

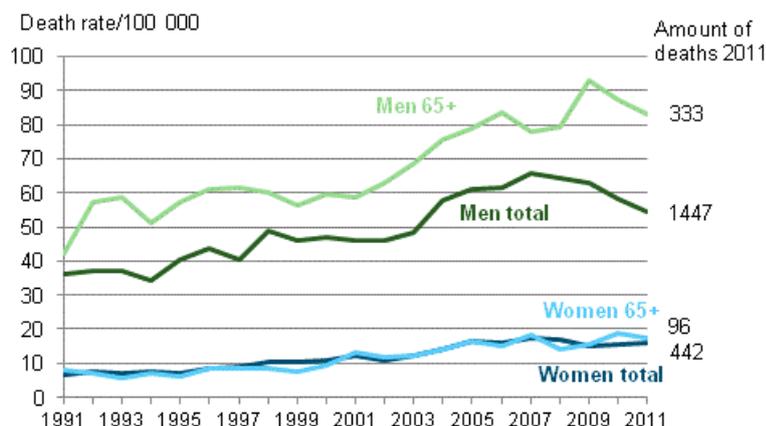
# Causes of death 2011

## Alcohol mortality decreased further in 2011

According to Statistics Finland's statistics on causes of death, alcohol mortality decreased by four per cent in 2011 from the previous year. The fall is mainly caused by decreasing alcohol mortality among men. A total of 1,890 persons died from alcohol-related causes, 1,450 men and 440 women. Deaths from alcohol-related causes are considerably more common among men than women. They are also the most common cause of death for persons of working age.

Over the past twenty years, the alcohol mortality of men aged 65 or over has doubled. The growth has been faster than for all men in total. Nevertheless, the largest share of those dying from alcohol-related causes were of working age and only 23 per cent were aged 65 or over. The share is unchanged from the year before.

### Mortality from alcohol-related diseases and accidental poisoning by alcohol in 1991 to 2011



Altogether 50,568 persons died in 2011. The figure was just short of one per cent smaller than in the previous year. The longer life expectancy can be seen in the age distribution of deaths: over the past twenty years the share of deaths of those aged 85 or over has increased, while the share of those aged 65 to 79 has decreased. This is particularly true for women, who, on average, live longer than men and thus also die at an older age. Increased mortality of aged people is visible in causes of death primarily as the growing number of deaths from dementia and diseases of the circulatory system.

Forty per cent of deaths in 2011 were caused by diseases of the circulatory system. The second highest number of deaths, 24 per cent, were caused by neoplasms. Dementia (inclusive of Alzheimer's disease) caused 12 per cent of deaths in 2011.

**Causes of death in 2011 (54-group classification)**

	Total	Males	Females	Total	Males	Females
	Number	Number	Number	%	%	%
Diseases of the circulatory system	20 157	9 791	10 366	39,9	38,7	41,1
Neoplasms	11 897	6 224	5 673	23,5	24,6	22,5
Dementia, Alzheimer's disease	6 200	1 892	4 308	12,3	7,5	17,1
Accidents	2 383	1 536	847	4,7	6,1	3,4
Disease of the respiratory system	2 034	1 263	771	4,0	5,0	3,1
Alcohol related diseases and accidental poisoning by alcohol	1 889	1 447	442	3,7	5,7	1,8
Suicides	912	710	202	1,8	2,8	0,8
Other causes of death	5 096	2 464	2 632	10,1	9,7	10,4
Deaths total	50 568	25 327	25 241	100,0	100,0	100,0

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# 1. Causes of death in 2011

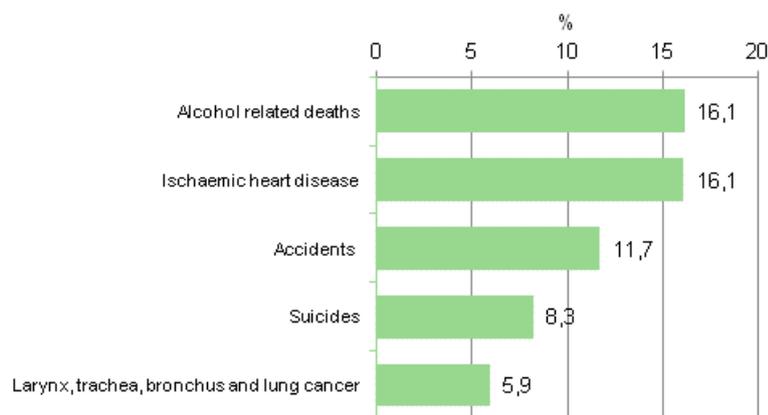
The life expectancy of a man living in Finland in the early 1950s was around 60 years and that of a woman 65 years. Life expectancy has lengthened considerably: the life expectancy for a boy born in 2011 is 77.2 years and 83.5 years for a girl.

Over the last 20 years, the number of deaths in Finland has been between 47,000 and 51,000 per year. A total of 50,568 persons, 25,327 men and 25,241 women, died in 2011. Of them, 9,989 persons were of working-age (aged 15 to 64). Twenty years earlier, in 1991, the number of working-age persons who died was 11,849, so the figure has decreased.

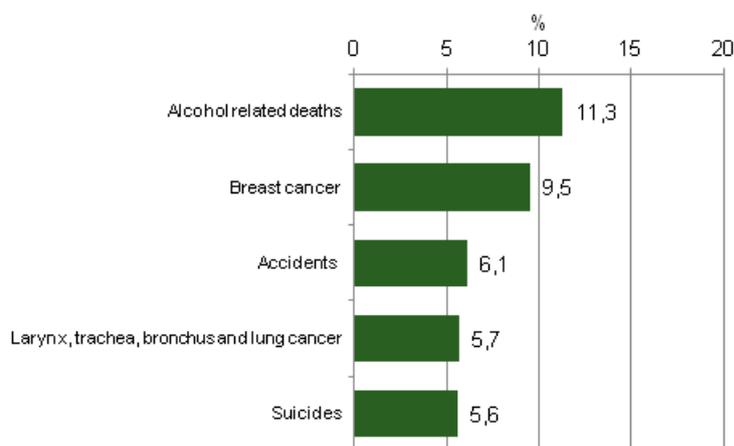
The most common disease of the circulatory system, ischaemic heart disease, was the cause of only about one fifth (22%) of all deaths in 2011. Diseases of the circulatory system caused 40 per cent of all deaths. Neoplasms were the cause of nearly every fourth (24%) death. Lung cancer was the most common type of cancer among men and breast cancer among women.

Dementia and Alzheimer's caused around 12 per cent of deaths, 17 per cent of women's deaths and nearly eight per cent of men's. The number of deaths caused by dementia has grown in the past few decades mainly due to the ageing of the population. Dementia mortality is clearly higher among women than among men, which may mainly be due to the fact that women live longer than men.

**Figure 1. Leading causes of death among men aged 15 to 64 in 2011 (54-group classification)**



**Figure 2. Leading causes of death among women aged 15 to 64 in 2011 (54-group classification)**



In 2011, every fifth person who died was of working age. Altogether 6,917 men and 3,072 women aged 15 to 64, i.e. of working age, died. Deaths of working-age men from ischaemic heart disease have halved over the past two decades. Over the same time period, alcohol-related diseases and alcohol poisonings have doubled. Other leading causes of death among men of working age are accidents and suicides. The number of suicides has gone down over the past twenty years. In 2011, the number of suicides among working-age men was 571, which is 29 fewer than in the previous year.

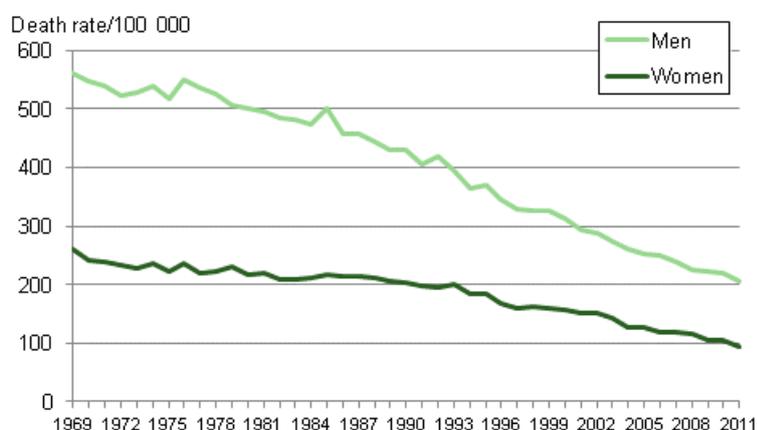
The most common causes of death among working-age women were alcohol-related causes, cancers and especially breast cancer, as well as accidents and suicides. Women's deaths from alcohol-related causes has more than doubled over the past 30 years and their number exceeded women's deaths from breast cancer and ischaemic heart disease in 2011. The number of suicides among working-age women has remained unchanged over the past decades. In 2011, the number of suicides among working-age women was 172, which is 20 fewer than in the previous year.

## 2. Ischaemic heart disease causes more than every fifth death

Diseases of the circulatory system, such as ischaemic heart disease, are nowadays the most common cause of death among Finns. Ischaemic heart disease causes more than every fifth death (22 %). The number of deaths caused by ischaemic heart disease continued to decrease in 2011.

Figure 3 shows ischaemic heart disease mortality age-standardised. In age standardisation the effect of the age structure of the population and its changes are eliminated. In this case 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. 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.

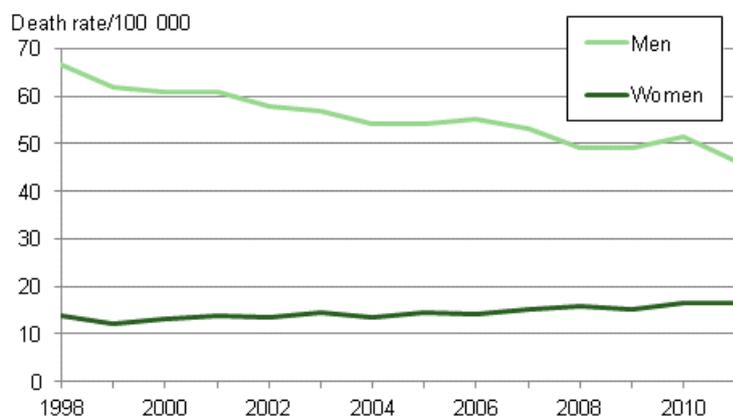
**Figure 3. Age-standardised ischaemic heart disease mortality in 1969 to 2011**



In 2011, 11,169 persons died from ischaemic heart disease. Of them 5,948, or 53 per cent, were men.

Lung cancer is a common cause of death among cancers. Mortality from lung cancer among women has increased during the last four decades, but among men it started to decline already in the 1980s. A total of 1,435 men and 671 women died of lung cancer in 2011.

**Figure 4. Age-standardised lung cancer mortality in 1998 to 2011**

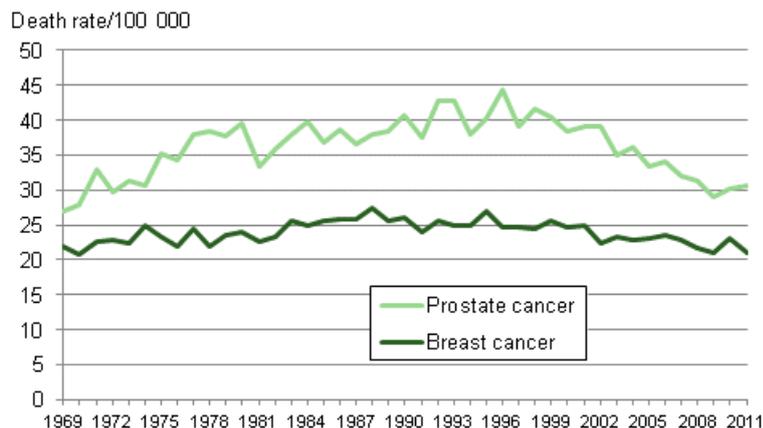


Alongside alcohol-related causes, breast cancer is the most common cause of death among women of working age. Alcohol-related causes were a slightly more common cause of death among them in 2011

than breast cancer. Breast cancer mortality among working-age women was slightly lower in 2011 than in 2010 but deaths from alcohol-related causes went up from the previous year.

In 2011 the number of deaths from prostate cancer was 879, while in 2010 it was 845. When all cancers are taken into consideration, the highest number of men get prostate cancer but most commonly men die from lung cancer.

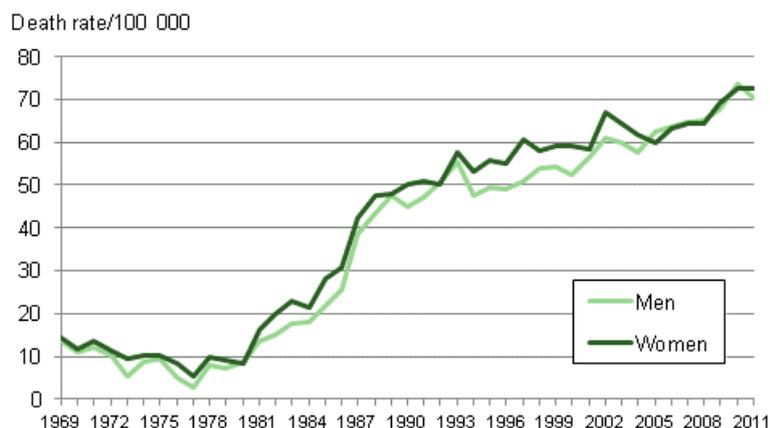
**Figure 5. Age-standardised prostate cancer and breast cancer mortality in 1969 to 2011**



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

In 2011, every fifth death at the age of 80 or over was caused by dementia or Alzheimer's disease. The number has more than doubled over the past 20 years. The growth is partly caused by improved diagnostics, but also clearly by the ageing of the population.

**Figure 6. Age-standardised dementia mortality (incl. Alzheimer's disease) in 1969 to 2011**

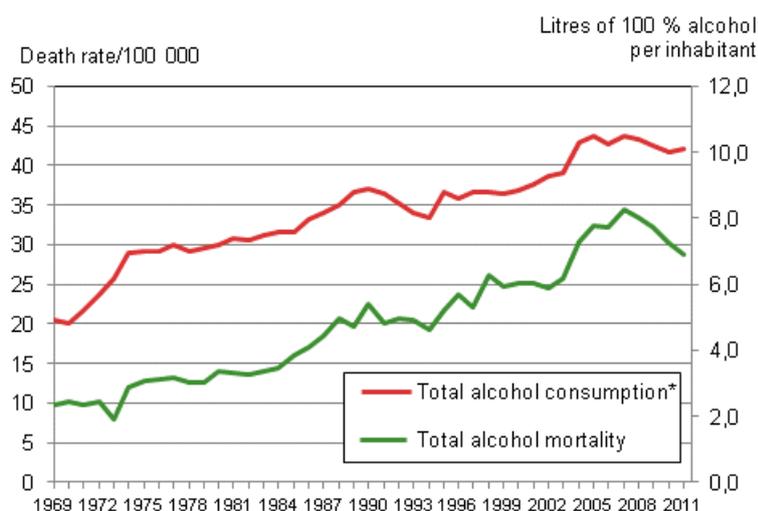


Because dementia becomes more common steeply with age, along with the lengthening of life expectancy, more people get dementia and die as a result of it. This concerns particularly women, because women live longer than men do, on average. The number of deaths from dementia and Alzheimer's disease was 6,200 in 2011. Sixty-nine per cent of them were women. Nearly three-quarters (71.4%) of deaths were caused by Alzheimer's disease.

## 4. Alcohol-related causes of death are decreasing

Alcohol-related causes have been for several years among the most common causes of death for both men and women, and the figures are high for the whole population as well. Alcohol-related deaths include both alcohol-related diseases and accidental poisoning by alcohol.

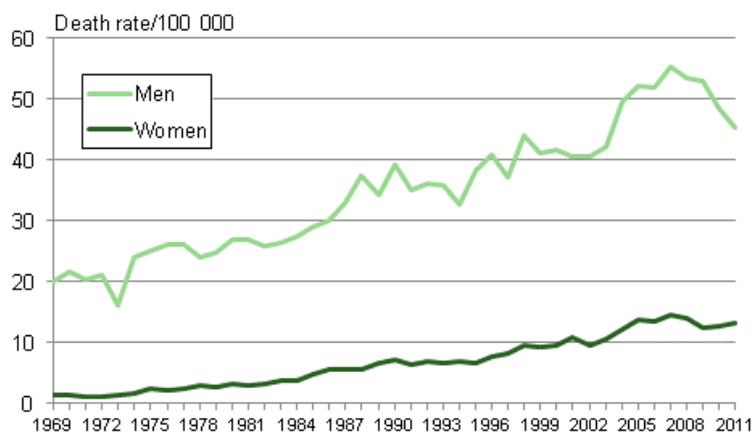
**Figure 7a. Age-standardised mortality from alcohol-related diseases and accidental poisoning by alcohol and total consumption of alcohol in 1969 to 2011**



\*Source: National Institute for Health and Welfare 2012.

The most significant reason for high alcohol mortality is increased consumption of alcohol over the past decades. Changes in alcohol-related mortality follow fairly regularly the graph for total consumption of alcoholic beverages. As the alcohol tax was lowered in 2004, consumption of alcohol increased distinctly. At the same time, alcohol deaths increased considerably.

**Figure 7b. Age-standardised mortality from alcohol-related diseases and accidental poisoning by alcohol in 1969 to 2011**



Men die from alcohol-related causes clearly more often than women do. Male mortality also follows more closely changes in total consumption of alcohol. However, female mortality has risen evenly along with men over several decades.

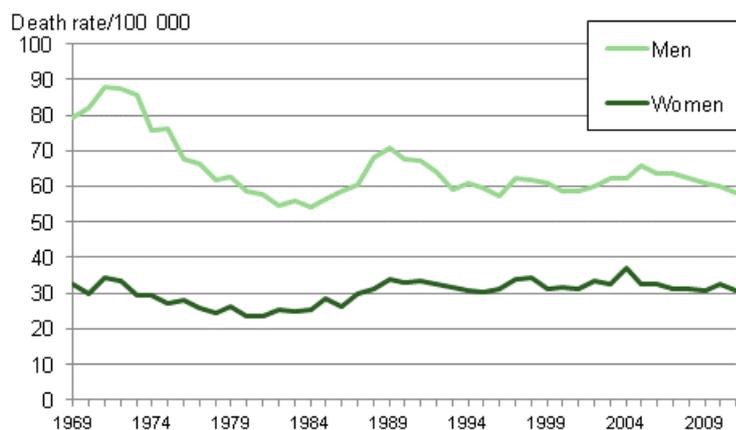
In 2011, 1,889 persons died from alcohol-related causes, 1,497 of whom from alcohol-related diseases and 392 from alcohol poisonings. Eighty per cent of those dying from alcohol poisonings were men. Most of those dying were at working age. The number of deaths from alcohol-related causes has been falling since 2009. The fall is mainly caused by decreasing alcohol deaths of men.

Alcohol can also be a contributing factor to death. The share of intoxication in accidents will be discussed in the following section.

## 5. Accidental falls were the most common accidents leading to death

Fatal accidents include such as fatal traffic accidents, fatal falls and stumbles, drownings, fatal fires and alcohol and drug poisonings. Accident mortality has continuously been higher for men than women, although the highs and lows have occurred at the same time for both genders. Accident mortality among young people is more general than average for the whole population.

**Figure 8. Accident mortality in 1969 to 2011**



A total of 2,766 persons died in accidents in 2011, of whom 1,846 were men and 920 women. Accidents caused nearly six per cent of all deaths. In 2011 the most common accident leading to death among both men and women was a stumble or fall, which caused the death of 1,212 persons. Over one third of men's fatal accidents and over one half of women's were caused by stumbles and falls. In 2011, a total of 300 persons died in transportation accidents (excl. drowning accidents in water traffic), three-quarter of whom were men. Among men more than one in ten fatal accidents took place in traffic (transportation), among women slightly fewer.

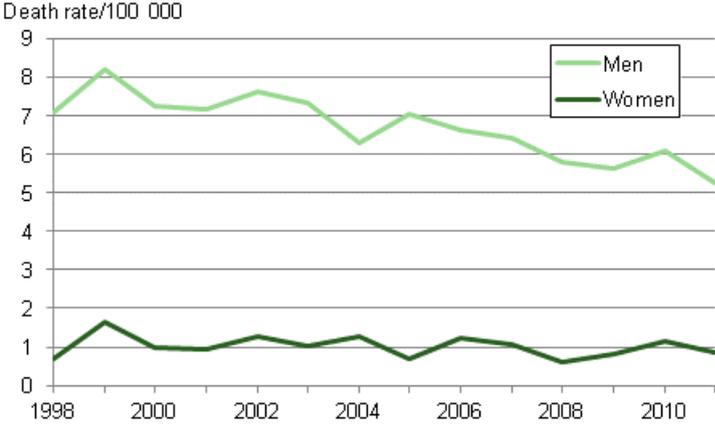
### *Contribution of intoxication to fatal accidents*

In 2011, 19 per cent of those dying accidentally (excl. poisonings) were intoxicated. In fatal accidents intoxication means that the doctor signing the death certificate judged that alcohol had contributed to the death. The figures exclude alcohol and drug poisonings where alcohol or drugs have directly caused the death. In heat of sauna deaths 24 out of 38 persons were intoxicated at death. In fire deaths and among those dying of cold slightly under one half were intoxicated, in drowning accidents over half were intoxicated. Slightly more than every fifth road traffic fatality occurred while intoxicated.

### *More than half of those that died in drowning accidents were intoxicated*

The number of drownings has been around 200 in recent years. In 2011, 163 persons drowned, three-quarters of whom were men. Of these, 43 drowned in water traffic. In Finland alcohol is very often connected to drowning accidents. Slightly over one half of drowning cases occur while intoxicated, even more in summer months.

**Figure 9. Drowning accident mortality in 1998 to 2011**

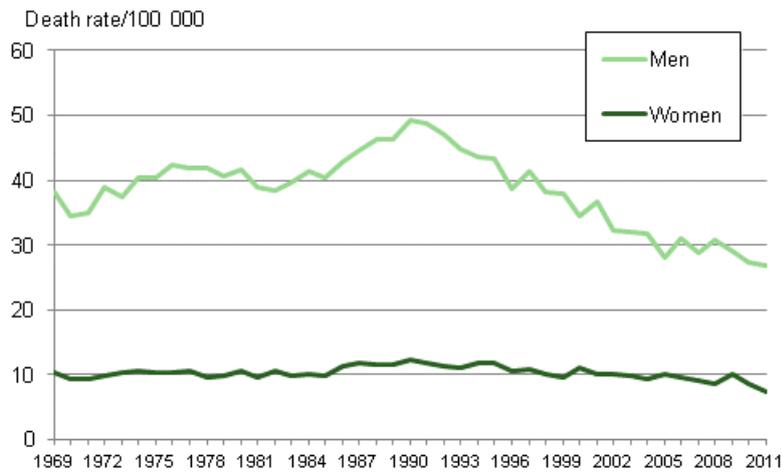


## 6. The number of suicides continues decreasing

In 2011, 912 persons committed suicide. Over three out of four of them, or 710 were men. The number of suicides has last been lower than this in the 1960s. The figure was at its highest in 1990, when there were a total of 1,520 suicides in Finland. The number of suicides has decreased in particular among persons of working age.

Men's suicide mortality has always been much higher than women's. There is much variation in male suicide mortality, but among women it has remained more or less unchanged, except for the doubling of women's suicide mortality in the 1950s. In Finland suicide mortality has been almost double that of the EU average in recent years.

**Figure 10. Suicide mortality in 1969 to 2011**



## ***7. No maternal deaths in 2011***

Finland's infant mortality is nowadays one of the lowest in the whole world. Nowadays only a few per mille die at the age of under one, and the most common cause of death for children aged under one is inborn malformation. Infectious diseases and violence are very rare causes of death among under one-year-olds.

In 2011, 142 children (infants) died under the age of one. Fifty per cent of children dying under the age of one died during their first week of life and two thirds during the first four weeks of life. Perinatal mortality (deaths during the first week and stillborn) was 4.0 per thousand births. The figure has been falling from the beginning of the 1980s to nearly one half. In 2011 there were 11 cot deaths.

Mortality of children aged 1 to 14 has more than halved in the last twenty years. There were 97 deaths among children aged 1 to 14 in 2011. This corresponds to around 12 deaths per 100,000 population. The lower number of deaths among children aged 1 to 14 is primarily caused by the decrease in accident mortality.

Maternal mortality started to fall already in the 1970s, after which around zero to seven mothers have died per year. There were no maternal deaths in 2011.

More information about mortality during infant and perinatal period can be found in Appendix Table 3.

## Appendix tables

**Appendix table 1a. Deaths by underlying cause of death (54-group classification) and by age in 2011, both sexes**

Cause of death (54 classes)	Ages total	0-14	15-64	65-
01-54 TOTAL DEATHS (A00-Y89)	50 568	239	9 989	40 340
01-41 DISEASES AND ACCIDENTAL POISONING BY ALCOHOL (A00-R99, X45)	46 962	204	8 057	38 701
01-03 Certain infectious and parasitic diseases (A00-B99, J65)	406	2	79	325
01 Tuberculosis (A15-A19, B90, J65)	61	0	4	57
02 Human immunodeficiency virus (HIV) disease (B20-B24)	5	0	4	1
03 Other infectious and parasitic diseases (A00-A09, A20-B19, B25-B89, B91-B99)	340	2	71	267
04-22 Neoplasms (C00-D48)	11 897	25	2 902	8 970
04-21 Malignant neoplasms (C00-C97)	11 580	20	2 860	8 700
04 Malignant neoplasms of lip, oral cavity and pharynx (C00-C14)	190	0	70	120
05 Malignant neoplasm of oesophagus (C15)	242	0	81	161
06 Malignant neoplasm of stomach (C16)	484	0	126	358
07 Malignant neoplasm of colon (C18, C19)	772	0	169	603
08 Malignant neoplasm of rectum, anus and anal canal (C20-C21)	367	0	88	279
09 Primary malignant neoplasm of liver and intrahepatic bile ducts (C22)	423	0	81	342
10 Malignant neoplasm of pancreas (C25)	1 005	0	221	784
11 Malignant neoplasm of larynx, trachea, bronchus and lung (C32-C34)	2 144	0	585	1 559
12 Malignant melanoma of skin (C43)	226	0	80	146
13 Malignant neoplasm of breast (C50)	836	0	293	543
14 Malignant neoplasm of cervix uteri (C53)	47	0	19	28
15 Malignant neoplasm of uterus (C54-C55)	162	0	24	138
16 Malignant neoplasm of ovary (C56)	367	0	123	244
17 Malignant neoplasm of prostate (C61)	879	0	71	808
18 Malignant neoplasm of kidney (C64)	385	0	99	286
19 Malignant neoplasm of bladder (C67)	263	0	25	238
20 Malignant neoplasm of lymphoid, haematopoietic and related tissue (C81-C96)	1 104	6	227	871
21 Other malignant neoplasms	1 684	14	478	1 192
22 Other neoplasms (D00-D48)	317	5	42	270
23-24 Endocrine, nutritional and metabolic diseases (E00-E90)	597	7	164	426
23 Diabetes mellitus (E10-E14)	478	0	126	352
24 Other endocrine, nutritional and metabolic diseases (E00-E09, E15-E90)	119	7	38	74
25 Dementia, Alzheimers disease (F01, F03, G30, R54)	6 200	0	50	6 150
26 Other diseases of the nervous system and sense organs	1 272	14	243	1 015
27-30 Diseases of the circulatory system (I00-I425, I427-I99)	20 157	10	2 358	17 789
27 Ischaemic heart diseases (I20-I25)	11 169	0	1 273	9 896
28 Other heart diseases excl. rheumatic and alcohol related (I30-I425, I427-I52)	2 150	8	400	1 742
29 Cerebrovascular diseases (I60-I69)	4 346	1	382	3 963
30 Other diseases of the circulatory system (I00-I15, I26-I28, I70-I99)	2 492	1	303	2 188
31-35 Diseases of the respiratory system (J00-J64, J66-J99)	2 034	10	276	1 748
31 Influenza (J09-J11)	35	4	7	24
32 Pneumonia (J12-J18, J849)	376	3	57	316
33 Bronchitis and emphysema (J40-J44, J47)	1 177	1	163	1 013
34 Asthma (J45-J46)	107	1	11	95
35 Other diseases of the respiratory system (J00-J06, J20-J39, J60-J64, J66-J848, J85-J99)	339	1	38	300
36 Diseases of the digestive system excl. alcohol-related diseases	1 272	0	215	1 057

Cause of death (54 classes)	Ages total	0-14	15-64	65-
37 Diseases of the genitourinary system (N00-N99)	408	1	25	382
38 Congenital malformations (Q00-Q99)	173	60	76	37
39 Other diseases	532	74	107	351
40 Ill-defined and unknown causes of mortality (R96-R99)	125	1	102	22
41 Alcohol related diseases and accidental poisoning by alcohol	1 889	0	1 460	429
42-53 ACCIDENTS AND VIOLENCE (V01-X44, X46-Y89)	3 474	35	1 874	1 565
42-49 Accidents (V01-X44, X46-X59, Y10-Y15, Y85-Y86)	2 383	22	997	1 364
42 Land traffic accidents	259	6	176	77
43 Other land transport accidents	32	3	19	10
44 Water transport accidents (V90-V94)	49	0	32	17
45 Others and unspecified transport accidents (V95-V99)	3	0	2	1
46 Accidental falls (W00-W19)	1 212	2	218	992
47 Accidental drownings (W65-W74)	120	4	69	47
48 Accidental poisonings excl. accidental poisonings by alcohol (X40-X44, X46-X49, Y10-Y15)	336	0	301	35
49 Other accidents and sequelae of accidents	372	7	180	185
50 Suicides (X60-X84, Y87.0)	912	2	743	167
51 Assault (X85-Y09, Y87.1)	99	9	81	9
52 Event of undetermined intent (Y16-Y34, Y87.2)	75	2	51	22
53 Other external causes and sequelae of other external causes (Y35-Y84, Y88-Y89)	5	0	2	3
54 NO DEATH CERTIFICATE	132	0	58	74

**Appendix table 1b. Deaths by underlying cause of death (54-group classification) and by age in 2011, men**

Cause of death (54 classes)	Ages total	0-14	15-64	65-
01-54 TOTAL DEATHS (A00-Y89)	25 327	133	6 917	18 277
01-41 DISEASES AND ACCIDENTAL POISONING BY ALCOHOL (A00-R99, X45)	22 884	113	5 402	17 369
01-03 Certain infectious and parasitic diseases (A00-B99, J65)	191	1	52	138
01 Tuberculosis (A15-A19, B90, J65)	28	0	4	24
02 Human immunodeficiency virus (HIV) disease (B20-B24)	4	0	3	1
03 Other infectious and parasitic diseases (A00-A09, A20-B19, B25-B89, B91-B99)	159	1	45	113
04-22 Neoplasms (C00-D48)	6 224	11	1 555	4 658
04-21 Malignant neoplasms (C00-C97)	6 089	8	1 534	4 547
04 Malignant neoplasms of lip, oral cavity and pharynx (C00-C14)	124	0	55	69
05 Malignant neoplasm of oesophagus (C15)	165	0	68	97
06 Malignant neoplasm of stomach (C16)	280	0	79	201
07 Malignant neoplasm of colon (C18, C19)	352	0	81	271
08 Malignant neoplasm of rectum, anus and anal canal (C20-C21)	198	0	57	141
09 Primary malignant neoplasm of liver and intrahepatic bile ducts (C22)	260	0	60	200
10 Malignant neoplasm of pancreas (C25)	457	0	117	340
11 Malignant neoplasm of larynx, trachea, bronchus and lung (C32-C34)	1 466	0	411	1 055
12 Malignant melanoma of skin (C43)	149	0	52	97
13 Malignant neoplasm of breast (C50)	0	0	0	0
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)	879	0	71	808
18 Malignant neoplasm of kidney (C64)	213	0	67	146
19 Malignant neoplasm of bladder (C67)	175	0	17	158
20 Malignant neoplasm of lymphoid, haematopoietic and related tissue (C81-C96)	591	2	138	451
21 Other malignant neoplasms	780	6	261	513
22 Other neoplasms (D00-D48)	135	3	21	111
23-24 Endocrine, nutritional and metabolic diseases (E00-E90)	329	4	115	210
23 Diabetes mellitus (E10-E14)	268	0	91	177
24 Other endocrine, nutritional and metabolic diseases (E00-E09, E15-E90)	61	4	24	33
25 Dementia, Alzheimers disease (F01, F03, G30, R54)	1 892	0	21	1 871
26 Other diseases of the nervous system and sense organs	642	7	144	491
27-30 Diseases of the circulatory system (I00-I425, I427-I99)	9 791	9	1 898	7 884
27 Ischaemic heart diseases (I20-I25)	5 948	0	1 111	4 837
28 Other heart diseases excl. rheumatic and alcohol related (I30-I425, I427-I52)	1 012	7	312	693
29 Cerebrovascular diseases (I60-I69)	1 799	1	257	1 541
30 Other diseases of the circulatory system (I00-I15, I26-I28, I70-I99)	1 032	1	218	813
31-35 Diseases of the respiratory system (J00-J64, J66-J99)	1 263	5	178	1 080
31 Influenza (J09-J11)	20	1	7	12
32 Pneumonia (J12-J18, J849)	190	3	33	154
33 Bronchitis and emphysema (J40-J44, J47)	811	0	113	698
34 Asthma (J45-J46)	36	1	1	34
35 Other diseases of the respiratory system (J00-J06, J20-J39, J60-J64, J66-J848, J85-J99)	206	0	24	182
36 Diseases of the digestive system excl. alcohol-related diseases	569	0	141	428
37 Diseases of the genitourinary system (N00-N99)	154	1	14	139
38 Congenital malformations (Q00-Q99)	87	33	38	16
39 Other diseases	221	42	66	113

Cause of death (54 classes)	Ages total	0-14	15-64	65-
40 Ill-defined and unknown causes of mortality (R96-R99)	74	0	66	8
41 Alcohol related diseases and accidental poisoning by alcohol	1 447	0	1 114	333
42-53 ACCIDENTS AND VIOLENCE (V01-X44, X46-Y89)	2 366	20	1 475	871
42-49 Accidents (V01-X44, X46-X59, Y10-Y15, Y85-Y86)	1 536	13	809	714
42 Land traffic accidents	187	3	142	42
43 Other land transport accidents	29	1	18	10
44 Water transport accidents (V90-V94)	46	0	31	15
45 Others and unspecified transport accidents (V95-V99)	3	0	2	1
46 Accidental falls (W00-W19)	675	2	184	489
47 Accidental drownings (W65-W74)	99	4	58	37
48 Accidental poisonings excl. accidental poisonings by alcohol (X40-X44, X46-X49, Y10-Y15)	243	0	229	14
49 Other accidents and sequelae of accidents	254	3	145	106
50 Suicides (X60-X84, Y87.0)	710	2	571	137
51 Assault (X85-Y09, Y87.1)	64	3	56	5
52 Event of undetermined intent (Y16-Y34, Y87.2)	53	2	38	13
53 Other external causes and sequelae of other external causes (Y35-Y84, Y88-Y89)	3	0	1	2
54 NO DEATH CERTIFICATE	77	0	40	37

**Appendix table 1c. Deaths by underlying cause of death (54-group classification) and by age in 2011, women**

Cause of death (54 classes)	Ages total	0-14	15-64	65-
01-54 TOTAL DEATHS (A00-Y89)	25 241	106	3 072	22 063
01-41 DISEASES AND ACCIDENTAL POISONING BY ALCOHOL (A00-R99, X45)	24 078	91	2 655	21 332
01-03 Certain infectious and parasitic diseases (A00-B99, J65)	215	1	27	187
01 Tuberculosis (A15-A19, B90, J65)	33	0	0	33
02 Human immunodeficiency virus (HIV) disease (B20-B24)	1	0	1	0
03 Other infectious and parasitic diseases (A00-A09, A20-B19, B25-B89, B91-B99)	181	1	26	154
04-22 Neoplasms (C00-D48)	5 673	14	1 347	4 312
04-21 Malignant neoplasms (C00-C97)	5 491	12	1 326	4 153
04 Malignant neoplasms of lip, oral cavity and pharynx (C00-C14)	66	0	15	51
05 Malignant neoplasm of oesophagus (C15)	77	0	13	64
06 Malignant neoplasm of stomach (C16)	204	0	47	157
07 Malignant neoplasm of colon (C18, C19)	420	0	88	332
08 Malignant neoplasm of rectum, anus and anal canal (C20-C21)	169	0	31	138
09 Primary malignant neoplasm of liver and intrahepatic bile ducts (C22)	163	0	21	142
10 Malignant neoplasm of pancreas (C25)	548	0	104	444
11 Malignant neoplasm of larynx, trachea, bronchus and lung (C32-C34)	678	0	174	504
12 Malignant melanoma of skin (C43)	77	0	28	49
13 Malignant neoplasm of breast (C50)	836	0	293	543
14 Malignant neoplasm of cervix uteri (C53)	47	0	19	28
15 Malignant neoplasm of uterus (C54-C55)	162	0	24	138
16 Malignant neoplasm of ovary (C56)	367	0	123	244
17 Malignant neoplasm of prostate (C61)	0	0	0	0
18 Malignant neoplasm of kidney (C64)	172	0	32	140
19 Malignant neoplasm of bladder (C67)	88	0	8	80
20 Malignant neoplasm of lymphoid, haematopoietic and related tissue (C81-C96)	513	4	89	420
21 Other malignant neoplasms	904	8	217	679
22 Other neoplasms (D00-D48)	182	2	21	159
23-24 Endocrine, nutritional and metabolic diseases (E00-E90)	268	3	49	216
23 Diabetes mellitus (E10-E14)	210	0	35	175
24 Other endocrine, nutritional and metabolic diseases (E00-E09, E15-E90)	58	3	14	41
25 Dementia, Alzheimers disease (F01, F03, G30, R54)	4 308	0	29	4 279
26 Other diseases of the nervous system and sense organs	630	7	99	524
27-30 Diseases of the circulatory system (I00-I425, I427-I99)	10 366	1	460	9 905
27 Ischaemic heart diseases (I20-I25)	5 221	0	162	5 059
28 Other heart diseases excl. rheumatic and alcohol related (I30-I425, I427-I52)	1 138	1	88	1 049
29 Cerebrovascular diseases (I60-I69)	2 547	0	125	2 422
30 Other diseases of the circulatory system (I00-I15, I26-I28, I70-I99)	1 460	0	85	1 375
31-35 Diseases of the respiratory system (J00-J64, J66-J99)	771	5	98	668
31 Influenza (J09-J11)	15	3	0	12
32 Pneumonia (J12-J18, J849)	186	0	24	162
33 Bronchitis and emphysema (J40-J44, J47)	366	1	50	315
34 Asthma (J45-J46)	71	0	10	61
35 Other diseases of the respiratory system (J00-J06, J20-J39, J60-J64, J66-J848, J85-J99)	133	1	14	118
36 Diseases of the digestive system excl. alcohol-related diseases	703	0	74	629
37 Diseases of the genitourinary system (N00-N99)	254	0	11	243
38 Congenital malformations (Q00-Q99)	86	27	38	21
39 Other diseases	311	32	41	238

Cause of death (54 classes)	Ages total	0-14	15-64	65-
40 Ill-defined and unknown causes of mortality (R96-R99)	51	1	36	14
41 Alcohol related diseases and accidental poisoning by alcohol	442	0	346	96
42-53 ACCIDENTS AND VIOLENCE (V01-X44, X46-Y89)	1 108	15	399	694
42-49 Accidents (V01-X44, X46-X59, Y10-Y15, Y85-Y86)	847	9	188	650
42 Land traffic accidents	72	3	34	35
43 Other land transport accidents	3	2	1	0
44 Water transport accidents (V90-V94)	3	0	1	2
45 Others and unspecified transport accidents (V95-V99)	0	0	0	0
46 Accidental falls (W00-W19)	537	0	34	503
47 Accidental drownings (W65-W74)	21	0	11	10
48 Accidental poisonings excl. accidental poisonings by alcohol (X40-X44, X46-X49, Y10-Y15)	93	0	72	21
49 Other accidents and sequelae of accidents	118	4	35	79
50 Suicides (X60-X84, Y87.0)	202	0	172	30
51 Assault (X85-Y09, Y87.1)	35	6	25	4
52 Event of undetermined intent (Y16-Y34, Y87.2)	22	0	13	9
53 Other external causes and sequelae of other external causes (Y35-Y84, Y88-Y89)	2	0	1	1
54 NO DEATH CERTIFICATE	55	0	18	37

**Appendix table 2. Deaths from accidents by external cause and deaths from alcohol intoxication 2011**

External cause	Deaths from accidents	Of which under alcohol intoxication	
		Persons	%
Accidental deaths (excl. poisonings)	2 047	381	18,6
Transport accidents	300	70	23,3
Falls	1 212	114	9,4
Drowning	163	88	54,0
Eating, inhalation of food	54	14	25,9
Heat of sauna	38	24	63,2
Fire	59	28	48,3
Natural cold	63	27	42,9
Other accident	159	16	10,1

**Appendix table 3. Mortality during infant and perinatal period 1987–2011**

	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
1988	530	8,3	333	197	3,1	250	3,9	385	6,1
1989	495	7,8	282	213	3,4	261	4,1	382	6,0
1990	507	7,7	307	200	3,1	245	3,7	368	5,6
1991	531	8,1	305	226	3,5	276	4,2	383	5,9
1992	490	7,3	288	202	3,0	248	3,7	344	5,2
1993	428	6,6	267	161	2,5	195	3,0	285	4,4
1994	431	6,6	248	183	2,8	220	3,4	300	4,6
1995	429	6,8	299	130	2,1	172	2,8	251	4,0
1996	378	6,2	242	136	2,2	176	2,9	238	3,9
1997	368	6,2	239	129	2,2	165	2,8	233	3,9
1998	373	6,5	237	136	2,4	169	3,0	236	4,1
1999	329	5,7	208	121	2,1	154	2,7	213	3,7
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

1) Perinatal mortality = Stillborn (the duration of the mother's pregnancy at least 22 weeks) 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 4. Mean population 2011 by age and gender**

	Both sexes	Males	Females
Age groups total	5 388 272	2 645 475	2 742 797
0	60 600	30 982	29 619
1 - 4	241 699	123 581	118 119
5 - 9	291 232	148 773	142 459
10 - 14	294 799	150 574	144 226
15 - 19	329 925	168 228	161 698
20 - 24	330 331	169 037	161 294
25 - 29	345 751	177 626	168 125
30 - 34	339 762	174 466	165 297
35 - 39	317 417	163 085	154 333
40 - 44	344 422	174 894	169 528
45 - 49	376 334	190 285	186 050
50 - 54	373 235	186 750	186 486
55 - 59	383 959	190 008	193 951
60 - 64	398 468	195 500	202 968
65 - 69	289 327	138 279	151 048
70 - 74	231 373	104 696	126 678
75 - 79	180 074	75 549	104 525
80 - 84	142 936	51 973	90 964
85 - 89	81 178	23 576	57 602
90 - 94	28 623	6 444	22 179
95 -	6 832	1 177	5 655

**Appendix table 5. Standard population used in calculating age-standardised figures**

Age	Standard population
0	1 305
1-4	5 021
5-9	6 472
10-14	6 772
15-19	7 208
20-24	7 792
25-29	7 871
30-34	7 528
35-39	7 212
40-44	6 860
45-49	5 865
50-54	5 876
55-59	5 553
60-64	5 245
65-69	4 680
70-74	2 932
75-79	2 897
80-84	1 606
85-	1 305
Total	100 000

# Quality Description, Causes of death 2011

## 1. Relevance of cause of death statistics

In the cause of death statistics statistical information is produced annually on the causes of death of persons permanently resident in Finland. The statistics are compiled on the basis of death certificates on deaths, and the data are supplemented with and verified against data from the Population Information System of the Population Register Centre. Death certificates are archived at Statistics Finland. The cause of death statistics and the archive of death certificates have been operating since 1936.

Cause of death data are used i.a. in health surveys, in allocating health promotion measures and monitoring health as well as in various medical examinations. By combining the data with other data files it is possible to study, for instance, differences in mortality between different population groups. The basis for an investigation of the cause of death is the information on the death certificate. The basis in law for an investigation of the cause of death is the Act on the Investigation of the Cause of Death (1973/459). Furthermore, Regulation (EC) No 1338/2008 of the European Parliament and of the Council of 16 December 2008 on Community statistics on public health and health and safety at work regulates the data produced for Community cause of death statistics (Implementation Regulation No 328/2011).

### Definitions

**The causes of death** included in the statistics have since 1987 been the underlying cause of death, direct cause, intervening causes and contributing causes. Annual cause of death statistics are compiled according to the statistical underlying cause of death.

- The underlying cause of death is the disease which has initiated the series of illnesses leading directly to death, or the circumstances connected with an accident or an act of violence which caused the injury or poisoning leading to death. The underlying cause of death used in statistics (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).
- The direct cause of death refers to the disease, failure or injury whose symptoms cause the person to die.
- The intervening cause of death indicates the condition leading from the underlying cause to the direct cause.
- The contributing cause of death is recorded in the death certificate. The doctor will report in part II of the death certificate as contributing causes of death the reasons which have adversely affected the development of the condition leading to death and hence contributed to it.
- If the death entails an accident or violence, the death is described with an external cause. Data on the cause is supplemented with data on mortal injuries, poisonings and certain other consequences of external causes.

In the case of stillbirths and infants dying before the age of 28 days the causes of death are the main diseases or conditions in the fetus or infant, other conditions in the fetus or infant and maternal diseases affecting the fetus or infant. Above causes of death can be retrieved from the records in the cause-of-death data base.

**Early neonatal mortality** refers to the number of deaths during the first week of life relative to the live births during the statistical year.

**General death rate** indicates the number of deaths per 1,000 or 10 000 persons of the mean population. Infant mortality is calculated by dividing the number of deaths of infants under one year of age by the number of live births during the statistical year. Multiplying the result by 1,000 gives the figure in per mille.

**Late neonatal mortality** refers to the number of deaths which occur at the age of 7 to 27 days relative to the live births during the statistical year. Maternal mortality covers all deaths which occur during the pregnancy or during 42 days after the end of the pregnancy, regardless of the duration or location of the pregnancy. Included are all deaths of pregnant women due to any pregnancy related cause or a cause

exacerbated by pregnancy, but not accidental or violent deaths. Maternal mortality is obtained by dividing the number of maternal deaths by 100,000 live-born children. Neonatal mortality is calculated by dividing the number of deaths during the first week of life by the number of live births during the statistical year and multiplying the result by 1,000.

**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.

**Stillbirths** include a fetus or a newborn who shows no signs of life at the time of birth after a pregnancy lasting at least 22 weeks or, when the duration of the pregnancy is unknown, if the newborn weighs at least 500 grams. Miscarriages that occurred before 22nd week of the pregnancy are not regarded as stillbirths.

More information about definitions are available on the home page of the cause of death statistics under [concepts and definitions](#).

## 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 year. The coverage of statistics on stillbirths is supplemented with data from the birth register of THL. Annual cause of death statistics are compiled according to the statistical underlying cause of death.

Death certificates are issued by physicians. 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 National Institute for Health and Welfare (THL) to the regional unit where the deceased was a resident. A forensic pathologist there checks the correctness of the certificate and the certificates are sent on to Statistics Finland.

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.

From the beginning of 2010 the Provincial State Offices were discontinued and the forensic tasks of the Provincial State Offices were transferred to THL (the National Institute for Health and Welfare). These include the responsibility for checking and monitoring death certificates.

Causes of death are currently coded according to the ICD-10 classification (International Statistical Classification of Diseases and Related Health Problems, Volume 1-3, WHO Geneva 1992, new edition 2004). The causes of death are coded mainly in the most accurate level of the classification.

**Mortality rate** indicates the number of deaths in a given age group per mean population in the corresponding age group.

**Age-standardised mortality rate** indicates the number of deaths per 100,000 persons of the mean population, when the age structure is kept calculatorily unchanged during the reference period. The standardisation is necessary so that changes in mortality not due to the ageing of the population structure or differences in the age structure of regions can be highlighted. The standardisation used in cause of death statistics is made by using direct age standardisation (Standardised Death Rate, SDR). The formula used in the standardisation is as follows.

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

$m_i$  = mortality rate at age  $i$

$P_i$  = standard population at age  $i$

$P$  = standard population

The age structure of standard population used is in Appendix table 4. European standard population used in calculation is in Appendix table 5.

### ***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 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 (as free text) 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 (free text) in the death certificate in about two to three per cent of the cases yearly. Additional information is requested from the issuer of the death certificate in about 200 to 400 cases per year. Around two to three per cent of the cases are handled by a medical expert every year. Additional information is obtained for around 200 to 300 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 as well. The number of deaths on which no information on the cause of death is obtained is a good 100–150 per year. Some of them are deaths abroad, on which only a notification on death is obtained, and some are deaths in Finland, on which a death certificate was not acquired by the compilation time of the statistics.

When using the cause of death statistics it should be noted that mortality and the frequency of causes of death are strongly dependent on age. For that reason age standardisation is used in the statistics when comparing mortality differences between different time periods and areas. In the cause of death statistics the age-standardised mortality figure is calculated most often per 100,000 persons.

### ***4. Timeliness and promptness of published data***

Cause of death data are produced annually and they are completed in 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.

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

Data are produced yearly under the topic Health on the home pages of the cause of death statistics and are released on Statistics Finland's StatFin database. Cause of death data are available since 1936 in publications and from 1969 as time series in the database. The variables in the time series file are described on the home pages of the cause of death statistics under [Tietoluettelot](#) (in Finnish only). Tailored statistics and research data can be made from the file for customer needs. A licence to use Statistics Finland's data files is required for research data and statistics produced by municipality. An application for a licence to use the data can be found on [Statistics Finland's home page](#). The cause of death data can also be combined with other data files, such as longitudinal data of population censuses and employment statistics.

The cause of death data is published also in interational databases:

— in Health statistics in nordic countries, <http://nomesco-da.nom-nos.dk/>

— in Eurostat Public Health database

[http://epp.eurostat.ec.europa.eu/portal/page/portal/health/public\\_health/data\\_public\\_health/database](http://epp.eurostat.ec.europa.eu/portal/page/portal/health/public_health/data_public_health/database)

— in WHO databases, for example European Health for All database,

<http://www.euro.who.int/en/what-we-do/data-and-evidence/databases/>

Statistics Finland maintains the Finnish archive of death certificates. The archive contains the death certificates of Finnish residents since 1936. Copies of death certificates and unit level data on causes of

death are released from the archives for the purposes specified in the Act on the Inquest into the Cause of Death (459/1973). These purposes cover the releasing of data to 1) the deceased person's next of kin, 2) a pension institution or to the authorities, 3) for scientific research or statistical surveys.

Instructions for requesting death certificates and on the procedures of requesting a license to use statistical data are available on the [home page](#) of Statistics Finland's archive of death certificates.

## 6. Comparability of statistics

The classification of causes of death has changed several times; the classifications used in different years and the available comparable shortened cause of death classifications are described on the home page of the cause of death statistics under [Luokitukset](#) (in Finnish only).

The longest comparable time series classification (54 categories) is from 1969 onwards. Statistics following this classification are available in Statistics Finland's StatFin database under the topic Health.

## 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.

**In vital statistics** the numbers of deaths are presented i.a. by gender, age and area. The number of deaths differs by some ten cases yearly from their number in the cause of death statistics. The difference is due i.a. to the fact that the vital statistics data do not include deaths registered after the compilation time of the statistics concerned (after January of the following year). On the other hand, the vital statistics can also contain deaths from the five previous years on which information about the death is obtained during the compilation time of the vital statistics (in January of the following year).

**Statistics on road traffic accidents** concern the number of deaths in road traffic. The data are obtained from the information system of the police. The coverage of these statistics is checked against the data of the cause of death statistics. The numbers of the statistics on road traffic accidents deviate from those in the cause of death statistics by some tens of cases each year. The deviation is caused by the following differences in 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 very little from the figures in the cause of death statistics.

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