Childhood Cancers

A total of 188 new cases of cancer in children aged 0-14 years of age at diagnosis were registered between 1989 and 2004 (15 year time period). This number increases to 262 if persons aged 15-19 years at time of diagnosis are also included for the same time period. On average, 8 males and 5 females (Male/ Female ratio: 1.6) were diagnosed with cancer in childhood (0-14 years) annually. This ratio changes to 11 male and 8 females (Male/ Female ratio: 1.4) average annual diagnoses if the included age group is 0-19 years. This accounted to about 0.75% (1.1% if 0-19 year age group are considered), of all cancers registered.

During the period, 1991-2004, 44 deaths in children below or at 14 years of age were attributed to cancer. This number increases to 60 deaths if the age group considered is expanded to include the 0-19 year olds at time of death. Mortality, more so than incidence, was very variable from year to year reflecting variations experienced with small number statistics.

Table A: ***Summary Statistics: Childhood cancers***

	0-14 year age group			0-19 year age group		
	Males	**Females**	**Total**	**Males**	**Females**	**Total**
INCIDENCE (1989-2004)						
Total Number of new cases	114	74	188	160	102	262
No. of cases less than 1 year	7	8	15	-	-	-
1-4 years	35	26	61	-	-	-
5-9 years	39	21	60	-	-	-
10-14 years	33	19	52	-	-	-
15-19 years	-	-	-	46	28	74
Male: Female ratio	1.6:1	-	-	1.4:1	-	-
% of all registered cancers	-	-	0.75	-	-	1.1
MORTALITY (1991-2004)						
Number of deaths	25	19	44	38	22	60
% of all cancer deaths	0.46	0.43	0.45	0.70	0.51	0.62
DATA QUALITY						
% Death Certificate Only	0.7	1.5	1.1	0.7	2.0	1.2
% Microscopically Verified	92.5	94.2	93.2	97.3	95.8	96.7

Childhood cancers are usually associated with high profile coverage due to the related great emotional and psychological consequences to the patients and their families. Their occurrence in reality is, however, extremely rare. In most cases there are no known causes although around 5% may have a genetic component linked to the family history. The influence of exogenous factors may be rather small or remain restricted to genetically susceptible children. Random mutations in fast growing tissues in various organs appear to be more important for the development of childhood cancer. The causes of these random mutations are still largely unknown. It seems that most mutations originate in utero and it appears that a combination of environmental (diet, environmental pollutants and toxins etc..) and maternal genetic factors increase the susceptibility of the foetal tissues to such mutations. Some of the answers may be obtained in the future from the emerging technologies looking at the molecular biology of cancer. Modern treatment regimes which are usually multi-modal and very aggressive have resulted in a high survival rate and the prognosis for childhood cancers is generally very good.

About one third (32.4%) of all children (0-14 years) with cancer diagnosed during 1989-2004 had leukaemias (mostly acute). In the 0-19 year age group this proportion dropped down slightly to 29.0%. Lymphomas and reticuloendothelial neoplasms amounted to 11.7% of all malignancies in the 0-14 year group. This proportion increased to 15.6% when cases up to 19 years at time of diagnosis were included. Tumours occurring within the CNS totaled 18.6% of all malignancies in the 0-14 group. This dropped to 16.0% in the 0-19 year group. Some tumour types appeared solely in the 0-14 year age group such as Retinoblastoma and Wilm's tumour, while tumour types such as carcinomas, including thyroid carcinomas and malignant melanomas predominantly appeared in the 15-19 year age group. Table B shows the details of the sites and types of cancers diagnosed according to the International Classification of Childhood Cancer (ICCC) published by the IARC in 1996.

Table B: ***Cases of childhood cancer diagnosed between 1989-2004, by age group, gender and ICCC categories.***

International Classification of Childhood Cancer (ICCC)				
Diagnostic group	**Number of cases 0-14 years (1989-2004)**		**Number of cases 0-19 years (1989-2004)**	
	Males	**Females**	**Males**	**Females**
I Leukaemia	**42**	**19**	**51**	**25**
(a) Lymphoid leukaemia	34	17	37	17
(b) Acute non-lymphocytic leukaemia	4	1	10	7
(c) Chronic myeloid leukaemia	4	-	4	-
(d) Other specified leukaemias	-	1	-	1
(e) Unspecified leukaemias	-	-	-	-
II Lymphomas and reticuloendothelial neoplasms	**18**	**4**	**31**	**10**
(a) Hodgkin's disease	9	-	18	3
(b) Non-Hodgkin's lymphoma	3	1	5	4
(c) Burkitts's lymphoma	2	-	2	-
(d) Miscellaneous lymphoreticular neoplasms	4	3	6	3
(e) Unspecified lymphomas	-	-	-	-
III CNS and miscellaneous intracranial and intraspinal neoplasms	**18**	**17**	**24**	**18**
(a) Ependymoma	3	1	3	1
(b) Astrocytoma	10	7	11	7
(c) Primitive neuroectodermal tumours	1	1	2	1
(d) Other gliomas	2	6	6	7
(e) Other specified intracranial and intraspinal neoplasms	1	1	1	1
(f) Unspecified intracranial and intraspinal neoplasms	1	1	1	1
IV Sympathetic nervous system tumours	**6**	**8**	**6**	**9**
(a) Neuroblastoma and ganglioneuroblastoma	6	8	6	8
(b) Other sympathetic nervous system tumours	-	-	-	1
V Retinoblastoma	**5**	**3**	**5**	**3**
VI Renal tumours	**8**	**6**	**8**	**7**
(a) Wilm's tumour, rhabdoid and clear cell sarcomas	8	6	8	6
(b) Renal carcinoma	-	-	-	1
(c) Unspecified malignant renal tumours	-	-	-	-
VII Hepatic tumours	**0**	**0**	**0**	**0**
(a) Hepatobalstoma	-	-	-	-
(b) Hepatic carcinoma	-	-	-	-
(c) Unspecified malignant hepatic tumours	-	-	-	-
VIII Malignant bone tumours	**6**	**6**	**9**	**9**
(a) Osteosarcoma	2	3	2	5
(b) Chondrosarcoma	-	1	2	1
(c) Ewing's sarcoma	4	2	5	3
(d) Other specified malignant bone tumours	-	-	-	-
(e) Unspecified malignant bone tumours	-	-	-	-

International Classification of Childhood Cancer (ICCC) *continued*				
Diagnostic group	**Number of cases 0-14 years (1989-2004)**		**Number of cases 0-19 years (1989-2004)**	
	Males	**Females**	**Males**	**Females**
IX Soft tissue sarcomas	**9**	**4**	**14**	**5**
(a) Rhabdomyosarcoma and embryonal sarcoma	5	4	8	4
(b) Fibrosarcoma, neurofibrosarcoma and other fibromatous neoplasms	1	-	1	-
(c) Kaposis's sarcoma	-	-	-	-
(d) Other specified soft tissue sarcomas	3	-	5	1
(e) Unspecified soft tissue sarcomas	-	-	-	-
X Germ cell, trophoblastic and other gonadal neoplasms	**0**	**3**	**5**	**5**
(a) Intracranial and intraspinal germ cell tumours	-	-	-	-
(b) Other and unspecified non-gonadal germ cell tumours	-	-	-	-
(c) Gonadal germ cell tumours	-	3	5	4
(d) Gonadal carcinomas	-	-	-	1
(e) Other and unspecified gonadal tumours	-	-	-	-
XI Carcinomas and other malignant epithelial neoplasms	**2**	**4**	**5**	**11**
(a) Adrenocortical carcinoma	-	1	-	1
(b) Thyroid carcinoma	1	-	2	3
(c) Nasopharyngeal carcinoma	-	-	-	-
(d) Malignant melanoma	-	1	2	4
(e) Skin carcinoma	1	-	1	-
(f) Other and unspecified carcinomas	-	2	-	3
XII Other and unspecified malignant neoplasms	**0**	**0**	**2**	**0**
(a) Other specified malignant tumours	-	-	-	-
(b) Other unspecified malignant tumours	0	-	2	-
Total	**114**	**74**	**160**	**102**

Malta National Cancer Registry
Department of Health Information
November 2005