

## Causes of death

2018

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### Deaths from diseases of the respiratory system increased by 3.8%

Strokes caused the highest number of deaths in 2018 (11,235), accounting for 9.9% of mortality, which reflects a slight improvement in relation to 2017 (11,270 deaths, corresponding to a percentage of 10.2% of total deaths). The decrease in stroke deaths in recent years (from 13.9% in 2008 to 9.9% in 2018) has been the one with the greatest impact on the reduction in deaths caused by diseases of the circulatory system.

In year under review, 7,241 deaths from ischemic heart disease were recorded, 1.0% less than in the previous year, which represented the second highest proportion of deaths (6.4%). There were also 4,620 deaths from acute myocardial infarction, i.e., 4.1% of mortality, with a 1.7% increase in the number of deaths in relation to the previous year (4,542 deaths). In comparison with strokes and acute myocardial infarction, ischemic heart disease has the highest crude mortality rates in the age groups below 65 years.

Diseases of the respiratory system caused 13,305 deaths, with an increase of 3.8% in relation to the previous year, representing 11.7% of the total mortality occurred in the country. In this group of diseases, it stood out 5,764 deaths from pneumonia, representing 5.1% of the mortality in 2018 and registering an increase of 2.5% of deaths in relation to the previous year. The crude pneumonia mortality rate was 55.9 deaths per 100 thousand inhabitants, with values significantly increasing for 65 and more years.

Among malignant neoplasms, there were 4,317 deaths caused by malignant neoplasms of trachea, bronchus and lung, which represented 3.8% of the total deaths in the country and an increase of 1.8% in relation to the previous year. Malignant neoplasms of colon, rectum and anus accounted for 3.4% of mortality in 2018, with 3,820 deaths (0.8% less than in the previous year).

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Statistics Portugal releases the statistical indicators related to mortality from causes of death in Portugal in 2018, according to 55 groups of causes of death based on the «OECD Health Data» list of the Organization for Cooperation and Economic Development (OECD).

These indicators include the main groups of causes of death by disease, especially diseases of the circulatory system, malignant neoplasms, diseases of the respiratory system, and endocrine, nutritional and metabolic diseases, as well as deaths from external causes of injury or poisoning.

Each cause of death is indicated together with the number of deaths by sex, age group, and place of residence of the deceased, and other derivative indicators: sex ratio; average age at the time of death; crude death rate; standardized death rate; and average number of years of potential life lost, among others.

### Main indicators of causes of death in 2018

	Deaths		Annual variation	Crude mortality rate	Average age at death	Average number of potential years of life lost	Sex ratio
	No.	%	%	by 100 <sup>0</sup> inhabitants	No. Years		
<b>All causes of death</b>	<b>113,573</b>	<b>100,0</b>	<b>3.1</b>	<b>1,099.3</b>	<b>78.5</b>	<b>13,0</b>	<b>100.7</b>
Diseases of the circulatory system, of which	32,926	29,0	1.7	318.3	81.5	10.3	82.4
Cerebrovascular diseases	11,235	9.9	-0.3	108.8	82.1	9.2	77,0
Ischaemic heart diseases	7,241	6.3	-1,0	69.5	77.7	10.7	133.3
Acute myocardial infarction	4,620	4,0	1.7	44.2	76.9	10.9	136.2
Malignant neoplasms, of which	27,929	24.6	1.5	270.8	73.4	11,0	147.5
Malignant neoplasm of trachea, bronchus, lung	4,317	3.8	1.8	41.9	71,0	9.2	315.3
Malignant neoplasm of colon, rectum and anus	3,820	3.4	-0.8	37,0	75.7	10.6	138.4
Diseases of the respiratory system, of which	13,305	11.7	3.8	129.1	83.1	10.7	106.8
Pneumonia	5,764	5.1	2.5	55.9	83.9	11.5	103,0

Source: Statistics Portugal, Mortality by causes of death

Explanatory notes: 1) The number of deaths, and the respective proportion and annual variation, refer to the total number of deaths in the country, while the remaining indicators refer to deaths of residents in Portugal; 2) Regarding the superiority of the average number of potential years of life lost for all causes of death in relation to the main causes of death, this is due to the fact that this indicator only covers deaths before the age of 70, which tend to occur to a lesser extent in the case of the causes of death analyzed.

## Mortality rates from diseases of the circulatory system and from malignant neoplasms reached the highest values since 2008

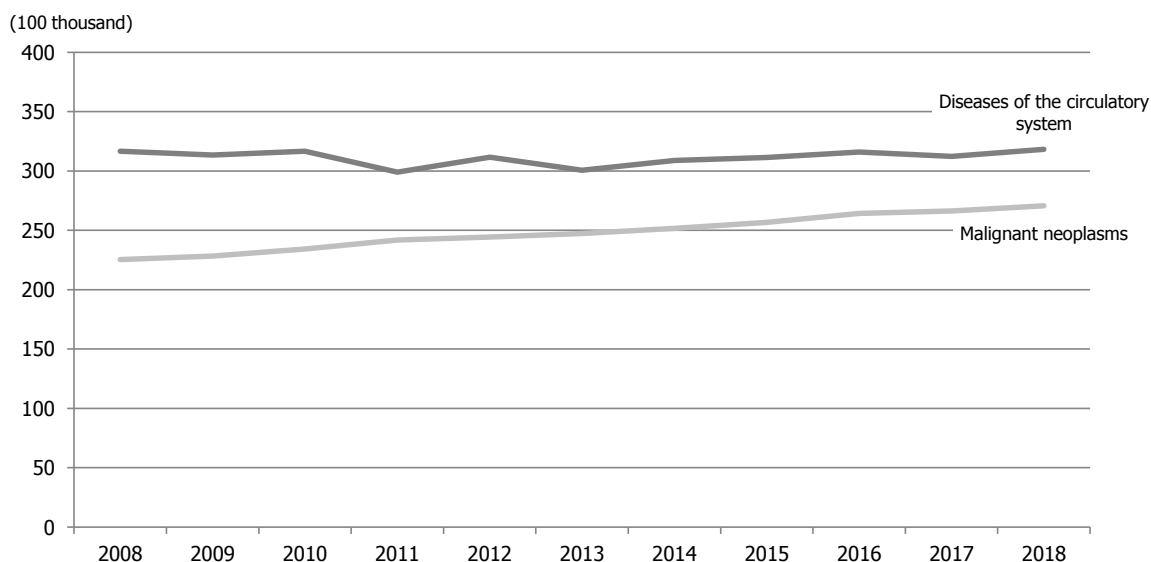
In 2018, there were 113,573 deaths in the country. The average age at death was 78.5 years, higher than in the previous year (78.2 years).

Deaths from diseases of the circulatory system and from malignant neoplasms increased, respectively by 1.7% and 1.5% in relation to the previous year, keeping up a share of more than half (53.6%) of deaths in the country.

In the same year, considering only the deaths of residents, the crude mortality rate due to diseases of the circulatory system was 318.3 per 100 thousand inhabitants, reaching the highest value since 2008. Despite this increase, the average number of potential years of life lost due to diseases of the circulatory system (10.3) was lower than in the previous year (11.2), partly due to the decrease in deaths of people under 70 years of age due to these causes. The sex ratio in 2018 was 82.4 deaths of resident men for every 100 deaths of resident women, lower than that registered in the previous year (81.6).

The crude mortality rate from malignant neoplasms was 270.8 per 100 thousand inhabitants, maintaining the upward trend. The average number of potential years of life lost due to malignant neoplasms (11.0) was less than that recorded in 2017 (11.2).

**Figure 1 - Crude mortality rates due to diseases of the circulatory system and malignant neoplasms, per 100 thousand inhabitants, in the country, 2008-2018**

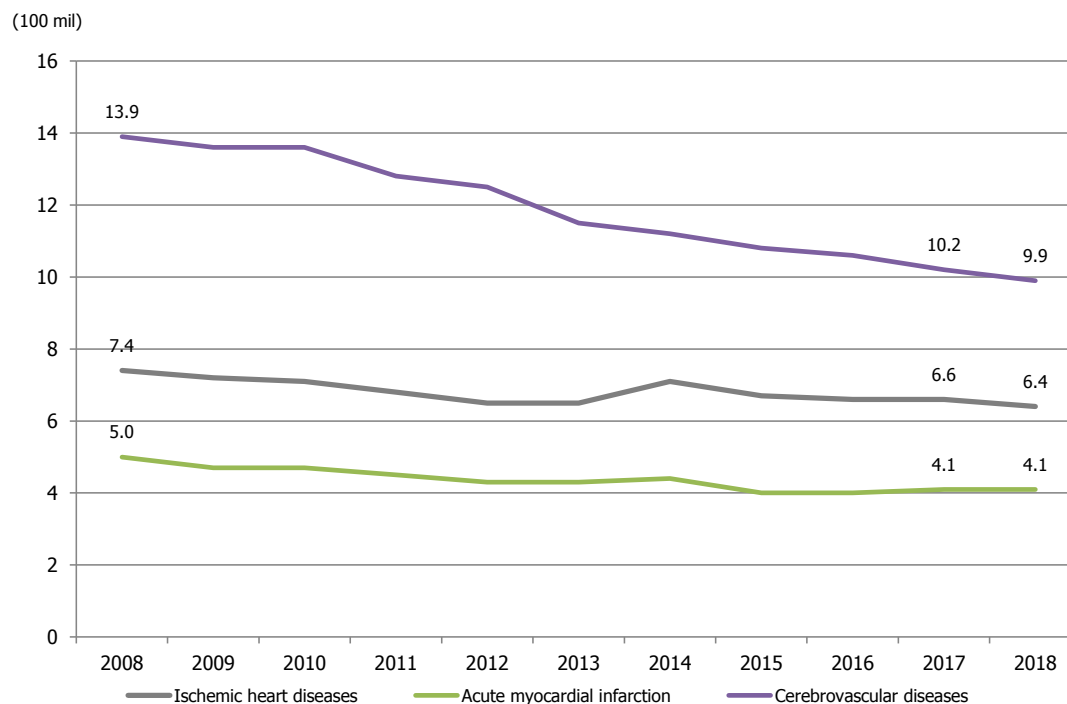


Source: Statistics Portugal, Mortality by causes of death

### Strokes: the main cause of death in Portugal

In recent years there has been a decrease in the proportion of deaths caused by diseases of the circulatory system in the total of deaths (32.3% in 2008 and 29.0% in 2018), mainly due to the downward trend in the importance of deaths due to cerebrovascular diseases, also known as strokes.

**Figure 2 - Proportion of deaths due to cerebrovascular diseases, ischemic heart diseases and acute myocardial infarction, in the country, 2008-2018**



Source: Statistics Portugal, Mortality by causes of death

However, strokes continued to be the cause of the highest number of deaths in 2018 (11,235), representing 9.9% of mortality and a rate of 108.8 deaths<sup>1</sup> per 100 thousand inhabitants. This result reflects a slight improvement in relation to 2017, in which 11,270 deaths had been registered, corresponding to 10.2% and a rate of 109.1 deaths per 100 thousand inhabitants.

In 2018, stroke deaths continued to affect mainly women, with a ratio of 77 male deaths per 100 female deaths. On the other hand, women also continued to die relatively later than men due to this disease: the average age at death for women was 83.9 years and for men 79.8 years.

Of total deaths due to cerebrovascular diseases, 93.2% were people aged 65 and over and 82.3% were aged 75 and over, resulting in an average number of potential years of life lost of 9.2, lower than in the previous year (10.1). The corresponding crude mortality rates registered a considerable increase at older ages: 105.8 per 100 thousand inhabitants from 65 to 74 years old, 463.4 from 75 to 84 years old, and 1,853.2 for 85 and more years old. In 2018, there were 11,388 potential years of life lost due to cerebrovascular diseases, less than in the previous year (11,578), which results from the decrease in the number of deaths under 70 years of age due to this cause.

<sup>1</sup> Deaths of residents in Portugal.

### Ischemic heart disease caused 6.4% of total mortality

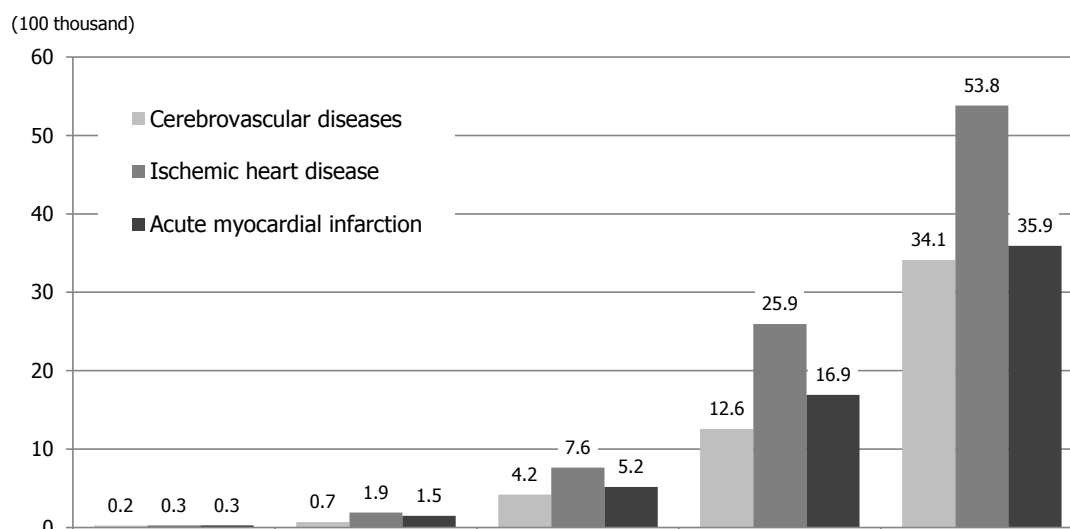
Still among the diseases of the circulatory system, there were 7,241 deaths due to ischemic heart disease, representing 6.4% of the total mortality in 2018, and a decrease of 1.0% in relation to the previous year, in which 7,314 deaths occurred due to this cause. The crude mortality rate due to ischemic heart disease was 69.5 deaths per 100 thousand inhabitants in 2018, close to the one recorded in 2017 (70.0).

Deaths due to ischemic heart disease mainly affected men, with a ratio of 133.3 male deaths per 100 female deaths. The average age at death for women was 82.3 years, remaining substantially later (8 years in plus) in relation to that recorded for men (74.3 years).

Of the total deaths from ischemic heart disease, 83.5% were people aged 65 and over and 65.7% were aged 75 and over, resulting in an average number of potential years of life lost of 10.7 years (less than in 2017: 11.3 years).

In relation to other diseases of the circulatory system, namely cerebrovascular diseases and acute myocardial infarction, ischemic heart disease shows a higher crude mortality rates in the age groups below 65 years.

**Figure 3 - Crude deaths rates per 100 thousand inhabitants before 65 years old, by age group: cerebrovascular diseases, ischemic heart disease and acute myocardial infarction, in the country, 2018**



Source: Statistics Portugal, Mortality by causes of death

### Deaths from acute myocardial infarction increased by 1.7%

In 2018, there were 4,620 deaths from acute myocardial infarction, representing 4.1% of mortality, with a 1.7% increase in the number of deaths compared to the previous year (4,542 deaths).

Deaths from acute myocardial infarction mainly affected men, with a ratio of 136.9 male deaths per 100 female deaths. The average age at death for women was 81.4 years, 7.8 years more than that observed for men (73.6 years).

Of the total deaths from acute myocardial infarction, 82.1% were of people aged 65 and over and 62.7% of people aged 75 and over, resulting in an average number of potential years of life lost of 10.9 years. The crude mortality rate due to acute myocardial infarction was 44.2 deaths per 100 thousand inhabitants, with values significantly increasing for 45 and more years (cf. page 8, Figure 4.D).

### **1.8% more deaths from malignant tumors of the trachea, bronchus and lung**

The malignant neoplasms caused 27,929 deaths in 2018, accounting for 24.6% of the total mortality in the country and 1.5% less deaths than in the previous year (27,503 deaths in 2017) but 16.2% more than in 2008.

In 2018, the mortality rate from malignant neoplasms was 270.8 per 100 thousand residents in Portugal, quite higher in the case of men (341.5) than in women (207.4). In 2018, 109,180 potential years of life were lost, less 4,810 years than in 2017, which was associated with the reduction in the number of deaths under 70 years of age.

Among malignant neoplasms, there were 4,317 deaths caused by malignant neoplasms of the trachea, bronchus and lung, which represented 3.8% of the total deaths in the country and an increase of 1.8% in relation to the previous year. These neoplasms significantly continued to affect mainly men with quite different crude mortality rates between men (67.3 deaths per 100 thousand male residents) and women (19.1 deaths per 100 thousand female residents), resulting in a ratio of 315.3 male deaths per 100 female deaths. The crude mortality rate due to malignant neoplasms of the trachea, bronchus and lung was 41.9 deaths per 100 thousand inhabitants, with values significantly increasing for 45 and more years (cf. page 7, Figure 4.E).

Malignant neoplasms of the colon, rectum and anus represented 3.4% of mortality in 2018, with 3,820 deaths (0.8% less than in the previous year). These neoplasms continued to affect mainly men, with a ratio of 75.7 male deaths per 100 female deaths. The crude mortality rate due to malignant neoplasms of the colon, rectum and anus was 37.0 deaths per 100 thousand inhabitants, with values significantly increasing for 55 and more years (cf. page 7, Figure 4.F).

### **Pneumonia was the third leading cause of death, accounting for 5.1% of deaths in 2018**

Diseases of the respiratory system caused 13,305 deaths, with an increase of 3.8% in relation to the previous year (12,819 deaths), and representing 11.7% of the total mortality in the country. The crude mortality rate due to diseases of the respiratory system stood at 129.1 deaths per 100 thousand inhabitants, higher than in 2017 (124.3), especially in the case of men (141.0 in 2018 and 133.8 in 2017).

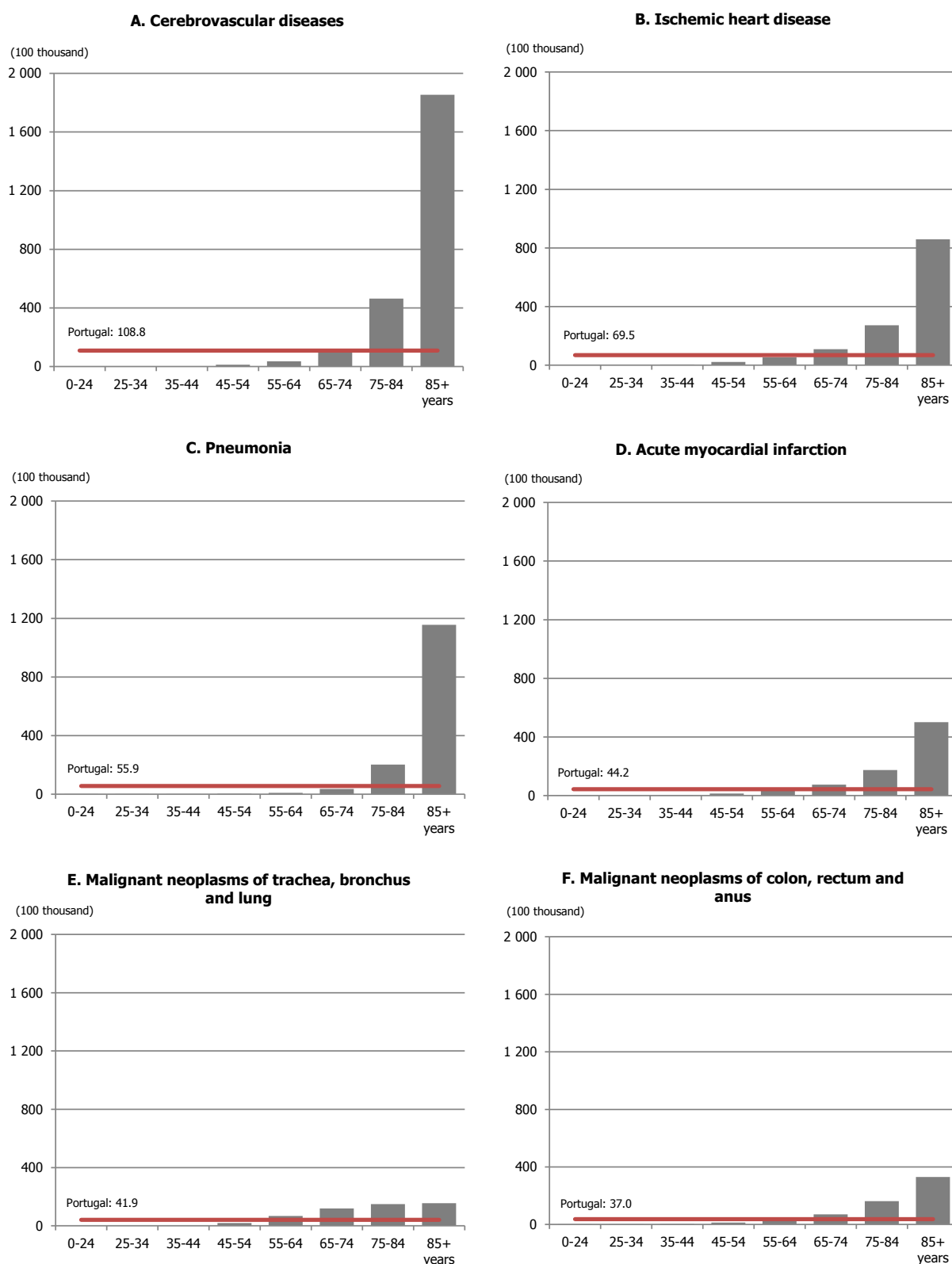
In this group, deaths due to pneumonia stand out, with 5,764 deaths, representing 5.1% of the mortality that occurred in 2018 and registering an increase of 2.5% in relation to the previous year. The crude mortality rate of pneumonia was 55.9 deaths per 100 thousand inhabitants, with values significantly increasing for 65 and more years (see page 7, Figure 4.C).

In 2018, deaths from pneumonia mainly affected men, with a ratio of 103.0 men per 100 women, unlike what was recorded in 2017 when the ratio was 93.3 male deaths per 100 female, for residents in Portugal. The average age at death for 2018 was 82.3 years for women, about 3 years lower than for men (85.6 years).

Among the diseases of the respiratory system, deaths from chronic obstructive pulmonary disease were also relevant, with 2,834 deaths, representing 2.5% of total mortality in 2018 and an increase of 7.9% in relation to 2017.

Although less important in relation to overall mortality, there were also significant increases in total deaths due to influenza (205 deaths) and asthma (142 deaths): 79.8% and 10.9%, respectively.

**Figure 4 - Crude deaths rates due to some diseases per 100 thousand inhabitants , by age group, in the country, 2017**



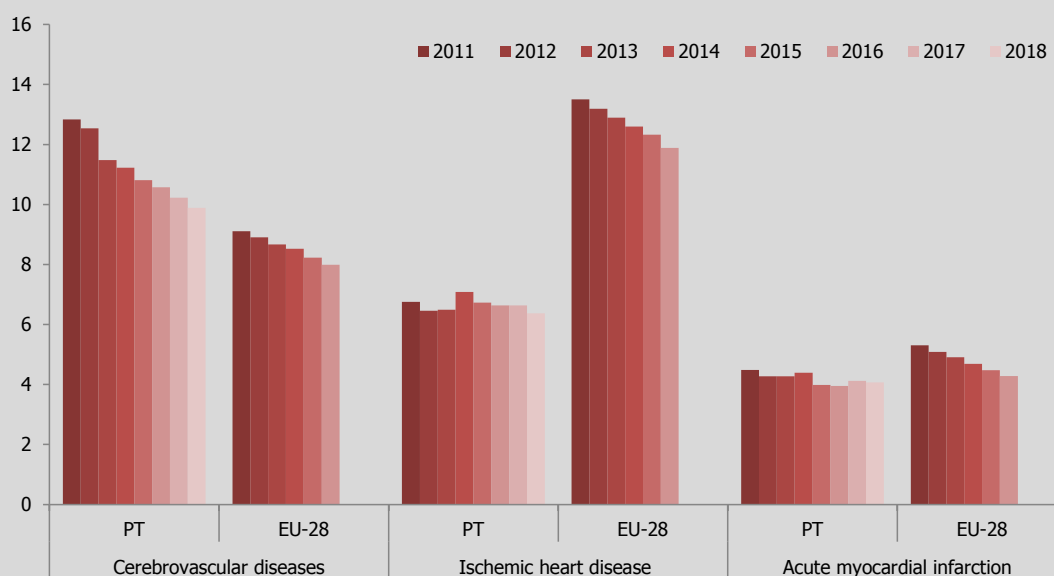
Fonte: Statistics Portugal, Mortality by causes of death



### Comparison with the European Union

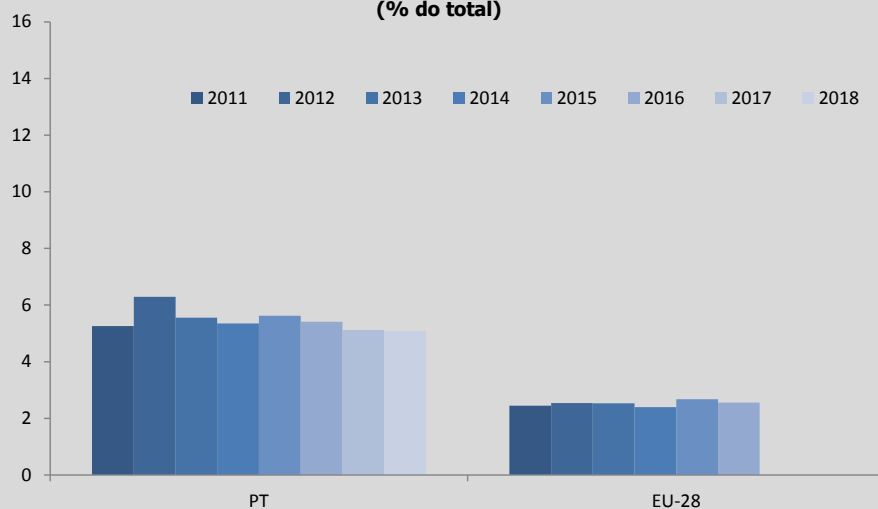
The most recent data published by Eurostat, for 2016, indicate that, in contrast to Portugal, the main cause of death in the EU-28 countries as a whole was ischemic heart disease (11.9% of deaths in 2016). Strokes, which in Portugal accounted for 10.6% of mortality in 2016 and 9.9% in 2018, registered a lower importance in the EU-28 (6.6% in 2016).

**Figure 5 - Deaths by some causes of death, Portugal 2011-2018 and EU-28 2011-2016 (% of total)**



In Portugal, relatively more people die of disease of the respiratory system than in the EU-28, especially due to pneumonia, which accounted for 5.4% of mortality in 2016 and 5.1% in 2018. These national proportions represent more than the double registered in the EU-28 (2.6% in 2016).

**Figure 6 - Deaths caused by pneumonia, Portugal 2011-2018 e UE-28 2011-2016 (% do total)**



The incidence of deaths from malignant neoplasms in Portugal is very close to that recorded in the EU-28, although slightly lower. In 2016, the percentage of deaths from malignant tumors in Portugal was 24.7%, and in the EU-28, 26.0%. In 2018 that percentage in Portugal was 24.6%.

The main malignant neoplasms regarding death mortality were those of the trachea, bronchus and lung, which in 2016 represented 5.4% of the total deaths in the EU-28 and 3.7% in Portugal (3.8% in 2018). In terms of importance in the total number of deaths, colon, rectum and anus tumors followed, which caused 3.1% of deaths in the EU-28 and 3.5% in Portugal (3.4% in 2018)

## Technical note

Data on deaths by cause of death resulted from the utilisation of administrative data for statistical purposes, from information subject to civil registration and collected by civil registries through the *Sistema Integrado do Registo e Identificação* (integrated civil identification and registration system) and the *Sistema de Informação dos Certificados de Óbito* (death certificate information system). The Portuguese Directorate-General of Health collaborates with Statistics Portugal, coding the causes of death according to the International Classification of Diseases (ICD-10) of the World Health Organisation (WHO).

**Average age at death:** the ratio of the sum of each midpoint in the age group, multiplied by the number of observations, in each age group, to the total number of observations.

**Average number of potential years of life lost:** Ratio between the number of potential years of life lost and the number of deaths under 70 years.

**Crude mortality rate:** Number of deaths during a given period of time, usually the calendar year, for a particular cause of death, reported to the average population in this period (in number of deaths per 100 000 inhabitants)

**Sex ratio:** the ratio of male deaths to female deaths, for every 100 women.

**Years of potential life lost:** number of years that theoretically a certain population ceases to live if dying prematurely (under the age of 70). It is calculated by summing the number of deaths in each age group, multiplied by the difference between a selected upper limit and the midpoint of the age group.