

Chapter 2

CANCERS IN CHILDHOOD

The proportion childhood cancers relative to cancers in all age groups varied between 1.7-6.6% (Table 2.1). In boys, the relative proportion was lowest in Dibrugarh (1.7%) and highest in Bangalore (6.6%). In girls, it varied from 2.2% at Chennai to 4.2% at Thiruvananthapuram.

The five year age distribution of childhood cancers in different HBCRs has been given in Table 2.2. The relative proportion in the age group 0-4 varied from 27.6% in boys in Bangalore and 32.0% in girls in Mumbai to a high of 41.4% and 47.6% in boys and girls respectively in Thiruvananthapuram. The relative proportion in the age group 5-9 years varied from 30.1% in boys in Chennai to 38.8% in Bangalore. Correspondingly this percentage varied in girls between 26.2% in Chennai to 34.4% in Dibrugarh. Among the age group 10-14 years, the relative percentage of cancers in boys varied from 28.4% in Thiruvananthapuram to 37% in Mumbai. In girls this ranged from 24.4% in Thiruvananthapuram to 41.2% in Chennai.

Table 2.3 and Figures 2.1 (a) and 2.1 (b) present the relative proportion according to broad types of childhood cancers. Tables 2.4(a) and 2.4(b) give further details of types of childhood cancer. Leukaemia is the predominant form of childhood cancer followed by lymphomas. Tumours of the central nervous system, bone tumours, soft-tissue sarcomas and germ-cell tumours are other important types of cancer in childhood. The relative proportion of lymphomas was higher in boys compared to that in girls.

Table 2.1: Number (#) and Proportion (%) of Cancers in Childhood relative to all Cancers (2004-2006)

Registry	Males			Females		
	All Cancers	#	%	All Cancers	#	%
Mumbai*	19399	1060	5.5	15313	500	3.3
Bangalore	10293	681	6.6	11842	400	3.4
Chennai	12523	429	3.4	13589	294	2.2
Thi'puram	12563	645	5.1	11394	483	4.2
Dibrugarh	1782	30	1.7	1063	32	3.0

* Only 2004-05 data

Table 2.2: Number (#) and Proportion (%) of Childhood Cancers by 5-year Age Group (2004-2006)**Males**

Registry	Age Group (years)						All Childhood Cancers
	0-4		5-9		10-14		
	#	%	#	%	#	%	
Males							
Mumbai*	305	28.8	363	34.2	392	37.0	1060
Bangalore	188	27.6	264	38.8	229	33.6	681
Chennai	147	34.3	129	30.1	153	35.7	429
Thi'puram	267	41.4	195	30.2	183	28.4	645
Dibrugarh	10	33.3	11	36.7	9	30.0	30
Females							
Mumbai*	160	32.0	163	32.6	177	35.4	500
Bangalore	147	36.8	125	31.3	128	32.0	400
Chennai	96	32.7	77	26.2	121	41.2	294
Thi'puram	230	47.6	135	28.0	118	24.4	483
Dibrugarh	11	34.4	11	34.4	10	31.3	32
Both Sexes							
Mumbai*	465	29.8	526	33.7	569	36.5	1560
Bangalore	335	31.0	389	36.0	357	33.0	1081
Chennai	243	33.6	206	28.5	274	37.9	723
Thi'puram	497	44.1	330	29.3	301	26.7	1128
Dibrugarh	21	33.9	22	35.5	19	30.6	62

* Only 2004-05 data

Table 2.3: Number (#) and Relative Proportion (%) of Broad Types of Cancers in Childhood (0-14 years) (2004-2006)**Males**

Broad Types of Cancers in Childhood	Mumbai*		Bangalore		Chennai		Thi'puram		Dibrugarh	
	#	%	#	%	#	%	#	%	#	%
I Leukaemias	448	42.3	319	46.8	186	43.4	333	50.3	7	23.3
II Lymphomas	179	16.9	120	17.6	82	19.1	68	10.8	1	3.3
III C.N.S Tumours	84	7.9	65	9.5	9	2.1	90	13.7	3	10.0
IV S.N.S Tumours	23	2.2	25	3.7	20	4.7	23	3.6	2	6.7
V Retinoblastoma	40	3.8	19	2.8	15	3.5	8	1.3	2	6.7
VI Renal Tumours	38	3.6	24	3.5	14	3.3	20	3.5	6	20.0
VII Hepatic Tumours	7	0.7	6	0.9	7	1.6	9	1.3	2	6.7
VIII Bone Tumours	99	9.3	36	5.3	41	9.6	29	4.8	1	3.3
IX Soft-tissue Sarcomas	95	9.0	23	3.4	30	7.0	21	3.8	1	3.3
X Germ-cell Tumours	13	1.2	14	2.1	8	1.9	16	2.5	1	3.3
XI Oth. Carcinomas	14	1.3	15	2.2	11	2.6	22	3.5	1	3.3
XII Oth. Malignant Neop.	20	1.9	15	2.2	6	1.4	6	1.0	3	10.0
XIII Others	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
All Types	1060	100.0	681	100.0	429	100.0	645	100.0	30	100.0

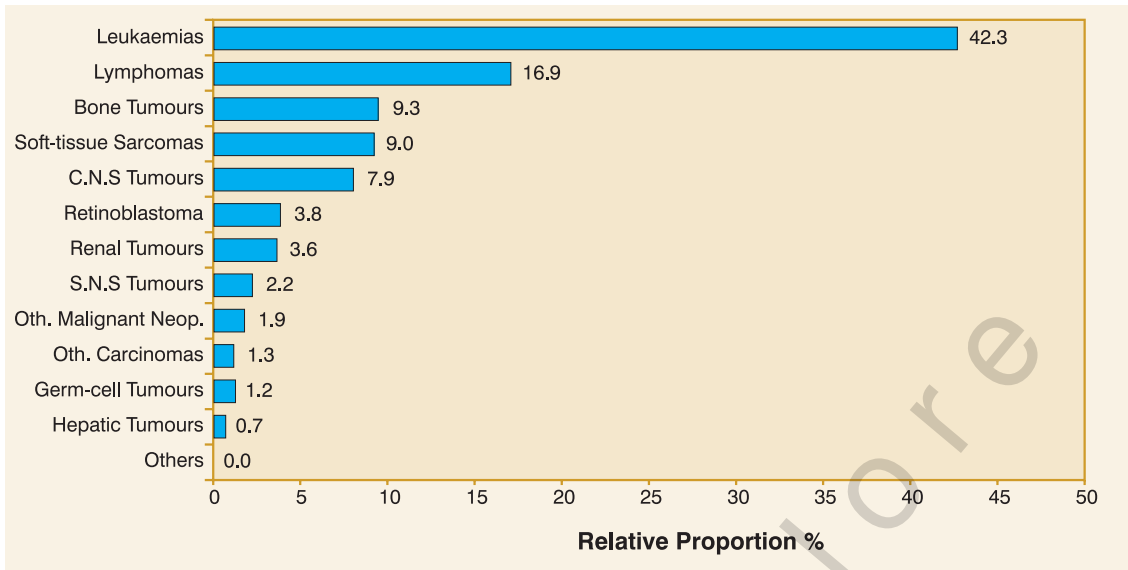
Females

Broad Types of Cancers in Childhood	Mumbai*		Bangalore		Chennai		Thi'puram		Dibrugarh	
	#	%	#	%	#	%	#	%	#	%
I Leukaemias	192	38.4	181	45.3	121	41.2	241	49.9	8	25.0
II Lymphomas	42	8.4	27	6.8	40	13.6	20	4.1	1	3.1
III C.N.S Tumours	36	7.2	47	11.8	13	4.4	77	15.9	2	6.3
IV S.N.S Tumours	19	3.8	13	3.3	15	5.1	24	5.0	1	3.1
V Retinoblastoma	28	5.6	19	4.8	9	3.1	5	1.0	5	15.6
VI Renal Tumours	22	4.4	14	3.5	5	1.7	25	5.2	3	9.4
VII Hepatic Tumours	6	1.2	2	0.5	2	0.7	7	1.4	0	0.0
VIII Bone Tumours	58	11.6	27	6.8	40	13.6	26	5.4	2	6.3
IX Soft-tissue Sarcomas	42	8.4	25	6.3	24	8.2	21	4.3	4	12.5
X Germ-cell Tumours	25	5.0	21	5.3	13	4.4	17	3.5	4	12.5
XI Oth. Carcinomas	16	3.2	11	2.8	8	2.7	18	3.7	1	3.1
XII Oth. Malignant Neop.	14	2.8	13	3.3	4	1.4	2	0.4	1	3.1
XIII Others	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
All Types	500	100.0	400	100.0	294	100.0	483	100.0	32	100.0

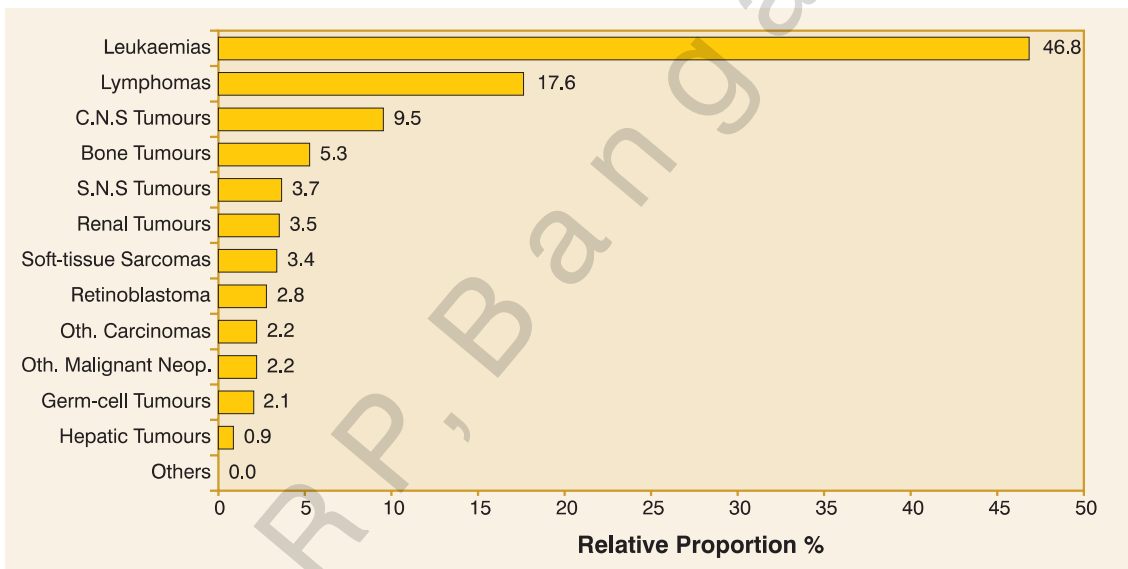
* Only 2004-05 data

Fig. 2.1(a): Proportion of Broad Types of Childhood Cancers (0-14 years) – Males (2004-2006)

Mumbai



Bangalore



Chennai

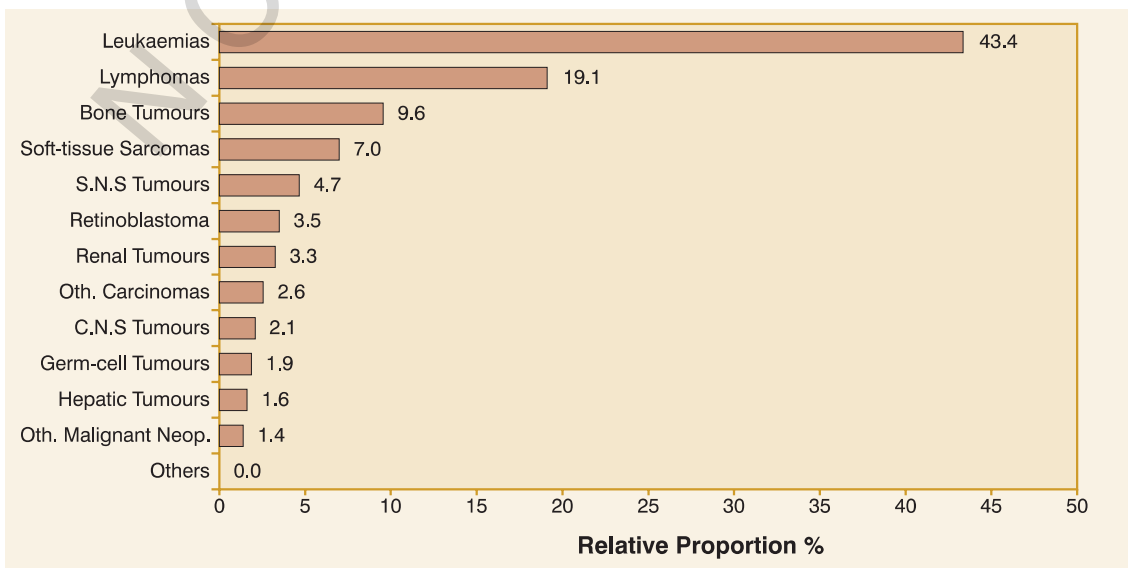
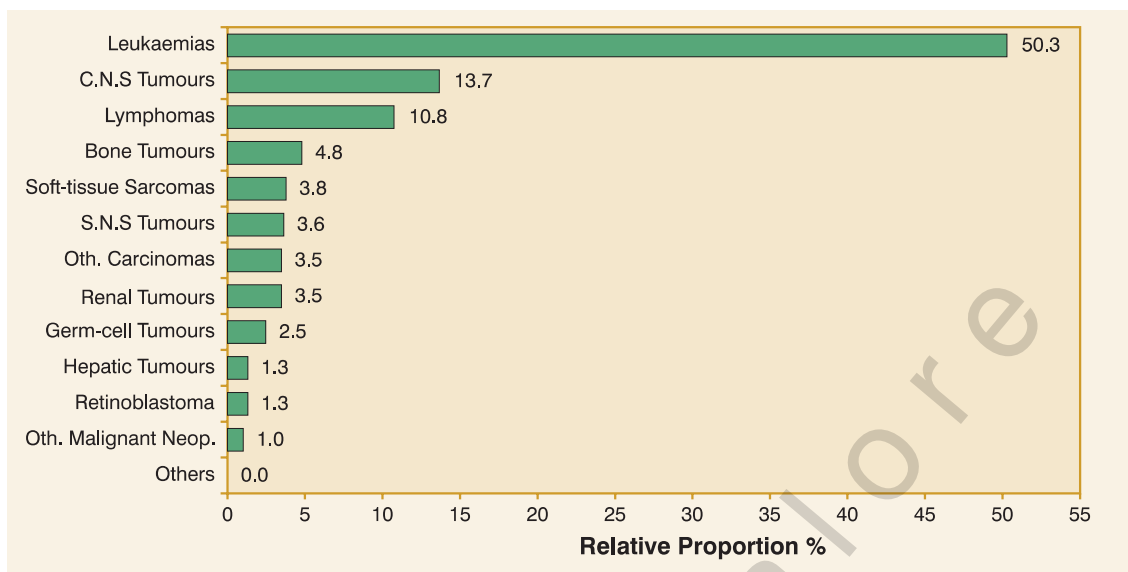


Fig. 2.1(a): Proportion of Broad Types of Childhood Cancers (0-14 years) – Males (2004-2006) (Contd.)

Thiruvananthapuram



Dibrugarh

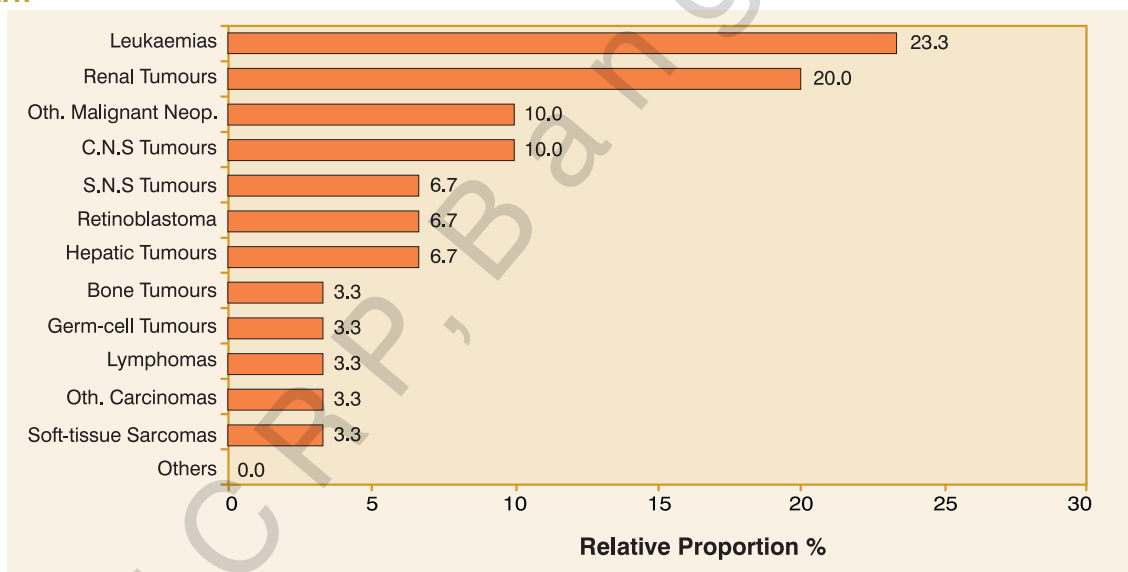
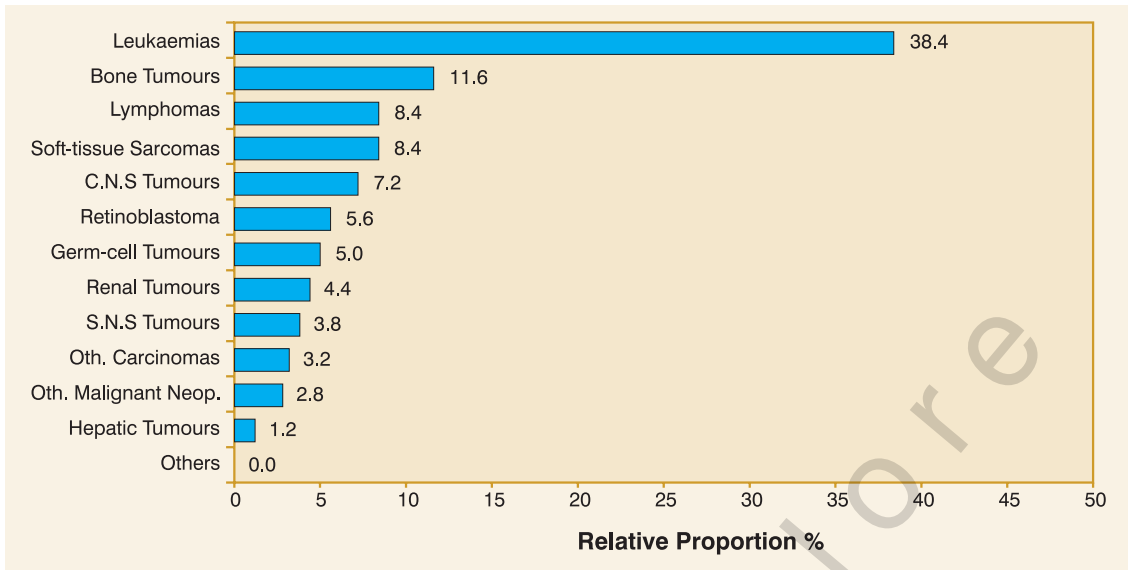
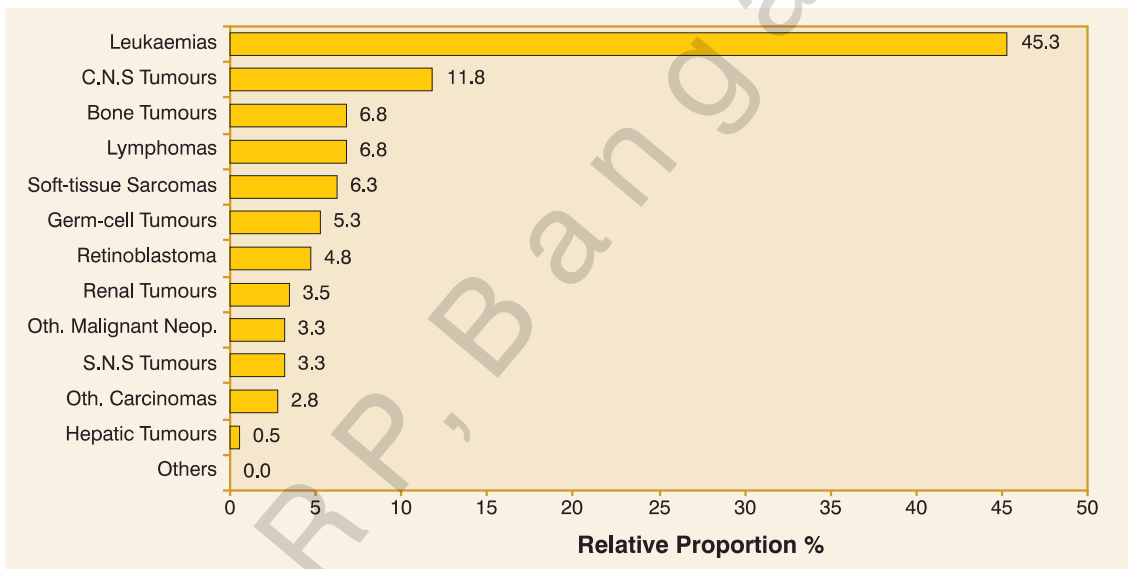


Fig. 2.1 (b): Proportion of Broad Types of Childhood Cancers (0-14 years) – Females (2004-2006)

Mumbai



Bangalore



Chennai

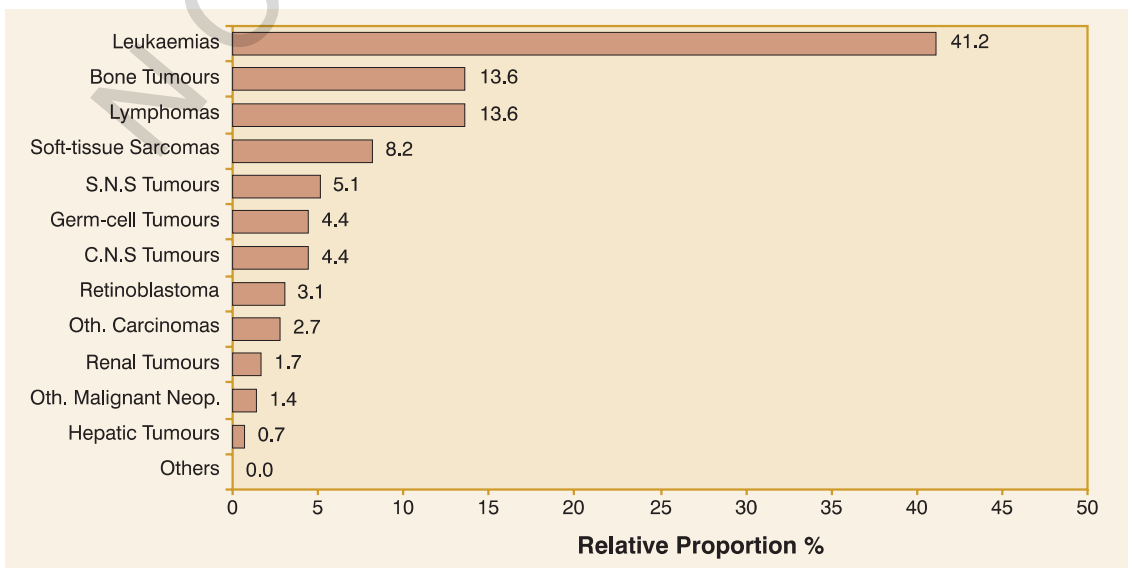
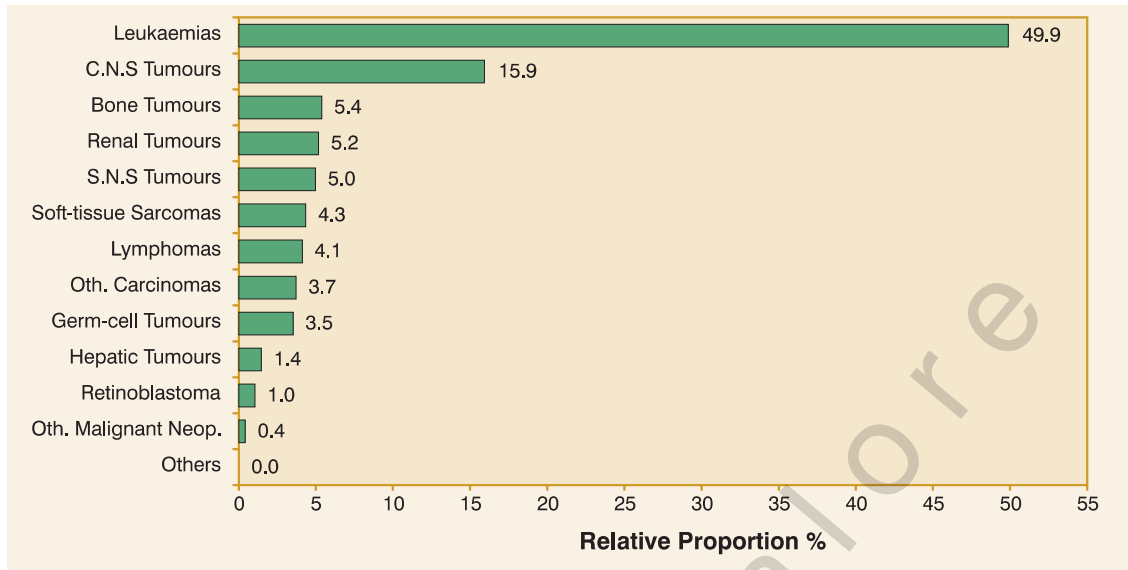


Fig. 2.1(b): Proportion of Broad Types of Childhood Cancers (0-14 years) – Females (2004-2006) (Contd.)

Thiruvananthapuram



Dibrugarh

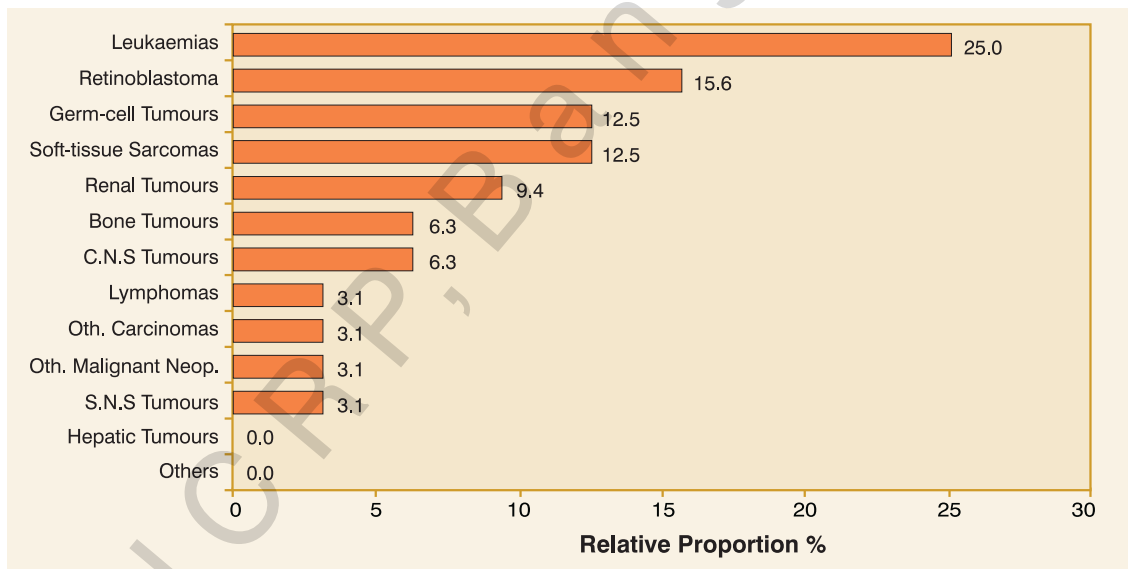


Table 2.4(a): Number (#) and Relative Proportion (%) of Specific Types of Cancer in Childhood (0-14 years) (2004-2006)**Males**

Specific Types of Cancers in Childhood	Mumbai*		Bangalore		Chennai		Thi'puram		Dibrugarh	
	#	%	#	%	#	%	#	%	#	%
I LEUKAEMIAS	448	42.3	319	46.8	186	43.4	333	51.6	7	23.3
(a) Lymphoid Leukaemia	307	29.0	214	31.4	143	33.3	251	38.9	2	6.7
(b) Acute non-lymphocytic leukaemia	93	8.8	61	9.0	30	7.0	58	9.0	4	13.3
(c) Chronic myeloid leukaemia	12	1.1	8	1.2	10	2.3	6	0.9	1	3.3
(d) Other specified leukaemias	0	0.0	3	0.4	1	0.2	5	0.8	0	0.0
(e) Unsp. leukaemias	36	3.4	33	4.8	2	0.5	13	2.0	0	0.0
II LYMPHOMAS & RETICULOENDOTHELIAL NEOP.	179	16.9	120	17.6	82	19.1	68	10.5	1	3.3
(a) Hodgkin's disease	97	9.2	62	9.1	45	10.5	30	4.7	0	0.0
(b) Non-Hodgkin lymphoma	50	4.7	25	3.7	26	6.1	22	3.4	1	3.3
(c) Burkitt's lymphoma	31	2.9	13	1.9	7	1.6	12	1.9	0	0.0
(d) Misc lymphoreticular neop.	0	0.0	6	0.9	1	0.2	1	0.2	0	0.0
(e) Unsp. lymphomas	1	0.1	14	2.1	3	0.7	3	0.5	0	0.0
III C.N.S. & MISC. INTRACRANIAL & INTRASPINAL NEOP.	84	7.9	65	9.5	9	2.1	90	14.0	3	10.0
(a) Ependymoma	12	1.1	7	1.0	1	0.2	9	1.4	0	0.0
(b) Astrocytoma	23	2.2	13	1.9	3	0.7	24	3.7	2	6.7
(c) Primitive neuroectodermal tumors	38	3.6	28	4.1	3	0.7	19	2.9	1	3.3
(d) Other gliomas	10	0.9	8	1.2	1	0.2	11	1.7	0	0.0
(e) Other specified intracranial and intraspinal neop.	1	0.1	2	0.3	0	0.0	2	0.3	0	0.0
(f) Unsp. intracranial and intraspinal neop.	0	0.0	7	1.0	1	0.2	25	3.9	0	0.0
IV SYMPATHETIC NERVOUS SYSTEM TUMOURS	23	2.2	25	3.7	20	4.7	23	3.6	2	6.7
(a) Neuroblastoma and ganglioneuroblastoma	22	2.1	23	3.4	19	4.4	23	3.6	2	6.7
(b) Other SNS tumors	1	0.1	2	0.3	1	0.2	0	0.0	0	0.0
V RETINOBLASTOMA	40	3.8	19	2.8	15	3.5	8	1.2	2	6.7
VI RENAL TUMOURS	38	3.6	24	3.5	14	3.3	20	3.1	6	20.0
(a) Wilms's tumor, rhabdoid and clear cell sarcoma	38	3.6	22	3.2	9	2.1	20	3.1	3	10.0
(b) Renal carcinoma	0	0.0	1	0.1	2	0.5	0	0.0	0	0.0
(c) Unsp. malignant renal tumors	0	0.0	1	0.1	3	0.7	0	0.0	3	10.0
VII HEPATIC TUMOURS	7	0.7	6	0.9	7	1.6	9	1.4	2	6.7
(a) Hepatoblastoma	7	0.7	4	0.6	7	1.6	8	1.2	0	0.0
(b) Hepatic carcinoma	0	0.0	2	0.3	0	0.0	1	0.2	1	3.3
(c) Unsp. malignant hepatic tumours	0	0.0	0	0.0	0	0.0	0	0.0	1	3.3
VIII MALIGNANT BONE TUMOURS	99	9.3	36	5.3	41	9.6	29	4.5	1	3.3
(a) Osteosarcoma	69	6.5	15	2.2	18	4.2	20	3.1	1	3.3
(b) Chondrosarcoma	2	0.2	1	0.1	0	0.0	0	0.0	0	0.0
(c) Ewing's sarcoma	27	2.5	14	2.1	21	4.9	9	1.4	0	0.0
(d) Other specified malignant bone tumours	0	0.0	1	0.1	0	0.0	0	0.0	0	0.0
(e) Unsp. malignant bone tumours	1	0.1	5	0.7	2	0.5	0	0.0	0	0.0
IX SOFT-TISSUE(S-T) SARCOMAS(S)	95	9.0	23	3.4	30	7.0	21	3.3	1	3.3
(a) Rhabdomyosarcoma and embryonal sarcoma	53	5.0	14	2.1	17	4.0	15	2.3	0	0.0
(b) Fibros.neurofibros. and other fibromatous neop.	2	0.2	0	0.0	1	0.2	0	0.0	1	3.3
(c) Kaposi's sarcoma	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
(d) Other specified soft tissue sarcomas	30	2.8	4	0.6	4	0.9	3	0.5	0	0.0
(e) Unsp. soft tissue sarcomas	10	0.9	5	0.7	8	1.9	3	0.5	0	0.0
X GERM CELL TROPHOBLASTIC & OTH. GONADAL NEOP.	13	1.2	14	2.1	8	1.9	16	2.5	1	3.3
(a) Intracranial and intraspinal gc tumours	1	0.1	3	0.4	0	0.0	1	0.2	0	0.0
(b) Other and unsp. non-gonadal gc tumours	2	0.2	3	0.4	2	0.5	3	0.5	0	0.0
(c) Gonadal gc tumours	10	0.9	8	1.2	6	1.4	11	1.7	1	3.3
(d) Gonadal carcinomas	0	0.0	0	0.0	0	0.0	1	0.2	0	0.0
(e) Other and unsp. gonadal tumours	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
XI CARCINOMA & OTH MALIGNANT EPITHELIAL NEOP.	14	1.3	15	2.2	11	2.6	22	3.4	1	3.3
(a) Adrenocortical carcinoma	0	0.0	0	0.0	0	0.0	2	0.3	0	0.0
(b) Thyroid carcinoma	3	0.3	2	0.3	1	0.2	6	0.9	0	0.0
(c) Nasopharyngeal carcinoma	6	0.6	2	0.3	2	0.5	3	0.5	0	0.0
(d) Malignant melanoma	0	0.0	1	0.1	1	0.2	0	0.0	0	0.0
(e) Skin carcinoma	0	0.0	1	0.1	3	0.7	1	0.2	0	0.0
(f) Other and unsp. carcinomas	5	0.5	9	1.3	4	0.9	10	1.6	1	3.3
XII OTHER & UNSP. MALIGNANT NEOPLASMS	20	1.9	15	2.2	6	1.4	6	0.9	3	10.0
(a) Other specified malignant tumours	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
(b) Other unsp. malignant tumours	20	1.9	15	2.2	6	1.4	6	0.9	3	10.0
XIII OTHERS (Not Classified)	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
All Types	1060	100.0	681	100.0	429	100.0	645	100.0	30	100.0

* Only 2004-05 data.

Table 2.4(b): Number (#) and Relative Proportion(%) of Specific Types of Cancer in Childhood (0-14 years) (2004-2006)**Females**

Specific Types of Cancers in Childhood	Mumbai*		Bangalore		Chennai		Thi'puram		Dibrugarh	
	#	%	#	%	#	%	#	%	#	%
I LEUKAEMIAS	192	38.4	181	45.3	121	41.2	241	49.9	8	25.0
(a) Lymphoid Leukaemia	127	25.4	112	28.0	84	28.6	183	37.9	4	12.5
(b) Acute non-lymphocytic leukaemia	45	9.0	41	10.3	29	9.9	48	9.9	4	12.5
(c) Chronic myeloid leukaemia	1	0.2	11	2.8	6	2.0	2	0.4	0	0.0
(d) Other specified leukaemias	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
(e) Unsp. leukaemias	19	3.8	17	4.3	2	0.7	8	1.7	0	0.0
II LYMPHOMAS & RETICULOENDOTHELIAL NPLMS	42	8.4	27	6.8	40	13.6	20	4.1	1	3.1
(a) Hodgkin's disease	17	3.4	13	3.3	22	7.5	9	1.9	0	0.0
(b) Non-Hodgkin lymphoma	17	3.4	7	1.8	16	5.4	7	1.4	1	3.1
(c) Burkitt's lymphoma	5	1.0	4	1.0	2	0.7	3	0.6	0	0.0
(d) Misc lymphoreticular neop.	1	0.2	1	0.3	0	0.0	0	0.0	0	0.0
(e) Unsp. lymphomas	2	0.4	2	0.5	0	0.0	1	0.2	0	0.0
III C.N.S. & MISC. INTRACRANIAL & INTRASPINAL NEOP.	36	7.2	47	11.8	13	4.4	77	15.9	2	6.3
(a) Ependymoma	3	0.6	9	2.3	1	0.3	5	1.0	0	0.0
(b) Astrocytoma	11	2.2	9	2.3	7	2.4	13	2.7	1	3.1
(c) Primitive neuroectodermal tumors	16	3.2	22	5.5	3	1.0	27	5.6	0	0.0
(d) Other gliomas	6	1.2	4	1.0	1	0.3	5	1.0	0	0.0
(e) Other specified intracranial and intraspinal neop.	0	0.0	2	0.5	1	0.3	0	0.0	0	0.0
(f) Unsp. intracranial and intraspinal neop.	0	0.0	1	0.3	0	0.0	27	5.6	1	3.1
IV SYMPATHETIC NERVOUS SYSTEM TUMOURS	19	3.8	13	3.3	15	5.1	24	5.0	1	3.1
(a) Neuroblastoma and ganglioneuroblastoma	18	3.6	13	3.3	15	5.1	24	5.0	1	3.1
(b) Other SNS tumors	1	0.2	0	0.0	0	0.0	0	0.0	0	0.0
V RETINOBLASTOMA	28	5.6	19	4.8	9	3.1	5	1.0	5	15.6
VI RENAL TUMOURS	22	4.4	14	3.5	5	1.7	25	5.2	3	9.4
(a) Wilms's tumor, rhabdoid and clear cell sarcoma	22	4.4	14	3.5	4	1.4	23	4.8	3	9.4
(b) Renal carcinoma	0	0.0	0	0.0	0	0.0	0.0	0.0	0	0.0
(c) Unsp. malignant renal tumors	0	0.0	0	0.0	1	0.3	2	0.4	0	0.0
VII HEPATIC TUMOURS	6	1.2	2	0.5	2	0.7	7	1.4	0	0.0
(a) Hepatoblastoma	6	1.2	1	0.3	2	0.7	7	1.4	0	0.0
(b) Hepatic carcinoma	0	0.0	1	0.3	0	0.0	0	0.0	0	0.0
(c) Unsp. malignant hepatic tumours	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
VIII MALIGNANT BONE TUMOURS	58	11.6	27	6.8	40	13.6	26	5.4	2	6.3
(a) Osteosarcoma	31	6.2	9	2.3	26	8.8	16	3.3	1	3.1
(b) Chondrosarcoma	2	0.4	1	0.3	0	0.0	0	0.0	0	0.0
(c) Ewing's sarcoma	25	5.0	7	1.8	12	4.1	9	1.9	1	3.1
(d) Other specified malignant bone tumours	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
(e) Unsp. malignant bone tumours	0	0.0	10	2.5	2	0.7	1	0.2	0	0.0
IX SOFT-TISSUE(S-T) SARCOMAS(S)	42	8.4	25	6.3	24	8.2	21	4.3	4	12.5
(a) Rhabdomyos. and embryonal sarcoma	24	4.8	9	2.3	8	2.7	10	2.1	2	6.3
(b) Fibros.neurofibros. and oth fibromatous neop.	0	0.0	4	1.0	1	0.3	0	0.0	1	3.1
(c) Kaposi's sarcoma	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
(d) Other specified soft tissue sarcomas	13	2.6	7	1.8	7	2.4	9	1.9	0	0.0
(e) Unsp. soft tissue sarcomas	5	1.0	5	1.3	8	2.7	2	0.4	1	3.1
X GERM-CELL TROPHOBLASTIC & OTH. GONADAL NEOP.	25	5.0	21	5.3	13	4.4	17	3.5	4	12.5
(a) Intracranial and intraspinal gc tumours	1	0.2	0	0.0	0	0.0	2	0.4	0	0.0
(b) Other and unsp. non-gonadal gc tumours	6	1.2	5	1.3	1	0.3	3	0.6	0	0.0
(c) Gonadal gc tumours	18	3.6	15	3.8	12	4.1	12	2.5	1	3.1
(d) Gonadal carcinomas	0	0.0	1	0.3	0	0.0	0	0.0	3	9.4
(e) Other and unsp. gonadal tumours	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
XI CARCINOMA & OTH MALIGNANT EPITHELIAL NEOP.	16	3.2	11	2.8	8	2.7	18	3.7	1	3.1
(a) Adrenocortical carcinoma	1	0.2	0.00	0.0	0	0.0	3	0.6	0	0.0
(b) Thyroid carcinoma	6	1.2	3	0.8	3	1.0	7	1.4	0	0.0
(c) Nasopharyngeal carcinoma	0	0.0	1	0.3	0	0.0	1	0.2	0	0.0
(d) Malignant melanoma	2	0.4	0	0.0	0	0.0	0	0.0	1	3.1
(e) Skin carcinoma	0	0.0	1	0.3	0	0.0	2	0.4	0	0.0
(f) Other and unsp. carcinomas	7	1.4	6	1.5	5	1.7	5	1.0	0	0.0
XII OTHER & UNSP. MALIGNANT NEOPLASMS	14	2.8	13	3.3	4	1.4	2	0.4	1	3.1
(a) Other specified malignant tumours	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
(b) Other unsp. malignant tumours	14	2.8	13	3.3	4	1.4	2	0.4	1	3.1
XIII OTHERS (Not Classified)	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
All Types	500	100.0	400	100.0	294	100.0	483	100.0	32	100.0

* Only 2004-05 data.