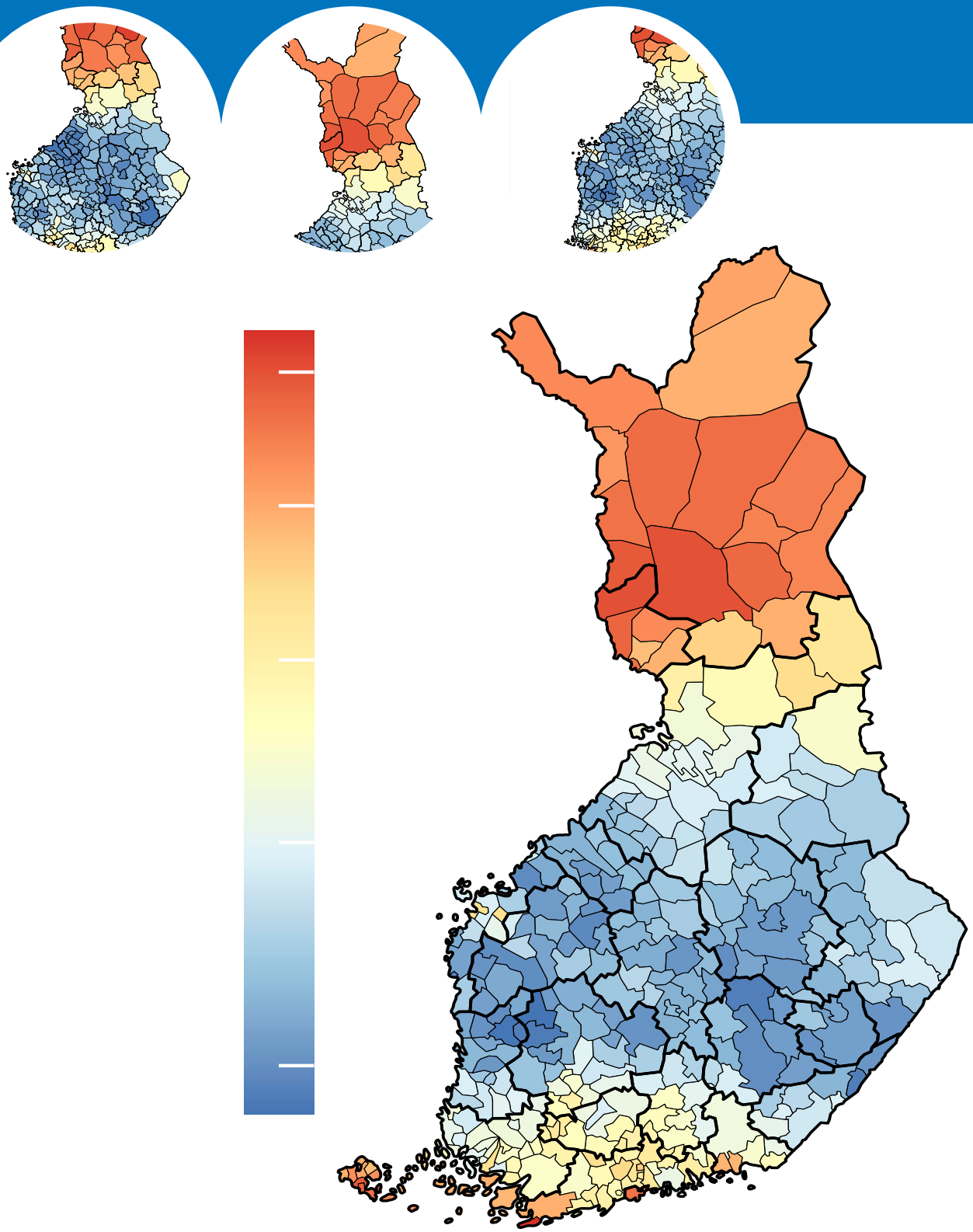
Finnish Cancer Registry

Finnish institute for health and welfare

Janne Pitkäniemi, Nea Malila, Tomas Tanskanen, Henna Degerlund, Sanna Heikkinen, Karri Seppä

CANCER IN FINLAND 2019



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1 Foreword

The Finnish Cancer Registry has completed the cancer statistics on the year 2019 (cancerregistry.fi/statistics/cancer-statistics). The objective of these statistics is to provide a comprehensive and reliable overview of Finland's cancer burden. The report compiles information on new cancer cases, the number of cancer deaths, cancer prevalence and patient survival. In addition, the report presents predictions of the cancer burden in 2035.

All told, there were 35,327 new cancer cases and 13,085 cancer deaths recorded in 2019. The most common cancer types were prostate cancer in men and breast cancer in women. The number of cancer survivors was also the highest in these two cancer types in 2019. The most common causes of cancer deaths in men were lung and prostate cancer and colorectal cancer. Breast cancer was the most common cause of cancer death in women. In prostate cancer, melanoma of the skin and breast cancer in women, the five-year survival after diagnosis stood at over 90%. The incidence of melanoma of the skin has increased sharply and is expected to increase by 32% by 2035.

Cancer incidence and mortality were the highest among people with a basic level of education and the lowest among those with a higher education. The difference between these groups was clearer in the case of cancer mortality. In lung cancer in particular, the difference in incidence and mortality between the basic and higher education levels was highlighted.

This report also analyses regional differences in cancer. As regards cancer incidence, the regional variation was higher among men than among women, but among women cancer mortality varied more by region than among men.

At the time of writing this report, Finland has been in the middle of a coronavirus pandemic for a year. The effect of the Covid-19 pandemic on cancer detection was assessed by examining the number of cancer samples reported to the Cancer Registry. Between March and June 2020, there were 12% (2,610) fewer cancer samples reported than expected based on previous years.

The cancer statistics in this report have been compiled in line with the clinical cancer classification system (ICD-10), going back as far as 1953, the year the Cancer Registry was founded. Due to changes in the classification of haematological cancers, the time series of these diseases is only comparable from 2007 onwards.

The data sources of the Registry are healthcare providers and pathology and haematology laboratories. Making information available quickly and reliably to authorities and researchers is a joint objective. The cancer notification submitted by the care provider gathers the best view of the stage at diagnosis. For the 2019 statistical year, we are now, for the first time, publishing the statistics on clinical notifications on our website (syoparekisteri.fi/tilastot/kliinisten-ilmoitusten-tilasto). With the statistics, notifiers can examine the scope of reporting for the most common cancer types by hospital district. We hope that the statistics will encourage and activate notifiers to submit clinical cancer notifications and also strengthen the quality of the data in our joint register.

The Finnish Cancer Registry is a research institute under the Cancer Society of Finland that maintains the national registry of all diagnosed cancer cases and collects data on cervical and breast cancer screening. The Finnish Institute for Health and Welfare is the controller of the registry and as such has given the Cancer Society of Finland responsibility for the operation of the registers.

We want to extend our sincerest thanks to all our partners for their good cooperation. A comprehensive dataset spanning nearly 70 years represents a valuable national capital.

Helsinki, 20 May 2021

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2 Cancer situation in 2019

There were a total of 35 327 new cancer cases diagnosed in Finland in 2019. Of these, 16 987 were diagnosed in women and 18 340 in men. The number of people who died from cancer in 2019 was 13 085 (Table 1). Nearly 300,000 Finns with cancer were alive at the end of 2019: 56% were women and 44% were men. The five-year relative survival ratio of cancer patients followed up between 2017 and 2019 was 70%.

Table 1: New cancer cases and cancer deaths in 2019, the cancer prevalence and the five-year relative survival ratios of patients in the population of Finland separately for men and women.

Both together	Female	Male
35 327 new cases	**16 987** new cases	**18 340** new cases
13 085 cancer deaths	**6 065** cancer deaths	**7 020** cancer deaths
298 643 living patients	**168 081** living patients	**130 562** living patients
70 % on five-year survival rate	**70 %** on five-year survival rate	**68 %** on five-year survival rate

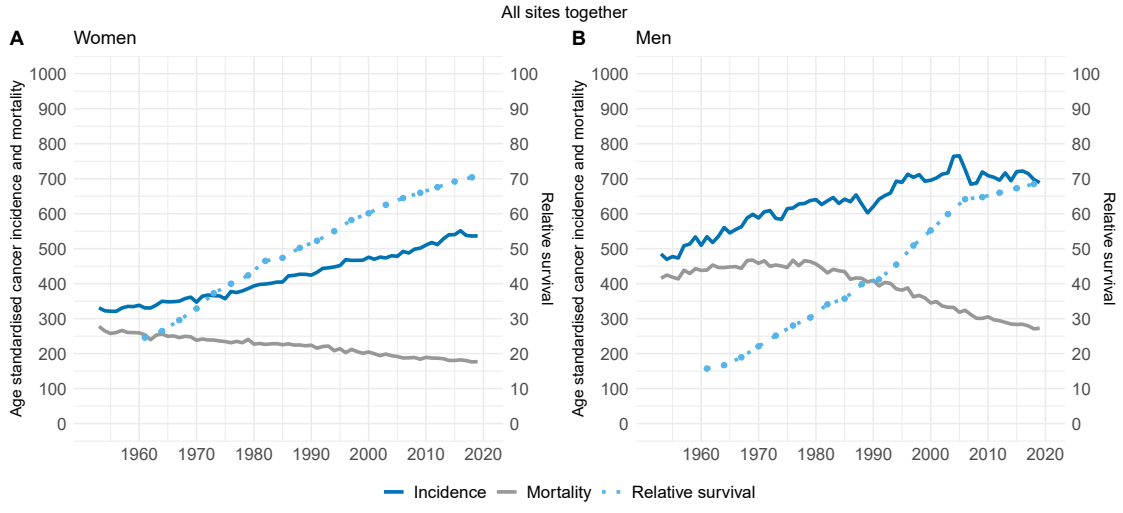

Figure 1: Cancer incidence and mortality (per 100,000 person-years and age-standardised to the 2014 Finnish population) and age-standardised five-year relative survival ratio (%) by sex in 1953–2019.

Figure 1 shows the age-standardised cancer incidence and mortality and the relative survival ratio of patients from 1953 to 2019. Cancer incidence increased in women until 2017 (by 0.8% on average per year in 1990–2017, Table 14), and seems to have levelled out after that. Due to the short period, however, the change in the last period is uncertain. In men, the previous increase (1.0% per year in 1990–2003, Table 15) has levelled out

(–0.3% per year in 2004–2019). Cancer mortality has decreased among women and men: on average by 0.5% per year (2006–2019) in women and by 1.2% per year in men (2008–2019, Tables 17 and 16). The relative survival ratio has improved steadily in women, and the previous rapid improvement in the survival ratio in men has slowed since the mid-2000s.

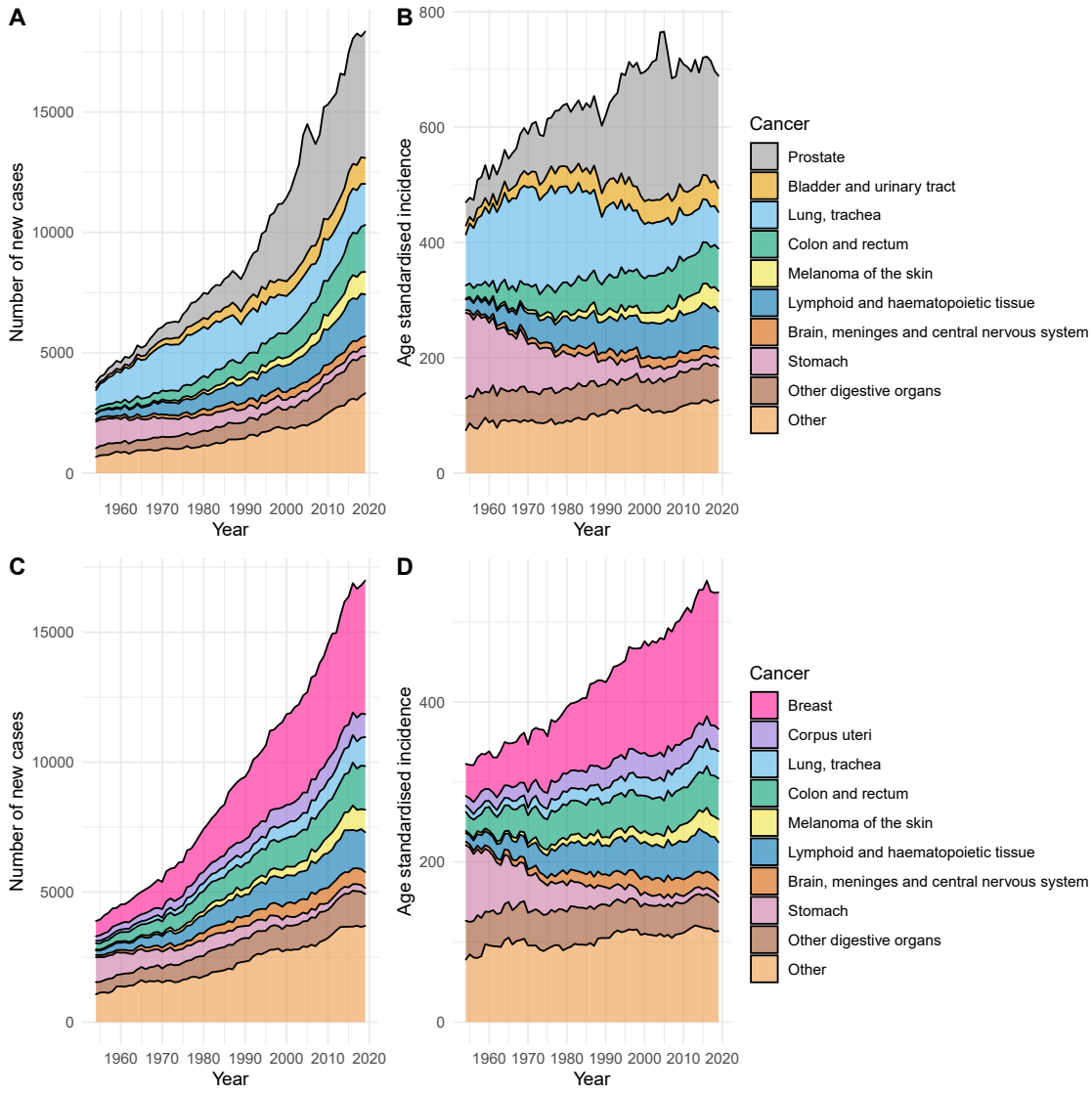

Figure 2: Number and incidence of new cancer cases (per 100,000 person-years and age standardised to the 2014 Finnish population), stratified by cancer type in men (Figures A and B) and women (C and D) in 1953–2019. Other digestive organs include cancer of the oesophagus, small intestine, anus, liver, gallbladder and bile ducts, pancreas and other or unspecified digestive organs.

Figure 2 shows the annual number of new cancer cases and the age-standardised incidence of the most common types of cancer by sex. In the 1950s, around 2 000 new cases of stomach cancer were diagnosed annually in Finland, and it was the most common cancer among both men and women. Today, around 600 new cases of stomach cancer are diagnosed annually. The incidence of lung cancer has also decreased in men since the 1970s. The incidence of prostate cancer began to increase significantly in the 1990s. In women, the incidence of breast cancer has increased throughout the period considered.

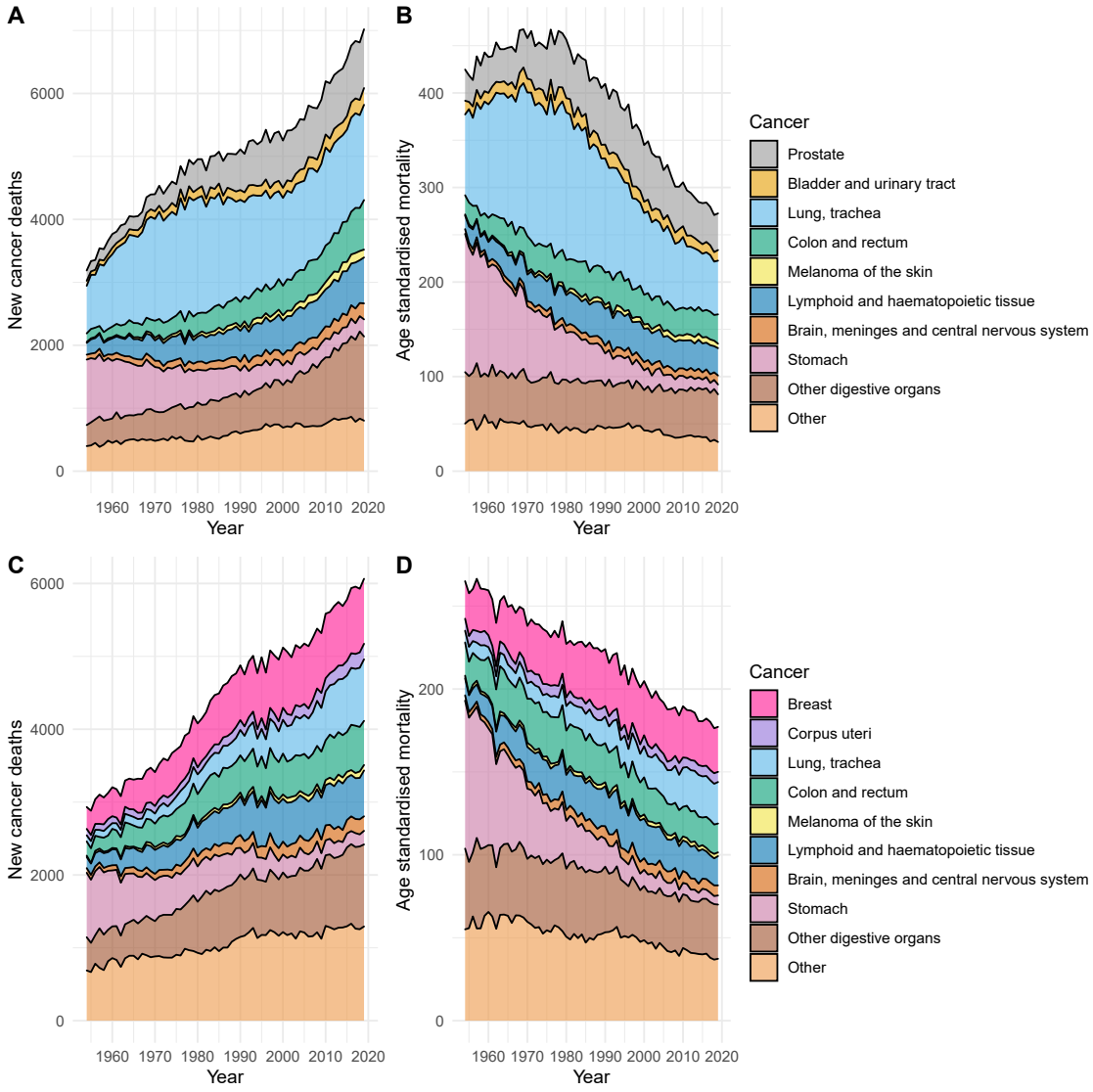

Figure 3: Number of new cancer deaths and mortality rate (per 100,000 person-years and age standardised to the 2014 Finnish population), stratified by cancer type, in men (Figures A and B) and women (C and D) in 1953–2019. Other digestive organs include cancer of the oesophagus, small intestine, anus, liver, gallbladder and bile ducts, pancreas and other or unspecified digestive organs.

Figure 3 shows the number of cancer deaths and the age-standardised mortality in men and women since 1953. The number of cancer deaths in women has grown relatively steadily throughout the period considered, while in men the strong increase declined in the 1980s and 1990s, but accelerated thereafter. The changes in prostate cancer mortality in men and breast cancer mortality in women have had a relatively small impact on the change in overall cancer mortality. This has been most influenced by a significant decrease in stomach cancer mortality in both men and women, and by a decrease in lung cancer mortality in men. In women, lung cancer mortality has increased, and lung cancer is now a major cause of cancer deaths.

The age-standardised incidence of cancer is predicted to increase moderately (Figure 4). From 2019 to 2035, the average annual increase is projected to be 0.5% for women and 0.3% for men. The decline in mortality is projected to continue. On average, mortality in women will decrease by 0.5% per year and mortality in men by 0.8% per year. The difference between the sexes is largely due to the different prognosis of lung cancer between women and men.

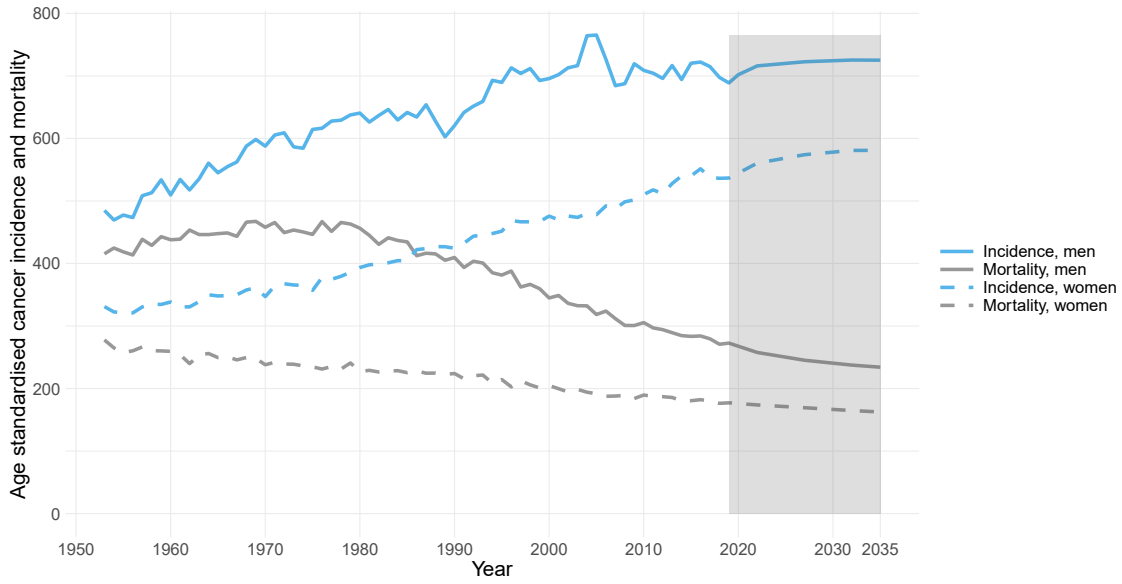

Figure 4: Cancer incidence and mortality (per 100,000 person-years and age-standardised to the 2014 Finnish population) in 1953–2019, and projected development until 2035 by sex.

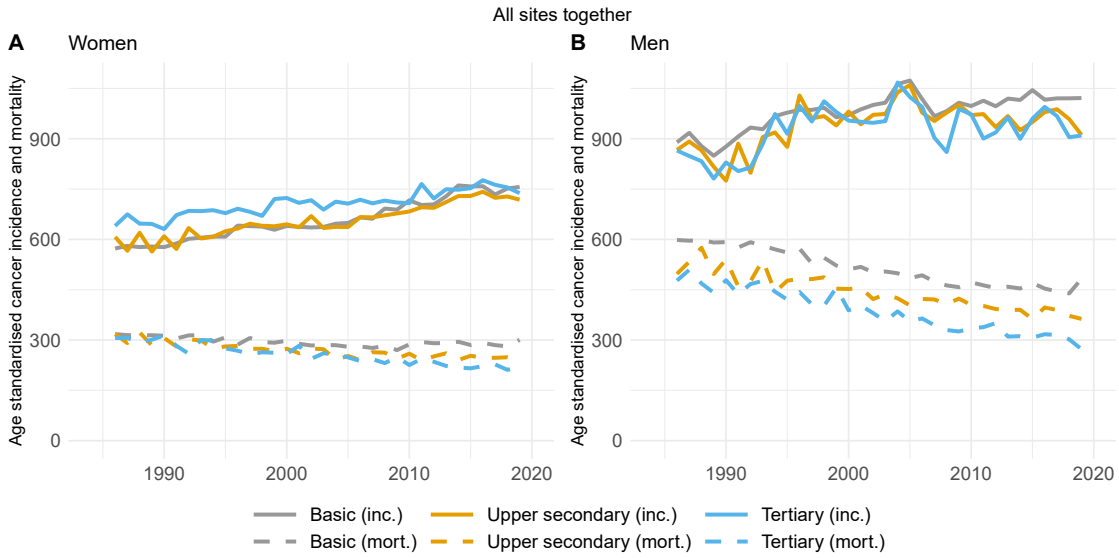

Figure 5: Cancer incidence and mortality (per 100,000 person-years and age-standardised to the 2014 Finnish population) in the population aged 25 and over by sex and level of education in 1986–2019.

As a whole, the incidence of cancer and the mortality rate were the highest among those with a basic education and the lowest among those with a higher education (Figure 5). The greatest differences were observed for lung cancer. However, the incidence of the most common cancers among women and men, breast cancer and prostate cancer, was the highest among people with a higher education. Overall, the greatest differences as regards level of education were found in men's cancer mortality, where the mortality rate among those with a basic education was statistically significantly higher than among those with a higher education for all cancers included in the examination. Similarly, the cancer mortality among highly educated women was generally slightly lower than among those with a basic level of education.

3 Statistical methods

3.1 Definitions

Incidence The number of new cancer cases over a specific period of time (e.g. one calendar year) in the population or part of it. The incidence ratio is the number of cases per 100,000 persons per year.

Mortality Number of deaths attributable to cancer over a specific period of time in the population or part of it. The mortality ratio is the number of deaths per 100,000 persons per year.

Prevalence The number of people with cancer living at a certain time in the population or part of it. The prevalence proportion is the corresponding number in relation to the population, for example per 100,000 persons.

Age-standardised incidence, mortality and prevalence In this report, incidence, mortality and prevalence have been standardised to the age structure of the Finnish population in 2014 with a view to, for example, improving the comparability of calendar-year figures, taking into account changes in the age structure.

Risk of cancer Estimate of the proportion of people who will develop cancer in the population before a certain age.

Risk of developing and dying from cancer Estimate of the proportion of people who will develop and die from cancer in the population before a certain age.

Relative survival ratio Estimate of the proportion of patients who are alive after a certain period of time after the cancer diagnosis, if the cancer would be the only factor affecting the mortality. It is used as an indirect indicator of survival from cancer.

Age-standardised relative survival ratio In this report, a standardised relative survival ratio for patients recorded in Finland during the most recent three-year period 2017–2019, aimed, for example, at improving the comparability of calendar-year figures, taking into account changes in the age structure.

Cancer burden The harms caused by cancer in the population. The most commonly used indicators are incidence, cancer mortality and relative survival ratio.

The regional statistics are based on the persons' municipality of residence in the year the cancer was diagnosed, except in the case of cancer mortality, where they are based on the municipality of residence in the year of death.

In the statistics presented by educational level, the population was divided into three groups according to the highest degree obtained. The educational data are based on Statistics Finland's Register of Completed Education and Degrees and the classification of educational levels. Persons at the basic educational level had not obtained a degree at a higher level than basic education, primary school (folk school), civic school or middle school. The upper secondary level of education included persons who had completed the matriculation examination or a vocational qualification (e.g. 1–3-year vocational qualifications and basic vocational qualifications as well as specialist vocational qualifications). The tertiary level of education included those who had completed lowest level tertiary education (e.g. technician engineer diploma, diploma in business and administration and diploma in nursing, which are not polytechnic degrees), lower-degree level tertiary education or higher-degree level tertiary education.

3.2 New cancer cases – incidence

The statistics on cancer are based on reports on the number of **new cancer cases diagnosed** during a specific period of time. The period is often one year. **Incidence** refers to the number of new cancer cases diagnosed per 100,000 person-years. The number of person-years in the Finnish population, i.e. the time accumulated by the population at risk of cancer, broken down by statistical year, sex and age, is derived from the population data maintained by Statistics Finland. These data play a key role in the assessment of cancer burden indicators, as the age structure of the Finnish population has changed dramatically over the past decades (Figure 6). As the population ages, the number of cancers increases, but this does not necessarily mean that the incidence of cancer increases by age group.

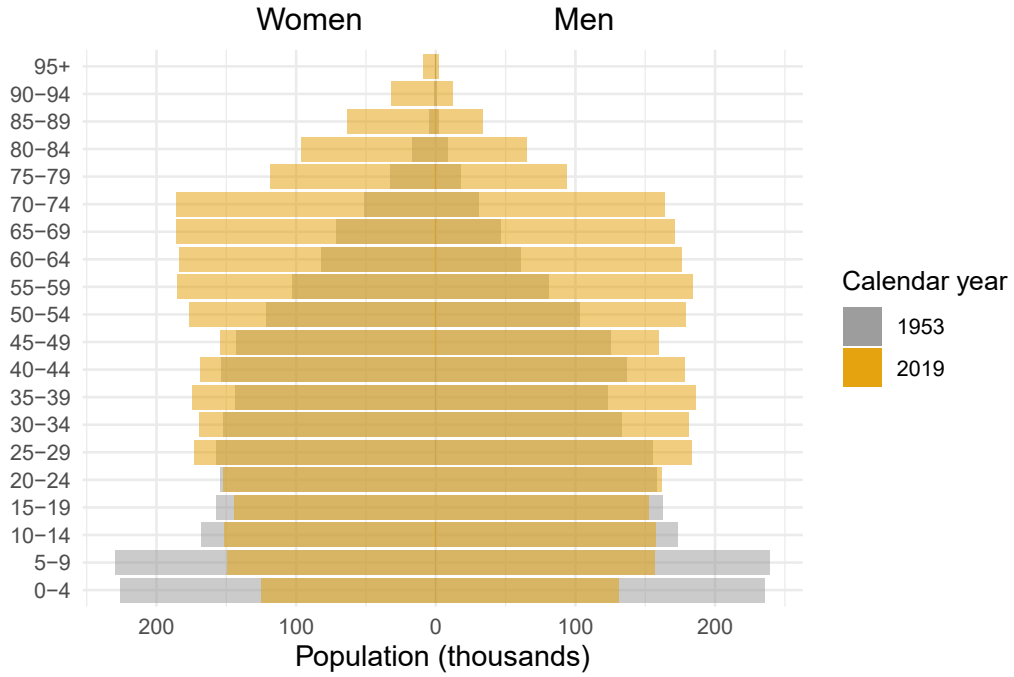

Figure 6: Age structure of the Finnish population by sex in 1953 and 2019.

Age-standardised incidence describes the number of new cancer cases per 100,000 person-years if the age structure of the Finnish population would correspond to the standard population. There are two options for the standard population: 'standard world population' and 'Finland 2014'. The standard world population is based on the global age structure in the 1950s. Selecting 'Finland 2014' standardises the figures to correspond to the age structure of the Finnish population in 2014. The purpose of age standardisation is to improve the comparability of figures between population groups with different age structures and between different periods of time. The 'Finland 2014' standard population is well suited for comparing, for example, calendar years and hospital districts, and the standard world population enables comparisons with other countries.

3.3 Cancer deaths – cancer mortality

The number of deaths attributable to cancer is often reported for one year or another chosen period of time.

Cancer mortality refers to the number of cancer-related deaths per 100,000 person-years.

Age-standardised cancer mortality describes the number of cancer deaths per 100,000 person-years if the age structure of the Finnish population corresponded to the 'standard population'. There are two options for the standard population: 'standard world population' and 'Finland 2014'. The standard world population is based on the global age structure in the 1950s. Selecting 'Finland 2014' standardises the figures to correspond to the age structure of the Finnish population in 2014. Age standardisation makes it possible to compare cancer mortality figures between population groups with different age structures and between different periods of time. The 'Finland 2014' standard population is well suited for comparing, for example, calendar years and hospital districts, and the standard world population enables comparisons with other countries.

3.4 Persons living with cancer – prevalence

Prevalence refers to the number of living persons in the population at a certain point in time who have previously been diagnosed with cancer. The prevalence is broken down by the time since diagnosis. For example, a five-year figure only includes those patients whose cancer was diagnosed no more than five years ago (e.g. at the earliest on 31 December 2005, if counted from 31 December 2010). The regional statistics are based on the persons' municipality of residence in the year the cancer was diagnosed.

The prevalence proportion refers to the number of persons living with cancer in the population relative to the population. For example, a prevalence proportion of 5,000 per 100,000 means that 5,000 persons of 100,000 persons (i.e. 5% of the population) have a previously diagnosed cancer

3.5 Risk of cancer and risk of cancer death

Risk of cancer refers to the average probability of contracting cancer before a certain age. In the present report, the risk assessment is based on the cancer incidence and overall mortality rates of the population in the last fiveyear period 2015–2019, by age group. The assessment takes into account that part of the population will avoid developing cancer because they will die from other causes before they do.

Risk of developing and dying from cancer refers to the average probability in the population of dying from cancer before a certain age. The risk assessment is based on the age-group mortality rates and the overall mortality rates of the population in the last five-year period 2015–2019. The assessment takes into account that part of the population will avoid dying from cancer because they will die from other causes before they do.

3.6 Prognoses on cancer patients – survival

The **relative survival ratio** (patient's prognosis) is calculated by comparing the patient mortality rate with the mortality rate of the Finnish population of the same sex and the same age and in the same calendar period. It is an indicator of the hazards of cancer. Relative survival can be interpreted as the probability that a patient would be alive after a certain period of time after diagnosis if the cancer in question was the only possible cause of death for the patient. Survival is often presented as a five-year survival ratio.

The **age-standardised relative survival ratio** standardises the age structure of patients across the country to the age structure of patients diagnosed in the most recent three-year period (e.g. 2017–2019) by cancer type and sex. The purpose of age standardisation is to improve the comparability of figures between areas with

different age structures and between different periods of time. This report uses the traditional method of age standardisation, which is based on age-group-specific survival ratios. The age-standardised survival ratio is missing if no patients are alive in an age group five years after the diagnosis.

3.7 Time series and change assessment

Changes in the last ten years Changes in the incidence and mortality of cancer were examined by comparing the average incidence and mortality rates per age group between the last two five-year periods. The coefficient of the relative change describes the average change in incidence rates in age groups relative to the population from 2010–2014 to 2015–2019. For example, a change coefficient of 1.05 refers to an increase of 5% and a change coefficient of 0.95 refers to a decrease of 5% in age-standardised incidence.

Long-term changes The change in cancer incidence and cancer mortality since 1990 is measured by an average annual change percentage. This method assesses whether the age-standardised trend has been steady or whether it has changed between 1990 and 2019. If there has been a statistically significant change, two change percentages will be used to describe the development before and after the point of change.

The **time series for survival ratios** is based on patient monitoring in twelve five-year periods: 1960–1964, ..., 2015–2019. The time series has been age-standardised to the age structure of patients diagnosed in 2015–2019 (by cancer type). The ratios for women and men were standardised to the same age structure. The age standardisation was based on a statistical method that provided an estimate of the survival ratio for as many periods as possible, including in the smallest patient datasets.

The time series coverage for haematological cancers is described in more detail in section 4.3, Time series coverage.

3.8 Predictions of incidence and mortality

The predictions of the incidence of cancer in 2020–2035 were based on the Nordpred statistics programme developed by the Cancer Registry of Norway. The method estimates the effects of age, calendar year and year of birth on the observed incidence of cancer using a statistical model. The effects were estimated by sex and cancer type based on the last 10–35 years. The incidence prediction assumes that the observed calendar trend will level out over time. The observed linear trend was cut by one-fourth in 2025–2029 and by half from 2030 onwards. The incidence predictions were used to derive predictions of the annual number of new cancer cases by using Statistics Finland's forecasts for Finland's population in 2020–2035.

3.9 Regional differences in cancer incidence and mortality

Estimating the incidence and mortality of cancer in small areas yields uncertain results due to statistical random error. The incidence and mortality of the most common cancers were analysed by municipality in 2015–2019 using a Bayesian hierarchical model in which the incidence and mortality rates in neighbouring municipalities are assumed to be similar. This statistical method is a way to reduce the random error of regional estimates. The method was used to estimate the municipalities' age-standardised risk ratio, which describes the average relative difference in age-group incidence and mortality, relative to the municipality's population, compared to the whole country. Credible intervals of 95% are presented for the risk ratios and the average risk ratio of municipalities in the area.

3.10 Risk ratios for incidence and mortality between levels of education

Differences in the incidence and mortality of cancer between different levels of education were examined by comparing the average incidence and mortality rates per age group in the last five-year period. The age-standardised risk ratio describes the average relative difference between age-group-specific incidence and mortality relative to the population in persons with basic or secondary level of education compared to persons with a tertiary level of education. Confidence intervals of 95% are shown for the risk ratios to assess random errors.

4 Data and quality

4.1 Objectives of the Cancer Registry

The Finnish Cancer Registry monitors the cancer burden in the entire Finnish population. This encompasses the number of new cancer cases, the risk factors of cancer, the mortality caused by cancer, the survival of patients, cancer prevention and early detection. The Registry also compiles predictions of the future cancer burden.

More and more people survive cancer. One of the challenges for the future is therefore to ensure the quality of life of cancer survivors. It is important to examine the potentially harmful effects of cancer treatments and how they can be prevented and treated.

Epidemiological research aims to set out the broad lines for directing research. The Cancer Registry provides data for a number of epidemiological, clinical and cancer biology studies. The employees of the Registry help in planning cancer research and in choosing research designs.

4.2 Cancer types recorded and reported

The Cancer Registry collects data on all cancer cases diagnosed in Finland. The country's healthcare providers have a statutory obligation to deliver the data to the Registry. A cancer notification must also be made in the case of a strong suspicion of cancer, but only confirmed cases end up in the cancer statistics.

As the statistics must be comparable over time and with corresponding figures in other countries, they follow the international rules for multiple primary cancers, with the exception of haematological cancers (see section 4.3, Time series coverage). In the case of the brain and the central nervous system, data on all tumours, including benign tumours, are collected and recorded in the statistics. For urinary tracts, data are recorded on malign tumours and tumours with an unclear growth tendency and on carcinomas in situ. The Registry also collects data on certain other non-malignant tumours, which are recorded separately from actual cancers, that is, they are not included in the overall cancer figures. These include borderline ovarian tumours, intraductal breast cancers and pre-cancer of the cervix.

Statistics Finland provides the data on causes of death for all patients recorded in the cancer register. Statistics Finland also provides data on cancer deaths that have not been reported to the register. In such cases, the cancer case is based solely on the death certificate (death certificate only, DCO).

4.3 Time series coverage

Finland's cancer data have been comprehensively recorded ever since 1953. Due to improvements in classification and changes in definitions, the registration of certain disease entities began later.

Table 2 shows the years of initiation for the time series on haematological cancers, most of which differ from the beginning of the register, that is, from 1953 for new cases and cancer deaths and from 1958 for survival statistics.

Table 2: Starting year of time series for incidence, mortality, survival and prevalence for malignant disease groups of the lymphoid and haematopoietic tissues.

Cancer site	ICD-10	Incidence and mortality	Survival	Prevalence, time since diagnosis		
			5-year	1 year	5 years	10 years
Lymphoid and haematopoietic tissue	C81-96,D45-47,D76	1953	1958	1953	1957	1962
Hodgkin lymphoma	C81	1953	1958	1953	1957	1962
Mature B-cell neoplasms	-	2007	2012	2007	2011	2016
Chronic lymphatic leukaemia	C91.1	1953	1958	1953	1957	1962
Diffuse B lymphoma	C83.3	2007	2012	2007	2011	2016
Follicular B lymphoma	C82	2007	2012	2007	2011	2016
Myeloma and other plasma cell tumors	C90	1953	1958	1953	1957	1962
Burkitt's lymhoma/leukaemia	C83.7	2007	2012	2007	2011	2016
Marginal zone lymphoma	C83.8	2007	2012	2007	2011	2016
Mantle cell lymphoma	C83.1	2007	2012	2007	2011	2016
Malignant immunoproliferative diseases	C88	2007	2012	2007	2011	2016
Other mature B-cell neoplasms	-	2007	2012	2007	2011	2016
Mature T and NK cell lymphomas/ leukaemias	C84	2007	2012	2007	2011	2016
Mature T-cell neoplasias of the skin	C84.0-1	2007	2012	2007	2011	2016
Other T and NK cell lymphomas/ leukaemias	C84.3-5	2007	2012	2007	2011	2016
Acute lymphoblastic leukaemia/lymphoma	C91.0	1964	1969	1964	1968	1973
Acute myeloid leukaemia	C92.0	1964	1969	1964	1968	1973
Non-Hodgkin lymphoma, other or unspeficied	C85	2007	2012	2007	2011	2016
Leukaemia, other or unspecified	C95	1964	1969	1964	1968	1973
Myeloproliferative neoplasms	C92.1,D45,D47.1,D47.3	2007	2012	2007	2011	2016
Chronic myeloid leukaemia	C92.1	1953	1958	1953	1957	1962
Polycythaemia vera	D45	1969	1974	1969	1973	1978
Myelofibrosis	D47.1	1969	1974	1969	1973	1978
Essential thrombocythemia	D47.3	2007	2012	2007	2011	2016
Myeloproliferative neoplasm, other	D47.1	2007	2012	2007	2011	2016
Myelodysplastic syndromes and myelodysplastic/myeloproliferative neoplasms	-	2007	2012	2007	2011	2016
Myelodysplastic syndromes	D46	2007	2012	2007	2011	2016
Myelodysplastic/myeloproliferative neoplasms	-	2007	2012	2007	2011	2016
Other, unspecified or mixed hematological disease	C96, D76	2007	2012	2007	2011	2016
Mastocytosis	C96.2	2007	2012	2007	2011	2016
Histiocytic and denritic cell neoplasms	C96.1, D76	2007	2012	2007	2011	2016
Other, unspecified or mixed hematological disease	C96.7-9	2007	2012	2007	2011	2016

The detection and classification of haematological cancers has changed significantly during the Registry's operation. Reliable methods for detecting different forms of the disease only became available in the 1990s. The classification codes used by the Cancer Registry were revised in 2008, and the statistical year 2007 was also reclassified at the same time. New specifications for the coding that guides registration have also been introduced since then. These specifications have made the register data more detailed for researchers.

For these reasons, the figures for haematological cancers can only be considered reliable from the 2000s onwards, for certain subtypes only from 2008. In other solid tumours, the time series have been reliable since the 1950s, taking into account a certain reporting deficit.

The Cancer Registry also compiles statistics on basal cell carcinoma of the skin (since 1964) and high-grade cervical dysplasia (dysplasia gravis since 1988 and CIN 3 since 1991).

4.4 Data sources

The Cancer Registry has several independent sources of data. The most important of these are notifications from pathology laboratories. Each year, the Cancer Registry receives more than 330,000 pathology notifications. All healthcare providers are obliged to submit a clinical cancer notification on new cancer cases, that is, a summary of the case at diagnosis. They are particularly essential for recording the cancer stage at the time of diagnosis. Data on cancer cases are also collected through treatment notifications by the care provider.

All notifications are submitted in electronic format. The Cancer Registry maintains data models for the collection of high-quality data that promotes cancer registration on the code server maintained by the Finnish Institute for Health and Welfare, from which the models can be deployed for the collection of structured data.

The municipality of residence, migration history and date of death of persons with cancer are updated from the Population Information System maintained by the Digital and Population Data Services Agency. Statistics Finland in turn provides data on the persons' causes of death, socio-economic status and education.

All cancer data are based on the activity of notifiers. Particularly the low number of clinical notifications is currently worrying. In recent years, the Cancer Registry has received clinical notifications on only around 40% of new cancer cases. The clinical cancer notification is used to gather data to the register that cannot be obtained from other sources. For the 2019 statistical year, we have now, for the first time, published the statistics on clinical notification activity on our website (syoparekisteri.fi/tilastot/kliinisten-ilmoitusten-tilasto). The figures can be examined by hospital district or university hospital for the most common cancers recorded. Further specification of the notification activity and the content of the notifications, such as through structured indication of the spread, would also contribute to improving the quality of the data in the register.

4.5 Compilation of cancer data

The cancer cases are compiled into a national register with the help of individual notifications (see above). A case summary suitable for statistical and research use is coded for each cancer, with the date and method of diagnosis, the organ of origin or primary site, the histological type and stage at diagnosis. The work is guided by international guidelines and codes (ICD-O-3) for cancer registration. The work is carried out by professionals at the Registry who are tasked with compiling cancer data, based on the information received, either as new cancers or as part of cancers diagnosed previously.

Since the statistical year 2018, automatic coding processes have been developed to create the case summaries. However, the automatic processing is based on structured data, and it is therefore dependent on the notification content complying with the data definitions. The automated processing is applied to around ten common cancer types. The automatically compiled case data for 2019 have been checked systematically by using random sampling. The automated case summaries were found to be of good quality. The shortcomings observed were due to the use of inaccurate codes in notifications or deficiencies in the structured recording, for example when indicating the spread of the disease.

With regard to the compilation of cancer data, it is essential that the persons carrying out the cancer registration have sufficient qualifications and competence. The chief medical officer of the Cancer Registry advises on the registration of complex cases. In addition, cancer cases are checked in accordance with international guidelines. The dates of diagnosis for new cancer cases are also specified based on the diagnostic and visit data in the national care register maintained by the Finnish Institute for Health and Welfare. This applies to cases where the care register shows an earlier date than what has been recorded in the Cancer Registry. This is particularly important in specifying the date of diagnosis for 'death certificate only' cancer cases.

4.6 Quality indicators

Typically, the quality of a cancer register is described by indicators such as the percentage of microscopically verified cases (%MV) that is, cases confirmed from cell or tissue samples, the percentage of cases confirmed by death certificate only (%DCO) and the percentage of cases with unknown primary site (%) of all cancer cases. The most recent statistical year is always partly indicative for these indicators, as new cancer cases, especially those registered through death certificates, still appear in the register several years afterwards. According to the most recent statistics, the %MV for cancers diagnosed in 2019 was 94.1% (92.5% in 2018), the %DCO was 1.5% (1.4% in 2018) and the percentage of cases with unknown primary site was 1.3% (also 1.3% in 2018). Most of the unknown primary site cases were found in persons aged 70 and over.

5 The Covid-19 pandemic and the cancer burden

The effect of the coronavirus pandemic on cancer detection was examined by comparing the number of cancer samples reported to the Cancer Registry with the expected sample numbers in spring 2020. The expected sample numbers were estimated using a statistical model based on the sample numbers reported before the pandemic (spring 2018 and 2019). Between March and June 2020, there were 12% (2,610) fewer cancer samples reported than expected based on previous years. The difference between the observed and the expected number of samples was greatest in May 2020 (Table 3). The results were published in the medical journal Duodecim (2021;137(6):549–551).

Table 3: Monthly number of samples reported to the Cancer Registry, expected number of samples and relative difference between these numbers in March–June 2020.

Month (2020)	Number of samples	Expected number of samples	Relative difference
March	4 970	5 070	-2%
April	4 600	5 090	-10%
May	4 110	5 580	-26%
June	4 810	5 350	-10%
Total	18 500	21 100	-12%

The Cancer Registry will continue to monitor the effects of the coronavirus pandemic on the cancer burden within a joint Nordic research project that will assess the number of samples reported and the excess mortality in cancer patients.

6 Incidence and new cancer cases

Figure 7 shows the age-standardised incidence rates for the most common cancer types and Figure 8 shows the number of new cancer cases.

Breast cancer was the most common new cancer diagnosed in women in 2019. It had an age-standardised incidence rate of 170.5 per 100,000 person-years, with a total of 5 136 new cases diagnosed. The second most common new cancer diagnosed was colorectal cancer (incidence rate 50.9, 1 680 new cases) and the third most common was lung and tracheal cancer (33.9, 1 114 new cases).

Prostate cancer was the most common new cancer diagnosed in men in 2019. It had an age-standardised incidence rate of 195.1 per 100,000 person-years, with a total of 5 245 new cases. The second most common new cancer diagnosed in men was colorectal cancer (incidence rate 73.6, 1 948 new cases) and the third most common was lung and tracheal cancer (63.4, 1 710 new cases).

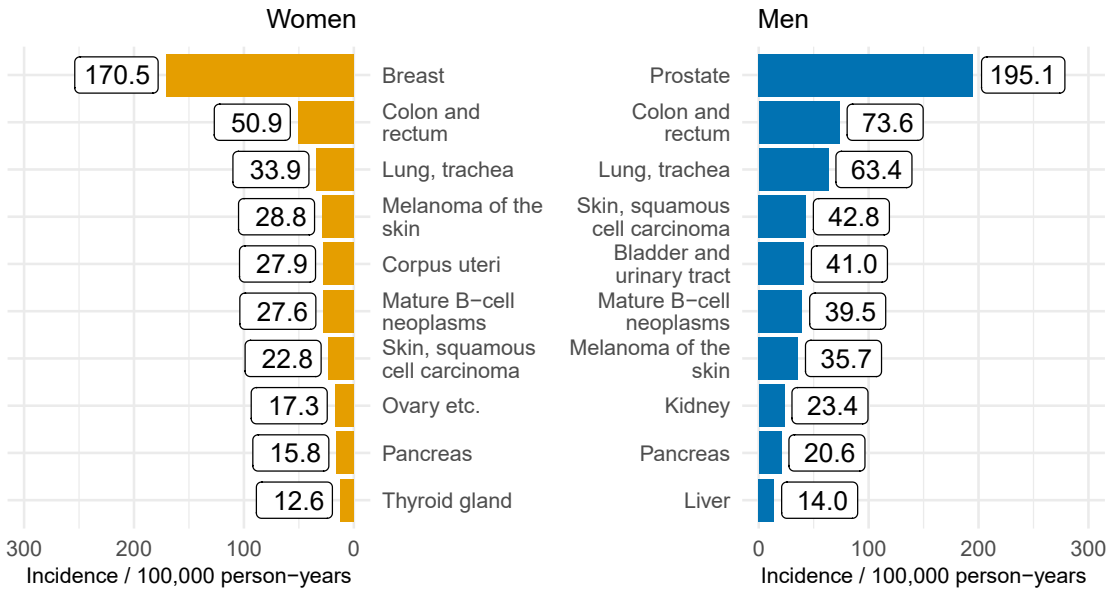

Figure 7: Incidence of cancer among women and men (per 100,000 person-years and age standardised to the 2014 Finnish population) for the most common cancer types in 2019.

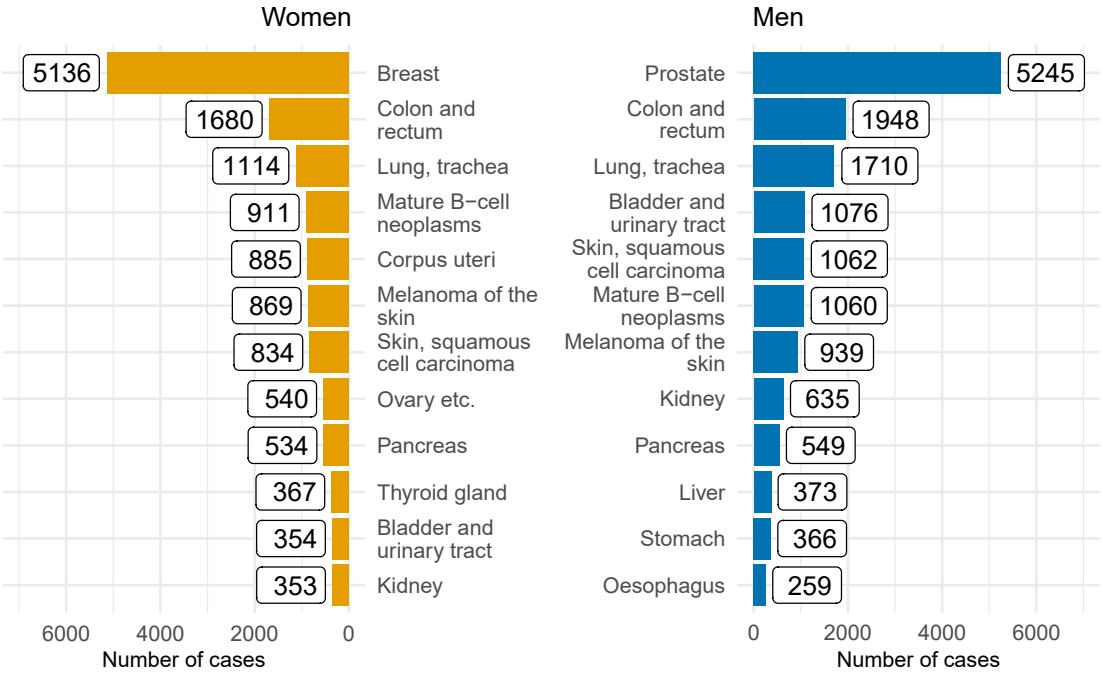

Figure 8: Number of new cancer cases in women and men for the most common cancer types in 2019.

6.1 Incidence by age group

Cancers in children and young adults differ from cancers in older persons. New cancers diagnosed in children and young people are usually haematological (blood and lymphatic) cancers or brain and central nervous system tumours such as gliomas. Figure 9 shows the incidence of cancer in the population under 20 years of age. In 2019, the incidence of cancer among people under 20 years of age was approximately 20 cases per 100,000 persons, with 229 new cases diagnosed. Acute lymphoblastic leukaemia was the most common cancer in children and young adults, followed by glioma.

Figures 10 and 11 show the incidence of cancer in 2019 in the population aged 20–69 and in the population aged 70 and over. The highest incidences in the female population aged 20–69 were recorded for breast cancer (incidence rate 184.8/100 000, 3 191 new cases), colorectal cancer (35.7, 616 cases) and melanoma of the skin (31.3, 541 cases). In the male population of the same age, the highest incidences were observed for prostate cancer (121.8, 2 148 new cases), colorectal cancer (45.5, 803 cases) and lung and tracheal cancer (34.7, 604 cases).

The most common cancer types in the female population aged 70 and over were breast cancer (392.1/100 000, 1 945 new cases), colorectal cancer (212.3, 1 053 cases) and squamous cell carcinoma (143.9, 714 cases). In men of the same age, the highest incidences were observed for prostate cancer (854.5, 3 097 cases), colorectal cancer (315.6, 1 144 cases) and lung and tracheal cancer (302.9, 1 098 cases).

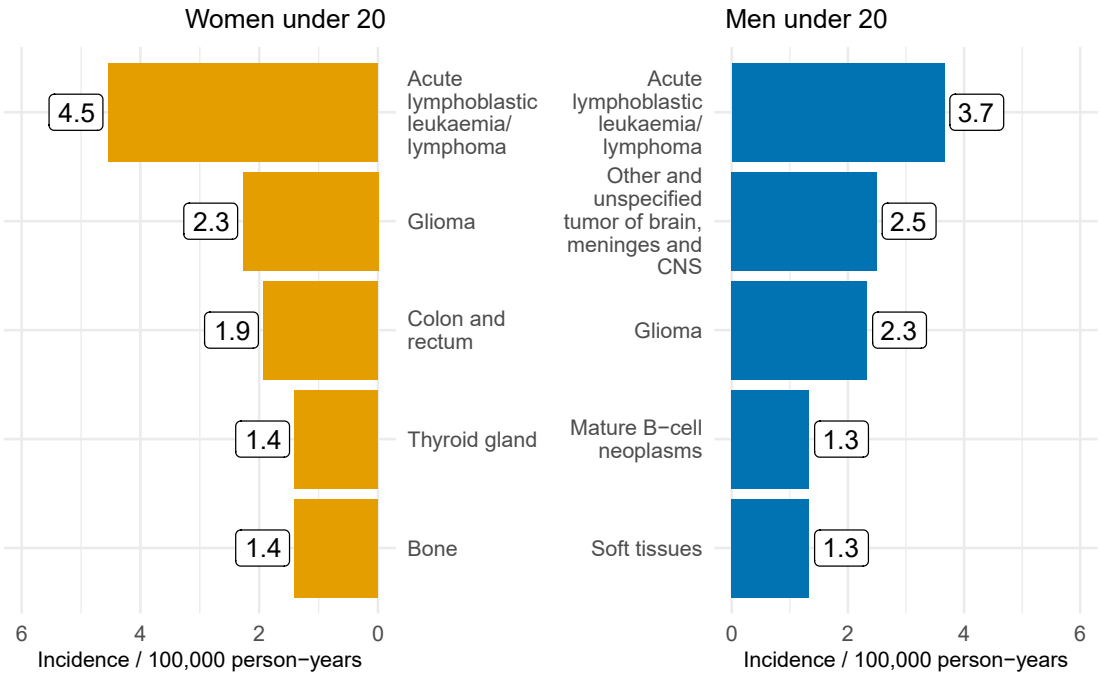

Figure 9: Incidence of cancer among women and men aged under 20 (per 100,000 person-years) for the most common cancer types in 2019.

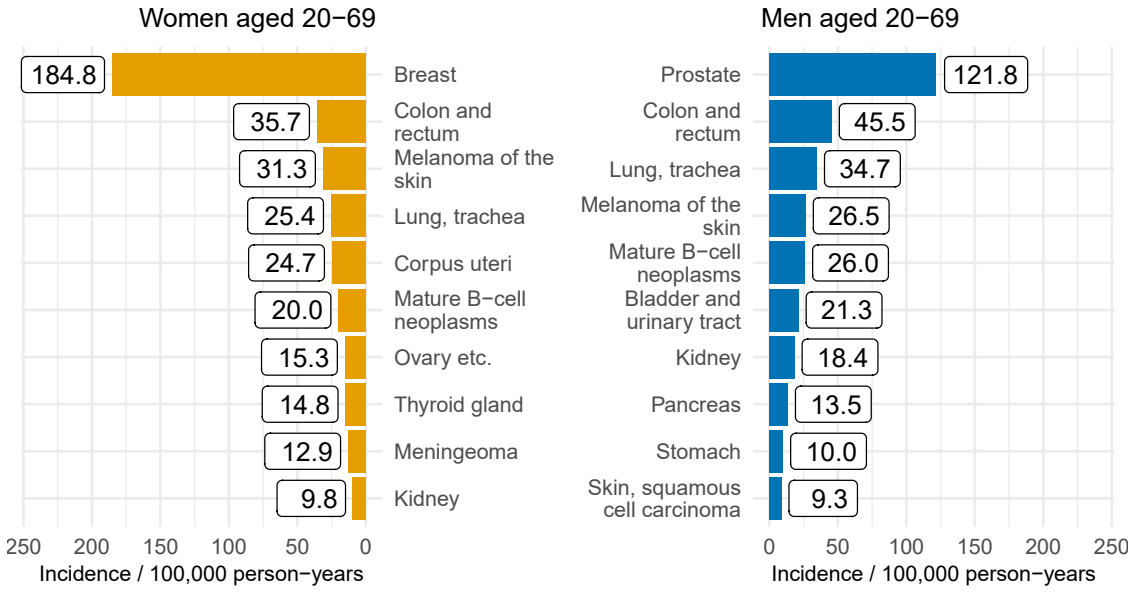

Figure 10: Incidence of cancer among women and men aged 70 and over (per 100,000 person-years) for the most common cancer types in 2019.

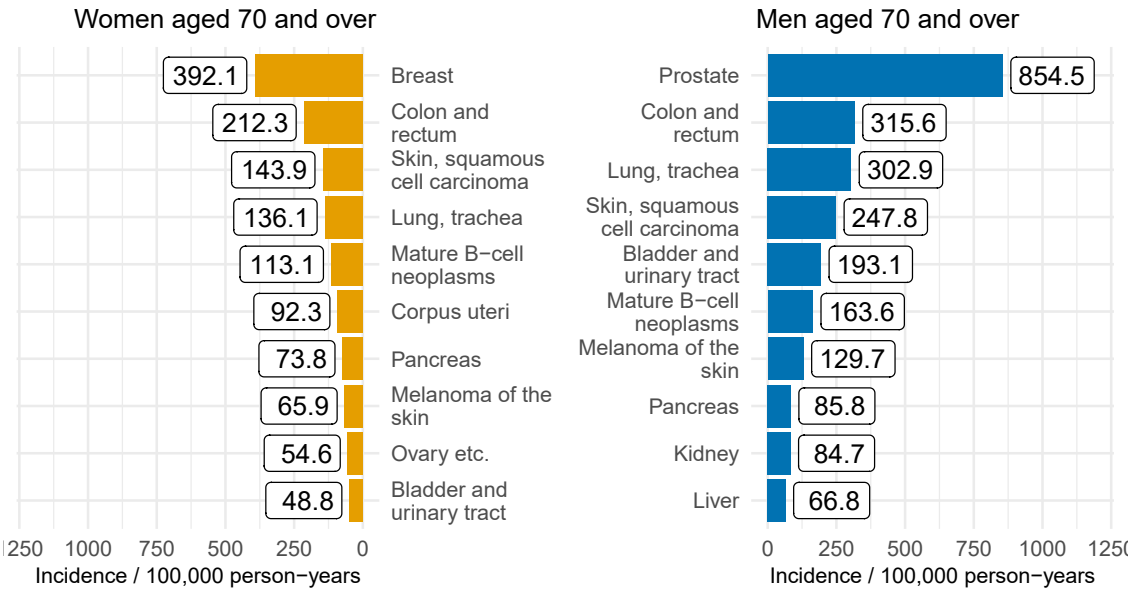

Figure 11: Incidence of cancer among women and men aged 70 and over (per 100,000 person-years) for the most common cancer types in 2019.

6.2 Risk of developing and dying from cancer

Table 4 shows estimates of the proportion of women and men that will develop cancer and the proportion that will die from cancer during their lives. On average, 36% of women and 38% of men develop cancer during their lifetime. On average, 18% of women and 21% of men die from cancer. The estimates can be interpreted as a newborn child's lifetime risk of developing and dying from cancer. The estimates assume that a person's risk of cancer, risk of cancer death and risk of overall death at different stages of life would equal the risks in a population of the same age in 2015–2019.

Analysed by cancer type, 13.3% of women develop breast cancer and 14.5% of men develop prostate cancer. 3.0% of women die from breast cancer and 4.0% of men die from prostate cancer. According to the estimate, 3.1% of women and 5.6% of men develop lung cancer. On average, 2.6% of women and 5.1% of men die from lung cancer. Given the major changes in smoking habits among both women and men, it is unlikely that these estimates reflect the actual risk of lung cancer in any of the birth cohorts. Fewer and fewer newborns start smoking, which reduces the risk of lung cancer in relation to the estimate.

Table 4: Lifetime risk (%) of developing and dying from cancer. The calculation is based on cancer incidence, cancer mortality and overall mortality in the population in 2015–2019.

		Women		Men	
Cancer site	**ICD-10**	Develop cancer	Die from cancer	Develop cancer	Die from cancer
All sites together	C00-96,D09.0-1,D32-33, D41-43,D45-47,D76	36.2	17.6	38.2	20.5
Prostate	C61	-	-	14.5	4.0
Breast	C50	13.3	3.0	0.1	<0.1
Colon and rectum	C18-20	4.9	2.2	5.5	2.6
Lung, trachea	C33-34	3.1	2.6	5.6	5.1
Melanoma of the skin	C43	2.4	0.3	2.7	0.5

7 Mortality

Figure 12 shows the age-standardised mortality rates and Figure 13 the numbers of deaths for the cancers types with the highest mortality. The cancers responsible for the most cancer deaths were lung and tracheal cancer (2,358 deaths), colorectal cancer (1,393 deaths) and pancreatic cancer (1,196 deaths).

Breast cancer was responsible for the most cancer deaths in women (mortality 27.1 per 100,000 person-years, 892 deaths). Lung and tracheal cancer caused the second most deaths (25, 845 deaths) and pancreatic cancer the third most deaths (18.1, 620 deaths).

The most common cause of cancer death in men was lung and tracheal cancer (mortality 56.8 per 100,000 personyears, 1 513 deaths). Prostate cancer caused the second most deaths (38.8, 934 deaths) and colorectal cancer the third most deaths (31, 787 deaths).

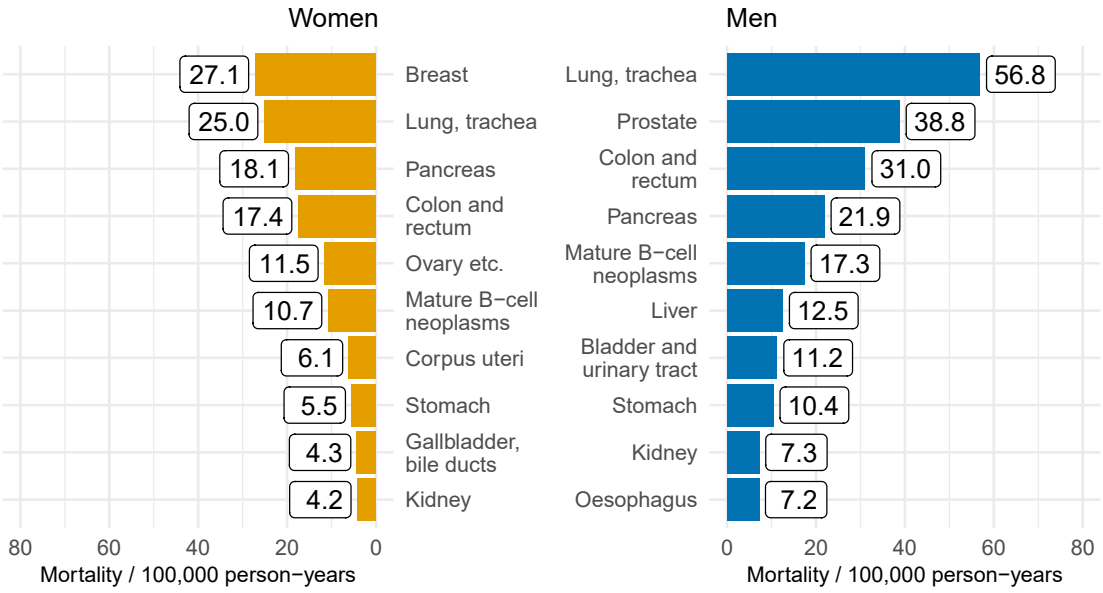

Figure 12: Cancer mortality (per 100,000 person-years and age standardised to the 2014 Finnish population) in women and men for the cancer types with the highest mortality rate in 2019.

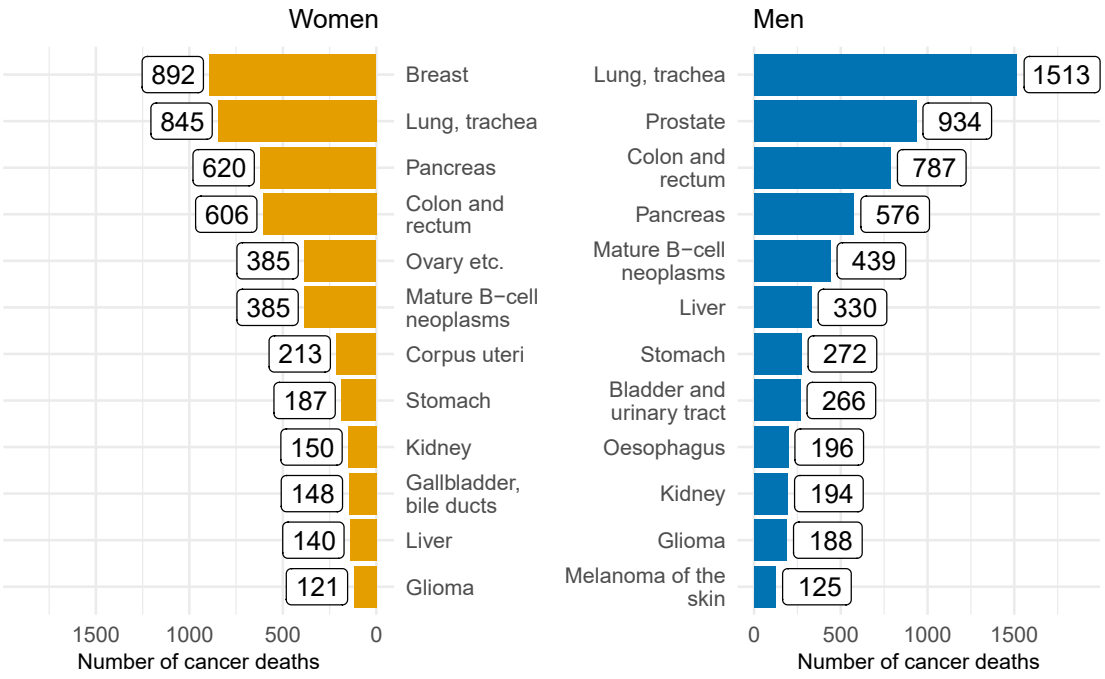

Figure 13: Number of cancer deaths in women and men for the cancer types with the highest mortality rate in 2019.

7.1 Mortality by age group

In 2019, a total of 21 people under 20 died from cancer, most of them from brain and central nervous system tumours, acute lymphoblastic leukaemia and sarcomas.

Figures 14 and 15 show the cancer mortality rate (per 100,000 persons in 2019) in the population aged 20–69 and 70 and over. In women aged 20–69, the main causes of cancer death were breast cancer (mortality rate 19.2, 331 deaths), lung and tracheal cancer (15.3, 263 deaths) and pancreatic cancer (10.3, 178 deaths). In men of the same age, the main causes of cancer death were lung and tracheal cancer (26.5, 466 deaths), pancreatic cancer (13, 227 deaths) and colorectal cancer (12.8, 225 deaths).

In women aged 70 and over, the main causes of cancer death were lung and tracheal cancer (117.1, 581 deaths), breast cancer (112.9, 560 deaths) and colorectal cancer (89.5, 444 deaths). In men aged 70 and over, the main causes of cancer death in 2019 were lung and tracheal cancer (288.3, 1 045 deaths), prostate cancer (222.4, 806 deaths) and colorectal cancer (154.8, 561 deaths).

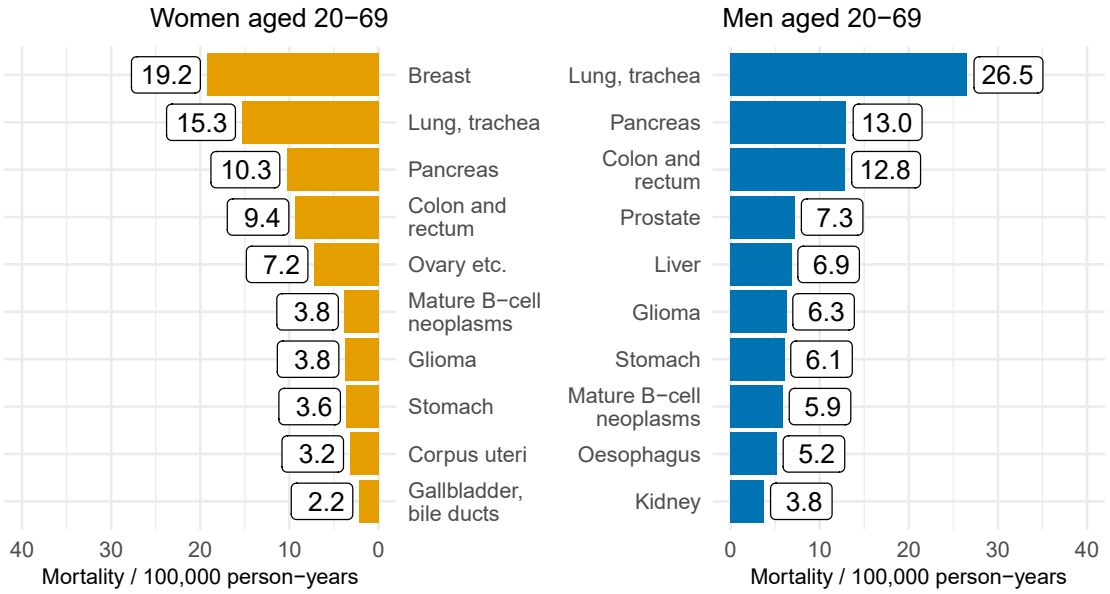

Figure 14: Cancer mortality (per 100,000 person-years) in women and men aged 20–69 for the cancer types with the highest mortality rate in 2019.

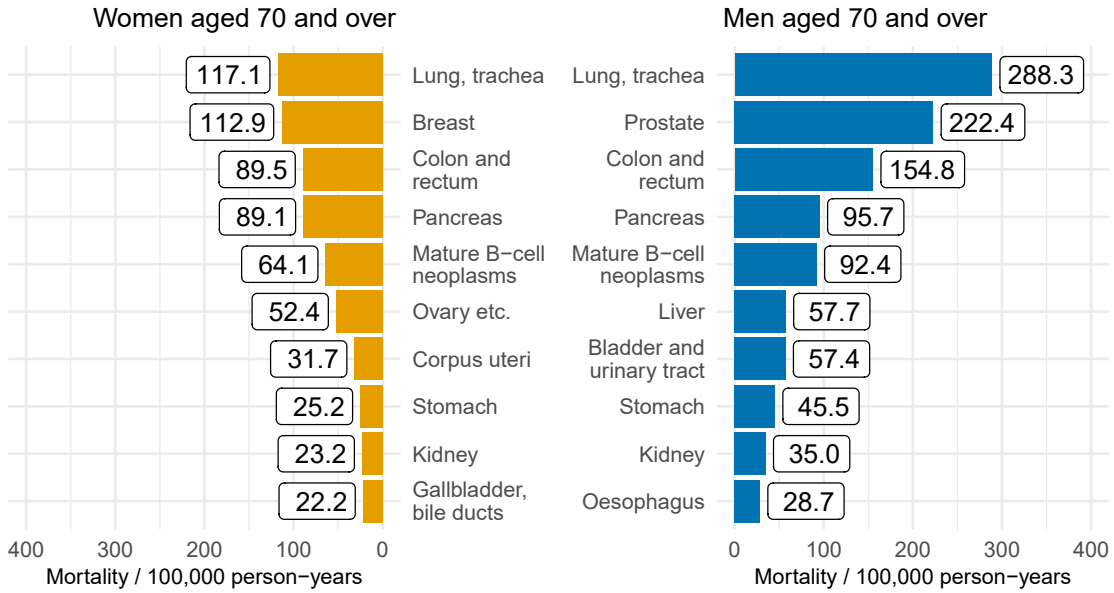

Figure 15: Cancer mortality (per 100,000 person-years) in women and men aged 70 and over for the cancer types with the highest mortality rate in 2019.

8 Prevalence

The prevalence of cancer is a statistical indicator used to assess the burden on and resources of healthcare services. Prevalence is influenced by incidence and also by age of onset and patients' prognoses. For example, although there are many new cases of lung cancer recorded, lung cancer has a low prevalence due to its high mortality rate.

At the end of 2019, there were 298 643 people (prevalence) living in Finland who had a previously diagnosed cancer. This was 5.4% of the Finnish population (prevalence proportion). The most prevalent cancer types are shown by sex in Figure 16.

At the end of 2019, the prevalence of breast cancer in women was over 76 499, the prevalence of colorectal cancer was 14 386 and the prevalence of endometrial cancer was 12 852. The prevalence of prostate cancer at year-end 2019 was 57 032. There were a total of 13 743 men living with colorectal cancer and 9 582 with melanoma of the skin.

Looking only at people with less than five years since the cancer was diagnosed (diagnosed in 2015–2019), there were 51 099 men and 51 893 women alive at the end of 2019.

Figure 16: Number of people living with cancer at the end of 2019.

9 Cancer patient survival

The five-year relative survival ratio in 2017–2019 was 68% in male patients and 70% in female patients. Compared to the previous period of 2014–2016, the survival ratio had increased by 1.2 percentage points in both men and women.

In patients followed up in 2017–2019, the survival ratio for prostate cancer was 94% and the survival ratio for breast cancer in women was 91% (Figure 17). The survival ratio for colorectal cancer was 66%, while lung cancer had a survival ratio of 16%. The survival ratio for pancreatic cancer was only 7%. Among these five cancer types, survival ratios for women increased the most for lung cancer (by 3.9 percentage points from 2014–2016 to 2017–2019) and survival ratios for men increased the most for lung and pancreatic cancer (by 0.9 percentage points in each).

Figures 18 and 19 and Tables 8 and 9 show the survival ratios for three age groups: patients diagnosed with cancer at the ages of 0–54, 55–74 and 75 and over. The survival ratios in the youngest age group were higher than those of the older age groups for most cancer types. For prostate and breast cancer, the survival ratios were approximately the same for persons under the age of 55 and persons aged 55–74, but the ratios of persons aged 75 and over were lower than the ratios of others. In lung cancer, the survival ratios also clearly differed between those under the age of 55 and those aged 55–74. The five-year survival ratio of men diagnosed with lung cancer at under 55 years of age was 24%; the corresponding rates for men diagnosed at 55–74 and at 75 and over were 16% and 8%, respectively.

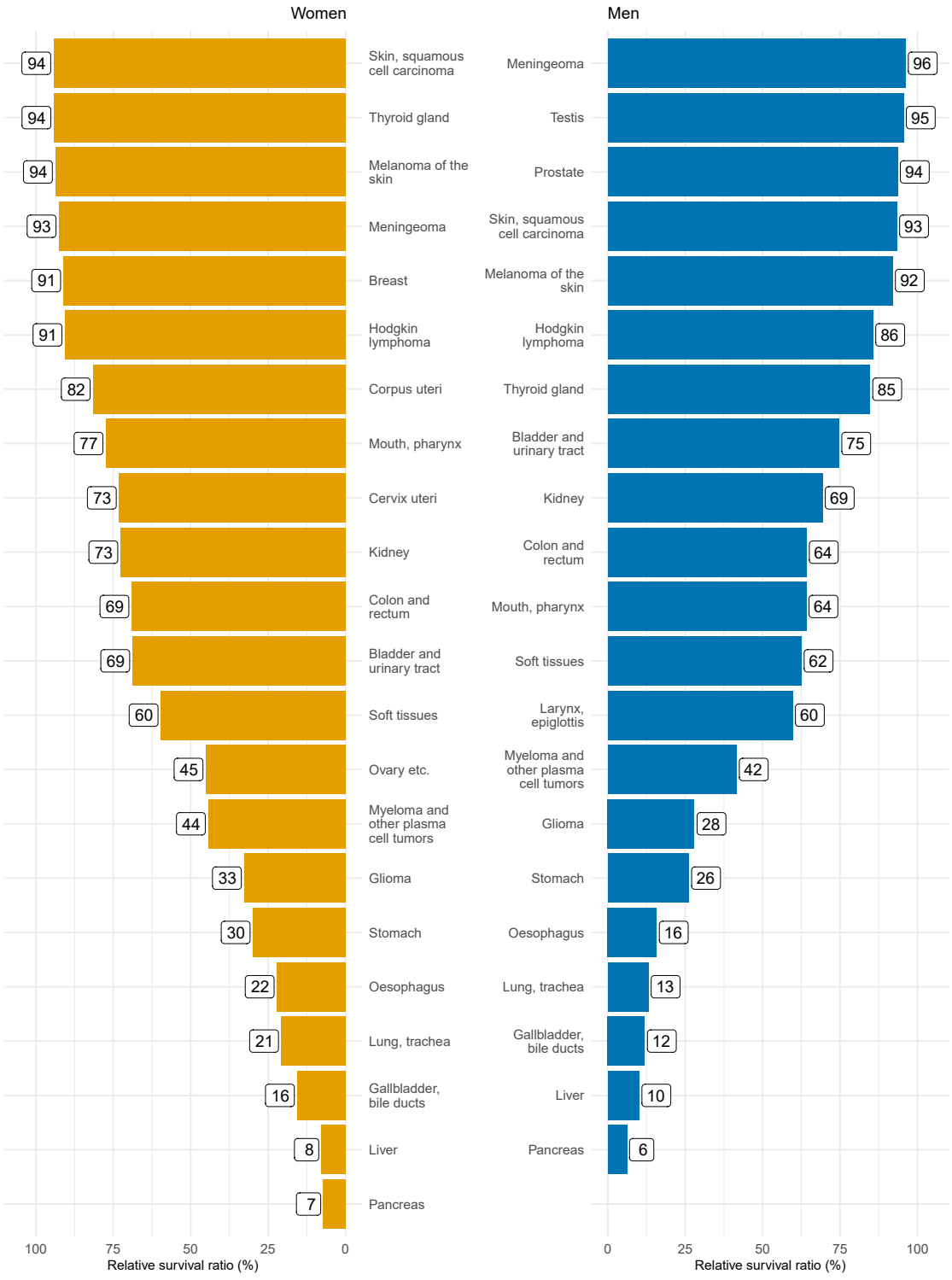

Figure 17: Five-year relative survival ratios (%) in patients followed up in 2017-2019 by sex and cancer type. The survival ratios for laryngeal cancer in women and breast cancer in men are not presented due to a small number of cases.

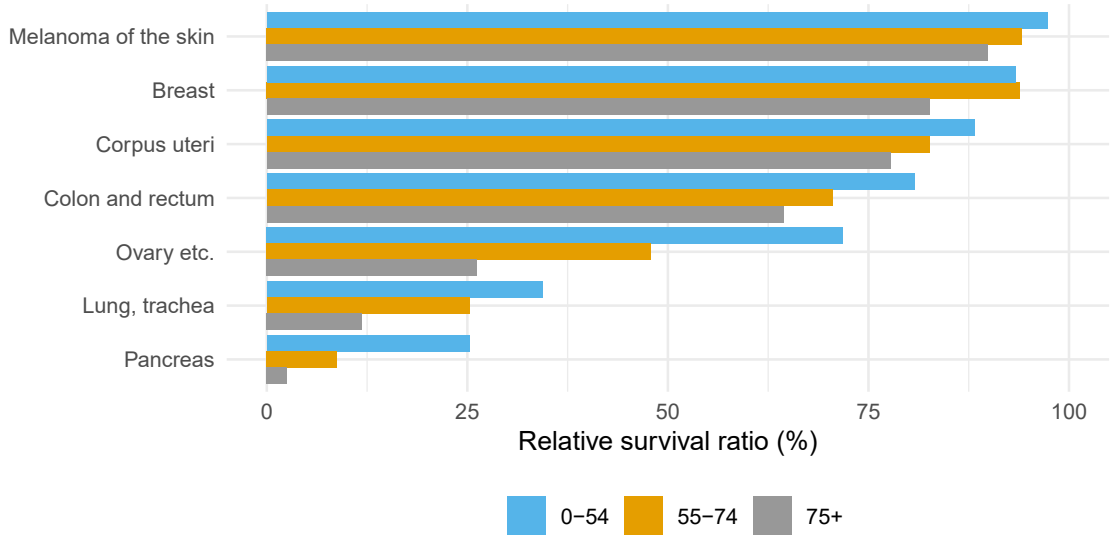

Figure 18: Five-year relative survival ratios (%) in female patients followed up in 2017-2019 by age group (under 55, 55–74 and 75 and over) for the seven most common cancer types in women (excl. mature B-cell neoplasms and cutaneous squamous cell carcinoma).

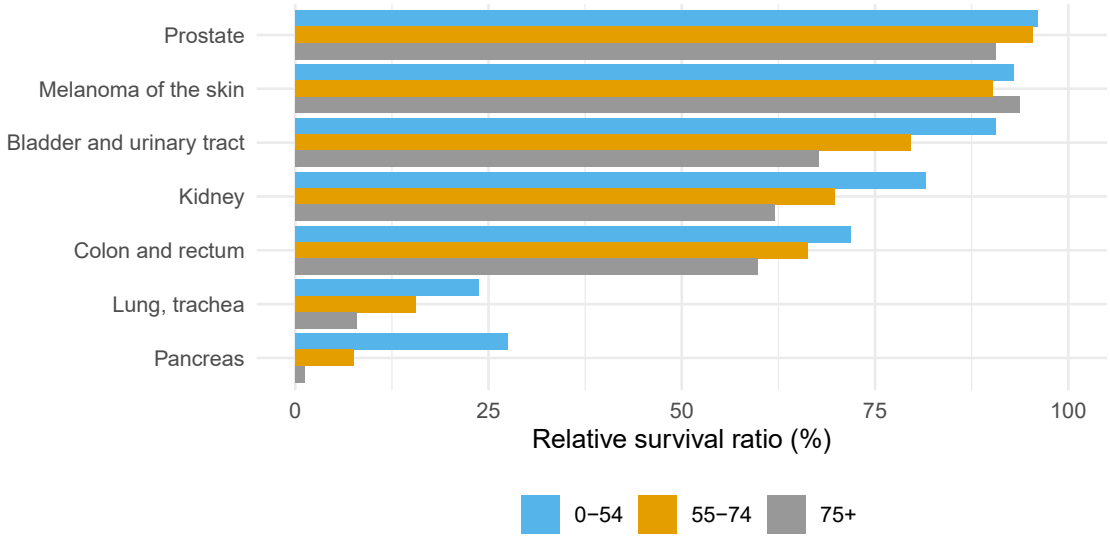

Figure 19: Five-year relative survival ratios (%) in male patients followed up in 2017-2019 by age group (under 55, 55–74 and 75 and over) for the seven most common cancer types in men (excl. mature B-cell neoplasms and cutaneous squamous cell carcinoma).

10 Time series

Changes in cancer incidence and cancer mortality have been examined both in the long and short term. Shortterm changes have been examined by assessing the percentage change in age-standardised incidence and mortality over two five-year periods (2015–2019 vs. 2010–2014). The average number of new cases or deaths had to be at least 50 per year in order for the assessment to be considered sufficiently reliable. Only statistically significant changes are reported here.

10.1 Short-term changes in incidence and mortality

The average cancer incidence for women in 2010–2014 was 522 per 100,000 person-years, compared to 540 per 100,000 in 2015–2019 (Table 10). The annual incidence of new cancer cases increased by an average of 4% between the periods considered (4% confidence interval 3% – 6%).

The incidence of breast cancer rose by 5%. The increase in incidence was the highest in melanoma of the (18%), thyroid cancer (14%) and lung and tracheal cancer (11%; Figure 20). In women, cancer incidence decreased in, for instance, stomach cancer (11%) and ovarian cancer (10%).

The average cancer incidence for men in 2010–2014 was 704 per 100,000 person-years, compared to 708 per 100,000 in 2015–2019 (Table 11). The annual incidence of new cancer cases did not change between the periods considered, since the change was only 0% (95% confidence interval –1% – 1%).

The incidence of prostate cancer fell by 7%. The increase in incidence was the highest in laryngeal cancer (23%), melanoma of the skin (20%) and soft-tissue sarcomas (13%; Figure 21). The incidence of lung and tracheal cancer decreased by 7%.

The average cancer mortality for women in 2010–2014 was 186 per 100,000 person-years, compared to 179 per 100,000 in 2015–2019 (Table 12). Cancer mortality decreased by an average of 4% between the periods considered (95% confidence interval 2% – 6%). Mortality decreased in, for instance, breast cancer (6%) and stomach cancer (21%; Figure 22).

The average cancer mortality for men in 2010–2014 was 294 per 100,000 person-years, compared to 278 per 100,000 in 2015–2019 (Table 13). Cancer mortality decreased by an average of 6% between the periods considered (95% confidence interval 5%–8%). Cancer mortality decreased in stomach cancer (17%), lung and tracheal cancer (13%) and prostate cancer (12%; Figure 23).

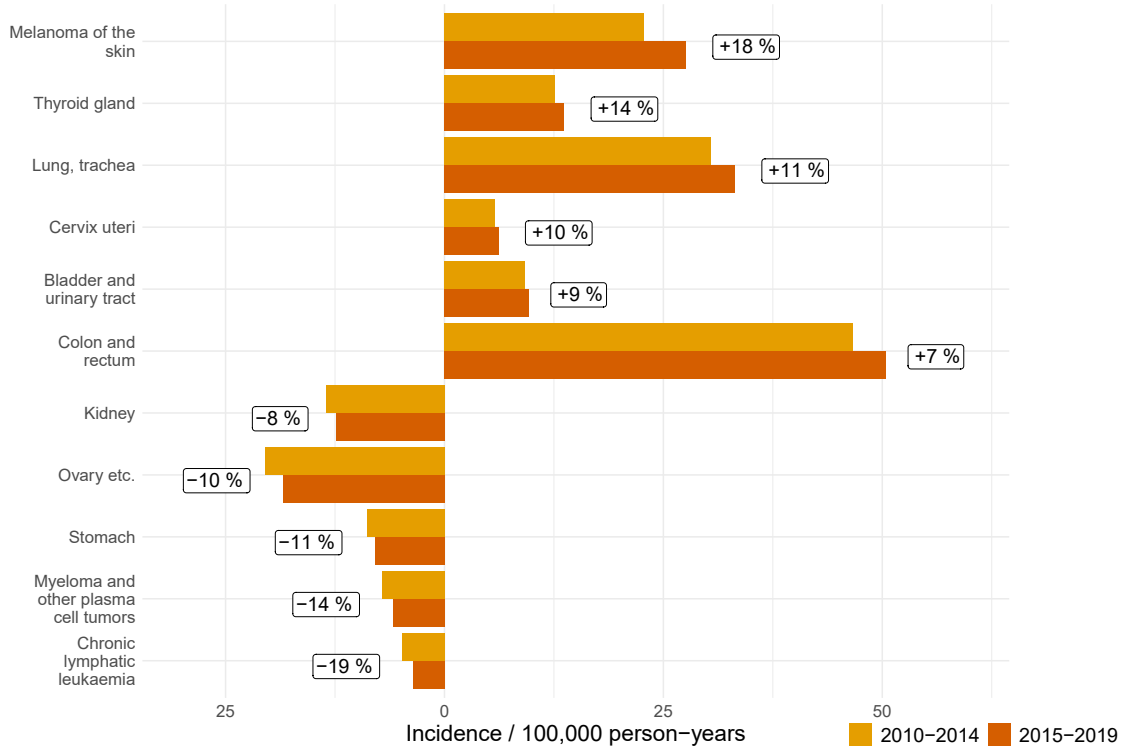

Figure 20: Change in cancer incidence among women from 2010–2014 to 2015-2019. Included are cancers where the change was statistically significant and the average number of cases was at least 50 per year. The incidence of breast cancer in women (161.3 in 2010–2014 and 168.5 in 2015–2019, change +5%) is excluded, so as to make the changes in other cancer diseases clearer.

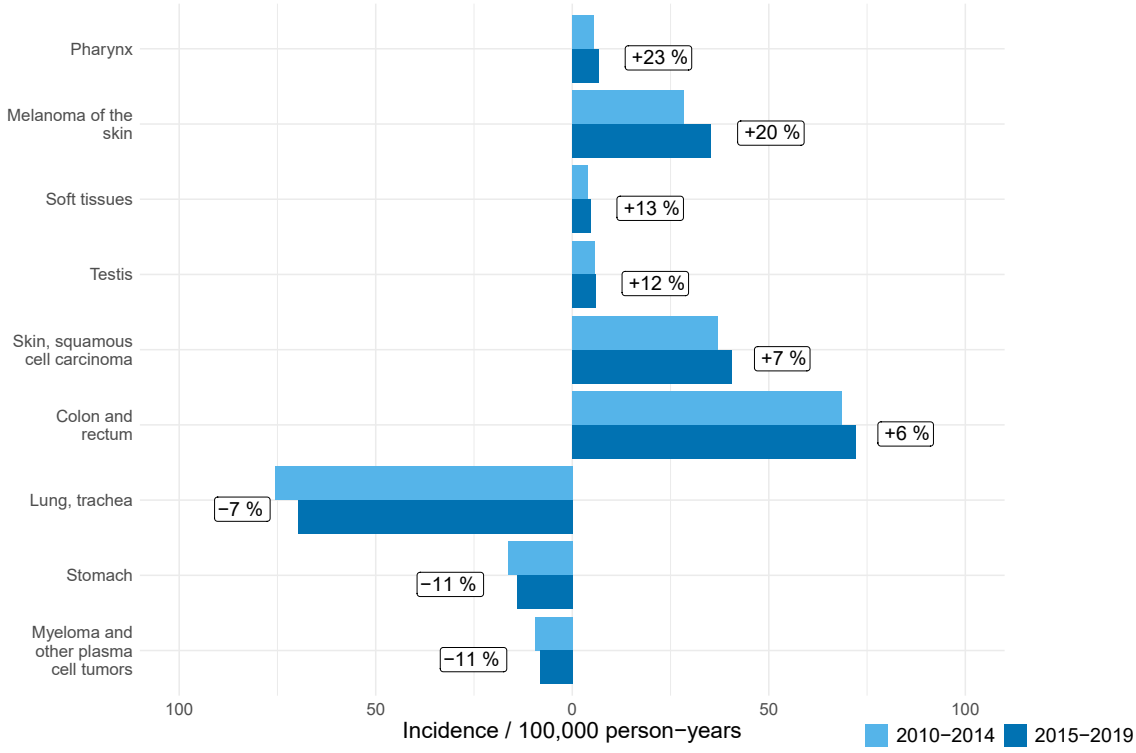

Figure 21: Change in cancer incidence among men from 2010–2014 to 2015–2019. Included are cancers where the change was statistically significant and the average number of cases was at least 50 per year. The incidence of prostate cancer (211.2 in 2010–2014 and 201.2 in 2015–2019, change –7%) is excluded, so as to make the changes in other cancer diseases clearer.

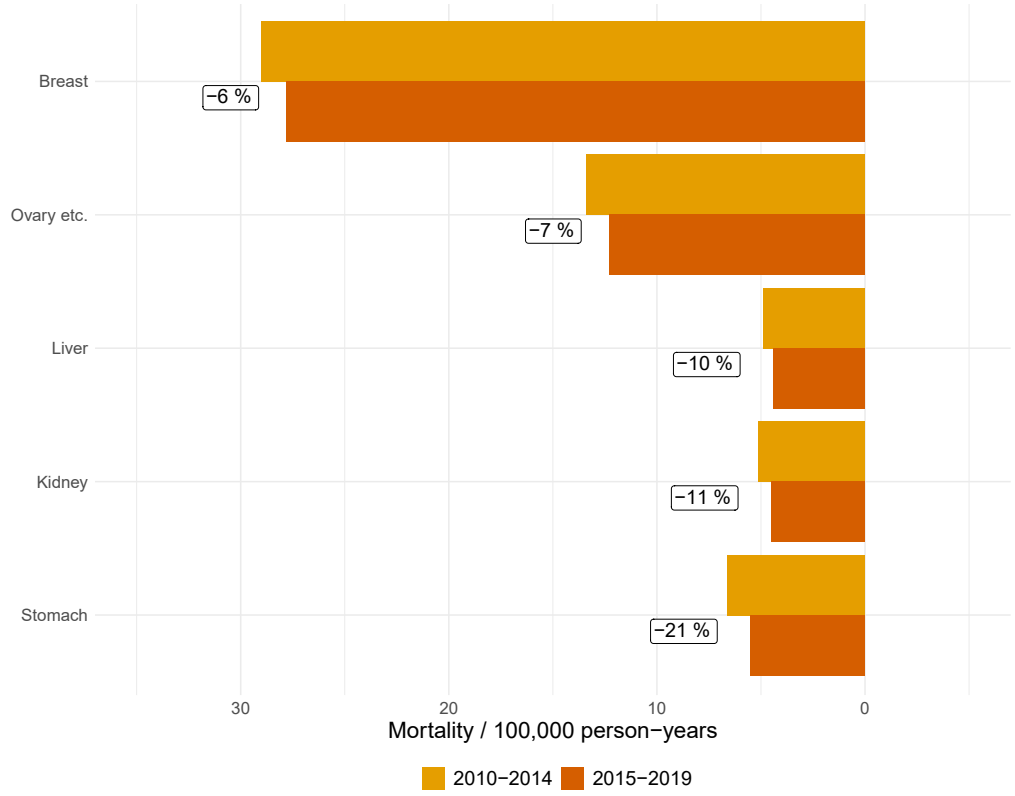

Figure 22: Change in cancer mortality among women from 2010–2014 to 2015–2019. Included are cancers where the change was statistically significant and the average number of cases was at least 50 per year.

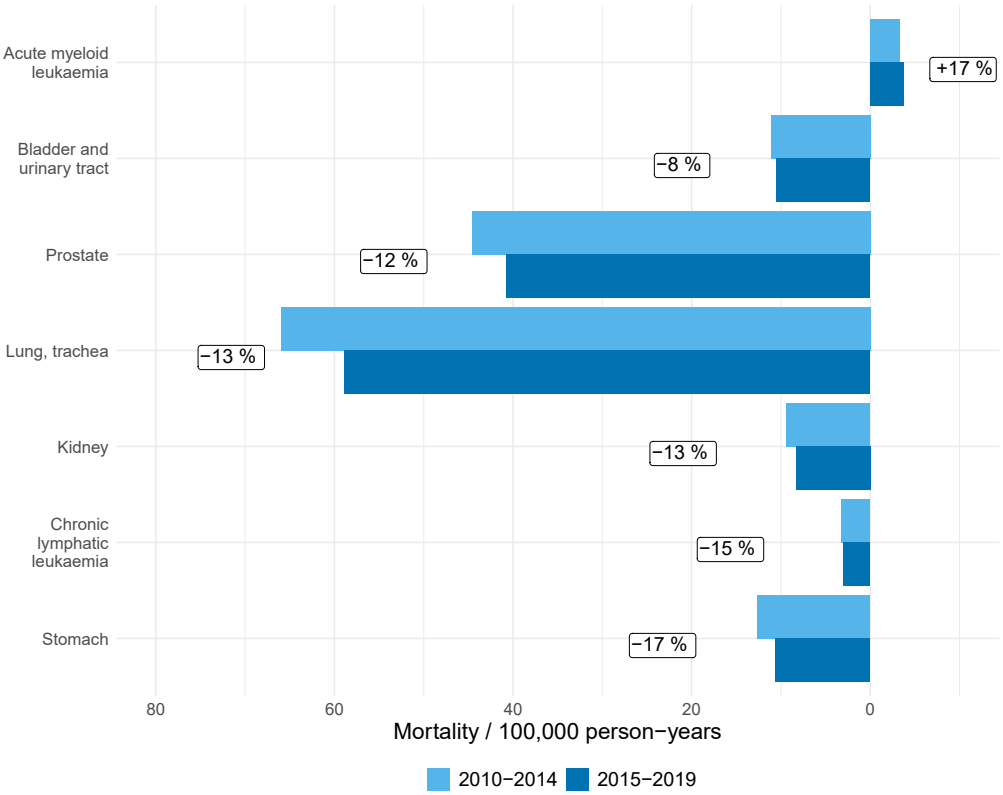

Figure 23: Change in cancer mortality among men from 2010–2014 to 2015–2019. Included are cancers where the change was statistically significant and the average number of cases was at least 50 per year.

10.2 Long-term changes in incidence, mortality and survival

Figures 24–32 show the time series for the incidence and mortality of cancer and the five-year relative survival of patients in line with the ICD-10 classification. The changes in incidence and mortality since the beginning of the 1990s are presented in Tables 14–17. The change is shown as the average annual percentage change. If there has been a statistically significant change, separate percentages are presented for two consecutive calendar periods.

1. **Lip:** In men, incidence and mortality have decreased, and the survival ratio has remained above 90%, in particular in recent years. In women, both incidence and mortality have remained low, and the survival ratio is over 80% (Figure 24).
2. **Pharynx:** Incidence has increased among women and especially among men, but mortality has remained at the same level. The survival ratio has increased steadily since the 1990s and is currently about 60% (Figure 24).
3. **Oesophagus:** Incidence and mortality decreased until the early 2000s. The survival ratio has increased slowly and is currently about 20% in women and 15% in men (Figure 24).
4. **Stomach:** Incidence and mortality have decreased throughout the time series. The survival ratio has remained at around 30% in women and around 25% in men during the 2000s (Figure 25).
5. **Colon and rectum:** Incidence has increased in women and especially in men. Mortality has decreased since the 1990s. The survival ratio has increased and is currently around 65% (Figure 25).
6. **Liver:** Incidence and mortality have increased, more so in men than in women. The survival ratio has remained below 10% (Figure 25).
7. **Gallbladder, bile ducts:** Incidence increased until the 1980s and has decreased since then, especially among women. The survival ratio has increased slowly and is currently nearly 15% (Figure 26).
8. **Pancreas:** Incidence and mortality have remained at the same level since the 1980s in both women and men. The survival ratio is currently above 5% (Figure 26).
9. **Larynx:** Incidence has decreased in men since the 1970s. In women, the incidence has remained at the same level and is still considerably lower than in men. The survival ratio has long been steady at around 60% (Figure 26).
10. **Lung, trachea:** In women, incidence and mortality have increased throughout the period considered. In men, the increase started to decline at the end of the 1970s. The incidence in men is still almost twice as high as the incidence in women. The survival ratio has increased in the 2010s by more than 15% in women and by more than 10% in men (Figure 27).
11. **Breast, women:** Incidence has increased throughout the observation period. Mortality began to fall in the 1990s. The survival ratio is currently above 90% (Figure 27).
12. **Prostate:** Incidence has increased. The increase accelerated in the 1990s, with the highest incidence recorded in 2004. Currently, the incidence is at the same level as in the mid-1990s. Mortality began to fall in the 1990s. The survival ratio has increased and has remained above 90% since the 2010s (Figure 27).
13. **Cervix uteri:** Incidence decreased from the 1960s until the 1990s and has remained at the same level since then. The decrease in mortality has continued in the 2000s. The survival ratio is currently about 70% (Figure 27).
14. **Corpus uteri:** Incidence increased until the turn of the century and then began to fall slightly. Mortality has remained at the same level. The survival ratio increased until the early 2000s and is currently above 80% (Figure 27).
15. **Ovary, etc.:** Incidence and mortality increased until the 1990s and then began to decrease. The survival ratio has remained at over 40% during the 2000s (Figure 28).

16. **Testis:** Incidence has increased sharply since the 1980s. The mortality and the survival ratio have remained at the same level since the 1990s. The survival ratio is currently about 95% (Figure 28).
17. **Kidney:** In women, incidence has remained at the same level and mortality has declined since the 1990s. In men, incidence increased until the late 1990s. In the 2000s, incidence in men first declined and later began to rise again. The changes in mortality in men are similar to those observed in women. The survival ratio has continued to grow in the 2000s and is currently around 70% for women and 65% for men (Figure 28).
18. **Bladder and urinary tract:** In women, incidence has remained at the same level since the 1990s. In men, incidence increased and reached its peak in the mid-1990s. After that, incidence in men first declined and later began to rise again. Mortality has decreased since the 1970s for both sexes. The survival ratio has increased and is currently about 70% in women and 75% in men (Figure 28).
19. **Melanoma of the skin:** Incidence has increased in both sexes throughout the observation period and particularly in the 2000s. In women, mortality has remained at the same level since the 1970s. The mortality in men has increased, but considerably more moderately than the incidence. The survival ratio is currently about 90% (Figure 29).
20. **Skin squamous cell carcinoma:** Incidence in women has increased steadily since the 1980s. In men, the increase has accelerated in the 2000s. Mortality has remained very low, and the survival ratio has remained at around 90% (Figure 29).
21. **Glioma:** Incidence has increased throughout the observation period. Mortality increased until the 1990s, after which it has remained at the same level in women and continued to grow in men. The survival ratio has increased slowly and is currently about 35% in women and 30% in men (Figure 29).
22. **Meningioma:** Incidence increased in both women and men until the 2000s. The incidence in women is more than double that in men. Mortality has been low and has declined further since the 1990s. The survival ratio has increased and is currently around 95% (Figure 30).
23. **Thyroid gland:** Incidence has increased in both sexes. The incidence in women is more than double that in men. In women, mortality has declined since the early 1990s. In men, mortality has remained at the same level since the early 1990s. The survival ratio is currently around 95% for women and around 85% for men (Figure 30).
24. **Soft tissues:** Incidence increased in women until the 1990s. In men, the incidence has increased throughout the observation period. There have been no changes in mortality in either sex. The survival ratio is currently about 60% (Figure 30).
25. **Hodgkin lymphoma:** Incidence has remained at the same level since the early 1990s, but mortality continued to decline in the 1990s. The survival ratio has increased and has stabilised at around 85% in the 2000s (Figure 31).
26. **Myeloma and other plasma cell tumours:** Incidence and mortality increased until the late 1980s for both sexes. Since then, incidence has remained at the same level but mortality has decreased. The survival ratio increased in the 2000s and is currently around 40% (Figure 31).
27. **Acute lymphoblastic leukaemia/lymphoma:** Incidence has remained at the same level since the 1980s, but mortality has decreased. The survival ratio has increased significantly and is currently around 75% (Figure 31).
28. **Chronic lymphatic leukaemia:** Incidence and mortality have decreased since the 1980s in both women and men. The survival ratio has increased steadily and is currently around 75% (Figure 32).
29. **Acute myeloid leukaemia:** Incidence has remained at the same level since the 1980s, but mortality has declined. The survival ratio has increased considerably since the 1980s and is currently around 20% (Figure 32).
30. **Chronic myeloid leukaemia:** Incidence and mortality have decreased throughout the observation period for both sexes. The survival ratio increased significantly especially in the 2000s and is currently around 75% (Figure 32).

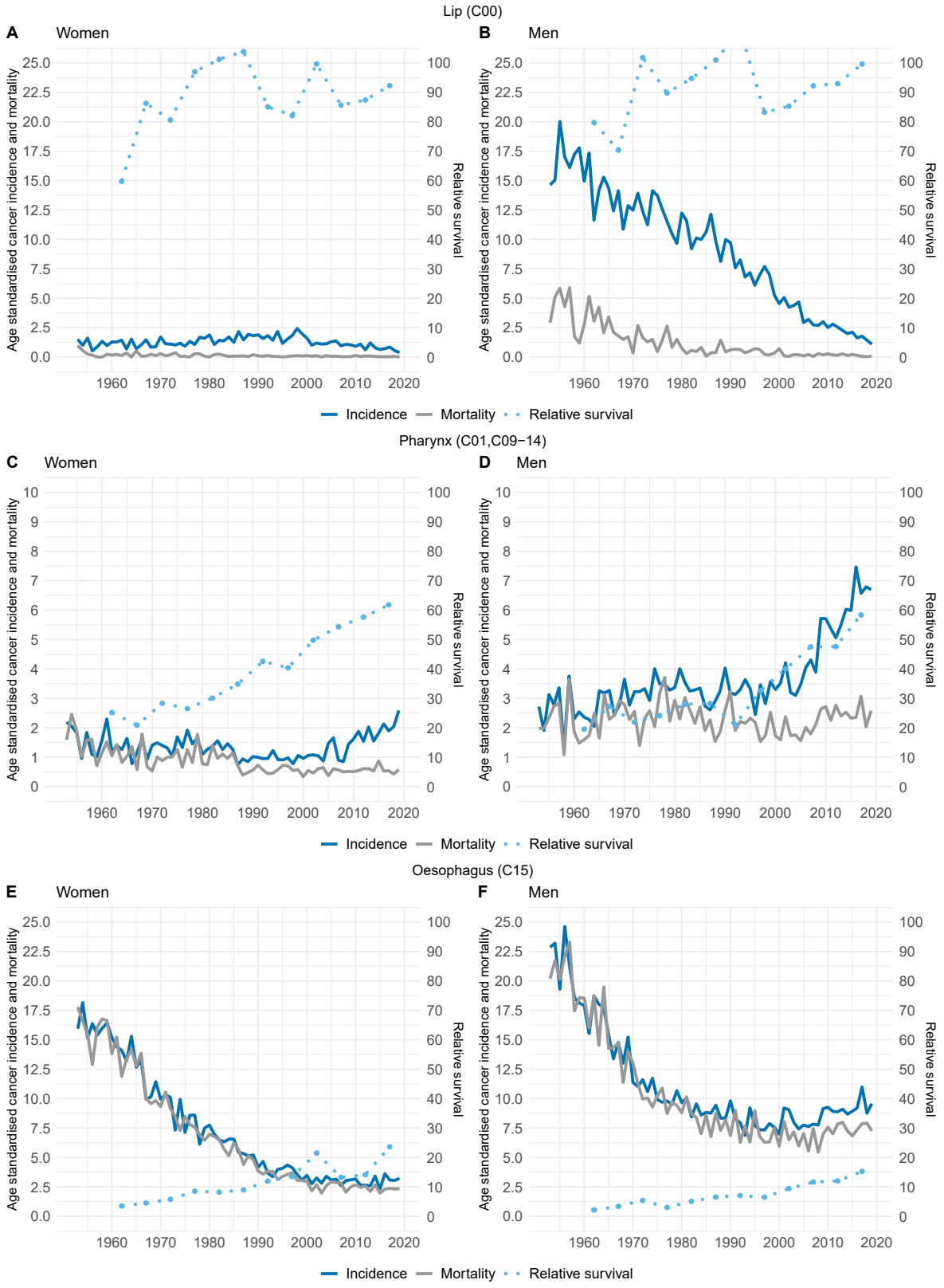

Figure 24: Cancer incidence and mortality (per 100,000 person-years and age-standardised to the 2014 Finnish population) and age-standardised five-year relative survival ratio (%) by sex in 1953–2019.

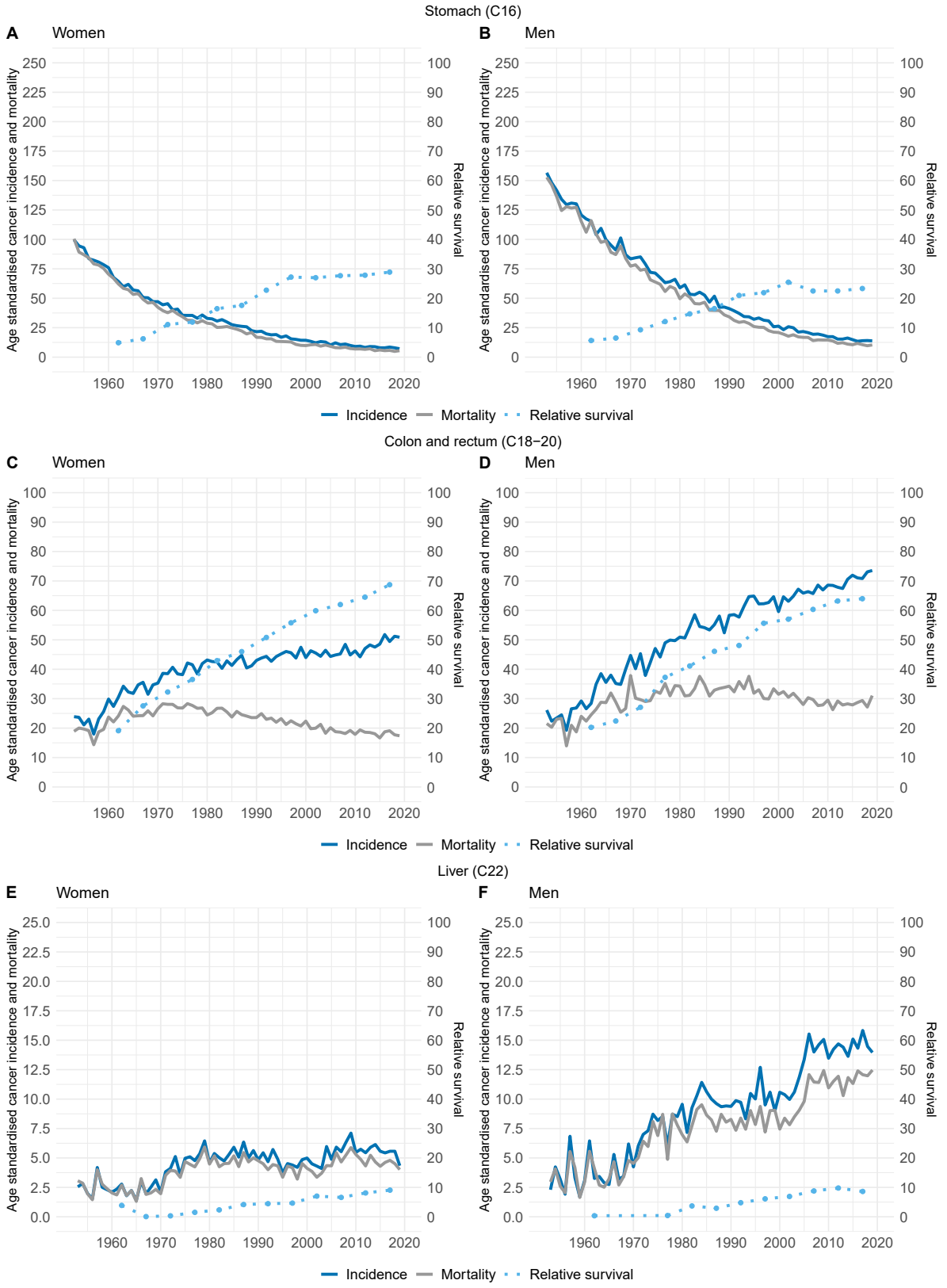

Figure 25: Cancer incidence and mortality (per 100,000 person-years and age-standardised to the 2014 Finnish population) and age-standardised five-year relative survival ratio (%) by sex in 1953–2019.

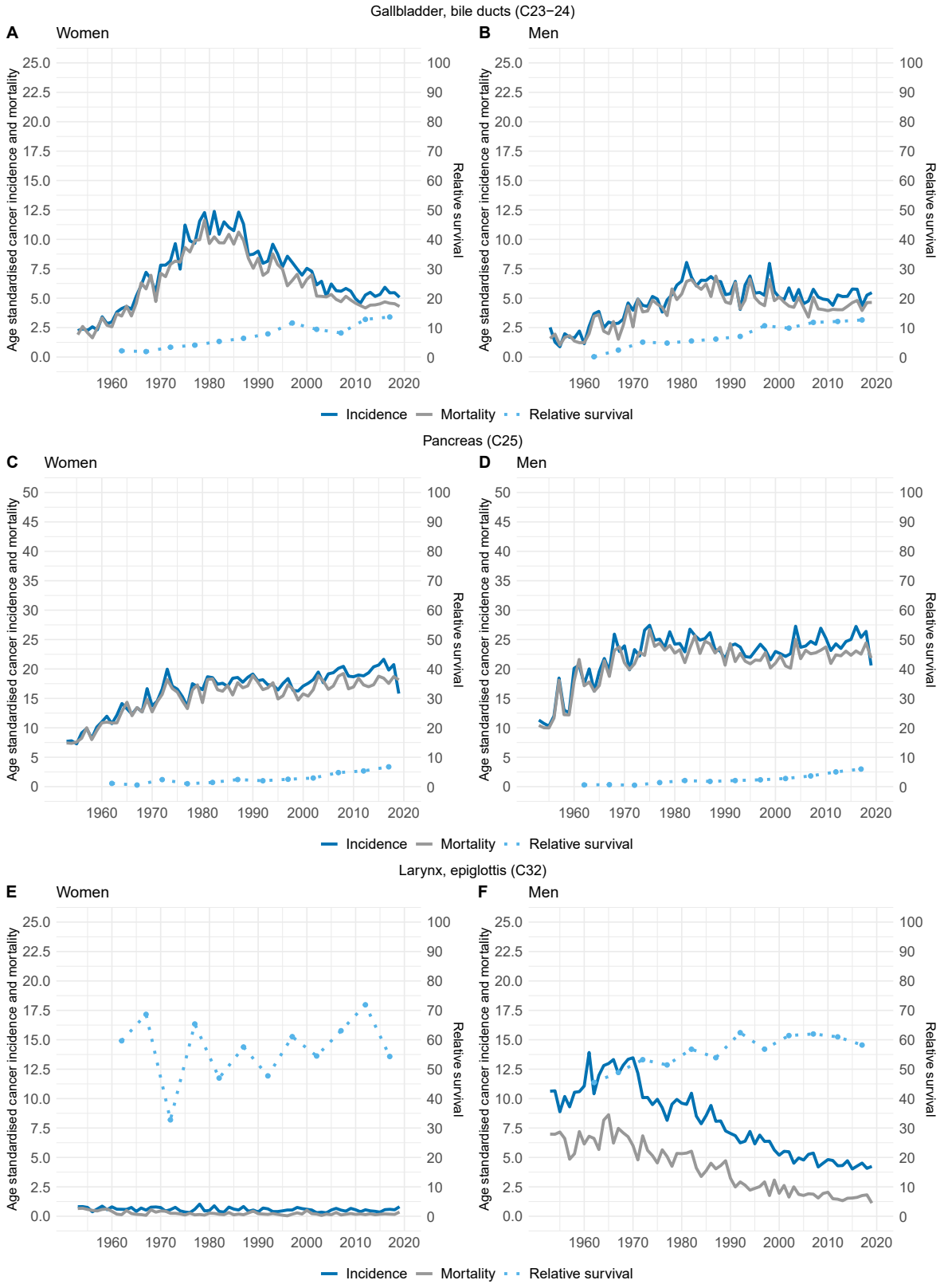

Figure 26: Cancer incidence and mortality (per 100,000 person-years and age-standardised to the 2014 Finnish population) and age-standardised five-year relative survival ratio (%) by sex in 1953–2019.

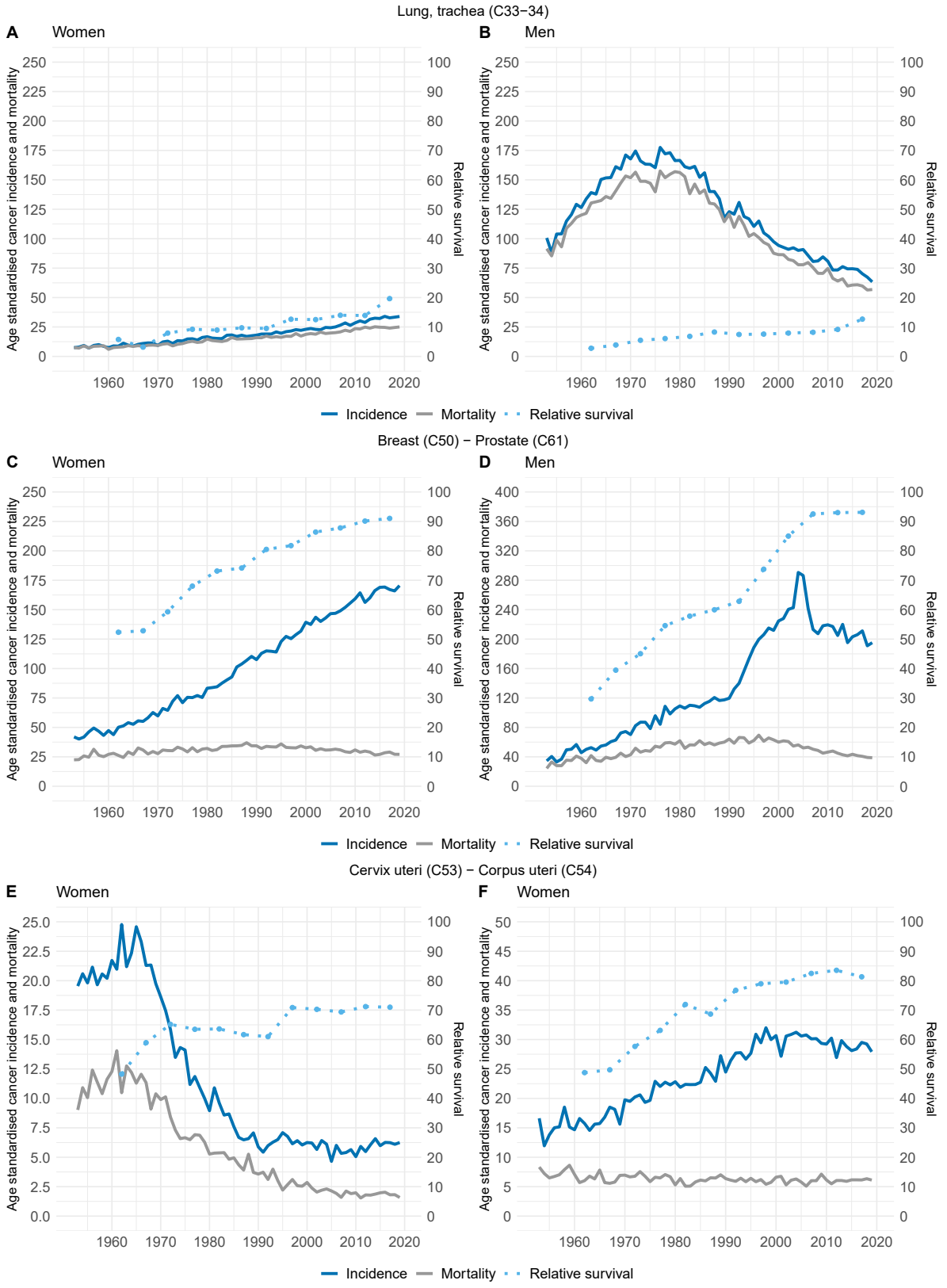

Figure 27: Cancer incidence and mortality (per 100,000 person-years and age-standardised to the 2014 Finnish population) and age-standardised five-year relative survival ratio (%) by sex in 1953–2019.

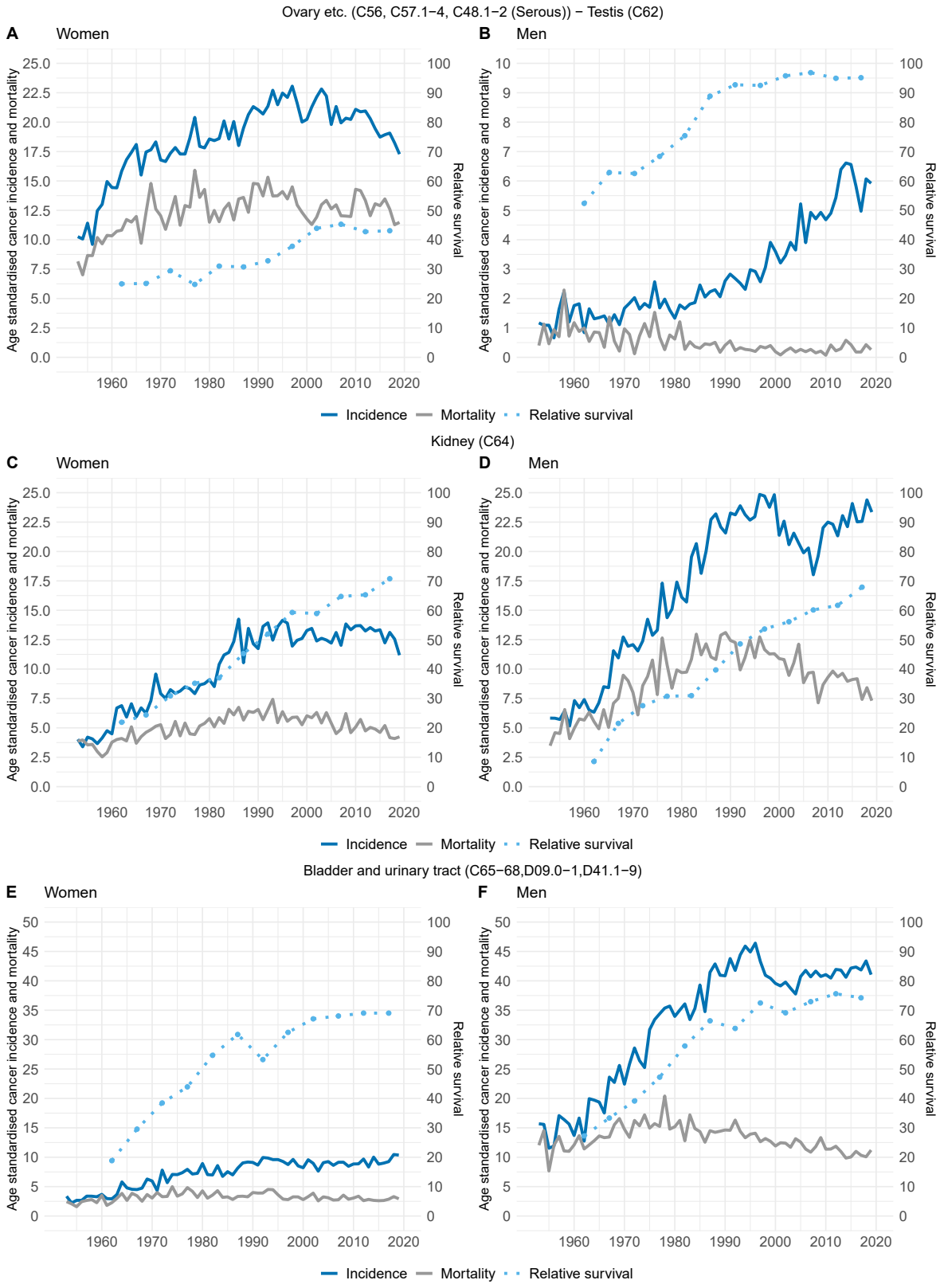

Figure 28: Cancer incidence and mortality (per 100,000 person-years and age-standardised to the 2014 Finnish population) and age-standardised five-year relative survival ratio (%) by sex in 1953–2019.

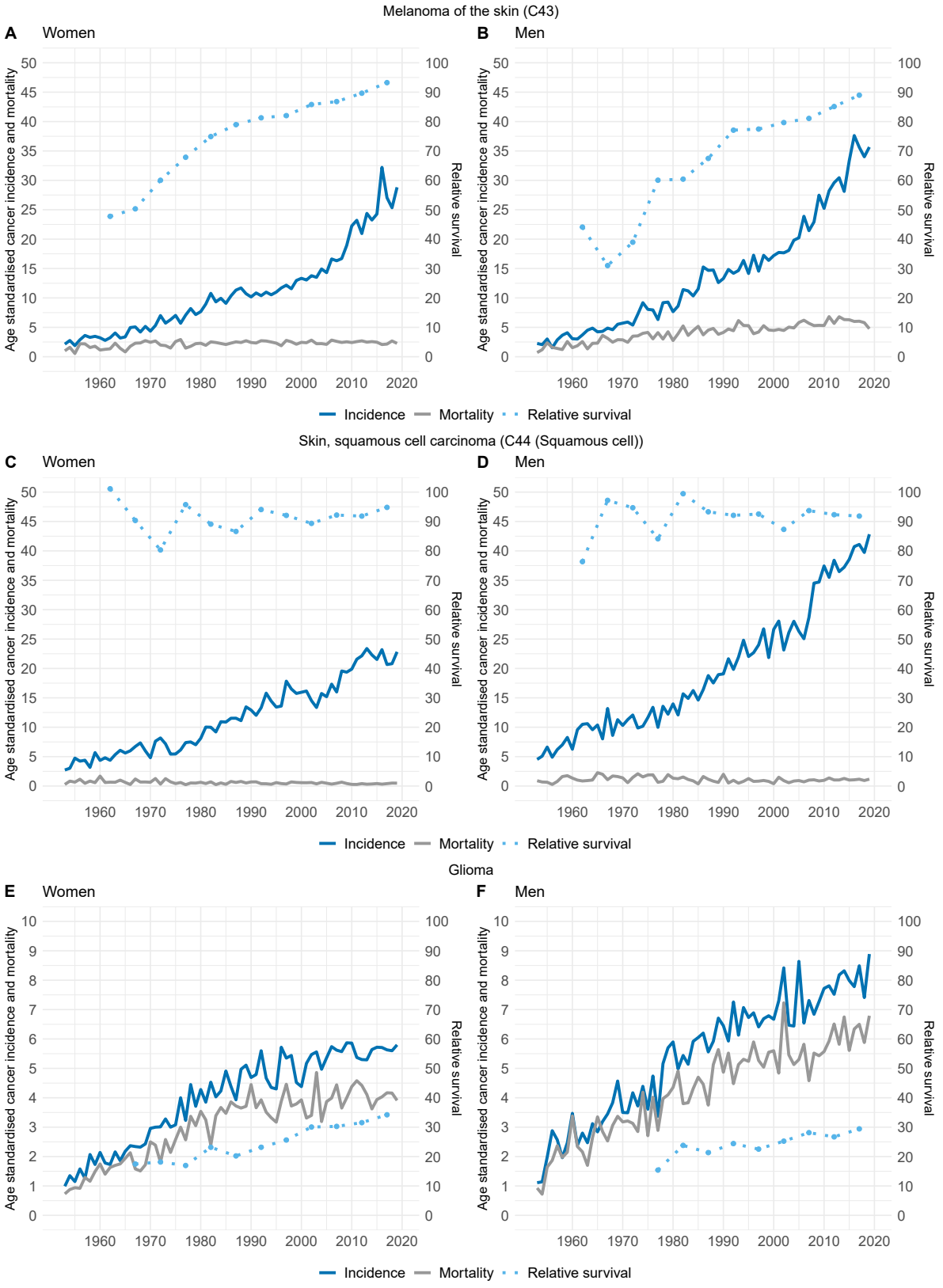

Figure 29: Cancer incidence and mortality (per 100,000 person-years and age-standardised to the 2014 Finnish population) and age-standardised five-year relative survival ratio (%) by sex in 1953–2019.

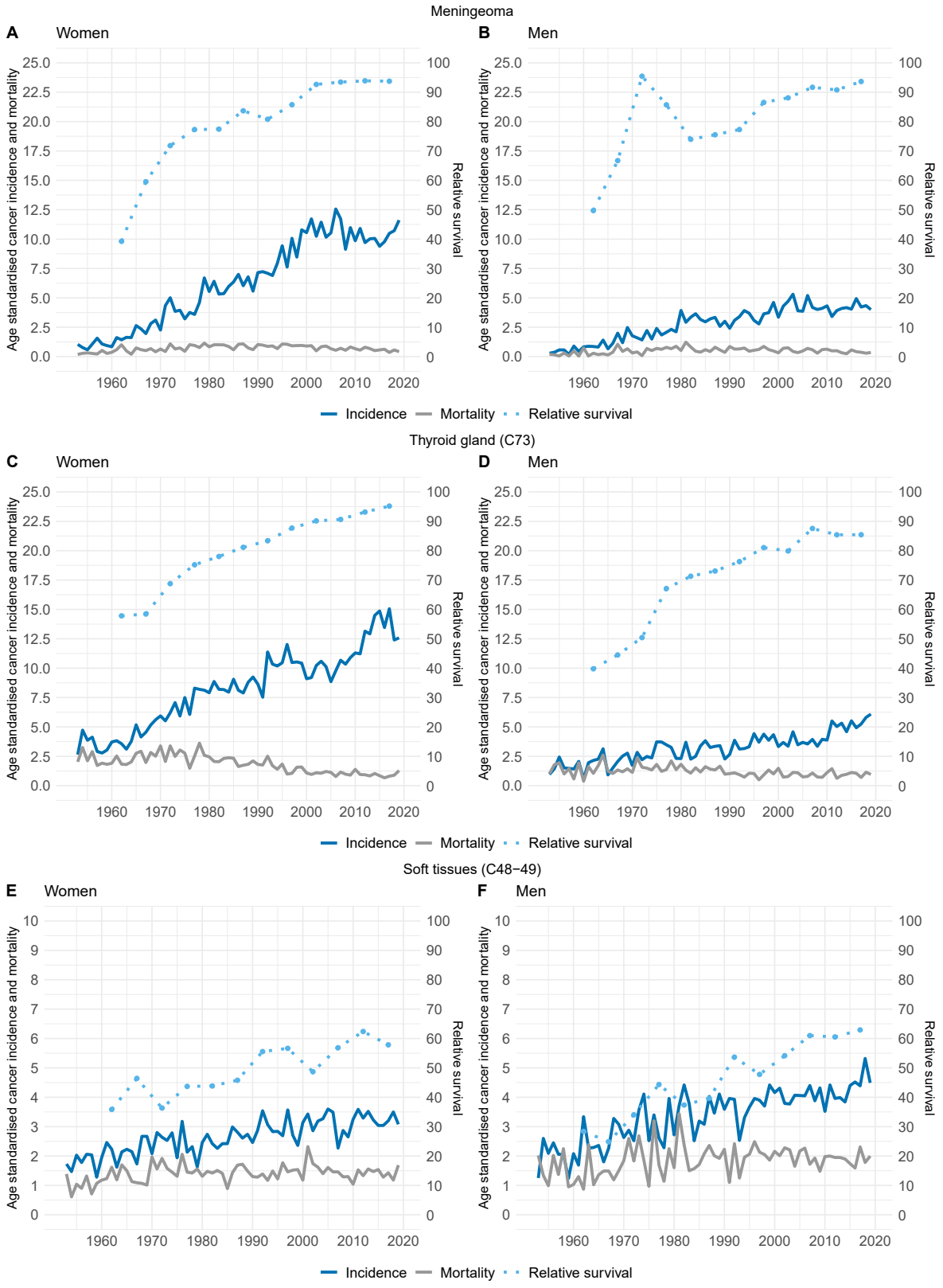

Figure 30: Cancer incidence and mortality (per 100,000 person-years and age-standardised to the 2014 Finnish population) and age-standardised five-year relative survival ratio (%) by sex in 1953–2019.

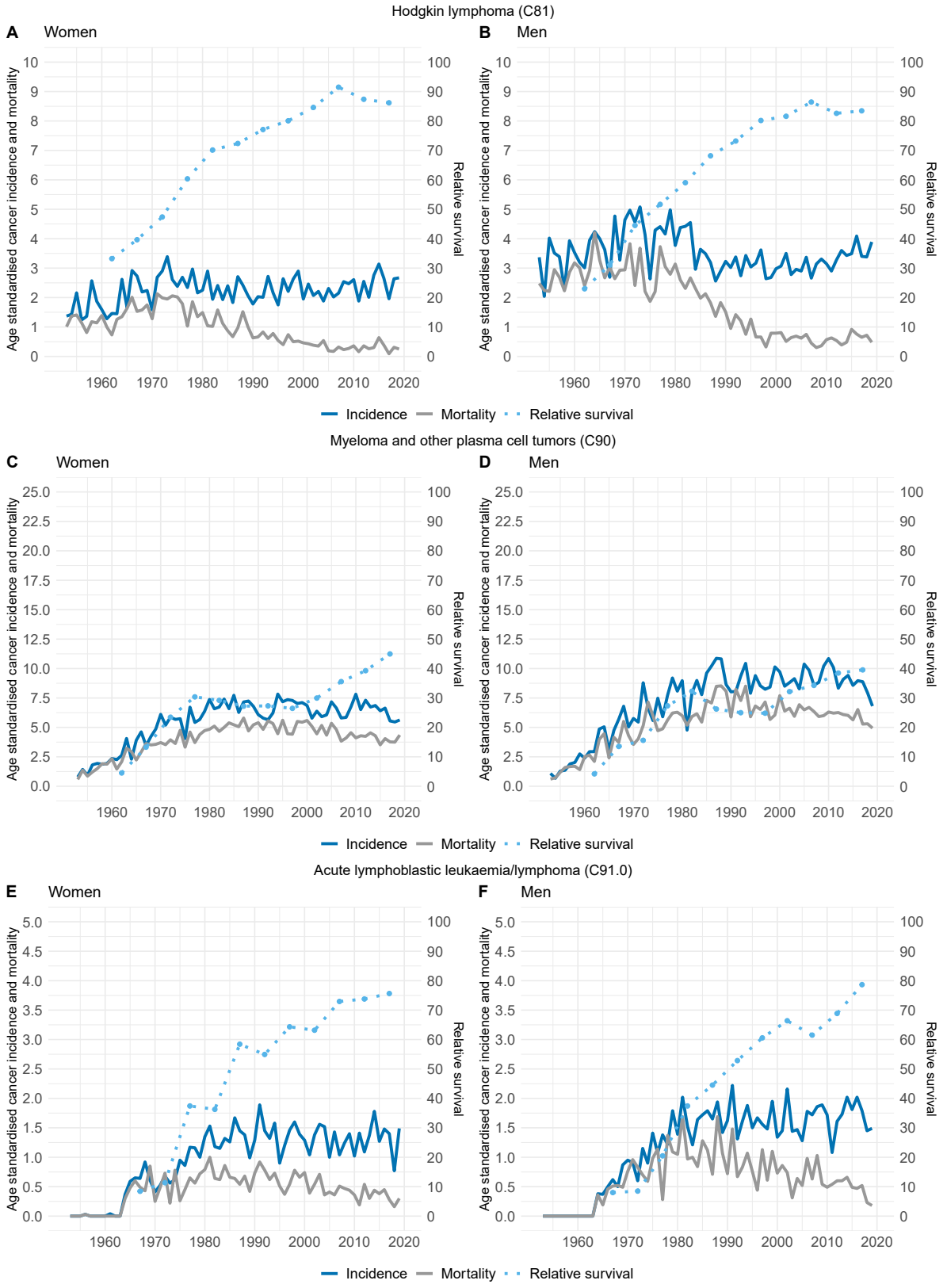

Figure 31: Cancer incidence and mortality (per 100,000 person-years and age-standardised to the 2014 Finnish population) and age-standardised five-year relative survival ratio (%) by sex in 1953–2019.

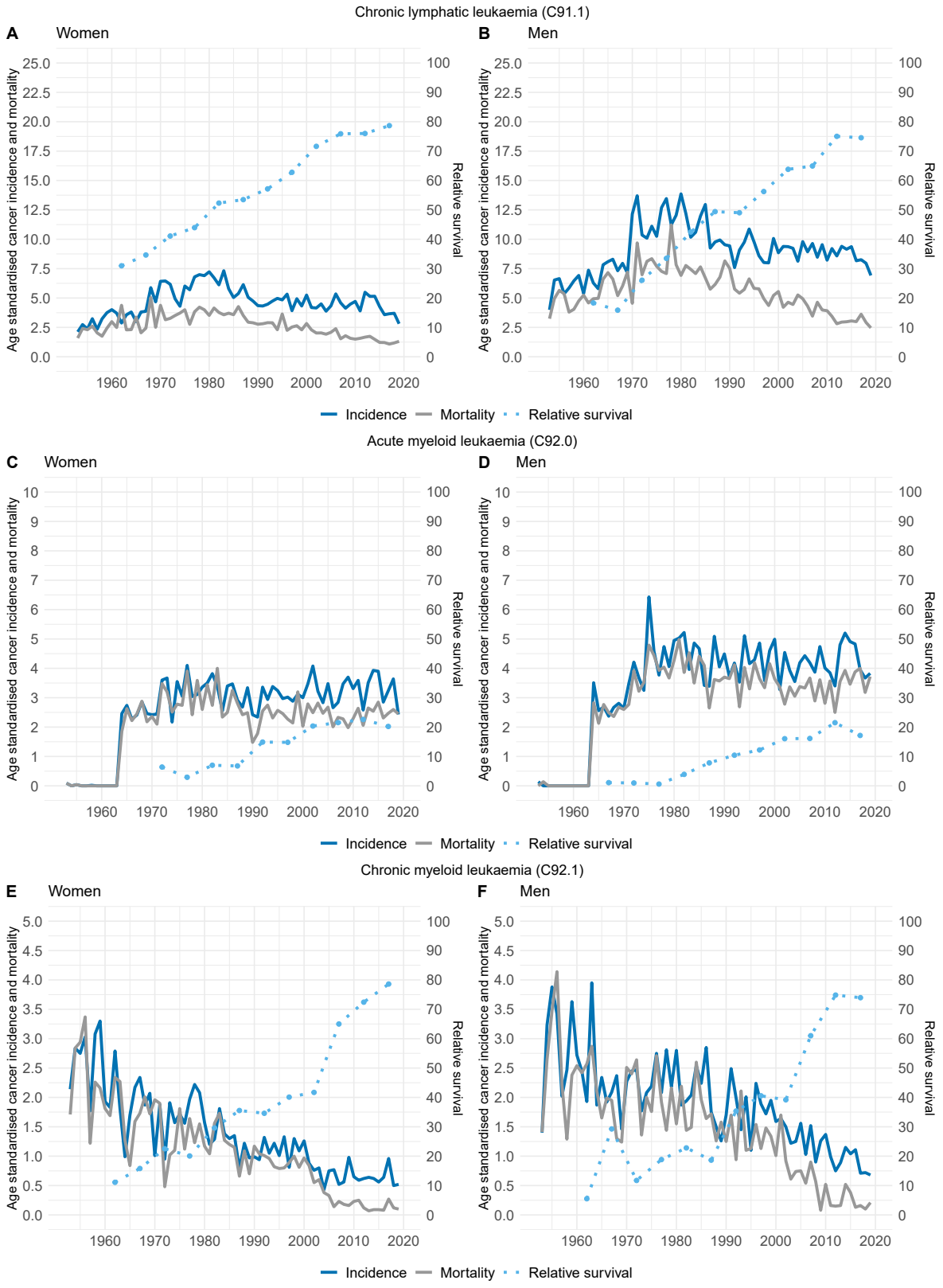

Figure 32: Cancer incidence and mortality (per 100,000 person-years and age-standardised to the 2014 Finnish population) and age-standardised five-year relative survival ratio (%) by sex in 1953–2019.

11 Predictions

The predicted number of new cancer cases diagnosed in 2035 is approximately 46 200 (Table 5). The annual number of cases is projected to increase by 31% compared to the 35 327 cases diagnosed in 2019. The increase is mainly due to population ageing. The number of cancer cases in persons aged 75 and over will almost double from 12 644 cases to 23 800 cases (Figure 33). The number of cases in persons under 75 (22 682 cases in 2019) will remain almost unchanged in the coming years. The age-standardised incidence of cancer is expected to increase by 6%: by 8% in women and 5% in men.

The prediction for prostate cancer is not based on a model that utilises the observed trend, as the irregular incidence trend caused by increasingly common PSA testing is not suitable as a basis for the model. The prostate cancer prediction assumed that the incidence in each age group would remain at the same level as in 2015–2019. In prostate cancer, the number of cases will increase from 5 245 to 6 690 (27% increase, Figure 35 and Table 5). In breast cancer, the increase from 5 136 to 6 020 cases (17% increase, Figure 35 and Table 5) is more moderate than in prostate cancer, as the incidence of breast cancer stops increasing after the age of 65. The incidence of prostate cancer increases with age and is at its highest at 80 years of age.

Looking at the most common cancers types, the number of cases of melanoma of the skin will increase proportionally the most (56%, Figure 34 and Table 5). The exceptionally large increase is due to a strong increase in age-standardised incidence of melanoma of the skin, and the increase is projected to continue (by 32% from 2019 to 2035, Table 5).

The prediction of the incidence of lung cancer shows a clear difference between men and women (Figure 34 and Table 5). An increase of 5% in the age-standardised incidence in women means that lung cancer will continue to become more common. The number of cases in women is projected to increase by 34%. Although lung cancer will become less common in men and the age-standardised incidence is predicted to decline by 16%, the number of cases will still increase by around 7%.

According to the prediction, age-standardised cancer mortality will continue to decrease (Table 5). The mortality from all cancers combined will decrease on average by 12% from 2019 to 2035: by 8% in women and 14% in men. In 2035, a total of 15 900 people will die from cancer, which is 21% more than in 2019. Mortality will decrease the most for lung cancer in men (24%). Mortality due to haematological cancers will decrease by 21%. Mortality due to lung cancer will decrease also in women (on average by 7%), but the prediction varies by age group. Mortality will decrease by 10% in persons aged under 65 and by 22% in persons aged 65–74. In women aged 75 and over, however, mortality due to lung cancer will increase by 7%.

Table 5: Prediction of the number of new cancer cases, the age standardised incidence, the number of cancer deaths and the age-standardised mortality in 2035 as well as the relative change (in percentages) from 2019 for all cancers and the seven most common cancer type groups. The prediction for lung cancer is presented by sex.

		Number of cases		Incidence		Deaths from cancer		Mortality	
Cancer site	**ICD-10**	Number	Change	Rate[1]	Change	Number	Change	Rate[1]	Change
All sites together	C00-96,D09.0-1,D32-33, D41-43,D45-47,D76	46 200	31 %	653.0	6 %	15 900	21 %	198.3	-12 %
Prostate	C61	6 690	27 %	201.3	3 %	1 280	37 %	31.7	-18 %
Breast (women)	C50	6 020	17 %	179.9	6 %	940	5 %	22.5	-17 %
Colon and rectum	C18-20	4 950	37 %	67.9	9 %	1 790	29 %	22.1	-9 %
Lymphoid and haematopoietic tissue	C81-96,D45-47,D76	4 310	32 %	59.9	7 %	1 540	14 %	18.4	-21 %
Melanoma of the skin	C43	2 820	56 %	42.6	32 %	264	32 %	3.5	-2 %
Bladder and urinary tract	C65-68,D09.0-1,D41.1-9	2 010	41 %	27.1	6 %	515	38 %	6.1	-15 %
Lung, trachea (men)	C33-34	1 840	7 %	53.2	-16 %	1 500	-1 %	43.3	-24 %
Lung, trachea (women)	C33-34	1 490	34 %	35.5	5 %	1 040	23 %	23.4	-7 %

[1] per 100 000 person-years and age-standardised to the population of Finland in 2014

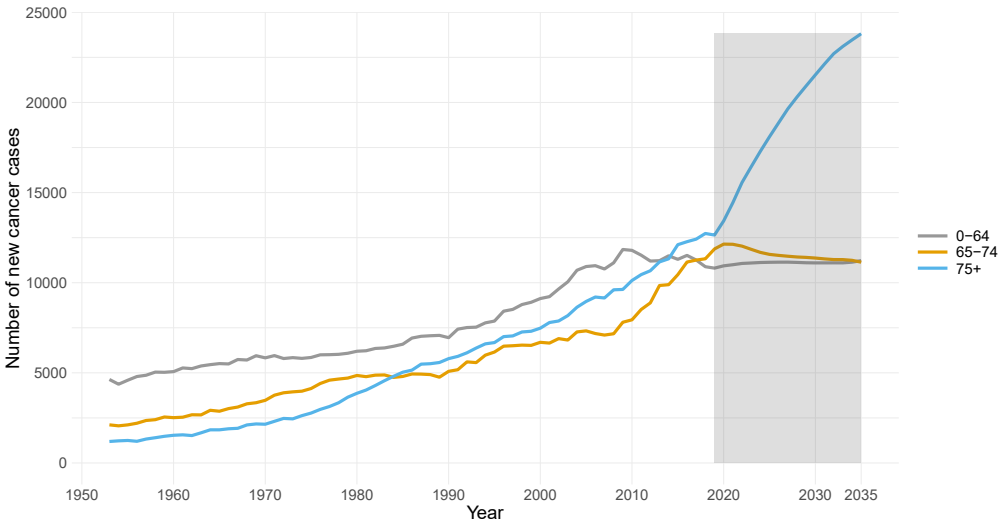

Figure 33: Annual number of new cancer cases diagnosed in 1953–2019 and the projected development until 2035 in different age groups.

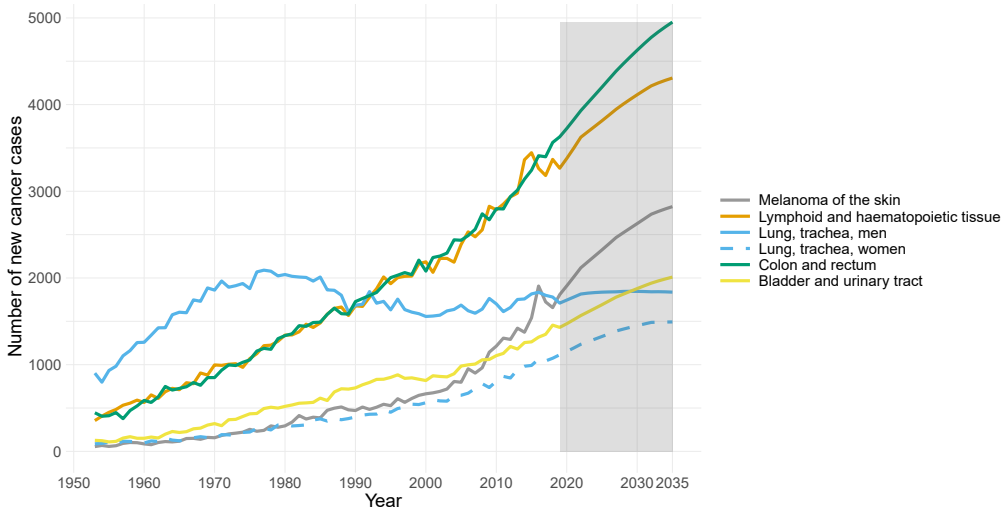

Figure 34: Annual number of new cancer cases diagnosed in 1953–2019 and the projected development until 2035 in the most common cancer types. The prediction of the number of cases of lung cancer is presented by sex.

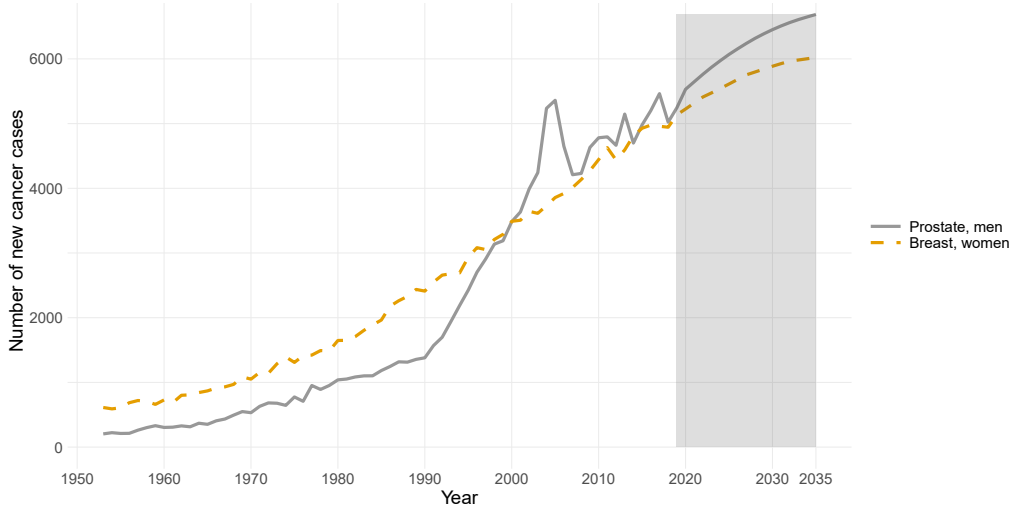

Figure 35: The annual number of new cases of breast cancer in women and prostate cancer diagnosed in 1953–2019 and the projected development until 2035.

12 Regional differences in cancer burden

Regional differences in cancer incidence and mortality were estimated for the years 2015–2019. The analysis targeted all cancers together and the four most common cancer types.

All cancers together (Figure 36): The regional variation in cancer incidence was slightly higher in men than in women. In women, the incidence risk ratio varied between 0.90 and 1.14, that is, the cancer incidence was at its best 10% lower and at its worst 14% higher in the municipality than in the whole country on average. In men, the range of relative regional differences in incidence was slightly wider, 0.86-1.18. In women, the risk ratio for cancer mortality was 0.88-1.12 in mainland Finland, but between 1.09 and 1.22 (on average 1.15, 95% credible interval [1.04, 1.27]) in the municipalities of Åland. In men, the mortality risk ratios varied between 0.93 and 1.09, and the Åland municipalities deviated less from the rest of Finland than in women.

Breast, women (Figure 37): The incidence of breast cancer was lowest in the Kainuu region (risk ratio on average 0.89 [0.83, 0.95]) and the highest in the Helsinki capital region (on average 1.15 [1.09, 1.22]). In municipalities with a high incidence of cancer, cancer mortality was also often high. In the incidence of breast cancer, the risk ratio range (0.87–1.18) was almost the same as in mortality (0.88–1.20). In Helsinki, the mortality rate in breast cancer was high (1.20 [1.09, 1.31]).

Prostate (Figure 37): In men, the regional differences in the incidence of cancer were greatest in the case of prostate cancer. The incidence of prostate cancer was lowest in the Kainuu region (risk ratio on average 0.80 [0.73, 0.87]) and the highest on Åland (on average 1.36 [1.20, 1.53]). In municipalities with the highest incidence, the incidence was 90% higher than in municipalities with the lowest incidence (risk ratio range 0.78–1.52). The difference in mortality due to prostate cancer was only around 16% (range 0.93–1.08). The mortality rate was slightly higher in municipalities where prostate cancer is diagnosed considerably less.

Colon and rectum (Figure 38): The incidence and mortality of colorectal cancer was lowest in Northern Finland, for example in municipalities in Lapland: on average 0.87 [0.77, 0.97] for women and 0.85 [0.77, 0.94] for men. The highest incidence was recorded among women in the Vaasa Hospital District (1.11 [1.02, 1.21]) and men in Southwest Finland (1.10 [1.05, 1.16]) and Åland (1.12 [0.99, 1.28]). In women, the mortality rate in colorectal cancer was highest on Åland (risk ratio range 1.16-1.30, on average 1.23 [1.00, 1.58]).

Lung, trachea (Figure 39): For the four most common cancers, the regional differences in the cancer burden were the highest in lung cancer in women: the incidence risk ratio ranged from 0.77 to 1.64 and the mortality risk ratio from 0.76 to 1.67. The incidence of lung cancer in women was particularly high in Helsinki (1.50 [1.39, 1.63]) and Lapland (on average 1.47 [1.25, 1.70]) and on Åland (on average 1.35 [1.03, 1.75]). As for lung cancer in men, the variation was significantly lower: 0.86-1.22 for incidence and 0.88–1.15 for mortality. The regional differences in incidence and mortality were very similar, as those affected often die from cancer regardless of their area.

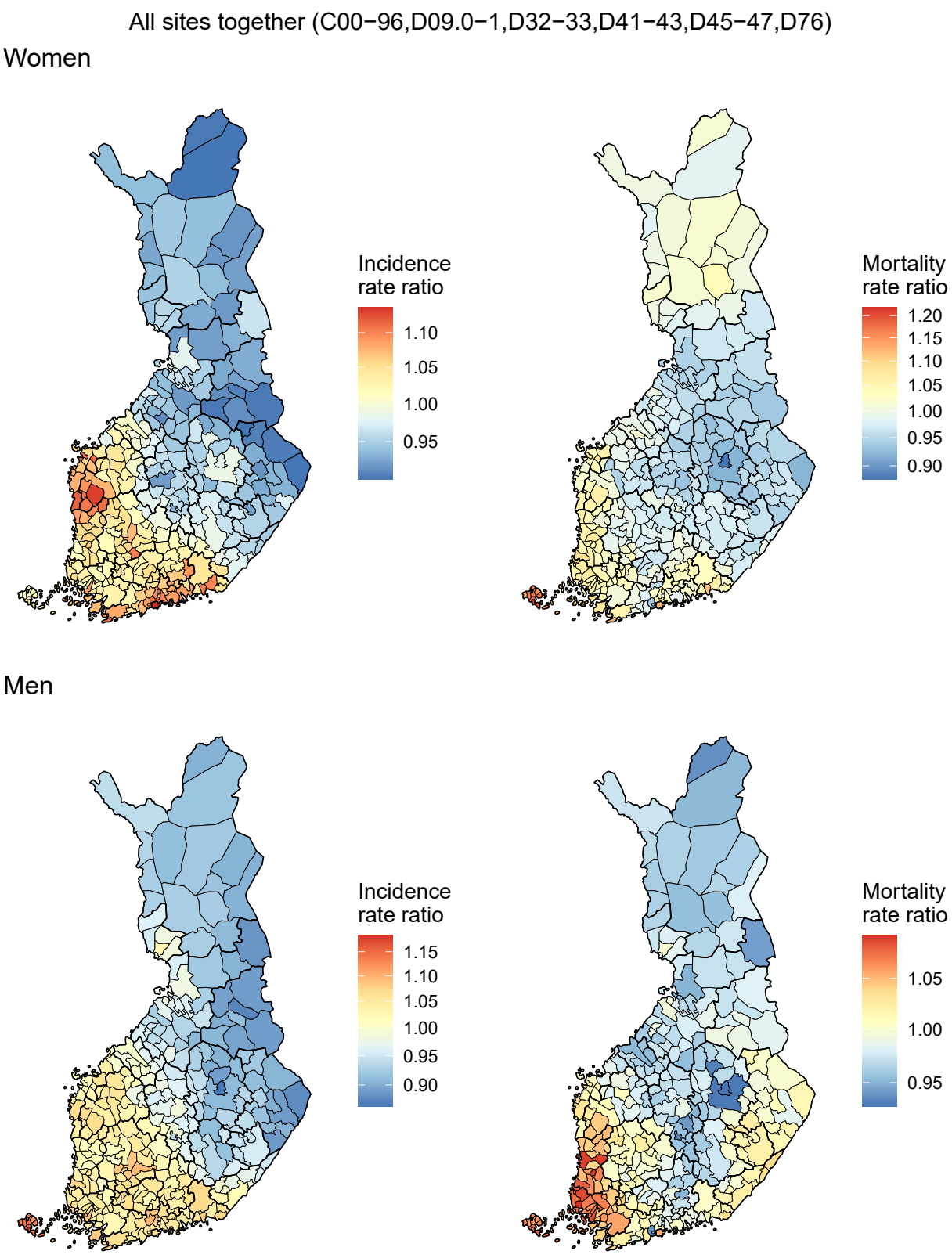

Figure 36: Relative regional differences in overall cancer incidence and mortality by sex in 2015–2019.

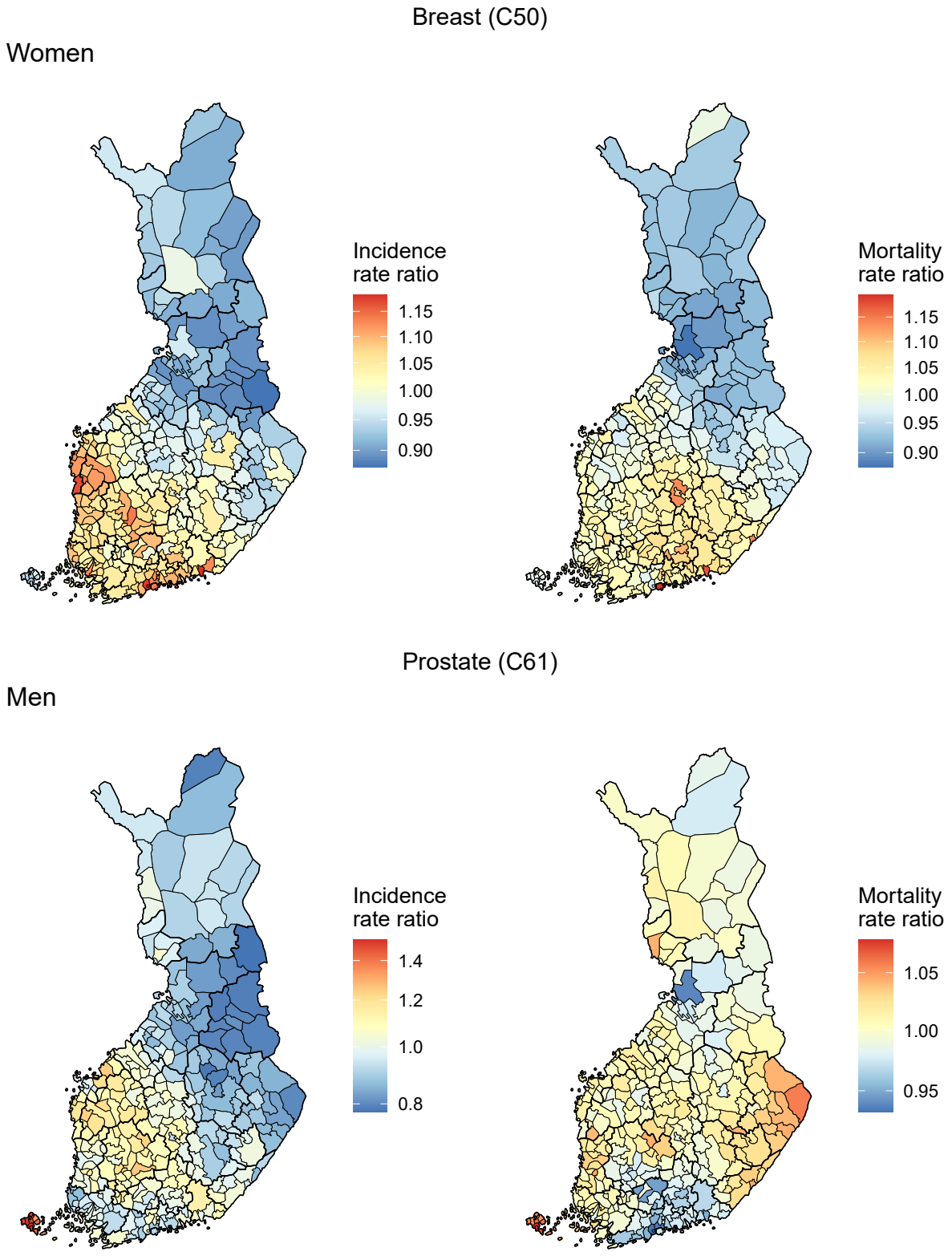

Figure 37: Relative regional differences in incidence and mortality of breast cancer in women and prostate cancer by sex in 2015–2019.

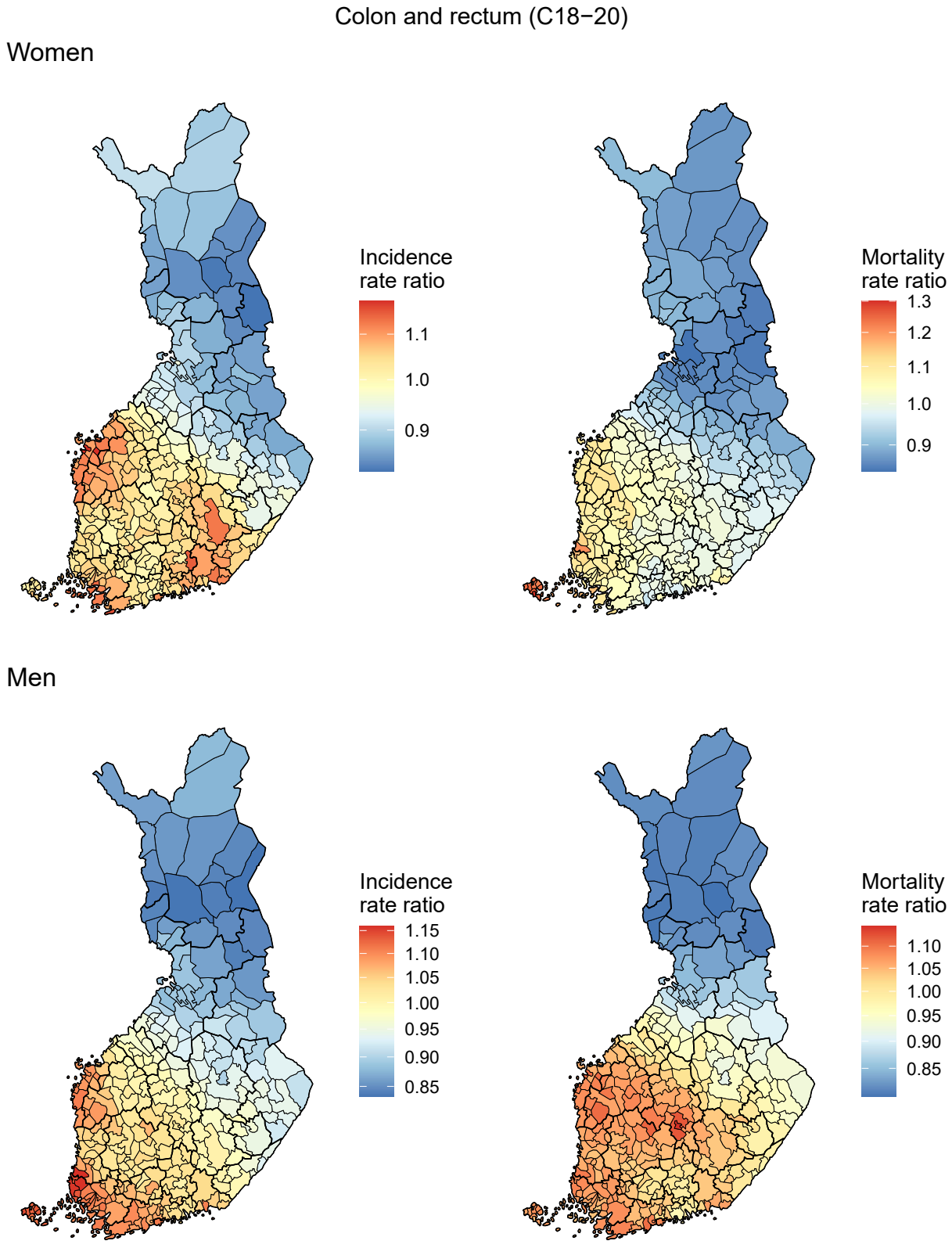

Figure 38: Relative regional differences in incidence and mortality of colorectal cancer by sex in 2015–2019.

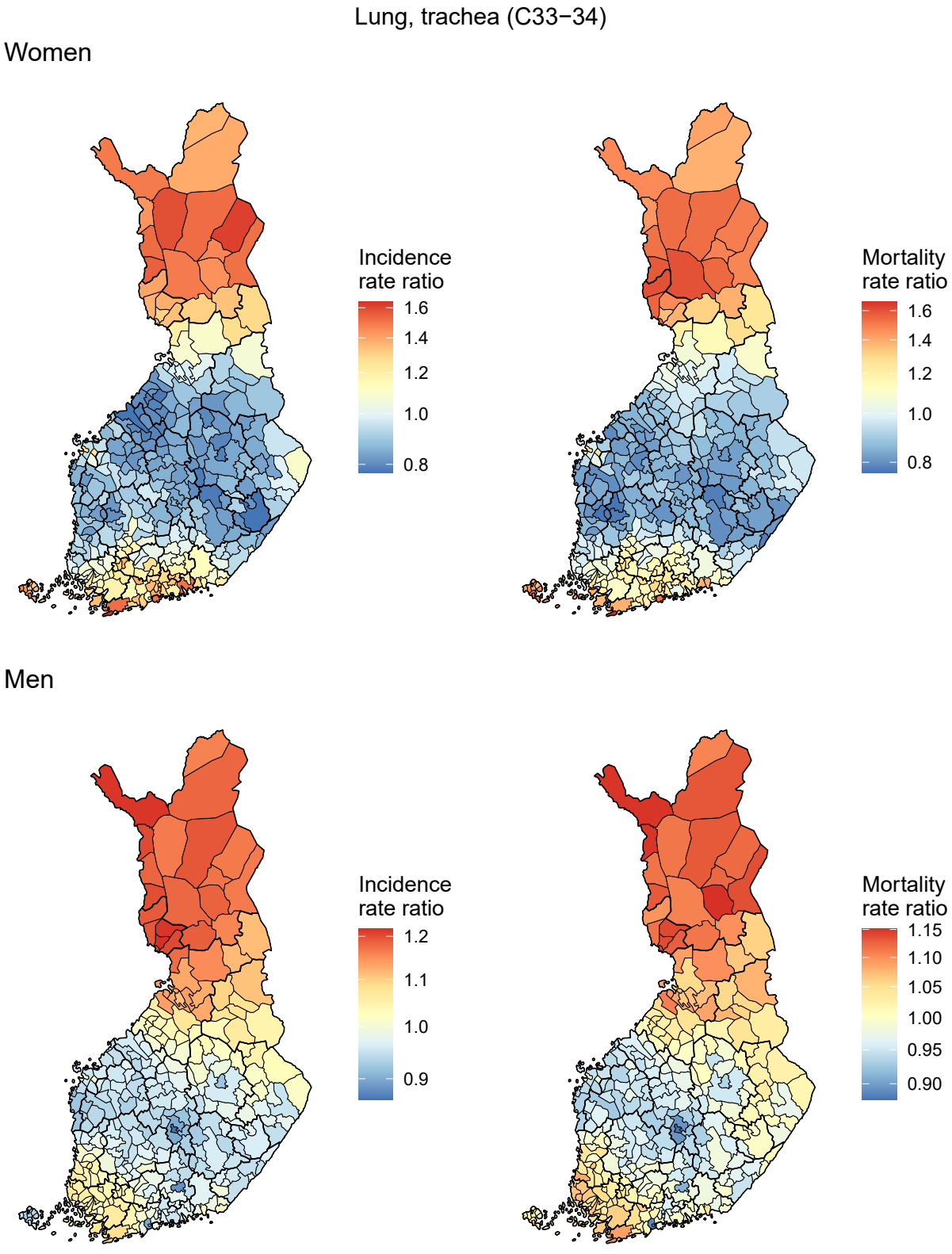

Figure 39: Relative regional differences in incidence and mortality of lung cancer by sex in 2015–2019.

13 Educational level and cancer burden

In the statistics presented by level of education, the population was divided into three groups according to the highest degree obtained (see Statistical methods, definitions). Figures 40–43 show the age-standardised cancer incidence and cancer mortality rates for women and men aged over 25 per 100,000 person-years by level of education. In terms of incidence, the analysis included the ten most common cancer types. In terms of mortality, it included the ten cancer types with the highest mortality rates. In the case of women, the examination also covered cervical cancer and liver cancer, which have previously been found to differ in incidence or mortality by level of education.

13.1 Cancer incidence by level of education

In women, the differences between educational levels in the incidence of cancer (Figure 40) were proportionally greatest for lung and tracheal cancer. The incidence of lung and tracheal cancer at the basic education level was more than double the incidence at the tertiary education level (66.9 vs. 31.6, risk ratio (RR) at basic level 2.13, 95% confidence interval [1.97, 2.31]). The differences in the incidence of melanoma of the skin were also almost double, albeit in the opposite direction. The incidence was highest at the tertiary level (46.1) and lowest at the basic level (26.5, RR 0.62 [0.57, 0.68] compared to those with a higher education). There were also marked, statistically significant differences between educational levels in the incidence of cervical, liver, pancreatic and breast cancer. The incidence of cervical and liver cancer was highest at the basic level (12 and 9.5) and lowest among the highly educated (6.6 and 4.9). The RR of cervical cancer was 1.83 [1.51, 2.21] and the RR of liver cancer was 1.82 [1.49, 2.21] at the basic level compared to those with a higher education. The incidence of cervical and liver cancer among those with basic-level qualifications was therefore almost double that of those with a tertiary level education. The incidence of pancreatic cancer was about 20% higher at the basic level (29.8) than at the higher education level (24.7), RR 1.20 [1.09, 1.32]).

Breast cancer, on the other hand, was more common among those with a tertiary level education (269.7) than among those with a basic education (207.6). At the basic level of education, the RR of breast cancer was 0.78 [0.75, 0.81] compared to those with a higher education. At the basic level of education, therefore, the incidence of breast cancer was approximately one-fifth (22%) lower than among those with a higher education. The differences in the incidence of colorectal cancer were very small, though the incidence was approximately 7% higher at the basic level (73.4) than at the tertiary level (67.3), RR 1.07 [1.00, 1.13].

In men, the greatest differences in the incidence of cancer between levels of education were found in lung and tracheal cancer (Figure 41). The incidence of lung and tracheal cancer at the basic education level was around 2.5 times higher than the incidence among highly educated people (131.4 vs. 52.8); the RR at the basic level was 2.55 [2.39, 2.71] compared to the tertiary level. The incidence of liver and pancreatic cancer was also highest among those with a basic level of education (25.2 and 39) and lowest among with a higher education (16.2 and 31.9). The incidence of liver cancer was therefore more than 1.5 times higher (RR 1.54 [1.36, 1.73]) and the incidence of pancreatic cancer 1.2 times higher among those with a basic level of education compared those with a higher education (RR 1.21 [1.11, 1.33]). The incidence of melanoma of the skin, on the other hand, was approximately 40% lower among those with a basic level of education than among those with a higher education (38.4 vs. 65.4, RR 0.60 [0.56, 0.65]). Prostate cancer was also less common at the basic level than at the tertiary level (269.8 vs. 301.5, RR 0.89 [0.87, 0.92]). The differences in the incidence of colorectal cancer between the basic and tertiary education levels were small and not statistically significant 102.0 vs. 100.6, RR 1.01 [0.96, 1.07]).

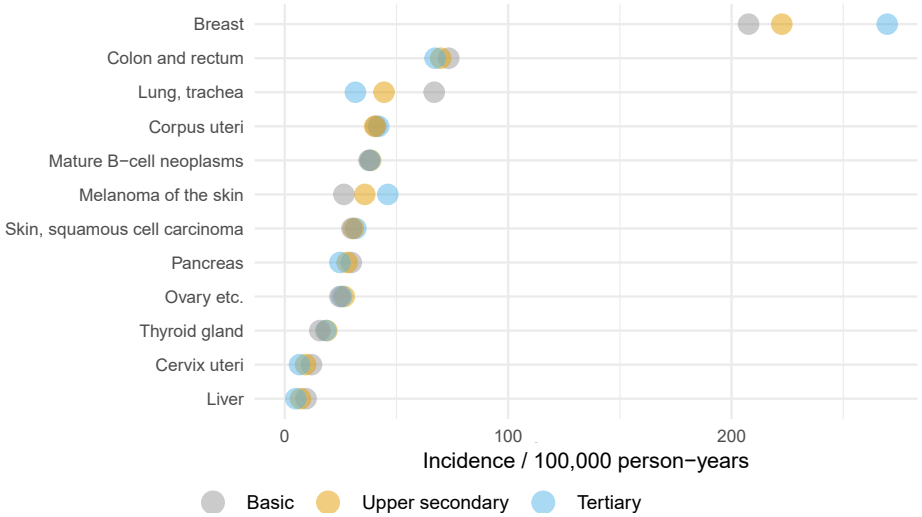

Figure 40: Incidence of cancer in women (per 100,000 person-years and age-standardised to the 2014 Finnish population) in the population aged over 25 by level of education in 2015–2019.

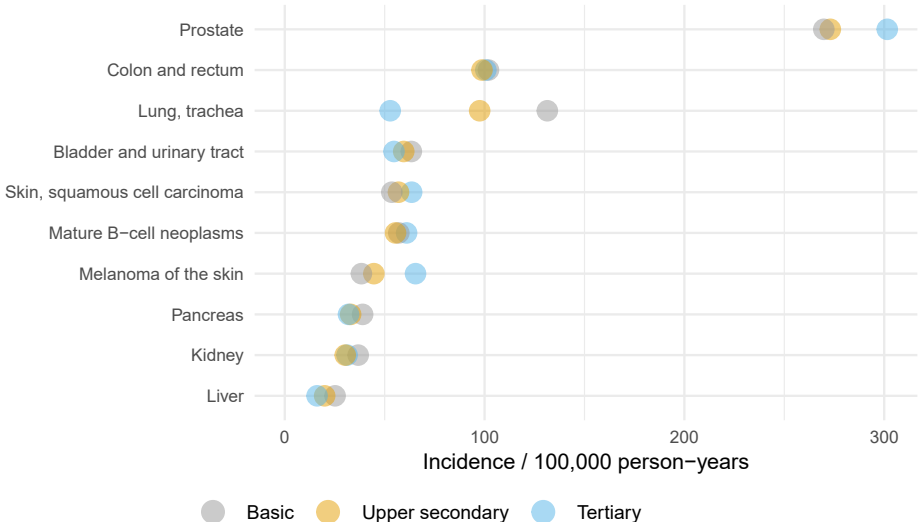

Figure 41: Incidence of cancer in men (per 100,000 person-years and age-standardised to the 2014 Finnish population) in the population aged over 25 by level of education in 2015–2019.

13.2 Cancer mortality by level of education

Cancer mortality also showed differences between educational levels. In women, the mortality rate was the highest at the basic level of education (Figure 42). The highest statistically significant difference was observed in cervical cancer, where the mortality was more than twice as high among those with a basic level of education than among those with a higher education (4.1 vs. 1.9, RR 2.30 [1.65, 3.22]). The difference was nearly as large in lung and tracheal cancer (49.5 vs. 22.6, RR 2.22 [2.02, 2.45]). In liver cancer, too, the mortality was nearly twice as high at the basic level than at the higher education level (8.1 vs. 4.2, RR 1.77 [1.42, 2.19]). The difference between educational levels was relatively high also in stomach and kidney cancer. The mortality due to stomach cancer was about 38% higher (8.7 vs. 6.4, RR 1.38 [1.15, 1.66]) and the mortality due to kidney cancer about 41% higher (6.8 vs. 4.8, RR 1.41 [1.14, 1.75]) at the basic education level than at the higher education level. In colorectal cancer, the mortality at the basic level was approximately 26% higher than at the tertiary level (27.7 vs. 21.2, RR 1.26 [1.13, 1.39]).

In men, the mortality rate was highest at the basic and lowest at the tertiary level of education for all cancer types examined (Figure 43). The difference was particularly marked in lung and tracheal cancer, where the mortality in men with basic-level qualifications was more than 2.5 times higher than in men with a tertiary-level education (112.4 vs. 41.4, RR 2.82 [2.62, 3.02]). The difference in mortality was also significant in oesophageal cancer, where the mortality at the basic level was more than double the mortality at the tertiary level (13.7 vs. 6.2, RR 2.16 [1.80, 2.59]). The stomach cancer mortality rate was 65% higher at the basic level of education than at the tertiary level (17.4 vs. 10.6, RR 1.65 [1.42, 1.91]). The difference in mortality was nearly as large in liver cancer: 21.3 at the basic level of education and 13.2 at the tertiary level (RR 1.61 [1.41, 1.84]). In colorectal cancer and prostate cancer, the mortality rate among those with a basic level of education was about one-fifth higher than among those with a tertiary level of education; 44.9 vs. 37.1 (RR 1.21 [1.11, 1.32]) in colorectal cancer and 60.3 vs. 50.4 (RR 1.21 [1.12, 1.30]) in prostate cancer.

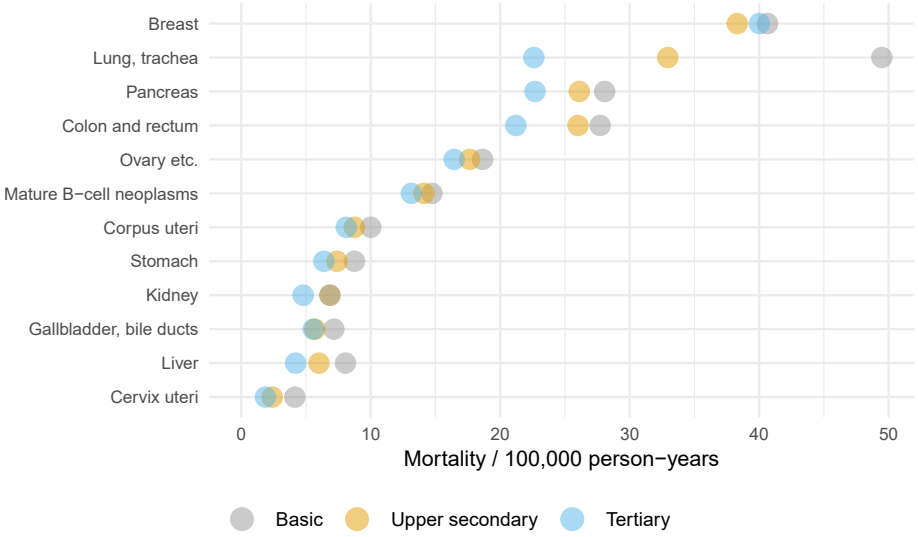

Figure 42: Cancer mortality in women (per 100,000 person-years and age-standardised to the 2014 Finnish population) in the population aged over 25 by level of education in 2015–2019.

Figure 43: Cancer mortality in men (per 100,000 person-years and age-standardised to the 2014 Finnish population) in the population aged over 25 by level of education in 2015–2019.

14 Tables

14.1 Incidence, mortality and prevalence

Table 6: Number and age-standardised rate of new cancer cases and deaths in 2019 and number and agestandardised proportion of cancer survivors in the population on 31 December 2019, female.

		Incidence		Mortality		Prevalence	
Cancer site	ICD-10	Count	Rate[1]	Count	Rate[1]	Count	Proportion[2]
All sites together	C00-96,D09.0-1,D32-33, D41-43,D45-47,D76	16987	536.66	6065	177.16	168081	5240.4
Mouth, pharynx	C00-14	288	9.24	81	2.27	2694	83.3
Lip	C00	14	0.38	0	0.00	306	8.2
Tongue	C02	75	2.35	26	0.75	677	21.0
Salivary glands	C07-08	42	1.43	9	0.26	536	17.0
Mouth, other or unspecified	C03-06	81	2.48	25	0.67	706	21.4
Pharynx	C01,C09-14	76	2.59	21	0.58	503	16.8
Digestive organs	C15-26	3139	94.31	1919	55.56	18335	544.5
Oesophagus	C15	109	3.22	78	2.33	258	7.5
Stomach	C16	232	7.15	187	5.50	1448	43.3
Small intestine	C17	87	2.67	34	0.94	640	19.8
Colon and rectum	C18-20	1680	50.88	606	17.40	14386	423.7
Colon	C18	1132	33.91	413	11.83	9619	281.8
Rectum, rectosigmoid	C19-20	548	16.97	193	5.57	4862	144.5
Anus	C21	43	1.45	6	0.19	307	9.8
Liver	C22	148	4.34	140	4.01	244	7.5
Gallbladder, bile ducts	C23-24	174	5.08	148	4.30	376	11.1
Pancreas	C25	534	15.82	620	18.14	727	23.0
Digestive organs, other and unspecified	C26	132	3.70	100	2.76	89	2.7
Respiratory and intrathoracic organs	C30-39	1190	36.29	880	26.12	3223	99.0
Nose, sinuses	C30-31	22	0.70	11	0.36	162	5.2
Larynx, epiglottis	C32	26	0.81	12	0.36	155	4.7
Lung, trachea	C33-34	1114	33.92	845	25.04	2792	85.5
Other or unspecified respiratory or intrathoracic organs	C37-39	28	0.86	12	0.36	124	4.0
Breast	C50	5136	170.46	892	27.11	76499	2390.6
Female genital organs	C51-58	1814	57.72	765	22.65	22628	688.3
Cervix uteri	C53	178	6.25	47	1.58	3027	103.3
Corpus uteri	C54	885	27.92	213	6.12	12852	373.5
Ovary etc.	C56, C57.1-4, C48.1-2 (Serous)	540	17.28	385	11.48	5630	178.0
Vulva	C51	116	3.56	36	1.03	913	27.0
Vagina	C52	26	0.80	13	0.39	147	4.6
Placenta	C58	-	0.04	-	0.04	77	2.7
Female genital, other and unspecified	C55,C57.5-9	68	1.88	70	2.01	210	6.3
Urinary organs	C64-68,D09.0-1,D41.1-9	707	21.54	257	7.18	6561	194.7
Kidney	C64	353	11.18	150	4.24	3867	117.7
Bladder and urinary tract	C65-68,D09.0-1,D41.1-9	354	10.36	107	2.93	2720	77.7
Skin	C43-44	1770	53.64	102	2.95	17735	534.9
Melanoma of the skin	C43	869	28.82	75	2.27	10694	342.6
Skin, squamous cell carcinoma	C44 (Squamous cell)	834	22.83	19	0.49	6396	171.8
Skin, other	C44 (Other)	67	1.99	8	0.19	876	26.7
Eye	C69	22	0.73	14	0.42	465	14.8
Brain, meninges and central nervous system	C70-72,D32-33,D42-43	611	20.39	199	6.05	8541	277.3
Glioma	-	171	5.80	121	3.91	1450	52.1
Meningeoma	-	346	11.61	14	0.42	5574	175.2
CNS, nerve sheet tumor	-	35	1.26	-	0.02	1078	34.6
Other and unspecified tumor of brain, meninges and central nervous system	-	59	1.71	63	1.69	528	18.4
Endocrine glands	C73-75	392	13.47	54	1.59	8427	281.4
Thyroid gland	C73	367	12.58	46	1.29	8166	272.4
Adrenal gland	C74	17	0.65	8	0.30	207	7.3
Other endocrine glands	C75	8	0.24	0	0.00	63	2.1
Mesothelioma	C45	27	0.88	23	0.69	49	1.5
Bone	C40-41	27	0.92	8	0.23	415	14.2
Soft tissues	C48-49	98	3.08	58	1.69	1150	36.7
Peripheral nerves, autonomic nervous system	C47	5	0.19	-	0.07	112	4.0
Illdefined or unknown	C76,C80	229	6.53	182	4.93	600	18.6

Table 6: (continuation)

Cancer site	ICD-10	Incidence		Mortality		Prevalence	
		Count	Rate[1]	Count	Rate[1]	Count	Proportion[2]
Lymphoid and haematopoietic tissue	C81-96,D45-47,D76	1532	47.27	629	17.66	13437	428.8
Hodgkin lymphoma	C81	73	2.67	8	0.25	1590	57.0
Mature B-cell neoplasms	-	911	27.63	385	10.66	6842	207.7
Chronic lymphatic leukaemia	C91.1	94	2.81	50	1.31	1257	36.8
Diffuse B lymphoma	C83.3	351	10.54	118	3.30	2022	62.1
Follicular B lymphoma	C82	168	5.32	29	0.80	1720	52.7
Myeloma and other plasma cell tumors	C90	188	5.63	155	4.35	1011	30.7
Burkitt's lymhoma/leukaemia	C83.7	-	0.12	-	0.03	60	2.1
Marginal zone lymphoma	C83.8	54	1.71	11	0.29	522	15.9
Mantle cell lymphoma	C83.1	31	0.89	11	0.31	189	5.7
Malignant immunoproliferative diseases	C88	17	0.48	10	0.28	152	4.4
Other mature B-cell neoplasms	-	-	0.13	0	0.00	76	2.3
Mature T and NK cell lymphomas/leukaemias	C84	52	1.69	29	0.89	463	15.0
Mature T-cell neoplasias of the skin	C84.0-1	17	0.55	-	0.03	245	8.0
Other T and NK cell lymphomas/leukaemias	C84.3-5	35	1.13	28	0.86	220	7.1
Acute lymphoblastic leukaemia/lymphoma	C91.0	41	1.49	10	0.30	863	32.3
Acute myeloid leukaemia	C92.0	79	2.43	83	2.45	542	18.8
Non-Hodgkin lymphoma, other or unspeficied	C85	51	1.48	25	0.69	1263	38.7
Leukaemia, other or unspecified	C95	14	0.38	17	0.47	86	2.9
Myeloproliferative neoplasms	C92.1,D45,D47.1,D47.3	227	7.12	24	0.66	1631	51.4
Chronic myeloid leukaemia	C92.1	16	0.52	-	0.10	253	8.6
Polycythaemia vera	D45	44	1.34	7	0.22	359	10.7
Myelofibrosis	D47.1	20	0.67	6	0.15	211	6.5
Essential thrombocythemia	D47.3	100	3.07	-	0.08	583	18.2
Myeloproliferative neoplasm, other	D47.1	47	1.52	-	0.10	288	9.2
Myelodysplastiset ja myelodysplastiset/-proliferatiiviset oireyhtymät	-	76	2.10	48	1.29	178	5.3
Myelodysplastic syndromes	D46	51	1.42	34	0.90	131	4.0
Myelodysplastic/myeloproliferative neoplasms	-	25	0.68	14	0.39	48	1.4
Other, unspecified or mixed hematological disease	C96, D76	8	0.28	0	0.00	99	3.6
Mastocytosis	C96.2	6	0.20	0	0.00	53	1.9
Histiocytic and denritic cell neoplasms	C96.1, D76	-	0.08	0	0.00	43	1.6
Other, unspecified or mixed hematological disease	C96.7-9	0	0.00	0	0.00	-	0.1
Not included above							
Basal cell carcinoma of the skin	C44 (Basal cell)	5316	161.87	0	0.00	61844	1802.8
Basal cell carcinoma of the genitals	C51-53,C60-63 (Basal cell)	15	0.46	0	0.00	146	4.2
Cervix uteri, non-invasive neoplasms	N87.1-2, D06	2152	80.00	0	0.00	29488	1077.8
Vagina and vulva non-invasive neoplasms	N89-N90,D07.1-2	204	6.96	0	0.00	997	33.6
Carcinoma in situ of the breast	D05	737	25.42	0	0.00	8271	264.2
Ductal carcinoma on situ of the breast	D05.1	680	23.45	0	0.00	7578	242.3
Lobular carcinoma in situ of the breast	D05.0	30	1.13	0	0.00	547	17.4
Other or unspecified carcinoma in situ of the breast	D05.7-9	27	0.84	0	0.00	146	4.5
Borderline tumour of the ovary	D39	128	4.45	5	0.14	3045	101.3

[1] per 100 000 person-years and age-standardised to the population of Finland in 2014

[2] per 100 000 persons and age-standardised to the population of Finland in 2014

Table 7: Number and age-standardised rate of new cancer cases and deaths in 2019 and number and agestandardised proportion of cancer survivors in the population on 31 December 2019, male.

		Incidence		Mortality		Prevalence	
Cancer site	ICD-10	Count	Rate[1]	Count	Rate[1]	Count	Proportion[2]
All sites together	C00-96,D09.0-1,D32-33, D41-43,D45-47,D76	18340	688.85	7020	272.62	130562	4904.7
Mouth, pharynx	C00-14	464	17.22	146	5.41	3668	137.7
Lip	C00	29	1.09	-	0.07	681	28.1
Tongue	C02	105	3.89	27	1.01	697	25.7
Salivary glands	C07-08	36	1.39	7	0.27	427	16.1
Mouth, other or unspecified	C03-06	111	4.16	39	1.48	706	25.9
Pharynx	C01,C09-14	183	6.70	71	2.58	1189	43.3
Digestive organs	C15-26	3867	145.26	2396	91.81	18024	681.0
Oesophagus	C15	259	9.57	196	7.25	562	20.4
Stomach	C16	366	13.82	272	10.36	1485	56.6
Small intestine	C17	95	3.49	40	1.51	662	24.5
Colon and rectum	C18-20	1948	73.55	787	31.04	13743	522.3
Colon	C18	1199	45.66	471	18.63	8056	308.5
Rectum, rectosigmoid	C19-20	749	27.89	316	12.41	5829	219.1
Anus	C21	27	1.02	-	0.14	154	5.8
Liver	C22	373	13.96	330	12.47	574	20.9
Gallbladder, bile ducts	C23-24	147	5.47	123	4.64	262	9.7
Pancreas	C25	549	20.60	576	21.85	682	24.8
Digestive organs, other and unspecified	C26	103	3.79	68	2.55	79	2.8
Respiratory and intrathoracic organs	C30-39	1905	70.56	1578	59.25	4565	166.6
Nose, sinuses	C30-31	44	1.60	18	0.69	228	8.5
Larynx, epiglottis	C32	114	4.24	31	1.12	959	35.3
Lung, trachea	C33-34	1710	63.35	1513	56.81	3267	118.8
Other or unspecified respiratory or intrathoracic organs	C37-39	37	1.37	16	0.62	140	5.1
Breast	C50	31	1.19	7	0.30	285	11.0
Male genital organs	C60-63	5453	202.64	953	39.50	60784	2290.1
Penis	C60	37	1.39	11	0.43	356	13.3
Prostate	C61	5245	195.14	934	38.75	57032	2153.6
Testis	C62	166	5.92	7	0.26	3428	124.5
Male genital, other and unspecified	C63	5	0.19	-	0.05	70	2.6
Urinary organs	C64-68,D09.0-1,D41.1-9	1711	64.39	460	18.52	13732	520.8
Kidney	C64	635	23.35	194	7.31	4938	183.3
Bladder and urinary tract	C65-68,D09.0-1,D41.1-9	1076	41.05	266	11.21	8916	342.2
Skin	C43-44	2066	81.09	162	6.37	17180	668.5
Melanoma of the skin	C43	939	35.66	125	4.76	9582	359.8
Skin, squamous cell carcinoma	C44 (Squamous cell)	1062	42.83	26	1.17	7098	290.5
Skin, other	C44 (Other)	65	2.60	11	0.45	874	33.8
Eye	C69	10	0.39	9	0.36	452	16.8
Brain, meninges and central nervous system	C70-72,D32-33,D42-43	451	16.88	254	9.51	4593	168.6
Glioma	-	242	8.89	188	6.79	1568	56.9
Meningeoma	-	107	4.00	10	0.35	1656	61.3
CNS, nerve sheet tumor	-	29	1.08	-	0.03	893	33.1
Other and unspecified tumor of brain, meninges and central nervous system	-	73	2.91	55	2.34	529	19.3
Endocrine glands	C73-75	195	7.21	38	1.48	2311	84.7
Thyroid gland	C73	165	6.09	24	0.96	2073	76.1
Adrenal gland	C74	24	0.90	12	0.46	163	5.9
Other endocrine glands	C75	6	0.22	-	0.06	78	2.8
Mesothelioma	C45	61	2.25	46	1.66	117	4.2
Bone	C40-41	26	0.95	21	0.76	467	17.1
Soft tissues	C48-49	120	4.49	50	2.00	1214	45.5
Peripheral nerves, autonomic nervous system	C47	-	0.06	-	0.10	114	4.2
Illdefined or unknown	C76,C80	243	9.43	167	6.67	496	18.4
Lymphoid and haematopoietic tissue	C81-96,D45-47,D76	1734	64.78	730	28.90	14487	532.0
Hodgkin lymphoma	C81	107	3.89	12	0.48	1921	69.5
Mature B-cell neoplasms	-	1060	39.48	439	17.34	7402	272.7
Chronic lymphatic leukaemia	C91.1	187	6.92	59	2.46	1718	63.5
Diffuse B lymphoma	C83.3	380	13.91	155	6.03	2132	78.6
Follicular B lymphoma	C82	137	5.08	40	1.53	1269	46.4
Myeloma and other plasma cell tumors	C90	177	6.81	125	4.94	1037	38.1
Burkitt's lymhoma/leukaemia	C83.7	11	0.39	-	0.04	169	6.1
Marginal zone lymphoma	C83.8	49	1.88	7	0.28	358	13.4
Mantle cell lymphoma	C83.1	79	2.97	43	1.68	428	15.9
Malignant immunoproliferative diseases	C88	26	0.98	8	0.32	199	7.3

Table 7: (continuation)

Cancer site	ICD-10	Incidence		Mortality		Prevalence	
		Count	Rate[1]	Count	Rate[1]	Count	Proportion[2]
Other mature B-cell neoplasms	-	14	0.54	-	0.05	262	9.6
Mature T and NK cell lymphomas/leukaemias	C84	83	3.12	38	1.48	554	20.6
Mature T-cell neoplasias of the skin	C84.0-1	30	1.10	-	0.16	296	11.1
Other T and NK cell lymphomas/leukaemias	C84.3-5	53	2.02	34	1.32	259	9.6
Acute lymphoblastic leukaemia/lymphoma	C91.0	41	1.49	5	0.18	974	35.0
Acute myeloid leukaemia	C92.0	99	3.83	96	3.72	437	15.9
Non-Hodgkin lymphoma, other or unspeficied	C85	45	1.72	36	1.49	1562	58.1
Leukaemia, other or unspecified	C95	18	0.72	16	0.71	101	3.7
Myeloproliferative neoplasms	C92.1,D45,D47.1,D47.3	193	7.09	24	0.89	1450	53.1
Chronic myeloid leukaemia	C92.1	20	0.68	6	0.21	298	10.9
Polycythaemia vera	D45	39	1.44	-	0.12	336	12.3
Myelofibrosis	D47.1	28	1.04	8	0.30	203	7.3
Essential thrombocythemia	D47.3	70	2.64	6	0.25	426	15.7
Myeloproliferative neoplasm, other	D47.1	36	1.29	0	0.00	229	8.4
Myelodysplastiset ja myelodysplastiset/-proliferatiiviset oireyhtymät	-	78	3.07	62	2.53	169	6.4
Myelodysplastic syndromes	D46	62	2.49	54	2.23	123	4.7
Myelodysplastic/myeloproliferative neoplasms	-	16	0.58	8	0.31	46	1.8
Other, unspecified or mixed hematological disease	C96, D76	10	0.38	-	0.08	101	3.7
Mastocytosis	C96.2	6	0.22	-	0.04	47	1.7
Histiocytic and denritic cell neoplasms	C96.1, D76	-	0.11	0	0.00	48	1.7
Other, unspecified or mixed hematological disease	C96.7-9	-	0.04	-	0.04	6	0.2
Not included above							
Basal cell carcinoma of the skin	C44 (Basal cell)	4646	176.77	0	0.00	49011	1893.9
Basal cell carcinoma of the genitals	C51-53,C60-63 (Basal cell)	0	0.00	0	0.00	13	0.5
Carcinoma in situ of the breast	D05	6	0.22	0	0.00	23	0.9
Ductal carcinoma on situ of the breast	D05.1	6	0.22	0	0.00	21	0.8
Lobular carcinoma in situ of the breast	D05.0	0	0.00	0	0.00	0	0.0
Other or unspecified carcinoma in situ of the breast	D05.7-9	0	0.00	0	0.00	-	0.1

[1] per 100 000 person-years and age-standardised to the population of Finland in 2014

[2] per 100 000 persons and age-standardised to the population of Finland in 2014

14.2 Survival of cancer patients

Table 8: Five-year relative survival rates in cancer patients followed up in 2017–2019 by age group, female.

		5-year relative survival (%)			
			Age at diagnosis		
Cancer site	ICD-10	All	0-54	55-74	75+
All sites together	C00-96,D09.0-1,D32-33, D41-43,D45-47,D76	70	88	74	57
Mouth, pharynx	C00-14	77	86	75	76
Digestive organs	C15-26	44	65	46	37
Oesophagus	C15	22	14	29	12
Stomach	C16	30	46	34	20
Colon and rectum	C18-20	69	81	71	64
Liver	C22	8	27	7	6
Gallbladder, bile ducts	C23-24	16	35	17	12
Pancreas	C25	7	25	9	3
Respiratory and intrathoracic organs	C30-39	23	39	27	13
Lung, trachea	C33-34	21	34	25	12
Breast	C50	91	93	94	83
Female genital organs	C51-58	65	81	68	54
Cervix uteri	C53	73	86	61	43
Corpus uteri	C54	82	88	83	78
Ovary etc.	C56, C57.1-4, C48.1-2 (Serous)	45	72	48	26
Urinary organs	C64-68,D09.0-1,D41.1-9	71	92	75	61
Kidney	C64	73	94	75	59
Bladder and urinary tract	C65-68,D09.0-1,D41.1-9	69	86	74	62
Skin	C43-44	94	98	95	92
Melanoma of the skin	C43	94	97	94	90
Skin, squamous cell carcinoma	C44 (Squamous cell)	94	99	94	94
Brain, meninges and central nervous system	C70-72,D32-33,D42-43	67	86	67	37
Glioma	-	33	68	12	11
Meningeoma	-	93	96	94	83
Endocrine glands	C73-75	93	99	91	77
Thyroid gland	C73	94	100	93	81
Soft tissues	C48-49	60	79	67	33
Lymphoid and haematopoietic tissue	C81-96,D45-47,D76	65	88	74	40
Hodgkin lymphoma	C81	91	99	85	48
Mature B-cell neoplasms	-	68	87	77	47
Myeloma and other plasma cell tumors	C90	44	80	58	21

Table 9: Five-year relative survival rates in cancer patients followed up in 2017–2019 by age group, male.

		5-year relative survival (%)			
			Age at diagnosis		
Cancer site	ICD-10	All	0-54	55-74	75+
All sites together	C00-96,D09.0-1,D32-33, D41-43,D45-47,D76	68	80	68	63
Mouth, pharynx	C00-14	64	83	60	60
Digestive organs	C15-26	40	53	40	37
Oesophagus	C15	16	14	18	11
Stomach	C16	26	35	27	23
Colon and rectum	C18-20	64	72	66	60
Liver	C22	10	17	11	8
Gallbladder, bile ducts	C23-24	12	13	13	10
Pancreas	C25	6	27	8	1
Respiratory and intrathoracic organs	C30-39	17	35	19	10
Larynx, epiglottis	C32	60	81	60	53
Lung, trachea	C33-34	13	24	16	8
Male genital organs	C60-63	94	96	95	90
Prostate	C61	94	96	95	91
Testis	C62	95	98	72	39
Urinary organs	C64-68,D09.0-1,D41.1-9	73	85	76	66
Kidney	C64	69	82	70	62
Bladder and urinary tract	C65-68,D09.0-1,D41.1-9	75	91	80	68
Skin	C43-44	92	93	92	92
Melanoma of the skin	C43	92	93	90	94
Skin, squamous cell carcinoma	C44 (Squamous cell)	93	93	94	93
Brain, meninges and central nervous system	C70-72,D32-33,D42-43	51	73	44	28
Glioma	-	28	59	11	4
Meningeoma	-	96	99	94	98
Endocrine glands	C73-75	83	94	79	59
Thyroid gland	C73	85	96	81	60
Soft tissues	C48-49	62	71	66	48
Lymphoid and haematopoietic tissue	C81-96,D45-47,D76	60	88	68	35
Hodgkin lymphoma	C81	86	97	73	47
Mature B-cell neoplasms	-	64	87	73	44
Myeloma and other plasma cell tumors	C90	42	72	51	24

14.3 Short-term changes, incidence

Table 10: Average annual number, incidence and change coefficient of new cancer cases from 2010–2014 to 2015–2019, female.

Cancer site	ICD-10	Number		Incidence		Change coefficient	
		2010-2014	2015-2019	2010-2014	2015-2019	Est	Confidence interval
All sites together	C00-96,D09.0-1,D32-33, D41-43,D45-47,D76	15251	16746	521.8	540.5	1.04	(1.03, 1.06)
Mouth, pharynx	C00-14	244	271	8.3	8.8	1.06	(0.98, 1.14)
Lip	C00	29	22	0.9	0.6	0.69	(0.54, 0.89)
Pharynx	C01,C09-14	48	61	1.7	2.1	1.15	(0.96, 1.37)
Digestive organs	C15-26	2816	3186	93.5	98.3	1.06	(1.03, 1.08)
Oesophagus	C15	88	100	2.9	3.1	1.12	(0.98, 1.28)
Stomach	C16	268	252	8.9	7.9	0.89	(0.83, 0.97)
Colon and rectum	C18-20	1397	1621	46.7	50.4	1.07	(1.04, 1.11)
Colon	C18	965	1105	32.1	34.0	1.07	(1.02, 1.11)
Rectum, rectosigmoid	C19-20	431	516	14.6	16.4	1.09	(1.03, 1.16)
Liver	C22	176	173	5.8	5.3	0.95	(0.86, 1.04)
Gallbladder, bile ducts	C23-24	157	181	5.1	5.4	1.05	(0.95, 1.16)
Pancreas	C25	582	647	19.3	19.7	1.04	(0.99, 1.10)
Respiratory and intrathoracic organs	C30-39	943	1121	32.2	35.3	1.11	(1.07, 1.16)
Larynx, epiglottis	C32	14	18	0.5	0.6	1.12	(0.81, 1.55)
Lung, trachea	C33-34	889	1057	30.4	33.2	1.11	(1.07, 1.16)
Breast	C50	4583	4989	161.3	168.5	1.05	(1.04, 1.07)
Female genital organs	C51-58	1753	1834	60.7	59.5	0.99	(0.96, 1.02)
Cervix uteri	C53	161	175	5.8	6.2	1.10	(1.00, 1.22)
Corpus uteri	C54	836	888	29.0	28.7	0.99	(0.95, 1.04)
Ovary etc.	C56, C57.1-4, C48.1-2 (Serous)	590	565	20.5	18.4	0.90	(0.85, 0.95)
Urinary organs	C64-68,D09.0-1,D41.1-9	675	707	22.6	22.0	0.99	(0.94, 1.04)
Kidney	C64	397	391	13.5	12.4	0.92	(0.86, 0.98)
Bladder and urinary tract	C65-68,D09.0-1,D41.1-9	278	316	9.2	9.6	1.09	(1.01, 1.17)
Skin	C43-44	1426	1662	46.9	51.6	1.08	(1.05, 1.12)
Melanoma of the skin	C43	653	819	22.8	27.6	1.18	(1.12, 1.23)
Skin, squamous cell carcinoma	C44 (Squamous cell)	705	769	21.9	21.8	1.01	(0.96, 1.06)
Brain, meninges and central nervous system	C70-72,D32-33,D42-43	564	603	19.9	20.3	1.01	(0.96, 1.06)
Glioma	-	152	165	5.5	5.7	1.05	(0.95, 1.17)
Meningeoma	-	284	307	10.1	10.4	1.03	(0.95, 1.11)
Endocrine glands	C73-75	369	416	13.3	14.7	1.16	(1.09, 1.24)
Thyroid gland	C73	350	389	12.6	13.7	1.14	(1.06, 1.22)
Soft tissues	C48-49	98	97	3.4	3.2	0.93	(0.82, 1.06)
Lymphoid and haematopoietic tissue	C81-96,D45-47,D76	1420	1521	48.2	48.4	1.05	(1.01, 1.08)
Hodgkin lymphoma	C81	65	73	2.4	2.6	1.16	(0.99, 1.35)
Mature B-cell neoplasms	-						
Chronic lymphatic leukaemia	C91.1	146	117	4.9	3.6	0.81	(0.73, 0.90)
Myeloma and other plasma cell tumors	C90	209	191	7.1	5.9	0.86	(0.79, 0.94)
Acute lymphoblastic leukaemia/lymphoma	C91.0	36	35	1.3	1.3	1.13	(0.91, 1.40)
Acute myeloid leukaemia	C92.0	99	101	3.4	3.2	1.02	(0.90, 1.16)
Myeloproliferative neoplasms	C92.1,D45,D47.1,D47.3						
Chronic myeloid leukaemia	C92.1	18	19	0.6	0.6	1.00	(0.74, 1.34)

Table 11: Average annual number, incidence and change coefficient of new cancer cases from 2010–2014 to 2015–2019, male.

Cancer site	ICD-10	Number		Incidence		Change coefficient	
		2010-2014	2015-2019	2010-2014	2015-2019	Est	Confidence interval
All sites together	C00-96,D09.0-1,D32-33, D41-43,D45-47,D76	15955	18054	704.2	708.5	1.00	(0.99, 1.01)
Mouth, pharynx	C00-14	380	439	15.8	16.8	1.05	(0.99, 1.12)
Lip	C00	50	38	2.4	1.6	0.65	(0.54, 0.78)
Pharynx	C01,C09-14	139	179	5.5	6.7	1.23	(1.11, 1.37)
Digestive organs	C15-26	3223	3775	143.7	148.5	1.04	(1.02, 1.07)
Oesophagus	C15	210	249	9.0	9.5	1.05	(0.97, 1.15)
Stomach	C16	361	355	16.3	14.1	0.89	(0.83, 0.95)
Colon and rectum	C18-20	1541	1827	68.6	72.1	1.06	(1.03, 1.10)
Colon	C18	913	1079	41.1	43.0	1.06	(1.02, 1.10)
Rectum, rectosigmoid	C19-20	628	748	27.5	29.1	1.06	(1.01, 1.12)
Liver	C22	316	375	14.1	14.7	1.03	(0.96, 1.11)
Gallbladder, bile ducts	C23-24	107	134	5.0	5.3	1.09	(0.97, 1.23)
Pancreas	C25	543	635	24.1	24.9	1.04	(0.99, 1.10)
Respiratory and intrathoracic organs	C30-39	1848	1959	82.1	76.3	0.94	(0.91, 0.97)
Larynx, epiglottis	C32	109	110	4.6	4.2	0.94	(0.83, 1.06)
Lung, trachea	C33-34	1696	1788	75.6	69.8	0.93	(0.90, 0.96)
Male genital organs	C60-63	5013	5390	218.7	208.8	0.93	(0.92, 0.95)
Prostate	C61	4817	5182	211.2	201.2	0.93	(0.91, 0.95)
Testis	C62	153	164	5.6	5.9	1.12	(1.01, 1.24)
Urinary organs	C64-68,D09.0-1,D41.1-9	1421	1656	63.5	65.5	1.02	(0.99, 1.06)
Kidney	C64	523	608	22.2	23.4	1.04	(0.99, 1.10)
Bladder and urinary tract	C65-68,D09.0-1,D41.1-9	898	1047	41.2	42.1	1.01	(0.97, 1.05)
Skin	C43-44	1469	1923	68.5	79.0	1.13	(1.09, 1.16)
Melanoma of the skin	C43	668	908	28.4	35.3	1.20	(1.15, 1.26)
Skin, squamous cell carcinoma	C44 (Squamous cell)	735	942	37.0	40.7	1.07	(1.03, 1.12)
Brain, meninges and central nervous system	C70-72,D32-33,D42-43	403	432	16.4	16.5	1.01	(0.95, 1.07)
Glioma	-	204	219	7.9	8.1	1.04	(0.95, 1.13)
Meningeoma	-	98	113	4.0	4.3	1.07	(0.95, 1.22)
Endocrine glands	C73-75	140	173	5.5	6.5	1.09	(0.99, 1.21)
Thyroid gland	C73	123	148	4.9	5.5	1.09	(0.97, 1.21)
Soft tissues	C48-49	93	118	4.0	4.6	1.13	(1.00, 1.29)
Lymphoid and haematopoietic tissue	C81-96,D45-47,D76	1563	1784	68.0	69.8	1.06	(1.02, 1.09)
Hodgkin lymphoma	C81	87	98	3.3	3.6	1.10	(0.97, 1.26)
Mature B-cell neoplasms	-						
Chronic lymphatic leukaemia	C91.1	200	206	8.9	8.1	0.94	(0.86, 1.03)
Myeloma and other plasma cell tumors	C90	212	206	9.5	8.2	0.89	(0.82, 0.97)
Acute lymphoblastic leukaemia/lymphoma	C91.0	43	47	1.6	1.7	1.19	(0.98, 1.44)
Acute myeloid leukaemia	C92.0	98	108	4.3	4.2	1.08	(0.95, 1.23)
Myeloproliferative neoplasms	C92.1,D45,D47.1,D47.3						
Chronic myeloid leukaemia	C92.1	23	22	1.0	0.8	0.96	(0.73, 1.25)

14.4 Short-term changes, mortality

Table 12: Average annual number, mortality and change coefficient of cancer deaths from 2010–2014 to 2015–2019, female.

Cancer site	ICD-10	Number		Mortality		Change coefficient	
		2010-2014	2015-2019	2010-2014	2015-2019	Est	Confidence interval
All sites together	C00-96,D09.0-1,D32-33, D41-43,D45-47,D76	5664	5933	186.1	179.2	0.96	(0.94, 0.98)
Mouth, pharynx	C00-14	73	78	2.4	2.3	1.00	(0.86, 1.16)
Lip	C00	3	1	0.1	0.0	0.47	(0.18, 1.21)
Pharynx	C01,C09-14	16	19	0.6	0.6	1.07	(0.79, 1.46)
Digestive organs	C15-26	1763	1901	57.0	56.7	0.98	(0.95, 1.01)
Oesophagus	C15	77	75	2.5	2.3	0.94	(0.82, 1.09)
Stomach	C16	204	183	6.6	5.5	0.79	(0.72, 0.86)
Colon and rectum	C18-20	576	607	18.5	17.9	0.96	(0.92, 1.02)
Colon	C18	393	422	12.6	12.4	0.98	(0.92, 1.04)
Rectum, rectosigmoid	C19-20	183	185	5.9	5.6	0.94	(0.85, 1.03)
Liver	C22	150	147	4.9	4.4	0.90	(0.81, 1.00)
Gallbladder, bile ducts	C23-24	137	152	4.4	4.5	1.01	(0.91, 1.13)
Pancreas	C25	532	611	17.4	18.3	1.04	(0.99, 1.10)
Respiratory and intrathoracic organs	C30-39	745	829	25.1	25.5	1.03	(0.98, 1.08)
Larynx, epiglottis	C32	5	7	0.2	0.2	1.11	(0.65, 1.89)
Lung, trachea	C33-34	716	799	24.2	24.6	1.04	(0.99, 1.09)
Breast	C50	859	885	29.0	27.8	0.94	(0.90, 0.98)
Female genital organs	C51-58	714	773	23.7	23.7	1.00	(0.95, 1.04)
Cervix uteri	C53	53	56	1.8	1.8	1.01	(0.85, 1.20)
Corpus uteri	C54	182	206	5.9	6.2	1.03	(0.94, 1.12)
Ovary etc.	C56, C57.1-4, C48.1-2 (Serous)	395	397	13.4	12.3	0.93	(0.87, 0.99)
Urinary organs	C64-68,D09.0-1,D41.1-9	251	253	8.0	7.3	0.92	(0.85, 0.99)
Kidney	C64	157	152	5.1	4.5	0.89	(0.81, 0.99)
Bladder and urinary tract	C65-68,D09.0-1,D41.1-9	94	101	2.9	2.9	0.96	(0.84, 1.09)
Skin	C43-44	96	102	3.1	3.0	0.98	(0.87, 1.12)
Melanoma of the skin	C43	77	76	2.5	2.3	0.94	(0.81, 1.08)
Skin, squamous cell carcinoma	C44 (Squamous cell)	11	16	0.3	0.4	1.32	(0.92, 1.89)
Brain, meninges and central nervous system	C70-72,D32-33,D42-43	191	197	6.5	6.2	0.91	(0.83, 1.00)
Glioma	-	118	121	4.2	4.0	0.92	(0.82, 1.03)
Meningeoma	-	19	17	0.6	0.5	0.76	(0.57, 1.02)
Endocrine glands	C73-75	41	39	1.3	1.2	0.92	(0.76, 1.13)
Thyroid gland	C73	32	31	1.0	0.9	0.92	(0.73, 1.15)
Soft tissues	C48-49	42	47	1.4	1.4	1.05	(0.87, 1.28)
Lymphoid and haematopoietic tissue	C81-96,D45-47,D76	597	582	19.2	17.0	0.92	(0.88, 0.97)
Hodgkin lymphoma	C81	9	11	0.3	0.3	1.23	(0.81, 1.87)
Mature B-cell neoplasms	-						
Chronic lymphatic leukaemia	C91.1	51	44	1.6	1.2	0.81	(0.68, 0.97)
Myeloma and other plasma cell tumors	C90	132	133	4.3	3.9	0.93	(0.83, 1.03)
Acute lymphoblastic leukaemia/lymphoma	C91.0	10	9	0.4	0.3	0.97	(0.65, 1.45)
Acute myeloid leukaemia	C92.0	73	83	2.5	2.5	1.06	(0.92, 1.23)
Myeloproliferative neoplasms	C92.1,D45,D47.1,D47.3						
Chronic myeloid leukaemia	C92.1	5	5	0.1	0.1	0.75	(0.42, 1.34)

Table 13: Average annual number, mortality and change coefficient of cancer deaths from 2010–2014 to 2015–2019, male.

Cancer site	ICD-10	Number		Mortality		Change coefficient	
		2010-2014	2015-2019	2010-2014	2015-2019	Est	Confidence interval
All sites together	C00-96,D09.0-1,D32-33, D41-43,D45-47,D76	6279	6795	294.0	278.0	0.94	(0.92, 0.95)
Mouth, pharynx	C00-14	130	137	5.6	5.3	0.97	(0.86, 1.08)
Lip	C00	4	3	0.2	0.1	0.59	(0.29, 1.20)
Pharynx	C01,C09-14	60	64	2.5	2.5	0.99	(0.84, 1.16)
Digestive organs	C15-26	1967	2264	90.4	91.0	1.01	(0.98, 1.04)
Oesophagus	C15	172	193	7.5	7.4	0.99	(0.90, 1.09)
Stomach	C16	273	262	12.6	10.6	0.83	(0.76, 0.89)
Colon and rectum	C18-20	598	702	28.2	28.9	1.02	(0.97, 1.07)
Colon	C18	355	417	16.9	17.3	1.03	(0.96, 1.10)
Rectum, rectosigmoid	C19-20	243	285	11.3	11.6	1.01	(0.93, 1.09)
Liver	C22	250	303	11.3	12.1	1.07	(0.99, 1.16)
Gallbladder, bile ducts	C23-24	87	112	4.1	4.5	1.12	(0.99, 1.28)
Pancreas	C25	498	578	22.4	22.9	1.03	(0.97, 1.09)
Respiratory and intrathoracic organs	C30-39	1520	1556	68.7	61.6	0.87	(0.84, 0.90)
Larynx, epiglottis	C32	35	39	1.6	1.6	0.99	(0.80, 1.22)
Lung, trachea	C33-34	1460	1489	66.0	58.9	0.87	(0.84, 0.90)
Male genital organs	C60-63	874	934	45.3	41.4	0.89	(0.85, 0.93)
Prostate	C61	858	914	44.6	40.7	0.88	(0.85, 0.92)
Testis	C62	8	8	0.3	0.3	1.41	(0.88, 2.26)
Urinary organs	C64-68,D09.0-1,D41.1-9	419	446	20.5	18.8	0.89	(0.84, 0.95)
Kidney	C64	205	206	9.4	8.3	0.87	(0.80, 0.95)
Bladder and urinary tract	C65-68,D09.0-1,D41.1-9	214	240	11.1	10.5	0.92	(0.84, 1.00)
Skin	C43-44	164	174	7.7	7.2	0.94	(0.85, 1.04)
Melanoma of the skin	C43	137	143	6.2	5.8	0.93	(0.84, 1.04)
Skin, squamous cell carcinoma	C44 (Squamous cell)	20	23	1.1	1.1	1.00	(0.76, 1.33)
Brain, meninges and central nervous system	C70-72,D32-33,D42-43	206	219	8.7	8.5	1.01	(0.93, 1.10)
Glioma	-	155	167	6.1	6.2	1.05	(0.95, 1.16)
Meningeoma	-	9	10	0.4	0.4	0.77	(0.52, 1.16)
Endocrine glands	C73-75	31	33	1.4	1.3	0.90	(0.72, 1.12)
Thyroid gland	C73	21	25	1.0	1.0	0.99	(0.76, 1.29)
Soft tissues	C48-49	43	45	2.0	1.9	0.94	(0.77, 1.13)
Lymphoid and haematopoietic tissue	C81-96,D45-47,D76	631	701	30.0	29.3	0.97	(0.92, 1.02)
Hodgkin lymphoma	C81	12	18	0.5	0.7	1.20	(0.85, 1.68)
Mature B-cell neoplasms	-						
Chronic lymphatic leukaemia	C91.1	65	68	3.2	3.0	0.85	(0.73, 0.99)
Myeloma and other plasma cell tumors	C90	129	134	6.2	5.5	0.91	(0.81, 1.02)
Acute lymphoblastic leukaemia/lymphoma	C91.0	14	10	0.6	0.4	0.74	(0.52, 1.06)
Acute myeloid leukaemia	C92.0	73	92	3.3	3.7	1.17	(1.01, 1.36)
Myeloproliferative neoplasms	C92.1,D45,D47.1,D47.3						
Chronic myeloid leukaemia	C92.1	6	5	0.3	0.2	0.99	(0.56, 1.74)

14.5 Long-term changes, incidence

Table 14: Average annual percent change in incidence in 1990–2019, female.

		Trend change and period	
Cancer site	ICD-10	1. trend	2. trend
All sites together	C00-96,D09.0-1,D32-33, D41-43,D45-47,D76	0.8% (1990-2017)	-1.7% (2018-2019)
Mouth, pharynx	C00-14	1.0% (1990-2019)	-
Lip	C00	1.2% (1990-1997)	-5.1% (1998-2019)
Pharynx	C01,C09-14	-0.1% (1990-2001)	4.8% (2002-2019)
Digestive organs	C15-26	-0.8% (1990-2004)	0.3% (2005-2019)
Oesophagus	C15	-2.1% (1990-2011)	2.5% (2012-2019)
Stomach	C16	-3.8% (1990-2019)	-
Colon and rectum	C18-20	0.2% (1990-2010)	1.5% (2011-2019)
Colon	C18	0.3% (1990-2005)	1.2% (2006-2019)
Rectum, rectosigmoid	C19-20	-0.4% (1990-2013)	2.8% (2014-2019)
Liver	C22	1.3% (1990-2013)	-4.6% (2014-2019)
Gallbladder, bile ducts	C23-24	-2.8% (1990-2010)	0.8% (2011-2019)
Pancreas	C25	-2.0% (1990-1993)	0.6% (1994-2019)
Respiratory and intrathoracic organs	C30-39	2.2% (1990-2019)	-
Larynx, epiglottis	C32	0.3% (1990-2019)	-
Lung, trachea	C33-34	2.2% (1990-2019)	-
Breast	C50	2.2% (1990-1999)	1.2% (2000-2019)
Female genital organs	C51-58	2.0% (1990-1995)	-0.2% (1996-2019)
Cervix uteri	C53	-0.1% (1990-2019)	-
Corpus uteri	C54	2.4% (1990-1997)	-0.2% (1998-2019)
Ovary etc.	C56, C57.1-4, C48.1-2 (Serous)	-0.3% (1990-2011)	-2.0% (2012-2019)
Urinary organs	C64-68,D09.0-1,D41.1-9	0.0% (1990-2019)	-
Kidney	C64	0.2% (1990-2014)	-4.0% (2015-2019)
Bladder and urinary tract	C65-68,D09.0-1,D41.1-9	-0.2% (1990-2015)	5.6% (2016-2019)
Skin	C43-44	2.0% (1990-2002)	3.4% (2003-2019)
Melanoma of the skin	C43	2.3% (1990-2000)	4.8% (2001-2019)
Skin, squamous cell carcinoma	C44 (Squamous cell)	2.0% (1990-2019)	-
Brain, meninges and central nervous system	C70-72,D32-33,D42-43	2.2% (1990-2002)	-0.5% (2003-2019)
Glioma	-	0.7% (1990-2019)	-
Meningeoma	-	4.5% (1990-2000)	-0.3% (2001-2019)
Endocrine glands	C73-75	0.1% (1990-2005)	2.8% (2006-2019)
Thyroid gland	C73	0.1% (1990-2004)	2.6% (2005-2019)
Soft tissues	C48-49	0.4% (1990-2019)	-
Lymphoid and haematopoietic tissue	C81-96,D45-47,D76	3.9% (1990-1992)	0.7% (1993-2019)
Hodgkin lymphoma	C81	0.7% (1990-2019)	-
Mature B-cell neoplasms	-		
Chronic lymphatic leukaemia	C91.1	1.9% (1990-1995)	-0.9% (1996-2019)
Myeloma and other plasma cell tumors	C90	6.5% (1990-1993)	-0.6% (1994-2019)
Acute lymphoblastic leukaemia/lymphoma	C91.0	-0.3% (1990-2019)	-
Acute myeloid leukaemia	C92.0	18.4% (1990-1991)	0.2% (1992-2019)
Myeloproliferative neoplasms	C92.1,D45,D47.1,D47.3		
Chronic myeloid leukaemia	C92.1	-2.6% (1990-2019)	-

Table 15: Average annual percent change in incidence in 1990–2019, male.

		Trend change and period	
Cancer site	ICD-10	1. trend	2. trend
All sites together	C00-96,D09.0-1,D32-33, D41-43,D45-47,D76	1.0% (1990-2003)	-0.3% (2004-2019)
Mouth, pharynx	C00-14	-0.7% (1990-2004)	1.6% (2005-2019)
Lip	C00	-6.5% (1990-2019)	-
Pharynx	C01,C09-14	1.7% (1990-2003)	4.6% (2004-2019)
Digestive organs	C15-26	-0.7% (1990-1999)	0.4% (2000-2019)
Oesophagus	C15	-2.0% (1990-1996)	1.3% (1997-2019)
Stomach	C16	-4.1% (1990-2011)	-2.2% (2012-2019)
Colon and rectum	C18-20	0.7% (1990-2019)	-
Colon	C18	3.7% (1990-1993)	0.8% (1994-2019)
Rectum, rectosigmoid	C19-20	0.4% (1990-2019)	-
Liver	C22	0.0% (1990-1992)	1.8% (1993-2019)
Gallbladder, bile ducts	C23-24	-0.3% (1990-2019)	-
Pancreas	C25	0.6% (1990-2016)	-11.1% (2017-2019)
Respiratory and intrathoracic organs	C30-39	-3.0% (1990-2000)	-1.8% (2001-2019)
Larynx, epiglottis	C32	-1.9% (1990-2019)	-
Lung, trachea	C33-34	-3.1% (1990-2000)	-1.9% (2001-2019)
Male genital organs	C60-63	5.9% (1990-2002)	-2.0% (2003-2019)
Prostate	C61	6.0% (1990-2002)	-2.1% (2003-2019)
Testis	C62	4.4% (1990-2013)	-1.9% (2014-2019)
Urinary organs	C64-68,D09.0-1,D41.1-9	-1.1% (1990-2003)	0.7% (2004-2019)
Kidney	C64	-1.1% (1990-2006)	1.5% (2007-2019)
Bladder and urinary tract	C65-68,D09.0-1,D41.1-9	-1.2% (1990-2001)	0.4% (2002-2019)
Skin	C43-44	1.9% (1990-2001)	3.5% (2002-2019)
Melanoma of the skin	C43	1.8% (1990-2000)	4.3% (2001-2019)
Skin, squamous cell carcinoma	C44 (Squamous cell)	2.6% (1990-2019)	-
Brain, meninges and central nervous system	C70-72,D32-33,D42-43	0.3% (1990-2019)	-
Glioma	-	0.7% (1990-2019)	-
Meningeoma	-	2.9% (1990-2002)	-0.6% (2003-2019)
Endocrine glands	C73-75	0.6% (1990-2007)	4.1% (2008-2019)
Thyroid gland	C73	0.9% (1990-2007)	3.9% (2008-2019)
Soft tissues	C48-49	0.8% (1990-2019)	-
Lymphoid and haematopoietic tissue	C81-96,D45-47,D76	1.0% (1990-2015)	-2.1% (2016-2019)
Hodgkin lymphoma	C81	0.6% (1990-2019)	-
Mature B-cell neoplasms	-		
Chronic lymphatic leukaemia	C91.1	0.1% (1990-2014)	-5.4% (2015-2019)
Myeloma and other plasma cell tumors	C90	0.9% (1990-2009)	-2.9% (2010-2019)
Acute lymphoblastic leukaemia/lymphoma	C91.0	0.4% (1990-2019)	-
Acute myeloid leukaemia	C92.0	0.0% (1990-2019)	-
Myeloproliferative neoplasms	C92.1,D45,D47.1,D47.3		
Chronic myeloid leukaemia	C92.1	-3.1% (1990-2019)	-

14.6 Long-term changes, mortality

Table 16: Average annual percent change in cancer mortality in 1990–2019, female.

		Trend change and period	
Cancer site	ICD-10	1. trend	2. trend
All sites together	C00-96,D09.0-1,D32-33, D41-43,D45-47,D76	-1.0% (1990-2005)	-0.5% (2006-2019)
Mouth, pharynx	C00-14	-0.1% (1990-2019)	-
Lip	C00	-2.5% (1990-2019)	-
Pharynx	C01,C09-14	-0.1% (1990-2019)	-
Digestive organs	C15-26	-2.4% (1990-1998)	-0.7% (1999-2019)
Oesophagus	C15	-2.0% (1990-2019)	-
Stomach	C16	-4.1% (1990-2019)	-
Colon and rectum	C18-20	-1.6% (1990-2006)	-0.4% (2007-2019)
Colon	C18	-1.5% (1990-2003)	0.0% (2004-2019)
Rectum, rectosigmoid	C19-20	-1.9% (1990-2019)	-
Liver	C22	1.3% (1990-2009)	-1.7% (2010-2019)
Gallbladder, bile ducts	C23-24	-2.9% (1990-2010)	0.3% (2011-2019)
Pancreas	C25	-2.8% (1990-1994)	0.6% (1995-2019)
Respiratory and intrathoracic organs	C30-39	1.7% (1990-2019)	-
Larynx, epiglottis	C32	0.3% (1990-2019)	-
Lung, trachea	C33-34	1.8% (1990-2019)	-
Breast	C50	-0.8% (1990-2019)	-
Female genital organs	C51-58	-1.3% (1990-2001)	0.3% (2002-2019)
Cervix uteri	C53	-2.7% (1990-2019)	-
Corpus uteri	C54	0.1% (1990-2019)	-
Ovary etc.	C56, C57.1-4, C48.1-2 (Serous)	-1.6% (1990-1999)	0.1% (2000-2019)
Urinary organs	C64-68,D09.0-1,D41.1-9	-1.2% (1990-2019)	-
Kidney	C64	-1.2% (1990-2019)	-
Bladder and urinary tract	C65-68,D09.0-1,D41.1-9	-4.5% (1990-1996)	-0.6% (1997-2019)
Skin	C43-44	-0.1% (1990-2019)	-
Melanoma of the skin	C43	0.0% (1990-2019)	-
Skin, squamous cell carcinoma	C44 (Squamous cell)	-1.3% (1990-2019)	-
Brain, meninges and central nervous system	C70-72,D32-33,D42-43	-0.4% (1990-2019)	-
Glioma	-	0.4% (1990-2019)	-
Meningeoma	-	-2.4% (1990-2019)	-
Endocrine glands	C73-75	-2.2% (1990-2019)	-
Thyroid gland	C73	-3.0% (1990-2017)	50.7% (2018-2019)
Soft tissues	C48-49	0.1% (1990-2019)	-
Lymphoid and haematopoietic tissue	C81-96,D45-47,D76	1.0% (1990-1994)	-1.6% (1995-2019)
Hodgkin lymphoma	C81	-3.4% (1990-2019)	-
Mature B-cell neoplasms	-		
Chronic lymphatic leukaemia	C91.1	-3.1% (1990-2019)	-
Myeloma and other plasma cell tumors	C90	-1.1% (1990-2019)	-
Acute lymphoblastic leukaemia/lymphoma	C91.0	-3.3% (1990-2019)	-
Acute myeloid leukaemia	C92.0	30.5% (1990-1991)	0.0% (1992-2019)
Myeloproliferative neoplasms	C92.1,D45,D47.1,D47.3		
Chronic myeloid leukaemia	C92.1	-2.7% (1990-1998)	-11.1% (1999-2019)

Table 17: Average annual percent change in cancer mortality in 1990–2019, male.

Cancer site	ICD-10	Trend change and period	
		1. trend	2. trend
All sites together	C00-96,D09.0-1,D32-33, D41-43,D45-47,D76	-1.7% (1990-2007)	-1.2% (2008-2019)
Mouth, pharynx	C00-14	0.3% (1990-2019)	-
Lip	C00	-6.5% (1990-2019)	-
Pharynx	C01,C09-14	-4.3% (1990-1996)	1.6% (1997-2019)
Digestive organs	C15-26	-1.6% (1990-2001)	-0.2% (2002-2019)
Oesophagus	C15	0.4% (1990-2019)	-
Stomach	C16	-4.1% (1990-2019)	-
Colon and rectum	C18-20	-1.0% (1990-2012)	0.9% (2013-2019)
Colon	C18	-0.2% (1990-2019)	-
Rectum, rectosigmoid	C19-20	-1.3% (1990-2019)	-
Liver	C22	1.7% (1990-2019)	-
Gallbladder, bile ducts	C23-24	-1.5% (1990-2010)	2.1% (2011-2019)
Pancreas	C25	0.2% (1990-2019)	-
Respiratory and intrathoracic organs	C30-39	-3.3% (1990-2000)	-2.3% (2001-2019)
Larynx, epiglottis	C32	-2.5% (1990-2019)	-
Lung, trachea	C33-34	-3.3% (1990-2000)	-2.4% (2001-2019)
Male genital organs	C60-63	0.0% (1990-1997)	-2.5% (1998-2019)
Prostate	C61	0.1% (1990-1997)	-2.6% (1998-2019)
Testis	C62	0.4% (1990-2019)	-
Urinary organs	C64-68,D09.0-1,D41.1-9	-1.6% (1990-2019)	-
Kidney	C64	-1.7% (1990-2019)	-
Bladder and urinary tract	C65-68,D09.0-1,D41.1-9	-1.4% (1990-2019)	-
Skin	C43-44	1.1% (1990-2015)	-4.7% (2016-2019)
Melanoma of the skin	C43	1.1% (1990-2015)	-6.1% (2016-2019)
Skin, squamous cell carcinoma	C44 (Squamous cell)	0.5% (1990-2019)	-
Brain, meninges and central nervous system	C70-72,D32-33,D42-43	-0.2% (1990-2019)	-
Glioma	-	0.6% (1990-2019)	-
Meningeoma	-	-2.7% (1990-2019)	-
Endocrine glands	C73-75	-0.7% (1990-2019)	-
Thyroid gland	C73	-0.2% (1990-2019)	-
Soft tissues	C48-49	-0.5% (1990-2019)	-
Lymphoid and haematopoietic tissue	C81-96,D45-47,D76	-1.2% (1990-2019)	-
Hodgkin lymphoma	C81	-6.2% (1990-2007)	4.3% (2008-2019)
Mature B-cell neoplasms	-		
Chronic lymphatic leukaemia	C91.1	-3.2% (1990-2019)	-
Myeloma and other plasma cell tumors	C90	-1.0% (1990-2019)	-
Acute lymphoblastic leukaemia/lymphoma	C91.0	-2.0% (1990-2016)	-43.8% (2017-2019)
Acute myeloid leukaemia	C92.0	-0.2% (1990-2019)	-
Myeloproliferative neoplasms	C92.1,D45,D47.1,D47.3		
Chronic myeloid leukaemia	C92.1	0.2% (1990-1998)	-11.5% (1999-2019)

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