the list of diseases and conditions, as well as the age limits, reflect current health expectations, medical technology and knowledge, and developments in healthcare public policy, and hence might be subject to change in the future.

The **second step** in the calculation of amenable and preventable deaths is the summation of all deaths (within the age limits) where the underlying cause of deaths was included in the list of diseases and conditions for amenable and preventable deaths ([as defined here](#)). The underlying data used to calculate amenable and preventable mortality indicators are the causes of death data, which include detailed information on the underlying cause of death of the deceased.⁵The data for causes of death is an annual data collection with a legal basis requiring all European Member States to send complete data to Eurostat.

Note that some diseases and conditions are included in both amenable and preventable death, since certain conditions are considered as both treatable and preventable. An example would be deaths due to ischaemic heart diseases, which might be successfully avoided through timely and effective health care (e.g. through thrombolytic therapy) and simultaneously through effective public health intervention to reduce the underlying risk factors (e.g. high blood pressure or reduced salt intake).

Annual data on amenable and preventable deaths are provided in absolute numbers and as standardised death rates.⁶Since 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.

Context

Assessing the performance of health care systems is of increasing importance in the EU. While amenable and preventable mortality indicators are not meant to be a definite measurement of the quality of the health care in Member States, they provide some indication for the quality and performance of health care and (wider) public health policies in a country. In addition to health care and public health policies, other factors related to the likelihood of individuals to contract a disease or to seek medical advice - such as education, social class, health beliefs, levels of concerns, costs of diagnosis and treatment - are likely to influence the amount of amenable and preventable deaths in countries.⁷Improvements in health policies should translate into lower values for amenable and preventable deaths. However, there is likely to be a long time lag between implementation of health (care) policies and changes in the mortality rates, and hence conclusions need to be drawn with caution.

⁵The causes of death data collection 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.

⁶Standardised deaths rates use the [European Standard Population](#)

⁷See page 18 of Nolte E. and M. McKee (2004), "Does Health Care Save Lives? Avoidable Mortality Revisited", Nuffield Trust, London

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Notes

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