National Institute for Health Development

Cancer in Estonia: incidence 2020, survival 2016–2020 and haematological tumours 2011–2020

Report

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Cancer in Estonia: incidence 2020, survival 2016–2020 and haematological tumours 2011–2020

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Reviewer: Tiina Mändla

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Definitions

Age-standardized rate	a summary of the rate a population would have if it had a standard age structure. Standardization is necessary when comparing several populations that differ with respect to age. It is a weighted mean of age-specific rates; the weights are taken from the population distribution of the standard population
Cancer screening	checking for disease when there are no symptoms. Since screening may find diseases at an early stage, there may be a better chance of curing the disease
Morphology	diagnostic description of a tumour that describes the shape, structure, form, and size of cells
Prevalence	measure of the total number of people in a specific group who have (or had) a certain disease, condition, or risk factor at a specific point in time or during a given period of time
Solid tumours	an abnormal mass of tissue that usually does not contain cysts or liquid areas. Solid tumours may be benign (non-cancerous), or malignant (cancerous). Types of solid tumours are named for the type of cells that form them
Survival	probability of being alive after a certain time after the diagnosis of a particular disease. The survival rate is often stated as a five-year survival rate, which can be interpreted as the percentage of people who are alive five years after their diagnosis
TNM staging	a system for describing the amount and spread of cancer in a patient's body, using TNM where T describes the size of the tumour and any spread of cancer to nearby tissue, N describes spread of cancer to regional lymph nodes and M describes metastasis (spread of cancer to other parts of the body)

Abbreviations

ECR	Estonian Cancer Registry
ICD-10	International Classification of Diseases, 10th version

Summary

Estonian cancer incidence data are available for more than 50 years – since 1968. Over the years, the annual number of new cancer cases has increased significantly. In 2020, 8342 new cancer cases were registered in Estonia, of which 4236 were diagnosed in men and 4106 in women. Excluding non-melanoma skin cancer, the overall number of cancer cases was 7128. Leading cancer sites in men were the prostate (25% of all cancers in men) and lung (14%). In women, the leading sites were the breast and non-melanoma skin (19% and 18% of all cancers in women, respectively). Compared to 2019, the number of cancer cases decreased by 7% in 2020, probably due to the COVID-19 pandemic, which limited access to screening programs and regular health care services.

The increase in cancer cases in the long term is partly caused by the ageing of the population – more than a third of all cases in 2020 were diagnosed in patients older than 75 years. About 66% of all malignant tumours were diagnosed in patients older than 65 years. Among 54-year-old and younger women, cancer incidence was lower than among men in the same age, however, from the age 55, cancer incidence in men was remarkably higher than in women. The most frequent cancer sites vary across age groups. Among children aged 0–14 26 cases of malignant tumours were diagnosed, most frequent was leukaemia among boys as well as girls. In the age group 15–34, the leading cancer sites were Hodgkin lymphoma, testis, non-melanoma skin and brain in men and non-melanoma skin, breast, cervix and skin melanoma in women. In the age group 35–54, the most common cancer sites were the prostate, lung and non-melanoma skin in men; the breast and non-melanoma skin in women. Among patients aged 55–74 years, as well as those aged 75 or older, the leading sites were the same as in the general population – the prostate and lung in men and the breast and non-melanoma skin in women.

The proportion of microscopically verified cases was 90%, while ca 2% of cases were registered on the basis of death certificates only (DCO cases). Half of the new cancer cases diagnosed in 2020 were localized at the time of diagnosis, but ca 20% of men and 15% of women already had distant metastasis. The highest proportion of distant metastasis at diagnosis (almost half) was seen in pancreatic cancer both in men and women. In men, this was also the case in gallbladder cancer. On the positive side, compared to 2019, the proportion of stage I cases has slightly increased for lung cancer and skin melanoma and the proportion of stage IV colorectal cancer has somewhat decreased.

The age-standardized total cancer incidence rates have levelled off in the past decade both in men and women. In men, lung cancer incidence has been decreasing since the end of 1990-s, whereas in women it has stabilized in recent years; however, lung cancer is still much more common in men than in women. The rate of stomach cancer decreased in both sexes.

Compared to 2019, the number of cases decreased in 2020 by 20% for skin melanoma, by 8% for breast and rectal cancer and by 7% for prostate cancer. The number of cervical cancer cases decreased by 30%, but it needs further analysis to understand whether the decline was caused by the COVID-19 pandemic or decreasing incidence due to prevention activities.

On 31st December 2020, there were 67,683 persons (27,502 men and 40,181 women) in the population of Estonia with a history of cancer. The most frequent cancer sites among prevalent cases were prostate and breast as in previous years.

In 2016–2020, the one-year, five-year and ten-year relative survival estimates for all cancer cases diagnosed in Estonia were 78%, 65% and 61%, respectively. For most sites, survival estimates were higher for women than for men. In comparison with the Nordic

countries, the survival gap remained for head and neck cancers (in men), colon and rectal cancer, skin melanoma, breast cancer and non-Hodgkin lymphoma.

Regarding haematological tumours, B-cell chronic lymphocytic leukaemia/small lymphocytic lymphoma and malignant lymphoma (large B-cell, diffuse) were diagnosed most frequently both in men and women in 2011–2015 and 2016–2020. Among men and women, the five-year relative survival 2016–2020 was highest for Hodgkin lymphoma (89%) and chronic myeloproliferative disorders (men 74%, women 87%). The lowest five-year relative survival estimates were seen for acute myeloid leukaemias for both men and women (10% and 15%, respectively).

Introduction and methods

The Estonian Cancer Registry (ECR) was founded in 1978, while reliable incidence data are available for as far back as 1968. Therefore, in 2023, the ECR celebrates its 45th birthday. The ECR is a population-based registry that collects data on all cancer cases in Estonia. The main task of the registry is to ensure the complete and reliable registration of incident cancer cases, which forms the basis for national cancer statistics, survival analysis and other epidemiological research.

In this report, incidence data was updated on 14 March 2023.

For coding the topography and morphology of the tumour the ECR uses the Third Edition of the International Classification of Diseases for Oncology (ICD-O-3). For this report, the Tenth Revision of the International Classification of Diseases (ICD-10) has been used by converting the ICD-O-3 codes into ICD-10 codes [1]. The calculation of the age-standardized incidence rates is based on the World Standard Population [2].

In Estonia, the following tumours are to be reported: all malignant tumours (C00–C97), in situ tumours (D00–D09), benign tumours and tumours of uncertain or unknown behaviour of the brain and central nervous system as well as of the endocrine organs, that are located in the area of the brain (D32.0–D33.9, D35.2–D35.4, D42.0–D43.9, D44.3–D44.5), and other tumours of lymphoid, haematopoietic and related tissue (D45–D47).

On figure 1 that shows the leading cancer sites in Estonia in 2020, in Tables 6a and 6b, that show the distribution of new cancer cases by cancer site and the most valid basis of diagnosis, as well as in Tables 7a and 7b that show the distribution of new cancer cases by site and extent of disease, the proportion percentages are rounded, and their sum might not be exactly 100%.

To analyse cancer survival, data from Estonian Cancer Registry about new malignant cancer cases diagnosed in patients aged ≥15 years, were used. The vital status of patients was determined by comparing the data of the ECR to the Estonian Death Registry and the Population Registry. Cancer survival was measured as one-year, five-year and ten-year relative survival ratio, calculated as the ratio of observed survival and expected survival of the underlying general population [3]. The expected survival rate was determined from Estonian population lifetables stratified by gender, age and calendar year, using Ederer's II method [4]. The one-year, five-year and ten-year relative survival indicates what percentage of patients is alive (has not died because of cancer) one, five or ten years after being diagnosed with cancer. Period method was used to calculate survival for 2016–2020 [5]. For standardization by age, international standards were used [6]. To evaluate the change in relative survival for selected sites, the age-standardized five-year relative survival for 2010–2014 and 2016–2020 was calculated (the cohort method was used for 2010–2014) [5].

Data on haematological tumours were analysed for two time-periods: 2011–2015 and 2016–2020 including cases diagnosed at age ≥15. In the incidence table, only morphologies diagnosed in more than 50 cases in 2011–2020, are presented.

1 Leading cancer sites

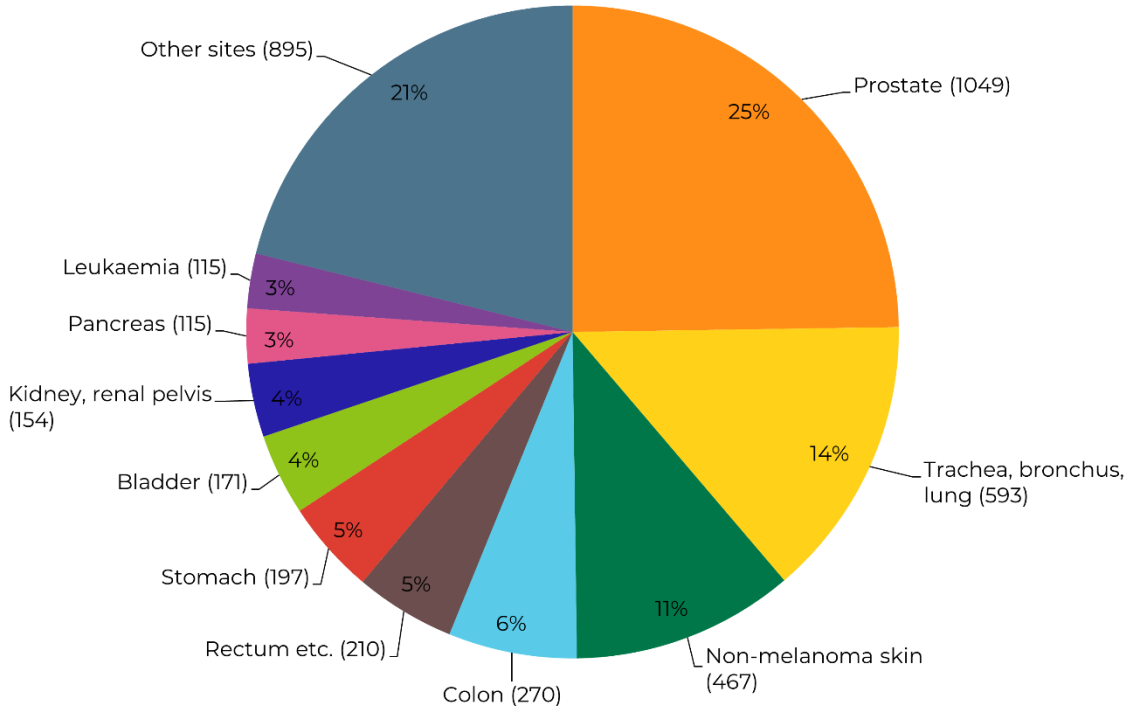
In 2020, 8342 new cancer cases were registered in Estonia – 4236 in men and 4106 in women. Excluding non-melanoma skin, the total number of cancer cases was 7128. The most common cancer sites are shown in Figure 1.

The leading cancer site in men was the prostate (25% of all cancers in men), followed by lung (14%), non-melanoma skin (11%), colon (6%), stomach (5%), rectum (5%) and urinary bladder (4%). Among the ten most common sites were also kidney and renal pelvis, pancreas, and leukaemia.

In women, the most common sites were the breast and non-melanoma skin (19% and 18% of all cancer cases, respectively), followed by colon (8%), corpus uteri (6%) and lung (5%). Pancreas, stomach, rectum, ovary and kidney with renal pelvis were also among the ten leading sites in women.

Tables 1a and 1b show the number of new cancer cases in 2020 and the crude and age-standardized incidence rates per 100 000 persons in men and women for the ten most frequent cancer sites.

Men



Women

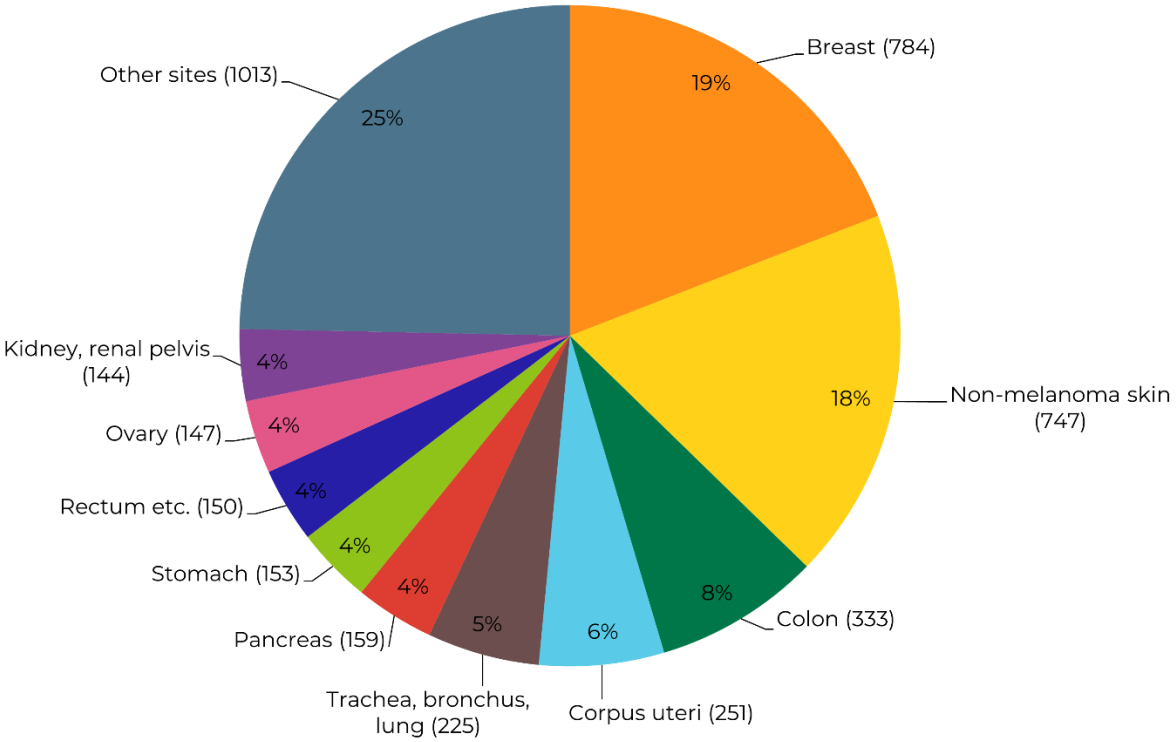


Figure 1. Leading cancer sites in Estonia 2020 (n, %)

Table 1a. Leading cancer sites in Estonia in men, 2020

Cancer site	ICD-10	New cases		Incidence rate per 100 000	
		Number	%	Crude	Standardized*
Prostate	C61	1049	24,8	166,5	89,0
Trachea, bronchus, lung	C33–C34	593	14,0	94,1	49,0
Non-melanoma skin	C44	467	11,0	74,1	37,5
Colon	C18	270	6,4	42,9	21,5
Rectum	C19–21	210	5,0	33,3	17,1
Stomach	C16	197	4,7	31,3	16,6
Bladder	C67	171	4,0	27,1	13,2
Kidney, renal pelvis	C64–C65	154	3,6	24,4	13,7
Pancreas	C25	115	2,7	18,3	9,6
Leukaemia	C91–C95	115	2,7	18,3	10,9
All sites	C00–C97	4236	100	672,3	363,3

* Standardized by age (to the world standard population).

Table 1b. Leading cancer sites in Estonia in women, 2020

Cancer site	ICD-10	New cases		Incidence rate per 100 000	
		Number	%	Crude	Standardized*
Breast	C50	784	19,1	112,1	60,1
Non-melanoma skin	C44	747	18,2	106,8	41,7
Colon	C18	333	8,1	47,6	16,4
Corpus uteri	C54	251	6,1	35,9	16,6
Trachea, bronchus, lung	C33–C34	225	5,5	32,2	11,5
Pancreas	C25	159	3,9	22,7	7,0
Stomach	C16	153	3,7	21,9	7,7
Rectum	C19–C21	150	3,7	21,4	8,8
Ovary	C56	147	3,6	21,0	9,9
Kidney, renal pelvis	C64–C65	144	3,5	20,6	8,5
All sites	C00–C97	4106	100	587,1	256,4

* Standardized by age (to the world standard population).

2 Cancer incidence by site

Table 2a and 2b show the number of new cancer cases and the crude and age-standardized incidence rates per 100 000 persons by cancer site in men and women. The number of new cancer cases by age groups and the age-specific incidence rates by cancer site in Estonia are available in the Health Statistics and Health Research Database (https://statistika.tai.ee/index_en.html).

In Tables 3a and 3b, the corresponding data are presented for malignant neoplasms of lymphoid, haematopoietic, and related tissues, which also include polycythaemia vera, myelodysplastic syndromes and other neoplasms of uncertain behaviour of lymphoid, hematopoietic, and related tissue coded as D45–D47 in ICD-10.

The number of *in situ* neoplasms and benign neoplasms and neoplasms of uncertain or unknown behaviour of the brain and central nervous system as well as of the endocrine organs that are located in the area of the brain are presented in tables 4a and 4b, together with the crude and age-standardized incidence rates in 2020 in men and women.

Table 2a. The number of new cases, crude and age-standardized incidence rates (ASIR) of cancer per 100 000 by cancer site in Estonia in men, 2020

Cancer site	ICD-10	Number of new cases	Incidence rate per 100 000	
			Crude	ASIR*
All sites	C00–C97	4236	672,3	363,3
All sites (excl. non-melanoma skin)	C00–C97, excl. C44	3769	598,2	325,8
Lip, oral cavity, pharynx	C00–C14	139	22,1	13,4
Lip	C00	6	1,0	0,5
Tongue	C01–C02	25	4,0	2,6
Gum. floor of mouth etc.	C03–C06	29	4,6	2,9
Major salivary glands	C07–C08	14	2,2	1,4
Tonsil, oropharynx	C09–C10	32	5,1	3,1
Nasopharynx	C11	4	0,6	0,4
Pyriform sinus, hypopharynx	C12–C13	26	4,1	2,4
Other lip, oral cavity, pharynx	C14	3	0,5	0,3
Digestive organs	C15–C26	987	156,6	82,3
Oesophagus	C15	62	9,8	6,1
Stomach	C16	197	31,3	16,6
Small intestine	C17	11	1,7	1,0
Colon	C18	270	42,9	21,5
Rectum etc.	C19–C21	210	33,3	17,1
Liver etc.	C22	98	15,6	8,6
Gallbladder etc.	C23–C24	18	2,9	1,4
Pancreas	C25	115	18,3	9,6
Other digestive organs	C26	6	1,0	0,5

* Standardized to the world standard population.

Table 2a. (cont.)

Cancer site	ICD-10	Number of new cases	Incidence rate per 100 000	
			Crude	ASIR*
Respiratory, intrathoracic organs	C30–C39	651	103,3	53,9
Nasal cavities, ear, sinuses	C30–C31	6	1,0	0,5
Larynx	C32	47	7,5	4,0
Trachea, bronchus, lung	C33–C34	593	94,1	49,0
Thymus, heart, mediastinum, pleura	C37–C38	5	0,8	0,5
Respiratory organs etc.	C39	—	—	—
Bone, articular cartilage	C40–C41	6	1,0	0,7
Skin melanoma	C43	85	13,5	8,1
Non-melanoma skin	C44	467	74,1	37,5
Mesothelial and soft tissues	C45–C49	32	5,1	2,9
Breast	C50	6	1,0	0,6
Male genital organs	C60–C63	1093	173,5	94,3
Penis	C60	10	1,6	0,9
Prostate	C61	1049	166,5	89,0
Testis	C62	33	5,2	4,3
Other male genital organs	C63	1	0,2	0,1
Urinary organs	C64–C68	333	52,9	27,6
Kidney, renal pelvis	C64–C65	154	24,4	13,7
Ureter	C66	4	0,6	0,3
Bladder	C67	171	27,1	13,2
Other urinary organs	C68	4	0,6	0,3
Eye	C69	12	1,9	0,9
Brain, central nervous system	C70–C72	52	8,3	5,4
Meninges	C70	1	0,2	0,1
Brain	C71	50	7,9	5,0
Other central nervous system	C72	1	0,2	0,3
Thyroid gland	C73	26	4,1	2,8
Other endocrine	C74–C75	4	0,6	0,7
Site unknown or uncertain	C76–C80	60	9,5	4,7
Hodgkin lymphoma	C81	19	3,0	3,6
Non-Hodgkin lymphoma	C82–C85/96	103	16,3	9,5
Immunoproliferative diseases	C88	2	0,3	0,1
Multiple myeloma	C90	44	7,0	3,6
Leukaemia	C91–C95	115	18,3	10,9
Independent multiple sites	C97	—	—	—

* Standardized to the world standard population.

Table 2b. The number of new cases, crude and age-standardized incidence rates (ASIR) of cancer per 100 000 by cancer site in Estonia in women, 2020

Cancer site	ICD-10	Number of new cases	Incidence rate per 100 000	
			Crude	ASIR*
All sites	C00–C97	4106	587,1	256,4
All sites (excl. non-melanoma skin)	C00–C97, excl. C44	3359	480,3	214,7
Lip, oral cavity, pharynx	C00–C14	70	10,0	5,1
Lip	C00	4	0,6	0,1
Tongue	C01–C02	9	1,3	0,7
Gum, floor of mouth etc.	C03–C06	21	3,0	1,6
Major salivary glands	C07–C08	9	1,3	0,9
Tonsil, oropharynx	C09–C10	18	2,6	1,2
Nasopharynx	C11	1	0,1	—
Pyriform sinus, hypopharynx	C12–C13	5	0,7	0,4
Other lip, oral cavity, pharynx	C14	3	0,4	0,2
Digestive organs	C15–C26	921	131,7	46,5
Oesophagus	C15	18	2,6	1,0
Stomach	C16	153	21,9	7,7
Small intestine	C17	15	2,1	1,1
Colon	C18	333	47,6	16,4
Rectum etc.	C19–C21	150	21,4	8,8
Liver etc.	C22	54	7,7	2,7
Gallbladder etc.	C23–C24	33	4,7	1,5
Pancreas	C25	159	22,7	7,0
Other digestive organs	C26	6	0,9	0,3
Respiratory, intrathoracic organs	C30–C39	234	33,5	12,2
Nasal cavities, ear, sinuses	C30–C31	2	0,3	0,1
Larynx	C32	5	0,7	0,4
Trachea, bronchus, lung	C33–C34	225	32,2	11,5
Thymus, heart, mediastinum, pleura	C37–C38	2	0,3	0,1
Respiratory organs etc.	C39	—	—	—
Bone, articular cartilage	C40–C41	6	0,9	0,7
Skin melanoma	C43	108	15,4	9,0
Non-melanoma skin	C44	747	106,8	41,7
Mesothelial and soft tissues	C45–C49	31	4,4	2,1

* Standardized to the world standard population.

Table 2b. (cont.)

Cancer site	ICD-10	Number of new cases	Incidence rate per 100 000	
			Crude	ASIR*
Breast	C50	784	112,1	60,1
Female genital organs	C51–C58	573	81,9	39,6
Vulva, vagina	C51–C52	44	6,3	2,1
Cervix uteri	C53	115	16,4	9,9
Corpus uteri	C54	251	35,9	16,6
Uterus unspecified	C55	2	0,3	0,1
Ovary	C56	147	21,0	9,9
Other female genital organs	C57	14	2,0	1,1
Placenta	C58	—	—	—
Urinary organs	C64–C68	197	28,2	10,8
Kidney, renal pelvis	C64–C65	144	20,6	8,5
Ureter	C66	5	0,7	0,2
Bladder	C67	48	6,9	2,0
Other urinary organs	C68	—	—	—
Eye	C69	12	1,7	1,0
Brain, central nervous system	C70–C72	33	4,7	3,0
Meninges	C70	1	0,1	—
Brain	C71	32	4,6	3,0
Other central nervous system	C72	—	—	—
Thyroid gland	C73	57	8,1	4,8
Other endocrine	C74–C75	6	0,9	0,4
Site unknown or uncertain	C76–C80	59	8,4	2,3
Hodgkin lymphoma	C81	19	2,7	2,5
Non-Hodgkin lymphoma	C82–C85/96	98	14,0	5,7
Immunoproliferative diseases	C88	6	0,9	0,2
Multiple myeloma	C90	48	6,9	2,4
Leukaemia	C91–C95	97	13,9	6,3
Independent multiple sites	C97	—	—	—

* Standardized to the world standard population.

Table 3a. The number of new cases of malignant neoplasms of lymphoid, haematopoietic and related tissues, crude and age-standardized incidence rates (ASIR) per 100 000 in Estonia in men, 2020

Cancer site	ICD-10	Number of new cases	Incidence rate per 100 000	
			Crude	ASIR*
Hodgkin lymphoma	C81	19	3,0	3,6
Non-Hodgkin lymphoma	C82–C85/96	103	16,3	9,5
Immunoproliferative diseases	C88	2	0,3	0,1
Multiple myeloma	C90	44	7,0	3,6
Leukaemia	C91–C95	115	18,3	10,9
Lymphoid leukaemia	C91	68	10,8	6,3
Acute lymphoid leukaemia	C91.0	6	1,0	1,2
Chronic lymphoid leukaemia	C91.1	61	9,7	5,0
Other lymphoid leukaemia	C91.2–C91.9	1	0,2	0,1
Myeloid leukaemia	C92	45	7,1	4,3
Acute myeloid leukaemia	C92.0	19	3,0	1,6
Chronic myeloid leukaemia	C92.1	20	3,2	2,1
Other myeloid leukaemia	C92.2–C92.9	6	1,0	0,7
Other leukaemia	C93–C95	2	0,3	0,2
Polycythaemia vera	D45	19	3,0	1,7
Myelodysplastic syndromes	D46	22	3,5	1,5
Other neoplasms of lymphoid, haematopoietic and related tissue	D47	56	8,9	4,8

* Standardized to the world standard population.

Table 3b. The number of new cases of malignant neoplasms of lymphoid, haematopoietic and related tissues, crude and age-standardized incidence rates (ASIR) per 100 000 in Estonia in women, 2020

Cancer site	ICD-10	Number of new cases	Incidence rate per 100 000	
			Crude	ASIR*
Hodgkin lymphoma	C81	19	2,7	2,5
Non-Hodgkin lymphoma	C82–C85/96	98	14,0	5,7
Immunoproliferative diseases	C88	6	0,9	0,2
Multiple myeloma	C90	48	6,9	2,4
Leukaemia	C91–C95	97	13,9	6,3
Lymphoid leukaemia	C91	49	7,0	3,4
Acute lymphoid leukaemia	C91.0	5	0,7	1,2
Chronic lymphoid leukaemia	C91.1	41	5,9	2,1
Other lymphoid leukaemia	C91.2–C91.9	3	0,4	0,2
Myeloid leukaemia	C92	44	6,3	2,4
Acute myeloid leukaemia	C92.0	28	4,0	1,1
Chronic myeloid leukaemia	C92.1	12	1,7	0,9
Other myeloid leukaemia	C92.2–C92.9	4	0,6	0,4
Other leukaemia	C93–C95	4	0,6	0,4
Polycythaemia vera	D45	18	2,6	1,2
Myelodysplastic syndromes	D46	33	4,7	1,5
Other neoplasms of lymphoid, haematopoietic and related tissue	D47	61	8,7	3,3

* Standardized to the world standard population.

Table 4a. The number of new cases of neoplasms in situ, benign and uncertain or unknown behaviour* and crude and age-standardized incidence rates (ASIR) per 100 000 by cancer site in Estonia in men, 2020

Cancer site	ICD-10	Number of new cases	Incidence rate per 100 000	
			Crude	ASIR**
In situ neoplasms	D00–D09	151	24,0	12,1
Neoplasms of benign and uncertain or unknown behaviour of brain and central nervous system	D32, D33, D42, D43	24	3,8	2,7
Meninges	D32, D42	10	1,6	0,9
Brain, central nervous system	D33, D43	14	2,2	1,7
Neoplasms of benign and uncertain or unknown behaviour of intracranial endocrine glands	D35.2–D35.4, D44.3–D44.5	4	0,6	0,5

* Neoplasms reportable to the Estonian Cancer Registry.

** Standardized to the world standard population

Table 4b. The number of new cases of neoplasms in situ, benign and uncertain or unknown behaviour* and crude and age-standardized incidence rates (ASIR) per 100 000 by cancer site in Estonia in women, 2020

Cancer site	ICD-10	Number of new cases	Incidence rate per 100 000	
			Crude	Standardized**
In situ neoplasms	D00–D09	221	31,6	15,6
Cervix uteri	D06	10	1,4	1,4
Neoplasms of benign and uncertain or unknown behaviour of brain and central nervous system	D32, D33, D42, D43	75	10,7	5,8
Meninges	D32, D42	57	8,1	3,8
Brain, central nervous system	D33, D43	18	2,6	2,0
Neoplasms of benign and uncertain or unknown behaviour of intracranial endocrine glands	D35.2–D35.4, D44.3–D44.5	5	0,7	0,5

* Neoplasms reportable to the Estonian Cancer Registry.

** Standardized to the world standard population

3 Cancer incidence by age

Age-specific cancer incidence rates in 2020 among men and women are presented in Figure 2. The increase in total cancer incidence is partly caused by the ageing of the population – more than a third of all new cancer cases were diagnosed in men and women older than 75 years. In women up to the age of 54 years, the cancer incidence rates are slightly higher than in men, whereas incidence in men increases rapidly from age 55 and is significantly higher than in women in older age-groups. Cancer in children and young adults is rare – in 2020 26 cases were diagnosed in the age-group 0–14 and 142 cases in the age-group 15–34.

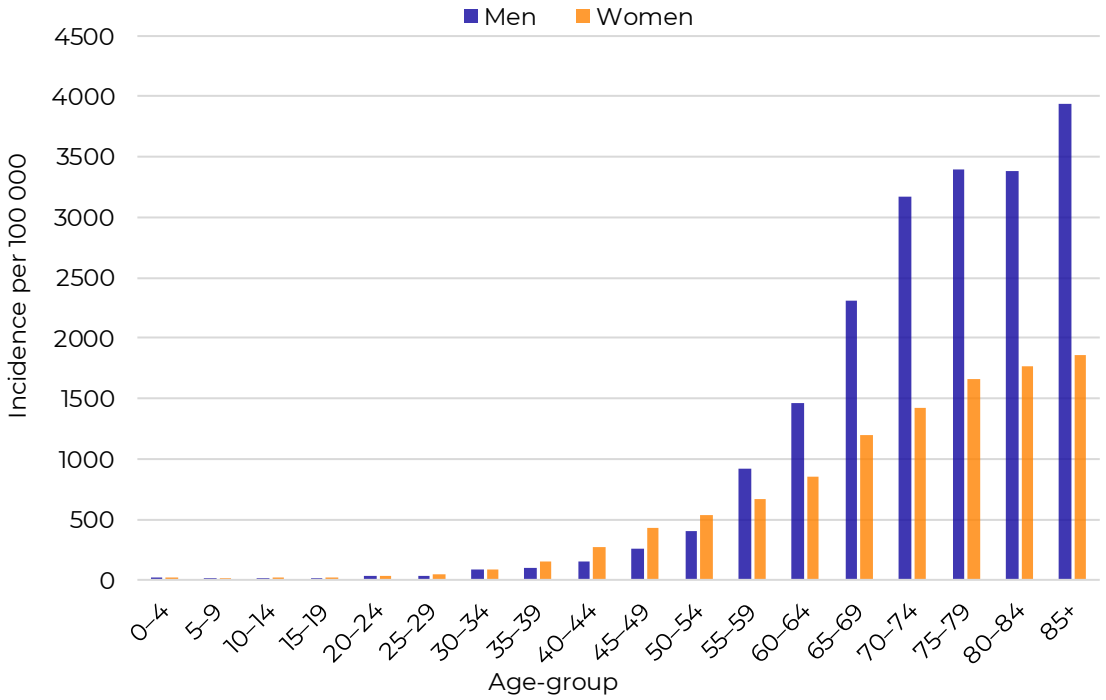


Figure 2. Age-specific cancer incidence in Estonia, 2020

Tables 5a and 5b show that the most common cancer sites vary across age-groups.

In children aged 0–14, leukaemia was most frequently diagnosed. In girls, tumours of brain and central nervous system as well as kidney and renal pelvis were diagnosed twice, while other cancer sites were diagnosed on individual occasions both in boys and girls.

In 15–34 year-old men the most common cancer sites were Hodgkin lymphoma, testis, non-melanoma skin and brain; in women non-melanoma skin, breast, cervix uteri and skin melanoma.

In the age-group 35–54, the most frequently diagnosed cancer sites in men were non-melanoma skin, prostate, lung and lip, oral cavity and pharynx; in women the breast, non-melanoma skin, corpus uteri and skin melanoma.

In 55–74 year-old men and women, the most common cancer sites were the same as in the general population, i.e. the prostate, lung cancer, non-melanoma skin and colon in men and the breast, non-melanoma skin, colon, corpus uteri and lung in women.

In the oldest, 75+ age-group, the most common cancer sites in men were also the prostate and non-melanoma skin whereas lung cancer was diagnosed slightly less frequently. In women, the most frequently diagnosed cancer site was non-melanoma skin, followed by the breast and colon.

Table 5a. Eight leading cancer sites by age-groups in Estonia in men, 2020

Age-group / Cancer site	ICD-10	New cases	
		Number	%
Age-group 0–14			
Leukaemia	C91–C95	4	33,3
Colon	C18	1	8,3
Liver	C22	1	8,3
Mesothelial and soft tissues	C45–C49	1	8,3
Kidney, renal pelvis	C64–C65	1	8,3
Brain and central nervous system	C70–C72	1	8,3
Hodgkin lymphoma	C81	1	8,3
Thyroid	C73	1	8,3
Chronic myeloid leukaemia	C92.1	1	8,3
All sites	C00–C97	12	100
Age-group 15–34			
Hodgkin lymphoma	C81	15	22,4
Testis	C62	12	17,9
Non-melanoma skin	C44	9	13,4
Brain	C71	5	7,5
Skin melanoma	C43	4	6,0
Non-Hodgkin lymphoma	C82–C85, C96	4	6,0
Leukaemia	C91–C95	4	6,0
Lip, oral cavity, pharynx	C00–C14	3	4,5
All sites	C00–C97	67	100
Age-group 35–54			
Non-melanoma skin	C44	65	15,9
Prostate	C61	49	12,0
Trachea, bronchus, lung	C33–C34	27	6,6
Lip, oral cavity, pharynx	C00–C14	27	6,6
Non-Hodgkin lymphoma	C82–C85, C96	22	5,4
Stomach	C16	21	5,1
Skin melanoma	C43	20	4,9
Rectum etc.	C19–C21	19	4,6
All sites	C00–C97	410	100
Age-group 55–74			
Prostate	C61	748	30,3
Trachea, bronchus, lung	C33–C34	390	15,8
Non-melanoma skin	C44	181	7,3
Colon	C18	141	5,7
Rectum etc.	C19–C21	118	4,8
Stomach	C16	112	4,5
Kidney, renal pelvis	C64–C65	95	3,8
Lip, oral cavity, pharynx	C00–C14	95	3,8
All sites	C00–C97	2472	100

*In age-group 0–14 all sites are shown, in other age-groups 8 more common sites are shown.

Table 5a. (cont.)

Age-group / Cancer site	ICD-10	New cases	
		Number	%
Age-group ≥75			
Prostate	C61	252	19,8
Non-melanoma skin	C44	212	16,6
Trachea, bronchus, lung	C33–C34	176	13,8
Colon	C18	109	8,5
Bladder	C67	77	6,0
Rectum etc.	C19–C21	72	5,6
Stomach	C16	63	4,9
Renal pelvis	C64–C65	38	3,0
All sites	C00–C97	1275	100

Table 5b. Eight leading cancer sites by age-groups in Estonia in women, 2020

Age-group / Cancer site	ICD-10	New cases	
		Number	%
Age-group 0–14			
Leukaemia	C91–C95	3	21,4
Kidney, renal pelvis	C64–C65	2	14,3
Brain and central nervous system	C70–C72	2	14,3
Colon	C18	1	7,1
Bone, articular cartilage	C40–C41	1	7,1
Mesothelial and soft tissues	C45–C49	1	7,1
Ovary	C56	1	7,1
Eye	C69	1	7,1
Thyroid gland	C73	1	7,1
Hodgkin lymphoma	C81	1	7,1
All sites	C00–C97	14	100
Age-group 15–34			
Non-melanoma skin	C44	11	14,7
Breast	C50	10	13,3
Cervix uteri	C53	10	13,3
Skin melanoma	C43	7	9,3
Colon	C18	5	6,7
Hodgkin lymphoma	C81	5	6,7
Thyroid gland	C73	5	6,7
Leukaemia	C91–C95	4	5,3
All sites	C00–C97	75	100
Age-group 35–54			
Breast	C50	217	35,3
Non-melanoma skin	C44	105	17,1
Corpus uteri	C54	37	6,0
Skin melanoma	C43	32	5,2
Cervix uteri	C53	27	4,4
Ovary	C56	26	4,2
Rectum etc.	C19–C21	18	2,9
Kidney, renal pelvis	C64–C65	17	2,8
All sites	C00–C97	615	100
Age-group 55–74			
Breast	C50	378	20,7
Non-melanoma skin	C44	277	15,1
Colon	C18	146	8,0
Corpus uteri	C54	142	7,8
Trachea, bronchus, lung	C33–C34	111	6,1
Rectum etc.	C19–C21	79	4,3
Stomach	C16	71	3,9
Ovary	C56	69	3,8
All sites	C00–C97	1830	100

*In age-group 0–14 all sites are shown, in other age-groups 8 more common sites are shown.

Table 5b. (cont.)

Age-group / Cancer site	ICD-10	New cases	
		Number	%
Age-group ≥75			
Non-melanoma skin	C44	354	22,5
Breast	C50	179	11,4
Colon	C18	167	10,6
Bronchus, trachea, lung	C33–C34	97	6,2
Pancreas	C25	89	5,7
Corpus uteri	C54	72	4,6
Stomach	C16	70	4,5
Kidney, renal pelvis	C64–C65	57	3,6
All sites	C00–C97	1572	100

4 Cancer cases by basis of diagnosis

Basis of diagnosis is an important indicator that illustrates the accuracy of cancer diagnosis and the quality of a cancer registry. The distribution of new cancer cases by cancer site and the most valid basis of diagnosis are presented in Tables 6a and 6b.

One of the most important data quality indicators of a cancer registry is the percentage of microscopically verified (with histological, cytological, or haematological confirmation) cancer cases. In 2020, 90% of new cases were microscopically verified indicating a rather good quality of diagnosis [7].

Another important data quality indicator is the percentage of death certificates only (DCO) cases, i.e., cases that are registered solely based on death certificates after conducting the trace back of death certificate notifications. High proportion of DCO cases refers to incomplete reporting of cancer cases but also to unsuccessful data trace-backs conducted by the cancer registry [7]. In 2020, the percentage of DCO cases was rather low, staying around 2% in Estonia. Lung and pancreatic cancer were more frequently registered based on a death certificate only.

Table 6a. The distribution of new cancer cases by cancer site and the most valid basis of diagnosis in Estonia in men, 2020 (n, %)

Cancer site	ICD-10	Number of new cases	Microscopic (%)*	Non-microscopic (%)**	Death certificate only (%)***
All sites	C00–C97	4236	89,5	8,2	2,3
All sites (excl. non-melanoma skin)	C00–C97, excl. C44	3769	88,5	9,0	2,5
Lip, oral cavity, pharynx	C00–C14	139	90,6	7,9	1,4
Lip	C00	6	83,3	16,7	—
Tongue	C01–C02	25	96,0	4,0	—
Gum, floor of mouth etc.	C03–C06	29	96,6	3,4	—
Major salivary glands	C07–C08	14	85,7	14,3	—
Tonsil, oropharynx	C09–C10	32	90,6	6,3	3,1
Nasopharynx	C11	4	100	—	—
Pyriform sinus, hypopharynx	C12–C13	26	84,6	11,5	3,8
Other lip, oral cavity, pharynx	C14	3	66,7	33,3	—
Digestive organs	C15–C26	987	84,9	13,2	1,9
Oesophagus	C15	62	95,2	4,8	—
Stomach	C16	197	89,3	8,6	2,0
Small intestine	C17	11	90,9	9,1	—
Colon	C18	270	89,6	8,1	2,2
Rectum etc.	C19–C21	210	92,9	5,7	1,4
Liver etc.	C22	98	74,5	25,5	—
Gallbladder etc.	C23–C24	18	61,1	38,9	—
Pancreas	C25	115	60,9	34,8	4,3
Other digestive organs	C26	6	33,3	50,0	16,7

* Histology, autopsy with histology, cytology, haematology.

** Clinical only, instrumental clinical, biochemical/immunological, surgery/autopsy without histology.

*** Cases registered solely based on death certificates.

Table 6a. (cont.)

Cancer site	ICD-10	Number of new cases	Microscopic (%)*	Non-microscopic (%)**	Death certificate only (%)***
Respiratory, intrathoracic organs	C30–C39	651	80,6	15,2	4,1
Nasal cavities, ear, sinuses	C30–C31	6	100	—	—
Larynx	C32	47	85,1	12,8	2,1
Trachea, bronchus, lung	C33–C34	593	79,9	15,7	4,4
Thymus, heart, mediastinum, pleura	C37–C38	5	100	—	—
Respiratory organs etc.	C39	—	—	—	—
Bone, articular cartilage	C40–C41	6	66,7	33,3	—
Skin melanoma	C43	85	98,8	1,2	—
Non-melanoma skin	C44	467	97,9	1,7	0,4
Mesothelial and soft tissues	C45–C49	32	87,5	9,4	3,1
Breast	C50	6	100	—	—
Male genital organs	C60–C63	1093	96,4	2,2	1,4
Penis	C60	10	100	—	—
Prostate	C61	1049	96,3	2,3	1,4
Testis	C62	33	100	—	—
Other male genital organs	C63	1	100	—	—
Urinary organs	C64–C68	333	90,4	5,4	4,2
Kidney, renal pelvis	C64–C65	154	89,0	7,1	3,9
Ureter	C66	4	100	—	—
Bladder	C67	171	91,8	4,1	4,1
Other urinary organs	C68	4	75,0	—	25,0

* Histology, autopsy with histology, cytology, haematology.

** Clinical only, instrumental clinical, biochemical/immunological, surgery/autopsy without histology.

*** Cases registered solely based on death certificates.

Table 6a. (cont)

Cancer site	ICD-10	Number of new cases	Microscopic (%)*	Non-microscopic (%)**	Death certificate only (%)***
Eye	C69	12	8,3	91,7	—
Brain, central nervous system	C70–C72	52	71,2	26,9	1,9
Meninges	C70	1	100	—	—
Brain	C71	50	72,0	26,0	2,0
Other central nervous system	C72	1	—	100	—
Thyroid gland	C73	26	100	—	—
Other endocrine	C74–C75	4	100	—	—
Site unknown or uncertain	C76–C80	60	46,7	45,0	8,3
Hodgkin lymphoma	C81	19	100	—	—
Non-Hodgkin lymphoma	C82–C85/C96	103	97,1	1,0	1,9
Immunoproliferative diseases	C88	2	100	—	—
Multiple myeloma	C90	44	97,7	—	2,3
Leukaemia	C91–C95	115	93,9	—	6,1
Independent multiple sites	C97	0	—	—	—

* Histology, autopsy with histology, cytology, haematology.

** Clinical only, instrumental clinical, biochemical/immunological, surgery/autopsy without histology.

*** Cases registered solely based on death certificates.

Table 6b. The distribution of new cancer cases by cancer site and the most valid basis of diagnosis in Estonia in women, 2020 (n, %)

Cancer site	ICD-10	Number of new cases	Microscopic (%)*	Non-microscopic (%)**	Death certificate only (%)***
All sites	C00–C97	4106	90,6	7,8	1,7
All sites (excl. non-melanoma skin)	C00–C97, excl. C44	3359	88,7	9,3	2,0
Lip, oral cavity, pharynx	C00–C14	70	91,4	8,6	—
Lip	C00	4	100	—	—
Tongue	C01–C02	9	100	—	—
Gum, floor of mouth etc.	C03–C06	21	90,5	9,5	—
Major salivary glands	C07–C08	9	88,9	11,1	—
Tonsil, oropharynx	C09–C10	18	83,3	16,7	—
Nasopharynx	C11	1	100	—	—
Pyriform sinus, hypopharynx	C12–C13	5	100	—	—
Other lip, oral cavity, pharynx	C14	3	100	—	—
Digestive organs	C15–C26	921	81,8	15,3	2,9
Oesophagus	C15	18	88,9	11,1	—
Stomach	C16	153	86,9	12,4	0,7
Small intestine	C17	15	100	—	—
Colon	C18	333	89,5	8,1	2,4
Rectum etc.	C19–C21	150	91,3	6,7	2,0
Liver etc.	C22	54	77,8	16,7	5,6
Gallbladder etc.	C23–C24	33	78,8	21,2	—
Pancreas	C25	159	51,6	41,5	6,9
Other digestive organs	C26	6	66,7	16,7	16,7

* Histology, autopsy with histology, cytology, haematology.

** Clinical only, instrumental clinical, biochemical/immunological, surgery/autopsy without histology.

*** Cases registered solely based on death certificates.

Table 6b. (cont)

Cancer site	ICD-10	Number of new cases	Microscopic (%)*	Non-microscopic (%)**	Death certificate only (%)***
Respiratory, intrathoracic organs	C30–C39	234	79,9	17,5	2,6
Nasal cavities, ear, sinuses	C30–C31	2	100	—	—
Larynx	C32	5	100	—	—
Trachea, bronchus, lung	C33–C34	225	79,1	18,2	2,7
Thymus, heart, mediastinum, pleura	C37–C38	2	100		—
Respiratory organs etc.	C39	—	—	—	—
Bone, articular cartilage	C40–C41	6	83,3	16,7	—
Skin melanoma	C43	108	100	—	—
Non-melanoma skin	C44	747	98,8	1,1	0,1
Mesothelial and soft tissues	C45–C49	31	96,8	—	3,2
Breast	C50	784	96,0	2,9	1,0
Female genital organs	C51–C58	573	94,4	4,4	1,2
Vulva, vagina	C51–C52	44	93,2	4,5	2,3
Cervix uteri	C53	115	94,8	4,3	0,9
Corpus uteri	C54	251	96,4	3,2	0,4
Uterus unspecified	C55	2	50,0	—	50,0
Ovary	C56	147	91,8	6,8	1,4
Other female genital organs	C57	14	92,9	—	7,1
Placenta	C58	—	—	—	—

* Histology, autopsy with histology, cytology, haematology.

** Clinical only, instrumental clinical, biochemical/immunological, surgery/autopsy without histology.

*** Cases registered solely based on death certificates.

Table 6b. (cont)

Cancer site	ICD-10	Number of new cases	Microscopic (%)*	Non-microscopic (%)**	Death certificate only (%)***
Urinary organs	C64–C68	197	86,3	12,2	1,5
Kidney, renal pelvis	C64–C65	144	86,1	12,5	1,4
Ureter	C66	5	100	—	—
Bladder	C67	48	85,4	12,5	2,1
Other urinary organs	C68	—	—	—	—
Eye	C69	12	41,7	58,3	—
Brain, central nervous system	C70–C72	33	69,7	24,2	6,1
Meninges	C70	1	100	—	—
Brain	C71	32	68,8	25,0	6,3
Other central nervous system	C72	—	—	—	—
Thyroid gland	C73	57	98,2	1,8	—
Other endocrine	C74–C75	6	83,3	16,7	—
Site unknown or uncertain	C76–C80	59	32,2	54,2	13,6
Hodgkin lymphoma	C81	19	100	—	—
Non-Hodgkin lymphoma	C82–C85/96	98	96,9	1,0	2,0
Immunoproliferative diseases	C88	6	100	—	—
Multiple myeloma	C90	48	100	—	—
Leukaemia	C91–C95	97	95,9	—	4,1
Independent multiple sites	C97	—	—	—	—

* Histology, autopsy with histology, cytology, haematology.

** Clinical only, instrumental clinical, biochemical/immunological, surgery/autopsy without histology.

***Cases registered solely based on death certificates.

5 Extent of disease at diagnosis

5.1 Extent of solid tumours at the time of diagnosis

The extent of solid tumours is defined as follows: localized tumour confined entirely to the organ where it started; spread to regional lymph nodes only; spread to adjacent tissues; spread to other distant organs or distant lymph nodes (distant metastasis).

The development of cancer in the human body is usually a slow process and diagnosing it as early as possible is crucial for the patient's prognosis. Unfortunately, a significant proportion of new cancer cases in Estonia are diagnosed when the disease has already spread beyond the primary tumour site – in 2020 around half of the new cancers in men and women were localized at the time of diagnosis, whereas around 20% of men and 15% of women already had distant metastasis.

The distribution of new cancer cases by the extent of disease at the time of diagnosis for different solid cancers in men and women is presented in Tables 7a and 7b.

Nearly half of the patients with pancreatic cancer had distant metastasis at the time of diagnosis; in men this was also the case for gallbladder cancer. The proportion of cases with distant metastasis was 40% for women with liver cancer and men with lung, oesophageal, stomach and liver cancer. A third of women with lung cancer and a quarter of women with ovarian cancers also had distant metastasis at the time of diagnosis.

Table 7a. The distribution of new cancer cases by site and extent of disease in Estonia in men, 2020 (n, %)

Cancer site	ICD-10	Number of new cases	Localized (%)	Regional lymph nodes only (%)	Regional, adjacent tissues (%)	Distant metastasis (%)	Unknown (%)
All sites	C00–C80	3953	47,5	8,3	13,4	20,4	10,4
All sites (excl. non-melanoma skin)	C00–C80, excl. C44	3486	41,2	9,4	15,1	23,1	11,2
Lip, oral cavity, pharynx	C00–C14	139	25,2	28,1	28,8	7,9	10,1
Lip	C00	6	66,7	16,7	—	—	16,7
Tongue	C01–C02	25	40,0	32,0	16,0	12,0	—
Gum, floor of mouth etc.	C03–C06	29	31,0	13,8	34,5	6,9	13,8
Major salivary glands	C07–C08	14	35,7	—	50,0	—	14,3
Tonsil, oropharynx	C09–C10	32	12,5	43,8	31,3	6,3	6,3
Nasopharynx	C11	4	—	25,0	50,0	25,0	—
Pyriform sinus, hypopharynx	C12–C13	26	11,5	42,3	19,2	11,5	15,4
Other lip, oral cavity, pharynx	C14	3	—	—	66,7	—	33,3
Digestive organs	C15–C26	987	25,9	17,0	10,3	32,6	14,1
Oesophagus	C15	62	8,1	14,5	16,1	43,5	17,7
Stomach	C16	197	17,3	17,3	9,6	39,6	16,2
Small intestine	C17	11	27,3	—	45,5	18,2	9,1
Colon	C18	270	37,8	16,7	10,7	24,8	10,0
Rectum etc.	C19–C21	210	29,0	31,0	9,5	18,1	12,4
Liver etc.	C22	98	28,6	7,1	10,2	38,8	15,3
Gallbladder etc.	C23–C24	18	22,2	5,6	5,6	50,0	16,7
Pancreas	C25	115	16,5	6,1	7,0	53,0	17,4
Other digestive organs	C26	6	—	—	—	33,3	66,7

Table 7a. (cont)

Cancer site	ICD-10	Number of new cases	Localized (%)	Regional lymph nodes only (%)	Regional, adjacent tissues (%)	Distant metastasis (%)	Unknown (%)
Respiratory, intrathoracic organs	C30–C39	651	24,0	11,5	14,3	37,2	13,1
Nasal cavities, ear, sinuses	C30–C31	6	—	—	100	—	—
Larynx	C32	47	59,6	8,5	21,3		10,6
Trachea, bronchus, lung	C33–C34	593	21,1	12,0	12,8	40,6	13,5
Thymus, heart, mediastinum, pleura	C37–C38	5	60,0	—	20,0	20,0	—
Respiratory organs etc.	C39	—	—	—	—	—	—
Bone, articular cartilage	C40–C41	6	50,0	—	16,7	16,7	16,7
Skin melanoma	C43	85	60,0	10,6	12,9	8,2	8,2
Non-melanoma skin	C44	467	94,2	0,6	0,6	—	4,5
Mesothelial and soft tissues	C45–C49	32	43,8	—	15,6	15,6	25,0
Breast	C50	6	16,7	50,0	16,7	—	16,7
Male genital organs	C60–C63	1093	59,7	1,6	19,8	12,0	7,0
Penis	C60	10	60,0	—	10,0	20,0	10,0
Prostate	C61	1049	60,0	1,3	20,4	11,2	7,1
Testis	C62	33	51,5	9,1	3,0	33,3	3,0
Other male genital organs	C63	1	100	—	—	—	—
Urinary organs	C64–C68	333	56,5	2,1	16,8	14,7	9,9
Kidney, renal pelvis	C64–C65	154	54,5	1,3	16,2	20,1	7,8
Ureter	C66	4	75,0	25,0	—	—	—
Bladder	C67	171	58,5	2,3	18,1	9,4	11,7
Other urinary organs	C68	4	25,0	—	—	50,0	25,0
Eye	C69	12	83,3	—	—	—	16,7

Table 7a. (cont)

Cancer site	ICD-10	Number of new cases	Localized (%)	Regional lymph nodes only (%)	Regional, adjacent tissues (%)	Distant metastasis (%)	Unknown (%)
Brain, central nervous system	C70–C72	52	94,2	—	—	—	5,8
Meninges	C70	1	100	—	—	—	—
Brain	C71	50	94,0	—	—	—	6,0
Other central nervous system	C72	1	100	—	—	—	—
Thyroid gland	C73	26	73,1	15,4	3,8	7,7	—
Other endocrine	C74–C75	4	50,0	—	—	25,0	25,0
Site unknown or uncertain	C76–C80	60	—	6,7	—	58,3	35,0

Table 7a. The distribution of new cancer cases by site and extent of disease in Estonia in women, 2020 (n, %)

Cancer site	ICD-10	Number of new cases	Localized (%)	Regional lymph nodes only (%)	Regional, adjacent tissues (%)	Distant metastasis (%)	Unknown (%)
All sites	C00–C80	3838	51,8	13,2	9,7	14,6	10,8
All sites (excl. non-melanoma skin)	C00–C80, excl. C44	3091	41,0	16,3	11,9	18,1	12,7
Lip, oral cavity, pharynx	C00–C14	70	35,7	28,6	17,1	7,1	11,4
Lip	C00	4	75,0	—	—	—	25,0
Tongue	C01–C02	9	55,6	44,4	—	—	—
Gum, floor of mouth etc.	C03–C06	21	33,3	19,0	38,1	4,8	4,8
Major salivary glands	C07–C08	9	44,4	22,2	11,1	22,2	—
Tonsil, oropharynx	C09–C10	18	22,2	44,4	5,6	11,1	16,7
Nasopharynx	C11	1	—	100	—	—	—
Pyriform sinus, hypopharynx	C12–C13	5	40,0	20,0	40,0	—	—
Other lip, oral cavity, pharynx	C14	3	—	—	—	—	100
Digestive organs	C15–C26	921	28,4	16,4	11,6	29,2	14,3
Oesophagus	C15	18	22,2	27,8	16,7	22,2	11,1
Stomach	C16	153	22,9	16,3	11,8	26,8	22,2
Small intestine	C17	15	26,7	20,0	20,0	33,3	—
Colon	C18	333	39,6	15,3	10,8	24,3	9,9
Rectum etc.	C19–C21	150	28,0	31,3	13,3	16,0	11,3
Liver etc.	C22	54	33,3	3,7	7,4	40,7	14,8
Gallbladder etc.	C23–C24	33	24,2	3,0	21,2	36,4	15,2
Pancreas	C25	159	11,9	10,7	10,1	48,4	18,9
Other digestive organs	C26	6	—	—	—	50,0	50,0

Table 7b. (cont)

Cancer site	ICD-10	Number of new cases	Localized (%)	Regional lymph nodes only (%)	Regional, adjacent tissues (%)	Distant metastasis (%)	Unknown (%)
Respiratory, intrathoracic organs	C30–C39	234	32,9	11,1	11,5	31,6	12,8
Nasal cavities, ear, sinuses	C30–C31	2	50,0	—	50,0	—	—
Larynx	C32	5	40,0	20,0	20,0	20,0	—
Trachea, bronchus, lung	C33–C34	225	32,9	11,1	10,7	32,0	13,3
Thymus, heart, mediastinum, pleura	C37–C38	2	—	—	50,0	50,0	—
Respiratory organs etc.	C39	—	—	—	—	—	—
Bone, articular cartilage	C40–C41	6	—	—	—	33,3	66,7
Skin melanoma	C43	108	74,1	6,5	7,4	4,6	7,4
Non-melanoma skin	C44	747	96,4	0,3	0,4	—	2,9
Mesothelial and soft tissues	C45–C49	31	48,4	3,2	9,7	19,4	19,4
Breast	C50	784	45,3	33,7	1,9	6,5	12,6
Female genital organs	C51–C58	573	48,2	3,8	27,6	12,0	8,4
Vulva, vagina	C51–C52	44	40,9	25,0	9,1	11,4	13,6
Cervix uteri	C53	115	31,3	0,9	50,4	9,6	7,8
Corpus uteri	C54	251	75,3	4,0	8,0	5,6	7,2
Uterus unspecified	C55	2		—	—	50,0	50,0
Ovary	C56	147	21,1	—	46,3	24,5	8,2
Other female genital organs	C57	14	14,3	—	57,1	14,3	14,3
Placenta	C58	—	—	—	—	—	—

Table 7b. (cont)

Cancer site	ICD-10	Number of new cases	Localized (%)	Regional lymph nodes only (%)	Regional, adjacent tissues (%)	Distant metastasis (%)	Unknown (%)
Urinary organs	C64–C68	197	51,8	2,0	16,8	18,8	10,7
Kidney, renal pelvis	C64–C65	144	50,0	1,4	16,7	22,9	9,0
Ureter	C66	5	80,0	—	—	—	20,0
Bladder	C67	48	54,2	4,2	18,8	8,3	14,6
Other urinary organs	C68	—	—	—	—	—	—
Eye	C69	12	75,0	—	—	8,3	16,7
Brain, central nervous system	C70–C72	33	87,9	—	—	—	12,1
Meninges	C70	1	100	—	—	—	—
Brain	C71	32	87,5	—	—	—	12,5
Other central nervous system	C72	—	—	—	—	—	—
Thyroid gland	C73	57	61,4	14,0	8,8	8,8	7,0
Other endocrine	C74–C75	6	50,0	—	16,7	16,7	16,7
Site unknown or uncertain	C76–C80	59	—	—	—	57,6	42,4

5.2 TNM staging of selected sites

The TNM staging system is used to describe the size and spread of cancer. At stage I and II, the tumour is usually localized and rather small. At stage III, the cancer has grown beyond the primary tumour to nearby lymph nodes or organs and tissues. At stage IV, the cancer has spread from the primary tumour to distant organs or distant lymph nodes. TNM values depend on the exact cancer site and in some cases, on tumour morphology.

The ECR collects data about TNM and the stage of disease at the time of diagnosis before its progression or multimodal treatment that might change the tumour's size or spread. Since 2018 the 8th version of TNM Classification is used [8].

The TNM stage distribution for selected sites is illustrated in Figure 3.

In men, the highest proportion of cases diagnosed at stage I was seen for kidney cancer and skin melanoma (both 43%). In women, 65% of corpus uteri cancer and 57% of skin melanoma were diagnosed at stage I. Stage I breast cancer was diagnosed in 31% of all cases (37% in 2019), whereas the proportion of stage IV cases has slightly decreased, being around 6% in 2020.

The proportion of stage IV colorectal cancer is slowly decreasing, remaining 22% in both men and women. The national colorectal cancer screening program in Estonia started in 2016, but its direct impact on stage distribution is still difficult to assess.

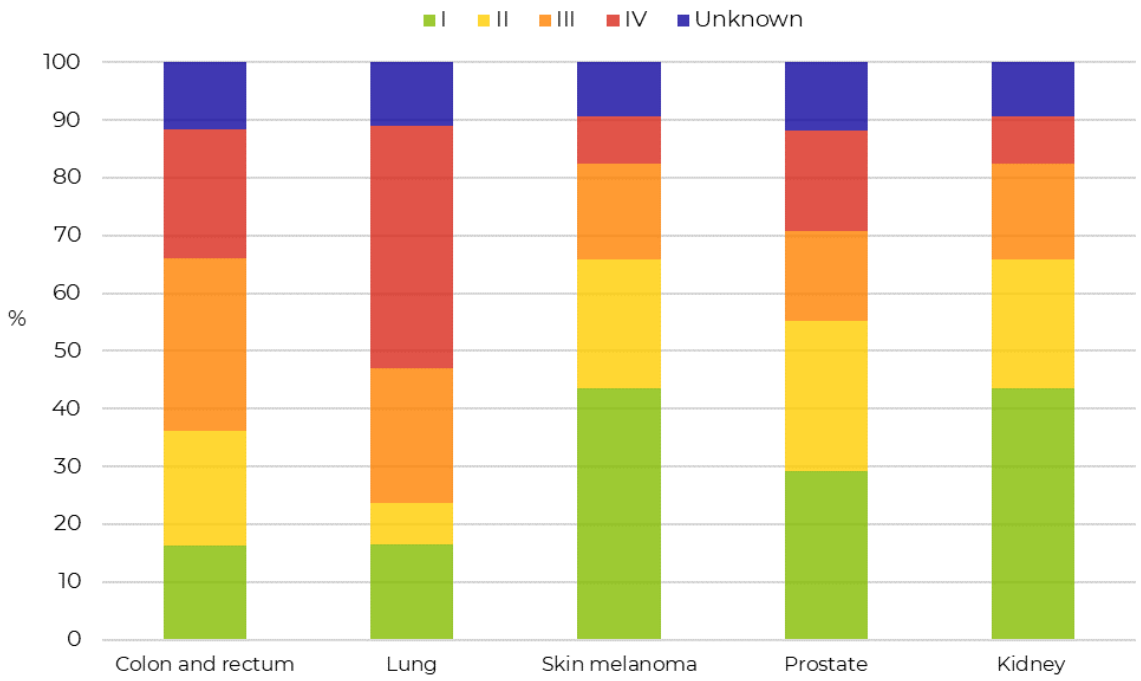
Stage IV lung cancer was diagnosed in 42% of male patients. In women, the proportion of stage IV lung cancer has slightly decreased, being 33% in 2020.

Of all cervical cancer cases 16% were at stage IV at the time of diagnosis, which shows a slowly increasing trend – same indicator was 12% in 2018 and 15% in 2019. A third of all cervical cancer cases were diagnosed at stage I.

Stage I prostate cancer was diagnosed in 29% of patients, but the proportion of stage IV cases has slightly increased, reaching 17% in 2020 (15% in 2019).

Compared with 2019, the proportion of unknown stage at the time of diagnosis has slightly increased in all selected sites – it was the highest for lung cancer in women (13%) and prostate and colorectal cancer in men (12%).

Men



Women

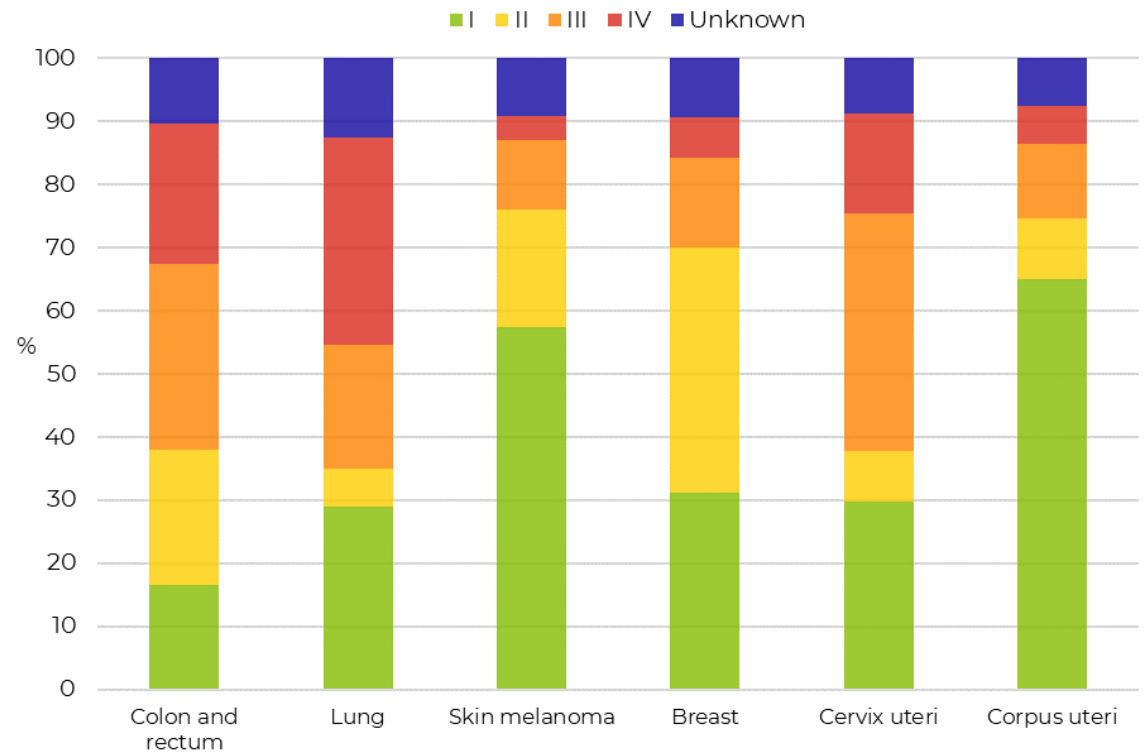


Figure 3. The TNM stage distribution at diagnosis of selected sites in Estonia, 2020

6 Cancer incidence trends in 1968–2020

6.1 Total incidence

Cancer incidence data in Estonia are available for a period of 50 years. Due to the ageing of the population, improvements in diagnostic methods and increase of lifestyle-related cancers, the number of new cancer cases has continuously increased, reaching almost 8300 in 2020 (Figure 4). However, compared with 2019, the number of registered cancer cases decreased by 7% in 2020, probably as an outcome of the COVID-19 pandemic that started in 2020. Due to the pandemic, national screening programs were temporarily stopped, and many health care services were limited – this might have caused a drop in the number of cases normally found during screening or cases with mild symptoms found randomly during health check-ups. To evaluate the change in cancer incidence in 2020, a further site-, age- and stagespecific analysis is needed.

Compared with 2019, the number of new cancer cases in 2020 decreased the most for skin melanoma (20%), breast and rectal cancer (8%) and prostate cancer (7%). Cases of cervical cancer decreased by 30% but it needs further analysis whether such a remarkable change was related to COVID-19 pandemic or a positive effect of the screening program.

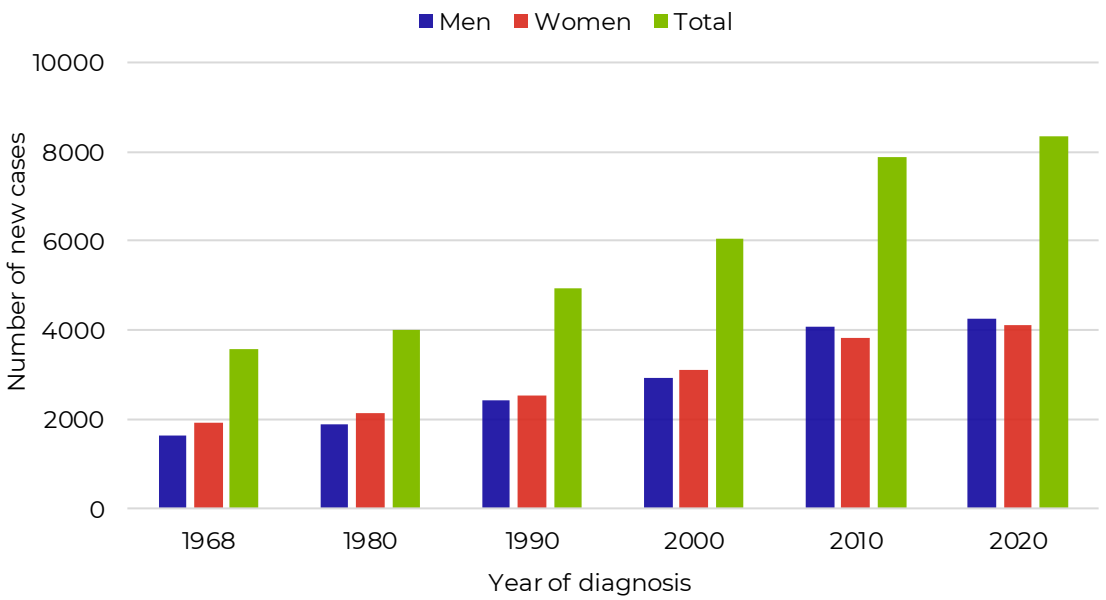


Figure 4. Number of new cancer cases in Estonia, selected years

6.2 Selected sites

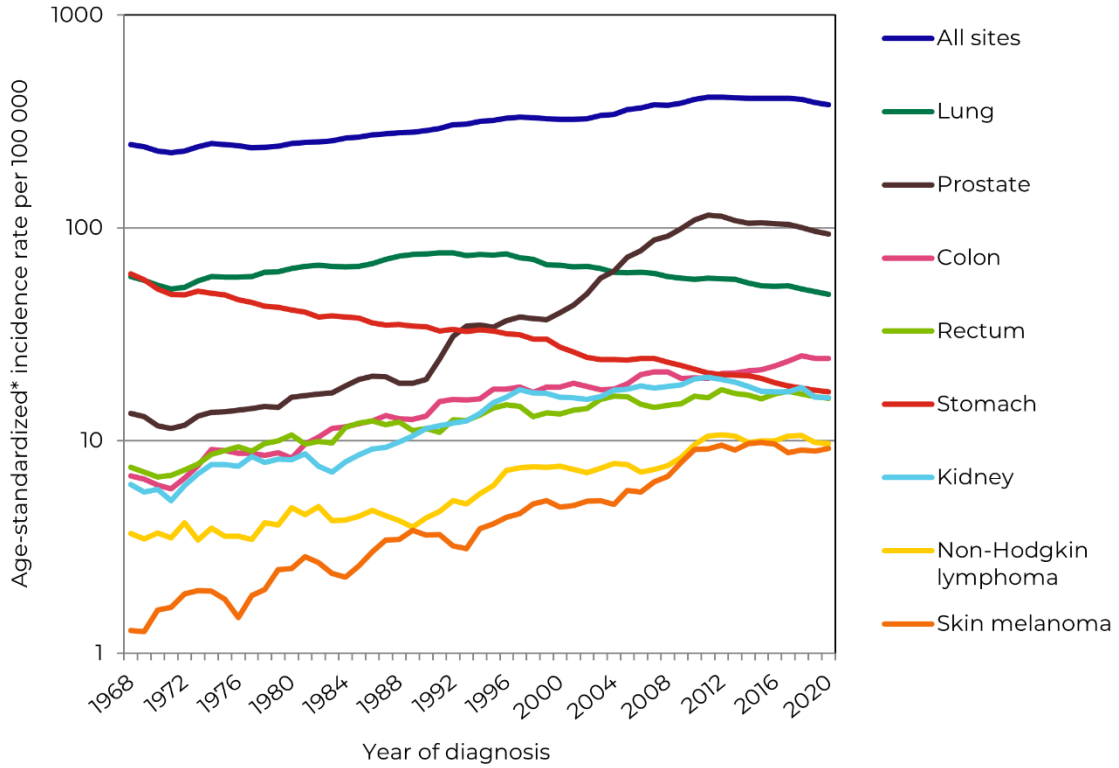
One of the priorities of Estonian Cancer Control Plan 2021–2030 is to achieve a decreasing trend in age-standardized cancer incidence as a result of prevention activities [9]. Time trends of age-standardized cancer incidence for selected sites in 1968–2020 are presented in Figure 5. In men, total cancer incidence has started to decrease during recent decades and in women it has stabilized [10], but incidence trends vary by cancer sites.

The decreasing trend of total cancer incidence in men can be partly contributed to the decrease in prostate cancer incidence that started in 2012 [11] and has continued through 2020. In addition, the incidence of lung and stomach cancer have been in consistent decline since the end of 1990s [12, 13]. Although the number of colorectal cancer cases decreased in 2020, the incidence has still notably increased in the long-term [10]. Incidence of kidney cancer, skin melanoma and non-Hodgkin lymphoma have been quite stable in the recent decade.

In women, the number of breast, cervical, colon and rectal cancer decreased in 2020. However, in the long-term, the incidence of breast and rectal cancer are still increasing in Estonia [10]. In recent years, the incidence of lung cancer, skin melanoma and non-Hodgkin lymphoma have stabilized.

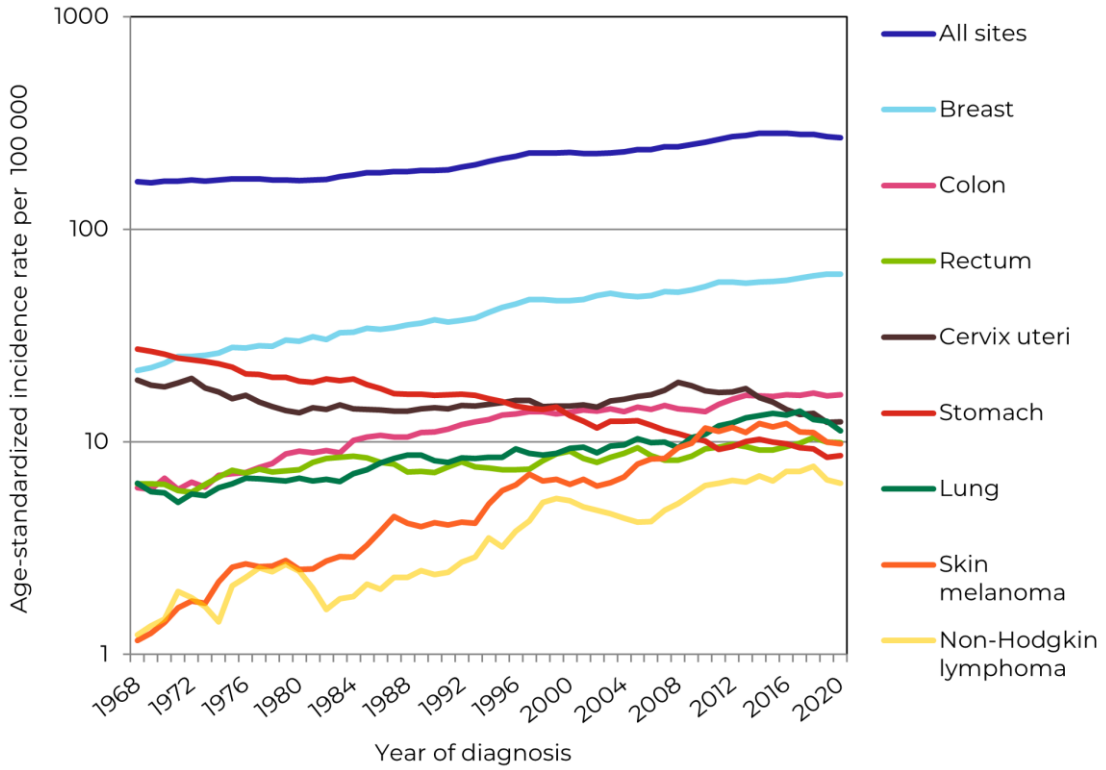
One of the priorities of the Estonian Cancer Control Plan is to achieve a decreasing trend in cervical and colorectal cancer incidence by preventive screening [9]. An analysis conducted in 2022 showed for the first time in Estonia that the incidence of cervical cancer has been decreasing since 2013 and the significant decline in two age-groups can be associated with the positive effect of the screening program: in women aged 40–49 years since 2009 and in women aged 60–69 since 2012 [14]. Since preventive screening of colorectal cancer was initiated in 2016 in Estonia, it is still early to assess its effect. In 2020, the participation rate of breast, cervical and colorectal cancer screening declined by 3–4 % [14].

Men



* Standardized to the world standard population; calculated as the three-year running average.

Women



* Standardized to the world standard population; calculated as the three-year running average.

Figure 5. Trends in age-standardized cancer incidence in Estonia, 1968–2020 (selected sites)

7 Cancer prevalence

On the 31 December 2020, there were 67 683 people (27 502 men and 40 181 women) in the population of Estonia who had been diagnosed with cancer at some point during their lifetime. The number has continuously increased (Figure 6) because cancer incidence is rising, and the survival of cancer patients is improving [15].

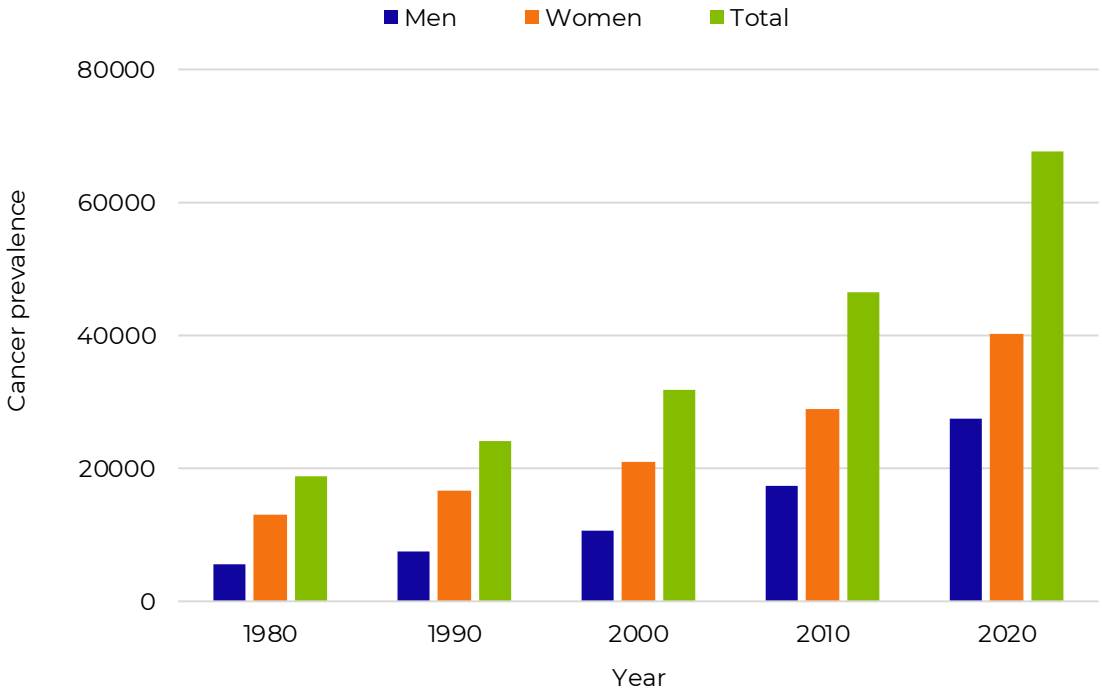


Figure 6. Number of persons with a life-time history of cancer in Estonia at the end of corresponding year

Since one person can have multiple tumours during his or her lifetime, the number of prevalent cases was remarkably higher – a total of 75 070 of which 31 016 in men and 44 054 in women. Excluding non-melanoma skin cancer, the leading site in men was the prostate (43%) and in women the breast (31%). The proportion of corpus uteri cancer was around 10% of all prevalent cases, other cancer sites constituted less than 10% (Tables 8a and 8b).

Table 8a. The most frequent cancer sites among prevalent cases in Estonia on 31 December 2020, men

Cancer site	ICD-10	Prevalent cases	
		Number	%
Prostate	C61	10856	42,8
Colon	C18	1742	6,9
Kidney, renal pelvis	C64–C65	1512	6,0
Trachea, bronchus, lung	C33–C34	1360	5,4
Rectum etc.	C19–21	1254	4,9
Bladder	C67	1196	4,7
Stomach	C16	910	3,6
Skin melanoma	C43	909	3,6
All sites except non-melanoma skin	C00–C97, but C44	25345	100

Table 8b. The most frequent cancer sites among prevalent cases in Estonia on 31 December 2020, women

Cancer site	ICD-10	Prevalent cases	
		Number	%
Breast	C50	10178	30,7
Corpus uteri	C54	3303	10,0
Cervix uteri	C53	2564	7,7
Colon	C18	2578	7,8
Skin melanoma	C43	1856	5,6
Rectum etc.	C19–C21	1503	4,5
Kidney, renal pelvis	C64–C65	1445	4,4
Ovary	C56	1309	3,9
All sites except non-melanoma skin	C00–C97, but C44	33160	100

8 Survival

Estimating cancer survival allows a comprehensive assessment of cancer control measures, as it accounts for both early diagnosis and the efficiency of cancer treatment.

In 2016–2020, the one-year, five-year and ten-year relative survival estimates for all cancer cases diagnosed in Estonia were 78%, 65% and 61%, respectively (Table 9). Excluding non-melanoma skin, the respective estimates were 74%, 58% and 52%. Table 9 presents relative survival ratios for all sites combined and for selected sites. For most sites, survival estimates were higher for women than for men.

Figure 7 shows the change in age-standardized five-year relative survival comparing time-periods 2010–2014 and 2016–2020. Survival has increased the most for leukaemias (by 7%), lung cancer (by 5%) and rectal cancer (by 4%)

One-year, five-year and ten-year relative survival ratios for selected sites by extent of disease at the time of diagnosis are presented in Table 10. For localized tumours, the five-year and ten-year relative survival was 100% for prostate cancer, over 90% for skin melanoma, breast and corpus uteri cancer and over 80% for colon and kidney cancer. In case of distant metastasis at the time of diagnosis, five-year and ten-year relative survival was the highest for prostate cancer (34% and 20%, respectively).

One of the outcome indicators of the Estonian Cancer Control Plan 2021–2030 is relative cancer survival with an aim to reach survival estimates similar to those seen in the Nordic countries [9]. Age-standardized five-year relative survival for selected sites in Estonia, Finland and Denmark are presented in Table 11 [16]. Survival in Estonia is at the same level as in the Nordic countries for stomach, pancreatic, lung, cervical, corpus uteri, ovarian, prostate, testicular and kidney cancer as well as for Hodgkin lymphoma. In comparison with the Nordic countries, the survival gap remains for head and neck cancers (in men), colon and rectal cancer, skin melanoma, breast cancer and non-Hodgkin lymphoma.

Differences in survival between men and women have somewhat decreased for some cancer sites (pancreas, stomach, colon, kidney), which is also one of the objectives of the Estonian Cancer Control Plan 2021–2030 [9].

Table 9. One-year, five-year and ten-year relative survival (%) by cancer site and gender in Estonia in 2016–2020

Cancer site	ICD-10	One-year relative survival (%)			Five-year relative survival (%)			Ten-year relative survival (%)		
		Total	Men	Women	Total	Men	Women	Total	Men	Women
All sites	C00–96	78	75	80	65	62	68	61	58	63
All sites (excl. non-melanoma skin)	C00–96, excl. C44	74	72	75	58	56	59	52	52	54
Lip, oral cavity, pharynx	C00–14	68	63	81	45	38	63	38	30	58
Oesophagus	C15	33	32	39	9	8	15	7	6	14
Stomach	C16	51	52	49	29	29	28	25	25	26
Colon	C18	75	75	76	59	58	60	55	54	55
Rectum etc.	C19–21	83	82	84	62	60	65	55	53	56
Anus and anal canal	C21	87	87	87	58	41	64	55	30	61
Liver	C22	26	25	27	8	8	9	6	6	6
Gallbladder etc.	C23–24	32	34	31	15	17	14	11	12	11
Pancreas	C25	25	26	24	8	8	7	6	6	5
Throat	C32	83	82	91	58	56	74	45	42	73
Lung	C34	45	42	52	20	16	28	14	12	21
Skin melanoma	C43	95	93	96	84	80	87	83	78	86
Non-melanoma skin	C44	100	100	100	100	100	100	100	100	100
Soft tissues	C48–49	70	68	71	46	43	49	44	43	46
Breast	C50	95	84	95	82	60	83	75	60	73
Cervix uteri	C53	—	—	87	—	—	67	—	—	63
Corpus uteri	C54	—	—	91	—	—	79	—	—	76
Ovary	C56	—	—	75	—	—	49	—	—	38
Prostate	C61	—	98	—	—	94	—	—	91	—
Testis	C62	—	98	—	—	97	—	—	98	—
Kidney	C64	80	80	81	69	69	70	63	61	66
Bladder, other urinay organs	C65–68	75	77	71	58	59	53	52	52	51

Table 9. (cont.)

Cancer site	ICD-10	One-year relative survival (%)			Five-year relative survival (%)			Ten-year relative survival (%)		
		Total	Men	Women	Total	Men	Women	Total	Men	Women
Brain, central nervous system	C70–72	45	46	44	21	20	22	16	15	18
Thyroid	C73	92	89	93	90	82	91	88	80	90
Hodgkin lymphoma	C81	91	90	91	87	88	86	85	87	84
Non-Hodgkin lymphoma	C82–85/96	77	75	78	60	59	61	51	50	52
Multiple myeloma	C90	73	75	71	47	47	46	21	22	21
Leukaemia	C91–95	75	76	73	59	62	56	51	52	49

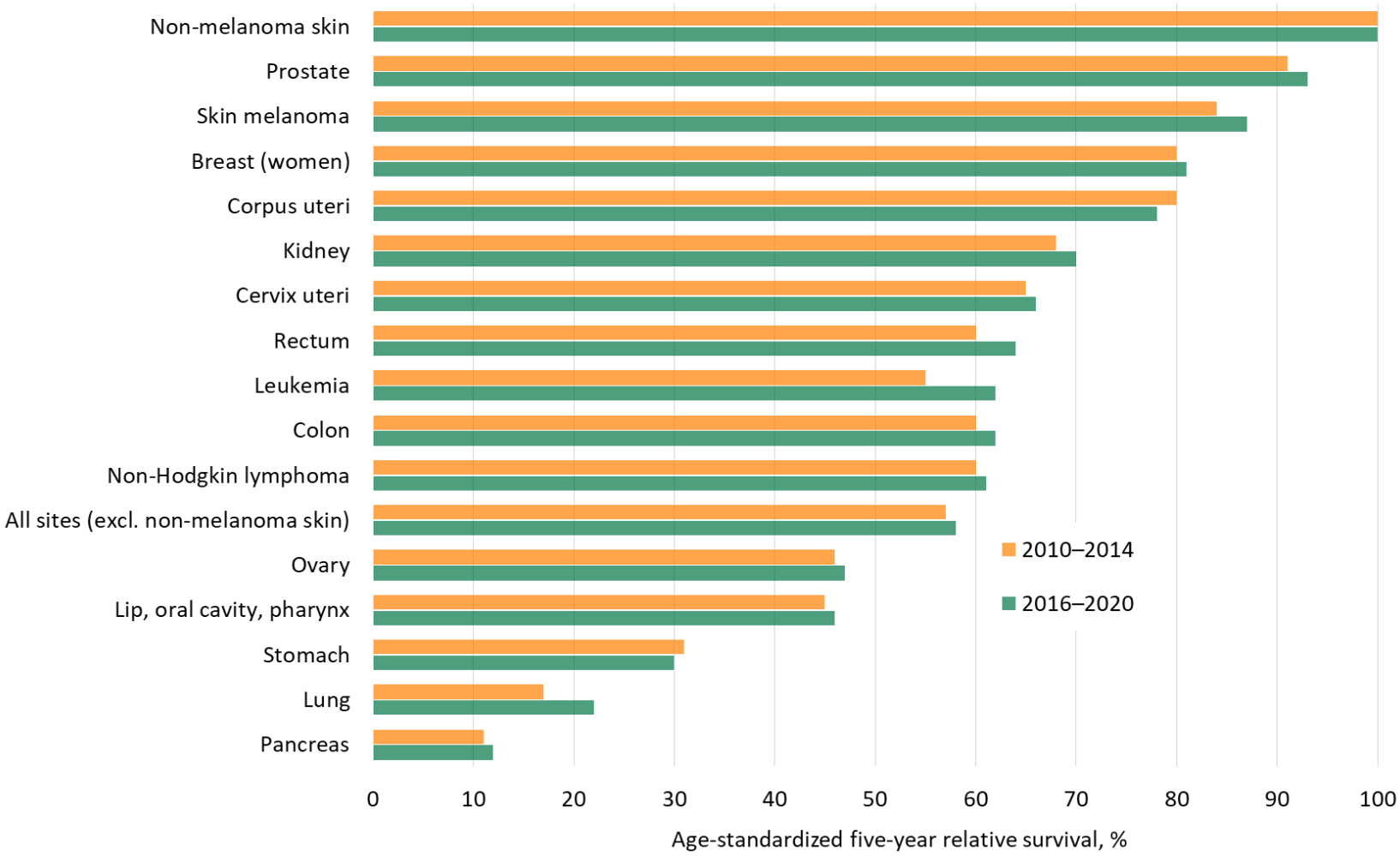


Figure 7. Age-standardized five-year relative survival in Estonia in 2010–2014 and 2016–2020 (%)

Table 10. One-year, five-year and ten-year relative survival for selected sites by extent of disease in Estonia in 2016–2020

Cancer site	ICD-10	One-year relative survival (%)			Five-year relative survival (%)			Ten-year relative survival (%)		
		Localized cancer	Lymph nodes, adjacent tissues	Distant metastasis	Localized cancer	Lymph nodes, adjacent tissues	Distant metastasis	Localized cancer	Lymph nodes, adjacent tissues	Distant metastasis
Lip, oral cavity, pharynx	C00–14	89	68	26	70	41	8	63	31	4
Stomach	C16	87	70	26	74	37	3	70	29	2
Colon	C18	93	85	46	89	69	13	83	68	9
Rectum	C19–20	95	90	54	88	71	14	77	62	9
Pancreas	C25	60	50	12	36	14	1	29	11	1
Lung	C34	90	57	19	64	20	2	49	15	1
Skin melanoma	C43	100	94	45	95	65	17	94	61	17
Breast (women)	C50	99	99	63	96	84	20	93	72	6
Corpus uteri	C54	99	88	45	93	56	17	90	54	13
Prostate	C61	100	100	82	100	96	34	100	85	20
Kidney	C64	96	87	37	90	74	17	84	56	10

Table 11. Age-standardized five-year relative survival (%) for selected sites in Estonia, Finland, and Denmark [17] in 2016–2020

Cancer site	ICD-10	Men			Women		
		Estonia	Finland	Denmark	Estonia	Finland	Denmark
Lip, oral cavity, pharynx	C00–14	38	65	61	62	77	66
Stomach	C16	30	26	29	30	32	36
Colon	C18	61	66	73	63	70	73
Rectum	C19–20	61	67	72	69	74	75
Pancreas	C25	11	11	11	13	12	13
Lung	C34	18	16	24	30	26	31
Skin melanoma	C43	82	92	95	90	95	97
Breast	C50	–	–	–	81	91	90
Cervix uteri	C53	–	–	–	66	70	75
Corpus uteri	C54	–	–	–	78	83	83
Ovary	C56	–	–	–	47	47	44
Prostate	C61	93	94	90	–	–	–
Testis	C62	97	94	95	–	–	–
Kidney	C64	69	71	75	73	74	74
Hodgkin lymphoma	C81	89	88	95	88	90	95
Non-Hodgkin lymphoma	C82–85/96	57	68	80	64	76	85

9 Haematological tumours

9.1 Distribution of haematological tumours

Haematological tumours were distributed by morphology codes in the ICD-O-3 classification to nine groups: Hodgkin lymphoma, indolent mature B-cell lymphoproliferative disorders, aggressive mature B-cell lymphoproliferative disorders, mature T-cell lymphoproliferative disorder, plasma cell neoplasms, acute lymphoid leukaemias, acute myeloid leukaemias, chronic myeloproliferative disorders, myelodysplastic syndromes.

In addition, new cases of haematological malignancies for which the ECR did not have information about exact morphology (i.e., exact subtype of leukaemia or lymphoma was unspecified) are presented separately.

Table 12 presents the distribution of haematological tumours by ICD-O-3 morphology codes used in this report.

Table 12. Morphology code text and ICD-O-3 codes of haematological tumours

Morphology	ICD-O-3 code
Hodgkin lymphoma	
Hodgkin lymphoma, NOS	96503
Hodgkin lymphoma, lymphocyte-rich	96513
Hodgkin lymphoma, mixed cellularity, NOS	96523
Hodgkin lymphoma, lymphocyte depletion, NOS	96533
Hodgkin lymphoma, nodular lymphocyte predominance	96593
Hodgkin lymphoma, nodular sclerosis, NOS	96633
Hodgkin lymphoma, nodular sclerosis, cellular phase	96643
Hodgkin lymphoma, nodular sclerosis, grade 1	96653
Hodgkin lymphoma, nodular sclerosis, grade 2	96673
Indolent mature B-cell lymphoproliferative disorders	
Malignant lymphoma, small B lymphocytic, NOS	96703
Malignant lymphoma, lymphoplasmacytic	96713
Mantle cell lymphoma	96733
Malignant lymphoma, mixed small and large cell, diffuse	96753
Splenic marginal zone B-cell lymphoma	96893
Follicular lymphoma, NOS	96903
Follicular lymphoma, grade 2	96913
Follicular lymphoma, grade 1	96953
Follicular lymphoma, grade 3	96983
Marginal zone B-cell lymphoma, NOS	96993
Waldenstrom macroglobulinemia	97613
B-cell chronic lymphocytic leukaemia/small lymphocytic lymphoma	98233
Prolymphocytic leukaemia, NOS	98323
Prolymphocytic leukaemia, B-cell type	98333
Hairy cell leukaemia	99403
Aggressive mature B-cell lymphoproliferative disorders	
Composite Hodgkin and non-Hodgkin lymphoma	95963
Mediastinal large B-cell lymphoma	96793
Malignant lymphoma, large B-cell, diffuse, NOS	96803
Malignant lymphoma, large B-cell, diffuse, immunoblastic, NOS	96843
Burkitt lymphoma, NOS	96873
Burkitt leukaemia, NOS	98263
Lymphoproliferative disorder, NOS	99701
Mature T-cell lymphoproliferative disorder	
Mycosis fungoides	97003
Sezary syndrome	97013
Mature T-cell lymphoma, NOS	97023
Angioimmunoblastic T-cell lymphoma	97053
Subcutaneous panniculitis-like T-cell lymphoma	97083
Cutaneous T-cell lymphoma, NOS	97093
Anaplastic large cell lymphoma, T cell and Null cell type	97143
Hepatosplenic (gamma-delta) cell lymphoma	97163

Table 12. (cont.)

Morphology	ICD-O-3 code
Primary cutaneous CD30+ T-cell lymphoproliferative disorder	97183
NK/T-cell lymphoma, nasal and nasal-type	97193
T-cell large granular lymphocytic leukaemia	98311
Prolymphocytic leukaemia, T-cell type	98343
Plasma cell neoplasms	
Plasmacytoma, NOS	97313
Multiple myeloma	97323
Plasma cell leukaemia	97333
Plasmacytoma, extramedullary (not occurring in bone)	97343
Heavy chain disease, NOS	97623
Immunoglobulin deposition disease	97691
Leukaemias, NOS	
Leukaemia, NOS	98003
Acute leukaemia, NOS	98013
Lymphoid leukaemia, NOS	98203
Myeloid leukaemia, NOS	98603
Acute lymphoid leukaemias	
Precursor cell lymphoblastic lymphoma, NOS	97273
Precursor B-cell lymphoblastic lymphoma	97283
Precursor T-cell lymphoblastic lymphoma	97293
Acute biphenotypic leukaemia	98053
Adult T-cell leukaemia/lymphoma (HTLV-1 positive)	98273
Precursor cell lymphoblastic leukaemia, NOS	98353
Precursor B-cell lymphoblastic leukaemia	98363
Precursor T-cell lymphoblastic leukaemia	98373
Acute myeloid leukaemias	
Acute myeloid leukaemia, M6 type	98403
Acute myeloid leukaemia, NOS	98613
Acute promyelocytic leukaemia, t(15	98663
Acute myelomonocytic leukaemia	98673
Acute basophilic leukaemia	98703
Acute myeloid leukaemia with abnormal marrow eosinophils	98713
Acute myeloid leukaemia, minimal differentiation	98723
Acute myeloid leukaemia without maturation	98733
Acute myeloid leukaemia with maturation	98743
Acute monocytic leukaemia	98913
Acute myeloid leukaemia with multilineage dysplasia	98953
Acute myeloid leukaemia, t(8	98963
Acute myeloid leukaemia, 11q23 abnormalities	98973
Acute megakaryoblastic leukaemia	99103
Therapy-related acute myeloid leukaemia, NOS	99203

Table 12. (cont.)

Morphology	ICD-O-3
Myeloid sarcoma	99303
Acute panmyelosis with myelofibrosis	99313
Chronic myeloproliferative disorders	
Mast cell sarcoma	97403
Malignant mastocytosis	97413
Chronic myeloid leukaemia, NOS	98633
Chronic myelogenous leukaemia, BCR/ABL positive	98753
Atypical chronic myeloid leukaemia, BCR/ABL negative	98763
Chronic myelomonocytic leukaemia, NOS	99453
Polycythemia vera	99503
Chronic myeloproliferative disorder, NOS	99603
Myelosclerosis with myeloid metaplasia	99613
Essential thrombocythemia	99623
Chronic neutrophilic leukaemia	99633
Hypereosinophilic syndrome	99643
Myeloproliferative disorder, NOS	99751
Myelodysplastic syndromes	
Refractory anemia	99803
Refractory anemia with sideroblasts	99823
Refractory anemia with excess blasts	99833
Refractory anemia with excess blasts in transformation	99843
Refractory cytopenia with multilineage dysplasia	99853
Myelodysplastic syndrome with 5q-syndrome	99863
Therapy-related myelodysplastic syndrome, NOS	99873
Myelodysplastic syndrome, NOS	99893

9.2 Incidence

New cases of haematological tumours by morphology in 2011–2015 and 2016–2020 are presented in Table 13.

The crude and age-standardized incidence rates of haematological tumours per 100 000 in 2011–2015 and 2016–2020 are presented in Tables 14a (men) and 14b (women). In both time-periods, B-cell chronic lymphocytic leukaemia/small lymphocytic lymphoma and malignant lymphoma (large B-cell, diffuse) were diagnosed most frequently both in men and women. In women, multiple myeloma was also often diagnosed.

Table 13. New cases of haematological tumours by morphology in Estonia in 2011–2015 and 2016–2020

Morphology	ICD-O-3	2011–2015			2016–2020		
		Men	Women	Total	Men	Women	Total
Lymphoma, NOS	95903	19	25	44	18	18	36
Non-Hodgkin lymphoma, NOS	95913	30	38	68	30	24	54
Hodgkin lymphoma		90	101	191	89	88	177
Hodgkin lymphoma, NOS	96503	25	21	46	9	9	18
Hodgkin lymphoma, mixed cellularity, NOS	96523	16	18	34	16	14	30
Hodgkin lymphoma, nodular sclerosis	96633–96673	40	59	99	50	60	110
Indolent mature B-cell lymphoproliferative disorders		432	435	867	515	446	961
Malignant lymphoma, small B lymphocytic, NOS	96703	32	46	78	36	43	79
Mantle cell lymphoma	96733	42	26	68	63	27	90
Follicular lymphoma	96903–96983	20	35	55	41	44	85
Marginal zone B-cell lymphoma, NOS	96993	30	27	57	27	50	77
Waldenstrom macroglobulinemia	97613	5	14	19	17	17	34
B-cell chronic lymphocytic leukaemia/small lymphocytic lymphoma	98233	278	270	548	306	236	542
Aggressive mature B-cell lymphoproliferative disorders		245	256	501	239	281	520
Malignant lymphoma, large B-cell, diffuse	96803–96843	230	240	470	224	266	490
Mature T-cell lymphoproliferative disorder		52	44	96	47	48	95
Mature T-cell lymphoma, NOS	97023	21	19	40	24	27	51
Plasma cell neoplasms		184	256	440	247	293	540
Multiple myeloma	97323	175	238	413	235	288	523
Leukaemias, NOS	98003, 98013, 98203, 98603	23	19	42	12	24	36

Table 13. (cont.)

Morphology	ICD-O-3	2011–2015			2016–2020		
		Men	Women	Total	Men	Women	Total
Acute lymphoid leukaemias		23	39	62	22	17	39
Precursor cell lymphoblastic leukaemia	98353–98373	22	34	56	13	13	26
Acute myeloid leukaemias		109	143	252	125	124	249
Acute myeloid leukaemia, NOS	98613	49	69	118	64	57	121
Chronic myeloproliferative disorders		206	298	504	288	358	646
Chronic myeloid leukaemia, NOS	98633	29	17	46	10	16	26
Chronic myelogenous leukaemia, BCR/ABL positive	98753	8	8	16	25	20	45
Chronic myelomonocytic leukaemia, NOS	99453	29	17	46	42	27	69
Polycythemia vera	99503	42	82	124	87	105	192
Chronic myeloproliferative disorders, NOS	99603	36	44	80	43	55	98
Myelosclerosis with myeloid metaplasia	99613	26	35	61	16	10	26
Essential thrombocythemia	99623	30	84	114	58	117	175
Myelodysplastic syndromes		94	94	188	92	130	222
Refractory anemia	99803–99843	42	48	90	48	65	113
Myelodysplastic syndrome, NOS	99893	36	37	73	28	38	66

Table 14a. The crude and age-standardized incidence rates of haematological tumours per 100 000 in Estonia in 2011–2015 and 2016–2020

Morphology	ICD-O-3	Incidence rate per 100 000			
		2011–2015		2016–2020	
		Crude	Standardized*	Crude	Standardized*
Lymphoma, NOS	95903	0,7	0,6	0,7	0,5
Non-Hodgkin lymphoma, NOS	95913	1,2	0,9	1,2	0,8
Hodgkin lymphoma		3,5	3,5	3,5	3,7
Hodgkin lymphoma, NOS	96503	1,0	0,9	0,4	0,3
Hodgkin lymphoma, mixed cellularity, NOS	96523	0,6	0,6	0,6	0,6
Hodgkin lymphoma, nodular sclerosis	96633–96673	1,6	1,7	2,0	2,3
Indolent mature B-cell lymphoproliferative disorders		17,0	11,8	20,1	13,2
Malignant lymphoma, small B lymphocytic, NOS	96703	1,3	0,8	1,4	0,8
Mantle cell lymphoma	96733	1,6	1,1	2,5	1,6
Follicular lymphoma	96903–96983	0,8	0,6	1,6	1,4
Marginal zone B-cell lymphoma, NOS	96993	1,2	0,9	1,1	0,7
Waldenstrom macroglobulinemia	97613	0,2	0,1	0,7	0,4
B-cell chronic lymphocytic leukaemia/small lymphocytic lymphoma	98233	10,9	7,5	11,9	7,6
Aggressive mature B-cell lymphoproliferative disorders		9,6	7,3	9,3	6,6
Malignant lymphoma, large B-cell, diffuse	96803–96843	9,0	6,7	8,7	6,0
Mature T-cell lymphoproliferative disorders		2,0	1,6	1,8	1,3
Mature T-cell lymphoma, NOS	97023	0,8	0,7	0,9	0,6
Plasma cell neoplasms		7,2	5,1	9,6	6,1
Multiple myeloma	97323	6,9	4,8	9,2	5,8

* Standardized to the world standard population (aged ≥15)

Table 14a. (cont.)

Morphology	ICD-O-3	Incidence rate per 100 000			
		2011–2015		2016–2020	
		Crude	Standardized*	Crude	Standardized*
Leukaemias, NOS	98003, 98013, 98203, 98603	0,9	0,6	0,5	0,3
Acute lymphoid leukaemias		0,9	0,9	0,9	0,9
Precursor cell lymphoblastic leukaemia	98353–98373	0,9	0,9	0,5	0,6
Acute myeloid leukaemias		4,3	3,1	4,9	3,3
Acute myeloid leukaemia, NOS	98613	1,9	1,3	2,5	1,7
Chronic myeloproliferative disorders		8,1	5,9	11,2	7,6
Chronic myeloid leukaemia, NOS	98633	1,1	0,9	0,4	0,3
Chronic myelogenous leukaemia, BCR/ABL positive	98753	0,3	0,3	1,0	0,8
Chronic myelomonocytic leukaemia, NOS	99453	1,1	0,7	1,6	1,0
Polycythemia vera	99503	1,6	1,2	3,4	2,3
Chronic myeloproliferative disorder, NOS	99603	1,4	1,0	1,7	1,0
Myelosclerosis with myeloid metaplasia	99613	1,0	0,7	0,6	0,3
Essential thrombocythemia	99623	1,2	0,9	2,3	1,7
Myelodysplastic syndromes		3,7	2,3	3,6	2,0
Refractory anemia	99803–99843	1,6	1,0	1,9	1,1
Myelodysplastic syndrome, NOS	99893	1,4	0,9	1,1	0,6

* Standardized to the world standard population (aged ≥15)

Table 14b. The crude and age-standardized incidence rates of haematological tumours per 100 000 in Estonia in 2011–2015 and 2016–2020

Morphology	ICD-O-3	Incidence rate per 100 000			
		2011–2015		2016–2020	
		Crude	Standardized*	Crude	Standardized*
Lymphoma, NOS	95903	0,8	0,3	0,6	0,2
Non-Hodgkin lymphoma, NOS	95913	1,3	0,6	0,8	0,4
Hodgkin lymphoma		3,4	3,8	3,0	3,6
Hodgkin lymphoma, NOS	96503	0,7	0,8	3,0	3,6
Hodgkin lymphoma, mixed cellularity, NOS	96523	0,6	0,6	0,5	0,3
Hodgkin lymphoma, nodular sclerosis	96633–96673	2,0	2,4	2,0	2,9
Indolent mature B-cell lymphoproliferative disorders		14,4	7,2	15,0	6,8
Malignant lymphoma, small B lymphocytic, NOS	96703	1,5	0,7	1,4	0,6
Mantle cell lymphoma	96733	0,9	0,4	0,9	0,4
Follicular lymphoma	96903–96983	1,2	0,9	1,5	1,0
Marginal zone B-cell lymphoma, NOS	96993	0,9	0,6	1,7	0,9
Waldenstrom macroglobulinemia	97613	0,5	0,1	0,6	0,2
B-cell chronic lymphocytic leukaemia/small lymphocytic lymphoma	98233	9,0	4,2	7,9	3,3
Aggressive mature B-cell lymphoproliferative disorders		8,5	4,6	9,5	5,0
Malignant lymphoma, large B-cell, diffuse	96803–96843	8,0	4,3	9,0	4,4
Mature T-cell lymphoproliferative disorder		1,5	1,0	1,6	0,9
Mature T-cell lymphoma, NOS	97023	0,6	0,3	0,9	0,6
Plasma cell neoplasms		7,2	5,1	9,6	6,1
Multiple myeloma	97323	6,9	4,8	9,2	5,8

* Standardized to the world standard population (aged ≥15)

Table 14b. (cont.)

Morphology	ICD-O-3	Incidence rate per 100 000			
		2011–2015		2016–2020	
		Crude	Standardized*	Crude	Standardized*
Leukaemias, NOS	98003, 98013, 98203, 98603	0,6	0,2	0,8	0,2
Acute lymphoid leukaemias		1,3	1,0	0,6	0,6
Precursor cell lymphoblastic leukaemia	98353–98373	1,1	0,9	0,4	0,4
Acute myeloid leukaemias		4,7	2,7	4,2	2,2
Acute myeloid leukaemia, NOS	98613	2,3	1,3	1,9	0,9
Chronic myeloproliferative disorders		2,3	8,5	12,1	6,3
Chronic myeloid leukaemia, NOS	98633	0,6	0,3	0,5	0,3
Chronic myelogenous leukaemia, BCR/ABL positive	98753	0,3	0,2	0,7	0,6
Chronic myelomonocytic leukaemia, NOS	99453	0,6	0,3	0,9	0,3
Polycythemia vera	99503	2,7	1,4	3,5	1,6
Chronic myeloproliferative disorder, NOS	99603	1,5	0,7	1,9	0,8
Myelosclerosis with myeloid metaplasia	99613	1,2	0,6	0,3	0,1
Essential thrombocythemia	99623	2,8	1,6	3,9	2,4
Myelodysplastic syndromes		3,1	1,1	4,4	1,5
Refractory anemia	99803–99843	1,6	0,7	2,2	0,8
Myelodysplastic syndrome, NOS	99893	1,2	0,4	1,3	0,4

* Standardized to the world standard population (aged ≥15)

9.3. Survival

The five-year relative survival for more common haematological tumours by morphology and gender in 2016–2020 are presented in Table 15. The relative survival was highest for Hodgkin lymphoma in both men and women (89%) and for chronic myeloproliferative disorders (74% in men, 87% in women). The five-year relative survival was lowest for myeloid leukaemias both in men and women (10% and 15%, respectively).

Table 15. 5-year relative survival (%) of haematological tumours by type and gender in Estonia in 2016–2020

Tumour	Five-year relative survival (%)		
	Total	Men	Women
Hodgkin lymphoma	89	89	89
Indolent mature B-cell lymphoproliferative disorders	81	80	82
Aggressive mature B-cell lymphoproliferative disorders	57	60	54
Mature T-cell lymphoproliferative disorder	44	37	50
Plasma cell neoplasms	49	52	47
Acute lymphoid leukaemias	50	55	44
Acute myeloid leukaemias	13	10	15
Chronic myeloproloferative disorders	82	74	87
Myelodysplastic syndromes	38	37	39

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