BELGIAN CANCER REGISTRY

Cancer in children and adolescents
Belgium 2004–2016

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List of acronyms

ACCIS	Automated Childhood Cancer Information System
ALL	Acute lymphoid leukaemia
AML	Acute myeloid leukaemia
ATRT	Atypical teratoid/rhabdoid tumours
BSPHO	Belgian Society of Paediatric Haematology Oncology
BCR	Belgian Cancer Registry
CBSS	Crossroads Bank for Social Security
CNS	Central nervous system
CR	Crude incidence rate
CRi	Cumulative risk
ESR	Age-standardised incidence rate using the European Standard Population
GCT	Germ cell tumours
GCTOG	Germ cell tumours, trophoblastic and other gonadal neoplasms
GIST	Gastrointestinal stromal tumour
HL	Hodgkin lymphoma
ICCC-3	International Classification of Childhood Cancer (3rd edition)
ICD-O3	International Classification of Diseases for Oncology (3rd edition)
ICD10	International Classification of Diseases (10th edition)
INSZ-NISS	National social security number
MDS	Myelodysplastic
MII	Miscellaneous intracranial and intraspinal
M/F	Male/Female
MOC-COM	Multidisciplinary Oncological Consult
MPN	Myeloproliferative
NA	Not applicable
NHL	Non-Hodgkin lymphoma
NK-cell	Natural killer cell
OS	Observed survival
PNET	Primitive neuroectodermal tumours
RE	Reticuloendothelial
RMS	Rhabdomyosarcoma
SNS	Sympathetic nervous system
STS	Soft tissue sarcomas and other extraosseous sarcoma
TNM	Tumour-node-metastasis
UICC	International Union Against Cancer
WHO	World Health Organization
WSR	Age-standardised incidence rate using the World Standard Population

Foreword

A close collaboration between the Belgian Cancer Registry and the Belgian Society of Paediatric Haematology Oncology (BSPHO) resulted in 2013 in a first publication. The current study 'Cancer in children and adolescents – Belgium 2004-2016' presents an update with 13 consecutive years of incidence data for Belgium. This wide range of incidence years made it possible to describe and visualise survival data up to 5 (and if possible 10) years after diagnosis for the youngest Belgian population.

Since 2004, these data have been collected at the national level through all Belgian paediatric haemato-oncology centres besides the classic cancer registration including the pathology and clinical pathway. We would like to express our gratitude to all the paediatric haemato-oncologists, physicians, pathologists and data managers in the hospitals for their exhaustive engagement and sustained efforts in registration.

Cancer in children and adolescents strongly differs from the adult malignancies, not only in terms of frequency but also with regard to the particular cancer types, their behaviour and their response to treatment. It is, all the more than in adults, an emotionally loaded subject and the cover was chosen for this reason. Dandelion seeds blowing in the wind resemble light, fragile-looking parachutes. At the same time, they are origins of new flowers, and especially when accompanied by a wish, they stand for dreams and hope.

In Belgium, childhood cancer comprises less than 1% of the total cancer burden. Every year, about 340 children younger than 15 years and 180 adolescents (between 15 and 19 years) face the diagnosis of cancer.

The results on mortality and survival are hopeful. Over the last six decades mortality rates have dramatically declined for most childhood cancers and these rates are still decreasing. This trend also reflects improved cancer survival. Children and adolescents with cancer have a relatively good prognosis. Ten-year survival of children (84%) is very similar to the 10-year survival of adolescents (85%). The recent data show that survival is improving over time, but the rate of improvement seems to slow down compared with the immense advances of the earlier decades.

We sincerely hope that this work will be useful in the daily professional practice of paediatric haemato-oncologists and all other experts in the field and that our findings evoke collaborations for future population-based cancer research. Above this, we hope that it will further stimulate the quality of care and life for our children and adolescents who faced – together with their parents and family – the diagnosis of cancer in their earliest age.

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Director BCR

Belgian Cancer Registry

Prof. Dr. An Van Damme
President BSPHO

Prof. Dr. Anne Uyttebroeck
Past President BSPHO

BSPHO

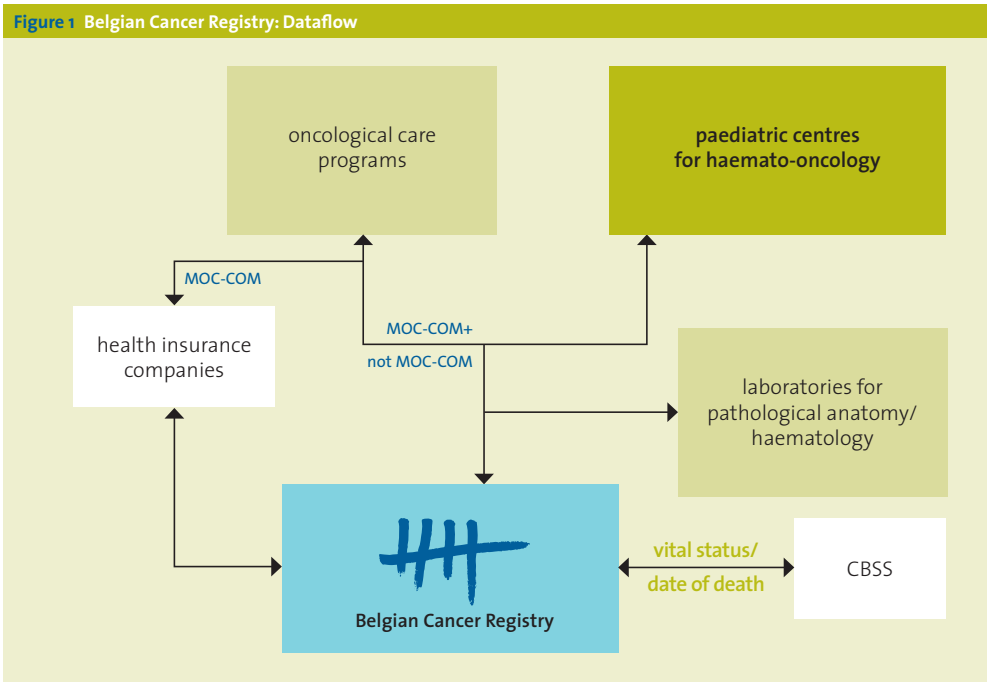
Methodology

Notification and submission to the Cancer Registry

New legislation initiatives since 2003 and the foundation of the Belgian Cancer Registry in 2005, forced a breakthrough in the Belgian cancer registration. Especially the Royal Decree on the oncological care programs in 2003 with the reimbursement of the multidisciplinary oncological consult (MOC-COM) and the creation of the specific law on the Cancer Registry in 2006 provided a firm legal basis for cancer registration in Belgium[1-2]. This legislation makes cancer registration compulsory for the oncological care programs and for the laboratories for pathological anatomy. Furthermore, the law authorises the use of the national social security number (INSZ-NISS) as the unique identifier of the patient as well as linkage with other medical and/or administrative databases. Additionally, through linkage with the Crossroads Bank for Social Security (CBSS), this unique number enables the Cancer Registry to perform active follow-up of vital status and date of death of the patients.

A complete description of the data registration and data collection related to hospitals and pathology laboratories was reported in several previous publications[3-12]. As of the year of incidence 2004, Belgian cancer incidence data are available. The general data flow (**Figure 1**) relies on all information (notifications) coming from the oncological care programs (clinical network) and the laboratories for pathological anatomy (pathology network).

Figure 1 Belgian Cancer Registry: Dataflow



MOC-COM: Multidisciplinary Oncological Consult
CBSS: Crossroads Bank for Social Security

In 2009, a specific collaboration has been setup with all 8 Belgian paediatric centres for haemato-oncology. Since 2014, a new Royal Decree has been operative which sets the standards a paediatric haemato-oncology care program must meet to be approved[13]. This legislation states that these care programs are focused on diagnosis, multidisciplinary treatment, rehabilitation, follow-up of late effects and palliative care for all patients under 16 years with haemato-oncological disorders or severe non-oncological haematological disorders, which may require stem cell transplantation. In addition, this Royal Decree also makes a distinction between different types of paediatric haemato-oncology care programs based on the number of patients treated on a yearly basis (for more details: see [13]). **Table 1** gives an overview of all current paediatric centres.

The law also made cancer registration compulsory for the paediatric centres since 2014 (**Figure 1**), but in practice, data have already been collected from the incidence year 2004 onwards (**Table 1**). Therefore, it was already possible to publish a special issue focusing on Cancer in Children and Adolescents in 2013[7].

Table 1 Overview of paediatric centres for haemato-oncology in Belgium

Centre Hospitalier Chrétien - Site Espérance, Liège
Centre Hospitalier Universitaire de Liège
Cliniques Universitaires Saint-Luc, Bruxelles
Hôpital Universitaire des Enfants Reine Fabiola, Bruxelles
Universitair Ziekenhuis Antwerpen
Universitair Ziekenhuis Brussel
Universitair Ziekenhuis Gent
Universitair Ziekenhuis Leuven

QUALITY OF INCIDENCE DATA

Completeness of the cancer registry (degree of coverage)

Completeness is the extent to which all incident cancers in the Belgian population are included in the Cancer Registry. Incidence rates will be close to their true value if maximum completeness in case finding procedures can be achieved.

The number of notifications and data sources per tumour is a raw indicator of completeness. The higher the average, the more complete the registration process. Linkage of data from different sources and source types leads to information that is more complete, precise and reliable.

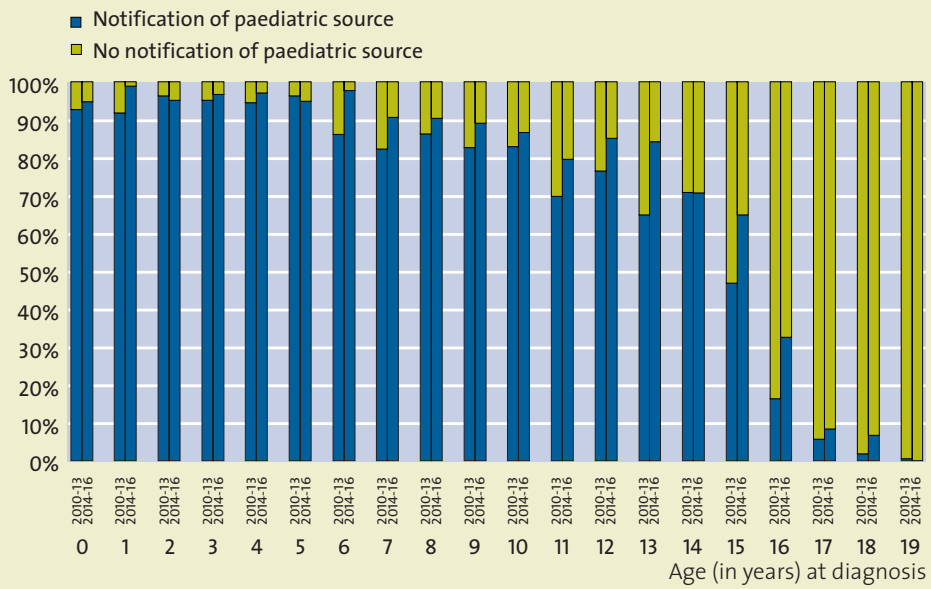
Number of notifications from paediatric centres for haemato-oncology

In Belgium, between 2010 and 2016, a total of 3,754 cancers are diagnosed in children and adolescents (0-19 years). The registration for these tumours originated from 9,269 notifications[i] (on average 2.5 notifications per tumour [range = 1-8 / tumour]). In 34% of the cases, a notification was received from three different pathways (clinical network + pathological network + paediatric centres). Due to the lower number of adolescent cancers diagnosed by paediatric centres (**Figure 2**), the average number of notifications in this age group is lower (2.2) when compared to children in the age group 0-14 years (2.6).

i Only unique notifications from 1 source were included. If the same source registered the same diagnosis more than once, this is counted as 1 notification.

Sixty-three percent of the 3,754 cancers recorded in children and adolescents was registered by a paediatric centre for haemato-oncology (**Table 2**). Especially under the age of 11 years, the contribution of the paediatric centres is substantial. In this age group, a notification from a paediatric centre is received in approximately 90% of the diagnoses. The notification of the other 10% (registration by multidisciplinary consult, registration by pathology only, etc.) are mostly brain tumours, epithelial neoplasms, lymphomas and leukaemias. However, this does not automatically imply that the paediatric centres for haematology-oncology were not involved in the diagnostic and therapeutic setting of the patient. Since 2014, patients with an age of 11-15 years are much more likely to be registered by a paediatric centre as could be expected by the new legislation[13]. The percentage of notifications from paediatric centres increased with about 11% in this age group (**Figure 2**). After the age of 16 years, the proportion of notifications from paediatric centres are less than 10% but this is in line with age groups treated in paediatric centres.

Figure 2 Notifications of paediatric centres for haemato-oncology by age at diagnosis, Belgium 2010-2013 and 2014-2016



Source: Belgian Cancer Registry

Number of notifications from paediatric centres for haemato-oncology by tumour type

Under the age of 15 years, more than 90% of all leukaemias (I), lymphomas (II), neuroblastomas (IV), retinoblastomas (V), renal tumours (VI), hepatic tumours (VII) and bone tumours (VIII) are registered by a paediatric centre (**Table 2**). Brain tumours (III), soft tissue sarcomas (IX) and germ cell tumours (X) are notified in more than 80% of all cases by a paediatric centre. Epithelial neoplasms (XI) are less frequently registered by a paediatric centre (31%). The majority of these tumour types are predominantly registered by pathology laboratories (Appendix 1). Special attention should be made for the clinical registration of these cases.

Table 2 Notifications from paediatric centres for haemato-oncology by tumour type, Belgium 2010-2016

ICCC-3 Classification		0-14 years			15-19 years			0-19 years		
		Total	Paediatric notification		Total	Paediatric notification		Total	Paediatric notification	
		N	N	%	N	N	%	N	N	%
I-XII	All tumours	2,483	2,176	87.6	1,271	195	15.3	3,754	2,371	63.2
I	Leukaemias, myeloproliferative and myelodysplastic diseases	650	625	96.2	140	45	32.1	790	670	84.8
II	Lymphomas and reticuloendothelial neoplasms	332	310	93.4	313	51	16.3	645	361	56.0
III	CNS and miscellaneous intracranial and intraspinal neoplasms	629	544	86.5	198	29	14.6	827	573	69.3
IV	Neuroblastoma and other peripheral nervous cell tumours	155	145	93.5	5	1	20.0	160	146	91.3
V	Retinoblastomas	75	74	98.7	-	-	-	75	74	98.7
VI	Renal tumours	112	111	99.1	8	1	12.5	120	112	93.3
VII	Hepatic tumours	25	24	96.0	3	1	33.3	28	25	89.3
VIII	Malignant bone tumours	101	93	92.1	75	27	36.0	176	120	68.2
IX	Soft tissue and other extraosseous sarcomas	138	124	89.9	69	18	26.1	207	142	68.6
X	Germ cell tumours, trophoblastic tumours and neoplasms of gonads	87	71	81.6	120	12	10.0	207	83	40.1
XI	Other malignant epithelial neoplasms and malignant melanomas	177	54	30.5	336	9	2.7	513	63	12.3
XII	Other and unspecified malignant neoplasms	2	1	50.0	4	1	25.0	6	2	33.3

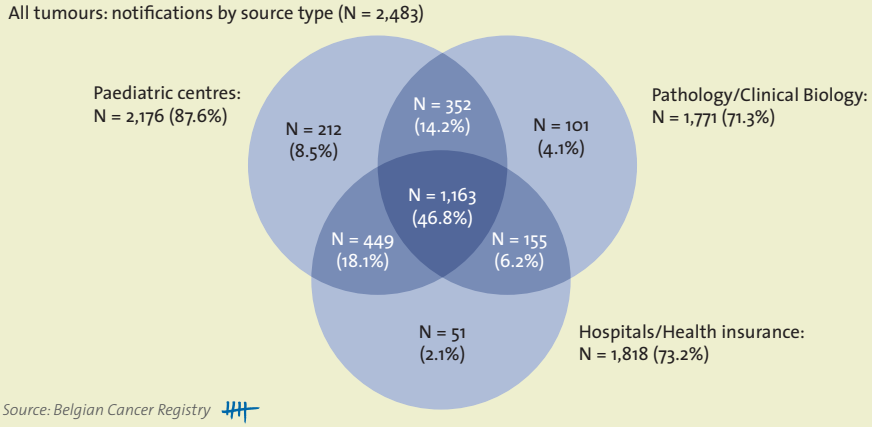
Source: Belgian Cancer Registry

Number of notifications by data source

A total of 1,163 tumours (47%) diagnosed in children (0-14 years of age) are notified by the three main source types: the paediatric centres, the pathological network (laboratories for pathological anatomy/clinical biology) and the clinical network (hospitals/health insurance companies) (**Figure 3**).

In total, 2,119 (85%) of all diagnoses are delivered by more than one source type. The remaining 364 tumours are only registered by one source type of which 212 tumours (8.5%) are notified by a paediatric centre only. These tumours mainly concern leukaemias (N=98), brain tumours (N=60), and lymphomas (N=20). Leukaemias are not expected to be reported by the pathological pathway. The 101 diagnoses (4.1%) only received from a laboratory were submitted to an individual and thorough quality control to confirm the diagnoses. This specific control included a review of the written protocols and if necessary, the pathologist was contacted for additional information about the diagnosis. Most of these tumours (N =50) were from category XI (Other malignant epithelial neoplasms and malignant melanomas). For 51 tumours (2.1%) only a registration from an oncological care program was received. This proportion decreased, compared with the percentage observed in 2004-2009[7]. Also here, this mainly concerns brain tumours (III; N=20), epithelial neoplasms (XII; N=8) and leukaemias (I; N=8). However, this does not automatically imply that the paediatric centres for haemato-oncology were not involved.

Figure 3 Notifications for cancer in children (0-14 years) by source type, Belgium 2010-2016



Source: Belgian Cancer Registry

Calculation of incidence, mortality and Survival

Description of the dataset

The incidence data presented in this report are based on the cancer records for Belgian residents that were available at the Cancer Registry in January 2019. For reporting purposes, these tumours are classified according to the International Classification of Childhood Cancer (ICCC-3)[14]. Mortality statistics, used in the first chapter, are represented in the ICD-10 classification[15]. Population data were obtained from the Directorate-General Statistics Belgium[16].

The different chapters included in this document are based on the main tumour types as described in the ICCC-3 classification. The next chapter gives an overview of all cancers and all subsequent chapters expand upon one of the 12 ICCC-3 categories. For every tumour type, general incidence and survival results are presented. When possible, a more detailed analysis by age group, histology or primary site[17] is carried out. As cancer is a rare disease in children and adolescents, analyses are based on small numbers. Therefore, the data collected over 13 years (2004-2016) are grouped for the calculation of Belgian incidence and survival data. The incidence rates for both sexes are presented separately whenever possible. Otherwise, data for boys and girls are aggregated.

Incidence rates and observed survival always include children and adolescents, unless otherwise specified. Results about children only include diagnoses in the age group 0-14 years of age. Adolescent diagnoses are tumours registered in patients of 15-19 years of age. Cancer in infants represents diagnoses for patients younger than 1 year of age.

Incidence and mortality

Incidence is the number of new cases occurring in a given time period in a specific population. It provides a direct estimate of the probability or risk of illness, and can be expressed in different ways:

- The crude incidence rate is calculated by dividing the number of new cases observed during a given time period by the corresponding number of people in the population at risk. The crude rate is expressed as the number of new cases per 1,000,000 persons per year.
- The age-specific incidence rate is the number of newly diagnosed cases in a particular age group (age range of 1 or 5 years) over a specified time period and expressed per 1,000,000 persons per year.
- The age-standardised incidence rate is a weighted average of the individual age-specific rates using an external standard population. It is the incidence that would be observed if the population had the age structure of the standard population (European or World Standard Population). Since age has a powerful influence on the risk of cancer, this standardisation is necessary when comparing several populations that differ with respect to their age structure. In this publication, the World Standard Population is used for standardisation and consequently World Standardised incidence Rates (WSR) are reported. These are expressed as the number of new cases per 1,000,000 persons per year.
- Male/Female (M/F) ratios are calculated by dividing the corresponding age-standardised incidence rates (WSR).

According to international guidelines, incidence rates for children and adolescents are expressed per 1,000,000 person years. In adults, incidence rates are expressed per 100,000 person years.

The same principles are applied to calculate mortality data.

Trends in Incidence

Since data have been collected from 2004 onwards, some results could also be compared over time. In total, 13 consecutive years of incidence data are available for Belgium. Moreover, cancer in children is very rare. Analysis of trends and the interpretation of results is complicated by the low number of yearly diagnoses, leading to important annual fluctuation in incidence rates. Therefore, incidence rates were aggregated over five years and are presented as three moving averages (2004-2008, 2008-2012, and 2012-2016). For the Flemish Region, the Belgian Cancer Registry disposes of 18 years of incidence data (i.e. from 1999 onwards). When sufficient data are available, incidence trends are also shown in appendix 2 for the individual ICCC-3 (sub-) categories.

Survival

The Belgian Cancer Registry performs active follow-up on vital status for all patients. Data on vital status are obtained from the Crossroads Bank for Social Security (CBSS)[18], by means of the national social security number (INSZ-NISS).

For this publication, patients are followed up until the 1st of July 2018. Between 2004 and 2016 a total of 131 patients are lost to follow-up (3.5%). These patients are included in the survival analysis but censored on the last date the patients were known to be alive (due to emigration).

Observed survival is calculated and presented as Kaplan Meier[19] survival curves. Published tables in appendix 2, with the 5- or 10-year observed survival, are accompanied with 95% confidence intervals, which are calculated using the Rothman method[20]. Calculation of observed survival is only performed for the first tumour known at the registry. Consequently, the absolute numbers used in the survival analyses will be slightly different from those reported within the framework of incidence rates. When determining the tumour sequence, all tumours following the ICCC-3 classification are included. Since cancer in children and adolescents is rare, these survival analyses are often based on a very low number of patients. When the numbers of patients at risk (N at risk) dropped to less than 10 cases, the survival data are not presented. When the numbers of patients at risk dropped to less than 30 cases, a footnote is added to clarify that the shown survival data are only indicative and that no strong conclusions can be drawn. When sufficient data are available, survival trends are shown for the individual ICCC-3 (sub-)categories in appendix 2.

For Belgium, 5-year and (if possible) 10-year survival are calculated for all patients diagnosed between 2004 and 2016. In the next chapter (All cancers), also 15-year survival curves are shown based on the 18 years of data available for Flanders.

Childhood cancer in Belgium

I-XII All cancers

Incidence

Cancer is a rare disease in children. In Belgium, childhood cancer comprises less than 1% of the total cancer burden (Belgium, 2010-2016). Every year, about 340 children (0-14 years) and 180 adolescents (15-19 years) are diagnosed with a malignancy (**Table 3**). The total number of new diagnoses for children and adolescents gradually increased over time (**Figure 8**), but this increase can partly be explained by a yearly population growth of about 0.5% over the last 13 years. All malignancies combined, slightly more diagnoses are registered in boys (54%) than in girls (46%), with a male/female ratio of 1.12.

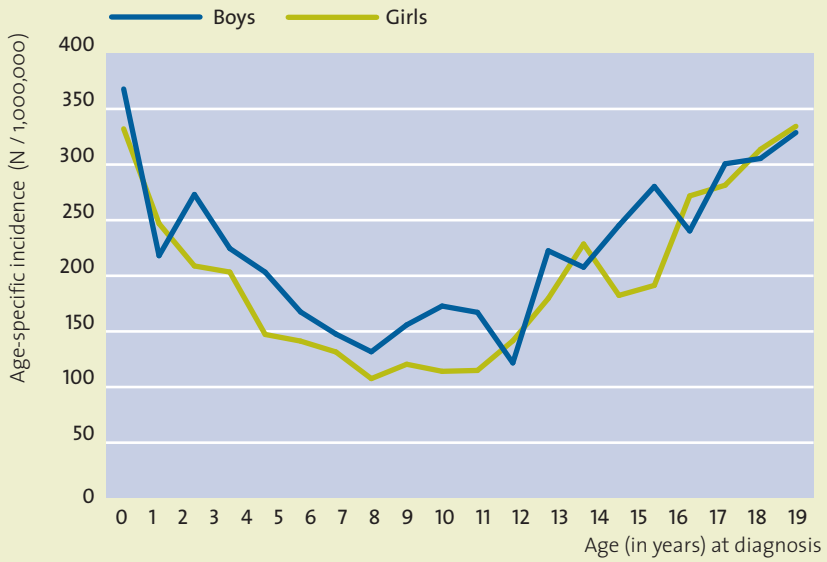
Table 3 Cancer in children and adolescents by sex, Belgium 2004-2016

	Age group 0-14				Age group 15-19				Age group 0-19			
	Boys		Girls		Boys		Girls		Boys		Girls	
	N	WSR	N	WSR	N	WSR	N	WSR	N	WSR	N	WSR
2004	187	212.6	138	164.1	87	278.9	70	234.1	274	227.5	208	179.9
2005	185	208.1	157	184.9	81	256.2	78	257.4	266	218.9	235	201.2
2006	172	191.9	150	172.7	98	303.3	81	261.7	270	217.0	231	192.8
2007	155	173.7	136	157.3	100	304.6	86	272.9	255	203.2	222	183.3
2008	173	191.3	140	161.7	97	291.4	80	250.4	270	213.8	220	181.6
2009	205	227.1	142	161.8	100	299.8	78	243.4	305	243.4	220	180.2
2010	178	193.1	175	200.0	100	301.0	92	288.9	278	217.4	267	220.0
2011	189	199.8	156	174.4	84	255.3	79	250.2	273	212.3	235	191.5
2012	187	198.3	156	172.3	88	270.5	86	275.1	275	214.6	242	195.4
2013	216	228.9	171	186.8	87	269.9	90	291.1	303	238.2	261	210.3
2014	200	210.1	146	160.3	92	287.1	92	299.8	292	227.5	238	191.7
2015	185	192.4	150	167.0	108	337.9	91	296.4	293	225.2	241	196.1
2016	205	215.3	163	177.6	103	320.8	79	256.2	308	239.1	242	195.3

Source: Belgian Cancer Registry *WSR: age-standardised rate, using the World Standard Population (N/1,000,000 person years).*

Age-specific incidence rates (**Figure 4**) are higher for the youngest and oldest age groups when compared to children between 5 and 11 years. Infants have the highest incidence rates[21] and most diagnoses in infants occur in the first month of life (14%). These results are in line with the age-specific rates reported in the previous special issue 'Cancer in Children and Adolescents' for the cohort of 2004-2009 [7].

Figure 4 Cancer in children and adolescents: Age-specific incidence rate by sex, Belgium 2010-2016

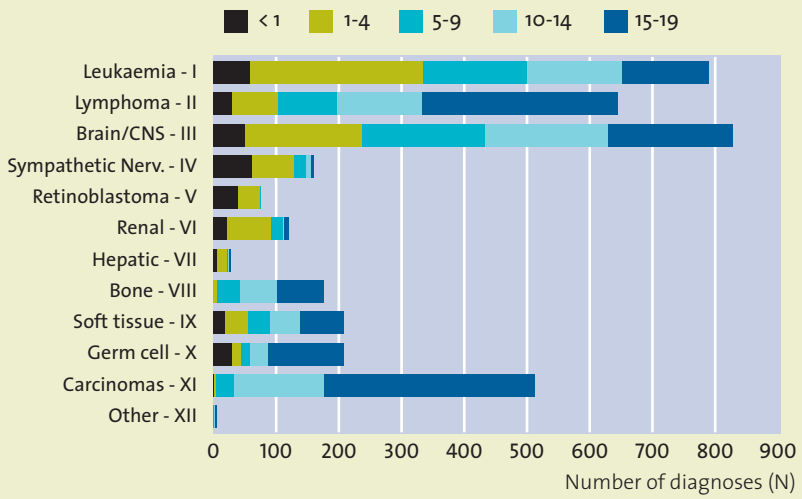


Source: Belgian Cancer Registry

Although incidence rates for young children and adolescents are in the same range, the subtypes of malignancies vary significantly according to the main age categories (**Figure 4-7**). Below, the most common tumour types are addressed for each age group (**Figure 5-7**):

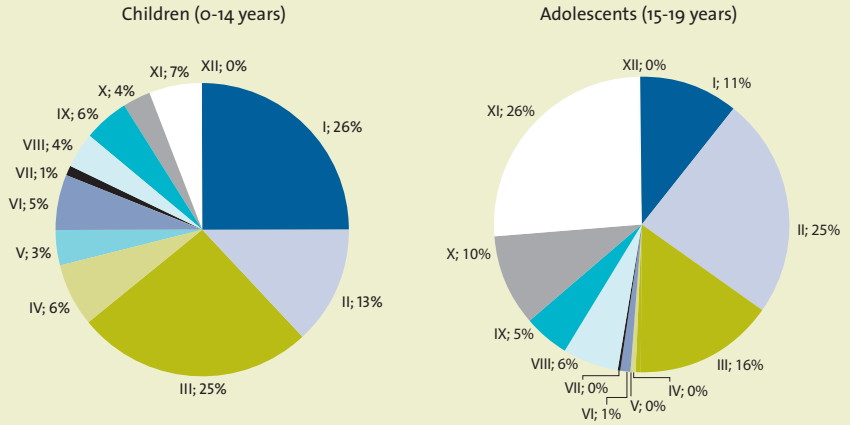
- In **infants** (**<1 year**; **Figure 5**), the most frequent cancer diagnoses are (in order of frequency) sympathetic nervous system tumours (IV; 20%), leukaemias (I; 18%), brain/CNS tumours (III; 16%), retinoblastoma (V; 12%), lymphomas (II; 9%) and germ cell tumours (X; 9%). In the category of retinoblastomas most cases are diagnosed in infants (52%; **Figure 5**).
- In the age group **1-4 years**, the most common tumour types comprise leukaemias (I; 35%) and brain/CNS tumours (III; 24%), which represent together more than 50% of the tumour diagnoses in this age group. The 3rd and 4th most frequent tumours are lymphomas (II; 9%) and renal tumours (VI; 9%). In the category of renal tumours, this age group represents most of the new diagnoses (58%; **Figure 5**). In addition, about 8% of all diagnosed tumours in this age group are sympathetic nervous system tumours (IV) and also in this tumour category the age group 1-4 years is predominant (41%).
- Also in the age group **5-9 years**, brain/CNS tumours (III; 32%) and leukaemias (I; 27%) are the most frequent, followed by lymphomas (II; 15%).
- At the age of **10-14 years**, the same three categories, brain/CNS tumours (III), leukaemias (I) and lymphomas (II) are predominant, contributing with 25%, 19% and 17%, respectively. However, at this age incidence rates for carcinomas (XI) are also starting to increase (18%; **Figure 7**).
- In **adolescents (15-19 years)**, the distribution of tumour types looks different (**Figure 6**) and most common tumours are carcinomas (XI; 26%) and lymphomas (25%). These tumours are also relatively less common at a younger age (**Figure 5**). Other more frequent tumours are brain/CNS tumours (III; 16%), leukaemias (I; 11%) and germ cell tumours (X; 9%).

Figure 5 Cancer in children and adolescents: New diagnoses by tumour type and age group, Belgium 2010-2016



Source: Belgian Cancer Registry

Figure 6 Cancer in children and adolescents by tumour type, Belgium 2010-2016

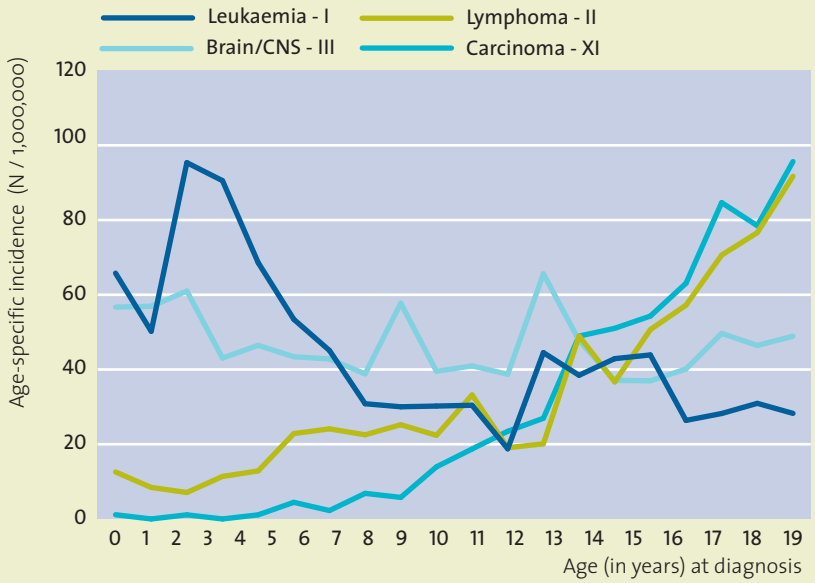


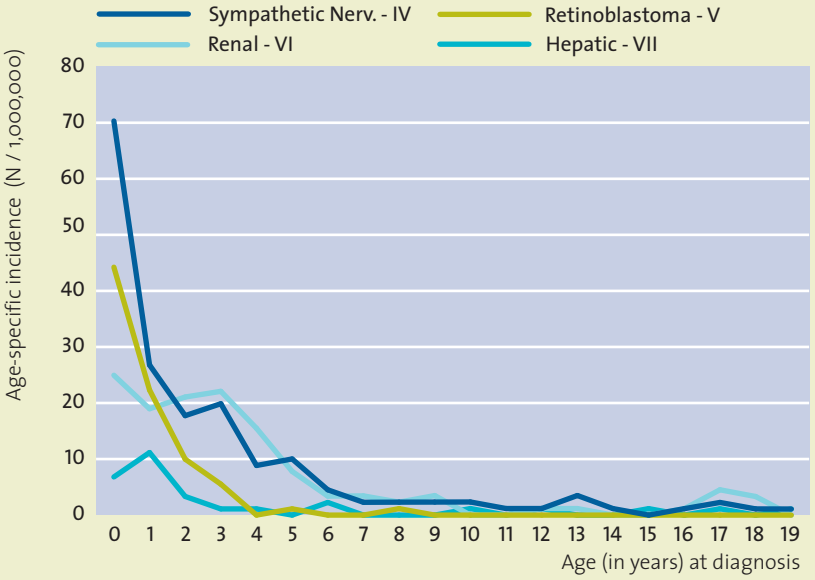
Source: Belgian Cancer Registry

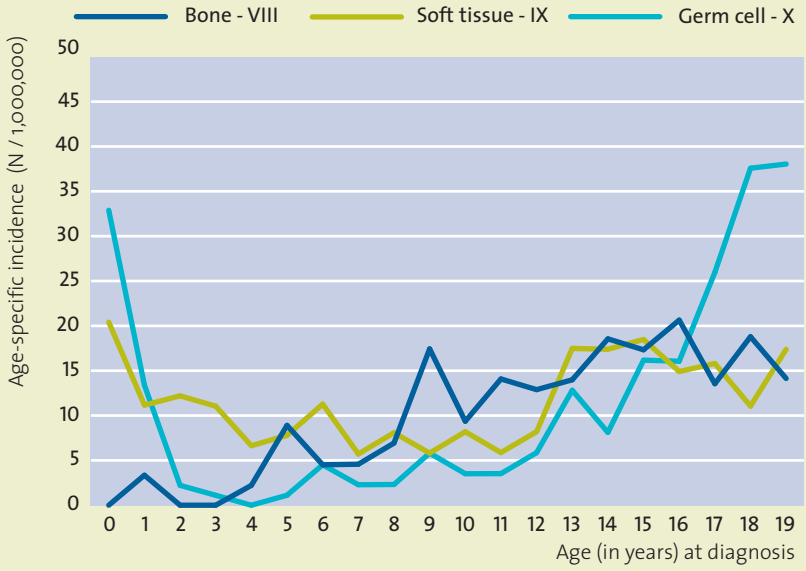
Thus, haematological malignancies (leukaemias, I; lymphomas, II) and brain tumours (III), are the most frequent malignancies in children and adolescents followed by carcinomas (**Figure 5-7**). Based on the curves of the age-specific incidence rates (**Figure 7**), most other cancers can be divided into 3 main categories:

- Cancers with high incidence rates at younger ages: The highest incidence rates for neuroblastomas and other peripheral nerve cell tumours (IV), retinoblastomas (V), renal tumours (VI) and hepatic tumours (VII) are observed in infants and children between 1 and 4 years of age. These tumours are rarely diagnosed in patients older than 9 years of age.
- Cancers predominantly diagnosed in the other age groups (5-19 years): Bone tumours (VIII) are less frequent at a younger age and their incidence rates are the highest between the ages of 9 to 19 years.
- Cancers with two incidence peaks (in infants and in adolescents): Germ cell tumours (X) and soft tissue sarcomas (IX) are frequently diagnosed in very young children and in adolescents, but they are less frequent in children in the age group 4-12 years.

Figure 7 Cancer in children and adolescents: Age-specific incidence rates by tumour type, Belgium 2004-2009





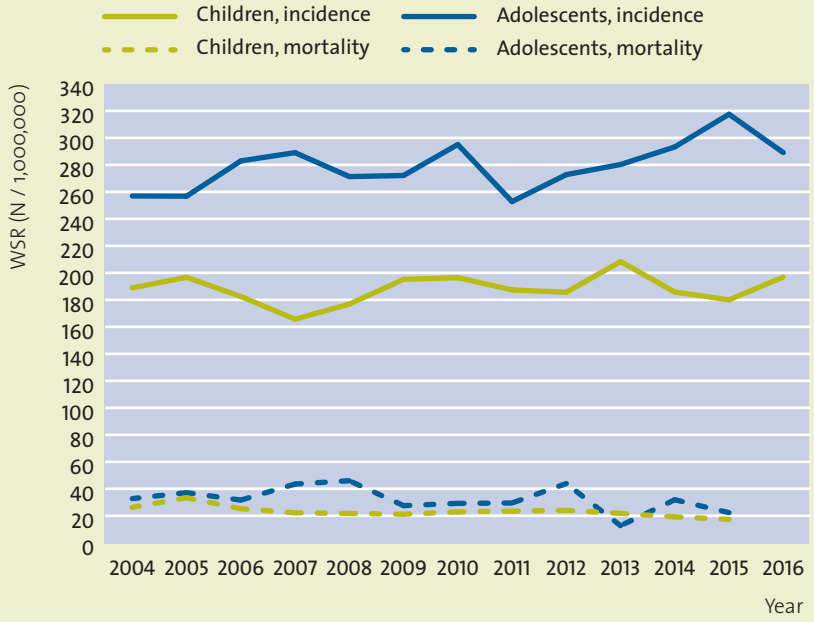


Source: Belgian Cancer Registry

Trends

In 2018, analyses from the ACCIS-project[22] showed an annual increase in childhood cancer incidence in Europe between 1991 and 2010. In children, this increase was 0.5% and in adolescents 1.0%. Similarly, increasing trends are found for the Belgian incidence data (**Figure 8**). Trends in incidence data should be carefully interpreted, since there might be many explaining underlying factors, such as better registration, changing classification codes, 'real' trends of incidence, etc. More detailed information on trends within the different tumour categories can be found in the next chapters.

Figure 8 Cancer in children and adolescents: Incidence and mortality[ii] (WSR), Belgium 2004-2016

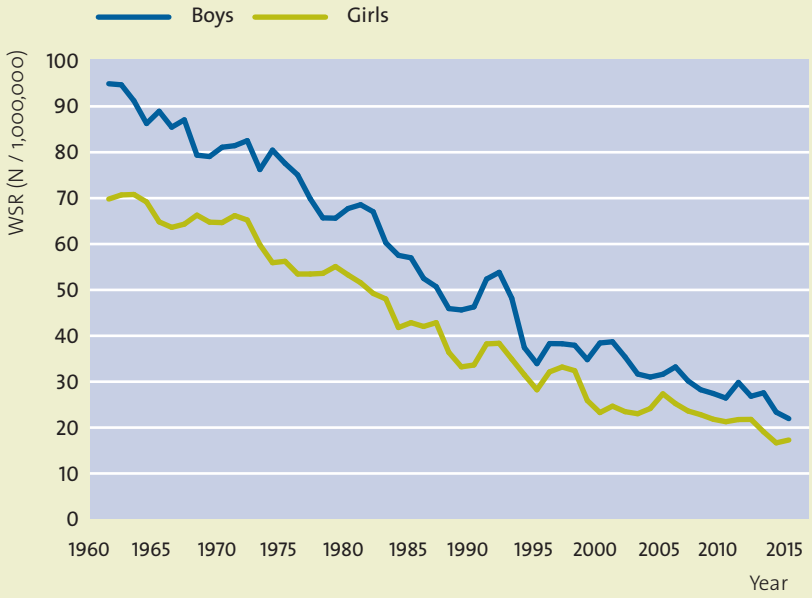


Source: Belgian Cancer Registry

Over the last six decades (**Figure 9**), mortality rates have dramatically declined for most childhood cancers and these rates are still decreasing. This decrease in mortality reflects an improved cancer survival rate for children[23-24]. Survival has increased for all childhood cancers over the same period, but by varying degrees and at different points in time. These improvements are not linked to more effective drugs alone. Most of these improvements are linked to the accurate use of already existing drugs (effective combinations), a better understanding of the natural behaviour of the disease, improved diagnostic methods, better surgery and radiotherapy, a better identification of prognostic factors, potential benefits of applying second-line or salvage therapy and, inclusion in international clinical oncology trials [25]. Since cure rates are improving, supportive care (in case of short- or long-term complications) is gaining importance, which in turn also contributes to the decreasing mortality[26].

ii Incidence and mortality are reported in different classifications systems. Incidence is reported by means of the ICCC-3 classification[14], while mortality data is classified according to the ICD10 classification[15]. The ICCC-3 classification includes some benign and borderline malignancies that are not included in the mortality statistics.

Figure 9 Cancer in children and adolescents: Mortality (WSR) by sex, Belgium 1960-2015



Source: Belgian Cancer Registry

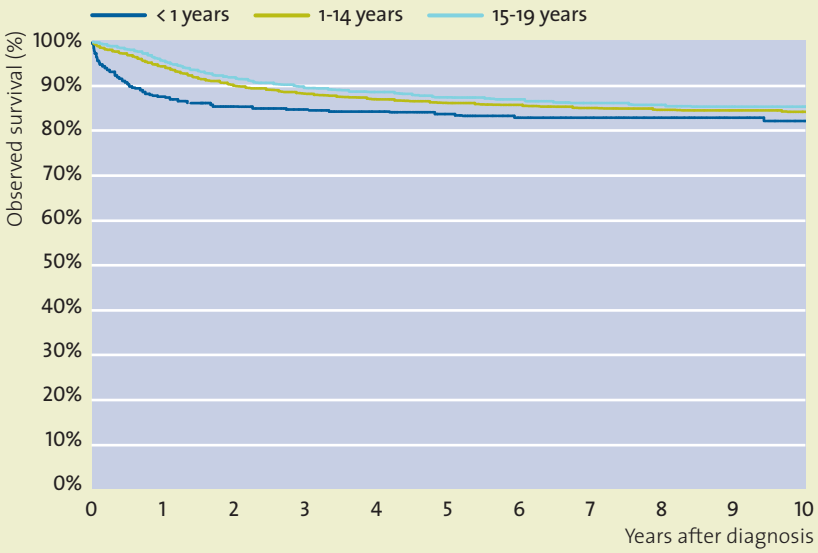
(3-year average of aggregated mortality data from WHO 1960-2002; Belgium 2003-2015)

Survival

Children (0-14 years) and adolescents (15-19 years) with cancer have a relatively good prognosis (**Figures 10-13**). Ten-year survival of children (84%) is very similar to the 10-year survival of adolescents (85%). Overall, survival for infants (82%; **Figure 10**) is slightly lower than for children and adolescents. Ten-year observed survival for children and adolescents is very similar in boys (84%) and girls (86%).

In Belgium, the observed survival is also improving over time, as can be seen in the comparison between the different time periods in **figures 12 and 13**[23-24], but the rate of improvement seems to be less in the last decade.

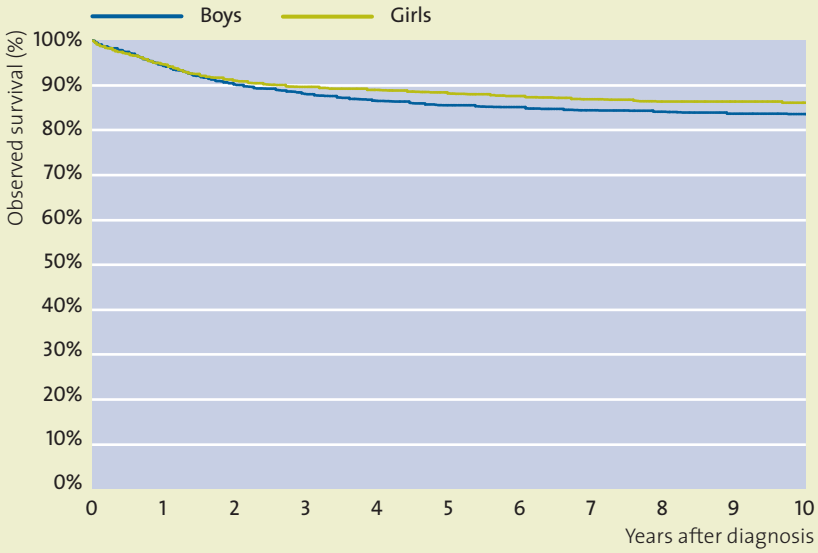
Figure 10 Cancer in children and adolescents: Observed survival by age group, Belgium 2004-2016



N at risk											
< 1 y	502	440	404	367	329	287	248	221	183	147	117
1-14 y	3,847	3,620	3,300	2,980	2,680	2,356	2,055	1,808	1,574	1,298	1,057
15-19 y	2,282	2,177	2,000	1,800	1,604	1,425	1,263	1,113	936	772	636

Source: Belgian Cancer Registry

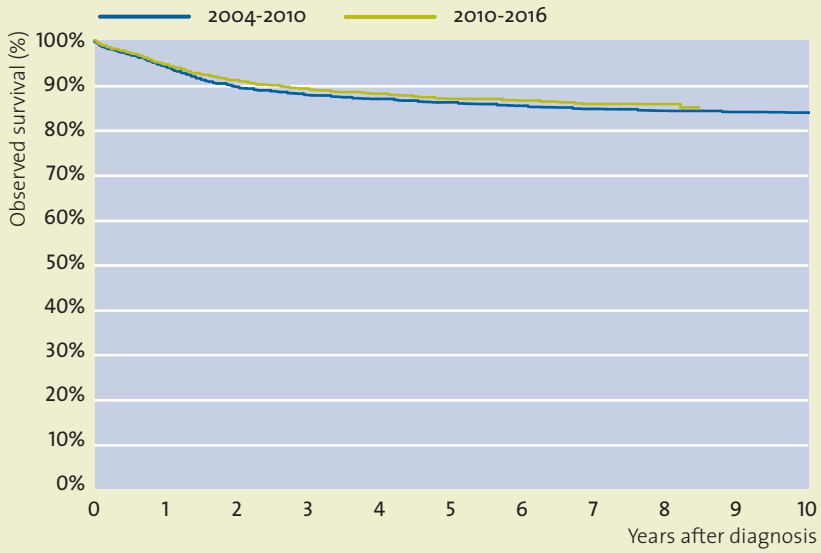
Figure 11 Cancer in children and adolescents: Observed survival by sex, Belgium 2004-2016



N at risk											
Boys	3,600	3,377	3,085	2,755	2,452	2,160	1,892	1,678	1,453	1,185	977
Girls	3,016	2,846	2,608	2,385	2,155	1,905	1,673	1,464	1,240	1,032	833

Source: Belgian Cancer Registry

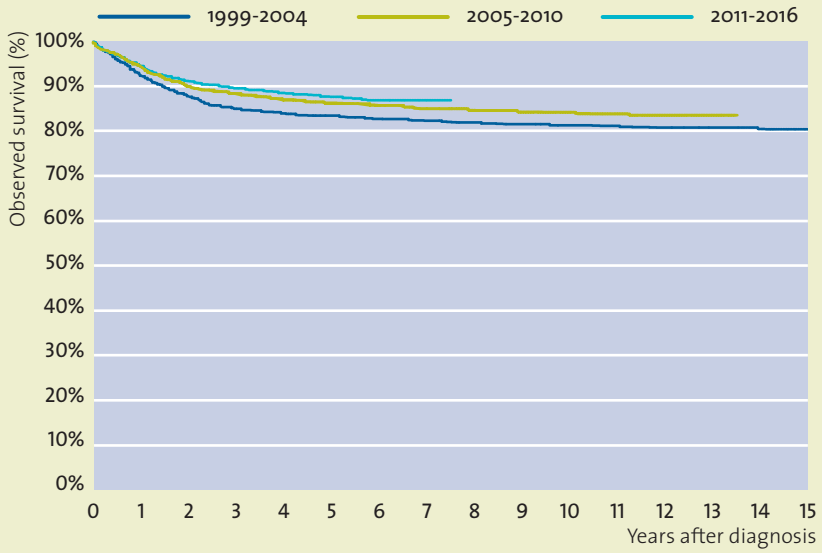
Figure 12 Cancer in children and adolescents: Observed survival, Belgium 2004-2010, 2010-2016



N at risk											
2004-2010	3,479	3,266	3,106	3,041	3,004	2,974	2,947	2,923	2,693	2,217	1,810
2010-2016	3,695	3,478	3,074	2,574	2,073	1,553	1,074	668	235		

Source: Belgian Cancer Registry

Figure 13 Cancer in children and adolescents: Observed survival, Flemish Region 1999-2004, 2005-2010, 2011-2016



N at risk																
1999-2004	1,482	1,362	1,294	1,251	1,236	1,225	1,217	1,210	1,202	1,198	1,194	1,191	1,186	1,182	1,062	856
2005-2010	1,605	1,513	1,440	1,413	1,394	1,380	1,370	1,357	1,241	967	774	552	338	114		
2011-2016	1,748	1,646	1,458	1,165	904	603	342	116								

Source: Belgian Cancer Registry

I Leukaemias, myeloproliferative and myelodysplastic diseases

Incidence

Leukaemias, myeloproliferative and myelodysplastic diseases (ICCC3 category I) are the second most frequent cancer in children and adolescents (Belgium, 2010 and 2016; **Figure 5**). Together with lymphomas and reticuloendothelial neoplasms (II), they constitute the large group of the haematological malignancies which would represent the most frequent group of malignancies in the childhood and adolescent population (**Figure 5**).

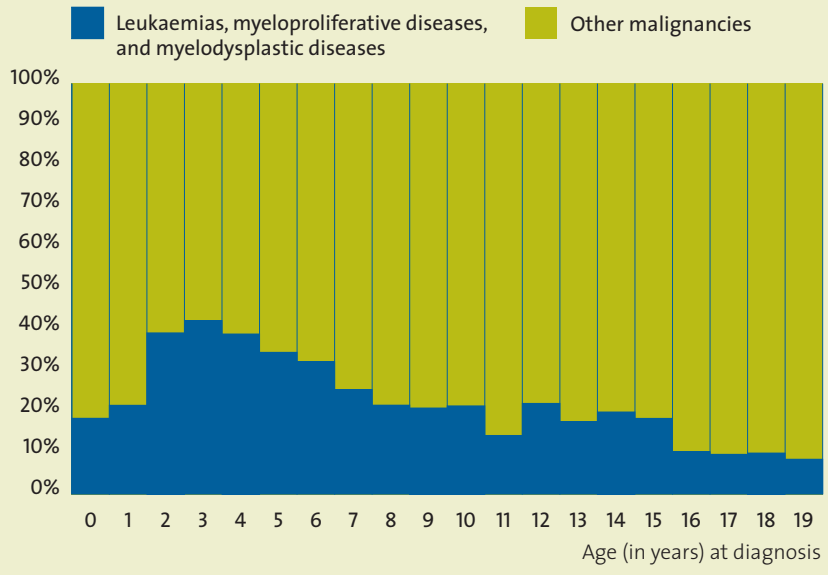
A total of 790 new diagnoses of leukaemias and other myeloid disorders (myeloproliferative and myelodysplastic diseases) have been registered during the period 2010-2016 (children: N = 650 and adolescents: N = 140) (**Table 4**). More boys are diagnosed than girls (M/F ratio = 1.2). The relative frequency of leukaemia and other myeloid disorders (**Figure 14**) to the total childhood cancer burden varies with age. It increases from 18% in infants to about 40% around the age of 2-4 years. Subsequently, the relative proportion decreases with increasing age to 11% for adolescents.

Table 4 New diagnoses of leukaemias, myeloproliferative diseases, and myelodysplastic diseases, Belgium 2010-2016

Boys		Total	0-14	15-19
I	Leukaemias, myeloproliferative diseases, and myelodysplastic diseases	443	353	90
Ia	Lymphoid leukaemias	318	269	49
Ib	Acute myeloid leukaemias	62	38	24
Ic	Chronic myeloproliferative diseases	22	10	12
Id	Myelodysplastic syndrome and other myeloproliferative diseases	33	29	4
Ie	Other and unspecified	8	7	1
Girls		**Total**	**0-14**	**15-19**
I	Leukaemias, myeloproliferative diseases, and myelodysplastic diseases	347	297	50
Ia	Lymphoid leukaemias	222	202	20
Ib	Acute myeloid leukaemias	65	49	16
Ic	Chronic myeloproliferative diseases	22	14	8
Id	Myelodysplastic syndrome and other myeloproliferative diseases	25	19	6
Ie	Other and unspecified	13	13	0

Source: Belgian Cancer Registry

Figure 14 Relative frequency of leukaemias, myeloproliferative diseases, and myelodysplastic diseases by age at diagnosis, Belgium 2010-2016



Source: Belgian Cancer Registry

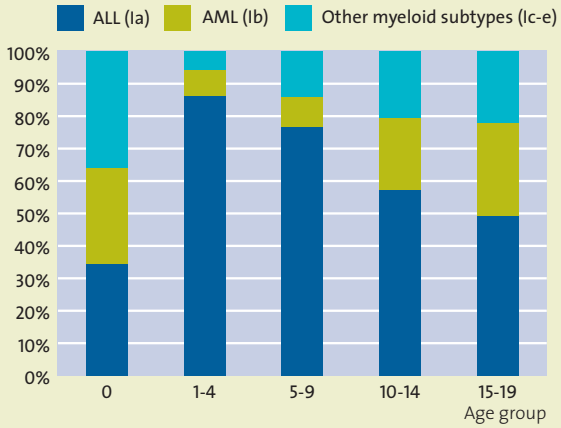
It is well known that leukaemias in the paediatric population are mostly precursor cell leukaemias rather than mature leukaemias[27].

The most frequent subtype is **precursor cell lymphoid leukaemia or acute lymphoid leukaemia**[iii] (**ALL: Ia**): they represent 68% of the total number of leukaemia cases. Higher incidence rates are observed in boys compared to girls (M/F ratio = 1.4).
In infants, ALL (Ia), acute myeloid leukaemia (AML; Ib) and other myeloid disorders (Ic-Ie) are each equally represented (**Figure 15**). However, starting from the age of 1 year, ALL (Ia) becomes the dominant subtype, especially between 1 and 14 years old (above 70% of all leukaemias and myeloid disorders). The incidence rates of ALL (Ia) (**Figure 16**) increase dramatically to reach a peak incidence at the age of 2-3 years, where the rates are about 4 times higher than in infants. Between the ages of 3 to 9 years, incidence rates decrease rapidly and reach the rates observed in infants. In this age group (1-9 years) ALL (Ia) represents 83% or more of all leukaemias and myeloid disorders. From the age of 10 years onwards, the incidence rates for ALL (Ia) remain more stable. The relative proportion of ALL (Ia) decreases to 57% in the age group 10-14 years of age and 49% in adolescents (**Figure 15**).

The 2nd most frequent subtype, **acute myeloid leukaemias** (**AML: Ib**), accounts for 16% of the leukaemias and myeloid disorders. This subtype shows similar incidence rates in boys and girls (M/F ratio = 0.9). The highest proportion of AML (**Figure 15**) is observed in infants (29%) and in adolescents (29%), while AML accounts for less than 9% in the age group 1-9 years.

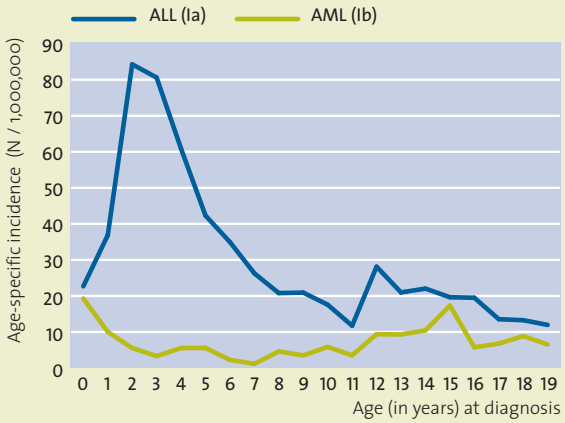
The remaining **myeloid subtypes** (**Ic-e**) represent together about 16% of all new diagnoses of leukaemias and other myeloid disorders in children and adolescents and consist mainly of chronic myeloproliferative diseases (Ic; 6%), of myelodysplastic syndrome and of mixed myelodysplastic/ myeloproliferative neoplasms (Id; 7%).

Figure 15 Leukaemias, myeloproliferative diseases, and myelodysplastic diseases by age group, Belgium 2010-2016



Source: Belgian Cancer Registry

Figure 16 Age-specific incidence rates for ALL (Ia) and AML (Ib), Belgium 2010-2016



Source: Belgian Cancer Registry

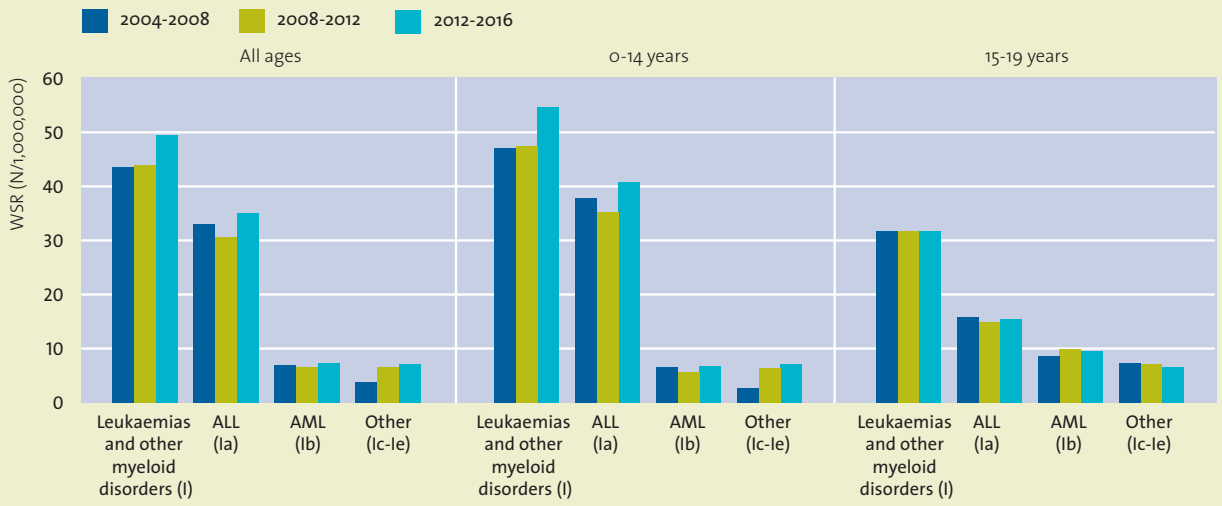
iii Since the subgroup lymphoid leukaemias (Ia; N=540) consisted for more than 99% of the diagnoses of acute lymphoid leukaemias (Ia1; N=536), the abbreviation ALL was used to denote subgroup Ia. The remaining 4 cases were mature B-cell leukaemias (Ia2; N=2) and mature T-cell and NK-cell leukaemias (Ia3; N=2).

Trends

Figure 17 shows the incidence data of Belgium for three consecutive time periods. In the period 2012-2016 the incidence rate (WSR) of leukaemias and myeloid disorders increased with 6% compared with the previous time periods (2004-2008 and 2008-2012). This increase can be entirely explained by changes in the incidence data of children under the age of 15 years (8%) and is mostly manifested by ALL (Ia1) and the remaining myeloid disorders to a lesser extent (Ic-Ie). The incidence of leukaemias and myeloid disorders remained fairly stable over time in adolescents.

The increase of ALL (Ia1) in the Belgian paediatric population is supported by international findings, but there is no consensus about the main underlying causes of this increase[28-29]. However, the increase of subgroup (Ic-e) in children should be interpreted carefully because of classification changes. Since the 2000s, the myeloproliferative disorders, the myelodysplastic syndromes and the mixed MDS/MPN entities are reclassified as malignant[21]. Nevertheless, these classification changes can only partly explain the observed trends for categories Ic-e. Other factors such as improved diagnosis and reporting might also play a role. Thus, similar to other haematological malignancies, it is challenging to distinguish between trends due to changes in data quality and diagnostic criteria versus trends due to true incidence differences[30].

Figure 17 Leukaemias, myeloproliferative diseases, and myelodysplastic diseases in children and adolescents: Age-standardised incidence (WSR), Belgium 2004-2008, 2008-2012, 2012-2016

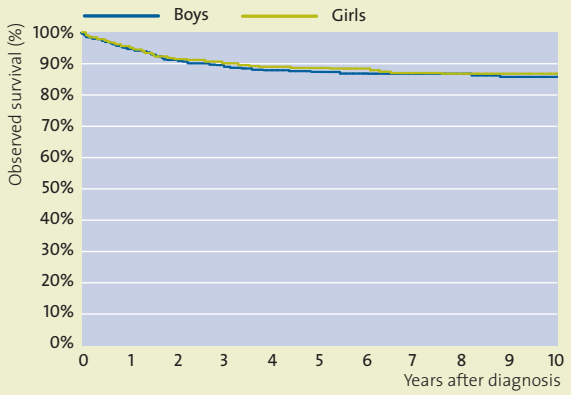


Source: Belgian Cancer Registry

Survival

The prognosis for leukaemia and other myeloid disorders is greatly dependent on the subtype. In Belgium, the 10-year observed survival for ALL (Ia) is 86% for both boys and girls (**Figure 18**). The 10-year observed survival for AML (Ib) is considerably lower and shows a clearer difference based on sex: girls have a 10-year survival of 60%, while the survival for boys is about 67% (**Figure 19**). The main decrease in survival is observed in the first three years after diagnosis for both subtypes. After three years, the survival reaches a plateau of around 90% for ALL and 66% for AML. Thereafter the survival remains stable.

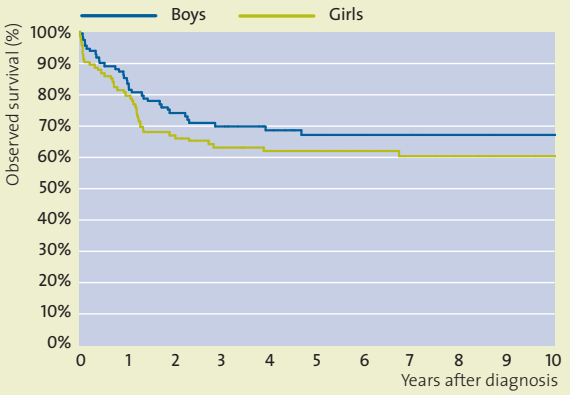
Figure 18 ALL (Ia) in children and adolescents: Observed survival by sex, Belgium 2004-2016



N at risk											
Boys	581	550	499	443	402	345	299	267	241	195	160
Girls	408	389	355	323	288	252	220	194	172	144	123

Source: Belgian Cancer Registry

Figure 19 AML (Ib) in children and adolescents: Observed survival* by sex, Belgium 2004-2016



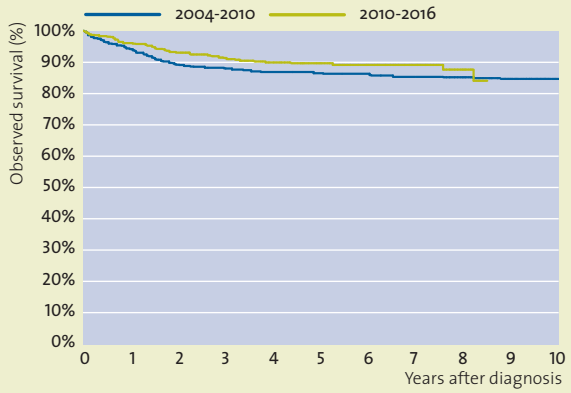
N at risk											
Boys	108	89	76	62	55	46	39	31	28	21	18
Girls	112	89	71	59	53	49	43	34	30	26	23

Source: Belgian Cancer Registry

** Observed survival results calculated on less than 30 patients (N at risk) are purely indicative and no strong conclusions can be drawn.*

The 5-year observed survival in Belgium for ALL (**Figure 20**) slightly increased from 87% in 2004-2010 to 90% in 2010-2016 and is similar to the survival in other European countries [21; 31]. This improvement is in line with the tremendous advances in the understanding and treatment of ALL. These factors can directly or indirectly lead to other advance (e.g. reimbursement of new drugs[32]) and cure rates are expected to improve even more[33]. Although survival is lower for AML, the gains are higher with the 5-year observed survival going from 57% in 2004-2010 up to 71% in 2010-2016 (**Figure 21**)**.** These results correspond with other international studies showing a more pronounced increase of survival for AML[27]. Moreover, also for AML there is a high potential for further improvement of survival because of novel therapies for children[34].

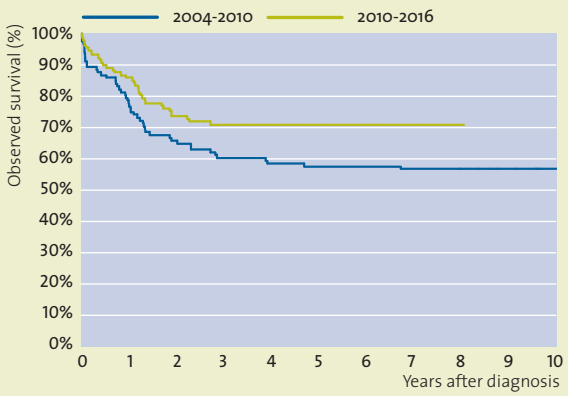
Figure 20 ALL (Ia) in children and adolescents: Observed survival, Belgium 2004-2010, 2010-2016



N at risk											
2004-2010	519	489	463	455	450	446	444	439	413	339	283
2010-2016	540	517	453	373	302	212	136	83	35		

Source: Belgian Cancer Registry

Figure 21 AML (Ib) in children and adolescents: Observed survival*, Belgium 2004-2010, 2010-2016



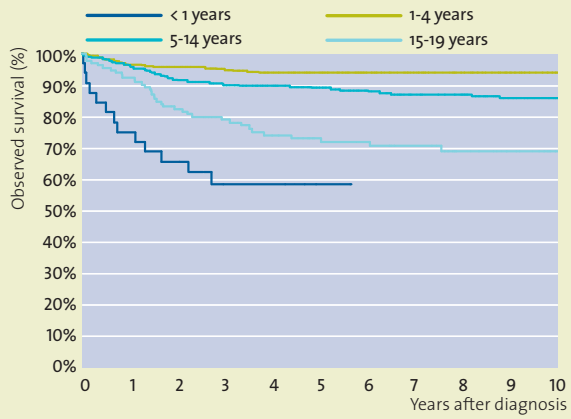
N at risk											
2004-2010	111	85	71	66	64	63	63	62	58	47	41
2010-2016	126	107	86	64	53	41	28	12	5		

Source: Belgian Cancer Registry

** Observed survival results calculated on less than 30 patients (N at risk) are purely indicative and no strong conclusions can be drawn.*

Survival of ALL (Ia) varies considerably with age (**Figure 22**). Infants have the worst prognosis. During the first three years after diagnosis, the observed survival gradually decreases till 59% and then reaches a plateau. Prognosis for adolescents (10-year survival: 69%) is worse than for children between 1 and 4 years of age (94%) and children in the age group 5-14 years (86%). These observations are consistent with international findings[27; 35-36]. A possible explanation for the difference in prognosis between the age groups is a difference in biological subtype [27; 37-38]. The prognosis for the different age groups for AML (Ib) is more comparable (**Figure 23**).

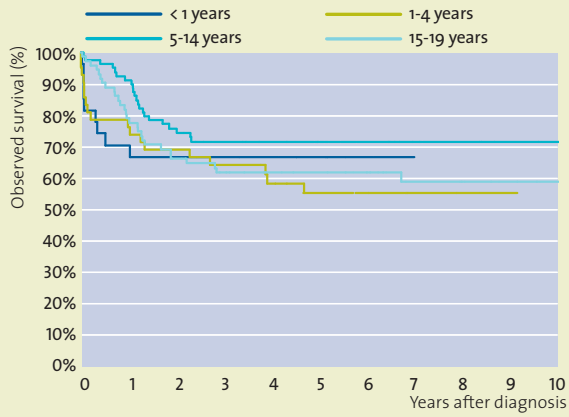
Figure 22 ALL (Ia): Observed survival* by age group, Belgium 2004-2016



N at risk											
< 1 y	32	24	20	14	14	10	7	7	5	3	2
1-4 y	426	411	390	359	323	278	241	214	191	162	137
5-14 y	400	383	342	307	281	248	215	189	176	140	120
15-19 y	131	121	102	86	72	61	56	51	41	34	24

Source: Belgian Cancer Registry

Figure 23 AML (Ib): Observed survival* by age group, Belgium 2004-2016



N at risk											
< 1 y	27	19	18	17	15	13	10	8	6	4	4
1-4 y	42	32	29	23	20	17	16	12	11	9	8
5-14 y	79	72	55	43	40	34	29	24	22	18	16
15-19 y	72	55	45	38	33	31	27	21	19	16	13

Source: Belgian Cancer Registry

** Observed survival results calculated on less than 30 patients (N at risk) are purely indicative and no strong conclusions can be drawn.*

II Lymphomas and reticuloendothelial neoplasms

Incidence

Between 2010 and 2016, a total of 645 new diagnoses of lymphomas and reticuloendothelial (RE) neoplasms (II) are registered in children (N = 332) and adolescents (N = 313) (**Table 5**). More boys are registered than girls (M/F ratio = 1.5), and the difference is mainly observed in children (M/F ratio = 1.8) as opposed to adolescents (M/F ratio = 1.2).

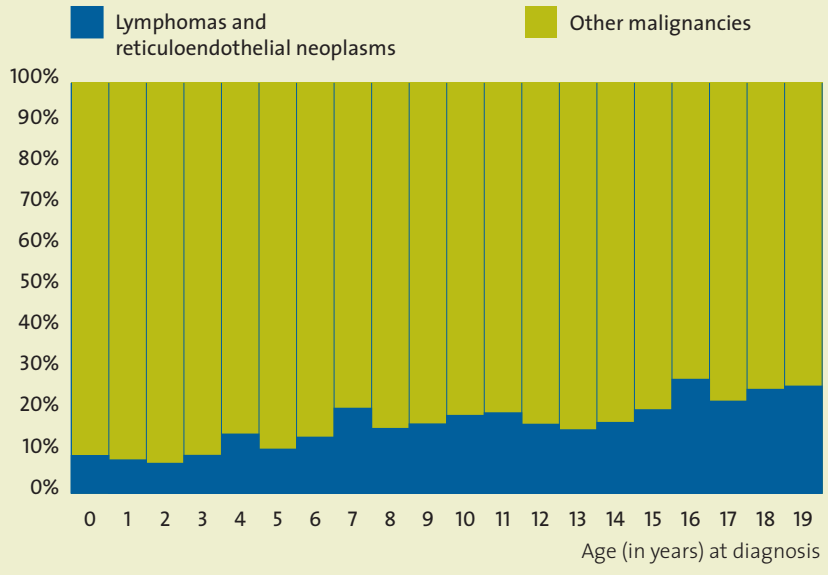
Table 5 New diagnoses of lymphomas and reticuloendothelial neoplasms, Belgium 2010-2016

Boys		Total	0-14	15-19
II	Lymphomas and reticuloendothelial neoplasms	390	219	171
IIa	Hodgkin lymphomas	157	56	101
IIb	Non-Hodgkin lymphomas (except Burkitt lymphoma)	83	39	44
IIc	Burkitt lymphomas	78	62	16
IId	Miscellaneous lymphoreticular neoplasms	68	62	6
IIe	Unspecified lymphomas	4	0	4
Girls		Total	0-14	15-19
II	Lymphomas and reticuloendothelial neoplasms	255	113	142
IIa	Hodgkin lymphomas	146	39	107
IIb	Non-Hodgkin lymphomas (except Burkitt lymphoma)	48	20	28
IIc	Burkitt lymphomas	12	11	1
IId	Miscellaneous lymphoreticular neoplasms	48	43	5
IIe	Unspecified lymphomas	1	0	1

Source: Belgian Cancer Registry

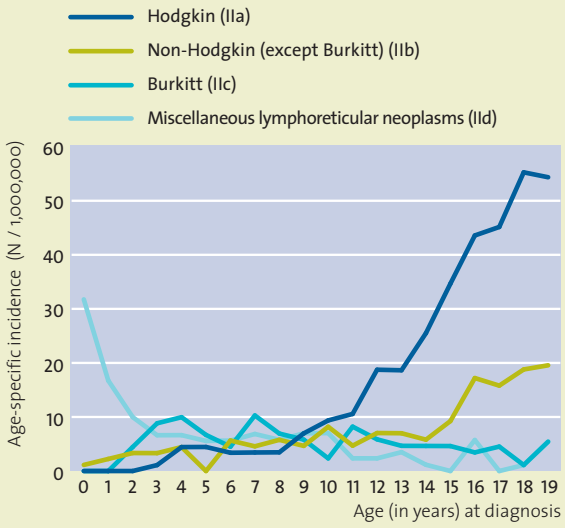
Lymphomas and RE neoplasms (II) are the 3rd most frequent type of childhood cancer (17%). The percentage of diagnoses of lymphomas and RE neoplasms increases with age (**Figure 24**). In children younger than 4 years, the proportion of lymphomas and RE neoplasms varies between 7% and 10%. Between the ages of 4 and 14 years, the proportion is on average 16%. The group of lymphomas and RE neoplasms is the 2nd most frequent tumour type in adolescents, accounting for around 25% of all tumours.

Figure 24 Relative frequency of lymphomas and reticuloendothelial neoplasms by age at diagnosis, Belgium 2010-2016



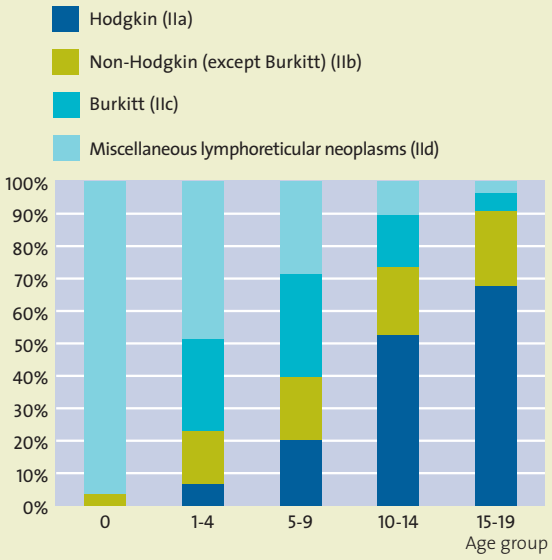
Source: Belgian Cancer Registry

Figure 25 Lymphomas and reticuloendothelial neoplasms: Age-specific incidence rates, Belgium 2010-2016



Source: Belgian Cancer Registry

Figure 26 Lymphomas and reticuloendothelial neoplasms by age group, Belgium 2010-2016



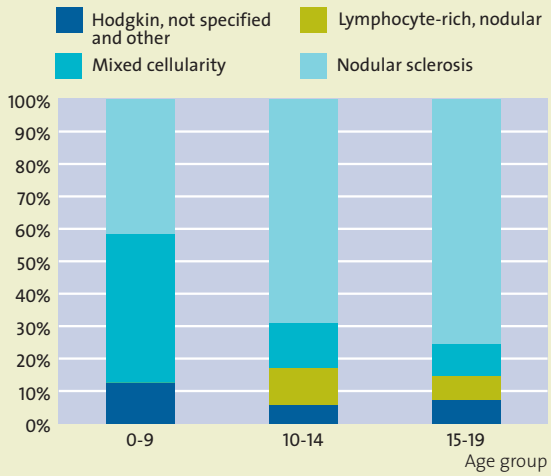
Source: Belgian Cancer Registry

With almost half of all new diagnoses of lymphomas and RE neoplasms in children and adolescents, **Hodgkin lymphoma (IIa)** is the most frequent subtype (**Figure 25** and **26**). While rare in children younger than 10 years of age, it represents one of the most common malignancies in adolescents.

The most common subtype of Hodgkin lymphoma (HL; IIa) is nodular sclerosing HL (**Figure 27**). This histological subtype represents 42% of all diagnoses of HL under the age of 10, increasing to 75% in adolescents.

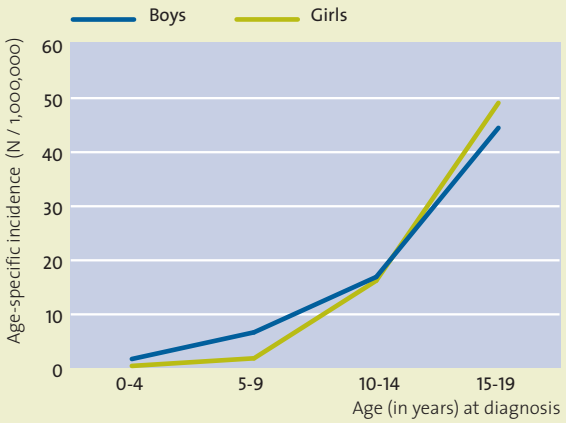
Figure 28, **29** and **30** show the age-specific incidence rates by sex for Hodgkin lymphoma and two subtypes. For every subtype the same general pattern is present. In children between 0 and 9 years of age, a male predominance can be observed that disappears in the age group 10-14 years[21]. In adolescents on the other hand (> 15 years), the incidence is slightly higher in girls. These observations are consistent with international epidemiological features of Hodgkin lymphoma[39-40].

Figure 27 Hodgkin lymphoma subtypes by age group, Belgium 2010-2016



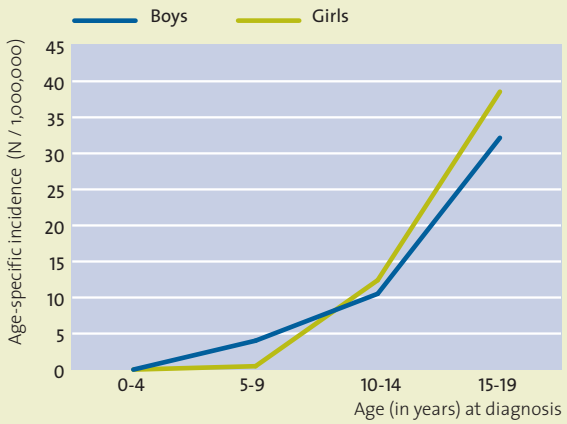
Source: Belgian Cancer Registry

Figure 28 Hodgkin lymphomas: Age-specific incidence rates by sex, Belgium 2010-2016



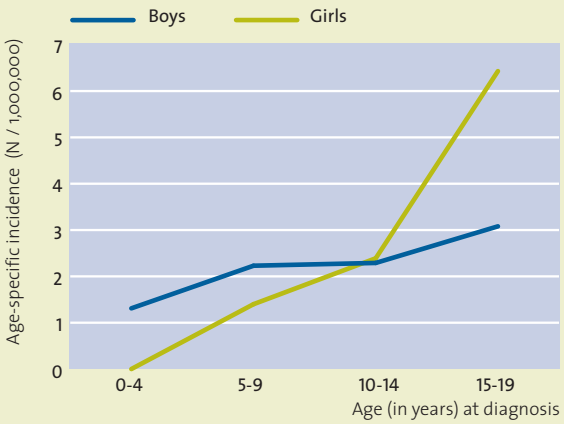
Source: Belgian Cancer Registry

Figure 29 Hodgkin lymphomas - nodular sclerosis subtype: Age-specific incidence rates by sex, Belgium 2010-2016



Source: Belgian Cancer Registry

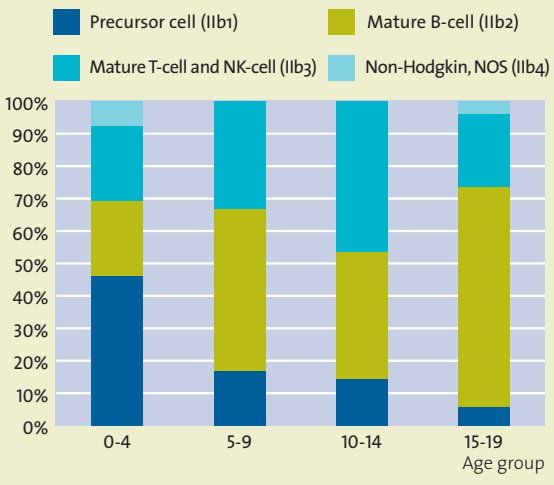
Figure 30 Hodgkin lymphomas - mixed cellularity subtype: Age-specific incidence rates by sex, Belgium 2010-2016



Source: Belgian Cancer Registry

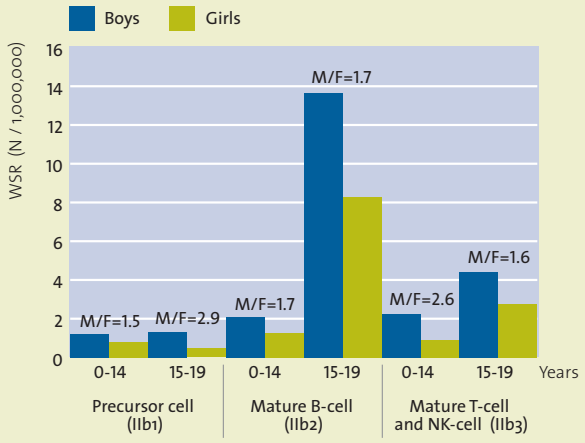
Non-Hodgkin lymphomas (except Burkitt lymphoma) (NHL; IIb), the 2nd most frequent subtype of all lymphomas and RE neoplasms, represent 20% of the total number of lymphoma and RE neoplasm diagnoses in children and adolescents. The overall incidence rates of NHL (IIb) remain relatively stable until the age of 15 years (**Figure 25**). After the age of 15, an increase in age-specific incidence rate is observed. The relative contribution of NHL (IIb) among lymphomas and RE neoplasms is very low for infants (4%), but on average 21% in the other age groups (1-15 years; **Figure 26**). Mature B-cell lymphomas (IIb2) represent the majority (55%) of all NHL. However, NHL represent a heterogeneous group of malignant tumours and between the age groups, clear differences can be observed for each NHL-subtype (**Figure 31**). Precursor cell lymphomas (IIb1) are more often diagnosed at younger age (76% precursor T/NK-cell versus 24% precursor B-cell), while mature B-cell lymphomas (IIb2) are more dominant at older age. Mature B-cell lymphomas (IIb2) are mainly represented by diffuse large B-cell lymphoma (DLBCL; 69%), which are known to be more frequent in adolescents. The proportion of mature T/NK-cell (IIb3) is relatively constant among the age groups. Between the sexes (**Figure 32**), higher incidence rates can be observed for boys for the three main subtypes: precursor cell (IIb1), mature B-cell lymphomas (IIb2) and T- and NK-cell lymphomas (IIb3). Similarly, also in other European countries higher incidence rates are found for boys[21].

Figure 31 Non-Hodgkin lymphomas (except Burkitt lymphoma): Subtypes by age group, Belgium 2010-2016



Source: Belgian Cancer Registry

Figure 32 Non-Hodgkin lymphomas (except Burkitt lymphoma): Age-standardised incidence (WSR) by histology, age and sex, Belgium 2010-2016



Source: Belgian Cancer Registry

Burkitt lymphomas (IIc) represent 14% of the total incidence of lymphomas and RE neoplasms. They show a predominance around the age group of 1-9 years (**Figure 25** and **26**). In the first years of life and after the age of 15 years, the incidence rates are low. The incidence rate in boys is almost six times higher than in girls (M/F ratio = 6.1).

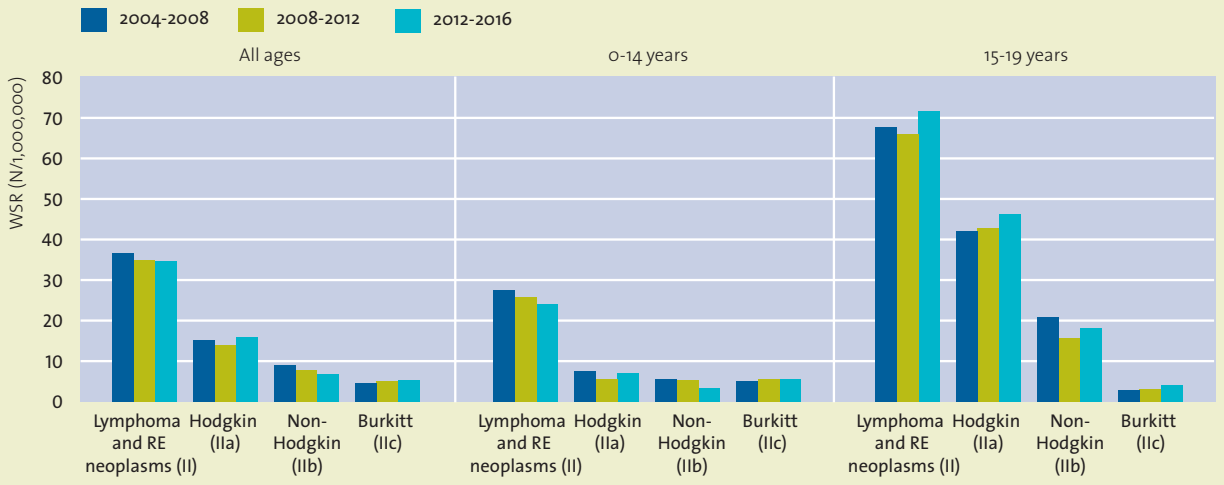
Miscellaneous lymphoreticular neoplasms (IId) represent 18% of all lymphomas and RE neoplasms. In children between 0 and 4 years, this group is the dominant subtype (**Figure 26**). In other age groups the incidence rates are substantially lower. The group of miscellaneous lymphoreticular neoplasms consist mainly of Langerhans cell histiocytosis (97%).

The **remaining unspecified lymphomas (IIe)** correspond with only 1% of all new lymphomas and RE neoplasms in children and adolescents.

Trends

International trends show that incidence rates for lymphomas and RE neoplasms (all subtypes) increase faster in adolescents than in children[22;41]. These trends are also reflected in the Belgian data. In adolescents, the highest rates were found for the most recent time period (i.e. 2012-2016). In children, on the other hand, the incidence rates decline slightly. However, caution should be taken to view the results in the context of improvements in the detection of tumours of haematopoietic and lymphoid tissues and changes in the classification system[42]. More detailed analyses of lymphoma and RE neoplasm trends by specific combinations of histological subtypes, age and sex could potentially explain these findings[22].

Figure 33 Lymphomas and reticuloendothelial neoplasms: Age-standardised incidence (WSR), Belgium 2004-2008, 2008-2012 and 2012-2016

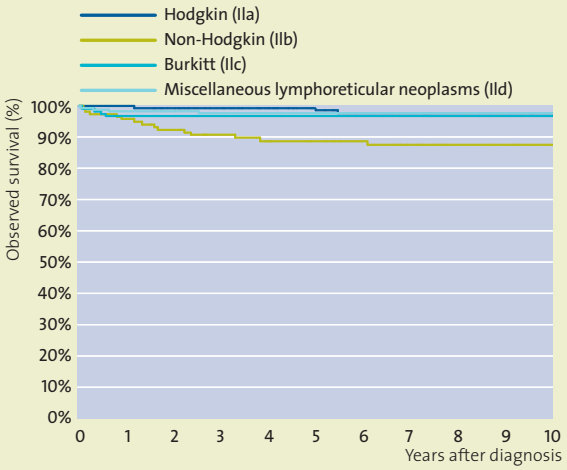


Source: Belgian Cancer Registry

Survival

The 10-year observed survival for the different lymphoma and RE neoplasm subtypes in children (0-14 year) and adolescents (15-19 years) are shown in **Figure 34** and **35**. The 10-year observed survival for childhood Hodgkin lymphomas, Burkitt lymphomas and miscellaneous lymphoreticular neoplasms are all approximately 97% (**Figure 34**). This is higher than the observed survival in adolescents (**Figure 35**). The observed survival is also more heterogeneous in adolescents varying according to the type of neoplasm: the 10-year observed survival for Hodgkin lymphomas and non-Hodgkin lymphomas are 97% and 88%, respectively. The 5-year observed survival for Hodgkin lymphomas, non-Hodgkin lymphomas, Burkitt lymphomas and the miscellaneous lymphoreticular neoplasms are 97%, 89%, 93% and 83%, respectively, in adolescents.

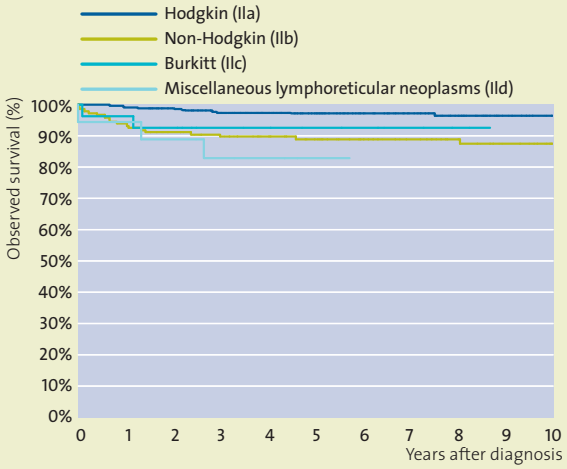
Figure 34 Lymphomas and reticuloendothelial neoplasms: Observed survival in children, Belgium 2004-2016



N at risk											
IIa	183	182	172	158	144	124	113	100	88	79	67
IIb	121	116	107	99	93	86	77	69	57	51	44
IIc	125	120	118	113	96	84	69	62	54	46	39
IId	194	190	180	170	151	138	122	110	93	80	55

Source: Belgian Cancer Registry

Figure 35 Lymphomas and reticuloendothelial neoplasms: Observed survival* in adolescents, Belgium 2004-2016



N at risk											
IIa	369	366	347	317	286	260	218	197	164	138	116
IIb	148	139	129	119	110	101	87	78	68	61	53
IIc	27	26	23	19	18	15	14	12	10	8	8
IId	18	17	16	14	12	10	9	9	8	2	2

Source: Belgian Cancer Registry

** Observed survival results calculated on less than 30 patients (N at risk) are purely indicative and no strong conclusions can be drawn.*

III Central nervous system tumours and miscellaneous intracranial and intraspinal neoplasms

Incidence

Central nervous system tumours (CNS) and miscellaneous intracranial and intraspinal (MII) neoplasms represent the most frequent tumour in children and adolescents (22%). In Belgium, 827 new diagnoses are registered between 2010 and 2016 (**Table 6**). Slightly more boys are diagnosed than girls (M/F ratio = 1.2).

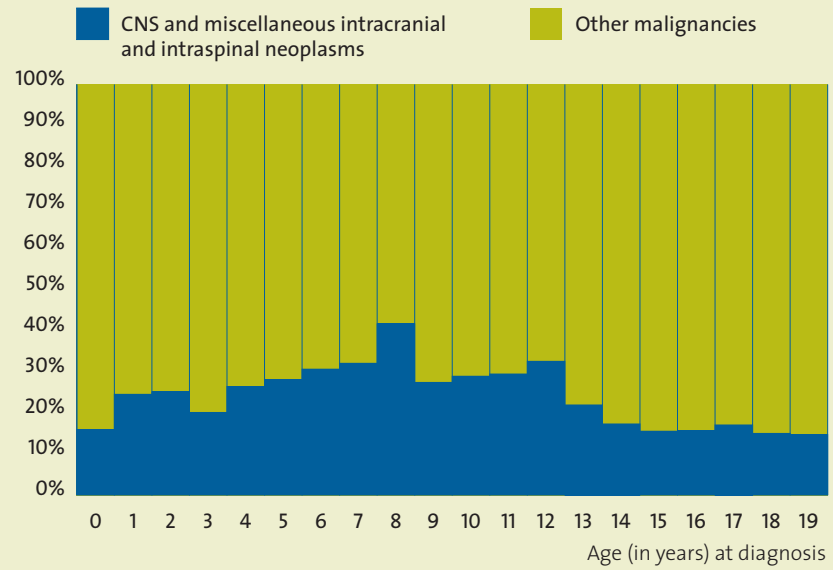
These tumours occur quite frequently in all age groups with the highest proportion of all tumours (28%) in children between 5 and 14 years of age (**Figure 36**).

Table 6 New diagnoses of CNS and miscellaneous intracranial and intraspinal neoplasms, Belgium 2010-2016

Boys		Total	0-14	15-19
III	CNS and miscellaneous intracranial and intraspinal neoplasms	464	357	107
IIIa	Ependymomas and choroid plexus tumours	40	32	8
IIIb	Astrocytoma	187	144	43
IIIc	Intracranial and spinal embryonal tumours	68	63	5
IIId-IIIf	CNS and MII neoplasms other	169	118	51
Girls		Total	0-14	15-19
III	CNS and miscellaneous intracranial and intraspinal neoplasms	363	272	91
IIIa	Ependymomas and choroid plexus tumours	35	30	5
IIIb	Astrocytoma	144	117	27
IIIc	Intracranial and spinal embryonal tumours	46	40	6
IIId-IIIf	CNS and MII neoplasms other	138	85	53

Source: Belgian Cancer Registry

Figure 36 Relative frequency of CNS and miscellaneous intracranial and intraspinal neoplasms by age at diagnosis, Belgium 2010-2016



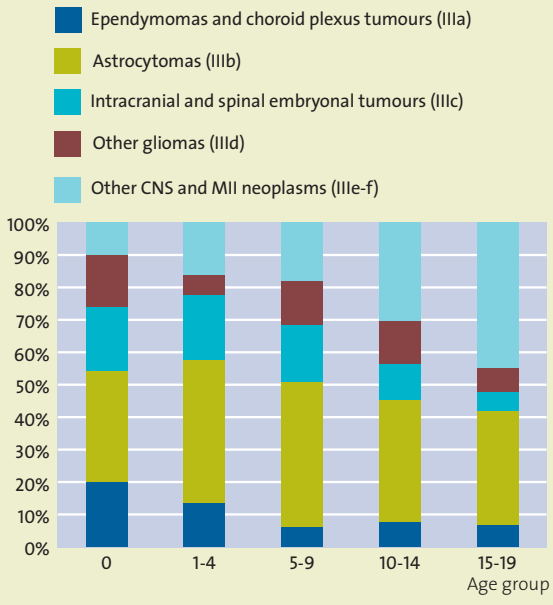
Source: Belgian Cancer Registry

The CNS and MII neoplasms represent a heterogeneous collection of malignancies with different histology, behaviour and prognosis. The distribution of the different histological subtypes differs by age group (**Figure 37** and **38**).

Ependymomas and choroid plexus tumours (IIIa) are primarily diagnosed in young children (0-4 years). The incidence rates for these tumours rapidly decrease and are low after the age of 4 (**Figure 38**). All ages together, the male/female ratio is 1.1. In very young children (0-4 years) the incidence rates in girls are higher than in boys (M/F ratio = 0.7). In patients between 5 and 19 years of age, more boys are diagnosed with these tumours than girls (M/F ratio = 1.5).
This group (IIIa) contains two types of tumours, ependymomas (IIIa1), which represent two out of three diagnoses when considering all age groups, and choroid plexus tumours (IIIa2). The latter group is mainly diagnosed in the first years of life (0-4 years; 72%), while only about 36% of the ependymoma (IIIa1) group is diagnosed in this age group (**Table 7**).

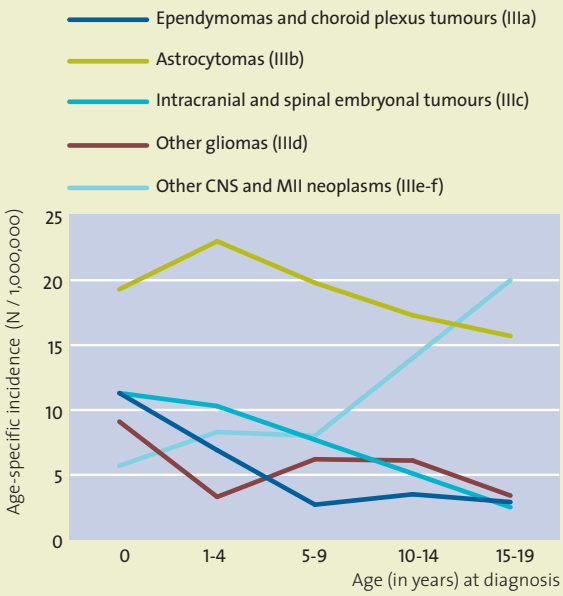
Astrocytomas (IIIb) are the most frequent subtype of all CNS and MII neoplasms (40%)[43-45]. Astrocytomas occur quite frequently in all age groups with a highest proportion of all tumours in the age group 0-9 years, where they represent almost half of all the diagnosed CNS and MII neoplasms (56%). The incidence rates for boys are somewhat higher than for girls (all ages M/F ratio = 1.2).
Astrocytomas (IIIb) include various tumour types with a wide range of WHO grading from slowly growing pilocytic astrocytoma (grade I) to aggressive glioblastoma (grade IV) (**Table 7**)[46]. Most astrocytomas are diagnosed as grade I (67%) and mostly in the age group 0-4 years, where they encompass about 79% of the astrocytoma diagnoses. Most grade I astrocytomas are pilocytic astrocytomas (83%[44]). They encompass 56% of all astrocytomas and are the most frequently diagnosed tumours of all CNS and MII neoplasms in children and adolescents (22%). The number of grade II astrocytomas is similar in all age groups. Grade III astrocytomas are rare in general. Grade IV astrocytomas are mostly diagnosed in the age group 5-9 years. For 15 out of 331 astrocytomas (4.5%), a grade could not be assigned. Compared with the findings of a decade ago[7], the number of tumours with an unknown grade is much lower due to improved reporting by the use of more specific classification codes for astrocytoma diagnoses. This mainly resulted in an increase of grade I tumours.

Figure 37 CNS and miscellaneous intracranial and intraspinal neoplasms by age group, Belgium 2010-2016



Source: Belgian Cancer Registry

Figure 38 CNS and miscellaneous intracranial and intraspinal neoplasms: Age-specific incidence rates by histology, Belgium 2010-2016



Source: Belgian Cancer Registry

The majority of **intracranial and intraspinal embryonal tumours (IIIc)** is diagnosed in children younger than 9 years of age. The incidence rates slightly decrease to be very low after the age of 10 (**Table 7**; **Figure 38**). More boys are diagnosed with intracranial and intraspinal embryonal tumours (IIIc) than girls (M/F ratio = 1.4). The IIIc group is also very heterogeneous. Medulloblastomas (IIIc1) are the most common histological subtype (N=81 or 71%). Atypical teratoid/rhabdoid tumours (ATRT) (IIIc4) are the second most diagnosed subtype (N=19 or 17%). This rare tumour typically occurs in infants (16/19 or 84%)[47]. ATRT are aggressive and have a very poor prognosis (5-year observed survival of 30%). It is expected that these tumours were under- or misregistered in the past because this type of tumour is poorly differentiated, and a diagnostic biomarker only started to be used in routine diagnostics about 15 years ago[47-48]. Therefore, ARTR were often misdiagnosed as other malignant CNS tumours (e.g. medulloblastomas[49]). PNET (IIIc2) are very rare and no medulloepitheliomas (IIIc3) have been diagnosed during the considered period.

The **remaining CNS and MII neoplasms (IIId-f)** represent a very diverse group of tumours (**Table 7**). **Other gliomas (IIId)** are mainly represented by mixed and unspecified gliomas (N=64 or 72%). **Other specified intracranial and intraspinal neoplasms (IIIe)** are the second most frequent subtype of all CNS and MII neoplasms (22%). Most of these tumours are diagnosed as neuronal and mixed neuronal-glial tumours (IIIe4), which consist mainly of gangliogliomas (39%) and dysembryoplastic neuroepithelial tumours (41%). These tumours are mostly diagnosed at ages older than 12. Group IIIe4 is followed by pituitary adenomas and carcinomas (IIIe1) and meningiomas (IIIe5), mostly diagnosed in adolescents, and craniopharyngiomas (IIIe2), mostly diagnosed after 5 years old. **Unspecified intracranial and intraspinal neoplasms (IIIf)** represent 5% (38 cases).

Table 7 CNS and miscellaneous intracranial and intraspinal neoplasms: Number of new diagnoses by age group, Belgium 2010-2016

ICCC-3 classification		0-4	5-9	10-14	15-19	0-19
III	CNS and miscellaneous intracranial and intraspinal neoplasms	237	195	197	198	827
IIIa	Ependymomas and choroid plexus tumours	35	12	15	13	75
IIIa1	Ependymomas	19	9	12	13	53
IIIa2	Choroid plexus tumours	16	3	3	0	22
IIIb	Astrocytomas	100	87	74	70	331
	WHO I	79	52	49	42	222
	WHO II	9	13	10	8	40
	WHO III	3	4	3	6	16
	WHO IV	6	15	10	7	38
	Grade unknown	3	3	2	7	15
IIIc	Intracranial and intraspinal embryonal tumours	47	34	22	11	114
IIIc1	Medulloblastomas	26	31	17	7	81
IIIc2	Primitive neuroectodermal tumours (PNET)	5	0	5	4	14
IIIc3	Medulloepitheliomas	0	0	0	0	0
IIIc4	Atypical teratoid/rhabdoid tumours	16	3	0	0	19
IIId	Other gliomas	20	27	26	15	88
IIId1	Oligodendrogliomas	4	2	3	11	20
IIId2	Mixed and unspecified gliomas	16	24	21	3	64
IIId3	Neuroepithelial glial tumours of uncertain origin	0	1	2	1	4
IIIe	Other specified intracranial and intraspinal neoplasms	27	26	47	81	181
IIIe1	Pituitary adenomas and carcinomas	1	2	8	26	37
IIIe2	Tumours of the sellar region (craniopharyngiomas)	3	10	10	10	33
IIIe3	Pineal parenchymal tumours	0	1	1	0	2
IIIe4	Neuronal and mixed neuronal-glial tumours	17	12	21	26	76
IIIe5	Meningiomas	6	1	7	19	33
IIIf	Unspecified intracranial and intraspinal neoplasms	8	9	13	8	38

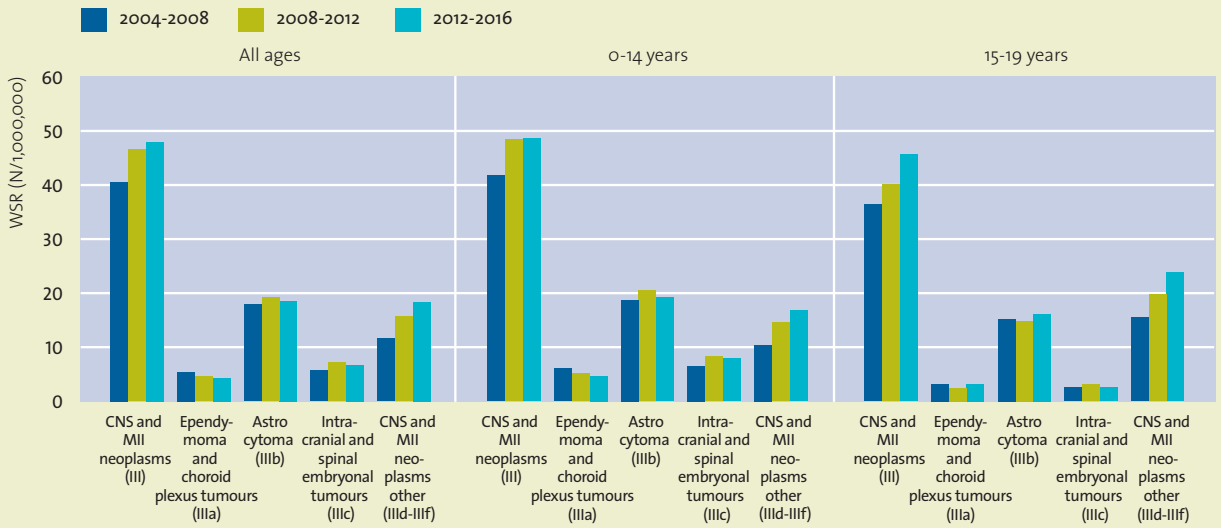
Source: Belgian Cancer Registry

It should be noted that there is a new WHO classification of CNS tumours that uses molecular parameters as well as histology to characterise tumour entities since 2016[46]. The new classification presents major restructuring and new subdivisions of tumour entities. The results shown in **Table 7** correspond with incidence years 2010-2016. As a consequence, these changes will especially affect the representation of results in future publications.

Trends

Between 2004 and 2016, the incidence rates of CNS and miscellaneous intracranial and intraspinal neoplasms (III) increase in Belgium (**Figure 39**). This increase is mainly observed in the group 'CNS and MII neoplasms other (IIId-IIIf)' and especially in the subgroup 'Other specified intracranial and intraspinal neoplasms (IIIe)'. Similarly, international data show that incidence rates of CNS and MII neoplasms are annually increasing in children and adolescents[21-22; 50-51]. These increases can at least partly be explained by higher completeness of registration and improved diagnosis. For example, biopsies are taken more often and both radiological and neurosurgical techniques improved[52]. However, the increasing presence of potential underlying risk factors of these tumour types cannot be excluded[21-22].

Figure 39 CNS and miscellaneous intracranial and intraspinal neoplasms: Age-standardised incidence (WSR) by histology, Belgium 2004-2008, 2008-2012 and 2012-2016



Source: Belgian Cancer Registry

Survival

Prognosis for CNS and MII neoplasms is largely dependent on the histological diagnosis and age at diagnosis (**Figure 40** and **41**). Infants have the worst 5- and 10-year observed survival (66% and 63%, respectively). Adolescents have the best prognosis with a 10-year observed survival of 82%. These observed survival curves for children and adolescents are in line with the general findings in other countries[31].

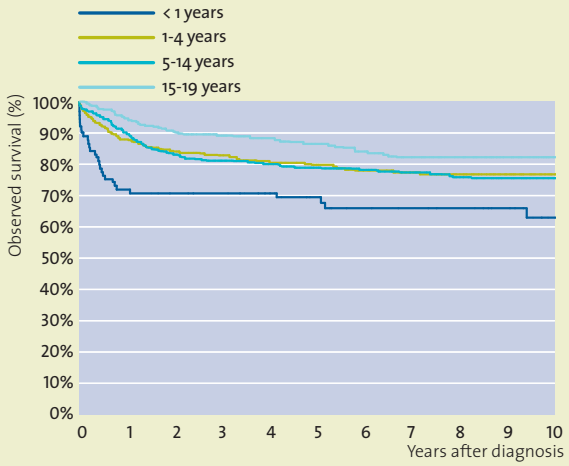
Regarding the ICCC-3 subgroups (**Figure 41**), intracranial and intraspinal embryonal tumours (IIIc) have the worst prognosis with a 10-year observed survival of 51%. The WHO[46] classifies these tumours as highly malignant (WHO IV). In addition, the "Other gliomas" (IIId) also show relatively low 10-year observed survival (64%) compared with the other groups.

The group of other and unspecified tumours (IIIe-f) consists mainly of tumours with a good prognosis. This category has a very high 5-year and 10-year observed survival of 96% and 94%, respectively (**Figure 41**). A small subset of rare malignant tumours (mainly meningioma, IIIe5, and anaplastic gangliogliomas, IIIe4) explain most of the 4% loss of patients after 1 year in this category.

Ependymomas and choroid plexus tumours (IIIa) and astrocytomas (IIIb) have a 10-year observed survival of 77% and 78%, respectively (**Figure 41**)[23]. However, the observed survival of both groups greatly varies according to the WHO grading **Figure 42** and **43**[46]. The 10-year

survival of patients with tumours from category IIIa varies from 100% and 90% for grade I and grade II, respectively, to 54% in grade III (**Figure 42**). Considering astrocytomas (IIIb), the 10-year survival is 93% for grade I and 80% for grade II (**Figure 43**). The prognosis for grade III-IV astrocytomas is much worse. The observed survival of grade III and IV astrocytomas decreases from 60% and 51% after one year to 31% and 27% after two years.

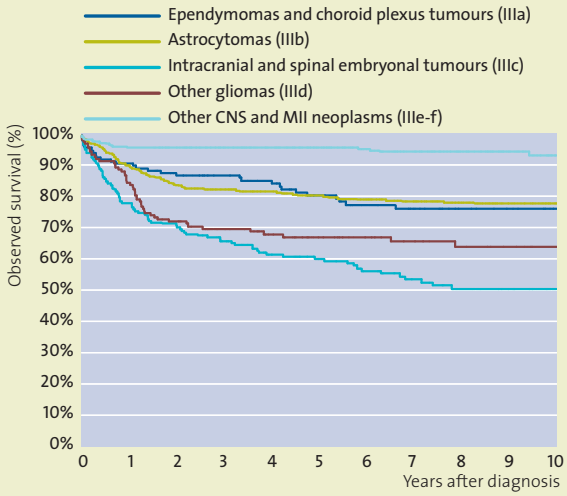
Figure 40 CNS and miscellaneous intracranial and intraspinal neoplasms: Observed survival* by age group, Belgium 2004-2016



N at risk											
< 1 y	89	64	60	58	52	43	37	33	29	25	17
1-4 y	333	290	270	244	211	182	162	147	132	97	74
5-14 y	666	598	526	477	427	376	313	271	231	188	152
15-19 y	338	319	292	257	223	194	171	151	126	101	76

Source: Belgian Cancer Registry

Figure 41 CNS and miscellaneous intracranial and intraspinal neoplasms: Observed survival* by histology, Belgium 2004-2016

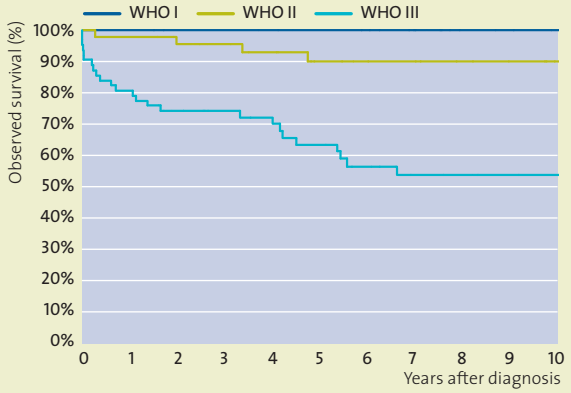


N at risk											
IIIa	141	128	113	103	95	82	73	62	53	48	42
IIIb	593	532	480	430	395	346	300	272	239	182	141
IIIc	194	151	134	118	93	82	68	56	46	37	27
IIId	145	123	99	86	75	60	51	45	41	36	28
IIIe;IIIf	355	339	324	301	257	226	191	167	139	108	81

Source: Belgian Cancer Registry

** Observed survival results calculated on less than 30 patients (N at risk) are purely indicative and no strong conclusions can be drawn.*

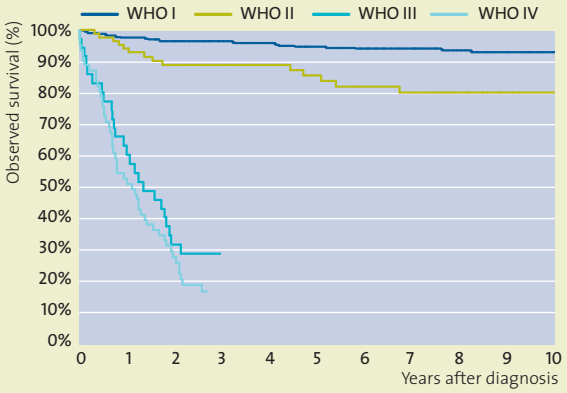
Figure 42 Ependymomas and choroid plexus tumours (IIIa): Observed survival* by WHO-classification, Belgium 2004-2016



N at risk											
WHO I	33	33	30	30	29	26	25	21	15	14	12
WHO II	46	45	42	37	33	27	25	23	21	19	16
WHO III	62	50	41	36	33	29	23	18	17	15	14

Source: Belgian Cancer Registry

Figure 43 Astrocytomas (IIIb): Observed survival* by WHO-classification, Belgium 2004-2016



N at risk											
WHO I	388	377	364	335	310	272	236	212	184	137	102
WHO II	81	76	68	60	57	49	43	41	37	30	27
WHO III	35	21	11	8	6	5	4	4	3	3	2
WHO IV	61	31	15	8	7	6	5	4	4	2	2

Source: Belgian Cancer Registry

** Observed survival results calculated on less than 30 patients (N at risk) are purely indicative and no strong conclusions can be drawn.*

IV Neuroblastoma and other peripheral nervous cell tumours

Incidence

In this chapter, all tumours belonging to the ICCC3 category of neuroblastoma and other peripheral nervous cell tumours (IV) are shortly referred to as sympathetic nervous system tumours or SNS tumours. In Belgium, 160 new diagnoses of SNS tumours are registered in children and adolescents between 2010 and 2016 (**Table 8**). The male/female ratio for SNS tumours is 1.1.

The majority (93%) are neuroblastomas (IVa) that occur almost exclusively in infants and very young children. In infants, this tumour is the most frequently diagnosed cancer (20%). Its occurrence decreases with age and becomes very rare in older children and adolescents (**Figure 44** and **45**)[22].

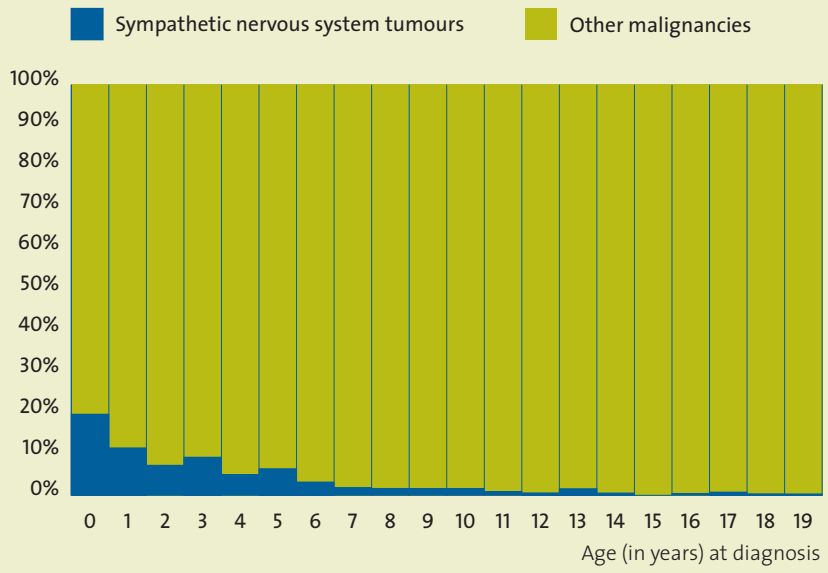
About 90% of the SNS tumours are located in an abdominal/thoracic location and the adrenal gland is the most common primary localisation (57%) (**Figure 46**)[53].

Table 8 New diagnoses of SNS tumours, Belgium 2010-2016

Boys		Total	0-14	15-19
IV	SNS tumours	85	82	3
IVa	Neuroblastoma	77	77	0
IVb	Other SNS tumours	8	5	3
Girls		Total	0-14	15-19
IV	SNS tumours	75	73	2
IVa	Neuroblastoma	71	71	0
IVb	Other SNS tumours	4	2	2

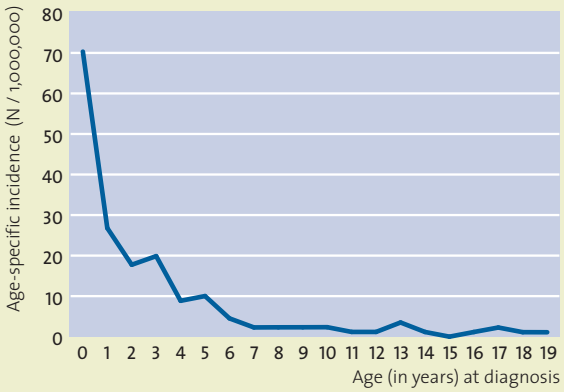
Source: Belgian Cancer Registry

Figure 44 Relative frequency of SNS tumours by age at diagnosis, Belgium 2010-2016



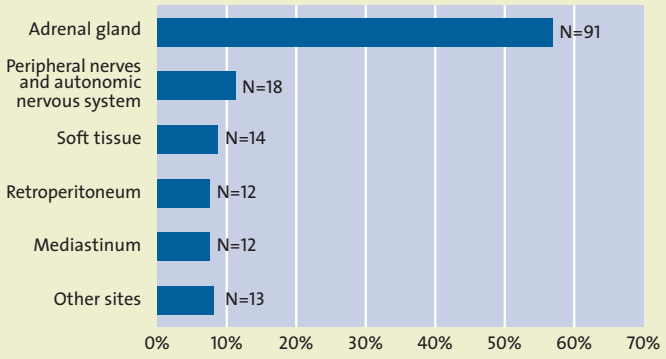
Source: Belgian Cancer Registry

Figure 45 SNS tumours: Age-specific incidence rates, Belgium 2010-2016



Source: Belgian Cancer Registry

Figure 46 SNS tumours: Number of new diagnoses (N) by primary site, Belgium 2010-2016



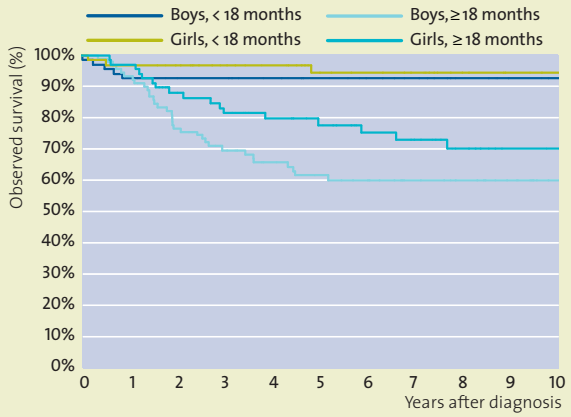
Source: Belgian Cancer Registry

Survival

Foetal neuroblastomas very often disappear or differentiate into benign neoplasms. Age, dichotomised at 18 months, is one important parameter in determining prognosis[54]. Younger patients (< 18 months) more often tend to have tumours with biologic characteristics that are related with a benign clinical course[53]. Prognosis and need for treatment depend on age, stage, histology and molecular characteristics of the tumour[55-59]. Unfortunately, neuroblastomas present in many cases with metastasis, because often first symptoms are caused by metastases and not by the primary tumour itself[53; 60-61].

In Belgium, 10-year observed survival is very high (94%) for children up to 18 months of age (**Figure 47**). For patients of 18 months of age and older, prognosis is much worse. In this age group, 10-year observed survival for boys and girls are 60% and 70%, respectively. These results are comparable with the observed survival in other European countries[23]. In the last 13 years, 5-year observed survival significantly improved from 76% to 83% (**Figure 48**). This could be explained by more intensive treatment regimens, including autologous haematopoietic stem cell transplantation, better supportive care and the introduction of immunotherapy for high risk patients[57]. The improvement is mainly found for patients older than 18 months of age[7]. Similarly, other European countries also show clear advances in outcome[23; 62-63].

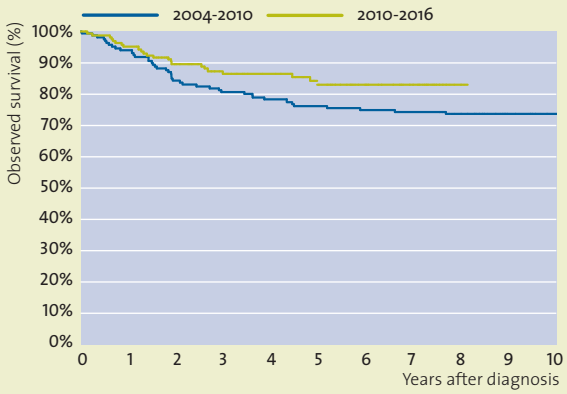
Figure 47 SNS tumours: Observed survival* by sex and age group, Belgium 2004-2016



N at risk											
Boys < 18 months	68	63	59	58	53	46	42	37	30	23	21
≥ 18 months	92	85	69	57	49	43	38	31	27	22	13
Girls < 18 months	64	61	58	51	47	39	37	34	26	23	20
≥ 18 months	68	66	55	50	44	40	33	30	23	17	16

Source: Belgian Cancer Registry

Figure 48 SNS tumours in children and adolescents: Observed survival*, Belgium 2004-2010 and 2010-2016



N at risk											
2004-2010	159	149	134	128	124	121	119	118	106	85	70
2010-2016	158	148	127	108	89	66	50	33	8		

Source: Belgian Cancer Registry

** Observed survival results calculated on less than 30 patients (N at risk) are purely indicative and no strong conclusions can be drawn.*

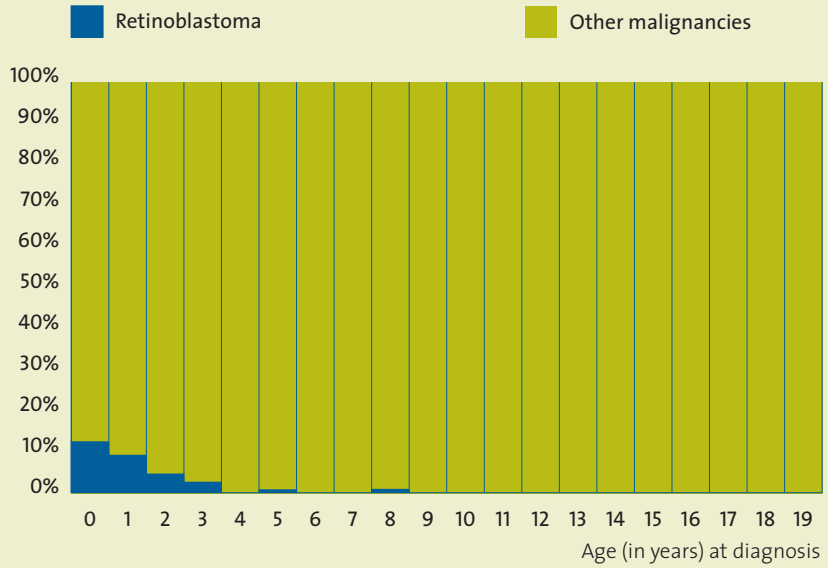
V Retinoblastomas

Incidence

Retinoblastoma is a rare disease. In the period 2010-2016 a total of 75 new diagnoses are registered in Belgium, 42 in boys and 33 in girls (M/F ratio = 1.2). Almost all diagnoses occur under the age of 4 years (**Figure 49** and **50**). The oldest patient was eight years of age at the time of diagnosis. At infancy, retinoblastomas represent 12% of all tumour diagnoses.

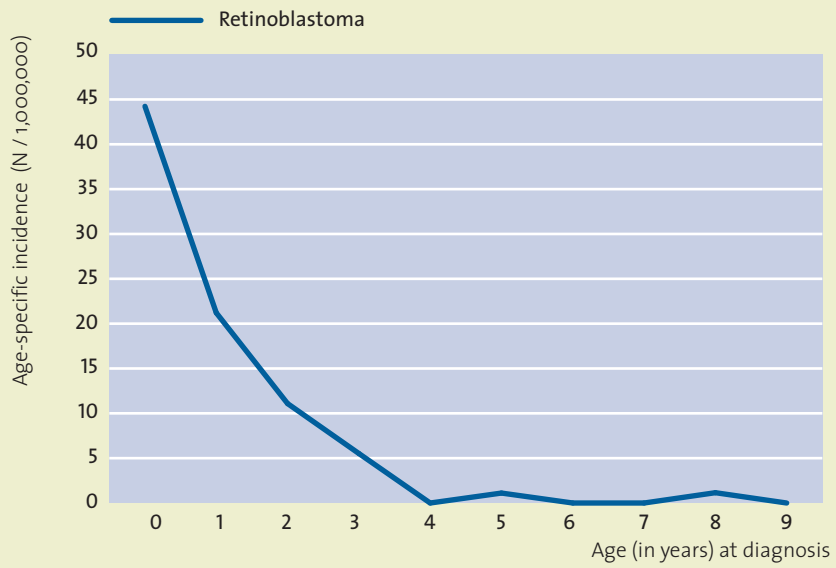
Retinoblastoma can be unilateral or bilateral (both eyes). Whereas only some unilateral retinoblastomas can be inherited, all bilateral retinoblastomas are known to be inheritable[64]. In 2010-2016, 16 patients (27%) are diagnosed with bilateral tumours. This percentage is in the lower range of the proportions of bilateral tumours found in international studies (27-40%) [65-67].

Figure 49 Relative frequency of retinoblastoma by age at diagnosis, Belgium 2010-2016



Source: Belgian Cancer Registry

Figure 50 Retinoblastoma: Age-specific incidence rates, Belgium 2010-2016

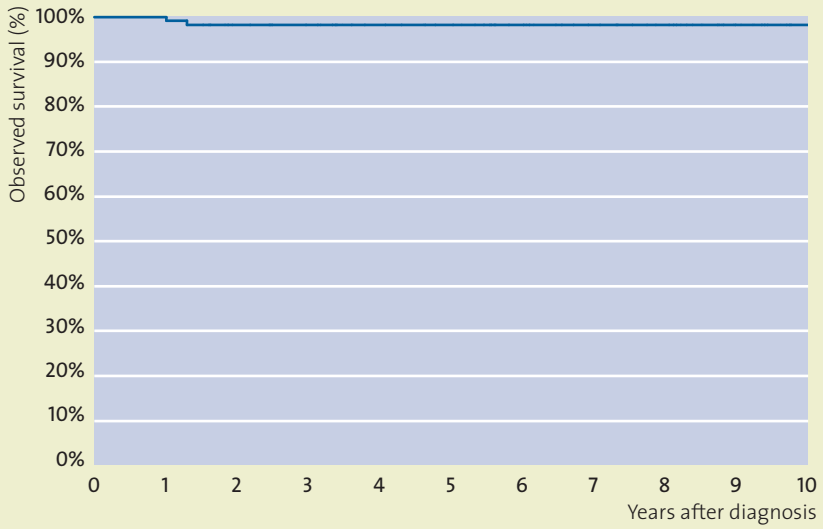


Source: Belgian Cancer Registry

Survival

In Belgium, children with retinoblastoma have a very good prognosis with a 10-year observed survival of 98% (**Figure 51**).

Figure 51 Retinoblastoma in children: Observed survival, Belgium 2004-2016



N at risk											
Retinoblastoma	115	115	105	100	90	85	76	68	62	46	36

Source: Belgian Cancer Registry

VI Renal tumours

Incidence

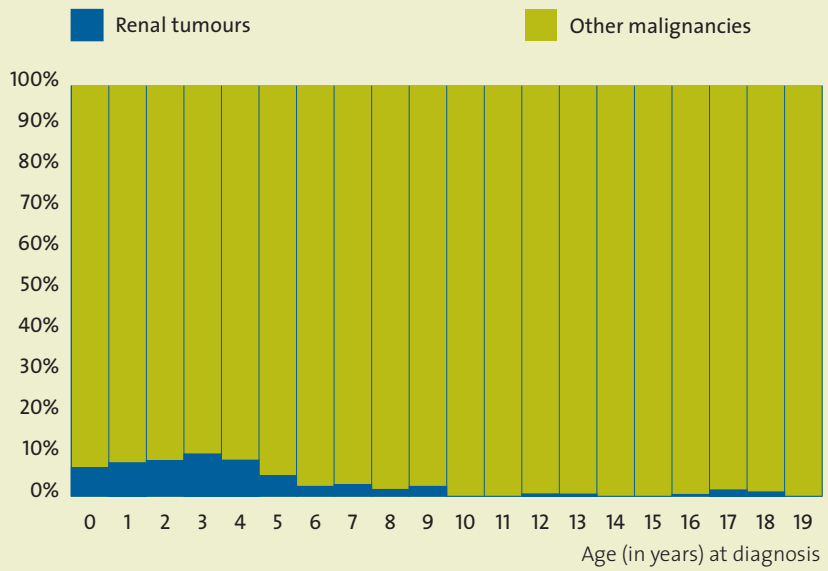
Renal tumours are rare childhood malignancies. In Belgium, 120 new diagnoses are registered between 2010 and 2016 (**Table 9**), of which 60 are diagnosed in boys and 60 in girls (M/F ratio = 1.0). They represent about 3% of all malignancies in children and adolescents. The majority (93%) of the renal tumours are categorised as nephroblastoma and other non-epithelial renal tumours (VIa). This category consists of 97% nephroblastoma (N = 108). In 2010-2016, 7% of patients with nephroblastoma are diagnosed with bilateral tumours (that are registered as two distinct tumours in the same patient). This proportion corresponds with other studies reporting that 5% to 7% of patients with nephroblastoma have bilateral disease[68]. Renal carcinoma, the most frequent renal cancer in adults, seldom occurs in childhood.

Table 9 New diagnoses of renal tumours, Belgium 2010-2016

Boys		Total	0-14	15-19
VI	Renal tumours	60	59	1
VIa	Nephroblastoma and other non-epithelial renal tumors	58	58	0
VIb	Renal carcinomas	2	1	1
VIc	Unspecified renal tumours	0	0	0
Girls		Total	0-14	15-19
VI	Renal tumours	60	53	7
VIa	Nephroblastoma and other non-epithelial renal tumors	53	51	2
VIb	Renal carcinomas	7	2	5
VIc	Unspecified renal tumours	0	0	0

Source: Belgian Cancer Registry

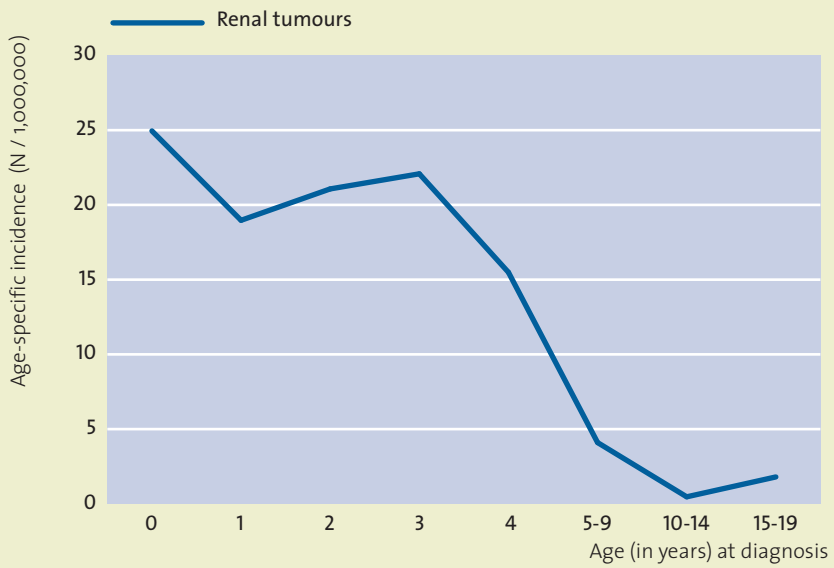
Figure 52 Relative frequency of renal tumours by age at diagnosis, Belgium 2010-2016



Source: Belgian Cancer Registry

Most diagnoses of nephroblastoma occur before the age of 6 years (**Figure 52**): they represent approximately 8% of all childhood malignancies. The highest incidence rates are observed in the first years of life. After the age of 3 years the incidence rates decline rapidly (**Figure 53**). After the age of 5 years renal tumours are seldom diagnosed.

Figure 53 Age-specific incidence rates of renal tumours, Belgium 2010-2016

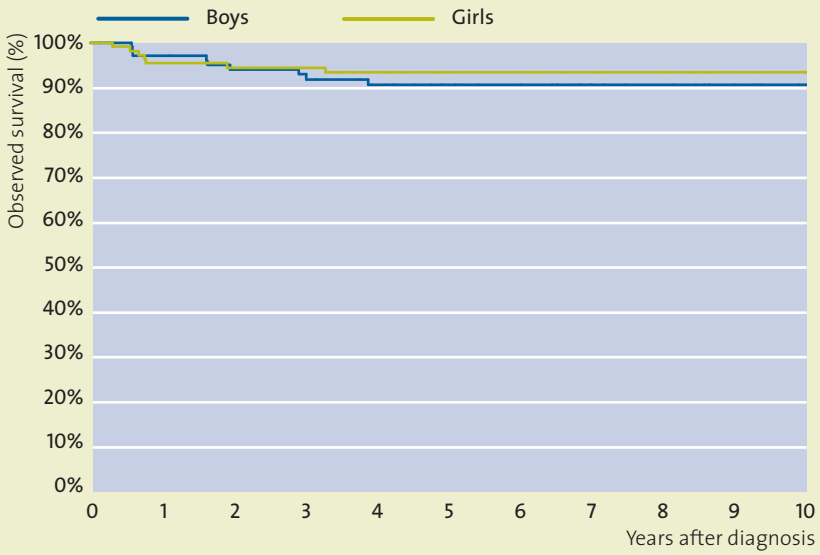


Source: Belgian Cancer Registry

Survival

Renal tumours have a good prognosis (**Figure 54**). The observed survival at 5 years after diagnosis is 91% for boys and 93% for girls.

Figure 54 Observed survival for renal tumours by sex, Belgium 2004-2016



N at risk											
Boys	104	99	91	83	77	67	61	53	46	40	35
Girls	108	103	99	87	79	69	66	60	50	43	36

Source: Belgian Cancer Registry

VII Hepatic tumours

Incidence

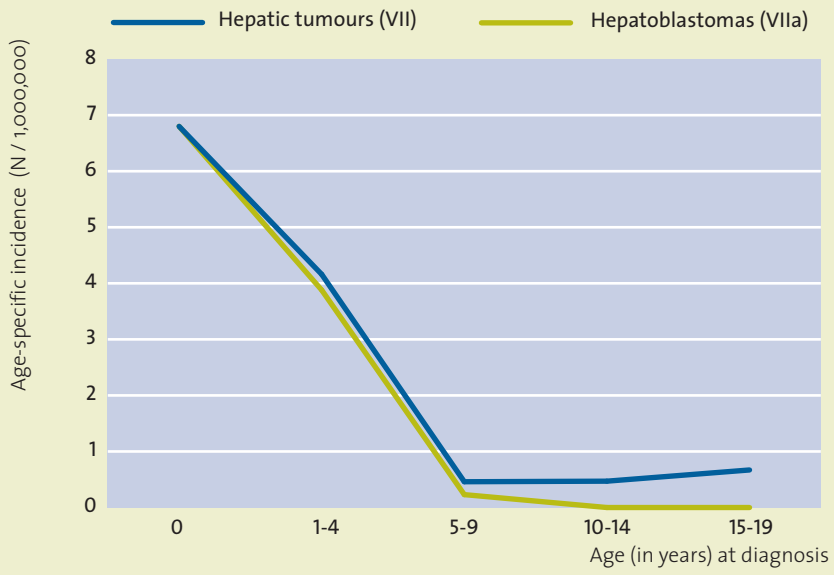
Hepatic tumours are an extremely rare disease. In children and adolescents, they represent 0.7% of all malignancies. In Belgium, there are only 28 new diagnoses registered between 2010 and 2016, 17 boys and 11 girls. The male/female ratio is 1.4. The 2 main hepatic tumours are hepatoblastoma (N=21), mostly observed before the age of five years, and hepatocellular carcinomas (N=7), occurring in older children and in adolescents (**Table 10**). Most of the tumours are diagnosed in the first years of life (**Figure 55**). The higher incidence at younger ages and the male predominance are also seen in other western countries[21; 69-70].

Table 10 New diagnoses of hepatic tumours, Belgium 2010-2016

Boys		Total	0-14	15-19
VII	Hepatic tumours	17	14	3
VIIa	Hepatoblastomas	11	11	0
VIIb	Hepatic carcinomas	6	3	3
Girls		**Total**	**0-14**	**15-19**
VII	Hepatic tumours	11	11	0
VIIa	Hepatoblastomas	10	10	0
VIIb	Hepatic carcinomas	1	1	0

Source: Belgian Cancer Registry

Figure 55 Hepatic tumours: Age-specific incidence rates, Belgium 2010-2016

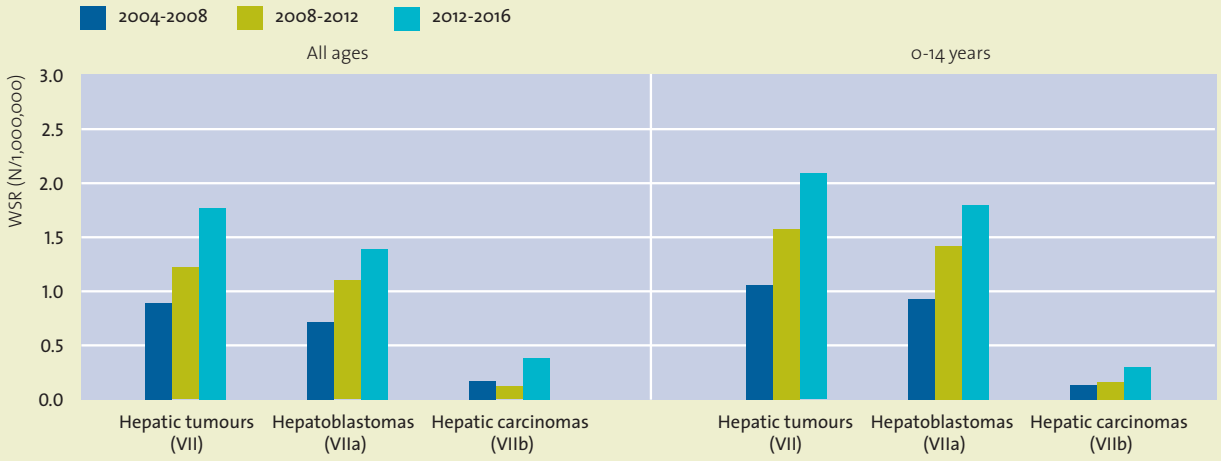


Source: Belgian Cancer Registry

Trends

During the last 13 years, the incidence rates doubled in both categories of diagnosis (**Figure 56**)[7]. This increase is predominantly seen in the age group 1-4 years. During the last decade, studies in some other countries also show evidence for increased incidence rates of hepatoblastoma[21; 69] or hepatic carcinoma[50]. The evidence for potential risk factors is limited, but convincing. Several studies have implicated parental smoking and parental exposure to metals, petroleum or paints as risk factors for hepatoblastoma[71-72]. In addition, improved care and outcome of premature infants has also been identified as a potential explanation of this increase[72-73]. Further analysis of the Belgian and international data is needed to explore these findings.

Figure 56 Hepatic tumours: Age-standardised incidence (WSR) by histology, Belgium 2004-2008, 2008-2012 and 2012-2016

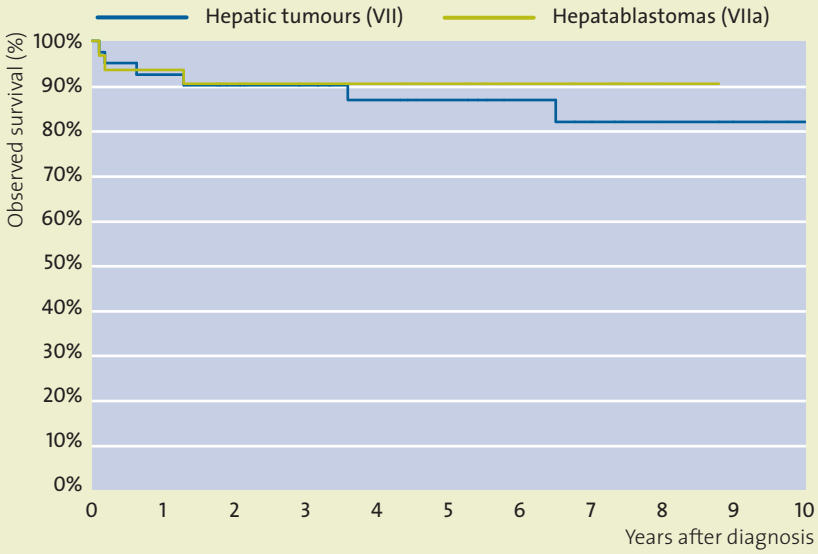


Source: Belgian Cancer Registry

Survival

In Belgium, the 10-year observed survival for hepatic tumours is 82% (**Figure 57**). When only hepatoblastomas are considered (exclusion of hepatic carcinomas), the prognosis is slightly better. The 5-year observed survival of hepatoblastomas is 90% (plateau from 1 year after diagnosis) (**Figure 57**).

Figure 57 Hepatic tumours in children and adolescents: Observed survival*, Belgium 2004-2016



N at risk											
Hepatic tumours (VII)	40	37	33	30	27	23	19	16	12	10	8
Hepatoblastomas (VIIa)	31	29	25	22	21	18	15	13	10	8	6

Source: Belgian Cancer Registry

** Observed survival results calculated on less than 30 patients (N at risk) are purely indicative and no strong conclusions can be drawn.*

VIII Malignant bone tumours

Incidence

In Belgium, between 2010 and 2016, 176 new diagnoses of bone tumours are registered, which represent 5% of all cancer diagnoses in children and adolescents (**Table 11**). More boys are diagnosed than girls (M/F ratio = 1.2). The excess of diagnoses in boys is predominant in adolescents (M/F ratio = 1.7), while absent in children (M/F ratio = 1.0).

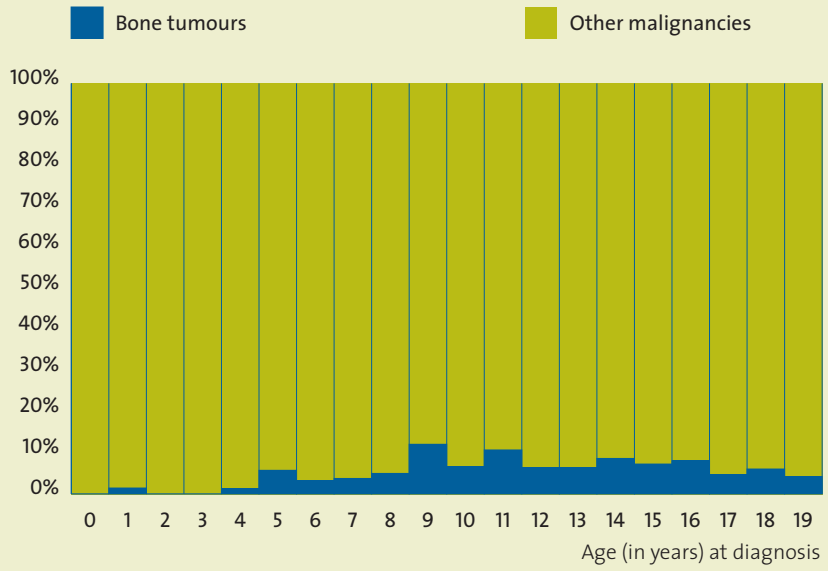
Bone tumours are rare in children younger than 5 years of age. After the age of 5, the incidence rates increase to reach a peak in late childhood (around 16 years of age) (**Figure 59**). This trend is already observed in international studies[74-75]. In the age group 9-16 years, bone tumours represent 6-12% of all childhood cancer diagnoses (**Figure 58**).

Table 11 New diagnoses of bone tumours, Belgium 2010-2016

Boys		Total	0-14	15-19
VIII	Bone tumours	100	52	48
VIIIa	Osteosarcomas	56	28	28
VIIIb	Chondrosarcomas	5	1	4
VIIIc	Ewing tumours (and related sarcomas of bone)	35	23	12
VIIId-e	Other bone tumours	4	0	4
Girls		Total	0-14	15-19
VIII	Bone tumours	76	49	27
VIIIa	Osteosarcomas	39	24	15
VIIIb	Chondrosarcomas	4	2	2
VIIIc	Ewing tumours (and related sarcomas of bone)	26	19	7
VIIId-e	Other bone tumours	7	4	3

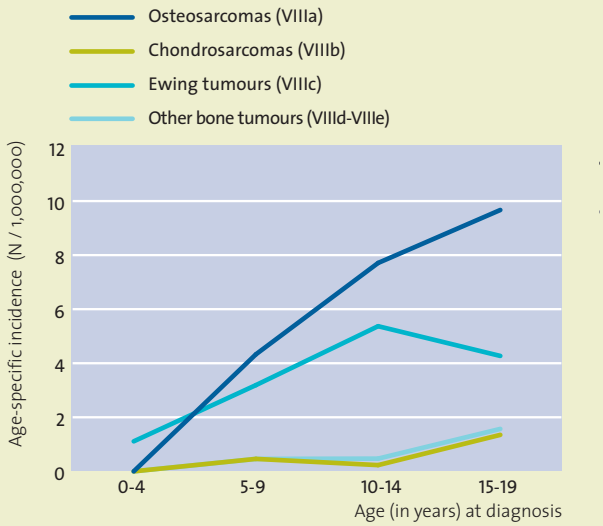
Source: Belgian Cancer Registry

Figure 58 Relative frequency of bone tumours by age at diagnosis, Belgium 2010-2016



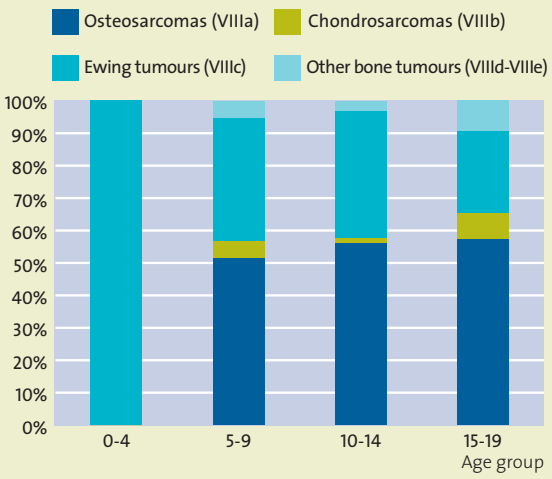
Source: Belgian Cancer Registry

Figure 59 Bone tumours: Age-specific incidence rates by histology, Belgium 2010-2016



Source: Belgian Cancer Registry

Figure 60 Bone tumours by age group, Belgium 2010-2016



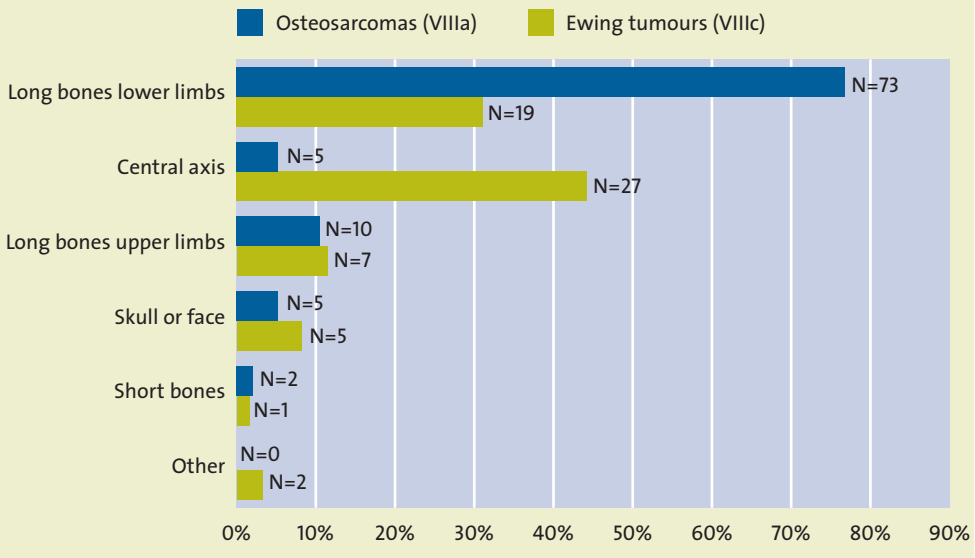
Source: Belgian Cancer Registry

Osteosarcomas (VIIIa) and Ewing tumours and related bone sarcomas (VIIIc; in this chapter also shortly referred to as Ewing tumours) are the predominant histological subtypes (54% and 35%, respectively). The incidence rates for both tumours increase with age, but with a somewhat different age-pattern (**Figure 59** and **60**).

Bone tumours are very rare under the age of 5 years and all diagnoses are Ewing tumours (VIIIc). The highest incidence rate of Ewing tumours (VIIIc) is observed in the age group 10-14 years. No osteosarcomas (VIIIa) and no chondrosarcomas (VIIIb) are diagnosed under the age of 5 years. At the age of 5, incidence rates of osteosarcomas (VIIIa) increase and after the age of 10, they become the dominant bone tumour diagnosis (**Figure 60**).

Osteosarcomas (VIIIa) and Ewing tumours (VIIIc) also differ in site distribution (**Figure 61**). The long bones of the lower limbs are the predominant primary site for bone tumours (92 diagnoses), especially for osteosarcoma (VIIIa) (they represent almost four out of five tumours at this localisation). The most frequent primary site for Ewing tumours (VIIIc) is the central axis (spinal column-rib-sternum-pelvic bones-sacrum-coccyx), followed by the long bones of the lower limbs.

Figure 61 Bone tumours: Incidence by primary site and histology, Belgium 2010-2016

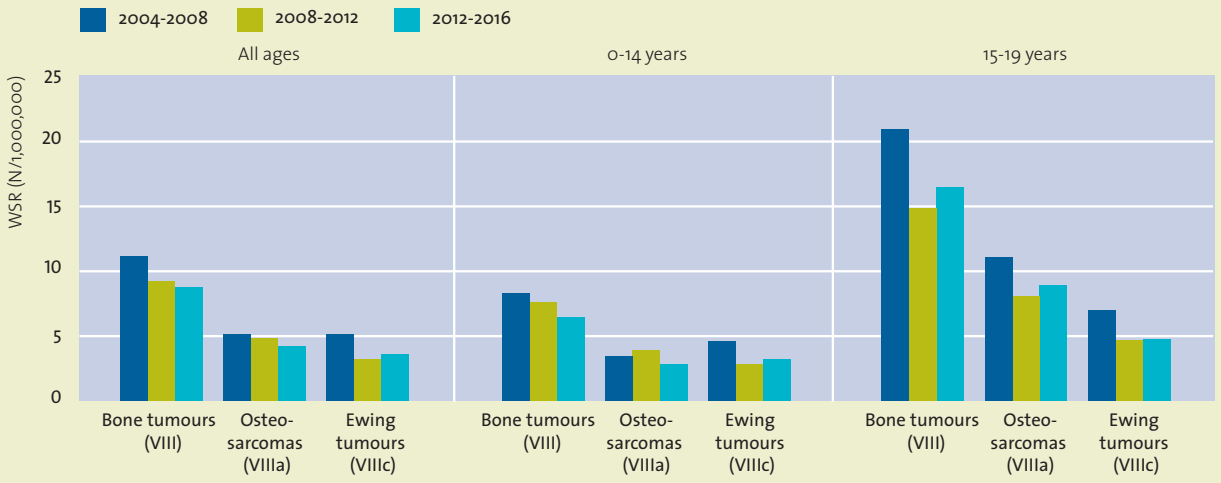


Source: Belgian Cancer Registry

Trends

In Belgium, incidence rates in children and adolescents seem to decrease in the last 13 years and this trend is seen in the two main diagnostic categories (VIIIa and VIIIc) (**Figure 62**). However, there was an update of classification codes for bone tumours in 2013 based on new clinical insights during the last two decades. This has led to a better understanding, resulting in an improved classification of bone tumours (especially borderline versus malignant) that might explain the observed trends[76]. International studies show little evidence of consistent changes in bone tumour incidence in children and adolescents[74]. Some countries report a decreasing incidence trend[77], while no significant changes are seen in other countries[21].

Figure 62 Bone tumours: Age-standardised incidence (WSR) by histology, Belgium 2004-2008, 2008-2012 and 2012-2016



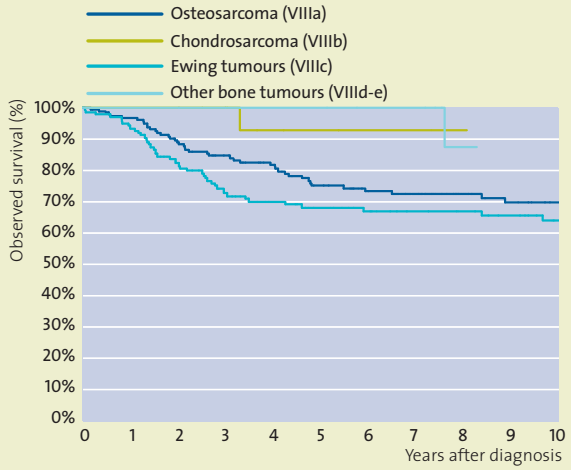
Source: Belgian Cancer Registry

Survival

In Belgium, the 10-year observed survival for children and adolescents shows no major difference between osteosarcomas (VIIIa) (70%) and Ewing tumours (VIIIc) (64%). For chondrosarcomas (VIIIb) and other bone tumours (VIIId-e), the observed survival seems to be higher with a 5-year observed survival of 93% and 100%, respectively (**Figure 63**)[23]. However, because of the small number of subjects no strong conclusions can be drawn for VIIIb and VIIId-e.

In addition to the tumour type, the prognosis of bone tumours also depends on the primary localisation (**Figure 64**): primary tumours of the central axis have a worse prognosis, while those occurring on the long bones of the lower limbs have the best prognosis (10-year survival of 56% and 75%, respectively).

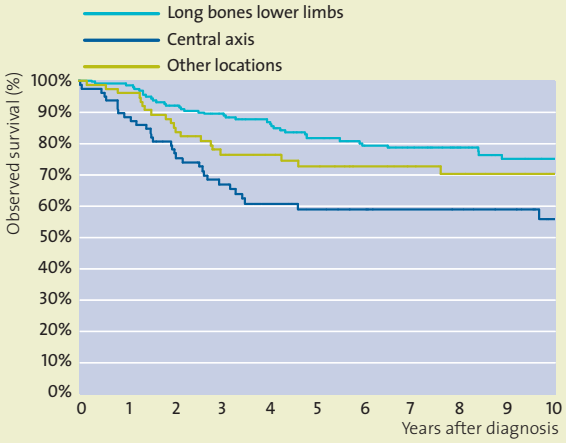
Figure 63 Bone tumours in children and adolescents: Observed survival* by histology, Belgium 2004-2016



N at risk											
VIIIa	173	166	147	130	114	95	85	77	59	50	44
VIIIb	18	18	18	16	12	11	10	10	9	6	6
VIIIc	135	126	108	88	76	67	61	55	52	46	37
VIIId-VIIIe	18	18	18	16	15	14	12	12	7	5	2

Source: Belgian Cancer Registry

Figure 64 Bone tumours in children and adolescents: Observed survival* by primary site, Belgium 2004-2016



N at risk											
Long bones, lower limbs	191	188	170	152	136	115	104	97	75	62	56
Central axis	78	69	59	46	37	33	30	27	26	23	15
Other locations	75	71	62	52	44	39	34	30	26	22	18

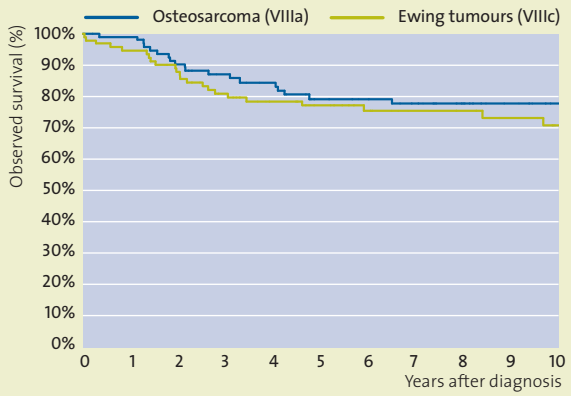
Source: Belgian Cancer Registry

** Observed survival results calculated on less than 30 patients (N at risk) are purely indicative and no strong conclusions can be drawn.*

The observed survival shows also differences based on age at diagnosis. The 10-year observed survival is better in children (75%) than in adolescents (63%) (**Figure 65** and **66**). In adolescents, osteosarcoma show a much better prognosis than Ewing tumours (**Figure 66**), whereas in children, the difference between osteosarcoma and Ewing tumours is less pronounced (10-year observed survival of 78% and 71% respectively) (**Figure 65**). The observed survival of Ewing tumours in adolescents reaches a plateau of 50% after 5 years, while the observed survival of osteosarcoma decreases to 60% after 10 years (**Figure 66**).

For osteosarcoma, the 10-year observed survival for boys and girls is about the same (**Figure 67**), but there seems to be an impact of the sex on the outcome for Ewing tumours with a worse 10-year observed survival for boys compared to girls (59% versus 70%, respectively) (**Figure 68**). There is limited evidence for a similar prognostic impact of sex on survival in other international studies and most studies suggest that sex has no significant prognostic influence[78].

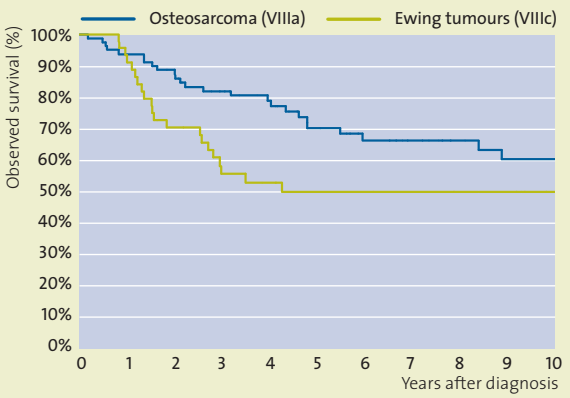
Figure 65 Bone tumours in children: Observed survival * by histology, Belgium 2004-2016



N at risk											
VIIIa	94	92	81	73	65	56	52	48	36	30	24
VIIIc	91	86	78	67	57	50	44	39	37	32	27

Source: Belgian Cancer Registry

Figure 66 Bone tumours in adolescents: Observed survival* by histology, Belgium 2004-2016

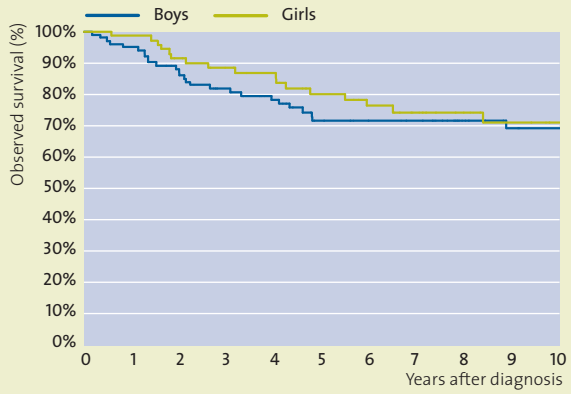


N at risk											
VIIIa	79	74	66	57	49	39	33	29	23	20	20
VIIIc	44	40	30	21	19	17	17	16	15	14	10

Source: Belgian Cancer Registry

** Observed survival results calculated on less than 30 patients (N at risk) are purely indicative and no strong conclusions can be drawn.*

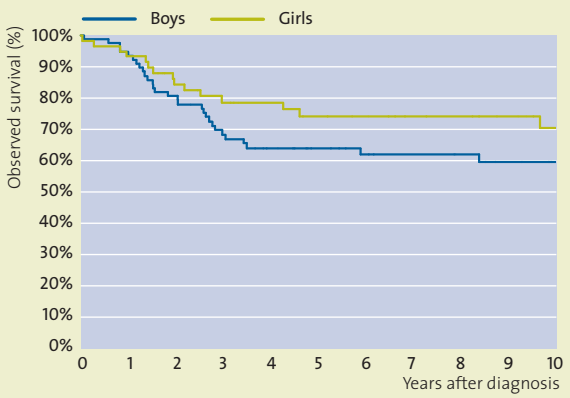
Figure 67 Osteosarcoma (VIIIa): Observed survival* by sex, Belgium 2004-2016



N at risk											
Boys	102	96	84	73	61	51	47	45	33	28	25
Girls	71	70	63	57	53	44	38	32	26	22	19

Source: Belgian Cancer Registry

Figure 68 Ewing tumours (VIIIc): Observed survival* by sex, Belgium 2004-2016



N at risk											
Boys	77	72	62	48	40	34	30	28	26	23	19
Girls	58	54	46	40	36	33	31	27	26	23	18

Source: Belgian Cancer Registry

** Observed survival results calculated on less than 30 patients (N at risk) are purely indicative and no strong conclusions can be drawn.*

IX Soft tissue and other extraosseous sarcomas

Incidence

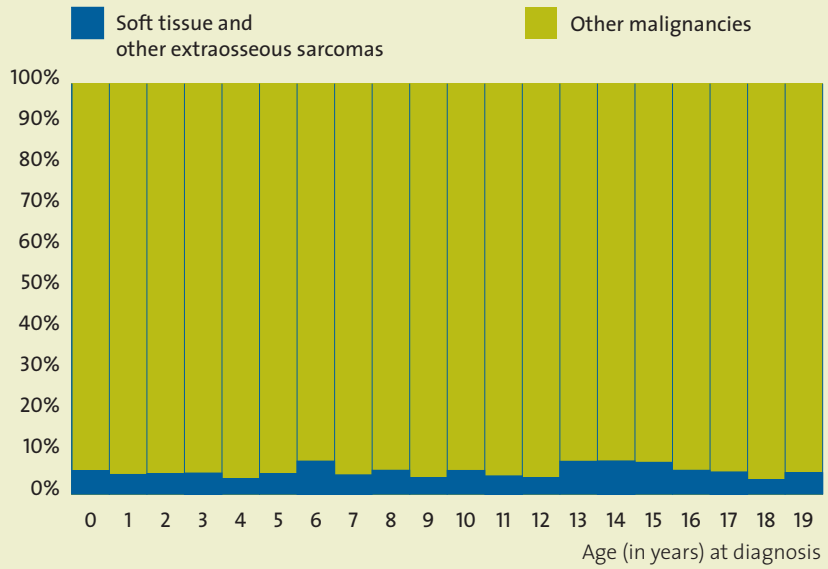
The soft tissue sarcomas and other extraosseous sarcomas (in this chapter shortly referred to as "STS") represent 6% of all childhood and adolescent cancer diagnoses. The relative frequency of STS by age at diagnosis is evenly distributed for all age groups [min 4%, max 8%] (**Figure 69**). The incidence rates for all STS combined are equal in both sexes (M/F ratio = 1.0). However, STS are a heterogeneous group of neoplasms which are classified in two broad categories: rhabdomyosarcomas (RMS) and non-rhabdomyosarcomas (Non-RMS).

Table 12 New diagnoses of soft tissue and other extraosseous sarcomas, Belgium 2010-2016

Boys		Total	0-14	15-19
IX	Soft tissue and other extraosseous sarcomas	105	74	31
IXa	Rhabdomyosarcomas	51	40	11
IXb-e	Non-rhabdomyosarcomas	54	34	20
Girls		Total	0-14	15-19
IX	Soft tissue and other extraosseous sarcomas	102	64	38
IXa	Rhabdomyosarcomas	30	25	5
IXb-e	Non-rhabdomyosarcomas	72	39	33

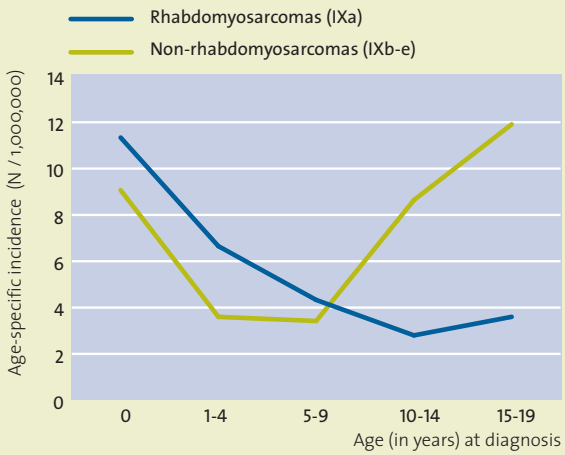
Source: Belgian Cancer Registry

Figure 69 Soft tissue and other extraosseous sarcomas: Relative frequency by age at diagnosis, Belgium 2010-2016



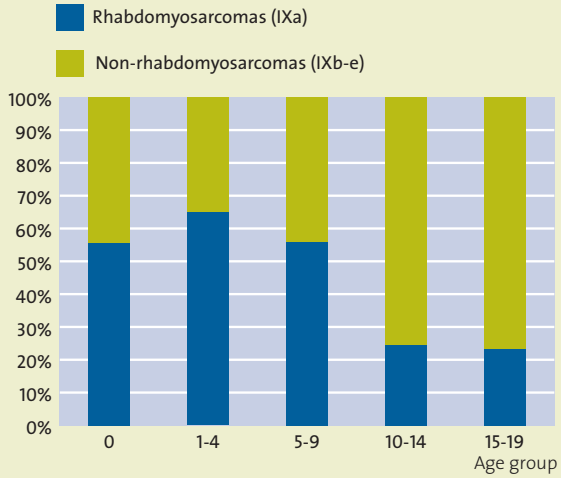
Source: Belgian Cancer Registry

Figure 70 Soft tissue and other extraosseous sarcomas: Age-specific incidence rates by histology, Belgium 2010-2016



Source: Belgian Cancer Registry

Figure 71 Soft tissue and other extraosseous sarcomas by age group, Belgium 2010-2016



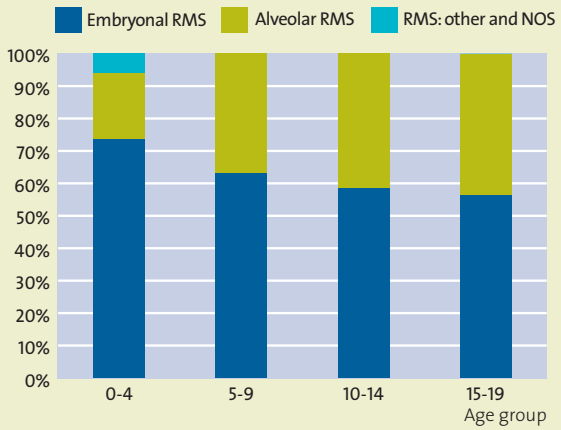
Source: Belgian Cancer Registry

The incidence of **rhabdomyosarcomas (IXa)** is highest in infants and young children, and rapidly decreases until the age of 10 years (**Figure 70** and **71**). Almost twice as many boys are registered with RMS than girls (M/F ratio = 1.6) (**Table 12**).

There are two main histological types of rhabdomyosarcoma: embryonal RMS, which is the most frequently diagnosed subtype (65% of RMS), especially in infants and young children. Whereas the incidence rate of embryonal RMS decreases with age, incidence rates of alveolar RMS (32% of RMS) increase with age and are the highest in adolescents (**Figure 72**).

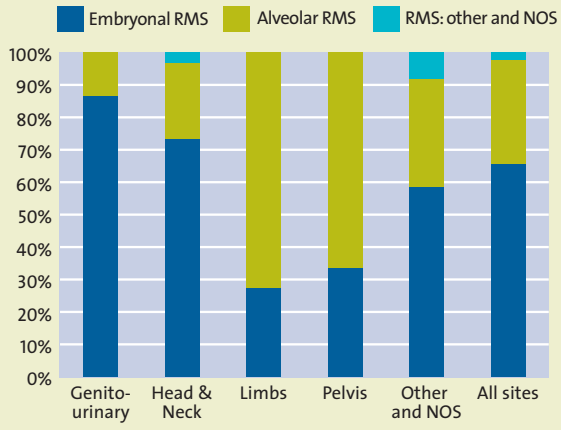
RMS occur at various sites in the body. The most common sites in our dataset are genito-urinary tract (N=30 or 37%) and head and neck (N=22 or 27%). Embryonal RMS account for the majority of the diagnoses for every site, with exception of limbs and pelvis where about 70% of cases are alveolar RMS (**Figure 73**). This is in accordance with the ACCIS project where a similar histological predominance is observed for all these primary sites (excluding pelvis tumours)[79]. However, the number of pelvis tumours diagnosed in Belgium between 2010 and 2016 is too low (N = 6) to draw any strong conclusions.

Figure 72 Rhabdomyosarcomas by histology, Belgium 2010-2016



Source: Belgian Cancer Registry

Figure 73 Rhabdomyosarcomas by primary site, Belgium 2010-2016



Source: Belgian Cancer Registry

Non-rhabdomyosarcomas (IXb-e) have two incidence peaks: one in infants and one in children older than ten years of age (**Figure 70**). The non-RMS group contains a wide variety of different histological subtypes and each age group is characterised by different dominant subtypes (**Table 13**).

In young children (0-4 years), most non-RMS belong to the category of 'Other specified soft tissue sarcomas' (IXd; 67%), where they are mainly represented by extrarenal rhabdoid tumours[iv] (IXd3), PNET of soft tissue (IXd2) and fibrohistiocytic tumours (IXd5). At the age of 10-19 years, the most frequent non-RMS categories are fibrosarcomas (IXb; 15%) and 'Other specified soft tissue sarcomas' (IXd; 67%) with fibroblastic/myofibroblastic tumours (IXb1), PNET of soft tissue (IXd2), liposarcomas (IXd4), fibrohistiocytic tumours (IXd5) and synovial sarcoma (IXd7) as most common histological subtypes.

In children and adolescents, the unspecified soft tissue sarcomas (IXe) encompass less than 15% of the non-RMS.

Table 13 Non-rhabdomyosarcomas by histology, Belgium 2010-2016

ICCC-3 classification		New diagnoses (N)					
		Total	%	0-4	5-9	10-14	15-19
IXb-e	Non-rhabdomyosarcomas	126	100.0	21	15	37	53
IXb	Fibrosarcomas	20	15.9	2	4	6	8
IXb1	Fibroblastic and myofibroblastic tumours	13	10.3	2	2	4	5
IXb2	Nerve sheath tumours	7	5.6	0	2	2	3
IXb3	Other fibromatous neoplasms	0	0.0	0	0	0	0
IXc	Kaposi sarcomas	3	2.4	0	0	0	3
IXd	Other specified soft tissue sarcomas	85	67.5	14	10	26	35
IXd1	Ewing tumour and Askin tumour of soft tissue	1	0.8	0	1	0	0
IXd2	PNET of soft tissue	15	11.9	3	1	6	5
IXd3	Extrarenal rhabdoid tumours	5	4.0	5	0	0	0
IXd4	Liposarcomas	8	6.3	1	0	3	4
IXd5	Fibrohistiocytic tumours	23	18.3	3	1	7	12
IXd6	Leiomyosarcomas	7	5.6	1	2	0	4
IXd7	Synovial sarcomas	16	12.7	0	2	6	8
IXd8	Blood vessel tumours	2	1.6	1	1	0	0
IXd9	Osseous and chondromatous neoplasms of soft tissue	0	0.0	0	0	0	0
IXd10	Alveolar soft parts sarcomas	3	2.4	0	0	3	0
IXd11	Miscellaneous soft tissue sarcomas	5	4.0	0	2	1	2
IXe	Unspecified soft tissue sarcomas	18	14.3	5	1	5	7

Source: Belgian Cancer Registry

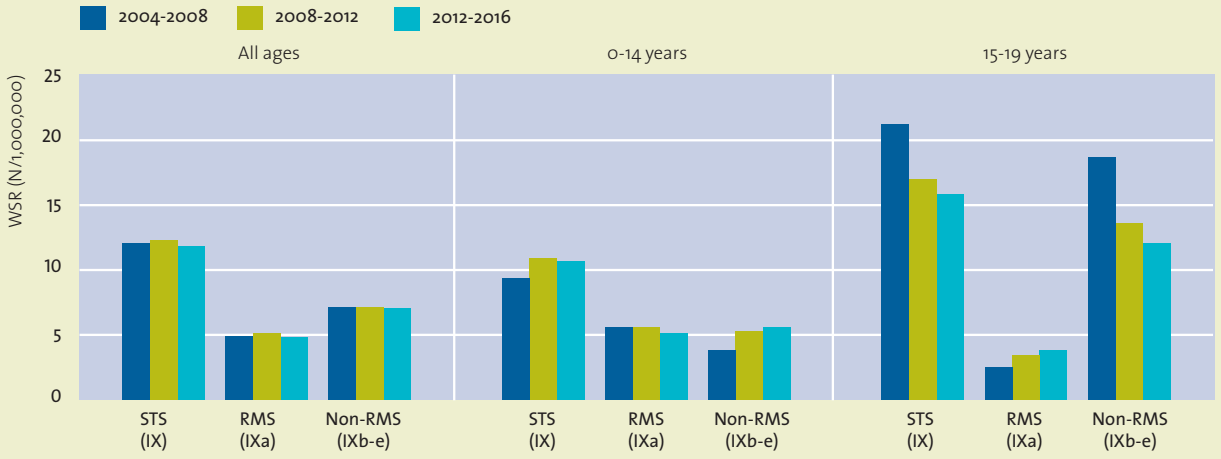
iv Rhabdoid tumours are rare and typically occur in infants. They are aggressive and have a very poor prognosis (5-year observed survival of 30%). It is expected that these tumours were under- or misregistered in the past because this type of tumour is poorly differentiated, and the diagnostic biomarker started to be used in the last decade.

Trends

Figure 74 shows that the observed incidence trends in Belgium are different for children and adolescents. A clear decrease is found for adolescents (mainly in non-RMS), while not for children. In children, the observed incidence rates rather seem to increase slightly. European data also show an annual increase in the incidence of soft tissue sarcomas in children (0-14 years)[70; 79].

However, some important recent developments have to be taken into account for a correct interpretation of these trends. In the last two decades, there have been many changes in STS classification, predominantly based on advances related to the identification of new histological and genetic findings in different tumour types. This has led to an update of classification codes for soft tissue and other extraosseous sarcomas in 2013[76] and resulted in many changes and reclassifications of the STS subtypes (**Table 12** and **13**)[7]. Thus, these trends may reflect better knowledge and improved registration of the rare STS entities.

Figure 74 Soft tissue and other extraosseous sarcomas: Age-standardised incidence (WSR) by histology, Belgium 2004-2008, 2008-2012, 2012-2016

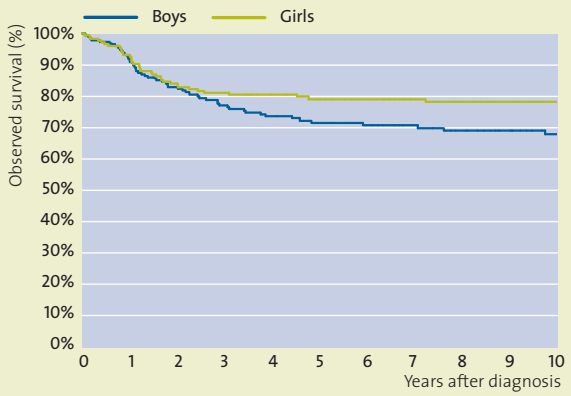


Source: Belgian Cancer Registry

Survival

When all STS tumours are considered as one group, 10-year observed survival for girls is better than for boys (78% and 68%, respectively) (**Figure 75**). Histology is considered an important prognostic factor[79]. In our data, worse survival is clearly observed in RMS (67%) versus non-RMS diagnoses (77%) (**Figure 76**). The observed survival for RMS in Belgium is similar to the survival observed at European level[23]. When analysing the data of the different underlying RMS subtypes, a clearly higher 5-year survival is seen for embryonal RMS (82%) than for alveolar RMS (38%) (**Figure 77**). In addition, **Figure 78** also shows differences based on the primary site of RMS tumours: location in the genito-urinary tract is associated with a much better prognosis (10-year observed survival of 88%) than head and neck tumours (64%) or other sites (53%).

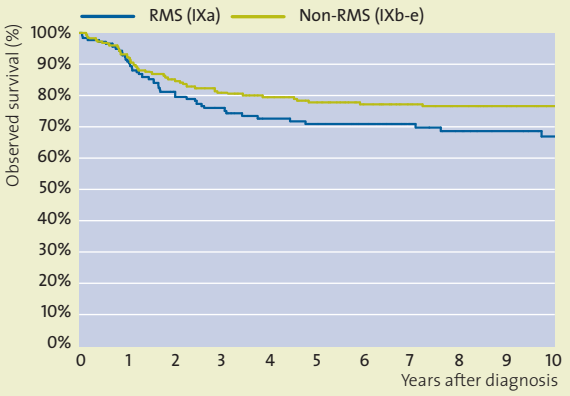
Figure 75 Soft tissue and other extraosseous sarcomas in children and adolescents: Observed survival by sex, Belgium 2004-2016



N at risk											
Boys	204	186	160	138	120	106	89	80	72	64	55
Girls	179	167	144	130	120	111	99	83	72	58	50

Source: Belgian Cancer Registry

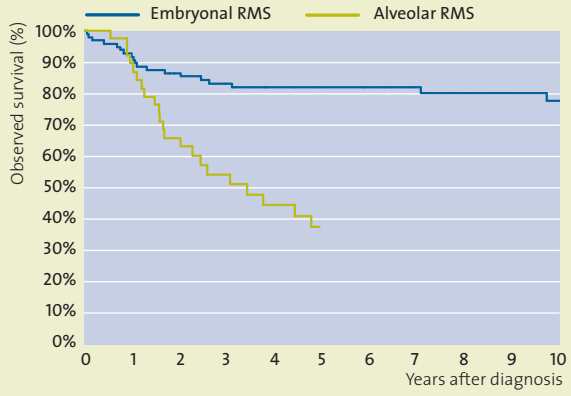
Figure 76 Soft tissue and other extraosseous sarcomas in children and adolescents: Observed survival by histology, Belgium 2004-2016



N at risk											
RMS (IXa)	145	132	111	99	83	77	68	58	53	47	39
Non-RMS (IXb-e)	238	221	193	169	157	140	120	105	91	75	66

Source: Belgian Cancer Registry

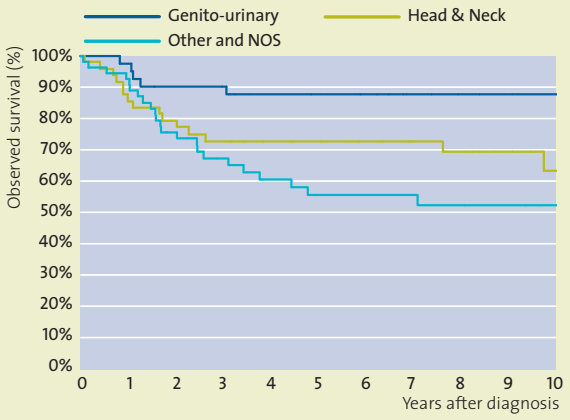
Figure 77 RMS in children and adolescents: Observed survival* by histology, Belgium 2004-2016



N at risk											
Embryonal RMS	96	88	80	74	63	61	53	44	40	36	30
Alveolar RMS	39	34	23	18	13	9	8	7	6	5	5

Source: Belgian Cancer Registry

Figure 78 RMS in children and adolescents: Observed survival* by primary site, Belgium 2004-2016



N at risk											
Genito-urinary	41	40	36	35	29	28	24	20	18	17	15
Head & Neck	49	42	37	33	29	28	24	21	19	15	11
Other and NOS	55	50	38	31	25	21	20	17	16	15	13

Source: Belgian Cancer Registry

** Observed survival results calculated on less than 30 patients (N at risk) are purely indicative and no strong conclusions can be drawn.*

X Germ cell, trophoblastic and other gonadal neoplasms

Incidence

Germ cell tumours, trophoblastic and other gonadal neoplasms (GCTOG) represent 6% of all tumours in children and adolescents. The majority of the tumours are found in adolescents where they account for 9% of all tumour diagnoses. GCTOG are subdivided into 3 main groups according to the cells of origin (germ cells (Xa-c), trophoblastic cells (Xd) or other cells (Xe); cf. **Table 14**). The germ cell tumours (GCT) are further separated by site of origin (central nervous system (Xa), gonads (Xc), or elsewhere (Xb)).

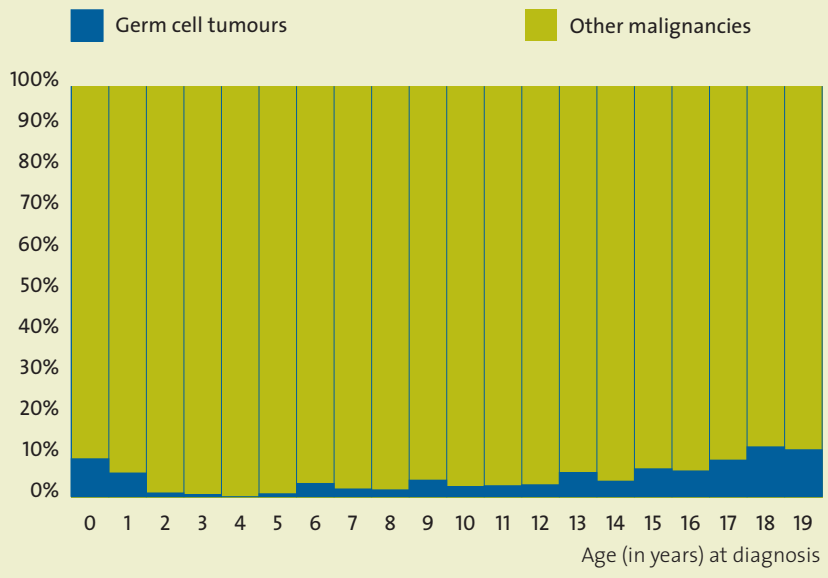
In Belgium, 207 new diagnoses are registered between 2010 and 2016 (**Table 14**). More boys are diagnosed than girls (M/F ratio = 1.4). This higher incidence in boys mostly occurs in adolescents (male/female ratio of 2.6) and is mainly observed for the gonadal GCT (N_{Boys} = 80; N_{Girls} = 22). While the opposite is observed in children younger than 15 years of age (M/F ratio = 0.7; [21]), especially for the extra-cranial/gonadal GCT (N_{Boys} = 5; N_{Girls} = 17).

Table 14 New diagnoses of GCTOG, Belgium 2010-2016

Boys		Total	0-14	15-19
X	GCTOG	125	37	88
Xa	Intra-cranial / -spinal GCT	19	14	5
Xb	Extra-cranial / -gonadal GCT	8	5	3
Xc	Gonadal GCT	97	17	80
Xd	Gonadal carcinoma	0	0	0
Xe	Other and unspecified	1	1	0
Girls		Total	0-14	15-19
X	GCTOG	82	50	32
Xa	Intra-cranial / -spinal GCT	16	13	3
Xb	Extra-cranial / -gonadal GCT	18	17	1
Xc	Gonadal GCT	42	20	22
Xd	Gonadal carcinoma	5	0	5
Xe	Other and unspecified	1	0	1

Source: Belgian Cancer Registry

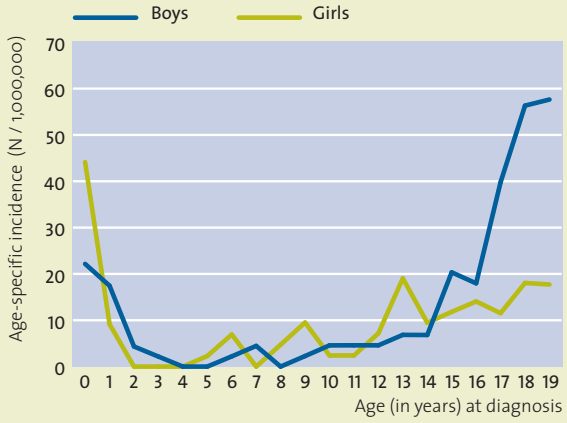
Figure 79 GCTOG: Relative frequency by age at diagnosis, Belgium 2010-2016



Source: Belgian Cancer Registry

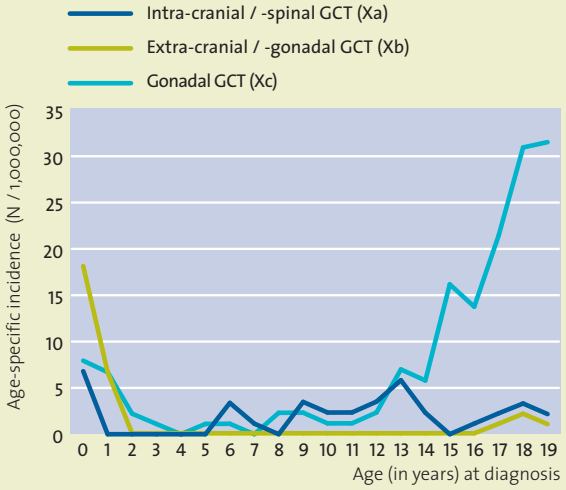
At infancy, GCTOG represent 9% of all cancer diagnoses (**Figure 79**). In infants, twice as many girls are diagnosed than boys (M/F ratio = 0.5). In children between the age of 1 and 12 year, the incidence rates are very low. Around the age of 13-15 years, incidence rates increase rapidly with age, especially in boys, leading to the higher incidence rates of GCTOG observed in adolescents (**Figure 80**). At the age of 18-19 years, GCTOG encompass about 12% of all cancer diagnoses (**Figure 79**).

Figure 80 GCTOG: Age-specific incidence rates by sex, Belgium 2010-2016



Source: Belgian Cancer Registry

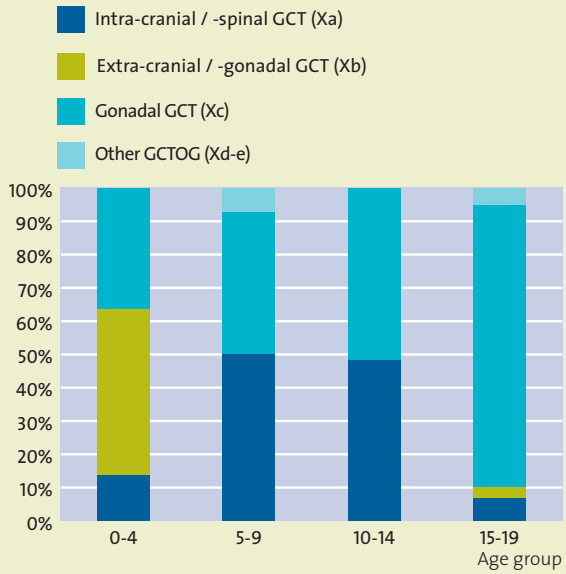
Figure 81 GCT: Age-specific incidence rates by primary site, Belgium 2010-2016



Source: Belgian Cancer Registry

The majority (67%) of GCTOG tumours, occurring among children and adolescents (0-19 years), are gonadal germ cell tumours (Xc). This higher incidence is mostly observed in adolescents (85%). However, when only children (0-14 years) are considered, non-gonadal germ cell tumours (Xa + Xb; 56%) are more common than gonadal (Xc) germ cell tumours (**Table 14**, **Figure 81** and **82**).

Figure 82 GCTOG by age group, Belgium 2010-2016



Source: Belgian Cancer Registry

The incidence rate of **intracranial and intraspinal GCT (Xa)** seems to be low but fairly constant for all ages (**Figure 81**). Intra-cranial/-spinal GCT (Xa) are now equally diagnosed in boys and girls. The male/female ratio is 1.0. However, it is noteworthy that some intracranial forms are classified as brain tumours (cf. chapter III)[17; 80-81]. This may explain the apparent lower incidence in adolescent boys, but not the increase in girls below 15 years old (**Figure 84** and **85**). In the intermediate age group of 5-14 years, GCTOG are rare in general, but intracranial and intraspinal GCT (Xa) seem to be relatively more frequent with 49% (N=21) of all GCTOG diagnoses (together with gonadal GCT; **Figure 82**).

Table 15 shows all different primary localisations of the intracranial and intraspinal GCT. Between 2010 and 2016, there are 23 primary brain tumours, followed by 10 tumours diagnosed in endocrine glands (three in the pituitary gland and seven in the pineal gland) and only 2 tumours are intraspinal (**Table 15**).

The most frequently diagnosed histological subtypes in boys and girls are germinomas (Xa1) and teratomas (Xa2) (**Figure 83**). Both subtypes together account for 94% of all intracranial and intraspinal GCT (both sexes combined). In boys, germinomas are the dominant subtype (74%), while in girls teratomas are the dominant subtype (73%). Mixed germ cell tumours are more rare in category Xa and only occur in boys (11%).

Table 15 Intracranial and intraspinal GCT (Xa) in children and adolescents by primary site, Belgium 2010-2016

Primary localisation	N
Cerebrum	11
Cerebral ventricle	3
Spine	2
Brain, NOS	9
Pituitary gland	3
Pineal gland	7

Source: Belgian Cancer Registry

Extracranial and extragonadal GCT (Xb) are most frequently diagnosed in children younger than 2 years of age (22 out of the 26 diagnoses) (**Figure 82**).

In contrast with the other GCT (Xa and Xc), where far more boys are diagnosed, the majority of extracranial and extragonadal GCT (Xb) are diagnosed in girls (M/F ratio = 0.4). This observation is in line with international findings[21; 70].

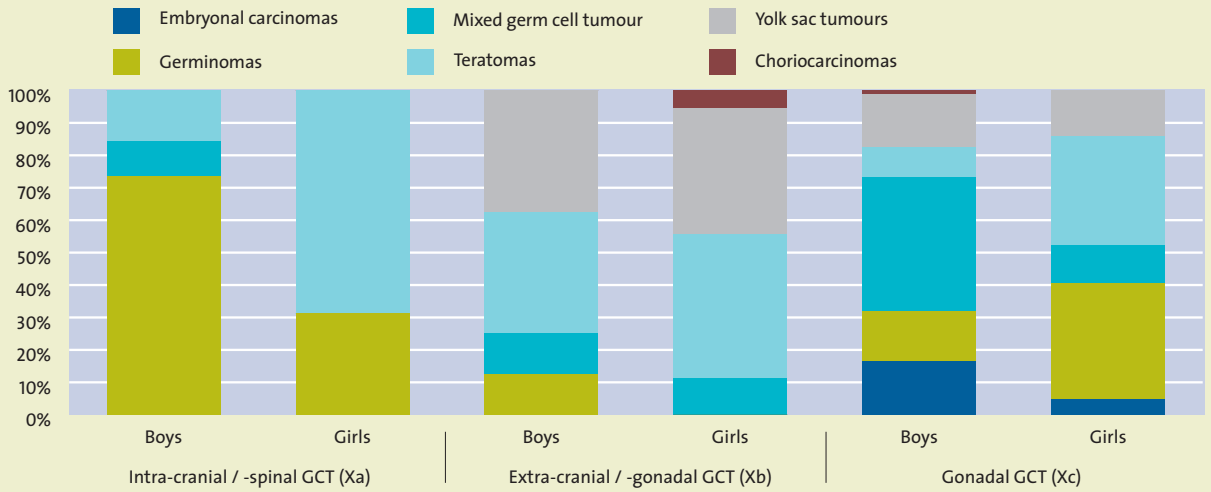
Extracranial and extragonadal GCT (Xb) are most frequently diagnosed in the pelvic region. The most frequent histological subtypes are teratomas (Xb2) and yolk sac tumours (Xb4), respectively 42% and 38% when both sexes are combined (**Figure 83**).

Gonadal GCT (Xc) are by far the most frequent diagnosed GCTOG (67%) and are also one of the most common diagnosed cancers in adolescents (11%[82]). 73% of gonadal GCT are diagnosed in adolescents. In adolescence, more boys (testicular GCT) are diagnosed than girls (ovarian GCT), while in childhood the number of diagnoses is similar. The respective M/F ratios are 3.5 in adolescents versus 1.0 in children (**Table 14**). The high male/female ratio for adolescents is also seen in other countries[21; 50].

In boys, the majority of testicular GCT (**Figure 83**) are of mixed origin (Xc6; 41%) followed by embryonal carcinoma (Xc3; 16%) and yolk sac tumours (Xc2; 16%). Most testicular GCT of mixed origin (95%) and all embryonal carcinoma (100%) are diagnosed in adolescents, while 81% of the yolk sac tumours are diagnosed in children younger than four years old.

In girls, diagnoses of ovarian GCT (**Figure 83**) are predominantly germinomas (36%) and teratomas (33%). When all children and adolescents (0-19 years) are considered, more than two out of three ovarian teratoma diagnoses occurred in children (71%), while all germinomas are diagnosed at an age of 13 years or older.

Figure 83 Germ cell tumours (Xa-c) by histology and sex, Belgium 2010-2016



Source: Belgian Cancer Registry

Gonadal carcinomas (Xd) are a rare malignancy in children and adolescents. In Belgium, between 2010 and 2016, only 5 adolescent girls are diagnosed with an ovarian gonadal carcinoma (**Table 14**).

The remaining GCTOG diagnoses, **other and unspecified malignant gonadal tumours (Xe)**, are very rare (N = 2).

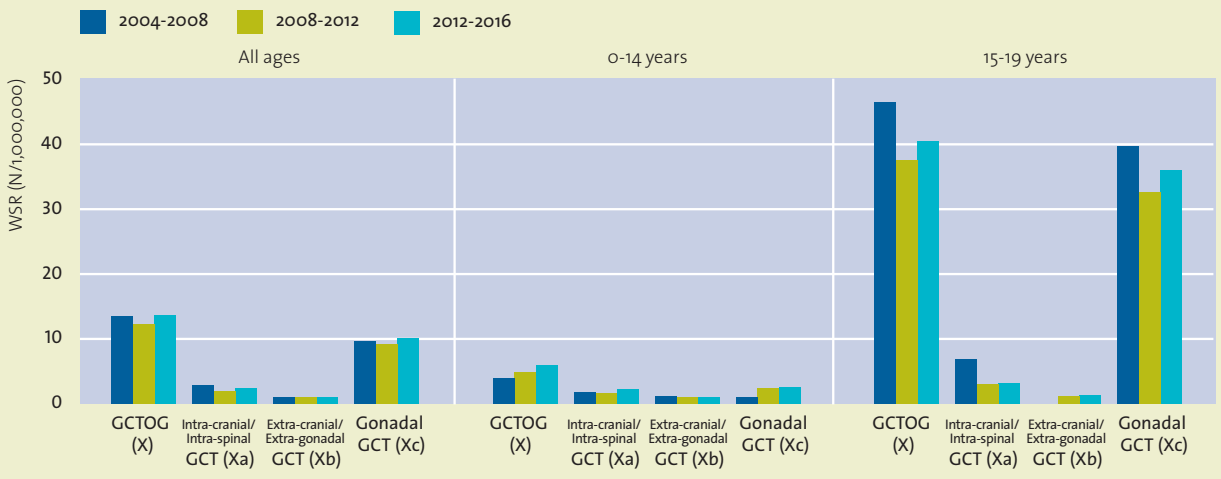
Trends

When comparing the incidence data over time in Belgium, no substantial change in age-standardised incidence (WSR) of **boys** can be observed for the age group 0-19 years (**Figure 84**). In children, a small increasing trend is seen[21]. This trend may be attributed to an increase in testicular cancer (Xc) and an increase of intracranial and intraspinal GCT (Xa). In adolescents, opposite trends are found and the absolute difference in incidence rates over time is more pronounced in this age group. More detailed analyses are needed to confirm and better understand this trend. However, it should be noted that some intracranial forms are reclassified as brain tumours since the 2000s (cf. chapter III[17; 21; 80-81]), which can also affect the observed trends.

In **girls**, an increase in age-standardised incidence (WSR) seems to appear (**Figure 85**). This increase is mainly noticed for ovarian GCT (Xc) in adolescents[50].

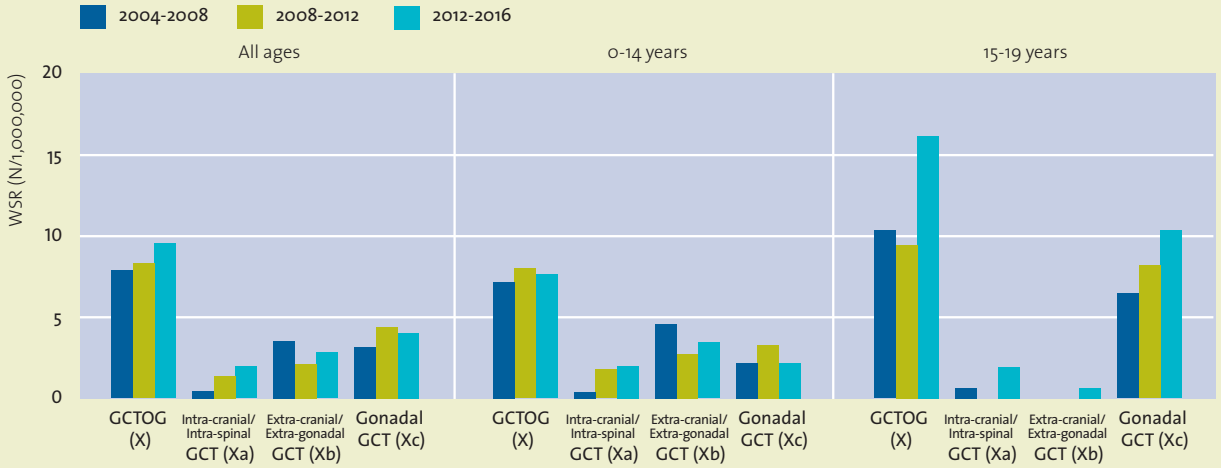
The trends of adolescents show the most significant changes for boys and girls and remarkably, inverse trends are observed for both sexes. However, these seemingly opposite trends should be carefully interpreted, since other factors might affect the presented incidence rates (improved reporting, classification changes, potential random fluctuation due to low number of patients, etc.)[21; 81; 83].

Figure 84 GCTOG in boys: Age-standardised incidence (WSR) by age group and primary localisation, Belgium 2004-2008, 2008-2012, 2012-2016



Source: Belgian Cancer Registry

Figure 85 GCTOG in girls: Age-standardised incidence (WSR) by age group and primary localisation, Belgium 2004-2008, 2008-2012, 2012-2016

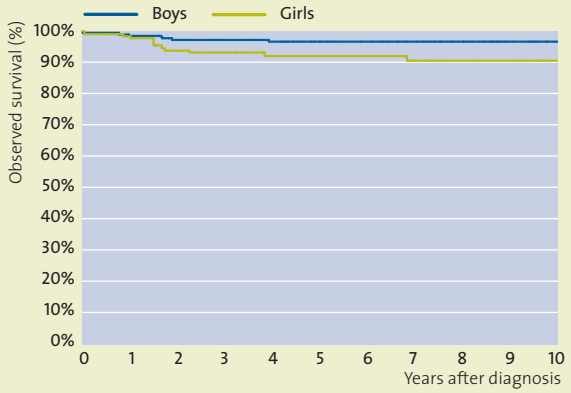


Source: Belgian Cancer Registry

Survival

In general, patients with GCTOG have a good prognosis[21]. The 10-year observed survival for boys and girls is 97% and 91%, respectively (**Figure 86**).
Small differences are seen based on the primary site of GCT. The observed survival of the intracranial and intraspinal GCT (Xa) is high (91%), but is even better for the other GCT tumours (Xb and Xc; both 97%) (**Figure 87**).

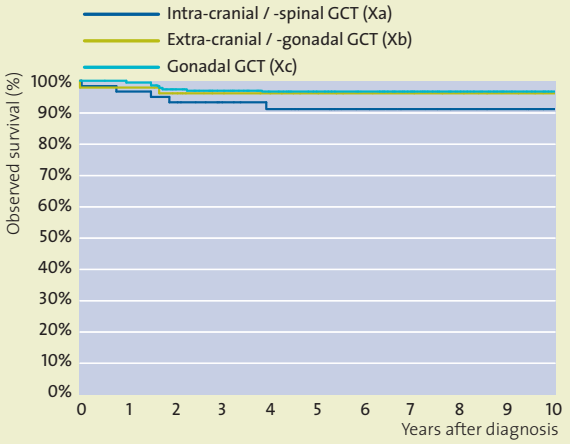
Figure 86 GCTOG: Observed survival by sex, Belgium 2004-2016



N at risk											
Boys	235	232	217	195	174	158	147	132	113	88	75
Girls	136	132	120	107	96	89	74	59	50	46	37

Source: Belgian Cancer Registry

Figure 87 GCTOG: Observed survival* by primary site, Belgium 2004-2016



N at risk											
Xa	61	59	55	47	42	38	31	27	24	22	17
Xb	52	51	48	41	39	35	30	29	27	23	19
Xc	244	241	222	204	180	166	154	130	107	85	73

Source: Belgian Cancer Registry

** Observed survival results calculated on less than 30 patients (N at risk) are purely indicative and no strong conclusions can be drawn.*

XI Other malignant epithelial neoplasms and malignant melanomas

Incidence

Carcinomas are the most common histological cancer type in adults. Nevertheless, a variety of malignant epithelial neoplasms does occur in children and adolescents. Most of the childhood malignancies occur in rapidly growing and differentiating cells and tissues compared to adulthood cancers which occur in epithelial cells and tissues. Adolescent malignancy types are intermediate.

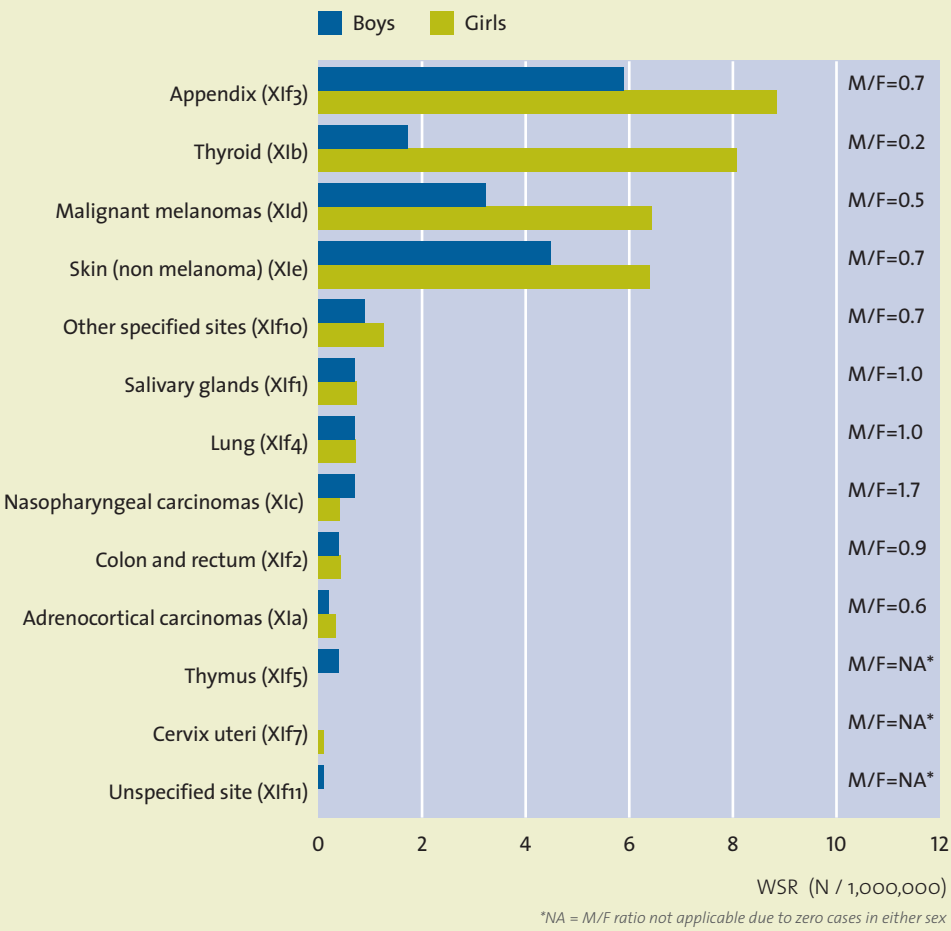
In Belgium, between 2010 and 2016, 177 children and 336 adolescents are diagnosed with a malignant epithelial neoplasm. Almost two out of three carcinomas are diagnosed in girls (**Table 16**). The incidence rates of the most frequent tumour sites (appendix, thyroid and skin) are much higher for girls than for boys (**Figure 88**). All carcinomas combined, the male/female ratio is 0.6 with the lowest sex ratio (0.2) in thyroid carcinomas.

Table 16 New diagnoses of other malignant epithelial neoplasms and malignant melanomas, Belgium 2010-2016

Boys		Total	0-14	15-19
XI	Other malignant epithelial neoplasms and malignant melanomas	192	74	118
XIa	Adrenocortical carcinomas	2	0	2
XIb	Thyroid carcinomas	17	4	13
XIc	Nasopharyngeal carcinomas	7	5	2
XId	Malignant melanomas	32	5	27
XIe	Skin carcinomas (non melanoma)	44	20	24
XIf1	Carcinomas of salivary glands	7	4	3
XIf2	Carcinomas of colon and rectum	4	2	2
XIf3	Carcinomas of appendix	58	28	30
XIf4	Carcinomas of lung	7	3	4
XIf5	Carcinomas of thymus	4	2	2
XIf10-11	Other and unspecified	10	1	9
Girls		Total	0-14	15-19
XI	Other malignant epithelial neoplasms and malignant melanomas	321	103	218
XIa	Adrenocortical carcinomas	3	1	2
XIb	Thyroid carcinomas	77	25	52
XIc	Nasopharyngeal carcinomas	4	0	4
XId	Malignant melanomas	61	17	44
XIe	Skin carcinomas (non melanoma)	61	18	43
XIf1	Carcinomas of salivary glands	7	3	4
XIf2	Carcinomas of colon and rectum	4	1	3
XIf3	Carcinomas of appendix	84	34	50
XIf4	Carcinomas of lung	7	1	6
XIf7	Carcinomas of cervix uteri	1	0	1
XIf10-11	Other and unspecified	12	3	9

Source: Belgian Cancer Registry

Figure 88 Other malignant epithelial neoplasms and malignant melanomas: Age-standardised incidence (WSR) by primary localisation and sex, Belgium 2010-2016

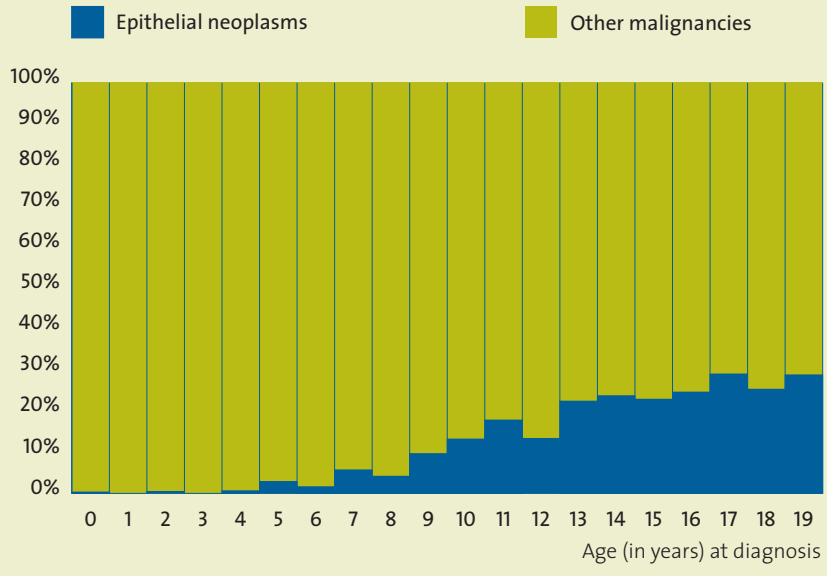


**NA = M/F ratio not applicable due to zero cases in either sex*

Source: Belgian Cancer Registry

This diverse group of malignant epithelial neoplasms is the 4th most frequent tumour in children and the most frequent in adolescents. In young children, carcinomas are very rare. The incidence rates increase sharply with age from 7 years old. In adolescents, they account for 27% of all malignancies (**Figure 89** and **90**).

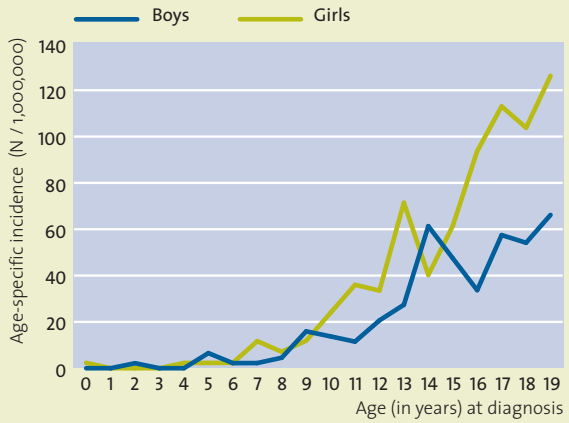
Figure 89 Other malignant epithelial neoplasms and malignant melanomas: Relative frequency by age at diagnosis, Belgium 2010-2016



Source: Belgian Cancer Registry

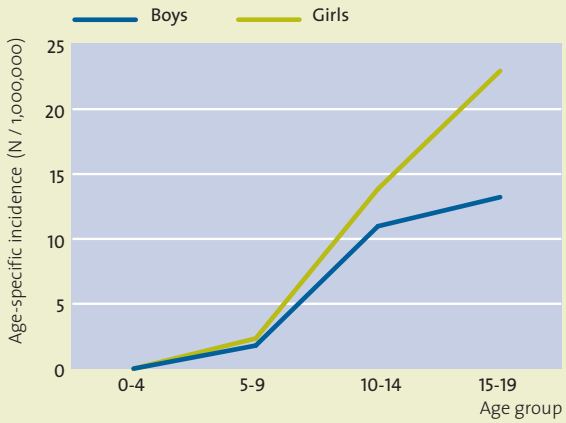
The most frequent malignant epithelial neoplasms are endocrine tumours (carcinoids) of the **appendix (XIf3)**. This tumour is most commonly discovered by coincidence during routine appendectomy, where they are found in 0.3-0.9% of patients[84-85]. Between 2010 and 2016, a total of 142 diagnoses are registered in Belgium, 58 in boys and 84 in girls (M/F ratio = 0.7). Carcinoids of the appendix (XIf3) are very rare in children younger the 10 years of age. Only 9 carcinoid tumours of the appendix are diagnosed in the age group 5-9 years (4 boys and 5 girls) and none below 5 years old. The incidence rates rapidly increase with age (**Figure 91**). After the age of 10 years, more girls are diagnosed than boys (M/F ratio is 0.8 for the age group 10-14 years and 0.6 in the age group 15-19 years).

Figure 90 Other malignant epithelial neoplasms and malignant melanomas: Age-specific incidence rates by sex, Belgium 2010-2016



Source: Belgian Cancer Registry

Figure 91 Carcinoid of appendix (XIf3): Age-specific incidence rates by sex, Belgium 2010-2016

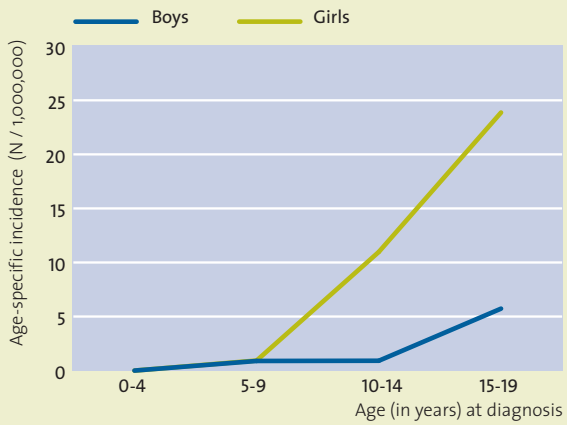


Source: Belgian Cancer Registry

Worldwide, registration practices for carcinoid tumours of the appendix vary between registries. This variation is considered a potential source of artefact when comparing data between regions[85]. The Belgian Cancer Registry includes all carcinoids of the appendix, regardless of size. Updates in the ICD-O3 classification in 2011 published by the WHO[80], include any carcinoid of the appendix in the list of malignant neoplasms.

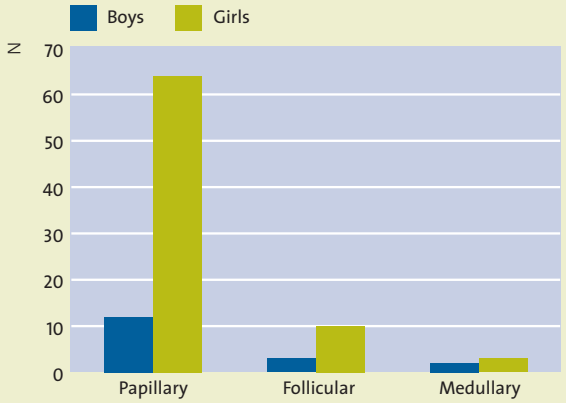
The 2nd most frequent malignant epithelial neoplasms are **thyroid carcinomas** (XIb). In Belgium, 94 new cases are diagnosed between 2010 and 2016 (**Table 16**). Four times more girls (N = 77) are diagnosed with thyroid cancer than boys (N = 17). In children under the age of 10 years, thyroid cancers are rare and absent below 5 years old. The increased incidence rates observed after 10 years old mainly occur in girls (**Figure 92**).
Histologically, three main types of thyroid carcinoma are distinguished (**Figure 93**). Papillary carcinoma are the most frequent subtype in both girls and boys (81% or N = 76). Most of the papillary carcinoma are diagnosed in girls (N = 64), but also in boys this is still the dominant subtype (N = 12) (**Figure 93**). Follicular carcinoma and medullary carcinoma account for respectively 14% and 5% of the thyroid cancers. In Belgium, anaplastic carcinoma, the fourth main thyroid carcinoma type, is not observed in children and adolescents between 2010 and 2016.

Figure 92 Thyroid cancer (XIb): Age-specific incidence rates by sex, Belgium 2010-2016



Source: Belgian Cancer Registry

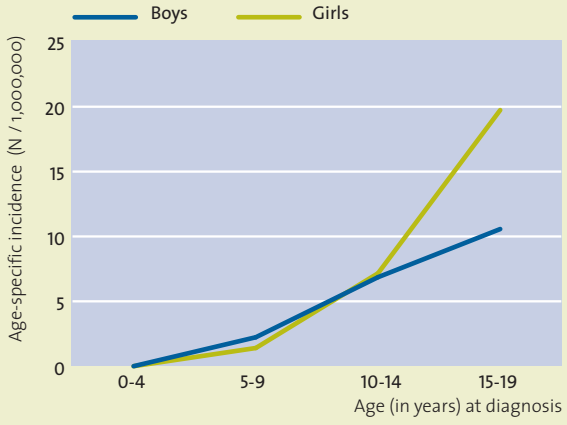
Figure 93 Thyroid cancer (XIb) by histology and sex, Belgium 2010-2016



Source: Belgian Cancer Registry

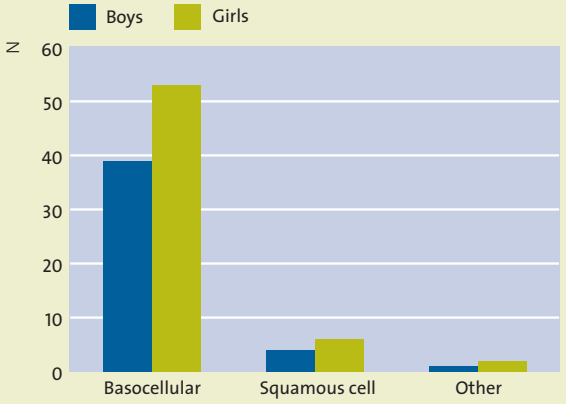
Non-melanoma skin cancers (XIe) are the 3rd most frequent malignant epithelial neoplasm. Between 2010 and 2016, 105 new cases (44 boys and 61 girls) are registered (**Table 16**). Under the age of 10, non-melanoma skin cancers (XIe) are rare: only 8 new diagnoses (5 boys and 3 girls) are observed in the age group 5-9 years and none below 5 years old. In older children (age 10-14 years), higher incidence rates are observed (**Figure 94**). In total, 30 cases (15 boys and 15 girls, M/F ratio = 1.0) are registered in this age group. In adolescents, 67 new diagnoses with an excess of girls (24 boys and 43 girls, M/F ratio = 0.5) are registered.

Figure 94 Non-melanoma skin cancer (XIe): Age-specific incidence rates by sex, Belgium 2010-2016



Source: Belgian Cancer Registry

Figure 95 Non-melanoma skin cancer (XIe) by histology and sex, Belgium 2010-2016

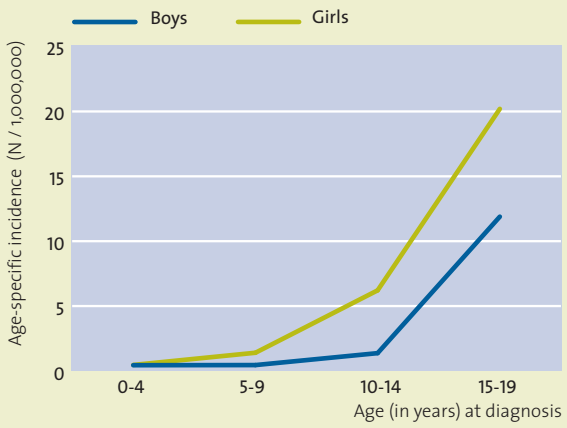


Source: Belgian Cancer Registry

The majority of the non-melanoma skin tumours (XIe) are basocellular carcinomas (88%) in both boys and girls (**Figure 95**). Squamous cell carcinomas only account for 9%. These tumours were subjected to a profound quality assessment. For every skin carcinoma, the corresponding pathology report has been re-evaluated to ensure correct diagnosis.

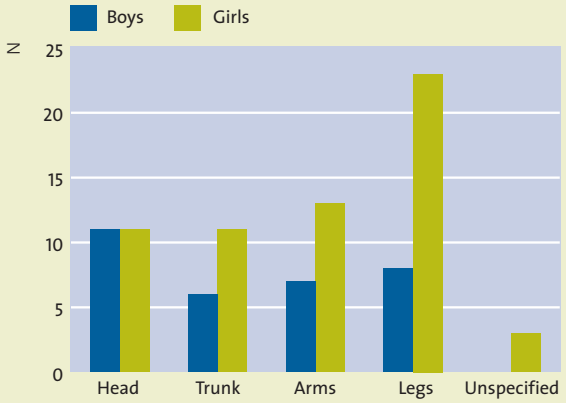
The 4th most frequent neoplasm of this category XI is **malignant melanoma (XId)**. For the period 2010-2016, a total of 93 cases of melanoma are diagnosed in Belgium (**Table 16**), 32 boys and 61 girls (M/F ratio = 0.5). In children under the age of 10 years, malignant melanomas are rare and only 2 cases are registered below 5 years old. The increased incidence rates observed after 10 years old mainly occur in girls. A clear difference is observed between the sexes in children (5 boys and 17 girls, M/F ratio = 0.3) and to a lesser extent in adolescents (27 boys and 44 girls, M/F ratio = 0.6) (**Figure 96**).

Figure 96 Malignant melanoma (XId): Age-specific incidence by sex, Belgium 2010-2016



Source: Belgian Cancer Registry

Figure 97 Malignant melanoma (XId): Number of diagnoses by primary site and sex, Belgium 2010-2016

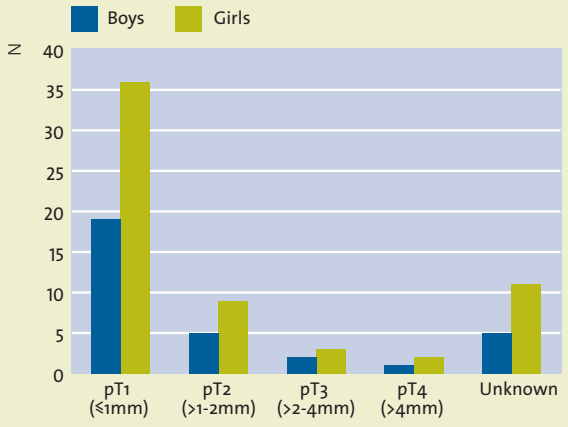


Source: Belgian Cancer Registry

In boys, melanoma most often occurs on the head (34%), while in girls most melanoma are diagnosed on the legs (38%) (**Figure 97**). This preferential tumour localisation is comparable with the site distribution in adults[10].

Information on stage is available in 77 out of the 93 melanoma diagnoses in Belgium. For registrations between 2010 and 2016, stage is classified by means of the 7th edition of the UICC TNM[86]. After excision, the extent of melanoma can be classified by a pathological assessment of the primary tumour (pT-category). Staging of the primary tumour (pT) in melanoma relies on information on the tumour thickness and ulceration[86]. The exact tumour thickness, is also known as Breslow index. **Figure 98** shows an overview of the distribution of cancers based on pT-stage. The majority (71%) of the cases with known pathological T-value is pT1 in both sexes (N = 19 and 36 in boys and girls, respectively). The pT2, pT3 and pT4 melanoma diagnoses account for respectively 18%, 6% and 4%, with slightly more diagnoses in girls in each stage.

Figure 98 Malignant melanoma (XId): Number of diagnoses by pT category and by sex, Belgium 2010-2016



Source: Belgian Cancer Registry

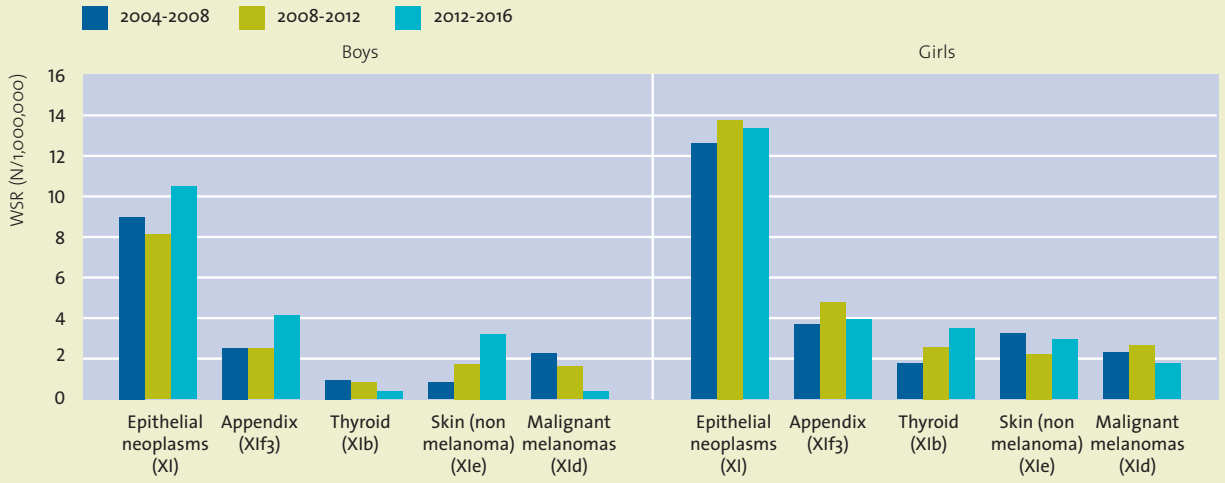
The remaining epithelial neoplasms are individually very rare (**Table 16** and **Figure 88**). These neoplasms are (in order of frequency) the carcinomas of salivary glands (XIf1; N = 14), and of lungs (XIf4; N = 14), followed by the nasopharyngeal carcinomas (XIc; N = 11), the carcinomas of colon and rectum (XIf2; N = 8) and the adrenocortical carcinomas (XIa; N = 5). Finally, carcinomas of thymus are only diagnosed in boys (XIf5; N = 4) and one carcinoma of cervix uteri (XIf7) is diagnosed in girls. Only one neoplasm is a carcinoma of an unspecified site (XIf11), whereas all other carcinomas belong to the group carcinomas of other specified sites (XIf10; N = 21).

Trends

The **childhood** incidence rates for malignant epithelial neoplasms and malignant melanomas (XI) in Belgium seem to slightly increase in boys and girls (**Figure 99**). The increase in girls can be mainly related to the higher incidence rates in thyroid cancer (XIb). This result is in line with other countries where an increase of thyroid cancer is reported[21; 87-88].
The increase in boys is mainly related to higher incidence rates in non-melanoma skin cancer (XIe) and endocrine tumours (carcinoids) of the appendix (XIf3). However, the increase of tumours of the appendix has to be put in perspective, since this increase might be explained by improved registration. In addition, the classification of these tumours has been updated in 2011[80], which may lead to significant changes of reporting.

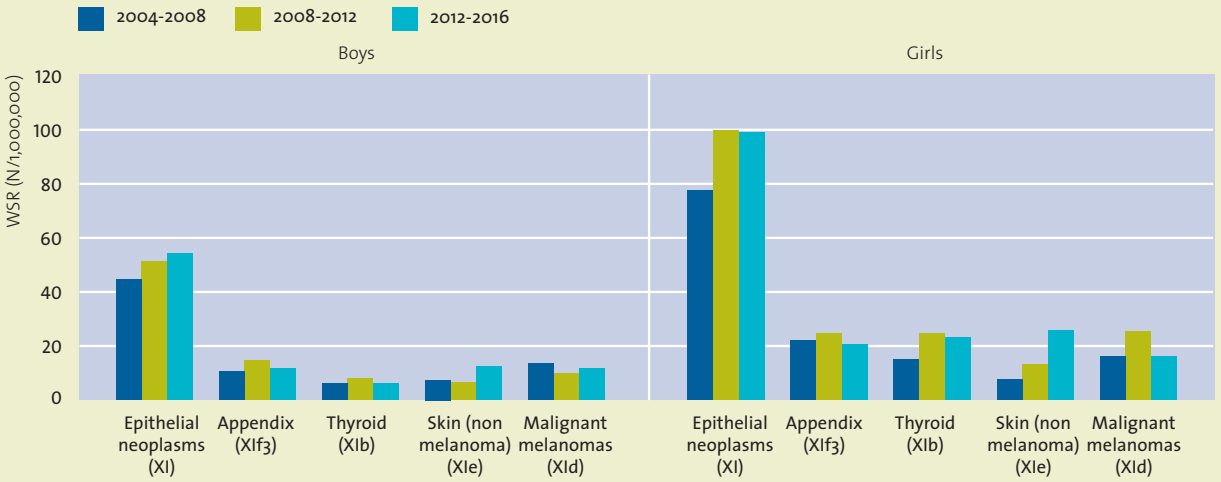
An increasing trend for all malignant epithelial neoplasms (XI) is also observed in **adolescents** for both sexes (**Figure 100**). Similar to the increase of thyroid tumours in girls below 15, an increasing trend of thyroid tumours is also reported in adolescent girls[88]. The increased incidence of thyroid cancer might be explained by improved detection and an increasing number of diagnoses due to unrecognised thyroid-specific carcinogens[90]. However, differences in thyroid cancer incidence can also be affected by overdiagnosis[91] and the use of different diagnostic and therapeutic approaches[92].
In adolescents, non-melanoma skin cancers (XIe) increase in girls and to a lesser extent in boys. The rising incidence of non-melanoma skin cancer (XIe) is also seen in some other countries[93-94] and in adult and older people[95]. These trends might be affected by changes in reporting and thus further exploration is needed to confirm and understand these trends.

Figure 99 Other malignant epithelial neoplasms and malignant melanomas (XI) in children: Age-standardised incidence (WSR) by primary localisation and sex, Belgium 2004-2008, 2008-2012, 2012-2016



Source: Belgian Cancer Registry

Figure 100 Other malignant epithelial neoplasms and malignant melanomas (XI) in adolescents: Age-standardised incidence (WSR) by primary localisation and sex, Belgium 2004-2008, 2008-2012, 2012-2016



Source: Belgian Cancer Registry

Survival

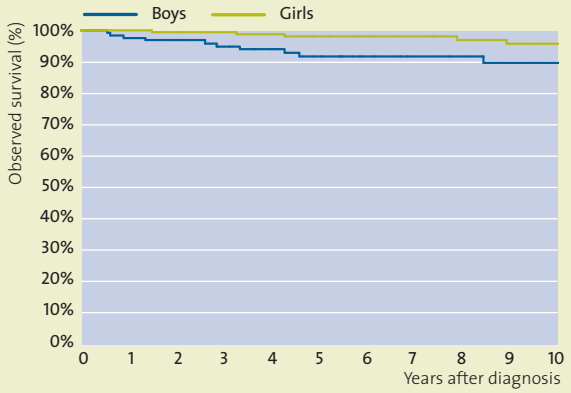
Malignant epithelial neoplasms (XI) have a very good prognosis. In children (**Figure 101**), the 10-year observed survival in boys (90%) is slightly lower than the survival observed in girls (95%). In adolescents (**Figure 102**), the prognosis for boys and girls is similar with a 10-year observed survival of 91% and 94%, respectively.

For the most frequent tumour sites (**Figure 103**), relatively small differences are seen in the 10-year observed survival. The 10-year observed survival of endocrine tumours (carcinoids) of the appendix (XIf3) is 100%, since all patients survived. In addition, thyroid carcinomas (XIb) and non-melanoma skin cancers (XIe) also have a very good prognosis (both 97%). Of all most frequent tumours, malignant melanoma (XId) has the lowest, but still high observed survival (94%).

The observed survival of all malignant epithelial neoplasms combined is lower (93%), since tumours at less frequent primary sites have a worse prognosis (**Figure 103-104**). However, it has to be noticed that for these localisations the incidence rates are smaller and the observed survival curves are only indicative*. The observed survival of the remaining epithelial neoplasms (XIa, XIf5, XIf7) are too scarce to generate meaningful survival curves.

* Observed survival results calculated on less than 30 patients (N at risk) are purely indicative and no strong conclusions can be drawn.

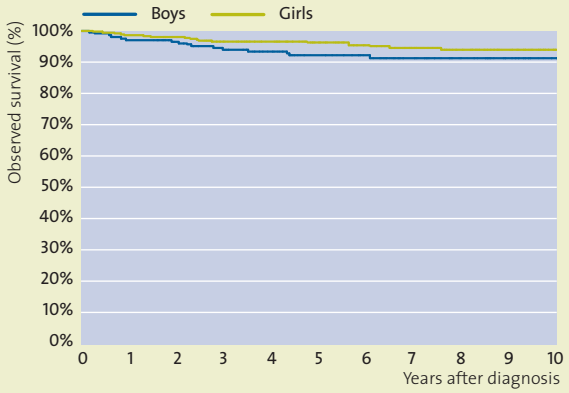
Figure 101 Other malignant epithelial neoplasms and malignant melanomas in children: Observed survival by sex, Belgium 2004-2016



N at risk											
Boys	121	118	110	97	86	74	63	56	52	43	36
Girls	173	172	165	155	140	121	113	99	81	67	54

Source: Belgian Cancer Registry

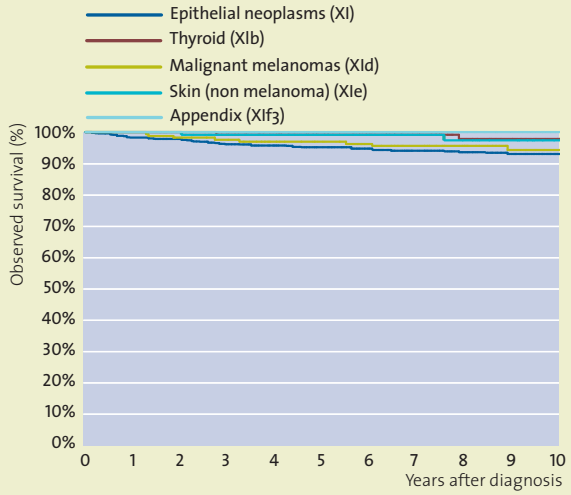
Figure 102 Other malignant epithelial neoplasms and malignant melanomas in adolescents: Observed survival by sex, Belgium 2004-2016



N at risk											
Boys	204	197	185	172	156	136	124	104	87	72	57
Girls	361	356	341	317	289	256	227	194	159	130	101

Source: Belgian Cancer Registry

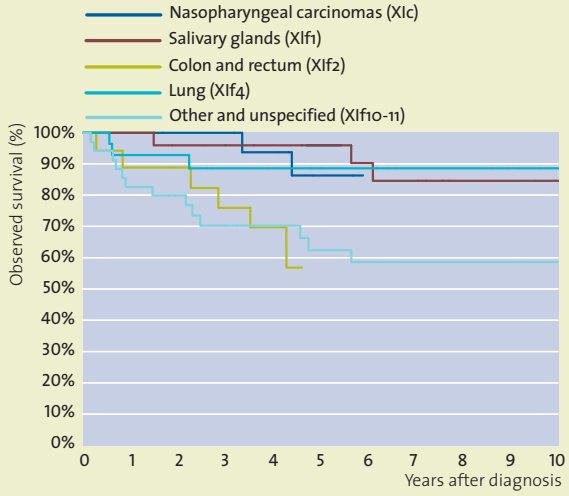
Figure 103 Other malignant epithelial neoplasms and malignant melanomas: Observed survival by primary localisation, Belgium 2004-2016 (most frequent localisations)



N at risk											
XI	858	842	800	740	670	587	527	453	379	312	248
XIf3	242	242	232	220	201	178	162	140	109	93	77
XIb	155	155	151	138	127	110	96	83	68	53	41
XIe	139	138	132	119	102	85	71	55	51	45	34
XId	178	178	167	162	147	136	125	113	93	71	58

Source: Belgian Cancer Registry

Figure 104 Other malignant epithelial neoplasms and malignant melanomas: Observed survival* by primary localisation, Belgium 2004-2016 (less frequent localisations)



N at risk											
XIc	19	19	17	17	15	11	9	9	9	6	4
XIf1	26	26	24	22	21	18	16	15	11	10	8
XIf2	18	16	14	12	11	8	8	8	8	7	5
XIf4	28	26	24	19	18	17	16	12	12	10	7
XIf10-11	36	29	26	21	19	16	15	11	11	11	8

Source: Belgian Cancer Registry

** Observed survival results calculated on less than 30 patients (N at risk) are purely indicative and no strong conclusions can be drawn.*

XII Other and unspecified malignant neoplasms

Incidence

Other and unspecified malignant neoplasms (XII) are uncommon and form a very diverse group of tumours. Due to the low registration numbers, **Table 17** gives an overview of all registered cases for a broader range of incidence years (2004-2016 and not 2010-2016; cf. previous chapters). A total of 10 new diagnoses are registered in Belgium, 5 in boys and 5 in girls. Most cases are gastrointestinal stromal tumours (XIIa1; N = 5) (2 boys versus 3 girls and 1 child versus 4 adolescents). In addition, 2 adolescents are diagnosed with mesotheliomas (XIIa3; 1 boy and 1 girl) and 1 infant boy is diagnosed with a pleuropulmonary blastoma (XIIa2). Finally, 2 tumours in adolescents (1 boy and 1 girl) were registered with no additional indication.

Table 17 New diagnoses of other and unspecified malignant neoplasms, Belgium 2004-2016

Boys		Total	0-14	15-19
XII	Other and unspecified malignant neoplasms	5	2	3
XIIa	Other specified malignant tumours	4	2	2
XIIa1	Gastrointestinal stromal tumour (GIST)	2	1	1
XIIa2	Pulmonary blastoma and pleuropulmonary blastoma	1	1	0
XIIa3	Mesothelioma	1	0	1
XIIb	Other unspecified malignant tumours	1	0	1
Girls		Total	0-14	15-19
XII	Other and unspecified malignant neoplasms	5	0	5
XIIa	Other specified malignant tumours	4	0	4
XIIa1	Gastrointestinal stromal tumour (GIST)	3	0	3
XIIa2	Pulmonary blastoma and pleuropulmonary blastoma	0	0	0
XIIa3	Mesothelioma	1	0	1
XIIb	Other unspecified malignant tumours	1	0	1

Source: Belgian Cancer Registry

Reference list

Reference list

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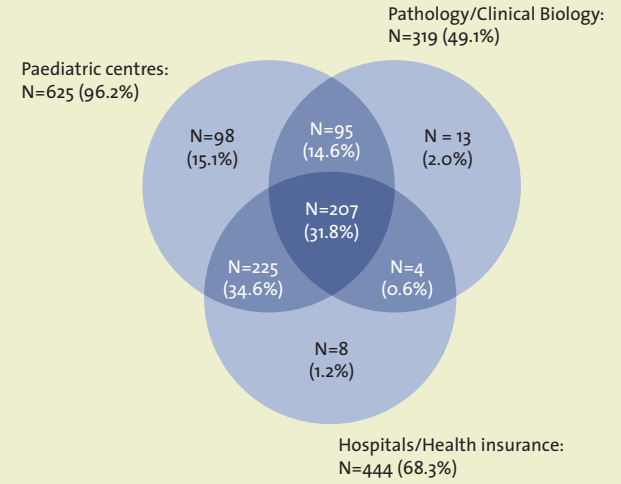
Appendix

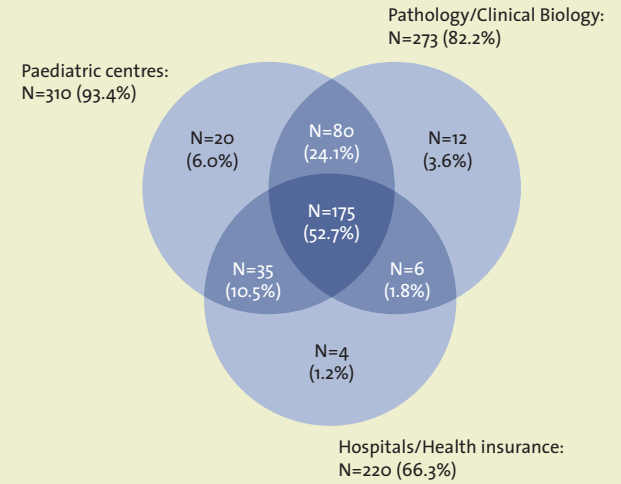
Appendix 1: Notifications by source type in children and in adolescents, Belgium 2010-2016

0-14 years

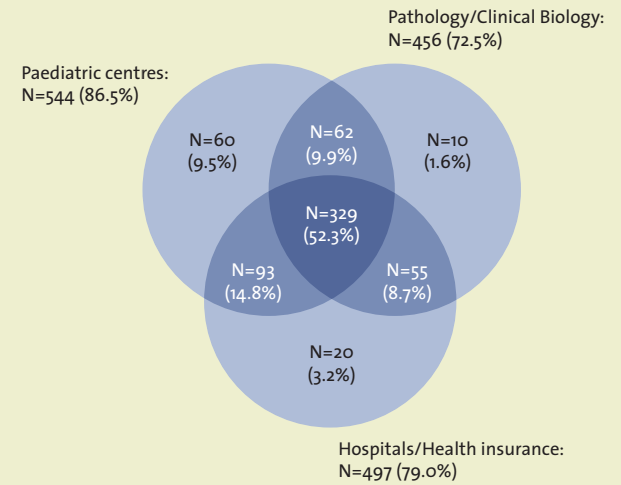
Leukaemias, myeloproliferative and myelodysplastic diseases: notifications by source type (N=650)



Lymphomas and reticuloendothelial neoplasms: notifications by source type (N=332)

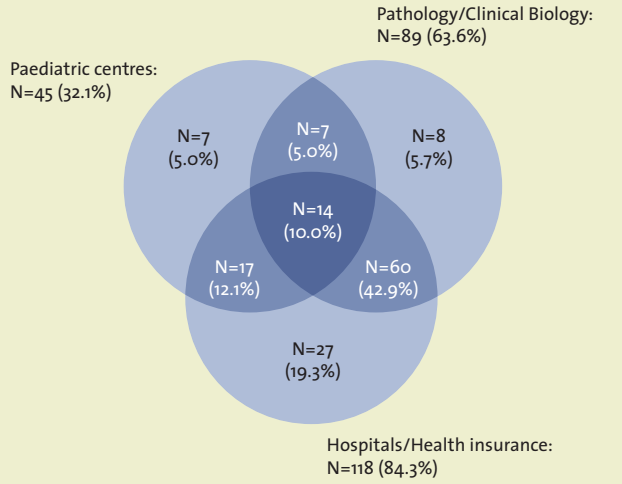


CNS and miscellaneous intracranial and intraspinal neoplasms: notifications by source type (N=629)

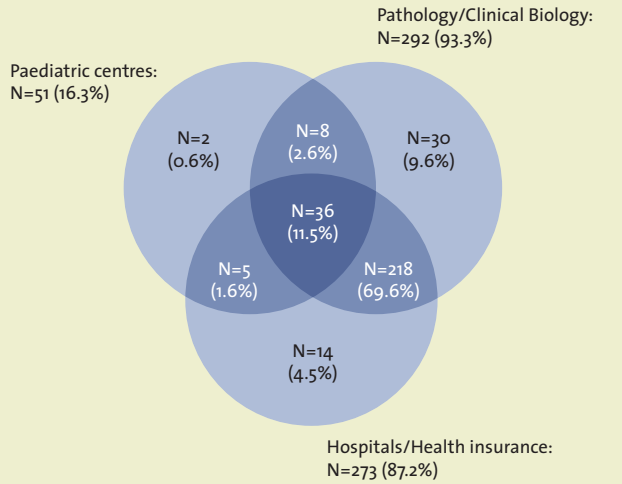


15-19 years

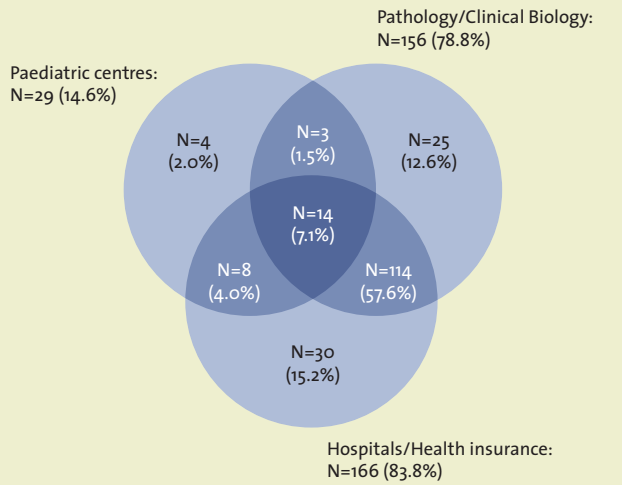
Leukaemias, myeloproliferative and myelodysplastic diseases: notifications by source type (N=140)



Lymphomas and reticuloendothelial neoplasms: notifications by source type (N=313)



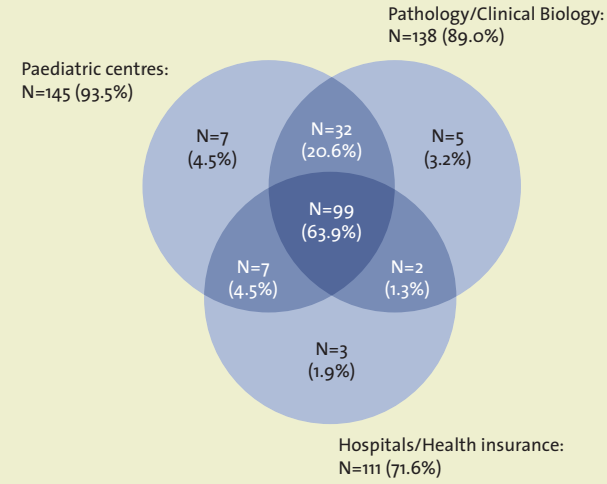
CNS and miscellaneous intracranial and intraspinal neoplasms: notifications by source type (N=198)



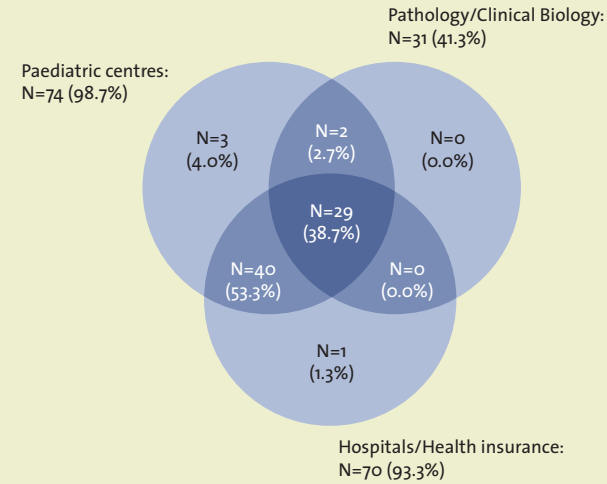
Source: Belgian Cancer Registry

0-14 years

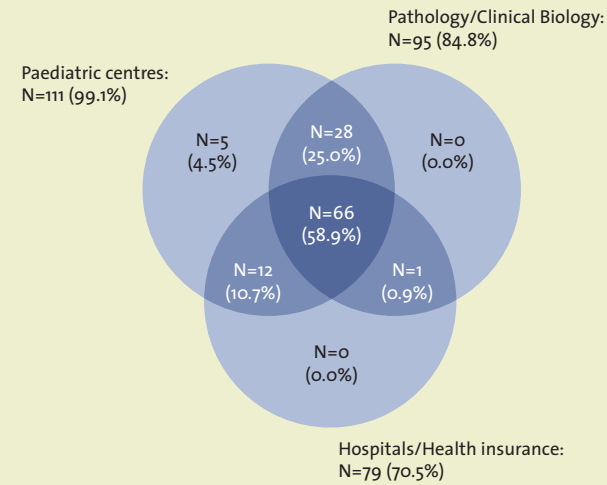
Neuroblastoma and other peripheral nervous cell tumours: notifications by source type (N=155)



Retinoblastoma: notifications by source type (N=75)

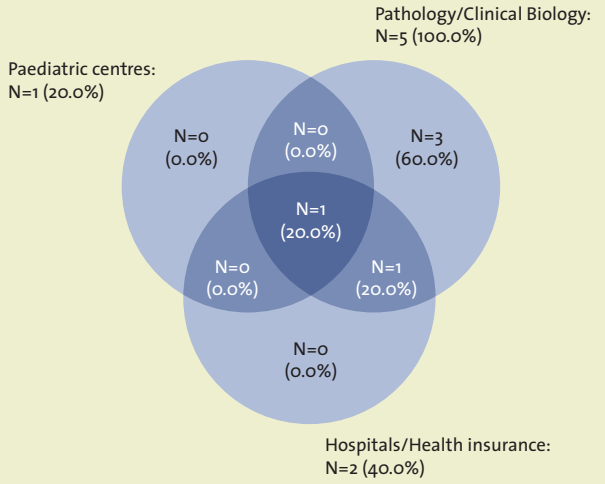


Renal tumours: notifications by source type (N=112)

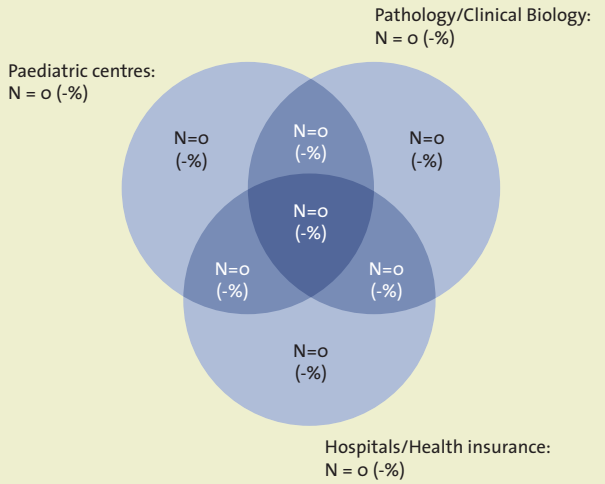


15-19 years

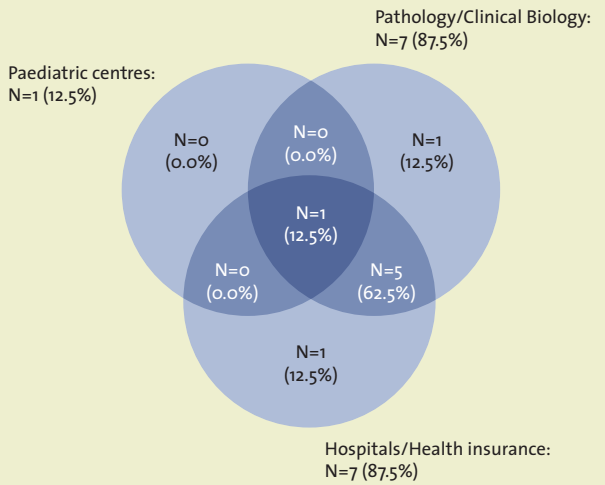
Neuroblastoma and other peripheral nervous cell tumours: notifications by source type (N=5)



Retinoblastoma: notifications by source type (N=0)



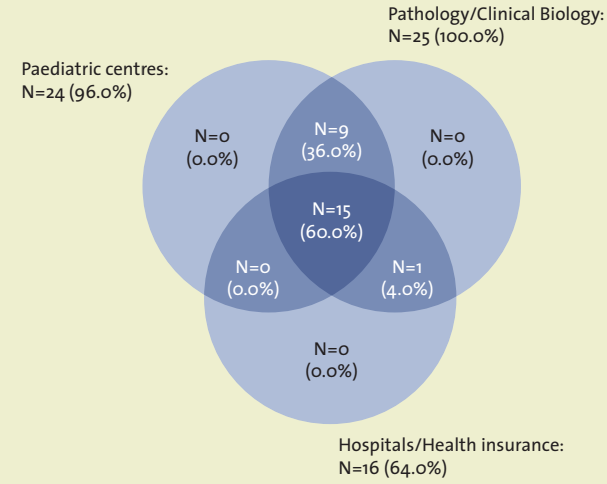
Renal tumours: notifications by source type (N=8)



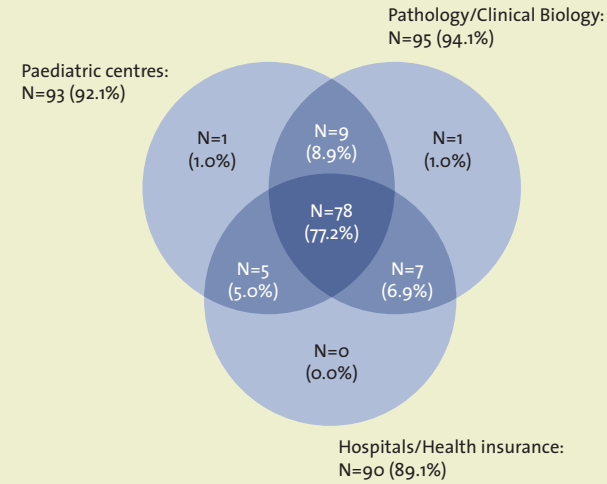
Source: Belgian Cancer Registry

0-14 years

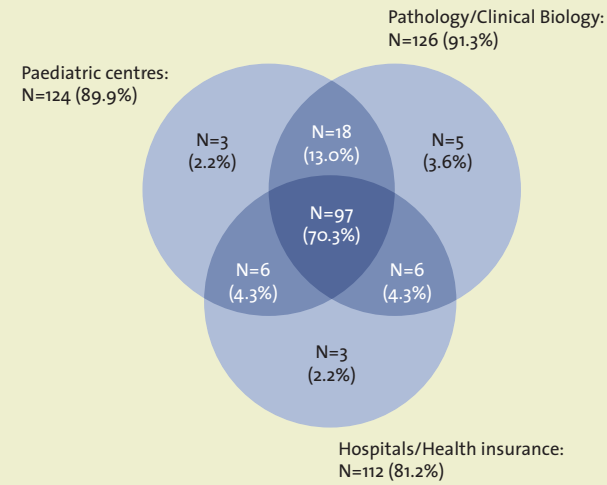
Hepatic tumours: notifications by source type (N=25)



Malignant bone tumours: notifications by source type (N=101)

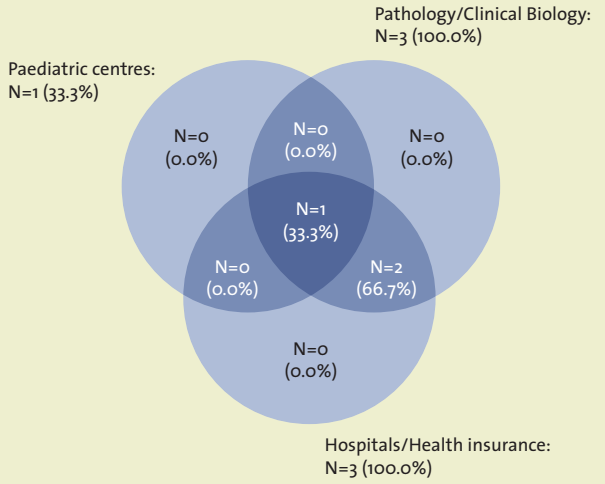


Soft tissue and other extraosseous sarcomas: notifications by source type (N=138)

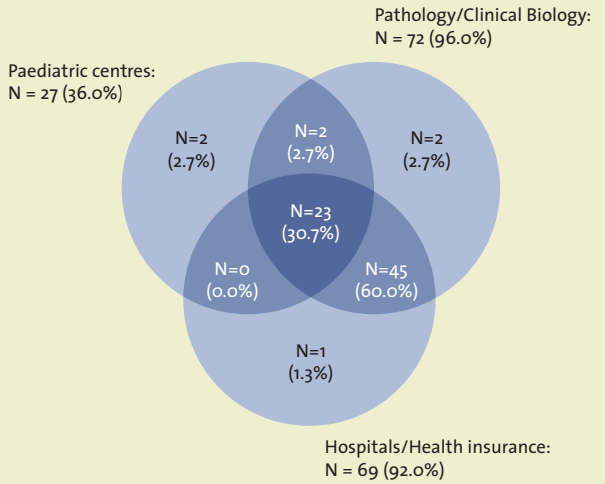


15-19 years

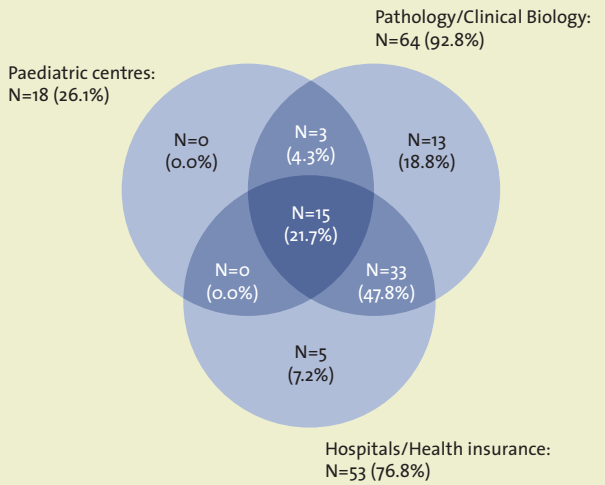
Hepatic tumours: notifications by source type (N=3)



Malignant bone tumours: notifications by source type (N=75)



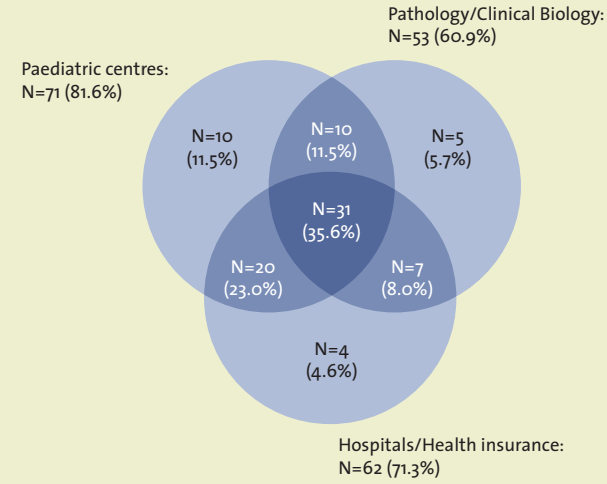
Soft tissue and other extraosseous sarcomas: notifications by source type (N=69)



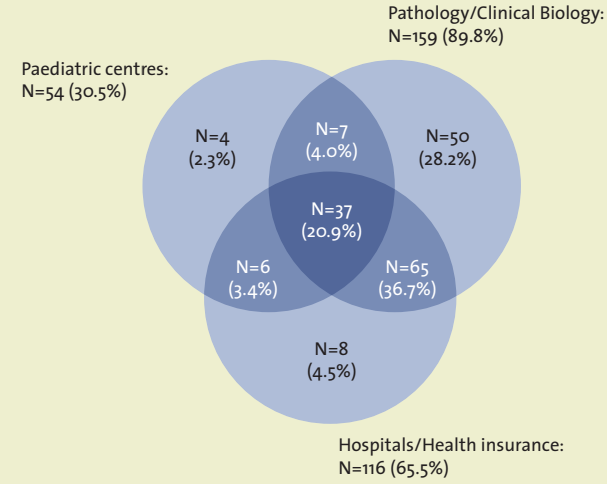
Source: Belgian Cancer Registry

0-14 years

Germ cell tumours, trophoblastic tumours and neoplasms of gonads: notifications by source type (N=87)

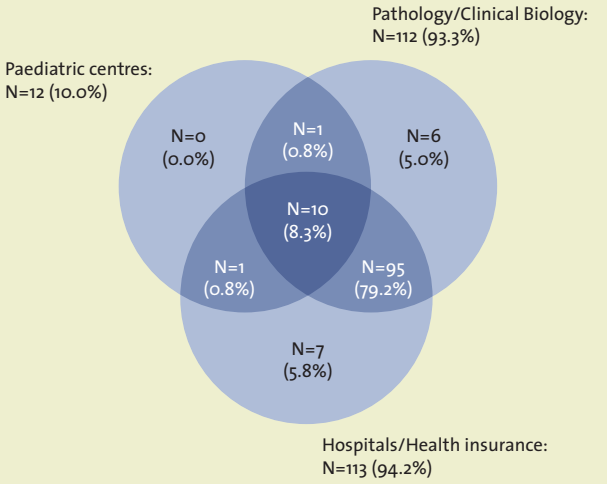


Other malignant epithelial neoplasms and malignant melanomas:notifications by source type (N=177)

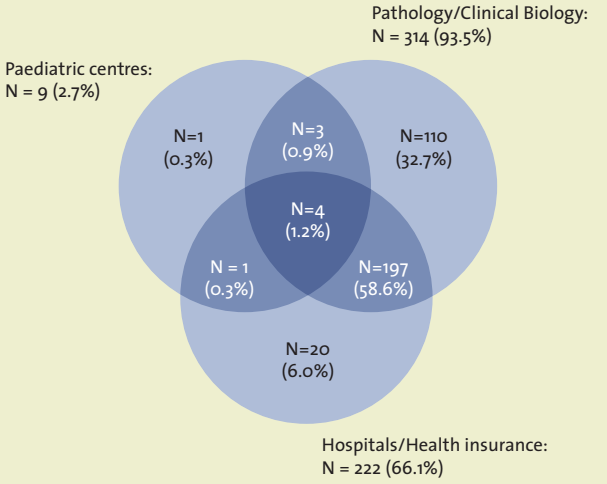


15-19 years

Germ cell tumours, trophoblastic tumours and neoplasms of gonads: notifications by source type (N=120)



Other malignant epithelial neoplasms and malignant melanomas:notifications by source type (N=336)



Source: Belgian Cancer Registry

Belgium: Boys, number of invasive tumours in children and adolescents by tumour type and age in 2010-2016

Belgium: Boys 2010-2016	Tot	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
I: Leukaemias, myeloproliferative and myelodysplastic diseases	443	27	21	53	44	36	27	20	18	13	13	17	6	25	15	18	28	14	15	17	16
Ia: Lymphoid leukaemias	318	12	14	47	40	33	23	16	14	11	9	11	4	16	7	12	12	11	10	9	7
Ib: Acute myeloid leukaemias	62	7	6	3	-	3	2	1	1	1	-	3	1	5	4	1	12	3	1	4	4
Ic: Chronic myeloproliferative diseases	22	2	-	-	-	-	-	1	1	-	-	-	-	2	2	2	1	-	3	3	5
Id: Myelodysplastic syndrome and other myeloproliferative diseases	33	4	1	3	3	-	2	2	2	1	3	3	-	2	-	3	3	-	-	1	-
Ie: Unspecified and other specified leukaemias	8	2	-	-	1	-	-	-	-	-	1	-	1	-	2	-	-	-	1	-	-
II: Lymphomas and reticuloendothelial neoplasms	390	15	9	10	13	17	11	11	13	15	18	19	16	13	20	19	31	33	34	37	36
IIa: Hodgkin lymphomas	157	-	-	-	1	3	4	2	2	3	4	5	5	8	9	10	19	19	20	23	20
IIb: Non-Hodgkin lymphomas	83	-	-	1	2	3	-	3	3	4	3	6	2	1	6	5	8	6	10	12	8
IIc: Burkitt lymphomas	78	-	-	3	7	8	4	4	6	6	5	2	7	4	3	3	4	3	4	1	4
IId: Miscellaneous lymphoreticular neoplasms	68	15	9	6	3	3	3	2	2	2	6	6	2	-	2	1	-	4	-	-	2
IIe: Unspecified lymphomas	4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	1	2
III: CNS and miscellaneous intracranial and intraspinal neoplasms	464	31	27	30	20	24	22	22	17	27	19	19	16	35	28	20	20	16	23	19	29
IIIa: Ependymomas and choroid plexus tumours	40	7	5	2	-	1	1	1	1	3	3	-	-	4	3	1	1	1	1	3	2
IIIb: Astrocytomas	187	8	7	18	11	12	10	9	6	14	7	7	8	13	9	5	11	7	9	4	12
IIIc: Intracranial and intraspinal embryonal tumours	68	7	10	5	5	3	6	3	4	7	-	2	2	4	3	2	-	1	-	2	2
IIId: Other gliomas	51	6	-	3	1	2	2	5	5	1	2	5	2	3	2	4	1	3	-	-	4
IIIe: Other specified intracranial and intraspinal neoplasms	99	1	3	2	3	5	2	3	-	1	7	5	3	7	10	8	6	4	12	8	9
IIIf: Unspecified intracranial and intraspinal neoplasms	19	2	2	-	-	1	1	1	1	1	-	-	1	4	1	-	1	-	1	2	-
IV: Neuroblastoma and other peripheral nervous cell tumours	85	31	12	10	9	5	4	2	1	1	2	1	1	1	1	1	-	1	2	-	-
IVa: Neuroblastomas and ganglioneuroblastomas	77	31	12	10	8	5	4	2	1	1	2	1	-	-	-	-	-	-	-	-	-
IVb: Other peripheral nervous cell tumours	8	-	-	-	1	-	-	-	-	-	-	-	1	1	1	1	-	1	2	-	-
V: Retinoblastomas	42	29	8	2	2	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-
VI: Renal tumours	60	15	7	9	9	7	4	2	1	1	3	-	-	-	1	-	-	-	1	-	-
VIa: Nephroblastomas and other nonepithelial renal tumours	58	15	7	9	9	7	4	2	1	1	3	-	-	-	-	-	-	-	-	-	-
VIb: Renal carcinomas	2	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	1	-	-
VIc: Unspecified malignant renal tumours	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
VII: Hepatic tumours	17	5	3	2	1	1	-	-	-	-	-	1	-	1	-	-	1	-	1	-	1
VIIa: Hepatoblastomas	11	5	3	2	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
VIIb: Hepatic carcinomas	6	-	-	-	-	1	-	-	-	-	-	1	-	1	-	-	1	-	1	-	1
VIIc: Unspecified malignant hepatic tumours	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Belgium: Boys, number of invasive tumours in children and adolescents by tumour type and age in 2010-2016

Belgium: Boys 2010-2016	Tot	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
VIII: Malignant bone tumours	100	-	2	-	-	-	2	2	2	3	11	6	5	6	4	9	8	12	8	11	9
VIIIa: Osteosarcomas	56	-	-	-	-	-	-	-	1	1	7	5	4	2	1	7	5	6	5	6	6
VIIIb: Chondrosarcomas	5	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	1	1	-	2
VIIIc: Ewing tumours and related sarcomas of bone	35	-	2	-	-	-	2	2	-	2	4	1	1	4	3	2	3	3	1	4	1
VIIId: Other specified malignant bone tumours	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	1	-
VIIIe: Unspecified malignant bone tumours	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	1	-	-
IX: Soft tissue and other extraosseous sarcomas	105	7	3	7	5	4	4	6	4	6	2	2	2	5	7	10	6	7	8	5	5
IXa: Rhabdomyosarcomas	51	4	3	6	3	2	3	4	1	5	1	1	-	2	2	3	3	2	4	2	-
IXb: Fibrosarcomas, peripheral nerve sheath tumours, and other fibromatous neoplasms	5	-	-	-	1	-	-	-	1	-	-	1	-	-	-	1	-	1	-	-	-
IXc: Kaposi sarcomas	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	1	-	-
IXd: Other specified soft tissue sarcomas	38	2	-	1	1	-	1	2	2	1	1	-	2	3	5	5	3	3	2	1	3
IXe: Unspecified soft tissue sarcomas	9	1	-	-	-	2	-	-	-	-	-	-	-	-	-	1	-	-	1	2	2
X: Germ cell tumours, trophoblastic tumours and neoplasms of gonads	125	10	8	2	1	-	-	1	2	-	1	2	2	2	3	3	9	8	18	26	27
Xa: Intracranial and intraspinal germ cell tumours	19	-	-	-	-	-	-	1	1	-	1	2	2	2	3	2	-	1	2	1	1
Xb: Malignant extracranial and extragonadal germ cell tumours	8	3	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	1
Xc: Malignant gonadal germ cell tumours	97	7	6	2	1	-	-	-	-	-	-	-	-	-	-	1	9	7	16	23	25
Xd: Gonadal carcinomas	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Xe: Other and unspecified malignant gonadal tumours	1	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-
XI: Other malignant epithelial neoplasms and malignant melanomas	192	-	-	1	-	-	3	1	1	2	7	6	5	9	12	27	21	15	26	25	31
XIa: Adrenocortical carcinomas	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	1	-	-
XIb: Thyroid carcinomas	17	-	-	-	-	-	1	-	-	-	1	1	1	-	-	-	2	2	1	2	6
XIc: Nasopharyngeal carcinomas	7	-	-	-	-	-	-	-	-	-	-	1	-	1	1	2	-	-	1	-	1
XId: Malignant melanomas	32	-	-	1	-	-	-	1	-	-	-	1	-	-	-	2	1	3	9	7	7
XIe: Skin carcinomas	44	-	-	-	-	-	1	-	1	2	1	-	1	3	4	7	5	3	4	6	6
XIf: Other and unspecified carcinomas	90	-	-	-	-	-	1	-	-	-	5	3	3	5	7	16	13	6	10	10	11
XII: Other and unspecified malignant neoplasms	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	1	-	1	-
XIIa: Other specified malignant tumours	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	1	-	1	-
XIIb: Other unspecified malignant tumours	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
I-XII: All tumours	2,026	170	100	126	104	94	77	67	59	69	76	73	53	97	91	108	124	107	136	141	154

Belgium: Boys, age-specific incidence rates of cancer in children and adolescents, by tumour type in 2010-2016 (N/1,000,000 person years)

Belgium: Boys 2010-2016	Tot	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
I: Leukaemias, myeloproliferative and myelodysplastic diseases	443	59.8	45.8	114.9	95.0	77.8	58.7	44.1	40.2	29.4	29.6	38.9	13.8	57.3	34.2	40.9	63.3	31.4	33.2	36.8	34.2
Ia: Lymphoid leukaemias	318	26.6	30.5	101.9	86.4	71.4	50.0	35.3	31.3	24.8	20.5	25.2	9.2	36.7	16.0	27.3	27.1	24.7	22.1	19.5	14.9
Ib: Acute myeloid leukaemias	62	15.5	13.1	6.5	-	6.5	4.4	2.2	2.2	2.3	-	6.9	2.3	11.5	9.1	2.3	27.1	6.7	2.2	8.7	8.5
Ic: Chronic myeloproliferative diseases	22	4.4	-	-	-	-	-	2.2	2.2	-	-	-	-	4.6	4.6	4.5	2.3	-	6.6	6.5	10.7
Id: Myelodysplastic syndrome and other myeloproliferative diseases	33	8.9	2.2	6.5	6.5	-	4.4	4.4	4.5	2.3	6.8	6.9	-	4.6	-	6.8	6.8	-	-	2.2	-
Ie: Unspecified and other specified leukaemias	8	4.4	-	-	2.2	-	-	-	-	-	2.3	-	2.3	-	4.6	-	-	-	2.2	-	-
II: Lymphomas and reticuloendothelial neoplasms	390	33.2	19.6	21.7	28.1	36.8	23.9	24.2	29.0	33.9	40.9	43.5	36.7	29.8	45.6	43.2	70.1	74.1	75.2	80.2	76.9
IIa: Hodgkin lymphomas	157	-	-	-	2.2	6.5	8.7	4.4	4.5	6.8	9.1	11.4	11.5	18.4	20.5	22.7	43.0	42.7	44.2	49.8	42.7
IIb: Non-Hodgkin lymphomas	83	-	-	2.2	4.3	6.5	-	6.6	6.7	9.0	6.8	13.7	4.6	2.3	13.7	11.4	18.1	13.5	22.1	26.0	17.1
IIc: Burkitt lymphomas	78	-	-	6.5	15.1	17.3	8.7	8.8	13.4	13.6	11.4	4.6	16.1	9.2	6.8	6.8	9.0	6.7	8.8	2.2	8.5
IId: Miscellaneous lymphoreticular neoplasms	68	33.2	19.6	13.0	6.5	6.5	6.5	4.4	4.5	4.5	13.6	13.7	4.6	-	4.6	2.3	-	9.0	-	-	4.3
IIe: Unspecified lymphomas	4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2.2	-	2.2	4.3
III: CNS and miscellaneous intracranial and intraspinal neoplasms	464	68.7	58.9	65.0	43.2	51.9	47.9	48.5	37.9	61.0	43.2	43.5	36.7	80.3	63.9	45.4	45.2	35.9	50.8	41.2	61.9
IIIa: Ependymomas and choroid plexus tumours	40	15.5	10.9	4.3	-	2.2	2.2	2.2	2.2	6.8	6.8	-	-	9.2	6.8	2.3	2.3	2.2	2.2	6.5	4.3
IIIb: Astrocytomas	187	17.7	15.3	39.0	23.8	25.9	21.8	19.8	13.4	31.6	15.9	16.0	18.4	29.8	20.5	11.4	24.9	15.7	19.9	8.7	25.6
IIIc: Intracranial and intraspinal embryonal tumours	68	15.5	21.8	10.8	10.8	6.5	13.1	6.6	8.9	15.8	-	4.6	4.6	9.2	6.8	4.5	-	2.2	-	4.3	4.3
IIId: Other gliomas	51	13.3	-	6.5	2.2	4.3	4.4	11.0	11.2	2.3	4.5	11.4	4.6	6.9	4.6	9.1	2.3	6.7	-	-	8.5
IIIe: Other specified intracranial and intraspinal neoplasms	99	2.2	6.5	4.3	6.5	10.8	4.4	6.6	-	2.3	15.9	11.4	6.9	16.1	22.8	18.2	13.6	9.0	26.5	17.3	19.2
IIIf: Unspecified intracranial and intraspinal neoplasms	19	4.4	4.4	-	-	2.2	2.2	2.2	2.2	2.3	-	-	2.3	9.2	2.3	-	2.3	-	2.2	4.3	-
IV: Neuroblastoma and other peripheral nervous cell tumours	85	68.7	26.2	21.7	19.4	10.8	8.7	4.4	2.2	2.3	4.5	2.3	2.3	2.3	2.3	2.3	-	2.2	4.4	-	-
IVa: Neuroblastomas and ganglioneuroblastomas	77	68.7	26.2	21.7	17.3	10.8	8.7	4.4	2.2	2.3	4.5	2.3	-	-	-	-	-	-	-	-	-
IVb: Other peripheral nervous cell tumours	8	-	-	-	2.2	-	-	-	-	-	-	-	2.3	2.3	2.3	2.3	-	2.2	4.4	-	-
V: Retinoblastomas	42	55.4	17.4	4.3	4.3	-	-	-	-	2.3	-	-	-	-	-	-	-	-	-	-	-
VI: Renal tumours	60	33.2	15.3	19.5	19.4	15.1	8.7	4.4	2.2	2.3	6.8	-	-	-	2.3	-	-	-	2.2	-	-
VIa: Nephroblastomas and other nonepithelial renal tumours	58	33.2	15.3	19.5	19.4	15.1	8.7	4.4	2.2	2.3	6.8	-	-	-	-	-	-	-	-	-	-
VIb: Renal carcinomas	2	-	-	-	-	-	-	-	-	-	-	-	-	-	2.3	-	-	-	2.2	-	-
VIc: Unspecified malignant renal tumours	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
VII: Hepatic tumours	17	11.1	6.5	4.3	2.2	2.2	-	-	-	-	-	2.3	-	2.3	-	-	2.3	-	2.2	-	2.1
VIIa: Hepatoblastomas	11	11.1	6.5	4.3	2.2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
VIIb: Hepatic carcinomas	6	-	-	-	-	2.2	-	-	-	-	-	2.3	-	2.3	-	-	2.3	-	2.2	-	2.1
VIIc: Unspecified malignant hepatic tumours	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Belgium: Boys, age-specific incidence rates of cancer in children and adolescents, by tumour type in 2010-2016 (N/1,000,000 person years)

Belgium: Boys 2010-2016	Tot	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
VIII: Malignant bone tumours	100	-	4.4	-	-	-	4.4	4.4	4.5	6.8	25.0	13.7	11.5	13.8	9.1	20.4	18.1	27.0	17.7	23.8	19.2
VIIIa: Osteosarcomas	56	-	-	-	-	-	-	-	2.2	2.3	15.9	11.4	9.2	4.6	2.3	15.9	11.3	13.5	11.1	13.0	12.8
VIIIb: Chondrosarcomas	5	-	-	-	-	-	-	-	2.2	-	-	-	-	-	-	-	-	2.2	2.2	-	4.3
VIIIc: Ewing tumour and related sarcomas of bone	35	-	4.4	-	-	-	4.4	4.4	-	4.5	9.1	2.3	2.3	9.2	6.8	4.5	6.8	6.7	2.2	8.7	2.1
VIIId: Other specified malignant bone tumours	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2.2	-	2.2	-
VIIIe: Unspecified malignant bone tumours	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2.2	2.2	-	-
IX: Soft tissue and other extraosseous sarcomas	105	15.5	6.5	15.2	10.8	8.6	8.7	13.2	8.9	13.6	4.5	4.6	4.6	11.5	16.0	22.7	13.6	15.7	17.7	10.8	10.7
IXa: Rhabdomyosarcomas	51	8.9	6.5	13.0	6.5	4.3	6.5	8.8	2.2	11.3	2.3	2.3	-	4.6	4.6	6.8	6.8	4.5	8.8	4.3	-
IXb: Fibrosarcomas, peripheral nerve sheath tumours, and other fibromatous neoplasms	5	-	-	-	2.2	-	-	-	2.2	-	-	2.3	-	-	-	2.3	-	2.2	-	-	-
IXc: Kaposi sarcomas	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2.2	2.2	-	-
IXd: Other specified soft tissue sarcomas	38	4.4	-	2.2	2.2	-	2.2	4.4	4.5	2.3	2.3	-	4.6	6.9	11.4	11.4	6.8	6.7	4.4	2.2	6.4
IXe: Unspecified soft tissue sarcomas	9	2.2	-	-	-	4.3	-	-	-	-	-	-	-	-	-	2.3	-	-	2.2	4.3	4.3
X: Germ cell tumours, trophoblastic tumours and neoplasms of gonads	125	22.2	17.4	4.3	2.2	-	-	2.2	4.5	-	2.3	4.6	4.6	4.6	6.8	6.8	20.3	18.0	39.8	56.3	57.6
Xa: Intracranial and intraspinal germ cell tumours	19	-	-	-	-	-	-	2.2	2.2	-	2.3	4.6	4.6	4.6	6.8	4.5	-	2.2	4.4	2.2	2.1
Xb: Malignant extracranial and extragonadal germ cell tumours	8	6.6	4.4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	4.3	2.1
Xc: Malignant gonadal germ cell tumours	97	15.5	13.1	4.3	2.2	-	-	-	-	-	-	-	-	-	-	2.3	20.3	15.7	35.4	49.8	53.4
Xd: Gonadal carcinomas	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Xe: Other and unspecified malignant gonadal tumours	1	-	-	-	-	-	-	-	2.2	-	-	-	-	-	-	-	-	-	-	-	-
XI: Other malignant epithelial neoplasms and malignant melanomas	192	-	-	2.2	-	-	6.5	2.2	2.2	4.5	15.9	13.7	11.5	20.6	27.4	61.3	47.5	33.7	57.5	54.2	66.2
XIa: Adrenocortical carcinomas	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2.2	2.2	-	-
XIb: Thyroid carcinomas	17	-	-	-	-	-	2.2	-	-	-	2.3	2.3	2.3	-	-	-	4.5	4.5	2.2	4.3	12.8
XIc: Nasopharyngeal carcinomas	7	-	-	-	-	-	-	-	-	-	-	2.3	-	2.3	2.3	4.5	-	-	2.2	-	2.1
XId: Malignant melanomas	32	-	-	2.2	-	-	-	2.2	-	-	-	2.3	-	-	-	4.5	2.3	6.7	19.9	15.2	14.9
XIe: Skin carcinomas	44	-	-	-	-	-	2.2	-	2.2	4.5	2.3	-	2.3	6.9	9.1	15.9	11.3	6.7	8.8	13.0	12.8
XIf: Other and unspecified carcinomas	90	-	-	-	-	-	2.2	-	-	-	11.4	6.9	6.9	11.5	16.0	36.3	29.4	13.5	22.1	21.7	23.5
XII: Other and unspecified malignant neoplasms	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2.3	-	2.2	-	2.2	-
XIIa: Other specified malignant tumours	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2.3	-	2.2	-	2.2	-
XIIb: Other unspecified malignant tumours	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
I-XII: All tumours	2,026	367.9	218.1	273.1	224.6	203.3	167.5	147.6	131.7	155.9	172.8	167.1	121.7	222.5	207.7	245.3	280.3	240.3	300.7	305.5	328.8

Belgium: Girls, number of invasive tumours in children and adolescents by tumour type and age in 2010-2016

Belgium: Girls 2010-2016	Tot	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
I: Leukaemias, myeloproliferative and myelodysplastic diseases	347	31	24	33	38	26	21	20	9	13	13	9	10	13	18	19	10	9	10	11	10
Ia: Lymphoid leukaemias	222	8	19	29	33	22	15	15	9	7	9	4	6	8	11	7	5	6	2	3	4
Ib: Acute myeloid leukaemias	65	10	3	2	3	2	3	1	-	3	3	2	2	3	4	8	3	2	5	4	2
Ic: Chronic myeloproliferative diseases	22	-	-	-	2	1	-	2	-	1	1	2	1	-	2	2	1	1	1	2	3
Id: Myelodysplastic syndrome and other myeloproliferative diseases	25	5	1	1	-	1	1	2	-	2	-	1	1	2	-	2	1	-	2	2	1
Ie: Unspecified and other specified leukaemias	13	8	1	1	-	-	2	-	-	-	-	-	-	-	1	-	-	-	-	-	-
II: Lymphomas and reticuloendothelial neoplasms	255	14	8	6	5	6	4	6	9	4	3	4	6	16	9	13	11	29	24	34	44
IIa: Hodgkin lymphomas	146	-	-	-	-	1	-	1	1	-	2	3	4	8	7	12	11	19	20	27	30
IIb: Non-Hodgkin lymphomas	48	1	2	2	1	1	-	2	1	1	1	1	2	5	-	-	-	9	4	5	10
IIc: Burkitt lymphomas	12	-	-	1	1	1	2	-	3	-	-	-	-	1	1	1	-	-	-	-	1
IId: Miscellaneous lymphoreticular neoplasms	48	13	6	3	3	3	2	3	4	3	-	-	-	2	1	-	-	1	-	1	3
IIe: Unspecified lymphomas	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-
III: CNS and miscellaneous intracranial and intraspinal neoplasms	363	19	24	25	19	18	17	16	17	23	15	16	17	21	13	12	12	19	21	23	16
IIIa: Ependymomas and choroid plexus tumours	35	3	11	3	3	-	2	-	-	-	1	2	1	-	3	1	-	1	1	3	-
IIIb: Astrocytomas	144	9	7	9	8	11	8	7	8	11	7	5	11	12	-	4	6	4	2	6	9
IIIc: Intracranial and intraspinal embryonal tumours	46	3	3	4	3	4	4	2	4	4	-	5	2	1	1	-	-	-	3	2	1
IIId: Other gliomas	37	2	-	3	3	-	3	3	1	2	3	1	1	4	3	1	-	1	4	-	2
IIIe: Other specified intracranial and intraspinal neoplasms	82	1	2	6	2	2	-	3	4	3	3	2	2	2	3	5	5	13	9	11	4
IIIf: Unspecified intracranial and intraspinal neoplasms	19	1	1	-	-	1	-	1	-	3	1	1	-	2	3	1	1	-	2	1	-
IV: Neuroblastoma and other peripheral nervous cell tumours	75	31	12	6	9	3	5	2	1	1	-	1	-	-	2	-	-	-	-	1	1
IVa: Neuroblastomas and ganglioneuroblastomas	71	31	12	6	9	3	5	2	1	1	-	-	-	-	1	-	-	-	-	-	-
IVb: Other peripheral nervous cell tumours	4	-	-	-	-	-	-	-	-	-	-	1	-	-	1	-	-	-	-	1	1
V: Retinoblastomas	33	10	11	8	3	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
VI: Renal tumours	60	7	10	10	11	7	3	1	2	1	-	-	-	1	-	-	-	1	3	3	-
VIa: Nephroblastomas and other nonepithelial renal tumours	53	7	10	10	11	7	3	1	1	1	-	-	-	-	-	-	-	1	-	1	-
VIb: Renal carcinomas	7	-	-	-	-	-	-	-	1	-	-	-	-	1	-	-	-	-	3	2	-
VIc: Unspecified malignant renal tumours	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
VII: Hepatic tumours	11	1	7	1	-	-	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-
VIIa: Hepatoblastomas	10	1	7	1	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-
VIIb: Hepatic carcinomas	1	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-
VIIc: Unspecified malignant hepatic tumours	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Belgium: Girls, number of invasive tumours in children and adolescents by tumour type and age in 2010-2016

Belgium: Girls 2010-2016	Tot	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
VIII: Malignant bone tumours	76	-	1	-	-	2	6	2	2	3	4	2	7	5	8	7	7	6	4	6	4
VIIIa: Osteosarcomas	39	-	-	-	-	-	3	1	1	2	3	1	5	2	4	2	5	2	3	3	2
VIIIb: Chondrosarcomas	4	-	-	-	-	-	-	-	-	-	1	-	-	-	-	1	-	-	-	1	1
VIIIc: Ewing tumour and related sarcomas of bone	26	-	1	-	-	2	1	1	1	1	-	1	1	2	4	4	2	3	1	1	-
VIIId: Other specified malignant bone tumours	7	-	-	-	-	-	2	-	-	-	-	-	1	1	-	-	-	1	-	1	1
VIIIe: Unspecified malignant bone tumours	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
IX: Soft tissue and other extraosseous sarcomas	102	11	7	4	5	2	3	4	1	1	3	5	3	2	8	5	10	6	6	5	11
IXa: Rhabdomyosarcomas	30	6	2	3	4	1	1	2	1	-	1	1	1	-	1	1	1	2	-	-	2
IXb: Fibrosarcomas, peripheral nerve sheath tumours, and other fibromatous neoplasms	15	1	-	-	-	-	1	1	-	-	1	-	1	1	2	-	2	-	1	-	4
IXc: Kaposi sarcomas	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1
IXd: Other specified soft tissue sarcomas	47	3	4	1	1	1	-	1	-	1	1	2	1	1	3	4	6	4	4	5	4
IXe: Unspecified soft tissue sarcomas	9	1	1	-	-	-	1	-	-	-	-	2	-	-	2	-	1	-	1	-	-
X: Germ cell tumours, trophoblastic tumours and neoplasms of gonads	82	19	4	-	-	-	1	3	-	2	4	1	1	3	8	4	5	6	5	8	8
Xa: Intracranial and intraspinal germ cell tumours	16	6	-	-	-	-	-	2	-	-	2	-	-	1	2	-	-	-	-	2	1
Xb: Malignant extracranial and extragonadal germ cell tumours	18	13	4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-
Xc: Malignant gonadal germ cell tumours	42	-	-	-	-	-	1	1	-	2	2	1	1	2	6	4	5	5	3	5	4
Xd: Gonadal carcinomas	5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	1	1	2
Xe: Other and unspecified malignant gonadal tumours	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1
XI: Other malignant epithelial neoplasms and malignant melanomas	321	1	-	-	-	1	1	1	5	3	5	10	15	14	30	17	26	40	49	46	57
XIa: Adrenocortical carcinomas	3	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	1	-	1	-	-
XIb: Thyroid carcinomas	77	-	-	-	-	-	-	-	-	1	1	1	3	5	8	6	6	11	7	13	15
XIc: Nasopharyngeal carcinomas	4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	2	-
XId: Malignant melanomas	61	1	-	-	-	-	-	1	1	1	-	1	2	1	7	2	5	7	5	14	13
XIe: Skin carcinomas	61	-	-	-	-	-	1	-	-	-	2	3	2	3	4	3	6	8	10	6	13
XIf: Other and unspecified carcinomas	115	-	-	-	-	-	-	-	4	1	2	5	8	5	11	6	8	14	24	11	16
XII: Other and unspecified malignant neoplasms	3	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	2	-
XIIa: Other specified malignant tumours	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-
XIIb: Other unspecified malignant tumours	2	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	1	-
I-XII: All tumours	**1,728**	**144**	**108**	**93**	**90**	**65**	**62**	**57**	**46**	**51**	**48**	**48**	**59**	**75**	**96**	**77**	**81**	**116**	**122**	**139**	**151**

Belgium: Girls, age-specific incidence rates of cancer in children and adolescents, by tumour type in 2010-2016 (N/1,000,000 person years)

Belgium: Girls 2010-2016	Tot	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
I: Leukaemias, myeloproliferative and myelodysplastic diseases	347	72.0	54.9	74.9	85.9	58.9	47.9	46.1	21.0	30.7	30.9	21.5	24.0	31.1	42.9	45.0	23.6	21.1	23.1	24.8	22.1
Ia: Lymphoid leukaemias	222	18.6	43.4	65.8	74.6	49.8	34.2	34.6	21.0	16.5	21.4	9.6	14.4	19.2	26.2	16.6	11.8	14.1	4.6	6.8	8.9
Ib: Acute myeloid leukaemias	65	23.2	6.9	4.5	6.8	4.5	6.8	2.3	-	7.1	7.1	4.8	4.8	7.2	9.5	18.9	7.1	4.7	11.5	9.0	4.4
Ic: Chronic myeloproliferative diseases	22	-	-	-	4.5	2.3	-	4.6	-	2.4	2.4	4.8	2.4	-	4.8	4.7	2.4	2.3	2.3	4.5	6.6
Id: Myelodysplastic syndrome and other myeloproliferative diseases	25	11.6	2.3	2.3	-	2.3	2.3	4.6	-	4.7	-	2.4	2.4	4.8	-	4.7	2.4	-	4.6	4.5	2.2
Ie: Unspecified and other specified leukaemias	13	18.6	2.3	2.3	-	-	4.6	-	-	-	-	-	-	-	2.4	-	-	-	-	-	-
II: Lymphomas and reticuloendothelial neoplasms	255	32.5	18.3	13.6	11.3	13.6	9.1	13.8	21.0	9.4	7.1	9.6	14.4	38.3	21.4	30.8	26.0	68.0	55.4	76.7	97.4
IIa: Hodgkin lymphomas	146	-	-	-	-	2.3	-	2.3	2.3	-	4.8	7.2	9.6	19.2	16.7	28.4	26.0	44.5	46.1	60.9	66.4
IIb: Non-Hodgkin lymphomas	48	2.3	4.6	4.5	2.3	2.3	-	4.6	2.3	2.4	2.4	2.4	4.8	12.0	-	-	-	21.1	9.2	11.3	22.1
IIc: Burkitt lymphomas	12	-	-	2.3	2.3	2.3	4.6	-	7.0	-	-	-	-	2.4	2.4	2.4	-	-	-	-	2.2
IId: Miscellaneous lymphoreticular neoplasms	48	30.2	13.7	6.8	6.8	6.8	4.6	6.9	9.4	7.1	-	-	-	4.8	2.4	-	-	2.3	-	2.3	6.6
IIe: Unspecified lymphomas	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2.3	-
III: CNS and miscellaneous intracranial and intraspinal neoplasms	363	44.1	54.9	56.8	42.9	40.8	38.7	36.9	39.8	54.3	35.7	38.3	40.8	50.3	31.0	28.4	28.4	44.5	48.4	51.9	35.4
IIIa: Ependymomas and choroid plexus tumours	35	7.0	25.2	6.8	6.8	-	4.6	-	-	-	2.4	4.8	2.4	-	7.1	2.4	-	2.3	2.3	6.8	-
IIIb: Astrocytomas	144	20.9	16.0	20.4	18.1	24.9	18.2	16.2	18.7	26.0	16.6	12.0	26.4	28.7	-	9.5	14.2	9.4	4.6	13.5	19.9
IIIc: Intracranial and intraspinal embryonal tumours	46	7.0	6.9	9.1	6.8	9.1	9.1	4.6	9.4	9.4	-	12.0	4.8	2.4	2.4	-	-	-	6.9	4.5	2.2
IIId: Other gliomas	37	4.6	-	6.8	6.8	-	6.8	6.9	2.3	4.7	7.1	2.4	2.4	9.6	7.1	2.4	-	2.3	9.2	-	4.4
IIIe: Other specified intracranial and intraspinal neoplasms	82	2.3	4.6	13.6	4.5	4.5	-	6.9	9.4	7.1	7.1	4.8	4.8	4.8	7.1	11.8	11.8	30.5	20.8	24.8	8.9
IIIf: Unspecified intracranial and intraspinal neoplasms	19	2.3	2.3	-	-	2.3	-	2.3	-	7.1	2.4	2.4	-	4.8	7.1	2.4	2.4	-	4.6	2.3	-
IV: Neuroblastoma and other peripheral nervous cell tumours	75	72.0	27.4	13.6	20.3	6.8	11.4	4.6	2.3	2.4	-	2.4	-	-	4.8	-	-	-	-	2.3	2.2
IVa: Neuroblastomas and ganglioneuroblastomas	71	72.0	27.4	13.6	20.3	6.8	11.4	4.6	2.3	2.4	-	-	-	-	2.4	-	-	-	-	-	-
IVb: Other peripheral nervous cell tumours	4	-	-	-	-	-	-	-	-	-	-	2.4	-	-	2.4	-	-	-	-	2.3	2.2
V: Retinoblastomas	33	20.9	25.2	15.9	6.8	-	2.3	-	-	-	-	-	-	-	-	-	-	-	-	-	-
VI: Renal tumours	60	16.3	22.9	22.7	24.9	15.9	6.8	2.3	4.7	2.4	-	-	-	2.4	-	-	-	2.3	6.9	6.8	-
VIa: Nephroblastomas and other nonepithelial renal tumours	53	16.3	22.9	22.7	24.9	15.9	6.8	2.3	2.3	2.4	-	-	-	-	-	-	-	2.3	-	2.3	-
VIb: Renal carcinomas	7	-	-	-	-	-	-	-	2.3	-	-	-	-	2.4	-	-	-	-	6.9	4.5	-
VIc: Unspecified malignant renal tumours	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
VII: Hepatic tumours	11	2.3	16.0	2.3	-	-	-	4.6	-	-	-	-	-	-	-	-	-	-	-	-	-
VIIa: Hepatoblastomas	10	2.3	16.0	2.3	-	-	-	2.3	-	-	-	-	-	-	-	-	-	-	-	-	-
VIIb: Hepatic carcinomas	1	-	-	-	-	-	-	2.3	-	-	-	-	-	-	-	-	-	-	-	-	-
VIIc: Unspecified malignant hepatic tumours	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Belgium: Girls, age-specific incidence rates of cancer in children and adolescents, by tumour type in 2010-2016 (N/1,000,000 person years)

Belgium: Girls 2010-2016	Tot	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
VIII: Malignant bone tumours	76	-	2.3	-	-	4.5	13.7	4.6	4.7	7.1	9.5	4.8	16.8	12.0	19.0	16.6	16.5	14.1	9.2	13.5	8.9
VIIIa: Osteosarcomas	39	-	-	-	-	-	6.8	2.3	2.3	4.7	7.1	2.4	12.0	4.8	9.5	4.7	11.8	4.7	6.9	6.8	4.4
VIIIb: Chondrosarcomas	4	-	-	-	-	-	-	-	-	-	2.4	-	-	-	-	2.4	-	-	-	2.3	2.2
VIIIc: Ewing tumour and related sarcomas of bone	26	-	2.3	-	-	4.5	2.3	2.3	2.3	2.4	-	2.4	2.4	4.8	9.5	9.5	4.7	7.0	2.3	2.3	-
VIIId: Other specified malignant bone tumours	7	-	-	-	-	-	4.6	-	-	-	-	-	2.4	2.4	-	-	-	2.3	-	2.3	2.2
VIIIe: Unspecified malignant bone tumours	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
IX: Soft tissue and other extraosseous sarcomas	102	25.5	16.0	9.1	11.3	4.5	6.8	9.2	2.3	2.4	7.1	12.0	7.2	4.8	19.0	11.8	23.6	14.1	13.8	11.3	24.4
IXa: Rhabdomyosarcomas	30	13.9	4.6	6.8	9.0	2.3	2.3	4.6	2.3	-	2.4	2.4	2.4	-	2.4	2.4	2.4	4.7	-	-	4.4
IXb: Fibrosarcomas, peripheral nerve sheath tumours, and other fibromatous neoplasms	15	2.3	-	-	-	-	2.3	2.3	-	-	2.4	-	2.4	2.4	4.8	-	4.7	-	2.3	-	8.9
IXc: Kaposi sarcomas	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2.2
IXd: Other specified soft tissue sarcomas	47	7.0	9.1	2.3	2.3	2.3	-	2.3	-	2.4	2.4	4.8	2.4	2.4	7.1	9.5	14.2	9.4	9.2	11.3	8.9
IXe: Unspecified soft tissue sarcomas	9	2.3	2.3	-	-	-	2.3	-	-	-	-	4.8	-	-	4.8	-	2.4	-	2.3	-	-
X: Germ cell tumours, trophoblastic tumours and neoplasms of gonads	82	44.1	9.1	-	-	-	2.3	6.9	-	4.7	9.5	2.4	2.4	7.2	19.0	9.5	11.8	14.1	11.5	18.1	17.7
Xa: Intracranial and intraspinal germ cell tumours	16	13.9	-	-	-	-	-	4.6	-	-	4.8	-	-	2.4	4.8	-	-	-	-	4.5	2.2
Xb: Malignant extracranial and extragonadal germ cell tumours	18	30.2	9.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2.3	-	-
Xc: Malignant gonadal germ cell tumours	42	-	-	-	-	-	2.3	2.3	-	4.7	4.8	2.4	2.4	4.8	14.3	9.5	11.8	11.7	6.9	11.3	8.9
Xd: Gonadal carcinomas	5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2.3	2.3	2.3	4.4
Xe: Other and unspecified malignant gonadal tumours	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2.2
XI: Other malignant epithelial neoplasms and malignant melanomas	321	2.3	-	-	-	2.3	2.3	2.3	11.7	7.1	11.9	23.9	36.0	33.5	71.4	40.3	61.4	93.7	113.0	103.8	126.2
XIa: Adrenocortical carcinomas	3	-	-	-	-	2.3	-	-	-	-	-	-	-	-	-	-	2.4	-	2.3	-	-
XIb: Thyroid carcinomas	77	-	-	-	-	-	-	-	-	2.4	2.4	2.4	7.2	12.0	19.0	14.2	14.2	25.8	16.1	29.3	33.2
XIc: Nasopharyngeal carcinomas	4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	4.6	4.5	-
XId: Malignant melanomas	61	2.3	-	-	-	-	-	2.3	2.3	2.4	-	2.4	4.8	2.4	16.7	4.7	11.8	16.4	11.5	31.6	28.8
XIe: Skin carcinomas	61	-	-	-	-	-	2.3	-	-	-	4.8	7.2	4.8	7.2	9.5	7.1	14.2	18.7	23.1	13.5	28.8
XIf: Other and unspecified carcinomas	115	-	-	-	-	-	-	-	9.4	2.4	4.8	12.0	19.2	12.0	26.2	14.2	18.9	32.8	55.4	24.8	35.4
XII: Other and unspecified malignant neoplasms	3	-	-	-	-	-	-	-	-	-	2.4	-	-	-	-	-	-	-	-	4.5	-
XIIa: Other specified malignant tumours	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2.3	-
XIIb: Other unspecified malignant tumours	2	-	-	-	-	-	-	-	-	-	2.4	-	-	-	-	-	-	-	-	2.3	-
I-XII: All tumours	**1,728**	**332.1**	**246.9**	**208.8**	**203.4**	**147.3**	**141.3**	**131.5**	**107.6**	**120.5**	**114.1**	**114.9**	**141.6**	**179.6**	**228.6**	**182.4**	**191.4**	**271.8**	**281.4**	**313.7**	**334.4**

Belgium: Age-standardised incidence rates of cancer in children and adolescents, by tumour type and sex in 2010-2016 (N/1,000,000 person years)

	Boys (0-14 years)					Girls (0-14 years)					Boys (15-19 years)					Girls (15-19 years)				
Belgium: 2010-2016	**Tot**	**CR**	**ESR**	**WSR**	**CRi**	**Tot**	**CR**	**ESR**	**WSR**	**CRi**	**Tot**	**CR**	**ESR**	**WSR**	**CRi**	**Tot**	**CR**	**ESR**	**WSR**	**CRi**
I: Leukaemias, myeloproliferative and myelodysplastic diseases	353	52.5	53.3	54.3	0.078	297	46.2	47.0	47.8	0.069	90	39.6	39.6	39.6	0.020	50	23.0	23.0	23.0	0.011
Ia: Lymphoid leukaemias	269	40.0	40.7	41.7	0.059	202	31.4	32.0	32.9	0.047	49	21.6	21.6	21.6	0.011	20	9.2	9.2	9.2	0.005
Ib: Acute myeloid leukaemias	38	5.6	5.8	5.8	0.008	49	7.6	7.7	7.7	0.011	24	10.6	10.6	10.6	0.005	16	7.3	7.3	7.3	0.004
Ic: Chronic myeloproliferative diseases	10	1.5	1.5	1.4	0.002	14	2.2	2.2	2.1	0.003	12	5.3	5.3	5.3	0.003	8	3.7	3.7	3.7	0.002
Id: Myelodysplastic syndrome and other myeloproliferative diseases	29	4.3	4.3	4.4	0.006	19	3.0	3.0	3.0	0.004	4	1.8	1.8	1.8	0.001	6	2.8	2.8	2.8	0.001
Ie: Unspecified and other specified leukaemias	7	1.0	1.1	1.0	0.002	13	2.0	2.1	2.2	0.003	1	0.4	0.4	0.4	0.000	-	-	-	-	-
II: Lymphomas and reticuloendothelial neoplasms	219	32.6	32.4	32.1	0.049	113	17.6	17.6	17.5	0.026	171	75.3	75.3	75.3	0.038	142	65.2	65.2	65.2	0.033
IIa: Hodgkin lymphomas	56	8.3	8.1	7.7	0.013	39	6.1	5.9	5.5	0.009	101	44.5	44.5	44.5	0.022	107	49.1	49.1	49.1	0.025
IIb: Non-Hodgkin lymphomas	39	5.8	5.7	5.5	0.009	20	3.1	3.1	3.1	0.005	44	19.4	19.4	19.4	0.010	28	12.9	12.9	12.9	0.006
IIc: Burkitt lymphomas	62	9.2	9.2	9.2	0.014	11	1.7	1.7	1.7	0.003	16	7.0	7.0	7.0	0.004	1	0.5	0.5	0.5	0.000
IId: Miscellaneous lymphoreticular neoplasms	62	9.2	9.4	9.7	0.014	43	6.7	6.9	7.2	0.010	6	2.6	2.6	2.6	0.001	5	2.3	2.3	2.3	0.001
IIe: Unspecified lymphomas	-	-	-	-	-	-	-	-	-	-	4	1.8	1.8	1.8	0.001	1	0.5	0.5	0.5	0.000
III: CNS and miscellaneous intracranial and intraspinal neoplasms	357	53.1	53.2	53.3	0.080	272	42.3	42.5	42.7	0.063	107	47.1	47.1	47.1	0.024	91	41.8	41.8	41.8	0.021
IIIa: Ependymomas and choroid plexus tumours	32	4.8	4.8	4.9	0.007	30	4.7	4.8	5.0	0.007	8	3.5	3.5	3.5	0.002	5	2.3	2.3	2.3	0.001
IIIb: Astrocytomas	144	21.4	21.5	21.6	0.032	117	18.2	18.2	18.4	0.027	43	18.9	18.9	18.9	0.009	27	12.4	12.4	12.4	0.006
IIIc: Intracranial and intraspinal embryonal tumours	63	9.4	9.5	9.7	0.014	40	6.2	6.3	6.4	0.009	5	2.2	2.2	2.2	0.001	6	2.8	2.8	2.8	0.001
IIId: Other gliomas	43	6.4	6.4	6.3	0.010	30	4.7	4.6	4.6	0.007	8	3.5	3.5	3.5	0.002	7	3.2	3.2	3.2	0.002
IIIe: Other specified intracranial and intraspinal neoplasms	60	8.9	8.9	8.6	0.013	40	6.2	6.2	6.2	0.009	39	17.2	17.2	17.2	0.009	42	19.3	19.3	19.3	0.010
IIIf: Unspecified intracranial and intraspinal neoplasms	15	2.2	2.2	2.2	0.003	15	2.3	2.3	2.3	0.004	4	1.8	1.8	1.8	0.001	4	1.8	1.8	1.8	0.001
IV: Neuroblastoma and other peripheral nervous cell tumours	82	12.2	12.8	13.4	0.018	73	11.4	11.9	12.5	0.017	3	1.3	1.3	1.3	0.001	2	0.9	0.9	0.9	0.000
IVa: Neuroblastomas and ganglioneuroblastomas	77	11.4	12.0	12.7	0.017	71	11.0	11.6	12.3	0.016	-	-	-	-	-	-	-	-	-	-
IVb: Other peripheral nervous cell tumours	5	0.7	0.7	0.7	0.001	2	0.3	0.3	0.3	0.000	3	1.3	1.3	1.3	0.001	2	0.9	0.9	0.9	0.000
V: Retinoblastomas	42	5.6	6.0	6.4	0.008	33	4.8	5.1	5.4	0.007	-	-	-	-	-	-	-	-	-	-
VI: Renal tumours	59	8.8	9.1	9.6	0.013	53	8.2	8.7	9.1	0.012	1	0.4	0.4	0.4	0.000	7	3.2	3.2	3.2	0.002
VIa: Nephroblastomas and other nonepithelial renal tumours	58	8.6	9.0	9.5	0.013	51	7.9	8.4	8.8	0.012	-	-	-	-	-	2	0.9	0.9	0.9	0.000
VIb: Renal carcinomas	1	0.1	0.1	0.1	0.000	2	0.3	0.3	0.3	0.000	1	0.4	0.4	0.4	0.000	5	2.3	2.3	2.3	0.001
VIc: Unspecified malignant renal tumours	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
VII: Hepatic tumours	14	2.1	2.2	2.3	0.003	11	1.7	1.8	1.9	0.003	3	1.3	1.3	1.3	0.001	-	-	-	-	-
VIIa: Hepatoblastomas	11	1.6	1.7	1.9	0.002	10	1.6	1.6	1.7	0.002	-	-	-	-	-	-	-	-	-	-
VIIb: Hepatic carcinomas	3	0.4	0.4	0.4	0.001	1	0.2	0.1	0.2	0.000	3	1.3	1.3	1.3	0.001	-	-	-	-	-
VIIc: Unspecified malignant hepatic tumours	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Belgium: Age-standardised incidence rates of cancer in children and adolescents, by tumour type and sex in 2010-2016 (N/1,000,000 person years)

	Boys (0-14 years)					Girls (0-14 years)					Boys (15-19 years)					Girls (15-19 years)				
Belgium: 2010-2016	**Tot**	**CR**	**ESR**	**WSR**	**CRi**	**Tot**	**CR**	**ESR**	**WSR**	**CRi**	**Tot**	**CR**	**ESR**	**WSR**	**CRi**	**Tot**	**CR**	**ESR**	**WSR**	**CRi**
VIII: Malignant bone tumours	52	7.7	7.5	7.2	0.012	49	7.6	7.4	7.1	0.012	48	21.1	21.1	21.1	0.011	27	12.4	12.4	12.4	0.006
VIIIa: Osteosarcomas	28	4.2	4.0	3.8	0.006	24	3.7	3.6	3.4	0.006	28	12.3	12.3	12.3	0.006	15	6.9	6.9	6.9	0.003
VIIIb: Chondrosarcomas	1	0.1	0.1	0.1	0.000	2	0.3	0.3	0.3	0.000	4	1.8	1.8	1.8	0.001	2	0.9	0.9	0.9	0.000
VIIIc: Ewing tumour and related sarcomas of bone	23	3.4	3.3	3.2	0.005	19	3.0	2.9	2.8	0.004	12	5.3	5.3	5.3	0.003	7	3.2	3.2	3.2	0.002
VIIId: Other specified malignant bone tumours	-	-	-	-	-	4	0.6	0.6	0.6	0.001	2	0.9	0.9	0.9	0.000	3	1.4	1.4	1.4	0.001
VIIIe: Unspecified malignant bone tumours	-	-	-	-	-	-	-	-	-	-	2	0.9	0.9	0.9	0.000	-	-	-	-	-
IX: Soft tissue and other extraosseous sarcomas	74	11.0	11.0	11.0	0.017	64	10.0	10.1	10.1	0.015	31	13.7	13.7	13.7	0.007	38	17.4	17.4	17.4	0.009
IXa: Rhabdomyosarcomas	40	5.9	6.0	6.1	0.009	25	3.9	4.0	4.1	0.006	11	4.8	4.8	4.8	0.002	5	2.3	2.3	2.3	0.001
IXb: Fibrosarcomas, peripheral nerve sheath tumours, and other fibromatous neoplasms	4	0.6	0.6	0.6	0.001	8	1.2	1.2	1.2	0.002	1	0.4	0.4	0.4	0.000	7	3.2	3.2	3.2	0.002
IXc: Kaposi sarcomas	-	-	-	-	-	-	-	-	-	-	2	0.9	0.9	0.9	0.000	1	0.5	0.5	0.5	0.000
IXd: Other specified soft tissue sarcomas	26	3.9	3.8	3.7	0.006	24	3.7	3.8	3.7	0.006	12	5.3	5.3	5.3	0.003	23	10.6	10.6	10.6	0.005
IXe: Unspecified soft tissue sarcomas	4	0.6	0.6	0.6	0.001	7	1.1	1.1	1.1	0.002	5	2.2	2.2	2.2	0.001	2	0.9	0.9	0.9	0.000
X: Germ cell tumours, trophoblastic tumours and neoplasms of gonads	37	5.5	5.6	5.7	0.008	50	7.8	7.9	7.9	0.012	88	38.8	38.8	38.8	0.019	32	14.7	14.7	14.7	0.007
Xa: Intracranial and intraspinal germ cell tumours	14	2.1	2.0	1.9	0.003	13	2.0	2.0	2.1	0.003	5	2.2	2.2	2.2	0.001	3	1.4	1.4	1.4	0.001
Xb: Malignant extracranial and extragonadal germ cell tumours	5	0.7	0.8	0.8	0.001	17	2.6	2.8	3.0	0.004	3	1.3	1.3	1.3	0.001	1	0.5	0.5	0.5	0.000
Xc: Malignant gonadal germ cell tumours	17	2.5	2.7	2.8	0.004	20	3.1	3.0	2.8	0.005	80	35.2	35.2	35.2	0.018	22	10.1	10.1	10.1	0.005
Xd: Gonadal carcinomas	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	5	2.3	2.3	2.3	0.001
Xe: Other and unspecified malignant gonadal tumours	1	0.1	0.1	0.1	0.000	-	-	-	-	-	-	-	-	-	-	1	0.5	0.5	0.5	0.000
XI: Other malignant epithelial neoplasms and malignant melanomas	74	11.0	10.7	10.0	0.017	103	16.0	15.6	14.5	0.024	118	52.0	52.0	52.0	0.026	218	100.1	100.1	100.1	0.050
XIa: Adrenocortical carcinomas	-	-	-	-	-	1	0.2	0.2	0.2	0.000	2	0.9	0.9	0.9	0.000	2	0.9	0.9	0.9	0.000
XIb: Thyroid carcinomas	4	0.6	0.6	0.6	0.001	25	3.9	3.8	3.5	0.006	13	5.7	5.7	5.7	0.003	52	23.9	23.9	23.9	0.012
XIc: Nasopharyngeal carcinomas	5	0.7	0.7	0.7	0.001	-	-	-	-	-	2	0.9	0.9	0.9	0.000	4	1.8	1.8	1.8	0.001
XId: Malignant melanomas	5	0.7	0.7	0.7	0.001	17	2.6	2.6	2.4	0.004	27	11.9	11.9	11.9	0.006	44	20.2	20.2	20.2	0.010
XIe: Skin carcinomas	20	3.0	2.9	2.7	0.005	18	2.8	2.7	2.5	0.004	24	10.6	10.6	10.6	0.005	43	19.7	19.7	19.7	0.010
XIf: Other and unspecified carcinomas	40	5.9	5.8	5.4	0.009	42	6.5	6.4	5.9	0.010	50	22.0	22.0	22.0	0.011	73	33.5	33.5	33.5	0.017
XII: Other and unspecified malignant neoplasms	1	0.1	0.1	0.1	0.000	1	0.2	0.1	0.2	0.000	2	0.9	0.9	0.9	0.000	2	0.9	0.9	0.9	0.000
XIIa: Other specified malignant tumours	1	0.1	0.1	0.1	0.000	-	-	-	-	-	2	0.9	0.9	0.9	0.000	1	0.5	0.5	0.5	0.000
XIIb: Other unspecified malignant tumours	-	-	-	-	-	1	0.2	0.1	0.2	0.000	-	-	-	-	-	1	0.5	0.5	0.5	0.000
I-XII: All tumours	**1,364**	**202.2**	**204.2**	**205.5**	**0.302**	**1.119**	**173.7**	**175.7**	**176.9**	**0.260**	**662**	**291.6**	**291.6**	**291.6**	**0.146**	**609**	**279.6**	**279.6**	**279.6**	**0.140**

CR: Crude incidence rate (N/1,000,000 person years)
ESR and WSR: Age-standardised incidence using the European or World standard population (N/1,000,000 person years)
CRi: Cumulative Risk, 0-14 year or 15-19 year (%)

Belgium: Age-standardised incidence rates of cancer in children and adolescents, by tumour type and sex in 2004-2008, 2008-2012 and 2012-2016 (N/1,000,000 person years)

	Boys (0-14 years)			Girls (0-14 years)			Boys (15-19 years)			Girls (15-19 years)		
Belgium: 2004-2016	**WSR, 2004-2008**	**WSR, 2008-2012**	**WSR, 2012-2016**	**WSR, 2004-2008**	**WSR, 2008-2012**	**WSR, 2012-2016**	**WSR, 2004-2008**	**WSR, 2008-2012**	**WSR, 2012-2016**	**WSR, 2004-2008**	**WSR, 2008-2012**	**WSR, 2012-2016**
I: Leukaemias, myeloproliferative and myelodysplastic diseases	52.5	51.6	58.4	41.3	43.0	50.6	34.7	41.1	39.2	28.5	22.1	24.0
Ia: Lymphoid leukaemias	42.6	40.1	46.1	33.0	30.3	35.1	17.4	21.2	21.8	14.2	8.2	9.1
Ib: Acute myeloid leukaemias	6.3	4.5	6.0	6.7	6.7	7.5	8.1	10.9	11.8	9.1	8.8	7.1
Ic: Chronic myeloproliferative diseases	0.8	1.4	1.6	0.4	1.6	2.3	5.6	5.4	3.7	3.2	4.4	4.5
Id: Myelodysplastic syndrome and other myeloproliferative diseases	2.6	4.7	3.5	1.2	3.4	3.1	2.5	3.6	1.2	1.9	0.6	3.2
Ie: Unspecified and other specified leukaemias	0.3	0.7	1.2	-	1.0	2.6	1.2	-	0.6	-	-	-
II: Lymphomas and reticuloendothelial neoplasms	34.9	31.5	30.9	19.7	19.8	16.7	73.2	71.4	78.3	62.1	60.5	64.8
IIa: Hodgkin lymphomas	8.9	6.9	8.0	6.0	4.2	6.1	41.6	41.1	46.6	42.7	44.7	46.0
IIb: Non-Hodgkin lymphomas	7.1	7.1	4.2	3.8	3.5	2.5	23.6	19.4	21.1	18.1	12.0	14.9
IIc: Burkitt lymphomas	7.2	8.3	9.3	2.8	2.7	1.7	5.6	6.0	7.5	-	-	0.6
IId: Miscellaneous lymphoreticular neoplasms	11.0	9.2	9.4	6.7	9.4	6.4	1.2	3.6	1.9	0.6	2.5	2.6
IIe: Unspecified lymphomas	0.6	-	-	0.4	-	-	1.2	1.2	1.2	0.6	1.3	0.6
III: CNS and miscellaneous intracranial and intraspinal neoplasms	42.2	51.8	54.2	41.2	44.8	42.8	39.1	44.8	46.6	33.6	35.3	44.7
IIIa: Ependymomas and choroid plexus tumours	5.4	4.7	4.6	6.6	5.6	4.8	4.3	2.4	3.7	1.9	2.5	2.6
IIIb: Astrocytomas	16.7	20.2	21.2	20.8	20.7	17.1	15.5	16.9	19.9	14.9	12.6	12.3
IIIc: Intracranial and intraspinal embryonal tumours	7.7	8.8	9.7	5.4	7.7	6.0	2.5	3.6	1.9	2.6	2.5	3.2
IIId: Other gliomas	4.0	6.1	7.3	3.8	4.2	4.8	1.9	3.0	3.1	3.2	0.6	3.9
IIIe: Other specified intracranial and intraspinal neoplasms	8.0	9.4	8.4	4.1	5.3	7.4	12.4	16.3	17.4	8.4	14.5	20.7
IIIf: Unspecified intracranial and intraspinal neoplasms	0.4	2.6	2.9	0.5	1.3	2.7	2.5	2.4	0.6	2.6	2.5	1.9
IV: Neuroblastoma and other peripheral nervous cell tumours	14.8	16.8	11.4	12.5	10.7	11.4	1.2	1.2	1.9	1.3	0.6	1.3
IVa: Neuroblastomas and ganglioneuroblastomas	13.7	16.1	10.6	12.2	10.7	11.0	0.6	-	-	0.6	-	-
IVb: Other peripheral nervous cell tumours	1.1	0.6	0.8	0.4	-	0.4	0.6	1.2	1.9	0.6	0.6	1.3
V: Retinoblastomas	6.9	6.7	6.8	5.4	6.1	4.6	-	-	-	-	-	-
VI: Renal tumours	10.0	8.2	9.1	10.8	8.8	8.7	2.5	1.8	-	0.6	2.5	2.6
VIa: Nephroblastomas and other nonepithelial renal tumours	9.4	8.0	9.1	10.3	8.4	8.5	1.9	0.6	-	-	1.3	-
VIb: Renal carcinomas	0.4	0.2	-	0.2	0.4	0.2	0.6	1.2	-	0.6	1.3	2.6
VIc: Unspecified malignant renal tumours	0.3	-	-	0.3	-	-	-	-	-	-	-	-
VII: Hepatic tumours	0.8	2.2	2.1	1.4	1.7	2.1	0.6	0.6	1.2	-	-	-
VIIa: Hepatoblastomas	0.8	1.9	1.9	1.1	1.7	1.9	-	-	-	-	-	-
VIIb: Hepatic carcinomas	-	0.4	0.2	0.3	-	0.2	0.6	0.6	1.2	-	-	-
VIIc: Unspecified malignant hepatic tumours	-	-	-	-	-	-	-	-	-	-	-	-

Belgium: Age-standardised incidence rates of cancer in children and adolescents, by tumour type and sex in 2004-2008, 2008-2012 and 2012-2016 (N/1,000,000 person years)

	Boys (0-14 years)			Girls (0-14 years)			Boys (15-19 years)			Girls (15-19 years)		
Belgium: 2004-2016	**WSR, 2004-2008**	**WSR, 2008-2012**	**WSR, 2012-2016**	**WSR, 2004-2008**	**WSR, 2008-2012**	**WSR, 2012-2016**	**WSR, 2004-2008**	**WSR, 2008-2012**	**WSR, 2012-2016**	**WSR, 2004-2008**	**WSR, 2008-2012**	**WSR, 2012-2016**
VIII: Malignant bone tumours	8.4	7.5	6.8	8.2	7.7	6.1	24.8	18.8	19.9	16.8	10.7	13.0
VIIIa: Osteosarcomas	3.2	4.2	3.1	3.7	3.6	2.6	14.3	12.1	10.6	7.8	3.8	7.1
VIIIb: Chondrosarcomas	-	0.4	-	-	-	0.4	1.9	0.6	2.5	2.6	0.6	0.6
VIIIc: Ewing tumour and related sarcomas of bone	4.8	2.4	3.7	4.3	3.2	2.7	8.7	4.8	5.6	5.2	4.4	3.9
VIIId: Other specified malignant bone tumours	0.2	0.2	-	0.2	0.8	0.4	-	0.6	0.6	0.6	0.6	1.3
VIIIe: Unspecified malignant bone tumours	0.2	0.2	-	-	-	-	-	0.6	0.6	0.6	1.3	-
IX: Soft tissue and other extraosseous sarcomas	11.4	12.0	12.7	7.2	9.7	8.6	19.2	14.5	14.9	23.3	19.5	16.8
IXa: Rhabdomyosarcomas	6.7	6.4	7.1	4.4	4.7	3.0	3.7	4.8	5.6	1.3	1.9	1.9
IXb: Fibrosarcomas, peripheral nerve sheath tumours, and other fibromatous neoplasms	1.1	1.1	0.6	0.3	1.1	1.0	1.2	-	0.6	2.6	3.8	3.9
IXc: Kaposi sarcomas	-	0.2	-	-	-	-	-	0.6	0.6	-	0.6	0.6
IXd: Other specified soft tissue sarcomas	2.8	3.7	4.3	2.4	3.2	3.8	10.5	9.1	5.0	19.4	13.2	9.1
IXe: Unspecified soft tissue sarcomas	0.7	0.7	0.7	0.2	0.6	0.9	3.7	-	3.1	-	-	1.3
X: Germ cell tumours, trophoblastic tumours and neoplasms of gonads	4.0	4.9	5.9	7.2	8.0	7.6	46.5	37.5	40.4	10.3	9.5	16.2
Xa: Intracranial and intraspinal germ cell tumours	1.8	1.6	2.2	0.4	1.8	2.0	6.8	3.0	3.1	0.6	-	1.9
Xb: Malignant extracranial and extragonadal germ cell tumours	1.2	1.0	0.9	4.6	2.7	3.4	-	1.2	1.2	-	-	0.6
Xc: Malignant gonadal germ cell tumours	1.0	2.4	2.5	2.2	3.3	2.2	39.7	32.7	36.1	6.5	8.2	10.4
Xd: Gonadal carcinomas	-	-	-	-	-	-	-	-	-	2.6	1.3	2.6
Xe: Other and unspecified malignant gonadal tumours	-	-	0.2	-	0.2	-	-	0.6	-	0.6	-	0.6
XI: Other malignant epithelial neoplasms and malignant melanomas	9.0	8.1	10.5	12.6	13.8	13.3	44.7	51.4	54.1	77.6	99.6	99.1
XIa: Adrenocortical carcinomas	0.2	-	-	0.2	0.3	0.2	-	-	1.2	0.6	1.3	0.6
XIb: Thyroid carcinomas	0.9	0.8	0.4	1.7	2.6	3.5	6.2	7.9	6.2	14.9	24.6	23.3
XIc: Nasopharyngeal carcinomas	0.7	0.6	0.7	0.4	0.2	-	0.6	1.2	1.2	-	1.3	1.9
XId: Malignant melanomas	2.3	1.6	0.4	2.3	2.7	1.8	13.6	9.7	11.8	16.2	25.2	16.2
XIe: Skin carcinomas	0.8	1.7	3.2	3.2	2.2	2.9	7.4	6.7	12.4	7.8	13.2	25.9
XIf: Other and unspecified carcinomas	4.0	3.4	5.8	4.7	5.8	4.9	16.7	26.0	21.1	38.2	34.0	31.1
XII: Other and unspecified malignant neoplasms	0.5	0.4	0.2	0.5	-	0.2	0.6	0.6	0.6	1.3	1.3	1.3
XIIa: Other specified malignant tumours	0.3	0.4	0.2	-	-	-	-	0.6	0.6	1.3	1.3	0.6
XIIb: Other unspecified malignant tumours	0.3	-	-	0.5	-	0.2	0.6	-	-	-	-	0.6
I-XII: All tumours	**195.4**	**201.8**	**209.0**	**168.0**	**174.2**	**172.8**	**287.1**	**283.7**	**297.1**	**255.5**	**261.5**	**283.7**

WSR: Age-standardised incidence using the World standard population (N/1,000,000 person years)

Belgium: Observed survival of cancer* in children. by tumour type and sex in 2004-2016

	Boys & Girls (0-14 years)						Boys (0-14 years)						Girls (0-14 years)					
Belgium: 2004-2016	**N at risk**	**1 yr OS**	**3 yr OS**	**5 yr OS**	**10 yr OS**	**95% CI (10 yr OS)**	**N at risk**	**1 yr OS**	**3 yr OS**	**5 yr OS**	**10 yr OS**	**95% CI (10 yr OS)**	**N at risk**	**1 yr OS**	**3 yr OS**	**5 yr OS**	**10 yr OS**	**95% CI (10 yr OS)**
I: Leukaemias. myeloproliferative and myelodysplastic diseases	1,131	93.3	87.5	86.3	85.0	[82.7:87.1]	631	93.3	87.5	86.3	85.0	[81.8:87.8]	500	93.2	87.4	86.5	85.1	[81.6:88.1]
Ia: Lymphoid leukaemias	858	95.6	91.2	90.3	88.8	[86.4:90.9]	495	95.6	90.9	90.1	88.5	[85.1:91.3]	363	95.6	91.6	90.6	89.3	[85.4:92.2]
Ib: Acute myeloid leukaemias	148	83.1	68.6	65.8	65.8	[57.6:73.1]	68	83.8	70.5	66.3	66.3	[54.0:76.8]	80	82.5	66.9	65.2	65.2	[54.0:75.0]
Ic: Chronic myeloproliferative diseases	32	96.9	96.9	93.0	-	-	15	93.3	93.3	85.6	-	-	17	100.0	100.0	100.0	-	-
Id: Myelodysplastic syndrome and other myeloproliferative diseases	74	90.5	84.8	84.8	84.8	[74.8:91.3]	46	87.0	81.9	81.9	81.9	[67.9:90.6]	28	96.4	89.3	89.3	-	-
Ie: Unspecified and other specified leukaemias	22	72.7	-	-	-	-	9	-	-	-	-	-	13	76.9	-	-	-	-
II: Lymphomas and reticuloendothelial neoplasms	628	97.9	96.6	96.2	95.5	[93.5:96.9]	407	98.0	96.8	96.2	95.4	[92.7:97.1]	221	97.7	96.3	96.3	95.7	[92.0:97.7]
IIa: Hodgkin lymphomas	183	100.0	99.5	99.5	97.8	[93.7:99.3]	111	100.0	100.0	100.0	98.7	[92.9:99.8]	72	100.0	98.6	98.6	96.4	[87.7:99.1]
IIb: Non-Hodgkin lymphomas	121	95.9	90.8	88.9	87.7	[80.4:92.6]	79	96.2	91.1	88.2	86.4	[76.5:92.5]	42	95.2	90.2	90.2	90.2	[77.3:96.1]
IIc: Burkitt lymphomas	125	96.8	96.8	96.8	96.8	[92.0:98.7]	99	96.9	96.9	96.9	96.9	[91.4:99.0]	26	96.2	96.2	96.2	96.2	[81.1:99.3]
IId: Miscellaneous lymphoreticular neoplasms	194	98.5	97.9	97.9	97.9	[94.7:99.2]	115	98.3	97.3	97.3	97.3	[92.3:99.1]	79	98.7	98.7	98.7	98.7	[93.2:99.8]
III: CNS and miscellaneous intracranial and intraspinal neoplasms	1,088	87.8	80.8	78.4	75.0	[72.1:77.7]	602	89.2	81.5	78.0	74.0	[70.0:77.6]	486	86.0	79.9	78.8	76.2	[71.9:80.0]
IIIa: Ependymomas and choroid plexus tumours	118	89.8	85.5	77.8	74.0	[64.6:81.7]	57	91.2	85.9	74.8	69.2	[54.8:80.7]	61	88.5	85.2	80.9	78.6	[66.0:87.4]
IIIb: Astrocytomas	464	89.2	82.6	81.3	79.5	[75.4:83.1]	239	89.9	82.2	80.2	77.9	[71.8:83.0]	225	88.4	83.0	82.5	81.1	[75.3:85.8]
IIIc: Intracranial and intraspinal embryonal tumours	174	76.4	64.6	60.3	50.8	[42.5:59.0]	107	79.4	66.0	60.1	49.2	[38.7:59.8]	67	71.6	62.5	60.6	-	-
IIId: Other gliomas	122	84.4	68.6	65.5	63.8	[54.4:72.2]	73	84.9	71.1	66.1	63.1	[50.5:74.1]	49	83.7	64.8	64.8	64.8	[50.6:76.8]
IIIe: Other specified intracranial and intraspinal neoplasms	166	95.2	95.2	95.2	92.3	[85.5:96.1]	102	98.0	98.0	98.0	96.4	[89.5:98.8]	64	90.6	90.6	90.6	85.3	[69.5:93.7]
IIIf: Unspecified intracranial and intraspinal neoplasms	44	93.2	93.2	93.2	-	-	24	95.8	95.8	95.8	-	-	20	90.0	90.0	-	-	-
IV: Neuroblastomas and other peripheral nervous cell tumours	283	95.0	83.9	79.9	78.3	[72.8:82.9]	155	93.5	80.1	75.4	74.5	[66.8:81.0]	128	96.9	88.5	85.4	82.9	[74.6:88.9]
IVa: Neuroblastomas and ganglioneuroblastomas	269	95.1	83.4	79.2	77.6	[71.9:82.4]	145	93.8	79.4	74.5	73.5	[65.5:80.3]	124	96.7	88.2	85.0	82.4	[73.9:88.6]
IVb: Other peripheral nervous cell tumours	14	92.9	92.9	-	-	-	10	-	-	-	-	-	4	-	-	-	-	-
V: Retinoblastomas	115	100.0	98.3	98.3	98.3	[93.9:99.5]	65	100.0	98.5	98.5	98.5	[91.8:99.7]	50	100.0	98.0	98.0	98.0	[89.5:99.7]
VI: Renal tumours	198	96.4	94.3	93.1	93.1	[88.5:95.9]	98	96.9	93.5	91.1	91.1	[83.4:95.4]	100	96.0	95.0	95.0	95.0	[88.8:97.8]
VIa: Nephroblastomas and other nonepithelial renal tumours	190	97.3	95.1	93.8	93.8	[89.3:96.5]	94	97.8	94.3	91.8	91.8	[84.0:96.0]	96	96.9	95.8	95.8	95.8	[89.7:98.4]
VII: Hepatic tumours	36	94.4	91.7	91.7	-	-	19	89.5	89.5	89.5	-	-	17	100.0	94.1	94.1	-	-
VIIa: Hepatoblastomas	31	93.5	90.3	90.3	-	-	16	87.5	-	-	-	-	15	100.0	93.3	93.3	-	-
VIII: Malignant bone tumours	197	96.9	84.9	79.4	74.6	[67.2:80.9]	105	96.2	83.3	77.7	72.8	[62.5:81.1]	92	97.8	86.7	81.4	77.0	[65.8:85.4]
VIIIa: Osteosarcomas	94	98.9	86.8	79.1	77.6	[67.5:85.3]	50	98.0	85.3	77.6	77.6	[63.4:87.5]	44	100.0	88.6	80.7	77.7	[62.7:87.9]
VIIIc: Ewing tumours and related sarcomas of bone	91	94.5	80.9	77.0	70.8	[59.3:80.1]	50	94.0	79.7	75.3	68.4	[53.1:80.6]	41	95.1	82.3	79.1	73.5	[55.4:86.1]
IX: Soft tissue and other extraosseous sarcomas	238	92.8	80.5	77.0	74.3	[67.6:79.9]	136	93.3	80.9	75.5	70.9	[61.4:78.8]	102	92.2	80.1	78.9	78.9	[69.9:85.8]
IXa: Rhabdomyosarcomas	119	91.6	77.5	73.5	70.0	[60.2:78.3]	73	90.3	77.2	72.2	66.5	[53.2:77.6]	46	93.5	77.9	75.5	75.5	[61.2:85.8]
IXb: Fibrosarcomas. peripheral nerve sheath tumours. and other fibromatous neoplasms	19	100.0	100.0	93.8	-	-	10	100.0	100.0	-	-	-	9	-	-	-	-	-
IXd: Other specified soft tissue sarcomas	83	92.8	84.0	80.7	78.6	[67.8:86.6]	44	97.7	85.7	79.4	-	-	39	87.2	82.1	82.1	-	-
IXe: Unspecified soft tissue sarcomas	16	93.8	-	-	-	-	8	-	-	-	-	-	8	-	-	-	-	-
X: Germ cell tumours. trophoblastic tumours and neoplasms of gonads	146	98.6	95.9	94.1	94.1	[88.8:97.0]	58	98.3	98.3	96.0	96.0	[86.5:98.9]	88	98.9	94.2	92.8	92.8	[85.2:96.7]
Xa: Intracranial and intraspinal germ cell tumours	40	97.5	95.0	91.7	-	-	24	100.0	100.0	94.7	-	-	16	93.8	87.5	87.5	-	-
Xb: Malignant extracranial and extragonadal germ cell tumours	47	97.9	95.7	95.7	95.7	[85.6:98.8]	11	90.9	-	-	-	-	36	100.0	97.1	97.1	97.1	[85.5:99.5]
Xc: Malignant gonadal germ cell tumours	57	100.0	96.4	94.2	94.2	[84.3:98.0]	22	100.0	100.0	100.0	-	-	35	100.0	94.3	90.9	-	-
XI: Other malignant epithelial neoplasms and malignant melanomas	294	99.0	97.5	95.4	93.1	[88.6:95.9]	121	97.5	94.8	91.5	89.6	[81.4:94.4]	173	100.0	99.4	98.0	95.5	[89.3:98.2]
XIb: Thyroid carcinomas	46	100.0	100.0	100.0	94.7	[75.4:99.1]	9	-	-	-	-	-	37	100.0	100.0	100.0	-	-
XIc: Nasopharyngeal carcinomas	11	100.0	100.0	-	-	-	9	-	-	-	-	-	2	-	-	-	-	-
XId: Malignant melanomas	47	100.0	97.9	95.6	88.9	[73.8:95.8]	18	100.0	94.4	94.4	-	-	29	100.0	100.0	96.2	-	-
XIe: Skin carcinomas	53	100.0	100.0	100.0	100.0	[100.0:100.0]	22	100.0	100.0	100.0	-	-	31	100.0	100.0	100.0	100.0	[100.0:100.0]
XIf: Other and unspecified carcinomas	135	97.8	96.1	93.1	93.1	[86.8:96.5]	63	95.2	93.2	88.4	88.4	[76.5:94.7]	72	100.0	98.6	96.8	96.8	[89.0:99.1]
I-XII: All tumours	**4,347**	**93.7**	**88.0**	**86.1**	**84.2**	**[83.0:85.3]**	**2,392**	**93.8**	**87.8**	**85.3**	**83.1**	**[81.4:84.7]**	**1,955**	**93.5**	**88.3**	**87.1**	**85.6**	**[83.8:87.2]**

N at risk: Number of patients at risk at the start of the observation period.
1,3,5,10 yr OS: one, three, five and ten-year observed survival (%)
95% CI (10 yr OS): 95% confidence interval of the ten-year observed survival (%)

**ICCC-3 categories for which no observed survival results could be presented are excluded from this table.*
Survival data are not presented when the number of patients at risk is less than 10 cases.
Observed survival results depicted in light blue are calculated on less than 30 patients (N at risk) are purely indicative and no strong conclusions can be drawn.

Belgium: Observed survival of cancer* in adolescents, by tumour type and sex in 2004-2016

	Boys & Girls (15-19 years)						Boys (15-19 years)						Girls (15-19 years)					
Belgium: 2004-2016	**N at risk**	**1 yr OS**	**3 yr OS**	**5 yr OS**	**10 yr OS**	**95% CI (10 yr OS)**	**N at risk**	**1 yr OS**	**3 yr OS**	**5 yr OS**	**10 yr OS**	**95% CI (10 yr OS)**	**N at risk**	**1 yr OS**	**3 yr OS**	**5 yr OS**	**10 yr OS**	**95% CI (10 yr OS)**
I: Leukaemias, myeloproliferative and myelodysplastic diseases	263	88.9	76.6	73.3	70.7	[64.5:76.2]	161	90.0	78.8	74.9	73.9	[66.3:80.4]	102	87.3	73.1	70.6	65.8	[55.3:74.9]
Ia: Lymphoid leukaemias	131	92.4	78.9	72.9	69.0	[59.7:77.0]	86	90.7	78.6	72.6	70.8	[59.7:79.8]	45	95.6	79.5	73.5	66.3	[49.9:79.6]
Ib: Acute myeloid leukaemias	72	77.5	61.5	61.5	58.8	[46.6:70.1]	40	82.2	68.3	68.3	-	-	32	71.9	53.1	53.1	-	-
Ic: Chronic myeloproliferative diseases	37	100.0	96.9	93.8	93.8	[79.9:98.3]	21	100.0	94.4	88.9	-	-	16	100.0	100.0	100.0	-	-
Id: Myelodysplastic syndrome and other myeloproliferative diseases	20	85.0	80.0	80.0	-	-	11	90.9	-	-	-	-	9	-	-	-	-	-
II: lymphomas and reticuloendothelial neoplasms	571	97.5	94.6	94.1	93.4	[90.9:95.3]	313	96.5	93.8	92.9	91.6	[87.6:94.5]	258	98.8	95.6	95.6	95.6	[92.3:97.5]
IIa: Hodgkin lymphomas	369	99.2	97.4	97.1	96.5	[93.8:98.1]	183	99.5	98.2	97.5	96.4	[91.7:98.5]	186	98.9	96.7	96.7	96.7	[92.9:98.5]
IIb: Non-Hodgkin lymphomas	148	93.9	89.7	88.9	87.6	[80.8:92.2]	88	90.9	86.1	84.7	82.5	[72.3:89.5]	60	98.3	94.9	94.9	94.9	[86.2:98.3]
IIc: Burkitt lymphomas	27	96.3	92.6	92.6	-	-	26	96.2	92.3	92.3	-	-	1	-	-	-	-	-
IId: Miscellaneous lymphoreticular neoplasms	18	94.4	83.0	83.0	-	-	10	-	-	-	-	-	8	-	-	-	-	-
III: CNS and miscellaneous intracranial and intraspinal neoplasms	338	94.7	89.2	86.4	82.0	[77.0:86.1]	185	93.5	87.3	85.2	81.6	[74.8:87.0]	153	96.1	91.4	87.9	82.4	[74.5:88.3]
IIIa: Ependymomas and choroid plexus tumour	23	95.7	95.7	95.7	-	-	15	93.3	93.3	93.3	-	-	8	-	-	-	-	-
IIIb: Astrocytomas	129	92.2	82.0	77.8	73.1	[64.0:80.5]	73	90.4	80.6	78.7	74.1	[62.0:83.5]	56	94.6	83.7	76.4	71.5	[57.3:82.4]
IIIc: Intracranial and intraspinal embryonal tumours	20	95.0	80.0	-	-	-	10	100.0	-	-	-	-	10	-	-	-	-	-
IIId: Other gliomas	23	87.0	78.3	-	-	-	11	-	-	-	-	-	12	91.7	-	-	-	-
IIIe: Other specified intracranial and intraspinal neoplasms	126	98.4	98.4	98.4	95.5	[88.7:98.3]	68	98.5	98.5	98.5	96.0	[86.0:98.9]	58	98.3	98.3	98.3	-	-
IIIf: Unspecified intracranial and intraspinal neoplasms	19	94.7	94.7	94.7	-	-	9	-	-	-	-	-	10	100.0	100.0	-	-	-
VI: Renal tumours	14	92.9	85.7	-	-	-	6	-	-	-	-	-	8	-	-	-	-	-
VIII: Malignant bone tumours	147	93.9	76.9	68.0	63.1	[54.0:71.4]	91	93.4	72.0	62.6	59.9	[48.1:70.6]	56	94.6	85.2	76.6	68.3	[53.6:80.1]
VIIIa: Osteosarcomas	79	93.7	81.9	70.1	60.2	[46.7:72.3]	52	92.3	78.5	65.3	60.6	[44.5:74.7]	27	96.3	88.2	79.0	-	-
VIIIb: Chondrosarcomas	14	100.0	100.0	-	-	-	8	-	-	-	-	-	6	-	-	-	-	-
VIIIc: Ewing tumours and related sarcomas of bone	44	90.9	55.4	49.8	49.8	[35.1:64.6]	27	92.6	47.3	-	-	-	17	88.2	69.5	-	-	-
IX: Soft tissue and other extraosseous sarcomas	145	91.7	77.0	72.8	70.4	[62.0:77.6]	68	88.2	70.0	64.5	61.8	[49.1:73.2]	77	94.8	83.0	79.9	77.7	[66.6:86.0]
IXa: Rhabdomyosarcomas	26	92.3	69.2	58.9	-	-	19	89.5	68.4	-	-	-	7	-	-	-	-	-
IXb: Fibrosarcomas, peripheral nerve sheath tumours, and other fibromatous neoplasms	15	73.3	-	-	-	-	3	-	-	-	-	-	12	83.3	-	-	-	-
IXd: Other specified soft tissue sarcomas	88	94.3	81.7	79.3	77.6	[67.5:85.2]	33	90.9	72.6	69.4	69.4	[52.3:82.5]	55	96.4	87.2	85.2	82.6	[69.9:90.6]
IXe: Unspecified soft tissue sarcomas	13	92.3	-	-	-	-	11	90.9	-	-	-	-	2	-	-	-	-	-
X: Germ cell tumours, trophoblastic tumours and neoplasms of gonads	225	98.7	95.9	95.9	95.1	[91.1:97.4]	177	98.9	97.2	97.2	97.2	[93.5:98.8]	48	97.8	91.3	91.3	85.9	[68.9:94.4]
Xa: Intracranial and intraspinal germ cell tumours	21	95.2	90.5	90.5	90.5	[71.1:97.4]	17	94.1	88.2	88.2	88.2	[65.7:96.7]	4	-	-	-	-	-
Xc: Malignant gonadal germ cell tumours	187	99.5	97.3	97.3	97.3	[93.7:98.8]	155	99.4	98.1	98.1	98.1	[94.5:99.3]	32	100.0	93.2	93.2	-	-
XI: Other malignant epithelial neoplasms and malignant melanomas	565	98.0	95.6	94.7	93.0	[90.3:95.0]	204	97.0	93.9	92.0	91.3	[86.3:94.6]	361	98.6	96.6	96.2	94.0	-
XIb: Thyroid carcinomas	109	100.0	99.0	99.0	99.0	[94.5:99.8]	28	100.0	96.2	96.2	-	-	81	100.0	100.0	100.0	100.0	[100.0:100.0]
XId: Malignant melanomas	131	100.0	97.6	97.6	96.5	[91.3:98.7]	50	100.0	97.9	97.9	94.8	[82.6:98.6]	81	100.0	97.4	97.4	97.4	[91.2:99.3]
XIe: Skin carcinomas	87	100.0	98.8	97.1	93.8	[81.8:98.1]	34	100.0	96.7	92.6	-	-	53	100.0	100.0	100.0	-	-
XIf: Other and unspecified carcinomas	225	95.6	92.8	91.7	89.9	[84.9:93.3]	87	93.1	90.6	89.3	89.3	[81.0:94.3]	138	97.1	94.1	93.2	90.2	[83.6:94.4]
I-XII: All tumours	**2,282**	**95.7**	**89.7**	**87.7**	**85.5**	**[83.8:87.0]**	**1,213**	**94.9**	**88.2**	**85.8**	**84.3**	**[82.0:86.4]**	**1,069**	**96.5**	**91.4**	**89.8**	**86.8**	**[84.4:88.9]**

N at risk: Number of patients at risk at the start of the observation period.
1,3,5,10 yr OS: one, three, five and ten-year observed survival (%)
95% CI (10 yr OS): 95% confidence interval of the ten-year observed survival (%)

**ICCC-3 categories for which no observed survival results could be presented are excluded from this table.*
Survival data are not presented when the number of patients at risk is less than 10 cases.
Observed survival results depicted in light blue are calculated on less than 30 patients (N at risk) are purely indicative and no strong conclusions can be drawn.

Belgium: Observed survival trends of cancer* in children, by tumour type and sex in 2004-2010 and 2010-2016

	Boys (0-14 years)						Girls (0-14 years)					
	2004-2010			2010-2016			2004-2010			2010-2016		
Belgium: 2004-2016	N at risk	5 yr OS	95% CI (5 yr OS)	N at risk	5 yr OS	95% CI (5 yr OS)	N at risk	5 yr OS	95% CI (5 yr OS)	N at risk	5 yr OS	95% CI (5 yr OS)
I: Leukaemias, myeloproliferative and myelodysplastic diseases	322	83.5	[79.1:87.2]	352	88.3	[84.3:91.4]	249	85.1	[80.2:89.0]	295	87.2	[82.7:90.6]
Ia: Lymphoid leukaemias	257	88.3	[83.8:91.7]	269	91.0	[86.7:94.0]	189	90.5	[85.5:93.9]	202	90.9	[85.9:94.3]
Ib: Acute myeloid leukaemias	34	52.9	[36.7:68.6]	38	81.4	[66.3:90.7]	40	59.4	[43.9:73.3]	48	67.8	[53.3:79.5]
Id: Myelodysplastic syndrome and other myeloproliferative diseases	22	86.4	[66.7:95.3]	29	-	-	13	84.6	[57.8:95.7]	19	94.7	[75.4:99.1]
II: Lymphomas and reticuloendothelial neoplasms	218	94.9	[91.2:97.1]	219	96.1	[92.5:98.0]	129	94.5	[89.1:97.3]	112	98.1	[93.2:99.5]
IIa: Hodgkin lymphomas	59	100.0	[100.0:100.0]	56	100.0	[100.0:100.0]	37	97.2	[85.8:99.5]	39	100.0	[100.0:100.0]
IIb: Non-Hodgkin lymphomas	49	85.7	[73.3:92.9]	39	86.2	[71.3:94.0]	26	88.5	[71.0:96.0]	20	89.1	[67.5:97.0]
IIc: Burkitt lymphomas	46	97.8	[88.4:99.6]	62	96.8	[89.0:99.1]	18	94.4	[74.2:99.0]	11	-	-
IId: Miscellaneous lymphoreticular neoplasms	61	95.1	[86.5:98.3]	62	98.4	[91.4:99.7]	46	97.8	[88.7:99.6]	42	100.0	[100.0:100.0]
III: CNS and miscellaneous intracranial and intraspinal neoplasms	292	80.8	[75.9:84.9]	355	75.0	[69.8:79.5]	258	77.9	[72.5:82.5]	272	79.9	[74.6:84.2]
IIIa: Ependymomas and choroid plexus tumours	28	82.1	[64.4:92.1]	32	66.1	[44.8:82.3]	36	80.6	[65.0:90.3]	30	86.7	[70.3:94.7]
IIIb: Astrocytomas	121	84.3	[76.8:89.7]	144	75.6	[67.6:82.2]	130	80.8	[73.2:86.6]	117	84.4	[76.6:89.9]
IIIc: Intracranial and intraspinal embryonal tumours	51	62.7	[49.0:74.7]	63	56.7	[43.2:69.2]	36	63.9	[47.6:77.5]	40	62.3	[46.8:75.7]
IIId: Other gliomas	33	66.7	[49.6:80.3]	42	-	-	23	65.2	[44.9:81.2]	30	-	-
IIIe: Other specified intracranial and intraspinal neoplasms	50	98.0	[89.5:99.7]	59	98.3	[91.0:99.7]	27	88.9	[71.9:96.2]	40	92.5	[80.1:97.4]
IV: Neuroblastomas and other peripheral nervous cell tumours	90	70.0	[59.9:78.5]	80	80.8	[70.1:88.3]	65	84.6	[73.9:91.4]	73	85.8	[73.6:92.9]
IVa: Neuroblastomas and ganglioneuroblastomas	85	69.4	[59.0:78.2]	75	79.6	[68.4:87.5]	63	84.1	[73.2:91.1]	71	85.6	[73.3:92.8]
V: Retinoblastomas	39	97.4	[86.8:99.6]	30	100.0	[100.0:100.0]	27	100.0	[100.0:100.0]	29	96.6	[82.8:99.4]
VI: Renal tumours	50	93.7	[83.1:97.8]	53	89.0	[76.5:95.3]	54	94.4	[84.9:98.1]	52	96.2	[87.0:98.9]
VIa: Nephroblastomas and other nonepithelial renal tumours	47	95.5	[85.0:98.8]	52	88.7	[76.0:95.2]	51	94.1	[84.1:98.0]	50	98.0	[89.5:99.7]
VIII: Malignant bone tumours	62	77.4	[65.6:86.0]	52	77.4	[62.8:87.5]	49	79.6	[66.4:88.5]	49	84.7	[70.0:92.9]
VIIIa: Osteosarcomas	28	78.6	[60.5:89.8]	28	80.4	[58.4:92.3]	25	84.0	[65.4:93.6]	24	80.2	[58.3:92.2]
VIIIc: Ewing tumours and related sarcomas of bone	30	73.3	[55.6:85.8]	23	-	-	23	73.9	[53.5:87.5]	19	-	-
IX: Soft tissue and other extraosseous sarcomas	69	79.4	[68.4:87.3]	74	73.1	[61.2:82.4]	49	83.7	[71.0:91.5]	64	75.4	[63.2:84.6]
IXa: Rhabdomyosarcomas	37	83.3	[68.1:92.1]	40	61.1	[44.4:75.5]	27	77.8	[59.2:89.4]	25	70.6	[50.3:85.1]
IXd: Other specified soft tissue sarcomas	21	81.0	[60.0:92.3]	26	-	-	18	88.9	[67.2:96.9]	24	79.2	[59.5:90.8]
X: Germ cell tumours, trophoblastic tumours and neoplasms of gonads	25	96.0	[80.5:99.3]	37	97.3	[86.2:99.5]	43	90.7	[78.4:96.3]	50	93.9	[83.4:97.9]
Xa: Intracranial and intraspinal germ cell tumours	11	90.9	[62.3:98.4]	14	-	-	-	-	-	13	-	-
Xb: Malignant extracranial and extragonadal germ cell tumours	-	-	-	-	-	-	22	95.5	[78.2:99.2]	17	-	-
Xc: Malignant gonadal germ cell tumours	-	-	-	17	100.0	[100.0:100.0]	15	86.7	[62.1:96.3]	20	95.0	[76.4:99.1]
XI: Other malignant epithelial neoplasms and malignant melanomas	64	89.1	[79.1:94.6]	71	92.1	[80.9:97.0]	94	97.9	[92.5:99.4]	100	97.2	[90.4:99.2]
XIb: Thyroid carcinomas	-	-	-	-	-	-	16	100.0	[100.0:100.0]	25	100.0	[100.0:100.0]
XId: Malignant melanomas	15	93.3	[70.2:98.8]	-	-	-	17	100.0	[100.0:100.0]	17	92.9	[68.5:98.7]
XIe: Skin carcinomas	-	-	-	19	-	-	19	100.0	[100.0:100.0]	15	-	-
XIf: Other and unspecified carcinomas	31	83.9	[67.4:92.9]	39	87.7	[68.0:96.0]	39	94.9	[83.1:98.6]	42	96.2	[81.1:99.3]
I-XII: All tumours	**1,239**	**84.9**	**[82.7:86.7]**	**1,334**	**85.1**	**[82.9:87.1]**	**1,022**	**86.5**	**[84.2:88.4]**	**1,107**	**87.5**	**[85.3:89.4]**

N at risk: Number of patients at risk at the start of the observation period.
5 yr OS: five-year observed survival (%)
95% CI (5 yr OS): 95% confidence interval of the five-year observed survival (%)

**Additional info for correct interpretation of data:*
ICCC-3 categories for which no observed survival results could be presented are excluded from this table.
All trends should be contextualised based on the influencing factors mentioned in the 'Trends' section of the corresponding chapter (i.e. ICCC-3 category).
Survival data are not presented when the number of patients at risk is less than 10 cases.
Observed survival results depicted in light blue are calculated on less than 30 patients (N at risk) are purely indicative and no strong conclusions can be drawn.

Belgium: Observed survival trends of cancer* in adolescents, by tumour type and sex in 2004-2010 and 2010-2016

	Boys (15-19 years)						Girls (15-19 years)					
	2004-2010			2010-2016			2004-2010			2010-2016		
Belgium: 2004-2016	N at risk	5 yr OS	95% CI (5 yr OS)	N at risk	5 yr OS	95% CI (5 yr OS)	N at risk	5 yr OS	95% CI (5 yr OS)	N at risk	5 yr OS	95% CI (5 yr OS)
I: Leukaemias, myeloproliferative and myelodysplastic diseases	88	71.6	[61.4:80.0]	90	81.0	[70.7:88.3]	59	74.2	[61.6:83.7]	50	69.6	[55.8:80.7]
Ia: Lymphoid leukaemias	43	69.8	[54.9:81.4]	49	78.7	[63.6:88.6]	30	69.7	[51.7:83.2]	20	-	-
Ib: Acute myeloid leukaemias	20	55.0	[34.2:74.2]	24	-	-	17	64.7	[41.3:82.7]	16	-	-
Ic: Chronic myeloproliferative diseases	14	92.9	[68.5:98.7]	12	-	-	-	-	-	-	-	-
II: Lymphomas and reticuloendothelial neoplasms	164	92.1	[86.9:95.3]	171	94.0	[88.8:96.8]	134	93.3	[87.7:96.4]	142	96.3	[91.7:98.4]
IIa: Hodgkin lymphomas	94	96.8	[91.0:98.9]	101	98.8	[93.4:99.8]	95	94.7	[88.3:97.7]	107	97.2	[92.1:99.0]
IIb: Non-Hodgkin lymphomas	50	84.0	[71.5:91.7]	44	84.4	[69.4:92.8]	33	93.9	[80.4:98.3]	28	96.3	[81.7:99.3]
IIc: Burkitt lymphomas	12	91.7	[64.6:98.5]	16	-	-	-	-	-	-	-	-
III: CNS and miscellaneous intracranial and intraspinal neoplasms	98	83.5	[74.9:89.6]	106	87.7	[79.5:92.9]	77	88.3	[79.3:93.7]	90	87.3	[77.8:93.1]
IIIb: Astrocytomas	37	75.7	[59.9:86.6]	43	81.5	[65.9:91.0]	36	80.6	[65.0:90.3]	27	-	[45.5:84.9]
IIIe: Other specified intracranial and intraspinal neoplasms	36	100.0	[100.0:100.0]	39	97.4	[86.8:99.6]	21	95.2	[77.3:99.2]	42	100.0	[100.0:100.0]
VIII: Malignant bone tumours	53	58.2	[44.7:70.5]	48	71.4	[55.3:83.5]	33	84.5	[68.4:93.2]	27	-	-
VIIIa: Osteosarcomas	31	60.7	[43.1:75.9]	28	74.7	[53.5:88.4]	13	76.9	[49.7:91.8]	15	-	-
IX: Soft tissue and other extraosseous sarcomas	39	61.5	[45.9:75.1]	31	-	-	45	82.2	[68.7:90.7]	38	73.4	[56.0:85.7]
IXd: Other specified soft tissue sarcomas	22	68.2	[47.3:83.6]	12	-	-	37	89.2	[75.3:95.7]	23	76.3	[54.4:89.6]
X: Germ cell tumours, trophoblastic tumours and neoplasms of gonads	102	97.1	[91.7:99.0]	88	97.7	[92.1:99.4]	19	84.2	[62.4:94.5]	32	96.6	[82.8:99.4]
Xa: Intracranial and intraspinal germ cell tumours	12	91.7	[64.6:98.5]	-	-	-	-	-	-	-	-	-
Xc: Malignant gonadal germ cell tumours	87	97.7	[92.0:99.4]	80	98.8	[93.3:99.8]	12	91.7	[64.6:98.5]	22	94.7	[75.4:99.1]
XI: Other malignant epithelial neoplasms and malignant melanomas	103	95.1	[89.0:97.9]	117	87.9	[79.8:93.0]	190	96.8	[93.3:98.5]	210	95.5	[91.6:97.6]
XIb: Thyroid carcinomas	16	100.0	[100.0:100.0]	13	-	-	38	100.0	[100.0:100.0]	52	100.0	[100.0:100.0]
XId: Malignant melanomas	28	96.4	[82.3:99.4]	27	95.8	[79.8:99.3]	50	98.0	[89.5:99.7]	44	97.4	[86.8:99.6]
XIe: Skin carcinomas	15	92.9	[68.5:98.7]	23	-	-	19	100.0	[100.0:100.0]	36	100.0	[100.0:100.0]
XIf: Other and unspecified carcinomas	43	93.0	[81.4:97.6]	50	87.5	[75.2:94.1]	79	94.9	[87.7:98.0]	72	89.9	[80.6:95.0]
I-XII: All tumours	**655**	**84.7**	**[81.7:87.2]**	**658**	**87.5**	**[84.4:90.0]**	**563**	**89.9**	**[87.1:92.1]**	**598**	**89.7**	**[86.8:92.0]**

N at risk: Number of patients at risk at the start of the observation period.
5 yr OS: five-year observed survival (%)
95% CI (5 yr OS): 95% confidence interval of the five-year observed survival (%)

**Additional info for correct interpretation of data:*
ICCC-3 categories for which no observed survival results could be presented are excluded from this table.
All trends should be contextualised based on the influencing factors mentioned in the 'Trends' section of the corresponding chapter (i.e. ICCC-3 category).
Survival data are not presented when the number of patients at risk is less than 10 cases.
Observed survival results depicted in ligth blue are calculated on less than 30 patients (N at risk) are purely indicative and no strong conclusions can be drawn.

Belgium: Number of new diagnoses of cancer in children, by tumour type, incidence year and sex in 2004-2016

	Boys (0-14 years)													Girls (0-14 years)											
Belgium: 2004-2016	**2004**	**2005**	**2006**	**2007**	**2008**	**2009**	**2010**	**2011**	**2012**	**2013**	**2014**	**2015**	**2016**	**2004**	**2005**	**2006**	**2007**	**2008**	**2009**	**2010**	**2011**	**2012**	**2013**	**2014**	**2015**	**2016**
I: Leukaemias, myeloproliferative and myelodysplastic diseases	44	54	43	40	47	52	42	39	55	58	51	44	64	40	35	33	34	31	32	45	26	53	48	41	42	42
Ia: Lymphoid leukaemias	39	40	34	32	39	42	31	25	45	49	39	31	49	33	26	29	25	24	24	28	19	36	30	34	30	25
Ib: Acute myeloid leukaemias	3	10	6	5	3	3	4	6	5	5	8	3	7	5	9	4	7	4	3	9	5	8	7	3	8	9
Ic: Chronic myeloproliferative diseases	1	1	1	-	1	1	1	1	3	2	1	2	-	1	-	-	-	1	1	2	1	3	3	1	-	4
Id: Myelodysplastic syndromes and other myeloproliferative diseases	1	3	2	3	3	5	5	7	2	1	1	6	7	1	-	-	2	2	4	4	1	4	6	2	1	1
Ie: Unspecified and other specified leukaemias	-	-	-	-	1	1	1	-	-	1	2	2	1	-	-	-	-	-	-	2	-	2	2	1	3	3
II: Lymphomas and reticuloendothelial neoplasms	36	35	43	16	34	25	30	39	23	36	34	30	27	20	15	19	13	22	20	21	13	13	18	17	13	18
IIa: Hodgkin lymphomas	10	16	10	4	6	9	4	11	6	7	10	8	10	5	7	6	5	7	3	4	4	3	6	8	6	8
IIb: Non-Hodgkin lymphomas	7	5	7	6	9	6	9	9	2	7	5	3	4	4	2	5	6	1	4	4	4	3	1	5	-	3
IIc: Burkitt lymphomas	8	8	8	2	9	3	9	8	10	12	8	13	2	2	1	2	1	6	3	3	-	-	4	1	2	1
IId: Miscellaneous lymphoreticular neoplasms	9	6	17	4	10	7	8	11	5	10	11	6	11	7	5	6	1	8	10	10	5	7	7	3	5	6
IIe: Unspecified lymphomas	2	-	1	-	-	-	-	-	-	-	-	-	-	2	-	-	-	-	-	-	-	-	-	-	-	-
III: CNS and miscellaneous intracranial and intraspinal neoplasms	43	39	32	38	38	58	45	51	50	57	56	58	40	36	36	35	31	39	41	44	31	43	43	34	37	40
IIIa: Ependymomas and choroid plexus tumours	4	3	7	4	5	2	3	7	4	3	8	3	4	9	4	3	5	5	5	5	4	4	2	2	6	7
IIIb: Astrocytomas	19	14	7	21	15	20	26	16	17	22	20	29	14	18	20	14	16	24	17	22	16	13	22	15	13	16
IIIc: Intracranial and intraspinal embryonal tumours	7	10	9	4	4	10	7	11	9	11	10	10	5	3	5	7	2	6	5	9	4	10	5	5	4	3
IIId: Other gliomas	3	3	5	3	5	12	2	5	6	10	7	4	9	3	3	5	3	2	5	4	3	5	7	3	3	5
IIIe: Other specified intracranial and intraspinal neoplasms	10	9	4	6	7	7	7	11	12	8	9	8	5	3	4	5	4	2	6	3	3	10	3	9	7	5
IIIf: Unspecified intracranial and intraspinal neoplasms	-	-	-	-	2	7	-	1	2	3	2	4	3	-	-	1	1	-	3	1	1	1	4	-	4	4
IV: Neuroblastomas and other peripheral nervous cell tumours	10	11	11	16	11	18	15	17	10	12	9	12	7	11	13	10	10	4	8	10	15	6	12	8	9	13
IVa: Neuroblastomas and ganglioneuroblastomas	10	11	9	14	10	17	15	16	10	11	9	9	7	11	13	10	8	4	8	10	15	6	12	7	9	12
IVb: Other peripheral nervous cell tumours	-	-	2	2	1	1	-	1	-	1	-	3	-	-	-	-	2	-	-	-	-	-	-	1	-	1
V: Retinoblastomas	4	9	6	5	3	11	6	3	5	4	2	8	10	4	7	1	4	4	4	7	5	4	3	6	2	4
VI: Renal tumours	13	13	8	5	2	9	6	13	5	7	12	3	13	7	10	10	9	6	7	6	11	6	5	8	8	9
VIa: Nephroblastomas and other nonepithelial renal tumours	13	12	6	5	2	9	6	12	5	7	12	3	13	6	9	10	9	6	7	5	11	5	5	8	8	9
VIb: Renal carcinomas	-	1	1	-	-	-	-	1	-	-	-	-	-	1	-	-	-	-	-	1	-	1	-	-	-	-
VIc: Unspecified malignant renal tumours	-	-	1	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-
VII: Hepatic tumours	1	-	-	-	2	2	2	3	1	1	1	2	4	1	1	2	-	1	1	-	2	3	1	3	1	1
VIIa: Hepatoblastomas	1	-	-	-	2	2	1	2	1	1	1	1	4	1	1	1	-	1	1	-	2	3	1	2	1	1
VIIb: Hepatic carcinomas	-	-	-	-	-	-	1	1	-	-	-	1	-	-	-	1	-	-	-	-	-	-	-	1	-	-
VIIc: Unspecified malignant hepatic tumours	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Belgium: Number of new diagnoses of cancer in children, by tumour type, incidence year and sex in 2004-2016

	Boys (0-14 years)													Girls (0-14 years)											
Belgium: 2004-2016	**2004**	**2005**	**2006**	**2007**	**2008**	**2009**	**2010**	**2011**	**2012**	**2013**	**2014**	**2015**	**2016**	**2004**	**2005**	**2006**	**2007**	**2008**	**2009**	**2010**	**2011**	**2012**	**2013**	**2014**	**2015**	**2016**
VIII: Malignant bone tumours	10	9	6	12	6	10	9	8	5	8	8	7	7	1	14	10	5	11	2	6	13	6	8	1	11	4
VIIIa: Osteosarcomas	4	4	2	5	2	5	6	6	3	2	2	4	5	-	5	7	3	4	1	5	6	2	4	1	5	1
VIIIb: Chondrosarcomas	-	-	-	-	-	1	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	1	-
VIIIc: Ewing tumours and related sarcomas of bone	5	5	4	7	3	3	3	1	2	6	6	3	2	1	9	3	2	6	1	1	5	3	2	-	5	3
VIIId: Other specified malignant bone tumours	1	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	1	-	-	2	1	1	-	-	-
VIIIe: Unspecified malignant bone tumours	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
IX: Soft tissue and other extraosseous sarcomas	9	6	9	12	15	11	7	5	18	13	10	8	13	4	7	7	8	5	7	11	14	6	6	7	7	13
IXa: Rhabdomyosarcomas	6	2	6	7	7	5	4	2	11	6	7	4	6	2	4	4	6	2	3	6	6	3	1	3	3	3
IXb: Fibrosarcomas, peripheral nerve sheath tumours, and other fibromatous neoplasms	-	-	2	1	2	1	-	1	1	2	-	-	-	-	-	-	-	1	-	-	3	1	1	-	1	2
IXc: Kaposi sarcomas	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
IXd: Other specified soft tissue sarcomas	3	2	-	4	5	4	3	1	5	5	3	3	6	2	3	2	2	2	4	3	4	2	3	4	2	6
IXe: Unspecified soft tissue sarcomas	-	2	1	-	1	-	-	1	1	-	-	1	1	-	-	1	-	-	-	2	1	-	1	-	1	2
X: Germ cell tumours, trophoblastic tumours and neoplasms of gonads	5	2	3	2	6	3	4	5	4	7	4	5	8	4	7	4	7	8	8	5	11	4	9	5	7	9
Xa: Intracranial and intraspinal germ cell tumours	5	1	-	-	3	1	1	1	2	3	2	2	3	-	-	-	-	2	1	2	2	1	4	-	3	1
Xb: Malignant extracranial and extragonadal germ cell tumours	-	1	1	1	2	1	-	1	-	1	1	1	1	3	4	4	1	5	2	3	-	1	3	3	2	5
Xc: Malignant gonadal germ cell tumours	-	-	2	1	1	1	3	3	2	2	1	2	4	1	3	-	6	1	4	-	9	2	2	2	2	3
Xd: Gonadal carcinomas	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Xe: Other and unspecified malignant gonadal tumours	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-
XI: Other malignant epithelial neoplasms and malignant melanomas	11	7	11	9	8	6	12	6	10	13	13	8	12	10	12	17	15	9	12	20	15	12	17	16	13	10
XIa: Adrenocortical carcinomas	1	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	1	-	-	-	-
XIb: Thyroid carcinomas	-	-	1	2	2	-	2	-	-	1	1	-	-	2	1	4	2	-	3	4	3	3	7	4	2	2
XIc: Nasopharyngeal carcinomas	1	-	2	-	1	-	-	1	1	-	1	1	1	1	-	-	-	1	-	-	-	-	-	-	-	-
XId: Malignant melanomas	3	1	3	3	1	2	2	1	2	-	-	-	-	2	2	4	1	2	1	5	3	2	2	2	1	2
XIe: Skin carcinomas	-	1	1	-	2	1	1	2	3	6	4	2	2	3	3	4	4	2	2	2	1	4	1	3	5	2
XIf: Other and unspecified carcinomas	6	5	4	4	2	3	7	2	4	6	7	5	9	2	5	5	8	4	6	9	8	2	7	7	5	4
XII: Other and unspecified malignant neoplasms	1	-	-	-	1	-	-	-	1	-	-	-	-	-	-	2	-	-	-	-	-	-	1	-	-	-
XIIa: Other specified malignant tumours	-	-	-	-	1	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
XIIb: Other unspecified malignant tumours	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	-	-	-	-	-	-	1	-	-	-
I-XII: All tumours	**187**	**185**	**172**	**155**	**173**	**205**	**178**	**189**	**187**	**216**	**200**	**185**	**205**	**138**	**157**	**150**	**136**	**140**	**142**	**175**	**156**	**156**	**171**	**146**	**150**	**163**

Belgium: Number of new diagnoses of cancer in adolescents, by tumour type, incidence year and sex in 2004-2016

	Boys (15-19 years)													Girls (15-19 years)											
Belgium: 2004-2016	**2004**	**2005**	**2006**	**2007**	**2008**	**2009**	**2010**	**2011**	**2012**	**2013**	**2014**	**2015**	**2016**	**2004**	**2005**	**2006**	**2007**	**2008**	**2009**	**2010**	**2011**	**2012**	**2013**	**2014**	**2015**	**2016**
I: Leukaemias, myeloproliferative and myelodysplastic diseases	14	9	10	9	14	16	17	10	11	8	9	18	17	6	10	8	12	8	8	7	6	6	6	9	7	9
Ia: Lymphoid leukaemias	9	1	6	4	8	9	6	8	4	7	4	11	9	4	5	6	5	2	3	5	1	2	3	2	2	5
Ib: Acute myeloid leukaemias	1	5	2	3	2	4	4	1	7	-	3	4	5	-	2	1	6	5	2	1	4	2	2	1	5	1
Ic: Chronic myeloproliferative diseases	4	1	1	-	3	-	5	1	-	1	1	2	2	1	3	-	-	1	3	1	-	2	1	3	-	1
Id: Myelodysplastic syndromes and other myeloproliferative diseases	-	1	-	2	1	3	2	-	-	-	1	1	-	1	-	1	1	-	-	-	1	-	-	3	-	2
Ie: Unspecified and other specified leukaemias	-	1	1	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-
II: Lymphomas and reticuloendothelial neoplasms	20	22	27	25	24	24	22	23	25	30	18	24	29	21	23	20	17	15	20	18	24	19	19	23	20	19
IIa: Hodgkin lymphomas	11	11	16	14	15	15	12	14	12	17	14	17	15	15	16	12	14	9	13	16	20	13	13	16	15	14
IIb: Non-Hodgkin lymphomas	5	9	8	9	7	6	6	4	9	9	3	5	8	5	6	8	3	6	4	1	4	4	5	6	4	4
IIc: Burkitt lymphomas	4	2	1	-	2	1	2	2	3	2	-	2	5	-	-	-	-	-	-	-	-	-	-	1	-	-
IId: Miscellaneous lymphoreticular neoplasms	-	-	1	1	-	2	2	1	1	1	1	-	-	-	1	-	-	-	2	1	-	1	1	-	1	1
IIe: Unspecified lymphomas	-	-	1	1	-	-	-	2	-	1	-	-	1	1	-	-	-	-	1	-	-	1	-	-	-	-
III: CNS and miscellaneous intracranial and intraspinal neoplasms	12	14	8	13	16	17	19	13	9	17	12	19	18	8	9	7	15	13	11	14	8	10	14	18	13	14
IIIa: Ependymomas and choroid plexus tumours	1	4	2	-	-	1	-	2	1	2	-	-	3	-	-	-	2	1	-	1	-	2	-	1	-	1
IIIb: Astrocytomas	5	6	5	3	6	5	7	4	6	7	4	9	6	4	5	6	4	4	6	7	1	2	4	5	3	5
IIIc: Intracranial and intraspinal embryonal tumours	-	-	-	1	3	1	2	-	-	-	2	1	-	-	-	-	1	3	-	-	1	-	2	1	1	1
IIId: Other gliomas	-	1	1	-	1	-	2	1	1	-	1	1	2	1	2	-	2	-	-	-	1	-	2	1	2	1
IIIe: Other specified intracranial and intraspinal neoplasms	3	3	-	8	6	9	7	4	1	8	5	7	7	2	2	1	4	4	3	5	5	6	4	10	6	6
IIIf: Unspecified intracranial and intraspinal neoplasms	3	-	-	1	-	1	1	2	-	-	-	1	-	1	-	-	2	1	2	1	-	-	2	-	1	-
IV: Neuroblastomas and other peripheral nervous cell tumours	-	-	-	2	-	-	-	-	2	-	1	-	-	-	-	-	1	1	-	-	-	-	-	-	1	1
IVa: Neuroblastomas and ganglioneuroblastomas	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-
IVb: Other peripheral nervous cell tumours	-	-	-	1	-	-	-	-	2	-	1	-	-	-	-	-	-	1	-	-	-	-	-	-	1	1
V: Retinoblastomas	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
VI: Renal tumours	-	1	1	1	1	1	-	1	-	-	-	-	-	-	-	-	-	1	-	1	2	-	1	-	2	1
VIa: Nephroblastomas and other nonepithelial renal tumours	-	-	1	1	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	1	-	-	-	-	-
VIb: Renal carcinomas	-	1	-	-	-	1	-	1	-	-	-	-	-	-	-	-	-	1	-	-	1	-	1	-	2	1
VIc: Unspecified malignant renal tumours	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
VII: Hepatic tumours	-	-	-	1	-	-	-	1	-	1	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
VIIa: Hepatoblastomas	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
VIIb: Hepatic carcinomas	-	-	-	1	-	-	-	1	-	1	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
VIIc: Unspecified malignant hepatic tumours	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Belgium: Number of new diagnoses of cancer in adolescents, by tumour type, incidence year and sex in 2004-2016

	Boys (15-19 years)													Girls (15-19 years)											
Belgium: 2004-2016	**2004**	**2005**	**2006**	**2007**	**2008**	**2009**	**2010**	**2011**	**2012**	**2013**	**2014**	**2015**	**2016**	**2004**	**2005**	**2006**	**2007**	**2008**	**2009**	**2010**	**2011**	**2012**	**2013**	**2014**	**2015**	**2016**
VIII: Malignant bone tumours	10	9	8	6	7	3	10	6	5	3	10	10	4	7	3	7	5	4	3	4	3	3	4	4	2	7
VIIIa: Osteosarcomas	5	7	5	2	4	1	7	4	4	2	5	5	1	4	2	4	2	-	-	1	3	2	1	2	2	4
VIIIb: Chondrosarcomas	1	-	1	1	-	1	-	-	-	-	1	2	1	2	1	-	1	-	-	1	-	-	-	1	-	-
VIIIc: Ewing tumours and related sarcomas of bone	4	2	2	3	3	1	2	1	1	1	3	2	2	1	-	2	2	3	2	1	-	1	2	1	-	2
VIIId: Other specified malignant bone tumours	-	-	-	-	-	-	-	1	-	-	1	-	-	-	-	1	-	-	-	1	-	-	1	-	-	1
VIIIe: Unspecified malignant bone tumours	-	-	-	-	-	-	1	-	-	-	-	1	-	-	-	-	-	1	1	-	-	-	-	-	-	-
IX: Soft tissue and other extraosseous sarcomas	6	3	8	7	7	6	2	5	4	6	6	5	3	5	9	8	5	9	3	6	6	7	6	7	4	2
IXa: Rhabdomyosarcomas	-	1	-	3	2	2	1	1	2	1	2	4	-	-	1	-	1	-	-	-	2	1	1	-	1	-
IXb: Fibrosarcomas, peripheral nerve sheath tumours, and other fibromatous neoplasms	-	-	-	2	-	-	-	-	-	1	-	-	-	-	-	2	-	2	1	1	-	2	2	1	1	-
IXc: Kaposi sarcomas	-	-	-	-	-	-	-	1	-	-	1	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-
IXd: Other specified soft tissue sarcomas	5	1	6	-	5	4	1	3	2	3	2	1	-	5	8	6	4	7	2	5	4	3	3	6	1	1
IXe: Unspecified soft tissue sarcomas	1	1	2	2	-	-	-	-	-	1	1	-	3	-	-	-	-	-	-	-	-	-	-	-	1	1
X: Germ cell tumours, trophoblastic tumours and neoplasms of gonads	14	11	19	18	13	16	13	10	10	7	14	18	16	1	3	6	5	1	-	3	4	7	4	4	7	3
Xa: Intracranial and intraspinal germ cell tumours	2	3	2	1	3	2	-	-	-	2	-	1	2	-	-	-	1	-	-	-	-	-	1	-	2	-
Xb: Malignant extracranial and extragonadal germ cell tumours	-	-	-	-	-	1	1	-	-	1	-	-	1	-	-	-	-	-	-	-	-	-	1	-	-	-
Xc: Malignant gonadal germ cell tumours	12	8	17	17	10	12	12	10	10	4	14	17	13	1	3	3	2	1	-	2	4	6	1	3	4	2
Xd: Gonadal carcinomas	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	2	-	-	1	-	1	1	1	1	-
Xe: Other and unspecified malignant gonadal tumours	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	1
XI: Other malignant epithelial neoplasms and malignant melanomas	10	12	17	18	15	17	16	15	22	15	22	12	16	22	20	25	26	27	32	39	26	34	36	26	35	22
XIa: Adrenocortical carcinomas	-	-	-	-	-	-	-	-	-	-	2	-	-	1	-	-	-	-	-	1	-	1	-	-	-	-
XIb: Thyroid carcinomas	-	2	1	4	3	5	1	2	2	-	3	4	1	4	3	5	5	6	6	9	7	11	8	4	9	4
XIc: Nasopharyngeal carcinomas	-	-	1	-	-	-	-	-	2	-	-	-	-	-	-	-	-	-	1	1	-	-	1	1	-	1
XId: Malignant melanomas	4	2	5	8	3	1	5	3	4	3	6	2	4	3	5	5	6	6	12	13	6	3	7	4	7	4
XIe: Skin carcinomas	2	2	3	3	2	1	4	-	4	5	3	4	4	2	3	1	3	3	6	2	1	9	10	6	10	5
XIf: Other and unspecified carcinomas	4	6	7	3	7	10	6	10	10	7	8	2	7	12	9	14	12	12	7	13	12	10	10	11	9	8
XII: Other and unspecified malignant neoplasms	1	-	-	-	-	-	1	-	-	-	-	1	-	-	1	-	-	1	1	-	-	-	-	1	-	1
XIIa: Other specified malignant tumours	-	-	-	-	-	-	1	-	-	-	-	1	-	-	1	-	-	1	1	-	-	-	-	1	-	-
XIIb: Other unspecified malignant tumours	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1
I-XII: All tumours	**87**	**81**	**98**	**100**	**97**	**100**	**100**	**84**	**88**	**87**	**92**	**108**	**103**	**70**	**78**	**81**	**86**	**80**	**78**	**92**	**79**	**86**	**90**	**92**	**91**	**79**

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