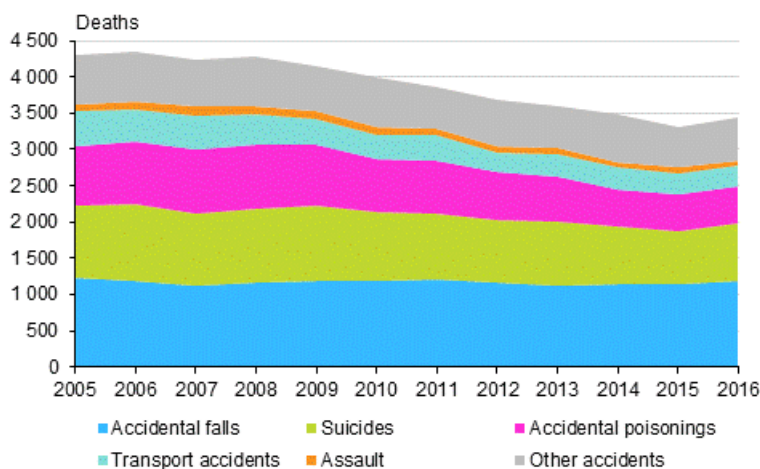


# Causes of death in 2016

## Accidental and violent deaths have decreased by one-fifth in ten years

According to Statistics Finland's data, in 2016, good 3,400 persons died from accidents, suicides and violence, which was six per cent of all deaths. The number of deaths caused by these reasons has decreased by one-fifth in ten years. The main reasons for accidental and violent deaths are fatal stumbles, suicides and accidental poisonings.

### Accidental or violent deaths 2005 to 2016



Altogether, 54,000 Finnish people died in 2016. A majority of them died from diseases. In total, 3,400 persons died in accidents or as a result of violence, i.e. not natural causes.

In ten years, the share of persons dying from accidents, suicides and violence has decreased from nine to six per cent, and the number of persons dying in this manner has declined by one fifth. In absolute numbers, accidental alcohol and pharmaceutical poisonings, as well as suicides have decreased most.

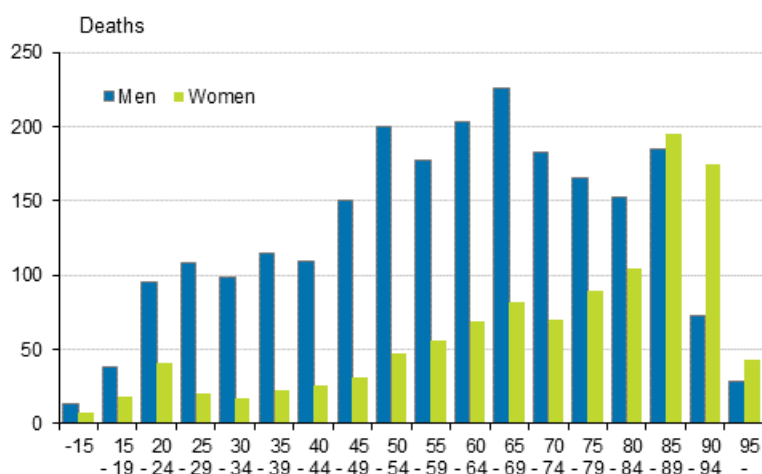
In 2016, a total of 63 persons died as a result of homicide. The typical victim was a man aged 50 to 54. The number of persons who died from murder, manslaughter and assaults has declined by more than 40 per cent in ten years.

## More men than women died in accidents, and as the result of suicides and violence

In 2016, two-thirds of those who died in accidents or as a result of violence were men. Among children and young people, slightly more boys than girls died of these reasons but the biggest differences were visible for middle-aged persons. Middle-aged men’s mortality from accidents and violence was clearly higher than that of women. In the age group of those aged over 85, more women than men died. However, relative to the number of living people, elderly men died more often than women in accidents or as a result of violence.

Women who died in accidents or as a result of violence were, on average, older than men: one in two women were aged 75 or over and one in four men. A majority of the accidents resulting in death of elderly people were stumbles and falls.

### Accidental or violent deaths by gender and age 2016



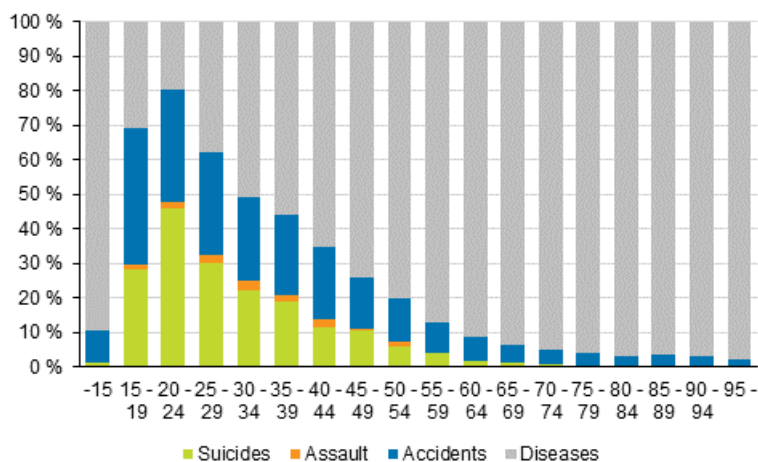
## Share of suicides and accidental causes of death is higher for young people than in other age groups

In young age groups where disease mortality is low, the share of fatal accidents and suicides is as high as 70 to 80 per cent of all causes of death. The share decreases rapidly in older age groups and after the age of 60, the share of fatal accidents and suicides is only under ten per cent. The share of violent causes of death is low in all age groups.

Among persons aged under 15, the most common accidental causes of death are traffic accidents. In addition to transport accidents, significant causes of death for persons aged 15 to 29 are suicides and accidental poisonings.

Despite accidents and suicides being an important cause of death among young people, the share of young people in such deaths is relatively low. The share of persons aged under 30 in all persons that died from suicides was one-fifth and in accidental deaths under one-tenth.

### Share of accidental and violent deaths (%) by age in 2016

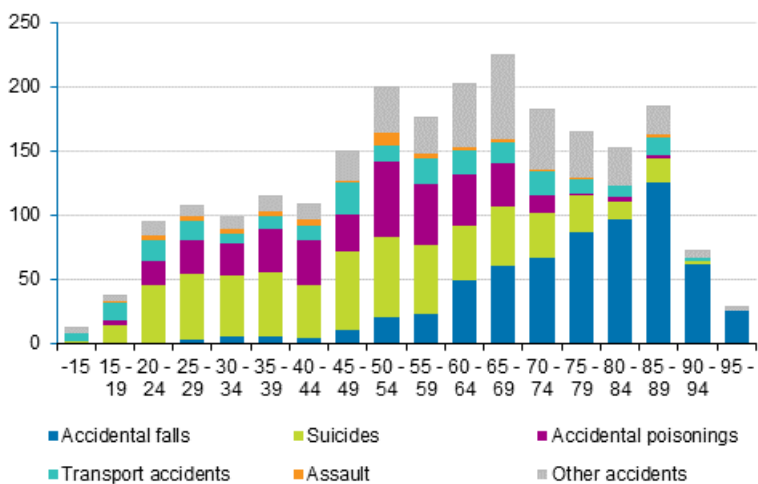


### Deaths from stumbles and falls usually elderly persons

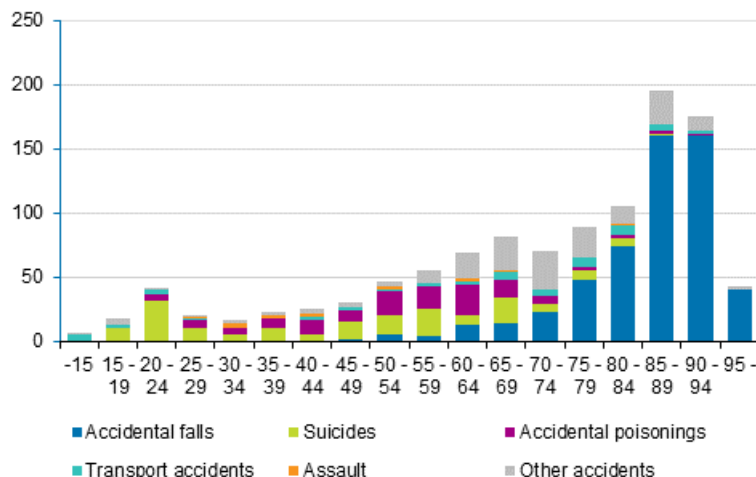
In 2016, the most common accidents leading to death for both women and men were stumbles or falls. Nearly 1,200 Finns died from stumbles or falls. More than one-quarter of men’s and nearly one-half of women's accidental deaths were caused by stumbling or falling.

Deaths caused by stumbling or falling are especially common for elderly persons. Three in four deaths caused by stumbling or falling occurred to persons aged over 75. In absolute numbers, more deaths occurred among elderly women than elderly men but relative to the number of living people, elderly men had more stumbles resulting in death than women in relative terms. In 2016, altogether 150 working-age persons (aged 15 to 64) died as a result of stumbling or falling of whom 80 per cent were men.

### Men’s accidental and violent deaths by age in 2016



## Women's accidental and violent deaths by age in 2016



## Number of suicides increased somewhat from the previous year

The second most common accidental or violent cause of death was suicides. The number of suicides has decreased relatively evenly since 1990, when more than 1,500 suicides were committed in Finland. Over the past ten years, the number of suicides has decreased by one-third among women and by nearly one-quarter among men. In 2016, altogether 787 persons committed suicide, which was over 50 cases more than in the previous year but almost the same number as in 2014.

Men committed clearly more suicides than women. More than three-quarters of suicides were committed by men. Men's suicides are, however, more evenly divided between different age groups than women's. In suicides committed by women, those committed by young people aged under 25 are more emphasised than among men. The average age of those who committed suicide was 49 to 50 for both women and men.

## Number of accidental alcohol and pharmaceutical poisonings has decreased

The next most common cause of death in accidental and violent deaths was alcohol and pharmaceutical poisonings. In 2016, a total of around 500 persons died of accidental poisonings, while ten years ago good 850 persons died of accidental poisonings. Only slightly more than one-half of accidental poisonings resulting in death were caused by alcohol. Persons dying of alcohol poisoning are on average older (57) than those dying from pharmaceuticals or drugs, who are on average 42 years old at the time of death. Several poisonings involve both drugs and alcohol. Then, the underlying cause of death is determined according to the most effective substance.

In 2016, altogether 245 persons in Finland died of other poisonings than alcohol poisoning, mainly pharmaceutical or drug poisonings. This was almost the same number as in the previous year. Two-thirds of them were men. Men's accidental pharmaceutical or drug deaths occur more in younger age groups than women's, where the deaths are divided more evenly between different age groups. In the past ten years, no one aged under 15 has died as a result of accidental poisoning. Mortality from pharmaceutical or drug poisonings has decreased by around 16 per cent in Finland in ten years.

## Other common causes of accidents: fires, drowning and asphyxiations

Other common causes of accidental death were asphyxiations (86 deaths), drownings (87) and fatal fires (77). In addition, a national characteristics of accidental deaths is dying as result of the heat in sauna (53 deaths) and deaths caused by hypothermia (66).

Annual cause of death statistics are compiled according to the underlying cause of death. It is determined according to the selection and application rules of the International Classification of Diseases (ICD-10)

compiled by the World Health Organisation (WHO). Based on the rules, the underlying cause of death is determined from the causes of death given by the physician in the death certificate. In the statistics, accidental and violent deaths are classified based on the external cause not the injury.

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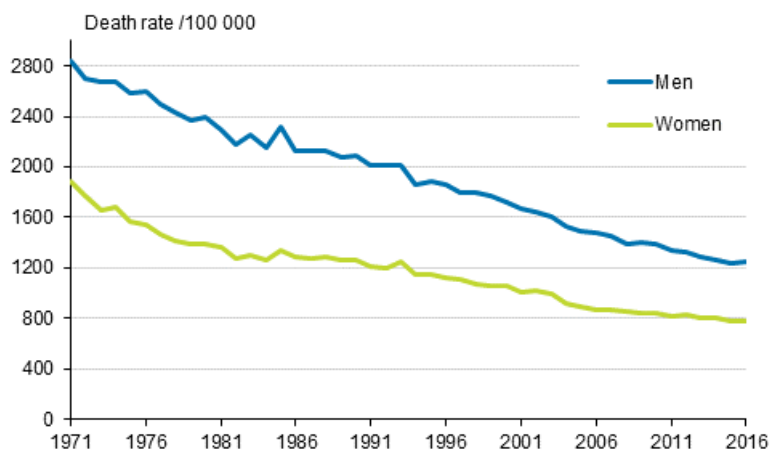
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# 1. Causes of death in 2016

In 2016, altogether 54,000 persons died, of which the shares of men and women were equal. The number of deaths grew by close on 1,700 persons from the year before.

Age-standardised mortality grew in 2016 by 0.7 per cent year-on-year, remaining, however, below the level of 2014. In 2016, men's age-standardised mortality grew by 1.4 per cent and women's by 0.1 per cent from 2015. Men's and women's age-standardised mortality has decreased relatively evenly since the 1970s (Figure 1). A slight increase in total mortality for men occurred last in 2009 and in 1998. For women, mortality has grown in the 2000s, for example, in 2002, 2012 and 2014. In addition to the population, the age-standardised mortality rate takes into account the changes in the population's age structure. The standardisation is necessary so that changes in mortality not due to the ageing of the population structure can be highlighted.

**Figure 1. Age-standardised mortality in 1971 to 2016**



In 2016, two out of three dead persons had turned 75 and more than one third had turned 85. Nearly 400 of the deceased were aged 100 or over. The average age at death (median) was 85 years for women and 77 years for men, while ten years ago the average ages were 83 for women and 74 for men.

Due to the age structure of persons who died, the typical causes of death of older age groups dominate the causes of death distribution of the entire population (Table 1). In 2016, thirty-six per cent of deaths of Finns were caused by diseases of the circulatory system and 24 per cent by neoplasms. The most common disease of the circulatory system was ischaemic heart disease, which caused around one-fifth of all deaths. The most common types of cancer leading to death for men were lung cancer and prostate cancer, and correspondingly for women breast cancer and lung cancer.

Altogether 9,200 persons died from dementia, including Alzheimer's disease, which represented 17 per cent of all deaths. The number of deaths caused by dementia has grown rapidly in the past decade partly due to the ageing of the population. One in five deaths among women and one in ten deaths among men were caused by dementia. More than double the number of women die from dementia than the number of men, which is mainly because women live longer than men. There are no clear differences in age-standardised dementia mortality among sexes (Figure 6).

## Slightly more deaths of alcohol-related causes and suicides than in the year before

Good 1,700 persons died of alcohol-related diseases and alcohol poisonings in 2016, which was good 60 more than in the previous year. The share of alcohol-related causes in all causes of death was three per cent. In the past ten years, mortality from alcohol-related causes has decreased by one fifth. At the same



time, mortality from alcohol among both men and women aged 65 or over has grown while, correspondingly, in younger age groups mortality from alcohol has decreased.

In 2016, suicides were committed by close on 800 persons, which was around 60 more than in the year before. The number of suicides was at its highest in 1990, when there were over 1,500 suicides in Finland. Since then, suicide mortality has decreased clearly (Figure 12). In 2016, suicide mortality was nearly 30 per cent lower than ten years ago. The median average age of men who committed suicide was 49 years and of women 50 years.

In 2016, over 2,200 persons died in accidents, being four per cent of deaths, when alcohol poisonings are included in alcohol-related deaths in the time series classification. The number of fatalities from accidents was 82 more than in the year before. The number of fatalities from accidents (excl. accidental alcohol poisonings) has, however, decreased by over ten per cent since 2006, when 2,500 persons died in accidents.

**Table 1. Causes of death 2016**

54-group time series classification	Total	Males	Females	Total	Males	Females	Age-standardised mortality rate	Age-standardised mortality rate
	Number	Number	Number	%	%	%	Change 2015–2016, %	Change 2006–2016, %
<b>01-54 Deaths total</b>	<b>53 964</b>	<b>26 947</b>	<b>27 017</b>	<b>100</b>	<b>100</b>	<b>100</b>	+0,7	-11,9
27-30 Diseases of the circulatory system	19 665	9 758	9 907	36	36	37	-1,0	-24,7
04-22 Neoplasms	12 854	6 824	6 030	24	25	22	+0,8	-6,0
25 Dementia, Alzheimer's disease	9 175	2 960	6 215	17	11	23	+3,5	+45,1
42-49 Accidents	2 243	1 403	840	4	5	3	+2,0	-24,4
41 Alcohol related diseases and accidental poisoning by alcohol	1 730	1 333	397	3	5	1	+3,8	-19,6
31-35 Disease of the respiratory system	2 133	1 274	859	4	5	3	+7,6	-24,2
50 Suicides	787	615	172	1	2	1	+6,7	-29,1
Other causes of death	5 377	2 780	2 597	10	10	10	-	-

## Main cause of death for working-age people was neoplasms

In 2016, altogether 8,200 persons of working-age died, which was 15 per cent of all deaths. The same number of working-age people died as in the previous year. The age-standardised mortality of working-age people has diminished in ten years by nearly one-quarter.

In 2016, every fifth man that died was of working age and every tenth woman. The mortality of working-age men is still more than double compared to women, even though the mortality of men has diminished faster than that of women, which has decreased the difference in mortality between sexes.

Working-age people died most from neoplasms and from diseases of the circulatory system (Table 2). More than one-half of deceased working-age people died of these two causes. Forty-five per cent of working age women died from neoplasms. The share of diseases of the circulatory system of deaths was 15 per cent for women in 2016, while twenty years ago the share was still close on one quarter. For working-age men, the importance of diseases of the circulatory system in causes of death is still slightly higher than that of neoplasms.

The most common cancer resulting in death for women was breast cancer, which caused the death of around 280 working-age women in 2016 (Appendix table 2c). For working-age men, the most common cancer resulting in death was lung cancer (Appendix table 2b).

In 2016, in total 1,100 working-age persons died from alcohol-related causes. The figure was nearly the same as in the year before. The mortality from alcohol for working-age men and women has declined clearly from the record level of 2007, when there were 1,800 deaths. Working-age men die of alcohol-related

causes clearly more often than women. Of men who died at working-age, nearly one in seven died from alcohol-related causes, while the share for women was one in ten.

**Table 2. Main causes of death among working-age population (aged 15 to 64) in 2016**

54-group time series classification	Total	Males	Females	Total	Males	Females
	Number	Number	Number	%	%	%
<b>01-54 Deaths total</b>	<b>8 182</b>	<b>5 613</b>	<b>2 569</b>	<b>100</b>	<b>100</b>	<b>100</b>
04-22 Neoplasms	2 498	1 337	1 161	31	24	45
27-30 Diseases of the circulatory system	1 830	1 442	388	22	26	15
31-35 Disease of the respiratory system	239	157	82	3	3	3
41 Alcohol related diseases and accidental poisoning by alcohol	1 100	857	243	13	15	9
42-49 Accidents	730	582	148	9	10	6
50 Suicides	600	471	129	7	8	5
Other causes of death	1 185	767	418	14	14	16

## Persons aged over 65 died most from diseases of the circulatory system

Ninety per cent of women and 78 per cent of men who died in 2016 had turned 65. The causes of death structure for older age groups differs from that of the working-age population, for example, the relative share of suicides, accidents and alcohol-related causes of death is smaller than among working-age people.

Persons aged over 65 died most from diseases of the circulatory system that caused almost 40 per cent of deaths. The share of diseases of the circulatory system in causes of death grows with age: For those aged 65 to 69 they caused the death of under one-third and for those aged over 95 nearly one-half (Figure 2). Correspondingly, the share of neoplasms in causes of death diminishes after the age of 70. The share of neoplasms for persons aged 65 to 69 was 40 per cent and for those aged over 95 it was only six per cent.

The importance of dementia, including Alzheimer's disease as a cause of death has grown strongly. In 2016, dementia was the third most common cause of death category for elderly people after diseases of the circulatory system and neoplasms. One in five deceased persons aged 65 or over died from dementia and one-third of those aged 95 or over.

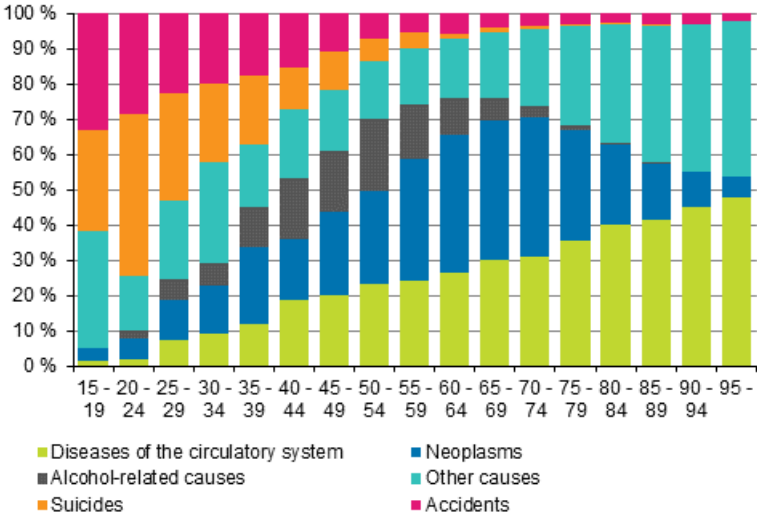
In 2016, more than one in five persons who committed suicide were aged 65 or over. The share of suicides in causes of death for elderly people is, however, very low, under one per cent. In an international comparison, the suicide mortality of Finns aged over 65 did not differ from the average for EU countries in 2014.

Additional information on the causes of death of persons of different ages can be found in Appendix tables 2a to 2c and database tables.

**Table 3. Main causes of death among persons aged 65 or over in 2016**

54-group time series classification	Total	Males	Females	Total	Males	Females
	Number	Number	Number	%	%	%
<b>01-54 Deaths total</b>	<b>45 597</b>	<b>21 232</b>	<b>24 365</b>	<b>100</b>	<b>100</b>	<b>100</b>
27-30 Diseases of the circulatory system	17 832	8 314	9 518	39	39	39
04-22 Neoplasms	10 332	5 476	4 856	23	26	20
25 Dementia, Alzheimer's disease	9 131	2 939	6 192	20	14	25
31-35 Disease of the respiratory system	1 890	1 115	775	4	5	3
36 Diseases of the digestive system (excl. alcohol-related diseases)	1 049	440	609	2	2	2
41 Alcohol related diseases and accidental poisoning by alcohol	630	476	154	1	2	1
42-49 Accidents	1 496	810	686	3	4	3
Suicides	184	142	42	0	1	0
Other causes of death	3 053	1 520	1 533	7	7	6

**Figure 2. Proportions of causes of death by age groups in 2016**



## 2. Ischaemic heart disease mortality decreased further

Of the main cause of death categories, most Finns died of diseases of the circulatory system in 2016. The group's importance as a cause of death has decreased, however, over the past twenty years from 45 to 36 per cent. Simultaneously, men's and women's age-standardised mortality from diseases of the circulatory system has decreased by over 40 per cent. In 2016, mortality from diseases of the circulatory system decreased for women and remained on the same level as the year before for men (Appendix figure 1).

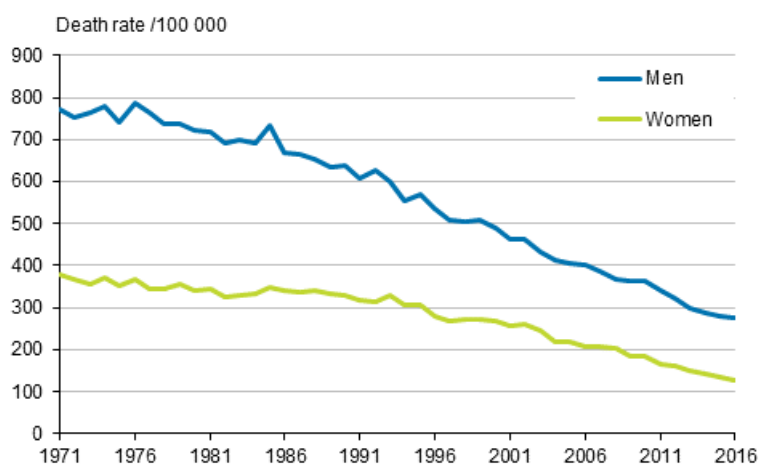
Among diseases of the circulatory system, ischaemic heart disease is still one of the most common causes of death for Finns, even though mortality from ischaemic heart disease has decreased clearly in Finland. Ischaemic heart disease still caused every fifth death and over 10,000 persons died of it in 2016.

### Persons dying of ischaemic disease older than before

Persons dying of this disease are ever older. In 1971, nearly four out of ten persons that died of ischaemic heart disease were of working-age, while in 2016 only one in ten was of working-age. The median average age for those dying of ischaemic heart disease in 1971 was 65 years for men and 73 years for women, while the corresponding figures in 2016 were 79 and 87 years.

Figure 3 shows age-standardised ischaemic heart disease mortality. In age standardisation, the effect of the age structure of the population and its changes are eliminated. Then it is seen at which level mortality from ischaemic heart disease would be if the age structure of the population remained unchanged during the whole reference period. The new standard population of Eurostat is used as the standard population in age-standardisation. When the ageing of the population is eliminated from the figures by age standardisation, it can be seen that ischaemic heart disease mortality has fallen evenly over the last 40 years. In 2016, ischaemic heart disease mortality decreased further for both men and women.

**Figure 3. Age-standardised mortality from ischaemic heart disease in 1971 to 2016**



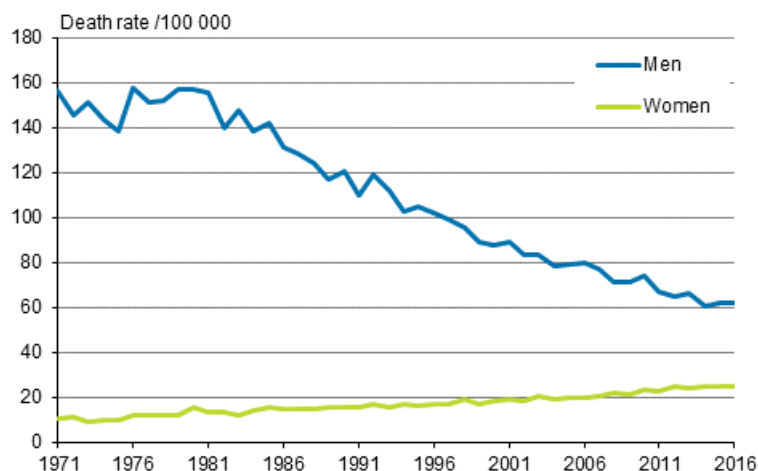
### Women's lung cancer mortality has grown by one-fifth in ten years.

Of the main cause of death categories, second most Finns died of neoplasms. In 2016, they caused nearly one in four deaths. Persons who died of neoplasms were on average almost 10 years younger than those who died of diseases of the circulatory system. Over the past ten years, age-standardised neoplasm mortality has decreased by over ten per cent for men and less for women, that is, by two per cent (Appendix figure 2). In 2016, neoplasm mortality decreased a little further for men and for women it grew by two per cent from the year before. The most common type of cancer resulting in death was lung cancer for men and breast cancer for women.

In 2016, around 1,500 men and 800 women died from carcinoma of the larynx, carcinoma of the tracheitis and lung cancer. The difference between men and women in lung cancer mortality has narrowed since the

1980s as men’s lung cancer mortality has decreased while it has grown among women. Over the past ten years, women’s age-standardised lung cancer mortality has grown by more than 20 per cent and men’s has decreased by as much. In 2016, lung cancer mortality remained at the same level as in the year before for both men and women (Figure 4).

**Figure 4. Age-standardised mortality from carcinoma of larynx, trachea and lung in 1971 to 2016**

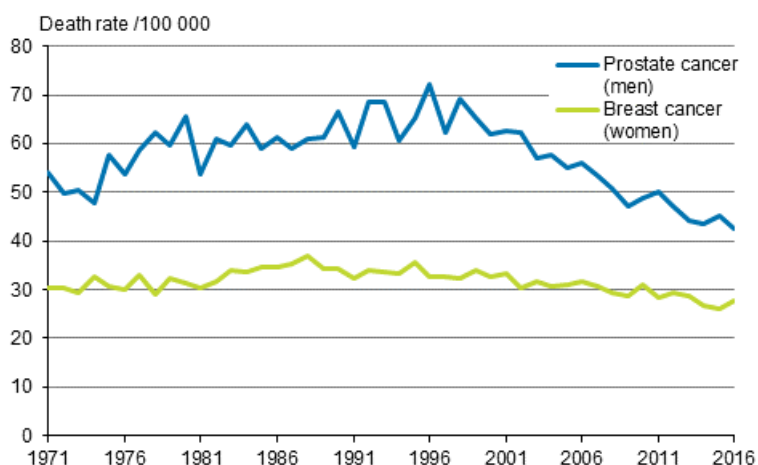


The most common type of cancer causing death among women is breast cancer. In 2016, altogether 874 women died from breast cancer, which was around 60 more than in the year before. Breast cancer mortality was 31 deaths per 100,000 women. The average age of persons that died of breast cancer was 71 and one third were aged under 65. In 2016, the number of deaths from breast cancer was nearly the same as ten years earlier but age-standardised breast cancer mortality has decreased by over ten per cent (Figure 5).

After lung cancer, prostate cancer is the second most common type of cancer resulting in death among men. In 2016, altogether 888 men died from prostate cancer, which was nearly as many as women who died from breast cancer. Men’s prostate cancer mortality is almost on level with women's breast cancer mortality, that is, 33 deaths per 100,000 men.

Above all, prostate cancer is a common cause of death for aged men: more than nine out of ten of the deceased were over 65 and the average age of the deceased was 81. Men's age-standardised prostate cancer mortality has decreased clearly in the 2000s.

**Figure 5. Age-standardised prostate cancer mortality for men and breast cancer mortality for women 1971 to 2016**



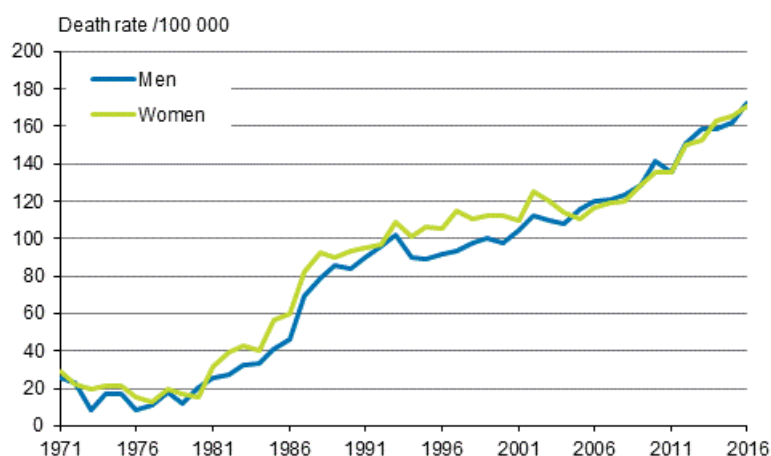
### 3. Deaths from dementia and Alzheimer's disease are increasing

In 2016, nearly 9,200 Finns died of dementia and Alzheimer's disease, which is almost 600 persons more than in 2015. The number of deaths from dementia has more than doubled over the past ten years. The growth is also visible in the age-standardised figures (Figure 6), where the effects of the population structure are taken into consideration. The growth is in part the result of more specific diagnostics and changes in the definitions of causes of death (WHO guidelines). From 2005, causes of death statistics have adopted an international guideline that limits the use of pneumonia as a primary cause of death in connection with several chronic diseases. If a person, in addition to pneumonia, is suffering from, for example, dementia, dementia is selected as the primary cause of death.

Dementia mortality has developed in a similar fashion for both men and women. A majority, or two-thirds, of those who die from this disease group are, however, women. The higher share of deaths from dementia among women than men is caused by women living longer than men. The average age at death of persons that died from dementia was 86 years for men and 89 years for women.

Dementia mortality of Finnish men and women (incl. Alzheimer's disease) was the highest in EU countries relative to the population in 2014. By contrast, pneumonia mortality was the lowest in EU countries in Finland. Pneumonia is a common immediate cause of death but a rarer primary cause of death in Finland.

**Figure 6. Age-standardised dementia mortality (incl. Alzheimer's disease) 1971 to 2016**



## 4. Slight growth in alcohol mortality from 2015

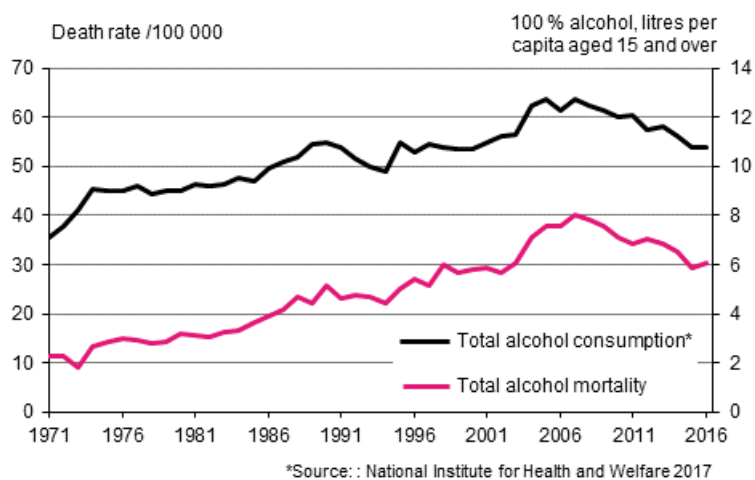
The decrease in mortality from alcohol that started in 2008 did not continue in 2016. In 2016, mortality from alcohol grew somewhat from the previous year but was still lower than in 2014. In 2016, more than 1,700 persons died from alcohol-related diseases and alcohol poisonings of whom around 1,300 were men and 400 women. The share of alcohol-related causes in all deaths was three per cent.

Changes in alcohol-related mortality has followed fairly regularly the graph for total consumption of alcoholic beverages even though alcohol-related deaths usually call for long-term detrimental use of alcohol that lasts for several years. The changes in the number of deaths from alcohol-related causes between 2009 and 2016 were mainly caused by changes in men's deaths from alcohol-related causes (Figure 7).

Several different alcohol-related diseases used as primary causes of death and accidental alcohol poisonings have been collected into alcohol-related causes of death. Diseases related to long-term alcohol use, such as liver and heart diseases, cause a majority of deaths from alcohol-related causes. The share of alcohol poisonings in deaths from alcohol-related causes has decreased from 28 to 15 per cent over a ten-year period. In 2016, altogether 256 persons died from alcohol poisoning of whom three out of four were men.

Fewer people die of alcohol-related causes than from neoplasms or diseases of the circulatory system. However, more working-age persons still die of alcohol-related causes than of individual neoplasm types or ischaemic heart diseases. In addition, alcohol is a contributing factor to death in many fatal accidents. The share of intoxication in accidents will be discussed in the following section.

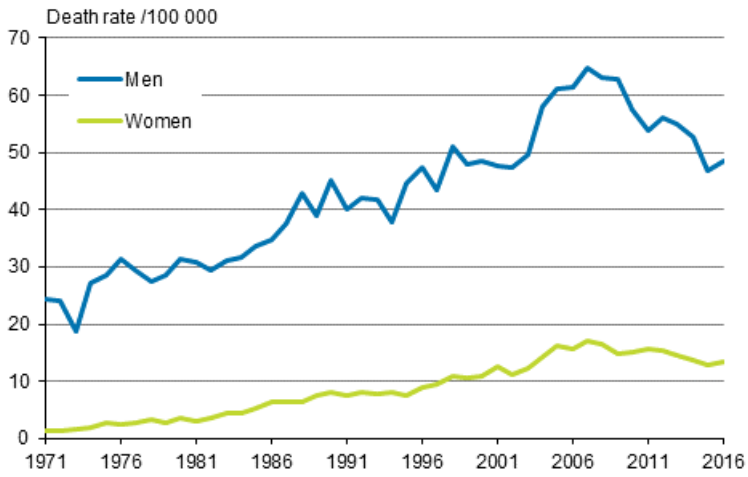
**Figure 7. Age-standardised mortality from alcohol-related diseases and accidental poisonings by alcohol and total consumption of alcohol in 1971 to 2016**



Men die from alcohol-related causes considerably more often than women (Figure 8). Male mortality has also followed more closely changes in total consumption of alcohol. Women are lagging behind in alcohol statistics but women's mortality from alcohol-related causes has also risen over several decades following men's mortality from alcohol-related causes. In 2016, men's alcohol mortality was one-fifth lower than in 2006.

Persons who died of alcohol-related causes are older than before. During the past ten years, mortality from alcohol among both men and women aged 65 or over has grown while, correspondingly, in younger age groups mortality from alcohol has decreased. Two-thirds of persons who died of alcohol-related causes are still of working age but alcohol mortality of persons aged over 65 has also grown from 18 to 36 per cent over the past ten years. In 2016, the average age of persons dying of alcohol-related causes was 60 years for men and 62 years for women.

**Figure 8. Age-standardised mortality from alcohol-related diseases and accidental poisonings by alcohol in 1971 to 2016**



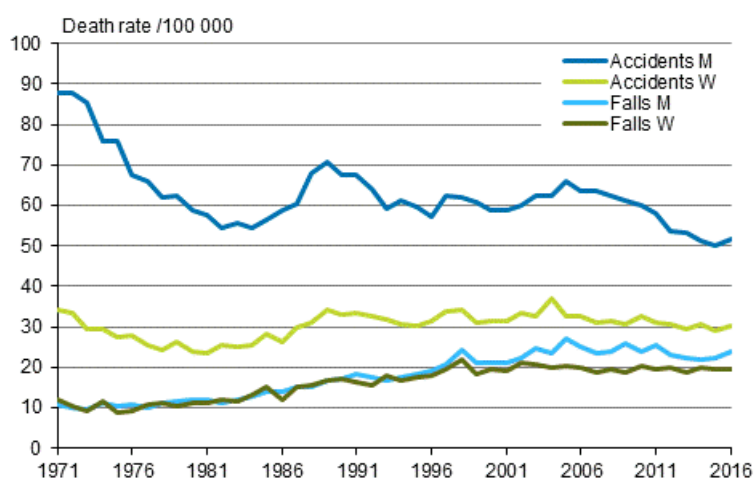


## 5. 1,200 persons died as a result of stumbling or falling

In addition to stumbling and falling, other common causes of fatal accidents are poisonings, traffic, drownings, asphyxiations and fires. Here, all other poisonings apart from alcohol poisonings that belong to alcohol-related causes in the national time series classification are considered accidents.

In 2016, accidents excluding alcohol poisoning caused four per cent of all deaths. Accidents (excl. alcohol poisonings) were the cause of the death of over 2,200 persons, 1,400 men and 800 women. The number of deaths from accidents has almost continuously fallen since 2004. Fatal traffic accidents in particular have decreased. In 2016, the number of accidents resulting in death grew mainly as the number of fatal stumbles and falls increased. Women's accident mortality is clearly lower than men's but the accident mortality of men has developed favourably in recent years and the difference between men and women has narrowed.

**Figure 9. Accident mortality and separately deaths from accidental stumbles and falls in 1971 to 2016**



The commonest accident leading to death was caused by stumbling or falling. In 2016, stumbling and falling caused the death of around 1,200 persons, which was around one-half of all fatal accidents. Nine out of ten fatal stumbles happened to persons aged over 65 and the average age at death was 79 years for men and 87 years for women. In absolute numbers, the same number of deaths occurred among women and men but relative to the number of living people, elderly men had more fatal stumbles than women in relative terms.

The second most common fatal accidents were transport accidents. There were 252 deaths in transport accidents (excl. drowning accidents in water traffic) in 2016. The number of deaths has decreased by over one third in the past ten years. Suicides committed in traffic are not included in deaths in transport accidents in the statistics.

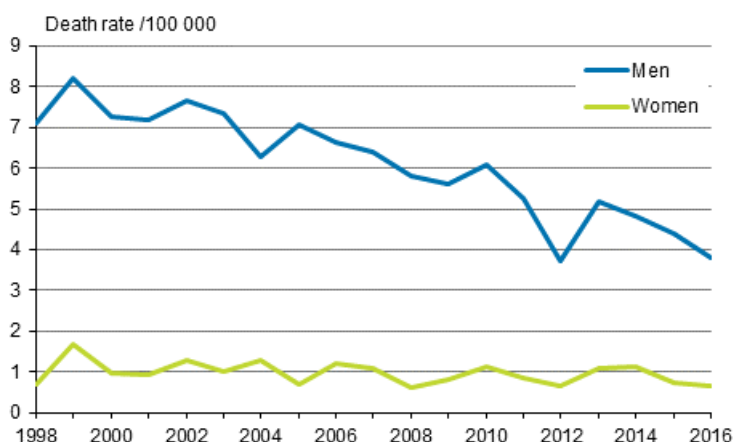
The total number of fatal poisonings (excl. alcohol poisonings) was 245 cases in 2016 of which 176 were men and 69 women. Since 2010, the number of fatal poisonings has decreased by 22 per cent but compared to 2015, the number of cases had remained almost unchanged. Men die of poisonings at a younger age than women. The average age of those dying of fatal poisonings was 40 years for men and 51 years for women.

Drowning accidents include drowning from falling into water and drowning while swimming or boating. In 2016, altogether 121 persons drowned, 34 of whom in water traffic. Most drowning victims, over 80 per cent, were men. Deaths by drowning have decreased clearly since the beginning of the 2000s when there were over 200 drowning victims per year (Figure 10).

In 2016, altogether 77 persons died in accidental fires while in 2014 the number of deaths was 61. Two-thirds of the victims were men. Deaths in accidental fires do not include deaths in deliberately lit

fires. Sixteen persons committed suicide with fire or smoke. There were 53 deaths caused by the heat of sauna and 66 deaths caused by hypothermia.

**Figure 10. Mortality from drowning accidents in 1998 to 2016**



## More than one-half of the persons that died in accidental fires were intoxicated.

In 2016, alcohol was a contributing factor in one in six fatal accidents, on average. Seventeen per cent of those who died in fatal accidents were intoxicated, i.e. 330 persons (Appendix table 3). Ten years ago, the corresponding share was 25 per cent of fatal accidents. In the statistics on causes of death, alcohol intoxication is determined from the death certificate where the doctor signing the certificate judged that alcohol had contributed to the death. The figures exclude alcohol and drug poisonings where alcohol or drugs have not directly caused the death.

In 2016, intoxication was most common in accidental fire deaths, where around one-half of victims were under the influence of alcohol. Forty per cent of those who died in saunas or drowned were also intoxicated. In traffic deaths, one in five were intoxicated at the time of death. By contrast, in stumbling accidents, of which a majority occurred among persons aged over 70, only one in ten were under the influence of alcohol.

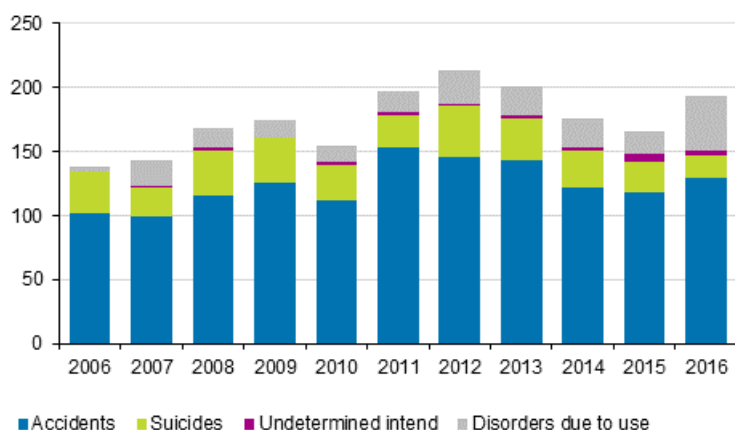
## Around 200 died from drugs

In 2015, the number of deaths caused by drugs in Finland was 194, which was 28 more than in the previous year (Figure 11). Drug-related deaths have been calculated using the classification (Selection B<sup>1)</sup>) compiled by the European Monitoring Centre for Drugs and Drug Addiction, [EMCDDA](#). According to the classification, cases where the primary cause of death is drug psychoses, accidental poisoning, self-inflicted poisoning, and poisoning with undetermined intent are calculated as drug-related deaths, as well as organic brain syndromes or behavioural disturbances caused by drugs.

In 2016, there were 3.5 drug-related deaths in Finland per 100,000 inhabitants. The average age at death of persons that died from drugs was 37 years for men and 44 years for women. Most drug-related deaths in absolute numbers occurred among persons aged 25 to 29. Considerably more men than women die of drugs. In 2016, women's share of all deaths from drugs was one quarter. Only 19 per cent of the persons that died in accidents from drugs were women but one-third of suicides committed with drugs were committed by women.

1) F11-F12, F14-F16, F19 and X41, X42, X61, X62, Y11 and Y12 together with T codes (T40.0-9,T43.6.)

**Figure 11. Drug-related deaths 2006 to 2016 (EMCDDA definition)**



Accidental drug poisonings are cases where the death occurs shortly after the consumption of the substance. In 2016, there were 129 accidental overdoses. The number is higher than in previous years. Usually, drug users’ poisoning deaths are accidental. Self-inflicted poisonings with drugs are suicides. Eighteen suicides were committed with drugs in 2016. In poisonings with undetermined intent, the intent remains unclear. There were only a few such cases. Deaths from organic brain syndromes or behavioural disturbances caused by drugs are usually a result of drug addiction and long-term drug use.

The drugs referred to in the EMCDDA's classification are mainly opioids. In 2016, nearly three out of four drug-related deaths were associated with overdoses of opioids. In addition to opioids, drugs also refer to cannabis and cannabinoids, other hallucinogens, and stimulants suitable for abuse, such as amphetamine and its derivatives.

Poisoning deaths are classified based on the substance judged as most influential. Usually, death is the result of multiple substance poisoning where the person has also digested other substances like alcohol and/or psychopharmacons. In drug poisonings resulting in death, combined use of drugs and pharmaceuticals was most common.

Causes of death data are classified in accordance with the WHO’s International Classification of Diseases (ICD-10), where several pharmaceuticals and drugs are classified under the same code. Therefore, the statistics on causes of death offer limited possibilities for substance-specific examinations. More detailed information is available from the Forensic Toxicology Unit of the National Institute for Health and Welfare that performs the forensic toxicology tests related to determining the cause of death.

**Table 4. Drug-related mortality 2000 to 2016**

	Total	Males	Females	Total	Males	Females
	Number	Number	Number	Per 100 000 mean population	Per 100 000 mean population	Per 100 000 mean population
2000	134	109	25	2,6	4,3	0,9
2001	110	78	32	2,1	3,1	1,2
2002	97	69	28	1,9	2,7	1,1
2003	101	76	25	1,9	3,0	0,9
2004	135	96	39	2,6	3,8	1,5
2005	126	95	31	2,4	3,7	1,2
2006	138	107	31	2,6	4,2	1,2
2007	143	116	27	2,7	4,5	1,0
2008	169	120	49	3,2	4,6	1,8
2009	175	130	45	3,3	5,0	1,7
2010	156	117	39	2,9	4,4	1,4
2011	197	156	41	3,7	5,9	1,5
2012	213	161	52	3,9	6,1	1,9
2013	201	148	53	3,7	5,5	1,9
2014	176	141	35	3,2	5,2	1,3
2015	166	127	39	3,0	4,7	1,4
2016	194	152	42	3,5	5,6	1,5

## 6. Slight increase in the number of suicides from the year before

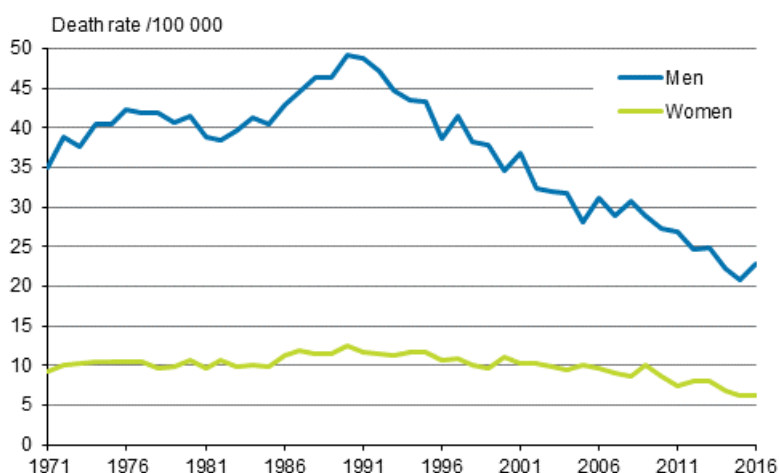
The number of suicides has decreased relatively evenly since 1990, when more than 1,500 suicides were committed in Finland. Over the past ten years, the number of suicides has decreased by one third among women and by nearly one quarter among men. In 2016, altogether 787 persons committed suicides, which was over 50 cases more than in the previous year but almost the same number as in 2014.

Men committed clearly more suicides than women. More than three-quarters of suicides were committed by men. In 2016, suicide mortality or the number of suicides a year per 100,000 population was 14, being 23 for men and six for women (Figure 12). Men's suicides are, however, more evenly divided between different age groups than women's. In suicides committed by women, those committed by young people aged under 25 are more emphasised than among men even though the average age at the time of committing suicide is 49 for both women and men.

Suicides are a central cause of death for young people. Among the causes of death for young people aged 15 to 24, the share of suicides is one third. The share of suicides in the causes of death for young people is high because other mortality among young people is low. The share of persons aged under 25 among all those having committed suicide was relatively low, 13 per cent.

Young people's suicide mortality in Finland is high by European comparison. According to Eurostat's statistics for 2014, the suicide mortality among young people aged 20 to 24 was higher than in Finland only in Lithuania, Ireland and Latvia. By contrast, for persons aged 65 and over, suicide mortality in Finland did not differ from the EU average.

**Figure 12. Suicides mortality 1971 to 2016**



## 7. Number of deaths of children has halved in 20 years

In 2016, altogether 103 children died under the age of one, which was seven more than in the year before. Infant mortality was 2.0 per 1,000 live-born children. The main causes of death among children under the age of one were perinatal reasons and inborn malformations (Table 5). Infectious diseases, accidents and violence are rare causes of death for infants.

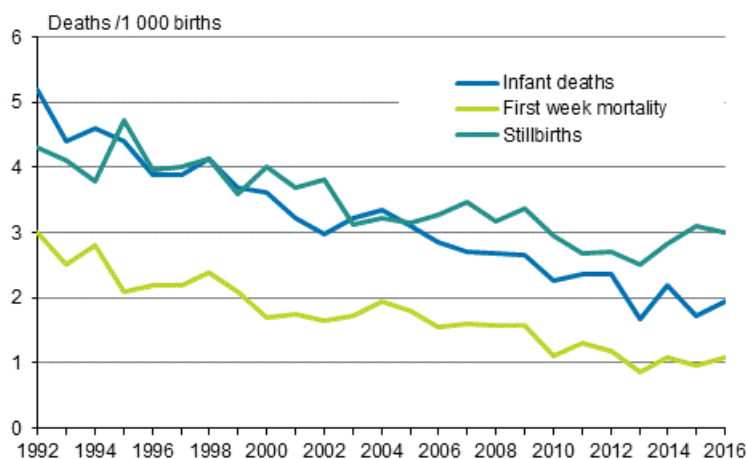
In 2016, there were 159 stillbirths, which was slightly fewer than in the year before (2015: 172 children). Perinatal mortality (deaths during the first week and stillborn) was 4.1 per thousand births. More than one-half of children dying during their first year of life died during their first week of life and nearly 70 per cent during the first four weeks of life (in the neonatal period). The main causes of death after the neonatal period are inborn malformations and cot deaths. In 2016, eight children suffered cot death, whereas in 2015 the corresponding number was six. Cot deaths mostly occur to children over the age of one month.

The number of children who died aged 1 to 14 has halved over the past twenty years. Fatal accidents (traffic accidents, drownings), in particular, occur to children less often than before. In 2016, the number of deaths among children was 82, which was 15 more than in the previous year. This corresponds with approximately 10 deaths per 100,000 children. The most common causes of death among children were cancers, inborn malformations and chromosomal alterations.

Over the past ten years, an average of three women per year have died from reasons related to pregnancy or childbirth. The year 2011 was the first year in the history of the statistics on causes of death when there were no maternal deaths. In 2016, there were three maternal deaths, which meant that maternal mortality was 5.7 deaths per 100,000 live-born children.

More information about mortality during the infant and perinatal periods can be found in Appendix table 4.

**Figure 13. Mortality during infant and perinatal period in 1992–2016**



**Table 5. Causes of death among children under the age of one 2000, 2005, 2010, 2015 and 2016**

	2000	2005	2010	2015	2016
Total deaths	205	179	138	96	103
Certain conditions originating in the perinatal period (P00-P96)	84	77	58	49	46
Congenital malformations and chromosomal abnormalities (Q00-Q99)	78	61	40	30	35
Sudden infant death syndrome (R95)	18	19	17	6	8
Diseases of circulatory system and respiratory system (J00-J99, I00-J99)	4	5	5	1	1
Endocrine, nutritional and metabolic diseases (E00-E90)	5	6	3	2	6
Other diseases and unknown	13	9	11	8	7
Accidents and assault (V01-Y89)	3	2	4	0	0

## Appendix tables

**Appendix table 1. Accidental and violent deaths by external cause 2016**

Accidental or violent deaths (122-group short list)	Total	Males	Females
<b>Accidental or violent deaths, total</b>	<b>3 435</b>	<b>2 321</b>	<b>1 114</b>
013-018 Accidental falls (W00-W19)	1 196	648	548
073-097 Suicides (X60-X84, Y870)	787	615	172
062-071, part 110 Accidental poisonings (X40-X49, Y10-Y15)	501	370	131
001-012 Transport accidents (V01-V99)	286	230	56
098-109 Assault (X85-Y09, Y871)	63	44	19
Other accidents, total	602	414	188
– 032-037 Accidental drowning and submersion (W65-W74)	87	71	16
– 038-041 Other accidental threats to breathing (W75-W84)	86	54	32
– 047-052 Exposure to smoke and fire (X00-X09)	77	50	27
– Other 019-031,042-046,053-061,072, part 110,111-122	352	239	113

**Appendix table 2a. Deaths by underlying cause of death and by age in 2016, both sexes**

Underlying cause of death (54-group classification)	Ages total	0-14	15-64	65-
01-54 TOTAL DEATHS (A00-Y89)	53 964	185	8 182	45 597
01-41 DISEASES AND ACCIDENTAL POISONING BY ALCOHOL (A00-R99, X45)	50 695	165	6 720	43 810
01-03 Certain infectious and parasitic diseases (A00-B99, J65)	255	1	57	197
01 Tuberculosis (A15-A19, B90, J65)	26	0	2	24
02 Human immunodeficiency virus (HIV) disease (B20-B24)	8	0	8	0
03 Other infectious and parasitic diseases (A00-A09, A20-B19, B25-B89, B91-B99)	221	1	47	173
04-22 Neoplasms (C00-D48)	12 854	24	2 498	10 332
04-21 Malignant neoplasms (C00-C97)	12 494	23	2 476	9 995
04 Malignant neoplasms of lip, oral cavity and pharynx (C00-C14)	212	0	68	144
05 Malignant neoplasm of oesophagus (C15)	290	0	82	208
06 Malignant neoplasm of stomach (C16)	434	0	102	332
07 Malignant neoplasm of colon (C18, C19)	884	0	150	734
08 Malignant neoplasm of rectum, anus and anal canal (C20-C21)	425	0	97	328
09 Primary malignant neoplasm of liver and intrahepatic bile ducts (C22)	527	1	99	427
10 Malignant neoplasm of pancreas (C25)	1 191	0	227	964
11 Malignant neoplasm of larynx, trachea, bronchus and lung (C32-C34)	2 309	0	483	1 826
12 Malignant melanoma of skin (C43)	215	0	66	149
13 Malignant neoplasm of breast (C50)	881	0	283	598
14 Malignant neoplasm of cervix uteri (C53)	61	0	26	35
15 Malignant neoplasm of uterus (C54-C55)	202	0	31	171
16 Malignant neoplasm of ovary (C56)	367	0	83	284
17 Malignant neoplasm of prostate (C61)	888	0	50	838
18 Malignant neoplasm of kidney (C64)	399	0	62	337
19 Malignant neoplasm of bladder (C67)	280	0	33	247
20 Malignant neoplasm of lymphoid, haematopoietic and related tissue (C81-C96)	1 111	6	154	951
21 Other malignant neoplasms	1 818	16	380	1 422
22 Other neoplasms (D00-D48)	360	1	22	337
23-24 Endocrine, nutritional and metabolic diseases (E00-E90)	738	14	164	560
23 Diabetes mellitus (E10-E14)	542	2	112	428
24 Other endocrine, nutritional and metabolic diseases (E00-E09, E15-E90)	196	12	52	132
25 Dementia, Alzheimers disease (F01, F03, G30, R54)	9 175	0	44	9 131
26 Other diseases of the nervous system and sense organs excl. alcohol-related	1 699	11	254	1 434
27-30 Diseases of the circulatory system excl. alcohol-related (I00-I425, I427-I99)	19 665	3	1 830	17 832
27 Ischaemic heart diseases (I20-I25)	10 183	0	920	9 263
28 Other heart diseases excl. rheumatic and alcohol-related (I30-I425, I427-I52)	1 836	1	306	1 529
29 Cerebrovascular diseases (I60-I69)	4 378	1	315	4 062
30 Other diseases of the circulatory system (I00-I15, I26-I28, I70-I99)	3 268	1	289	2 978
31-35 Diseases of the respiratory system (J00-J64, J66-J99)	2 133	4	239	1 890
31 Influenza (J09-J11)	230	2	41	187
32 Pneumonia (J12-J18, J849)	174	1	36	137
33 Bronchitis and emphysema (J40-J44, J47)	1 218	0	128	1 090
34 Asthma (J45-J46)	90	0	7	83
35 Other diseases of the respiratory system (J00-J06, J20-J39, J60-J64, J66-J848, J85-J99)	421	1	27	393
36 Diseases of the digestive system excl. alcohol-related diseases	1 217	0	168	1 049
37 Diseases of the genitourinary system (N00-N99)	248	0	21	227
38 Congenital malformations (Q00-Q99)	197	53	100	44
39 Other diseases excl. alcohol-related	596	55	139	402
40 Ill-defined and unknown causes of mortality (R96-R99)	188	0	106	82



Underlying cause of death (54-group classification)	Ages total	0-14	15-64	65-
41 Alcohol-related diseases and accidental poisoning by alcohol	1 730	0	1 100	630
42-53 ACCIDENTS AND VIOLENCE excl. accidental poisoning by alcohol (V01-X44, X46-Y89)	3 179	20	1 441	1 718
42-49 Accidents excl. accidental poisoning by alcohol (V01-X44, X46-X59, Y10-Y15, Y85-Y86)	2 243	17	730	1 496
42 Land traffic accidents	212	9	130	73
43 Other land transport accidents	36	1	18	17
44 Water transport accidents (V90-V94)	38	0	22	16
45 Others and unspecified transport accidents (V95-V99)	0	0	0	0
46 Accidental falls (W00-W19)	1 196	0	150	1 046
47 Accidental drownings (W65-W74)	87	2	37	48
48 Accidental poisonings excl. accidental poisoning by alcohol (X40-X44, X46-X49, Y10-Y15)	245	0	216	29
49 Other accidents and sequelae of accidents	429	5	157	267
50 Suicides (X60-X84, Y87.0)	787	3	600	184
51 Assault (X85-Y09, Y87.1)	63	0	52	11
52 Event of undetermined intent (Y16-Y34, Y87.2)	74	0	53	21
53 Other external causes and sequelae of other external causes (Y35-Y84, Y88-Y89)	12	0	6	6
54 NO DEATH CERTIFICATE	90	0	21	69

**Appendix table 2b. Deaths by underlying cause of death and by age in 2016, males**

Underlying cause of death (54-group classification)	Ages total	0-14	15-64	65-
01-54 TOTAL DEATHS (A00-Y89)	26 947	102	5 613	21 232
01-41 DISEASES AND ACCIDENTAL POISONING BY ALCOHOL (A00-R99, X45)	24 776	89	4 461	20 226
01-03 Certain infectious and parasitic diseases (A00-B99, J65)	151	0	45	106
01 Tuberculosis (A15-A19, B90, J65)	17	0	2	15
02 Human immunodeficiency virus (HIV) disease (B20-B24)	5	0	5	0
03 Other infectious and parasitic diseases (A00-A09, A20-B19, B25-B89, B91-B99)	129	0	38	91
04-22 Neoplasms (C00-D48)	6 824	11	1 337	5 476
04-21 Malignant neoplasms (C00-C97)	6 672	10	1 326	5 336
04 Malignant neoplasms of lip, oral cavity and pharynx (C00-C14)	133	0	48	85
05 Malignant neoplasm of oesophagus (C15)	210	0	69	141
06 Malignant neoplasm of stomach (C16)	258	0	67	191
07 Malignant neoplasm of colon (C18, C19)	439	0	79	360
08 Malignant neoplasm of rectum, anus and anal canal (C20-C21)	241	0	54	187
09 Primary malignant neoplasm of liver and intrahepatic bile ducts (C22)	350	0	75	275
10 Malignant neoplasm of pancreas (C25)	582	0	147	435
11 Malignant neoplasm of larynx, trachea, bronchus and lung (C32-C34)	1 527	0	307	1 220
12 Malignant melanoma of skin (C43)	146	0	45	101
13 Malignant neoplasm of breast (C50)	7	0	4	3
14 Malignant neoplasm of cervix uteri (C53)	0	0	0	0
15 Malignant neoplasm of uterus (C54-C55)	0	0	0	0
16 Malignant neoplasm of ovary (C56)	0	0	0	0
17 Malignant neoplasm of prostate (C61)	888	0	50	838
18 Malignant neoplasm of kidney (C64)	223	0	42	181
19 Malignant neoplasm of bladder (C67)	205	0	28	177
20 Malignant neoplasm of lymphoid, haematopoietic and related tissue (C81-C96)	598	2	93	503
21 Other malignant neoplasms	865	8	218	639
22 Other neoplasms (D00-D48)	152	1	11	140
23-24 Endocrine, nutritional and metabolic diseases (E00-E90)	402	8	109	285
23 Diabetes mellitus (E10-E14)	303	1	79	223
24 Other endocrine, nutritional and metabolic diseases (E00-E09, E15-E90)	99	7	30	62
25 Dementia, Alzheimers disease (F01, F03, G30, R54)	2 960	0	21	2 939
26 Other diseases of the nervous system and sense organs excl. alcohol-related	887	4	147	736
27-30 Diseases of the circulatory system excl. alcohol-related (I00-I425, I427-I99)	9 758	2	1 442	8 314
27 Ischaemic heart diseases (I20-I25)	5 690	0	793	4 897
28 Other heart diseases excl. rheumatic and alcohol-related (I30-I425, I427-I52)	937	1	240	696
29 Cerebrovascular diseases (I60-I69)	1 811	0	200	1 611
30 Other diseases of the circulatory system (I00-I15, I26-I28, I70-I99)	1 320	1	209	1 110
31-35 Diseases of the respiratory system (J00-J64, J66-J99)	1 274	2	157	1 115
31 Influenza (J09-J11)	108	2	24	82
32 Pneumonia (J12-J18, J849)	88	0	26	62
33 Bronchitis and emphysema (J40-J44, J47)	806	0	87	719
34 Asthma (J45-J46)	26	0	1	25
35 Other diseases of the respiratory system (J00-J06, J20-J39, J60-J64, J66-J848, J85-J99)	246	0	19	227
36 Diseases of the digestive system excl. alcohol-related diseases	554	0	114	440
37 Diseases of the genitourinary system (N00-N99)	124	0	11	113
38 Congenital malformations (Q00-Q99)	112	31	58	23
39 Other diseases excl. alcohol-related	260	31	89	140
40 Ill-defined and unknown causes of mortality (R96-R99)	137	0	74	63

Underlying cause of death (54-group classification)	Ages total	0-14	15-64	65-
41 Alcohol-related diseases and accidental poisoning by alcohol	1 333	0	857	476
42-53 ACCIDENTS AND VIOLENCE excl. accidental poisoning by alcohol (V01-X44, X46-Y89)	2 127	13	1 139	975
42-49 Accidents excl. accidental poisoning by alcohol (V01-X44, X46-X59, Y10-Y15, Y85-Y86)	1 403	11	582	810
42 Land traffic accidents	166	6	115	45
43 Other land transport accidents	28	0	16	12
44 Water transport accidents (V90-V94)	36	0	21	15
45 Others and unspecified transport accidents (V95-V99)	0	0	0	0
46 Accidental falls (W00-W19)	648	0	122	526
47 Accidental drownings (W65-W74)	71	1	34	36
48 Accidental poisonings excl. accidental poisoning by alcohol (X40-X44, X46-X49, Y10-Y15)	176	0	159	17
49 Other accidents and sequelae of accidents	278	4	115	159
50 Suicides (X60-X84, Y87.0)	615	2	471	142
51 Assault (X85-Y09, Y87.1)	44	0	38	6
52 Event of undetermined intent (Y16-Y34, Y87.2)	60	0	46	14
53 Other external causes and sequelae of other external causes (Y35-Y84, Y88-Y89)	5	0	2	3
54 NO DEATH CERTIFICATE	44	0	13	31

**Appendix table 2c. Deaths by underlying cause of death and by age in 2016, females**

Underlying cause of death (54-group short list)	Ages total	0-14	15-64	65-
01-54 TOTAL DEATHS (A00-Y89)	27 017	83	2 569	24 365
01-41 DISEASES AND ACCIDENTAL POISONING BY ALCOHOL (A00-R99, X45)	25 919	76	2 259	23 584
01-03 Certain infectious and parasitic diseases (A00-B99, J65)	104	1	12	91
01 Tuberculosis (A15-A19, B90, J65)	9	0	0	9
02 Human immunodeficiency virus (HIV) disease (B20-B24)	3	0	3	0
03 Other infectious and parasitic diseases (A00-A09, A20-B19, B25-B89, B91-B99)	92	1	9	82
04-22 Neoplasms (C00-D48)	6 030	13	1 161	4 856
04-21 Malignant neoplasms (C00-C97)	5 822	13	1 150	4 659
04 Malignant neoplasms of lip, oral cavity and pharynx (C00-C14)	79	0	20	59
05 Malignant neoplasm of oesophagus (C15)	80	0	13	67
06 Malignant neoplasm of stomach (C16)	176	0	35	141
07 Malignant neoplasm of colon (C18, C19)	445	0	71	374
08 Malignant neoplasm of rectum, anus and anal canal (C20-C21)	184	0	43	141
09 Primary malignant neoplasm of liver and intrahepatic bile ducts (C22)	177	1	24	152
10 Malignant neoplasm of pancreas (C25)	609	0	80	529
11 Malignant neoplasm of larynx, trachea, bronchus and lung (C32-C34)	782	0	176	606
12 Malignant melanoma of skin (C43)	69	0	21	48
13 Malignant neoplasm of breast (C50)	874	0	279	595
14 Malignant neoplasm of cervix uteri (C53)	61	0	26	35
15 Malignant neoplasm of uterus (C54-C55)	202	0	31	171
16 Malignant neoplasm of ovary (C56)	367	0	83	284
17 Malignant neoplasm of prostate (C61)	0	0	0	0
18 Malignant neoplasm of kidney (C64)	176	0	20	156
19 Malignant neoplasm of bladder (C67)	75	0	5	70
20 Malignant neoplasm of lymphoid, haematopoietic and related tissue (C81-C96)	513	4	61	448
21 Other malignant neoplasms	953	8	162	783
22 Other neoplasms (D00-D48)	208	0	11	197
23-24 Endocrine, nutritional and metabolic diseases (E00-E90)	336	6	55	275
23 Diabetes mellitus (E10-E14)	239	1	33	205
24 Other endocrine, nutritional and metabolic diseases (E00-E09, E15-E90)	97	5	22	70
25 Dementia, Alzheimers disease (F01, F03, G30, R54)	6 215	0	23	6 192
26 Other diseases of the nervous system and sense organs excl. alcohol-related	812	7	107	698
27-30 Diseases of the circulatory system excl. alcohol-related (I00-I425, I427-I99)	9 907	1	388	9 518
27 Ischaemic heart diseases (I20-I25)	4 493	0	127	4 366
28 Other heart diseases excl. rheumatic and alcohol-related (I30-I425, I427-I52)	899	0	66	833
29 Cerebrovascular diseases (I60-I69)	2 567	1	115	2 451
30 Other diseases of the circulatory system (I00-I15, I26-I28, I70-I99)	1 948	0	80	1 868
31-35 Diseases of the respiratory system (J00-J64, J66-J99)	859	2	82	775
31 Influenza (J09-J11)	122	0	17	105
32 Pneumonia (J12-J18, J849)	86	1	10	75
33 Bronchitis and emphysema (J40-J44, J47)	412	0	41	371
34 Asthma (J45-J46)	64	0	6	58
35 Other diseases of the respiratory system (J00-J06, J20-J39, J60-J64, J66-J848, J85-J99)	175	1	8	166
36 Diseases of the digestive system excl. alcohol-related diseases	663	0	54	609
37 Diseases of the genitourinary system (N00-N99)	124	0	10	114
38 Congenital malformations (Q00-Q99)	85	22	42	21
39 Other diseases excl. alcohol-related	336	24	50	262
40 Ill-defined and unknown causes of mortality (R96-R99)	51	0	32	19

Underlying cause of death (54-group short list)	Ages total	0-14	15-64	65-
41 Alcohol-related diseases and accidental poisoning by alcohol	397	0	243	154
42-53 ACCIDENTS AND VIOLENCE excl. accidental poisoning by alcohol (V01-X44, X46-Y89)	1 052	7	302	743
42-49 Accidents excl. accidental poisoning by alcohol (V01-X44, X46-X59, Y10-Y15, Y85-Y86)	840	6	148	686
42 Land traffic accidents	46	3	15	28
43 Other land transport accidents	8	1	2	5
44 Water transport accidents (V90-V94)	2	0	1	1
45 Others and unspecified transport accidents (V95-V99)	0	0	0	0
46 Accidental falls (W00-W19)	548	0	28	520
47 Accidental drownings (W65-W74)	16	1	3	12
48 Accidental poisonings excl. accidental poisoning by alcohol (X40-X44, X46-X49, Y10-Y15)	69	0	57	12
49 Other accidents and sequelae of accidents	151	1	42	108
50 Suicides (X60-X84, Y87.0)	172	1	129	42
51 Assault (X85-Y09, Y87.1)	19	0	14	5
52 Event of undetermined intent (Y16-Y34, Y87.2)	14	0	7	7
53 Other external causes and sequelae of other external causes (Y35-Y84, Y88-Y89)	7	0	4	3
54 NO DEATH CERTIFICATE	46	0	8	38

**Appendix table 3. Deaths from accidents by external cause and deaths from alcohol intoxication 2016**

External cause	Deaths from accidents	Of which under alcohol intoxication	
		Persons	%
Accidental deaths (excl. poisonings)	<b>1 998</b>	<b>336</b>	<b>16,8</b>
Transport accidents	252	57	22,6
Falls	1 196	110	9,2
Drowning	121	47	38,8
Eating, inhalation of food (W79)	58	19	32,8
Heat of sauna (W92)	53	22	41,5
Fire (X00–X09)	77	40	51,9
Natural cold (X31)	66	22	33,3
Other accident	175	19	10,9

**Appendix table 4. Mortality during infant and perinatal period 1987–2016**

	Perinatal deaths (stillbirths and first week deaths)	Perinatal mortality/ 1000 births (incl. stillbirths) <sup>1)</sup>	Stillbirths	First week mortality	First week mortality/ 1,000 births	Neonatal deaths	Neonatal mortality <sup>2)</sup>	Infant deaths	Infant mortality <sup>3)</sup>
1987	505	8,4	311	194	3,2	252	4,2	370	6,2
1990	507	7,7	307	200	3,1	245	3,7	368	5,6
1995	429	6,8	299	130	2,1	172	2,8	251	4,0
2000	325	5,7	228	97	1,7	136	2,4	205	3,6
2001	306	5,4	208	98	1,7	122	2,2	181	3,2
2002	304	5,5	213	91	1,6	117	2,1	165	3,0
2003	276	4,9	178	98	1,7	120	2,1	182	3,2
2004	300	5,2	187	113	2,0	142	2,5	193	3,3
2005	286	4,9	182	104	1,8	125	2,2	179	3,1
2006	284	4,8	193	91	1,5	119	2,0	168	2,9
2007	298	5,1	204	94	1,6	109	1,9	159	2,7
2008	283	4,7	189	94	1,6	116	1,9	159	2,7
2009	300	4,9	205	95	1,6	122	2,0	160	2,6
2010	248	4,1	181	67	1,1	91	1,5	138	2,3
2011	239	4,0	161	78	1,3	97	1,6	142	2,4
2012	232	3,9	161	71	1,2	85	1,4	141	2,4
2013	197	3,4	147	50	0,9	61	1,0	98	1,7
2014	225	3,9	163	62	1,1	81	1,4	125	2,2
2015	225	4,0	172	53	1,0	69	1,2	96	1,7
2016	216	4,1	159	57	1,1	70	1,3	103	2,0

1) Perinatal mortality = Stillborn (the duration of the mother's pregnancy at least 22 weeks or birth weight at least 500 g) and deaths during the first week of life per thousand births (incl. stillborn).

2) Neonatal mortality = The number of deaths during the four first weeks of life per thousand live births.

3) Infant mortality = The number of deaths at under one year per thousand live births.

**Appendix table 5. Mean population 2016 by age and sex**

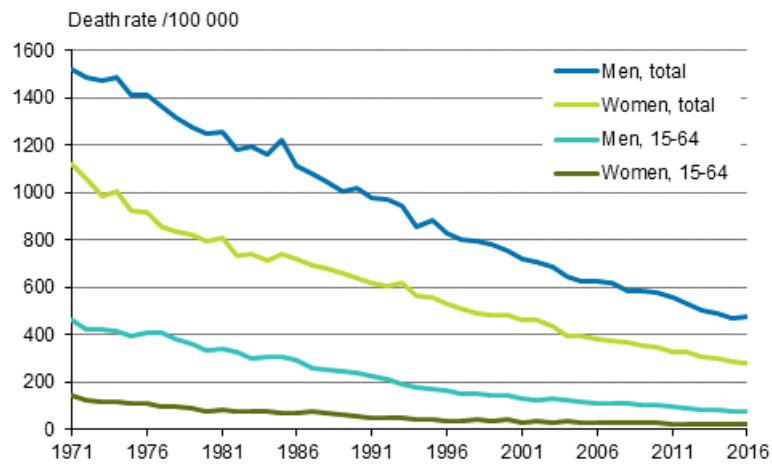
Age	Total	Males	Females
Total	5 495 302,5	2 706 908,5	2 788 394
0	54 357,5	27 756	26 601,5
1–4	236 600	121 054	115 546
5–9	308 307,5	157 657,5	150 650
10–14	295 835,5	151 091,5	144 744
15–19	299 917,5	153 622,5	146 295
20–24	337 128	172 564,5	164 563,5
25–29	345 183,5	177 056	168 127,5
30–34	356 747,5	183 959,5	172 788
35–39	346 210	178 042	168 168
40–44	321 312,5	164 838,5	156 474
45–49	345 093,5	174 617,5	170 476
50–54	373 618	187 751,5	185 866,5
55–59	366 767	181 834,5	184 932,5
60–64	371 685,5	181 400,5	190 285
65–69	378 241	181 862	196 379
70–74	268 040	124 567	143 473
75–79	204 468	88 498	115 970
80–84	144 728,5	56 794,5	87 934
85–89	94 582	30 841	63 741
90–94	38 061	9 549	28 512
95+	8 418,5	1 551	6 867,5

**Appendix table 6. Standard population used in calculating age-standardised figures (Eurostat 2012)**

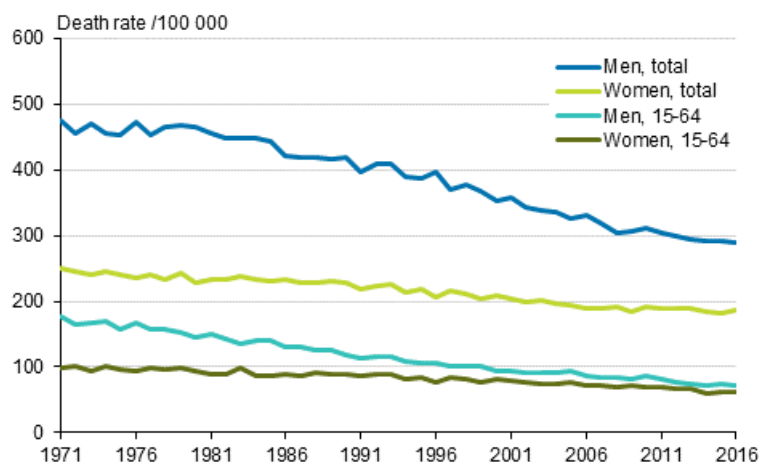
Age	Standard population
0	1 000
1–4	4 000
5–9	5 500
10–14	5 500
15–19	5 500
20–24	6 000
25–29	6 000
30–34	6 500
35–39	7 000
40–44	7 000
45–49	7 000
50–54	7 000
55–59	6 500
60–64	6 000
65–69	5 500
70–74	5 000
75–79	4 000
80–84	2 500
85–89	1 500
90–94	800
95+	200
Total	100 000

# Appendix figures

**Appendix figure 1. Age-standardised mortality from diseases of the circulatory system in 1971 to 2016**



**Appendix figure 2. Age-standardised mortality from neoplasms in 1971 to 2016**





# Quality Description: Causes of death 2016

## 1. Relevance of statistical information

In the statistics on causes of death, statistical data are produced annually on the causes of death of persons permanently resident in Finland. The statistics are compiled on the basis of death certificates. The data are supplemented with and verified against data on deaths from the Population Information System of the Population Register Centre. Statistics Finland has death certificates and data on causes of death from 1936 onwards.

Cause of death data are highly significant for general information systems describing the population's state of health. Cause of death data are used in various medical surveys, and by combining the data with other Statistics Finland's data files, it is possible to study, for instance, differences in mortality between different population groups.

Investigating the cause of death and the related procedures including the production of statistics and archiving of death certificates is based on the act (1973/459) and decree (1973/948) on the investigation of the cause of death. In April 2011, Commission Regulation (EC) No 1338/2008 was passed and it confirms the variables, specifications and metadata which the EU Member States have to supply as concerns statistics on causes of death.

### Concepts

**Causes of death** are obtained from death certificates. Data on underlying causes of death have been collected in database tables from 1969 onwards and from 1987, in addition to the underlying cause of death, there are also data on **immediate, intermediate and contributing causes of death**:

- The underlying cause of death is the disease which has initiated the series of illnesses leading directly to death. In accidental or violent deaths, the underlying cause of death is the external reason which caused the injury or poisoning leading to death. The underlying cause of death issued by the physician's death certificate is not directly applied to statistics compilation, but it is used when forming the underlying cause of death in the statistics.
- The statistical underlying cause of death is determined according to the selection and application rules of the International Classification of Diseases (ICD-10) compiled by the World Health Organisation (WHO). On their basis, the underlying cause of death is determined from the causes of death given by the physician in the death certificate. Annual causes of death statistics are made according to the underlying cause of death determined for the statistics. Other causes of death are mainly used in surveys.
- The immediate cause of death refers to the disease, failure or injury whose symptoms cause the person to die. However, the mechanisms of death, e.g. cardiac arrest, are not regarded as immediate causes of death.
- The intermediate cause of death refers the condition which leads from the underlying cause to the immediate cause of death.
- The contributing cause of death are other significant circumstances that contributed to the death recorded in the part II of the death certificate but are not related to the cause-consequence chain in part I of the death certificate.

In the case of **stillbirths and infants dying before the age of 28 days** the statistical data include the child's main cause of death, the mother's main reason contributing to the child's death, and two other reasons contributing to the child's death.

**Stillbirths** include a foetus or a newborn who shows no signs of life at the time of birth after a pregnancy lasting at least 22 weeks or the newborn weighing at least 500 grams. This concept has been used in Finnish annual tables since 1987. In the earlier used definition, stillbirths were newborns or foetuses when the duration of pregnancy had been at least 28 weeks. The changed concept also influenced the definition of perinatal deaths for stillbirths. Terminations of pregnancy prior to the 22nd week of pregnancy are considered miscarriages. Terminations of pregnancy are not included in the cause of death statistics.

**Infant mortality** refers to the share of deaths in infancy (at under one year) per thousand live births. **Neonatal mortality** refers to the share of deaths during the four first weeks of life per thousand live births. The figure is often given in tables as per mil. **Early neonatal mortality** refers to the number of deaths during the first week of life relative to the live births. **Late neonatal mortality** refers to the number of deaths which occur at the age of 7 to 27 days relative to the live births.

**Perinatal mortality** refers to the share of stillbirths and deaths during the first week of life among all births (incl. stillbirths). The age during the first week is calculated in hours.

**Perinatal mortality** is calculated by dividing the number of stillbirths and deaths during the first week of life by the number of all births during the statistical year. The age during the first week is calculated in hours.

More concepts of the cause of death statistics can be found at: [http://tilastokeskus.fi/til/ksyyt/kas\\_en.html](http://tilastokeskus.fi/til/ksyyt/kas_en.html)

## 2. Methodological description of survey

The cause of death statistics data are total data including all deaths in Finland or abroad of persons permanently resident in Finland at the time of their death. Statistics on stillbirths are made separately; cases of stillbirths are not included in deaths during the statistical reference year. The statistics on stillbirths are supplemented with data from the birth register of the National Institute for Health and Welfare (THL).

Death certificates are issued by the physician establishing the death. If determining the cause of death requires an autopsy, the death certificate is issued by a forensic pathologist after the information acquired from the autopsy is complete. The physician issuing the death certificate delivers the certificate to the regional unit of the National Institute for Health and Welfare (THL) where the deceased was a resident. A forensic pathologist there verifies the correctness of the certificate and the certificates are sent on to Statistics Finland. In addition, the health care unit or the physician has to report the death to the Population Information System. At Statistics Finland, the death certificate data are compared with data on the deceased obtained from the Population Information System and lists of missing death certificates are sent to THL for monitoring purposes. The data files on causes of death are supplemented with other demographic data from the Population Information System.

Death certificates are received at Statistics Finland in paper form from THL. Death certificates are scanned at Statistics Finland in picture format and part of the data is read optically to the database. Diagnosis texts and cause of death codes issued by physicians are checked with the help of an electronic dictionary. The statistical underlying cause of death is determined according to the selection and application rules of the International Classification of Diseases (ICD-10) compiled by the World Health Organization (WHO). Some of the statistical underlying causes of death are coded automatically with the application and part manually utilising the description of events written by the physician.

Since 1996, causes of death have been coded according to the international ICD-10 classification (International Statistical Classification of Diseases and Related Health Problems). The ICD-10 classification is an international classification maintained by the World Health Organization (WHO) describing causes of death, illnesses, accidents and reasons for using health care services. The classification can be found on [WHO's pages](#). Causes of death are coded mainly in the most accurate level of the classification, the 3-digit level is the publication level. In certain cases, specifying codes according to the Finnish national classification of diseases are used. THL maintains the Finnish version of the ICD-10 classification of diseases.

In the publication, the mortality rate can be measured with the general mortality rate, where the number of deaths is divided by mean population and multiplied by one thousand or one hundred thousand. The mortality rate can also be calculated by age group, when deaths in each age group are expressed as a proportion to the population of corresponding age.

**Age-standardised mortality rate** refers to mortality where the effect of age structure is eliminated by age standardisation. The standardisation used in cause of death statistics is made by using direct age standardisation (standardised death rate, SDR), which means that mortality figures for the year in question

have been used to calculate how many people would die if the age structure of the population remained the same throughout time. The formula for direct standardisation is as follows:

$$SDR = \sum (m_i P_i / P) \times 100\,000$$

$m_i$  = mortality rate in age group  $i$

$P_i$  = standard population in age group  $i$

$P$  = standard population

Mortality and the generality of causes of death are heavily dependent on age. For this reason, age standardisation is used in the statistics when comparing mortality differences of different times and areas. In the publication on cause of death statistics, the 'new' standard population of Europe has been used since 1996 as the standard population when calculating age-standardised mortality rates (Appendix 5). Different standard population has been used in the age-standardised mortality figures published by Eurostat, for which reason the figures differ from those released by Statistics Finland.

### 3. Correctness and accuracy of data

The death certificate form is confirmed by the Ministry of Social Affairs and Health. The physician records the cause of death on the death certificate as a code and as a text specifying the diagnosis. At Statistics Finland, the causes of death are coded mainly on the basis of the diagnosis text.

In case the information in the death certificate is deficient, inconsistent or difficult to classify, the information about the event recorded on the death certificate or a medical expert will be consulted or more information is requested from the issuer of the death certificate. In cases of alcohol and medicinal poisonings, the additional information used consists of the research results from the register of forensic chemistry. The underlying cause of death is determined from the event information in the death certificate in about 1,000 cases yearly. Around 700 cases are handled by a medical expert every year. Additional information is requested from the issuer of the death certificate in about 50 cases per year. Additional information is obtained for some 150 cases per year from the register of forensic chemistry.

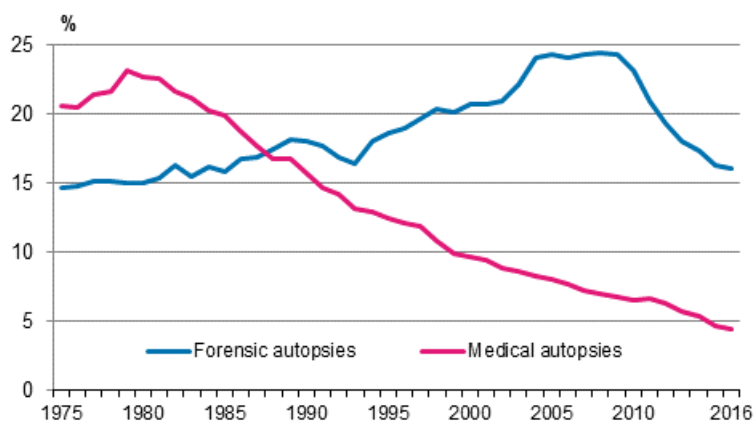
In practice, the coverage of the cause of death statistics is around 100 per cent, because the data on death are verified from the Population Information System. The number of deaths on which no information on the cause of death is obtained has previously been 100 to 150 per year, but in the last few years the number of missing death certificates has been growing. In 2015, there were 356 missing death certificates. Of them, 23 were deaths abroad on which only a notification on death was obtained. The data derived from late death certificates are combined to the survey database and death certificate archives.

#### Number of death certificates missing from statistics yearly 2000–2016

Year	Number	Proportion of all deaths, %
2000	40	0,1
2005	118	0,2
2010	107	0,2
2011	132	0,3
2012	226	0,4
2013	267	0,5
2014	477	0,9
2015	356	0,7
2016	90	0,2

Most causes of death are based on clinical data, but qualitatively better data for death certificates are derived from autopsies. The share of autopsies in all deaths were highest in Finland of all Nordic countries. The number of forensic autopsies has decreased fast in Finland since 2010, however. In 2015, a forensic autopsy was performed for 16 per cent and a medical autopsy for 5 per cent of dead persons.

## Share of forensic and medical autopsies in death cases in 1975 to 2016



### 4. Timeliness and promptness of published data

Cause of death data are produced yearly and they are completed at the end of the following year. The data are final and describe the deaths during the previous calendar year of persons permanently resident in Finland. After the data are published, death certificates are not added afterwards to the annual data of the statistics, but they are included in research data and death certificate archives.

### 5. Accessibility and transparency/clarity of data

The data of the cause of death statistics are published yearly under the topic Health on the home pages of the cause of death statistics and the tables are released in Statistics Finland's StatFin database. The tables of the cause of death statistics are made according to the underlying cause of death.

The cause of death statistics are available starting from 1936. The data for 1936 to 1968 are in table format in the paper publications. From 1969, there are data as a time series database. Tailored tables and research data can be made from unit-level data at Statistics Finland to customer needs. A licence is always needed for unit-level research data. The application for licence can be found on [Statistics Finland's home page](#). Cause of death data can also be combined to other datasets by means of the person number (e.g. with population census and employment statistics data).

Cause of death data are also published for international sources and databases, such as:

- The Nordic Statistical Yearbook "Health Statistics for the Nordic Countries" <http://nowbase.org/>
- Eurostat's database, e.g. <http://ec.europa.eu/eurostat>
- WHO's databases, e.g. European Health for All database, <http://www.euro.who.int/en/data-and-evidence>

Statistics Finland also maintains Finland's death certificate archive. The archive contains Finnish residents' death certificates from 1936 onwards. The death certificates from 1936 to 1965 are located in the National Archive. More recent death certificates are archived at Statistics Finland.

If it has been less than 50 years since the person died, the death certificate data are confidential. Copies of death certificates and unit-level cause of death data are released from the archive to the purposes prescribed in the act on the investigation of the cause of death (459/1973). They are mainly released to the dead person's next of kin, pension institutions and official use and for scientific research and statistical surveys. Instructions for applying for death certificates and on the licence procedure can be found on Statistics Finland's web pages.

## 6. Comparability of statistics

The classification of causes of death used in the statistics has changed a number of times. Since 1996, causes of death have been coded according to the ICD-10 classification (International Statistical Classification of Diseases and Related Health Problems). Between 1987 and 1995, the data were coded using the national classification of diseases 1987 and from 1969 to 1986, the international classification ICD-8 was in use.

To improve the comparability of cause of death data from different years, Statistics Finland has made time series classifications. The longest comparable national time series classification (54 categories) contains data from 1969 onwards. In addition, use is made of a 72-category classification where data are available from 1998. This classification complies in main aspects with the 65-category European shortlist classification used by the EU, which was used by Eurostat from 1998 to 2013. Since the beginning of 2014, an updated 86-category European shortlist 2012 classification has been available on Eurostat's website. This classification has also been available on the data of the causes of death statistics at Statistics Finland.

## 7. Coherence and consistency/uniformity

The cause of death statistics are the only comprehensive statistics on causes of death in Finland. Other Statistics Finland's statistics describing the mortality rate and causes of death are vital statistics, [statistics on road traffic accidents](#) and [occupational accident statistics](#).

The data on deaths published by Statistics Finland's vital statistics are comprehensive statistics on the number of deaths. The number of deaths per year differs somewhat from the number of deaths in the cause of death statistics. The difference is mainly caused by that the vital statistics do not contain deaths registered as deaths after the compilation time of the statistics (the end of the following year's January). In the vital statistics for 2014, the number of deaths was 52,492, which was 190 deaths more than in the cause of death statistics. The number of deaths under the age of one year was 97 in the vital statistics and 96 in the cause of death statistics. When calculating infant mortality, the number of deaths under the age of one in the vital statistics is used in official connections.

The statistics on road traffic accidents compile statistics on deaths in road traffic. Data are obtained from the information system of the police. The coverage of the data is checked against those of the cause of death statistics. The figures deviate from those in the cause of death statistics by some tens of cases each year. The deviation is due to the following differences in the statistical criteria:

- The statistics on road traffic accidents contain all deaths in traffic in the area of Finland, whereas the cause of death statistics include all deaths of the permanent population of Finland occurring either in Finland or abroad.
- The cause of death statistics are compiled on the basis of the day of the death, but the time period of the statistics on road traffic accidents is the day of the accident and at most the 30 following days.
- In the cause of death statistics suicides committed in traffic are included in suicides, in the statistics on road traffic accidents they are regarded as road traffic accidents.

Occupational accident statistics are compiled on the basis of information on insurance activities and the statistics include all those accidents at work on which insurance institutions have paid compensation. By contrast, in the cause of death statistics the information on occupational accidents is derived from death certificates as defined by the physician. The number of deaths from occupational accidents differs yearly very little from the figures in the cause of death statistics.

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Source: Causes of death, Statistics Finland