

China, Beijing

Registration area

The registry covers the population of four districts (Dongcheng, Xicheng, Chongwen and Xuanwu Districts) in the capital city of China. About 22% of the population lives in urban areas (2 336 544 inhabitants).

Cancer care facilities

General health care in the region is provided mainly by municipal hospitals; this is supplemented by various district hospitals, military hospitals, enterprise hospitals and state-owned hospitals. There are two cancer hospitals in the region, the National Cancer Hospital and Beijing Cancer Hospital. These hospitals can provide radiotherapy, cancer surgery and chemotherapy services.

Registry structure and methods

The Beijing Cancer Registry was founded by the Beijing Municipal Bureau of Health in 1977. It is now affiliated with the Department of Cancer Epidemiology in Beijing Institute for Cancer Research. Financial support mainly comes from the Beijing Bureau of Health. At present the registry has five full-time registrars and health workers.

All newly diagnosed cancer cases are reported to the registry. Reporting of cancer cases is compulsory by administrative order. Only permanent residents in Beijing are registered.

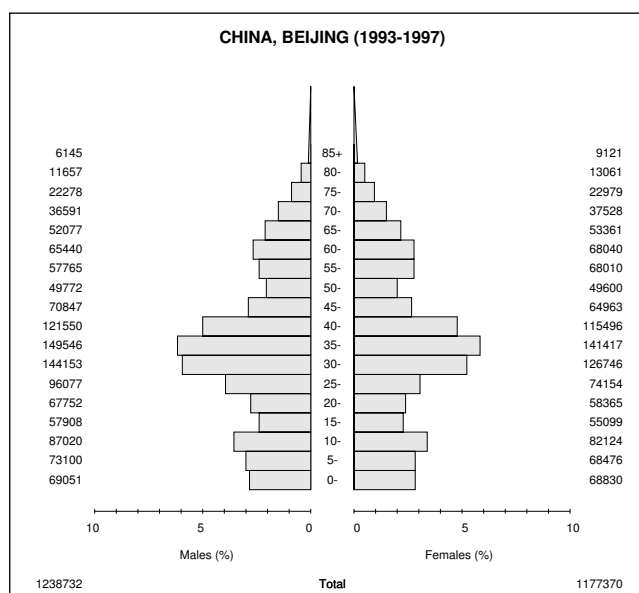
Data collection is passive. Reports are received from two cancer hospitals, 25 large general hospitals, 32 middle-sized general hospitals and other hospitals. All deaths from cancer among residents of the registration area during the same period as that covered by the incidence data are gathered from the Vital Statistics Section of the Beijing Hygiene and Anti-Epidemic Centre. The vital status of registered patients is ascertained by both active and passive follow-up.

Interpreting the results

Immigration and emigration of the population may influence the incidence. Another factor which would affect the results is under-ascertainment of out-patients.

Use of the data

The registry prepares an annual report of cancer incidence and mortality, highlighting trends and changes. The accumulated data are also used in descriptive and analytical cancer epidemiological studies, health care evaluation and health promotion.



Source of population

Annual estimates based on the 1990 and 2000 Censuses of Population.

Notes on the data

* The data are based on the first years of registration so it is difficult to ascertain stability. The proportion of histologically confirmed cases is rather high, as is the proportion of cases registered on the basis of a death certificate alone.

***CHINA, BEIJING (1993-1997)**

SITE	MALE						FEMALE						ICD-10
	No. cases	Freq. (%)	Crude rate (per 100,000)	ASR world	Cum. rates (percent)		No. cases	Freq. (%)	Crude rate (per 100,000)	ASR world	Cum. rates (percent)		
Lip	7	0.1	0.1	0.1	0.01	0.01	0	0.0	0.0	0.0	0.00	0.00	C00
Tongue	29	0.2	0.5	0.4	0.02	0.03	15	0.1	0.3	0.2	0.01	0.02	C01-02
Mouth	47	0.4	0.8	0.6	0.03	0.07	40	0.4	0.7	0.5	0.02	0.06	C03-06
Salivary glands	30	0.2	0.5	0.4	0.02	0.05	14	0.1	0.2	0.2	0.01	0.02	C07-08
Tonsil	5	0.0	0.1	0.1	0.00	0.01	1	0.0	0.0	0.0	0.00	0.00	C09
Other oropharynx	6	0.0	0.1	0.1	0.01	0.01	5	0.0	0.1	0.1	0.00	0.01	C10
Nasopharynx	77	0.6	1.2	1.0	0.07	0.11	48	0.5	0.8	0.6	0.04	0.06	C11
Hypopharynx	30	0.2	0.5	0.3	0.02	0.04	2	0.0	0.0	0.0	0.00	0.00	C12-13
Pharynx unspecified	8	0.1	0.1	0.1	0.00	0.01	0	0.0	0.0	0.0	0.00	0.00	C14
Oesophagus	906	7.5	14.6	10.2	0.36	1.25	375	3.7	6.4	4.0	0.13	0.51	C15
Stomach	1719	14.3	27.8	19.8	0.92	2.47	768	7.5	13.0	8.7	0.51	1.00	C16
Small intestine	36	0.3	0.6	0.4	0.02	0.06	30	0.3	0.5	0.4	0.03	0.05	C17
Colon	603	5.0	9.7	7.2	0.36	0.83	638	6.2	10.8	7.2	0.38	0.90	C18
Rectum	551	4.6	8.9	6.4	0.33	0.77	468	4.6	7.9	5.4	0.31	0.67	C19-20
Anus	6	0.0	0.1	0.1	0.00	0.01	11	0.1	0.2	0.1	0.00	0.01	C21
Liver	1468	12.2	23.7	18.4	1.25	2.20	562	5.5	9.5	6.5	0.35	0.76	C22
Gallbladder etc.	218	1.8	3.5	2.6	0.12	0.29	188	1.8	3.2	2.1	0.09	0.26	C23-24
Pancreas	382	3.2	6.2	4.3	0.19	0.54	333	3.3	5.7	3.8	0.21	0.49	C25
Nose, sinuses etc.	31	0.3	0.5	0.4	0.03	0.05	22	0.2	0.4	0.3	0.01	0.03	C30-31
Larynx	153	1.3	2.5	1.8	0.08	0.24	57	0.6	1.0	0.7	0.04	0.10	C32
Trachea, bronchus and lung	3072	25.6	49.6	35.6	1.57	4.68	2004	19.6	34.0	22.5	1.10	2.85	C33-34
Other thoracic organs	45	0.4	0.7	0.6	0.04	0.06	21	0.2	0.4	0.3	0.02	0.03	C37-38
Bone	51	0.4	0.8	0.7	0.04	0.07	51	0.5	0.9	0.8	0.04	0.08	C40-41
Melanoma of skin	28	0.2	0.5	0.3	0.03	0.04	14	0.1	0.2	0.2	0.01	0.02	C43
Other skin	72		1.2	0.8	0.04	0.09	64		1.1	0.7	0.04	0.08	C44
Mesothelioma	27	0.2	0.4	0.3	0.01	0.04	17	0.2	0.3	0.2	0.01	0.02	C45
Kaposi sarcoma	0	0.0	0.0	0.0	0.00	0.00	0	0.0	0.0	0.0	0.00	0.00	C46
Connective and soft tissue	64	0.5	1.0	0.9	0.05	0.10	68	0.7	1.2	1.0	0.06	0.09	C47+C49
Breast	19	0.2	0.3	0.2	0.02	0.03	1985	19.4	33.7	24.6	1.94	2.69	C50
Vulva							35	0.3	0.6	0.4	0.02	0.04	C51
Vagina							9	0.1	0.2	0.1	0.00	0.01	C52
Cervix uteri							209	2.0	3.6	2.3	0.11	0.30	C53
Corpus uteri							295	2.9	5.0	3.8	0.33	0.45	C54
Uterus unspecified							19	0.2	0.3	0.2	0.01	0.02	C55
Ovary							432	4.2	7.3	5.6	0.40	0.64	C56
Other female genital organs							19	0.2	0.3	0.3	0.02	0.03	C57
Placenta							5	0.0	0.1	0.1	0.01	0.01	C58
Penis	25	0.2	0.4	0.3	0.01	0.04							C60
Prostate	266	2.2	4.3	2.9	0.05	0.32							C61
Testis	28	0.2	0.5	0.4	0.02	0.02							C62
Other male genital organs	8	0.1	0.1	0.1	0.01	0.01							C63
Kidney	254	2.1	4.1	3.1	0.19	0.39	155	1.5	2.6	1.9	0.11	0.23	C64
Renal pelvis	38	0.3	0.6	0.5	0.02	0.06	31	0.3	0.5	0.3	0.02	0.05	C65
Ureter	21	0.2	0.3	0.2	0.01	0.03	16	0.2	0.3	0.2	0.00	0.02	C66
Bladder	517	4.3	8.3	5.9	0.23	0.72	156	1.5	2.6	1.7	0.08	0.20	C67
Other urinary organs	8	0.1	0.1	0.1	0.00	0.01	8	0.1	0.1	0.1	0.00	0.01	C68
Eye	9	0.1	0.1	0.1	0.01	0.01	3	0.0	0.1	0.1	0.00	0.00	C69
Brain, nervous system	262	2.2	4.2	3.5	0.20	0.36	232	2.3	3.9	3.3	0.20	0.34	C70-72
Thyroid	56	0.5	0.9	0.7	0.03	0.08	166	1.6	2.8	2.1	0.16	0.20	C73
Adrenal gland	7	0.1	0.1	0.1	0.01	0.01	7	0.1	0.1	0.1	0.01	0.01	C74
Other endocrine	7	0.1	0.1	0.1	0.01	0.01	9	0.1	0.2	0.1	0.01	0.01	C75
Hodgkin disease	20	0.2	0.3	0.3	0.02	0.02	11	0.1	0.2	0.2	0.01	0.01	C81
Non-Hodgkin lymphoma	261	2.2	4.2	3.4	0.19	0.36	194	1.9	3.3	2.5	0.16	0.27	C82-85,C96
Immunoproliferative diseases	0	0.0	0.0	0.0	0.00	0.00	0	0.0	0.0	0.0	0.00	0.00	C88
Multiple myeloma	67	0.6	1.1	0.8	0.05	0.10	47	0.5	0.8	0.6	0.04	0.09	C90
Lymphoid leukaemia	63	0.5	1.0	1.2	0.07	0.09	42	0.4	0.7	0.8	0.04	0.06	C91
Myeloid leukaemia	138	1.1	2.2	1.9	0.13	0.17	104	1.0	1.8	1.4	0.10	0.14	C92-94
Leukaemia unspecified	95	0.8	1.5	1.3	0.06	0.12	52	0.5	0.9	0.7	0.04	0.07	C95
Other and unspecified	247	2.1	4.0	2.9	0.14	0.35	227	2.2	3.9	2.6	0.14	0.31	O&U
All sites	12087		195.2	143.9	7.09	17.41	10284		174.7	122.4	7.40	14.32	ALL
All sites but C44	12015	100.0	194.0	143.1	7.05	17.32	10220	100.0	173.6	121.7	7.36	14.23	ALLbC44

China, Changle

Registration area

Changle County is located at latitude 25° N and longitude 26° E, and covers an area of 658 km² with a total population of 671 684 in 1990.

Registry structure and methods

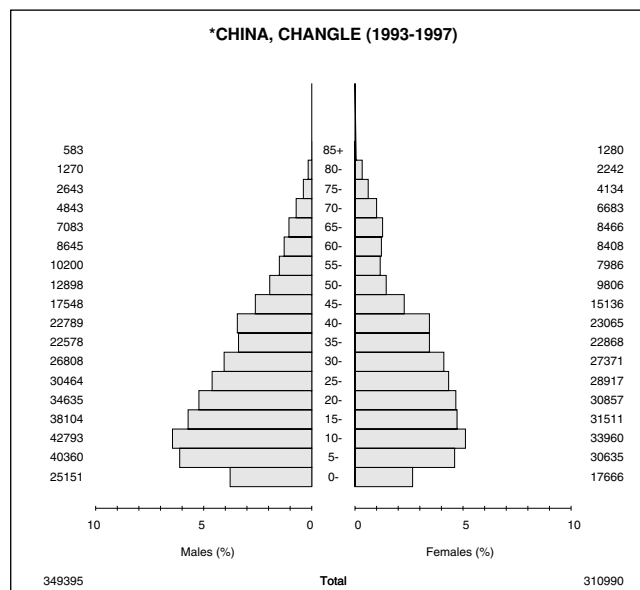
The Changle Cancer Registry of Fu Jian Province was established in 1988, based on legislation for the registration of newly-diagnosed cancer cases issued by the Cancer Control Office of Fu Jian Province and the Changle Municipal Bureau of Public Health. This is a high-risk area for oesophageal and stomach cancer and the registry has concentrated on these sites.

All notification cards are sent periodically to the cancer registry by the medical facilities in Changle County. Information collected includes name, sex, date of birth, home and working unit addresses, date of death, reporting hospitals and follow-up status. The staff of the registry looks for duplicates using name, sex, age/date of birth and address.

Notification cards for all cancer deaths are obtained from the Vital Statistics Section of the Anti-Epidemic Station of Changle County. The date of death is used to update the registry records.

A Network for Cancer Control was set up at the same time as the registry, which is responsible for active follow-up of cancer patients. The staff of the Network verifies the data, checking home address, survival status, date of death, etc. The staff of the cancer registry and of the Network often visit the hospitals to help the physicians or medical clerks to improve the quality of reporting on the notification cards.

All information on cancer cases is computerized. A microcomputer software with Chinese characters from the Shanghai Cancer Registry is used for data management, processing and analysis.



Source of population

Population data are provided by governmental public security and statistical departments. The component rate of the different age-groups is based on the data of the Fourth National Census.

Notes on the data

* The data for sites other than oesophagus and stomach are clearly incomplete and are not presented here. It is difficult to ascertain the degree of completeness of registration for the two sites presented.

+ The editors were unable to verify these data.

+*CHINA, CHANGLE (1993-1997)

Oesophagus (ICD-10 C15)	MALE		FEMALE	
	No. cases	rate (per 100,000)	No. cases	rate (per 100,000)
0-	0	-	0	-
5-	0	-	0	-
10-	0	-	0	-
15-	0	-	0	-
20-	0	-	0	-
25-	1	0.7	1	0.7
30-	2	1.5	2	1.5
35-	6	5.3	0	-
40-	9	7.9	9	7.8
45-	25	28.5	9	11.9
50-	37	57.4	5	10.2
55-	42	82.4	10	25.0
60-	44	101.8	16	38.1
65-	74	208.9	28	66.1
70-	61	251.9	23	68.8
75-	44	332.9	15	72.6
80-	13	204.7	7	62.4
85+	9	308.7	2	31.2
Unk	0		0	
Total	367	21.0	127	8.2
Cum 0-64		1.4		0.5
Cum 0-74		3.7		1.2
ASR (World)		30.1		8.9

Stomach (ICD-10 C16)	MALE		FEMALE	
	No. cases	rate (per 100,000)	No. cases	rate (per 100,000)
0-	0	-	0	-
5-	0	-	0	-
10-	1	0.5	0	-
15-	1	0.5	0	-
20-	1	0.6	2	1.3
25-	4	2.6	1	0.7
30-	14	10.4	4	2.9
35-	38	33.7	11	9.6
40-	79	69.3	21	18.2
45-	106	120.8	29	38.3
50-	209	324.1	36	73.4
55-	251	492.2	45	112.7
60-	322	744.9	87	207.0
65-	347	979.8	89	210.3
70-	278	1148.0	79	236.4
75-	116	877.7	39	188.7
80-	35	551.2	15	133.8
85+	6	205.8	2	31.2
Unk	0		0	
Total	1808	103.5	460	29.6
Cum 0-64		9.0		2.3
Cum 0-74		19.6		4.6
ASR (World)		145.0		34.5

China, Cixian

Registration area

The Cixian Cancer Registry is located in the south area of Hebei Province in China, and covers the population of 19 counties with 390 villages. 93% of the population are peasants. Almost all of the population are Han, the remainder being Hui.

Cancer care facilities

The registry is a department of Cixian Cancer Hospital and Cixian Cancer Research Institute. The hospital provides radiotherapy, cancer surgery, chemotherapy and integrated traditional and western medicine services. It has CT, endoscopy, ultrasound and a pathology department. In Cixian, there are also 35 public health centres, a health centre for women and children, and two general hospitals. Outside the registration area, 30 km away, there are two cities with more than ten general hospitals and two cancer hospitals.

It is easy for patients to see a doctor and a high proportion of the population seeks medical advice when necessary. The rate of endoscopic biopsy and pathology is high. 72% of the patients have oesophageal or stomach cancer.

Registry structure and methods

The registry is funded mainly by the Cixian Cancer Hospital, and partly by the Health Administration Department. The registry is run by a part-time medical officer, four full-time health workers and a part-time scientific researcher.

Information on the cases is sent from every hospital in Cixian, the 35 public health centres, and the rural doctors in the 390 villages.

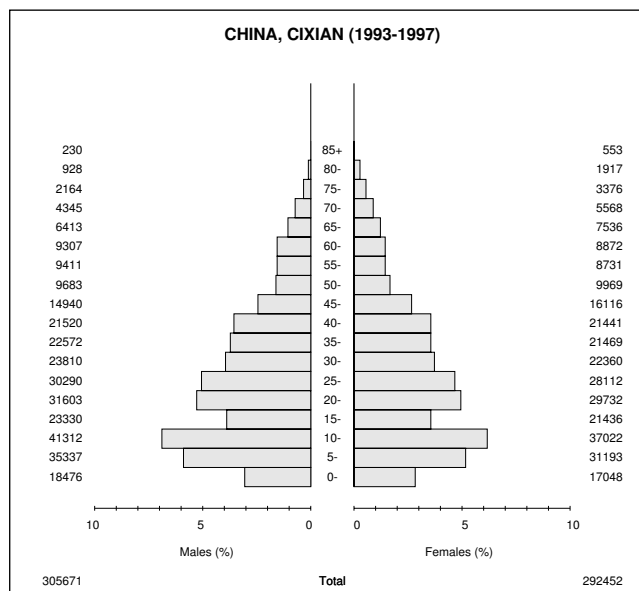
The local health administration requires that data on cancer patients be reported once a month and that the data be reliable. The registry staff often visit the sources to check for missed cases, which concerns mainly the elderly.

Interpreting the results

The incidence of cervical cancer has been affected by the existence of a screening programme.

Use of the data

The registry prepares an annual report on cancer incidence and mortality. Some special studies on survival have been carried out.



Source of population

Annual publication of the Cixian Statistical Bureau.

Notes on the data

* The data for sites other than oesophagus and stomach are clearly incomplete and are not presented here. It is difficult to ascertain the degree of completeness of registration for the two sites presented.

***CHINA, CIXIAN (1993-1997)**

Oesophagus (ICD-10 C15)	MALE		FEMALE	
	No. cases	rate (per 100,000)	No. cases	rate (per 100,000)
0-	1	1.1	0	-
5-	0	-	0	-
10-	0	-	0	-
15-	0	-	0	-
20-	1	0.6	3	2.0
25-	2	1.3	2	1.4
30-	12	10.1	6	5.4
35-	40	35.4	25	23.3
40-	149	138.5	89	83.0
45-	180	241.0	140	173.7
50-	230	475.1	176	353.1
55-	259	550.4	184	421.5
60-	355	762.8	230	518.5
65-	335	1044.7	248	658.2
70-	282	1298.0	239	858.4
75-	138	1275.4	121	716.9
80-	48	1034.5	53	552.9
85+	15	1305.5	20	723.3
Unk	0		0	
Total	2047	133.9	1536	105.0
Cum 0-64		11.1		7.9
Cum 0-74		22.8		15.5
ASR (World)		183.8		123.1

Stomach (ICD-10 C16)	MALE		FEMALE	
	No. cases	rate (per 100,000)	No. cases	rate (per 100,000)
0-	0	-	0	-
5-	0	-	0	-
10-	0	-	0	-
15-	0	-	0	-
20-	0	-	0	-
25-	0	-	3	2.1
30-	4	3.4	2	1.8
35-	11	9.7	6	5.6
40-	44	40.9	16	14.9
45-	60	80.3	32	39.7
50-	89	183.8	31	62.2
55-	131	278.4	37	84.8
60-	169	363.2	69	155.5
65-	142	442.8	67	177.8
70-	118	543.1	70	251.4
75-	52	480.6	57	337.7
80-	26	560.3	15	156.5
85+	8	696.3	4	144.7
Unk	0		0	
Total	854	55.9	409	28.0
Cum 0-64		4.8		1.8
Cum 0-74		9.7		4.0
ASR (World)		78.1		31.9

China, Hong Kong

Registration area

The total land area of Hong Kong is 1095 km². The population at the most recent census (1996) was about 6.5 million (3.3 million males and 3.2 million females). About 95% of the population are Chinese, of whom 90% have come from, or are descended from, people in the Guangdong Province in southern China. Hong Kong is one of the most densely populated places in the world with an overall population density of 5946 persons per square kilometre at the end of 1997.

Registry structure and methods

The Hong Kong Cancer Registry was established in 1963 and is currently run by staff of the Department of Clinical Oncology in the Queen Elizabeth Hospital, Hospital Authority. The registry is staffed by a clinical oncologist, two full-time statistical analysts and four registrars.

Cancer notification is by administrative order without a specific law in Hong Kong. The registry staff have access to most of the hospital and laboratory data on cancer in both the private and public sectors. Data are collected from all five of the clinical oncology centres in the Hospital Authority, all pathology departments of Hospital Authority hospitals and the Department of Health, the discharge summaries from most of the Hospital Authority hospitals, case summaries from radiotherapy departments in the private sector, and most of the pathology departments and institutes in the private sector. There is also voluntary notification from private medical practitioners. Death certificates are obtained from the Births, Deaths & Marriages Registry of the Government.

Interpreting the results

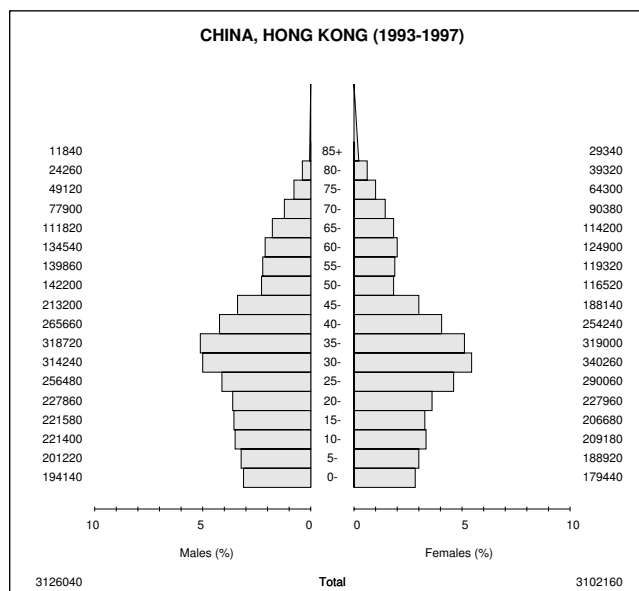
Between 1983 and 1997, the overall age-standardized cancer incidence rate declined, despite rising trends in numbers of cases and the crude incidence rate. In those fifteen years or so the population of Hong Kong increased from 5.3 million to 6.5 million. This far exceeded natural growth (crude birth rate 9/1000, crude death rate 5/1000) and was accounted for by immigration from mainland China. Immigrants tended to be in the younger age group (20–40). Coming from mainland China their environmental exposure might have been different from that in Hong Kong, as would their cancer incidence. These immigrants would have most likely diluted the incidence rates in Hong Kong.

The incidence of traditional cancers such as nasopharynx, cervix and stomach has been falling over the years. Western

cancers like female breast cancer, colon cancer and prostate cancer are rising rapidly. This is probably due to improved economic conditions over the past 50 years.

Use of the data

The registry prepares an annual report of cancer incidence and mortality, highlighting trends and changes. Studies on epidemiology are being carried out.



Source of population

Annual populations for 1993, 1994 and 1995 are mid-year estimates produced by the Census and Statistics Department on the basis of the 1991 Population Census. The 1996 data are Population Census data produced by the Census and Statistics of the Government. The 1997 data were estimated on the basis of the 1996 Population Census.

Notes on the data

* There are marked declines in incidence for many sites.

***CHINA, HONG KONG (1993-1997)**

SITE	MALE						FEMALE						ICD-10
	§No. cases	Freq. (%)	Crude rate (per 100,000)	ASR world	Cum. rates (percent)		§No. cases	Freq. (%)	Crude rate (per 100,000)	ASR world	Cum. rates (percent)		
Lip	24	0.0	0.2	0.1	0.01	0.01	24	0.1	0.2	0.1	0.01	0.02	C00
Tongue	446	0.9	2.9	2.4	0.16	0.29	186	0.5	1.2	1.0	0.07	0.11	C01-02
Mouth	302	0.6	1.9	1.6	0.09	0.21	140	0.4	0.9	0.7	0.03	0.08	C03-06
Salivary glands	164	0.3	1.0	0.9	0.06	0.10	141	0.4	0.9	0.7	0.05	0.08	C07-08
Oropharynx	116	0.2	0.7	0.6	0.04	0.08	33	0.1	0.2	0.2	0.01	0.02	C09-10
Nasopharynx	4075	7.9	26.1	21.4	1.77	2.26	1560	3.9	10.1	8.3	0.66	0.85	C11
Hypopharynx	265	0.5	1.7	1.5	0.10	0.19	21	0.1	0.1	0.1	0.01	0.01	C12-13
Pharynx unspecified	22	0.0	0.1	0.1	0.01	0.02	7	0.0	0.0	0.0	0.00	0.00	C14
Oesophagus	2145	4.2	13.7	11.7	0.70	1.49	553	1.4	3.6	2.5	0.11	0.29	C15
Stomach	3018	5.9	19.3	16.1	0.74	1.88	1824	4.6	11.8	8.3	0.39	0.89	C16
Small intestine	94	0.2	0.6	0.5	0.03	0.06	78	0.2	0.5	0.4	0.02	0.04	C17
Colon	4415	8.6	28.2	23.5	1.09	2.72	3975	10.0	25.6	18.6	0.90	2.15	C18
Rectum etc.	2778	5.4	17.8	14.9	0.80	1.82	2080	5.2	13.4	9.8	0.50	1.13	C19-21
Liver	6421	12.5	41.1	35.0	2.34	4.15	1968	5.0	12.7	9.7	0.55	1.12	C22
Gallbladder etc.	582	1.1	3.7	3.0	0.11	0.34	594	1.5	3.8	2.6	0.11	0.29	C23-24
Pancreas	747	1.5	4.8	4.0	0.19	0.46	603	1.5	3.9	2.7	0.12	0.30	C25
Nose, sinuses etc.	147	0.3	0.9	0.8	0.05	0.09	79	0.2	0.5	0.4	0.03	0.04	C30-31
Larynx	1080	2.1	6.9	5.8	0.28	0.75	98	0.2	0.6	0.5	0.02	0.06	C32
Trachea, bronchus and lung	12661	24.6	81.0	67.5	3.17	8.30	5971	15.0	38.5	26.6	1.12	3.00	C33-34
Other thoracic organs	89	0.2	0.6	0.5	0.04	0.05	45	0.1	0.3	0.2	0.02	0.03	C37-38
Bone	113	0.2	0.7	0.7	0.05	0.05	96	0.2	0.6	0.6	0.04	0.05	C40-41
Melanoma of skin	102	0.2	0.7	0.6	0.03	0.06	91	0.2	0.6	0.5	0.03	0.05	C43
Other skin	840		5.4	4.4	0.22	0.48	883		5.7	4.0	0.17	0.41	C44
Mesothelioma	29	0.1	0.2	0.2	0.01	0.02	16	0.0	0.1	0.1	0.01	0.01	C45
Kaposi sarcoma	13	0.0	0.1	0.1	0.00	0.01	4	0.0	0.0	0.0	0.00	0.00	C46
Connective and soft tissue	328	0.6	2.1	1.9	0.11	0.17	298	0.8	1.9	1.7	0.12	0.16	C47+C49
Breast	31	0.1	0.2	0.2	0.01	0.02	6902	17.4	44.5	36.2	2.72	3.81	C50
Cervix uteri							2337	5.9	15.1	12.3	0.90	1.38	C53
Corpus uteri							1286	3.2	8.3	7.4	0.60	0.83	C54
Uterus unspecified							30	0.1	0.2	0.1	0.01	0.01	C55
Ovary etc.							1343	3.4	8.7	7.3	0.53	0.75	C56,C57.1-4
Other female genital organs							163	0.4	1.1	0.8	0.03	0.09	C51-52,C57.7-9
Placenta							8	0.0	0.1	0.0	0.00	0.00	C58
Prostate	1654	3.2	10.6	8.6	0.17	0.90							C61
Testis	302	0.6	1.9	1.7	0.09	0.14							C62
Penis, other male genital organs	181	0.4	1.2	1.0	0.03	0.10							C60+C63
Kidney etc.	690	1.3	4.4	3.7	0.20	0.43	439	1.1	2.8	2.2	0.12	0.26	C64-66,C68
Bladder	2060	4.0	13.2	10.9	0.44	1.28	738	1.9	4.8	3.1	0.10	0.33	C67
Eye	39	0.1	0.2	0.3	0.01	0.02	29	0.1	0.2	0.3	0.01	0.02	C69
Brain, nervous system	614	1.2	3.9	3.8	0.23	0.34	503	1.3	3.2	2.9	0.18	0.26	C70-72
Thyroid	358	0.7	2.3	1.9	0.13	0.21	1344	3.4	8.7	7.1	0.53	0.68	C73
Other endocrine	87	0.2	0.6	0.6	0.04	0.04	74	0.2	0.5	0.6	0.03	0.04	C74-75
Hodgkin disease	74	0.1	0.5	0.4	0.03	0.05	61	0.2	0.4	0.3	0.02	0.03	C81
Non-Hodgkin lymphoma	1501	2.9	9.6	8.3	0.48	0.88	1080	2.7	7.0	5.4	0.30	0.56	C82-85,96
Multiple myeloma	365	0.7	2.3	1.9	0.08	0.23	280	0.7	1.8	1.3	0.06	0.15	C88,C90
Lymphoid leukaemia	247	0.5	1.6	1.9	0.09	0.13	195	0.5	1.3	1.6	0.08	0.10	C91
Myeloid leukaemia	606	1.2	3.9	3.4	0.19	0.32	485	1.2	3.1	2.6	0.16	0.25	C92-94
Leukaemia unspecified	91	0.2	0.6	0.5	0.02	0.05	82	0.2	0.5	0.4	0.02	0.04	C95
Other and unspecified	2305	4.5	14.7	12.3	0.59	1.46	1813	4.6	11.7	8.3	0.38	0.92	O&U
All sites	52221		334.1	281.4	15.02	32.68	40560		261.5	200.3	11.86	21.72	ALL
All sites but C44	51381	100.0	328.7	276.9	14.80	32.20	39677	100.0	255.8	196.3	11.69	21.30	ALLbC44

§Includes 27 cases of unknown age

§Includes 35 cases of unknown age

For this registry, only ICD-9 3 digit categories were available.

China, Jiashan

Registration area

Jiashan County is located in the north of Zhejiang province, near Shanghai City. It is at latitude 30° N and longitude 120° E. The area of Jiashan County is about 506.6 km². 14.3% of the county is covered by rivers and lakes. The average annual temperature is around 16°C.

Jiashan County is covered by flatlands with a network of waterways. 80% of the population lives in rural areas. Population density in the county is 751 persons per km². Agriculture is a major industry, and the main crops are rice, wheat and broad beans. The county was once a serious epidemic area of schistosomiasis, but the disease was eradicated in 1985.

Cancer accounted for 23.8% of all deaths in 1997.

Cancer care facilities

There were 24 medical establishments, 1296 medical workers and 1135 hospital beds in the county at the end of 1997.

Registry structure and methods

A population-based cancer registry was established in Jiashan County in 1987, according to documents of the Jiashan County Government and Health Bureau on reporting cancer incidence and mortality, and mortality from all causes. It is attached to the Jiashan Institute of Cancer Research.

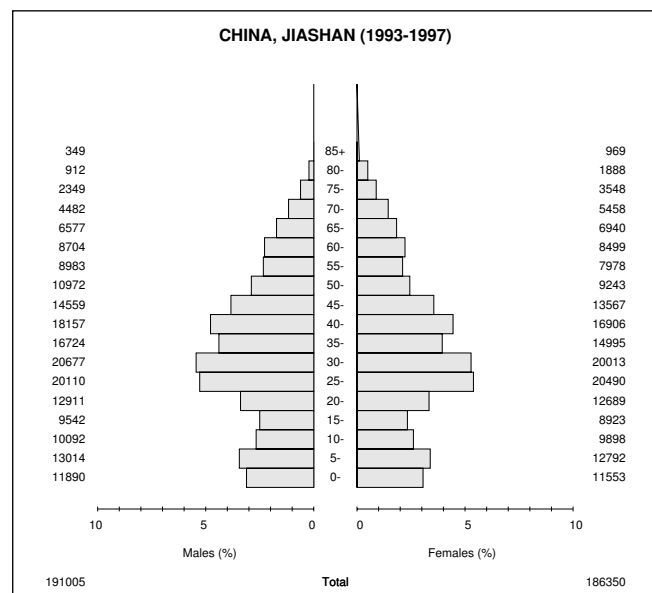
In accordance with Jiashan County Health Bureau regulations, all medical establishments, whether hospital or clinic, must report new cases of cancer diagnosed, including benign tumours of the central nervous system, and cause of death for all diseases.

The doctors of health care departments of medical establishments in the county town are in charge of collecting report cards on cancer, which are completed by doctors in each ward and diagnostic service. Doctors of preventive medicine in the rural area hospitals are in charge of collecting cancer cases in each village and filling in report cards. All the cards are sent to the cancer registry. After receiving the report cards, the doctors in the cancer registry check details by phone or by going to the source. Multiple cards on the same patient are merged, and cards for non-resident patients removed. The physicians working in the cancer registry visit the medical establishments several times a year and inspect the reporting of cancer cases to assess quality and completeness. A meeting is held at the end of every year, with officers of the county health bureau, to discuss problems encountered in order to improve quality.

In 1991, two computers were purchased. Software for vital statistics and cancer reporting, produced by the Sanitary and Anti-Epidemic Station of Liaoning Province and recommended by the National Cancer Research and Control Office, was adopted.

Use of the data

Data on cancer incidence, prevalence and mortality by sex, age and site are used in cancer prevention and treatment and for research into etiology.



Source of population

Annual populations were estimated by linear interpolation based on the sex and age distribution of the 1990 census population.

Notes on the data

* The ratios of mortality to incidence are low, suggesting a degree of under-ascertainment. The peak in age-specific incidence at age 70 may be due to people giving the wrong age.

***CHINA, JIASHAN (1993-1997)**

SITE	MALE						FEMALE						ICD-10
	§No. cases	Freq. (%)	Crude rate (per 100,000)	ASR world	Cum. rates 0-64 0-74 (percent)		No. cases	Freq. (%)	Crude rate (per 100,000)	ASR world	Cum. rates 0-64 0-74 (percent)		
Lip	1	0.0	0.1	0.2	0.01	0.01	0	0.0	0.0	0.0	0.00	0.00	C00
Tongue	4	0.2	0.4	0.4	0.02	0.03	3	0.2	0.3	0.3	0.01	0.03	C01-02
Mouth	7	0.3	0.7	0.6	0.02	0.09	2	0.2	0.2	0.2	0.00	0.03	C03-06
Salivary glands	4	0.2	0.4	0.4	0.01	0.03	2	0.2	0.2	0.2	0.02	0.02	C07-08
Tonsil	1	0.0	0.1	0.1	0.01	0.01	0	0.0	0.0	0.0	0.00	0.00	C09
Other oropharynx	2	0.1	0.2	0.2	0.01	0.01	0	0.0	0.0	0.0	0.00	0.00	C10
Nasopharynx	41	1.8	4.3	3.5	0.28	0.43	19	1.6	2.0	1.6	0.09	0.16	C11
Hypopharynx	3	0.1	0.3	0.3	0.01	0.05	0	0.0	0.0	0.0	0.00	0.00	C12-13
Pharynx unspecified	0	0.0	0.0	0.0	0.00	0.00	0	0.0	0.0	0.0	0.00	0.00	C14
Oesophagus	225	9.8	23.6	20.7	0.96	2.60	66	5.4	7.1	5.3	0.21	0.74	C15
Stomach	437	18.9	45.8	38.9	2.15	5.36	189	15.5	20.3	15.7	0.99	1.92	C16
Small intestine	4	0.2	0.4	0.3	0.01	0.06	2	0.2	0.2	0.2	0.02	0.02	C17
Colon	110	4.8	11.5	9.7	0.72	1.16	94	7.7	10.1	7.9	0.55	0.97	C18
Rectum	134	5.8	14.0	11.8	0.72	1.48	114	9.4	12.2	9.8	0.67	1.26	C19-20
Anus	3	0.1	0.3	0.3	0.01	0.01	2	0.2	0.2	0.2	0.01	0.03	C21
Liver	419	18.2	43.9	36.7	2.17	4.78	167	13.7	17.9	14.5	0.85	1.98	C22
Gallbladder etc.	36	1.6	3.8	3.2	0.19	0.47	46	3.8	4.9	3.9	0.26	0.55	C23-24
Pancreas	63	2.7	6.6	6.0	0.32	0.73	41	3.4	4.4	3.4	0.19	0.48	C25
Nose, sinuses etc.	3	0.1	0.3	0.2	0.02	0.04	4	0.3	0.4	0.3	0.02	0.02	C30-31
Larynx	11	0.5	1.2	1.0	0.05	0.11	1	0.1	0.1	0.1	0.01	0.01	C32
Trachea, bronchus and lung	484	21.0	50.7	44.1	2.35	6.03	132	10.8	14.2	11.0	0.65	1.50	C33-34
Other thoracic organs	8	0.3	0.8	0.7	0.06	0.10	1	0.1	0.1	0.1	0.00	0.01	C37-38
Bone	33	1.4	3.5	3.2	0.22	0.36	17	1.4	1.8	1.6	0.11	0.21	C40-41
Melanoma of skin	4	0.2	0.4	0.4	0.02	0.04	4	0.3	0.4	0.3	0.02	0.04	C43
Other skin	9		0.9	1.0	0.01	0.11	8		0.9	0.8	0.06	0.09	C44
Mesothelioma	1	0.0	0.1	0.1	0.00	0.00	0	0.0	0.0	0.0	0.00	0.00	C45
Kaposi sarcoma	0	0.0	0.0	0.0	0.00	0.00	0	0.0	0.0	0.0	0.00	0.00	C46
Connective and soft tissue	9	0.4	0.9	0.7	0.06	0.08	8	0.7	0.9	0.7	0.06	0.08	C47+C49
Breast	3	0.1	0.3	0.3	0.01	0.04	108	8.9	11.6	9.1	0.72	0.96	C50
Vulva							3	0.2	0.3	0.2	0.00	0.05	C51
Vagina							0	0.0	0.0	0.0	0.00	0.00	C52
Cervix uteri							14	1.1	1.5	1.2	0.09	0.12	C53
Corpus uteri							20	1.6	2.1	1.9	0.14	0.21	C54
Uterus unspecified							12	1.0	1.3	1.0	0.06	0.13	C55
Ovary							27	2.2	2.9	2.3	0.18	0.24	C56
Other female genital organs							1	0.1	0.1	0.1	0.01	0.01	C57
Placenta							3	0.2	0.3	0.4	0.02	0.02	C58
Penis	7	0.3	0.7	0.6	0.03	0.07							C60
Prostate	16	0.7	1.7	1.9	0.03	0.18							C61
Testis	5	0.2	0.5	0.4	0.03	0.03							C62
Other male genital organs	0	0.0	0.0	0.0	0.00	0.00							C63
Kidney	9	0.4	0.9	0.9	0.04	0.10	5	0.4	0.5	0.5	0.04	0.07	C64
Renal pelvis	1	0.0	0.1	0.1	0.01	0.01	1	0.1	0.1	0.1	0.01	0.01	C65
Ureter	0	0.0	0.0	0.0	0.00	0.00	0	0.0	0.0	0.0	0.00	0.00	C66
Bladder	65	2.8	6.8	6.1	0.25	0.76	8	0.7	0.9	0.7	0.03	0.08	C67
Other urinary organs	0	0.0	0.0	0.0	0.00	0.00	0	0.0	0.0	0.0	0.00	0.00	C68
Eye	2	0.1	0.2	0.2	0.01	0.01	4	0.3	0.4	0.4	0.02	0.06	C69
Brain, nervous system	48	2.1	5.0	4.7	0.31	0.48	26	2.1	2.8	2.4	0.20	0.26	C70-72
Thyroid	7	0.3	0.7	0.6	0.06	0.06	15	1.2	1.6	1.2	0.08	0.15	C73
Adrenal gland	3	0.1	0.3	0.2	0.02	0.02	2	0.2	0.2	0.2	0.02	0.02	C74
Other endocrine	0	0.0	0.0	0.0	0.00	0.00	1	0.1	0.1	0.1	0.00	0.00	C75
Hodgkin disease	3	0.1	0.3	0.3	0.03	0.03	2	0.2	0.2	0.3	0.01	0.03	C81
Non-Hodgkin lymphoma	33	1.4	3.5	3.5	0.21	0.36	16	1.3	1.7	1.5	0.09	0.17	C82-85,C96
Immunoproliferative diseases	0	0.0	0.0	0.0	0.00	0.00	0	0.0	0.0	0.0	0.00	0.00	C88
Multiple myeloma	6	0.3	0.6	0.5	0.03	0.09	2	0.2	0.2	0.2	0.00	0.03	C90
Lymphoid leukaemia	3	0.1	0.3	0.3	0.02	0.02	5	0.4	0.5	0.7	0.04	0.05	C91
Myeloid leukaemia	17	0.7	1.8	1.7	0.12	0.12	13	1.1	1.4	1.0	0.07	0.12	C92-94
Leukaemia unspecified	28	1.2	2.9	3.4	0.17	0.29	14	1.1	1.5	1.3	0.11	0.11	C95
Other and unspecified	4	0.2	0.4	0.5	0.02	0.03	2	0.2	0.2	0.1	0.00	0.02	O&U
All sites	2316		242.5	210.7	11.81	26.87	1226		131.6	104.5	6.73	13.08	ALL
All sites but C44	2307	100.0	241.6	209.7	11.80	26.75	1218	100.0	130.7	103.7	6.67	13.00	ALLbC44

§Includes 1 case of unknown age

China, Qidong County

Registration area

The Qidong Cancer Registry covers the population of six districts (Huilong, Qixi, Jianghai, Haidong, Wangbao and Lusi) within Qidong city, Jiangsu Province, at the mouth of the Yangtze River (Chang Jiang), by the Yellow Sea (Huang Hai) to the north of Shanghai. The population at the end of 1999 was 1.16 million, almost all of Han nationality (>99.9%). Farming and fishing are still the major occupations, although industrialization has been increasing in recent years.

Cancer care facilities

There are two systems of health care in Qidong. One is free of charge for professional persons, and the other is a cooperative medical service for all inhabitants. The Qidong Liver Cancer Institute (QDLCI), five city hospitals, and six district hospitals are State-run; the township hospitals were supported by local governments until 2002. Public health authorities implement health care projects mainly through hospitals at the three levels of city, district, town(ship) – the so-called “health care network”. There were almost no private clinics or practitioners in this region during the period reported. The QDLCI and city hospitals provide radiological diagnostic facilities for cancer as well as cancer surgery and chemotherapy. Radiotherapy facilities were not available in Qidong until 2001 (they are now available at QDLCI). Pathology, cytology and haematology diagnostic services are available at all district and city hospitals. Cancer patients who require further diagnostic and treatment facilities have easy access to large, well-equipped hospitals in Shanghai, Nanjing, and Nantong (less than 300 km away).

Registry structure and methods

The registry, covering the whole region and all its residents, has been in existence since 1972. It is managed by the QDLCI with the aim of monitoring cancer incidence and mortality and evaluating cancer control programmes. In 1974, the institution established a death registration system for all causes in the same area in order to monitor disease.

The Qidong cancer registry uses both active and passive methods for data collection. All data files received from lower-level registries and other hospitals are checked with cancer report lists and death certification notifications (DCN) in order to track down missing cases and exclude duplicate registrations.

At district and township hospitals, there are small registries with one physician (full-time or part-time) or a health worker doing the work. A new cancer patient in the catchment area will be registered, checked, and then reported to the Qidong cancer registry. When a patient dies, whether at home or in hospital, the registration official adds the date of death to the record, and reports it again, together with the death notification card. If the registry personnel receive the death notification first, the patient's medical records are reviewed or a home visit is carried out to obtain further information. The

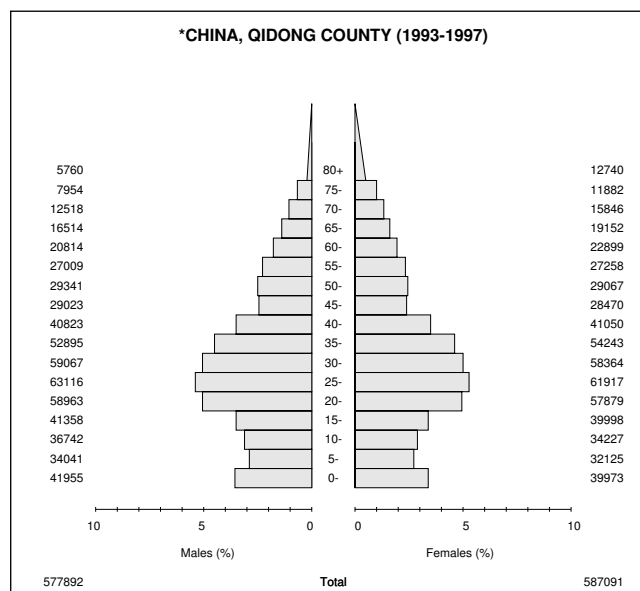
proportion of cases based on a death certificate alone or death certificate only (DCO) is very low because of this process.

Interpreting the results

Because all village clinicians are responsible for reporting any cancer cases, and an annual check is performed, there should not be too many missing cases. Duplicates are excluded using a computer program to link variables such as name, address, date of diagnosis and date of death.

Use of the data

The data collected are mainly used for epidemiological and aetiological research of cancer of the liver and others, for monitoring treatment outcomes, and for governmental and health department decision-making for disease control. Annual reports of cancer incidence and mortality are prepared. Age-specific rates by sex and time trends are described, and special studies such as screening evaluation and survival analysis have been performed.



Source of population

A household register is produced at the end of each year by the Household Registry, Qidong Public Security Bureau.

Notes on the data

* The low rates of childhood cancer, rather high ratios of mortality to incidence and the fall in incidence in the oldest age-groups indicate a degree of under-ascertainment.

+ The editors were unable to verify these data.

+*CHINA, QIDONG COUNTY (1993-1997)

SITE	MALE						FEMALE						ICD-10
	No. cases	Freq. (%)	Crude rate (per 100,000)	ASR world	Cum. rates (percent)		No. cases	Freq. (%)	Crude rate (per 100,000)	ASR world	Cum. rates (percent)		
Lip	2	0.0	0.1	0.1	0.00	0.00	0	0.0	0.0	0.0	0.00	0.00	C00
Tongue	4	0.1	0.1	0.1	0.01	0.01	6	0.2	0.2	0.2	0.02	0.03	C01-02
Mouth	11	0.1	0.4	0.4	0.03	0.05	6	0.2	0.2	0.1	0.00	0.02	C03-06
Salivary glands	7	0.1	0.2	0.2	0.02	0.03	4	0.1	0.1	0.1	0.02	0.02	C07-08
Tonsil	6	0.1	0.2	0.2	0.01	0.01	2	0.1	0.1	0.0	0.00	0.01	C09
Other oropharynx	0	0.0	0.0	0.0	0.00	0.00	0	0.0	0.0	0.0	0.00	0.00	C10
Nasopharynx	63	0.9	2.2	2.1	0.15	0.26	28	0.7	1.0	0.8	0.06	0.08	C11
Hypopharynx	0	0.0	0.0	0.0	0.00	0.00	1	0.0	0.0	0.0	0.00	0.00	C12-13
Pharynx unspecified	1	0.0	0.0	0.0	0.00	0.00	0	0.0	0.0	0.0	0.00	0.00	C14
Oesophagus	397	5.4	13.7	13.2	0.59	1.57	164	4.2	5.6	3.9	0.15	0.46	C15
Stomach	1142	15.5	39.5	37.8	2.05	4.65	711	18.0	24.2	19.0	1.13	2.19	C16
Small intestine	16	0.2	0.6	0.5	0.03	0.06	7	0.2	0.2	0.2	0.02	0.03	C17
Colon	71	1.0	2.5	2.3	0.14	0.29	91	2.3	3.1	2.4	0.14	0.28	C18
Rectum	270	3.7	9.3	8.8	0.44	1.03	312	7.9	10.6	8.3	0.48	0.95	C19-20
Anus	3	0.0	0.1	0.1	0.00	0.02	4	0.1	0.1	0.1	0.01	0.01	C21
Liver	3038	41.2	105.1	95.7	7.50	9.99	1014	25.7	34.5	29.6	2.21	3.21	C22
Gallbladder etc.	16	0.2	0.6	0.5	0.03	0.06	11	0.3	0.4	0.3	0.02	0.04	C23-24
Pancreas	194	2.6	6.7	6.5	0.36	0.81	164	4.2	5.6	4.3	0.25	0.50	C25
Nose, sinuses etc.	16	0.2	0.6	0.5	0.02	0.08	1	0.0	0.0	0.0	0.00	0.00	C30-31
Larynx	23	0.3	0.8	0.8	0.03	0.11	3	0.1	0.1	0.1	0.00	0.01	C32
Trachea, bronchus and lung	1317	17.8	45.6	44.0	2.41	5.80	425	10.8	14.5	11.6	0.65	1.44	C33-34
Other thoracic organs	14	0.2	0.5	0.5	0.04	0.05	8	0.2	0.3	0.2	0.02	0.02	C37-38
Bone	70	0.9	2.4	2.4	0.14	0.23	28	0.7	1.0	0.8	0.05	0.07	C40-41
Melanoma of skin	3	0.0	0.1	0.1	0.01	0.02	7	0.2	0.2	0.2	0.01	0.02	C43
Other skin	41		1.4	1.4	0.06	0.16	32		1.1	0.7	0.03	0.05	C44
Mesothelioma	2	0.0	0.1	0.1	0.00	0.01	2	0.1	0.1	0.1	0.00	0.00	C45
Kaposi sarcoma	0	0.0	0.0	0.0	0.00	0.00	0	0.0	0.0	0.0	0.00	0.00	C46
Connective and soft tissue	6	0.1	0.2	0.2	0.01	0.03	4	0.1	0.1	0.1	0.00	0.00	C47+C49
Breast	2	0.0	0.1	0.1	0.00	0.01	328	8.3	11.2	10.0	0.79	1.02	C50
Vulva							0	0.0	0.0	0.0	0.00	0.00	C51
Vagina							0	0.0	0.0	0.0	0.00	0.00	C52
Cervix uteri							79	2.0	2.7	2.2	0.15	0.28	C53
Corpus uteri							44	1.1	1.5	1.4	0.11	0.15	C54
Uterus unspecified							19	0.5	0.6	0.5	0.03	0.07	C55
Ovary							48	1.2	1.6	1.5	0.12	0.15	C56
Other female genital organs							3	0.1	0.1	0.1	0.01	0.01	C57
Placenta							2	0.1	0.1	0.0	0.00	0.00	C58
Penis	5	0.1	0.2	0.2	0.01	0.02							C60
Prostate	33	0.4	1.1	1.1	0.04	0.12							C61
Testis	5	0.1	0.2	0.2	0.01	0.01							C62
Other male genital organs	0	0.0	0.0	0.0	0.00	0.00							C63
Kidney	16	0.2	0.6	0.6	0.05	0.06	12	0.3	0.4	0.3	0.02	0.05	C64
Renal pelvis	2	0.0	0.1	0.1	0.00	0.01	2	0.1	0.1	0.1	0.00	0.01	C65
Ureter	1	0.0	0.0	0.0	0.00	0.01	0	0.0	0.0	0.0	0.00	0.00	C66
Bladder	174	2.4	6.0	5.7	0.24	0.65	41	1.0	1.4	1.1	0.07	0.13	C67
Other urinary organs	0	0.0	0.0	0.0	0.00	0.00	0	0.0	0.0	0.0	0.00	0.00	C68
Eye	3	0.0	0.1	0.1	0.01	0.01	4	0.1	0.1	0.1	0.00	0.01	C69
Brain, nervous system	133	1.8	4.6	4.6	0.32	0.48	109	2.8	3.7	3.6	0.27	0.37	C70-72
Thyroid	6	0.1	0.2	0.2	0.01	0.03	19	0.5	0.6	0.6	0.02	0.06	C73
Adrenal gland	1	0.0	0.0	0.0	0.00	0.00	0	0.0	0.0	0.0	0.00	0.00	C74
Other endocrine	6	0.1	0.2	0.2	0.01	0.02	1	0.0	0.0	0.0	0.00	0.01	C75
Hodgkin disease	1	0.0	0.0	0.0	0.00	0.00	0	0.0	0.0	0.0	0.00	0.00	C81
Non-Hodgkin lymphoma	95	1.3	3.3	3.1	0.19	0.37	68	1.7	2.3	1.8	0.12	0.18	C82-85,C96
Immunoproliferative diseases	0	0.0	0.0	0.0	0.00	0.00	0	0.0	0.0	0.0	0.00	0.00	C88
Multiple myeloma	53	0.7	1.8	1.8	0.11	0.23	40	1.0	1.4	1.2	0.06	0.17	C90
Lymphoid leukaemia	29	0.4	1.0	1.0	0.05	0.09	22	0.6	0.7	0.7	0.04	0.07	C91
Myeloid leukaemia	78	1.1	2.7	2.6	0.16	0.26	61	1.5	2.1	1.9	0.14	0.17	C92-94
Leukaemia unspecified	33	0.4	1.1	1.1	0.08	0.10	26	0.7	0.9	0.9	0.06	0.08	C95
Other and unspecified	13	0.2	0.4	0.5	0.03	0.05	12	0.3	0.4	0.4	0.01	0.06	O&U
All sites	7422		256.9	241.7	15.42	27.88	3975		135.4	111.5	7.27	12.50	ALL
All sites but C44	7381	100.0	255.4	240.3	15.36	27.71	3943	100.0	134.3	110.8	7.24	12.44	ALLbC44

China, Shanghai

Registration area

Shanghai is situated in the eastern part of China, on the east coast at the outlet of the Yangtzi River, with an altitude above sea level of about 4 m, and at latitude 31° N, and longitude 121° E. The annual average temperature is about 15° C.

Shanghai is the largest industrial city in China. The total area of Shanghai Municipality is 6340.5 km², and the urban area was about 2058 km² in 1993. There are about 13 million inhabitants in the municipality. The boundaries of Shanghai urban districts have changed greatly since 1993. The registration area during 1993–97 covered ten old urban districts with an area of about 290 km² and a population of 6.4 million. In 1994 cancer caused 26% of all deaths in the Shanghai urban area.

Registry structure and methods

The population-based Shanghai Cancer Registry, the oldest one in China, was established and started operating in 1963. According to the regulation issued by the Shanghai Municipal Bureau of Public Health, all medical facilities (more than 150 units) in Shanghai are responsible for notifying all newly diagnosed cancer cases as well as cases of benign tumours of the central nervous system to the registry. A standardized notification card, which includes information on names, date of birth, sex, address, occupation, cancer site, date and basis of cancer diagnosis, is used for reporting cancer cases. The notifications completed by physicians or medical clerks are sent to the cancer registry and then placed on file according to the name of the patient and administrative district of residence. Using this file, the registry staff can determine if a patient has already been reported to the registry and thus avoid duplication. Home visits are carried out every month to confirm if the cancer patient is a permanent resident of the registration coverage area. All patients who reside outside the registration area are deleted from the cancer registry file.

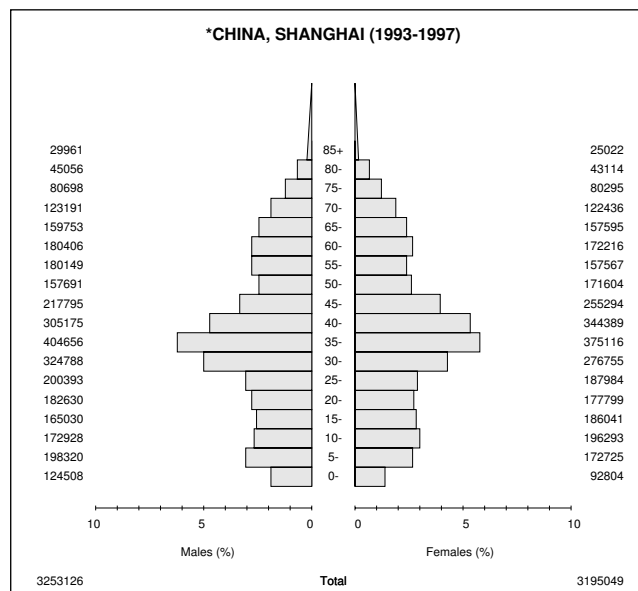
Death certificates for all cancer patients are obtained monthly from the Vital Statistics Section of the Shanghai Hygiene and Anti-epidemic Centre and collated with the file of new cases kept in the registry. If the deceased was not registered prior to death, the registry staff interview the relatives of the case to obtain information on the hospital where the case was diagnosed and treated, date and basis of cancer diagnosis. Such information is also collected from the hospital if there is any doubt about accuracy of information provided by the relatives. Since the late 1980s, the registry has obtained information on vital status of cancer patients by active and passive follow-up.

Data on cancer notification cards are computerized, using specially designed computer software in which Chinese characters

are read directly. Cards with similar contents in terms of name, sex, date of birth, address, and cancer site are printed out, examined by registry staff manually, and then deleted if they are duplicates.

Use of the data

The registry data are used for cancer control activities and cancer epidemiological studies in Shanghai.



Source of population

There has been a well organized household administrative system in urban Shanghai for several decades. According to the "regulations for households", all permanent residents in Shanghai must be registered at the local residents offices. The Municipal Bureau of Public Security can thus provide quite accurate total numbers of males and females at the end of each year. Several complete city censuses were carried out in 1973, 1979, 1982, 1985, 1990, 1992 and 1996, so the population by sex and age group in urban Shanghai for each year can be estimated.

Notes on the data

* The registration area and population-at-risk have changed and the data should not be used to study trends. The changes in incidence are large, and there has been a decline in males for most sites.

+ The editors were unable to verify these data.

+*CHINA, SHANGHAI (1993-1997)

SITE	MALE						FEMALE						ICD-10
	No. cases	Freq. (%)	Crude rate (per 100,000)	ASR world	Cum. rates (percent)		No. cases	Freq. (%)	Crude rate (per 100,000)	ASR world	Cum. rates (percent)		
Lip	31	0.1	0.2	0.1	0.00	0.01	18	0.0	0.1	0.1	0.00	0.01	C00
Tongue	120	0.2	0.7	0.5	0.03	0.06	116	0.3	0.7	0.5	0.03	0.05	C01-02
Mouth	162	0.3	1.0	0.6	0.03	0.08	148	0.4	0.9	0.6	0.03	0.07	C03-06
Salivary glands	152	0.3	0.9	0.6	0.04	0.07	120	0.3	0.8	0.5	0.03	0.06	C07-08
Tonsil	39	0.1	0.2	0.2	0.01	0.02	34	0.1	0.2	0.1	0.01	0.01	C09
Other oropharynx	22	0.0	0.1	0.1	0.00	0.01	6	0.0	0.0	0.0	0.00	0.00	C10
Nasopharynx	955	1.9	5.9	4.2	0.33	0.46	366	0.9	2.3	1.5	0.12	0.16	C11
Hypopharynx	36	0.1	0.2	0.1	0.01	0.02	5	0.0	0.0	0.0	0.00	0.00	C12-13
Pharynx unspecified	9	0.0	0.1	0.0	0.00	0.00	2	0.0	0.0	0.0	0.00	0.00	C14
Oesophagus	2355	4.7	14.5	8.2	0.34	1.04	1189	3.0	7.4	4.2	0.16	0.53	C15
Stomach	8887	17.8	54.6	32.3	1.59	4.03	4756	12.2	29.8	17.6	0.92	2.05	C16
Small intestine	166	0.3	1.0	0.6	0.04	0.09	140	0.4	0.9	0.5	0.03	0.07	C17
Colon	3106	6.2	19.1	11.5	0.62	1.43	3143	8.0	19.7	12.0	0.66	1.49	C18
Rectum	2309	4.6	14.2	8.8	0.51	1.10	1882	4.8	11.8	7.3	0.42	0.88	C19-20
Anus	52	0.1	0.3	0.2	0.01	0.02	56	0.1	0.4	0.2	0.01	0.03	C21
Liver	5844	11.7	35.9	23.3	1.56	2.74	2452	6.3	15.3	9.0	0.43	1.08	C22
Gallbladder etc.	671	1.3	4.1	2.4	0.10	0.31	1142	2.9	7.1	4.1	0.17	0.51	C23-24
Pancreas	1534	3.1	9.4	5.6	0.27	0.71	1362	3.5	8.5	4.8	0.19	0.60	C25
Nose, sinuses etc.	146	0.3	0.9	0.6	0.03	0.07	79	0.2	0.5	0.3	0.02	0.03	C30-31
Larynx	620	1.2	3.8	2.3	0.12	0.32	92	0.2	0.6	0.3	0.01	0.05	C32
Trachea, bronchus and lung	12411	24.9	76.3	44.4	1.92	5.96	4976	12.7	31.1	18.2	0.86	2.31	C33-34
Other thoracic organs	321	0.6	2.0	1.4	0.08	0.15	158	0.4	1.0	0.7	0.04	0.07	C37-38
Bone	327	0.7	2.0	1.4	0.08	0.14	297	0.8	1.9	1.3	0.07	0.14	C40-41
Melanoma of skin	84	0.2	0.5	0.3	0.02	0.03	81	0.2	0.5	0.3	0.02	0.04	C43
Other skin	299		1.8	1.1	0.06	0.13	265		1.7	1.0	0.05	0.11	C44
Mesothelioma	29	0.1	0.2	0.1	0.00	0.01	18	0.0	0.1	0.1	0.00	0.01	C45
Kaposi sarcoma	0	0.0	0.0	0.0	0.00	0.00	5	0.0	0.0	0.0	0.00	0.00	C46
Connective and soft tissue	340	0.7	2.1	1.6	0.10	0.15	232	0.6	1.5	1.2	0.07	0.11	C47+C49
Breast	73	0.1	0.4	0.3	0.01	0.03	6638	17.0	41.6	27.2	2.11	2.96	C50
Vulva							54	0.1	0.3	0.2	0.01	0.02	C51
Vagina							55	0.1	0.3	0.2	0.01	0.03	C52
Cervix uteri							612	1.6	3.8	2.3	0.11	0.28	C53
Corpus uteri							932	2.4	5.8	4.1	0.32	0.49	C54
Uterus unspecified							165	0.4	1.0	0.6	0.03	0.06	C55
Ovary							1392	3.6	8.7	6.0	0.44	0.66	C56
Other female genital organs							52	0.1	0.3	0.2	0.01	0.03	C57
Placenta							28	0.1	0.2	0.1	0.01	0.01	C58
Penis	79	0.2	0.5	0.3	0.01	0.03							C60
Prostate	940	1.9	5.8	3.0	0.06	0.35							C61
Testis	138	0.3	0.8	0.7	0.05	0.06							C62
Other male genital organs	51	0.1	0.3	0.2	0.01	0.02							C63
Kidney	647	1.3	4.0	2.6	0.16	0.31	349	0.9	2.2	1.5	0.10	0.17	C64
Renal pelvis	56	0.1	0.3	0.2	0.01	0.03	41	0.1	0.3	0.2	0.01	0.02	C65
Ureter	49	0.1	0.3	0.2	0.01	0.03	24	0.1	0.2	0.1	0.00	0.01	C66
Bladder	1752	3.5	10.8	6.2	0.26	0.76	531	1.4	3.3	1.9	0.08	0.21	C67
Other urinary organs	18	0.0	0.1	0.1	0.00	0.01	13	0.0	0.1	0.0	0.00	0.00	C68
Eye	34	0.1	0.2	0.3	0.02	0.02	21	0.1	0.1	0.2	0.01	0.01	C69
Brain, nervous system	1159	2.3	7.1	5.4	0.35	0.56	1264	3.2	7.9	5.7	0.39	0.61	C70-72
Thyroid	249	0.5	1.5	1.1	0.08	0.11	861	2.2	5.4	3.8	0.29	0.37	C73
Adrenal gland	39	0.1	0.2	0.1	0.01	0.02	26	0.1	0.2	0.1	0.01	0.01	C74
Other endocrine	189	0.4	1.2	0.9	0.07	0.09	277	0.7	1.7	1.4	0.10	0.12	C75
Hodgkin disease	70	0.1	0.4	0.4	0.02	0.03	34	0.1	0.2	0.2	0.01	0.01	C81
Non-Hodgkin lymphoma	985	2.0	6.1	4.3	0.27	0.47	692	1.8	4.3	3.0	0.18	0.33	C82-85,C96
Immunoproliferative diseases	0	0.0	0.0	0.0	0.00	0.00	0	0.0	0.0	0.0	0.00	0.00	C88
Multiple myeloma	199	0.4	1.2	0.8	0.05	0.10	145	0.4	0.9	0.6	0.04	0.08	C90
Lymphoid leukaemia	253	0.5	1.6	1.6	0.09	0.13	166	0.4	1.0	1.1	0.06	0.09	C91
Myeloid leukaemia	417	0.8	2.6	2.1	0.13	0.19	306	0.8	1.9	1.5	0.10	0.15	C92-94
Leukaemia unspecified	259	0.5	1.6	1.3	0.07	0.12	213	0.5	1.3	1.0	0.06	0.10	C95
Other and unspecified	1454	2.9	8.9	5.3	0.26	0.62	1321	3.4	8.3	4.9	0.22	0.56	O&U
All sites	50137		308.2	189.8	9.91	23.24	39352		246.3	154.7	9.09	17.87	ALL
All sites but C44	49838	100.0	306.4	188.7	9.85	23.11	39087	100.0	244.7	153.7	9.04	17.76	ALLbC44

China, Taiwan

Registration area

The geo-political entity of Taiwan includes Taiwan island proper, Penghu (Pescadore Islands), Kinmen, Matsu, and dozens of other small islands. Taiwan is situated on the northeastern edge of the Pacific Ocean, approximately 160 km off the southeastern coast of the Chinese mainland. Located midway between Korea and Japan to the north and Philippines to the south at latitude 24° N and longitude 121° E Taiwan and the adjacent islands have an area of approximately 36 000 km². Household registration has been implemented in Taiwan since 1906. Information is recorded mandatorily and double-checks performed annually by household registration officers. It is considered quite complete and accurate. At the end of 1997, the total population of Taiwan was 21 742 815.

The island of Taiwan is approximately 394 km long and 144 km at its widest point. Taiwan's climate is subtropical in the north and tropical in the south, with temperatures ranging from 28° C to 35° C in July and 8° C to 16° C in January. It is generally hot and humid in the summer. The average rainfall is 2515 mm per year.

Cancer care facilities

General health care in Taiwan is provided predominantly by private practitioners and private and public hospitals. Most cancer patients are diagnosed and treated in hospitals with 50 or more beds. A health insurance programme was implemented in March 1995 with an overall coverage of 98% of the population. Diagnosis and treatment of cancer is covered by the national health insurance. As far as cancer treatment is concerned, all major medical centres have oncology departments and the specialty of oncology requires board certification. There are ten major medical centres and one comprehensive cancer hospital in Taiwan. Hundreds of regional and district general hospitals are also actively involved in cancer diagnosis and treatment. Among 24 465 physicians and surgeons in Taiwan, there are 110 medical oncologists.

Registry structure and methods

The Taiwan Cancer Registry, a population-based cancer registry, was founded in 1979. Hospitals with greater than 50-bed capacity which provide outpatient and hospitalized cancer care are recruited to participate in reporting all newly diagnosed malignant neoplasms to the registry.

The registry is organized and funded by the Department (Ministry) of Health of the executive branch of the central government. The National Public Health Association has been contracted to operate the registry and organized an advisory board to standardize definitions of terminology, coding, and procedures of the registry's reporting system. A professor of epidemiology heads the registry. The full-time staff members of the registry include a research fellow in cancer epidemiology and eight cancer registrars. The registry is assisted by a Cancer Registry Advisory Board, comprising 18 expert members from various fields such as pathology, clinical oncology, radiation oncology, cancer registrar, and public health.

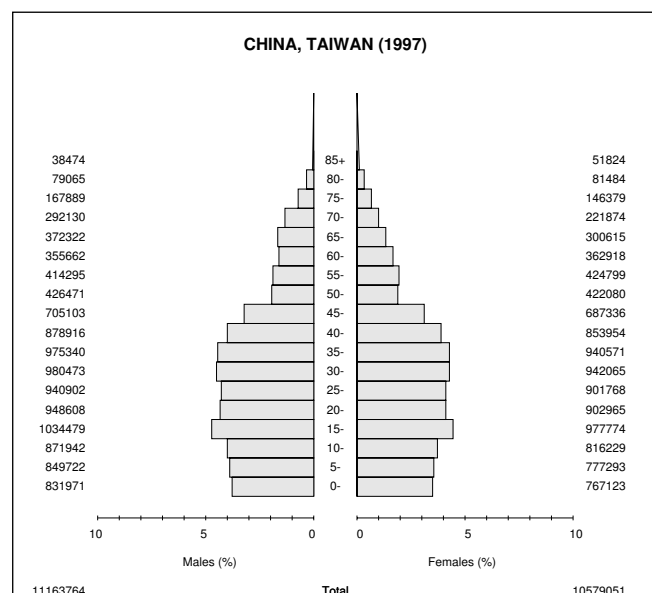
The data are collected and stored in computers. Duplicate checks and quality controls are run periodically to detect possible mistakes and inconsistencies.

Interpreting the results

A nationwide hepatitis B vaccination programme since 1984 has shown early signs of success in prevention of liver cancer in Taiwan. Annual cervico-vaginal smears for cervical cancer screening are paid for by the national health insurance. In the 1995–97 period, 1 837 717 women over age 30 had at least one Pap smear. Project-based free screening for liver, colorectal, female breast, and nasopharyngeal cancer among high-risk groups has been included in the Department (Ministry) of Taiwan Multicentre Cancer Screening (TAMCAS) project since 1992.

Use of the data

The registry's primary goal is to survey the incidence of cancer in Taiwan. It also participates in planning and evaluation of cancer control and prevention programmes. Cancer incidence data appear each year in a special bulletin and in an annual registry report published by the Ministry of Health. Analyses and observed trends are published in annual reports or in medical journals. The registry also provides a database regarding cancer for various research efforts.



Source of population

Annual data from the household registry. Ministry of the Interior: Taiwan-Fukien Demographic Fact Book, 1993–97.

Notes on the data

* The high proportion of cases registered on the basis of a death certificate alone indicate under-ascertainment and a degree of lack of validity. Some of the ratios of mortality to incidence are unlikely. The data are based on one year of registration and it is difficult to evaluate the stability of the rates.

***CHINA, TAIWAN (1997)**

SITE	MALE						FEMALE						ICD-10
	No. cases	Freq. (%)	Crude rate (per 100,000)	ASR world	Cum. rates (percent)		No. cases	Freq. (%)	Crude rate (per 100,000)	ASR world	Cum. rates (percent)		
Lip	88	0.3	0.8	0.7	0.06	0.07	14	0.1	0.1	0.1	0.01	0.02	C00
Tongue	612	2.1	5.5	5.1	0.45	0.54	100	0.5	0.9	0.9	0.06	0.10	C01-02
Mouth	1087	3.7	9.7	9.3	0.80	1.00	125	0.6	1.2	1.1	0.07	0.13	C03-06
Salivary glands	78	0.3	0.7	0.7	0.04	0.07	38	0.2	0.4	0.3	0.03	0.03	C07-08
Tonsil	139	0.5	1.2	1.2	0.10	0.14	9	0.0	0.1	0.1	0.00	0.01	C09
Other oropharynx	41	0.1	0.4	0.3	0.03	0.04	3	0.0	0.0	0.0	0.00	0.00	C10
Nasopharynx	1060	3.6	9.5	8.9	0.72	0.95	387	1.8	3.7	3.4	0.28	0.35	C11
Hypopharynx	317	1.1	2.8	2.8	0.23	0.33	10	0.0	0.1	0.1	0.01	0.01	C12-13
Pharynx unspecified	39	0.1	0.3	0.3	0.02	0.04	7	0.0	0.1	0.1	0.00	0.00	C14
Oesophagus	932	3.2	8.3	7.9	0.48	0.97	91	0.4	0.9	0.8	0.02	0.09	C15
Stomach	2337	7.9	20.9	18.6	0.78	2.22	1256	5.9	11.9	10.9	0.54	1.20	C16
Small intestine	115	0.4	1.0	1.0	0.06	0.12	80	0.4	0.8	0.7	0.04	0.08	C17
Colon	1862	6.3	16.7	15.1	0.75	1.81	1460	6.8	13.8	12.9	0.65	1.49	C18
Rectum	1536	5.2	13.8	12.8	0.77	1.59	1096	5.1	10.4	9.9	0.57	1.20	C19-20
‡Anus	102	0.3	0.9	0.8	0.04	0.09	76	0.4	0.7	0.7	0.02	0.07	C21
Liver	6066	20.6	54.3	51.9	3.57	6.18	2118	9.9	20.0	19.4	1.04	2.46	C22
Gallbladder etc.	315	1.1	2.8	2.6	0.11	0.30	308	1.4	2.9	2.7	0.13	0.30	C23-24
Pancreas	573	1.9	5.1	4.7	0.23	0.59	390	1.8	3.7	3.5	0.16	0.40	C25
Nose, sinuses etc.	103	0.3	0.9	0.8	0.06	0.09	41	0.2	0.4	0.3	0.02	0.03	C30-31
Larynx	418	1.4	3.7	3.5	0.20	0.45	29	0.1	0.3	0.3	0.01	0.04	C32
Trachea, bronchus and lung	4759	16.2	42.6	38.2	1.62	4.68	2009	9.4	19.0	17.9	0.84	2.11	C33-34
Other thoracic organs	130	0.4	1.2	1.0	0.06	0.10	69	0.3	0.7	0.6	0.03	0.07	C37-38
Bone	108	0.4	1.0	0.9	0.05	0.08	81	0.4	0.8	0.8	0.04	0.08	C40-41
Melanoma of skin	64	0.2	0.6	0.5	0.02	0.06	61	0.3	0.6	0.5	0.03	0.06	C43
Other skin	634		5.7	5.1	0.25	0.61	537		5.1	4.7	0.21	0.51	C44
Mesothelioma	18	0.1	0.2	0.1	0.01	0.01	10	0.0	0.1	0.1	0.00	0.01	C45
Kaposi sarcoma	24	0.1	0.2	0.2	0.01	0.02	2	0.0	0.0	0.0	0.00	0.00	C46
Connective and soft tissue	180	0.6	1.6	1.5	0.09	0.15	170	0.8	1.6	1.5	0.09	0.14	C47+C49
Breast	25	0.1	0.2	0.2	0.01	0.03	3628	16.9	34.3	31.3	2.52	3.28	C50
Vulva							44	0.2	0.4	0.4	0.02	0.05	C51
Vagina							44	0.2	0.4	0.4	0.03	0.05	C52
Cervix uteri							2855	13.3	27.0	24.9	1.83	2.78	C53
Corpus uteri							477	2.2	4.5	4.3	0.36	0.47	C54
Uterus unspecified							18	0.1	0.2	0.1	0.01	0.01	C55
Ovary							603	2.8	5.7	5.3	0.39	0.55	C56
Other female genital organs							46	0.2	0.4	0.4	0.02	0.03	C57
Placenta							3	0.0	0.0	0.0	0.00	0.00	C58
Penis	38	0.1	0.3	0.3	0.01	0.03							C60
Prostate	1553	5.3	13.9	11.9	0.26	1.30							C61
Testis	59	0.2	0.5	0.6	0.03	0.03							C62
Other male genital organs	21	0.1	0.2	0.2	0.01	0.02							C63
Kidney	422	1.4	3.8	3.6	0.20	0.43	286	1.3	2.7	2.6	0.13	0.29	C64
Renal pelvis	88	0.3	0.8	0.8	0.05	0.10	74	0.3	0.7	0.7	0.04	0.09	C65
Ureter	128	0.4	1.1	1.1	0.06	0.14	135	0.6	1.3	1.3	0.06	0.17	C66
Bladder	1097	3.7	9.8	8.9	0.41	1.05	460	2.1	4.3	4.2	0.19	0.50	C67
Other urinary organs	37	0.1	0.3	0.3	0.01	0.03	33	0.2	0.3	0.3	0.02	0.04	C68
Eye	25	0.1	0.2	0.3	0.01	0.02	18	0.1	0.2	0.2	0.01	0.01	C69
Brain, nervous system	433	1.5	3.9	3.8	0.23	0.35	304	1.4	2.9	2.8	0.16	0.25	C70-72
Thyroid	183	0.6	1.6	1.5	0.12	0.15	727	3.4	6.9	6.1	0.45	0.57	C73
Adrenal gland	32	0.1	0.3	0.4	0.02	0.02	31	0.1	0.3	0.4	0.02	0.02	C74
Other endocrine	27	0.1	0.2	0.2	0.01	0.02	9	0.0	0.1	0.1	0.01	0.01	C75
Hodgkin disease	45	0.2	0.4	0.4	0.02	0.03	26	0.1	0.2	0.2	0.01	0.02	C81
Non-Hodgkin lymphoma	696	2.4	6.2	5.8	0.33	0.62	491	2.3	4.6	4.5	0.26	0.49	C82-85,C96
Immunoproliferative diseases	1	0.0	0.0	0.0	0.00	0.00	0	0.0	0.0	0.0	0.00	0.00	C88
Multiple myeloma	143	0.5	1.3	1.2	0.07	0.15	100	0.5	0.9	0.9	0.06	0.12	C90
Lymphoid leukaemia	163	0.6	1.5	1.6	0.08	0.12	113	0.5	1.1	1.3	0.06	0.08	C91
Myeloid leukaemia	329	1.1	2.9	2.8	0.17	0.27	251	1.2	2.4	2.3	0.14	0.21	C92-94
Leukaemia unspecified	61	0.2	0.5	0.6	0.02	0.05	47	0.2	0.4	0.4	0.01	0.03	C95
Other and unspecified	737	2.5	6.6	6.2	0.34	0.70	547	2.6	5.2	4.9	0.27	0.52	O&U
All sites	30080		269.4	249.5	14.10	28.93	21947		207.5	194.7	12.02	21.65	ALL
All sites but C44	29446	100.0	263.8	244.4	13.84	28.33	21410	100.0	202.4	190.0	11.80	21.14	ALLbC44

‡82.4% of cases are anorectal tumours

‡71.1% of cases are anorectal tumours

China, Tianjin

Registration area

The Tianjin Cancer Registry covers the population of six districts (central urban area) within Tianjin city. The areas not covered by the registry are three districts on the coast, four districts in the suburbs of the central urban area and five counties. The population in Tianjin is 9.6 million.

The registry covers 3 694 846 permanent residents who are filed at the local police station.

Cancer care facilities

The Tianjin Cancer Registry was established at the Department of Epidemiology, Tianjin Cancer Institute and Hospital in 1978. Tianjin Cancer Institute and Hospital (TCIH) is one of the main cancer centres in China. It has 860 beds for cancer patients and employs 1200 people. The TCIH is a teaching hospital of Tianjin Medical University. In the central urban areas, more than 50% of cancer patients go to this cancer centre for treatment or advanced diagnosis. Some oncology departments are available in other main hospitals or specialized hospitals.

Registry structure and methods

The registry is located within the TCIH, and is funded partly by the hospital, and partly by the Tianjin Health Bureau.

All physicians and medical clerks in the registry area are responsible for filling out a report form for each new case diagnosed as a malignant tumor. The quality of this work is checked by the Tianjin Health Bureau as part of the quality control of medical services in each hospital or clinic.

Death certificates for malignant tumours have to be registered as such at the local police station and the residential file is checked against this source. All cancer deaths without a previous record in the registry are traced to his/her family, clinic and employer. Only permanent residents who are filed at the local police station are registered, so death-certificate-only registrations are rare.

The registry conducts an active re-checking programme periodically to review all patient records of every medical unit located in the registry area to complete the incidence and mortality data. Data items registered include serial number, name, sex code, age, occupation code, working unit code, address code, cancer site code, basis of diagnosis code, year of diagnosis, month of diagnosis, medical unit code, year of death, month of death and reporting source code.

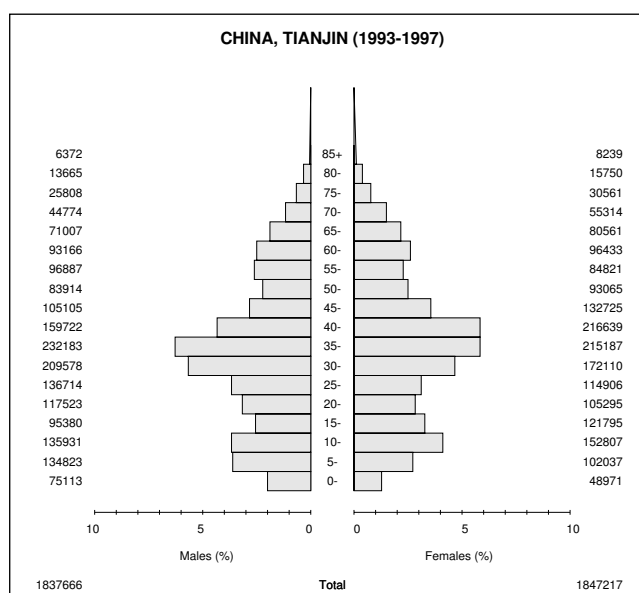
For the purpose of data management and processing, a Chinese software package is used, which was developed at the registry and is revised periodically. Each data item is checked as being an allowable code, and certain selected combinations of items are also checked. Possible duplicate records from different sources are identified by computer as well as by hand.

Interpreting the results

The cancer registry has tried to find all incident cases. After more than 20 years' work, the whole system is becoming stable and constant. An attempt was made to expand the work to rural and coastal areas, but due to limited resources it is hard to produce reliable data. In the period 1993–97, less than 5% of the population participated in cancer screening in the area.

Use of the data

The registry performs descriptive and etiological research based on the database. Since 1984, the cancer incidence and mortality data provided by the registry have been used to monitor the effectiveness of the Tianjin non-communicable disease control project. Information on cancer trends was provided for Tianjin government as a reference for a project of health promotion.



Source of population

The population is the number of permanent residents registered at the police station on December 31 of each year.

Notes on the data

* There is irregularity in the numbers of cases registered by year. The low ratios of mortality to incidence suggest that there may be duplicate registrations.

***CHINA, TIANJIN (1993-1997)**

SITE	MALE						FEMALE						ICD-10
	No. cases	Freq. (%)	Crude rate (per 100,000)	ASR world	Cum. rates (percent)		No. cases	Freq. (%)	Crude rate (per 100,000)	ASR world	Cum. rates (percent)		
Lip	23	0.1	0.3	0.2	0.01	0.03	7	0.0	0.1	0.1	0.01	0.01	C00
Tongue	53	0.2	0.6	0.5	0.03	0.06	59	0.3	0.6	0.5	0.03	0.06	C01-02
Mouth	95	0.4	1.0	0.8	0.04	0.10	69	0.4	0.7	0.6	0.04	0.07	C03-06
Salivary glands	41	0.2	0.4	0.3	0.02	0.04	44	0.2	0.5	0.3	0.02	0.04	C07-08
Tonsil	10	0.0	0.1	0.1	0.00	0.01	6	0.0	0.1	0.1	0.00	0.01	C09
Other oropharynx	12	0.1	0.1	0.1	0.01	0.01	4	0.0	0.0	0.0	0.00	0.01	C10
Nasopharynx	185	0.8	2.0	1.7	0.13	0.20	70	0.4	0.8	0.5	0.04	0.06	C11
Hypopharynx	27	0.1	0.3	0.2	0.01	0.04	3	0.0	0.0	0.0	0.00	0.00	C12-13
Pharynx unspecified	7	0.0	0.1	0.1	0.00	0.01	3	0.0	0.0	0.0	0.00	0.00	C14
Oesophagus	1243	5.5	13.5	11.0	0.40	1.32	525	2.8	5.7	4.1	0.15	0.49	C15
Stomach	3081	13.7	33.5	26.9	1.17	3.48	1280	6.8	13.9	10.0	0.55	1.19	C16
Small intestine	47	0.2	0.5	0.4	0.02	0.06	41	0.2	0.4	0.3	0.02	0.05	C17
Colon	819	3.7	8.9	7.1	0.36	0.88	747	4.0	8.1	5.8	0.31	0.72	C18
Rectum	703	3.1	7.7	6.2	0.34	0.81	704	3.7	7.6	5.6	0.34	0.65	C19-20
‡Anus	29	0.1	0.3	0.2	0.01	0.03	27	0.1	0.3	0.2	0.01	0.03	C21
Liver	2582	11.5	28.1	22.8	1.29	2.82	1142	6.1	12.4	9.0	0.46	1.09	C22
Gallbladder etc.	318	1.4	3.5	2.7	0.12	0.34	285	1.5	3.1	2.2	0.09	0.28	C23-24
Pancreas	648	2.9	7.1	5.7	0.28	0.72	521	2.8	5.6	4.1	0.22	0.51	C25
Nose, sinuses etc.	75	0.3	0.8	0.6	0.04	0.08	38	0.2	0.4	0.3	0.02	0.04	C30-31
Larynx	419	1.9	4.6	3.7	0.17	0.47	215	1.1	2.3	1.7	0.11	0.23	C32
Trachea, bronchus and lung	7168	32.0	78.0	62.8	2.87	8.37	4976	26.4	53.9	39.1	2.07	5.21	C33-34
Other thoracic organs	83	0.4	0.9	0.8	0.05	0.09	63	0.3	0.7	0.5	0.03	0.06	C37-38
Bone	234	1.0	2.5	2.2	0.12	0.23	210	1.1	2.3	1.7	0.11	0.19	C40-41
Melanoma of skin	44	0.2	0.5	0.4	0.03	0.05	39	0.2	0.4	0.3	0.02	0.04	C43
Other skin	111		1.2	1.0	0.04	0.11	91		1.0	0.7	0.04	0.09	C44
Mesothelioma	36	0.2	0.4	0.3	0.01	0.04	22	0.1	0.2	0.2	0.01	0.02	C45
Kaposi sarcoma	0	0.0	0.0	0.0	0.00	0.00	0	0.0	0.0	0.0	0.00	0.00	C46
Connective and soft tissue	147	0.7	1.6	1.4	0.08	0.14	93	0.5	1.0	0.8	0.05	0.08	C47+C49
Breast	20	0.1	0.2	0.2	0.01	0.02	3109	16.5	33.7	24.7	1.98	2.67	C50
Vulva							26	0.1	0.3	0.2	0.01	0.02	C51
Vagina							14	0.1	0.2	0.1	0.01	0.01	C52
Cervix uteri							311	1.7	3.4	2.4	0.10	0.31	C53
Corpus uteri							425	2.3	4.6	3.5	0.30	0.42	C54
Uterus unspecified							192	1.0	2.1	1.5	0.08	0.19	C55
Ovary							479	2.5	5.2	4.0	0.29	0.44	C56
Other female genital organs							153	0.8	1.7	1.3	0.09	0.14	C57
Placenta							30	0.2	0.3	0.3	0.02	0.02	C58
Penis	40	0.2	0.4	0.3	0.01	0.04							C60
Prostate	224	1.0	2.4	2.0	0.04	0.22							C61
Testis	39	0.2	0.4	0.3	0.03	0.03							C62
Other male genital organs	13	0.1	0.1	0.1	0.01	0.01							C63
Kidney	337	1.5	3.7	3.1	0.19	0.36	156	0.8	1.7	1.3	0.09	0.17	C64
Renal pelvis	46	0.2	0.5	0.4	0.02	0.05	24	0.1	0.3	0.2	0.01	0.03	C65
Ureter	23	0.1	0.3	0.2	0.01	0.03	10	0.1	0.1	0.1	0.01	0.01	C66
Bladder	886	4.0	9.6	7.8	0.30	0.93	245	1.3	2.7	1.9	0.07	0.22	C67
Other urinary organs	90	0.4	1.0	0.8	0.04	0.10	53	0.3	0.6	0.4	0.02	0.06	C68
Eye	9	0.0	0.1	0.1	0.00	0.01	11	0.1	0.1	0.3	0.01	0.01	C69
Brain, nervous system	702	3.1	7.6	6.7	0.44	0.70	783	4.2	8.5	6.8	0.48	0.74	C70-72
Thyroid	88	0.4	1.0	0.7	0.05	0.08	232	1.2	2.5	1.9	0.13	0.20	C73
Adrenal gland	12	0.1	0.1	0.1	0.01	0.01	13	0.1	0.1	0.1	0.01	0.01	C74
Other endocrine	126	0.6	1.4	1.1	0.08	0.11	136	0.7	1.5	1.2	0.09	0.11	C75
Hodgkin disease	42	0.2	0.5	0.4	0.03	0.03	15	0.1	0.2	0.1	0.01	0.01	C81
Non-Hodgkin lymphoma	291	1.3	3.2	2.7	0.16	0.30	195	1.0	2.1	1.6	0.09	0.18	C82-85,C96
Immunoproliferative diseases	0	0.0	0.0	0.0	0.00	0.00	0	0.0	0.0	0.0	0.00	0.00	C88
Multiple myeloma	18	0.1	0.2	0.2	0.01	0.02	19	0.1	0.2	0.2	0.01	0.02	C90
Lymphoid leukaemia	116	0.5	1.3	1.4	0.08	0.12	79	0.4	0.9	1.0	0.06	0.08	C91
Myeloid leukaemia	177	0.8	1.9	1.8	0.11	0.16	140	0.7	1.5	1.3	0.10	0.12	C92-94
Leukaemia unspecified	277	1.2	3.0	2.8	0.16	0.27	185	1.0	2.0	1.9	0.11	0.17	C95
Other and unspecified	716	3.2	7.8	6.5	0.33	0.72	610	3.2	6.6	5.1	0.31	0.60	O&U
All sites	22532		245.2	200.1	9.77	24.88	18929		204.9	152.2	9.23	18.16	ALL
All sites but C44	22421	100.0	244.0	199.1	9.73	24.76	18838	100.0	204.0	151.5	9.19	18.07	ALLbC44

‡62.1% of cases are anorectal tumours

‡59.3% of cases are anorectal tumours

China, Wuhan

Registration area

Wuhan is the largest city in the central part of China and has a population of about seven million, 97% of Han race. Wuhan is an industrial and commercial city. It is the capital of Hubei Province. The Wuhan Cancer Registry covers the population of nine urban administrative districts. The population in 1995 was 3 982 769. The city is situated at latitude 30° N and longitude 114° E.

Cancer care facilities

There are several types of hospitals in Wuhan. The national, provincial and municipal hospitals and most of the district hospitals provide radiotherapy, cancer surgery and chemotherapy services. There is one hospital, Hubei Province Cancer Hospital, which specializes in the diagnosis and treatment of cancer. The hospitals are distributed over the nine districts. There are few private practitioners and hospitals in Wuhan. Patients choose their hospital according to their economic resources as well as the quality of hospital services.

Registry structure and methods

The Wuhan Cancer Registry was established at the department of Wuhan Centre of Disease Control (WHCDC) in 1980. According to a regulation issued by the Wuhan Municipal Bureau of Public Health, all medical facilities (more than 110 units) in Wuhan are responsible for notifying all newly diagnosed cancer cases and benign tumours of the central nervous system to the registry. The registry is staffed by 19 full-time registrars and 20 part-time medical officers. The working funds are provided by Wuhan Municipal Bureau of Public Health.

Doctors or medical clerks complete standardized cancer notification cards. Each medical facility has a special department to collect and send the cards to the registry on time.

The registry staff check, code and file the cards according to year, sex, usual residence and ICD code. Then the registry staff determine whether a patient has already been reported to the registry, so as to avoid duplication. Death certificates of cancer patients are obtained from the Vital Statistics Section of Wuhan CDC and compared with the file of cases kept in the registry. If the deceased was not registered before death, the registry staff interview relatives to obtain information on the hospital where the case was diagnosed and treated, and the date and basis of the cancer diagnosis. If the deceased was registered before death, his/her vital status will be updated. Since 1981, information on the vital status of cancer patients has been obtained by both active and passive follow-up.

The registry checks the reporting medical units regularly and undertakes training. Data from all cancer notification cards have been computerized since 1992.

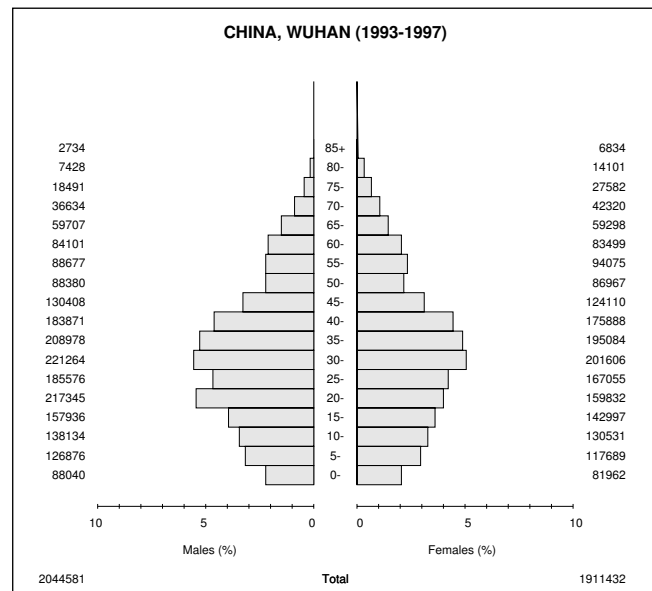
Interpreting the results

Wuhan has a full range of diagnostic facilities, so it is unlikely that cases referred will be missed.

Screening services for cervical and breast cancer were in operation during the period.

Use of the data

The Wuhan Cancer Registry produces an annual report on cancer incidence and mortality for the Wuhan Bureau of Public Health. The registry carries out research on the data, and a project completed during the period, "Epidemiological Research on Cancer in Wuhan", won the Award for Wuhan Scientific and Technological Progress. During the period of 1996–2000, the registry took part in the ninth five-year national scientific project "Cancer Morbidity, Death and Surveillance Method of Risk Factors Research". The Wuhan Bureau of Public Health formulates its cancer control policy on the basis of the information provided by the registry.



Source of population

The Wuhan Municipal Bureau of Public Security takes a census every year, and publishes the Wuhan Population Statistics Data Compilation.

Notes on the data

+ The editors were unable to verify these data

+CHINA, WUHAN (1993-1997)

SITE	MALE						FEMALE						ICD-10
	No. cases	Freq. (%)	Crude rate (per 100,000)	ASR world	Cum. rates (percent)		No. cases	Freq. (%)	Crude rate (per 100,000)	ASR world	Cum. rates (percent)		
Lip	3	0.0	0.0	0.0	0.00	0.00	1	0.0	0.0	0.0	0.00	0.00	C00
Tongue	37	0.2	0.4	0.4	0.03	0.05	30	0.2	0.3	0.3	0.01	0.03	C01-02
Mouth	47	0.3	0.5	0.5	0.03	0.07	47	0.4	0.5	0.4	0.02	0.04	C03-06
Salivary glands	35	0.2	0.3	0.3	0.02	0.04	25	0.2	0.3	0.2	0.02	0.02	C07-08
Tonsil	19	0.1	0.2	0.2	0.01	0.02	8	0.1	0.1	0.1	0.00	0.01	C09
Other oropharynx	10	0.1	0.1	0.1	0.00	0.01	3	0.0	0.0	0.0	0.00	0.00	C10
Nasopharynx	436	2.3	4.3	4.0	0.28	0.45	205	1.6	2.1	1.8	0.13	0.19	C11
Hypopharynx	5	0.0	0.0	0.1	0.01	0.01	2	0.0	0.0	0.0	0.00	0.00	C12-13
Pharynx unspecified	7	0.0	0.1	0.1	0.00	0.01	3	0.0	0.0	0.0	0.00	0.00	C14
Oesophagus	1293	6.9	12.6	13.3	0.57	1.70	535	4.3	5.6	4.9	0.20	0.61	C15
Stomach	2993	16.0	29.3	29.8	1.44	3.83	1637	13.2	17.1	14.5	0.80	1.75	C16
Small intestine	61	0.3	0.6	0.5	0.04	0.07	28	0.2	0.3	0.3	0.02	0.03	C17
Colon	660	3.5	6.5	6.4	0.38	0.80	579	4.7	6.1	5.2	0.34	0.66	C18
Rectum	733	3.9	7.2	7.0	0.39	0.90	599	4.8	6.3	5.4	0.33	0.63	C19-20
Anus	46	0.2	0.4	0.4	0.03	0.06	107	0.9	1.1	1.0	0.07	0.13	C21
Liver	2800	15.0	27.4	25.9	1.69	3.05	863	6.9	9.0	7.8	0.46	0.96	C22
Gallbladder etc.	176	0.9	1.7	1.8	0.09	0.21	186	1.5	1.9	1.7	0.10	0.22	C23-24
Pancreas	474	2.5	4.6	4.7	0.26	0.58	385	3.1	4.0	3.5	0.22	0.45	C25
Nose, sinuses etc.	43	0.2	0.4	0.4	0.03	0.05	30	0.2	0.3	0.3	0.02	0.03	C30-31
Larynx	366	2.0	3.6	3.6	0.20	0.45	62	0.5	0.6	0.6	0.03	0.08	C32
Trachea, bronchus and lung	5052	27.0	49.4	51.2	2.48	6.85	1594	12.8	16.7	14.7	0.83	1.90	C33-34
Other thoracic organs	113	0.6	1.1	1.2	0.07	0.12	64	0.5	0.7	0.6	0.03	0.09	C37-38
Bone	207	1.1	2.0	2.0	0.11	0.23	179	1.4	1.9	1.7	0.10	0.18	C40-41
Melanoma of skin	38	0.2	0.4	0.4	0.02	0.04	32	0.3	0.3	0.3	0.02	0.03	C43
Other skin	93		0.9	0.9	0.04	0.11	65		0.7	0.6	0.03	0.06	C44
Mesothelioma	26	0.1	0.3	0.3	0.02	0.03	12	0.1	0.1	0.1	0.01	0.01	C45
Kaposi sarcoma	0	0.0	0.0	0.0	0.00	0.00	0	0.0	0.0	0.0	0.00	0.00	C46
Connective and soft tissue	108	0.6	1.1	1.1	0.07	0.11	102	0.8	1.1	0.9	0.06	0.11	C47+C49
Breast	0	0.0	0.0	0.0	0.00	0.00	2115	17.0	22.1	18.1	1.44	1.94	C50
Vulva							9	0.1	0.1	0.1	0.01	0.01	C51
Vagina							19	0.2	0.2	0.2	0.01	0.02	C52
Cervix uteri							433	3.5	4.5	3.9	0.21	0.48	C53
Corpus uteri							174	1.4	1.8	1.6	0.13	0.19	C54
Uterus unspecified							91	0.7	1.0	0.8	0.02	0.11	C55
Ovary							366	2.9	3.8	3.3	0.24	0.35	C56
Other female genital organs							59	0.5	0.6	0.5	0.04	0.07	C57
Placenta							13	0.1	0.1	0.1	0.01	0.01	C58
Penis	13	0.1	0.1	0.1	0.01	0.02							C60
Prostate	178	1.0	1.7	2.0	0.05	0.22							C61
Testis	43	0.2	0.4	0.4	0.03	0.03							C62
Other male genital organs	14	0.1	0.1	0.1	0.01	0.02							C63
Kidney	186	1.0	1.8	1.8	0.11	0.21	78	0.6	0.8	0.7	0.05	0.09	C64
Renal pelvis	4	0.0	0.0	0.0	0.00	0.00	5	0.0	0.1	0.0	0.00	0.01	C65
Ureter	14	0.1	0.1	0.1	0.01	0.02	21	0.2	0.2	0.2	0.02	0.02	C66
Bladder	463	2.5	4.5	5.1	0.20	0.59	128	1.0	1.3	1.2	0.06	0.14	C67
Other urinary organs	14	0.1	0.1	0.2	0.01	0.01	9	0.1	0.1	0.1	0.00	0.01	C68
Eye	18	0.1	0.2	0.3	0.01	0.02	16	0.1	0.2	0.3	0.02	0.02	C69
Brain, nervous system	567	3.0	5.5	5.4	0.36	0.58	428	3.4	4.5	4.1	0.30	0.43	C70-72
Thyroid	89	0.5	0.9	0.8	0.06	0.08	247	2.0	2.6	2.1	0.15	0.21	C73
Adrenal gland	16	0.1	0.2	0.1	0.01	0.02	13	0.1	0.1	0.1	0.01	0.01	C74
Other endocrine	71	0.4	0.7	0.7	0.05	0.06	53	0.4	0.6	0.5	0.04	0.04	C75
Hodgkin disease	41	0.2	0.4	0.4	0.03	0.04	30	0.2	0.3	0.3	0.02	0.03	C81
Non-Hodgkin lymphoma	440	2.4	4.3	4.3	0.25	0.48	233	1.9	2.4	2.2	0.14	0.26	C82-85,C96
Immunoproliferative diseases	0	0.0	0.0	0.0	0.00	0.00	0	0.0	0.0	0.0	0.00	0.00	C88
Multiple myeloma	61	0.3	0.6	0.6	0.04	0.07	51	0.4	0.5	0.5	0.03	0.06	C90
Lymphoid leukaemia	94	0.5	0.9	1.2	0.06	0.09	81	0.7	0.8	1.0	0.06	0.07	C91
Myeloid leukaemia	165	0.9	1.6	1.6	0.11	0.16	128	1.0	1.3	1.2	0.08	0.12	C92-94
Leukaemia unspecified	93	0.5	0.9	1.0	0.07	0.09	51	0.4	0.5	0.5	0.03	0.04	C95
Other and unspecified	334	1.8	3.3	3.3	0.17	0.37	274	2.2	2.9	2.6	0.15	0.34	O&U
All sites	18799		183.9	186.0	9.92	23.02	12508		130.9	112.9	7.11	13.33	ALL
All sites but C44	18706	100.0	183.0	185.1	9.88	22.91	12443	100.0	130.2	112.3	7.08	13.27	ALLbC44

India, Ahmedabad

Registration area

The cancer registry is situated in the western region of India in Gujarat State. Ahmedabad urban agglomeration area covers an area of 255 km². It is the largest city in the state of Gujarat and highly industrialized. The major industries are pharmaceuticals, textiles and chemicals. It covers a population of 3.86 million with a sex ratio of 890 females per 1000 males (1996). The majority of the population is Hindu (86.84%), with 11.19% Muslim, 0.72% Christian, 0.4% Jain, 0.83% Sikh and 0.1% other.

Cancer care facilities

Cancer care is mainly offered by the Gujarat Cancer & Research Institute (GCRI). This comprises a comprehensive cancer care hospital with 450 beds and a major cancer research centre. The institute has been recognized by the Government of India as a Regional Cancer Centre since 1972 and is administered by an autonomous governing council.

Registry structure and methods

Cancer is not a notifiable disease in India in general and Gujarat in particular. Therefore the cancer registry has to make special efforts to cover every possible source.

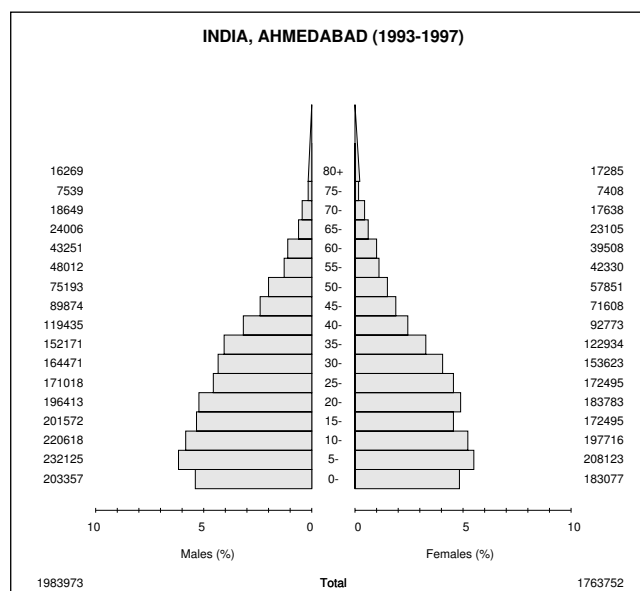
There are about 52 sources of data, mostly situated within the area. About 70% of the cases registered are diagnosed and/or treated in GCRI. The other major sources are teaching hospitals attached to the two medical colleges in the city, constituting about 13% to 14% of cancer cases. Private consultants and private pathology laboratories contribute another 9 to 10%. The field investigators do active case finding in the ten teaching hospitals, where patients are interviewed in person. From the rest of the sources data are collected passively.

Arrangements are made with the Tata Memorial Hospital and Mumbai Cancer Registry situated in Mumbai city to provide a list of cancer cases normally resident in Ahmedabad but diagnosed in Mumbai.

Annual visits are made to the Vital Statistics Department (Birth and Death Registrar's Office) to collect the details of cases whose cause of death is mentioned as cancer. These records are matched with the alphabetical file of the registry to eliminate duplicates. Death slips from various hospitals are also examined. The sites of disposal of dead bodies outside the municipal corporation area limits are also visited by the field staff.

The field investigators visit the wards of the collaborating hospitals regularly and interview all cancer patients, including those under investigation for cancer. The details obtained for each patient are cross-checked with the information collected from the different departments of collaborating hospitals to ensure completeness of records. In some instances complete medical information was obtained from two or more hospitals on one and the same patient.

All cases whose residence was not known or whose duration of stay is less than one year, are excluded from the database. The resident cases are cross-checked with the alphabetical index. Care is taken to see that multiple entries of the same patient are not made in the final database. Previously reported cases are edited, registered and filed according to site of cancer, sex of the patient and registration number. Unmatched cases are registered and filed by sex and cause of death.



Source of population

The population data were estimated on the basis of the 1981 and 1991 census figures. The 5-year age-groups for 1993 and 1994 were based on those of the 1981 census, and the following years on the basis of the 1991 census. Figures for 1 July are obtained assuming that there is an exponential rate of growth for each sex. The migration of population at the 1991 census was only 1.1% of the total population and no correction for this factor is attempted.

Notes on the data

The estimated population data used in Volume VII were not accurate, resulting in an artificial decrease in incidence between the two time periods, and the data should not be used for time-trend analysis.

* Numbers of cases registered increase in 1997, indicating a degree of under-ascertainment in the earlier years. Rates are on the low side. The proportion of cases for which the primary site is not specified or ill-defined is very high.

***INDIA, AHMEDABAD (1993-1997)**

SITE	MALE						FEMALE						ICD-10
	§No. cases	Freq. (%)	Crude rate (per 100,000)	ASR world	Cum. rates (percent)		§No. cases	Freq. (%)	Crude rate (per 100,000)	ASR world	Cum. rates (percent)		
Lip	21	0.3	0.2	0.3	0.02	0.03	10	0.2	0.1	0.2	0.01	0.02	C00
Tongue	599	8.9	6.0	9.3	0.62	1.15	108	2.2	1.2	1.9	0.14	0.21	C01-02
Mouth	455	6.8	4.6	6.5	0.52	0.76	150	3.0	1.7	2.7	0.18	0.34	C03-06
Salivary glands	38	0.6	0.4	0.6	0.04	0.06	24	0.5	0.3	0.4	0.03	0.05	C07-08
Tonsil	177	2.6	1.8	2.8	0.20	0.34	14	0.3	0.2	0.3	0.01	0.05	C09
Other oropharynx	55	0.8	0.6	0.9	0.06	0.11	3	0.1	0.0	0.1	0.00	0.01	C10
Nasopharynx	27	0.4	0.3	0.3	0.02	0.03	15	0.3	0.2	0.2	0.01	0.01	C11
Hypopharynx	432	6.4	4.4	7.6	0.44	1.01	100	2.0	1.1	1.6	0.11	0.15	C12-13
Pharynx unspecified	72	1.1	0.7	1.2	0.08	0.15	15	0.3	0.2	0.3	0.01	0.03	C14
Oesophagus	467	6.9	4.7	8.0	0.47	1.04	227	4.6	2.6	4.1	0.30	0.51	C15
Stomach	131	1.9	1.3	2.1	0.14	0.26	82	1.7	0.9	1.3	0.09	0.15	C16
Small intestine	9	0.1	0.1	0.1	0.01	0.01	2	0.0	0.0	0.0	0.00	0.01	C17
Colon	120	1.8	1.2	1.9	0.12	0.25	74	1.5	0.8	1.3	0.11	0.15	C18
Rectum	151	2.2	1.5	2.3	0.16	0.28	88	1.8	1.0	1.5	0.11	0.20	C19-20
Anus	32	0.5	0.3	0.5	0.03	0.05	16	0.3	0.2	0.3	0.02	0.03	C21
Liver	114	1.7	1.1	1.9	0.13	0.26	31	0.6	0.4	0.5	0.04	0.05	C22
Gallbladder etc.	42	0.6	0.4	0.7	0.05	0.08	55	1.1	0.6	1.1	0.06	0.16	C23-24
Pancreas	67	1.0	0.7	1.1	0.09	0.14	38	0.8	0.4	0.8	0.05	0.11	C25
Nose, sinuses etc.	41	0.6	0.4	0.6	0.05	0.06	23	0.5	0.3	0.4	0.03	0.05	C30-31
Larynx	345	5.1	3.5	6.1	0.39	0.75	21	0.4	0.2	0.4	0.02	0.05	C32
Trachea, bronchus and lung	649	9.6	6.5	11.4	0.71	1.52	126	2.6	1.4	2.5	0.14	0.33	C33-34
Other thoracic organs	38	0.6	0.4	0.6	0.03	0.07	27	0.5	0.3	0.5	0.03	0.06	C37-38
Bone	96	1.4	1.0	1.1	0.07	0.10	42	0.9	0.5	0.5	0.03	0.05	C40-41
Melanoma of skin	12	0.2	0.1	0.2	0.01	0.03	4	0.1	0.0	0.1	0.01	0.01	C43
Other skin	94		0.9	1.4	0.11	0.15	68		0.8	1.2	0.08	0.16	C44
Mesothelioma	4	0.1	0.0	0.1	0.00	0.01	2	0.0	0.0	0.0	0.00	0.00	C45
Kaposi sarcoma	0	0.0	0.0	0.0	0.00	0.00	0	0.0	0.0	0.0	0.00	0.00	C46
Connective and soft tissue	69	1.0	0.7	0.9	0.07	0.09	61	1.2	0.7	0.8	0.07	0.09	C47+C49
Breast	21	0.3	0.2	0.3	0.03	0.04	1165	23.6	13.2	19.1	1.44	2.15	C50
Vulva							33	0.7	0.4	0.6	0.04	0.06	C51
Vagina							65	1.3	0.7	1.1	0.09	0.11	C52
Cervix uteri							799	16.2	9.1	13.4	0.98	1.63	C53
Corpus uteri							74	1.5	0.8	1.4	0.09	0.17	C54
Uterus unspecified							23	0.5	0.3	0.4	0.04	0.05	C55
Ovary							217	4.4	2.5	3.6	0.28	0.38	C56
Other female genital organs							5	0.1	0.1	0.1	0.00	0.01	C57
Placenta							8	0.2	0.1	0.1	0.01	0.01	C58
Penis	84	1.2	0.8	1.3	0.08	0.16							C60
Prostate	185	2.8	1.9	3.6	0.15	0.46							C61
Testis	97	1.4	1.0	0.9	0.06	0.08							C62
Other male genital organs	2	0.0	0.0	0.0	0.00	0.00							C63
Kidney	81	1.2	0.8	1.2	0.08	0.14	39	0.8	0.4	0.6	0.04	0.07	C64
Renal pelvis	0	0.0	0.0	0.0	0.00	0.00	0	0.0	0.0	0.0	0.00	0.00	C65
Ureter	0	0.0	0.0	0.0	0.00	0.00	1	0.0	0.0	0.0	0.00	0.00	C66
Bladder	141	2.1	1.4	2.5	0.15	0.31	27	0.5	0.3	0.5	0.03	0.07	C67
Other urinary organs	2	0.0	0.0	0.0	0.00	0.00	1	0.0	0.0	0.0	0.00	0.00	C68
Eye	19	0.3	0.2	0.2	0.01	0.02	13	0.3	0.1	0.2	0.01	0.02	C69
Brain, nervous system	203	3.0	2.0	2.5	0.17	0.26	118	2.4	1.3	1.5	0.11	0.14	C70-72
Thyroid	22	0.3	0.2	0.3	0.03	0.03	50	1.0	0.6	0.8	0.05	0.10	C73
Adrenal gland	9	0.1	0.1	0.1	0.00	0.00	7	0.1	0.1	0.1	0.00	0.01	C74
Other endocrine	4	0.1	0.0	0.1	0.00	0.01	1	0.0	0.0	0.0	0.00	0.00	C75
Hodgkin disease	71	1.1	0.7	0.7	0.05	0.05	31	0.6	0.4	0.3	0.02	0.02	C81
Non-Hodgkin lymphoma	189	2.8	1.9	2.5	0.16	0.28	83	1.7	0.9	1.2	0.10	0.13	C82-85,C96
Immunoproliferative diseases	0	0.0	0.0	0.0	0.00	0.00	0	0.0	0.0	0.0	0.00	0.00	C88
Multiple myeloma	39	0.6	0.4	0.7	0.04	0.09	31	0.6	0.4	0.6	0.04	0.07	C90
Lymphoid leukaemia	102	1.5	1.0	1.1	0.06	0.07	65	1.3	0.7	0.9	0.05	0.07	C91
Myeloid leukaemia	175	2.6	1.8	1.9	0.14	0.17	121	2.5	1.4	1.5	0.12	0.13	C92-94
Leukaemia unspecified	8	0.1	0.1	0.1	0.00	0.01	8	0.2	0.1	0.1	0.01	0.01	C95
Other and unspecified	1010	15.0	10.2	16.7	1.00	2.09	594	12.0	6.7	10.1	0.69	1.17	O&U
All sites	6821		68.8	107.2	6.89	13.08	5005		56.8	82.9	5.95	9.64	ALL
All sites but C44	6727	100.0	67.8	105.8	6.78	12.92	4937	100.0	56.0	81.8	5.88	9.49	ALLbC44

§Includes 45 cases of unknown age

§Includes 42 cases of unknown age

India, Bangalore

Registration area

The Cancer Registry of Bangalore covers the Bangalore Urban Agglomeration, an area of 365.7 km². Bangalore is the capital city of Karnataka, a state situated in south India. 80.5% of the population are Hindus, 10.3% are Muslims and 5.2% Christian.

Cancer care facilities

Kidwai Memorial Institute of Oncology is a regional cancer centre situated in the city and provides comprehensive cancer care services. It caters for the majority of patients with cancer in the city and the state of Karnataka and the neighbouring states of Andhra Pradesh and Tamilnadu. The centre has two peripheral cancer centres, situated in two different districts of Karnataka (Gulbarga and Mandya) and is involved in the District Cancer Control Programme as part of the National Cancer Control Programme. It runs courses for specialization oncological surgery and radiotherapy. Cancer care facilities are also provided by several private institutions in the city, five of them with radiotherapy facilities. Kidwai Memorial Institute of Oncology accounts for 50% of all cancer cases registered in the registry area.

Registry structure and methods

The registry was established in 1981 as a part of the National Cancer Registry Programme of the Indian Council of Medical Research. It is a part of Kidwai Memorial Institute of Oncology, which also has a hospital registry. The population-based registry is funded partly by the hospital and partly by the Indian Council of Medical Research (ICMR).

The registry is staffed by a Principal Investigator, who is the Director of the Institute, a Medical Officer, two biostatisticians, a field supervisor, six assistant social scientists and one typist - all full time permanent staff of the Institute.

Case-finding is active. There are 425 data sources, comprising cancer hospitals, general and private hospitals, teaching hospitals, pathology laboratories and the city corporation death units as well as the city municipal death registration offices. The death registration system is not properly maintained and the information obtained is often inadequate. The most frequent cause of death is given as cardiorespiratory arrest. Efforts are being made to improve this system by conducting meetings with the medical officers of the various death registration units.

The registry staff visit the sources and scrutinize the records kept in the medical records and pathology departments. They abstract the information on cases among the residents of the registry area (minimum duration of residence one year). To improve the validity of residential status the various sources have been asked to complete a proforma to collect information on duration of stay in the registry area. Data management and analysis are performed by computer programs developed in-house. Checks for duplicates are carried out by a combination of computer program and manual verification.

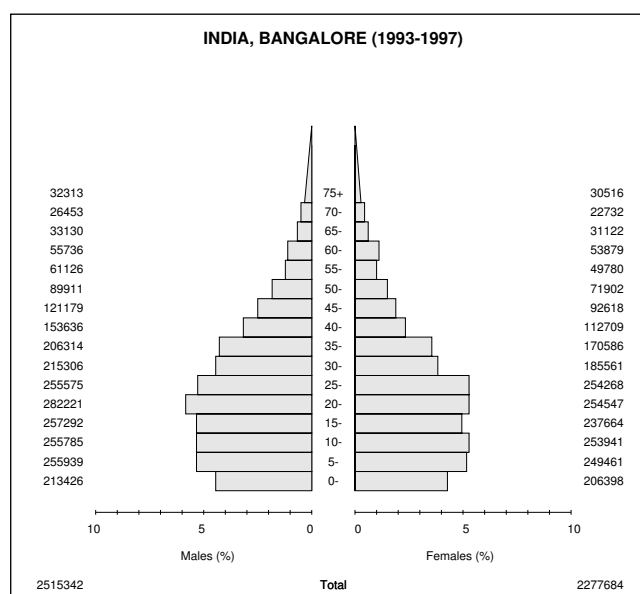
Interpreting the results

The area covered has increased since 1992 from 212 km² to 365.7 km². Quality control exercises are being conducted to improve completeness and validity. Kidwai Memorial institute of Oncology

provides opportunistic screening. Screening is available weekly on the hospital premises and a mobile unit conducts cancer detection camps in and around Karnataka state. It is planned to organize population-based screening.

Use of the data

An annual report presents data on incidence, highlighting trends and changes. It is presented at the Annual Review Meeting of the ICMR as a part of the National Cancer Registry Programme. This is a meeting where registries from different parts of the country present their data and recommendations are made. Several survival studies for specific cancers have also been undertaken. The reports are also sent to the various institutions contributing to the data.



Source of population

The population figures are estimated by using exponential/geometric proportions, based on the 1981 and 1991 census figures.

Notes on the data

The area covered by the registry has been expanded and the data are not comparable to those published in Volume VII.

In addition, the estimated population data used in Volume VII were not accurate, resulting in an artificial decrease in incidence between the two time periods, and the data should not be used for time-trend analysis.

* Numbers of cases registered fluctuate year by year. The incidence of childhood cancer is lower than would be expected. The proportion of cases with morphological confirmation is rather high, suggesting that clinically diagnosed cases are being missed (except for an improbably low figure of 20% for leukaemias). The proportion of cases based on a death certificate alone is rather high.

***INDIA, BANGALORE (1993-1997)**

SITE	MALE						FEMALE						ICD-10
	§No. cases	Freq. (%)	Crude rate (per 100,000)	ASR world	Cum. rates (percent)		§No. cases	Freq. (%)	Crude rate (per 100,000)	ASR world	Cum. rates (percent)		
Lip	12	0.2	0.1	0.2	0.01	0.02	11	0.1	0.1	0.1	0.01	0.01	C00
Tongue	256	3.6	2.0	3.2	0.21	0.41	59	0.7	0.5	0.8	0.06	0.10	C01-02
Mouth	220	3.1	1.7	2.7	0.21	0.34	515	6.2	4.5	7.5	0.53	0.94	C03-06
Salivary glands	35	0.5	0.3	0.4	0.02	0.04	28	0.3	0.2	0.3	0.02	0.03	C07-08
Tonsil	86	1.2	0.7	1.1	0.08	0.13	21	0.3	0.2	0.3	0.02	0.04	C09
Other oropharynx	75	1.0	0.6	0.9	0.07	0.10	13	0.2	0.1	0.2	0.01	0.02	C10
Nasopharynx	41	0.6	0.3	0.4	0.03	0.04	26	0.3	0.2	0.3	0.02	0.03	C11
Hypopharynx	418	5.8	3.3	5.5	0.36	0.69	101	1.2	0.9	1.4	0.11	0.16	C12-13
Pharynx unspecified	62	0.9	0.5	0.8	0.05	0.09	24	0.3	0.2	0.3	0.02	0.05	C14
Oesophagus	630	8.8	5.0	8.2	0.53	1.03	480	5.8	4.2	7.1	0.45	0.94	C15
Stomach	673	9.4	5.4	8.6	0.53	1.05	335	4.0	2.9	4.6	0.29	0.58	C16
Small intestine	13	0.2	0.1	0.1	0.01	0.02	7	0.1	0.1	0.1	0.01	0.01	C17
Colon	175	2.4	1.4	2.1	0.13	0.26	127	1.5	1.1	1.8	0.13	0.22	C18
Rectum	205	2.8	1.6	2.4	0.15	0.27	170	2.1	1.5	2.2	0.15	0.28	C19-20
Anus	37	0.5	0.3	0.4	0.03	0.04	34	0.4	0.3	0.5	0.04	0.06	C21
Liver	208	2.9	1.7	2.7	0.16	0.36	82	1.0	0.7	1.1	0.07	0.13	C22
Gallbladder etc.	46	0.6	0.4	0.6	0.03	0.07	50	0.6	0.4	0.7	0.05	0.08	C23-24
Pancreas	92	1.3	0.7	1.2	0.08	0.14	48	0.6	0.4	0.7	0.05	0.09	C25
Nose, sinuses etc.	38	0.5	0.3	0.5	0.03	0.05	29	0.4	0.3	0.4	0.04	0.05	C30-31
Larynx	288	4.0	2.3	3.7	0.24	0.49	38	0.5	0.3	0.5	0.03	0.06	C32
Trachea, bronchus and lung	511	7.1	4.1	6.7	0.42	0.90	113	1.4	1.0	1.7	0.10	0.20	C33-34
Other thoracic organs	39	0.5	0.3	0.4	0.03	0.05	16	0.2	0.1	0.2	0.01	0.02	C37-38
Bone	82	1.1	0.7	0.7	0.04	0.07	72	0.9	0.6	0.7	0.04	0.07	C40-41
Melanoma of skin	28	0.4	0.2	0.3	0.02	0.04	20	0.2	0.2	0.3	0.02	0.03	C43
Other skin	106		0.8	1.3	0.07	0.14	89		0.8	1.2	0.07	0.15	C44
Mesothelioma	7	0.1	0.1	0.1	0.01	0.01	0	0.0	0.0	0.0	0.00	0.00	C45
Kaposi sarcoma	1	0.0	0.0	0.0	0.00	0.00	2	0.0	0.0	0.0	0.00	0.00	C46
Connective and soft tissue	98	1.4	0.8	1.0	0.06	0.10	59	0.7	0.5	0.6	0.04	0.06	C47+C49
Breast	17	0.2	0.1	0.2	0.01	0.03	1638	19.8	14.4	21.1	1.66	2.40	C50
Vulva							38	0.5	0.3	0.5	0.03	0.06	C51
Vagina							51	0.6	0.4	0.7	0.05	0.09	C52
Cervix uteri							1765	21.3	15.5	23.5	1.88	2.71	C53
Corpus uteri							174	2.1	1.5	2.5	0.19	0.30	C54
Uterus unspecified							39	0.5	0.3	0.5	0.04	0.05	C55
Ovary							401	4.8	3.5	5.1	0.38	0.59	C56
Other female genital organs							7	0.1	0.1	0.1	0.01	0.01	C57
Placenta							10	0.1	0.1	0.1	0.00	0.00	C58
Penis	82	1.1	0.7	1.0	0.07	0.11							C60
Prostate	272	3.8	2.2	3.8	0.11	0.47							C61
Testis	71	1.0	0.6	0.6	0.04	0.05							C62
Other male genital organs	20	0.3	0.2	0.2	0.02	0.03							C63
Kidney	107	1.5	0.9	1.3	0.08	0.14	36	0.4	0.3	0.5	0.03	0.05	C64
Renal pelvis	1	0.0	0.0	0.0	0.00	0.00	1	0.0	0.0	0.0	0.00	0.00	C65
Ureter	1	0.0	0.0	0.0	0.00	0.00	0	0.0	0.0	0.0	0.00	0.00	C66
Bladder	172	2.4	1.4	2.3	0.10	0.29	57	0.7	0.5	0.9	0.05	0.10	C67
Other urinary organs	2	0.0	0.0	0.0	0.00	0.00	3	0.0	0.0	0.0	0.00	0.00	C68
Eye	21	0.3	0.2	0.2	0.01	0.01	16	0.2	0.1	0.2	0.01	0.01	C69
Brain, nervous system	255	3.5	2.0	2.6	0.19	0.27	157	1.9	1.4	1.6	0.12	0.15	C70-72
Thyroid	91	1.3	0.7	0.9	0.06	0.09	239	2.9	2.1	2.7	0.19	0.28	C73
Adrenal gland	5	0.1	0.0	0.1	0.00	0.00	8	0.1	0.1	0.1	0.01	0.01	C74
Other endocrine	2	0.0	0.0	0.0	0.00	0.00	4	0.0	0.0	0.0	0.00	0.00	C75
Hodgkin disease	121	1.7	1.0	1.1	0.08	0.10	59	0.7	0.5	0.6	0.04	0.06	C81
Non-Hodgkin lymphoma	267	3.7	2.1	2.9	0.17	0.33	155	1.9	1.4	2.0	0.13	0.22	C82-85,C96
Immunoproliferative diseases	0	0.0	0.0	0.0	0.00	0.00	0	0.0	0.0	0.0	0.00	0.00	C88
Multiple myeloma	80	1.1	0.6	1.0	0.06	0.14	48	0.6	0.4	0.7	0.04	0.10	C90
Lymphoid leukaemia	127	1.8	1.0	1.2	0.06	0.09	67	0.8	0.6	0.7	0.04	0.05	C91
Myeloid leukaemia	178	2.5	1.4	1.6	0.12	0.15	146	1.8	1.3	1.6	0.11	0.17	C92-94
Leukaemia unspecified	38	0.5	0.3	0.3	0.02	0.02	30	0.4	0.3	0.3	0.02	0.03	C95
Other and unspecified	889	12.4	7.1	10.8	0.67	1.28	652	7.9	5.7	9.1	0.60	1.11	O&U
All sites	7301		58.1	88.3	5.46	10.57	8370		73.5	110.7	8.03	12.98	ALL
All sites but C44	7195	100.0	57.2	87.1	5.39	10.43	8281	100.0	72.7	109.5	7.96	12.83	ALLbC44

§Includes 24 cases of unknown age

§Includes 30 cases of unknown age

India, Chennai (Madras)

Registration area

Chennai (Madras), the capital of the state of Tamilnadu, is situated at sea level on the eastern coast of peninsular India at latitude 13°N and longitude 80°E. Literacy is 82% (males 88%, females 75%). Tamil is the most common language. The majority of the population are Hindus (84%) followed by Muslims (9%), Christians (6%) and other religious groups (1%). It covers an area of 170 km² and a population (entirely urban) of 4.1 million on 1 July 1995, 0.5% of the total population of India and 6.9% of the state of Tamilnadu. The population density is 22 077 persons per km².

Cancer care facilities

General health care is provided predominantly by the government health services supplemented by private practitioners and hospitals. Cancer care facilities include the Cancer Institute (WIA) which is recognized as the Regional Cancer Centre by the Government of India, offering all diagnostic, treatment and research facilities. Radiation therapy is available in three medical college hospitals and four private hospitals. Surgical and chemotherapeutic services are offered in many government and private hospitals and nursing homes.

Registry structure and methods

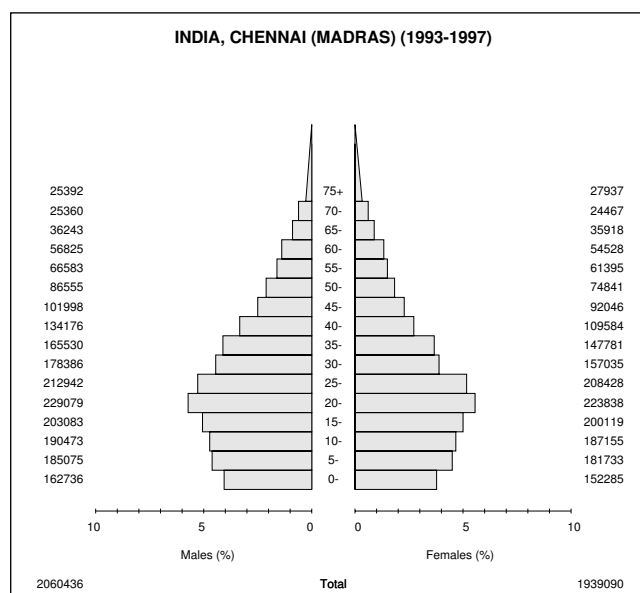
The Madras Metropolitan Tumour Registry has been based at the Cancer Institute (WIA), Chennai (formerly Madras) since 1981 and is partly funded by the National Cancer Registry Programme (NCRP) of the Indian Council of Medical Research. Besides a principal and a co-investigator, it has 16 staff members comprising one medical officer, two statisticians, one computer programmer, eleven social/field investigators and one data entry operator.

Cancer is not a notifiable disease in India. Case-finding is active. The registry social investigators visit more than 200 sources to collect morbidity data: government and private hospitals, nursing homes, clinics, consultants, radiotherapy centres, pathology laboratories and imaging centres. Mortality information is collected from the Vital Statistics Division of the Corporation of Chennai. Data are collected by interviewing the case wherever possible and/or from medical records using a standard proforma. The criteria for inclusion of cases in the registry is that the cases should have been residing in Chennai for at least a year at the time of first diagnosis of cancer. This helps to avoid registering cases from a floating population. The base institution accounts for 17% of the total cancer cases registered, government hospitals (30) 51% and private institutions (185) for 29%. Systematic trace-back of cancer cases first identified through a death certificate, in the form of visits to relevant houses and hospitals, is carried out for cases registered since 1983. Registry operations are constantly monitored with emphasis on the quality of data collected which includes re-screening of cases at possible sources, re-abstraction and coding of a random sample of cases and validity checks for unlikely combinations of age, sex, site and morphology.

Until 1991, data were collected from death certificates mentioning cancer as cause of death, from the Vital Statistics Division of Corporation of Chennai. Since 1992, information on all deaths that occur in the city of Chennai, irrespective of cause, is abstracted and computerized in the registry. This mortality database is matched against the morbidity database. This has resulted in improving the mortality data registration in the registry.

Use of the data

Reports on cancer incidence and mortality are regularly prepared highlighting the trends and changes. A survey conducted to assess the completeness of coverage of the registry in two randomly selected areas of Chennai with a population of 32 000 subjects indicated that no cancer case has been missed from registration. Special studies on survival from the top ten cancers in Chennai have been published.



Source of population

Estimates based on the 1991 census and 2001 provisional census results, using exponential growth rate for every five-year age interval.

Refs: Census of India, 1991. Social and Cultural Tables part Iva, Table C6, Series 23. Directorate of census operations, Tamilnadu, India. Census of India, 2001. Provisional Population Totals, Paper 1 of 2001, Directorate of Census Operations, Tamil Nadu, India.

Notes on the tables

The estimated population data used in Volume VII were not accurate, resulting in an artificial decrease in incidence between the two time periods, and the data should not be used for time-trend analysis.

INDIA, CHENNAI (MADRAS) (1993-1997)

SITE	MALE						FEMALE						ICD-10
	No. cases	Freq. (%)	Crude rate (per 100,000)	ASR world	Cum. rates (percent)		No. cases	Freq. (%)	Crude rate (per 100,000)	ASR world	Cum. rates (percent)		
Lip	25	0.3	0.2	0.3	0.03	0.04	14	0.2	0.1	0.2	0.02	0.03	C00
Tongue	420	5.0	4.1	5.6	0.38	0.72	122	1.3	1.3	1.7	0.11	0.22	C01-02
Mouth	504	6.0	4.9	6.6	0.43	0.84	396	4.4	4.1	5.4	0.38	0.66	C03-06
Salivary glands	47	0.6	0.5	0.5	0.04	0.06	25	0.3	0.3	0.3	0.02	0.04	C07-08
Tonsil	99	1.2	1.0	1.3	0.09	0.16	17	0.2	0.2	0.2	0.02	0.03	C09
Other oropharynx	75	0.9	0.7	1.0	0.07	0.11	15	0.2	0.2	0.2	0.01	0.03	C10
Nasopharynx	67	0.8	0.7	0.8	0.05	0.08	33	0.4	0.3	0.3	0.03	0.03	C11
Hypopharynx	388	4.6	3.8	5.0	0.35	0.61	143	1.6	1.5	1.9	0.14	0.23	C12-13
Pharynx unspecified	62	0.7	0.6	0.8	0.04	0.09	10	0.1	0.1	0.1	0.01	0.01	C14
Oesophagus	658	7.9	6.4	8.7	0.59	1.09	451	5.0	4.7	6.1	0.45	0.75	C15
Stomach	1039	12.4	10.1	13.6	0.87	1.70	506	5.6	5.2	6.7	0.48	0.79	C16
Small intestine	17	0.2	0.2	0.2	0.01	0.01	10	0.1	0.1	0.1	0.01	0.01	C17
Colon	150	1.8	1.5	1.9	0.12	0.21	132	1.5	1.4	1.8	0.11	0.22	C18
Rectum	204	2.4	2.0	2.6	0.15	0.29	144	1.6	1.5	1.9	0.13	0.22	C19-20
Anus	44	0.5	0.4	0.5	0.03	0.06	32	0.4	0.3	0.4	0.03	0.05	C21
Liver	218	2.6	2.1	2.8	0.18	0.37	80	0.9	0.8	1.1	0.07	0.13	C22
Gallbladder etc.	46	0.5	0.4	0.6	0.03	0.08	78	0.9	0.8	1.1	0.07	0.13	C23-24
Pancreas	148	1.8	1.4	1.9	0.12	0.21	61	0.7	0.6	0.8	0.06	0.11	C25
Nose, sinuses etc.	64	0.8	0.6	0.8	0.05	0.08	32	0.4	0.3	0.5	0.03	0.06	C30-31
Larynx	358	4.3	3.5	4.7	0.33	0.59	39	0.4	0.4	0.5	0.04	0.07	C32
Trachea, bronchus and lung	850	10.2	8.3	11.1	0.77	1.41	172	1.9	1.8	2.3	0.17	0.29	C33-34
Other thoracic organs	22	0.3	0.2	0.2	0.02	0.02	8	0.1	0.1	0.1	0.01	0.01	C37-38
Bone	76	0.9	0.7	0.7	0.05	0.06	56	0.6	0.6	0.5	0.04	0.04	C40-41
Melanoma of skin	30	0.4	0.3	0.4	0.02	0.04	22	0.2	0.2	0.3	0.02	0.03	C43
Other skin	118		1.1	1.6	0.08	0.19	84		0.9	1.1	0.07	0.12	C44
Mesothelioma	6	0.1	0.1	0.1	0.01	0.01	1	0.0	0.0	0.0	0.00	0.00	C45
Kaposi sarcoma	0	0.0	0.0	0.0	0.00	0.00	1	0.0	0.0	0.0	0.00	0.00	C46
Connective and soft tissue	87	1.0	0.8	0.9	0.06	0.10	86	0.9	0.9	1.0	0.07	0.10	C47+C49
Breast	22	0.3	0.2	0.3	0.02	0.04	1891	20.8	19.5	23.9	1.84	2.70	C50
Vulva							43	0.5	0.4	0.6	0.03	0.08	C51
Vagina							66	0.7	0.7	0.9	0.07	0.10	C52
Cervix uteri							2358	25.9	24.3	30.1	2.48	3.37	C53
Corpus uteri							180	2.0	1.9	2.5	0.16	0.30	C54
Uterus unspecified							47	0.5	0.5	0.7	0.05	0.08	C55
Ovary							448	4.9	4.6	5.5	0.45	0.61	C56
Other female genital organs							7	0.1	0.1	0.1	0.01	0.01	C57
Placenta							18	0.2	0.2	0.1	0.01	0.01	C58
Penis	149	1.8	1.4	1.8	0.13	0.22							C60
Prostate	321	3.8	3.1	4.9	0.14	0.52							C61
Testis	73	0.9	0.7	0.7	0.05	0.06							C62
Other male genital organs	10	0.1	0.1	0.1	0.01	0.02							C63
Kidney	87	1.0	0.8	1.1	0.07	0.12	51	0.6	0.5	0.7	0.04	0.07	C64
Renal pelvis	1	0.0	0.0	0.0	0.00	0.00	0	0.0	0.0	0.0	0.00	0.00	C65
Ureter	4	0.0	0.0	0.0	0.00	0.00	1	0.0	0.0	0.0	0.00	0.00	C66
Bladder	198	2.4	1.9	2.7	0.14	0.32	71	0.8	0.7	1.0	0.05	0.13	C67
Other urinary organs	3	0.0	0.0	0.0	0.00	0.00	3	0.0	0.0	0.0	0.00	0.00	C68
Eye	29	0.3	0.3	0.4	0.02	0.02	17	0.2	0.2	0.2	0.01	0.01	C69
Brain, nervous system	280	3.3	2.7	3.0	0.22	0.29	152	1.7	1.6	1.7	0.12	0.16	C70-72
Thyroid	85	1.0	0.8	1.1	0.07	0.14	145	1.6	1.5	1.6	0.11	0.16	C73
Adrenal gland	8	0.1	0.1	0.1	0.00	0.00	11	0.1	0.1	0.2	0.01	0.01	C74
Other endocrine	4	0.0	0.0	0.0	0.00	0.00	1	0.0	0.0	0.0	0.00	0.00	C75
Hodgkin disease	126	1.5	1.2	1.3	0.08	0.10	42	0.5	0.4	0.5	0.03	0.04	C81
Non-Hodgkin lymphoma	299	3.6	2.9	3.4	0.23	0.36	181	2.0	1.9	2.2	0.15	0.26	C82-85,C96
Immunoproliferative diseases	0	0.0	0.0	0.0	0.00	0.00	0	0.0	0.0	0.0	0.00	0.00	C88
Multiple myeloma	74	0.9	0.7	1.0	0.06	0.12	38	0.4	0.4	0.5	0.03	0.06	C90
Lymphoid leukaemia	164	2.0	1.6	1.8	0.10	0.11	82	0.9	0.8	1.0	0.05	0.07	C91
Myeloid leukaemia	142	1.7	1.4	1.5	0.09	0.15	126	1.4	1.3	1.4	0.10	0.14	C92-94
Leukaemia unspecified	47	0.6	0.5	0.6	0.03	0.05	24	0.3	0.2	0.3	0.02	0.03	C95
Other and unspecified	541	6.5	5.3	7.0	0.46	0.79	414	4.5	4.3	5.4	0.37	0.62	O&U
All sites	8489		82.4	108.0	6.92	12.69	9187		94.8	118.0	8.75	13.45	ALL
All sites but C44	8371	100.0	81.3	106.4	6.84	12.50	9103	100.0	93.9	116.9	8.68	13.33	ALLbC44

India, Delhi

Registration area

The union territory of Delhi covers an area of 1483 km² between the Himalayas and the Aravalli range in the heart of the Indian sub-continent. It lies between 28° and 28° N and 76° and 73° E, and is bounded on the north, west and south by Haryana and on the East by Uttar Pradesh. The urban area covered by the registry is 685.34 km².

The population of Delhi urban area was around nine and a half million on 1 March 1991, 54.7% male and 45.3% female, with a population density of 12 361 inhabitants per km². The area of Delhi UT Urban is 685.34 km².

Registry structure and methods

The registry, located in the Institute Rotary Cancer Hospital (IRCH), All India Institute of Medical Sciences (AIIMS), has been in existence since January 1986. It has been receiving financial assistance from the Indian Council of Medical Research (ICMR), New Delhi on a five-year de-escalating budget basis.

The registry uses active case finding from 155 major sources of data consisting of cancer hospitals, general hospitals, teaching hospitals, Government/private hospitals, more than 250 private nursing homes and the Department of Vital Statistics, of the Delhi Municipal Corporation, New Delhi Municipal Committee and the Cantonment Board.

The registry is staffed by a pathologist (director), a physician, two statisticians, nine medical social workers, and two clerks. The social workers are trained in techniques for interviewing cancer patients, registration methodology and cancer epidemiology.

Although cancer is not a notifiable disease, arrangements have been made with the hospitals outside the registration area to notify the registry of resident cancer cases diagnosed and treated there. The smaller nursing homes/clinics are contacted by letter and they complete a registration form for cancer patients treated in them.

The only follow-up information collected routinely is the date and cause of death. If residential status is unknown, information is obtained by contacting patients by post, telephone or checking the electoral roll.

The death registration system in Delhi is very inadequate and incomplete. Death certificates of cancer patients maintained by the Municipal Corporation of Delhi (Urban), New Delhi Municipal Committee and Delhi Cantonment Board are regularly reviewed and compared with the list of all living patients.

Tata Memorial Hospital, Mumbai has been included as a data source, since a large number of Delhi residents prefer to go to Tata Memorial Hospital for specialized cancer treatment.

Quality control of information is maintained through the use of data processing, editing techniques, case finding audits and reviews of coded and abstracted data. A validity check was carried out on all the variables, and records with missing values and impossible codes were checked against the original files and corrected. Finally, a series of check of site versus histology, site

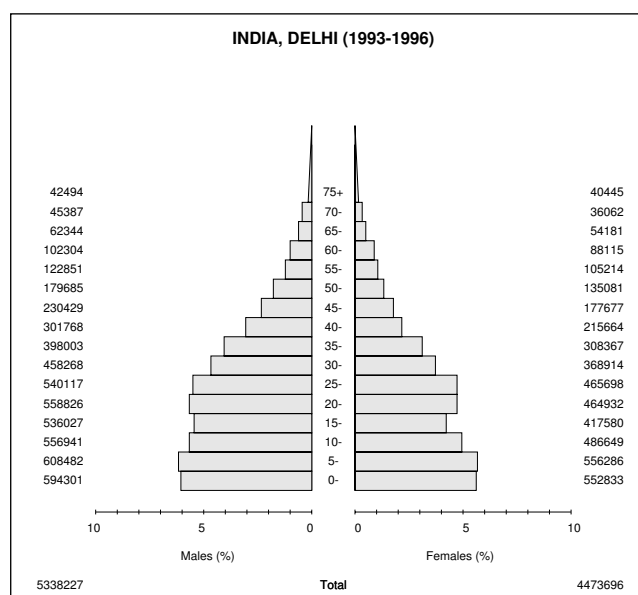
versus sex and site/histology versus age, etc., were carried out to detect the coding or keying errors.

Interpreting the results

Many patients present at an advanced stage of disease and treatment may be commenced without waiting for the results of investigations, resulting in a high proportion of registrations based on clinical diagnosis.

Use of the data

The registry prepares a biennial report on cancer morbidity and mortality, highlighting trends and changes. Case-control studies on gallbladder and prostate cancer are in progress.



Source of population

The estimates of all religions and communities were based on the 1981 and 1991 census figures using exponential growth rate for every five-year age interval.

Refs: Census of India 1991, District Census Handbook; Religion; Provisional population totals, Rural-urban Distribution; Delhi Provisional population Totals. Census of India 1981, Delhi, District Census Handbook, Part XIII-A & B, Village & Town Directory; Report of the Expert Committee on the population projections.

Notes on the data

* The percentage of total cases with unspecified or ill-defined primary site is rather high, as is the proportion of cases registered on the basis of a death certificate alone, suggesting a degree of under-ascertainment.

***INDIA, DELHI (1993-1996)**

SITE	MALE						FEMALE						ICD-10
	§No. cases	Freq. (%)	Crude rate (per 100,000)	ASR world	Cum. rates (percent)		§No. cases	Freq. (%)	Crude rate (per 100,000)	ASR world	Cum. rates (percent)		
Lip	42	0.3	0.2	0.4	0.02	0.05	18	0.1	0.1	0.2	0.01	0.03	C00
Tongue	751	4.8	3.5	6.1	0.45	0.74	189	1.2	1.1	1.8	0.14	0.21	C01-02
Mouth	552	3.5	2.6	4.4	0.28	0.55	266	1.7	1.5	2.6	0.19	0.33	C03-06
Salivary glands	80	0.5	0.4	0.5	0.04	0.06	60	0.4	0.3	0.5	0.04	0.05	C07-08
Tonsil	266	1.7	1.2	2.1	0.16	0.28	51	0.3	0.3	0.5	0.04	0.06	C09
Other oropharynx	88	0.6	0.4	0.7	0.05	0.08	14	0.1	0.1	0.1	0.01	0.02	C10
Nasopharynx	72	0.5	0.3	0.5	0.03	0.06	24	0.2	0.1	0.2	0.01	0.02	C11
Hypopharynx	318	2.0	1.5	2.7	0.19	0.36	52	0.3	0.3	0.4	0.03	0.04	C12-13
Pharynx unspecified	56	0.4	0.3	0.5	0.03	0.08	12	0.1	0.1	0.1	0.01	0.01	C14
Oesophagus	713	4.5	3.3	6.1	0.39	0.78	428	2.8	2.4	4.3	0.30	0.51	C15
Stomach	485	3.1	2.3	3.9	0.25	0.49	257	1.7	1.4	2.4	0.17	0.30	C16
Small intestine	29	0.2	0.1	0.2	0.02	0.03	14	0.1	0.1	0.1	0.01	0.02	C17
Colon	342	2.2	1.6	2.6	0.17	0.30	216	1.4	1.2	2.1	0.14	0.26	C18
Rectum	266	1.7	1.2	2.1	0.12	0.25	170	1.1	0.9	1.5	0.11	0.18	C19-20
Anus	118	0.8	0.6	0.9	0.06	0.10	45	0.3	0.3	0.4	0.03	0.04	C21
Liver	290	1.8	1.4	2.4	0.15	0.29	136	0.9	0.8	1.3	0.09	0.14	C22
Gallbladder etc.	456	2.9	2.1	3.9	0.24	0.49	956	6.2	5.3	9.4	0.68	1.12	C23-24
Pancreas	270	1.7	1.3	2.3	0.14	0.29	170	1.1	0.9	1.7	0.11	0.21	C25
Nose, sinuses etc.	66	0.4	0.3	0.4	0.03	0.04	34	0.2	0.2	0.3	0.02	0.03	C30-31
Larynx	1086	6.9	5.1	9.4	0.64	1.22	135	0.9	0.8	1.4	0.09	0.17	C32
Trachea, bronchus and lung	1521	9.7	7.1	13.4	0.84	1.73	288	1.9	1.6	2.9	0.18	0.36	C33-34
Other thoracic organs	27	0.2	0.1	0.1	0.01	0.01	19	0.1	0.1	0.1	0.01	0.01	C37-38
Bone	313	2.0	1.5	1.5	0.10	0.12	173	1.1	1.0	1.2	0.07	0.12	C40-41
Melanoma of skin	52	0.3	0.2	0.4	0.03	0.04	40	0.3	0.2	0.4	0.02	0.05	C43
Other skin	157		0.7	1.3	0.07	0.16	127		0.7	1.2	0.09	0.12	C44
Mesothelioma	6	0.0	0.0	0.0	0.00	0.01	1	0.0	0.0	0.0	0.00	0.00	C45
Kaposi sarcoma	0	0.0	0.0	0.0	0.00	0.00	0	0.0	0.0	0.0	0.00	0.00	C46
Connective and soft tissue	220	1.4	1.0	1.3	0.09	0.14	167	1.1	0.9	1.1	0.08	0.11	C47+C49
Breast	88	0.6	0.4	0.7	0.04	0.09	3366	21.8	18.8	28.7	2.33	3.14	C50
Vulva							45	0.3	0.3	0.5	0.02	0.07	C51
Vagina							58	0.4	0.3	0.5	0.04	0.06	C52
Cervix uteri							2983	19.3	16.7	25.8	2.13	2.90	C53
Corpus uteri							311	2.0	1.7	3.1	0.21	0.39	C54
Uterus unspecified							101	0.7	0.6	1.0	0.07	0.12	C55
Ovary							1016	6.6	5.7	8.6	0.67	0.95	C56
Other female genital organs							21	0.1	0.1	0.2	0.01	0.02	C57
Placenta							40	0.3	0.2	0.2	0.02	0.02	C58
Penis	142	0.9	0.7	1.1	0.08	0.12							C60
Prostate	642	4.1	3.0	6.8	0.20	0.81							C61
Testis	167	1.1	0.8	0.8	0.06	0.08							C62
Other male genital organs	8	0.1	0.0	0.1	0.00	0.01							C63
Kidney	271	1.7	1.3	2.1	0.14	0.25	131	0.8	0.7	1.1	0.07	0.12	C64
Renal pelvis	10	0.1	0.0	0.1	0.01	0.01	1	0.0	0.0	0.0	0.00	0.00	C65
Ureter	2	0.0	0.0	0.0	0.00	0.00	2	0.0	0.0	0.0	0.00	0.00	C66
Bladder	642	4.1	3.0	5.8	0.30	0.76	133	0.9	0.7	1.4	0.08	0.19	C67
Other urinary organs	6	0.0	0.0	0.0	0.00	0.01	7	0.0	0.0	0.0	0.00	0.00	C68
Eye	86	0.5	0.4	0.5	0.03	0.03	56	0.4	0.3	0.3	0.02	0.02	C69
Brain, nervous system	783	5.0	3.7	4.6	0.32	0.46	438	2.8	2.4	3.1	0.21	0.33	C70-72
Thyroid	139	0.9	0.7	0.9	0.07	0.09	284	1.8	1.6	2.1	0.17	0.25	C73
Adrenal gland	57	0.4	0.3	0.3	0.01	0.02	43	0.3	0.2	0.2	0.01	0.01	C74
Other endocrine	12	0.1	0.1	0.1	0.00	0.01	5	0.0	0.0	0.0	0.00	0.00	C75
Hodgkin disease	332	2.1	1.6	1.7	0.11	0.15	99	0.6	0.6	0.7	0.04	0.07	C81
Non-Hodgkin lymphoma	690	4.4	3.2	4.6	0.29	0.50	328	2.1	1.8	2.8	0.20	0.34	C82-85,C96
Immunoproliferative diseases	0	0.0	0.0	0.0	0.00	0.00	0	0.0	0.0	0.0	0.00	0.00	C88
Multiple myeloma	215	1.4	1.0	1.9	0.12	0.25	110	0.7	0.6	1.1	0.08	0.15	C90
Lymphoid leukaemia	381	2.4	1.8	2.0	0.12	0.16	189	1.2	1.1	1.2	0.06	0.10	C91
Myeloid leukaemia	380	2.4	1.8	2.1	0.14	0.20	264	1.7	1.5	1.7	0.13	0.16	C92-94
Leukaemia unspecified	79	0.5	0.4	0.4	0.02	0.03	40	0.3	0.2	0.2	0.02	0.02	C95
Other and unspecified	2102	13.4	9.8	16.9	1.01	1.99	1411	9.2	7.9	13.1	0.88	1.49	O&U
All sites	15876		74.4	123.7	7.68	14.77	15544		86.9	135.6	10.13	15.40	ALL
All sites but C44	15719	100.0	73.6	122.4	7.61	14.62	15417	100.0	86.2	134.5	10.04	15.28	ALLbC44

§Includes 89 cases of unknown age

§Includes 132 cases of unknown age

India, Karunagappally

Registration area

Karunagappally taluk (a taluk is a governmental local administration unit) is in Kollam District, lies around 9° N latitude, and is about 105 km north of Trivandrum, the capital city of the state of Kerala. The coastal areas of this taluk have monazite-rich sands which emit gamma radiation. The population density is more than 2000 people per km². The registry covers an area of 212 km², of which around 20 km² are lagoons and canals. This largely rural population (99%) is engaged in agriculture, coir making, mat making, brick works, fishing and cashew nut production and processing. As in other parts of Kerala, life expectancy is above 65 years for males and 70 years for females. The literacy rate is more than 85%. Immigration and emigration are believed to be negligible or minimal. About 100 000 people live in the areas of high background radiation.

Kerala is a small southwestern coastal state in India, unique in tropical flora and fauna, and the vital indices of the people differ greatly from those in other parts of the country. The entire state is semi-urban. The state language is Malayalam and English education has been in vogue for the past two centuries.

Cancer care facilities

There are no dedicated cancer hospitals in the area, the nearest cancer centre being the Regional Cancer Centre at Trivandrum, 100 km away.

Registry structure and methods

The Rural Cancer Registry of Karunagappally was established in 1990 as a special purpose registry by the Regional Cancer Centre of Trivandrum, with funding support from the Department of Atomic Energy, Government of India to study cancer occurrence in relation to the high natural background radiation present in the coastal area of Kerala.

Cancer is not a notifiable disease, hence an active case finding method was adopted. Medical records in 47 general hospitals, situated within the taluk (38) and also in the adjoining Kollam town (9), are scrutinized. The Medical College Cancer Registry of Trivandrum, the Regional Cancer Centre and two major pathology laboratories, one in Trivandrum and one in Kottayam, 90 km away, are also visited. To collect cancer deaths, death registration records maintained by the vital statistics division of all 12 panchayats in the taluk and in Kollam municipality are reviewed periodically. The case records of cancer patients (inpatients only) are abstracted from all these above sources and brought to the field office at Vavvakkavu, where they are processed with the assistance of a statistician, sociologist and computer programmers. Death registration appears to be complete but quality is poor. The registry traces back cases found on death reports. Autopsies are extremely rare and performed only in medico-legal cases.

As this is a special purpose cancer registry, information on baseline lifestyle factors is collected. Trained interviewers visit all households and enumerate every individual in the household, collecting information on residence, occupation, lifestyle habits (especially concerning tobacco and alcohol consumption), marital and pregnancy status, and other socio-demographic information. Gamma radiation levels outside and inside each house are recorded by using portable micro r-scintillometers provided by the Bhabha Atomic Research Centre, Mumbai. Attempts are being made to record total dosimetry.

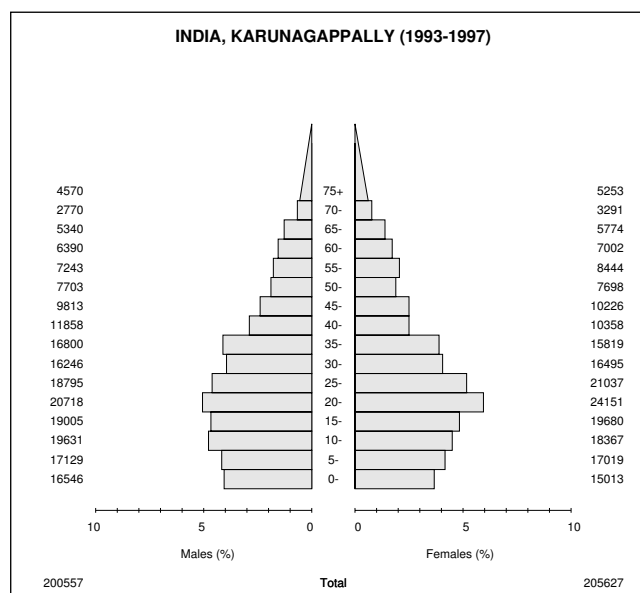
The staff employed are a sociologist, a statistician, two cytotechnicians, three field supervisors, five field interviewers, an office manager, three data entry clerks, two drivers and two assistants.

Interpretation of the results

A project field office with a well-equipped cytology laboratory has increased the microscopically verified percentage of cases. A monthly follow-up clinic for cancer patients in the area is conducted by the project doctors. Apart from these, the results of registry operation has been successful in this rural area because of the availability of a high density population, increased health awareness, high literacy rate and good communication facilities even when the area is devoid of any cancer treatment and detection facility.

Use of the data

The main objective is research on the effect of chronic exposure to high level natural radiation. As Kerala's first rural cancer registry the data also serve for cancer control. Studies are under way to evaluate mortality from and survival rates for different cancers on a community level, as almost 100% follow up is possible.



Source of population

The population at July 1995 was estimated on the basis of the 1991 census.

Ref: Census of India 1991. Final Population Totals: p. 54, Series 12, Kerala. N.M. Samuel, MA LLB, Director of Census Operations, Kerala.

Notes on the data

The estimated population data used in Volume VII were not accurate, resulting in an artificial decrease in incidence between the two time periods, and the data should not be used for time-trends analysis.

* The percentage of cases with primary site unspecified or ill-defined is very high, as is the proportion of cases registered on the basis of a death certificate alone, suggesting a degree of under-ascertainment.

***INDIA, KARUNAGAPPALLY (1993-1997)**

SITE	MALE						FEMALE						ICD-10
	§No. cases	Freq. (%)	Crude rate (per 100,000)	ASR world	Cum. rates 0-64 (percent)	0-74	§No. cases	Freq. (%)	Crude rate (per 100,000)	ASR world	Cum. rates 0-64 (percent)	0-74	
Lip	4	0.5	0.4	0.5	0.03	0.05	2	0.3	0.2	0.2	0.01	0.03	C00
Tongue	38	4.3	3.8	4.5	0.32	0.58	16	2.2	1.6	1.7	0.13	0.20	C01-02
Mouth	58	6.6	5.8	6.6	0.49	0.82	33	4.5	3.2	3.5	0.20	0.50	C03-06
Salivary glands	3	0.3	0.3	0.3	0.02	0.02	2	0.3	0.2	0.2	0.01	0.01	C07-08
Tonsil	4	0.5	0.4	0.5	0.05	0.05	2	0.3	0.2	0.2	0.00	0.02	C09
Other oropharynx	12	1.4	1.2	1.4	0.03	0.19	2	0.3	0.2	0.2	0.01	0.03	C10
Nasopharynx	2	0.2	0.2	0.2	0.01	0.02	1	0.1	0.1	0.1	0.01	0.01	C11
Hypopharynx	19	2.2	1.9	2.1	0.16	0.24	3	0.4	0.3	0.3	0.03	0.03	C12-13
Pharynx unspecified	4	0.5	0.4	0.4	0.03	0.03	0	0.0	0.0	0.0	0.00	0.00	C14
Oesophagus	51	5.8	5.1	6.2	0.38	0.96	23	3.1	2.2	2.5	0.14	0.36	C15
Stomach	42	4.8	4.2	4.8	0.27	0.65	15	2.0	1.5	1.6	0.06	0.27	C16
Small intestine	2	0.2	0.2	0.2	0.00	0.02	0	0.0	0.0	0.0	0.00	0.00	C17
Colon	7	0.8	0.7	0.8	0.05	0.12	10	1.4	1.0	1.0	0.06	0.13	C18
Rectum	17	1.9	1.7	2.1	0.10	0.36	14	1.9	1.4	1.5	0.11	0.17	C19-20
‡Anus	2	0.2	0.2	0.2	0.01	0.03	2	0.3	0.2	0.2	0.00	0.04	C21
Liver	33	3.8	3.3	3.6	0.20	0.43	3	0.4	0.3	0.3	0.00	0.07	C22
Gallbladder etc.	5	0.6	0.5	0.6	0.03	0.09	2	0.3	0.2	0.2	0.02	0.02	C23-24
Pancreas	20	2.3	2.0	2.4	0.19	0.28	10	1.4	1.0	1.1	0.07	0.15	C25
Nose, sinuses etc.	7	0.8	0.7	0.8	0.05	0.09	3	0.4	0.3	0.3	0.00	0.08	C30-31
Larynx	29	3.3	2.9	3.5	0.23	0.47	0	0.0	0.0	0.0	0.00	0.00	C32
Trachea, bronchus and lung	158	18.0	15.8	18.6	1.28	2.53	28	3.8	2.7	3.0	0.22	0.40	C33-34
Other thoracic organs	0	0.0	0.0	0.0	0.00	0.00	0	0.0	0.0	0.0	0.00	0.00	C37-38
Bone	12	1.4	1.2	1.2	0.06	0.12	1	0.1	0.1	0.1	0.01	0.01	C40-41
Melanoma of skin	5	0.6	0.5	0.6	0.07	0.07	1	0.1	0.1	0.1	0.00	0.00	C43
Other skin	14		1.4	1.6	0.10	0.19	7		0.7	0.7	0.03	0.10	C44
Mesothelioma	0	0.0	0.0	0.0	0.00	0.00	0	0.0	0.0	0.0	0.00	0.00	C45
Kaposi sarcoma	0	0.0	0.0	0.0	0.00	0.00	0	0.0	0.0	0.0	0.00	0.00	C46
Connective and soft tissue	7	0.8	0.7	0.7	0.05	0.09	4	0.5	0.4	0.4	0.03	0.03	C47+C49
Breast	1	0.1	0.1	0.1	0.02	0.02	148	20.1	14.4	15.0	1.18	1.50	C50
Vulva							0	0.0	0.0	0.0	0.00	0.00	C51
Vagina							4	0.5	0.4	0.5	0.03	0.07	C52
Cervix uteri							141	19.2	13.7	15.0	1.02	1.88	C53
Corpus uteri							8	1.1	0.8	0.9	0.08	0.09	C54
Uterus unspecified							3	0.4	0.3	0.3	0.03	0.03	C55
Ovary							26	3.5	2.5	2.5	0.22	0.27	C56
Other female genital organs							5	0.7	0.5	0.5	0.03	0.05	C57
Placenta							1	0.1	0.1	0.1	0.01	0.01	C58
Penis	8	0.9	0.8	1.0	0.04	0.15							C60
Prostate	20	2.3	2.0	2.3	0.11	0.31							C61
Testis	3	0.3	0.3	0.2	0.01	0.01							C62
Other male genital organs	0	0.0	0.0	0.0	0.00	0.00							C63
Kidney	4	0.5	0.4	0.5	0.04	0.06	4	0.5	0.4	0.4	0.03	0.03	C64
Renal pelvis	0	0.0	0.0	0.0	0.00	0.00	0	0.0	0.0	0.0	0.00	0.00	C65
Ureter	1	0.1	0.1	0.1	0.00	0.02	0	0.0	0.0	0.0	0.00	0.00	C66
Bladder	25	2.8	2.5	3.0	0.20	0.42	3	0.4	0.3	0.3	0.01	0.03	C67
Other urinary organs	0	0.0	0.0	0.0	0.00	0.00	1	0.1	0.1	0.1	0.01	0.01	C68
Eye	2	0.2	0.2	0.3	0.01	0.01	3	0.4	0.3	0.4	0.02	0.02	C69
Brain, nervous system	20	2.3	2.0	1.9	0.15	0.15	15	2.0	1.5	1.5	0.09	0.12	C70-72
Thyroid	7	0.8	0.7	0.7	0.04	0.06	55	7.5	5.3	4.9	0.36	0.47	C73
Adrenal gland	1	0.1	0.1	0.1	0.01	0.01	0	0.0	0.0	0.0	0.00	0.00	C74
Other endocrine	1	0.1	0.1	0.1	0.01	0.01	1	0.1	0.1	0.1	0.01	0.01	C75
Hodgkin disease	4	0.5	0.4	0.4	0.04	0.04	3	0.4	0.3	0.3	0.00	0.05	C81
Non-Hodgkin lymphoma	39	4.4	3.9	4.4	0.25	0.57	15	2.0	1.5	1.5	0.10	0.15	C82-85,C96
Immunoproliferative diseases	0	0.0	0.0	0.0	0.00	0.00	0	0.0	0.0	0.0	0.00	0.00	C88
Multiple myeloma	12	1.4	1.2	1.4	0.09	0.18	8	1.1	0.8	0.9	0.06	0.11	C90
Lymphoid leukaemia	18	2.0	1.8	2.1	0.13	0.13	7	1.0	0.7	0.8	0.05	0.05	C91
Myeloid leukaemia	11	1.3	1.1	1.2	0.05	0.12	8	1.1	0.8	0.8	0.06	0.08	C92-94
Leukaemia unspecified	3	0.3	0.3	0.3	0.02	0.04	2	0.3	0.2	0.2	0.02	0.02	C95
Other and unspecified	159	18.1	15.9	18.1	1.10	2.37	97	13.2	9.4	9.7	0.50	1.21	O&U
All sites	894		89.2	102.6	6.56	13.19	742		72.2	76.0	5.09	8.92	ALL
All sites but C44	880	100.0	87.8	101.0	6.46	13.00	735	100.0	71.5	75.3	5.06	8.82	ALLbC44

§Includes 8 cases of unknown age
‡50.0% of cases are anorectal tumours

§Includes 4 cases of unknown age
‡50.0% of cases are anorectal tumours

India, Mumbai (Bombay)

Registration area

The Mumbai (Bombay) Registry covers the resident population of Greater Mumbai, a densely populated metropolis on the west coast of India, occupying an area of 437.7 km², situated between latitudes 18° and 19° N, and longitudes 70° and 71° E. Greater Mumbai is, in fact, an island, joined to the mainland by bridges, and has a warm, humid climate.

The city is the industrial heart of India. As a result of continuing immigration, it has a multireligious and multilingual population representing every state in the Union, approximately 68.0% being Hindus, 16.8% Muslims, 4.5% Christians (mostly Hindu converts), 5.6 Neo-Buddhists and 3.4% Jains (an ultra-conservative Hindu sect), 0.8% Parsis (Zoroastrians) and 0.5% Sikhs.

Cancer care facilities

The majority of hospitals in Mumbai are maintained by the Municipal Corporation and State Government. The major source of data is the Tata Memorial Centre, which is a postgraduate university teaching centre for cancer research. The city has five medical colleges. The diagnosis and treatment of cancer is centralized in certain hospitals. Major cancer surgery is undertaken in all the major hospitals and well equipped private nursing homes. Facilities for cobalt-60 therapy are available in seven hospitals, while ortho-voltage deep X-ray therapy is available in 15 hospitals.

A total of about 25 000 hospital beds is available in the registration area.

Registry structure and methods

The Mumbai Cancer Registry was established in June 1963 as a unit of the Indian Cancer Society at Mumbai, with the aim of obtaining reliable morbidity and mortality data on cancer from a precisely defined urban population. Compilation of data began in 1964. Until then, no continuing activity on registration of cancer cases in a population had been undertaken anywhere in India. The project started in collaboration with and received financial support up to 1975 from the Biometry Branch of the US National Cancer Institute. During 1976–80 the project received financial support from the Department of Science and Technology, of the Government of India at New Delhi and the Indian Cancer Society. Since 1981–82, the registry has been funded in part by the Indian Council of Medical Research.

Information is obtained on all cancer patients registered in 150 government hospitals/institutions and private hospitals or nursing homes in Mumbai who are under the care of specialists (surgeons, physicians, pathologists, radiologists and gynaecologists).

General medical practitioners are not contacted individually as, according to local practice, only specialists assume charge of cancer patients in private hospitals and nursing homes and even the few patients who are not admitted for hospital care are at some stage referred to specialists.

Staff members of the registry visit the wards of all cooperating hospitals at least once a week, to personally interview each cancer patient as well as those suspected of having cancer. All files maintained by the various departments of these hospitals are cross-checked individually. Care is taken to prevent duplication of an entry relating to a patient already registered.

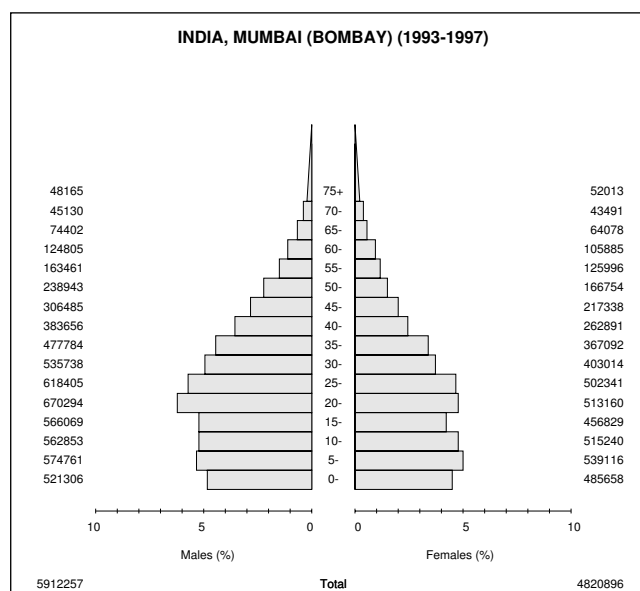
With the exception of the Tata Memorial Hospital for cancer, hospital outpatient records are not included in the registry files, because of a paucity of clinical details and lack of specific information on the residential status of patients attending these clinics.

Supplementary information is gleaned from the death records maintained by the Municipal corporation.

The registry records follow-up information for almost all major sites.

Use of the data

The registry publishes annual reports, and has published numerous journal articles and monographs. The data are also used by public health workers for etiological and cancer control studies. As the oldest registry in the country, the registry is a rich source of data for studying time trends in cancer incidence and mortality.



Source of population

Annual estimates are based on the 1981 and 1991 census reports, assuming a geometric rate of growth for each age-group and sex, and eliminating migrants with duration of residence less than one year.

Refs: Census of India 1981, Maharashtra, Social and Cultural Tables; Migration Tables, Director of Census Operations, 1986. Census of India 1991, Provisional Population Tables, Director of Census Operations, 1991. Migrants in Greater Bombay, KC Zachariah, Asia Publishing House, Bombay, 1968.

Notes on the data

The estimated population data used in Volume VII were not accurate, resulting in an artificial decrease in incidence between the two time periods, and the data should not be used for time-trend analysis.

† C67 does not include non-invasive tumours.

INDIA, MUMBAI (BOMBAY) (1993-1997)

SITE	MALE						FEMALE						ICD-10
	§No. cases	Freq. (%)	Crude rate (per 100,000)	ASR world	Cum. rates		§No. cases	Freq. (%)	Crude rate (per 100,000)	ASR world	Cum. rates		
					0-64	0-74					0-64	0-74	
Lip	58	0.3	0.2	0.3	0.02	0.03	41	0.2	0.2	0.3	0.02	0.03	C00
Tongue	1056	5.2	3.6	5.7	0.35	0.71	361	1.9	1.5	2.4	0.15	0.28	C01-02
Mouth	1134	5.6	3.8	5.7	0.39	0.69	646	3.3	2.7	4.3	0.28	0.52	C03-06
Salivary glands	100	0.5	0.3	0.5	0.03	0.06	59	0.3	0.2	0.3	0.02	0.03	C07-08
Tonsil	318	1.6	1.1	1.7	0.11	0.21	38	0.2	0.2	0.3	0.01	0.04	C09
Other oropharynx	143	0.7	0.5	0.8	0.05	0.10	18	0.1	0.1	0.1	0.01	0.02	C10
Nasopharynx	105	0.5	0.4	0.5	0.03	0.06	48	0.2	0.2	0.3	0.02	0.03	C11
Hypopharynx	989	4.9	3.3	5.9	0.34	0.76	272	1.4	1.1	1.8	0.11	0.21	C12-13
Pharynx unspecified	210	1.0	0.7	1.3	0.06	0.15	51	0.3	0.2	0.3	0.02	0.03	C14
Oesophagus	1363	6.7	4.6	8.4	0.43	1.02	941	4.9	3.9	6.6	0.36	0.78	C15
Stomach	1063	5.2	3.6	6.3	0.33	0.80	511	2.6	2.1	3.4	0.21	0.40	C16
Small intestine	61	0.3	0.2	0.3	0.02	0.04	27	0.1	0.1	0.2	0.01	0.02	C17
Colon	609	3.0	2.1	3.4	0.18	0.41	458	2.4	1.9	3.1	0.17	0.38	C18
Rectum	499	2.5	1.7	2.8	0.14	0.35	315	1.6	1.3	2.1	0.12	0.25	C19-20
Anus	74	0.4	0.3	0.4	0.03	0.05	61	0.3	0.3	0.4	0.03	0.04	C21
Liver	662	3.3	2.2	3.9	0.21	0.48	285	1.5	1.2	2.0	0.10	0.25	C22
Gallbladder etc.	287	1.4	1.0	1.7	0.10	0.21	392	2.0	1.6	2.7	0.16	0.32	C23-24
Pancreas	418	2.1	1.4	2.5	0.13	0.33	269	1.4	1.1	1.9	0.10	0.23	C25
Nose, sinuses etc.	159	0.8	0.5	0.8	0.05	0.10	90	0.5	0.4	0.6	0.04	0.07	C30-31
Larynx	1138	5.6	3.8	7.0	0.36	0.90	182	0.9	0.8	1.2	0.07	0.15	C32
Trachea, bronchus and lung	1928	9.5	6.5	12.1	0.61	1.59	554	2.9	2.3	3.8	0.22	0.46	C33-34
Other thoracic organs	90	0.4	0.3	0.5	0.02	0.06	55	0.3	0.2	0.3	0.02	0.03	C37-38
Bone	227	1.1	0.8	0.8	0.05	0.08	120	0.6	0.5	0.6	0.03	0.06	C40-41
Melanoma of skin	55	0.3	0.2	0.3	0.02	0.03	37	0.2	0.2	0.2	0.02	0.02	C43
Other skin	284		1.0	1.6	0.08	0.16	191		0.8	1.3	0.06	0.18	C44
Mesothelioma	23	0.1	0.1	0.1	0.01	0.02	9	0.0	0.0	0.1	0.00	0.01	C45
Kaposi sarcoma	1	0.0	0.0	0.0	0.00	0.00	3	0.0	0.0	0.0	0.00	0.00	C46
Connective and soft tissue	293	1.4	1.0	1.3	0.09	0.13	188	1.0	0.8	1.0	0.07	0.11	C47+C49
Breast	58	0.3	0.2	0.3	0.02	0.04	4744	24.5	19.7	28.9	2.06	3.33	C50
Vulva							70	0.4	0.3	0.5	0.02	0.05	C51
Vagina							105	0.5	0.4	0.7	0.05	0.08	C52
Cervix uteri							2848	14.7	11.8	17.1	1.28	2.00	C53
Corpus uteri							418	2.2	1.7	2.9	0.20	0.37	C54
Uterus unspecified							145	0.7	0.6	1.0	0.06	0.14	C55
Ovary							1337	6.9	5.5	8.0	0.57	0.91	C56
Other female genital organs							19	0.1	0.1	0.1	0.01	0.01	C57
Placenta							38	0.2	0.2	0.1	0.01	0.01	C58
Penis	223	1.1	0.8	1.2	0.07	0.14							C60
Prostate	960	4.7	3.2	7.4	0.15	0.89							C61
Testis	227	1.1	0.8	0.8	0.05	0.07							C62
Other male genital organs	21	0.1	0.1	0.1	0.01	0.02							C63
Kidney	360	1.8	1.2	2.0	0.11	0.25	169	0.9	0.7	1.1	0.06	0.12	C64
Renal pelvis	7	0.0	0.0	0.0	0.00	0.01	2	0.0	0.0	0.0	0.00	0.00	C65
Ureter	8	0.0	0.0	0.1	0.00	0.01	7	0.0	0.0	0.1	0.00	0.01	C66
†Bladder	692	3.4	2.3	4.6	0.19	0.53	180	0.9	0.7	1.3	0.06	0.14	C67
Other urinary organs	5	0.0	0.0	0.0	0.00	0.00	3	0.0	0.0	0.0	0.00	0.00	C68
Eye	45	0.2	0.2	0.2	0.01	0.01	31	0.2	0.1	0.2	0.01	0.01	C69
Brain, nervous system	820	4.0	2.8	3.5	0.23	0.35	458	2.4	1.9	2.3	0.16	0.23	C70-72
Thyroid	150	0.7	0.5	0.8	0.04	0.08	388	2.0	1.6	2.0	0.14	0.22	C73
Adrenal gland	44	0.2	0.1	0.2	0.01	0.02	37	0.2	0.2	0.2	0.01	0.01	C74
Other endocrine	11	0.1	0.0	0.0	0.00	0.00	12	0.1	0.0	0.1	0.00	0.00	C75
Hodgkin disease	225	1.1	0.8	0.8	0.06	0.07	94	0.5	0.4	0.5	0.03	0.05	C81
Non-Hodgkin lymphoma	920	4.5	3.1	4.5	0.25	0.52	518	2.7	2.1	3.3	0.19	0.38	C82-85, C96
Immunoproliferative diseases	0	0.0	0.0	0.0	0.00	0.00	0	0.0	0.0	0.0	0.00	0.00	C88
Multiple myeloma	186	0.9	0.6	1.2	0.06	0.16	153	0.8	0.6	1.1	0.06	0.15	C90
Lymphoid leukaemia	469	2.3	1.6	2.0	0.10	0.15	236	1.2	1.0	1.1	0.06	0.09	C91
Myeloid leukaemia	466	2.3	1.6	1.9	0.12	0.18	339	1.7	1.4	1.8	0.12	0.18	C92-94
Leukaemia unspecified	118	0.6	0.4	0.5	0.03	0.05	93	0.5	0.4	0.5	0.03	0.05	C95
Other and unspecified	1271	6.2	4.3	7.3	0.39	0.92	899	4.6	3.7	6.1	0.33	0.73	O&U
All sites	20633		69.8	116.3	6.14	14.00	19565		81.2	122.4	7.93	14.24	ALL
All sites but C44	20349	100.0	68.8	114.8	6.06	13.84	19374	100.0	80.4	121.0	7.86	14.07	ALLbC44

‡Includes 21 cases of unknown age

§Includes 34 cases of unknown age

†See note following population pyramid

India, Nagpur

Registration area

Western Maharashtra, Vidarbha and Marathwada are three geographical divisions of Maharashtra State. Nagpur City is the headquarters of the Vidarbha region. The city of Nagpur is located in the centre of the Indian sub-continent and is linked by air with all parts of the world and by rail and road with all parts of the country. Its configuration presents a unique combination of plateau, plain, hill and dale along the Nag Stream following west-east. Nagpur City has an extremely hot climate in May and moderately cold in winter. The lowest temperature reached is 3.9° C in January and the maximum recorded is 47.8° C in May. The main precipitation occurs during the monsoon which begins around mid-June and lasts until mid-October. The average annual rainfall is about 1130 mm. Nagpur City receives its water supply from the Ambazari and Gorewara Tanks. Nagpur lies on latitude 21° N and longitude 79° E.

Nagpur City covers 236.93 km², with a population of 1.62 millions (1991 census). The density of population is 7230 per km² and the area supports a multi-religious group, with 71.4% Hindus, 9.8% Muslims, 1.2% Christians and 16.1% Neo-Buddhists.

Nagpur City is of historical importance. There is a mythological reference that the God Ram traversed this region en route to the hermitage of Saint Shrutikrishna. He is supposed to have reposed on the Ramtek Hill which has the name of Ramgiri, where a very beautiful poem "Meghdoot" was composed and written by the famous Sanskrit poet Kalidas. Buddhist ruins and archaeological remains show that this region was under-developed until the 18th century, although it was ruled by the dynasties such as the Vakataka Rajputs, Rashtrakuts, the Parmars, the Shails, and the semi-aboriginal nomadic Gaolies who occupied it from the 6th to 16th centuries.

Registry structure and methods

The Nagpur Cancer Registry Division of the Indian Cancer Society became operative on 1 January 1980 as a collaborative effort with Nagpur Medical College, with the aim of obtaining reliable morbidity and mortality data on cancer from a precisely defined urban population.

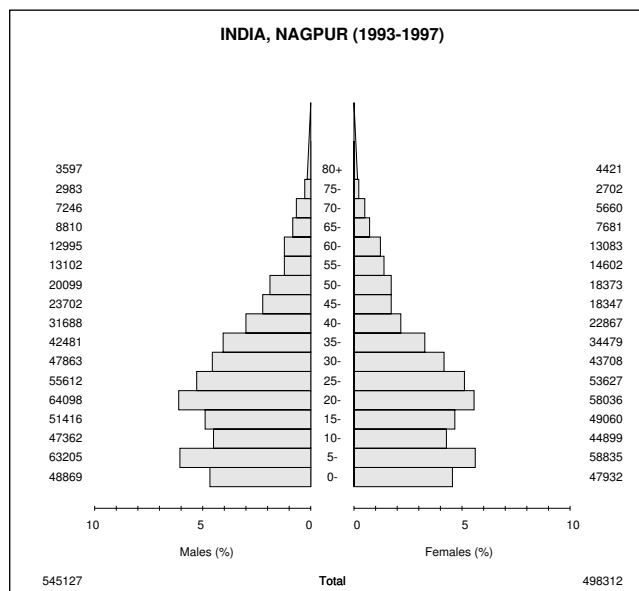
Information is obtained on all cancer patients registered at eight major hospitals and 20 nursing homes in Nagpur, and from the Tata Memorial Hospital and other leading hospitals in Mumbai, as patients from Nagpur go to hospitals in Mumbai for treatment because of the excellent medical facilities there. General medical practitioners are not contacted individually. The death record maintained by Nagpur Municipal Corporation provides a way of checking on missed cases.

Data are maintained on registry proformas and computer files. Duplication of cases is checked by using a comprehensive alphabetical index card system and by computer programs. Data analysis is carried out at Mumbai Cancer Registry.

The registry does not record follow-up information.

Use of the data

The registry publishes a report every five years. The data are also used by public health workers for etiological and cancer control studies.



Source of population

The population on 1 July 1995 was estimated on the basis of the 1981 and 1991 census reports, assuming a geometric rate of growth for each age-group and sex and corrected by removing migrants whose duration of residence was less than one year.

Refs: Census of India 1981, series 12, Maharashtra, Social and Cultural Tables, Part IV-A, Director of Census Operations. Census of India, Series 12, Maharashtra, Migration Tables Part V-A & B, Director of Census Operations, 1986. Census of India 1991, Series 14, Maharashtra, Provisional Population Totals, Paper 2, Director of Census Operations, 1991. Migrants in Greater Bombay, K.C. Zachariah, Asia Publishing House, Bombay, 1968.

Notes on the data

* The proportion of diagnoses with primary site unknown or unspecified is high, as is the proportion of cases with morphological confirmation, suggesting a degree of under-ascertainment.

***INDIA, NAGPUR (1993-1997)**

SITE	MALE						FEMALE						ICD-10
	§No. cases	Freq. (%)	Crude rate (per 100,000)	ASR world	Cum. rates (percent)		§No. cases	Freq. (%)	Crude rate (per 100,000)	ASR world	Cum. rates (percent)		
Lip	8	0.3	0.3	0.5	0.04	0.05	6	0.3	0.2	0.3	0.04	0.04	C00
Tongue	108	4.7	4.0	5.9	0.44	0.71	28	1.3	1.1	1.6	0.09	0.20	C01-02
Mouth	121	5.3	4.4	6.1	0.51	0.68	65	3.0	2.6	3.8	0.31	0.45	C03-06
Salivary glands	12	0.5	0.4	0.6	0.04	0.07	13	0.6	0.5	0.7	0.05	0.05	C07-08
Tonsil	37	1.6	1.4	2.0	0.15	0.25	7	0.3	0.3	0.4	0.03	0.05	C09
Other oropharynx	19	0.8	0.7	1.0	0.07	0.14	4	0.2	0.2	0.2	0.02	0.04	C10
Nasopharynx	5	0.2	0.2	0.2	0.02	0.02	5	0.2	0.2	0.3	0.03	0.03	C11
Hypopharynx	105	4.6	3.9	6.1	0.44	0.71	13	0.6	0.5	0.6	0.03	0.06	C12-13
Pharynx unspecified	17	0.7	0.6	1.0	0.05	0.11	7	0.3	0.3	0.4	0.02	0.05	C14
Oesophagus	200	8.7	7.3	11.4	0.82	1.34	142	6.5	5.7	8.7	0.53	1.10	C15
Stomach	90	3.9	3.3	4.8	0.36	0.50	62	2.8	2.5	3.8	0.23	0.45	C16
Small intestine	1	0.0	0.0	0.1	0.00	0.00	0	0.0	0.0	0.0	0.00	0.00	C17
Colon	58	2.5	2.1	2.9	0.20	0.34	46	2.1	1.8	2.6	0.20	0.30	C18
Rectum	46	2.0	1.7	2.3	0.16	0.25	27	1.2	1.1	1.6	0.10	0.19	C19-20
Anus	17	0.7	0.6	0.9	0.07	0.09	7	0.3	0.3	0.4	0.02	0.05	C21
Liver	37	1.6	1.4	1.9	0.15	0.19	11	0.5	0.4	0.6	0.04	0.05	C22
Gallbladder etc.	13	0.6	0.5	0.7	0.06	0.06	11	0.5	0.4	0.7	0.05	0.09	C23-24
Pancreas	21	0.9	0.8	1.0	0.09	0.12	13	0.6	0.5	0.8	0.04	0.09	C25
Nose, sinuses etc.	11	0.5	0.4	0.5	0.04	0.05	10	0.5	0.4	0.6	0.04	0.11	C30-31
Larynx	173	7.6	6.3	9.7	0.64	1.23	16	0.7	0.6	0.9	0.05	0.13	C32
Trachea, bronchus and lung	150	6.5	5.5	8.4	0.57	1.03	21	1.0	0.8	1.3	0.09	0.15	C33-34
Other thoracic organs	4	0.2	0.1	0.2	0.01	0.01	4	0.2	0.2	0.2	0.01	0.03	C37-38
Bone	33	1.4	1.2	1.3	0.07	0.11	16	0.7	0.6	0.6	0.04	0.04	C40-41
Melanoma of skin	4	0.2	0.1	0.2	0.02	0.02	8	0.4	0.3	0.4	0.04	0.05	C43
Other skin	26		1.0	1.3	0.11	0.15	18		0.7	1.1	0.07	0.12	C44
Mesothelioma	0	0.0	0.0	0.0	0.00	0.00	0	0.0	0.0	0.0	0.00	0.00	C45
Kaposi sarcoma	0	0.0	0.0	0.0	0.00	0.00	0	0.0	0.0	0.0	0.00	0.00	C46
Connective and soft tissue	45	2.0	1.7	2.1	0.14	0.21	38	1.7	1.5	1.7	0.12	0.17	C47+C49
Breast	19	0.8	0.7	0.9	0.06	0.10	459	21.0	18.4	24.2	1.95	2.50	C50
Vulva							6	0.3	0.2	0.4	0.02	0.06	C51
Vagina							11	0.5	0.4	0.6	0.04	0.08	C52
Cervix uteri							416	19.1	16.7	23.2	1.83	2.61	C53
Corpus uteri							47	2.2	1.9	2.6	0.20	0.27	C54
Uterus unspecified							5	0.2	0.2	0.3	0.02	0.03	C55
Ovary							195	8.9	7.8	9.6	0.73	0.94	C56
Other female genital organs							0	0.0	0.0	0.0	0.00	0.00	C57
Placenta							4	0.2	0.2	0.2	0.01	0.01	C58
Penis	32	1.4	1.2	1.6	0.12	0.20							C60
Prostate	58	2.5	2.1	3.4	0.14	0.36							C61
Testis	47	2.1	1.7	2.0	0.16	0.18							C62
Other male genital organs	2	0.1	0.1	0.1	0.01	0.02							C63
Kidney	24	1.0	0.9	1.1	0.10	0.12	14	0.6	0.6	0.7	0.05	0.05	C64
Renal pelvis	0	0.0	0.0	0.0	0.00	0.00	0	0.0	0.0	0.0	0.00	0.00	C65
Ureter	0	0.0	0.0	0.0	0.00	0.00	0	0.0	0.0	0.0	0.00	0.00	C66
Bladder	47	2.1	1.7	2.5	0.13	0.28	19	0.9	0.8	1.2	0.06	0.14	C67
Other urinary organs	0	0.0	0.0	0.0	0.00	0.00	2	0.1	0.1	0.1	0.01	0.02	C68
Eye	6	0.3	0.2	0.3	0.01	0.01	9	0.4	0.4	0.4	0.02	0.02	C69
Brain, nervous system	99	4.3	3.6	3.9	0.28	0.37	51	2.3	2.0	2.3	0.15	0.20	C70-72
Thyroid	12	0.5	0.4	0.6	0.05	0.07	39	1.8	1.6	2.0	0.15	0.22	C73
Adrenal gland	3	0.1	0.1	0.1	0.01	0.01	1	0.0	0.0	0.0	0.00	0.00	C74
Other endocrine	1	0.0	0.0	0.0	0.00	0.00	1	0.0	0.0	0.1	0.01	0.01	C75
Hodgkin disease	34	1.5	1.2	1.4	0.09	0.13	15	0.7	0.6	0.7	0.04	0.05	C81
Non-Hodgkin lymphoma	65	2.8	2.4	2.8	0.19	0.27	33	1.5	1.3	1.7	0.12	0.17	C82-85,C96
Immunoproliferative diseases	0	0.0	0.0	0.0	0.00	0.00	0	0.0	0.0	0.0	0.00	0.00	C88
Multiple myeloma	23	1.0	0.8	1.3	0.10	0.16	18	0.8	0.7	1.1	0.05	0.15	C90
Lymphoid leukaemia	63	2.7	2.3	2.5	0.15	0.17	24	1.1	1.0	1.0	0.04	0.08	C91
Myeloid leukaemia	47	2.1	1.7	2.0	0.14	0.20	29	1.3	1.2	1.2	0.09	0.09	C92-94
Leukaemia unspecified	14	0.6	0.5	0.5	0.04	0.04	11	0.5	0.4	0.5	0.03	0.06	C95
Other and unspecified	360	15.7	13.2	18.2	1.24	2.06	192	8.8	7.7	10.3	0.71	1.11	O&U
All sites	2317		85.0	118.4	8.30	13.16	2199		88.3	118.8	8.61	12.97	ALL
All sites but C44	2291	100.0	84.1	117.1	8.19	13.01	2181	100.0	87.5	117.7	8.54	12.85	ALLbC44

§Includes 32 cases of unknown age

§Includes 40 cases of unknown age

India, Poona

Registration area

Poona is a district of Maharashtra state lying between 17° and 19° N and 70° and 75° E. It has a dry and invigorating climate due to its altitude (487 m) above sea level, and the prevalence of westerly breezes. Its soil is free from alluvial deposits. The lowest temperature is 9° C in January and the maximum reaches 40° C in May. The main precipitation occurs during the southwest monsoon, which begins around the middle of June and lasts until mid-October. The average rainfall is about 900 mm. Poona City receives its water supply from Khadakwasala dam nearby.

The Poona City Agglomeration covers 344.18 km², with a population of 2.36 million (1991 census). The population density in 1991 was 6854 per km² and the area supports a multi-religious group. According to the 1991 census, 78.4% are Hindus, 8.8% are Muslims, 3.3% are Christians, 6.8% Neo-Buddhists, 1.9% Jains.

Poona City is of great historical importance. It was once the capital of the old Maratha Kingdom of Shivaji and the Peshwas. It has been renowned for its educational facilities since the early part of the century. Being the district headquarters, medical and educational facilities are available in abundance and many important industries have lately been established in the city and its surroundings.

Cancer care facilities

A total number of 9864 hospital beds is available in the registry area. The Tata Memorial Centre in Mumbai is the only specialized cancer institute in India, and patients from Poona often seek treatment there. There are 30 hospitals in Poona.

Cancer registry and structure

The Poona Cancer Registry, a satellite registry of the Mumbai Cancer Registry, commenced operations on 1 March 1973 as a collaborative effort with BJ Medical College and the Sassoon Hospital at Poona, with the aim of obtaining reliable morbidity and mortality data on cancer in a precisely defined urban population.

Information is obtained on all cancer patients attending the 30 hospitals in Poona, and from the Tata Memorial Hospital and other leading hospitals in Mumbai where patients from Poona go for treatment because of the excellent medical facilities. General medical practitioners are not contacted individually, because according to local practice, only specialists are in charge of cancer patients in private hospitals and nursing homes in Poona city, and even those patients not admitted for hospital care, are referred at some stage to a specialist by the general practitioners. The death records maintained by the Poona Municipal Corporation provide a means for checking on missed cases.

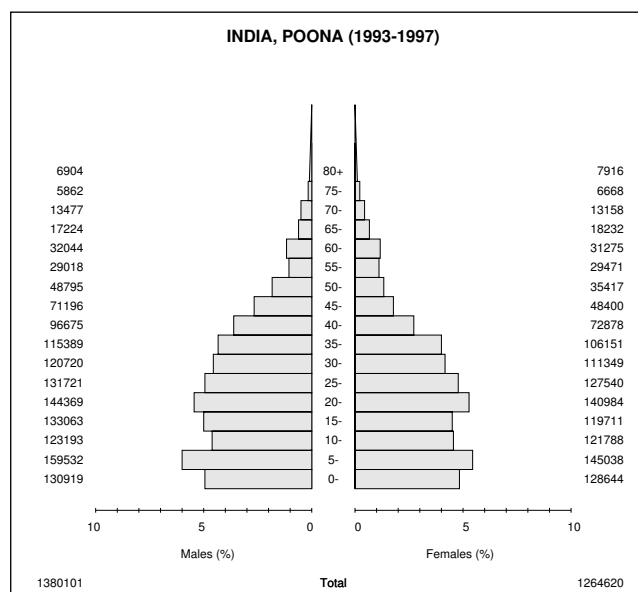
Staff members of the registry visit the wards of all cooperating hospitals at least once a week, to personally interview each cancer patient, including those only suspected of having cancer. All files maintained by the various departments of these hospitals are also cross-checked individually.

Editing, coding and analysis of the data is carried out at Mumbai Cancer Registry. Data are maintained on computer files. Duplicates are sought using computer programmes and a comprehensive alphabetical cross index.

No patient is followed up directly by the registry staff.

Use of the data

A five-yearly report based on cancer morbidity and mortality is published regularly, and six have been published to date. The data have also been used for special studies in cancer epidemiology.



Source of population

The population on 1 July 1995 was estimated on the basis of the 1981 and 1991 census reports, assuming a geometric rate of growth for each age-group and sex and corrected by removing migrants whose duration of residence was less than one year.

Refs: Census of India 1981, series 12, Maharashtra, Social and Cultural Tables, Part IV-A, Director of Census Operations. Census of India, Series 12, Maharashtra, Migration Tables Part V-A & B, Director of Census Operations, 1986. Census of India 1991, Series 14, Maharashtra, Provisional Population Totals, Paper 2, Director of Census Operations, 1991. Migrants in Greater Bombay, K.C. Zachariah, Asia Publishing House, Bombay, 1968.

Notes on the data

* The proportion of diagnoses with primary site unknown or unspecified is high, as is the proportion of cases with morphological confirmation, suggesting a degree of under-ascertainment.

***INDIA, POONA (1993-1997)**

SITE	MALE						FEMALE						ICD-10
	§No. cases	Freq. (%)	Crude rate (per 100,000)	ASR world	Cum. rates (percent)		§No. cases	Freq. (%)	Crude rate (per 100,000)	ASR world	Cum. rates (percent)		
Lip	39	0.9	0.6	0.9	0.06	0.10	12	0.2	0.2	0.3	0.02	0.05	C00
Tongue	156	3.6	2.3	3.6	0.24	0.42	68	1.4	1.1	1.7	0.13	0.22	C01-02
Mouth	350	8.0	5.1	7.8	0.61	0.91	206	4.3	3.3	5.0	0.39	0.58	C03-06
Salivary glands	28	0.6	0.4	0.6	0.04	0.07	12	0.2	0.2	0.2	0.02	0.03	C07-08
Tonsil	44	1.0	0.6	1.1	0.06	0.15	15	0.3	0.2	0.4	0.02	0.04	C09
Other oropharynx	26	0.6	0.4	0.6	0.04	0.06	5	0.1	0.1	0.1	0.00	0.02	C10
Nasopharynx	24	0.5	0.3	0.6	0.03	0.07	5	0.1	0.1	0.1	0.01	0.02	C11
Hypopharynx	133	3.0	1.9	3.4	0.18	0.46	49	1.0	0.8	1.2	0.08	0.14	C12-13
Pharynx unspecified	26	0.6	0.4	0.7	0.03	0.08	9	0.2	0.1	0.2	0.01	0.02	C14
Oesophagus	316	7.2	4.6	8.2	0.42	0.98	247	5.1	3.9	6.5	0.34	0.80	C15
Stomach	257	5.9	3.7	6.5	0.33	0.78	113	2.4	1.8	3.0	0.18	0.32	C16
Small intestine	8	0.2	0.1	0.2	0.01	0.02	6	0.1	0.1	0.2	0.02	0.02	C17
Colon	135	3.1	2.0	3.3	0.18	0.34	102	2.1	1.6	2.6	0.15	0.30	C18
Rectum	106	2.4	1.5	2.5	0.12	0.31	77	1.6	1.2	1.9	0.11	0.21	C19-20
Anus	23	0.5	0.3	0.6	0.03	0.07	14	0.3	0.2	0.4	0.02	0.04	C21
Liver	164	3.7	2.4	4.1	0.24	0.48	52	1.1	0.8	1.3	0.08	0.16	C22
Gallbladder etc.	41	0.9	0.6	1.0	0.05	0.13	49	1.0	0.8	1.3	0.09	0.15	C23-24
Pancreas	102	2.3	1.5	2.6	0.11	0.35	56	1.2	0.9	1.6	0.06	0.20	C25
Nose, sinuses etc.	48	1.1	0.7	1.2	0.06	0.16	25	0.5	0.4	0.6	0.03	0.09	C30-31
Larynx	295	6.7	4.3	7.6	0.44	1.01	51	1.1	0.8	1.3	0.08	0.15	C32
Trachea, bronchus and lung	299	6.8	4.3	7.5	0.42	0.99	118	2.5	1.9	3.1	0.17	0.40	C33-34
Other thoracic organs	12	0.3	0.2	0.2	0.02	0.02	11	0.2	0.2	0.3	0.02	0.04	C37-38
Bone	58	1.3	0.8	1.0	0.06	0.09	53	1.1	0.8	0.9	0.06	0.08	C40-41
Melanoma of skin	11	0.3	0.2	0.2	0.01	0.02	11	0.2	0.2	0.3	0.01	0.03	C43
Other skin	61		0.9	1.3	0.08	0.14	50		0.8	1.2	0.07	0.14	C44
Mesothelioma	1	0.0	0.0	0.0	0.00	0.00	1	0.0	0.0	0.0	0.00	0.01	C45
Kaposi sarcoma	0	0.0	0.0	0.0	0.00	0.00	0	0.0	0.0	0.0	0.00	0.00	C46
Connective and soft tissue	77	1.8	1.1	1.4	0.08	0.13	73	1.5	1.2	1.5	0.09	0.13	C47+C49
Breast	23	0.5	0.3	0.5	0.04	0.06	1142	23.8	18.1	26.9	1.91	3.02	C50
Vulva							15	0.3	0.2	0.4	0.02	0.04	C51
Vagina							53	1.1	0.8	1.4	0.09	0.17	C52
Cervix uteri							986	20.5	15.6	22.5	1.73	2.57	C53
Corpus uteri							93	1.9	1.5	2.4	0.18	0.28	C54
Uterus unspecified							28	0.6	0.4	0.8	0.03	0.10	C55
Ovary							289	6.0	4.6	7.0	0.49	0.83	C56
Other female genital organs							4	0.1	0.1	0.1	0.01	0.01	C57
Placenta							4	0.1	0.1	0.0	0.00	0.00	C58
Penis	74	1.7	1.1	1.6	0.09	0.22							C60
Prostate	229	5.2	3.3	6.6	0.19	0.71							C61
Testis	37	0.8	0.5	0.6	0.04	0.06							C62
Other male genital organs	2	0.0	0.0	0.0	0.00	0.00							C63
Kidney	69	1.6	1.0	1.7	0.11	0.17	36	0.7	0.6	0.9	0.05	0.10	C64
Renal pelvis	1	0.0	0.0	0.0	0.00	0.00	0	0.0	0.0	0.0	0.00	0.00	C65
Ureter	1	0.0	0.0	0.0	0.00	0.00	0	0.0	0.0	0.0	0.00	0.00	C66
Bladder	137	3.1	2.0	3.5	0.18	0.44	59	1.2	0.9	1.5	0.08	0.18	C67
Other urinary organs	0	0.0	0.0	0.0	0.00	0.00	0	0.0	0.0	0.0	0.00	0.00	C68
Eye	7	0.2	0.1	0.1	0.00	0.00	5	0.1	0.1	0.1	0.00	0.00	C69
Brain, nervous system	194	4.4	2.8	3.5	0.24	0.35	119	2.5	1.9	2.5	0.18	0.25	C70-72
Thyroid	33	0.8	0.5	0.8	0.05	0.09	55	1.1	0.9	1.1	0.07	0.11	C73
Adrenal gland	15	0.3	0.2	0.2	0.01	0.01	4	0.1	0.1	0.1	0.00	0.01	C74
Other endocrine	3	0.1	0.0	0.0	0.00	0.00	0	0.0	0.0	0.0	0.00	0.00	C75
Hodgkin disease	79	1.8	1.1	1.2	0.09	0.10	27	0.6	0.4	0.6	0.03	0.05	C81
Non-Hodgkin lymphoma	191	4.4	2.8	3.9	0.23	0.45	92	1.9	1.5	2.1	0.12	0.25	C82-85,C96
Immunoproliferative diseases	0	0.0	0.0	0.0	0.00	0.00	0	0.0	0.0	0.0	0.00	0.00	C88
Multiple myeloma	41	0.9	0.6	1.0	0.07	0.13	27	0.6	0.4	0.7	0.05	0.10	C90
Lymphoid leukaemia	86	2.0	1.2	1.6	0.08	0.13	33	0.7	0.5	0.6	0.03	0.05	C91
Myeloid leukaemia	91	2.1	1.3	1.5	0.10	0.15	72	1.5	1.1	1.4	0.09	0.14	C92-94
Leukaemia unspecified	28	0.6	0.4	0.5	0.02	0.06	18	0.4	0.3	0.3	0.02	0.04	C95
Other and unspecified	260	5.9	3.8	6.2	0.37	0.73	204	4.2	3.2	5.1	0.27	0.57	O&U
All sites	4441		64.4	103.9	5.87	12.20	4855		76.8	115.3	7.73	13.25	ALL
All sites but C44	4380	100.0	63.5	102.6	5.79	12.06	4805	100.0	76.0	114.2	7.67	13.11	ALLbC44

§Includes 25 cases of unknown age

§Includes 27 cases of unknown age

India, Trivandrum

Registration area

The Cancer Registry of Trivandrum is situated in Kerala, the most south-westerly state of India. This area has a middle class population and the three major religions Hindu, Christian and Muslim are well represented. In spite of a census defining the area as mixed urban and rural, it is relatively homogeneous. There are mainly government offices and educational institutions, and very few industries, in the region. The population has a literacy rate of more than 95%.

Cancer care facilities;

The regional Cancer Centre, Trivandrum, is a comprehensive cancer control facility and offers state of the art diagnostic and therapeutic facilities. The Medical College Hospitals and major private hospitals also provide medical care in the region. Radiotherapy is only available in the Cancer Centre and other hospitals mainly provide the surgical support.

Registry structure and methods

The registry is housed in the Cancer Epidemiology & Clinical Research Division of the Regional Cancer Centre, Trivandrum. Part of the financial support is from IARC. It is staffed by a cancer epidemiologist, a coordinator, and two field investigators, and the staff of the Hospital Cancer Registry of the Cancer Centre also provide support in data processing.

Case-finding is active and information is collected by visiting the major hospitals which cater to the area. The Medical College and the Regional Cancer Centre both have histopathology services. The registry covers 70 hospitals and five pathology laboratories. The major source of cancer cases for the registry is the Hospital Cancer Registry, which has been functioning at the Regional Cancer Centre in Trivandrum since 1982. This centre has excellent diagnostic and treatment facilities. Patients come from all parts of Kerala and also from adjoining areas of Tamil Nadu.

Other data sources include government and private hospitals, pathology laboratories and radiological diagnostic centres. All deaths identified by the registry are matched with the Hospital Cancer Registry database consisting of all cases from 1982.

For government and private hospitals, nursing homes, pathologists and radiologists, an introductory letter was sent describing the basic purpose of the registry and requesting their cooperation in the collection of data on cancer patients.

Death certificates are compiled in the vital statistics offices and the records of this office are accessible. These offices also register deaths in the community which are not certified by a medical practitioner. Personal identification details are available, but there are no unique identification numbers which can be used for linkage. The deaths in the area specified as 'cancer deaths' are believed to be under-registered. Autopsy is not regularly practised in the area except for medico-legal purposes.

Cancer is not a notifiable disease in the region. There are some problems with confidentiality, but these are usually overcome as the approach is through a hospital or registered medical practitioner.

A dedicated computer program was developed in-house for checking consistency of data and generating tables

Interpreting the results

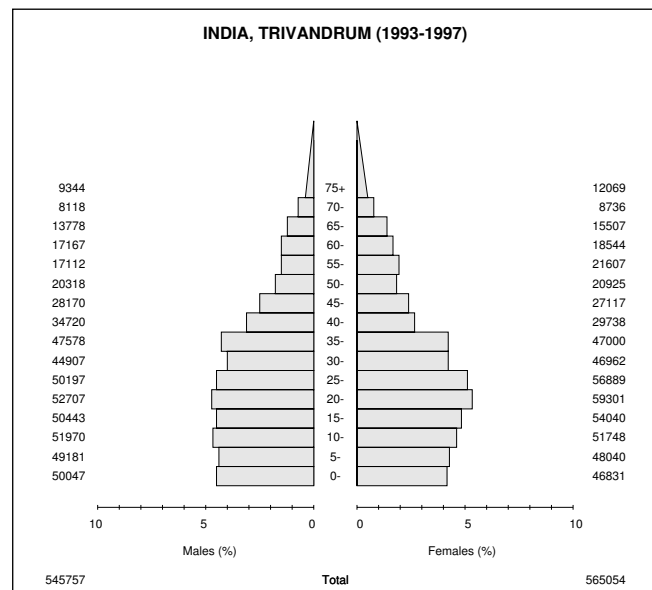
Diagnostic services did not change dramatically over the period of reporting. The Trivandrum Oral Cancer Screening project is in the registry area and increased case finding in the project might affect the oral cancer incidence in the years to come.

PSA testing is widely available in the registry area and seems to have affected the incidence of prostate cancer.

Use of the data

Regular reports on cancer incidence are produced. Population-based survival data were recently analysed for the first time.

The registry acts as the surveillance system for the Trivandrum Oral Cancer Screening Project. The registry data are also used for planning and evaluation of health service delivery in cancer in the area.



Source of population

Post-censal estimates using the exponential growth method based on the 1981 and 1991 census figures.

Ref. Census of India, Reports 1981, 1991. Final population totals, Director of Census Operations, Kerala, India.

Notes on the data

The estimated population data used in Volume VII were not accurate, resulting in an artificial decrease in incidence between the two time periods, and the data should not be used for time-trends analysis.

* The proportion of diagnoses with primary site unknown or unspecified is high, and rates are low for some sites, suggesting a degree of under-ascertainment.

***INDIA, TRIVANDRUM (1993-1997)**

SITE	MALE						FEMALE						ICD-10
	§No. cases	Freq. (%)	Crude rate (per 100,000)	ASR world	Cum. rates (percent)		§No. cases	Freq. (%)	Crude rate (per 100,000)	ASR world	Cum. rates (percent)		
Lip	11	0.6	0.4	0.5	0.03	0.05	9	0.4	0.3	0.4	0.02	0.05	C00
Tongue	124	6.3	4.5	5.4	0.38	0.66	70	3.4	2.5	2.7	0.17	0.34	C01-02
Mouth	207	10.5	7.6	9.3	0.66	1.13	118	5.7	4.2	4.7	0.25	0.56	C03-06
Salivary glands	13	0.7	0.5	0.5	0.02	0.05	10	0.5	0.4	0.4	0.02	0.05	C07-08
Tonsil	19	1.0	0.7	0.8	0.06	0.09	8	0.4	0.3	0.3	0.02	0.05	C09
Other oropharynx	48	2.4	1.8	2.2	0.17	0.28	2	0.1	0.1	0.1	0.00	0.01	C10
Nasopharynx	14	0.7	0.5	0.6	0.05	0.06	6	0.3	0.2	0.2	0.02	0.02	C11
Hypopharynx	46	2.3	1.7	2.1	0.12	0.25	7	0.3	0.2	0.3	0.02	0.04	C12-13
Pharynx unspecified	1	0.1	0.0	0.0	0.00	0.00	0	0.0	0.0	0.0	0.00	0.00	C14
Oesophagus	70	3.5	2.6	3.1	0.15	0.41	20	1.0	0.7	0.8	0.06	0.11	C15
Stomach	81	4.1	3.0	3.6	0.20	0.47	40	1.9	1.4	1.6	0.07	0.20	C16
Small intestine	5	0.3	0.2	0.2	0.02	0.02	2	0.1	0.1	0.1	0.00	0.01	C17
Colon	42	2.1	1.5	1.8	0.12	0.18	31	1.5	1.1	1.2	0.07	0.15	C18
Rectum	51	2.6	1.9	2.2	0.13	0.27	39	1.9	1.4	1.6	0.12	0.21	C19-20
‡Anus	1	0.1	0.0	0.0	0.00	0.01	5	0.2	0.2	0.2	0.01	0.01	C21
Liver	57	2.9	2.1	2.4	0.18	0.28	23	1.1	0.8	0.9	0.04	0.13	C22
Gallbladder etc.	5	0.3	0.2	0.2	0.02	0.03	4	0.2	0.1	0.2	0.01	0.02	C23-24
Pancreas	40	2.0	1.5	1.7	0.11	0.22	22	1.1	0.8	0.9	0.07	0.10	C25
Nose, sinuses etc.	9	0.5	0.3	0.4	0.02	0.04	8	0.4	0.3	0.3	0.02	0.04	C30-31
Larynx	93	4.7	3.4	4.2	0.30	0.52	3	0.1	0.1	0.1	0.01	0.01	C32
Trachea, bronchus and lung	197	9.9	7.2	9.0	0.65	1.22	33	1.6	1.2	1.3	0.09	0.15	C33-34
Other thoracic organs	6	0.3	0.2	0.2	0.02	0.02	4	0.2	0.1	0.2	0.02	0.02	C37-38
Bone	17	0.9	0.6	0.6	0.04	0.06	14	0.7	0.5	0.5	0.03	0.03	C40-41
Melanoma of skin	16	0.8	0.6	0.7	0.03	0.08	3	0.1	0.1	0.1	0.00	0.00	C43
Other skin	37		1.4	1.6	0.11	0.18	25		0.9	1.0	0.05	0.11	C44
Mesothelioma	0	0.0	0.0	0.0	0.00	0.00	0	0.0	0.0	0.0	0.00	0.00	C45
Kaposi sarcoma	0	0.0	0.0	0.0	0.00	0.00	0	0.0	0.0	0.0	0.00	0.00	C46
Connective and soft tissue	22	1.1	0.8	0.9	0.06	0.10	16	0.8	0.6	0.6	0.04	0.09	C47+C49
Breast	3	0.2	0.1	0.1	0.00	0.01	504	24.4	17.8	19.7	1.56	2.12	C50
Vulva							5	0.2	0.2	0.2	0.02	0.02	C51
Vagina							8	0.4	0.3	0.3	0.03	0.03	C52
Cervix uteri							271	13.1	9.6	10.9	0.85	1.28	C53
Corpus uteri							56	2.7	2.0	2.3	0.17	0.27	C54
Uterus unspecified							4	0.2	0.1	0.1	0.01	0.01	C55
Ovary							116	5.6	4.1	4.5	0.33	0.46	C56
Other female genital organs							3	0.1	0.1	0.1	0.01	0.01	C57
Placenta							1	0.0	0.0	0.0	0.00	0.00	C58
Penis	19	1.0	0.7	0.8	0.06	0.10							C60
Prostate	88	4.4	3.2	4.0	0.16	0.44							C61
Testis	13	0.7	0.5	0.4	0.03	0.03							C62
Other male genital organs	0	0.0	0.0	0.0	0.00	0.00							C63
Kidney	27	1.4	1.0	1.2	0.08	0.14	10	0.5	0.4	0.4	0.02	0.05	C64
Renal pelvis	0	0.0	0.0	0.0	0.00	0.00	1	0.0	0.0	0.0	0.01	0.01	C65
Ureter	0	0.0	0.0	0.0	0.00	0.00	0	0.0	0.0	0.0	0.00	0.00	C66
Bladder	44	2.2	1.6	2.0	0.11	0.25	11	0.5	0.4	0.4	0.02	0.06	C67
Other urinary organs	1	0.1	0.0	0.0	0.00	0.01	2	0.1	0.1	0.1	0.01	0.01	C68
Eye	2	0.1	0.1	0.1	0.01	0.01	2	0.1	0.1	0.1	0.00	0.01	C69
Brain, nervous system	60	3.0	2.2	2.4	0.18	0.21	52	2.5	1.8	1.8	0.14	0.18	C70-72
Thyroid	46	2.3	1.7	1.8	0.13	0.18	152	7.4	5.4	5.1	0.41	0.45	C73
Adrenal gland	5	0.3	0.2	0.2	0.01	0.02	3	0.1	0.1	0.1	0.01	0.01	C74
Other endocrine	0	0.0	0.0	0.0	0.00	0.00	2	0.1	0.1	0.1	0.01	0.01	C75
Hodgkin disease	20	1.0	0.7	0.8	0.06	0.06	6	0.3	0.2	0.2	0.01	0.02	C81
Non-Hodgkin lymphoma	64	3.2	2.3	2.6	0.19	0.28	56	2.7	2.0	2.2	0.12	0.28	C82-85,C96
Immunoproliferative diseases	0	0.0	0.0	0.0	0.00	0.00	0	0.0	0.0	0.0	0.00	0.00	C88
Multiple myeloma	25	1.3	0.9	1.1	0.07	0.14	25	1.2	0.9	1.0	0.06	0.15	C90
Lymphoid leukaemia	47	2.4	1.7	1.9	0.10	0.11	31	1.5	1.1	1.2	0.05	0.12	C91
Myeloid leukaemia	36	1.8	1.3	1.4	0.10	0.13	42	2.0	1.5	1.5	0.11	0.14	C92-94
Leukaemia unspecified	11	0.6	0.4	0.5	0.03	0.04	7	0.3	0.2	0.3	0.02	0.02	C95
Other and unspecified	274	13.8	10.0	12.0	0.76	1.34	197	9.5	7.0	7.7	0.39	0.98	O&U
All sites	2017		73.9	87.8	5.70	10.19	2089		73.9	81.1	5.62	9.21	ALL
All sites but C44	1980	100.0	72.6	86.1	5.60	10.01	2064	100.0	73.1	80.1	5.57	9.10	ALLbC44

§Includes 2 cases of unknown age

§Includes 2 cases of unknown age

‡100.0% of cases are anorectal tumours

Israel

Registration area

The registry covers the state of Israel, situated between latitudes 30° to 33° N and longitudes 34° to 36°E. The altitude varies from 397 m below to 1208 m above sea level. The total area covered is 20 700 km².

Cancer care facilities

All 23 general and five private hospitals have cancer diagnosis and treatment facilities. There are 18 oncological departments in the public services and some further ones in the private sector.

Registry structure and methods

The Israel Cancer Registry, founded in 1960, is a national registry. It also functions as part of the Israel Centre for Disease Control. The legal basis for reporting to the registry was established by Public Health Ordinance Amendment in 1982, which made notification of cancer cases mandatory.

The registry's staff comprises 16 persons. There are five medical abstractors, four medical secretaries, one statistician, two archiving personnel and other general staff. There are three medical doctors, two Certified Tumor Registrars and four staff members with MA or BA degrees.

Registration is mostly passive. Recently some active registration procedures have been undertaken.

The principal sources of information on cancer cases are hospital discharge forms, pathology, cytology and haematology laboratories (public and private), death certificates and oncology departments. The registry has access to the central population registry database and also receives death certificates with personal identifiers from public health district offices. While notification is mandatory, the registry has had some difficulties in obtaining data on religion from 2001 for reasons of confidentiality.

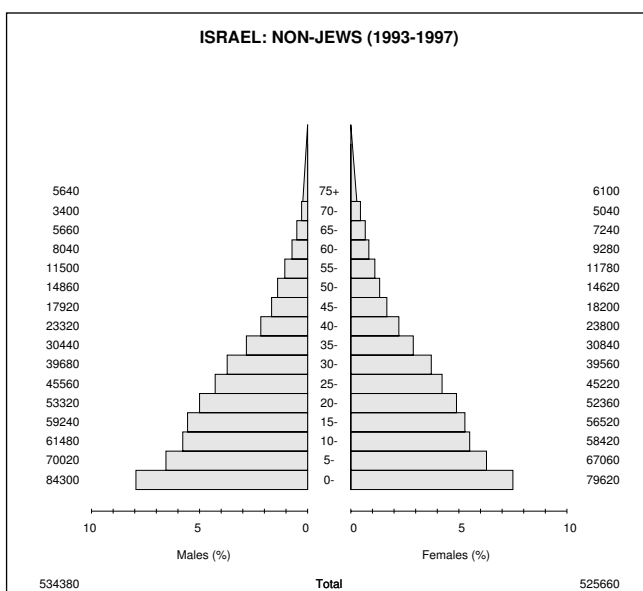
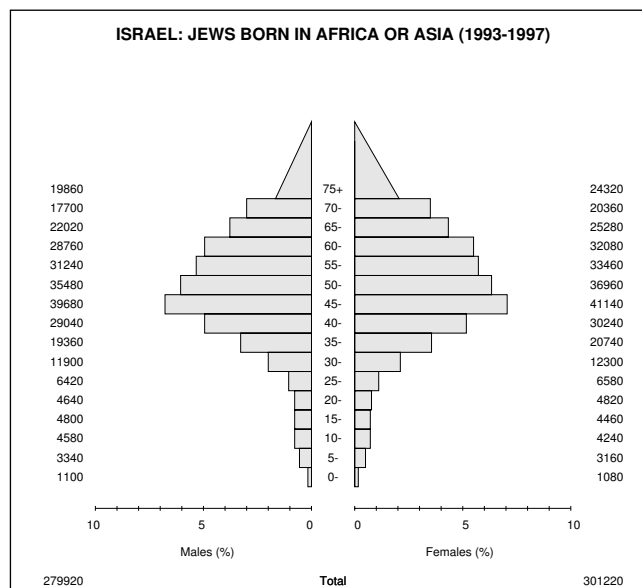
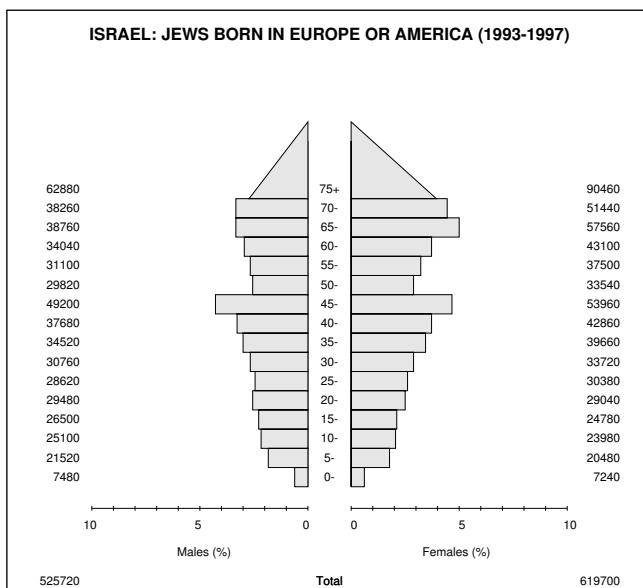
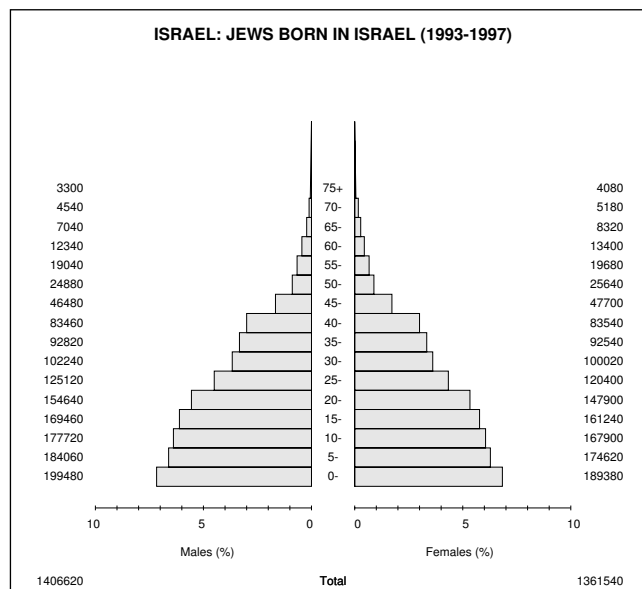
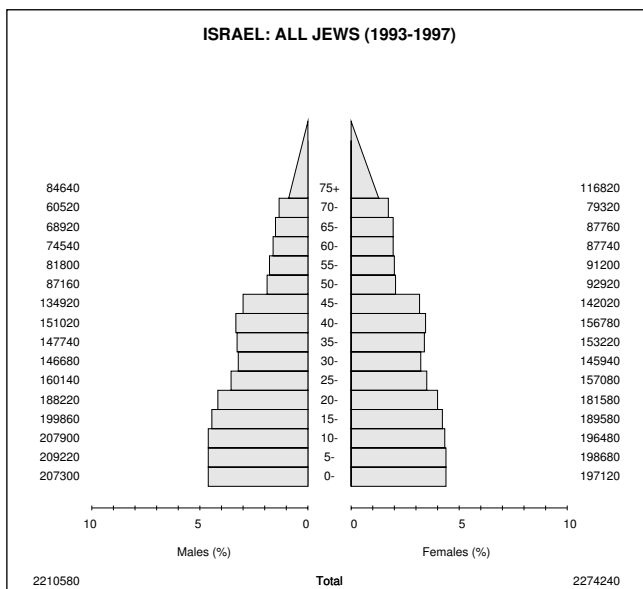
The registry conducts studies and evaluations of data quality. There is on-going monitoring of numbers of cases from each of the 192 reporting sources.

Interpreting the results

There is an organized screening programme for breast cancer, and the registry receives data on all mammography examinations positive for cancer. PSA testing and other screening examinations are opportunistic.

Use of the data

The registry produces reports on incidence, extent of disease and survival. The data are used for research and for the planning and evaluation of the health services.



Source of population

The Population Register has recorded details of each Israeli citizen (born in Israel or immigrant) with their personal identity number. It is continuously updated for births, deaths, migration and change of address, civil status or names. Annual population estimates from the Population Register are published by the Central Bureau of Statistics.

ISRAEL: ALL JEWS (1993-1997)

SITE	MALE						FEMALE						ICD-10
	No. cases	Freq. (%)	Crude rate (per 100,000)	ASR world	Cum. rates 0-64 (percent)	Cum. rates 0-74	No. cases	Freq. (%)	Crude rate (per 100,000)	ASR world	Cum. rates 0-64 (percent)	Cum. rates 0-74	
Lip	330	0.9	3.0	2.6	0.17	0.27	131	0.3	1.2	0.8	0.04	0.08	C00
Tongue	101	0.3	0.9	0.8	0.05	0.09	102	0.3	0.9	0.6	0.02	0.07	C01-02
Mouth	107	0.3	1.0	0.9	0.05	0.11	106	0.3	0.9	0.7	0.05	0.07	C03-06
Salivary glands	114	0.3	1.0	0.9	0.05	0.09	87	0.2	0.8	0.6	0.04	0.06	C07-08
Tonsil	17	0.0	0.2	0.2	0.01	0.02	7	0.0	0.1	0.0	0.00	0.00	C09
Other oropharynx	13	0.0	0.1	0.1	0.00	0.01	11	0.0	0.1	0.1	0.01	0.01	C10
Nasopharynx	109	0.3	1.0	1.0	0.07	0.11	60	0.2	0.5	0.5	0.04	0.05	C11
Hypopharynx	27	0.1	0.2	0.2	0.01	0.03	11	0.0	0.1	0.1	0.00	0.01	C12-13
Pharynx unspecified	10	0.0	0.1	0.1	0.01	0.01	5	0.0	0.0	0.0	0.00	0.00	C14
Oesophagus	344	0.9	3.1	2.5	0.12	0.28	210	0.5	1.8	1.1	0.04	0.11	C15
Stomach	1666	4.6	15.1	11.9	0.53	1.35	1153	2.9	10.1	6.6	0.31	0.73	C16
Small intestine	110	0.3	1.0	0.8	0.05	0.09	76	0.2	0.7	0.4	0.03	0.05	C17
Colon	4113	11.2	37.2	28.9	1.17	3.34	4047	10.2	35.6	23.5	1.17	2.74	C18
Rectum	1552	4.2	14.0	11.6	0.58	1.40	1355	3.4	11.9	8.2	0.44	0.95	C19-20
Anus	56	0.2	0.5	0.4	0.03	0.05	84	0.2	0.7	0.5	0.03	0.06	C21
Liver	434	1.2	3.9	3.3	0.18	0.40	330	0.8	2.9	1.9	0.08	0.22	C22
Gallbladder etc.	206	0.6	1.9	1.5	0.07	0.16	338	0.9	3.0	1.9	0.08	0.25	C23-24
Pancreas	997	2.7	9.0	7.2	0.33	0.87	938	2.4	8.2	5.0	0.18	0.57	C25
Nose, sinuses etc.	45	0.1	0.4	0.3	0.02	0.04	50	0.1	0.4	0.3	0.02	0.03	C30-31
Larynx	619	1.7	5.6	5.0	0.31	0.64	83	0.2	0.7	0.5	0.03	0.06	C32
Trachea, bronchus and lung	3706	10.1	33.5	28.7	1.48	3.65	1707	4.3	15.0	10.3	0.55	1.22	C33-34
Other thoracic organs	116	0.3	1.0	0.9	0.06	0.10	72	0.2	0.6	0.5	0.03	0.05	C37-38
Bone	200	0.5	1.8	1.7	0.12	0.14	152	0.4	1.3	1.2	0.08	0.10	C40-41
Melanoma of skin	1399	3.8	12.7	11.7	0.84	1.28	1508	3.8	13.3	11.3	0.82	1.17	C43
Other skin	372		3.4	2.8	0.15	0.28	495		4.4	3.2	0.20	0.33	C44
Mesothelioma	76	0.2	0.7	0.6	0.04	0.07	32	0.1	0.3	0.2	0.02	0.02	C45
Kaposi sarcoma	394	1.1	3.6	2.8	0.12	0.31	177	0.4	1.6	1.0	0.04	0.11	C46
Connective and soft tissue	328	0.9	3.0	2.7	0.17	0.28	341	0.9	3.0	2.5	0.16	0.26	C47+C49
Breast	180	0.5	1.6	1.4	0.08	0.16	12067	30.4	106.1	87.1	6.36	9.86	C50
Vulva							194	0.5	1.7	1.1	0.04	0.12	C51
Vagina							60	0.2	0.5	0.4	0.03	0.04	C52
Cervix uteri							730	1.8	6.4	5.6	0.44	0.57	C53
Corpus uteri							1647	4.2	14.5	11.5	0.79	1.48	C54
Uterus unspecified							264	0.7	2.3	1.9	0.14	0.21	C55
Ovary							1666	4.2	14.7	12.3	0.89	1.36	C56
Other female genital organs							87	0.2	0.8	0.6	0.04	0.07	C57
Placenta							4	0.0	0.0	0.0	0.00	0.00	C58
Penis	6	0.0	0.1	0.0	0.00	0.01							C60
Prostate	6260	17.1	56.6	43.4	1.38	5.55							C61
Testis	377	1.0	3.4	3.3	0.24	0.26							C62
Other male genital organs	10	0.0	0.1	0.1	0.00	0.01							C63
Kidney	1389	3.8	12.6	11.2	0.66	1.41	922	2.3	8.1	6.1	0.35	0.75	C64
Renal pelvis	66	0.2	0.6	0.5	0.02	0.06	29	0.1	0.3	0.2	0.01	0.02	C65
Ureter	50	0.1	0.5	0.4	0.02	0.05	16	0.0	0.1	0.1	0.00	0.01	C66
Bladder	3639	9.9	32.9	27.0	1.25	3.31	944	2.4	8.3	5.5	0.26	0.62	C67
Other urinary organs	124	0.3	1.1	0.9	0.04	0.11	44	0.1	0.4	0.2	0.01	0.03	C68
Eye	64	0.2	0.6	0.6	0.03	0.06	55	0.1	0.5	0.4	0.02	0.04	C69
Brain, nervous system	746	2.0	6.7	6.4	0.43	0.64	594	1.5	5.2	4.5	0.28	0.46	C70-72
Thyroid	410	1.1	3.7	3.5	0.25	0.37	1209	3.0	10.6	9.7	0.75	0.96	C73
Adrenal gland	36	0.1	0.3	0.4	0.02	0.03	60	0.2	0.5	0.5	0.03	0.04	C74
Other endocrine	17	0.0	0.2	0.1	0.01	0.01	6	0.0	0.1	0.0	0.00	0.00	C75
Hodgkin disease	374	1.0	3.4	3.3	0.23	0.27	385	1.0	3.4	3.3	0.21	0.26	C81
Non-Hodgkin lymphoma	1914	5.2	17.3	15.3	0.93	1.67	1824	4.6	16.0	12.1	0.72	1.32	C82-85,C96
Immunoproliferative diseases	2	0.0	0.0	0.0	0.00	0.00	4	0.0	0.0	0.0	0.00	0.00	C88
Multiple myeloma	439	1.2	4.0	3.3	0.18	0.37	420	1.1	3.7	2.5	0.12	0.28	C90
Lymphoid leukaemia	606	1.7	5.5	4.8	0.25	0.48	434	1.1	3.8	2.7	0.12	0.26	C91
Myeloid leukaemia	458	1.3	4.1	3.5	0.19	0.37	450	1.1	4.0	3.0	0.17	0.31	C92-94
Leukaemia unspecified	131	0.4	1.2	1.0	0.05	0.09	111	0.3	1.0	0.6	0.03	0.06	C95
Other and unspecified	2107	5.8	19.1	15.2	0.70	1.71	2276	5.7	20.0	12.5	0.55	1.31	O&U
All sites	36966		334.4	277.6	13.75	32.46	40170		353.3	267.9	16.86	29.82	ALL
All sites but C44	36594	100.0	331.1	274.8	13.60	32.18	39675	100.0	348.9	264.7	16.66	29.49	ALLbC44

ISRAEL: JEWS BORN IN ISRAEL (1993-1997)

SITE	MALE						FEMALE						ICD-10
	No. cases	Freq. (%)	Crude rate (per 100,000)	ASR world	Cum. rates 0-64 0-74 (percent)		No. cases	Freq. (%)	Crude rate (per 100,000)	ASR world	Cum. rates 0-64 0-74 (percent)		
Lip	88	1.5	1.3	3.4	0.25	0.38	22	0.3	0.3	0.6	0.04	0.06	C00
Tongue	21	0.4	0.3	1.0	0.05	0.10	13	0.2	0.2	0.6	0.03	0.06	C01-02
Mouth	15	0.3	0.2	0.8	0.03	0.08	23	0.3	0.3	0.8	0.05	0.06	C03-06
Salivary glands	28	0.5	0.4	0.9	0.07	0.10	14	0.2	0.2	0.3	0.03	0.03	C07-08
Tonsil	0	0.0	0.0	0.0	0.00	0.00	0	0.0	0.0	0.0	0.00	0.00	C09
Other oropharynx	1	0.0	0.0	0.0	0.00	0.00	3	0.0	0.0	0.1	0.01	0.01	C10
Nasopharynx	32	0.6	0.5	0.6	0.06	0.06	18	0.2	0.3	0.6	0.04	0.09	C11
Hypopharynx	0	0.0	0.0	0.0	0.00	0.00	2	0.0	0.0	0.1	0.01	0.02	C12-13
Pharynx unspecified	2	0.0	0.0	0.1	0.01	0.01	0	0.0	0.0	0.0	0.00	0.00	C14
Oesophagus	44	0.8	0.6	2.7	0.13	0.31	14	0.2	0.2	0.7	0.02	0.08	C15
Stomach	145	2.5	2.1	8.3	0.34	0.88	99	1.3	1.5	4.1	0.20	0.39	C16
Small intestine	18	0.3	0.3	0.6	0.04	0.06	10	0.1	0.1	0.5	0.03	0.03	C17
Colon	354	6.1	5.0	21.2	0.95	2.36	357	4.7	5.2	18.1	0.87	2.06	C18
Rectum	171	3.0	2.4	9.2	0.44	1.13	162	2.1	2.4	7.1	0.41	0.89	C19-20
Anus	7	0.1	0.1	0.2	0.02	0.02	13	0.2	0.2	0.8	0.03	0.07	C21
Liver	36	0.6	0.5	1.4	0.08	0.13	27	0.4	0.4	1.0	0.04	0.09	C22
Gallbladder etc.	22	0.4	0.3	1.3	0.07	0.17	17	0.2	0.2	1.1	0.05	0.10	C23-24
Pancreas	108	1.9	1.5	6.6	0.31	0.70	81	1.1	1.2	4.5	0.18	0.50	C25
Nose, sinuses etc.	10	0.2	0.1	0.4	0.02	0.03	9	0.1	0.1	0.2	0.01	0.01	C30-31
Larynx	77	1.3	1.1	3.9	0.22	0.50	15	0.2	0.2	0.7	0.04	0.07	C32
Trachea, bronchus and lung	381	6.6	5.4	20.2	1.15	2.42	231	3.0	3.4	10.9	0.54	1.39	C33-34
Other thoracic organs	33	0.6	0.5	0.8	0.06	0.08	16	0.2	0.2	0.5	0.04	0.06	C37-38
Bone	105	1.8	1.5	1.6	0.11	0.13	73	1.0	1.1	1.1	0.07	0.09	C40-41
Melanoma of skin	550	9.5	7.8	17.5	1.33	1.95	578	7.6	8.5	14.6	1.15	1.60	C43
Other skin	107		1.5	3.7	0.20	0.43	139		2.0	4.5	0.32	0.44	C44
Mesothelioma	12	0.2	0.2	0.5	0.02	0.05	6	0.1	0.1	0.1	0.01	0.01	C45
Kaposi sarcoma	45	0.8	0.6	1.9	0.07	0.23	8	0.1	0.1	0.2	0.01	0.01	C46
Connective and soft tissue	96	1.7	1.4	2.7	0.16	0.26	98	1.3	1.4	2.5	0.16	0.29	C47+C49
Breast	32	0.6	0.5	1.5	0.09	0.15	2744	36.2	40.3	89.5	6.68	10.07	C50
Vulva							16	0.2	0.2	0.7	0.02	0.10	C51
Vagina							8	0.1	0.1	0.2	0.01	0.03	C52
Cervix uteri							229	3.0	3.4	4.9	0.39	0.46	C53
Corpus uteri							254	3.3	3.7	11.1	0.70	1.48	C54
Uterus unspecified							36	0.5	0.5	1.7	0.11	0.16	C55
Ovary							384	5.1	5.6	11.1	0.85	1.23	C56
Other female genital organs							14	0.2	0.2	0.5	0.03	0.06	C57
Placenta							3	0.0	0.0	0.1	0.01	0.01	C58
Penis	0	0.0	0.0	0.0	0.00	0.00							C60
Prostate	601	10.4	8.5	47.5	1.55	5.64							C61
Testis	245	4.2	3.5	3.4	0.26	0.26							C62
Other male genital organs	3	0.1	0.0	0.1	0.01	0.01							C63
Kidney	201	3.5	2.9	8.7	0.48	1.13	110	1.4	1.6	4.1	0.18	0.56	C64
Renal pelvis	6	0.1	0.1	0.3	0.02	0.02	3	0.0	0.0	0.1	0.01	0.03	C65
Ureter	5	0.1	0.1	0.3	0.01	0.05	2	0.0	0.0	0.1	0.01	0.01	C66
Bladder	493	8.5	7.0	27.7	1.39	3.58	119	1.6	1.7	5.5	0.31	0.60	C67
Other urinary organs	18	0.3	0.3	1.1	0.05	0.13	4	0.1	0.1	0.3	0.00	0.03	C68
Eye	24	0.4	0.3	0.4	0.04	0.04	23	0.3	0.3	0.5	0.02	0.04	C69
Brain, nervous system	263	4.5	3.7	6.2	0.40	0.67	184	2.4	2.7	4.0	0.23	0.40	C70-72
Thyroid	126	2.2	1.8	3.4	0.26	0.35	423	5.6	6.2	8.9	0.71	0.89	C73
Adrenal gland	18	0.3	0.3	0.2	0.02	0.02	33	0.4	0.5	0.5	0.02	0.04	C74
Other endocrine	7	0.1	0.1	0.1	0.01	0.01	6	0.1	0.1	0.2	0.01	0.02	C75
Hodgkin disease	231	4.0	3.3	3.7	0.23	0.28	233	3.1	3.4	3.5	0.22	0.27	C81
Non-Hodgkin lymphoma	496	8.6	7.1	15.7	0.98	1.80	372	4.9	5.5	11.7	0.72	1.32	C82-85,C96
Immunoproliferative diseases	0	0.0	0.0	0.0	0.00	0.00	0	0.0	0.0	0.0	0.00	0.00	C88
Multiple myeloma	59	1.0	0.8	2.7	0.20	0.33	51	0.7	0.7	2.4	0.14	0.25	C90
Lymphoid leukaemia	152	2.6	2.2	4.1	0.27	0.41	83	1.1	1.2	1.9	0.10	0.15	C91
Myeloid leukaemia	130	2.2	1.8	3.8	0.22	0.36	106	1.4	1.6	3.0	0.13	0.37	C92-94
Leukaemia unspecified	47	0.8	0.7	1.2	0.06	0.11	19	0.3	0.3	0.8	0.05	0.08	C95
Other and unspecified	230	4.0	3.3	11.8	0.60	1.36	221	2.9	3.2	10.7	0.47	1.04	O&U
All sites	5895		83.8	255.1	13.29	29.23	7728		113.5	254.4	16.50	28.17	ALL
All sites but C44	5788	100.0	82.3	251.4	13.09	28.80	7589	100.0	111.5	249.9	16.18	27.74	ALLbC44

ISRAEL: JEWS BORN IN EUROPE OR AMERICA (1993-1997)

SITE	MALE						FEMALE						ICD-10
	No. cases	Freq. (%)	Crude rate (per 100,000)	ASR world	Cum. rates 0-64 (percent)	Cum. rates 0-74 (percent)	No. cases	Freq. (%)	Crude rate (per 100,000)	ASR world	Cum. rates 0-64 (percent)	Cum. rates 0-74 (percent)	
Lip	185	0.8	7.0	2.6	0.15	0.28	88	0.4	2.8	0.8	0.04	0.09	C00
Tongue	51	0.2	1.9	1.0	0.07	0.11	59	0.2	1.9	0.5	0.02	0.06	C01-02
Mouth	60	0.3	2.3	1.0	0.06	0.12	56	0.2	1.8	0.6	0.04	0.06	C03-06
Salivary glands	60	0.3	2.3	0.8	0.04	0.08	54	0.2	1.7	0.7	0.04	0.07	C07-08
Tonsil	12	0.1	0.5	0.2	0.02	0.03	4	0.0	0.1	0.0	0.00	0.00	C09
Other oropharynx	9	0.0	0.3	0.2	0.00	0.01	3	0.0	0.1	0.0	0.00	0.00	C10
Nasopharynx	30	0.1	1.1	0.6	0.04	0.07	12	0.0	0.4	0.1	0.01	0.02	C11
Hypopharynx	18	0.1	0.7	0.3	0.02	0.03	8	0.0	0.3	0.1	0.01	0.01	C12-13
Pharynx unspecified	6	0.0	0.2	0.1	0.00	0.00	2	0.0	0.1	0.0	0.00	0.00	C14
Oesophagus	229	1.0	8.7	2.8	0.14	0.33	133	0.6	4.3	1.0	0.04	0.10	C15
Stomach	1181	5.4	44.9	15.3	0.78	1.75	800	3.3	25.8	7.9	0.39	0.88	C16
Small intestine	63	0.3	2.4	0.9	0.06	0.10	47	0.2	1.5	0.4	0.02	0.05	C17
Colon	2897	13.1	110.2	34.5	1.47	4.08	2895	12.0	93.4	27.8	1.48	3.28	C18
Rectum	1017	4.6	38.7	13.7	0.71	1.69	906	3.8	29.2	9.3	0.53	1.08	C19-20
Anus	28	0.1	1.1	0.3	0.01	0.04	50	0.2	1.6	0.5	0.02	0.06	C21
Liver	247	1.1	9.4	3.4	0.20	0.42	219	0.9	7.1	2.0	0.08	0.23	C22
Gallbladder etc.	122	0.6	4.6	1.5	0.07	0.16	229	1.0	7.4	2.1	0.09	0.27	C23-24
Pancreas	653	3.0	24.8	8.2	0.40	1.01	670	2.8	21.6	5.4	0.20	0.64	C25
Nose, sinuses etc.	22	0.1	0.8	0.3	0.02	0.04	30	0.1	1.0	0.3	0.02	0.04	C30-31
Larynx	352	1.6	13.4	5.5	0.34	0.70	53	0.2	1.7	0.6	0.03	0.07	C32
Trachea, bronchus and lung	2195	10.0	83.5	30.7	1.63	3.93	1157	4.8	37.3	11.5	0.62	1.37	C33-34
Other thoracic organs	50	0.2	1.9	0.8	0.05	0.08	39	0.2	1.3	0.4	0.02	0.04	C37-38
Bone	68	0.3	2.6	2.1	0.14	0.17	57	0.2	1.8	1.3	0.08	0.11	C40-41
Melanoma of skin	747	3.4	28.4	13.8	0.97	1.55	824	3.4	26.6	13.8	1.01	1.46	C43
Other skin	217		8.3	2.8	0.14	0.29	315		10.2	3.5	0.21	0.37	C44
Mesothelioma	46	0.2	1.7	0.7	0.05	0.09	15	0.1	0.5	0.2	0.02	0.02	C45
Kaposi sarcoma	185	0.8	7.0	2.1	0.09	0.22	96	0.4	3.1	0.8	0.04	0.09	C46
Connective and soft tissue	156	0.7	5.9	3.1	0.20	0.32	193	0.8	6.2	3.1	0.20	0.32	C47+C49
Breast	112	0.5	4.3	1.6	0.08	0.19	6865	28.5	221.6	98.5	7.32	11.30	C50
Vulva							113	0.5	3.6	1.1	0.05	0.12	C51
Vagina							38	0.2	1.2	0.5	0.04	0.06	C52
Cervix uteri							298	1.2	9.6	5.5	0.44	0.56	C53
Corpus uteri							1074	4.5	34.7	14.1	1.03	1.82	C54
Uterus unspecified							166	0.7	5.4	2.4	0.19	0.26	C55
Ovary							1002	4.2	32.3	16.0	1.22	1.75	C56
Other female genital organs							57	0.2	1.8	0.8	0.06	0.09	C57
Placenta							1	0.0	0.0	0.1	0.00	0.00	C58
Penis	5	0.0	0.2	0.0	0.00	0.01							C60
Prostate	3936	17.8	149.7	43.4	1.34	5.62							C61
Testis	113	0.5	4.3	4.0	0.30	0.32							C62
Other male genital organs	6	0.0	0.2	0.1	0.00	0.01							C63
Kidney	980	4.4	37.3	15.8	1.03	2.00	674	2.8	21.8	8.8	0.54	1.04	C64
Renal pelvis	38	0.2	1.4	0.5	0.02	0.06	18	0.1	0.6	0.2	0.01	0.02	C65
Ureter	31	0.1	1.2	0.5	0.03	0.05	10	0.0	0.3	0.1	0.00	0.01	C66
Bladder	2193	9.9	83.4	27.8	1.27	3.40	632	2.6	20.4	6.0	0.29	0.69	C67
Other urinary organs	74	0.3	2.8	0.9	0.03	0.11	31	0.1	1.0	0.3	0.02	0.04	C68
Eye	29	0.1	1.1	0.6	0.04	0.06	26	0.1	0.8	0.3	0.02	0.04	C69
Brain, nervous system	340	1.5	12.9	8.3	0.56	0.79	298	1.2	9.6	6.2	0.38	0.57	C70-72
Thyroid	190	0.9	7.2	4.0	0.28	0.42	517	2.1	16.7	10.6	0.83	1.06	C73
Adrenal gland	16	0.1	0.6	1.0	0.05	0.06	19	0.1	0.6	0.3	0.02	0.03	C74
Other endocrine	8	0.0	0.3	0.1	0.00	0.01	0	0.0	0.0	0.0	0.00	0.00	C75
Hodgkin disease	97	0.4	3.7	3.2	0.23	0.27	117	0.5	3.8	3.5	0.24	0.29	C81
Non-Hodgkin lymphoma	1008	4.6	38.3	16.5	1.00	1.80	1065	4.4	34.4	12.8	0.78	1.42	C82-85,C96
Immunoproliferative diseases	2	0.0	0.1	0.0	0.00	0.00	2	0.0	0.1	0.0	0.00	0.00	C88
Multiple myeloma	251	1.1	9.5	3.2	0.16	0.38	236	1.0	7.6	2.1	0.08	0.25	C90
Lymphoid leukaemia	332	1.5	12.6	6.4	0.33	0.60	261	1.1	8.4	3.7	0.17	0.32	C91
Myeloid leukaemia	221	1.0	8.4	3.7	0.20	0.39	233	1.0	7.5	3.3	0.20	0.34	C92-94
Leukaemia unspecified	59	0.3	2.2	0.8	0.05	0.08	66	0.3	2.1	0.6	0.03	0.06	C95
Other and unspecified	1322	6.0	50.3	17.1	0.85	1.97	1563	6.5	50.4	13.6	0.63	1.49	O&U
All sites	22269		847.2	308.8	15.76	36.31	24396		787.3	306.1	19.89	34.43	ALL
All sites but C44	22052	100.0	838.9	305.9	15.62	36.03	24081	100.0	777.2	302.7	19.68	34.06	ALLbC44

ISRAEL: JEWS BORN IN AFRICA OR ASIA (1993-1997)

SITE	MALE						FEMALE						ICD-10
	No. cases	Freq. (%)	Crude rate (per 100,000)	ASR world	Cum. rates 0-64 (percent)	Cum. rates 0-74 (percent)	No. cases	Freq. (%)	Crude rate (per 100,000)	ASR world	Cum. rates 0-64 (percent)	Cum. rates 0-74 (percent)	
Lip	57	0.7	4.1	1.8	0.13	0.17	21	0.3	1.4	0.5	0.02	0.05	C00
Tongue	29	0.3	2.1	0.8	0.04	0.10	30	0.4	2.0	0.7	0.03	0.07	C01-02
Mouth	32	0.4	2.3	0.9	0.06	0.10	27	0.3	1.8	0.9	0.06	0.08	C03-06
Salivary glands	26	0.3	1.9	0.7	0.04	0.09	19	0.2	1.3	0.9	0.06	0.08	C07-08
Tonsil	5	0.1	0.4	0.1	0.02	0.02	3	0.0	0.2	0.1	0.01	0.01	C09
Other oropharynx	3	0.0	0.2	0.1	0.01	0.01	5	0.1	0.3	0.1	0.01	0.01	C10
Nasopharynx	47	0.5	3.4	1.4	0.10	0.16	30	0.4	2.0	1.9	0.13	0.14	C11
Hypopharynx	9	0.1	0.6	0.2	0.02	0.04	1	0.0	0.1	0.0	0.00	0.00	C12-13
Pharynx unspecified	2	0.0	0.1	0.1	0.01	0.01	3	0.0	0.2	0.1	0.01	0.01	C14
Oesophagus	71	0.8	5.1	1.8	0.08	0.20	63	0.8	4.2	1.4	0.05	0.14	C15
Stomach	340	3.9	24.3	8.7	0.40	1.02	254	3.2	16.9	6.1	0.32	0.66	C16
Small intestine	29	0.3	2.1	0.8	0.05	0.10	19	0.2	1.3	0.4	0.03	0.04	C17
Colon	862	9.8	61.6	22.2	1.02	2.59	795	9.9	52.8	18.1	0.99	2.12	C18
Rectum	364	4.2	26.0	10.0	0.56	1.11	287	3.6	19.1	6.4	0.34	0.75	C19-20
Anus	21	0.2	1.5	0.6	0.04	0.06	21	0.3	1.4	0.5	0.03	0.05	C21
Liver	151	1.7	10.8	3.8	0.20	0.49	84	1.0	5.6	1.8	0.09	0.21	C22
Gallbladder etc.	62	0.7	4.4	1.5	0.06	0.18	92	1.1	6.1	2.0	0.09	0.25	C23-24
Pancreas	236	2.7	16.9	5.9	0.28	0.72	187	2.3	12.4	3.8	0.12	0.45	C25
Nose, sinuses etc.	13	0.1	0.9	0.3	0.01	0.04	11	0.1	0.7	0.3	0.02	0.02	C30-31
Larynx	190	2.2	13.6	5.0	0.33	0.64	15	0.2	1.0	0.3	0.02	0.04	C32
Trachea, bronchus and lung	1130	12.9	80.7	28.7	1.48	3.68	319	4.0	21.2	7.5	0.45	0.89	C33-34
Other thoracic organs	33	0.4	2.4	0.8	0.06	0.11	17	0.2	1.1	0.4	0.03	0.04	C37-38
Bone	27	0.3	1.9	1.3	0.08	0.10	22	0.3	1.5	0.6	0.05	0.06	C40-41
Melanoma of skin	102	1.2	7.3	3.2	0.24	0.35	106	1.3	7.0	4.1	0.29	0.37	C43
Other skin	48		3.4	1.7	0.11	0.18	41		2.7	1.3	0.08	0.12	C44
Mesothelioma	18	0.2	1.3	0.5	0.04	0.06	11	0.1	0.7	0.3	0.02	0.03	C45
Kaposi sarcoma	164	1.9	11.7	4.1	0.18	0.49	73	0.9	4.8	1.6	0.07	0.18	C46
Connective and soft tissue	76	0.9	5.4	2.5	0.16	0.25	50	0.6	3.3	1.9	0.12	0.18	C47+C49
Breast	36	0.4	2.6	0.9	0.06	0.10	2458	30.7	163.2	65.1	4.82	7.16	C50
Vulva							65	0.8	4.3	1.3	0.04	0.15	C51
Vagina							14	0.2	0.9	0.3	0.02	0.04	C52
Cervix uteri							203	2.5	13.5	6.3	0.49	0.66	C53
Corpus uteri							319	4.0	21.2	8.0	0.55	0.95	C54
Uterus unspecified							62	0.8	4.1	1.5	0.11	0.17	C55
Ovary							280	3.5	18.6	7.9	0.53	0.88	C56
Other female genital organs							16	0.2	1.1	0.4	0.02	0.05	C57
Placenta							0	0.0	0.0	0.0	0.00	0.00	C58
Penis	1	0.0	0.1	0.0	0.00	0.00							C60
Prostate	1723	19.7	123.1	41.3	1.31	5.30							C61
Testis	19	0.2	1.4	0.7	0.06	0.06							C62
Other male genital organs	1	0.0	0.1	0.0	0.00	0.01							C63
Kidney	208	2.4	14.9	5.4	0.33	0.69	138	1.7	9.2	3.8	0.25	0.45	C64
Renal pelvis	22	0.3	1.6	0.5	0.02	0.08	8	0.1	0.5	0.2	0.02	0.03	C65
Ureter	14	0.2	1.0	0.3	0.02	0.06	4	0.0	0.3	0.1	0.00	0.01	C66
Bladder	953	10.9	68.1	24.5	1.15	3.08	193	2.4	12.8	4.1	0.17	0.47	C67
Other urinary organs	32	0.4	2.3	0.8	0.03	0.09	9	0.1	0.6	0.2	0.00	0.01	C68
Eye	11	0.1	0.8	0.3	0.02	0.04	6	0.1	0.4	0.1	0.00	0.02	C69
Brain, nervous system	143	1.6	10.2	7.6	0.47	0.62	112	1.4	7.4	3.4	0.23	0.38	C70-72
Thyroid	94	1.1	6.7	3.2	0.23	0.34	269	3.4	17.9	11.4	0.85	1.01	C73
Adrenal gland	2	0.0	0.1	0.1	0.01	0.01	8	0.1	0.5	0.2	0.01	0.02	C74
Other endocrine	2	0.0	0.1	0.1	0.01	0.01	0	0.0	0.0	0.0	0.00	0.00	C75
Hodgkin disease	46	0.5	3.3	2.1	0.17	0.19	35	0.4	2.3	2.9	0.17	0.21	C81
Non-Hodgkin lymphoma	410	4.7	29.3	14.5	0.90	1.53	387	4.8	25.7	9.9	0.60	1.10	C82-85,C96
Immunoproliferative diseases	0	0.0	0.0	0.0	0.00	0.00	2	0.0	0.1	0.0	0.00	0.00	C88
Multiple myeloma	129	1.5	9.2	3.3	0.19	0.34	133	1.7	8.8	2.9	0.14	0.32	C90
Lymphoid leukaemia	122	1.4	8.7	6.3	0.31	0.49	90	1.1	6.0	2.0	0.08	0.21	C91
Myeloid leukaemia	107	1.2	7.6	3.8	0.18	0.37	111	1.4	7.4	3.9	0.22	0.35	C92-94
Leukaemia unspecified	25	0.3	1.8	1.0	0.05	0.09	26	0.3	1.7	0.5	0.01	0.05	C95
Other and unspecified	555	6.3	39.7	13.9	0.60	1.49	492	6.1	32.7	13.0	0.59	1.16	O&U
All sites	8802		628.9	240.0	11.90	28.01	8046		534.2	213.3	13.47	22.90	ALL
All sites but C44	8754	100.0	625.5	238.2	11.79	27.84	8005	100.0	531.5	212.1	13.38	22.77	ALLbC44

ISRAEL: NON-JEWS (1993-1997)

SITE	MALE						FEMALE						ICD-10
	No. cases	Freq. (%)	Crude rate (per 100,000)	ASR world	Cum. rates 0-64 (percent)	Cum. rates 0-74 (percent)	No. cases	Freq. (%)	Crude rate (per 100,000)	ASR world	Cum. rates 0-64 (percent)	Cum. rates 0-74 (percent)	
Lip	31	1.4	1.2	2.2	0.16	0.19	8	0.4	0.3	0.6	0.03	0.08	C00
Tongue	4	0.2	0.1	0.3	0.02	0.05	1	0.1	0.0	0.1	0.01	0.01	C01-02
Mouth	10	0.5	0.4	0.6	0.04	0.06	4	0.2	0.2	0.2	0.01	0.01	C03-06
Salivary glands	5	0.2	0.2	0.5	0.02	0.07	7	0.4	0.3	0.4	0.03	0.03	C07-08
Tonsil	1	0.0	0.0	0.1	0.01	0.01	1	0.1	0.0	0.1	0.01	0.01	C09
Other oropharynx	1	0.0	0.0	0.1	0.01	0.01	0	0.0	0.0	0.0	0.00	0.00	C10
Nasopharynx	17	0.8	0.6	1.0	0.06	0.12	9	0.5	0.3	0.5	0.04	0.05	C11
Hypopharynx	1	0.0	0.0	0.1	0.00	0.00	0	0.0	0.0	0.0	0.00	0.00	C12-13
Pharynx unspecified	0	0.0	0.0	0.0	0.00	0.00	1	0.1	0.0	0.1	0.00	0.00	C14
Oesophagus	8	0.4	0.3	0.7	0.06	0.09	2	0.1	0.1	0.1	0.01	0.03	C15
Stomach	85	3.9	3.2	6.7	0.31	0.91	54	3.0	2.1	3.7	0.18	0.45	C16
Small intestine	12	0.6	0.4	0.9	0.05	0.11	7	0.4	0.3	0.5	0.03	0.06	C17
Colon	122	5.6	4.6	9.6	0.49	1.18	120	6.7	4.6	8.2	0.50	1.01	C18
Rectum	50	2.3	1.9	3.5	0.24	0.35	38	2.1	1.4	2.7	0.18	0.31	C19-20
Anus	4	0.2	0.1	0.3	0.02	0.03	0	0.0	0.0	0.0	0.00	0.00	C21
Liver	38	1.7	1.4	3.2	0.15	0.48	10	0.6	0.4	0.6	0.05	0.05	C22
Gallbladder etc.	14	0.6	0.5	1.1	0.04	0.10	29	1.6	1.1	2.0	0.16	0.22	C23-24
Pancreas	59	2.7	2.2	5.0	0.19	0.63	31	1.7	1.2	2.3	0.08	0.28	C25
Nose, sinuses etc.	5	0.2	0.2	0.3	0.01	0.01	4	0.2	0.2	0.2	0.02	0.02	C30-31
Larynx	67	3.1	2.5	5.4	0.32	0.73	5	0.3	0.2	0.3	0.03	0.05	C32
Trachea, bronchus and lung	422	19.4	15.8	35.1	2.08	4.38	64	3.6	2.4	4.3	0.21	0.44	C33-34
Other thoracic organs	11	0.5	0.4	0.5	0.04	0.05	8	0.4	0.3	0.5	0.04	0.04	C37-38
Bone	26	1.2	1.0	1.0	0.08	0.08	16	0.9	0.6	0.8	0.04	0.10	C40-41
Melanoma of skin	18	0.8	0.7	1.0	0.06	0.08	15	0.8	0.6	0.9	0.09	0.09	C43
Other skin	10		0.4	0.6	0.03	0.03	15		0.6	0.8	0.02	0.08	C44
Mesothelioma	3	0.1	0.1	0.2	0.02	0.02	1	0.1	0.0	0.1	0.00	0.00	C45
Kaposi sarcoma	7	0.3	0.3	0.4	0.01	0.01	5	0.3	0.2	0.3	0.03	0.03	C46
Connective and soft tissue	23	1.1	0.9	1.2	0.06	0.12	32	1.8	1.2	1.7	0.08	0.21	C47+C49
Breast	7	0.3	0.3	0.6	0.04	0.07	440	24.5	16.7	27.7	2.24	2.95	C50
Vulva							4	0.2	0.2	0.3	0.02	0.03	C51
Vagina							4	0.2	0.2	0.3	0.00	0.03	C52
Cervix uteri							39	2.2	1.5	2.5	0.21	0.23	C53
Corpus uteri							79	4.4	3.0	5.7	0.36	0.70	C54
Uterus unspecified							16	0.9	0.6	1.1	0.07	0.14	C55
Ovary							72	4.0	2.7	4.0	0.31	0.42	C56
Other female genital organs							1	0.1	0.0	0.0	0.00	0.00	C57
Placenta							2	0.1	0.1	0.1	0.00	0.00	C58
Penis	4	0.2	0.1	0.3	0.00	0.05							C60
Prostate	165	7.6	6.2	14.8	0.37	1.88							C61
Testis	28	1.3	1.0	1.1	0.07	0.09							C62
Other male genital organs	0	0.0	0.0	0.0	0.00	0.00							C63
Kidney	36	1.7	1.3	2.5	0.15	0.31	29	1.6	1.1	1.9	0.15	0.17	C64
Renal pelvis	3	0.1	0.1	0.2	0.01	0.02	1	0.1	0.0	0.1	0.00	0.02	C65
Ureter	2	0.1	0.1	0.2	0.02	0.02	0	0.0	0.0	0.0	0.00	0.00	C66
Bladder	182	8.4	6.8	15.5	0.73	2.10	30	1.7	1.1	2.2	0.11	0.22	C67
Other urinary organs	5	0.2	0.2	0.4	0.04	0.04	0	0.0	0.0	0.0	0.00	0.00	C68
Eye	9	0.4	0.3	0.4	0.03	0.03	12	0.7	0.5	0.5	0.02	0.04	C69
Brain, nervous system	87	4.0	3.3	4.5	0.36	0.44	51	2.8	1.9	2.5	0.19	0.22	C70-72
Thyroid	32	1.5	1.2	1.8	0.15	0.18	107	6.0	4.1	4.8	0.35	0.43	C73
Adrenal gland	11	0.5	0.4	0.4	0.02	0.02	4	0.2	0.2	0.1	0.01	0.01	C74
Other endocrine	4	0.2	0.1	0.2	0.01	0.01	0	0.0	0.0	0.0	0.00	0.00	C75
Hodgkin disease	55	2.5	2.1	2.0	0.13	0.15	44	2.5	1.7	1.7	0.12	0.14	C81
Non-Hodgkin lymphoma	163	7.5	6.1	9.7	0.60	0.99	105	5.8	4.0	6.2	0.37	0.76	C82-85,C96
Immunoproliferative diseases	0	0.0	0.0	0.0	0.00	0.00	1	0.1	0.0	0.0	0.00	0.00	C88
Multiple myeloma	32	1.5	1.2	2.7	0.18	0.34	26	1.4	1.0	1.9	0.10	0.25	C90
Lymphoid leukaemia	65	3.0	2.4	3.5	0.20	0.34	56	3.1	2.1	2.8	0.11	0.27	C91
Myeloid leukaemia	52	2.4	1.9	3.1	0.18	0.36	49	2.7	1.9	2.8	0.18	0.30	C92-94
Leukaemia unspecified	19	0.9	0.7	1.2	0.06	0.14	19	1.1	0.7	0.8	0.05	0.05	C95
Other and unspecified	172	7.9	6.4	12.9	0.77	1.29	132	7.4	5.0	8.9	0.43	0.97	O&U
All sites	2187		81.9	159.2	8.69	18.77	1810		68.9	110.7	7.31	12.01	ALL
All sites but C44	2177	100.0	81.5	158.7	8.65	18.74	1795	100.0	68.3	109.9	7.29	11.93	ALLbC44



Japan, Hiroshima

Registration area

Hiroshima City, the capital of Hiroshima Prefecture, is located in the western part of Japan. It covers an area of 740 km², from 34° to 34°N and 132° to 18' E, and the altitude ranges from sea level to 890 m. Hiroshima City is an administratively defined area which does not completely correspond to the Hiroshima Metropolitan area. The latter includes the city itself and the surrounding suburban areas.

As is widely known, Hiroshima City was destroyed by atomic bombing in 1945. After the war, it developed as an administrative centre in the Chugoku and Shikoku areas. The major industries include shipbuilding, automobile, metalworking, machinery and other manufacturing/production. The population in 1995 was 1.11 million, comprising mostly Japanese (99%) and very few non-Japanese nationals (1%). The population density was 1497 per km² in 1995, slightly higher than 1331 in 1980. The proportion 65 years and over was 12% in 1995; it was 7% in 1980. The population is primarily urban; 72% of employees are in the sales trade and service industries, 26% in construction and manufacturing industries and only 2% are engaged in agriculture and related works.

Cancer care facilities

The number of hospital beds per 100 000 population was 1310 in 1993; the number of physicians per 100 000 population was 246 in 1992.

Cancer registry and structure

The Hiroshima Tumor Registry was established in 1957 under the auspices of the Hiroshima City Medical Association and with technical support from the Atomic Bomb Casualty Commission (ABCC), predecessor of the Radiation Effects Research Foundation (RERF).

The case-finding and data-collection procedure combines both active and passive approaches. All physicians and hospitals in the city are requested by the Medical Association to report tumour cases to the registry. However, the great majority (about 90%) of cases are accessed by means of hospital visits. RERF field personnel visit most of the large hospitals in the area. They visit the medical record rooms of various departments and the services of each hospital, and review all the hospital records, including clinical records, surgical reports, radiology reports, and cytology, pathology and autopsy reports. Causes of death are also ascertained.

The Hiroshima Tissue Registry, a prefecture-wide registry started in 1973 under the auspices of the Hiroshima Prefectural Medical Association, serves as an additional source of information. The Tissue Registry is designed to collect and examine surgically removed tumour tissues; tumours are classified and tissue slides are stored. Malignant cases residing in the city and identified through the Tissue Registry are added to the Cancer Registry file. There has been a special interest in the possible relationship of atomic bomb radiation exposure with leukaemia and cancer. This has resulted in a number of large-scale cancer studies in the area.

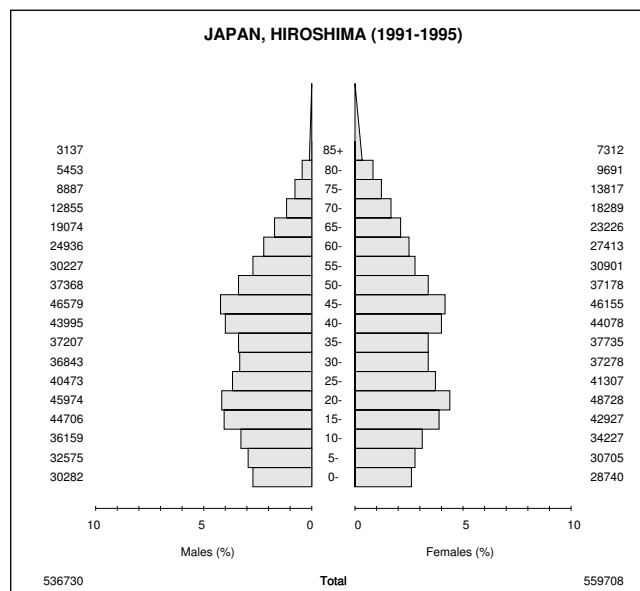
Cases identified from various hospitals and sources are collated, and data are stored in computerized files. Checking for duplicate entries is performed manually with the assistance of a computer. All cases with possible multiple primary tumours are reviewed; pathology slides from the Tissue Registry are also reviewed, if necessary. Edit checks are performed including sex versus site; age versus site; site versus morphology; and year of birth and year of death versus year of diagnosis. The completeness of registration is assessed by conventional indices such as the DCO rate and I/M ratio as well as data from independent *ad hoc* surveys.

Interpreting the results

Since a majority of cases are ascertained by visits to large hospitals, cases missed by not including all area hospitals present a source of concern. However, a recent survey of three medium-size hospitals not included in the regular data abstraction schedule showed the number of missed cases from medium-size hospitals represent less than 1% of the total cancers.

Use of the data

The objectives are to maintain a source of information on tumours diagnosed in the community and to provide cancer incidence data for studies on the effects of exposure to radiation from the atomic bombing in 1945.



Source of population

1995 census data. 1991–95 are estimates based on linear interpolation of the 1985 and 1990 census data.

Refs: 1990 Population Census of Japan, Statistics Bureau, Management and Coordination Agency, 1991. 1995 Population Census of Japan, Statistics Bureau, Management and Coordination Agency, 1996.

JAPAN, HIROSHIMA (1991-1995)

SITE	MALE						FEMALE						ICD-10
	§No. cases	Freq. (%)	Crude rate (per 100,000)	ASR world	Cum. rates (percent)		§No. cases	Freq. (%)	Crude rate (per 100,000)	ASR world	Cum. rates (percent)		
Lip	1	0.0	0.0	0.0	0.00	0.01	1	0.0	0.0	0.0	0.00	0.00	C00
Tongue	78	0.6	2.9	2.2	0.15	0.27	50	0.6	1.8	1.1	0.07	0.11	C01-02
Mouth	44	0.3	1.6	1.2	0.06	0.16	26	0.3	0.9	0.6	0.03	0.08	C03-06
Salivary glands	21	0.2	0.8	0.6	0.04	0.07	15	0.2	0.5	0.4	0.02	0.04	C07-08
Tonsil	8	0.1	0.3	0.2	0.01	0.03	2	0.0	0.1	0.1	0.01	0.01	C09
Other oropharynx	15	0.1	0.6	0.4	0.02	0.05	1	0.0	0.0	0.0	0.00	0.00	C10
Nasopharynx	8	0.1	0.3	0.2	0.02	0.02	6	0.1	0.2	0.1	0.01	0.01	C11
Hypopharynx	44	0.3	1.6	1.2	0.07	0.16	5	0.1	0.2	0.1	0.00	0.00	C12-13
Pharynx unspecified	7	0.1	0.3	0.2	0.01	0.01	1	0.0	0.0	0.0	0.00	0.00	C14
Oesophagus	414	3.2	15.4	11.7	0.67	1.50	84	0.9	3.0	1.7	0.08	0.18	C15
Stomach	3035	23.6	113.1	85.5	4.59	10.50	1541	17.1	55.1	33.9	1.83	3.85	C16
Small intestine	21	0.2	0.8	0.6	0.05	0.07	20	0.2	0.7	0.5	0.03	0.04	C17
Colon	2096	16.3	78.1	59.2	3.39	7.31	1249	13.8	44.6	28.0	1.61	3.48	C18
Rectum	960	7.5	35.8	27.4	1.69	3.46	519	5.7	18.5	11.9	0.78	1.43	C19-20
‡Anus	4	0.0	0.1	0.1	0.01	0.01	11	0.1	0.4	0.3	0.02	0.05	C21
Liver	1495	11.6	55.7	43.2	2.81	5.52	603	6.7	21.5	13.4	0.62	1.74	C22
Gallbladder etc.	259	2.0	9.7	7.1	0.31	0.80	295	3.3	10.5	5.8	0.21	0.66	C23-24
Pancreas	316	2.5	11.8	8.8	0.42	1.05	242	2.7	8.6	4.9	0.20	0.56	C25
Nose, sinuses etc.	40	0.3	1.5	1.2	0.04	0.14	16	0.2	0.6	0.4	0.02	0.04	C30-31
Larynx	145	1.1	5.4	4.0	0.22	0.50	9	0.1	0.3	0.2	0.01	0.02	C32
Trachea, bronchus and lung	1454	11.3	54.2	40.3	1.59	4.84	555	6.1	19.8	11.8	0.59	1.41	C33-34
Other thoracic organs	23	0.2	0.9	0.8	0.04	0.07	16	0.2	0.6	0.5	0.03	0.05	C37-38
Bone	24	0.2	0.9	0.8	0.05	0.07	12	0.1	0.4	0.5	0.03	0.03	C40-41
Melanoma of skin	13	0.1	0.5	0.4	0.02	0.04	20	0.2	0.7	0.5	0.03	0.05	C43
Other skin	179		6.7	5.1	0.23	0.55	171		6.1	3.3	0.13	0.33	C44
Mesothelioma	22	0.2	0.8	0.6	0.02	0.05	8	0.1	0.3	0.2	0.01	0.03	C45
Kaposi sarcoma	1	0.0	0.0	0.0	0.00	0.00	0	0.0	0.0	0.0	0.00	0.00	C46
Connective and soft tissue	37	0.3	1.4	1.1	0.06	0.13	27	0.3	1.0	0.9	0.06	0.08	C47+C49
Breast	3	0.0	0.1	0.1	0.00	0.01	1420	15.7	50.7	36.6	2.91	3.90	C50
Vulva							13	0.1	0.5	0.3	0.01	0.03	C51
Vagina							10	0.1	0.4	0.2	0.01	0.03	C52
Cervix uteri							461	5.1	16.5	11.7	0.82	1.22	C53
Corpus uteri							250	2.8	8.9	6.3	0.48	0.71	C54
Uterus unspecified							23	0.3	0.8	0.4	0.02	0.03	C55
Ovary							268	3.0	9.6	7.2	0.54	0.74	C56
Other female genital organs							8	0.1	0.3	0.2	0.02	0.02	C57
Placenta							1	0.0	0.0	0.0	0.00	0.00	C58
Penis	7	0.1	0.3	0.2	0.01	0.02							C60
Prostate	528	4.1	19.7	14.1	0.25	1.43							C61
Testis	60	0.5	2.2	1.9	0.15	0.15							C62
Other male genital organs	9	0.1	0.3	0.2	0.01	0.02							C63
Kidney	191	1.5	7.1	5.4	0.33	0.62	84	0.9	3.0	1.9	0.11	0.22	C64
Renal pelvis	50	0.4	1.9	1.4	0.08	0.18	23	0.3	0.8	0.4	0.02	0.05	C65
Ureter	42	0.3	1.6	1.2	0.05	0.16	17	0.2	0.6	0.3	0.01	0.03	C66
Bladder	523	4.1	19.5	14.6	0.63	1.67	137	1.5	4.9	2.8	0.13	0.32	C67
Other urinary organs	14	0.1	0.5	0.4	0.02	0.04	11	0.1	0.4	0.2	0.01	0.03	C68
Eye	6	0.0	0.2	0.2	0.01	0.01	4	0.0	0.1	0.2	0.01	0.01	C69
Brain, nervous system	75	0.6	2.8	2.5	0.16	0.22	50	0.6	1.8	1.6	0.09	0.15	C70-72
Thyroid	71	0.6	2.6	2.1	0.15	0.22	393	4.3	14.0	10.5	0.84	1.08	C73
Adrenal gland	14	0.1	0.5	0.7	0.04	0.04	10	0.1	0.4	0.6	0.03	0.03	C74
Other endocrine	7	0.1	0.3	0.3	0.02	0.02	1	0.0	0.0	0.0	0.00	0.00	C75
Hodgkin disease	13	0.1	0.5	0.4	0.02	0.04	6	0.1	0.2	0.2	0.02	0.02	C81
Non-Hodgkin lymphoma	248	1.9	9.2	7.4	0.41	0.78	208	2.3	7.4	4.8	0.27	0.50	C82-85,C96
Immunoproliferative diseases	0	0.0	0.0	0.0	0.00	0.00	1	0.0	0.0	0.0	0.00	0.00	C88
Multiple myeloma	76	0.6	2.8	2.1	0.06	0.23	54	0.6	1.9	1.1	0.04	0.12	C90
Lymphoid leukaemia	51	0.4	1.9	1.9	0.11	0.16	43	0.5	1.5	1.6	0.09	0.13	C91
Myeloid leukaemia	130	1.0	4.8	4.1	0.21	0.44	91	1.0	3.3	2.3	0.13	0.22	C92-94
Leukaemia unspecified	13	0.1	0.5	0.4	0.01	0.03	8	0.1	0.3	0.2	0.01	0.02	C95
Other and unspecified	129	1.0	4.8	3.8	0.16	0.42	108	1.2	3.9	2.5	0.11	0.24	O&U
All sites	13024		485.3	369.3	19.49	44.31	9208		329.0	215.4	13.17	24.13	ALL
All sites but C44	12845	100.0	478.6	364.3	19.26	43.76	9037	100.0	322.9	212.1	13.04	23.80	ALLbC44

‡Includes 4 cases of unknown age

§Includes 4 cases of unknown age

‡45.5% of cases are anorectal tumours

Japan, Miyagi Prefecture

Registration area

Miyagi Prefecture is situated in the northern part of Japan, between latitudes 37° and 39° N and longitudes 140° and 140° E, and is flanked on the east by the Pacific Ocean. Sendai, the capital city of the prefecture, is situated about 350 km north of Tokyo. The annual mean temperature in Sendai is 12.3° C, and the annual rainfall is about 1200 mm. The altitude ranges from sea level to 1841 m. The total registration area is 7291 km², and the population as of 1995 was 2 328 739, including 7952 foreigners (3752 male and 4200 female).

27% of the economically active population is engaged in industry, 25% in commerce, 24% in personal services and 7% in agriculture.

Registry structure and methods

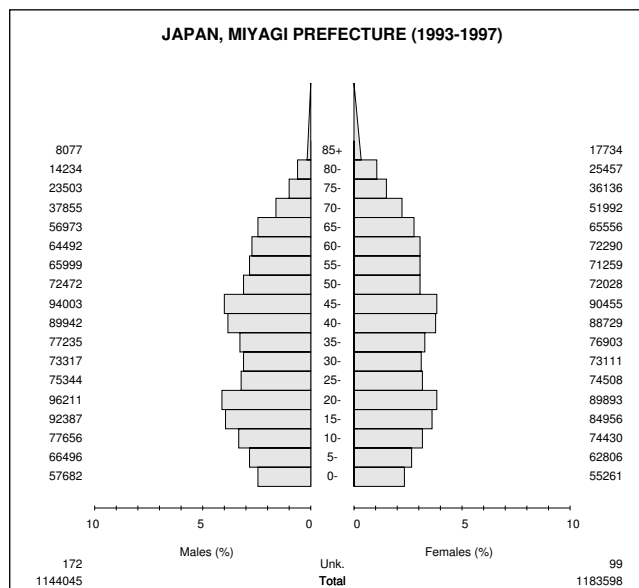
The Miyagi Prefectural Cancer Registry (formerly Miyagi Cancer Registry, initiated in 1951 by the late Professor Mitsuo Segi at the Department of Public Health, Tohoku University School of Medicine) marked its 41st year since registration was restarted in 1959. The registry has covered the entire prefecture from the beginning. The office has been located in the Miyagi Cancer Society since 1976. Miyagi Prefecture provides grants for cancer registration, and the Miyagi Cancer Society also supports it financially. All the work of the registry is the responsibility of the Registry Committee that comprises representatives of the Miyagi Medical Association, Tohoku University Graduate School of Medicine, Miyagi Prefecture, and the Miyagi Cancer Society.

Cancer cases are registered from clinics and hospitals (inpatients and outpatients), radiology and pathology departments, autopsy records, mass screening records and death certificates. Reporting by clinics and hospitals is voluntary. About 40% of cases are reported from hospitals and clinics, and 60% abstracted by the registry personnel. Multiple primary cancers are counted separately in computing incidence.

All death certificates of Miyagi Prefecture are collated with the registered cases. Until 1985, follow-up was passive, with only perusal of all death certificates. Active follow-up of the cases is not currently conducted.

Use of the data

In addition to providing descriptive data on cancer incidence, the data have been used for various epidemiological investigations including evaluation of screening programmes for cancers of the stomach, colon, prostate, cervix and breast, and population-based prospective cohort studies of cancer and lifestyle factors (such as smoking, drinking, and diet).



Source of population

1995 census. Other years are annual estimates based on the 1990 and 1995 census data.

Ref: 1995 Population Census of Japan, Vol. 2-2-04, Miyagi Ken.

Notes on the data

* The high proportion of cases registered on the basis of a death certificate alone indicates a degree of under-ascertainment and lack of validity.

***JAPAN, MIYAGI PREFECTURE (1993-1997)**

SITE	MALE						FEMALE						ICD-10
	§No. cases	Freq. (%)	Crude rate (per 100,000)	ASR world	Cum. rates (percent)		§No. cases	Freq. (%)	Crude rate (per 100,000)	ASR world	Cum. rates (percent)		
Lip	4	0.0	0.1	0.0	0.00	0.01	8	0.0	0.1	0.1	0.00	0.00	C00
Tongue	134	0.5	2.3	1.6	0.11	0.19	64	0.4	1.1	0.7	0.05	0.06	C01-02
Mouth	95	0.4	1.7	1.1	0.07	0.14	55	0.3	0.9	0.5	0.03	0.05	C03-06
Salivary glands	36	0.1	0.6	0.4	0.03	0.04	24	0.1	0.4	0.3	0.02	0.03	C07-08
Tonsil	17	0.1	0.3	0.2	0.01	0.02	3	0.0	0.1	0.0	0.00	0.00	C09
Other oropharynx	55	0.2	1.0	0.6	0.04	0.08	7	0.0	0.1	0.1	0.01	0.01	C10
Nasopharynx	41	0.2	0.7	0.5	0.04	0.05	24	0.1	0.4	0.3	0.02	0.03	C11
Hypopharynx	116	0.4	2.0	1.3	0.07	0.16	15	0.1	0.3	0.1	0.01	0.02	C12-13
Pharynx unspecified	16	0.1	0.3	0.2	0.01	0.02	3	0.0	0.1	0.0	0.00	0.00	C14
Oesophagus	1314	5.1	23.0	14.4	0.73	1.90	284	1.6	4.8	2.2	0.10	0.26	C15
Stomach	6247	24.1	109.2	69.0	3.66	8.42	3091	16.9	52.2	27.1	1.44	2.98	C16
Small intestine	51	0.2	0.9	0.6	0.03	0.08	42	0.2	0.7	0.4	0.02	0.03	C17
Colon	3108	12.0	54.3	34.6	1.91	4.29	2273	12.4	38.4	19.6	1.09	2.34	C18
Rectum	1815	7.0	31.7	20.5	1.24	2.52	1075	5.9	18.2	9.7	0.59	1.13	C19-20
Anus	20	0.1	0.3	0.2	0.01	0.03	11	0.1	0.2	0.1	0.00	0.01	C21
Liver	1531	5.9	26.8	17.1	0.98	2.17	679	3.7	11.5	5.4	0.24	0.68	C22
Gallbladder etc.	771	3.0	13.5	8.1	0.29	0.90	810	4.4	13.7	5.9	0.23	0.61	C23-24
Pancreas	944	3.6	16.5	10.2	0.46	1.17	729	4.0	12.3	5.5	0.22	0.61	C25
Nose, sinuses etc.	102	0.4	1.8	1.2	0.06	0.14	56	0.3	0.9	0.5	0.03	0.05	C30-31
Larynx	351	1.4	6.1	3.8	0.19	0.51	20	0.1	0.3	0.2	0.01	0.02	C32
Trachea, bronchus and lung	3984	15.4	69.6	41.9	1.51	5.13	1420	7.8	24.0	11.6	0.54	1.32	C33-34
Other thoracic organs	77	0.3	1.3	1.0	0.05	0.10	26	0.1	0.4	0.3	0.02	0.03	C37-38
Bone	53	0.2	0.9	0.8	0.05	0.07	43	0.2	0.7	0.6	0.04	0.05	C40-41
Melanoma of skin	25	0.1	0.4	0.3	0.02	0.03	29	0.2	0.5	0.3	0.02	0.03	C43
Other skin	243		4.2	2.7	0.12	0.23	225		3.8	1.6	0.06	0.15	C44
Mesothelioma	19	0.1	0.3	0.2	0.01	0.03	9	0.0	0.2	0.1	0.00	0.01	C45
Kaposi sarcoma	1	0.0	0.0	0.0	0.00	0.00	0	0.0	0.0	0.0	0.00	0.00	C46
Connective and soft tissue	96	0.4	1.7	1.5	0.08	0.12	69	0.4	1.2	0.9	0.06	0.09	C47+C49
Breast	21	0.1	0.4	0.2	0.01	0.03	2846	15.6	48.1	33.1	2.64	3.52	C50
Vulva							33	0.2	0.6	0.3	0.01	0.03	C51
Vagina							17	0.1	0.3	0.2	0.01	0.02	C52
Cervix uteri							497	2.7	8.4	5.8	0.45	0.60	C53
Corpus uteri							382	2.1	6.5	4.2	0.35	0.49	C54
Uterus unspecified							79	0.4	1.3	0.6	0.02	0.04	C55
Ovary							624	3.4	10.5	7.1	0.54	0.71	C56
Other female genital organs							6	0.0	0.1	0.1	0.00	0.01	C57
Placenta							1	0.0	0.0	0.0	0.00	0.00	C58
Penis	22	0.1	0.4	0.2	0.01	0.03							C60
Prostate	1274	4.9	22.3	12.7	0.24	1.28							C61
Testis	99	0.4	1.7	1.7	0.12	0.13							C62
Other male genital organs	15	0.1	0.3	0.2	0.01	0.02							C63
Kidney	433	1.7	7.6	5.1	0.33	0.60	235	1.3	4.0	2.3	0.15	0.25	C64
Renal pelvis	88	0.3	1.5	1.0	0.05	0.13	32	0.2	0.5	0.2	0.01	0.02	C65
Ureter	76	0.3	1.3	0.8	0.03	0.08	52	0.3	0.9	0.4	0.01	0.05	C66
Bladder	875	3.4	15.3	9.5	0.42	1.07	308	1.7	5.2	2.4	0.12	0.26	C67
Other urinary organs	18	0.1	0.3	0.2	0.01	0.02	18	0.1	0.3	0.1	0.00	0.01	C68
Eye	20	0.1	0.3	0.5	0.02	0.03	13	0.1	0.2	0.3	0.01	0.02	C69
Brain, nervous system	185	0.7	3.2	2.8	0.18	0.25	144	0.8	2.4	1.9	0.13	0.16	C70-72
Thyroid	125	0.5	2.2	1.5	0.11	0.17	771	4.2	13.0	9.3	0.75	0.96	C73
Adrenal gland	36	0.1	0.6	1.0	0.04	0.06	30	0.2	0.5	0.6	0.03	0.04	C74
Other endocrine	12	0.0	0.2	0.2	0.01	0.01	4	0.0	0.1	0.1	0.00	0.00	C75
Hodgkin disease	36	0.1	0.6	0.5	0.03	0.05	14	0.1	0.2	0.2	0.01	0.02	C81
Non-Hodgkin lymphoma	518	2.0	9.1	6.3	0.37	0.68	401	2.2	6.8	3.7	0.20	0.42	C82-85,C96
Immunoproliferative diseases	0	0.0	0.0	0.0	0.00	0.00	1	0.0	0.0	0.0	0.00	0.00	C88
Multiple myeloma	160	0.6	2.8	1.7	0.07	0.20	159	0.9	2.7	1.3	0.06	0.15	C90
Lymphoid leukaemia	116	0.4	2.0	2.1	0.11	0.15	97	0.5	1.6	1.6	0.09	0.13	C91
Myeloid leukaemia	258	1.0	4.5	3.2	0.18	0.34	167	0.9	2.8	1.8	0.11	0.18	C92-94
Leukaemia unspecified	31	0.1	0.5	0.4	0.02	0.03	32	0.2	0.5	0.4	0.02	0.03	C95
Other and unspecified	507	2.0	8.9	5.7	0.25	0.60	436	2.4	7.4	3.6	0.17	0.34	O&U
All sites	26191		457.9	291.5	14.41	34.52	18493		312.5	175.6	10.74	19.04	ALL
All sites but C44	25948	100.0	453.6	288.8	14.30	34.29	18268	100.0	308.7	174.0	10.69	18.88	ALLbC44

§Includes 17 cases of unknown age

§Includes 10 cases of unknown age

Japan, Nagasaki Prefecture

Registration area

Nagasaki Prefecture is located on the western end of the Japanese archipelago and is characterized by its large number of remote islands (71 inhabited islands) and beautiful scenery. The total area is 4090 km² and the population is about one and a half million. There are very few non-Japanese persons and foreigners are not included in the cancer registry. Approximately half of the prefecture population lives in either Nagasaki City or Sasebo City. Shipbuilding is the main industry in both of these cities. Fishing is one of the main industries of Nagasaki Prefecture. There were many coalmines in the Prefecture until a quarter of a century ago.

Registry structure and methods

Since 1958, the Radiation Effects Research Foundation (RERF, formerly called the Atomic Bomb Casualty Commission) has run a population-based tumour registry in Nagasaki City under the supervision of the Nagasaki City Medical Association Tumour Statistics Committee. Nagasaki is home to many survivors of the 1945 atomic bombing of the city. The Nagasaki City Tumour Registry was launched in order to determine cancer incidence among these people, and its coverage was extended to the greater Nagasaki Prefecture area as of 1985.

The registry work is carried out by RERF in cooperation with Nagasaki University and local medical associations with financial support from the prefectural government.

Although the registry depends partly on reports from physicians, this source is insufficient because physicians are under no obligation to provide information. From the very beginning, an active approach was adopted in order to obtain complete information, with staff members visiting medial institutions and abstracting data from patients' charts. Information on pathological diagnoses has been obtained for almost all cases in Nagasaki Prefecture. Information on most of these cases is collected through the Tissue Registry. This registry has covered all of Nagasaki Prefecture except the northern part since 1973, and collects not only pathological information but also tissue specimens to facilitate the review of diagnoses. The pathological information collected is sent to the cancer registry. All death information on the prefectural residents collected by local administrative bodies is also sent to the registry office.

Interpreting the results

Five cancer screening programmes for adults and a neuroblastoma screening programme for six month-old babies have been conducted in the Prefecture.

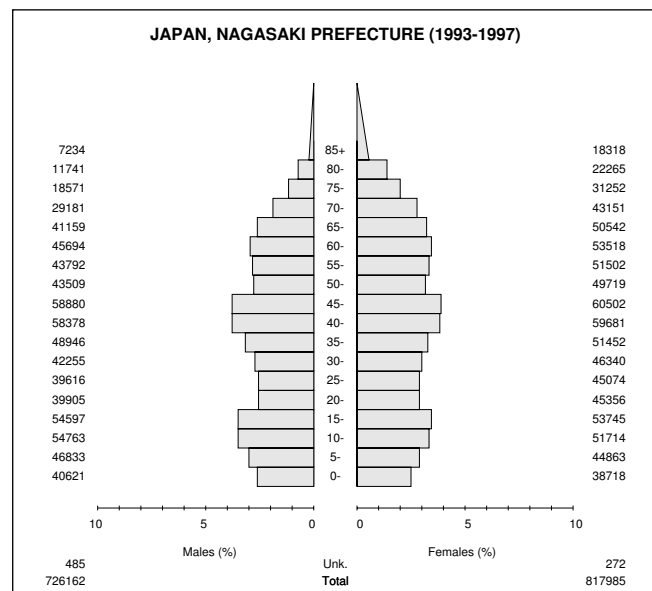
Women over age 30 have been screened for cervical cancer since 1983 (46 000 examinations annually) and for breast cancer since 1987 (44 000 examinations annually). The population over age 40 has been screened for stomach cancer since 1983 (50 000 examinations annually), for lung cancer since 1987 (112 000

examinations annually) and for large bowel since 1992 (42 000 examinations annually). Six-month-old babies have been screened for neuroblastoma since 1985 (14 000 examinations annually).

Otherwise since 1987 an intervention programme to prevent mother-to-child transmission of HTLV-I has been in operation because Nagasaki Prefecture is an endemic area of HTLV-I associated adult T-cell Leukemia/Lymphoma. Around 10 000 pregnant women were examined annually since 1987 and 6300 HTLV-I positive women have been detected up to present.

Use of the data

The registry produces an annual report on cancer incidence and mortality in Nagasaki Prefecture.



Source of population

1995 census. Other years are annual estimates based on the 1990 and 1995 census data.

Ref: 1995 Population Census of Japan.

Notes on the data

* The high proportion of cases registered on the basis of a death certificate alone indicates a degree of under-ascertainment and lack of validity.

Note that Nagasaki Prefecture is an endemic area of adult T-cell leukaemia/lymphoma. This diagnosis was coded as a lymphoma in the registry, and as leukaemia in the mortality data, which affects the ratio of mortality to incidence as well as incidence.

***JAPAN, NAGASAKI PREFECTURE (1993-1997)**

SITE	MALE						FEMALE						ICD-10
	No. cases	Freq. (%)	Crude rate (per 100,000)	ASR world	Cum. rates (percent)		No. cases	Freq. (%)	Crude rate (per 100,000)	ASR world	Cum. rates (percent)		
Lip	7	0.0	0.2	0.1	0.01	0.01	11	0.1	0.3	0.1	0.00	0.01	C00
Tongue	129	0.6	3.6	2.2	0.14	0.27	69	0.5	1.7	0.8	0.05	0.10	C01-02
Mouth	138	0.7	3.8	2.2	0.14	0.27	85	0.6	2.1	0.9	0.05	0.10	C03-06
Salivary glands	37	0.2	1.0	0.6	0.03	0.07	23	0.2	0.6	0.4	0.03	0.03	C07-08
Tonsil	22	0.1	0.6	0.4	0.03	0.04	6	0.0	0.1	0.1	0.00	0.01	C09
Other oropharynx	30	0.1	0.8	0.5	0.03	0.06	1	0.0	0.0	0.0	0.00	0.00	C10
Nasopharynx	30	0.1	0.8	0.6	0.04	0.05	2	0.0	0.0	0.0	0.00	0.00	C11
Hypopharynx	83	0.4	2.3	1.3	0.09	0.16	10	0.1	0.2	0.1	0.01	0.01	C12-13
Pharynx unspecified	24	0.1	0.7	0.4	0.02	0.05	7	0.0	0.2	0.1	0.01	0.01	C14
Oesophagus	614	3.1	16.9	9.6	0.60	1.22	116	0.8	2.8	1.1	0.06	0.12	C15
Stomach	4355	21.6	119.9	65.4	3.36	7.89	2311	15.8	56.5	25.6	1.43	2.86	C16
Small intestine	53	0.3	1.5	0.8	0.04	0.08	32	0.2	0.8	0.3	0.02	0.03	C17
Colon	2401	11.9	66.1	36.9	2.10	4.62	1820	12.5	44.5	19.5	1.05	2.28	C18
Rectum	1407	7.0	38.8	22.0	1.30	2.69	873	6.0	21.3	10.0	0.61	1.19	C19-20
‡Anus	9	0.0	0.2	0.1	0.00	0.01	24	0.2	0.6	0.2	0.01	0.03	C21
Liver	1941	9.6	53.5	30.7	1.96	3.97	815	5.6	19.9	8.4	0.39	1.05	C22
Gallbladder etc.	578	2.9	15.9	8.1	0.30	0.92	824	5.6	20.1	7.2	0.24	0.79	C23-24
Pancreas	607	3.0	16.7	8.8	0.41	1.05	539	3.7	13.2	4.9	0.19	0.56	C25
Nose, sinuses etc.	56	0.3	1.5	0.9	0.06	0.12	33	0.2	0.8	0.3	0.01	0.04	C30-31
Larynx	276	1.4	7.6	4.2	0.21	0.55	7	0.0	0.2	0.1	0.00	0.01	C32
Trachea, bronchus and lung	3127	15.5	86.1	43.9	1.58	5.28	1318	9.0	32.2	12.9	0.58	1.51	C33-34
Other thoracic organs	42	0.2	1.2	0.8	0.06	0.07	16	0.1	0.4	0.3	0.02	0.03	C37-38
Bone	27	0.1	0.7	0.6	0.04	0.05	23	0.2	0.6	0.5	0.03	0.04	C40-41
Melanoma of skin	26	0.1	0.7	0.4	0.02	0.04	24	0.2	0.6	0.3	0.01	0.03	C43
Other skin	387		10.7	5.5	0.20	0.55	435		10.6	3.6	0.12	0.33	C44
Mesothelioma	45	0.2	1.2	0.7	0.04	0.07	15	0.1	0.4	0.2	0.01	0.02	C45
Kaposi sarcoma	2	0.0	0.1	0.0	0.00	0.01	0	0.0	0.0	0.0	0.00	0.00	C46
Connective and soft tissue	46	0.2	1.3	0.8	0.06	0.09	38	0.3	0.9	0.6	0.04	0.06	C47+C49
Breast	19	0.1	0.5	0.3	0.02	0.04	1890	12.9	46.2	29.8	2.34	3.17	C50
Vulva							34	0.2	0.8	0.3	0.01	0.03	C51
Vagina							17	0.1	0.4	0.2	0.01	0.02	C52
Cervix uteri							654	4.5	16.0	10.9	0.81	1.07	C53
Corpus uteri							293	2.0	7.2	4.5	0.40	0.51	C54
Uterus unspecified							67	0.5	1.6	0.8	0.06	0.08	C55
Ovary							375	2.6	9.2	5.9	0.44	0.62	C56
Other female genital organs							20	0.1	0.5	0.3	0.02	0.04	C57
Placenta							3	0.0	0.1	0.1	0.01	0.01	C58
Penis	20	0.1	0.6	0.3	0.02	0.03							C60
Prostate	997	5.0	27.5	12.6	0.20	1.32							C61
Testis	39	0.2	1.1	1.2	0.08	0.08							C62
Other male genital organs	21	0.1	0.6	0.3	0.01	0.03							C63
Kidney	333	1.7	9.2	5.4	0.30	0.66	166	1.1	4.1	2.0	0.13	0.22	C64
Renal pelvis	74	0.4	2.0	1.1	0.04	0.14	32	0.2	0.8	0.3	0.01	0.04	C65
Ureter	67	0.3	1.8	0.9	0.04	0.11	35	0.2	0.9	0.3	0.01	0.03	C66
Bladder	788	3.9	21.7	11.2	0.48	1.26	256	1.8	6.3	2.4	0.10	0.26	C67
Other urinary organs	17	0.1	0.5	0.2	0.01	0.03	14	0.1	0.3	0.1	0.01	0.01	C68
Eye	7	0.0	0.2	0.2	0.01	0.01	8	0.1	0.2	0.3	0.01	0.02	C69
Brain, nervous system	112	0.6	3.1	2.4	0.13	0.22	111	0.8	2.7	2.0	0.12	0.18	C70-72
Thyroid	117	0.6	3.2	2.2	0.14	0.23	410	2.8	10.0	6.7	0.50	0.68	C73
Adrenal gland	18	0.1	0.5	0.7	0.03	0.03	13	0.1	0.3	0.6	0.03	0.03	C74
Other endocrine	12	0.1	0.3	0.3	0.02	0.02	4	0.0	0.1	0.1	0.01	0.01	C75
Hodgkin disease	12	0.1	0.3	0.3	0.02	0.03	16	0.1	0.4	0.3	0.01	0.03	C81
Non-Hodgkin lymphoma	510	2.5	14.0	8.2	0.46	0.93	371	2.5	9.1	4.4	0.25	0.46	C82-85,C96
Immunoproliferative diseases	0	0.0	0.0	0.0	0.00	0.00	0	0.0	0.0	0.0	0.00	0.00	C88
Multiple myeloma	110	0.5	3.0	1.6	0.07	0.17	109	0.7	2.7	1.0	0.04	0.13	C90
Lymphoid leukaemia	307	1.5	8.5	5.5	0.29	0.60	247	1.7	6.0	3.7	0.22	0.35	C91
Myeloid leukaemia	184	0.9	5.1	3.5	0.19	0.33	145	1.0	3.5	2.2	0.13	0.21	C92-94
Leukaemia unspecified	27	0.1	0.7	0.4	0.02	0.04	27	0.2	0.7	0.3	0.01	0.03	C95
Other and unspecified	223	1.1	6.1	3.4	0.15	0.31	240	1.6	5.9	2.7	0.11	0.26	O&U
All sites	20513		565.0	310.9	15.61	36.89	15034		367.6	180.7	10.77	19.73	ALL
All sites but C44	20126	100.0	554.3	305.4	15.42	36.35	14599	100.0	357.0	177.1	10.65	19.40	ALLbC44

‡33.3% of cases are anorectal tumours

Japan, Osaka Prefecture

Registration area

Osaka Prefecture is located in the central part of the main island of Japan. The surface area is the second smallest (1892 km²), but its population density is the highest (4651 per km²) among all prefectures in Japan. Osaka City is the capital of the Prefecture. The population of Osaka Prefecture was 8.8 million in the 1995 census. 98% were Japanese, 1.7% Korean, and 0.2% were Chinese. Of all workers, 36% are engaged in industry, 41% in commerce, 21% in personal services and 0.6% in agriculture.

Registry structure and methods

The Osaka Cancer Registry (OCR), covering Osaka Prefecture, has been operating in cooperation with the Osaka Prefectural Department of Health and Welfare (OPDHW), the Osaka Medical Association (OMA) and the Osaka Medical Centre for Cancer and Cardiovascular Diseases (OMCCD) since 1962. The registry is located in the Department of Cancer Control and Statistics of the OMCCD. The OMA requests all medical institutions located in the Prefecture to cooperate with cancer registration. Hospital doctors and general practitioners are asked to prepare cancer reports when they diagnose cancer cases and to send the reports to the OMA. Cancer reports are transferred monthly from the OMC to the central registry. Information of death certificates mentioning cancer among the residents is also obtained through the OPDHW.

The data are processed in an annual batch. Computerized record linkage is carried out to avoid duplicate registration, distinguish multiple primaries, and identify registered cases who died of cancer and cancer deaths that had not been registered. Computer-produced possible matches are printed and resolved manually through referring to the original reports.

In order to evaluate survival of cancer patients in Osaka Prefecture except for Osaka City, active follow-up to ascertain vital status has been undertaken progressively, and high-quality survival data are available for all patients diagnosed after 1993 in Osaka Prefecture. Less than 5% have been lost to follow-up at five years after diagnosis.

The OCR has implemented cancer information service programmes since 1975. The prognosis for reported patients, as well as cancer statistics for each hospital, are provided free at the request of participating hospitals or hospital doctors. The registry holds an annual conference to report on cancer registration activities, inviting representatives from all large and medium-sized general hospitals and clinical departments of medical university hospitals. Recently software has been developed and distributed to support hospital-based cancer registries, and for notification of cases to the OCR.

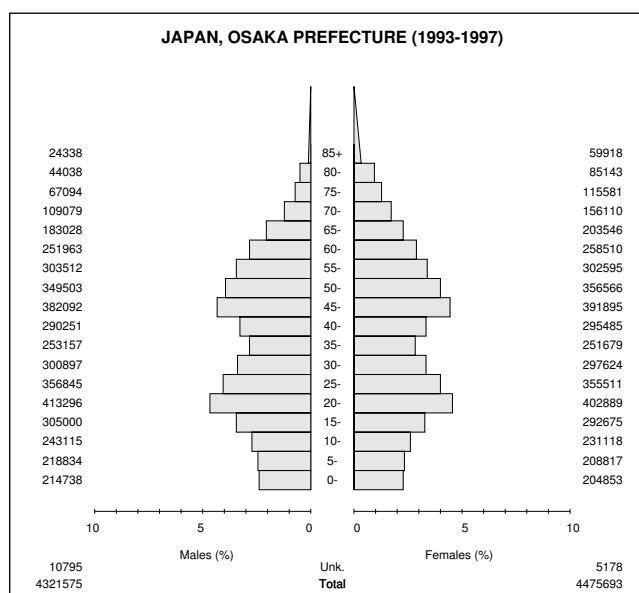
The movement demanding privacy protection is a big challenge for population-based cancer registries. In October 2000, the Executive Committee for Legislation on Privacy Protection sketched an outline of the Fundamental Law of Privacy Protection and submitted it to the Prime Minister of Japan. This requires informed consent for collection, transfer and use of personal data. The Government legislated for enactment of the Fundamental Law of Privacy Protection from the beginning of 2001. Meanwhile, the Japanese Association of Cancer Registries has been requesting that a cancer registration act be passed and that cancer registration be promoted in Japan.

Interpreting the results

Women over age 30 have been screened for cervical cancer since 1958 (227 652 examinations in 1995), and for breast cancer since 1987 (159 570 in 1995). The population over age 40 has been screened for stomach cancer since 1961 (147 580 in 1995), lung cancer since 1987 (139 218 in 1995) and large bowel cancer since 1992 (164 219 in 1995).

Use of the data

The major objectives of the OCR are (1) to estimate incidence rates, (2) to compute statistics on medical treatment given to cancer patients and (3) to estimate survival for cancer patients. Annual reports including these statistics have been published. Summary statistics of these can be seen in English at a web site of the OMCCD (<http://www.iph.pref.osaka.jp/omc/ocr/>). Japanese national incidence estimated by the Research Group for Cancer Registration in Japan is also available from this web site.



Source of population

1995 census. The data for 1993 and 1994 were estimated by linear interpolation from the 1990 and 1995 census data, and those for 1996 and 1997 were by linear extrapolation.

Refs: 1995 Population Census of Japan, Vol. 2-2-27 Osaka-Fu. Tokyo, 1996. 1990. Statistics Bureau, Management and Coordination Agency, Government of Japan, 1990 Population Census of Japan, Vol. 2-2-27 Osaka-Fu. Tokyo, 1991.

Notes on the data

* The high proportion of cases registered on the basis of a death certificate alone indicates a degree of under-ascertainment and lack of validity.

***JAPAN, OSAKA PREFECTURE (1993-1997)**

SITE	MALE						FEMALE						ICD-10
	§No. cases	Freq. (%)	Crude rate (per 100,000)	ASR world	Cum. rates (percent)		§No. cases	Freq. (%)	Crude rate (per 100,000)	ASR world	Cum. rates (percent)		
Lip	9	0.0	0.0	0.0	0.00	0.00	21	0.0	0.1	0.1	0.00	0.01	C00
Tongue	562	0.7	2.6	1.8	0.12	0.21	239	0.4	1.1	0.6	0.04	0.06	C01-02
Mouth	438	0.5	2.0	1.4	0.08	0.17	258	0.4	1.2	0.6	0.03	0.07	C03-06
Salivary glands	127	0.1	0.6	0.4	0.02	0.05	77	0.1	0.3	0.2	0.01	0.02	C07-08
Tonsil	93	0.1	0.4	0.3	0.02	0.04	16	0.0	0.1	0.0	0.00	0.01	C09
Other oropharynx	170	0.2	0.8	0.5	0.03	0.07	21	0.0	0.1	0.1	0.00	0.01	C10
Nasopharynx	159	0.2	0.7	0.5	0.04	0.06	52	0.1	0.2	0.1	0.01	0.02	C11
Hypopharynx	405	0.5	1.9	1.3	0.08	0.16	50	0.1	0.2	0.1	0.01	0.02	C12-13
Pharynx unspecified	40	0.0	0.2	0.1	0.01	0.01	7	0.0	0.0	0.0	0.00	0.00	C14
Oesophagus	3235	3.8	15.0	10.0	0.58	1.25	685	1.2	3.1	1.6	0.08	0.18	C15
Stomach	18942	22.3	87.7	59.9	2.93	7.04	9610	16.3	42.9	23.8	1.25	2.62	C16
Small intestine	211	0.2	1.0	0.7	0.03	0.08	127	0.2	0.6	0.3	0.02	0.04	C17
Colon	6975	8.2	32.3	22.1	1.05	2.63	5875	10.0	26.3	14.3	0.76	1.65	C18
Rectum	4294	5.1	19.9	13.5	0.77	1.65	2528	4.3	11.3	6.4	0.38	0.76	C19-20
Anus	66	0.1	0.3	0.2	0.01	0.02	83	0.1	0.4	0.2	0.01	0.02	C21
Liver	14083	16.6	65.2	44.5	2.49	5.87	4900	8.3	21.9	11.9	0.50	1.56	C22
Gallbladder etc.	1945	2.3	9.0	6.2	0.21	0.68	2380	4.0	10.6	5.3	0.19	0.57	C23-24
Pancreas	2990	3.5	13.8	9.4	0.43	1.09	2416	4.1	10.8	5.5	0.22	0.61	C25
Nose, sinuses etc.	248	0.3	1.1	0.8	0.05	0.09	149	0.3	0.7	0.4	0.02	0.05	C30-31
Larynx	997	1.2	4.6	3.2	0.15	0.41	72	0.1	0.3	0.2	0.01	0.02	C32
Trachea, bronchus and lung	14056	16.6	65.1	44.6	1.54	5.17	5740	9.7	25.6	13.3	0.55	1.50	C33-34
Other thoracic organs	148	0.2	0.7	0.5	0.03	0.06	105	0.2	0.5	0.3	0.02	0.03	C37-38
Bone	135	0.2	0.6	0.6	0.04	0.05	104	0.2	0.5	0.4	0.02	0.03	C40-41
Melanoma of skin	108	0.1	0.5	0.4	0.02	0.03	86	0.1	0.4	0.3	0.02	0.03	C43
Other skin	379		1.8	1.2	0.05	0.13	383		1.7	0.9	0.04	0.09	C44
Mesothelioma	211	0.2	1.0	0.7	0.03	0.08	73	0.1	0.3	0.2	0.01	0.02	C45
Kaposi sarcoma	0	0.0	0.0	0.0	0.00	0.00	0	0.0	0.0	0.0	0.00	0.00	C46
Connective and soft tissue	213	0.3	1.0	0.9	0.05	0.08	213	0.4	1.0	0.8	0.04	0.07	C47+C49
Breast	49	0.1	0.2	0.2	0.01	0.02	9308	15.8	41.6	27.9	2.20	2.96	C50
Vulva							99	0.2	0.4	0.2	0.01	0.02	C51
Vagina							80	0.1	0.4	0.2	0.01	0.02	C52
Cervix uteri							2382	4.0	10.6	7.1	0.50	0.76	C53
Corpus uteri							1118	1.9	5.0	3.2	0.26	0.37	C54
Uterus unspecified							473	0.8	2.1	1.0	0.05	0.10	C55
Ovary							1948	3.3	8.7	5.7	0.41	0.60	C56
Other female genital organs							27	0.0	0.1	0.1	0.01	0.01	C57
Placenta							8	0.0	0.0	0.0	0.00	0.00	C58
Penis	61	0.1	0.3	0.2	0.01	0.02							C60
Prostate	2818	3.3	13.0	9.0	0.17	0.88							C61
Testis	291	0.3	1.3	1.2	0.09	0.10							C62
Other male genital organs	37	0.0	0.2	0.1	0.00	0.02							C63
Kidney	1337	1.6	6.2	4.4	0.23	0.49	571	1.0	2.6	1.6	0.09	0.16	C64
Renal pelvis	255	0.3	1.2	0.8	0.03	0.10	103	0.2	0.5	0.2	0.01	0.03	C65
Ureter	219	0.3	1.0	0.7	0.03	0.09	145	0.2	0.6	0.3	0.01	0.04	C66
Bladder	2554	3.0	11.8	8.1	0.31	0.88	770	1.3	3.4	1.7	0.06	0.18	C67
Other urinary organs	22	0.0	0.1	0.1	0.00	0.01	20	0.0	0.1	0.0	0.00	0.00	C68
Eye	34	0.0	0.2	0.3	0.01	0.01	19	0.0	0.1	0.2	0.01	0.01	C69
Brain, nervous system	673	0.8	3.1	2.7	0.15	0.24	652	1.1	2.9	2.1	0.11	0.19	C70-72
Thyroid	350	0.4	1.6	1.2	0.07	0.12	1311	2.2	5.9	3.8	0.26	0.41	C73
Adrenal gland	84	0.1	0.4	0.6	0.03	0.04	62	0.1	0.3	0.5	0.02	0.02	C74
Other endocrine	47	0.1	0.2	0.2	0.01	0.02	36	0.1	0.2	0.1	0.01	0.01	C75
Hodgkin disease	104	0.1	0.5	0.4	0.02	0.04	63	0.1	0.3	0.2	0.01	0.02	C81
Non-Hodgkin lymphoma	1842	2.2	8.5	6.3	0.32	0.65	1304	2.2	5.8	3.6	0.20	0.37	C82-85,C96
Immunoproliferative diseases	15	0.0	0.1	0.0	0.00	0.01	4	0.0	0.0	0.0	0.00	0.00	C88
Multiple myeloma	467	0.6	2.2	1.5	0.05	0.16	413	0.7	1.8	1.0	0.04	0.11	C90
Lymphoid leukaemia	439	0.5	2.0	2.2	0.12	0.16	361	0.6	1.6	1.6	0.09	0.13	C91
Myeloid leukaemia	883	1.0	4.1	3.2	0.18	0.32	594	1.0	2.7	2.1	0.13	0.18	C92-94
Leukaemia unspecified	155	0.2	0.7	0.6	0.03	0.05	127	0.2	0.6	0.4	0.02	0.03	C95
Other and unspecified	1235	1.5	5.7	4.1	0.16	0.41	1107	1.9	4.9	2.7	0.12	0.27	O&U
All sites	85210		394.3	273.7	12.91	31.98	59375		265.3	155.5	8.89	17.09	ALL
All sites but C44	84831	100.0	392.6	272.4	12.86	31.85	58992	100.0	263.6	154.6	8.85	17.00	ALLbC44

§Includes 7 cases of unknown age

§Includes 15 cases of unknown age

Japan, Saga Prefecture

Registration area

Saga Prefecture is located in the northern part of Kyusyu island, in southwestern Japan, and covers an area of 2439 km², between latitudes 32° and 33° N and longitudes 129° and 130° E.

There are seven cities, 37 towns and five villages in the prefecture. The population was 884 316 in 1995 and more than 99% were Japanese. Most Japanese citizens are Buddhist. Saga is not a highly industrialized area and its major industry is agriculture. Saga is famous for its pottery works named Imari, Arita and Karatsu.

Registry structure and methods

The Saga Cancer Survey was conducted from 1973 by the Saga Prefectural Government, cooperating with the Saga Medical Association (SMA), until it was redesigned as the population-based Saga Cancer Registry in 1984. Since 1998, it has been set up within the Saga General Health Association. The Welfare and Health Department of Saga Prefectural Government is responsible for financial support for the registry.

Case-finding and data collection are carried out both actively and passively. The registry requests all doctors and medical institutions to mail cancer case reports (on a voluntary basis) to SMA. Monthly reports are transferred from SMA to the registry and death certificates from all of the local health centres. The registry staff (a medical doctor, a registered medical record administrator and one registrar) visits major hospitals to collect information on cancer cases from the patients' charts. Since cancer registries have been organized in the neighbouring prefecture of Nagasaki, relevant case reports are exchanged.

A unique personal computer system has been developed by a software company to process the data since 1992. Cancer cases abstracted and/or reported are collated and coded. Duplicate entries are identified by linking data on date of birth, name, sex, cancer (site and morphology) and address by the computer as well as manually. Reports of possible multiple primary tumours are carefully reviewed in terms of cancer site, histological type, and time at diagnosis.

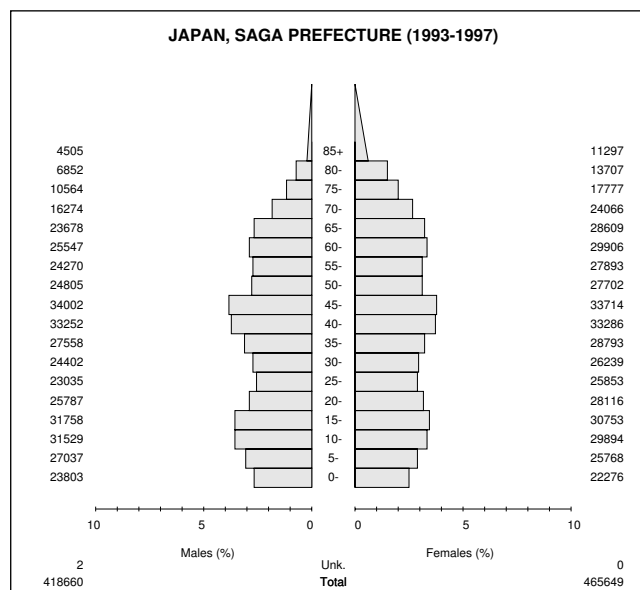
Interpreting the results

Cancer has been the leading cause of death in Saga prefecture since 1978. The most prominent characteristic of cancer in Saga prefecture is the extremely high mortality from liver cancer, which is responsible for the high mortality from cancer. Within the prefecture, mortality from cancer of all sites, stomach and liver is higher on the Ariake sea coast and liver cancer is especially higher in the eastern part.

A great effort has been made to improve accuracy and completeness. However, follow-up is not done routinely and detailed analyses on prognosis have not been fully performed.

Use of the data

The cancer registry aims to provide information on the nature and extent of the cancer burden in Saga, and gives statistical support to the "Cancer Death Prevention Project" of Saga Prefecture. An annual report is published on cancer incidence and mortality in Saga. The data have been used for several epidemiological studies on primary, secondary, and tertiary prevention of cancer.



Source of population

1995 census. Other years are annual estimates based on the 1990 and 1995 census data, taking into account births, deaths and migration.

Ref: 1995 Population Census of Japan.

Notes on the data

* The high proportion of cases registered on the basis of a death certificate alone indicates a degree of under-ascertainment and lack of validity.

***JAPAN, SAGA PREFECTURE (1993-1997)**

SITE	MALE						FEMALE						ICD-10
	§No. cases	Freq. (%)	Crude rate (per 100,000)	ASR world	Cum. rates 0-64 0-74 (percent)		No. cases	Freq. (%)	Crude rate (per 100,000)	ASR world	Cum. rates 0-64 0-74 (percent)		
Lip	3	0.0	0.1	0.1	0.00	0.01	2	0.0	0.1	0.0	0.00	0.00	C00
Tongue	53	0.5	2.5	1.5	0.10	0.18	41	0.6	1.8	0.9	0.06	0.09	C01-02
Mouth	48	0.5	2.3	1.4	0.08	0.16	42	0.6	1.8	0.7	0.03	0.07	C03-06
Salivary glands	16	0.2	0.8	0.5	0.04	0.05	14	0.2	0.6	0.4	0.02	0.04	C07-08
Tonsil	2	0.0	0.1	0.1	0.00	0.01	0	0.0	0.0	0.0	0.00	0.00	C09
Other oropharynx	24	0.2	1.1	0.7	0.05	0.10	4	0.1	0.2	0.1	0.00	0.01	C10
Nasopharynx	16	0.2	0.8	0.5	0.04	0.05	8	0.1	0.3	0.2	0.01	0.03	C11
Hypopharynx	49	0.5	2.3	1.4	0.11	0.18	3	0.0	0.1	0.1	0.00	0.01	C12-13
Pharynx unspecified	5	0.0	0.2	0.2	0.01	0.02	2	0.0	0.1	0.0	0.00	0.00	C14
Oesophagus	307	3.0	14.7	8.2	0.49	1.04	49	0.7	2.1	0.9	0.05	0.11	C15
Stomach	2424	23.6	115.8	63.6	3.23	7.78	1326	17.8	57.0	24.9	1.32	2.83	C16
Small intestine	30	0.3	1.4	0.8	0.03	0.11	14	0.2	0.6	0.3	0.01	0.04	C17
Colon	938	9.1	44.8	24.6	1.21	3.02	809	10.9	34.7	15.0	0.80	1.72	C18
Rectum	569	5.5	27.2	15.1	0.80	1.77	345	4.6	14.8	7.0	0.42	0.80	C19-20
‡Anus	8	0.1	0.4	0.2	0.01	0.03	18	0.2	0.8	0.3	0.01	0.04	C21
Liver	1398	13.6	66.8	38.4	2.36	4.85	650	8.7	27.9	11.5	0.53	1.46	C22
Gallbladder etc.	305	3.0	14.6	7.1	0.22	0.71	437	5.9	18.8	6.6	0.26	0.71	C23-24
Pancreas	362	3.5	17.3	9.0	0.41	1.02	353	4.7	15.2	5.3	0.20	0.57	C25
Nose, sinuses etc.	34	0.3	1.6	1.0	0.06	0.11	19	0.3	0.8	0.4	0.02	0.04	C30-31
Larynx	117	1.1	5.6	3.1	0.17	0.41	11	0.1	0.5	0.2	0.01	0.01	C32
Trachea, bronchus and lung	1660	16.2	79.3	40.5	1.42	4.88	647	8.7	27.8	10.5	0.47	1.16	C33-34
Other thoracic organs	31	0.3	1.5	1.0	0.06	0.10	6	0.1	0.3	0.2	0.01	0.02	C37-38
Bone	9	0.1	0.4	0.3	0.03	0.03	11	0.1	0.5	0.4	0.03	0.03	C40-41
Melanoma of skin	26	0.3	1.2	0.8	0.05	0.08	27	0.4	1.2	0.6	0.04	0.06	C43
Other skin	94		4.5	2.5	0.11	0.24	104		4.5	1.5	0.05	0.14	C44
Mesothelioma	10	0.1	0.5	0.3	0.02	0.03	6	0.1	0.3	0.1	0.01	0.01	C45
Kaposi sarcoma	0	0.0	0.0	0.0	0.00	0.00	0	0.0	0.0	0.0	0.00	0.00	C46
Connective and soft tissue	16	0.2	0.8	0.6	0.04	0.05	14	0.2	0.6	0.4	0.02	0.04	C47+C49
Breast	7	0.1	0.3	0.2	0.00	0.01	834	11.2	35.8	23.6	1.91	2.53	C50
Vulva							17	0.2	0.7	0.3	0.01	0.04	C51
Vagina							5	0.1	0.2	0.1	0.01	0.01	C52
Cervix uteri							349	4.7	15.0	9.8	0.76	0.97	C53
Corpus uteri							148	2.0	6.4	4.0	0.34	0.43	C54
Uterus unspecified							41	0.6	1.8	0.6	0.03	0.05	C55
Ovary							226	3.0	9.7	5.8	0.42	0.60	C56
Other female genital organs							4	0.1	0.2	0.1	0.01	0.01	C57
Placenta							3	0.0	0.1	0.1	0.01	0.01	C58
Penis	8	0.1	0.4	0.2	0.00	0.02							C60
Prostate	465	4.5	22.2	10.5	0.24	1.07							C61
Testis	26	0.3	1.2	1.3	0.09	0.09							C62
Other male genital organs	3	0.0	0.1	0.1	0.01	0.01							C63
Kidney	124	1.2	5.9	3.5	0.20	0.39	87	1.2	3.7	1.7	0.09	0.19	C64
Renal pelvis	43	0.4	2.1	1.0	0.04	0.13	12	0.2	0.5	0.2	0.01	0.01	C65
Ureter	33	0.3	1.6	0.8	0.03	0.09	18	0.2	0.8	0.3	0.01	0.03	C66
Bladder	312	3.0	14.9	7.8	0.30	0.90	115	1.5	4.9	1.6	0.05	0.17	C67
Other urinary organs	3	0.0	0.1	0.1	0.00	0.00	5	0.1	0.2	0.1	0.01	0.01	C68
Eye	3	0.0	0.1	0.1	0.00	0.00	2	0.0	0.1	0.0	0.00	0.00	C69
Brain, nervous system	53	0.5	2.5	2.0	0.10	0.16	69	0.9	3.0	2.1	0.13	0.18	C70-72
Thyroid	39	0.4	1.9	1.3	0.09	0.14	108	1.5	4.6	3.0	0.22	0.33	C73
Adrenal gland	12	0.1	0.6	0.6	0.03	0.05	6	0.1	0.3	0.3	0.01	0.02	C74
Other endocrine	4	0.0	0.2	0.2	0.01	0.01	3	0.0	0.1	0.1	0.01	0.01	C75
Hodgkin disease	7	0.1	0.3	0.3	0.02	0.03	2	0.0	0.1	0.1	0.00	0.00	C81
Non-Hodgkin lymphoma	265	2.6	12.7	7.7	0.41	0.85	173	2.3	7.4	3.8	0.21	0.43	C82-85,C96
Immunoproliferative diseases	0	0.0	0.0	0.0	0.00	0.00	0	0.0	0.0	0.0	0.00	0.00	C88
Multiple myeloma	61	0.6	2.9	1.6	0.08	0.22	65	0.9	2.8	1.0	0.03	0.13	C90
Lymphoid leukaemia	94	0.9	4.5	3.2	0.19	0.33	91	1.2	3.9	2.8	0.18	0.26	C91
Myeloid leukaemia	112	1.1	5.4	3.5	0.19	0.36	87	1.2	3.7	2.3	0.16	0.23	C92-94
Leukaemia unspecified	8	0.1	0.4	0.2	0.01	0.02	11	0.1	0.5	0.2	0.01	0.01	C95
Other and unspecified	130	1.3	6.2	3.4	0.13	0.33	106	1.4	4.6	1.9	0.08	0.18	O&U
All sites	10366		495.2	272.9	13.30	32.24	7549		324.2	154.5	9.11	16.90	ALL
All sites but C44	10272	100.0	490.7	270.4	13.19	32.00	7445	100.0	319.8	153.0	9.06	16.76	ALLbC44

§Includes 1 case of unknown age

‡75.0% of cases are anorectal tumours

‡50.0% of cases are anorectal tumours

Japan, Yamagata Prefecture

Registration area

Yamagata prefecture is located in the north-eastern part of the Japanese archipelago, between latitudes 37° and 39° N and longitudes 139° and 140° E, and is bordered to the west by the sea of Japan. It covers an area of 9323 km². Yamagata City, the capital of Yamagata prefecture, is situated about 290 km north of Tokyo. The annual mean temperature of the city is 12.4° C and the annual rainfall is about 1415 mm. The maximum altitude in Yamagata prefecture is 2236 m above sea level. Yamagata has the world-famous ski resort Zao as well as numerous hot springs, thus attracting many visitors for tourism and recreation. Further, Yamagata produces a variety of fruits such as cherries, apples and grapes and is also blessed with rich food resources like beef, Japanese noodle (soya), Japanese alcohol (sake) and wine.

The population of the prefecture is about 1 249 516 and 99.6% are Japanese. The population density is among the lowest in Japan, because the country is mountainous and cold. There are 13 cities, 27 towns and four villages. About 657 000 people are employed: 35.3% in industry, 12.5% in agriculture, 22.0% in commerce and 21.4% in personal services. In 1974 the Yamagata Prefectural Cancer Registry was established by the Yamagata Prefectural Government, cooperating with the Yamagata Medical Association and the Yamagata Prefectural Medical Centre for Adults. The Yamagata Prefectural Health Department is responsible for the financial support of the registry.

Cancer care facilities

There are some 14 727 beds in 68 hospitals, approximately 11.8 beds per 1000 residents.

Registry structure and methods

The Yamagata Medical Association requests physicians and hospital doctors to report cancer patients newly diagnosed or treated. The central registry, which is located in the Yamagata Prefectural Medical Centre for Adults, collects cancer reports transferred from the Yamagata Medical Association and copies of all death certificates from four health centres in the prefecture.

Collection of data on cancer cases depends upon voluntary case reports, lists of mass screening and death certificates. Members of Yamagata Prefectural Medical Centre for Adults visit several large hospitals to search for cancer patients in the pathological lists, and the physicians then record the clinical stage, diagnostic procedures, etc. The case cards are sent to the Cancer Registration Centre through the Yamagata Medical Association. Case cards from this system constitute about 20% of all registrations.

It is relatively easy to follow up registered patients because only a few move out of the prefecture. Vital status at five years from diagnosis is unknown for 0.4% of incident cases

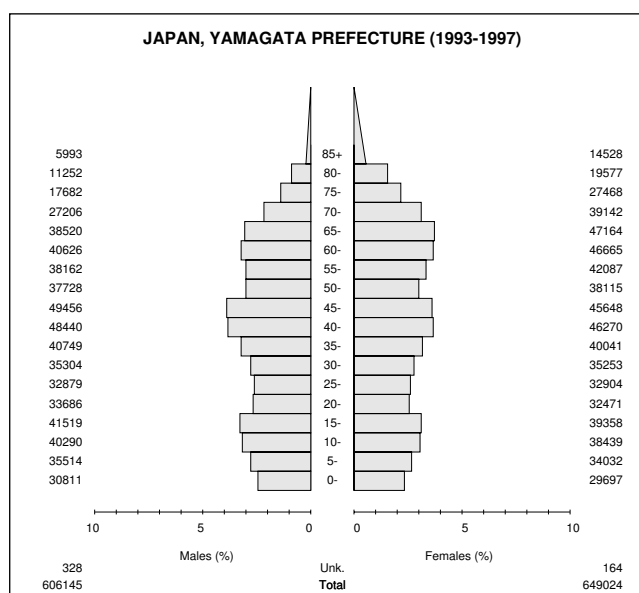
Interpreting the results

Unfortunately, cancer registration from all hospitals is not yet complete in Yamagata Prefecture.

Use of the data

Cancer registration is essential for evaluation of mass screening. The effectiveness of cancer screening for stomach, lung and uterine cancer for the 20-year period 1976–95 has been investigated. The proportion of patients diagnosed by screening for stomach cancer from increased gradually from 10.8 to 26.7%. For lung cancer and uterine cancer, the percentage of patients diagnosed by screening did not increase. The full results of the study suggested that screening for stomach cancer was the most efficacious in improving survival.

The results of the cancer registry are published as annual reports, giving the statistics on cancer incidence and the five-year survival rates.



Source of population

1995 census. Other years are annual estimates produced by the Statistical Division of Yamagata Prefecture, based on the 1990 and 1995 census data, taking into account births, deaths and migration.

Ref: 1995 Population Census of Japan, Vol. 2, Part 2, 06 Yamagata-ken.

Notes on the data

* The high proportion of cases registered on the basis of a death certificate alone indicates a degree of under-ascertainment and lack of validity.

***JAPAN, YAMAGATA PREFECTURE (1993-1997)**

SITE	MALE						FEMALE						ICD-10
	No. cases	Freq. (%)	Crude rate (per 100,000)	ASR world	Cum. rates (percent)		No. cases	Freq. (%)	Crude rate (per 100,000)	ASR world	Cum. rates (percent)		
Lip	4	0.0	0.1	0.1	0.01	0.01	3	0.0	0.1	0.0	0.00	0.01	C00
Tongue	39	0.2	1.3	0.8	0.06	0.09	30	0.2	0.9	0.4	0.02	0.04	C01-02
Mouth	60	0.4	2.0	1.0	0.06	0.14	28	0.2	0.9	0.4	0.01	0.04	C03-06
Salivary glands	19	0.1	0.6	0.3	0.01	0.03	10	0.1	0.3	0.2	0.01	0.02	C07-08
Tonsil	2	0.0	0.1	0.0	0.00	0.00	2	0.0	0.1	0.0	0.00	0.00	C09
Other oropharynx	16	0.1	0.5	0.2	0.01	0.02	1	0.0	0.0	0.0	0.00	0.00	C10
Nasopharynx	39	0.2	1.3	0.9	0.06	0.10	8	0.1	0.2	0.1	0.01	0.01	C11
Hypopharynx	40	0.2	1.3	0.7	0.04	0.08	16	0.1	0.5	0.3	0.02	0.03	C12-13
Pharynx unspecified	10	0.1	0.3	0.2	0.01	0.02	3	0.0	0.1	0.0	0.00	0.00	C14
Oesophagus	752	4.4	24.8	12.2	0.61	1.59	104	0.8	3.2	1.1	0.06	0.12	C15
Stomach	5409	31.6	178.5	91.6	5.06	11.10	3055	24.4	94.1	38.9	2.10	4.48	C16
Small intestine	39	0.2	1.3	0.7	0.03	0.08	29	0.2	0.9	0.4	0.03	0.05	C17
Colon	1999	11.7	66.0	33.9	1.91	4.14	1736	13.8	53.5	22.0	1.23	2.59	C18
Rectum	1202	7.0	39.7	20.8	1.21	2.57	804	6.4	24.8	10.8	0.66	1.27	C19-20
Anus	13	0.1	0.4	0.2	0.01	0.03	9	0.1	0.3	0.1	0.01	0.01	C21
Liver	948	5.5	31.3	15.4	0.76	1.96	524	4.2	16.1	5.5	0.18	0.72	C22
Gallbladder etc.	563	3.3	18.6	8.3	0.26	0.95	696	5.6	21.4	7.0	0.25	0.80	C23-24
Pancreas	605	3.5	20.0	9.5	0.39	1.15	519	4.1	16.0	5.4	0.21	0.60	C25
Nose, sinuses etc.	51	0.3	1.7	0.9	0.06	0.11	21	0.2	0.6	0.2	0.01	0.03	C30-31
Larynx	143	0.8	4.7	2.4	0.12	0.31	8	0.1	0.2	0.1	0.01	0.01	C32
Trachea, bronchus and lung	2617	15.3	86.3	39.8	1.46	4.71	944	7.5	29.1	11.3	0.60	1.25	C33-34
Other thoracic organs	27	0.2	0.9	0.7	0.04	0.07	20	0.2	0.6	0.3	0.02	0.04	C37-38
Bone	13	0.1	0.4	0.4	0.02	0.03	10	0.1	0.3	0.2	0.01	0.02	C40-41
Melanoma of skin	18	0.1	0.6	0.3	0.01	0.03	30	0.2	0.9	0.5	0.03	0.05	C43
Other skin	77		2.5	1.4	0.06	0.13	106		3.3	1.1	0.03	0.10	C44
Mesothelioma	9	0.1	0.3	0.2	0.01	0.02	3	0.0	0.1	0.0	0.00	0.00	C45
Kaposi sarcoma	0	0.0	0.0	0.0	0.00	0.00	0	0.0	0.0	0.0	0.00	0.00	C46
Connective and soft tissue	16	0.1	0.5	0.4	0.02	0.03	16	0.1	0.5	0.3	0.02	0.03	C47+C49
Breast	11	0.1	0.4	0.2	0.01	0.02	1479	11.8	45.6	28.3	2.24	3.00	C50
Vulva							21	0.2	0.6	0.2	0.00	0.02	C51
Vagina							6	0.0	0.2	0.1	0.01	0.01	C52
Cervix uteri							245	2.0	7.5	4.7	0.36	0.45	C53
Corpus uteri							214	1.7	6.6	3.9	0.34	0.45	C54
Uterus unspecified							57	0.5	1.8	0.7	0.04	0.07	C55
Ovary							292	2.3	9.0	5.2	0.39	0.51	C56
Other female genital organs							2	0.0	0.1	0.0	0.00	0.00	C57
Placenta							5	0.0	0.2	0.1	0.01	0.01	C58
Penis	12	0.1	0.4	0.2	0.01	0.03							C60
Prostate	679	4.0	22.4	9.3	0.14	1.00							C61
Testis	28	0.2	0.9	1.0	0.07	0.07							C62
Other male genital organs	2	0.0	0.1	0.0	0.00	0.01							C63
Kidney	216	1.3	7.1	3.6	0.18	0.45	104	0.8	3.2	1.2	0.06	0.14	C64
Renal pelvis	48	0.3	1.6	0.8	0.03	0.09	20	0.2	0.6	0.2	0.01	0.02	C65
Ureter	46	0.3	1.5	0.7	0.03	0.08	34	0.3	1.0	0.4	0.01	0.04	C66
Bladder	459	2.7	15.1	7.3	0.29	0.81	192	1.5	5.9	1.9	0.07	0.17	C67
Other urinary organs	7	0.0	0.2	0.1	0.00	0.01	4	0.0	0.1	0.0	0.00	0.00	C68
Eye	0	0.0	0.0	0.0	0.00	0.00	1	0.0	0.0	0.0	0.00	0.00	C69
Brain, nervous system	110	0.6	3.6	2.3	0.14	0.23	99	0.8	3.1	1.8	0.11	0.16	C70-72
Thyroid	60	0.4	2.0	1.3	0.09	0.13	374	3.0	11.5	7.5	0.59	0.77	C73
Adrenal gland	2	0.0	0.1	0.0	0.00	0.01	4	0.0	0.1	0.1	0.01	0.01	C74
Other endocrine	0	0.0	0.0	0.0	0.00	0.00	3	0.0	0.1	0.1	0.00	0.01	C75
Hodgkin disease	6	0.0	0.2	0.1	0.01	0.01	3	0.0	0.1	0.1	0.00	0.01	C81
Non-Hodgkin lymphoma	274	1.6	9.0	5.1	0.30	0.54	244	1.9	7.5	3.6	0.23	0.39	C82-85,C96
Immunoproliferative diseases	3	0.0	0.1	0.0	0.00	0.01	1	0.0	0.0	0.0	0.00	0.00	C88
Multiple myeloma	97	0.6	3.2	1.6	0.07	0.20	100	0.8	3.1	1.1	0.04	0.12	C90
Lymphoid leukaemia	34	0.2	1.1	1.1	0.06	0.07	41	0.3	1.3	1.1	0.06	0.09	C91
Myeloid leukaemia	159	0.9	5.2	3.1	0.17	0.30	118	0.9	3.6	2.4	0.14	0.23	C92-94
Leukaemia unspecified	23	0.1	0.8	0.5	0.02	0.05	12	0.1	0.4	0.3	0.02	0.03	C95
Other and unspecified	205	1.2	6.8	3.4	0.14	0.33	231	1.8	7.1	2.7	0.13	0.25	O&U
All sites	17211		567.9	284.8	14.09	33.97	12641		389.5	174.7	10.42	19.27	ALL
All sites but C44	17134	100.0	565.3	283.4	14.03	33.84	12535	100.0	386.3	173.6	10.38	19.17	ALLbC44

Korea, Busan

Registration area

The city of Busan is located on the southeastern tip of the Korean Peninsula, between latitudes 34° and 35° N, and longitudes 128° and 129° E. The city has an area of 531.17 km². At the 1995 census, the total population of Busan was 3 892 972, of which 99.6% were Korean.

Busan is the second largest city in Korea and comprises 16 administrative districts. It is also the fourth largest container port in the world, handling 6.4 million TEUs (twenty-foot equivalent) in 1999. About 15% of the local workforce is in the port-related industry, and more than 35% of the GRDP is dependent upon the port business.

The main industries were manufacturing of soap, nylon, fabric, and paint in the 1960s, and the production of shoes, textile, and plywood in the 1970s.

In total approximately 1 600 000 people are employed in the city: 2.4% in agriculture including fishing, 23.3% in industry, and 74.2% in commerce and the service industry

Registry structure and methods

Busan Cancer Registry (BSCR) was established in 1996 in cooperation with the Cancer Centres of four university hospitals, and has administratively been supported by the Department of Public Health and Sanitation of Busan City and the Medical Association of Busan. The Korean National Cancer Control Program is responsible for the financial support of the registry.

In 1980, the nationwide, hospital-based Korea Central Cancer Registry (KCCR) was established, managed by the Ministry of Health and Welfare (MOHW). All in-patient cancer cases are voluntarily notified to the KCCR by the Medical Record Department of about 80% of teaching hospitals.

In 1995, a pilot study was conducted to expand the pre-existing hospital-based registry into a population-based registry for Busan. It was found that 72% (67% from hospitals in Busan; 5% from other places) of the total incidental cancer cases could be registered using the KCCR data and the remaining 28% could be collected by active registration.

In Busan, there are 27 large hospitals including four university hospitals and an additional 43 medium- and small-sized hospitals. Among these, 16 teaching hospitals notify all inpatient cases as well as some outpatient cases to KCCR. The KCCR annually gives information to the BSCR on the cancer patients with an address in Busan at the time when the initial diagnosis of cancer is made. Cancer cases from hospitals in other places are treated similarly. Additional cancer cases from outpatient clinics are identified from the records of the Departments of Anatomical Pathology, Diagnostic Radiology, and Radiation Oncology.

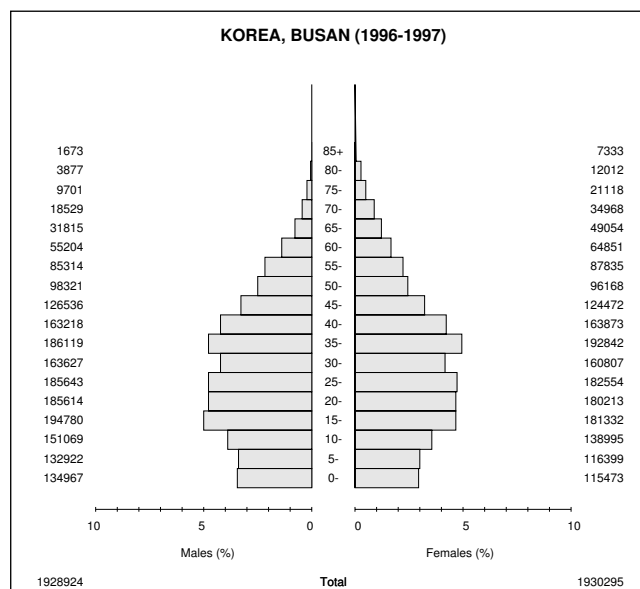
Three part-time medical officers visit 54 hospitals that are currently not notifying cancer patients to the KCCR, and collect the medical records of newly diagnosed cancer patients. They register the cancer cases, which are then scrutinized by registry faculty members under the supervision of the registry Director.

Death certificates for all cancer patients are obtained annually from the National Statistical Office, and are compared with the file entries of cases in the registry. If a deceased person was not registered before death, the staff obtain the medical records from the hospital where the case was diagnosed and treated.

Use of the data

The registry holds an annual conference to report and discuss cancer registration activities in Busan, and invites oncologists from the cancer centres of the four University hospitals, representatives of the Association of anatomical pathologists and diagnostic radiologists, radiation therapists, and medical recorders of the hospitals in Busan. The President of the Medical Association of Busan and the Chief of the Department of Public Health and Hygiene of Busan City are also invited.

The data are published in an annual report, which currently provides the basic statistics on cancer incidence that may be helpful for the evaluation of survival of cancer patients in the future.



Source of population

The estimates of the population-at-risk are based on the 1995 Census, making allowance for births, deaths and migration.

Notes on the data

* The high proportion of cases registered on the basis of a death certificate alone indicates a degree of under-ascertainment and lack of validity. The data are for the first two years of registration and it is difficult to evaluate the stability of the rates.

***KOREA, BUSAN (1996-1997)**

SITE	MALE						FEMALE						ICD-10
	No. cases	Freq. (%)	Crude rate (per 100,000)	ASR world	Cum. rates (percent)		No. cases	Freq. (%)	Crude rate (per 100,000)	ASR world	Cum. rates (percent)		
Lip	6	0.1	0.2	0.4	0.00	0.03	2	0.0	0.1	0.0	0.00	0.00	C00
Tongue	40	0.5	1.0	1.3	0.09	0.19	17	0.3	0.4	0.4	0.03	0.05	C01-02
Mouth	39	0.5	1.0	1.5	0.06	0.20	19	0.3	0.5	0.5	0.02	0.05	C03-06
Salivary glands	12	0.1	0.3	0.3	0.02	0.04	14	0.2	0.4	0.3	0.02	0.04	C07-08
Tonsil	11	0.1	0.3	0.4	0.02	0.07	2	0.0	0.1	0.1	0.00	0.01	C09
Other oropharynx	9	0.1	0.2	0.4	0.01	0.04	2	0.0	0.1	0.1	0.00	0.01	C10
Nasopharynx	29	0.3	0.8	0.8	0.06	0.09	16	0.2	0.4	0.4	0.04	0.04	C11
Hypopharynx	22	0.3	0.6	0.8	0.04	0.12	1	0.0	0.0	0.0	0.00	0.00	C12-13
Pharynx unspecified	7	0.1	0.2	0.2	0.02	0.03	2	0.0	0.1	0.1	0.00	0.01	C14
Oesophagus	257	3.1	6.7	10.0	0.46	1.34	45	0.7	1.2	1.2	0.04	0.14	C15
Stomach	2037	24.2	52.8	72.5	3.84	8.99	1203	18.0	31.2	30.4	1.70	3.56	C16
Small intestine	18	0.2	0.5	0.6	0.02	0.12	17	0.3	0.4	0.5	0.03	0.05	C17
Colon	324	3.9	8.4	11.5	0.59	1.48	293	4.4	7.6	7.4	0.42	0.85	C18
Rectum	293	3.5	7.6	10.1	0.55	1.21	267	4.0	6.9	6.7	0.42	0.78	C19-20
Anus	12	0.1	0.3	0.4	0.03	0.05	11	0.2	0.3	0.3	0.01	0.03	C21
Liver	1831	21.8	47.5	59.4	3.87	7.40	642	9.6	16.6	17.1	0.97	2.14	C22
Gallbladder etc.	245	2.9	6.4	9.7	0.40	1.26	277	4.1	7.2	7.4	0.31	0.92	C23-24
Pancreas	205	2.4	5.3	7.9	0.37	1.00	170	2.5	4.4	4.5	0.18	0.55	C25
Nose, sinuses etc.	24	0.3	0.6	1.0	0.03	0.10	14	0.2	0.4	0.4	0.02	0.05	C30-31
Larynx	161	1.9	4.2	5.8	0.32	0.79	27	0.4	0.7	0.7	0.01	0.08	C32
Trachea, bronchus and lung	1270	15.1	32.9	51.3	2.24	6.84	471	7.0	12.2	12.4	0.47	1.48	C33-34
Other thoracic organs	32	0.4	0.8	1.1	0.05	0.14	13	0.2	0.3	0.3	0.02	0.04	C37-38
Bone	47	0.6	1.2	1.3	0.08	0.12	31	0.5	0.8	0.8	0.05	0.08	C40-41
Melanoma of skin	14	0.2	0.4	0.4	0.03	0.05	12	0.2	0.3	0.3	0.02	0.02	C43
Other skin	82		2.1	3.2	0.13	0.40	88		2.3	2.3	0.11	0.25	C44
Mesothelioma	8	0.1	0.2	0.3	0.01	0.04	5	0.1	0.1	0.1	0.01	0.02	C45
Kaposi sarcoma	5	0.1	0.1	0.2	0.01	0.03	0	0.0	0.0	0.0	0.00	0.00	C46
Connective and soft tissue	51	0.6	1.3	1.4	0.09	0.14	43	0.6	1.1	1.0	0.08	0.10	C47+C49
Breast	6	0.1	0.2	0.3	0.00	0.03	822	12.3	21.3	18.6	1.62	1.93	C50
Vulva							5	0.1	0.1	0.1	0.00	0.02	C51
Vagina							13	0.2	0.3	0.3	0.02	0.03	C52
Cervix uteri							907	13.5	23.5	21.1	1.65	2.33	C53
Corpus uteri							64	1.0	1.7	1.5	0.13	0.18	C54
Uterus unspecified							55	0.8	1.4	1.5	0.06	0.18	C55
Ovary							201	3.0	5.2	4.8	0.32	0.52	C56
Other female genital organs							8	0.1	0.2	0.2	0.01	0.02	C57
Placenta							11	0.2	0.3	0.2	0.02	0.02	C58
Penis	9	0.1	0.2	0.3	0.01	0.04							C60
Prostate	136	1.6	3.5	7.1	0.11	0.68							C61
Testis	22	0.3	0.6	0.6	0.03	0.03							C62
Other male genital organs	4	0.0	0.1	0.2	0.01	0.02							C63
Kidney	155	1.8	4.0	5.4	0.31	0.69	65	1.0	1.7	1.7	0.11	0.19	C64
Renal pelvis	20	0.2	0.5	0.8	0.03	0.13	4	0.1	0.1	0.1	0.01	0.02	C65
Ureter	11	0.1	0.3	0.4	0.02	0.05	6	0.1	0.2	0.2	0.01	0.02	C66
Bladder	260	3.1	6.7	10.1	0.45	1.16	76	1.1	2.0	2.0	0.09	0.23	C67
Other urinary organs	6	0.1	0.2	0.3	0.00	0.00	3	0.0	0.1	0.1	0.00	0.02	C68
Eye	10	0.1	0.3	0.4	0.02	0.02	8	0.1	0.2	0.3	0.01	0.02	C69
Brain, nervous system	111	1.3	2.9	3.2	0.18	0.30	112	1.7	2.9	3.0	0.19	0.29	C70-72
Thyroid	51	0.6	1.3	1.6	0.08	0.19	270	4.0	7.0	6.1	0.48	0.64	C73
Adrenal gland	5	0.1	0.1	0.1	0.01	0.01	3	0.0	0.1	0.1	0.01	0.01	C74
Other endocrine	8	0.1	0.2	0.2	0.01	0.01	4	0.1	0.1	0.1	0.01	0.01	C75
Hodgkin disease	10	0.1	0.3	0.3	0.02	0.04	9	0.1	0.2	0.2	0.01	0.02	C81
Non-Hodgkin lymphoma	131	1.6	3.4	4.1	0.23	0.46	113	1.7	2.9	2.9	0.18	0.32	C82-85,C96
Immunoproliferative diseases	1	0.0	0.0	0.0	0.00	0.00	0	0.0	0.0	0.0	0.00	0.00	C88
Multiple myeloma	27	0.3	0.7	0.9	0.06	0.13	26	0.4	0.7	0.7	0.04	0.10	C90
Lymphoid leukaemia	39	0.5	1.0	1.2	0.07	0.09	32	0.5	0.8	0.9	0.06	0.07	C91
Myeloid leukaemia	85	1.0	2.2	2.2	0.18	0.21	51	0.8	1.3	1.2	0.09	0.11	C92-94
Leukaemia unspecified	14	0.2	0.4	0.5	0.02	0.05	8	0.1	0.2	0.2	0.01	0.01	C95
Other and unspecified	274	3.3	7.1	9.7	0.49	1.22	202	3.0	5.2	5.3	0.28	0.56	O&U
All sites	8486		220.0	304.0	15.78	37.90	6782		175.7	169.1	10.40	19.22	ALL
All sites but C44	8404	100.0	217.8	300.8	15.65	37.50	6694	100.0	173.4	166.8	10.29	18.97	ALLbC44

Korea, Daegu

Registration area

Daegu is an urban metropolitan city, located in southeastern Korea, with a well defined geographical border surrounded by mountains. It covers an area of 885.56 km². About 4.8% of the population live in rural areas. The climate is temperate and it is situated at 128° N and 35° E. The 1995 population was 2 445 277, excluding 11 persons of unknown age. Korea has virtually no ethnic group except Korean, only 55 016 persons being registered as foreigners nationwide. More than half (52.4%) of Daegu citizens reported to believe in a religion at the 1995 census; 33.1% Buddhist, 11.6% Protestant, 6.7% Catholic.

Cancer care facilities

Medical care for the whole population is covered and provided by the National Health Insurance Plan. Daegu had 10 804 hospital beds in 1997, in 42 hospitals (13 general hospitals, 26 hospitals, 2 dental hospitals, and 1 mental hospital), of which four are university hospitals and 1596 private clinics. There were 3875 doctors including dentists.

Registry structure and methods

Daegu Cancer Registry has been collecting new cancer cases occurring in Daegu since 1 January 1997. It is located in the Dongsan Medical Centre, Keimyung University and receives financial support from the Centre. The staffs consist of two doctors, one medical records administrator and one medical records technician.

Reporting of cancer is voluntary in Korea. Daegu Cancer Registry receives inpatient cases from the hospital medical record technicians responsible for reporting cases to the Central Hospital Cancer Registry (CHCR), and inpatient cases with an address in Daegu treated outside it direct from the CHCR. CHCR has been recording cancer cases from major member hospitals in Korea since 1980. Staff of the DCR visit every major hospital dealing with cancer to find and abstract cancer cases from sources other than inpatients, such as pathology, haematology, CT/MRI, nuclear medicine and radiotherapy medical records. The cases from the other sources in hospitals are followed back to the original medical records to check the addresses, resident registration number and diagnosis date. The staff also visit private pathology laboratories to review pathology reports and send query letters to physicians of private offices or clinics who sent their samples to the pathology laboratory to obtain further information on the patient

After checking for duplicates, the database is matched against two external data sources, death certificates (death registration) and insurance claims. The cases not already registered in the database become Death Certificate Notification (DCN) cases because death certificates do not contain information which makes follow-back procedures possible. Instead, the unique Resident Registration Number (RRN) was used to clear the DCNs. The DCNs were matched with the databases of the seven major hospitals using the RRN to find out and abstract medical records. Mortality files containing data on all cancer deaths occurring in Daegu are obtained annually from the Korea National Statistical Office. Cancer cases on insurance claims which had not been matched against the DCR data were followed back to the hospitals

to confirm the diagnosis. The data are processed using the IARC/IACR CanReg software.

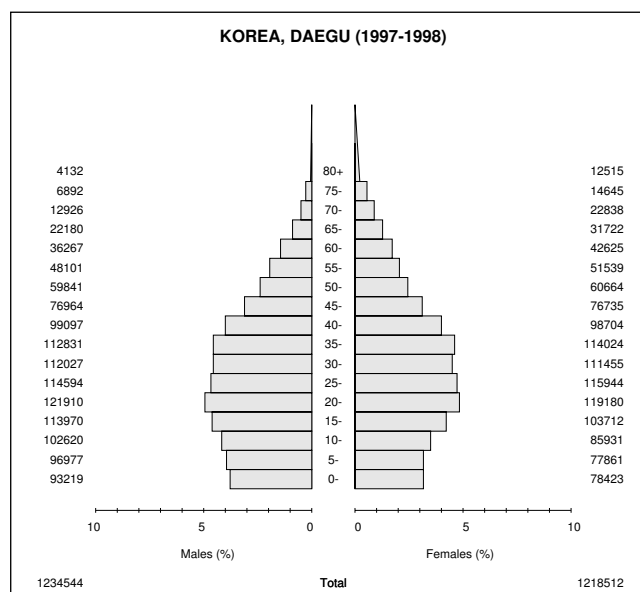
The registry fluctuations in reporting of new cancer cases by institution and source of case-finding, monthly and annually, are analysed. The registry plans to carry out reabstracting and recoding and set up a mechanism to ascertain multiple primaries more easily and systematically.

Interpreting the results

There was no change in area or population covered during the period of 1997–98. The DCR has been using ICD-O-2 for coding since its operation and there was no change of case definition and coding. DCN% was 8.7 (9.1% in males and 8.2% in females).

Use of the data

DCR is a registry for incidence and is not collecting survival data on registered cases actively. It collects vital status when the information is available, for example from medical records or death certificates. It does not collect stage of disease. Currently, the registry is being used as a data source in a migrant study and a study investigating unique features of gastric cancer in the young and the relationship between stages of female breast cancer and body mass index.



Source of population

The estimates of the population-at-risk are based on the 1995 census, making allowance for births, deaths and migration.

Notes on the data

* The high proportion of cases registered on the basis of a death certificate alone indicates a degree of under-ascertainment and lack of validity. The data are for the first years of registration and it is difficult to evaluate the stability of the rates.

***KOREA, DAEGU (1997-1998)**

SITE	MALE						FEMALE						ICD-10
	No. cases	Freq. (%)	Crude rate (per 100,000)	ASR world	Cum. rates 0-64 (percent)	Cum. rates 0-74 (percent)	No. cases	Freq. (%)	Crude rate (per 100,000)	ASR world	Cum. rates 0-64 (percent)	Cum. rates 0-74 (percent)	
Lip	3	0.1	0.1	0.2	0.00	0.00	0	0.0	0.0	0.0	0.00	0.00	C00
Tongue	27	0.6	1.1	1.4	0.09	0.15	7	0.2	0.3	0.3	0.01	0.03	C01-02
Mouth	27	0.6	1.1	1.4	0.09	0.21	7	0.2	0.3	0.3	0.01	0.03	C03-06
Salivary glands	10	0.2	0.4	0.4	0.03	0.05	12	0.3	0.5	0.5	0.04	0.05	C07-08
Tonsil	8	0.2	0.3	0.4	0.02	0.05	4	0.1	0.2	0.2	0.02	0.02	C09
Other oropharynx	7	0.1	0.3	0.4	0.02	0.08	0	0.0	0.0	0.0	0.00	0.00	C10
Nasopharynx	19	0.4	0.8	0.9	0.07	0.11	8	0.2	0.3	0.3	0.02	0.03	C11
Hypopharynx	15	0.3	0.6	0.8	0.06	0.08	2	0.0	0.1	0.1	0.00	0.00	C12-13
Pharynx unspecified	5	0.1	0.2	0.3	0.02	0.03	1	0.0	0.0	0.0	0.00	0.01	C14
Oesophagus	124	2.5	5.0	7.3	0.37	0.84	18	0.4	0.7	0.8	0.02	0.10	C15
Stomach	1325	27.1	53.7	70.8	4.08	8.64	762	18.4	31.3	30.0	1.68	3.51	C16
Small intestine	20	0.4	0.8	0.9	0.06	0.11	18	0.4	0.7	0.7	0.06	0.09	C17
Colon	195	4.0	7.9	11.3	0.54	1.31	188	4.5	7.7	7.7	0.41	0.94	C18
Rectum	195	4.0	7.9	10.6	0.59	1.29	203	4.9	8.3	8.2	0.53	1.00	C19-20
Anus	3	0.1	0.1	0.2	0.01	0.01	7	0.2	0.3	0.3	0.02	0.03	C21
Liver	912	18.6	36.9	45.7	3.03	5.45	307	7.4	12.6	12.6	0.71	1.54	C22
Gallbladder etc.	148	3.0	6.0	8.9	0.43	1.20	162	3.9	6.6	6.8	0.28	0.86	C23-24
Pancreas	116	2.4	4.7	6.8	0.30	0.79	84	2.0	3.4	3.5	0.11	0.45	C25
Nose, sinuses etc.	17	0.3	0.7	0.8	0.06	0.10	12	0.3	0.5	0.5	0.01	0.06	C30-31
Larynx	108	2.2	4.4	6.1	0.40	0.86	15	0.4	0.6	0.6	0.03	0.07	C32
Trachea, bronchus and lung	757	15.5	30.7	46.2	1.99	6.22	324	7.8	13.3	13.3	0.52	1.69	C33-34
Other thoracic organs	19	0.4	0.8	1.2	0.04	0.18	25	0.6	1.0	1.0	0.05	0.14	C37-38
Bone	23	0.5	0.9	1.0	0.05	0.09	25	0.6	1.0	1.0	0.08	0.08	C40-41
Melanoma of skin	13	0.3	0.5	0.7	0.04	0.06	13	0.3	0.5	0.5	0.04	0.06	C43
Other skin	59		2.4	3.0	0.19	0.40	64		2.6	2.5	0.08	0.19	C44
Mesothelioma	1	0.0	0.0	0.1	0.01	0.01	1	0.0	0.0	0.0	0.00	0.01	C45
Kaposi sarcoma	1	0.0	0.0	0.1	0.00	0.00	0	0.0	0.0	0.0	0.00	0.00	C46
Connective and soft tissue	23	0.5	0.9	1.2	0.05	0.14	27	0.7	1.1	1.1	0.06	0.11	C47+C49
Breast	2	0.0	0.1	0.2	0.00	0.00	557	13.5	22.9	20.0	1.71	2.03	C50
Vulva							9	0.2	0.4	0.4	0.02	0.04	C51
Vagina							14	0.3	0.6	0.6	0.03	0.06	C52
Cervix uteri							524	12.7	21.5	19.3	1.57	2.08	C53
Corpus uteri							55	1.3	2.3	2.1	0.15	0.23	C54
Uterus unspecified							12	0.3	0.5	0.5	0.03	0.04	C55
Ovary							127	3.1	5.2	5.0	0.35	0.49	C56
Other female genital organs							4	0.1	0.2	0.2	0.02	0.02	C57
Placenta							2	0.0	0.1	0.1	0.00	0.00	C58
Penis	5	0.1	0.2	0.3	0.01	0.02							C60
Prostate	93	1.9	3.8	6.6	0.15	0.67							C61
Testis	8	0.2	0.3	0.4	0.02	0.02							C62
Other male genital organs	6	0.1	0.2	0.4	0.02	0.04							C63
Kidney	84	1.7	3.4	4.1	0.25	0.46	42	1.0	1.7	1.7	0.14	0.21	C64
Renal pelvis	2	0.0	0.1	0.1	0.01	0.03	1	0.0	0.0	0.0	0.00	0.01	C65
Ureter	6	0.1	0.2	0.4	0.02	0.07	1	0.0	0.0	0.0	0.00	0.01	C66
Bladder	117	2.4	4.7	6.7	0.29	0.74	40	1.0	1.6	1.7	0.03	0.21	C67
Other urinary organs	0	0.0	0.0	0.0	0.00	0.00	3	0.1	0.1	0.1	0.00	0.02	C68
Eye	4	0.1	0.2	0.3	0.01	0.01	3	0.1	0.1	0.1	0.00	0.02	C69
Brain, nervous system	51	1.0	2.1	2.3	0.13	0.21	52	1.3	2.1	2.2	0.15	0.16	C70-72
Thyroid	40	0.8	1.6	1.8	0.11	0.18	158	3.8	6.5	5.8	0.42	0.61	C73
Adrenal gland	7	0.1	0.3	0.4	0.02	0.04	3	0.1	0.1	0.2	0.01	0.01	C74
Other endocrine	4	0.1	0.2	0.2	0.01	0.01	1	0.0	0.0	0.0	0.00	0.01	C75
Hodgkin disease	6	0.1	0.2	0.2	0.02	0.02	2	0.0	0.1	0.1	0.01	0.01	C81
Non-Hodgkin lymphoma	99	2.0	4.0	4.7	0.27	0.53	81	2.0	3.3	3.1	0.21	0.34	C82-85,C96
Immunoproliferative diseases	1	0.0	0.0	0.1	0.00	0.01	2	0.0	0.1	0.1	0.01	0.01	C88
Multiple myeloma	26	0.5	1.1	1.4	0.08	0.23	17	0.4	0.7	0.7	0.04	0.07	C90
Lymphoid leukaemia	32	0.7	1.3	1.6	0.08	0.12	29	0.7	1.2	1.3	0.07	0.09	C91
Myeloid leukaemia	47	1.0	1.9	1.9	0.13	0.18	56	1.4	2.3	2.3	0.14	0.19	C92-94
Leukaemia unspecified	20	0.4	0.8	0.8	0.05	0.07	17	0.4	0.7	0.7	0.04	0.05	C95
Other and unspecified	116	2.4	4.7	6.7	0.33	0.77	90	2.2	3.7	3.8	0.18	0.47	O&U
All sites	4956		200.7	270.5	14.69	32.88	4198		172.3	164.8	10.13	18.59	ALL
All sites but C44	4897	100.0	198.3	267.4	14.50	32.48	4134	100.0	169.6	162.3	10.04	18.40	ALLbC44

Korea, Kangwha County

Registration area

The Kangwha Registry covers the population of Kangwha County, which consists of several islands. The population size during the period was about 70 360. It is some 50 km from the capital city of Seoul and 20 km from the urban area of the state city of Incheon. Agriculture is the main industry. About 25% of the total population are engaged in agriculture as full-time farmers. When part-time farmers are included, the proportion goes up to 50–55%. The population has decreased from 71 116 in 1993 to 69 539 in 1997 mainly because the young adult population tends to move to city areas. The proportion of older people (≥ 50) increased from 20.6% in 1983 to 33.9% in 1997.

Cancer care facilities

In addition to one hospital, there are 17 clinics, 6 dental clinics, 5 oriental medicine clinics, 1 public health centre, 12 sub-public health centres, and 16 public primary health care posts in the region. These facilities provide general health care to the residents. Hospitals with about 140 beds are considered to be able to diagnose cancers because they are equipped with X-ray, endoscopy, CT and a pathology department. However, only around 20% of cancer cases are definitely diagnosed through these facilities. Generally, the services provided by the regional hospitals are limited to basic diagnosis and conservative therapy, and do not include chemotherapy, radiotherapy, and cancer surgery. Most of the cancer patients in the region are referred to general hospitals located in neighbouring large cities such as Incheon and Seoul in order to confirm diagnosis and to receive advanced treatments.

Registry structure and methods

The registry is located in Seoul and is staffed by a part-time medical supervisor, a part-time instructor, a full-time registrar, two part-time researchers, and several part-time workers. The Kangwha Registry uses active case finding from about 100 sources of data including medical insurers, hospitals and clinics, pathology laboratories, local public offices and national statistical offices. In order to confirm the diagnosis of cancer identified through these data sources, researchers of the registry visit each hospital and review inpatient and outpatient medical charts. Cancer patients also are identified by mail survey to hospitals, but less than 5% of the registered cancer patients are identified by this method. The death cases can be traced by three systems: national death registry system maintained in the national electronic data, burial and cremation records kept by local public offices, and insurance claims file for funeral costs. Burial and cremation records and insurance claims file have been predominantly used to identify cancer deaths. From August 1999, a national electronic death registry was available and provided death certificate data with individual identifiers for the period of 1993–97.

Interpreting the results

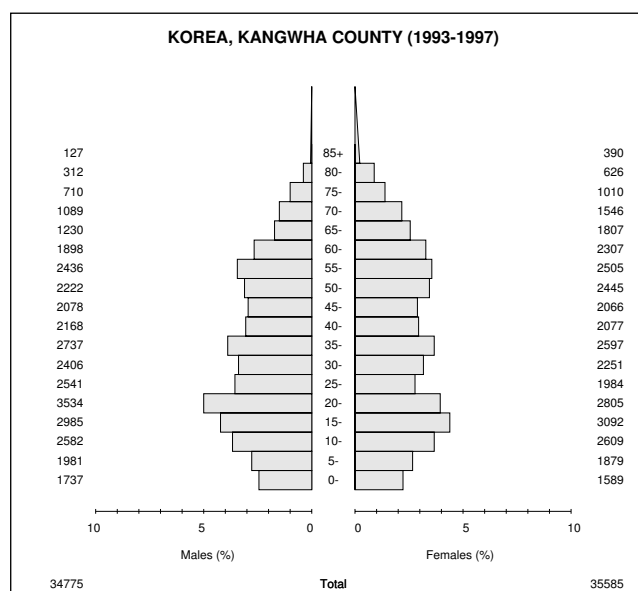
The DCO% has increased from 1% in Volume VII to 15% in the present volume. Use of the national electronic death registry helped

to identify additional cases not identified through the burial and cremation records and insurance claims file. As a consequence, additional cases of about 150 cancer deaths were identified.

There are no data for cancer screening examination rates of Kangwha residents and there is no organized screening. However, a 1995 report showed that the average annual cancer screening examination rates of people living in rural areas is less than 10% for all types of cancer and about 20% for cervix cancer. There is an increasing trend of opportunistic screening in individuals.

Use of the data

The data have been used to estimate incidence and prevalence in Korea. The data were provided to Government as the official cancer incidence data of Korea which were submitted to OECD. Results were compared with those of Koreans living in Los Angeles, US and other countries, and a paper was published in the *Korean Journal of Preventive Medicine*. At present, special studies that aim to identify risk factors for cancer are being conducted.



Source of population

Population statistics are taken from the population registry files of local public offices at one point of time each year. Koreans must register residence, migration and death at their local public office.

Notes on the data

* The high proportion of cases registered on the basis of a death certificate alone indicates a degree of under-ascertainment and lack of validity.

***KOREA, KANGWHA COUNTY (1993-1997)**

SITE	MALE						FEMALE						ICD-10
	No. cases	Freq. (%)	Crude rate (per 100,000)	ASR world	Cum. rates 0-64 0-74 (percent)		No. cases	Freq. (%)	Crude rate (per 100,000)	ASR world	Cum. rates 0-64 0-74 (percent)		
Lip	1	0.2	0.6	0.3	0.00	0.00	1	0.3	0.6	0.2	0.00	0.00	C00
Tongue	5	0.9	2.9	2.3	0.18	0.26	0	0.0	0.0	0.0	0.00	0.00	C01-02
Mouth	3	0.5	1.7	1.0	0.05	0.05	0	0.0	0.0	0.0	0.00	0.00	C03-06
Salivary glands	2	0.3	1.2	0.7	0.09	0.09	0	0.0	0.0	0.0	0.00	0.00	C07-08
Tonsil	2	0.3	1.2	1.0	0.00	0.16	0	0.0	0.0	0.0	0.00	0.00	C09
Other oropharynx	0	0.0	0.0	0.0	0.00	0.00	0	0.0	0.0	0.0	0.00	0.00	C10
Nasopharynx	2	0.3	1.2	1.1	0.08	0.08	1	0.3	0.6	0.3	0.00	0.06	C11
Hypopharynx	1	0.2	0.6	0.3	0.04	0.04	0	0.0	0.0	0.0	0.00	0.00	C12-13
Pharynx unspecified	1	0.2	0.6	0.4	0.04	0.04	0	0.0	0.0	0.0	0.00	0.00	C14
Oesophagus	19	3.3	10.9	7.4	0.38	0.89	4	1.3	2.2	1.1	0.04	0.10	C15
Stomach	172	29.6	98.9	66.5	4.33	8.07	65	20.4	36.5	19.5	0.95	2.31	C16
Small intestine	3	0.5	1.7	1.1	0.00	0.18	2	0.6	1.1	0.5	0.00	0.06	C17
Colon	18	3.1	10.4	7.4	0.51	0.86	14	4.4	7.9	4.4	0.22	0.52	C18
Rectum	18	3.1	10.4	6.8	0.37	1.09	13	4.1	7.3	4.5	0.34	0.53	C19-20
‡Anus	1	0.2	0.6	0.4	0.00	0.09	4	1.3	2.2	1.1	0.04	0.17	C21
Liver	78	13.4	44.9	32.6	2.52	4.07	26	8.2	14.6	8.9	0.64	0.96	C22
Gallbladder etc.	17	2.9	9.8	7.8	0.23	0.75	15	4.7	8.4	4.6	0.26	0.63	C23-24
Pancreas	18	3.1	10.4	7.2	0.35	0.87	16	5.0	9.0	4.7	0.13	0.71	C25
Nose, sinuses etc.	0	0.0	0.0	0.0	0.00	0.00	2	0.6	1.1	0.5	0.04	0.04	C30-31
Larynx	12	2.1	6.9	5.2	0.40	0.56	2	0.6	1.1	0.5	0.00	0.06	C32
Trachea, bronchus and lung	110	18.9	63.3	44.8	1.75	5.60	21	6.6	11.8	6.7	0.43	0.72	C33-34
Other thoracic organs	3	0.5	1.7	2.1	0.10	0.10	1	0.3	0.6	0.2	0.00	0.00	C37-38
Bone	3	0.5	1.7	1.1	0.00	0.08	0	0.0	0.0	0.0	0.00	0.00	C40-41
Melanoma of skin	0	0.0	0.0	0.0	0.00	0.00	1	0.3	0.6	0.6	0.05	0.05	C43
Other skin	4		2.3	1.3	0.08	0.17	7		3.9	2.2	0.13	0.19	C44
Mesothelioma	2	0.3	1.2	0.9	0.10	0.10	0	0.0	0.0	0.0	0.00	0.00	C45
Kaposi sarcoma	0	0.0	0.0	0.0	0.00	0.00	0	0.0	0.0	0.0	0.00	0.00	C46
Connective and soft tissue	1	0.2	0.6	0.5	0.05	0.05	0	0.0	0.0	0.0	0.00	0.00	C47+C49
Breast	1	0.2	0.6	0.6	0.05	0.05	29	9.1	16.3	12.7	1.05	1.17	C50
Vulva							0	0.0	0.0	0.0	0.00	0.00	C51
Vagina							0	0.0	0.0	0.0	0.00	0.00	C52
Cervix uteri							37	11.6	20.8	15.2	1.16	1.50	C53
Corpus uteri							5	1.6	2.8	1.9	0.18	0.24	C54
Uterus unspecified							4	1.3	2.2	1.4	0.09	0.16	C55
Ovary							5	1.6	2.8	1.6	0.13	0.25	C56
Other female genital organs							1	0.3	0.6	0.3	0.04	0.04	C57
Placenta							0	0.0	0.0	0.0	0.00	0.00	C58
Penis	1	0.2	0.6	0.4	0.00	0.09							C60
Prostate	13	2.2	7.5	5.4	0.19	0.54							C61
Testis	1	0.2	0.6	0.5	0.05	0.05							C62
Other male genital organs	0	0.0	0.0	0.0	0.00	0.00							C63
Kidney	2	0.3	1.2	0.8	0.00	0.08	1	0.3	0.6	0.3	0.04	0.04	C64
Renal pelvis	0	0.0	0.0	0.0	0.00	0.00	0	0.0	0.0	0.0	0.00	0.00	C65
Ureter	0	0.0	0.0	0.0	0.00	0.00	0	0.0	0.0	0.0	0.00	0.00	C66
Bladder	24	4.1	13.8	10.1	0.70	1.05	5	1.6	2.8	1.7	0.12	0.19	C67
Other urinary organs	0	0.0	0.0	0.0	0.00	0.00	0	0.0	0.0	0.0	0.00	0.00	C68
Eye	1	0.2	0.6	0.5	0.00	0.08	0	0.0	0.0	0.0	0.00	0.00	C69
Brain, nervous system	4	0.7	2.3	2.6	0.15	0.15	4	1.3	2.2	1.4	0.12	0.19	C70-72
Thyroid	3	0.5	1.7	1.5	0.04	0.21	10	3.1	5.6	5.4	0.40	0.46	C73
Adrenal gland	0	0.0	0.0	0.0	0.00	0.00	1	0.3	0.6	1.5	0.06	0.06	C74
Other endocrine	0	0.0	0.0	0.0	0.00	0.00	0	0.0	0.0	0.0	0.00	0.00	C75
Hodgkin disease	3	0.5	1.7	1.2	0.14	0.14	1	0.3	0.6	0.5	0.04	0.04	C81
Non-Hodgkin lymphoma	9	1.5	5.2	3.9	0.31	0.31	4	1.3	2.2	1.5	0.08	0.08	C82-85,C96
Immunoproliferative diseases	0	0.0	0.0	0.0	0.00	0.00	0	0.0	0.0	0.0	0.00	0.00	C88
Multiple myeloma	1	0.2	0.6	0.5	0.00	0.08	2	0.6	1.1	0.7	0.04	0.10	C90
Lymphoid leukaemia	3	0.5	1.7	1.7	0.12	0.12	3	0.9	1.7	3.0	0.15	0.15	C91
Myeloid leukaemia	7	1.2	4.0	3.2	0.25	0.33	6	1.9	3.4	2.4	0.21	0.26	C92-94
Leukaemia unspecified	1	0.2	0.6	0.5	0.04	0.04	5	1.6	2.8	1.8	0.15	0.15	C95
Other and unspecified	16	2.7	9.2	6.4	0.35	0.76	8	2.5	4.5	2.1	0.08	0.20	O&U
All sites	586		337.0	239.7	14.04	28.34	326		183.2	115.8	7.44	12.40	ALL
All sites but C44	582	100.0	334.7	238.3	13.96	28.17	319	100.0	179.3	113.6	7.31	12.20	ALLbC44

‡100.0% of cases are anorectal tumours

‡50.0% of cases are anorectal tumours

Korea, Seoul

Registration area

The Seoul Cancer Registry (SCR) covers the city of Seoul, the capital of the Republic of Korea. Seoul is located in the northern part of the Republic of Korea, which is the central portion of North and South Korea combined. The population at the most recent census (1995) was 10 231 227, about 23% of the total population of the Republic. The Korean population is very homogeneous, with a very small Chinese minority of around 20 000. Traditional culture is mostly based on Confucianism, while Buddhism (23%) and Christianity (20%) are two of the most vigorous religions.

Cancer care facilities

There were 73 teaching hospitals and 95 medium-sized and small hospitals in 1995. Most of the teaching hospitals provide radiology, pathology, radiotherapy, cancer surgery and chemotherapy services. The smaller hospitals have radiology and pathology but rarely provide aggressive therapy. There are also 4238 clinics and 25 community health centres, but cancer is not diagnosed in these facilities. Patients suspected to have cancer are mostly referred to one of the teaching hospitals. Elderly patients tend to decline further medical work-ups in the teaching hospitals, causing them to be under-represented in the registry. 99% of cancers occurring in Seoul are treated in Seoul and about 57% of patients treated in Seoul are from outside the city. Apart from these facilities, there are 2121 clinics and hospitals based on traditional oriental medicine. Although most cancer patients resort to western medicine eventually, there are some whose diagnosis and treatment are through these traditional oriental clinics. These cases are not reflected in the data.

Registry structure and methods

The SCR is located in the department of preventive medicine, Seoul National University College of Medicine, and is funded by the Ministry of Health and Welfare. There are two part-time medical officers and four full-time registrars. About 80% of the cases are registered from the data file of the Korean Central Cancer Registry (KCCR), which is operated by voluntary registration from teaching hospitals in the whole country. The second source of registration is an active search by the registrars for cancer patients diagnosed in the smaller hospitals in Seoul. The registrars visit over 60 of these to review and abstract medical records of potential cancer patients, who appear in the list of cancer claims submitted to the Association of Korean Medical Insurance. This list also serves as a good source for tracking the identity of cases notified by a death certificate alone. The third source is the death certificates to confirm the death dates of the registered cases and to register DCOs. Death certificates from the National Statistics Office (NSO) cover all deaths occurring in Korea and include the full National Identity Number issued by the Korean Government to every Korean citizen at birth. Hospitals and the NSO used to be very reluctant to release these numbers for reasons of confidentiality, but growing awareness of the importance of the cancer registry have made it possible to obtain the numbers. The quality of death certificates in Seoul is tolerable, 95% being issued by medical doctors. In addition to these three major sources, several secondary data sources, such as log files from pathology laboratories and radiotherapy departments, help to identify further cancer patients.

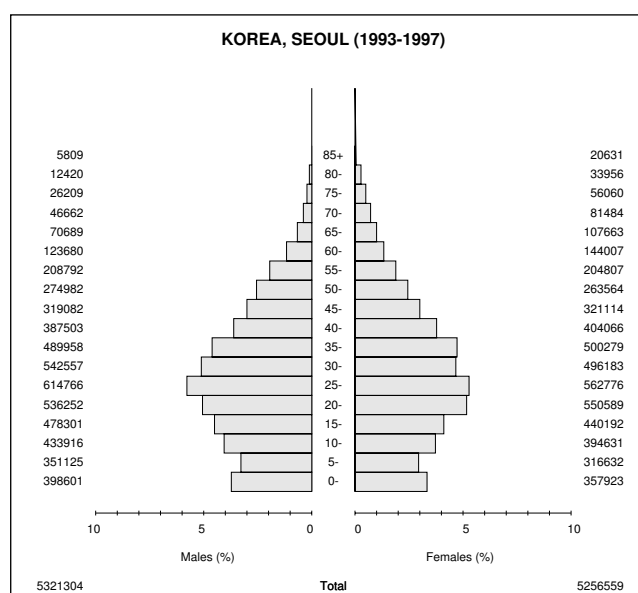
The SCR evaluates the validity of the registry data with the IARC CHECK program and re-abstracts the medical records to check for errors in the data (found for about 2.4% of cases). According to an independent study conducted by KCCR to assess the completeness of the KCCR data, about 6.6% of the cancer patients who would eventually appear as DCO had not been registered by the KCCR.

Interpreting the results

The size of the population and the number of medical facilities to be covered make it necessary to accept the data from KCCR pre-coded by many medical recorders from each hospital. The registry trains these coders annually to ensure the definitions and rules of the registry be understood and followed thoroughly, but the process still calls for a constant evaluation of the validity of the registry data.

Use of the data

The registry produces reports on cancer incidence in Seoul, Korea. A special study of stage and survival of breast cancer cases has been carried out



Source of population

Population statistics are taken from the population registry files of local public offices at one point of time each year. Koreans must register residence, migration and death at their local public office.

Notes on the data

* The high proportion of cases registered on the basis of a death certificate alone indicates a degree of under-ascertainment and lack of validity. The data are the first results of the registry and it is difficult to evaluate the stability of the rates.

***KOREA, SEOUL (1993-1997)**

SITE	MALE						FEMALE						ICD-10
	§No. cases	Freq. (%)	Crude rate (per 100,000)	ASR world	Cum. rates (percent)		§No. cases	Freq. (%)	Crude rate (per 100,000)	ASR world	Cum. rates (percent)		
Lip	14	0.0	0.1	0.1	0.00	0.01	12	0.0	0.0	0.0	0.00	0.00	C00
Tongue	177	0.4	0.7	1.0	0.06	0.12	88	0.2	0.3	0.4	0.02	0.04	C01-02
Mouth	243	0.5	0.9	1.4	0.07	0.16	100	0.2	0.4	0.4	0.03	0.05	C03-06
Salivary glands	112	0.2	0.4	0.5	0.03	0.05	93	0.2	0.4	0.4	0.03	0.04	C07-08
Tonsil	76	0.2	0.3	0.4	0.03	0.05	21	0.0	0.1	0.1	0.00	0.01	C09
Other oropharynx	45	0.1	0.2	0.2	0.01	0.03	13	0.0	0.0	0.0	0.00	0.00	C10
Nasopharynx	210	0.4	0.8	1.0	0.07	0.11	74	0.2	0.3	0.3	0.02	0.03	C11
Hypopharynx	171	0.3	0.6	1.1	0.05	0.15	11	0.0	0.0	0.0	0.00	0.01	C12-13
Pharynx unspecified	25	0.1	0.1	0.2	0.01	0.01	7	0.0	0.0	0.0	0.00	0.00	C14
Oesophagus	1184	2.4	4.5	7.6	0.38	1.03	178	0.4	0.7	0.8	0.03	0.09	C15
Stomach	12008	24.2	45.1	68.0	3.65	8.55	6971	16.2	26.5	28.5	1.57	3.44	C16
Small intestine	161	0.3	0.6	0.9	0.05	0.11	122	0.3	0.5	0.5	0.03	0.06	C17
Colon	2199	4.4	8.3	13.1	0.62	1.60	2058	4.8	7.8	8.7	0.48	1.06	C18
Rectum	2228	4.5	8.4	12.6	0.70	1.62	1802	4.2	6.9	7.6	0.44	0.93	C19-20
‡Anus	195	0.4	0.7	1.2	0.05	0.14	232	0.5	0.9	1.0	0.05	0.11	C21
Liver	9201	18.5	34.6	46.5	3.09	5.71	3054	7.1	11.6	13.2	0.80	1.66	C22
Gallbladder etc.	1326	2.7	5.0	8.4	0.37	1.01	1436	3.3	5.5	6.3	0.28	0.76	C23-24
Pancreas	1242	2.5	4.7	7.4	0.37	0.95	1075	2.5	4.1	4.7	0.21	0.59	C25
Nose, sinuses etc.	157	0.3	0.6	0.8	0.05	0.09	92	0.2	0.4	0.4	0.03	0.04	C30-31
Larynx	842	1.7	3.2	5.3	0.27	0.68	105	0.2	0.4	0.4	0.02	0.05	C32
Trachea, bronchus and lung	7419	14.9	27.9	49.0	1.94	6.27	2939	6.8	11.2	12.7	0.54	1.55	C33-34
Other thoracic organs	154	0.3	0.6	0.8	0.04	0.09	110	0.3	0.4	0.5	0.03	0.05	C37-38
Bone	237	0.5	0.9	1.1	0.06	0.10	188	0.4	0.7	0.7	0.04	0.07	C40-41
Melanoma of skin	95	0.2	0.4	0.5	0.03	0.05	104	0.2	0.4	0.4	0.03	0.05	C43
Other skin	374		1.4	2.2	0.10	0.24	337		1.3	1.4	0.06	0.15	C44
Mesothelioma	34	0.1	0.1	0.1	0.01	0.02	22	0.1	0.1	0.1	0.01	0.01	C45
Kaposi sarcoma	14	0.0	0.1	0.1	0.00	0.01	1	0.0	0.0	0.0	0.00	0.00	C46
Connective and soft tissue	290	0.6	1.1	1.4	0.08	0.14	243	0.6	0.9	0.9	0.06	0.10	C47+C49
Breast	42	0.1	0.2	0.2	0.01	0.02	5816	13.5	22.1	20.8	1.73	2.19	C50
Vulva							60	0.1	0.2	0.3	0.01	0.03	C51
Vagina							50	0.1	0.2	0.2	0.01	0.02	C52
Cervix uteri							5855	13.6	22.3	22.3	1.74	2.57	C53
Corpus uteri							569	1.3	2.2	2.2	0.18	0.24	C54
Uterus unspecified							264	0.6	1.0	1.1	0.05	0.13	C55
Ovary							1445	3.4	5.5	5.4	0.39	0.56	C56
Other female genital organs							120	0.3	0.5	0.5	0.03	0.05	C57
Placenta							118	0.3	0.4	0.3	0.03	0.03	C58
Penis	47	0.1	0.2	0.3	0.01	0.03							C60
Prostate	1048	2.1	3.9	8.5	0.15	0.85							C61
Testis	119	0.2	0.4	0.5	0.03	0.03							C62
Other male genital organs	25	0.1	0.1	0.2	0.01	0.02							C63
Kidney	845	1.7	3.2	4.5	0.27	0.55	438	1.0	1.7	1.9	0.12	0.22	C64
Renal pelvis	110	0.2	0.4	0.6	0.03	0.09	46	0.1	0.2	0.2	0.01	0.04	C65
Ureter	75	0.2	0.3	0.5	0.02	0.06	40	0.1	0.2	0.2	0.01	0.02	C66
Bladder	1749	3.5	6.6	11.2	0.47	1.30	406	0.9	1.5	1.7	0.07	0.18	C67
Other urinary organs	55	0.1	0.2	0.4	0.01	0.03	48	0.1	0.2	0.2	0.01	0.03	C68
Eye	64	0.1	0.2	0.4	0.02	0.02	40	0.1	0.2	0.2	0.01	0.01	C69
Brain, nervous system	840	1.7	3.2	3.9	0.24	0.38	737	1.7	2.8	3.1	0.19	0.31	C70-72
Thyroid	441	0.9	1.7	1.9	0.13	0.22	2434	5.7	9.3	8.5	0.65	0.86	C73
Adrenal gland	55	0.1	0.2	0.3	0.02	0.02	47	0.1	0.2	0.2	0.01	0.02	C74
Other endocrine	69	0.1	0.3	0.3	0.02	0.03	39	0.1	0.1	0.2	0.01	0.02	C75
Hodgkin disease	91	0.2	0.3	0.4	0.03	0.04	68	0.2	0.3	0.2	0.01	0.02	C81
Non-Hodgkin lymphoma	1275	2.6	4.8	6.2	0.35	0.69	901	2.1	3.4	3.6	0.23	0.41	C82-85,C96
Immunoproliferative diseases	4	0.0	0.0	0.0	0.00	0.00	2	0.0	0.0	0.0	0.00	0.00	C88
Multiple myeloma	207	0.4	0.8	1.2	0.06	0.16	167	0.4	0.6	0.7	0.05	0.09	C90
Lymphoid leukaemia	374	0.8	1.4	1.8	0.09	0.13	282	0.7	1.1	1.4	0.07	0.09	C91
Myeloid leukaemia	769	1.5	2.9	3.2	0.21	0.32	626	1.5	2.4	2.4	0.16	0.23	C92-94
Leukaemia unspecified	332	0.7	1.2	1.6	0.09	0.16	313	0.7	1.2	1.3	0.07	0.12	C95
Other and unspecified	971	2.0	3.6	5.9	0.25	0.67	863	2.0	3.3	3.6	0.17	0.39	O&U
All sites	50040		188.1	286.8	14.68	34.98	43282		164.7	172.9	10.82	19.84	ALL
All sites but C44	49666	100.0	186.7	284.6	14.58	34.75	42945	100.0	163.4	171.5	10.76	19.69	ALLbC44

§Includes 3 cases of unknown age
‡57.9% of cases are anorectal tumours

§Includes 2 cases of unknown age
‡56.0% of cases are anorectal tumours

Kuwait

Registration area

Kuwait is one of the major oil-producing countries in the Middle East, with a surface area of 17 818 km², and is situated in the northwestern corner of the Arabian Gulf. The mainland is flat sandy desert with a scattering of oases. There are a few rocky hills of heights ranging from 180 to 300 m above sea level. Kuwait experiences wide variation in temperature, ranging from an average of 45° C in July to an average of 8° C in January. There is also wide variation in annual rainfall, ranging from as little as 22 mm to 350 mm. This falls almost entirely between November and April.

Kuwait has experienced rapid social and economic development over the past four decades. It is a society undergoing demographic and epidemiological transition. For Kuwaiti nationals, these changes have included important declines in infant mortality (11.4/1000 live births) and improvements in life expectancy (75 years). Kuwait also has one of the highest annual population growth rates in the world (4.5%) and has greatly increased the literacy rate to about 85%.

The total population in 1995 was about 1.88 million: 37% are Kuwaiti nationals and 63% are non-Kuwaitis (expatriates). Expatriates living in Kuwait are a heterogeneous and transitory group representing over 50 countries. However, the vast majority (95%) are from southeast Asian and Arab countries. In 1994, southeast Asians (from Afghanistan, Bangladesh, India, Iran, Pakistan, Philippines, and Sri Lanka) represented 58% and Arabs (from Egypt, Jordan, Lebanon, and Syria) 37% of the expatriate population. Compared with countries in Europe and North America, Kuwait has a relatively young population structure: about 44% of Kuwaitis and 17% of non-Kuwaitis are aged < 15 years.

Cancer care facilities

For administrative purposes, the country is divided into five health regions: Capital, Hawali, Al-Farwania, Al-Ahmadi, and Al-Jahra. The medical services in each health region comprise a number of primary/family health-care clinics which provide general, maternal, child, and dental health care services, and a general public hospital. Besides these facilities, there are a number of centralized specialist hospitals including Kuwait Cancer Control Centre. The centre was established in 1982 and is the only specialized cancer treatment hospital in the country. It offers modern facilities for cancer diagnosis, treatment, and follow-up.

Registry structure and methods

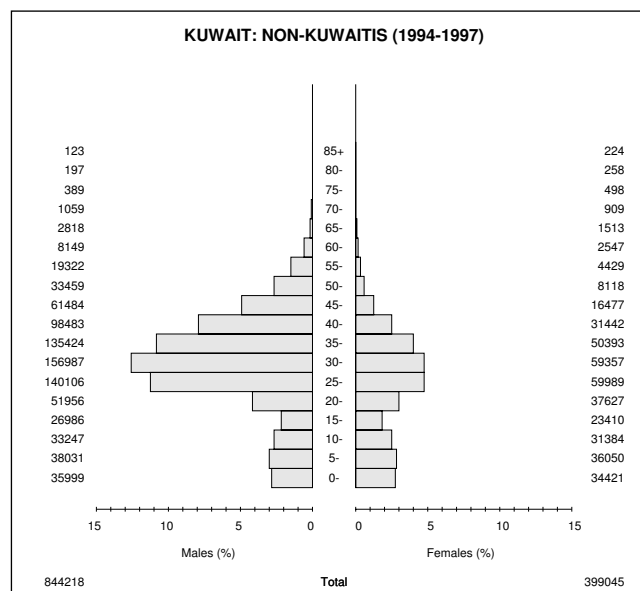
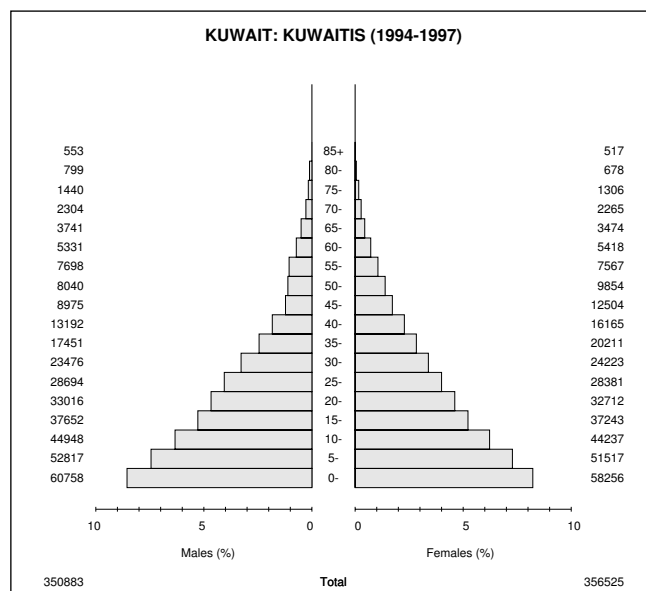
The Kuwait Cancer Registry was established in 1971 in the Radiotherapy Department at the Al-Sabah hospital. The initial purpose of the registry was to study the incidence and morphology of cancers in the Kuwaiti population and to use this information as the basis for establishing a comprehensive cancer centre for diagnosis, treatment, follow-up, and care of cancer patients. Subsequently, the Kuwait Cancer Control Centre was established in 1982 and the registry became a separate department of the hospital.

Notification of cancer is compulsory through a Ministerial Decree. Cancer registrations are fairly comprehensive as almost all cases not initially diagnosed or treated at the Kuwait Cancer Control Centre (including those who receive initial treatment at other hospitals or abroad) are ultimately referred to the centre for further treatment or follow-up. The registry maintains a separate alphabetical and numerical index which includes information such as case note number, name, age, sex, nationality, year of diagnosis, and site. Pathology reports and death certificates are filed numerically by year. All new registrations are checked against these data items to avoid duplication.

The sources of information are: case notes from the Cancer Control Centre and other hospitals; reports from the pathology departments of the Cancer Control Centre and of other hospitals; and mortality data from the Vital and Health Statistics Division of the Ministry of Health. All coding (topography, morphology, TNM classification, etc.) and computerization of data is done by the registry staff. The registry is staffed by a director, a medical officer and an administrator, two cancer registrars, and one medical records clerk and two computer technicians.

Use of the data

The data are used for monitoring trends in incidence and in research. They are also used for planning and evaluation of cancer care facilities. The registry is especially interested in monitoring any change in the incidence of cancer that may have occurred following the Gulf War in 1991.



Source of population

1995 census. Annual data were derived from the Public Authority for Civil Information. Annual Directory of Civil Information, Population and Labour Force, 1994-98, Kuwait

Notes on the data

* The high proportion of cases registered on the basis of a death certificate alone indicates a degree of under-ascertainment and lack of validity.

***KUWAIT: KUWAITIS (1994-1997)**

SITE	MALE						FEMALE						ICD-10
	§No. cases	Freq. (%)	Crude rate (per 100,000)	ASR world	Cum. rates 0-64	Cum. rates 0-74	§No. cases	Freq. (%)	Crude rate (per 100,000)	ASR world	Cum. rates 0-64	Cum. rates 0-74	
Lip	1	0.1	0.1	0.2	0.00	0.05	0	0.0	0.0	0.0	0.00	0.00	C00
Tongue	3	0.4	0.2	0.3	0.03	0.03	2	0.2	0.1	0.1	0.01	0.01	C01-02
Mouth	9	1.1	0.6	1.4	0.07	0.18	4	0.5	0.3	0.5	0.03	0.09	C03-06
Salivary glands	3	0.4	0.2	0.4	0.03	0.06	3	0.3	0.2	0.2	0.01	0.01	C07-08
Tonsil	3	0.4	0.2	0.4	0.03	0.06	0	0.0	0.0	0.0	0.00	0.00	C09
Other oropharynx	0	0.0	0.0	0.0	0.00	0.00	0	0.0	0.0	0.0	0.00	0.00	C10
Nasopharynx	19	2.4	1.4	2.6	0.19	0.32	10	1.1	0.7	0.9	0.08	0.08	C11
Hypopharynx	2	0.2	0.1	0.4	0.00	0.05	4	0.5	0.3	0.8	0.02	0.02	C12-13
Pharynx unspecified	0	0.0	0.0	0.0	0.00	0.00	0	0.0	0.0	0.0	0.00	0.00	C14
Oesophagus	10	1.2	0.7	1.7	0.04	0.07	11	1.3	0.8	2.0	0.07	0.23	C15
Stomach	34	4.2	2.4	5.6	0.15	0.58	17	1.9	1.2	2.2	0.13	0.23	C16
Small intestine	2	0.2	0.1	0.3	0.03	0.03	3	0.3	0.2	0.4	0.03	0.03	C17
Colon	41	5.1	2.9	6.3	0.38	0.79	36	4.1	2.5	5.4	0.32	0.74	C18
Rectum	25	3.1	1.8	3.8	0.23	0.46	22	2.5	1.5	3.0	0.17	0.39	C19-20
Anus	1	0.1	0.1	0.2	0.02	0.02	2	0.2	0.1	0.3	0.03	0.03	C21
Liver	48	5.9	3.4	8.4	0.43	0.93	11	1.3	0.8	1.7	0.07	0.21	C22
Gallbladder etc.	10	1.2	0.7	1.9	0.04	0.29	8	0.9	0.6	1.1	0.07	0.11	C23-24
Pancreas	26	3.2	1.9	4.7	0.24	0.73	20	2.3	1.4	3.6	0.14	0.39	C25
Nose, sinuses etc.	3	0.4	0.2	0.3	0.02	0.02	1	0.1	0.1	0.1	0.00	0.00	C30-31
Larynx	20	2.5	1.4	3.5	0.17	0.52	2	0.2	0.1	0.4	0.00	0.09	C32
Trachea, bronchus and lung	121	15.0	8.6	21.5	1.02	2.70	33	3.8	2.3	5.6	0.25	0.58	C33-34
Other thoracic organs	4	0.5	0.3	0.5	0.02	0.05	0	0.0	0.0	0.0	0.00	0.00	C37-38
Bone	9	1.1	0.6	0.5	0.03	0.03	7	0.8	0.5	0.5	0.02	0.02	C40-41
Melanoma of skin	1	0.1	0.1	0.2	0.02	0.02	1	0.1	0.1	0.2	0.00	0.04	C43
Other skin	11		0.8	1.8	0.09	0.12	9		0.6	1.4	0.09	0.18	C44
Mesothelioma	1	0.1	0.1	0.2	0.00	0.00	0	0.0	0.0	0.0	0.00	0.00	C45
Kaposi sarcoma	2	0.2	0.1	0.3	0.01	0.06	1	0.1	0.1	0.2	0.02	0.02	C46
Connective and soft tissue	8	1.0	0.6	0.8	0.07	0.07	7	0.8	0.5	0.5	0.03	0.03	C47+C49
Breast	6	0.7	0.4	0.9	0.07	0.07	276	31.6	19.4	32.8	2.76	3.47	C50
Vulva							1	0.1	0.1	0.1	0.02	0.02	C51
Vagina							2	0.2	0.1	0.3	0.01	0.01	C52
Cervix uteri							34	3.9	2.4	4.2	0.33	0.44	C53
Corpus uteri							24	2.7	1.7	3.8	0.28	0.53	C54
Uterus unspecified							5	0.6	0.4	0.7	0.05	0.09	C55
Ovary							37	4.2	2.6	5.6	0.30	0.67	C56
Other female genital organs							1	0.1	0.1	0.1	0.01	0.01	C57
Placenta							1	0.1	0.1	0.1	0.01	0.01	C58
Penis	0	0.0	0.0	0.0	0.00	0.00							C60
Prostate	61	7.6	4.3	11.4	0.36	1.21							C61
Testis	12	1.5	0.9	1.0	0.05	0.05							C62
Other male genital organs	3	0.4	0.2	0.4	0.02	0.05							C63
Kidney	22	2.7	1.6	3.4	0.13	0.48	13	1.5	0.9	1.8	0.07	0.20	C64
Renal pelvis	2	0.2	0.1	0.4	0.02	0.06	0	0.0	0.0	0.0	0.00	0.00	C65
Ureter	0	0.0	0.0	0.0	0.00	0.00	0	0.0	0.0	0.0	0.00	0.00	C66
Bladder	27	3.3	1.9	4.6	0.22	0.51	10	1.1	0.7	1.9	0.06	0.26	C67
Other urinary organs	0	0.0	0.0	0.0	0.00	0.00	0	0.0	0.0	0.0	0.00	0.00	C68
Eye	1	0.1	0.1	0.1	0.01	0.01	1	0.1	0.1	0.0	0.00	0.00	C69
Brain, nervous system	43	5.3	3.1	5.2	0.32	0.55	34	3.9	2.4	3.3	0.28	0.28	C70-72
Thyroid	15	1.9	1.1	1.8	0.15	0.21	74	8.5	5.2	7.6	0.46	0.80	C73
Adrenal gland	5	0.6	0.4	0.2	0.01	0.01	3	0.3	0.2	0.2	0.01	0.01	C74
Other endocrine	0	0.0	0.0	0.0	0.00	0.00	1	0.1	0.1	0.2	0.02	0.02	C75
Hodgkin disease	19	2.4	1.4	1.7	0.12	0.16	20	2.3	1.4	1.8	0.13	0.17	C81
Non-Hodgkin lymphoma	69	8.6	4.9	8.6	0.54	0.99	36	4.1	2.5	4.9	0.22	0.59	C82-85,C96
Immunoproliferative diseases	0	0.0	0.0	0.0	0.00	0.00	0	0.0	0.0	0.0	0.00	0.00	C88
Multiple myeloma	13	1.6	0.9	2.4	0.07	0.37	5	0.6	0.4	0.8	0.04	0.11	C90
Lymphoid leukaemia	27	3.3	1.9	2.3	0.18	0.24	25	2.9	1.8	2.1	0.12	0.18	C91
Myeloid leukaemia	18	2.2	1.3	1.9	0.15	0.18	19	2.2	1.3	2.4	0.17	0.28	C92-94
Leukaemia unspecified	12	1.5	0.9	1.3	0.06	0.15	8	0.9	0.6	0.7	0.04	0.09	C95
Other and unspecified	46	5.7	3.3	7.8	0.38	0.96	39	4.5	2.7	5.9	0.31	0.63	O&U
All sites	818		58.3	123.4	6.23	14.51	883		61.9	112.4	7.32	12.40	ALL
All sites but C44	807	100.0	57.5	121.6	6.14	14.38	874	100.0	61.3	111.1	7.23	12.21	ALLbC44

§Includes 5 cases of unknown age

§Includes 1 case of unknown age

***KUWAIT: NON-KUWAITIS (1994-1997)**

SITE	MALE						FEMALE						ICD-10
	No. cases	Freq. (%)	Crude rate (per 100,000)	ASR world	Cum. rates 0-64 0-74 (percent)		No. cases	Freq. (%)	Crude rate (per 100,000)	ASR world	Cum. rates 0-64 0-74 (percent)		
Lip	5	0.5	0.1	0.2	0.03	0.03	2	0.2	0.1	0.6	0.01	0.01	C00
Tongue	6	0.5	0.2	0.7	0.03	0.14	5	0.6	0.3	0.7	0.09	0.09	C01-02
Mouth	21	1.9	0.6	1.4	0.07	0.23	4	0.5	0.3	0.5	0.06	0.06	C03-06
Salivary glands	11	1.0	0.3	1.3	0.02	0.14	4	0.5	0.3	0.2	0.01	0.01	C07-08
Tonsil	0	0.0	0.0	0.0	0.00	0.00	1	0.1	0.1	0.0	0.00	0.00	C09
Other oropharynx	1	0.1	0.0	0.0	0.00	0.00	0	0.0	0.0	0.0	0.00	0.00	C10
Nasopharynx	16	1.4	0.5	0.5	0.05	0.05	6	0.7	0.4	0.4	0.04	0.04	C11
Hypopharynx	11	1.0	0.3	0.5	0.05	0.05	2	0.2	0.1	0.1	0.01	0.01	C12-13
Pharynx unspecified	1	0.1	0.0	0.0	0.00	0.00	0	0.0	0.0	0.0	0.00	0.00	C14
Oesophagus	9	0.8	0.3	3.5	0.04	0.16	4	0.5	0.3	1.3	0.08	0.08	C15
Stomach	34	3.1	1.0	4.6	0.11	0.51	21	2.4	1.3	5.6	0.13	0.82	C16
Small intestine	0	0.0	0.0	0.0	0.00	0.00	0	0.0	0.0	0.0	0.00	0.00	C17
Colon	49	4.4	1.5	4.1	0.20	0.41	32	3.7	2.0	9.1	0.45	1.25	C18
Rectum	29	2.6	0.9	1.1	0.12	0.12	20	2.3	1.3	4.2	0.16	0.58	C19-20
Anus	1	0.1	0.0	0.0	0.00	0.00	3	0.3	0.2	0.3	0.03	0.03	C21
Liver	64	5.8	1.9	8.3	0.21	0.60	10	1.2	0.6	1.6	0.10	0.10	C22
Gallbladder etc.	5	0.5	0.1	0.5	0.02	0.07	6	0.7	0.4	1.7	0.09	0.09	C23-24
Pancreas	22	2.0	0.7	3.8	0.06	0.58	9	1.0	0.6	2.0	0.04	0.32	C25
Nose, sinuses etc.	4	0.4	0.1	0.1	0.01	0.01	1	0.1	0.1	0.6	0.00	0.14	C30-31
Larynx	29	2.6	0.9	2.1	0.10	0.38	3	0.3	0.2	0.5	0.06	0.06	C32
Trachea, bronchus and lung	131	11.9	3.9	23.8	0.43	2.57	21	2.4	1.3	8.4	0.33	0.91	C33-34
Other thoracic organs	5	0.5	0.1	0.1	0.00	0.00	2	0.2	0.1	0.1	0.01	0.01	C37-38
Bone	13	1.2	0.4	0.5	0.03	0.03	6	0.7	0.4	0.9	0.02	0.16	C40-41
Melanoma of skin	2	0.2	0.1	0.1	0.01	0.01	4	0.5	0.3	0.8	0.03	0.03	C43
Other skin	34		1.0	2.8	0.10	0.35	10		0.6	3.1	0.12	0.20	C44
Mesothelioma	5	0.5	0.1	0.1	0.01	0.01	0	0.0	0.0	0.0	0.00	0.00	C45
Kaposi sarcoma	2	0.2	0.1	0.5	0.00	0.12	0	0.0	0.0	0.0	0.00	0.00	C46
Connective and soft tissue	21	1.9	0.6	2.9	0.05	0.05	8	0.9	0.5	0.9	0.09	0.09	C47+C49
Breast	5	0.5	0.1	1.2	0.02	0.02	282	32.6	17.7	34.3	2.47	3.77	C50
Vulva							1	0.1	0.1	0.1	0.01	0.01	C51
Vagina							1	0.1	0.1	0.5	0.00	0.00	C52
Cervix uteri							61	7.0	3.8	8.3	0.43	1.01	C53
Corpus uteri							15	1.7	0.9	2.2	0.26	0.26	C54
Uterus unspecified							1	0.1	0.1	0.6	0.00	0.14	C55
Ovary							46	5.3	2.9	7.4	0.47	1.05	C56
Other female genital organs							0	0.0	0.0	0.0	0.00	0.00	C57
Placenta							5	0.6	0.3	0.3	0.02	0.02	C58
Penis	1	0.1	0.0	0.3	0.00	0.04							C60
Prostate	39	3.5	1.2	10.9	0.17	1.07							C61
Testis	26	2.4	0.8	0.6	0.05	0.05							C62
Other male genital organs	1	0.1	0.0	0.5	0.00	0.12							C63
Kidney	22	2.0	0.7	1.6	0.11	0.23	8	0.9	0.5	1.6	0.05	0.13	C64
Renal pelvis	1	0.1	0.0	0.0	0.00	0.00	1	0.1	0.1	0.6	0.00	0.14	C65
Ureter	0	0.0	0.0	0.0	0.00	0.00	0	0.0	0.0	0.0	0.00	0.00	C66
Bladder	62	5.6	1.8	9.1	0.26	0.81	13	1.5	0.8	5.4	0.20	0.89	C67
Other urinary organs	0	0.0	0.0	0.0	0.00	0.00	0	0.0	0.0	0.0	0.00	0.00	C68
Eye	3	0.3	0.1	0.1	0.01	0.01	2	0.2	0.1	0.6	0.01	0.09	C69
Brain, nervous system	51	4.6	1.5	5.0	0.10	0.32	28	3.2	1.8	3.0	0.14	0.36	C70-72
Thyroid	37	3.4	1.1	1.7	0.10	0.27	86	9.9	5.4	5.5	0.45	0.45	C73
Adrenal gland	1	0.1	0.0	0.1	0.00	0.00	0	0.0	0.0	0.0	0.00	0.00	C74
Other endocrine	3	0.3	0.1	0.1	0.01	0.01	1	0.1	0.1	0.1	0.00	0.00	C75
Hodgkin disease	46	4.2	1.4	1.3	0.10	0.10	24	2.8	1.5	1.9	0.08	0.08	C81
Non-Hodgkin lymphoma	126	11.4	3.7	7.2	0.34	0.57	43	5.0	2.7	8.5	0.35	0.87	C82-85,C96
Immunoproliferative diseases	1	0.1	0.0	0.0	0.00	0.00	0	0.0	0.0	0.0	0.00	0.00	C88
Multiple myeloma	11	1.0	0.3	2.1	0.04	0.21	5	0.6	0.3	0.5	0.05	0.05	C90
Lymphoid leukaemia	47	4.3	1.4	5.0	0.15	0.24	16	1.8	1.0	1.9	0.05	0.22	C91
Myeloid leukaemia	46	4.2	1.4	2.1	0.11	0.15	23	2.7	1.4	2.9	0.26	0.35	C92-94
Leukaemia unspecified	12	1.1	0.4	0.9	0.04	0.09	6	0.7	0.4	2.2	0.01	0.15	C95
Other and unspecified	66	6.0	2.0	9.0	0.20	0.71	24	2.8	1.5	5.5	0.26	0.48	O&U
All sites	1138		33.7	122.3	3.59	11.64	876		54.9	137.3	7.53	15.58	ALL
All sites but C44	1104	100.0	32.7	119.5	3.49	11.29	866	100.0	54.3	134.2	7.41	15.38	ALLbC44

§Includes 1 case of unknown age

Oman

Registration area

The Sultanate of Oman is located in the southeastern corner of the Arabian Peninsula. It has a coastal line extending almost 1700 km from the Strait of Hormuz in the north to the borders of the Republic of Yemen in the south and overlooks three seas; the Arabian Gulf, the Gulf of Oman and the Arabian Sea. The Sultanate of Oman borders the Kingdom of Saudi Arabia and United Arab Emirates in the west, the Republic of Yemen in the south, the Strait of Hormuz in the north and the Arabian Sea in the east. There are a number of scattered Omani islands in the Arabian Sea; the most important are Masirah and Al-Halaniyat.

The total area of the Sultanate of Oman is approximately 309 500 km², making it the second largest country in the Arabian Peninsula. The Sultanate is composed of varying topographic areas consisting of plains, wadis (dry river beds) and mountains. The most densely populated and agriculturally fertile area is the plain overlooking the Gulf of Oman and the Arabian Sea (3% of total area). The mountain ranges occupy almost 15% of the total land of Oman and are inhabited by about 5% of the population. The remaining area is mainly sand, wadis and desert (about 82% of the total area). The climate differs from one area to another; it is hot and humid in the coastal areas in summer, hot and dry in the interior with the exception of higher mountains and the southern region of Dhofar, which enjoy a moderate climate throughout the year.

The first population census was done in December 1993. The estimated Omani population in 1999 was 1 729 330 with a gender ratio of 103 males per 100 females. About 15% of the population is under 5 years of age and 46% is under 15 years. Only 4.5% of the total Omani population is above the age of 60 years.

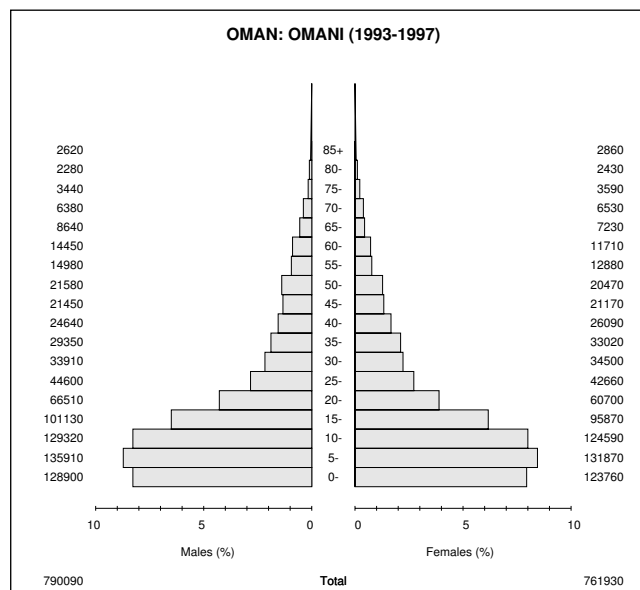
Registry structure and methods

The cancer registry in Oman was established in 1985 in Al-Nahdah hospital as a hospital-based registry. In 1996, it was moved to the Department of Non-Communicable Diseases Control at the Ministry of Health Headquarters. Since then, the Oman National Cancer Registry functions as a population-based registry covering the entire Sultanate of Oman. New cancer notification forms were developed and distributed to all regional hospitals and sister institutions for reporting.

Sources of cancer information for the Registry include passive reporting by the diagnosing physicians from different hospitals, including university police and armed forces hospitals; histopathology and cytology reports from the three main laboratories in the country, and the outpatient log books of the oncology department at the main tertiary facility, the Royal Hospital.

In addition, discharge diagnosis and monthly hospital mortality lists of patients with a diagnosis of cancer are obtained from different hospitals in the country. With the exception of radiotherapy, other modalities for treatment for cancer exist in Oman. Details of patients sent abroad for treatment (mainly for radiotherapy) are obtained from the Department of Treatment Abroad and from Tuwam Hospital (main referral hospital for radiotherapy treatment in the neighbouring United Arab Emirates).

Between 1985 and 1997, the Registry used Dbase software for data entry. In 1998 the whole database was converted to the IARC/IACR CanReg software program.



Source of population

1993 census at 30 November–1 December. Data for 1994 to 1997 are annual projections based on the cohort component technique, using WEST UN LIFE TABLE MODEL and based on the 1993 census.

Notes on the data

* The proportion of cases with morphological verification is high, suggesting that clinically diagnosed cases may have been missed. Some incidence rates are on the low side, and there is a slight regional variation. The data suggest that there may be imprecision in the stated age.

***OMAN: OMANI (1993-1997)**

SITE	MALE						FEMALE						ICD-10
	No. cases	Freq. (%)	Crude rate (per 100,000)	ASR world	Cum. rates 0-64 (percent)	Cum. rates 0-74 (percent)	No. cases	Freq. (%)	Crude rate (per 100,000)	ASR world	Cum. rates 0-64 (percent)	Cum. rates 0-74 (percent)	
Lip	7	0.3	0.2	0.3	0.02	0.02	2	0.1	0.1	0.1	0.00	0.02	C00
Tongue	20	1.0	0.5	1.0	0.07	0.11	15	0.9	0.4	0.9	0.10	0.10	C01-02
Mouth	26	1.3	0.7	1.3	0.08	0.18	19	1.1	0.5	1.1	0.07	0.13	C03-06
Salivary glands	5	0.2	0.1	0.2	0.02	0.03	4	0.2	0.1	0.2	0.01	0.01	C07-08
Tonsil	1	0.0	0.0	0.1	0.01	0.01	0	0.0	0.0	0.0	0.00	0.00	C09
Other oropharynx	2	0.1	0.1	0.1	0.00	0.00	0	0.0	0.0	0.0	0.00	0.00	C10
Nasopharynx	20	1.0	0.5	0.9	0.09	0.09	4	0.2	0.1	0.2	0.02	0.02	C11
Hypopharynx	6	0.3	0.2	0.3	0.02	0.03	1	0.1	0.0	0.1	0.00	0.02	C12-13
Pharynx unspecified	7	0.3	0.2	0.3	0.03	0.03	2	0.1	0.1	0.1	0.01	0.01	C14
Oesophagus	58	2.8	1.5	3.1	0.23	0.41	35	2.1	0.9	1.9	0.12	0.24	C15
Stomach	248	12.0	6.3	13.4	0.87	1.75	122	7.3	3.2	7.1	0.48	0.92	C16
Small intestine	7	0.3	0.2	0.3	0.03	0.03	2	0.1	0.1	0.1	0.01	0.01	C17
Colon	62	3.0	1.6	3.1	0.26	0.32	27	1.6	0.7	1.6	0.10	0.20	C18
Rectum	42	2.0	1.1	2.2	0.14	0.28	18	1.1	0.5	1.0	0.07	0.13	C19-20
Anus	8	0.4	0.2	0.4	0.03	0.07	2	0.1	0.1	0.2	0.01	0.02	C21
Liver	109	5.3	2.8	5.6	0.37	0.69	43	2.6	1.1	2.2	0.13	0.29	C22
Gallbladder etc.	9	0.4	0.2	0.5	0.03	0.06	11	0.7	0.3	0.7	0.04	0.09	C23-24
Pancreas	38	1.8	1.0	2.0	0.12	0.25	16	1.0	0.4	0.9	0.05	0.11	C25
Nose, sinuses etc.	10	0.5	0.3	0.5	0.03	0.07	2	0.1	0.1	0.1	0.00	0.00	C30-31
Larynx	30	1.4	0.8	1.6	0.08	0.19	5	0.3	0.1	0.2	0.03	0.03	C32
Trachea, bronchus and lung	144	6.9	3.6	7.7	0.55	0.99	46	2.7	1.2	2.6	0.20	0.35	C33-34
Other thoracic organs	19	0.9	0.5	1.0	0.07	0.14	12	0.7	0.3	0.6	0.06	0.06	C37-38
Bone	30	1.4	0.8	1.1	0.07	0.12	20	1.2	0.5	0.6	0.04	0.06	C40-41
Melanoma of skin	12	0.6	0.3	0.7	0.04	0.08	9	0.5	0.2	0.5	0.02	0.07	C43
Other skin	114		2.9	6.0	0.45	0.78	57		1.5	2.9	0.22	0.32	C44
Mesothelioma	1	0.0	0.0	0.0	0.00	0.00	0	0.0	0.0	0.0	0.00	0.00	C45
Kaposi sarcoma	19	0.9	0.5	0.9	0.06	0.11	0	0.0	0.0	0.0	0.00	0.00	C46
Connective and soft tissue	47	2.3	1.2	1.8	0.13	0.16	38	2.3	1.0	1.4	0.12	0.12	C47+C49
Breast	12	0.6	0.3	0.6	0.06	0.07	243	14.5	6.4	12.7	1.05	1.36	C50
Vulva							3	0.2	0.1	0.2	0.00	0.03	C51
Vagina							7	0.4	0.2	0.3	0.02	0.05	C52
Cervix uteri							154	9.2	4.0	7.7	0.61	0.88	C53
Corpus uteri							9	0.5	0.2	0.5	0.04	0.05	C54
Uterus unspecified							27	1.6	0.7	1.2	0.09	0.09	C55
Ovary							66	3.9	1.7	2.8	0.22	0.26	C56
Other female genital organs							0	0.0	0.0	0.0	0.00	0.00	C57
Placenta							25	1.5	0.7	0.9	0.07	0.07	C58
Penis	1	0.0	0.0	0.0	0.00	0.00							C60
Prostate	164	7.9	4.2	8.9	0.48	1.12							C61
Testis	15	0.7	0.4	0.6	0.04	0.05							C62
Other male genital organs	0	0.0	0.0	0.0	0.00	0.00							C63
Kidney	25	1.2	0.6	1.1	0.06	0.11	30	1.8	0.8	1.1	0.08	0.14	C64
Renal pelvis	2	0.1	0.1	0.1	0.01	0.02	0	0.0	0.0	0.0	0.00	0.00	C65
Ureter	0	0.0	0.0	0.0	0.00	0.00	0	0.0	0.0	0.0	0.00	0.00	C66
Bladder	103	5.0	2.6	5.5	0.36	0.69	39	2.3	1.0	2.3	0.13	0.31	C67
Other urinary organs	1	0.0	0.0	0.1	0.01	0.01	1	0.1	0.0	0.0	0.00	0.00	C68
Eye	21	1.0	0.5	1.0	0.07	0.14	19	1.1	0.5	0.6	0.04	0.05	C69
Brain, nervous system	77	3.7	1.9	2.5	0.19	0.23	48	2.9	1.3	1.7	0.12	0.15	C70-72
Thyroid	30	1.4	0.8	1.5	0.10	0.17	115	6.9	3.0	5.3	0.43	0.53	C73
Adrenal gland	5	0.2	0.1	0.1	0.01	0.01	11	0.7	0.3	0.3	0.02	0.02	C74
Other endocrine	2	0.1	0.1	0.1	0.00	0.02	2	0.1	0.1	0.1	0.01	0.01	C75
Hodgkin disease	61	2.9	1.5	1.8	0.13	0.15	34	2.0	0.9	1.3	0.09	0.15	C81
Non-Hodgkin lymphoma	208	10.0	5.3	8.1	0.54	0.85	134	8.0	3.5	5.7	0.38	0.61	C82-85,C96
Immunoproliferative diseases	3	0.1	0.1	0.1	0.01	0.01	0	0.0	0.0	0.0	0.00	0.00	C88
Multiple myeloma	48	2.3	1.2	2.5	0.19	0.30	23	1.4	0.6	1.4	0.10	0.15	C90
Lymphoid leukaemia	92	4.4	2.3	2.2	0.14	0.19	43	2.6	1.1	1.1	0.04	0.10	C91
Myeloid leukaemia	37	1.8	0.9	1.6	0.09	0.20	40	2.4	1.0	1.6	0.13	0.16	C92-94
Leukaemia unspecified	18	0.9	0.5	0.6	0.06	0.06	11	0.7	0.3	0.3	0.02	0.03	C95
Other and unspecified	161	7.8	4.1	8.3	0.65	1.00	138	8.2	3.6	7.5	0.51	0.97	O&U
All sites	2187		55.4	104.2	7.10	12.39	1734		45.5	83.6	6.09	9.50	ALL
All sites but C44	2073	100.0	52.5	98.1	6.65	11.61	1677	100.0	44.0	80.7	5.87	9.17	ALLbC44

Pakistan, South Karachi

Registration area

Karachi is the largest city of Pakistan, an Islamic Republic in south central Asia and the capital of the Sindh province. Located on the coast of the Arabian Sea, at latitude 24° and longitude 67°, it is the nation's major commercial and industrial centre as well as the largest seaport. The city of Karachi is divided into five districts. The Karachi Cancer Registry registers incident cases of the population of the southern district of the city. Karachi South has a population of 1 724 915 (census 1998). Males constituted 54% of the total and females 46%.

Muslims form 97% of the population whereas Hindus, Christians and Parsis account for the remaining 3%. The population includes a mixture of all ethnic groups in Pakistan, namely Sindhis, Punjabis, Pathans, Baluchs and Mohajirs. There is a slight predominance of Mohajirs, who are an ethnically mixed community, having migrated from various parts of India at the time of partition of the sub-continent. It has the distinction of being the only district in the country with a representation of all ethnic and socioeconomic groups of the country. It can thus be taken as a sample population of the country in the absence of a more extensive cancer registration system.

Registry structure and methods

The Karachi Cancer Registry (KCR) is the first population-based cancer registry in Pakistan. The Government of Sindh established it in January 1995, in collaboration with the Unit of Descriptive Epidemiology of IARC. Prior to this, sporadic relative frequency information from hospitals and a network of hospital registries was available.

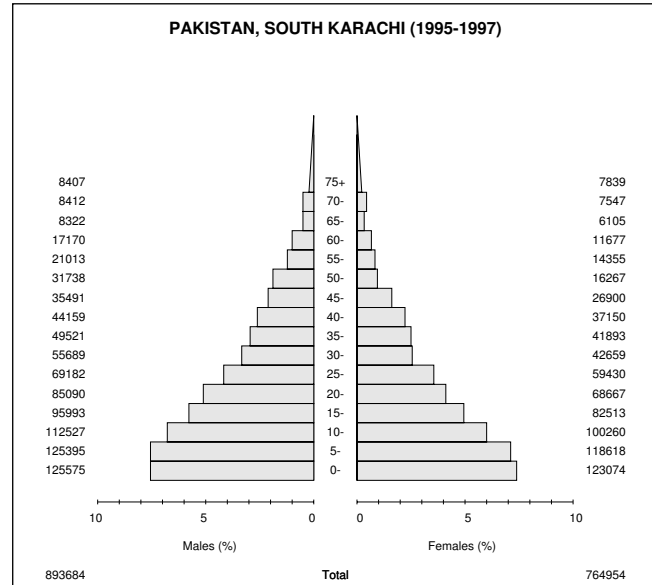
There is a national cancer control programme The Pakistan Association of Cancer Registries was started in November 1999. This, along with the Cancer Society of Pakistan and the Karachi Cancer Registry, have worked in the urban regions of Sindh to promote cancer registration and awareness in cancer control.

Use of the data

The registry publishes annual reports and has presented its data in scientific journals.

A case-control study of environmental risk factors for lung cancer in Karachi, and study of the polymorphism of metabolic enzymes in the case of tobacco-related cancers, i.e. lung, oral, laryngeal and urinary bladder cancers, are being carried out with the Unit of Environmental Cancer Epidemiology of IARC.

Special studies on survival from breast cancer, lymphomas and leukaemias have been carried out by the registry.



Source of population

The population data are estimated on the basis of the 1998 census, with a growth rate of 1.94 as calculated by the Federal Census Department. Census Bulletin-1, Population and Housing Census of Pakistan 1998 (1999), Population Census Organisation Statistics Division, Government of Pakistan, July 1998.

Notes on the data

* The high proportion of cases with morphological confirmation suggests under-enumeration. The population denominator, with a large excess of males, is unlikely and there may be a problem in estimating the population-at-risk. As the registry covers half of the city, there may be a problem in excluding non-residents.

***PAKISTAN, SOUTH KARACHI (1995-1997)**

SITE	MALE						FEMALE						ICD-10
	No. cases	Freq. (%)	Crude rate (per 100,000)	ASR world	Cum. rates 0-64 (percent)	Cum. rates 0-74 (percent)	No. cases	Freq. (%)	Crude rate (per 100,000)	ASR world	Cum. rates 0-64 (percent)	Cum. rates 0-74 (percent)	
Lip	13	0.6	0.5	0.9	0.07	0.09	4	0.2	0.2	0.4	0.01	0.06	C00
Tongue	61	2.9	2.3	4.2	0.23	0.61	57	2.8	2.5	4.9	0.36	0.61	C01-02
Mouth	143	6.9	5.3	9.1	0.64	1.10	108	5.3	4.7	9.3	0.70	1.04	C03-06
Salivary glands	21	1.0	0.8	1.4	0.08	0.20	12	0.6	0.5	0.9	0.06	0.13	C07-08
Tonsil	19	0.9	0.7	1.4	0.09	0.19	8	0.4	0.3	0.7	0.06	0.06	C09
Other oropharynx	7	0.3	0.3	0.5	0.04	0.06	0	0.0	0.0	0.0	0.00	0.00	C10
Nasopharynx	23	1.1	0.9	1.2	0.07	0.15	12	0.6	0.5	0.8	0.06	0.10	C11
Hypopharynx	54	2.6	2.0	3.7	0.30	0.46	18	0.9	0.8	1.6	0.09	0.22	C12-13
Pharynx unspecified	17	0.8	0.6	1.3	0.06	0.18	5	0.2	0.2	0.4	0.03	0.03	C14
Oesophagus	94	4.5	3.5	6.5	0.41	0.81	72	3.5	3.1	6.9	0.40	0.91	C15
Stomach	61	2.9	2.3	3.9	0.23	0.46	35	1.7	1.5	3.0	0.19	0.32	C16
Small intestine	7	0.3	0.3	0.5	0.03	0.05	2	0.1	0.1	0.2	0.02	0.02	C17
Colon	40	1.9	1.5	2.4	0.14	0.24	41	2.0	1.8	3.6	0.25	0.40	C18
Rectum	32	1.5	1.2	2.0	0.12	0.24	21	1.0	0.9	1.7	0.15	0.20	C19-20
Anus	14	0.7	0.5	1.0	0.07	0.11	3	0.1	0.1	0.2	0.03	0.03	C21
Liver	80	3.8	3.0	5.9	0.36	0.80	42	2.0	1.8	3.7	0.23	0.47	C22
Gallbladder etc.	17	0.8	0.6	1.3	0.05	0.17	54	2.6	2.4	5.3	0.38	0.72	C23-24
Pancreas	13	0.6	0.5	0.9	0.07	0.13	10	0.5	0.4	0.8	0.08	0.10	C25
Nose, sinuses etc.	4	0.2	0.1	0.2	0.01	0.01	3	0.1	0.1	0.3	0.04	0.04	C30-31
Larynx	125	6.0	4.7	8.8	0.63	1.11	18	0.9	0.8	1.5	0.09	0.16	C32
Trachea, bronchus and lung	273	13.1	10.2	21.0	1.21	2.71	34	1.7	1.5	2.9	0.19	0.38	C33-34
Other thoracic organs	6	0.3	0.2	0.3	0.03	0.03	0	0.0	0.0	0.0	0.00	0.00	C37-38
Bone	46	2.2	1.7	1.7	0.11	0.15	22	1.1	1.0	1.0	0.06	0.09	C40-41
Melanoma of skin	4	0.2	0.1	0.3	0.01	0.03	10	0.5	0.4	0.9	0.06	0.08	C43
Other skin	78		2.9	5.0	0.33	0.61	56		2.4	4.9	0.27	0.61	C44
Mesothelioma	2	0.1	0.1	0.1	0.01	0.01	0	0.0	0.0	0.0	0.00	0.00	C45
Kaposi sarcoma	0	0.0	0.0	0.0	0.00	0.00	0	0.0	0.0	0.0	0.00	0.00	C46
Connective and soft tissue	63	3.0	2.3	3.3	0.22	0.34	33	1.6	1.4	2.1	0.12	0.22	C47+C49
Breast	10	0.5	0.4	0.6	0.05	0.07	698	34.0	30.4	53.1	4.20	5.56	C50
Vulva							5	0.2	0.2	0.4	0.04	0.04	C51
Vagina							5	0.2	0.2	0.3	0.03	0.03	C52
Cervix uteri							74	3.6	3.2	6.8	0.56	0.78	C53
Corpus uteri							66	3.2	2.9	6.4	0.46	0.79	C54
Uterus unspecified							2	0.1	0.1	0.1	0.00	0.00	C55
Ovary							136	6.6	5.9	10.9	0.84	1.21	C56
Other female genital organs							0	0.0	0.0	0.0	0.00	0.00	C57
Placenta							9	0.4	0.4	0.5	0.02	0.05	C58
Penis	4	0.2	0.1	0.2	0.01	0.03							C60
Prostate	68	3.3	2.5	5.3	0.22	0.61							C61
Testis	16	0.8	0.6	0.7	0.05	0.07							C62
Other male genital organs	0	0.0	0.0	0.0	0.00	0.00							C63
Kidney	25	1.2	0.9	1.6	0.09	0.19	11	0.5	0.5	0.9	0.09	0.09	C64
Renal pelvis	5	0.2	0.2	0.3	0.02	0.04	1	0.0	0.0	0.1	0.01	0.01	C65
Ureter	0	0.0	0.0	0.0	0.00	0.00	0	0.0	0.0	0.0	0.00	0.00	C66
Bladder	120	5.8	4.5	9.0	0.47	1.15	36	1.8	1.6	3.6	0.18	0.45	C67
Other urinary organs	1	0.0	0.0	0.1	0.01	0.01	0	0.0	0.0	0.0	0.00	0.00	C68
Eye	7	0.3	0.3	0.5	0.00	0.06	6	0.3	0.3	0.4	0.02	0.04	C69
Brain, nervous system	75	3.6	2.8	3.5	0.26	0.32	36	1.8	1.6	1.8	0.15	0.15	C70-72
Thyroid	22	1.1	0.8	1.2	0.10	0.14	60	2.9	2.6	4.2	0.32	0.44	C73
Adrenal gland	3	0.1	0.1	0.1	0.01	0.01	0	0.0	0.0	0.0	0.00	0.00	C74
Other endocrine	0	0.0	0.0	0.0	0.00	0.00	1	0.0	0.0	0.0	0.00	0.00	C75
Hodgkin disease	69	3.3	2.6	2.8	0.20	0.24	14	0.7	0.6	0.7	0.05	0.08	C81
Non-Hodgkin lymphoma	100	4.8	3.7	5.1	0.40	0.54	49	2.4	2.1	3.7	0.26	0.44	C82-85,C96
Immunoproliferative diseases	0	0.0	0.0	0.0	0.00	0.00	0	0.0	0.0	0.0	0.00	0.00	C88
Multiple myeloma	14	0.7	0.5	0.9	0.06	0.10	8	0.4	0.3	0.6	0.03	0.08	C90
Lymphoid leukaemia	28	1.3	1.0	1.1	0.07	0.09	26	1.3	1.1	1.2	0.08	0.11	C91
Myeloid leukaemia	38	1.8	1.4	2.0	0.13	0.21	43	2.1	1.9	2.7	0.22	0.25	C92-94
Leukaemia unspecified	10	0.5	0.4	0.5	0.04	0.06	4	0.2	0.2	0.1	0.01	0.01	C95
Other and unspecified	232	11.1	8.7	14.7	0.95	1.73	139	6.8	6.1	12.7	0.88	1.48	O&U
All sites	2164		80.7	139.1	8.79	16.75	2109		91.9	169.5	12.38	19.09	ALL
All sites but C44	2086	100.0	77.8	134.1	8.46	16.14	2053	100.0	89.5	164.6	12.11	18.48	ALLbC44

Philippines, Manila

Registration area

The registry covers an area of 274.2 km² located in the southwest portion of Luzon, which borders Manila Bay to the West, Bulacan to the North and Rizal province to the south east. The city of Manila is the capital of the Philippines and is the country's main port, the hub of commerce and trade and the seat of cultural and intellectual activities.

The population covered by the registry, based on the 1995 census on Population and Housing, is 5 075 949, representing an increase of 13.7% as compared to 1990. As a whole, the population is young, with 32.29% under 15 years of age and only 2.6% over 65.

Cancer care facilities

Health services in the National Capital Region and the adjacent province of Rizal include 168 secondary and tertiary care hospitals, 43 primary care hospitals and 32 clinics of the Department of Health for outpatient consultations. Eight hospitals have radiotherapy facilities.

Registry structure and methods

The Philippine Cancer Society (PCS) began cancer registration in 1959 in an attempt to organize a national cancer registry. Although this was not successful, it served as a pilot study. In 1968, the Central Tumor Registry of the Philippines (CTRP) was launched, covering 25 hospitals in Metro Manila and one in Cebu, completely relying on notifications from these hospitals. In 1983, it was converted to a population-based cancer registry covering the four cities of Manila, Pasay, Caloocan and Quezon City. It was renamed as the Philippine Cancer Society–Manila Cancer Registry. Cancer registry clerks were trained to abstract pertinent information from hospital records and death certificates and they actively collected data on cancer cases occurring in its catchment area for the period 1980–82 onwards.

The registry is located in the PCS building, and is fully funded by the PCS. The registry staff comprises three part-time consultants, one full-time supervisor, and eight clerks (now known as cancer registry research assistants). In 1984, the registry started a cooperative effort with the Department of Health–Rizal Cancer Registry in covering the 134 hospitals within the National Capital Region and Rizal province. Both registries use the same forms and the same methods of active data collection.

Hospital data sources include medical records, radiotherapy records, pathology and haematology records and logs, radiology, ultrasound, nuclear medicine, CT scan and MRI reports and logs, and the hospital tumour registry. Death certificates from the office of the Local Civil Registrar are also reviewed. The registry staff also visit private oncologists and hematologists to ensure registration completeness.

Data received are checked for completeness and consistency as well as for duplication, both manually and with the aid of the computer. Checks for consistency and validity of codes are performed with the IARC/IACR CanReg software. Follow-up was previously done through a review of death certificates. However, in 1997, the PCS-MCR conducted its first population-based survival study on the 1987 incident cancer cases in the registry, using both active and passive methods of follow-up.

High percentages of DCO registrations for the period 1988–92 led to a more thorough trace-back of cases notified by death certificates in the hospitals and at their given place of residence, particularly for liver cases (50% DCO at the time).

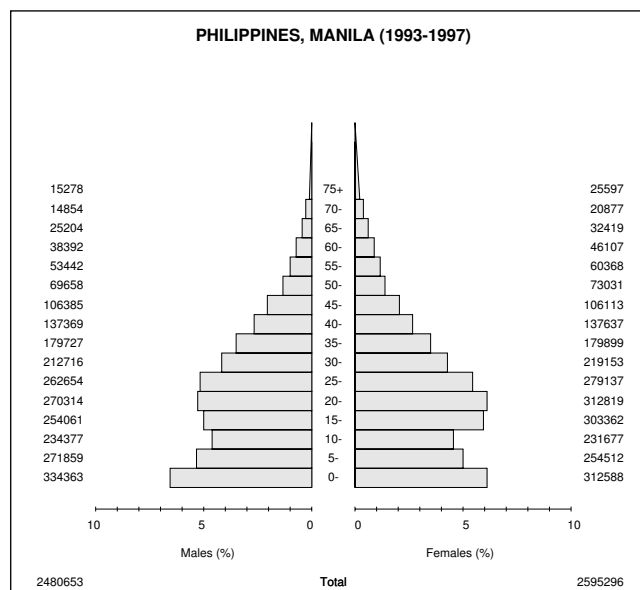
Interpreting the results

There are some problems of inadequate manpower for data collection and other registry procedures; poor record keeping in a number of hospitals; non-inclusion of pathological reports from private pathologists in hospital records; use of different names (particularly among Chinese); and delay in data collection due to concerns on confidentiality in some hospitals

In spite of these problems, the staff continues its efforts in improving completeness of coverage as well as accuracy of the data.

Use of the data

The registry prepares reports on cancer incidence as well as trends. A survival study on the leading sites in 1987 has been carried out. Data generated from the Manila and Rizal registries have served as a basis in the planning of most of the cancer control activities of the Philippine Cancer Control Programme of the Department of Health. They have been used for other epidemiological research, as well as for public information activities of the media and NGOs.



Source of population

1995 Census of Population, National Statistics Office.

Notes on the data

* The high proportion of cases registered on the basis of a death certificate alone indicates a degree of under-ascertainment and lack of validity.

***PHILIPPINES, MANILA (1993-1997)**

SITE	MALE						FEMALE						ICD-10
	§No. cases	Freq. (%)	Crude rate (per 100,000)	ASR world	Cum. rates (percent)		§No. cases	Freq. (%)	Crude rate (per 100,000)	ASR world	Cum. rates (percent)		
Lip	6	0.0	0.0	0.1	0.00	0.01	5	0.0	0.0	0.1	0.00	0.01	C00
Tongue	139	1.1	1.1	2.5	0.15	0.33	119	0.7	0.9	1.9	0.09	0.24	C01-02
Mouth	151	1.2	1.2	2.8	0.14	0.31	171	1.0	1.3	2.6	0.11	0.32	C03-06
Salivary glands	92	0.7	0.7	1.4	0.09	0.18	77	0.5	0.6	1.0	0.05	0.14	C07-08
Tonsil	31	0.2	0.2	0.5	0.04	0.05	40	0.2	0.3	0.6	0.04	0.07	C09
Other oropharynx	8	0.1	0.1	0.1	0.01	0.02	5	0.0	0.0	0.1	0.01	0.01	C10
Nasopharynx	541	4.2	4.4	7.2	0.52	0.81	222	1.4	1.7	2.5	0.18	0.27	C11
Hypopharynx	28	0.2	0.2	0.6	0.03	0.07	29	0.2	0.2	0.4	0.02	0.06	C12-13
Pharynx unspecified	42	0.3	0.3	0.8	0.03	0.11	46	0.3	0.4	0.7	0.03	0.08	C14
Oesophagus	150	1.2	1.2	2.9	0.15	0.36	83	0.5	0.6	1.3	0.06	0.17	C15
Stomach	558	4.4	4.5	10.3	0.48	1.18	401	2.5	3.1	5.8	0.30	0.66	C16
Small intestine	34	0.3	0.3	0.5	0.03	0.05	33	0.2	0.3	0.5	0.02	0.04	C17
Colon	721	5.6	5.8	13.4	0.62	1.61	683	4.2	5.3	10.1	0.49	1.14	C18
Rectum	516	4.0	4.2	9.1	0.47	1.15	443	2.7	3.4	6.2	0.35	0.76	C19-20
‡Anus	17	0.1	0.1	0.3	0.02	0.03	13	0.1	0.1	0.2	0.01	0.03	C21
Liver	1430	11.2	11.5	23.3	1.31	2.76	516	3.2	4.0	7.4	0.39	0.89	C22
Gallbladder etc.	79	0.6	0.6	1.6	0.06	0.21	113	0.7	0.9	1.8	0.08	0.21	C23-24
Pancreas	205	1.6	1.7	3.7	0.18	0.45	240	1.5	1.8	3.7	0.17	0.43	C25
Nose, sinuses etc.	105	0.8	0.8	1.6	0.12	0.19	64	0.4	0.5	0.8	0.04	0.09	C30-31
Larynx	369	2.9	3.0	7.0	0.40	0.93	79	0.5	0.6	1.2	0.08	0.14	C32
Trachea, bronchus and lung	3013	23.5	24.3	57.0	3.05	7.40	1035	6.3	8.0	15.5	0.85	1.89	C33-34
Other thoracic organs	30	0.2	0.2	0.4	0.03	0.04	22	0.1	0.2	0.2	0.01	0.02	C37-38
Bone	196	1.5	1.6	2.4	0.12	0.25	146	0.9	1.1	1.5	0.09	0.16	C40-41
Melanoma of skin	45	0.4	0.4	0.8	0.03	0.11	45	0.3	0.3	0.6	0.03	0.07	C43
Other skin	130		1.0	2.3	0.11	0.25	130		1.0	1.7	0.09	0.16	C44
Mesothelioma	5	0.0	0.0	0.1	0.01	0.01	8	0.0	0.1	0.1	0.01	0.01	C45
Kaposi sarcoma	0	0.0	0.0	0.0	0.00	0.00	0	0.0	0.0	0.0	0.00	0.00	C46
Connective and soft tissue	218	1.7	1.8	2.8	0.16	0.31	203	1.2	1.6	2.2	0.14	0.23	C47+C49
Breast	46	0.4	0.4	0.8	0.04	0.10	4432	27.1	34.2	54.2	4.13	6.01	C50
Vulva							36	0.2	0.3	0.5	0.02	0.06	C51
Vagina							18	0.1	0.1	0.2	0.01	0.03	C52
Cervix uteri							1903	11.6	14.7	21.9	1.72	2.41	C53
Corpus uteri							430	2.6	3.3	5.7	0.43	0.70	C54
Uterus unspecified							264	1.6	2.0	3.3	0.22	0.41	C55
Ovary							1194	7.3	9.2	13.5	1.02	1.47	C56
Other female genital organs							12	0.1	0.1	0.1	0.01	0.01	C57
Placenta							66	0.4	0.5	0.5	0.04	0.05	C58
Penis	30	0.2	0.2	0.5	0.02	0.05							C60
Prostate	939	7.3	7.6	22.3	0.50	2.40							C61
Testis	108	0.8	0.9	1.0	0.06	0.09							C62
Other male genital organs	5	0.0	0.0	0.1	0.01	0.01							C63
Kidney	225	1.8	1.8	3.6	0.20	0.43	171	1.0	1.3	2.3	0.14	0.29	C64
Renal pelvis	0	0.0	0.0	0.0	0.00	0.00	1	0.0	0.0	0.0	0.00	0.00	C65
Ureter	2	0.0	0.0	0.0	0.00	0.01	3	0.0	0.0	0.1	0.00	0.01	C66
Bladder	237	1.8	1.9	4.7	0.19	0.55	93	0.6	0.7	1.4	0.05	0.18	C67
Other urinary organs	3	0.0	0.0	0.1	0.00	0.01	4	0.0	0.0	0.1	0.00	0.01	C68
Eye	69	0.5	0.6	0.6	0.03	0.03	49	0.3	0.4	0.4	0.02	0.02	C69
Brain, nervous system	271	2.1	2.2	3.0	0.21	0.30	229	1.4	1.8	2.3	0.13	0.24	C70-72
Thyroid	219	1.7	1.8	2.9	0.18	0.29	922	5.6	7.1	9.7	0.70	1.05	C73
Adrenal gland	12	0.1	0.1	0.1	0.01	0.02	6	0.0	0.0	0.1	0.00	0.01	C74
Other endocrine	12	0.1	0.1	0.1	0.01	0.01	3	0.0	0.0	0.0	0.00	0.01	C75
Hodgkin disease	73	0.6	0.6	0.8	0.05	0.09	51	0.3	0.4	0.5	0.03	0.07	C81
Non-Hodgkin lymphoma	463	3.6	3.7	6.4	0.36	0.73	352	2.2	2.7	4.2	0.26	0.46	C82-85,C96
Immunoproliferative diseases	0	0.0	0.0	0.0	0.00	0.00	0	0.0	0.0	0.0	0.00	0.00	C88
Multiple myeloma	57	0.4	0.5	1.0	0.05	0.12	76	0.5	0.6	1.1	0.08	0.14	C90
Lymphoid leukaemia	259	2.0	2.1	2.3	0.11	0.16	185	1.1	1.4	1.5	0.08	0.11	C91
Myeloid leukaemia	260	2.0	2.1	2.9	0.15	0.28	253	1.5	1.9	2.5	0.16	0.25	C92-94
Leukaemia unspecified	160	1.2	1.3	1.7	0.09	0.16	156	1.0	1.2	1.5	0.09	0.14	C95
Other and unspecified	639	5.0	5.2	11.1	0.61	1.35	615	3.8	4.7	8.3	0.47	0.97	O&U
All sites	12948		104.4	221.6	11.26	26.40	16495		127.1	206.5	13.58	23.39	ALL
All sites but C44	12818	100.0	103.3	219.3	11.16	26.15	16365	100.0	126.1	204.8	13.48	23.22	ALLbC44

§Includes 111 cases of unknown age
‡41.2% of cases are anorectal tumours

§Includes 160 cases of unknown age
‡38.5% of cases are anorectal tumours

Philippines, Rizal

Registration area

The Department of Health – Rizal Cancer Registry (DOH-RCR), the first population-based cancer registry in the Philippines, was established in 1974 as one of the activities of the Community Cancer Control Programme of the province of Rizal. It covers the 26 municipalities of the original province of Rizal, encompassing a land area of 1343 km². Twelve of these municipalities were incorporated with Metro Manila in 1975, six of which became cities between 1994 to 1999. Of the 14 remaining municipalities of Rizal province, one (Antipolo) became a city in 1999, ten are 'urbanizing' and only three municipalities are rural.

The population in the 1995 census was 5.25 million, with a male to female ratio of 0.96:1. The population is predominantly young (33.6% below 15 years of age and 2.5% over 65 years).

Cancer care facilities

Health services in the National Capital Region and the adjacent province of Rizal include two cancer institutes, 168 secondary and tertiary care hospitals, 43 primary care hospitals and 32 clinics of the Department of Health for outpatient consultations. Eight hospitals have radiotherapy facilities.

Registry structure and methods

The DOH-RCR is located in the Rizal Medical Centre in Pasig City. It was initially funded by the Rizal provincial government but since 1975, funding has been a full responsibility of the Rizal Medical Centre. Its present staff consists of a medical oncologist who heads the registry, a surgeon and three full-time registry clerks.

Although cancer is reportable by legislation, passive data collection proved unsatisfactory. Data collection has been active since 1980 (retrospective to 1978). Hospital data sources include medical records, pathology and haematology records and logs, radiotherapy records, radiology, ultrasound, nuclear medicine, CT scan and MRI records and logs and the hospital tumour registry (if available). Private clinics of oncologists and hematologists are also covered. Death certificates are obtained from the local civil registry offices in the municipalities and cities of Metropolitan Manila and Rizal province. Data are checked for completeness and accuracy, matched with the master patient index file of the registry to check for duplicates, and managed using the IARC/IACR CanReg software.

Follow-up used to be mainly passive, but since population-based survival was undertaken in 1993, for 1987 cases, active follow-up through the attending physicians, health centres, as well as letters and home visits has been employed. To reduce a high percentage of DCO cases the registry embarked on a more thorough trace-back of death certificate notifications in hospitals and at place of residence, particularly for liver cancer cases. Distribution of cases by hospital and by site are compared from year-to-year to check for any marked change which may be due to under-reporting.

Interpreting the results

Incidence rates are expected to increase due to urbanization, improved diagnostic and treatment facilities, as well as the presence of screening programmes in Metro Manila and in Rizal

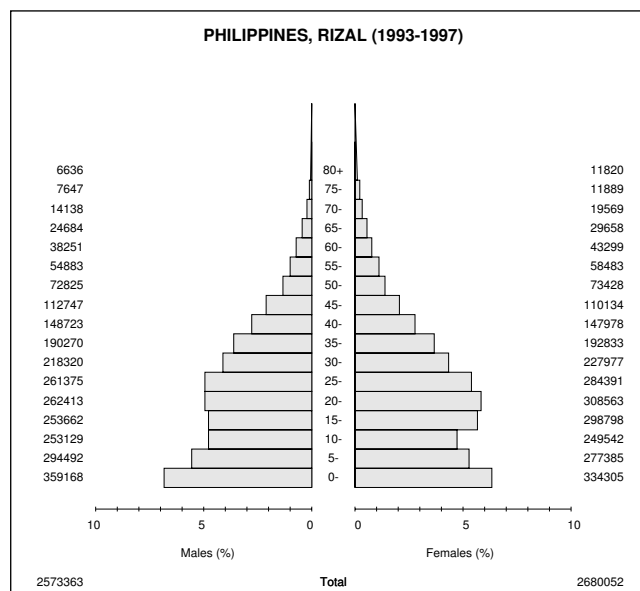
province. During 1994–99, seven of the 26 municipalities became cities, resulting in increased migration to the area. Suspected cancer patients from the provinces also come to Metro Manila for diagnosis and treatment and it is likely that a percentage of these use their city address when they are seen in the hospitals. The use of nicknames and other names, particularly among Chinese, makes it difficult to ascertain duplicate registration.

Record-keeping is poor in a number of hospitals, including failure to record the patient's address. The pathology reports from private pathologists in the hospital pathology logs and records may be missing. Confidentiality problems are being encountered in some private hospitals, delaying data collection. Manpower for data collection and follow-up is inadequate.

Use of the data

The registry periodically prepares reports on cancer incidence and trends. The results of the population-based cancer survival study for 1987 incident cases have been published. The data serve as a basis for planning the activities of the Philippine Cancer Control Program of the Department of Health, as well as for other epidemiological studies on malignancies, for public information and other activities of the media and non-governmental organizations.

Long-term follow-up of the breast cancer screening project in the Philippines is being carried out in collaboration with IARC.



Source of population

1995 Census of Population, National Statistics Office.

Notes on the data

* The high proportion of cases registered on the basis of a death certificate alone indicates a degree of under-ascertainment and lack of validity.

***PHILIPPINES, RIZAL (1993-1997)**

SITE	MALE						FEMALE						ICD-10
	§No. cases	Freq. (%)	Crude rate (per 100,000)	ASR world	Cum. rates (percent)		§No. cases	Freq. (%)	Crude rate (per 100,000)	ASR world	Cum. rates (percent)		
Lip	6	0.1	0.0	0.1	0.00	0.01	0	0.0	0.0	0.0	0.00	0.00	C00
Tongue	104	1.0	0.8	1.8	0.12	0.21	81	0.6	0.6	1.3	0.06	0.16	C01-02
Mouth	110	1.1	0.9	2.0	0.10	0.26	123	0.9	0.9	1.9	0.10	0.25	C03-06
Salivary glands	72	0.7	0.6	1.1	0.06	0.12	61	0.5	0.5	0.7	0.04	0.09	C07-08
Tonsil	33	0.3	0.3	0.5	0.04	0.06	39	0.3	0.3	0.6	0.03	0.07	C09
Other oropharynx	8	0.1	0.1	0.1	0.01	0.02	3	0.0	0.0	0.0	0.00	0.01	C10
Nasopharynx	395	3.8	3.1	5.0	0.37	0.57	166	1.3	1.2	1.9	0.13	0.21	C11
Hypopharynx	16	0.2	0.1	0.3	0.01	0.04	12	0.1	0.1	0.1	0.01	0.01	C12-13
Pharynx unspecified	49	0.5	0.4	0.9	0.05	0.12	29	0.2	0.2	0.5	0.02	0.06	C14
Oesophagus	122	1.2	0.9	2.4	0.13	0.30	64	0.5	0.5	1.0	0.05	0.12	C15
Stomach	436	4.2	3.4	8.2	0.38	0.95	325	2.5	2.4	4.8	0.26	0.52	C16
Small intestine	50	0.5	0.4	0.8	0.05	0.10	36	0.3	0.3	0.5	0.03	0.06	C17
Colon	539	5.2	4.2	9.8	0.47	1.17	568	4.4	4.2	8.6	0.43	0.99	C18
Rectum	370	3.6	2.9	6.2	0.39	0.70	323	2.5	2.4	4.7	0.27	0.58	C19-20
Anus	16	0.2	0.1	0.2	0.01	0.03	21	0.2	0.2	0.3	0.01	0.04	C21
Liver	1199	11.6	9.3	18.6	1.15	2.17	412	3.2	3.1	6.1	0.28	0.71	C22
Gallbladder etc.	75	0.7	0.6	1.4	0.07	0.19	76	0.6	0.6	1.2	0.06	0.16	C23-24
Pancreas	204	2.0	1.6	3.7	0.17	0.39	183	1.4	1.4	2.9	0.14	0.37	C25
Nose, sinuses etc.	79	0.8	0.6	1.2	0.07	0.15	46	0.4	0.3	0.6	0.03	0.07	C30-31
Larynx	257	2.5	2.0	4.9	0.26	0.63	56	0.4	0.4	0.9	0.05	0.13	C32
Trachea, bronchus and lung	2423	23.4	18.8	46.4	2.51	6.07	776	6.0	5.8	12.1	0.62	1.51	C33-34
Other thoracic organs	42	0.4	0.3	0.5	0.02	0.07	20	0.2	0.1	0.2	0.02	0.03	C37-38
Bone	188	1.8	1.5	2.3	0.13	0.26	142	1.1	1.1	1.4	0.09	0.16	C40-41
Melanoma of skin	42	0.4	0.3	0.7	0.03	0.07	27	0.2	0.2	0.3	0.02	0.03	C43
Other skin	170		1.3	3.0	0.11	0.32	147		1.1	2.2	0.11	0.25	C44
Mesothelioma	4	0.0	0.0	0.1	0.00	0.01	2	0.0	0.0	0.0	0.00	0.00	C45
Kaposi sarcoma	1	0.0	0.0	0.0	0.00	0.00	1	0.0	0.0	0.0	0.00	0.00	C46
Connective and soft tissue	144	1.4	1.1	1.7	0.11	0.16	150	1.2	1.1	1.6	0.10	0.18	C47+C49
Breast	26	0.3	0.2	0.4	0.03	0.04	3543	27.3	26.4	43.0	3.27	4.81	C50
Vulva							30	0.2	0.2	0.4	0.02	0.05	C51
Vagina							13	0.1	0.1	0.2	0.01	0.03	C52
Cervix uteri							1497	11.5	11.2	17.5	1.39	1.93	C53
Corpus uteri							446	3.4	3.3	6.1	0.46	0.74	C54
Uterus unspecified							191	1.5	1.4	2.5	0.17	0.28	C55
Ovary							885	6.8	6.6	10.1	0.75	1.12	C56
Other female genital organs							8	0.1	0.1	0.1	0.01	0.01	C57
Placenta							56	0.4	0.4	0.4	0.03	0.03	C58
Penis	40	0.4	0.3	0.6	0.05	0.07							C60
Prostate	662	6.4	5.1	16.6	0.31	1.68							C61
Testis	64	0.6	0.5	0.6	0.04	0.07							C62
Other male genital organs	8	0.1	0.1	0.2	0.00	0.03							C63
Kidney	206	2.0	1.6	3.3	0.19	0.39	131	1.0	1.0	1.8	0.11	0.20	C64
Renal pelvis	3	0.0	0.0	0.1	0.00	0.01	2	0.0	0.0	0.0	0.00	0.01	C65
Ureter	1	0.0	0.0	0.0	0.00	0.00	5	0.0	0.0	0.1	0.01	0.01	C66
Bladder	246	2.4	1.9	4.8	0.21	0.59	69	0.5	0.5	1.1	0.05	0.12	C67
Other urinary organs	0	0.0	0.0	0.0	0.00	0.00	3	0.0	0.0	0.0	0.00	0.00	C68
Eye	34	0.3	0.3	0.3	0.02	0.03	36	0.3	0.3	0.3	0.01	0.02	C69
Brain, nervous system	218	2.1	1.7	2.5	0.16	0.25	156	1.2	1.2	1.6	0.10	0.17	C70-72
Thyroid	171	1.7	1.3	2.4	0.15	0.28	724	5.6	5.4	7.5	0.52	0.79	C73
Adrenal gland	16	0.2	0.1	0.2	0.01	0.02	13	0.1	0.1	0.1	0.00	0.02	C74
Other endocrine	12	0.1	0.1	0.1	0.01	0.01	2	0.0	0.0	0.0	0.00	0.00	C75
Hodgkin disease	34	0.3	0.3	0.4	0.02	0.04	25	0.2	0.2	0.2	0.01	0.02	C81
Non-Hodgkin lymphoma	396	3.8	3.1	5.6	0.31	0.62	272	2.1	2.0	3.3	0.20	0.36	C82-85,C96
Immunoproliferative diseases	0	0.0	0.0	0.0	0.00	0.00	0	0.0	0.0	0.0	0.00	0.00	C88
Multiple myeloma	40	0.4	0.3	0.7	0.05	0.09	58	0.4	0.4	0.9	0.07	0.12	C90
Lymphoid leukaemia	194	1.9	1.5	1.6	0.08	0.11	159	1.2	1.2	1.3	0.08	0.11	C91
Myeloid leukaemia	256	2.5	2.0	2.7	0.17	0.28	233	1.8	1.7	2.4	0.13	0.25	C92-94
Leukaemia unspecified	152	1.5	1.2	1.4	0.10	0.12	137	1.1	1.0	1.2	0.08	0.11	C95
Other and unspecified	595	5.7	4.6	9.6	0.53	1.17	554	4.3	4.1	7.6	0.39	0.87	O&U
All sites	10528		81.8	177.9	9.30	21.04	13137		98.0	166.6	10.85	18.94	ALL
All sites but C44	10358	100.0	80.5	174.9	9.19	20.73	12990	100.0	96.9	164.4	10.74	18.69	ALLbC44

§Includes 65 cases of unknown age

§Includes 87 cases of unknown age

Singapore

Registration area

The registry covers the whole of the Republic of Singapore, situated in the centre of the Malayan Archipelago, comprising the main island of Singapore and several offshore islands which jointly cover an area of 641 km². The main island measures 42 km from east to west and 23 km from north to south, and is situated on latitude 1° N and longitude 103° E. The island lies at the southern tip of the Malayan peninsula with which it is connected by a road and rail causeway. On the southern part of the island are the port and commercial areas of Singapore. The island is rather flat, the highest point being a central granite hill 166 m high. The maximum temperature is around 31° C and the minimum 24° C. The mean relative humidity is around 71%. The island generally has rainfall throughout the year (total annual rainfall approximately 2000 mm), but is particularly wet during the monsoon season from November to January.

The population (2 705 115 in 1990) comprises several ethnic groups, the largest of which are Chinese (77.7%), Malays (14.1%) and Indians (7.1%). Overall, the population density (1990 census) is 4705 per km², although in the main island, this ranges between 9515 per km² in the central region and 2806 in the north. In view of the small size of the island of Singapore, the easy accessibility of all parts and major developments in public housing and industrialization during the last decade, the separation of the population into urban and rural sections is not distinct.

The Chinese in Singapore are for the most part derived from the southeastern Chinese provinces of Fukien and Kwangtung. The major linguistic or dialect groups (1990 census) are Hokkiens, 42.2%; Teochew, 21.9%; Cantonese, 15.2%; Hakka, 7.3%; Hainanese, 7.0% and Others, 6.4%. The Malays are derived from Malaysia and Indonesia. This racial group consists of Malays, 68.3%; Javanese, 17.2%; Boyanese, 11.3%, and other 3.3%. The term "Indian" was used in the Singapore census to denote all persons derived from the indigenous populations of the Indian sub-continent and includes Indians, Pakistanis and Sri Lankans. This population consists of Tamils, 63.9%; Malayalis, 8.6%; Sikhs, 6.7%; Hindustanis, 2.0% and other, 18.8%.

Cancer care facilities

In 1990, there were 3423 registered medical practitioners (one medical practitioner to 757 population) of whom 1593 were in private practice and 1831 in the full-time service of the Ministry of Health and National University of Singapore. A total of 9749 hospital beds (3.6 hospital beds per 1000 population) were available – 7922 in 11 Government and Institutional hospitals and 1827 in 10 private hospitals. The Government also provided 18 maternal and child health clinics, and 21 outpatient clinics which offer an essentially general practitioner type of service, in addition to several hundred private clinics.

Registry structure and methods

Comprehensive population-based cancer registration began in January 1968. The registry was founded primarily to obtain information on cancer patterns in Singapore. The registry is staffed by one pathologist, three epidemiologists (all working part-time), two secretaries and one record searcher (full-time). There is an Advisory Committee comprising representatives of the Ministry of Health, the Singapore Cancer Society and various hospital departments.

Sources of data are: (a) cancer notifications from all sections of the medical profession, (b) pathology records, (c) hospital records, and (d) death certificates. Cancer notification is voluntary. All doctors in Singapore are provided with notification forms with prepaid postage. The registry ensures that notifications are as complete as possible by checking all pathology reports and death certificates issued in Singapore as well as records of all Government hospitals. Cancer cases picked up from these sources are checked against registered cases and reminders are sent to doctors in charge of cases that have not been notified to the registry. Cancer cases not notified by doctors (approximately 10%) are registered by the registry staff on the basis of information derived from the sources mentioned above. Cancer registration is reasonably comprehensive since all cases diagnosed histologically and all cases with mention of cancer in hospital discharge forms and death certificates are included.

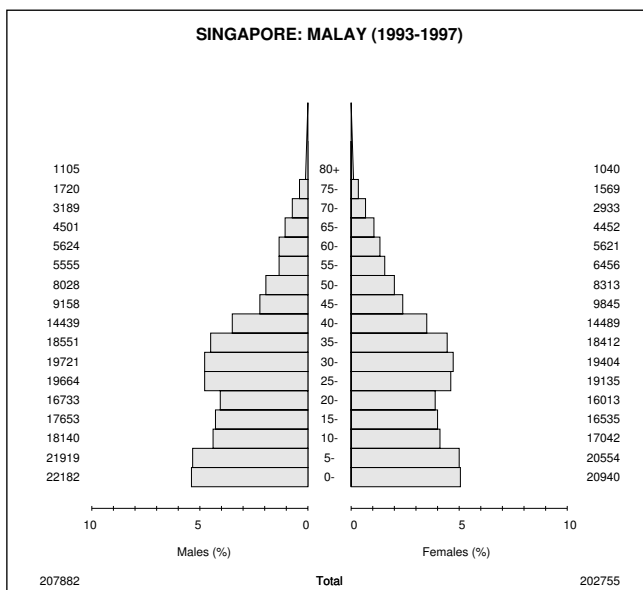
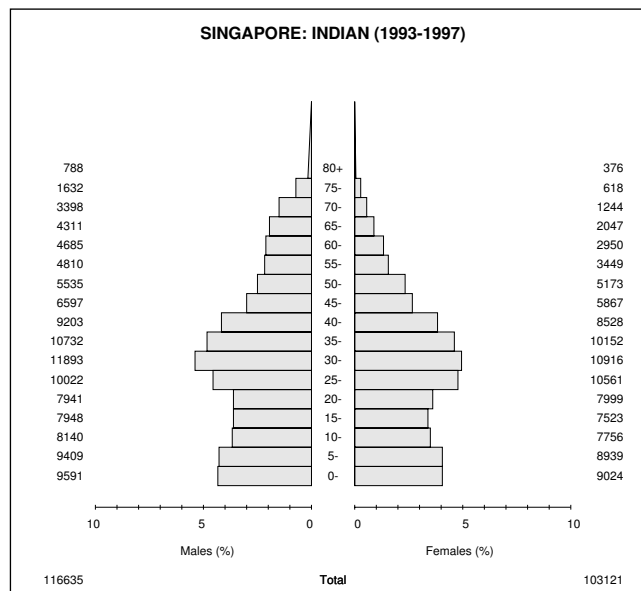
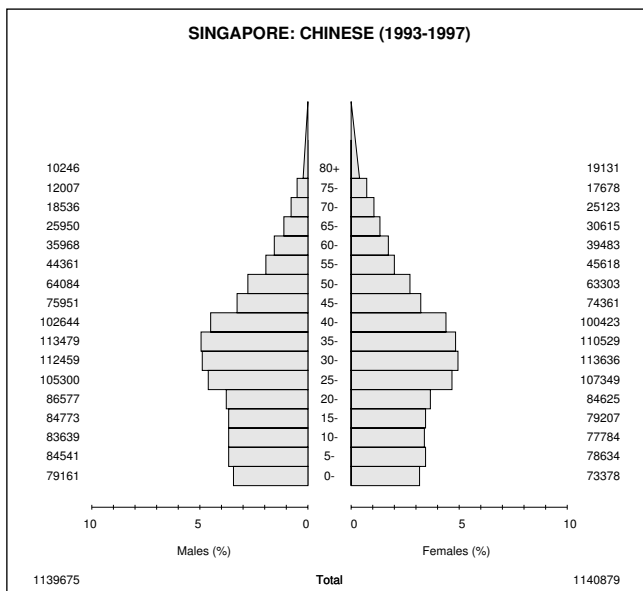
There is no personal contact with cases or patient follow-up by the registry. Information on diagnosis and survival is obtained through hospital, pathology and death records.

The cancer notification forms and a register of cases are maintained on a current chronological basis. All relevant information is coded and the registry maintains a computerized file of all cases. Duplication of cases is avoided by checking all new cases against the master index.

Certification of death is virtually complete in Singapore. In 1990, 96.4% of all deaths were certified by qualified medical practitioners or the Coroner and 3.6% by Inspecting Officers. The latter would certify a case as cancer only on the basis of a previous hospital diagnosis.

Use of the data

The data have been used mainly to determine incidence levels and relative risks of cancers in Singapore by sex, ethnic group and migrant status. Such information has formed the basis of epidemiological and clinical studies on specific cancers.



Source of population

Estimates based on the 1980 and 1990 census data.

SINGAPORE: CHINESE (1993-1997)

SITE	MALE						FEMALE						ICD-10
	§No. cases	Freq. (%)	Crude rate (per 100,000)	ASR world	Cum. rates (percent)		§No. cases	Freq. (%)	Crude rate (per 100,000)	ASR world	Cum. rates (percent)		
Lip	1	0.0	0.0	0.0	0.00	0.00	1	0.0	0.0	0.0	0.00	0.00	C00
Tongue	70	0.5	1.2	1.3	0.09	0.14	43	0.3	0.8	0.6	0.03	0.05	C01-02
Mouth	83	0.6	1.5	1.6	0.08	0.18	30	0.2	0.5	0.4	0.03	0.05	C03-06
Salivary glands	48	0.4	0.8	0.8	0.05	0.09	40	0.3	0.7	0.6	0.04	0.07	C07-08
Tonsil	30	0.2	0.5	0.6	0.05	0.07	9	0.1	0.2	0.1	0.01	0.02	C09
Other oropharynx	11	0.1	0.2	0.2	0.01	0.03	1	0.0	0.0	0.0	0.00	0.00	C10
Nasopharynx	1044	7.8	18.3	16.3	1.35	1.72	375	2.9	6.6	5.4	0.45	0.54	C11
Hypopharynx	91	0.7	1.6	1.8	0.09	0.22	4	0.0	0.1	0.0	0.00	0.00	C12-13
Pharynx unspecified	11	0.1	0.2	0.2	0.01	0.03	1	0.0	0.0	0.0	0.00	0.00	C14
Oesophagus	357	2.7	6.3	7.0	0.28	0.85	103	0.8	1.8	1.4	0.04	0.16	C15
Stomach	1306	9.8	22.9	25.6	1.02	2.94	842	6.6	14.8	12.4	0.54	1.37	C16
Small intestine	38	0.3	0.7	0.7	0.03	0.09	39	0.3	0.7	0.6	0.03	0.07	C17
Colon	1289	9.7	22.6	24.9	1.09	2.96	1285	10.0	22.5	19.2	0.89	2.21	C18
Rectum	992	7.4	17.4	18.8	0.98	2.28	787	6.1	13.8	12.1	0.61	1.42	C19-20
Anus	18	0.1	0.3	0.4	0.01	0.05	28	0.2	0.5	0.4	0.02	0.02	C21
Liver	1116	8.4	19.6	21.2	1.08	2.52	343	2.7	6.0	5.1	0.19	0.59	C22
Gallbladder etc.	119	0.9	2.1	2.3	0.09	0.28	143	1.1	2.5	2.2	0.11	0.24	C23-24
Pancreas	268	2.0	4.7	5.2	0.23	0.63	213	1.7	3.7	3.2	0.14	0.38	C25
Nose, sinuses etc.	56	0.4	1.0	1.0	0.07	0.12	22	0.2	0.4	0.3	0.03	0.04	C30-31
Larynx	293	2.2	5.1	5.8	0.27	0.72	27	0.2	0.5	0.4	0.01	0.06	C32
Trachea, bronchus and lung	2812	21.1	49.3	55.8	2.11	6.89	1335	10.4	23.4	19.9	0.79	2.29	C33-34
Other thoracic organs	33	0.2	0.6	0.6	0.05	0.05	23	0.2	0.4	0.3	0.03	0.03	C37-38
Bone	32	0.2	0.6	0.5	0.04	0.05	24	0.2	0.4	0.4	0.03	0.03	C40-41
Melanoma of skin	29	0.2	0.5	0.5	0.02	0.05	29	0.2	0.5	0.4	0.02	0.04	C43
Other skin	568		10.0	10.7	0.46	1.13	588		10.3	8.3	0.33	0.78	C44
Mesothelioma	23	0.2	0.4	0.5	0.03	0.06	8	0.1	0.1	0.1	0.01	0.01	C45
Kaposi sarcoma	4	0.0	0.1	0.1	0.01	0.01	2	0.0	0.0	0.0	0.00	0.00	C46
Connective and soft tissue	87	0.7	1.5	1.5	0.11	0.16	64	0.5	1.1	1.0	0.06	0.09	C47+C49
Breast	14	0.1	0.2	0.2	0.01	0.03	2950	23.0	51.7	44.7	3.52	4.80	C50
Vulva							38	0.3	0.7	0.6	0.03	0.07	C51
Vagina							29	0.2	0.5	0.4	0.02	0.06	C52
Cervix uteri							996	7.8	17.5	15.0	1.15	1.64	C53
Corpus uteri							497	3.9	8.7	7.9	0.64	0.91	C54
Uterus unspecified							0	0.0	0.0	0.0	0.00	0.00	C55
Ovary							670	5.2	11.7	10.3	0.74	1.04	C56
Other female genital organs							16	0.1	0.3	0.3	0.02	0.04	C57
Placenta							7	0.1	0.1	0.1	0.01	0.01	C58
Penis	38	0.3	0.7	0.7	0.03	0.10							C60
Prostate	717	5.4	12.6	14.4	0.25	1.52							C61
Testis	64	0.5	1.1	1.0	0.07	0.09							C62
Other male genital organs	18	0.1	0.3	0.3	0.02	0.04							C63
Kidney	262	2.0	4.6	4.9	0.27	0.61	113	0.9	2.0	1.8	0.11	0.19	C64
Renal pelvis	25	0.2	0.4	0.5	0.03	0.06	13	0.1	0.2	0.2	0.01	0.03	C65
Ureter	23	0.2	0.4	0.5	0.02	0.06	11	0.1	0.2	0.2	0.01	0.02	C66
Bladder	393	2.9	6.9	7.6	0.31	0.85	127	1.0	2.2	1.8	0.06	0.19	C67
Other urinary organs	5	0.0	0.1	0.1	0.00	0.01	5	0.0	0.1	0.1	0.00	0.01	C68
Eye	7	0.1	0.1	0.2	0.01	0.01	1	0.0	0.0	0.0	0.00	0.00	C69
Brain, nervous system	135	1.0	2.4	2.5	0.15	0.22	109	0.8	1.9	1.9	0.10	0.19	C70-72
Thyroid	117	0.9	2.1	1.9	0.13	0.19	400	3.1	7.0	5.9	0.42	0.59	C73
Adrenal gland	13	0.1	0.2	0.3	0.01	0.02	14	0.1	0.2	0.3	0.02	0.02	C74
Other endocrine	8	0.1	0.1	0.2	0.01	0.01	4	0.0	0.1	0.1	0.00	0.01	C75
Hodgkin disease	30	0.2	0.5	0.5	0.03	0.04	22	0.2	0.4	0.4	0.02	0.03	C81
Non-Hodgkin lymphoma	429	3.2	7.5	7.6	0.43	0.80	297	2.3	5.2	4.5	0.28	0.48	C82-85,C96
Immunoproliferative diseases	0	0.0	0.0	0.0	0.00	0.00	1	0.0	0.0	0.0	0.00	0.00	C88
Multiple myeloma	56	0.4	1.0	1.1	0.05	0.12	61	0.5	1.1	0.9	0.04	0.11	C90
Lymphoid leukaemia	105	0.8	1.8	2.3	0.11	0.16	65	0.5	1.1	1.3	0.07	0.11	C91
Myeloid leukaemia	189	1.4	3.3	3.4	0.18	0.35	149	1.2	2.6	2.4	0.13	0.23	C92-94
Leukaemia unspecified	30	0.2	0.5	0.5	0.02	0.06	30	0.2	0.5	0.5	0.01	0.04	C95
Other and unspecified	389	2.9	6.8	7.5	0.29	0.84	383	3.0	6.7	5.7	0.26	0.61	O&U
All sites	13896		243.9	264.1	12.14	30.49	13417		235.2	202.4	12.12	21.99	ALL
All sites but C44	13328	100.0	233.9	253.4	11.68	29.36	12829	100.0	224.9	194.1	11.79	21.21	ALLbC44

§Includes 4 cases of unknown age

§Includes 6 cases of unknown age

SINGAPORE: INDIAN (1993-1997)

SITE	MALE						FEMALE						ICD-10
	No. cases	Freq. (%)	Crude rate (per 100,000)	ASR world	Cum. rates		No. cases	Freq. (%)	Crude rate (per 100,000)	ASR world	Cum. rates		
					0-64	0-74					0-64	0-74	
Lip	0	0.0	0.0	0.0	0.00	0.00	0	0.0	0.0	0.0	0.00	0.00	C00
Tongue	17	2.7	2.9	2.6	0.16	0.27	4	0.7	0.8	1.0	0.07	0.12	C01-02
Mouth	24	3.8	4.1	3.6	0.18	0.37	18	3.3	3.5	5.1	0.24	0.71	C03-06
Salivary glands	3	0.5	0.5	0.7	0.02	0.02	2	0.4	0.4	0.5	0.02	0.02	C07-08
Tonsil	5	0.8	0.9	0.7	0.04	0.12	2	0.4	0.4	0.4	0.05	0.05	C09
Other oropharynx	1	0.2	0.2	0.2	0.02	0.02	0	0.0	0.0	0.0	0.00	0.00	C10
Nasopharynx	8	1.3	1.4	1.3	0.10	0.12	1	0.2	0.2	0.1	0.01	0.01	C11
Hypopharynx	7	1.1	1.2	1.2	0.05	0.08	3	0.6	0.6	0.6	0.02	0.02	C12-13
Pharynx unspecified	2	0.3	0.3	0.3	0.02	0.05	0	0.0	0.0	0.0	0.00	0.00	C14
Oesophagus	20	3.2	3.4	3.2	0.13	0.34	7	1.3	1.4	1.9	0.08	0.34	C15
Stomach	57	9.1	9.8	9.0	0.40	0.81	23	4.3	4.5	6.0	0.17	0.65	C16
Small intestine	6	1.0	1.0	1.1	0.04	0.09	0	0.0	0.0	0.0	0.00	0.00	C17
Colon	30	4.8	5.1	4.5	0.28	0.56	32	5.9	6.2	9.3	0.34	1.13	C18
Rectum	26	4.1	4.5	3.8	0.18	0.40	21	3.9	4.1	5.6	0.28	0.64	C19-20
Anus	2	0.3	0.3	0.3	0.04	0.04	1	0.2	0.2	0.2	0.03	0.03	C21
Liver	50	8.0	8.6	7.9	0.32	0.75	7	1.3	1.4	1.8	0.09	0.22	C22
Gallbladder etc.	8	1.3	1.4	1.1	0.02	0.20	11	2.0	2.1	2.8	0.15	0.34	C23-24
Pancreas	16	2.5	2.7	2.3	0.15	0.31	10	1.9	1.9	3.2	0.11	0.36	C25
Nose, sinuses etc.	3	0.5	0.5	0.4	0.00	0.06	2	0.4	0.4	0.3	0.02	0.02	C30-31
Larynx	33	5.3	5.7	5.0	0.23	0.61	3	0.6	0.6	0.9	0.03	0.16	C32
Trachea, bronchus and lung	68	10.8	11.7	10.0	0.38	1.18	17	3.1	3.3	5.4	0.21	0.42	C33-34
Other thoracic organs	0	0.0	0.0	0.0	0.00	0.00	2	0.4	0.4	0.4	0.02	0.02	C37-38
Bone	2	0.3	0.3	0.4	0.02	0.02	0	0.0	0.0	0.0	0.00	0.00	C40-41
Melanoma of skin	0	0.0	0.0	0.0	0.00	0.00	0	0.0	0.0	0.0	0.00	0.00	C43
Other skin	21		3.6	3.6	0.16	0.29	14		2.7	3.8	0.18	0.31	C44
Mesothelioma	1	0.2	0.2	0.1	0.01	0.01	2	0.4	0.4	0.6	0.03	0.03	C45
Kaposi sarcoma	2	0.3	0.3	0.3	0.02	0.02	0	0.0	0.0	0.0	0.00	0.00	C46
Connective and soft tissue	3	0.5	0.5	0.4	0.04	0.04	5	0.9	1.0	1.0	0.07	0.12	C47+C49
Breast	2	0.3	0.3	0.2	0.01	0.01	167	30.9	32.4	36.7	2.57	4.32	C50
Vulva							0	0.0	0.0	0.0	0.00	0.00	C51
Vagina							1	0.2	0.2	0.2	0.03	0.03	C52
Cervix uteri							35	6.5	6.8	8.2	0.55	1.03	C53
Corpus uteri							31	5.7	6.0	6.9	0.45	0.91	C54
Uterus unspecified							0	0.0	0.0	0.0	0.00	0.00	C55
Ovary							45	8.3	8.7	9.2	0.63	1.12	C56
Other female genital organs							1	0.2	0.2	0.2	0.02	0.02	C57
Placenta							0	0.0	0.0	0.0	0.00	0.00	C58
Penis	5	0.8	0.9	0.8	0.06	0.12							C60
Prostate	65	10.4	11.1	9.9	0.25	1.01							C61
Testis	6	1.0	1.0	1.1	0.07	0.07							C62
Other male genital organs	0	0.0	0.0	0.0	0.00	0.00							C63
Kidney	17	2.7	2.9	2.8	0.22	0.33	5	0.9	1.0	1.4	0.05	0.15	C64
Renal pelvis	0	0.0	0.0	0.0	0.00	0.00	1	0.2	0.2	0.3	0.03	0.03	C65
Ureter	0	0.0	0.0	0.0	0.00	0.00	1	0.2	0.2	0.3	0.00	0.08	C66
Bladder	33	5.3	5.7	5.3	0.25	0.57	4	0.7	0.8	1.4	0.02	0.18	C67
Other urinary organs	0	0.0	0.0	0.0	0.00	0.00	0	0.0	0.0	0.0	0.00	0.00	C68
Eye	0	0.0	0.0	0.0	0.00	0.00	0	0.0	0.0	0.0	0.00	0.00	C69
Brain, nervous system	14	2.2	2.4	2.7	0.16	0.18	5	0.9	1.0	1.1	0.05	0.10	C70-72
Thyroid	8	1.3	1.4	1.2	0.09	0.09	22	4.1	4.3	3.5	0.26	0.31	C73
Adrenal gland	2	0.3	0.3	0.3	0.02	0.02	0	0.0	0.0	0.0	0.00	0.00	C74
Other endocrine	0	0.0	0.0	0.0	0.00	0.00	0	0.0	0.0	0.0	0.00	0.00	C75
Hodgkin disease	11	1.8	1.9	1.7	0.10	0.17	4	0.7	0.8	0.8	0.06	0.06	C81
Non-Hodgkin lymphoma	19	3.0	3.3	3.1	0.19	0.26	12	2.2	2.3	2.5	0.16	0.32	C82-85,C96
Immunoproliferative diseases	0	0.0	0.0	0.0	0.00	0.00	0	0.0	0.0	0.0	0.00	0.00	C88
Multiple myeloma	8	1.3	1.4	1.3	0.10	0.10	8	1.5	1.6	1.9	0.15	0.28	C90
Lymphoid leukaemia	10	1.6	1.7	1.8	0.08	0.16	1	0.2	0.2	0.3	0.01	0.01	C91
Myeloid leukaemia	14	2.2	2.4	2.4	0.09	0.20	9	1.7	1.7	2.0	0.15	0.15	C92-94
Leukaemia unspecified	4	0.6	0.7	0.7	0.02	0.08	1	0.2	0.2	0.3	0.00	0.00	C95
Other and unspecified	16	2.5	2.7	2.3	0.09	0.28	14	2.6	2.7	3.5	0.13	0.57	O&U
All sites	649		111.3	101.5	4.82	10.43	554		107.4	131.7	7.56	15.40	ALL
All sites but C44	628	100.0	107.7	97.9	4.66	10.14	540	100.0	104.7	127.9	7.39	15.10	ALLbC44

SINGAPORE: MALAY (1993-1997)

SITE	MALE						FEMALE						ICD-10
	No. cases	Freq. (%)	Crude rate (per 100,000)	ASR world	Cum. rates 0-64 (percent)	Cum. rates 0-74 (percent)	No. cases	Freq. (%)	Crude rate (per 100,000)	ASR world	Cum. rates 0-64 (percent)	Cum. rates 0-74 (percent)	
Lip	0	0.0	0.0	0.0	0.00	0.00	0	0.0	0.0	0.0	0.00	0.00	C00
Tongue	7	0.6	0.7	0.9	0.03	0.12	6	0.5	0.6	0.5	0.03	0.06	C01-02
Mouth	1	0.1	0.1	0.1	0.00	0.03	3	0.2	0.3	0.4	0.02	0.04	C03-06
Salivary glands	4	0.3	0.4	0.4	0.01	0.07	2	0.2	0.2	0.2	0.03	0.03	C07-08
Tonsil	3	0.3	0.3	0.4	0.05	0.05	2	0.2	0.2	0.3	0.00	0.02	C09
Other oropharynx	1	0.1	0.1	0.1	0.00	0.03	0	0.0	0.0	0.0	0.00	0.00	C10
Nasopharynx	61	5.1	5.9	6.8	0.52	0.75	18	1.4	1.8	2.0	0.16	0.24	C11
Hypopharynx	2	0.2	0.2	0.3	0.00	0.03	0	0.0	0.0	0.0	0.00	0.00	C12-13
Pharynx unspecified	0	0.0	0.0	0.0	0.00	0.00	1	0.1	0.1	0.1	0.00	0.02	C14
Oesophagus	9	0.8	0.9	1.2	0.02	0.13	6	0.5	0.6	0.9	0.05	0.05	C15
Stomach	52	4.3	5.0	6.6	0.24	0.83	32	2.5	3.2	4.0	0.19	0.52	C16
Small intestine	2	0.2	0.2	0.3	0.03	0.03	2	0.2	0.2	0.3	0.02	0.05	C17
Colon	77	6.4	7.4	9.4	0.52	1.18	72	5.7	7.1	9.0	0.58	1.28	C18
Rectum	80	6.7	7.7	10.6	0.48	1.33	55	4.4	5.4	6.9	0.45	0.81	C19-20
Anus	2	0.2	0.2	0.2	0.01	0.04	2	0.2	0.2	0.3	0.00	0.00	C21
Liver	123	10.3	11.8	16.0	0.76	1.95	26	2.1	2.6	3.3	0.18	0.46	C22
Gallbladder etc.	13	1.1	1.3	1.8	0.09	0.22	20	1.6	2.0	2.4	0.13	0.28	C23-24
Pancreas	23	1.9	2.2	3.0	0.17	0.27	18	1.4	1.8	2.3	0.10	0.30	C25
Nose, sinuses etc.	3	0.3	0.3	0.5	0.02	0.02	0	0.0	0.0	0.0	0.00	0.00	C30-31
Larynx	21	1.8	2.0	2.8	0.14	0.30	1	0.1	0.1	0.1	0.00	0.02	C32
Trachea, bronchus and lung	241	20.1	23.2	31.5	1.39	4.05	86	6.8	8.5	10.7	0.51	1.30	C33-34
Other thoracic organs	7	0.6	0.7	0.8	0.06	0.10	1	0.1	0.1	0.1	0.01	0.01	C37-38
Bone	5	0.4	0.5	0.5	0.03	0.03	5	0.4	0.5	0.4	0.03	0.03	C40-41
Melanoma of skin	3	0.3	0.3	0.4	0.00	0.04	8	0.6	0.8	1.1	0.02	0.16	C43
Other skin	36		3.5	4.4	0.18	0.42	34		3.4	4.3	0.24	0.42	C44
Mesothelioma	2	0.2	0.2	0.2	0.01	0.01	0	0.0	0.0	0.0	0.00	0.00	C45
Kaposi sarcoma	0	0.0	0.0	0.0	0.00	0.00	0	0.0	0.0	0.0	0.00	0.00	C46
Connective and soft tissue	16	1.3	1.5	1.8	0.07	0.18	8	0.6	0.8	0.9	0.05	0.08	C47+C49
Breast	2	0.2	0.2	0.2	0.02	0.02	347	27.6	34.2	37.1	2.99	3.85	C50
Vulva							2	0.2	0.2	0.3	0.00	0.03	C51
Vagina							2	0.2	0.2	0.3	0.03	0.03	C52
Cervix uteri							88	7.0	8.7	9.9	0.79	1.09	C53
Corpus uteri							64	5.1	6.3	7.5	0.55	0.91	C54
Uterus unspecified							0	0.0	0.0	0.0	0.00	0.00	C55
Ovary							104	8.3	10.3	11.2	0.83	1.24	C56
Other female genital organs							1	0.1	0.1	0.1	0.01	0.01	C57
Placenta							1	0.1	0.1	0.1	0.01	0.01	C58
Penis	1	0.1	0.1	0.2	0.00	0.00							C60
Prostate	91	7.6	8.8	13.3	0.26	1.16							C61
Testis	15	1.3	1.4	1.4	0.11	0.11							C62
Other male genital organs	1	0.1	0.1	0.1	0.00	0.00							C63
Kidney	21	1.8	2.0	2.6	0.11	0.30	21	1.7	2.1	2.4	0.17	0.27	C64
Renal pelvis	4	0.3	0.4	0.6	0.02	0.02	2	0.2	0.2	0.3	0.02	0.02	C65
Ureter	0	0.0	0.0	0.0	0.00	0.00	0	0.0	0.0	0.0	0.00	0.00	C66
Bladder	45	3.8	4.3	5.9	0.26	0.60	11	0.9	1.1	1.5	0.06	0.18	C67
Other urinary organs	0	0.0	0.0	0.0	0.00	0.00	2	0.2	0.2	0.3	0.02	0.05	C68
Eye	3	0.3	0.3	0.4	0.03	0.03	3	0.2	0.3	0.3	0.01	0.01	C69
Brain, nervous system	24	2.0	2.3	2.5	0.15	0.22	24	1.9	2.4	2.4	0.15	0.15	C70-72
Thyroid	16	1.3	1.5	2.1	0.12	0.23	53	4.2	5.2	5.4	0.34	0.43	C73
Adrenal gland	0	0.0	0.0	0.0	0.00	0.00	2	0.2	0.2	0.2	0.00	0.00	C74
Other endocrine	1	0.1	0.1	0.1	0.01	0.01	0	0.0	0.0	0.0	0.00	0.00	C75
Hodgkin disease	11	0.9	1.1	1.2	0.10	0.13	6	0.5	0.6	0.6	0.04	0.04	C81
Non-Hodgkin lymphoma	77	6.4	7.4	8.8	0.61	0.99	41	3.3	4.0	4.9	0.30	0.52	C82-85,C96
Immunoproliferative diseases	0	0.0	0.0	0.0	0.00	0.00	0	0.0	0.0	0.0	0.00	0.00	C88
Multiple myeloma	20	1.7	1.9	2.4	0.16	0.29	11	0.9	1.1	1.5	0.09	0.17	C90
Lymphoid leukaemia	21	1.8	2.0	2.1	0.13	0.13	13	1.0	1.3	1.4	0.07	0.11	C91
Myeloid leukaemia	35	2.9	3.4	4.1	0.25	0.44	21	1.7	2.1	2.4	0.12	0.21	C92-94
Leukaemia unspecified	8	0.7	0.8	0.9	0.04	0.12	11	0.9	1.1	1.4	0.08	0.13	C95
Other and unspecified	45	3.8	4.3	5.6	0.29	0.60	55	4.4	5.4	6.7	0.38	0.75	O&U
All sites	1235		118.8	155.5	7.48	17.58	1293		127.5	148.8	9.83	16.36	ALL
All sites but C44	1199	100.0	115.4	151.1	7.30	17.17	1259	100.0	124.2	144.5	9.59	15.94	ALLbC44



Thailand, Bangkok

Registration area

The cancer registry of the National Cancer Institute covers the area of Bangkok Metropolis, located in the central part of Thailand. The population at the 2000 census was 6 320 200, nearly all (98.9%) of Thai nationality. About 95.5% are Buddhists, a few are Muslims (4.3%) and the rest are Christians or other.

Cancer care facilities

Data from Public Health Statistics show that Bangkok has the highest level of facilities in the country for general health care. There is one physician per 720 population, compared to one per 6237 in other provinces. The National Cancer Institute and oncological units in the major teaching hospitals provide specialized treatment for cancer patients not only in Bangkok, but in other provinces.

Registry structure and methods

The cancer registry functions as one unit of the National Cancer Institute. The registry is supported by the government and funded partly by the Cancer Research Foundation of the National Cancer Institute. The registry is staffed by a part-time physician and full-time by two statisticians, two registrars and five health workers.

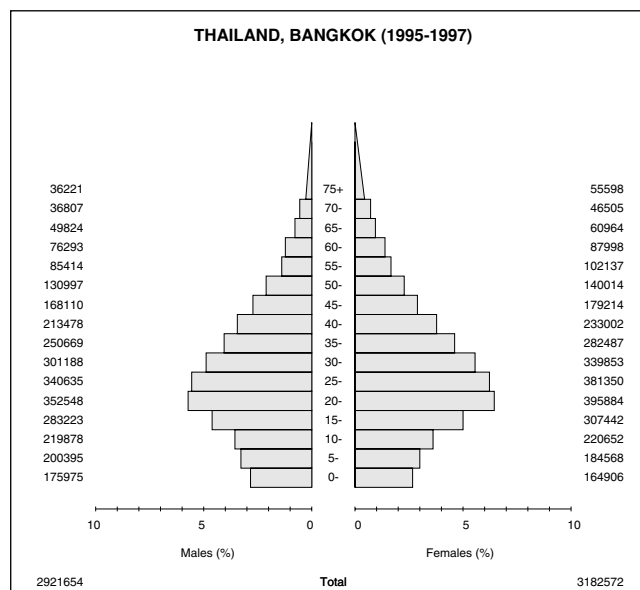
Data are collected passively from the university hospitals, and both actively and passively from government hospitals, private hospitals, pathology laboratories and from death certificates. Although cancer is not a notifiable disease, one-third of the registration forms are received from private hospitals. All death certificates are reviewed to match with the incident case records, and efforts made to trace further information before registering the case as a DCO.

Interpreting the results

Despite intensive efforts to ensure completeness, there can be a delay between date of diagnosis and the notification being received. The database is therefore continually being updated and quality of data will be improved.

Use of the data

The aim of the registry is to present data on annual cancer incidence in Bangkok, identifying the leading cancers and highlighting trends. Survival of registered cases are reported for selected sites.



Source of population

Annual population projections for Thailand 1990–2020. Human Resources Planning Division, National Economic and Social Development Board, March 1995.

Notes on the data

* The high proportion of cases registered on the basis of a death certificate alone, and of cases of unknown or ill-specified primary site, indicate a degree of under-ascertainment and lack of validity.

***THAILAND, BANGKOK (1995-1997)**

SITE	MALE						FEMALE						ICD-10
	§No. cases	Freq. (%)	Crude rate (per 100,000)	ASR world	Cum. rates		§No. cases	Freq. (%)	Crude rate (per 100,000)	ASR world	Cum. rates		
					0-64	0-74					0-64	0-74	
Lip	3	0.0	0.0	0.0	0.00	0.00	35	0.3	0.4	0.5	0.01	0.04	C00
Tongue	156	1.7	1.8	2.4	0.17	0.28	58	0.5	0.6	0.7	0.04	0.09	C01-02
Mouth	133	1.4	1.5	2.1	0.11	0.24	91	0.9	1.0	1.2	0.04	0.12	C03-06
Salivary glands	29	0.3	0.3	0.4	0.02	0.03	29	0.3	0.3	0.3	0.03	0.03	C07-08
Tonsil	65	0.7	0.7	1.0	0.05	0.14	19	0.2	0.2	0.2	0.02	0.02	C09
Other oropharynx	10	0.1	0.1	0.2	0.01	0.02	1	0.0	0.0	0.0	0.00	0.00	C10
Nasopharynx	358	3.9	4.1	4.5	0.33	0.51	149	1.4	1.6	1.6	0.14	0.16	C11
Hypopharynx	88	1.0	1.0	1.4	0.09	0.18	9	0.1	0.1	0.1	0.01	0.01	C12-13
Pharynx unspecified	18	0.2	0.2	0.3	0.01	0.04	4	0.0	0.0	0.1	0.00	0.01	C14
Oesophagus	267	2.9	3.0	4.4	0.23	0.50	73	0.7	0.8	1.0	0.04	0.11	C15
Stomach	305	3.3	3.5	4.9	0.20	0.57	304	2.9	3.2	3.7	0.20	0.38	C16
Small intestine	20	0.2	0.2	0.3	0.01	0.03	15	0.1	0.2	0.2	0.01	0.01	C17
Colon	652	7.1	7.4	10.3	0.53	1.12	569	5.4	6.0	7.2	0.37	0.82	C18
Rectum	383	4.2	4.4	6.1	0.34	0.76	285	2.7	3.0	3.6	0.19	0.43	C19-20
Anus	11	0.1	0.1	0.2	0.01	0.02	17	0.2	0.2	0.2	0.01	0.03	C21
Liver	1005	10.9	11.5	14.4	1.01	1.63	315	3.0	3.3	3.9	0.25	0.46	C22
Gallbladder etc.	84	0.9	1.0	1.3	0.06	0.13	102	1.0	1.1	1.3	0.06	0.15	C23-24
Pancreas	114	1.2	1.3	1.8	0.11	0.19	96	0.9	1.0	1.2	0.06	0.13	C25
Nose, sinuses etc.	50	0.5	0.6	0.7	0.03	0.08	39	0.4	0.4	0.4	0.02	0.05	C30-31
Larynx	251	2.7	2.9	4.1	0.24	0.50	20	0.2	0.2	0.2	0.01	0.02	C32
Trachea, bronchus and lung	1571	17.1	17.9	25.7	1.37	3.12	612	5.8	6.4	7.8	0.42	0.93	C33-34
Other thoracic organs	22	0.2	0.3	0.2	0.01	0.03	11	0.1	0.1	0.1	0.01	0.01	C37-38
Bone	54	0.6	0.6	0.6	0.04	0.06	40	0.4	0.4	0.4	0.02	0.03	C40-41
Melanoma of skin	23	0.2	0.3	0.4	0.02	0.04	23	0.2	0.2	0.3	0.01	0.02	C43
Other skin	238		2.7	3.8	0.16	0.37	263		2.8	3.2	0.13	0.32	C44
Mesothelioma	4	0.0	0.0	0.0	0.00	0.00	1	0.0	0.0	0.0	0.00	0.00	C45
Kaposi sarcoma	4	0.0	0.0	0.0	0.00	0.00	3	0.0	0.0	0.0	0.00	0.00	C46
Connective and soft tissue	89	1.0	1.0	1.4	0.08	0.12	101	1.0	1.1	1.2	0.08	0.12	C47+C49
Breast	28	0.3	0.3	0.4	0.02	0.03	2298	21.8	24.1	25.5	2.02	2.78	C50
Vulva							35	0.3	0.4	0.4	0.02	0.04	C51
Vagina							28	0.3	0.3	0.4	0.02	0.05	C52
Cervix uteri							1882	17.8	19.7	20.9	1.69	2.29	C53
Corpus uteri							340	3.2	3.6	4.2	0.33	0.51	C54
Uterus unspecified							26	0.2	0.3	0.3	0.02	0.03	C55
Ovary							554	5.3	5.8	6.0	0.47	0.62	C56
Other female genital organs							17	0.2	0.2	0.2	0.01	0.02	C57
Placenta							24	0.2	0.3	0.2	0.01	0.01	C58
Penis	55	0.6	0.6	0.8	0.06	0.08							C60
Prostate	376	4.1	4.3	6.8	0.15	0.66							C61
Testis	32	0.3	0.4	0.4	0.02	0.03							C62
Other male genital organs	6	0.1	0.1	0.1	0.00	0.01							C63
Kidney	87	0.9	1.0	1.4	0.09	0.16	53	0.5	0.6	0.7	0.05	0.08	C64
Renal pelvis	17	0.2	0.2	0.3	0.01	0.04	12	0.1	0.1	0.2	0.00	0.02	C65
Ureter	7	0.1	0.1	0.1	0.01	0.01	11	0.1	0.1	0.2	0.00	0.02	C66
Bladder	408	4.4	4.7	6.8	0.29	0.77	140	1.3	1.5	1.8	0.07	0.20	C67
Other urinary organs	12	0.1	0.1	0.2	0.01	0.03	5	0.0	0.1	0.1	0.00	0.01	C68
Eye	17	0.2	0.2	0.3	0.02	0.02	17	0.2	0.2	0.3	0.02	0.02	C69
Brain, nervous system	187	2.0	2.1	2.4	0.16	0.21	167	1.6	1.7	2.0	0.13	0.19	C70-72
Thyroid	95	1.0	1.1	1.3	0.08	0.13	374	3.5	3.9	3.5	0.27	0.34	C73
Adrenal gland	3	0.0	0.0	0.0	0.00	0.01	5	0.0	0.1	0.0	0.00	0.00	C74
Other endocrine	10	0.1	0.1	0.1	0.01	0.01	11	0.1	0.1	0.1	0.01	0.01	C75
Hodgkin disease	25	0.3	0.3	0.3	0.02	0.03	15	0.1	0.2	0.2	0.01	0.02	C81
Non-Hodgkin lymphoma	375	4.1	4.3	5.0	0.31	0.51	308	2.9	3.2	3.7	0.22	0.41	C82-85,C96
Immunoproliferative diseases	0	0.0	0.0	0.0	0.00	0.00	0	0.0	0.0	0.0	0.00	0.00	C88
Multiple myeloma	36	0.4	0.4	0.6	0.03	0.07	33	0.3	0.3	0.5	0.02	0.06	C90
Lymphoid leukaemia	107	1.2	1.2	1.7	0.09	0.12	75	0.7	0.8	1.2	0.06	0.09	C91
Myeloid leukaemia	94	1.0	1.1	1.3	0.07	0.12	89	0.8	0.9	1.0	0.06	0.09	C92-94
Leukaemia unspecified	71	0.8	0.8	0.9	0.05	0.09	60	0.6	0.6	0.7	0.04	0.07	C95
Other and unspecified	1394	15.1	15.9	20.2	1.24	2.22	949	9.0	9.9	11.8	0.69	1.33	O&U
All sites	9449		107.8	144.3	7.99	16.11	10812		113.2	126.8	8.42	13.81	ALL
All sites but C44	9211	100.0	105.1	140.5	7.83	15.74	10549	100.0	110.5	123.6	8.28	13.49	ALLbC44

§Includes 44 cases of unknown age

§Includes 57 cases of unknown age

Thailand, Chiang Mai

Registration area

Chiang Mai Cancer Registry covers the population of Chiang Mai province. The population of the province at the 1995 census was 1 418 993 persons. There were approximately 501 663 families, and the population density averaged 77.8 people per km². In the municipal area, this figure increased to 4762.3 per km². Only 10.9% of the total population lived in the municipal area. Eighty per cent of the population are locals by birth, and the remainder is made up of Thai nationals, Chinese, Laotians, and Hill-tribe people. Buddhism is the professed religion of 97% of Chiang Mai's population. Of the remainder, the majority are either Christian or Muslim.

Cancer care facilities

Cancer diagnostic services (clinical consultations, radiological and pathological investigations) are available at most public and private hospitals in the province. However, diagnostic and cancer-related therapeutic facilities are available within the same institution only at the University Hospital (Maharaj Nakorn Chiang Mai Hospital).

Cancer surgery services are provided at several locations: the university hospital, five government hospitals, two community hospitals, and eight private hospitals. The radiotherapy equipment is available at the university hospital. Cancer chemotherapy services are provided at the university hospital, two governmental and six private hospitals.

Registry structure and methods

The registry is located within The Maharaj Nakorn Chiang Mai Hospital, and is fully supported by the Faculty of Medicine, Chiang Mai University. The registry is staffed by three part-time physicians, four full-time registrar nurses, and three practical nurses, and is supervised by members of the Hospital Cancer Committee.

Data on patients diagnosed with cancer are collected actively from one university hospital (Maharaj Nakorn Chiang Mai Hospital, 1800 beds), 6 government hospitals (600 beds), 17 community hospitals (420 beds), 10 private hospitals (1600 beds) and medical clinics, under the care of 700 physicians, with a total number of about 4420 beds in the province.

The principal sources of information on cancer cases are hospital and pathology laboratory records.

Death certificates are taken from the Chiang Mai Public Health Service. All death certificates are reviewed to match with the incident case records, and efforts made to trace further information before registering the case as a DCO.

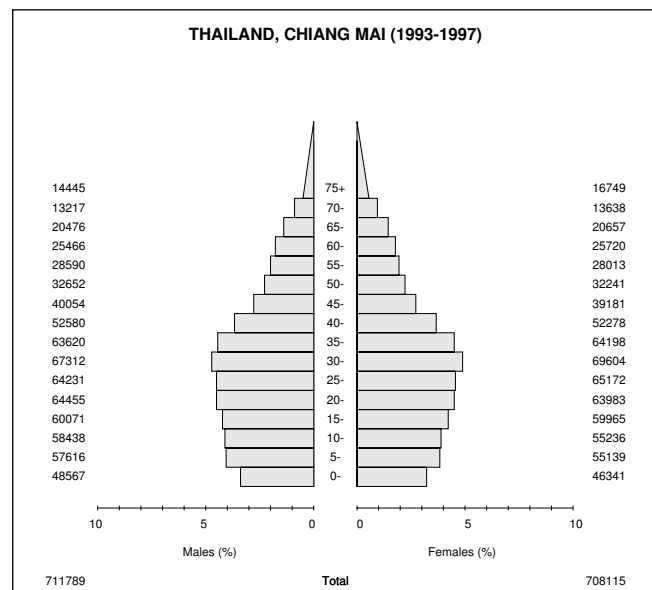
The registry staff visit all sources and registers of individual departments concerned with the diagnosis or treatment of cancer, to identify and abstract information on cases of cancer onto the registration form. Although cancer is not a notifiable disease, there is good cooperation between the registry and the hospitals in the registration area.

Interpreting the results

It is not possible to determine how many cancer cases remain undiagnosed, but this probably occurs for subjects in rural areas. Maharaj Nakorn Chiang Mai Hospital is the only university hospital in the area and has a full range of diagnostic facilities, so that it is unlikely that cases referred will be missed. There are no organized screening programmes or officially promulgated cancer control programme, but there are sporadic health education campaigns about common cancers in the region.

Use of the data

The registry has reported annually on cancer occurrence since the first volume in 1978, when it was a hospital-based registry. Population-based registration was started in 1986, to report the incidence and mortality of cancer in Chiang Mai since 1983.



Source of population

1995 census. Chiang Mai Provincial Statistical Office, National Statistical Office, Office of the Prime Minister. Department of Local Administration, Ministry of the Interior.

Notes on the data

* The high proportion of cases registered on the basis of a death certificate alone, and of cases of unknown or ill-specified primary site, indicate a degree of under-ascertainment and lack of validity. Rates of childhood cancer are low.

***THAILAND, CHIANG MAI (1993-1997)**

SITE	MALE						FEMALE						ICD-10
	No. cases	Freq. (%)	Crude rate (per 100,000)	ASR world	Cum. rates 0-64	Cum. rates 0-74	No. cases	Freq. (%)	Crude rate (per 100,000)	ASR world	Cum. rates 0-64	Cum. rates 0-74	
Lip	4	0.1	0.1	0.1	0.01	0.01	10	0.2	0.3	0.3	0.01	0.02	C00
Tongue	69	1.4	1.9	2.0	0.08	0.20	32	0.6	0.9	0.8	0.04	0.11	C01-02
Mouth	73	1.5	2.1	2.1	0.11	0.25	54	1.0	1.5	1.4	0.09	0.13	C03-06
Salivary glands	11	0.2	0.3	0.3	0.02	0.05	15	0.3	0.4	0.4	0.03	0.05	C07-08
Tonsil	40	0.8	1.1	1.1	0.05	0.12	14	0.3	0.4	0.4	0.02	0.04	C09
Other oropharynx	4	0.1	0.1	0.1	0.00	0.02	4	0.1	0.1	0.1	0.01	0.02	C10
Nasopharynx	116	2.3	3.3	3.2	0.24	0.36	49	0.9	1.4	1.3	0.11	0.15	C11
Hypopharynx	64	1.3	1.8	1.9	0.07	0.24	14	0.3	0.4	0.4	0.01	0.03	C12-13
Pharynx unspecified	4	0.1	0.1	0.1	0.01	0.02	3	0.1	0.1	0.1	0.01	0.01	C14
Oesophagus	71	1.4	2.0	2.1	0.12	0.26	37	0.7	1.0	1.0	0.04	0.12	C15
Stomach	237	4.7	6.7	6.8	0.42	0.84	167	3.1	4.7	4.6	0.31	0.55	C16
Small intestine	13	0.3	0.4	0.4	0.02	0.05	8	0.1	0.2	0.2	0.01	0.03	C17
Colon	162	3.2	4.6	4.6	0.28	0.57	149	2.7	4.2	4.0	0.25	0.50	C18
Rectum	118	2.3	3.3	3.3	0.19	0.40	100	1.8	2.8	2.7	0.14	0.33	C19-20
Anus	6	0.1	0.2	0.2	0.01	0.02	9	0.2	0.3	0.2	0.01	0.03	C21
Liver	680	13.5	19.1	18.5	1.32	2.10	312	5.7	8.8	8.7	0.62	1.06	C22
Gallbladder etc.	65	1.3	1.8	1.9	0.08	0.26	117	2.2	3.3	3.3	0.15	0.48	C23-24
Pancreas	61	1.2	1.7	1.7	0.10	0.20	71	1.3	2.0	2.0	0.12	0.27	C25
Nose, sinuses etc.	26	0.5	0.7	0.7	0.05	0.08	13	0.2	0.4	0.4	0.03	0.04	C30-31
Larynx	140	2.8	3.9	4.1	0.17	0.50	44	0.8	1.2	1.2	0.06	0.18	C32
Trachea, bronchus and lung	1228	24.4	34.5	35.3	2.38	4.61	908	16.7	25.6	26.1	1.81	3.35	C33-34
Other thoracic organs	10	0.2	0.3	0.3	0.02	0.03	2	0.0	0.1	0.1	0.00	0.01	C37-38
Bone	30	0.6	0.8	0.8	0.05	0.07	15	0.3	0.4	0.4	0.03	0.04	C40-41
Melanoma of skin	16	0.3	0.4	0.4	0.02	0.07	15	0.3	0.4	0.4	0.02	0.05	C43
Other skin	146		4.1	4.1	0.20	0.48	124		3.5	3.4	0.19	0.37	C44
Mesothelioma	3	0.1	0.1	0.1	0.01	0.01	0	0.0	0.0	0.0	0.00	0.00	C45
Kaposi sarcoma	3	0.1	0.1	0.1	0.00	0.00	1	0.0	0.0	0.0	0.00	0.00	C46
Connective and soft tissue	24	0.5	0.7	0.7	0.05	0.06	31	0.6	0.9	0.9	0.06	0.08	C47+C49
Breast	1	0.0	0.0	0.0	0.00	0.00	618	11.4	17.5	16.1	1.31	1.64	C50
Vulva							31	0.6	0.9	0.9	0.04	0.11	C51
Vagina							11	0.2	0.3	0.3	0.02	0.03	C52
Cervix uteri							974	17.9	27.5	25.3	2.06	2.67	C53
Corpus uteri							128	2.4	3.6	3.5	0.31	0.40	C54
Uterus unspecified							1	0.0	0.0	0.0	0.00	0.00	C55
Ovary							197	3.6	5.6	5.2	0.42	0.52	C56
Other female genital organs							6	0.1	0.2	0.2	0.01	0.02	C57
Placenta							6	0.1	0.2	0.1	0.01	0.01	C58
Penis	92	1.8	2.6	2.5	0.15	0.28							C60
Prostate	146	2.9	4.1	4.2	0.10	0.46							C61
Testis	19	0.4	0.5	0.5	0.03	0.04							C62
Other male genital organs	2	0.0	0.1	0.1	0.00	0.00							C63
Kidney	32	0.6	0.9	1.0	0.07	0.11	28	0.5	0.8	0.8	0.04	0.08	C64
Renal pelvis	14	0.3	0.4	0.4	0.03	0.05	7	0.1	0.2	0.2	0.01	0.03	C65
Ureter	6	0.1	0.2	0.2	0.01	0.02	1	0.0	0.0	0.0	0.00	0.01	C66
Bladder	192	3.8	5.4	5.5	0.28	0.70	80	1.5	2.3	2.2	0.13	0.28	C67
Other urinary organs	1	0.0	0.0	0.0	0.00	0.00	2	0.0	0.1	0.1	0.00	0.01	C68
Eye	12	0.2	0.3	0.3	0.02	0.03	10	0.2	0.3	0.3	0.02	0.02	C69
Brain, nervous system	49	1.0	1.4	1.4	0.09	0.12	53	1.0	1.5	1.5	0.10	0.15	C70-72
Thyroid	42	0.8	1.2	1.1	0.07	0.16	120	2.2	3.4	2.9	0.22	0.30	C73
Adrenal gland	3	0.1	0.1	0.1	0.01	0.01	4	0.1	0.1	0.1	0.01	0.01	C74
Other endocrine	2	0.0	0.1	0.1	0.00	0.00	5	0.1	0.1	0.1	0.01	0.01	C75
Hodgkin disease	27	0.5	0.8	0.7	0.05	0.08	15	0.3	0.4	0.4	0.03	0.05	C81
Non-Hodgkin lymphoma	226	4.5	6.4	6.2	0.41	0.69	145	2.7	4.1	3.9	0.26	0.44	C82-85,C96
Immunoproliferative diseases	0	0.0	0.0	0.0	0.00	0.00	0	0.0	0.0	0.0	0.00	0.00	C88
Multiple myeloma	13	0.3	0.4	0.4	0.02	0.06	13	0.2	0.4	0.4	0.03	0.05	C90
Lymphoid leukaemia	54	1.1	1.5	1.7	0.10	0.12	23	0.4	0.6	0.8	0.04	0.06	C91
Myeloid leukaemia	65	1.3	1.8	1.8	0.13	0.19	69	1.3	1.9	1.8	0.11	0.17	C92-94
Leukaemia unspecified	35	0.7	1.0	1.0	0.05	0.07	26	0.5	0.7	0.7	0.04	0.07	C95
Other and unspecified	720	14.3	20.2	19.2	1.38	2.12	661	12.2	18.7	18.0	1.35	2.04	O&U
All sites	5177		145.5	145.5	9.10	17.17	5552		156.8	150.9	10.76	17.22	ALL
All sites but C44	5031	100.0	141.4	141.4	8.91	16.68	5428	100.0	153.3	147.5	10.57	16.84	ALLbC44

Thailand, Khon Kaen

Registration area

The area covered by the registry comprises 20 districts, and five newly divided districts. Khon Kaen province is in the central part of the northeastern region of Thailand, and is situated between 15° and 17° N and 103° and 102° E, about 450 km northeast of Bangkok. The province is a high plateau about 200 m above sea level, covering an area of 10 866 km² with a population of 1.6 million. The climate is generally hot and dry. The mean temperature is around 28° C and the average annual rainfall approximately 1188 mm.

The population of Khon Kaen is homogeneous. Most people are farmers, working in rice and cassava fields.

Cancer care facilities

Most of the public hospitals in Khon Kaen belong to the Ministry of Public Health; the University hospital and another small army hospital are the only other government hospitals. There are three large private hospitals. Attempts to improve the referral system have gained some support, but many patients still refer themselves according to their preference.

Registry structure and methods

Khon Kaen Cancer Registry was established in 1984 at the Faculty of Medicine and Srinagarind Hospital, Khon Kaen University. It started as the Hospital Cancer Registry to collect all cancer cases in Srinagarind University Hospital. The population-based registry started officially in January 1988, after a preparatory period of some five months.

The registry is under the management of the cancer unit and a cancer committee composed of 14 members. One registered nurse, two practical nurses, one computer statistician and two clerks form the registration team of the Unit. Verification of the cases collected is performed by the team under the supervision of physicians who act as chairman or on the secretariat of the cancer committee. The cancer committee as a whole plays a major advisory role.

The data sources for the registry are: (1) Srinagarind Hospital (800-bed university hospital). The data from the active hospital cancer registry are selected for patients residing in Khon Kaen during the time of collection. These data come from outpatient, inpatient, surgery, radiotherapy and pathology department records; (2) Khon Kaen Provincial Hospital (720 beds). The data are collected from the outpatient records and the pathology department, and filed by the nurse in charge, supervised by the registry's registered nurses; (3) other hospitals in Khon Kaen. The outpatient records are used by the nurses in charge to complete the notification forms.

Death certificates with a mention of cancer are collected from the office of the Ministry of the Interior. Death certificates in remote villages are filled in by the headman of the village and are sent to this office. The data are reviewed and checked with existing registry files before data entry.

The Chief Medical Officer and all the directors of hospitals in Khon Kaen have agreed to make collection of data for the cancer registry compulsory. Case-finding is both active and passive.

Any follow-up data on cancer patients are updated on file. At the end of each year, a return-paid postcard is sent to each patient thought to be still alive, to ascertain their present status, whether

alive or dead. If no answer is received, a second postcard is sent to the headman of the village for him to report on the patient's status.

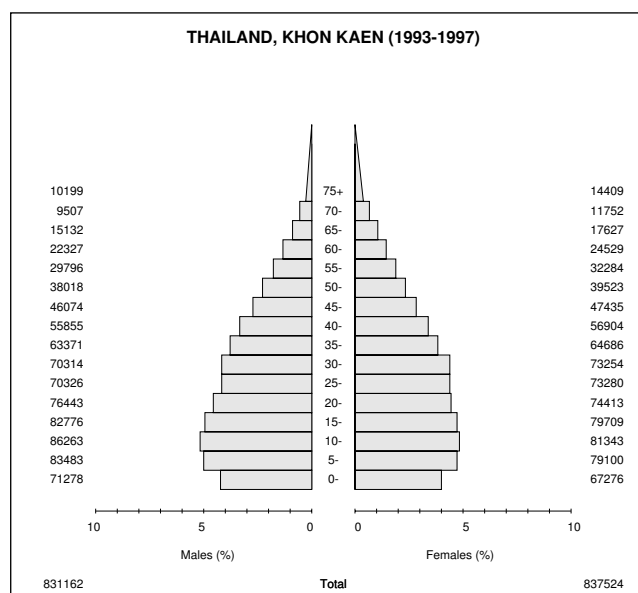
Each completed notification form is checked manually and entered into the database files in the registry microcomputer. The name, age, sex, address and site of cancer are checked for duplication. Any questionable case is traced to the original source(s) of information for clarification. Multiple primary cases are checked by physicians using their original records and with any other physicians concerned, if needed.

Interpreting the results

The habit of eating raw fish is a major public health problem, causing about 15% of the population to be infected with liver flukes (*Opisthorchis viverrini*). This results in a high incidence of cholangiocarcinoma in the area.

Use of the data

The rising trends of all cancer cases are being analysed. A cohort study of the population of areas with endemic liver fluke infestation is being conducted to monitor the high liver cancer incidence in relation to this risk factor.



Source of population

Annual population projections for Thailand 1990–2020. Human Resources Planning Division, National Economic and Social Development Board, March 1995.

Notes on the data

* The high proportion of cases registered on the basis of a death certificate alone, and of cases of unknown or ill-specified primary site, indicate a degree of under-ascertainment and lack of validity. Rates of childhood cancer are low.

***THAILAND, KHON KAEN (1993-1997)**

SITE	MALE						FEMALE						ICD-10
	§No. cases	Freq. (%)	Crude rate (per 100,000)	ASR world	Cum. rates		§No. cases	Freq. (%)	Crude rate (per 100,000)	ASR world	Cum. rates		
					0-64	0-74					0-64	0-74	
Lip	10	0.2	0.2	0.3	0.02	0.04	85	1.8	2.0	2.6	0.11	0.37	C00
Tongue	25	0.4	0.6	0.7	0.05	0.10	32	0.7	0.8	0.9	0.05	0.12	C01-02
Mouth	44	0.8	1.1	1.4	0.10	0.18	75	1.6	1.8	2.2	0.12	0.27	C03-06
Salivary glands	8	0.1	0.2	0.3	0.01	0.03	15	0.3	0.4	0.4	0.03	0.04	C07-08
Tonsil	14	0.2	0.3	0.5	0.02	0.07	6	0.1	0.1	0.2	0.01	0.02	C09
Other oropharynx	5	0.1	0.1	0.2	0.01	0.02	0	0.0	0.0	0.0	0.00	0.00	C10
Nasopharynx	86	1.5	2.1	2.6	0.18	0.29	37	0.8	0.9	1.0	0.07	0.10	C11
Hypopharynx	12	0.2	0.3	0.4	0.02	0.03	4	0.1	0.1	0.1	0.00	0.02	C12-13
Pharynx unspecified	4	0.1	0.1	0.1	0.00	0.00	0	0.0	0.0	0.0	0.00	0.00	C14
Oesophagus	48	0.8	1.2	1.6	0.10	0.21	17	0.4	0.4	0.5	0.03	0.07	C15
Stomach	102	1.8	2.5	3.2	0.20	0.39	70	1.5	1.7	1.9	0.12	0.24	C16
Small intestine	14	0.2	0.3	0.4	0.03	0.06	5	0.1	0.1	0.2	0.01	0.02	C17
Colon	158	2.8	3.8	4.8	0.31	0.55	102	2.2	2.4	2.8	0.18	0.35	C18
Rectum	74	1.3	1.8	2.5	0.14	0.34	69	1.5	1.6	1.9	0.14	0.23	C19-20
Anus	5	0.1	0.1	0.2	0.01	0.02	6	0.1	0.1	0.2	0.01	0.01	C21
Liver	2811	49.7	67.6	88.0	6.13	11.07	1240	26.5	29.6	35.4	2.42	4.54	C22
Gallbladder etc.	56	1.0	1.3	1.9	0.10	0.21	61	1.3	1.5	1.7	0.11	0.20	C23-24
Pancreas	31	0.5	0.7	1.0	0.07	0.13	21	0.4	0.5	0.6	0.05	0.08	C25
Nose, sinuses etc.	23	0.4	0.6	0.7	0.03	0.09	11	0.2	0.3	0.3	0.02	0.04	C30-31
Larynx	38	0.7	0.9	1.4	0.05	0.17	1	0.0	0.0	0.0	0.00	0.01	C32
Trachea, bronchus and lung	569	10.1	13.7	18.5	1.09	2.34	236	5.1	5.6	6.6	0.42	0.82	C33-34
Other thoracic organs	15	0.3	0.4	0.4	0.03	0.04	9	0.2	0.2	0.2	0.02	0.02	C37-38
Bone	48	0.8	1.2	1.3	0.09	0.16	49	1.0	1.2	1.3	0.08	0.17	C40-41
Melanoma of skin	16	0.3	0.4	0.5	0.03	0.05	14	0.3	0.3	0.4	0.03	0.04	C43
Other skin	123		3.0	4.0	0.24	0.52	107		2.6	3.1	0.15	0.34	C44
Mesothelioma	0	0.0	0.0	0.0	0.00	0.00	0	0.0	0.0	0.0	0.00	0.00	C45
Kaposi sarcoma	0	0.0	0.0	0.0	0.00	0.00	0	0.0	0.0	0.0	0.00	0.00	C46
Connective and soft tissue	36	0.6	0.9	1.1	0.07	0.10	44	0.9	1.1	1.1	0.09	0.10	C47+C49
Breast	4	0.1	0.1	0.2	0.01	0.02	445	9.5	10.6	10.8	0.90	1.10	C50
Vulva							15	0.3	0.4	0.4	0.02	0.05	C51
Vagina							6	0.1	0.1	0.2	0.00	0.03	C52
Cervix uteri							653	14.0	15.6	16.5	1.35	1.79	C53
Corpus uteri							86	1.8	2.1	2.2	0.20	0.26	C54
Uterus unspecified							9	0.2	0.2	0.2	0.02	0.02	C55
Ovary							231	4.9	5.5	5.7	0.46	0.62	C56
Other female genital organs							3	0.1	0.1	0.1	0.00	0.00	C57
Placenta							28	0.6	0.7	0.6	0.04	0.04	C58
Penis	51	0.9	1.2	1.6	0.10	0.20							C60
Prostate	63	1.1	1.5	2.4	0.06	0.32							C61
Testis	29	0.5	0.7	0.7	0.05	0.07							C62
Other male genital organs	3	0.1	0.1	0.1	0.00	0.00							C63
Kidney	35	0.6	0.8	1.1	0.08	0.14	24	0.5	0.6	0.7	0.04	0.06	C64
Renal pelvis	8	0.1	0.2	0.2	0.02	0.03	2	0.0	0.0	0.0	0.00	0.00	C65
Ureter	0	0.0	0.0	0.0	0.00	0.00	1	0.0	0.0	0.0	0.00	0.00	C66
Bladder	98	1.7	2.4	3.3	0.15	0.40	16	0.3	0.4	0.5	0.01	0.07	C67
Other urinary organs	3	0.1	0.1	0.1	0.01	0.02	0	0.0	0.0	0.0	0.00	0.00	C68
Eye	4	0.1	0.1	0.1	0.00	0.01	9	0.2	0.2	0.2	0.02	0.02	C69
Brain, nervous system	108	1.9	2.6	2.7	0.18	0.22	102	2.2	2.4	2.5	0.18	0.24	C70-72
Thyroid	32	0.6	0.8	0.9	0.06	0.10	141	3.0	3.4	3.3	0.26	0.32	C73
Adrenal gland	2	0.0	0.0	0.0	0.00	0.00	3	0.1	0.1	0.1	0.01	0.01	C74
Other endocrine	10	0.2	0.2	0.2	0.01	0.01	7	0.1	0.2	0.2	0.01	0.01	C75
Hodgkin disease	21	0.4	0.5	0.5	0.04	0.05	14	0.3	0.3	0.4	0.02	0.05	C81
Non-Hodgkin lymphoma	129	2.3	3.1	3.7	0.19	0.40	102	2.2	2.4	2.7	0.15	0.27	C82-85,C96
Immunoproliferative diseases	0	0.0	0.0	0.0	0.00	0.00	0	0.0	0.0	0.0	0.00	0.00	C88
Multiple myeloma	15	0.3	0.4	0.5	0.03	0.06	11	0.2	0.3	0.3	0.03	0.03	C90
Lymphoid leukaemia	49	0.9	1.2	1.3	0.07	0.09	44	0.9	1.1	1.2	0.07	0.07	C91
Myeloid leukaemia	56	1.0	1.3	1.5	0.10	0.13	56	1.2	1.3	1.4	0.10	0.12	C92-94
Leukaemia unspecified	53	0.9	1.3	1.4	0.09	0.12	53	1.1	1.3	1.3	0.10	0.12	C95
Other and unspecified	636	11.2	15.3	19.2	1.32	2.28	402	8.6	9.6	11.0	0.81	1.32	O&U
All sites	5784		139.2	179.2	11.72	21.89	4779		114.1	128.1	9.05	14.82	ALL
All sites but C44	5661	100.0	136.2	175.2	11.48	21.37	4672	100.0	111.6	125.0	8.90	14.47	ALLbC44

§Includes 20 cases of unknown age

§Includes 12 cases of unknown age

Thailand, Lampang

Registration area

Lampang is a province among 17 provinces located in the northern part in Thailand between 17–19° N and 98–100° E, 268.8 m above sea level with a land area of 12 534 km². The registry covers the population of 13 districts. The total population in 1995 was 783 433, with 393 178 males and 390 255 females. About 30% of the population lives in urban areas; 97% are Buddhists, the remainder mainly Christians.

Cancer care facilities

General health care in the region is provided in all 13 districts. In the urban area (Muang district), there is one cancer centre (Lampang Regional Cancer Centre), two private hospitals and one military hospital. Cancer diagnostic services (clinical consultations and radiological and pathological investigations), cancer surgery services and chemotherapy are available in Lampang Regional Cancer Centre and Lampang Provincial Hospital. Radiation therapy is provided in Lampang Regional Cancer Centre.

Patients suspected to have cancer in the primary and secondary health cares in the registry area are mostly referred to Lampang Regional Cancer Centre and Lampang Provincial Hospital.

Registry structure and methods

The registry is located within Lampang Regional Cancer Centre, and is funded by the cancer research foundation of the National Cancer Institute. Lampang Regional Cancer Centre provides equipment. The registry is staffed by a part time expert consultant, a part time doctor, a part time nurse and two full time health workers.

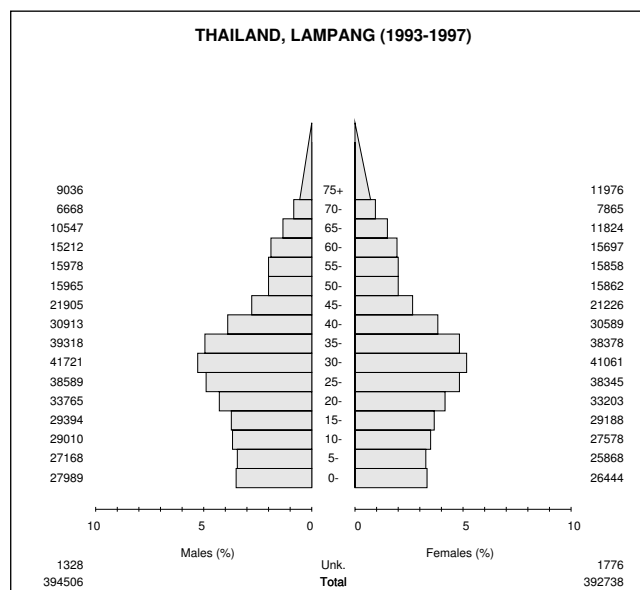
The Lampang registry was set up in 1995, with the back-up data from population-based cancer registration in Lampang collected since 1963 by Dr Nimit Martin, the expert consultant. The registry uses passive methods of notification from 21 sources of data consisting of cancer centres, general hospitals, community hospitals, private hospitals, university hospital, provincial public health service of Lampang and pathological laboratories. Follow-up of registered cases is carried out by matching cases with all death certificates.

Cancer cases are collected from all hospitals in Lampang. However, some patients are referred to Chiang Mai University

Hospital and the National Cancer Institute in Bangkok. These cases have also been collected in the registry.

Use of the data

First data from the registry were presented at a national meeting in 2001. The registry has produced a publication on cancer incidence in Lampang for the years 1993–97.



Source of population

Annual estimates provided by the Department of Local Administration, Ministry of the Interior.

Notes on the data

* The high proportion of cases registered on the basis of a death certificate alone, and of cases of unknown or ill-specified primary site, indicate a degree of under-ascertainment and lack of validity. Rates of childhood cancer are low.

***THAILAND, LAMPANG (1993-1997)**

SITE	MALE						FEMALE						ICD-10
	No. cases	Freq. (%)	Crude rate (per 100,000)	ASR world	Cum. rates 0-64 (percent)	Cum. rates 0-74 (percent)	No. cases	Freq. (%)	Crude rate (per 100,000)	ASR world	Cum. rates 0-64 (percent)	Cum. rates 0-74 (percent)	
Lip	4	0.1	0.2	0.2	0.01	0.03	9	0.3	0.5	0.4	0.01	0.06	C00
Tongue	27	0.8	1.4	1.4	0.08	0.15	11	0.3	0.6	0.5	0.03	0.07	C01-02
Mouth	26	0.7	1.3	1.3	0.05	0.14	35	1.1	1.8	1.6	0.09	0.18	C03-06
Salivary glands	9	0.3	0.5	0.4	0.03	0.06	9	0.3	0.5	0.4	0.04	0.04	C07-08
Tonsil	17	0.5	0.9	0.9	0.05	0.11	6	0.2	0.3	0.3	0.00	0.03	C09
Other oropharynx	3	0.1	0.2	0.2	0.01	0.03	3	0.1	0.2	0.2	0.01	0.02	C10
Nasopharynx	58	1.7	2.9	2.9	0.22	0.33	28	0.9	1.4	1.3	0.08	0.14	C11
Hypopharynx	18	0.5	0.9	0.9	0.04	0.09	5	0.2	0.3	0.3	0.02	0.04	C12-13
Pharynx unspecified	4	0.1	0.2	0.2	0.02	0.03	1	0.0	0.1	0.1	0.00	0.01	C14
Oesophagus	37	1.1	1.9	1.9	0.10	0.23	22	0.7	1.1	1.1	0.06	0.17	C15
Stomach	121	3.5	6.1	6.1	0.34	0.74	87	2.7	4.4	4.1	0.29	0.51	C16
Small intestine	5	0.1	0.3	0.2	0.03	0.03	9	0.3	0.5	0.4	0.03	0.05	C17
Colon	144	4.1	7.3	7.2	0.38	0.92	101	3.2	5.1	4.7	0.31	0.58	C18
Rectum	72	2.1	3.7	3.7	0.20	0.48	55	1.7	2.8	2.6	0.15	0.34	C19-20
Anus	2	0.1	0.1	0.1	0.01	0.02	5	0.2	0.3	0.2	0.02	0.02	C21
Liver	558	16.1	28.3	28.6	2.03	3.41	297	9.3	15.1	14.4	0.98	1.85	C22
Gallbladder etc.	63	1.8	3.2	3.3	0.19	0.44	66	2.1	3.4	3.3	0.20	0.48	C23-24
Pancreas	43	1.2	2.2	2.2	0.15	0.29	29	0.9	1.5	1.3	0.08	0.17	C25
Nose, sinuses etc.	10	0.3	0.5	0.5	0.03	0.06	13	0.4	0.7	0.6	0.04	0.05	C30-31
Larynx	68	2.0	3.4	3.5	0.13	0.44	20	0.6	1.0	1.0	0.06	0.14	C32
Trachea, bronchus and lung	1073	30.9	54.4	56.7	3.54	7.39	588	18.5	29.9	29.1	1.93	4.02	C33-34
Other thoracic organs	1	0.0	0.1	0.1	0.01	0.01	1	0.0	0.1	0.1	0.01	0.01	C37-38
Bone	5	0.1	0.3	0.3	0.02	0.03	12	0.4	0.6	0.6	0.04	0.06	C40-41
Melanoma of skin	13	0.4	0.7	0.6	0.04	0.07	10	0.3	0.5	0.5	0.03	0.05	C43
Other skin	52		2.6	2.7	0.12	0.29	78		4.0	3.5	0.20	0.38	C44
Mesothelioma	3	0.1	0.2	0.1	0.01	0.01	4	0.1	0.2	0.2	0.00	0.02	C45
Kaposi sarcoma	0	0.0	0.0	0.0	0.00	0.00	0	0.0	0.0	0.0	0.00	0.00	C46
Connective and soft tissue	12	0.3	0.6	0.6	0.04	0.08	17	0.5	0.9	0.8	0.06	0.07	C47+C49
Breast	12	0.3	0.6	0.6	0.03	0.07	376	11.8	19.1	17.0	1.38	1.75	C50
Vulva							14	0.4	0.7	0.7	0.04	0.08	C51
Vagina							2	0.1	0.1	0.1	0.01	0.01	C52
Cervix uteri							531	16.7	27.0	24.2	1.96	2.52	C53
Corpus uteri							58	1.8	3.0	2.8	0.21	0.33	C54
Uterus unspecified							0	0.0	0.0	0.0	0.00	0.00	C55
Ovary							79	2.5	4.0	3.7	0.30	0.39	C56
Other female genital organs							3	0.1	0.2	0.2	0.02	0.02	C57
Placenta							6	0.2	0.3	0.3	0.02	0.03	C58
Penis	33	0.9	1.7	1.6	0.14	0.16							C60
Prostate	78	2.2	4.0	3.9	0.07	0.44							C61
Testis	17	0.5	0.9	0.8	0.06	0.08							C62
Other male genital organs	2	0.1	0.1	0.1	0.01	0.01							C63
Kidney	16	0.5	0.8	0.8	0.06	0.10	10	0.3	0.5	0.6	0.04	0.05	C64
Renal pelvis	15	0.4	0.8	0.8	0.06	0.10	5	0.2	0.3	0.3	0.03	0.03	C65
Ureter	1	0.0	0.1	0.1	0.00	0.01	0	0.0	0.0	0.0	0.00	0.00	C66
Bladder	92	2.6	4.7	4.7	0.22	0.58	44	1.4	2.2	2.1	0.12	0.28	C67
Other urinary organs	0	0.0	0.0	0.0	0.00	0.00	0	0.0	0.0	0.0	0.00	0.00	C68
Eye	5	0.1	0.3	0.3	0.03	0.03	3	0.1	0.2	0.2	0.00	0.02	C69
Brain, nervous system	24	0.7	1.2	1.2	0.08	0.12	9	0.3	0.5	0.5	0.04	0.04	C70-72
Thyroid	15	0.4	0.8	0.8	0.04	0.12	47	1.5	2.4	2.1	0.14	0.26	C73
Adrenal gland	0	0.0	0.0	0.0	0.00	0.00	0	0.0	0.0	0.0	0.00	0.00	C74
Other endocrine	0	0.0	0.0	0.0	0.00	0.00	1	0.0	0.1	0.1	0.01	0.01	C75
Hodgkin disease	12	0.3	0.6	0.7	0.03	0.07	9	0.3	0.5	0.4	0.02	0.03	C81
Non-Hodgkin lymphoma	119	3.4	6.0	5.9	0.35	0.64	78	2.5	4.0	3.6	0.25	0.39	C82-85,C96
Immunoproliferative diseases	1	0.0	0.1	0.1	0.00	0.00	0	0.0	0.0	0.0	0.00	0.00	C88
Multiple myeloma	7	0.2	0.4	0.4	0.03	0.05	2	0.1	0.1	0.1	0.01	0.01	C90
Lymphoid leukaemia	34	1.0	1.7	2.0	0.09	0.16	16	0.5	0.8	0.9	0.05	0.07	C91
Myeloid leukaemia	42	1.2	2.1	1.9	0.14	0.15	30	0.9	1.5	1.4	0.11	0.12	C92-94
Leukaemia unspecified	29	0.8	1.5	1.4	0.10	0.12	22	0.7	1.1	1.1	0.08	0.09	C95
Other and unspecified	524	15.1	26.6	25.6	1.66	3.02	395	12.4	20.1	18.9	1.42	2.20	O&U
All sites	3526		178.8	180.5	11.04	21.91	3261		166.1	154.6	11.00	18.27	ALL
All sites but C44	3474	100.0	176.1	177.8	10.92	21.62	3183	100.0	162.1	151.0	10.80	17.89	ALLbC44

Thailand, Songkhla

Registration area

The Songkhla Registry covers the population of 15 districts in the south of Thailand. The population at the 1990 census was 1 094 323. About 80% of the population are Buddhists, and nearly 20% are Moslems. Christians and others account for less than 1% of the population. People with Chinese blood live in Songkhla town and Hat Yai city which is the economic centre of the south of Thailand.

Cancer care facilities

General health care in the region is provided predominantly by the government of Thailand. There are three hospitals with over 500 beds, 13 community hospitals and an extensive network of health care facilities at the household level. This is supplemented by private practitioners, a few private hospitals, and a few small special hospitals, all in the urban area. The university hospital of Prince of Songkhla University is the only place in the south of Thailand that provides radiotherapy services. A few other large hospitals also have facilities for cancer surgery and chemotherapy. Patients suspected to have cancer in the health care system and community hospitals are referred to the general, Central or University hospitals.

Registry structure and methods

The registry is located within the Faculty of Medicine, Prince of Songkhla University. The registry is staffed by three part-time medical doctors, a full-time nurse as a registrar and three full-time workers.

The Songkhla registry undertakes active case finding from 23 sources of data consisting of the University Hospital, the Central Hospital, general hospital, community hospitals, private hospitals, special hospitals, provincial health office, and the population registration office of the province. The completeness of death registration is acceptable but the cause of death is not accurate, being mostly cardio-pulmonary arrest and senility. The hospital-based registry of the University Hospital is also run by the registry staff and the data are shared with the registry of Songkhla. The Central Hospital has its own cancer registry and provides the cases residing in Songkhla to the registry. The registry staff visit the general hospital and private hospitals and consult the medical records and pathology records. Assigned staff in community hospitals send the record forms of cancer cases to the registry once a year. They are regularly visited by registry staff to review procedures. Some cases are sent to the registry by the network of cancer registries in Thailand, especially the registry of Bangkok.

A re-ascertainment study in the registry of the university hospital was done once in this period.

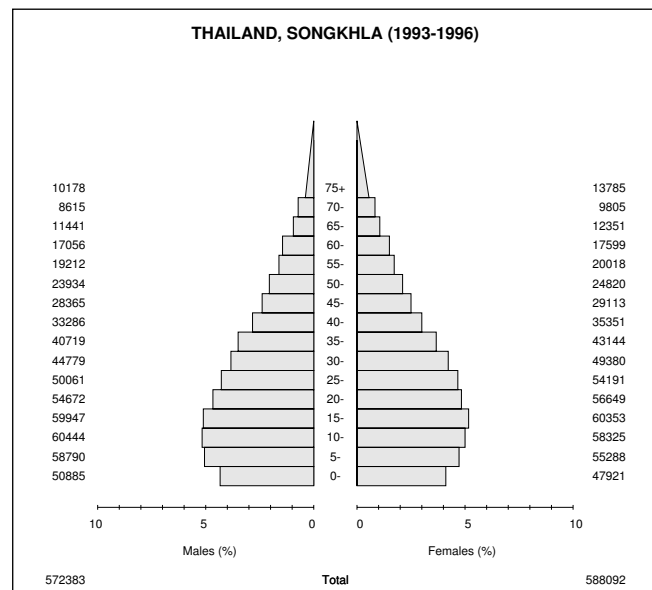
Interpreting the results

The number of undiagnosed and unregistered cancer cases is difficult to estimate. Some Moslems in a remote area in the south of Songkhla visit large hospitals in the nearby provinces and some of them, especially the elderly, use traditional herbal medicines and

never enter the health care system. Because of the linkage between the referral system and the governmental free health service and insurance system, it is expected that only a small number of cancer patients in that remote area seek medical facilities outside the province. A few other cases look for special medical care in Bangkok, the capital of Thailand.

Use of the data

The registry prepares an annual report of cancer incidence, by site, gender, and district in Songkhla. Five-year reports provide more information on common cancers in Songkhla such as oral and oesophageal cancers which are common in the south in contrast to other parts of the country. The incidence of cancer in Muslims is presented. Survival from some cancers by extent and histological type is reported.



Source of population

Estimates are based on the 1990 census, making allowance for births, deaths and migration.

Ref. Annual population projections for Thailand 1990–2020. Human Resources Planning Division, National Economic and Social Development Board, March 1995.

Notes on the data

* The indices of reliability suggest marked under-registration for many sites.

***THAILAND, SONGKHLA (1993-1996)**

SITE	MALE						FEMALE						ICD-10
	§No. cases	Freq. (%)	Crude rate (per 100,000)	ASR world	Cum. rates 0-64 (percent)	Cum. rates 0-74 (percent)	No. cases	Freq. (%)	Crude rate (per 100,000)	ASR world	Cum. rates 0-64 (percent)	Cum. rates 0-74 (percent)	
Lip	5	0.3	0.2	0.3	0.00	0.01	15	0.9	0.6	0.6	0.01	0.06	C00
Tongue	73	4.1	3.2	4.0	0.22	0.48	14	0.8	0.6	0.6	0.04	0.07	C01-02
Mouth	73	4.1	3.2	4.1	0.15	0.57	36	2.1	1.5	1.6	0.06	0.19	C03-06
Salivary glands	4	0.2	0.2	0.2	0.00	0.03	6	0.4	0.3	0.3	0.02	0.03	C07-08
Tonsil	42	2.3	1.8	2.3	0.09	0.30	1	0.1	0.0	0.1	0.01	0.01	C09
Other oropharynx	7	0.4	0.3	0.4	0.02	0.03	1	0.1	0.0	0.1	0.00	0.01	C10
Nasopharynx	61	3.4	2.7	3.1	0.22	0.40	27	1.6	1.1	1.2	0.09	0.13	C11
Hypopharynx	46	2.6	2.0	2.6	0.10	0.36	3	0.2	0.1	0.1	0.02	0.02	C12-13
Pharynx unspecified	6	0.3	0.3	0.3	0.03	0.05	1	0.1	0.0	0.1	0.00	0.01	C14
Oesophagus	110	6.1	4.8	6.1	0.33	0.75	48	2.8	2.0	2.5	0.16	0.36	C15
Stomach	35	1.9	1.5	1.9	0.09	0.23	29	1.7	1.2	1.4	0.10	0.17	C16
Small intestine	7	0.4	0.3	0.3	0.02	0.02	4	0.2	0.2	0.2	0.01	0.02	C17
Colon	61	3.4	2.7	3.1	0.17	0.33	49	2.9	2.1	2.2	0.12	0.21	C18
Rectum	59	3.3	2.6	3.1	0.18	0.38	36	2.1	1.5	1.8	0.09	0.24	C19-20
Anus	5	0.3	0.2	0.3	0.01	0.04	2	0.1	0.1	0.1	0.01	0.01	C21
Liver	125	6.9	5.5	6.6	0.46	0.82	30	1.8	1.3	1.5	0.11	0.18	C22
Gallbladder etc.	16	0.9	0.7	0.9	0.05	0.11	25	1.5	1.1	1.2	0.11	0.13	C23-24
Pancreas	15	0.8	0.7	0.8	0.06	0.06	16	0.9	0.7	0.8	0.05	0.09	C25
Nose, sinuses etc.	12	0.7	0.5	0.6	0.05	0.05	6	0.4	0.3	0.3	0.03	0.04	C30-31
Larynx	58	3.2	2.5	3.3	0.16	0.43	6	0.4	0.3	0.3	0.02	0.03	C32
Trachea, bronchus and lung	272	15.1	11.9	15.0	0.89	1.95	96	5.6	4.1	4.7	0.28	0.62	C33-34
Other thoracic organs	5	0.3	0.2	0.2	0.01	0.01	3	0.2	0.1	0.1	0.01	0.01	C37-38
Bone	11	0.6	0.5	0.4	0.03	0.03	6	0.4	0.3	0.3	0.01	0.03	C40-41
Melanoma of skin	7	0.4	0.3	0.4	0.01	0.06	11	0.6	0.5	0.5	0.02	0.04	C43
Other skin	79		3.5	4.4	0.21	0.53	81		3.4	3.7	0.16	0.39	C44
Mesothelioma	0	0.0	0.0	0.0	0.00	0.00	0	0.0	0.0	0.0	0.00	0.00	C45
Kaposi sarcoma	0	0.0	0.0	0.0	0.00	0.00	0	0.0	0.0	0.0	0.00	0.00	C46
Connective and soft tissue	15	0.8	0.7	0.6	0.04	0.05	19	1.1	0.8	0.9	0.08	0.10	C47+C49
Breast	3	0.2	0.1	0.1	0.00	0.00	253	14.8	10.8	11.7	0.96	1.23	C50
Vulva							9	0.5	0.4	0.4	0.02	0.06	C51
Vagina							9	0.5	0.4	0.4	0.03	0.04	C52
Cervix uteri							365	21.4	15.5	16.6	1.36	1.71	C53
Corpus uteri							37	2.2	1.6	1.9	0.15	0.25	C54
Uterus unspecified							2	0.1	0.1	0.1	0.01	0.01	C55
Ovary							95	5.6	4.0	4.3	0.34	0.45	C56
Other female genital organs							1	0.1	0.0	0.0	0.00	0.00	C57
Placenta							6	0.4	0.3	0.2	0.02	0.02	C58
Penis	41	2.3	1.8	2.2	0.13	0.22							C60
Prostate	72	4.0	3.1	4.0	0.10	0.43							C61
Testis	3	0.2	0.1	0.1	0.01	0.01							C62
Other male genital organs	2	0.1	0.1	0.1	0.00	0.00							C63
Kidney	15	0.8	0.7	0.8	0.05	0.08	4	0.2	0.2	0.2	0.01	0.03	C64
Renal pelvis	5	0.3	0.2	0.3	0.01	0.02	1	0.1	0.0	0.1	0.01	0.01	C65
Ureter	1	0.1	0.0	0.1	0.00	0.01	1	0.1	0.0	0.0	0.00	0.00	C66
Bladder	57	3.2	2.5	3.0	0.14	0.36	19	1.1	0.8	1.0	0.07	0.13	C67
Other urinary organs	0	0.0	0.0	0.0	0.00	0.00	0	0.0	0.0	0.0	0.00	0.00	C68
Eye	5	0.3	0.2	0.3	0.01	0.04	3	0.2	0.1	0.1	0.01	0.01	C69
Brain, nervous system	42	2.3	1.8	1.9	0.14	0.16	42	2.5	1.8	2.0	0.13	0.18	C70-72
Thyroid	42	2.3	1.8	2.0	0.18	0.19	118	6.9	5.0	4.8	0.34	0.42	C73
Adrenal gland	2	0.1	0.1	0.1	0.00	0.00	2	0.1	0.1	0.1	0.01	0.01	C74
Other endocrine	0	0.0	0.0	0.0	0.00	0.00	1	0.1	0.0	0.0	0.00	0.00	C75
Hodgkin disease	16	0.9	0.7	0.8	0.07	0.07	3	0.2	0.1	0.1	0.01	0.01	C81
Non-Hodgkin lymphoma	90	5.0	3.9	4.5	0.25	0.45	59	3.5	2.5	2.7	0.18	0.28	C82-85,C96
Immunoproliferative diseases	0	0.0	0.0	0.0	0.00	0.00	0	0.0	0.0	0.0	0.00	0.00	C88
Multiple myeloma	13	0.7	0.6	0.7	0.04	0.09	8	0.5	0.3	0.4	0.02	0.06	C90
Lymphoid leukaemia	19	1.1	0.8	0.9	0.04	0.06	23	1.3	1.0	1.2	0.06	0.06	C91
Myeloid leukaemia	39	2.2	1.7	1.8	0.12	0.18	40	2.3	1.7	1.8	0.12	0.20	C92-94
Leukaemia unspecified	15	0.8	0.7	0.6	0.03	0.05	8	0.5	0.3	0.4	0.02	0.02	C95
Other and unspecified	188	10.4	8.2	9.8	0.66	1.24	105	6.2	4.5	5.0	0.32	0.55	O&U
All sites	1879		82.1	99.6	5.60	11.79	1785		75.9	82.8	5.83	8.95	ALL
All sites but C44	1800	100.0	78.6	95.2	5.39	11.25	1704	100.0	72.4	79.1	5.67	8.56	ALLbC44

§Includes 2 cases of unknown age

Viet Nam, Hanoi

Registration area

Hanoi Cancer Registry covers the population of the 12 districts of Hanoi City, the capital of the Socialist Republic of Viet Nam. The population of the city in 1999 was 2 672 125 inhabitants, residing on a surface area of 9185 km² with a population density of 2909 persons per km². About 58% of the population lives in an urban area (corresponding to seven of the districts).

Cancer care facilities

Medical services, including prevention and treatment, are delivered to the public by a network of treatment and preventive medical institutions. In Viet Nam, the cancer-care network developed rather later than that for infectious and some other non-communicable diseases. In Hanoi, cancer care is mainly delivered to the public through the National Cancer Institute (K hospital), which is able to provide a complete cancer diagnosis and treatment service for most types of cancer, and a wide range of general hospitals, specialist research institutes and specialized hospitals.

At the provincial level there is a cancer specialist hospital (equipped with a cobalt therapy unit) in one city and some general hospitals, which provide cancer diagnosis and treatment (mainly surgery).

At the primary health care level there are no facilities for specialized cancer diagnosis and treatment. Their contribution to cancer control consists of clinical screening, and cancer health education and counselling.

Private health care commenced in 1990 and is increasing. Lack of cancer diagnostic (pathology) and treatment facilities limit the involvement of this sector in the cancer care system (the situation might be different in Ho Chi Minh City, where the private health care system developed earlier and is more advanced).

Registry structure and methods

Hanoi Cancer Registry is located at the National Cancer Institute, funded partly by the institute, partly by IARC. The registry has six full-time staff who are all medical doctors. In addition, it receives help from volunteer collaborators in all the participating institutes and hospitals for case identification and data collection.

The registry uses an active method of registration. The registry staff regularly visit all data sources available in the 23 collaborating institutions and actively identify cases. The sources of data include: medical records, discharge and consultation log books, log book of pathology departments, endoscopy, imaging diagnosis department, and all departments dealing with cancer diagnosis and treatment. All cases with a permanent address in Hanoi are collected. The information is abstracted onto a special registration form. The forms are verified for missing information, coded, compared with the master file for excluding duplicates then entered onto the computer using the IARC/IACR CanReg software.

Death registration exists in Vietnam but is not suitable for health statistics as the medical cause of death is not required. However, information on all deaths occurring in hospital (usually with medical

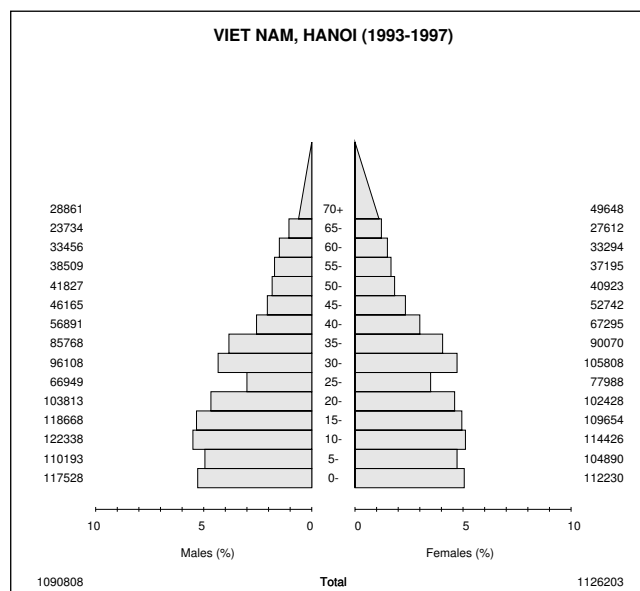
cause specification) is collected by the registry. There is no need to seek cases from other provinces, as in the surrounding provinces there are no cancer specialist facilities.

Interpreting the results

The lack of death certification as a source of data collection limits the ability to use most available methods to check completeness. Based on the age-specific curves it is clear that there is a degree of under-estimation for the older age groups but with the cancer care system concentrated in Hanoi, it is believed that most referred cases are included.

Use of the data

Lack of financial resources limit the possibility of publishing frequent detailed reports, but the data are used for many articles analysing the cancer situation in Hanoi and estimating the cancer burden in the country. The published data are widely used by researchers and health managers for administrative and research purposes.



Source of population

1995 estimated population, based on the National Statistical Department's projection from the 1989 census.

Notes on the data

* Given the local circumstances, lack of death certification and low level of histological verification, there is probably under-registration. The lack of histological verification will result in a lack of diagnostic precision.

***VIET NAM, HANOI (1993-1997)**

SITE	MALE					FEMALE					ICD-10
	No. cases	Freq. (%)	Crude rate (per 100,000)	ASR world	Cum. rates 0-64 0-74 (percent)	No. cases	Freq. (%)	Crude rate (per 100,000)	ASR world	Cum. rates 0-64 0-74 (percent)	
Lip	6	0.1	0.1	0.2	0.01	9	0.2	0.2	0.2	0.01	C00
Tongue	52	0.8	1.0	1.2	0.09	62	1.2	1.1	1.3	0.08	C01-02
Mouth	39	0.6	0.7	0.8	0.07	57	1.1	1.0	1.1	0.06	C03-06
Salivary glands	32	0.5	0.6	0.7	0.05	27	0.5	0.5	0.5	0.03	C07-08
Tonsil	25	0.4	0.5	0.6	0.03	25	0.5	0.4	0.5	0.04	C09
Other oropharynx	4	0.1	0.1	0.1	0.00	0	0.0	0.0	0.0	0.00	C10
Nasopharynx	461	7.0	8.5	10.4	0.77	236	4.7	4.2	4.6	0.38	C11
Hypopharynx	21	0.3	0.4	0.5	0.03	2	0.0	0.0	0.0	0.00	C12-13
Pharynx unspecified	54	0.8	1.0	1.3	0.07	19	0.4	0.3	0.4	0.01	C14
Oesophagus	118	1.8	2.2	2.9	0.19	33	0.7	0.6	0.6	0.02	C15
Stomach	1136	17.3	20.8	27.0	1.60	669	13.2	11.9	13.2	0.87	C16
Small intestine	3	0.0	0.1	0.1	0.01	5	0.1	0.1	0.1	0.01	C17
Colon	241	3.7	4.4	5.5	0.36	143	2.8	2.5	2.9	0.23	C18
Rectum	212	3.2	3.9	5.0	0.32	183	3.6	3.2	3.6	0.29	C19-20
‡Anus	7	0.1	0.1	0.2	0.00	5	0.1	0.1	0.1	0.00	C21
Liver	882	13.4	16.2	20.0	1.43	262	5.2	4.7	5.2	0.37	C22
Gallbladder etc.	20	0.3	0.4	0.5	0.03	8	0.2	0.1	0.2	0.01	C23-24
Pancreas	59	0.9	1.1	1.4	0.10	34	0.7	0.6	0.7	0.06	C25
Nose, sinuses etc.	43	0.7	0.8	1.0	0.07	30	0.6	0.5	0.5	0.04	C30-31
Larynx	63	1.0	1.2	1.5	0.11	9	0.2	0.2	0.2	0.01	C32
Trachea, bronchus and lung	1437	21.9	26.3	34.4	2.14	353	7.0	6.3	7.2	0.52	C33-34
Other thoracic organs	73	1.1	1.3	1.7	0.10	42	0.8	0.7	0.8	0.06	C37-38
Bone	95	1.4	1.7	2.0	0.12	59	1.2	1.0	1.1	0.08	C40-41
Melanoma of skin	13	0.2	0.2	0.3	0.02	14	0.3	0.2	0.3	0.01	C43
Other skin	148		2.7	3.6	0.21	152		2.7	2.9	0.14	C44
Mesothelioma	9	0.1	0.2	0.2	0.01	6	0.1	0.1	0.1	0.01	C45
Kaposi sarcoma	0	0.0	0.0	0.0	0.00	0	0.0	0.0	0.0	0.00	C46
Connective and soft tissue	89	1.4	1.6	1.9	0.13	70	1.4	1.2	1.3	0.09	C47+C49
Breast	45	0.7	0.8	1.0	0.09	1058	20.9	18.8	21.0	1.75	C50
Vulva						53	1.0	0.9	1.0	0.05	C51
Vagina						8	0.2	0.1	0.2	0.01	C52
Cervix uteri						344	6.8	6.1	6.7	0.51	C53
Corpus uteri						75	1.5	1.3	1.6	0.14	C54
Uterus unspecified						43	0.8	0.8	0.9	0.08	C55
Ovary						230	4.5	4.1	4.5	0.37	C56
Other female genital organs						13	0.3	0.2	0.3	0.01	C57
Placenta						133	2.6	2.4	2.2	0.16	C58
Penis	92	1.4	1.7	2.2	0.13						C60
Prostate	56	0.9	1.0	1.5	0.05						C61
Testis	39	0.6	0.7	0.9	0.07						C62
Other male genital organs	3	0.0	0.1	0.1	0.00						C63
Kidney	19	0.3	0.3	0.4	0.03	10	0.2	0.2	0.2	0.01	C64
Renal pelvis	0	0.0	0.0	0.0	0.00	1	0.0	0.0	0.0	0.00	C65
Ureter	0	0.0	0.0	0.0	0.00	0	0.0	0.0	0.0	0.00	C66
Bladder	125	1.9	2.3	3.1	0.11	28	0.6	0.5	0.6	0.04	C67
Other urinary organs	4	0.1	0.1	0.1	0.01	3	0.1	0.1	0.1	0.01	C68
Eye	24	0.4	0.4	0.5	0.03	17	0.3	0.3	0.3	0.01	C69
Brain, nervous system	34	0.5	0.6	0.7	0.05	27	0.5	0.5	0.5	0.04	C70-72
Thyroid	58	0.9	1.1	1.3	0.09	127	2.5	2.3	2.4	0.17	C73
Adrenal gland	3	0.0	0.1	0.1	0.00	2	0.0	0.0	0.0	0.00	C74
Other endocrine	1	0.0	0.0	0.0	0.00	3	0.1	0.1	0.1	0.00	C75
Hodgkin disease	82	1.2	1.5	1.7	0.12	37	0.7	0.7	0.7	0.05	C81
Non-Hodgkin lymphoma	328	5.0	6.0	7.2	0.43	163	3.2	2.9	3.1	0.21	C82-85,C96
Immunoproliferative diseases	0	0.0	0.0	0.0	0.00	0	0.0	0.0	0.0	0.00	C88
Multiple myeloma	6	0.1	0.1	0.1	0.01	3	0.1	0.1	0.1	0.00	C90
Lymphoid leukaemia	50	0.8	0.9	1.0	0.06	28	0.6	0.5	0.5	0.03	C91
Myeloid leukaemia	86	1.3	1.6	1.7	0.11	82	1.6	1.5	1.5	0.10	C92-94
Leukaemia unspecified	91	1.4	1.7	1.9	0.11	64	1.3	1.1	1.2	0.08	C95
Other and unspecified	226	3.4	4.1	5.1	0.32	152	3.0	2.7	2.9	0.19	O&U
All sites	6714		123.1	155.3	9.88	5218		92.7	102.0	7.43	ALL
All sites but C44	6566	100.0	120.4	151.7	9.68	5066	100.0	90.0	99.1	7.29	ALLbC44

‡40.0% of cases are anorectal tumours

Viet Nam, Ho Chi Minh City

Registration area

Ho Chi Minh City, located in southern Viet Nam, is the largest city in the country. The Ho Chi Minh Cancer Registry covers the population of 18 districts (12 urban districts and 6 rural districts) in Ho Chi Minh City. The population at the most recent census (1999) was 5 037 165 persons, comprising 89.9% Vietnamese (Kinh) with most of the remainder of Chinese ethnicity. The climate is tropical, with high humidity and an average temperature of 27.7° C; annual rainfall is 178 cm, with a season of equatorial rains from June to October.

Cancer care facilities

In 1985, the Ho Chi Minh City (formerly Saigon) Health Service merged the Cancer Hospital and the Oncology Department of Binh Dan Hospital into the Ho Chi Minh Cancer Centre (now renamed Ho Chi Minh Cancer Hospital) to organize better a system for screening, diagnosis and treatment of cancer in southern Viet Nam. Patients suspected of having cancer in Ho Chi Minh City and in southern Viet Nam are mostly referred to the Ho Chi Minh Cancer Hospital, which provides radiotherapy, cancer surgery and chemotherapy services.

Registry structure and methods

The Ho Chi Minh Cancer Registry is located within Ho Chi Minh City, and is funded by the hospital, the Ho Chi Minh City Health Service and partly by IARC. The registry is staffed by a full-time medical physician, a part-time medical physician and six full-time registrars.

The Ho Chi Minh Cancer Registry carries out active case finding from 26 sources of data consisting of cancer hospitals, specialist hospitals, general hospitals, institutes and pathology laboratories in Ho Chi Minh City. Death certificates are not used as a source of information; the majority of deaths occur in hospitals and are certified, but there is no system of death registration for deaths occurring outside hospital. The registry staff visits the sources, collects and abstracts information on hospital cancer in-patient records (and cancer out-patient records if they exist), logs and reports of diagnostic laboratories (including histopathology and cytology services) on residents of the registry region. There were no private health services in the period. Cancer is not a notifiable disease in Viet Nam.

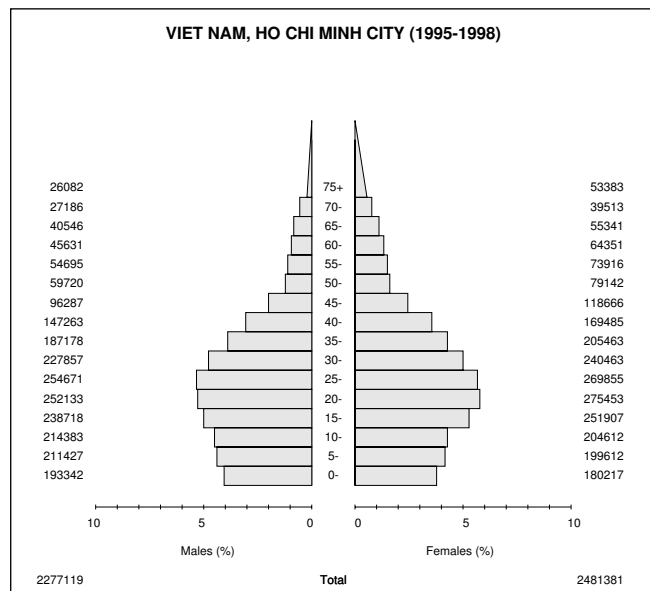
The registry uses a microcomputer with the IARC/IACR CanReg software for data entry and management. The program provides a range of validity checks at the moment of data entry, and recognizes duplicate records based on name, age, sex, address, incidence date and diagnosis. This is especially important in Viet Nam because of the relatively small number of family names.

Interpreting the results

It is not possible to estimate how many cancer cases remain undiagnosed, but this probably occurs for elderly subjects. The absence of a useful vital statistics system capable of recording cause of death influenced the quality of data registered.

Use of the data

The registry prepares an annual report of cancer incidence, highlighting trends and changes. A population-based survival study for all cancer cases has been carried out. The results of the cancer registry are used for researchers and planning and evaluation of the health services.



Source of population

Annual estimates from the Statistical Yearbook, Statistical Office in Ho Chi Minh City. The population is estimated by linear interpolation on the basis of the 1989 and 1999 censuses.

Notes on the data

* Variation in annual registration suggests under-registration in the earlier years. There is no access to death certificates.

***VIET NAM, HO CHI MINH CITY (1995-1998)**

SITE	MALE						FEMALE						ICD-10
	No. cases	Freq. (%)	Crude rate (per 100,000)	ASR world	Cum. rates 0-64 (percent)	Cum. rates 0-74 (percent)	No. cases	Freq. (%)	Crude rate (per 100,000)	ASR world	Cum. rates 0-64 (percent)	Cum. rates 0-74 (percent)	
Lip	2	0.0	0.0	0.0	0.00	0.00	45	0.5	0.5	0.5	0.02	0.07	C00
Tongue	115	1.3	1.3	2.0	0.12	0.25	51	0.6	0.5	0.6	0.03	0.09	C01-02
Mouth	110	1.3	1.2	1.9	0.11	0.24	121	1.3	1.2	1.3	0.05	0.14	C03-06
Salivary glands	37	0.4	0.4	0.6	0.04	0.07	22	0.2	0.2	0.2	0.02	0.03	C07-08
Tonsil	66	0.8	0.7	1.2	0.07	0.16	31	0.3	0.3	0.3	0.02	0.03	C09
Other oropharynx	9	0.1	0.1	0.2	0.01	0.02	1	0.0	0.0	0.0	0.00	0.00	C10
Nasopharynx	326	3.8	3.6	4.8	0.38	0.55	153	1.7	1.5	1.7	0.13	0.18	C11
Hypopharynx	115	1.3	1.3	2.1	0.09	0.26	23	0.3	0.2	0.3	0.01	0.02	C12-13
Pharynx unspecified	1	0.0	0.0	0.0	0.00	0.00	0	0.0	0.0	0.0	0.00	0.00	C14
Oesophagus	237	2.8	2.6	4.4	0.25	0.53	53	0.6	0.5	0.6	0.03	0.06	C15
Stomach	1057	12.4	11.6	18.7	1.00	2.37	687	7.6	6.9	8.1	0.49	0.98	C16
Small intestine	11	0.1	0.1	0.1	0.01	0.01	13	0.1	0.1	0.1	0.01	0.02	C17
Colon	449	5.3	4.9	7.5	0.40	0.90	443	4.9	4.5	5.3	0.29	0.66	C18
Rectum	287	3.4	3.2	4.9	0.23	0.59	306	3.4	3.1	3.7	0.25	0.46	C19-20
Anus	32	0.4	0.4	0.6	0.03	0.07	36	0.4	0.4	0.4	0.02	0.05	C21
Liver	1649	19.3	18.1	27.1	1.77	3.20	522	5.7	5.3	6.4	0.39	0.76	C22
Gallbladder etc.	88	1.0	1.0	1.6	0.07	0.20	106	1.2	1.1	1.2	0.06	0.16	C23-24
Pancreas	136	1.6	1.5	2.4	0.14	0.28	108	1.2	1.1	1.4	0.09	0.19	C25
Nose, sinuses etc.	52	0.6	0.6	0.8	0.05	0.09	46	0.5	0.5	0.5	0.03	0.05	C30-31
Larynx	246	2.9	2.7	4.6	0.23	0.52	32	0.4	0.3	0.4	0.02	0.05	C32
Trachea, bronchus and lung	1485	17.4	16.3	26.9	1.46	3.45	604	6.6	6.1	7.5	0.47	0.95	C33-34
Other thoracic organs	79	0.9	0.9	1.2	0.07	0.14	38	0.4	0.4	0.4	0.03	0.05	C37-38
Bone	92	1.1	1.0	1.0	0.07	0.09	70	0.8	0.7	0.7	0.04	0.05	C40-41
Melanoma of skin	15	0.2	0.2	0.2	0.02	0.03	9	0.1	0.1	0.1	0.01	0.01	C43
Other skin	218		2.4	3.9	0.17	0.43	243		2.4	2.9	0.15	0.32	C44
Mesothelioma	2	0.0	0.0	0.0	0.01	0.01	0	0.0	0.0	0.0	0.00	0.00	C45
Kaposi sarcoma	1	0.0	0.0	0.0	0.00	0.00	1	0.0	0.0	0.0	0.00	0.00	C46
Connective and soft tissue	89	1.0	1.0	1.2	0.06	0.13	80	0.9	0.8	0.9	0.06	0.10	C47+C49
Breast	14	0.2	0.2	0.2	0.02	0.03	1156	12.7	11.6	13.6	1.08	1.50	C50
Vulva							35	0.4	0.4	0.4	0.02	0.06	C51
Vagina							16	0.2	0.2	0.2	0.02	0.02	C52
Cervix uteri							2289	25.2	23.1	28.8	2.36	3.40	C53
Corpus uteri							233	2.6	2.3	3.0	0.25	0.33	C54
Uterus unspecified							0	0.0	0.0	0.0	0.00	0.00	C55
Ovary							368	4.1	3.7	4.1	0.29	0.44	C56
Other female genital organs							11	0.1	0.1	0.1	0.01	0.02	C57
Placenta							24	0.3	0.2	0.2	0.02	0.02	C58
Penis	83	1.0	0.9	1.4	0.07	0.16							C60
Prostate	199	2.3	2.2	3.8	0.07	0.43							C61
Testis	48	0.6	0.5	0.6	0.04	0.05							C62
Other male genital organs	2	0.0	0.0	0.0	0.00	0.01							C63
Kidney	71	0.8	0.8	1.2	0.06	0.12	55	0.6	0.6	0.7	0.04	0.07	C64
Renal pelvis	0	0.0	0.0	0.0	0.00	0.00	0	0.0	0.0	0.0	0.00	0.00	C65
Ureter	5	0.1	0.1	0.1	0.00	0.01	4	0.0	0.0	0.1	0.00	0.01	C66
Bladder	167	2.0	1.8	3.0	0.13	0.39	54	0.6	0.5	0.7	0.03	0.09	C67
Other urinary organs	3	0.0	0.0	0.1	0.00	0.01	3	0.0	0.0	0.0	0.00	0.01	C68
Eye	21	0.2	0.2	0.3	0.02	0.02	19	0.2	0.2	0.3	0.01	0.02	C69
Brain, nervous system	174	2.0	1.9	2.3	0.17	0.22	134	1.5	1.4	1.4	0.10	0.13	C70-72
Thyroid	88	1.0	1.0	1.3	0.08	0.15	277	3.0	2.8	2.8	0.21	0.29	C73
Adrenal gland	7	0.1	0.1	0.1	0.01	0.01	8	0.1	0.1	0.1	0.01	0.01	C74
Other endocrine	11	0.1	0.1	0.1	0.01	0.01	6	0.1	0.1	0.1	0.01	0.01	C75
Hodgkin disease	23	0.3	0.3	0.3	0.02	0.04	14	0.2	0.1	0.2	0.01	0.02	C81
Non-Hodgkin lymphoma	214	2.5	2.3	3.2	0.18	0.33	180	2.0	1.8	2.0	0.14	0.22	C82-85,C96
Immunoproliferative diseases	0	0.0	0.0	0.0	0.00	0.00	0	0.0	0.0	0.0	0.00	0.00	C88
Multiple myeloma	10	0.1	0.1	0.2	0.02	0.03	22	0.2	0.2	0.3	0.02	0.03	C90
Lymphoid leukaemia	109	1.3	1.2	1.4	0.06	0.10	84	0.9	0.8	1.0	0.05	0.07	C91
Myeloid leukaemia	188	2.2	2.1	2.3	0.13	0.20	170	1.9	1.7	1.8	0.12	0.16	C92-94
Leukaemia unspecified	22	0.3	0.2	0.2	0.01	0.02	30	0.3	0.3	0.4	0.02	0.03	C95
Other and unspecified	284	3.3	3.1	4.7	0.31	0.53	293	3.2	3.0	3.5	0.22	0.41	O&U
All sites	8749		96.1	147.0	8.27	17.46	9329		94.0	111.5	7.75	12.81	ALL
All sites but C44	8531	100.0	93.7	143.1	8.10	17.03	9086	100.0	91.5	108.6	7.60	12.49	ALLbC44