



Neuchâtel, November 2017

Cause of death statistics

Death and its main causes in Switzerland, 2015

In 2015, 67 606 people died in Switzerland, 6% more than in the previous year. The increase is due to the ageing of the population (an additional 500 deaths), the flu epidemic in spring (roughly 2500 deaths) and the heatwave in July (approximately 500 deaths). This led to life expectancy at birth declining slightly, which had not occurred since 1990: in 2015 it was 80.7 years for men and 84.9 years for women. In 2016 the number of deaths fell again to 64 964 and life expectancy rose above its 2014 level.

Today the majority of people are aged over 80 when they die. The probability of dying at a young age is very small. The infant mortality rate is 41 deaths per 10 000 live births. The risk of dying for children aged between 2 and 14 is less than 1 in 6000. The death rate shows exponential growth with increasing age and can only be demonstrated on a logarithmic scale (Graph G1). Males are more likely than females to die as infants and from the age of 15 onward.

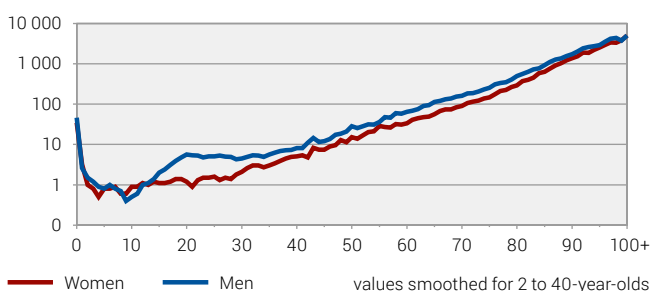
Graph G2 shows the distribution of deaths by age and sex. 1% of deceased persons were aged up to 24 years, 2% 25 to 44 years, 11% 45 to 64 years, 42% 65 to 84 years and 44% over 85 years.

Because disease is less common or can be more effectively treated in young people, more people are dying at an older age and from diseases that are typical for this age group. Overall, deaths caused by cardiovascular disease are most common. This statement, however, only applies to the total deaths and to those aged over 80. It does not apply to the younger age groups. The main cause of death among 45 to 82 year old men is cancer. Among women cancer is the most frequent cause of death from age 36 to 79. External causes, especially accidents and suicide are the main cause of death among 16 to 41 year old men and 23 to 32 year old women. Among newborns, congenital illnesses and birth-related problems cause 86% of deaths.

Mortality rate by age, 2015

Age-specific death rates, per 10 000

G1

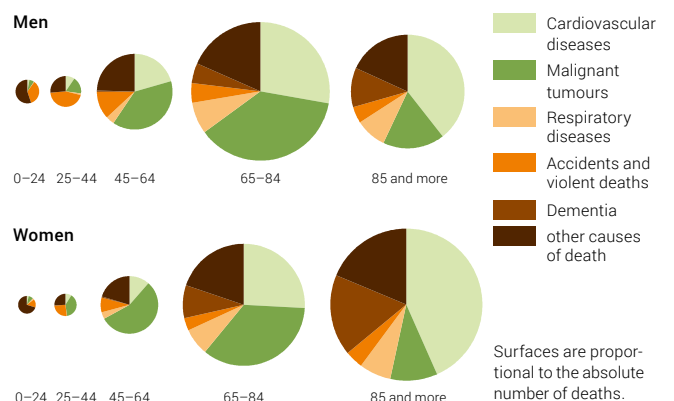


Source: FSO – BEVNAT

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Leading causes of death by age group, 2015

G2



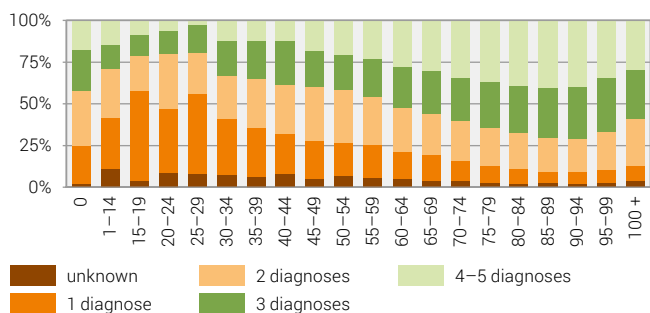
Source: FSO – Causes of death statistics

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Multi-morbidity

Up to four diagnoses are registered in the cause of death statistics, in exceptional cases up to five. 11% of deaths have one diagnosis, 23% two, 28% three and 36% four. In 3% of deaths, the diagnosis is unknown. The number of diagnoses increases with age (Graph G3). The greatest number of diagnoses are registered for 80 to 94 year-olds.

Multiple causes of death by age, 2015 G3



Source: FSO – Causes of death statistics © FSO 2017

If two or more illnesses have led to death, the additional ones are recorded as secondary diagnoses. These diagnoses can arise from the same or from another major illness group. In the following Table T1, only the secondary diagnoses from another illness group to that of the main diagnoses are taken into account.

The most frequent causes of death are cardiovascular diseases, from which 22 000 people died. Cardiovascular disease also contributed to the death of a further 19 000 persons who died from another main cause of death. The main diagnoses are, therefore, responsible for 53% of cardiovascular deaths.

Main and secondary diagnoses, 2015 T1

	Number of main diagnoses	Number of secondary diagnoses	% as main diagnoses
Cardiovascular diseases	21 593	18 941	53.3
Cancer	17 261	1 902	90.1
Respiratory organs	4 614	12 458	27.0
other causes	3 827	2 196	63.5
Dementia	6 365	4 735	57.3
all other diagnoses	13 946	30 536	31.4

Source: FSO – Cause of death statistics © FSO 2017

Cancer, on the other hand, appears 17 000 times as main cause of death, accounting for 90% of cancer cases. In contrast, diseases of the respiratory organs are the main cause of only 27% of deaths. The reason for this is that persons who are weakened by a serious illness often fall ill with pneumonia from which they die. Pneumonia accounts for a high percentage of respiratory diseases. The flu (influenza) also often affects people who are already weakened by another major illness and does not therefore appear as main cause of death.

While 6400 persons died from dementia (57%), a further 4700 were also affected (43%). Therefore dementia was recorded for a total of 11 100 deceased persons.

Does dementia cause death?

In the cause of death statistics, the main cause of death is the illness which appeared when the person first became ill. The causal chain is the decisive factor. In the case of dementia, the progressive loss of brain function often results in the failure of the respiratory centre or control of the swallowing process, which may lead to terminal pneumonia. But there are also many other subsequent illnesses associated with the general breakdown of the central vital functions.

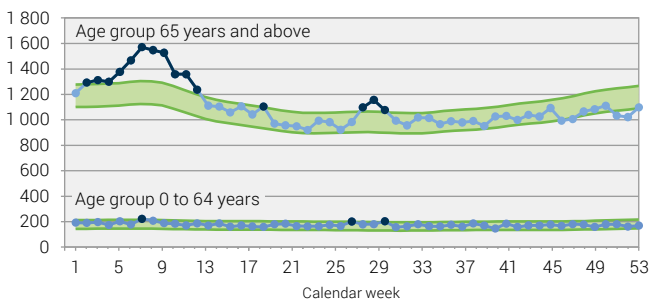
The mortality rate for the year 2015

The number of cases of death is subject to considerable seasonal fluctuation. If the almost 68 000 deaths were evenly distributed over the months of the year, there would be some 5700 deaths per month. In reality more people die in the winter half-year, with a maximum of 6000 deaths in January. In the summer half-year (June to September) markedly fewer people die with 5000 deaths. This normal seasonal fluctuation concerns almost exclusively persons aged over 65 years.

The model used continuously to examine whether there is *excess mortality* relies on data from the past ten years and takes into consideration the ageing of the population, which is expected to lead to 500 more deaths per year. Only persons who have died in and were resident in Switzerland are included in the data, i.e. the 600 people with residency in Switzerland who die abroad each year, are not counted.

In 2015, there were 68 000 deaths, 3000 more than would have been expected according to the trend of the past ten years. The reasons for this increase were the flu epidemic in spring (some 2500 additional deaths) and the heatwave in July (around 500 deaths) (Graph G4). When compared with 2014, the increase appeared particularly strong as in 2014 there were 1500 fewer deaths than expected. In 2016, the number of deaths fell again to 64 964.

Weekly number of deaths, 2015 G4



The green bands indicate the 95% confidence interval of the estimate of the expected number of deaths.

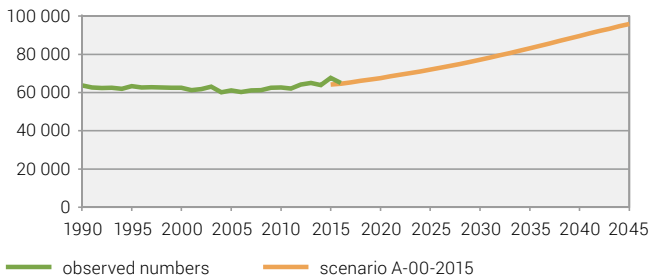
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Number of deaths: trends and forecast

Since the 1980s, approximately 60 000 persons have died annually in Switzerland. The last time the number of deaths was below 60 000 was in 1987. Over the subsequent 20 years, the number of deaths was around 62 000 (Graph G5). Due to the high proportion of women among elderly people, since 1995 more women have died than men.

Number of deaths 1990–2045

G5



Source: FSO – BEVNAT

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The FSO's population development scenarios for 2015–2045 show that the number of deaths will rise sharply over the next few years and decades (Graph G5). This is mainly due to the demographic development, the increase in the number of older people in our country.

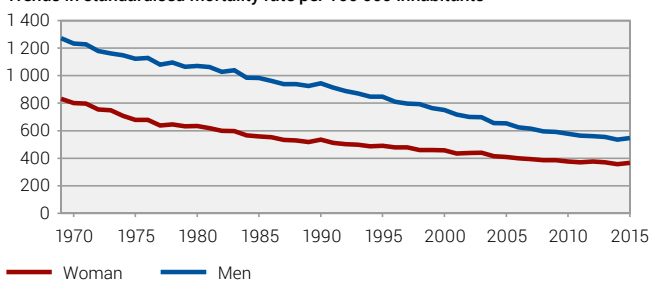
Trends in the mortality rate

The standardised mortality rate merges the age specific mortality rates into one figure. The time series shows the considerable decrease over the last few decades (Graph G6). The mortality rate among women decreased faster than the mortality rate among men until 1977. Since then, the drop has been relatively slower and rates among men and women have further converged. From 2014 to 2015, the mortality rates of both men (by 2.4%) and women (by 3.1%) rose due to the flu epidemic and the heatwave.

Mortality in Switzerland, 1969–2015

G6

Trends in standardised mortality rate per 100 000 inhabitants



Source: FSO – Causes of death statistics

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Trends in potential years of life lost

“Early” mortality is measured by the number of *potential years of life lost* (PYLL). In 2015, men lost 107 000 potential years (+2.8%) and women 59 000 (+1.3%) compared with 2014.

Definition

The potential years of life lost (PYLL) is an indicator used to calculate premature mortality. In order to calculate the PYLL, the total number of deaths in each age group is weighted according to the number of years of life left until the upper age reference of 70. If death occurs at the age of 5 years, for example, the number of PYLL is 65. The upper age reference is commonly set at 70 for reasons of comparability (used e. g. by the OECD).

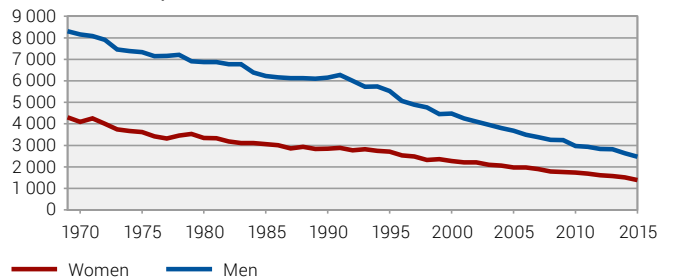
The standardised rate of the PYLL per 100 000 in habitants is less than a third of its size in 1969 (Graph G7). Whereas for women this decline has been continuous, for men it came to a temporary halt in the second half of the 1980s due to the Aids epidemic. Since then, however, PYLL rates for men have declined at a faster pace than for women.

PYLL rates fell again from 2014 to 2015, as the additional deaths in 2015 concerned mainly older people.

Potential years of life lost 1969–2015

G7

Standardised rate per 100 000 inhabitants



Source: FSO – Causes of death statistics

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Cause of death indicators

Causes of death can be illustrated by using various indicators to show different aspects. Table T2 shows eight indicators. The simplest are the absolute number and the percentage of all deaths. These numbers can be directly compared with one another and show very simply which causes of death are common and which are rare. The crude rate puts the number of deaths in relation to the number of inhabitants but does not take the age distribution of the population into account. Standardised rates do take this into account and can therefore be used to compare mortality between different points in time and among different regions. The potential years of life lost are an indicator for premature mortality. They show where prevention can play a particularly important role.

Indicators for the main causes of death, 2015

T2

	Number	% of all deaths	Crude rate ¹	Standardised rate ²	PYLL abs. ³	% of PYLL	PYLL stand. rate ⁴	Average age at death (years)
Men								
all causes of death	32 646	100.0	796.7	547.2	106 894	100.0	2 470.0	75.9
Cardiovascular diseases	9 715	29.8	237.1	154.5	16 502	15.4	361.2	80.3
Cancer	9 571	29.3	233.6	163.7	30 652	28.7	673.8	73.5
Respiratory organs	2 315	7.1	56.5	36.7	3 018	2.8	66.1	80.4
External causes	2 299	7.0	56.1	44.3	28 836	27.0	715.0	63.2
Dementia	1 965	6.0	48.0	29.1	215	0.2	4.5	85.6
all other diagnoses	6 781	20.8	165.5	118.9	27 671	25.9	649.4	72.8
Women								
all causes of death	34 960	100.0	835.4	367.2	59 481	100.0	1 390.0	82.1
Cardiovascular diseases	11 878	34.0	283.8	103.7	6 110	10.3	137.0	86.7
Cancer	7 690	22.0	183.8	106.4	27 547	46.3	615.6	73.9
Respiratory organs	2 299	6.6	54.9	22.6	1 867	3.1	44.1	84.0
External causes	1 528	4.4	36.5	19.1	9 313	15.7	234.3	75.9
Dementia	4 400	12.6	105.1	35.3	273	0.5	5.6	88.3
all other diagnoses	7 165	20.5	171.2	80	14 371	24.2	353.6	80.1

¹ Crude rate: Number of deaths per 100 000 inhabitants

² Standardised rate: direct age-standardisation with European standard population 1980

³ PYLL: Potential years of life lost of persons dying before age 70

⁴ PYLL standardised rate: YPLL per 100 000 inhabitants, age-standardised

Source: FSO – Cause of death statistics

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The average age at death is a clear way of showing that different health problems occur at different phases of life. The widest gap can be seen between external causes (especially accidents and suicide) and dementia. On average men die from dementia aged 86, whereas accidental deaths or suicide occur when they are 22 years younger. This is why men lose only 0.2% of potential years of life to dementia, but 27.0% to external causes.

Among women the widest gap is between dementia and cancer. Their average age at death from dementia is 89 and from cancer 74. They lose 0.5% of potential years of life to dementia but 46% to cancer. The age at which men and women die from accidents differs greatly, as frequent falls among women in old age often prove fatal.

Data source and methods

The Swiss Cause of Death Statistics were introduced in 1876. They are based on the medical certificate of cause of death. Diagnoses are recorded in words, the coding is based on the ICD-10 and is conducted in the Federal Statistical Office according to the rules defined by the WHO. All collected data are treated anonymously and strictly confidentially and are subject to the provisions of the Federal Data Protection Act of 19 June 1992 (SR 235.1). Publications on the cause of death statistics relate to persons who were resident in Switzerland, i. e. who were part of the permanent resident population independent of their nationality and place of death.

Missing data

For 3.1% of deaths in 2015 the cause of death is unknown. This is either because no diagnosis could be made or because this information was not communicated to the FSO. Information is incomplete for 2.4% of deaths in Switzerland (99%) and 88.5% of deaths abroad (1%). The percentage of unknown causes of death decreases from around the age of 35 years with increasing age.

Further information on the cause of death statistics on the internet:

www.statistik.ch → Look for statistics → Health → State of health → Mortality, causes of death

Published by:	Federal Statistical Office (FSO)
Information:	Federal Statistical Office, Health information service, Tel. 058 463 67 00, esundheit@bfs.admin.ch
Contents:	Christoph Junker, FSO
Series:	Swiss Statistics
Topic:	14 Health
Original text:	German
Translation:	FSO language services
Layout:	DIAM Section, Prepress/Print
Graphics:	DIAM Section, Prepress/Print
Front page:	FSO; Concept: Netthoewel & Gaberthüel, Biel; Photograph: © Auke Holwerda – istockphoto.com
Printed:	in Switzerland
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Print format orders:	Federal Statistical Office, CH-2010 Neuchâtel, tel. +41 58 463 60 60, fax +41 58 463 60 61, order@bfs.admin.ch
Downloads:	www.statistics.admin.ch (free of charge)
FSO number:	1260-1500