

## 19.1. INTRODUCTION AND SUMMARY

**Table 19.1. Summary of incidence and mortality statistics: all childhood cancers (benign, uncertain and invasive)**

	CASES			DEATHS		
	males	females	all	males	females	all
<b>Case/death numbers 1997</b>						
0-4	24	22	46	5	5	10
5-9	16	18	34	2	4	6
10-14	18	20	38	6	3	9
0-14	58	60	118	13	12	25
% of total	0.55%	0.55%	0.55%	0.32%	0.34%	0.33%
<b>Crude Incidence and mortality rates (per 100,000 per year), 1997</b>						
0-4	19.0	18.4	18.7	4.0	4.2	4.1
5-9	11.3	13.4	12.3	1.4	3.0	2.2
10-14	10.9	12.8	11.8	3.6	1.9	2.8
0-14	13.4	14.6	14.0	3.0	2.9	3.0
<b>Mortality/incidence ratio</b>						
0-4	0.21	0.23	0.22			
5-9	0.13	0.22	0.18			
10-14	0.33	0.15	0.24			
0-14	0.22	0.20	0.21			
<b>Time trends in numbers of cases per year</b>						
<b>males</b>	<b>1994</b>	<b>1995</b>	<b>1996</b>	<b>1997</b>	<b>1994 -1997 average</b>	
0-4	26	33	24	24	26.8	
5-9	15	26	10	16	16.8	
10-14	22	25	23	18	22.0	
0-14	63	84	57	58	65.5	
<b>females</b>						
0-4	21	19	23	22	21.3	
5-9	16	15	16	18	16.3	
10-14	22	22	14	20	19.5	
0-14	59	56	53	60	57.0	

Childhood cancers were uncommon, and made up only 0.5% of all cancers registered (Table 19.1). There was an exceptionally large number of male cases in 1995, but overall case numbers average about 60 per year for both boys and girls, with a somewhat lower incidence in the 5 to 9 year olds.

Cancer mortality seems to be equal in boys and girls, at 20%.

## 19.2. GEOGRAPHICAL VARIATION

**INTERNATIONAL**

The incidence of childhood cancer in Ireland is typical of European countries (Table 19.2). However, inter-country variation in childhood cancer is expected to be slight.

**Table 19.2. Age-adjusted (European standard) incidence rates and rank of rates by country, 1995, for patients under 15: all cancers excluding non-melanoma skin (invasive cases only)**

	MALES		FEMALES	
	age-standardised rate	rank	age-standardised rate	rank
Spain	36	1	35	1
Malta	24	3	25	2
Switzerland	21	5	24	3
Denmark	25	2	13	11
Slovenia	18	6	16	4
Italy	24	4	6	23
Finland	15	11	14	7
England	16	10	13	8
<b>Ireland</b>	<b>14</b>	<b>15</b>	<b>15</b>	<b>5</b>
Sweden	16	8	13	12
Scotland	15	11	13	10
France	16	9	12	14
Netherlands	14	13	13	9
Estonia	14	16	14	6
Slovakia	16	7	10	19
N. Ireland	14	14	11	16
Germany	13	18	10	17
Austria	13	17	9	20
Iceland	9	22	13	12
Bulgaria	10	20	10	18
Czech Republic	11	19	9	21
Poland	8	23	12	15
Norway	10	21	9	22

**NATIONAL**

The figures for childhood cancer, by county, are given in Table 19.3. The inter-county differences in incidence rate, because of the very small number of cases, are not significant.

**Table 19.3. Yearly average number of cases and crude incidence rates by county, 1994 to 1997**

	MALES		FEMALES		BOTH	
	cases	cases per 100,000 per year	cases	cases per 100,000 per year	cases	cases per 100,000 per year
<b>Ireland</b>	<b>66</b>	<b>15</b>	<b>57</b>	<b>14</b>	<b>123</b>	<b>14</b>
Carlow	2	28	1	25	3	26
Cavan	1	11	1	8	1	9
Clare	3	23	1	11	4	17
Cork	8	16	7	15	15	15
Donegal	3	16	2	12	5	14
Dublin	15	12	15	13	30	13
Galway	2	9	3	12	5	10
Kerry	4	23	3	17	6	20
Kildare	3	14	3	16	5	15
Kilkenny	2	18	2	22	4	20
Laoighis	1	7	1	15	2	11
Leitrim	1	16	0	0	1	9
Limerick	4	19	3	13	6	16
Longford	0	6	1	20	1	13
Louth	2	17	2	16	4	17
Mayo	3	18	2	17	5	17
Meath	2	15	1	5	3	10
Monaghan	1	7	0	0	1	4
Offaly	2	22	1	17	3	20
Roscommon	1	16	2	25	3	20
Sligo	1	7	1	20	2	13
Tipperary N.R.	1	10	2	25	3	18
Tipperary S.R.	2	21	1	8	3	15
Waterford	2	13	1	11	3	12
Westmeath	1	16	1	16	3	16
Wexford	3	19	1	6	3	12
Wicklow	2	15	1	10	3	13

## 19.3. SITES

Leukaemia and brain cancer were the commonest types, but cancers were found at a wide variety of primary sites in children (Table 19.4).

**Table 19.4. Sites of childhood cancer: number of cases, 1997**

	ICD-10 code	MALES					FEMALES				
		0-4	5-9	10-14	0-14	% of total	0-4	5-9	10-14	0-14	% of total
<b>all cancers</b>		<b>24</b>	<b>16</b>	<b>18</b>	<b>58</b>		<b>22</b>	<b>18</b>	<b>20</b>	<b>60</b>	
brain	C71	3	7	4	14	24.1%	3	6	4	13	21.7%
lymphoid leukaemia	C91	9	1	2	12	20.7%	6	5	2	13	21.7%
kidney	C64	3	0	0	3	5.2%	3	1	0	4	6.7%
other and unspecified NHL	C85	0	0	2	2	3.4%	0	1	3	4	6.7%
adrenal	C74	1	2	0	3	5.2%	2	0	0	2	3.3%
myeloid leukaemia	C92	0	1	1	2	3.4%	2	0	1	3	5.0%
bones, joints of limbs	C40	0	1	3	4	6.9%	0	0	0	0	0.0%
other lymphoid and haematopoietic	C96	2	1	0	3	5.2%	0	0	1	1	1.7%
uncertain: oral and digestive	D37	0	0	0	0	0.0%	0	0	4	4	6.7%
peripheral nerves	C47	1	1	0	2	3.4%	0	1	0	1	1.7%
diffuse non-Hodgkin's lymphoma	C83	0	0	1	1	1.7%	0	1	1	2	3.3%
uncertain: meninges	D42	0	0	0	0	0.0%	1	1	1	3	5.0%
liver	C22	0	0	0	0	0.0%	2	0	0	2	3.3%
non-melanoma skin	C44	0	1	0	1	1.7%	0	0	0	0	0.0%
eye	C69	1	0	0	1	1.7%	1	0	0	1	1.7%
Hodgkin's disease	C81	0	0	0	0	0.0%	0	0	2	2	3.3%
other mouth	C06	0	0	0	0	0.0%	1	0	0	1	1.7%
other salivary	C08	0	0	1	1	1.7%	0	0	0	0	0.0%
nasopharynx	C11	0	1	0	1	1.7%	0	0	0	0	0.0%
stomach	C16	0	0	1	1	1.7%	0	0	0	0	0.0%
bones, joints head and trunk	C41	1	0	0	1	1.7%	0	0	0	0	0.0%
connective tissues	C49	0	0	0	0	0.0%	1	0	0	1	1.7%
testis	C62	0	0	1	1	1.7%	0	0	0	0	0.0%
meninges	C70	1	0	0	1	1.7%	0	0	0	0	0.0%
spinal cord	C72	0	0	0	0	0.0%	0	0	1	1	1.7%
other endocrine	C75	0	0	2	2	3.4%	0	0	0	0	0.0%
uncertain: female genital	D39	0	0	0	0	0.0%	0	1	0	1	1.7%
myelodysplastic syndromes	D46	1	0	0	1	1.7%	0	0	0	0	0.0%
other uncertain lymphoid, haematopoietic	D47	1	0	0	1	1.7%	0	0	0	0	0.0%
uncertain: other sites	D48	0	0	0	0	0.0%	0	1	0	1	1.7%

## 19.4. BASIS OF DIAGNOSIS AND MORPHOLOGY

**Table 19.5. Most valid basis of diagnosis**

BASIS OF DIAGNOSIS	CASES	% OF TOTAL
<b>tissue diagnosis</b>	<b>110</b>	<b>93.2%</b>
histology of primary	78	66.1%
cytology	1	0.8%
bone marrow	31	26.3%
<b>clinical diagnosis</b>	<b>8</b>	<b>6.8%</b>
clinical	2	1.7%
blood film	1	0.8%
radiology	5	4.2%
<b>all cancers</b>	<b>118</b>	

93% of cases were histologically verified either by biopsy or bone marrow examination (Table 19.5).

The commonest histological types by the ICCC classification were acute lymphoid leukaemia (21% of cases) and astrocytoma (16%) (Table 19.6). The table below also includes a small number of non-invasive cancers, which are not described in the ICCC classification.

**Table 19.6. Histological classification of childhood cancers**

Description	ICCC code	MALES		FEMALES		BOTH SEXES	
		cases	% of total	cases	% of total	cases	% of total
lymphoid leukaemia	Ia	12	21%	13	22%	25	21%
acute non-lymphocytic leukaemia	Ib	2	3%	3	5%	5	4%
Hodgkin's disease	IIa	0	0%	2	3%	2	2%
non-Hodgkin's lymphoma	IIb	2	3%	3	5%	5	4%
Burkitt's lymphoma	IIc	0	0%	1	2%	1	1%
other lymphoreticular lymphoma	IId	3	5%	1	2%	4	3%
unspecified lymphoma	Ile	1	2%	2	3%	3	3%
ependymoma	IIIa	0	0%	1	2%	1	1%
astrocytoma	IIIb	10	17%	9	15%	19	16%
primitive neuroectodermal tumours	IIIc	3	5%	1	2%	4	3%
other gliomas	IIId	1	2%	3	5%	4	3%
unspecified intracranial and intraspinal tumours	IIIe	1	2%	0	0%	1	1%
neuroblastoma and ganglioblastoma	IVa	3	5%	1	2%	4	3%
other sympathetic nervous system tumours	IVb	1	2%	0	0%	1	1%
rhabdomyosarcoma and embryonal sarcoma	IXa	2	3%	1	2%	3	3%
fibrosarcoma	IXb	0	0%	1	2%	1	1%
other specified soft tissue sarcoma	IXd	1	2%	0	0%	1	1%
retinoblastoma	V	1	2%	1	2%	2	2%
Wilm's tumour	VIa	3	5%	4	7%	7	6%
hepatoblastoma	VIIa	0	0%	2	3%	2	2%
osteosarcoma	VIIIa	1	2%	0	0%	1	1%
Ewing's sarcoma	VIIIc	4	7%	0	0%	4	3%
intracranial and intraspinal germ cell tumours	Xa	1	2%	0	0%	1	1%
other and unspecified non germ cell tumours	Xb	0	0%	1	2%	1	1%
adrenocortical carcinoma	XIa	1	2%	1	2%	2	2%
other and unspecified carcinoma	XIf	1	2%	0	0%	1	1%
other unspecified malignant tumours	XIIb	1	2%	0	0%	1	1%
all ICCC classified cancers		55	97%	51	85%	106	91%
outside ICCC classification		3	3	9	15%	12	9%
<b>all childhood cancers</b>		<b>58</b>		<b>60</b>		<b>118</b>	

## 19.5. TREATMENT

Treatment data is not very meaningful, due to the wide range of tumour types affecting children (Table 19.7., Figure 19.1).

**Table 19.7. Treatment of childhood cancer**

TREATMENT	NUMBER OF 1997 CASES TREATED	TRENDS IN % OF CASES TREATED			
		1997	1996	1995	1994
surgery	57	48.3%	31.8%	42.1%	45.9%
chemotherapy	69	58.5%	56.4%	55.0%	52.5%
hormone	1	0.8%	0.0%		
radiotherapy	7	5.9%	9.1%	5.9%	10.7%
other treatment	10	8.5%	11.8%	8.5%	11.5%
all cases treated	108	91.5%	85.5%	91.5%	89.3%
no treatment	10	8.5%	14.5%	8.5%	10.7%
<b>all cases</b>	<b>118</b>	<b>118</b>	<b>110</b>	<b>140</b>	<b>122</b>

**Figure 19.1. Frequent treatment combinations**

Note: numbers indicated refer to the number of cases treated

