

Argentina, Bahía Blanca

Registration area

The Regional Tumour Registry of the South of the Province of Buenos Aires covers an area corresponding to 15 political divisions, with a population of 515 132 inhabitants in 1995. The data presented are for three political areas only: Bahía Blanca (288 429), Coronel Rosales (60 693) and Coronel Suárez (37 136). Bahía Blanca and Coronel Rosales are mainly urban areas, with a large petrochemical industry. The rest of the population lives in small rural villages.

Practically 100% of the population is white, most of them descending from European immigrants who arrived during the late 19th and early 20th centuries. In some political areas, such as Coronel Suárez, there are settlements of German descendants. In the south of this area, there is a varying percentage of workers who come from Chile for the onion harvest, but the stable Chilean population amounts to less than 5%. The predominant religion is Catholic, but there are also other Christian minorities.

Cancer care facilities

The two public hospitals of the area have oncology services. Surgery is performed in the general surgical services. There are two private radiotherapy institutes which also treat patients from public hospitals; one has a linear accelerator. There is computerized tomography in almost all of the larger public and private institutions and one of them has nuclear magnetic resonance.

Registry structure and methods

Although the registry was recognized by Provincial law and a Municipal resolution in 1993, it still does not have a specific budget. It is run in the Dr José Penn General Hospital and its Director has been appointed chief of the Biomedical Investigation Unit, but no personnel or funds have been assigned. The Argentinian Association of Education and Prevention of Cancer, a non-profit organisation founded in 1986 to improve cancer control, maintains the registry and other high-priority activities of the Association, such as the Tobacco Control Programme. Although its resources are limited, it is able to pay for a registrar, and has given small fellowships for training young students. Some support has been received from IARC. The Foundation Alberto J. Roemmers provided funds for epidemiological research in 2000–2001.

Data management is carried out using the IARC/IACR CanReg software.

Interpreting the results

There have been few changes in the population. The decrease in the male population in the political area of Coronel Rosales is a result of the cutback of the military establishment in Puerto Belgrano Naval Base, owing to budgetary restrictions.

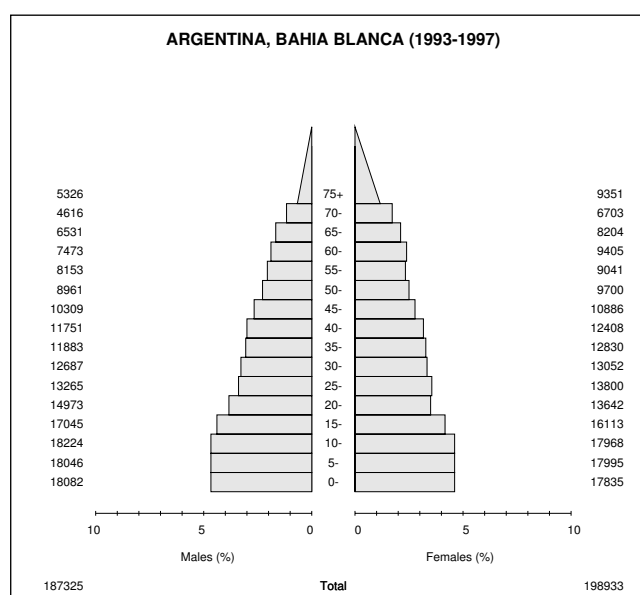
The registry has more information sources for this period compared to 1989–92, so the data are now more complete.

There are no organized screening programmes. PSA is used more frequently, but it is not possible to determine the proportion of the male adult population screened.

Use of the data

Reporting of incidence is considered the most important activity of the registry, as population-based cancer registration is so limited in the country.

In combination with the registry, the Epidemiological Investigation Unit on Cancer has started a Tobacco Control Programme. The Municipality of Coronel Suárez has carried out a breast cancer screening feasibility study.



Source of population

The population for 1995 was projected on the basis of the 1991 census. Instituto Nacional de Estadística y Censos (INDEC) Censo Nacional de Población y Vivienda 1991. Resultados definitivos total del País, 1993.

Notes on the data

* The high proportion of cases with morphological confirmation and of cases registered on the basis of a death certificate alone suggests a degree of under-ascertainment.

* ARGENTINA, BAHIA BLANCA (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	22	0.8	2.3	2.2	0.21	0.26	3	0.1	0.3	0.3	0.03	0.03	C00
Tongue	24	0.9	2.6	2.4	0.16	0.32	7	0.2	0.7	0.5	0.03	0.06	C01-02
Mouth	25	0.9	2.7	2.5	0.15	0.31	9	0.3	0.9	0.7	0.04	0.06	C03-06
Salivary glands	8	0.3	0.9	0.8	0.05	0.10	9	0.3	0.9	0.7	0.02	0.06	C07-08
Tonsil	8	0.3	0.9	0.8	0.06	0.11	8	0.3	0.8	0.5	0.03	0.05	C09
Other oropharynx	5	0.2	0.5	0.5	0.03	0.05	1	0.0	0.1	0.1	0.01	0.01	C10
Nasopharynx	4	0.1	0.4	0.4	0.03	0.05	1	0.0	0.1	0.1	0.01	0.01	C11
Hypopharynx	5	0.2	0.5	0.5	0.04	0.07	3	0.1	0.3	0.3	0.02	0.03	C12-13
Pharynx unspecified	6	0.2	0.6	0.6	0.04	0.09	1	0.0	0.1	0.1	0.01	0.01	C14
Oesophagus	85	3.1	9.1	7.7	0.36	0.90	28	0.9	2.8	1.7	0.07	0.15	C15
Stomach	174	6.4	18.6	16.1	0.86	1.81	108	3.6	10.9	7.3	0.35	0.92	C16
Small intestine	3	0.1	0.3	0.3	0.01	0.04	7	0.2	0.7	0.5	0.03	0.08	C17
Colon	238	8.8	25.4	21.8	1.08	2.54	213	7.2	21.4	14.3	0.75	1.64	C18
Rectum	93	3.4	9.9	8.4	0.39	0.98	65	2.2	6.5	4.3	0.23	0.43	C19-20
Anus	4	0.1	0.4	0.4	0.01	0.03	7	0.2	0.7	0.6	0.05	0.06	C21
Liver	53	2.0	5.7	4.7	0.21	0.51	42	1.4	4.2	2.9	0.15	0.39	C22
Gallbladder etc.	38	1.4	4.1	3.3	0.13	0.35	50	1.7	5.0	3.1	0.16	0.32	C23-24
Pancreas	79	2.9	8.4	7.0	0.31	0.71	80	2.7	8.0	5.0	0.18	0.55	C25
Nose, sinuses etc.	2	0.1	0.2	0.2	0.02	0.02	6	0.2	0.6	0.5	0.03	0.07	C30-31
Larynx	91	3.4	9.7	8.9	0.60	1.20	5	0.2	0.5	0.2	0.00	0.01	C32
Trachea, bronchus and lung	518	19.1	55.3	49.5	3.07	6.33	107	3.6	10.8	7.4	0.37	0.88	C33-34
Other thoracic organs	10	0.4	1.1	1.0	0.07	0.13	5	0.2	0.5	0.3	0.01	0.03	C37-38
Bone	18	0.7	1.9	1.8	0.13	0.22	14	0.5	1.4	1.1	0.06	0.10	C40-41
Melanoma of skin	28	1.0	3.0	2.9	0.23	0.27	41	1.4	4.1	3.0	0.17	0.31	C43
Other skin	187		20.0	17.2	0.81	1.78	162		16.3	11.2	0.61	1.28	C44
Mesothelioma	4	0.1	0.4	0.4	0.02	0.02	0	0.0	0.0	0.0	0.00	0.00	C45
Kaposi sarcoma	1	0.0	0.1	0.1	0.00	0.00	2	0.1	0.2	0.2	0.01	0.02	C46
Connective and soft tissue	18	0.7	1.9	1.7	0.09	0.20	27	0.9	2.7	2.2	0.12	0.23	C47+C49
Breast	9	0.3	1.0	0.9	0.08	0.09	1112	37.5	111.8	86.1	5.71	9.96	C50
Vulva							31	1.0	3.1	1.8	0.05	0.22	C51
Vagina							11	0.4	1.1	0.8	0.06	0.06	C52
Cervix uteri							166	5.6	16.7	14.6	1.13	1.41	C53
Corpus uteri							115	3.9	11.6	8.2	0.51	1.03	C54
Uterus unspecified							51	1.7	5.1	3.9	0.26	0.41	C55
Ovary							116	3.9	11.7	9.1	0.54	1.01	C56
Other female genital organs							3	0.1	0.3	0.2	0.01	0.01	C57
Placenta							0	0.0	0.0	0.0	0.00	0.00	C58
Penis	16	0.6	1.7	1.4	0.06	0.15							C60
Prostate	366	13.5	39.1	31.9	0.93	3.70							C61
Testis	35	1.3	3.7	3.6	0.24	0.29							C62
Other male genital organs	1	0.0	0.1	0.1	0.00	0.00							C63
Kidney	63	2.3	6.7	6.1	0.36	0.77	43	1.4	4.3	3.0	0.16	0.35	C64
Renal pelvis	0	0.0	0.0	0.0	0.00	0.00	3	0.1	0.3	0.2	0.01	0.04	C65
Ureter	0	0.0	0.0	0.0	0.00	0.00	1	0.0	0.1	0.1	0.00	0.01	C66
Bladder	191	7.1	20.4	17.2	0.77	1.93	40	1.3	4.0	2.6	0.11	0.29	C67
Other urinary organs	3	0.1	0.3	0.3	0.03	0.03	0	0.0	0.0	0.0	0.00	0.00	C68
Eye	3	0.1	0.3	0.3	0.02	0.04	1	0.0	0.1	0.1	0.01	0.01	C69
Brain, nervous system	52	1.9	5.6	5.2	0.38	0.54	49	1.7	4.9	4.3	0.27	0.46	C70-72
Thyroid	11	0.4	1.2	1.1	0.09	0.10	31	1.0	3.1	2.8	0.22	0.25	C73
Adrenal gland	1	0.0	0.1	0.1	0.01	0.01	2	0.1	0.2	0.1	0.01	0.03	C74
Other endocrine	1	0.0	0.1	0.1	0.01	0.01	4	0.1	0.4	0.4	0.03	0.03	C75
Hodgkin disease	43	1.6	4.6	4.3	0.30	0.41	40	1.3	4.0	3.6	0.22	0.34	C81
Non-Hodgkin lymphoma	84	3.1	9.0	8.3	0.55	0.86	60	2.0	6.0	4.5	0.26	0.46	C82-85,C96
Immunoproliferative diseases	1	0.0	0.1	0.1	0.00	0.02	0	0.0	0.0	0.0	0.00	0.00	C88
Multiple myeloma	31	1.1	3.3	3.0	0.20	0.33	29	1.0	2.9	2.1	0.10	0.26	C90
Lymphoid leukaemia	39	1.4	4.2	3.9	0.23	0.32	40	1.3	4.0	2.8	0.10	0.26	C91
Myeloid leukaemia	38	1.4	4.1	3.5	0.12	0.30	31	1.0	3.1	2.1	0.10	0.19	C92-94
Leukaemia unspecified	14	0.5	1.5	1.3	0.04	0.23	16	0.5	1.6	1.0	0.04	0.12	C95
Other and unspecified	139	5.1	14.8	13.0	0.73	1.33	123	4.1	12.4	8.1	0.36	0.90	O&U
All sites	2892		308.8	269.7	14.35	30.88	3129		314.6	231.3	13.80	25.91	ALL
All sites but C44	2705	100.0	288.8	252.6	13.53	29.11	2967	100.0	298.3	220.1	13.18	24.63	ALLbC44

§Includes 16 cases of unknown age

§Includes 35 cases of unknown age

Argentina, Concordia

Registration area

The Concordia Registry, located in the province of Entre Rios, covers the Department of Concordia. The population density is 37.8 inhabitants per km² and the age distribution is similar to that of the world standard population. The local population basically consists of descendants of European immigrants and is, therefore, predominantly Caucasian white. There are no blacks in the area.

It is a mainly rural area, rice and citrus being the main crops. Poultry farming is also an important activity. The main industries are those related to food, drinks and wood.

Cancer care facilities

The following services are provided in the area: haematology, oncology, cobalt and linear accelerator.

Health care is provided by public health services (mainly Felipe Heras Hospital and Ramon Carrillo Hospital), private health services and the social security system.

Registry structure and methods

The Concordia Registry started operating in January 1990 and was initially funded by the Felipe Heras Regional Hospital. Later, in 1996, financial support from the provincial government was obtained and, since then, the registry has been in charge of a pilot registration scheme covering the north-eastern region of Entre Ríos with approximately 420 000 inhabitants. But registration was only complete for the Concordia region before 1997.

The registry uses the following sources of data: public and private hospitals, pathology and cytology laboratories, biochemical laboratories, radiotherapy (cobalt and linear accelerator), X-ray and oncology services and social security records. The local office of the National Registry Office provides death certificates.

All *in situ* diagnoses are registered as well as the invasive tumours.

The IARC/IACR CanReg software is used for data management.

Interpreting the results

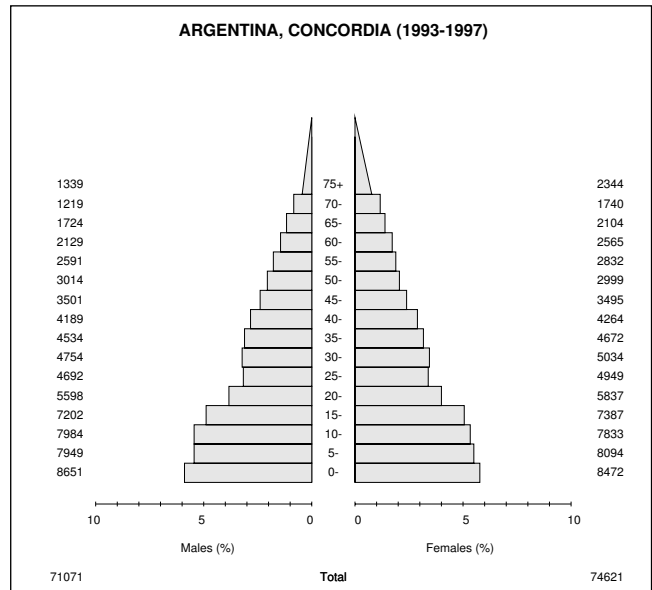
No direct follow-up of patients is done by the registry staff. The registry only has follow-up information about patients who have died of cancer.

Some screening programmes for cervical cancer have been carried out in the area since 1998 but they are not population-based and it is not possible to give an estimate of the population covered by those programmes.

Use of the data

A population-based prevalence survey of type-specific HPV infections and other cervical cancer risk factors was conducted recently in Concordia, as part of a multicentric study coordinated by IARC in various areas of the world. The prevalence of a series of demographic characteristics and lifestyle practices as well as patterns of use of health services was also investigated

A screening programme for cancer of the cervix has been implemented in the province. The aim of the programme is to cover 100% of the female population within the next five years.



Source of population

The population for each year was estimated by interpolation, based on the 1991 census. It was not possible to estimate migration into and out of Concordia.

Instituto Nacional de Estadística y Censos (INDEC) Censo Nacional de Población y Vivienda 1991. Resultados definitivos total del País, 1993.

Notes on the data

* The high proportion of diagnoses registered on the basis of a death certificate alone, some fluctuations in rates and under-ascertainment of cancer in children aged less than 5, suggest a degree of incompleteness.

*ARGENTINA, CONCORDIA (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	5	0.7	1.4	1.6	0.10	0.16	3	0.4	0.8	0.7	0.02	0.07	C00
Tongue	12	1.6	3.4	3.8	0.28	0.40	2	0.2	0.5	0.5	0.03	0.03	C01-02
Mouth	13	1.7	3.7	4.4	0.36	0.55	2	0.2	0.5	0.5	0.04	0.04	C03-06
Salivary glands	3	0.4	0.8	0.9	0.06	0.14	3	0.4	0.8	0.9	0.09	0.09	C07-08
Tonsil	3	0.4	0.8	0.9	0.07	0.07	1	0.1	0.3	0.3	0.04	0.04	C09
Other oropharynx	0	0.0	0.0	0.0	0.00	0.00	1	0.1	0.3	0.2	0.00	0.06	C10
Nasopharynx	1	0.1	0.3	0.3	0.03	0.03	0	0.0	0.0	0.0	0.00	0.00	C11
Hypopharynx	2	0.3	0.6	0.6	0.03	0.03	0	0.0	0.0	0.0	0.00	0.00	C12-13
Pharynx unspecified	2	0.3	0.6	0.6	0.02	0.11	0	0.0	0.0	0.0	0.00	0.00	C14
Oesophagus	42	5.6	11.8	13.9	0.77	1.72	12	1.5	3.2	3.1	0.12	0.51	C15
Stomach	63	8.5	17.7	20.1	1.14	1.95	30	3.7	8.0	7.0	0.28	0.64	C16
Small intestine	0	0.0	0.0	0.0	0.00	0.00	1	0.1	0.3	0.3	0.02	0.02	C17
Colon	58	7.8	16.3	18.6	0.78	2.05	64	8.0	17.2	15.8	0.78	1.87	C18
Rectum	15	2.0	4.2	5.0	0.36	0.47	15	1.9	4.0	3.6	0.11	0.48	C19-20
‡Anus	4	0.5	1.1	1.3	0.11	0.11	3	0.4	0.8	0.8	0.06	0.06	C21
Liver	8	1.1	2.3	2.6	0.10	0.30	11	1.4	2.9	2.7	0.10	0.30	C22
Gallbladder etc.	13	1.7	3.7	4.2	0.09	0.43	15	1.9	4.0	3.8	0.16	0.53	C23-24
Pancreas	20	2.7	5.6	6.3	0.31	0.67	20	2.5	5.4	4.9	0.17	0.65	C25
Nose, sinuses etc.	5	0.7	1.4	1.7	0.16	0.24	3	0.4	0.8	0.7	0.03	0.03	C30-31
Larynx	30	4.0	8.4	10.2	0.81	1.23	6	0.7	1.6	1.6	0.13	0.18	C32
Trachea, bronchus and lung	126	16.9	35.5	41.1	2.75	4.85	24	3.0	6.4	6.6	0.34	0.89	C33-34
Other thoracic organs	2	0.3	0.6	0.6	0.04	0.04	0	0.0	0.0	0.0	0.00	0.00	C37-38
Bone	5	0.7	1.4	1.4	0.06	0.11	5	0.6	1.3	1.4	0.06	0.20	C40-41
Melanoma of skin	6	0.8	1.7	2.0	0.14	0.22	22	2.7	5.9	6.2	0.49	0.64	C43
Other skin	141		39.7	45.5	2.26	5.13	145		38.9	35.2	1.78	3.40	C44
Mesothelioma	0	0.0	0.0	0.0	0.00	0.00	3	0.4	0.8	0.8	0.06	0.12	C45
Kaposi sarcoma	2	0.3	0.6	0.6	0.05	0.05	2	0.2	0.5	0.6	0.04	0.04	C46
Connective and soft tissue	5	0.7	1.4	1.5	0.10	0.18	8	1.0	2.1	2.3	0.17	0.21	C47+C49
Breast	1	0.1	0.3	0.3	0.03	0.03	209	26.0	56.0	55.1	3.55	6.36	C50
Vulva							11	1.4	2.9	2.5	0.12	0.22	C51
Vagina							3	0.4	0.8	0.6	0.00	0.05	C52
Cervix uteri							107	13.3	28.7	30.6	2.49	3.14	C53
Corpus uteri							37	4.6	9.9	10.2	0.76	1.11	C54
Uterus unspecified							15	1.9	4.0	4.2	0.33	0.50	C55
Ovary							32	4.0	8.6	8.3	0.47	0.83	C56
Other female genital organs							0	0.0	0.0	0.0	0.00	0.00	C57
Placenta							1	0.1	0.3	0.2	0.01	0.01	C58
Penis	5	0.7	1.4	1.6	0.04	0.18							C60
Prostate	96	12.9	27.0	31.3	0.88	3.80							C61
Testis	7	0.9	2.0	2.2	0.16	0.22							C62
Other male genital organs	0	0.0	0.0	0.0	0.00	0.00							C63
Kidney	14	1.9	3.9	4.6	0.24	0.73	10	1.2	2.7	2.6	0.15	0.37	C64
Renal pelvis	0	0.0	0.0	0.0	0.00	0.00	1	0.1	0.3	0.3	0.00	0.05	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	37	5.0	10.4	12.1	0.60	1.41	15	1.9	4.0	3.7	0.23	0.45	C67
Other urinary organs	1	0.1	0.3	0.3	0.00	0.06	0	0.0	0.0	0.0	0.00	0.00	C68
Eye	2	0.3	0.6	0.6	0.05	0.05	2	0.2	0.5	0.5	0.03	0.03	C69
Brain, nervous system	9	1.2	2.5	2.8	0.20	0.28	7	0.9	1.9	1.6	0.08	0.14	C70-72
Thyroid	3	0.4	0.8	0.9	0.02	0.08	10	1.2	2.7	2.7	0.22	0.22	C73
Adrenal gland	2	0.3	0.6	0.5	0.05	0.05	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	5	0.7	1.4	1.5	0.12	0.12	3	0.4	0.8	1.0	0.06	0.11	C81
Non-Hodgkin lymphoma	23	3.1	6.5	7.6	0.39	0.96	11	1.4	2.9	3.0	0.21	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	2	0.3	0.6	0.6	0.00	0.00	1	0.1	0.3	0.3	0.04	0.04	C90
Lymphoid leukaemia	11	1.5	3.1	3.1	0.21	0.21	8	1.0	2.1	2.2	0.14	0.19	C91
Myeloid leukaemia	4	0.5	1.1	1.2	0.05	0.11	6	0.7	1.6	1.4	0.07	0.13	C92-94
Leukaemia unspecified	3	0.4	0.8	0.9	0.00	0.06	3	0.4	0.8	0.7	0.04	0.04	C95
Other and unspecified	75	10.1	21.1	24.5	1.23	2.92	57	7.1	15.3	14.5	0.75	1.68	O&U
All sites	886		249.3	286.4	15.27	32.53	950		254.6	246.8	14.86	27.18	ALL
All sites but C44	745	100.0	209.6	240.9	13.00	27.40	805	100.0	215.8	211.6	13.08	23.78	ALLbC44

‡50.0% of cases are anorectal tumours

‡100.0% of cases are anorectal tumours

Brazil, Campinas

Registration area

Campinas Registry covers the population of five districts in Sao Paulo State: Campinas, Joaquim Egidio, Sousas, Nova Aparecida and Barão Geraldo. The city of Campinas is situated in the Southeast of Brazil, 62 miles from São Paulo, which is the largest city in South America. Campinas is approximately 48 km from the Tropic of Capricorn. About 97% of the population live in urban areas (about 880 000 inhabitants), with an annual growth rate of 1.43%.

The city of Campinas lies on a plain 688 m above sea level and has mild and sunny weather around 75% of the year, with an average annual temperature of 21°C. The climate is characteristic of tropical altitudes and the average air humidity is 71%.

The origin of the settlement of Campinas dates back to the 18th century, with cultivation of sugar cane and coffee. The Campinas population is ethnically diverse and ethnic classification is difficult.

Nowadays Campinas shows its potential through its diversified and competitive industrial park, its developed highway network, modern telecommunications infrastructure, universities and research centres and through the availability of highly qualified labour.

Campinas is the country's major microelectronic centre. It also has more than 4500 industries, a level of development which makes the city the third largest industrial centre in the country. Scientific and technological activities, generated by 13 research and development centres, are important.

Cancer care facilities

The city has a modern web of 26 private and public hospitals with 2674 hospital beds (2.98 per 1000 inhabitants). The Boldrini Centre is a worldwide reference for research into and treatment of childhood cancer. Campinas has the best medical emergency service in Latin America, the SAMU, which is based on the French model.

There are three universities in the city with two medical schools. Other facilities for cancer diagnosis and treatment include: 6 radiotherapy services, 7 chemotherapy services, 12 ultrasound services, 16 clinical pathology services, and 13 clinical radiology services.

Registry structure and methods

The registry was created by county law in 1992, but began collecting data on cancer incidence in Campinas in 1991. It is located in the Medical Sciences School (FCMUNICAMP) in the State University. There is no fixed financial support. The State University of Campinas covers the registry staff and part of the operating costs. It was only in 1994 that the São Paulo Research Support Foundation was able to fund a study of registration completeness using the method described in Bullard et al. (2000) Br. J. Cancer, 82, 1111–1116.

The registry staff includes a medical director who is a professor of epidemiology, a part-time medical coordinator who supervises coding and a full-time specially trained registration officer who abstracts relevant clinical information from hospital case records. The registry is equipped with two personal computers.

Although cancer notification is compulsory by law, few registration forms are received from private practitioners and

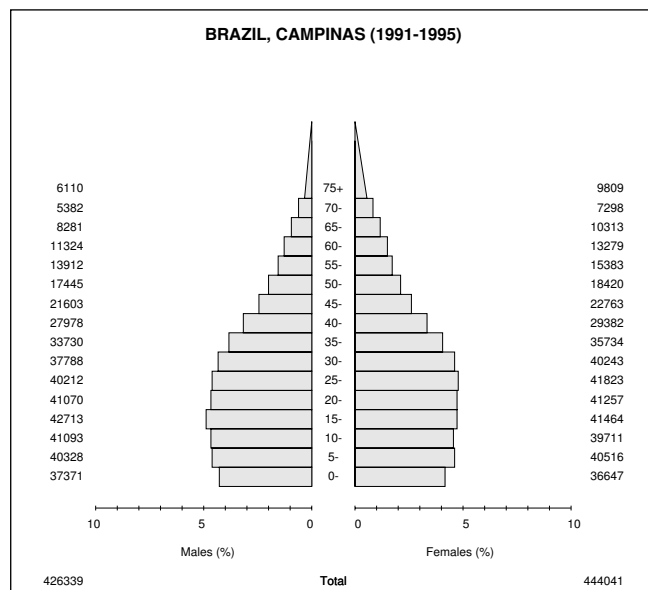
primary care health centres. Data are collected actively from two university hospitals, private hospitals, the pathology and cytology laboratories, services of haematology, oncology, radiotherapy clinics, private clinics, death certificates mentioning cancer and autopsies.

Death certificates are obtained from the Death Registration System, which is of good quality. All death certificates for local residents which mention cancer are reviewed and checked manually against the registry files. Follow-up information stored in the registry consists of whether the patient is presumed alive or known to be dead.

Use of the data

In addition to determining the incidence and geographical distribution of cancer in Campinas, the data have been used to study time trends in risk, to assess screening programmes, to provide data for epidemiological studies and for use in teaching in universities.

The registry is undertaking studies of trends for specific sites and for childhood cancer, and of survival for lung cancer.



Source of population

The 1991 Demographic Census, IBGE Foundation (Brazilian Institute of Geography and Statistics) and 1996 population estimates for the 625 São Paulo State Municipalities, calculated based on the population of the 1991 Demographic Census and the 1996 Population Count carried out by the IBGE Foundation.

Notes on the data

* High ratios of mortality to incidence and some low rates suggest a degree of under-ascertainment.

† C44 does not include basal cell or squamous cell carcinoma.

***BRAZIL, CAMPINAS (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	30	1.0	1.4	1.8	0.10	0.21	13	0.4	0.6	0.7	0.03	0.11	C00
Tongue	63	2.2	3.0	3.7	0.26	0.46	15	0.5	0.7	0.8	0.04	0.10	C01-02
Mouth	59	2.0	2.8	3.6	0.27	0.47	11	0.4	0.5	0.5	0.03	0.06	C03-06
Salivary glands	12	0.4	0.6	0.7	0.04	0.08	6	0.2	0.3	0.3	0.02	0.02	C07-08
Tonsil	10	0.3	0.5	0.6	0.06	0.08	0	0.0	0.0	0.0	0.00	0.00	C09
Other oropharynx	27	0.9	1.3	1.7	0.11	0.23	5	0.2	0.2	0.3	0.02	0.04	C10
Nasopharynx	14	0.5	0.7	0.8	0.06	0.07	5	0.2	0.2	0.2	0.01	0.02	C11
Hypopharynx	24	0.8	1.1	1.5	0.11	0.18	0	0.0	0.0	0.0	0.00	0.00	C12-13
Pharynx unspecified	7	0.2	0.3	0.5	0.04	0.06	2	0.1	0.1	0.1	0.01	0.02	C14
Oesophagus	108	3.7	5.1	6.6	0.46	0.79	23	0.7	1.0	1.2	0.07	0.14	C15
Stomach	328	11.3	15.4	21.2	1.05	2.50	212	6.8	9.5	10.3	0.45	1.15	C16
Small intestine	8	0.3	0.4	0.5	0.01	0.06	16	0.5	0.7	0.8	0.04	0.08	C17
Colon	176	6.1	8.3	11.3	0.54	1.27	204	6.6	9.2	10.1	0.50	1.12	C18
Rectum	80	2.8	3.8	5.1	0.24	0.53	87	2.8	3.9	4.4	0.22	0.51	C19-20
‡Anus	28	1.0	1.3	1.8	0.08	0.22	29	0.9	1.3	1.4	0.10	0.14	C21
Liver	23	0.8	1.1	1.5	0.09	0.22	12	0.4	0.5	0.6	0.04	0.06	C22
Gallbladder etc.	15	0.5	0.7	1.0	0.04	0.16	45	1.5	2.0	2.4	0.12	0.30	C23-24
Pancreas	53	1.8	2.5	3.4	0.21	0.43	51	1.6	2.3	2.6	0.11	0.29	C25
Nose, sinuses etc.	6	0.2	0.3	0.3	0.03	0.03	9	0.3	0.4	0.4	0.02	0.05	C30-31
Larynx	112	3.9	5.3	7.4	0.41	1.08	15	0.5	0.7	0.8	0.06	0.13	C32
Trachea, bronchus and lung	289	9.9	13.6	19.0	1.00	2.49	91	2.9	4.1	4.5	0.26	0.51	C33-34
Other thoracic organs	5	0.2	0.2	0.2	0.02	0.03	2	0.1	0.1	0.1	0.00	0.00	C37-38
Bone	16	0.6	0.8	0.7	0.04	0.04	11	0.4	0.5	0.5	0.02	0.02	C40-41
Melanoma of skin	72	2.5	3.4	4.1	0.25	0.43	74	2.4	3.3	3.4	0.17	0.40	C43
†Other skin	144		6.8	9.2	0.41	0.89	120		5.4	5.7	0.22	0.58	C44
Mesothelioma	3	0.1	0.1	0.2	0.01	0.02	1	0.0	0.0	0.0	0.00	0.00	C45
Kaposi sarcoma	23	0.8	1.1	1.0	0.08	0.10	2	0.1	0.1	0.1	0.00	0.00	C46
Connective and soft tissue	31	1.1	1.5	1.7	0.09	0.15	49	1.6	2.2	2.3	0.13	0.24	C47+C49
Breast	7	0.2	0.3	0.5	0.02	0.05	884	28.5	39.8	43.9	3.04	5.01	C50
Vulva							33	1.1	1.5	1.6	0.09	0.17	C51
Vagina							5	0.2	0.2	0.3	0.01	0.04	C52
Cervix uteri							294	9.5	13.2	14.2	1.02	1.54	C53
Corpus uteri							189	6.1	8.5	9.9	0.64	1.31	C54
Uterus unspecified							22	0.7	1.0	1.1	0.07	0.12	C55
Ovary							47	1.5	2.1	2.4	0.20	0.28	C56
Other female genital organs							64	2.1	2.9	3.2	0.22	0.34	C57
Placenta							0	0.0	0.0	0.0	0.00	0.00	C58
Penis	17	0.6	0.8	1.0	0.05	0.10							C60
Prostate	420	14.4	19.7	28.8	0.69	3.42							C61
Testis	36	1.2	1.7	1.4	0.10	0.10							C62
Other male genital organs	0	0.0	0.0	0.0	0.00	0.00							C63
Kidney	51	1.8	2.4	3.3	0.25	0.42	26	0.8	1.2	1.4	0.07	0.12	C64
Renal pelvis	1	0.0	0.0	0.1	0.00	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	201	6.9	9.4	13.3	0.58	1.51	60	1.9	2.7	2.9	0.14	0.27	C67
Other urinary organs	17	0.6	0.8	1.1	0.08	0.13	13	0.4	0.6	0.7	0.04	0.10	C68
Eye	11	0.4	0.5	0.7	0.03	0.06	6	0.2	0.3	0.4	0.02	0.02	C69
Brain, nervous system	89	3.1	4.2	5.0	0.33	0.49	57	1.8	2.6	2.8	0.20	0.28	C70-72
Thyroid	20	0.7	0.9	1.1	0.09	0.12	52	1.7	2.3	2.3	0.17	0.23	C73
Adrenal gland	1	0.0	0.0	0.1	0.01	0.01	5	0.2	0.2	0.3	0.01	0.01	C74
Other endocrine	5	0.2	0.2	0.3	0.03	0.04	4	0.1	0.2	0.2	0.01	0.01	C75
Hodgkin disease	24	0.8	1.1	1.2	0.09	0.10	22	0.7	1.0	0.9	0.05	0.09	C81
Non-Hodgkin lymphoma	132	4.5	6.2	7.4	0.42	0.78	105	3.4	4.7	5.3	0.26	0.57	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	17	0.6	0.8	1.1	0.06	0.17	19	0.6	0.9	0.9	0.04	0.13	C90
Lymphoid leukaemia	34	1.2	1.6	2.0	0.08	0.14	24	0.8	1.1	1.2	0.04	0.07	C91
Myeloid leukaemia	50	1.7	2.3	2.9	0.19	0.26	37	1.2	1.7	1.9	0.14	0.18	C92-94
Leukaemia unspecified	5	0.2	0.2	0.3	0.03	0.03	1	0.0	0.0	0.0	0.00	0.00	C95
Other and unspecified	148	5.1	6.9	9.5	0.48	1.01	144	4.6	6.5	7.1	0.36	0.79	O&U
All sites	3052		143.2	192.3	9.69	22.27	3223		145.2	159.2	9.57	17.77	ALL
All sites but C44	2908	100.0	136.4	183.1	9.27	21.37	3103	100.0	139.8	153.5	9.34	17.18	ALLbC44

§Includes 21 cases of unknown age
‡82.1% of cases are anorectal tumours

§Includes 28 cases of unknown age
‡75.9% of cases are anorectal tumours

†See note following population pyramid

Brazil, Goiânia

Registration area

The Cancer Registry of Goiânia covers an area of 743 km², in the city of Goiânia. It is located in the middle part of the central plateau of Brazil at 800 m altitude. The climate is tropical and the city is hot and sunny for most of the year. The average annual temperature is 10 to 30° C. Average humidity is 43% during the winter and 74% during the summer. Two rivers cross the city, João Leite and Meia Ponte, and provide the water for the city. Goiânia is 64 years old and was the second planned city in Brazil

Most of the population come from the rural areas; there has been a change since the development of agroindustries in recent years. Ethnically, there are some mulattos, while the rest of the population is white. The principal religion is Catholic, but Protestants are becoming much more numerous.

Cancer care facilities

A cancer hospital was founded 30 years ago. It has 180 beds, chemotherapy and four radiotherapy machines; a bone marrow transplant centre was opened in 2000. Cancer treatment is available in other hospitals, and chemotherapy is also available at the University Hospital and five private clinics.

A cancer prevention centre for early detection of all types of cancer was established in 1994 as a unit of the city cancer hospital.

A postgraduate course in cancer treatment for medical students, including surgery, radiotherapy and chemotherapy, began in 1991.

There is one private clinic with radiotherapy facilities and two linear accelerators in the city.

Registry structure and methods

The registry is located in the cancer hospital. Financial support comes from the Associação de Combate ao Cancer em Goiás.

Data collection is active. Four people collect data, one to code and enter data, and there are two biologists to store biological samples. The registry is coordinated by an oncologist, and there is an Advisory Committee comprising seven people from the cancer hospital. The main sources of information are the cancer hospital, cancer clinics, pathology laboratories and the University Hospital. The registry has access to death certificates, which include identifying information. Cancer is not a notifiable disease.

Interpreting the results

The cancer registry was restructured in 1993. Diagnostic services were improved with 15 computerized tomography and two magnetic resonance imaging machines.

Since 1991, there have been annual screening programmes for detection of breast, oral, skin and prostate cancer. PSA testing has become common during the period.

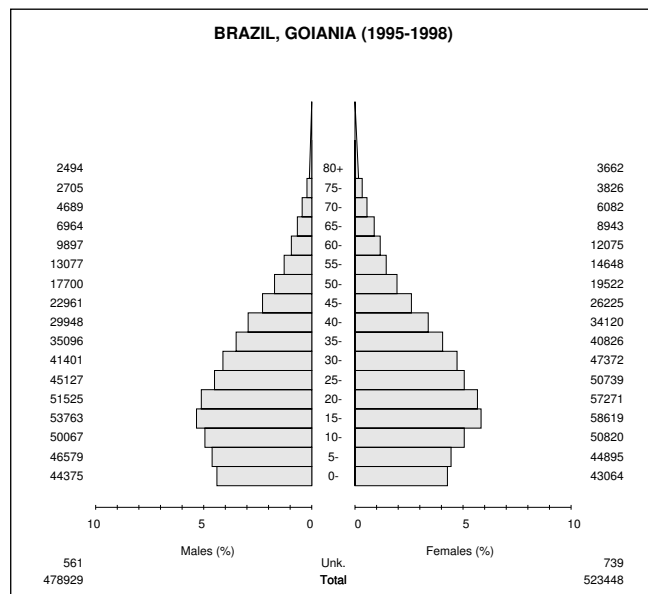
In 1987 there was an accident involving caesium-137, which affected around 120 people directly.

The only asbestos mine in Brazil is in a city 400 km away.

Use of the data

Data on incidence and mortality are reported to the providers of information to the registry, and the registry collaborates with postgraduate students doing theses.

Research is being carried out on cancer of oral cavity, larynx and oesophagus in a collaborative study. Analyses of trends for cervix, breast and prostate cancer have been carried out as a quality control exercise. Studies of survival have been carried out for childhood cancer, and cancer of the breast, larynx and thyroid.



Source of population

Data for 1994 and 1995 are estimates provided by the Instituto Brasileiro de Geografia e Estatística, Divisão de Pesquisa de Goiás. Census data were used for 1996: Instituto Brasileiro de Geografia e Estatística, Divisão de Pesquisa de Goiás

Notes on the data

* Reporting is irregular. It is difficult to interpret the changes in incidence over time. The proportion of cases registered on the basis of a death certificate alone is high for some sites. The geographical area changed in 1998. Extreme caution should be exercised if using these data to study time-trends.

***BRAZIL, GOIANIA (1995-1998)**

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	35	1.1	1.8	2.6	0.18	0.29	12	0.4	0.6	0.8	0.05	0.11	C00
Tongue	28	0.9	1.5	2.1	0.20	0.26	12	0.4	0.6	0.8	0.05	0.10	C01-02
Mouth	49	1.6	2.6	3.9	0.29	0.49	21	0.6	1.0	1.4	0.08	0.14	C03-06
Salivary glands	18	0.6	0.9	1.3	0.09	0.16	16	0.5	0.8	1.2	0.06	0.19	C07-08
Tonsil	10	0.3	0.5	0.8	0.06	0.11	6	0.2	0.3	0.5	0.02	0.08	C09
Other oropharynx	15	0.5	0.8	1.3	0.10	0.15	5	0.2	0.2	0.3	0.02	0.04	C10
Nasopharynx	13	0.4	0.7	1.1	0.07	0.11	7	0.2	0.3	0.4	0.02	0.02	C11
Hypopharynx	33	1.1	1.7	2.8	0.20	0.36	7	0.2	0.3	0.5	0.03	0.08	C12-13
Pharynx unspecified	2	0.1	0.1	0.1	0.01	0.01	1	0.0	0.0	0.1	0.01	0.01	C14
Oesophagus	124	4.0	6.5	10.8	0.63	1.38	42	1.3	2.0	3.0	0.21	0.35	C15
Stomach	244	7.8	12.7	21.7	1.09	2.70	141	4.3	6.7	9.4	0.51	1.15	C16
Small intestine	8	0.3	0.4	0.7	0.04	0.11	15	0.5	0.7	1.0	0.05	0.13	C17
Colon	125	4.0	6.5	10.4	0.57	1.18	160	4.9	7.6	10.8	0.60	1.21	C18
Rectum	68	2.2	3.5	5.3	0.38	0.56	84	2.6	4.0	5.7	0.25	0.73	C19-20
Anus	9	0.3	0.5	0.7	0.03	0.10	13	0.4	0.6	0.9	0.05	0.12	C21
Liver	42	1.3	2.2	3.7	0.16	0.52	34	1.0	1.6	2.5	0.11	0.31	C22
Gallbladder etc.	32	1.0	1.7	3.0	0.18	0.37	45	1.4	2.1	3.1	0.18	0.39	C23-24
Pancreas	33	1.1	1.7	3.0	0.12	0.40	33	1.0	1.6	2.4	0.11	0.33	C25
Nose, sinuses etc.	11	0.4	0.6	0.9	0.04	0.12	7	0.2	0.3	0.3	0.02	0.02	C30-31
Larynx	72	2.3	3.8	6.4	0.36	0.77	23	0.7	1.1	1.5	0.10	0.19	C32
Trachea, bronchus and lung	248	7.9	12.9	22.3	1.18	2.74	118	3.6	5.6	8.5	0.43	1.08	C33-34
Other thoracic organs	13	0.4	0.7	1.0	0.08	0.13	7	0.2	0.3	0.4	0.03	0.03	C37-38
Bone	35	1.1	1.8	1.8	0.12	0.12	25	0.8	1.2	1.2	0.08	0.08	C40-41
Melanoma of skin	67	2.1	3.5	5.1	0.30	0.51	64	2.0	3.1	3.8	0.21	0.37	C43
Other skin	1993		104.0	169.5	7.84	19.43	2294		109.6	154.8	7.56	17.21	C44
Mesothelioma	1	0.0	0.1	0.1	0.01	0.01	0	0.0	0.0	0.0	0.00	0.00	C45
Kaposi sarcoma	20	0.6	1.0	1.1	0.09	0.12	4	0.1	0.2	0.2	0.02	0.02	C46
Connective and soft tissue	41	1.3	2.1	2.7	0.17	0.28	41	1.3	2.0	2.3	0.13	0.24	C47+C49
Breast	8	0.3	0.4	0.7	0.03	0.10	797	24.3	38.1	49.1	3.56	5.67	C50
Vulva							25	0.8	1.2	1.5	0.08	0.11	C51
Vagina							22	0.7	1.1	1.4	0.11	0.18	C52
Cervix uteri							646	19.7	30.9	38.2	2.84	4.42	C53
Corpus uteri							78	2.4	3.7	5.3	0.33	0.68	C54
Uterus unspecified							24	0.7	1.1	1.6	0.09	0.26	C55
Ovary							96	2.9	4.6	5.5	0.43	0.62	C56
Other female genital organs							3	0.1	0.1	0.2	0.00	0.02	C57
Placenta							1	0.0	0.0	0.0	0.00	0.00	C58
Penis	44	1.4	2.3	3.7	0.20	0.42							C60
Prostate	941	30.0	49.1	92.4	3.00	11.80							C61
Testis	10	0.3	0.5	0.5	0.04	0.04							C62
Other male genital organs	4	0.1	0.2	0.4	0.01	0.03							C63
Kidney	47	1.5	2.5	3.9	0.21	0.40	42	1.3	2.0	2.8	0.11	0.28	C64
Renal pelvis	1	0.0	0.1	0.0	0.00	0.00	0	0.0	0.0	0.0	0.00	0.00	C65
Ureter	1	0.0	0.1	0.1	0.00	0.03	2	0.1	0.1	0.1	0.00	0.03	C66
Bladder	119	3.8	6.2	11.2	0.45	1.51	40	1.2	1.9	2.7	0.14	0.37	C67
Other urinary organs	2	0.1	0.1	0.2	0.01	0.03	1	0.0	0.0	0.1	0.01	0.01	C68
Eye	24	0.8	1.3	1.6	0.10	0.16	11	0.3	0.5	0.7	0.05	0.07	C69
Brain, nervous system	128	4.1	6.7	8.0	0.61	0.82	91	2.8	4.3	5.1	0.34	0.52	C70-72
Thyroid	33	1.1	1.7	2.1	0.12	0.23	111	3.4	5.3	6.0	0.39	0.60	C73
Adrenal gland	9	0.3	0.5	0.6	0.04	0.06	5	0.2	0.2	0.4	0.03	0.03	C74
Other endocrine	2	0.1	0.1	0.2	0.02	0.02	3	0.1	0.1	0.1	0.01	0.01	C75
Hodgkin disease	53	1.7	2.8	2.8	0.16	0.22	34	1.0	1.6	1.6	0.09	0.11	C81
Non-Hodgkin lymphoma	91	2.9	4.8	6.8	0.37	0.77	90	2.7	4.3	5.9	0.27	0.66	C82-85,C96
Immunoproliferative diseases	1	0.0	0.1	0.0	0.00	0.00	0	0.0	0.0	0.0	0.00	0.00	C88
Multiple myeloma	21	0.7	1.1	1.9	0.08	0.23	21	0.6	1.0	1.5	0.10	0.19	C90
Lymphoid leukaemia	40	1.3	2.1	2.7	0.13	0.26	32	1.0	1.5	2.0	0.13	0.15	C91
Myeloid leukaemia	34	1.1	1.8	2.0	0.14	0.17	30	0.9	1.4	1.7	0.11	0.16	C92-94
Leukaemia unspecified	8	0.3	0.4	0.6	0.04	0.04	5	0.2	0.2	0.4	0.00	0.06	C95
Other and unspecified	118	3.8	6.2	9.9	0.55	1.21	123	3.8	5.9	8.4	0.41	0.96	O&U
All sites	5128		267.7	438.4	20.91	52.04	5570		266.0	360.1	20.60	40.87	ALL
All sites but C44	3135	100.0	163.6	268.9	13.07	32.61	3276	100.0	156.5	205.2	13.05	23.66	ALLbC44

§Includes 15 cases of unknown age

§Includes 4 cases of unknown age

Colombia, Cali

Registration area

The registry covers the population of the urban area of Cali city, which covers 119 km². The conurbation is divided into 20 communes for administrative purposes. Cali is the capital of the Department of Valle, one of the 32 departments into which the country is divided politically. The department is located in the south-west of Colombia on the Pacific Ocean. Cali is situated 1000 m above sea level between the Cauca river to the east and the chain of the Andes to the west. The average temperature is 24°C.

Most of the population are mestizos (a mixture of Spanish and Indian), with a minority of pure negroes and whites. More than half of the resident population are migrants from other areas of Colombia and from other countries, notably Lebanon, Italy, Germany and central Europe. The majority of the inhabitants are Catholics. The official language is Spanish.

Roughly 80% of the working population is engaged in manufacturing industry, in trade, restaurants and hotels, or in municipal, social and personal services. Unemployment is high.

Public services are available to the major part of the population, and are becoming progressively more available in the suburbs. Air pollution has been serious due to a high density of nearby industrial plants.

Cancer care facilities

A basic network of health substructures has been planned for the whole urban territory using health centres, and programmes of primary care and prevention. About 60% of the cancer patients diagnosed in Cali are treated at Valle University Hospital, a public general hospital with a total of 630 beds. A hospital-based cancer registry was established in 1986, a team for the management of childhood cancer began activities in 1989 and there is a new oncology department. The hospital maintains radio- and chemotherapy facilities. Other facilities for cancer diagnosis and treatment include three major non-university hospitals, cytopathology and haematology laboratories and chemotherapy and radiotherapy centres.

Registry structure and methods

Cali Cancer Registry is a programme of the Department of Pathology at the University of Valle that has operated continuously since 1962. The staff includes a director, who is a professor of pathology, three assessing pathologists, a statistician coordinator, three record clerks and a secretary. Once a year, a group of specially trained medical students is selected to carry out a field survey of files of all private physicians who diagnose or treat cancer patients. An advisory committee was created in 1992, comprising a pathologist, an epidemiologist and three oncologists specializing in paediatric, clinical and surgical oncology. The registry staff and part of the operating costs are covered by the University of Valle. Most of the operating costs are obtained from foundations and specific grants for each activity.

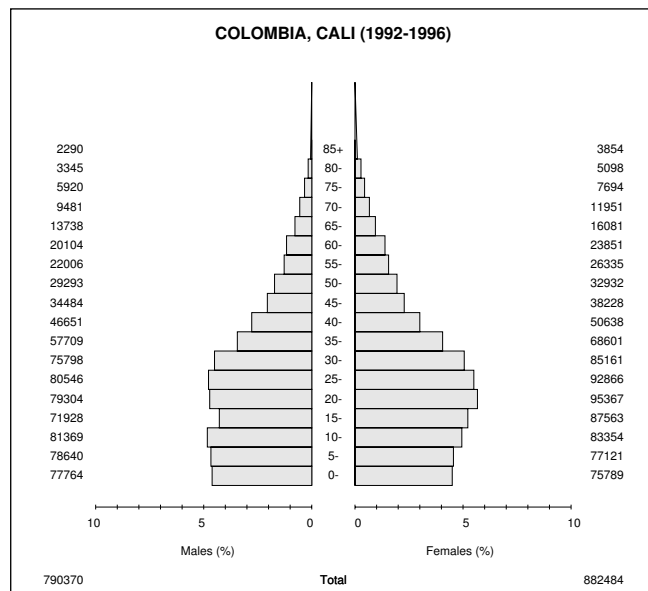
Cancer notification is not compulsory in Cali. Cancer case reports are obtained actively by visiting all sources of information annually. These sources include hospitals and clinics, both public and private, pathology and haematology laboratories, radiotherapy centres, physicians and death certificates.

The data concerning each case are registered on a special form at the source site. They are classified and revised at the registry office and the information is entered into a computer database for checking for duplicates, errors and inconsistencies. Difficult cases are discussed by the staff and resolved either by the registry director or by revisiting the source, and sometimes reviewing the microscopic slides.

No active follow-up of cancer patients is carried out. Continuous review of all death certificates reveals which registered patients have died in the area of Cali.

Use of the data

Incidence data are available from 1962. They have been used to study time trends in risk for cancers in the area, to assess cancer screening programmes, to provide data for epidemiological studies and for use in teaching.



Source of population

National Population Census, 24 October 1994. National Bureau of Vital Statistics, DANE

Notes on the data

† C44 does not include basal cell or squamous cell carcinoma.

COLOMBIA, CALI (1992-1996)

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	8	0.1	0.2	0.3	0.02	0.04	8	0.1	0.2	0.2	0.00	0.03	C00
Tongue	32	0.6	0.8	1.1	0.05	0.13	36	0.5	0.8	1.1	0.06	0.12	C01-02
Mouth	43	0.8	1.1	1.6	0.05	0.25	51	0.7	1.2	1.5	0.09	0.18	C03-06
Salivary glands	25	0.5	0.6	0.8	0.07	0.08	19	0.3	0.4	0.5	0.03	0.04	C07-08
Tonsil	19	0.4	0.5	0.7	0.03	0.09	7	0.1	0.2	0.2	0.01	0.04	C09
Other oropharynx	1	0.0	0.0	0.0	0.00	0.00	1	0.0	0.0	0.0	0.00	0.01	C10
Nasopharynx	21	0.4	0.5	0.7	0.05	0.09	8	0.1	0.2	0.2	0.01	0.03	C11
Hypopharynx	6	0.1	0.2	0.2	0.00	0.02	5	0.1	0.1	0.2	0.02	0.02	C12-13
Pharynx unspecified	15	0.3	0.4	0.6	0.02	0.06	6	0.1	0.1	0.2	0.00	0.01	C14
Oesophagus	100	1.9	2.5	3.9	0.16	0.47	61	0.9	1.4	1.8	0.08	0.21	C15
Stomach	842	15.6	21.3	30.5	1.51	3.47	650	9.2	14.7	18.8	0.77	2.17	C16
Small intestine	24	0.4	0.6	0.9	0.04	0.09	31	0.4	0.7	0.9	0.04	0.12	C17
Colon	200	3.7	5.1	7.2	0.34	0.84	289	4.1	6.5	8.4	0.43	0.93	C18
Rectum	127	2.4	3.2	4.6	0.21	0.48	153	2.2	3.5	4.3	0.25	0.50	C19-20
Anus	14	0.3	0.4	0.4	0.03	0.03	42	0.6	1.0	1.3	0.06	0.17	C21
Liver	81	1.5	2.0	3.0	0.13	0.38	85	1.2	1.9	2.5	0.11	0.30	C22
Gallbladder etc.	69	1.3	1.7	2.6	0.13	0.33	210	3.0	4.8	6.6	0.32	0.89	C23-24
Pancreas	124	2.3	3.1	4.6	0.22	0.53	149	2.1	3.4	4.4	0.18	0.49	C25
Nose, sinuses etc.	15	0.3	0.4	0.5	0.04	0.05	23	0.3	0.5	0.6	0.04	0.08	C30-31
Larynx	132	2.4	3.3	5.0	0.21	0.62	29	0.4	0.7	0.9	0.04	0.12	C32
Trachea, bronchus and lung	584	10.8	14.8	22.3	0.88	2.70	321	4.6	7.3	9.5	0.45	1.14	C33-34
Other thoracic organs	19	0.4	0.5	0.6	0.04	0.07	16	0.2	0.4	0.5	0.03	0.07	C37-38
Bone	38	0.7	1.0	1.0	0.06	0.08	42	0.6	1.0	1.0	0.06	0.07	C40-41
Melanoma of skin	73	1.4	1.8	2.5	0.13	0.27	100	1.4	2.3	2.7	0.16	0.31	C43
†Other skin	13		0.3	0.4	0.03	0.05	9		0.2	0.2	0.01	0.02	C44
Mesothelioma	6	0.1	0.2	0.2	0.02	0.02	1	0.0	0.0	0.0	0.00	0.00	C45
Kaposi sarcoma	75	1.4	1.9	1.8	0.13	0.15	6	0.1	0.1	0.2	0.01	0.02	C46
Connective and soft tissue	66	1.2	1.7	2.1	0.14	0.22	77	1.1	1.7	2.0	0.12	0.20	C47+C49
Breast	4	0.1	0.1	0.1	0.01	0.01	1306	18.6	29.6	37.3	2.71	4.27	C50
Vulva							41	0.6	0.9	1.2	0.06	0.13	C51
Vagina							17	0.2	0.4	0.5	0.02	0.05	C52
Cervix uteri							1102	15.7	25.0	29.8	2.21	3.26	C53
Corpus uteri							196	2.8	4.4	5.9	0.36	0.79	C54
Uterus unspecified							33	0.5	0.7	0.9	0.05	0.09	C55
Ovary							359	5.1	8.1	10.1	0.69	1.18	C56
Other female genital organs							8	0.1	0.2	0.2	0.02	0.02	C57
Placenta							11	0.2	0.2	0.2	0.01	0.01	C58
Penis	44	0.8	1.1	1.6	0.04	0.16							C60
Prostate	1086	20.1	27.5	42.2	1.00	5.06							C61
Testis	82	1.5	2.1	1.9	0.13	0.15							C62
Other male genital organs	2	0.0	0.1	0.1	0.00	0.00							C63
Kidney	79	1.5	2.0	2.9	0.15	0.38	80	1.1	1.8	2.3	0.15	0.25	C64
Renal pelvis	1	0.0	0.0	0.0	0.00	0.00	3	0.0	0.1	0.1	0.00	0.00	C65
Ureter	1	0.0	0.0	0.0	0.00	0.00	2	0.0	0.0	0.1	0.00	0.00	C66
Bladder	165	3.1	4.2	6.1	0.28	0.68	75	1.1	1.7	2.1	0.10	0.23	C67
Other urinary organs	2	0.0	0.1	0.1	0.00	0.02	6	0.1	0.1	0.2	0.01	0.02	C68
Eye	21	0.4	0.5	0.7	0.03	0.03	17	0.2	0.4	0.5	0.03	0.05	C69
Brain, nervous system	162	3.0	4.1	5.0	0.32	0.51	135	1.9	3.1	3.6	0.26	0.36	C70-72
Thyroid	55	1.0	1.4	1.6	0.10	0.16	270	3.8	6.1	6.7	0.48	0.67	C73
Adrenal gland	4	0.1	0.1	0.1	0.01	0.01	5	0.1	0.1	0.1	0.01	0.01	C74
Other endocrine	2	0.0	0.1	0.0	0.00	0.00	0	0.0	0.0	0.0	0.00	0.00	C75
Hodgkin disease	59	1.1	1.5	1.5	0.08	0.13	34	0.5	0.8	0.8	0.06	0.07	C81
Non-Hodgkin lymphoma	230	4.3	5.8	7.3	0.44	0.76	205	2.9	4.6	6.0	0.37	0.71	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	0.7	1.0	1.4	0.07	0.18	35	0.5	0.8	1.1	0.05	0.15	C90
Lymphoid leukaemia	105	1.9	2.7	3.0	0.15	0.20	96	1.4	2.2	2.6	0.13	0.19	C91
Myeloid leukaemia	60	1.1	1.5	1.8	0.09	0.20	69	1.0	1.6	1.8	0.09	0.16	C92-94
Leukaemia unspecified	118	2.2	3.0	3.8	0.20	0.41	110	1.6	2.5	2.9	0.14	0.30	C95
Other and unspecified	319	5.9	8.1	11.5	0.57	1.28	387	5.5	8.8	11.7	0.60	1.48	O&U
All sites	5412		136.9	192.6	8.46	21.96	7037		159.5	199.4	11.97	22.76	ALL
All sites but C44	5399	100.0	136.6	192.2	8.44	21.91	7028	100.0	159.3	199.2	11.96	22.74	ALLbC44

†Includes 216 cases of unknown age

§Includes 300 cases of unknown age

†See note following population pyramid

Costa Rica

Registration area

Costa Rica covers 51 200 km². At the 1984 census the population was 2 416 809 (1 208 216 males and 1 208 593 females), of whom 44.5% lived in cities and 55.5% in rural areas. It is estimated that the 1984 census missed 5.7% of the population. The official religion is Roman Catholic. The main ethnic group is Caucasian-Native and a small proportion of Blacks, Natives, Chinese and Caucasian-Black.

Cancer care facilities

The country has a national health care system and good quality vital statistics. It has been estimated that only 5% of the population seeks health care within private hospitals; special studies and treatments are offered mostly within the social security system.

Registry structure and methods

The Costa Rica National Tumour Registry was founded in December 1976, by Executive Decree, and started functioning in 1977, but nationwide coverage was achieved only in 1980. The aims were to collect data about cancer incidence and prevalence regarding age, sex, cancer site and geographical distribution within the country.

The registry occupies a section of the Statistics Department of the Ministry of Health, which provides all the financial support. A medical registry technician and two statistical assistants are dedicated full time to the registry. Several medical registry technicians of the Statistics Department collaborate with the registry obtaining information on incomplete cases at the hospitals and clinics and during the death clearance process.

The sources of information for the registry are the compulsory notification sheets on patients leaving hospital, biopsy and autopsy reports with a diagnosis of cancer from all pathology services (public and private), and death certificates mentioning cancer, from the National Institute of Statistics and Census.

Except for death certificates, which have to be retrieved by the staff, data collection and case follow-up are passive. Death registration is complete, as it is compulsory to show a death certificate before burial. All death certificates mentioning cancer undergo a clearance process within the hospitals of the health-care system, after which they are classified as DCN or DCO cases or are discarded.

The registry is fully computerized and each report sheet is checked against the Civil Registry database to see if the report concerns a Costa Rican or not. For nationals the personal identification number, name and date of birth or death are verified. Foreigners are included and coded as two in the ID variable; there is a special code for cases of uncertain origin. Reports are then linked to the registry database, using software specially designed to find duplicates, to classify the case as incident or not. Each primary tumour case is given a unique identifying registry number which is included in the registry database. Several consistency check edits are carried out during data entry, including date of birth/incidence date/date of death, sex/site, age/site, age/histology, site/histology.

Follow-up of cases is mostly passive, although every four years an update of death dates is done with the Civil Registry.

Multiple primaries are registered according to the IARC rules.

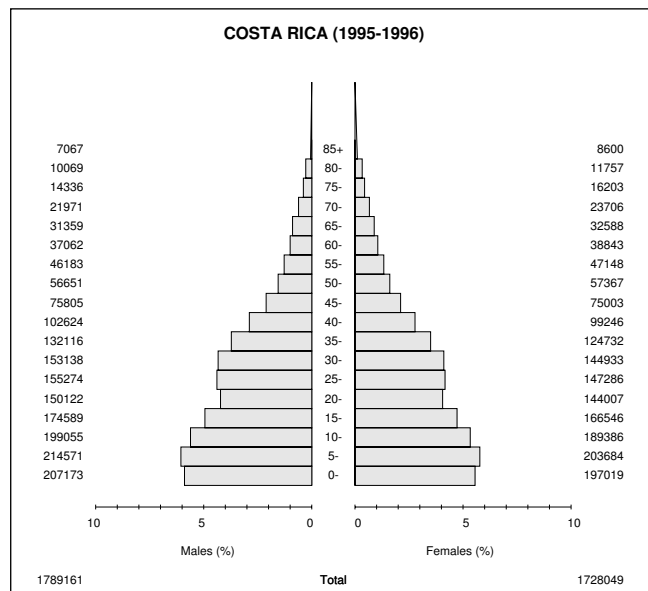
Interpreting the results

Although no study has been made to evaluate the registry's completeness of coverage, under-registration is estimated as low given the characteristics of the health system and the vital statistics.

Cases with a cytological diagnosis are accepted when localized in specific sites such as lung and cervix; however, the under-registration rate is still high for cytology.

Use of the data

The registry has been used in various studies regarding occupational exposure cohorts and the risk of cancer during recent years and in descriptive and survival studies.



Source of population

The estimated annual populations were based on the Censuses of 1984 and 2000.

Notes on the data

* The ratios of mortality to incidence indicate a degree of under-registration. Proportions of cases registered on the basis of a death certificate alone are high for some sites.

The falls in incidence are due to the non-inclusion of DCO cases in the data period published in Volume VII. Most of the cases notified by a death certificate were not traced back at that time and a significant proportion of cases were missing. The data should not be used for time-trends analysis.

***COSTA RICA (1995-1996)**

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	0	0.0	0.0	0.0	0.00	0.00	1	0.0	0.0	0.0	0.00	0.00	C00
Tongue	12	0.3	0.3	0.5	0.02	0.07	12	0.3	0.3	0.5	0.02	0.06	C01-02
Mouth	21	0.5	0.6	0.9	0.05	0.13	14	0.3	0.4	0.5	0.01	0.06	C03-06
Salivary glands	20	0.5	0.6	0.7	0.05	0.05	21	0.5	0.6	0.7	0.03	0.08	C07-08
Tonsil	14	0.3	0.4	0.6	0.04	0.07	4	0.1	0.1	0.1	0.01	0.01	C09
Other oropharynx	2	0.0	0.1	0.1	0.01	0.01	1	0.0	0.0	0.0	0.00	0.00	C10
Nasopharynx	30	0.7	0.8	0.9	0.07	0.09	19	0.4	0.5	0.6	0.04	0.05	C11
Hypopharynx	11	0.3	0.3	0.5	0.02	0.07	1	0.0	0.0	0.1	0.01	0.01	C12-13
Pharynx unspecified	9	0.2	0.3	0.4	0.02	0.04	3	0.1	0.1	0.1	0.01	0.02	C14
Oesophagus	82	1.9	2.3	3.3	0.12	0.36	35	0.8	1.0	1.3	0.04	0.14	C15
Stomach	992	22.6	27.7	40.1	1.77	4.76	580	13.2	16.8	20.8	0.96	2.14	C16
Small intestine	12	0.3	0.3	0.5	0.02	0.05	11	0.3	0.3	0.5	0.04	0.05	C17
Colon	173	3.9	4.8	7.1	0.32	0.94	195	4.4	5.6	7.2	0.39	0.69	C18
Rectum	100	2.3	2.8	3.9	0.19	0.42	104	2.4	3.0	4.0	0.24	0.42	C19-20
‡Anus	8	0.2	0.2	0.4	0.02	0.04	16	0.4	0.5	0.6	0.03	0.08	C21
Liver	136	3.1	3.8	5.4	0.24	0.67	95	2.2	2.7	3.4	0.15	0.40	C22
Gallbladder etc.	49	1.1	1.4	2.0	0.10	0.26	108	2.5	3.1	4.1	0.17	0.48	C23-24
Pancreas	110	2.5	3.1	4.3	0.17	0.45	105	2.4	3.0	3.7	0.13	0.40	C25
Nose, sinuses etc.	9	0.2	0.3	0.4	0.02	0.06	6	0.1	0.2	0.3	0.02	0.04	C30-31
Larynx	72	1.6	2.0	3.0	0.16	0.38	4	0.1	0.1	0.2	0.01	0.02	C32
Trachea, bronchus and lung	298	6.8	8.3	12.3	0.49	1.50	137	3.1	4.0	5.0	0.19	0.60	C33-34
Other thoracic organs	17	0.4	0.5	0.6	0.03	0.07	7	0.2	0.2	0.3	0.02	0.03	C37-38
Bone	19	0.4	0.5	0.5	0.03	0.03	21	0.5	0.6	0.6	0.04	0.05	C40-41
Melanoma of skin	36	0.8	1.0	1.4	0.07	0.16	51	1.2	1.5	1.9	0.13	0.21	C43
Other skin	862		24.1	33.9	1.60	3.75	907		26.2	33.0	1.52	3.75	C44
Mesothelioma	6	0.1	0.2	0.3	0.01	0.03	0	0.0	0.0	0.0	0.00	0.00	C45
Kaposi sarcoma	16	0.4	0.4	0.5	0.04	0.04	3	0.1	0.1	0.1	0.00	0.00	C46
Connective and soft tissue	47	1.1	1.3	1.5	0.08	0.14	35	0.8	1.0	1.2	0.06	0.12	C47+C49
Breast	4	0.1	0.1	0.2	0.00	0.01	819	18.7	23.7	30.9	2.19	3.48	C50
Vulva							22	0.5	0.6	0.8	0.04	0.09	C51
Vagina							13	0.3	0.4	0.5	0.04	0.06	C52
Cervix uteri							568	12.9	16.4	20.1	1.53	2.08	C53
Corpus uteri							127	2.9	3.7	4.9	0.36	0.53	C54
Uterus unspecified							40	0.9	1.2	1.5	0.11	0.16	C55
Ovary							168	3.8	4.9	6.0	0.40	0.63	C56
Other female genital organs							7	0.2	0.2	0.3	0.01	0.04	C57
Placenta							5	0.1	0.1	0.1	0.01	0.01	C58
Penis	24	0.5	0.7	0.8	0.05	0.08							C60
Prostate	824	18.8	23.0	33.1	0.91	3.85							C61
Testis	78	1.8	2.2	2.0	0.14	0.14							C62
Other male genital organs	3	0.1	0.1	0.1	0.00	0.00							C63
Kidney	72	1.6	2.0	2.9	0.19	0.36	62	1.4	1.8	2.3	0.13	0.24	C64
Renal pelvis	5	0.1	0.1	0.2	0.01	0.03	1	0.0	0.0	0.0	0.00	0.01	C65
Ureter	2	0.0	0.1	0.1	0.01	0.01	0	0.0	0.0	0.0	0.00	0.00	C66
Bladder	143	3.3	4.0	5.7	0.21	0.71	50	1.1	1.4	1.9	0.10	0.26	C67
Other urinary organs	6	0.1	0.2	0.3	0.00	0.04	5	0.1	0.1	0.2	0.00	0.01	C68
Eye	20	0.5	0.6	0.7	0.03	0.04	6	0.1	0.2	0.2	0.01	0.02	C69
Brain, nervous system	110	2.5	3.1	3.7	0.27	0.33	87	2.0	2.5	3.0	0.22	0.29	C70-72
Thyroid	29	0.7	0.8	1.1	0.08	0.11	198	4.5	5.7	6.4	0.48	0.64	C73
Adrenal gland	6	0.1	0.2	0.2	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	4	0.1	0.1	0.2	0.01	0.02	C75
Hodgkin disease	63	1.4	1.8	1.9	0.13	0.17	36	0.8	1.0	1.1	0.05	0.09	C81
Non-Hodgkin lymphoma	190	4.3	5.3	6.7	0.41	0.74	120	2.7	3.5	4.4	0.28	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	37	0.8	1.0	1.5	0.12	0.17	33	0.8	1.0	1.3	0.07	0.17	C90
Lymphoid leukaemia	129	2.9	3.6	4.1	0.23	0.35	97	2.2	2.8	3.0	0.16	0.23	C91
Myeloid leukaemia	91	2.1	2.5	3.1	0.16	0.32	69	1.6	2.0	2.3	0.16	0.24	C92-94
Leukaemia unspecified	29	0.7	0.8	1.0	0.04	0.09	32	0.7	0.9	1.1	0.04	0.14	C95
Other and unspecified	222	5.1	6.2	8.6	0.40	0.91	228	5.2	6.6	8.3	0.36	0.90	O&U
All sites	5251		146.7	203.7	9.19	23.15	5294		153.2	191.4	11.03	20.76	ALL
All sites but C44	4389	100.0	122.7	169.7	7.59	19.40	4387	100.0	126.9	158.4	9.52	17.01	ALLbC44

‡75.0% of cases are anorectal tumours

‡50.0% of cases are anorectal tumours

Cuba, Villa Clara

Registration area

Villa Clara is one of the fourteen provinces of Cuba and is located in the central part of Cuba. The geographical area is 8069 km² with 849 703 inhabitants and a male/female ratio of 1.77. 4% of the population lives in urban areas. Spanish is the official language. Children (0–14 years old) represent 20% of the population and 14% are aged over 60 years.

Villa Clara is divided into 13 municipalities. The Provincial Cancer Registry is located in Santa Clara City, the capital of the province. It is part of the National Cancer Registry of Cuba and covers the whole population of Villa Clara province.

Cancer care facilities

Cuba has developed a free public health care system based on extended primary health care facilities and accessibility for the whole population. In Villa Clara there were around 4800 physicians in the year 2000 (58/10 000 inhabitants), more than 1300 are family doctors working at the community level. The Health System is supported by 68.9 nurses per 100 000 and one dentist per every 1248 inhabitants.

Oncology services are available in the province, with a total of 82 beds for oncology and 17 oncologists. An Oncology Unit within the Provincial University Hospital of Villa Clara provides diagnostic facilities and treatment through their radiotherapy, chemotherapy, oncological surgery and nuclear medicine services. There is a Unit of Onco-haematology in the Provincial Paediatric Hospital that belongs to the Latin American Group for the Treatment of Malignant Haematopoietic Diseases (GLATEM), as well as specialists in oncology in two municipalities.

Registry structure and methods

The National Cancer Registry (NCR) started in Cuba in 1964 as part of the Health Statistics National System. The Central Office is located at the National Institute of Oncology and is sponsored by the Public Health Ministry. The structure of the registry is based on the organization of the Cuban National Health System. The Villa Clara Cancer Registry began in 1995 as part of the National Cancer Registry.

The staff of the Provincial Cancer Registry of Villa Clara comprises three technicians, a biostatistician, an economist, an epidemiologist and two oncologists.

Data collection is passive. The major information sources are the hospital and death certificate notifications. Hospital physicians send reports on cancer diagnoses to the Statistics Department of the hospital. There, an index card is completed for each report, creating a file that is helpful in avoiding duplicates at the hospital level. Periodically, the pathology and haematology laboratories send forms on cancer diagnoses to the Statistics Department. Consistency and completeness are checked by comparing the index-cards with the lists from the laboratories, and if reports are not found the physicians are asked to complete records. Cases where only clinical or radiological confirmation is available are controlled using the same procedure through the outcome patient list.

The cancer reports are sent periodically from the Statistical Department of the hospitals to the Provincial Statistical Departments. Data input is done at this level. An automatic coding module assigns the ICD-O codes.

The computerized system validates the data consistency. Duplicates are sought by record linkage, using the personal identification number that is unique for each Cuban citizen. A similar number, created by the computerized system using birthdate and

sex, is also used for those cases where the official identity number is not specified in the cancer report. Twice a year, the data of Villa Clara province are sent to the Central Offices of the National Cancer Registry. There are five provincial hospitals and five municipal hospitals that report to the registry.

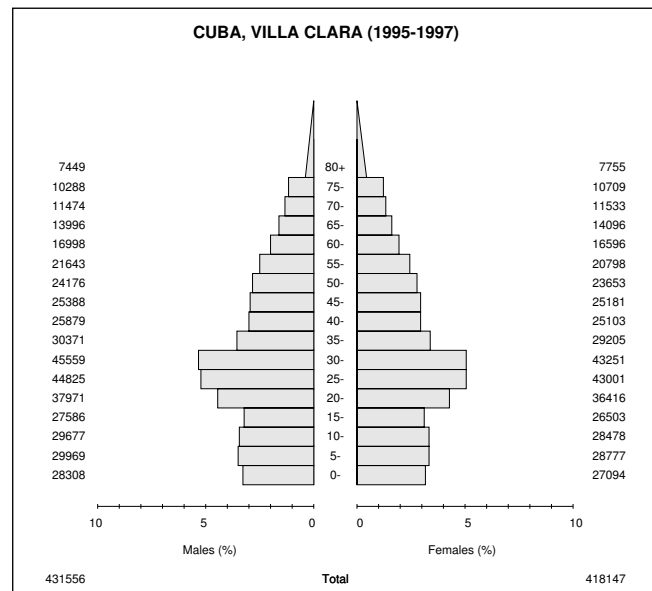
In the Central Offices of the NCR, the reports of the whole country are checked again in order to detect possible inter-provincial duplicates, and be corrected where necessary.

Interpretation of the results

In Cuba, a National Cancer Control Programme was approved in 1987, including an anti-tobacco campaign, anti-hepatitis B immunization, cervix, breast and oral cancer screening, and tertiary activities such as palliative care and oncopaediatric treatment programmes.

Use of the data

The data of Villa Clara Cancer Registry have been used for survival studies carried out with IARC and for evaluation of the National Cancer Control Programme. Recently, these data have been used in the planning of multicentre clinical trials.



Source of population

The population was estimated on 31 December 1997 by the Study Centre of Population and Development of the National Statistical Offices of Cuba.

The last census was in 1981.

Ref. Comité Estatal de Estadísticas. Instituto de Demografía y Censos. Censo de Población y Viviendas 1981. La Habana. Diciembre 1982.

Notes on the data

* There is some uncertainty about the denominator information. The proportion of cases confirmed by histology is low and some of the ratios of mortality to incidence indicate a degree of under-ascertainment.

***CUBA, VILLA CLARA (1995-1997)**

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	30	1.0	2.3	1.7	0.10	0.18	1	0.0	0.1	0.0	0.00	0.00	C00
Tongue	27	0.9	2.1	1.5	0.07	0.14	16	0.7	1.3	1.0	0.03	0.14	C01-02
Mouth	37	1.3	2.9	2.3	0.20	0.30	30	1.3	2.4	1.6	0.03	0.16	C03-06
Salivary glands	15	0.5	1.2	0.8	0.04	0.05	9	0.4	0.7	0.6	0.03	0.07	C07-08
Tonsil	5	0.2	0.4	0.3	0.02	0.04	6	0.3	0.5	0.4	0.02	0.05	C09
Other oropharynx	11	0.4	0.8	0.6	0.03	0.07	3	0.1	0.2	0.2	0.01	0.03	C10
Nasopharynx	10	0.3	0.8	0.6	0.05	0.06	7	0.3	0.6	0.5	0.03	0.06	C11
Hypopharynx	12	0.4	0.9	0.7	0.03	0.08	3	0.1	0.2	0.2	0.02	0.03	C12-13
Pharynx unspecified	3	0.1	0.2	0.1	0.00	0.00	3	0.1	0.2	0.2	0.01	0.01	C14
Oesophagus	74	2.6	5.7	4.1	0.22	0.38	24	1.0	1.9	1.2	0.04	0.10	C15
Stomach	132	4.6	10.2	7.8	0.42	0.81	62	2.6	4.9	3.7	0.20	0.39	C16
Small intestine	3	0.1	0.2	0.2	0.02	0.02	5	0.2	0.4	0.3	0.01	0.03	C17
Colon	170	5.9	13.1	9.7	0.43	1.04	265	11.3	21.1	14.5	0.57	1.51	C18
Rectum	75	2.6	5.8	4.5	0.22	0.57	68	2.9	5.4	3.9	0.21	0.45	C19-20
Anus	5	0.2	0.4	0.3	0.02	0.02	8	0.3	0.6	0.5	0.02	0.07	C21
Liver	62	2.1	4.8	3.5	0.15	0.37	58	2.5	4.6	3.2	0.11	0.34	C22
Gallbladder etc.	16	0.6	1.2	0.9	0.04	0.14	36	1.5	2.9	1.8	0.06	0.19	C23-24
Pancreas	62	2.1	4.8	3.6	0.14	0.39	53	2.3	4.2	2.9	0.12	0.32	C25
Nose, sinuses etc.	12	0.4	0.9	0.8	0.04	0.12	1	0.0	0.1	0.1	0.01	0.01	C30-31
Larynx	189	6.5	14.6	11.6	0.78	1.36	31	1.3	2.5	1.9	0.11	0.22	C32
Trachea, bronchus and lung	694	24.0	53.6	40.1	2.00	4.48	292	12.4	23.3	17.3	0.94	1.95	C33-34
Other thoracic organs	10	0.3	0.8	0.6	0.02	0.09	5	0.2	0.4	0.3	0.03	0.04	C37-38
Bone	21	0.7	1.6	1.2	0.06	0.10	13	0.6	1.0	1.1	0.06	0.08	C40-41
Melanoma of skin	21	0.7	1.6	1.3	0.04	0.18	8	0.3	0.6	0.4	0.03	0.04	C43
Other skin	1022		78.9	59.0	3.08	6.10	884		70.5	52.3	3.05	5.60	C44
Mesothelioma	2	0.1	0.2	0.1	0.01	0.02	0	0.0	0.0	0.0	0.00	0.00	C45
Kaposi sarcoma	2	0.1	0.2	0.1	0.00	0.00	0	0.0	0.0	0.0	0.00	0.00	C46
Connective and soft tissue	15	0.5	1.2	0.8	0.04	0.07	12	0.5	1.0	0.8	0.05	0.11	C47+C49
Breast	5	0.2	0.4	0.3	0.03	0.03	451	19.2	36.0	28.9	1.92	3.28	C50
Vulva							12	0.5	1.0	0.8	0.06	0.13	C51
Vagina							12	0.5	1.0	0.6	0.03	0.08	C52
Cervix uteri							143	6.1	11.4	9.6	0.75	0.93	C53
Corpus uteri							96	4.1	7.7	6.0	0.38	0.75	C54
Uterus unspecified							39	1.7	3.1	2.4	0.13	0.25	C55
Ovary							82	3.5	6.5	5.7	0.39	0.70	C56
Other female genital organs							2	0.1	0.2	0.1	0.01	0.01	C57
Placenta							0	0.0	0.0	0.0	0.00	0.00	C58
Penis	23	0.8	1.8	1.3	0.06	0.15							C60
Prostate	446	15.4	34.4	22.2	0.41	2.01							C61
Testis	16	0.6	1.2	1.0	0.06	0.09							C62
Other male genital organs	4	0.1	0.3	0.2	0.02	0.02							C63
Kidney	41	1.4	3.2	2.7	0.20	0.32	26	1.1	2.1	1.8	0.10	0.19	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	0.0	0.1	0.1	0.01	0.01	1	0.0	0.1	0.0	0.00	0.00	C66
Bladder	174	6.0	13.4	9.7	0.35	1.12	57	2.4	4.5	3.1	0.12	0.27	C67
Other urinary organs	1	0.0	0.1	0.1	0.00	0.01	1	0.0	0.1	0.1	0.01	0.01	C68
Eye	18	0.6	1.4	1.3	0.06	0.10	6	0.3	0.5	0.3	0.01	0.01	C69
Brain, nervous system	82	2.8	6.3	5.9	0.43	0.65	43	1.8	3.4	2.8	0.22	0.26	C70-72
Thyroid	17	0.6	1.3	1.2	0.09	0.11	108	4.6	8.6	7.2	0.55	0.66	C73
Adrenal gland	2	0.1	0.2	0.2	0.01	0.01	2	0.1	0.2	0.3	0.01	0.01	C74
Other endocrine	1	0.0	0.1	0.0	0.00	0.00	0	0.0	0.0	0.0	0.00	0.00	C75
Hodgkin disease	33	1.1	2.5	2.3	0.13	0.19	23	1.0	1.8	1.8	0.11	0.18	C81
Non-Hodgkin lymphoma	74	2.6	5.7	5.0	0.30	0.55	45	1.9	3.6	2.9	0.19	0.31	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	22	0.8	1.7	1.2	0.05	0.10	26	1.1	2.1	1.4	0.08	0.16	C90
Lymphoid leukaemia	40	1.4	3.1	2.9	0.13	0.29	17	0.7	1.4	1.3	0.07	0.14	C91
Myeloid leukaemia	39	1.3	3.0	3.0	0.15	0.26	18	0.8	1.4	1.2	0.05	0.11	C92-94
Leukaemia unspecified	12	0.4	0.9	0.7	0.03	0.06	8	0.3	0.6	0.5	0.02	0.04	C95
Other and unspecified	130	4.5	10.0	7.7	0.36	0.86	118	5.0	9.4	6.7	0.28	0.69	O&U
All sites	3918		302.6	227.9	11.15	24.15	3239		258.2	196.5	11.28	21.17	ALL
All sites but C44	2896	100.0	223.7	168.9	8.07	18.04	2355	100.0	187.7	144.2	8.23	15.57	ALLbC44

§Includes 34 cases of unknown age

§Includes 42 cases of unknown age

Ecuador, Quito

Registration area

The National Cancer Registry covers the population living in the city of Quito, the capital of the Republic, situated at 2810 m above sea level, in the Andes Cordillera. The city is surrounded by mountains and the average temperature is 17°C.

The average annual growth rate of the population is 3.1%, a rate which includes a large number of immigrants from rural areas. Most of the population are mestizos (mixed race) and the main religion is Catholic. 4% of the population is illiterate, 38% have received primary school education, 38% secondary school and 17% higher studies.

Cancer care facilities

The health-care facilities in the city comprise nine general hospitals, relying on the Social Security system and the Ministry of Health, two private hospitals and 30 private clinics. The largest hospital belongs to the Social Security system and has 700 beds, used by affiliated workers. The private clinics have between 20 and 80 beds. There is a new modern oncological hospital with 160 beds which belongs to the Fight Against Cancer Association (Lucha contra el Cáncer – SOLCA). A full range of diagnostic facilities and treatment by surgery, chemotherapy and radiotherapy are available. According to the registry data 34% of patients are diagnosed in the private sector.

Registry structure and methods

The National Cancer Registry of Ecuador was created in 1984, with the initial collaboration of PAHO/WHO, by a ministerial decree in which the Association for the Fight Against Cancer was declared responsible for the funding and administration of the registry. The registry has a Steering Committee directed by the President of the Association.

The personnel of the registry comprises a Director, two epidemiologists and five registrars. The Director is a medical pathologist and establishes the registry procedures, coordinates the general activities of the registry and is responsible for inter-institute relationships. The epidemiologists coordinate personnel activities, control data quality and set up and facilitate studies, particularly between physicians in SOLCA. The registrars are full-time, and one of them is responsible for the computer system.

Data collection is active and the main data sources are the pathology and haematology records, from both the public and the private sector, and clinical records of public and private hospitals. Registrars also contact many physicians who treat cancer patients in the private sector.

The 53 pathologists in the city collaborate voluntarily and with enthusiasm in the work of the registry, allowing the registrars to consult their records and in many cases filling out a part of the notification form themselves.

The other sources of information are the death certificates and the hospital discharge lists collected by the Institute of Statistics and Census of Ecuador (Instituto de Estadísticas y Censos del Ecuador – INEC).

Follow-up is passive and consists of matching death certificates with the cases registered.

The registry has promoted the creation of cancer registries in other cities in the country, and is monitoring their activities; at the

present time there are registries in the cities of Guayaquil, Cuenca, Portoviejo, Loja and a gastric cancer registry in the province of Tungurahua.

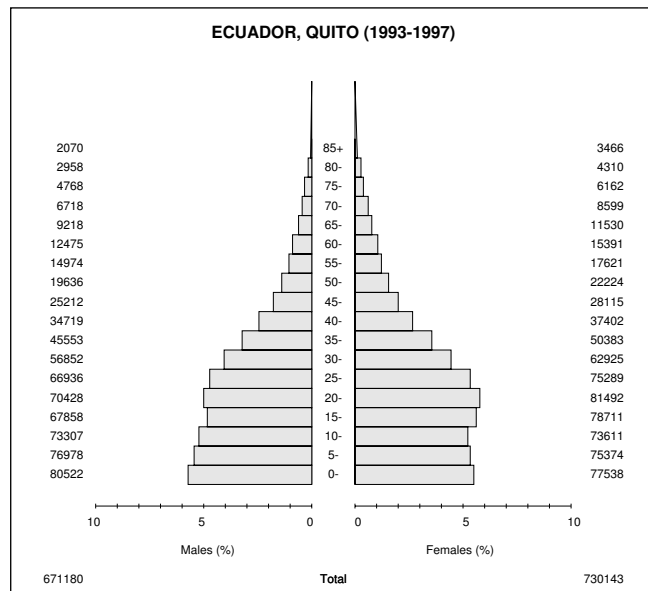
Interpreting the results

The National Cancer Registry publishes data in an annual report which is distributed within the country and abroad. The 1997–98 report shows a big improvement in the quality of the data. Data on 45 684 cases were received in the registry between 1985–97, of whom 54% were residents of Quito.

Use of the data

In the last three years, a screening programme for cervical cancer has been undertaken with great enthusiasm. It is supported by WHO, and the registry provides the baseline data to monitor results.

The registry has carried out a number of studies on the epidemiology of selected cancer sites and on quality control, and results have been published locally or internationally. The majority of the scientific research on cancer carried out in the city and in much of the country uses the data from the registry.



Source of population

The annual populations are estimates produced by projection from the 1990 census, adjusted for births deaths and migration.

Ref: 1990 census, corrected for non-response rate and for migration. Instituto Nacional de Estadística y Censos INEC. Censo de Población y IV de Vivienda 1990. Resultados Definitivos. Provincia de Pichincha. Ed. INEC. Quito, Ecuador, 1991.

Notes on the data

* The denominator information is based on a 1990 census. The high proportion of diagnoses based on a death certificate alone suggests a degree of under-ascertainment and lack of validity.

***ECUADOR, QUITO (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	1	0.0	0.0	0.0	0.00	0.00	0	0.0	0.0	0.0	0.00	0.00	C00
Tongue	8	0.3	0.2	0.5	0.03	0.06	18	0.4	0.5	0.7	0.02	0.07	C01-02
Mouth	5	0.2	0.1	0.3	0.01	0.02	10	0.2	0.3	0.4	0.02	0.03	C03-06
Salivary glands	19	0.6	0.6	0.9	0.05	0.11	13	0.3	0.4	0.5	0.03	0.06	C07-08
Tonsil	7	0.2	0.2	0.3	0.03	0.04	2	0.0	0.1	0.1	0.00	0.01	C09
Other oropharynx	4	0.1	0.1	0.2	0.01	0.02	0	0.0	0.0	0.0	0.00	0.00	C10
Nasopharynx	1	0.0	0.0	0.1	0.00	0.01	1	0.0	0.0	0.1	0.01	0.01	C11
Hypopharynx	0	0.0	0.0	0.0	0.00	0.00	0	0.0	0.0	0.0	0.00	0.00	C12-13
Pharynx unspecified	4	0.1	0.1	0.2	0.01	0.03	2	0.0	0.1	0.1	0.00	0.01	C14
Oesophagus	53	1.7	1.6	2.6	0.08	0.26	23	0.5	0.6	0.8	0.02	0.07	C15
Stomach	521	16.7	15.5	26.5	1.22	3.16	463	10.5	12.7	17.6	0.93	1.87	C16
Small intestine	17	0.5	0.5	0.8	0.03	0.10	13	0.3	0.4	0.6	0.06	0.08	C17
Colon	116	3.7	3.5	5.8	0.28	0.73	158	3.6	4.3	5.7	0.24	0.56	C18
Rectum	58	1.9	1.7	2.9	0.13	0.38	74	1.7	2.0	2.9	0.17	0.36	C19-20
Anus	8	0.3	0.2	0.4	0.03	0.04	24	0.5	0.7	1.0	0.06	0.12	C21
Liver	76	2.4	2.3	3.6	0.14	0.36	93	2.1	2.5	3.5	0.14	0.40	C22
Gallbladder etc.	75	2.4	2.2	3.7	0.14	0.36	219	5.0	6.0	8.9	0.45	1.06	C23-24
Pancreas	76	2.4	2.3	3.9	0.13	0.46	90	2.0	2.5	3.6	0.13	0.41	C25
Nose, sinuses etc.	6	0.2	0.2	0.3	0.01	0.04	17	0.4	0.5	0.7	0.05	0.06	C30-31
Larynx	28	0.9	0.8	1.4	0.06	0.18	2	0.0	0.1	0.1	0.01	0.01	C32
Trachea, bronchus and lung	172	5.5	5.1	8.8	0.38	1.01	113	2.6	3.1	4.4	0.24	0.45	C33-34
Other thoracic organs	5	0.2	0.1	0.2	0.02	0.02	3	0.1	0.1	0.1	0.00	0.00	C37-38
Bone	33	1.1	1.0	1.1	0.07	0.10	37	0.8	1.0	1.2	0.08	0.10	C40-41
Melanoma of skin	55	1.8	1.6	2.5	0.13	0.26	90	2.0	2.5	3.5	0.19	0.38	C43
Other skin	501		14.9	24.7	1.09	2.65	531		14.5	20.4	0.93	2.27	C44
Mesothelioma	2	0.1	0.1	0.1	0.00	0.02	3	0.1	0.1	0.1	0.00	0.00	C45
Kaposi sarcoma	6	0.2	0.2	0.3	0.02	0.03	2	0.0	0.1	0.1	0.00	0.00	C46
Connective and soft tissue	66	2.1	2.0	2.6	0.16	0.28	64	1.5	1.8	2.2	0.14	0.22	C47+C49
Breast	5	0.2	0.1	0.2	0.01	0.03	665	15.1	18.2	26.5	1.92	3.01	C50
Vulva							13	0.3	0.4	0.5	0.03	0.03	C51
Vagina							11	0.3	0.3	0.5	0.03	0.07	C52
Cervix uteri							675	15.4	18.5	26.0	1.84	2.87	C53
Corpus uteri							115	2.6	3.2	5.0	0.35	0.63	C54
Uterus unspecified							43	1.0	1.2	1.6	0.08	0.15	C55
Ovary							199	4.5	5.5	7.7	0.59	0.87	C56
Other female genital organs							1	0.0	0.0	0.1	0.01	0.01	C57
Placenta							19	0.4	0.5	0.5	0.04	0.04	C58
Penis	16	0.5	0.5	0.9	0.03	0.12							C60
Prostate	555	17.8	16.5	28.4	0.72	3.07							C61
Testis	123	3.9	3.7	3.5	0.25	0.27							C62
Other male genital organs	1	0.0	0.0	0.1	0.00	0.01							C63
Kidney	50	1.6	1.5	2.3	0.16	0.25	38	0.9	1.0	1.5	0.11	0.16	C64
Renal pelvis	4	0.1	0.1	0.2	0.01	0.02	4	0.1	0.1	0.2	0.01	0.02	C65
Ureter	2	0.1	0.1	0.1	0.01	0.01	1	0.0	0.0	0.0	0.00	0.00	C66
Bladder	114	3.6	3.4	5.9	0.26	0.69	35	0.8	1.0	1.3	0.07	0.11	C67
Other urinary organs	1	0.0	0.0	0.1	0.00	0.01	0	0.0	0.0	0.0	0.00	0.00	C68
Eye	27	0.9	0.8	1.1	0.04	0.11	20	0.5	0.5	0.7	0.04	0.07	C69
Brain, nervous system	102	3.3	3.0	3.8	0.25	0.36	95	2.2	2.6	3.3	0.22	0.33	C70-72
Thyroid	52	1.7	1.5	2.2	0.12	0.28	247	5.6	6.8	8.0	0.56	0.80	C73
Adrenal gland	4	0.1	0.1	0.1	0.00	0.00	5	0.1	0.1	0.1	0.01	0.01	C74
Other endocrine	1	0.0	0.0	0.0	0.00	0.00	1	0.0	0.0	0.0	0.00	0.00	C75
Hodgkin disease	42	1.3	1.3	1.5	0.08	0.11	30	0.7	0.8	0.9	0.05	0.07	C81
Non-Hodgkin lymphoma	218	7.0	6.5	9.6	0.59	1.09	208	4.7	5.7	7.7	0.49	0.84	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	31	1.0	0.9	1.6	0.08	0.18	45	1.0	1.2	1.9	0.14	0.24	C90
Lymphoid leukaemia	86	2.8	2.6	3.1	0.20	0.25	99	2.3	2.7	2.9	0.19	0.22	C91
Myeloid leukaemia	110	3.5	3.3	4.2	0.26	0.41	76	1.7	2.1	2.3	0.12	0.21	C92-94
Leukaemia unspecified	7	0.2	0.2	0.3	0.02	0.03	15	0.3	0.4	0.4	0.02	0.03	C95
Other and unspecified	151	4.8	4.5	7.1	0.33	0.76	200	4.6	5.5	7.8	0.43	0.87	O&U
All sites	3625		108.0	170.7	7.70	18.79	4925		134.9	186.3	11.27	20.29	ALL
All sites but C44	3124	100.0	93.1	146.0	6.60	16.14	4394	100.0	120.4	165.9	10.34	18.02	ALLbC44

§Includes 29 cases of unknown age

§Includes 24 cases of unknown age

France, Martinique

Registration area

The cancer registry was created in 1983. The registration of cases covers the resident population of Martinique.

The French département of Martinique has been part of France since 1946. It is located in the Caribbean area at a latitude of 14° N and a longitude of 63° W. The island covers an area of 1130 km² and is mountainous, with Mont Pelée, a dormant volcano, rising to 1400 m, its most prominent physical feature. The administrative and commercial capital is Fort-de-France. The population at the 1990 census was 359 579 inhabitants with a density of 353 inhabitants per km², the population under 20 years representing 33.0%. In 1995, life expectancy was 81.8 years for women and 74.4 years for men. Although falling, the birth rate remained high at 14.6 per 1000 in 1995 and the infant mortality rate was 5.8 deaths per 1000 live births.

Most of the population is of African origin mixed to some extent with populations of European origin. A small proportion originates from India and China. In the 1990 census, 92% of the inhabitants were born in Martinique, 5% in the mainland and 0.7% in other countries. The unemployment rate was 27.2% in 1996 and 22% of families, on the basis of the 1990 census, were considered to have a high-risk social situation according to the National Institute of Statistics and Economic Studies (INSEE). However, the gross domestic product is the highest among Caribbean and Latin American countries, estimated at 64 700 Frs in 1994.

Cancer care facilities

Residents of Martinique, as in other French regions, enjoy unrestricted access to a wide range of modern medical services. Health insurance is provided by the social security system. The regional health organization includes a university hospital, 11 general public hospitals, and four private clinics. The public sector offers 1831 beds for short-term hospitalization, 114 beds for follow-up and functional rehabilitation, and 101 beds for medium-term care. The private sector provides 100 beds for short-term care, 39 for follow-up and functional rehabilitation, and 61 for medium-term care. In 1998 there were 780 doctors with a density of 114 general practitioners and 87 specialists doctors per 100 000 inhabitants. The quality of medical equipment is comparable to that in other French regions with a magnetic resonance imaging device, three scanners, and sophisticated nuclear medicine and radiotherapy equipment at the university hospital. Specialities are provided in all categories and offer a full range of treatment. This allows the diagnosis and treatment of almost all cancers except for a small number of paediatric cancer cases sent to France.

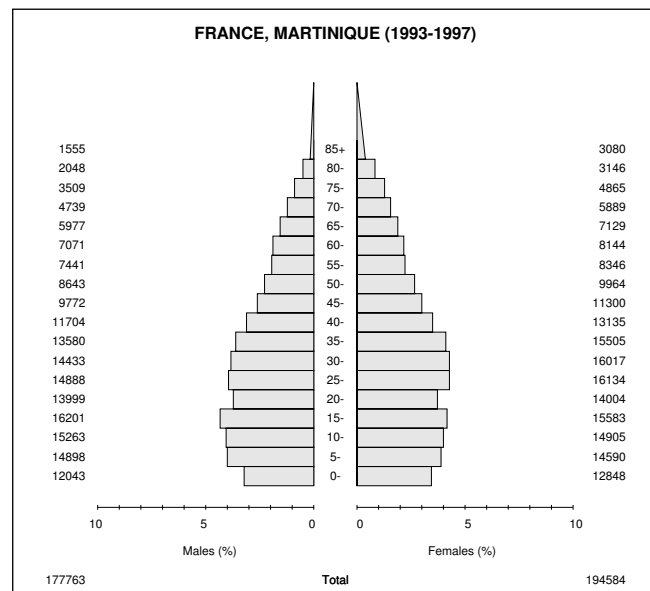
Registry structure and methods

The registry is located within the university hospital, and is funded by the county and regional councils. The registry is staffed by a full-time and a part-time medical officer and a full-time health worker. The Martinique registry uses active case finding from several sources of data including cancer departments, other university

hospital departments, general hospitals and private clinics, the two pathology laboratories and the two haematology laboratories, private practitioners, and the social security department to check the transfer of cancer patients to the mainland. Death certificates are not used as a source but only serve for follow-up of vital status, since death certificates are anonymous in France. Follow-up of vital status is also provided by sending a letter of information to the civil administration of each district. The data are coded by the doctors who have visited the information sources.

Use of the data

The registry prepares regular reports and monographs including rates by site, trends and international comparisons. Collaborative studies are carried out with cancer departments at the university hospital and French and international networks of cancer registries. An organized screening programme for cervix cancer was set up in 1991 in Martinique, which is evaluated by the cancer registry. A case-control study of prostate cancer is also in progress, with cases identified through the cancer registry database.



Source of population

Population data for 1991–95 are estimates based on the 1990 and 1999 censuses and made by linear extrapolation taking into account sex, age and place of birth.

Notes on the data

* The high proportion of cases with morphological confirmation suggests that clinically diagnosed cases are under-enumerated; there are some high ratios of mortality to incidence.

***FRANCE, MARTINIQUE (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	28	1.1	3.2	2.7	0.18	0.34	6	0.3	0.6	0.4	0.01	0.08	C01-02
Mouth	34	1.4	3.8	3.4	0.18	0.47	9	0.5	0.9	0.6	0.04	0.06	C03-06
Salivary glands	4	0.2	0.5	0.4	0.03	0.04	2	0.1	0.2	0.2	0.01	0.02	C07-08
Tonsil	25	1.0	2.8	2.5	0.19	0.28	1	0.1	0.1	0.0	0.00	0.00	C09
Other oropharynx	22	0.9	2.5	2.2	0.16	0.27	1	0.1	0.1	0.1	0.01	0.01	C10
Nasopharynx	10	0.4	1.1	1.0	0.09	0.11	2	0.1	0.2	0.1	0.00	0.00	C11
Hypopharynx	27	1.1	3.0	2.6	0.18	0.32	2	0.1	0.2	0.1	0.00	0.00	C12-13
Pharynx unspecified	24	1.0	2.7	2.1	0.13	0.20	3	0.2	0.3	0.3	0.03	0.03	C14
Oesophagus	79	3.1	8.9	7.6	0.48	1.07	22	1.2	2.3	1.2	0.05	0.12	C15
Stomach	229	9.1	25.8	19.5	0.88	2.39	155	8.6	15.9	9.8	0.44	1.02	C16
Small intestine	4	0.2	0.5	0.4	0.01	0.05	5	0.3	0.5	0.3	0.03	0.03	C17
Colon	108	4.3	12.2	9.7	0.51	1.11	129	7.2	13.3	8.9	0.51	0.95	C18
Rectum	43	1.7	4.8	3.8	0.21	0.43	46	2.6	4.7	3.5	0.20	0.43	C19-20
Anus	7	0.3	0.8	0.7	0.03	0.07	8	0.4	0.8	0.5	0.03	0.04	C21
Liver	30	1.2	3.4	2.8	0.15	0.26	25	1.4	2.6	1.8	0.11	0.24	C22
Gallbladder etc.	11	0.4	1.2	1.0	0.08	0.12	23	1.3	2.4	1.7	0.11	0.21	C23-24
Pancreas	25	1.0	2.8	2.4	0.19	0.30	20	1.1	2.1	1.3	0.03	0.20	C25
Nose, sinuses etc.	6	0.2	0.7	0.5	0.01	0.09	5	0.3	0.5	0.4	0.03	0.03	C30-31
Larynx	53	2.1	6.0	4.8	0.28	0.59	3	0.2	0.3	0.2	0.02	0.02	C32
Trachea, bronchus and lung	124	4.9	14.0	11.5	0.70	1.45	38	2.1	3.9	2.8	0.15	0.36	C33-34
Other thoracic organs	4	0.2	0.5	0.4	0.03	0.06	4	0.2	0.4	0.4	0.04	0.04	C37-38
Bone	10	0.4	1.1	1.0	0.05	0.11	8	0.4	0.8	0.7	0.04	0.08	C40-41
Melanoma of skin	14	0.6	1.6	1.3	0.11	0.15	15	0.8	1.5	0.9	0.03	0.11	C43
Other skin	129		14.5	12.0	0.75	1.35	132		13.6	10.1	0.68	1.05	C44
Mesothelioma	2	0.1	0.2	0.2	0.01	0.03	2	0.1	0.2	0.2	0.01	0.03	C45
Kaposi sarcoma	21	0.8	2.4	2.0	0.16	0.21	0	0.0	0.0	0.0	0.00	0.00	C46
Connective and soft tissue	25	1.0	2.8	2.6	0.18	0.27	20	1.1	2.1	1.5	0.08	0.13	C47+C49
Breast	0	0.0	0.0	0.0	0.00	0.00	484	27.0	49.7	40.3	3.08	4.33	C50
Vulva							3	0.2	0.3	0.1	0.00	0.00	C51
Vagina							14	0.8	1.4	1.0	0.05	0.14	C52
Cervix uteri							231	12.9	23.7	19.3	1.43	2.24	C53
Corpus uteri							77	4.3	7.9	5.7	0.36	0.75	C54
Uterus unspecified							2	0.1	0.2	0.1	0.00	0.02	C55
Ovary							59	3.3	6.1	4.9	0.37	0.48	C56
Other female genital organs							5	0.3	0.5	0.4	0.03	0.03	C57
Placenta							1	0.1	0.1	0.1	0.01	0.01	C58
Penis	12	0.5	1.4	1.0	0.05	0.11							C60
Prostate	1205	47.9	135.6	96.3	2.67	12.11							C61
Testis	8	0.3	0.9	1.0	0.06	0.06							C62
Other male genital organs	2	0.1	0.2	0.2	0.01	0.04							C63
Kidney	20	0.8	2.3	2.2	0.15	0.24	24	1.3	2.5	2.2	0.12	0.19	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	0.0	0.1	0.0	0.00	0.00	1	0.1	0.1	0.1	0.01	0.01	C66
Bladder	44	1.7	5.0	3.6	0.15	0.44	29	1.6	3.0	1.7	0.09	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	3	0.1	0.3	0.3	0.01	0.05	5	0.3	0.5	0.4	0.02	0.03	C69
Brain, nervous system	22	0.9	2.5	2.7	0.20	0.25	15	0.8	1.5	1.6	0.11	0.14	C70-72
Thyroid	10	0.4	1.1	1.0	0.07	0.09	41	2.3	4.2	3.6	0.30	0.38	C73
Adrenal gland	0	0.0	0.0	0.0	0.00	0.00	2	0.1	0.2	0.2	0.01	0.03	C74
Other endocrine	1	0.0	0.1	0.1	0.00	0.02	2	0.1	0.2	0.2	0.01	0.01	C75
Hodgkin disease	9	0.4	1.0	0.9	0.06	0.08	11	0.6	1.1	1.1	0.08	0.08	C81
Non-Hodgkin lymphoma	68	2.7	7.7	6.6	0.44	0.69	78	4.3	8.0	6.3	0.36	0.75	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	26	1.0	2.9	2.3	0.13	0.28	25	1.4	2.6	1.7	0.07	0.26	C90
Lymphoid leukaemia	17	0.7	1.9	1.9	0.10	0.17	16	0.9	1.6	1.4	0.08	0.13	C91
Myeloid leukaemia	28	1.1	3.2	2.7	0.15	0.26	23	1.3	2.4	1.6	0.07	0.17	C92-94
Leukaemia unspecified	1	0.0	0.1	0.1	0.00	0.02	0	0.0	0.0	0.0	0.00	0.00	C95
Other and unspecified	71	2.8	8.0	6.5	0.39	0.78	92	5.1	9.5	6.0	0.27	0.62	O&U
All sites	2646		297.7	230.4	10.59	27.83	1926		198.0	148.0	9.64	16.27	ALL
All sites but C44	2517	100.0	283.2	218.4	9.84	26.48	1794	100.0	184.4	137.8	8.96	15.22	ALLbC44

USA, Puerto Rico

Registration area

The Central Cancer Registry of Puerto Rico (CCRPR) covers the population of the 78 municipalities that constitute Puerto Rico, including the islands of Vieques and Culebra. About 40% of the population lives in urban areas (>5,000 inhabitants); 90% are Christians.

Cancer care facilities

General health care in the island is provided by public and private health services, through the district hospitals and a network of primary health centres. This is supplemented by private practitioners and hospitals. The Medical Centre (Recinto de Ciencias Medicas) is located in San Juan, the capital of Puerto Rico and provides radiotherapy, cancer surgery and chemotherapy services. Patients suspected to have cancer in the primary and secondary care facilities in the registry area are mostly referred to hospitals in the metropolitan areas in the north (San Juan), south (Ponce), west (Bayamon), and east (Fajardo). An undetermined number of cases seek medical attention on the US mainland.

Registry structure and methods

The registry is located within the Department of Health of Puerto Rico, and is funded partly by US federal funds, and partly by the state health department. The registry is staffed by 22 full-time employees and is divided into units for data collection, data editing and coding, management of information systems and follow-up.

Cancer has been a notifiable disease since 1951. The CCRPR uses active case finding from cancer hospitals, general hospitals, of which several are teaching hospitals, pathology laboratories and the Vital Statistics Office. The death registration system is adequate and complete; the cause or causes of death are stated on the death certificate. A death certificate is a legal document that must be obtained for burial. The registry staff visit these sources, where they scrutinize the records kept in medical records departments, and registers of individual departments concerned with diagnosis and treatment of cancers, to identify and abstract information on cases of cancer, diagnosed by all methods, among residents of Puerto Rico. Six hospitals with a registry have been reporting to the Central Registry for years. Arrangements have been made with the other hospitals to begin reporting for 1997 cases onward. There is an undetermined number of cancer cases diagnosed and/or treated outside the registration area, and the registry has formal exchange data agreements with the following States: Florida, New Jersey, New York and Texas.

Interpreting the results

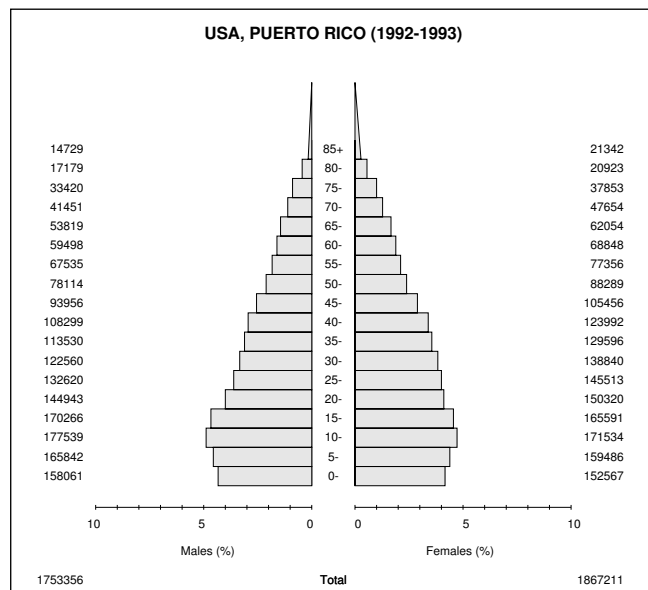
It is not possible to estimate how many cancer cases remain undiagnosed or unregistered because of the high level of migration between Puerto Rico and the US mainland. Puerto Rico has a wide

range of diagnostic facilities, so it is unlikely that cases referred will be missed. The Department of Health has a screening programme for the early detection of breast and cervical cancer among the uninsured female population.

Use of the data

The registry prepares an annual report of cancer incidence and mortality. Reports were not produced until December 2000 due to the need to recreate computer programming for generating the report. This work has been completed to provide basic information on incidence and mortality.

A special study on the incidence of cancer in the island of Vieques was completed in November of 1997 and updated in February 2000. Further studies on the distribution of cancer cases in the island of Vieques (cluster analysis) will be carried out.



Source of population

Populations for 1993 to 1997 are projections based on the 1990 census (US Bureau of the Census).

Notes on the data

* A high proportion of cases are registered on the basis of a death certificate alone.

† C44 does not include basal cell or squamous cell carcinoma except for skin of anus.

***USA, PUERTO RICO (1992-1993)**

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	0.1	0.3	0.3	0.01	0.05	5	0.1	0.1	0.1	0.00	0.00	C00
Tongue	170	1.6	4.8	4.5	0.30	0.52	53	0.7	1.4	1.1	0.05	0.12	C01-02
Mouth	181	1.7	5.2	4.8	0.31	0.59	45	0.6	1.2	0.9	0.05	0.10	C03-06
Salivary glands	36	0.3	1.0	0.9	0.06	0.10	16	0.2	0.4	0.4	0.02	0.03	C07-08
Tonsil	80	0.7	2.3	2.2	0.17	0.27	15	0.2	0.4	0.4	0.03	0.03	C09
Other oropharynx	19	0.2	0.5	0.6	0.05	0.07	1	0.0	0.0	0.0	0.00	0.00	C10
Nasopharynx	30	0.3	0.9	0.8	0.05	0.09	8	0.1	0.2	0.2	0.01	0.02	C11
Hypopharynx	97	0.9	2.8	2.5	0.15	0.32	12	0.2	0.3	0.2	0.01	0.04	C12-13
Pharynx unspecified	39	0.4	1.1	1.0	0.08	0.12	13	0.2	0.3	0.3	0.01	0.02	C14
Oesophagus	326	3.0	9.3	7.7	0.36	0.94	93	1.3	2.5	1.6	0.06	0.14	C15
Stomach	584	5.4	16.7	13.3	0.57	1.43	302	4.2	8.1	5.8	0.26	0.63	C16
Small intestine	30	0.3	0.9	0.8	0.04	0.09	25	0.4	0.7	0.5	0.02	0.05	C17
Colon	708	6.6	20.2	17.3	0.86	2.11	677	9.5	18.1	13.9	0.67	1.66	C18
Rectum	323	3.0	9.2	8.2	0.47	1.02	232	3.3	6.2	5.1	0.28	0.63	C19-20
Anus	24	0.2	0.7	0.6	0.04	0.07	41	0.6	1.1	0.9	0.05	0.11	C21
Liver	221	2.1	6.3	5.4	0.29	0.59	130	1.8	3.5	2.5	0.09	0.30	C22
Gallbladder etc.	49	0.5	1.4	1.2	0.07	0.13	91	1.3	2.4	1.9	0.08	0.25	C23-24
Pancreas	180	1.7	5.1	4.4	0.23	0.53	152	2.1	4.1	2.9	0.14	0.33	C25
Nose, sinuses etc.	24	0.2	0.7	0.6	0.04	0.05	13	0.2	0.3	0.3	0.02	0.03	C30-31
Larynx	220	2.0	6.3	5.5	0.34	0.64	31	0.4	0.8	0.6	0.03	0.08	C32
Trachea, bronchus and lung	778	7.2	22.2	19.5	0.96	2.50	313	4.4	8.4	6.5	0.30	0.80	C33-34
Other thoracic organs	14	0.1	0.4	0.4	0.02	0.03	8	0.1	0.2	0.2	0.01	0.02	C37-38
Bone	29	0.3	0.8	0.7	0.03	0.07	19	0.3	0.5	0.4	0.02	0.04	C40-41
Melanoma of skin	54	0.5	1.5	1.4	0.10	0.16	57	0.8	1.5	1.3	0.08	0.15	C43
†Other skin	17		0.5	0.5	0.03	0.06	10		0.3	0.2	0.02	0.03	C44
Mesothelioma	5	0.0	0.1	0.1	0.00	0.02	3	0.0	0.1	0.1	0.01	0.01	C45
Kaposi sarcoma	116	1.1	3.3	3.1	0.23	0.25	14	0.2	0.4	0.3	0.02	0.03	C46
Connective and soft tissue	44	0.4	1.3	1.2	0.08	0.12	54	0.8	1.4	1.3	0.08	0.12	C47+C49
Breast	26	0.2	0.7	0.7	0.05	0.08	2091	29.4	56.0	49.7	3.68	5.60	C50
Vulva							72	1.0	1.9	1.3	0.04	0.14	C51
Vagina							32	0.4	0.9	0.7	0.04	0.06	C52
Cervix uteri							351	4.9	9.4	8.3	0.62	0.87	C53
Corpus uteri							373	5.2	10.0	8.8	0.62	1.11	C54
Uterus unspecified							32	0.4	0.9	0.7	0.05	0.06	C55
Ovary							238	3.3	6.4	5.5	0.37	0.59	C56
Other female genital organs							7	0.1	0.2	0.1	0.01	0.01	C57
Placenta							0	0.0	0.0	0.0	0.00	0.00	C58
Penis	102	0.9	2.9	2.6	0.16	0.30							C60
Prostate	4282	39.8	122.1	96.0	2.96	11.84							C61
Testis	56	0.5	1.6	1.5	0.11	0.11							C62
Other male genital organs	4	0.0	0.1	0.1	0.01	0.01							C63
Kidney	154	1.4	4.4	4.2	0.29	0.49	104	1.5	2.8	2.5	0.15	0.30	C64
Renal pelvis	8	0.1	0.2	0.2	0.01	0.02	3	0.0	0.1	0.0	0.00	0.00	C65
Ureter	8	0.1	0.2	0.2	0.02	0.02	5	0.1	0.1	0.1	0.00	0.01	C66
Bladder	428	4.0	12.2	9.8	0.38	1.21	150	2.1	4.0	2.8	0.10	0.30	C67
Other urinary organs	3	0.0	0.1	0.1	0.00	0.01	5	0.1	0.1	0.1	0.01	0.01	C68
Eye	18	0.2	0.5	0.4	0.02	0.03	13	0.2	0.3	0.4	0.02	0.02	C69
Brain, nervous system	171	1.6	4.9	4.8	0.31	0.45	141	2.0	3.8	3.4	0.22	0.34	C70-72
Thyroid	48	0.4	1.4	1.3	0.08	0.15	197	2.8	5.3	4.8	0.36	0.45	C73
Adrenal gland	4	0.0	0.1	0.1	0.00	0.00	5	0.1	0.1	0.1	0.01	0.01	C74
Other endocrine	1	0.0	0.0	0.0	0.00	0.00	0	0.0	0.0	0.0	0.00	0.00	C75
Hodgkin disease	89	0.8	2.5	2.4	0.15	0.19	73	1.0	2.0	1.7	0.10	0.16	C81
Non-Hodgkin lymphoma	328	3.1	9.4	8.6	0.57	0.90	263	3.7	7.0	5.7	0.34	0.61	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	133	1.2	3.8	3.3	0.18	0.43	96	1.3	2.6	2.0	0.10	0.26	C90
Lymphoid leukaemia	88	0.8	2.5	2.3	0.13	0.19	54	0.8	1.4	1.5	0.07	0.10	C91
Myeloid leukaemia	96	0.9	2.7	2.4	0.14	0.23	87	1.2	2.3	2.0	0.11	0.19	C92-94
Leukaemia unspecified	35	0.3	1.0	0.8	0.03	0.09	33	0.5	0.9	0.7	0.03	0.07	C95
Other and unspecified	278	2.6	7.9	6.7	0.36	0.77	270	3.8	7.2	5.3	0.26	0.56	O&U
All sites	10770		307.1	258.3	11.89	30.51	7128		190.9	158.3	9.75	17.62	ALL
All sites but C44	10753	100.0	306.6	257.8	11.86	30.44	7118	100.0	190.6	158.1	9.73	17.60	ALLbC44

§Includes 46 cases of unknown age

§Includes 24 cases of unknown age

†See note following population pyramid

Uruguay, Montevideo

Registration area

The county of Montevideo (530 km²) is the area covered by the registry. It includes the capital city of Uruguay, Montevideo city, which contains almost half of the national population, and a small rural area which accounts for 4.6% of the population of the county. It is located at latitude 35° S and longitude 56° W, and represents 0.3% of the country's area. According to the last nationwide census of 1996, the population of Montevideo was 1 372 431, including about 70 000 foreign immigrants, especially from Spain, Italy and eastern Europe, who arrived during the first decades of the 20th century. The population is mainly Caucasian, with no Indians; blacks constitute 3% of the total population. Internal migration from other counties used to be frequent in the past, but since 1965 has stabilized and is no longer a problem in calculating the true population at risk.

Registry structure and methods

The Registro Nacional de Cáncer de Uruguay was created by law in 1984, but it began collecting data on cancer and mortality in Montevideo only in August 1987. Since 1992 it has been located at the National Institute of Oncology, which belongs to the Ministry of Public Health. It is the first population-based cancer registry in the country.

The registry employs a medical director with training in pathology and epidemiology, an assistant epidemiologist, one clerk with coding expertise, a computer analyst, two consultant pathologists with special training in cancer, a medical doctor who supervises coding and staging, and ten data abstractors.

Though cancer cases are required by law to be reported, data collection is active and carried out by a trained staff of abstractors. Data are obtained from state and private medical institutions, laboratories of pathology, oncology and radiotherapy clinics, outpatient clinics, and the Bureau of Vital Statistics of the Ministry of Public Health.

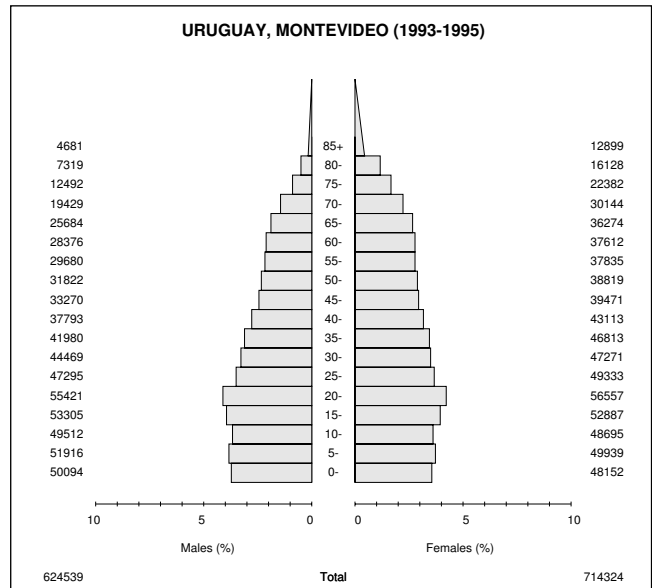
The main area covered by the registry is Montevideo, although the cancer mortality data come from the death certificates of the whole country. Information is also obtained on incident cases of cancer residing outside Montevideo, but who are treated in hospitals in the city.

The registry is equipped with two personal computers that can process large databases and perform several kinds of data analysis. Consistency checks are performed periodically, and checks for duplicates are also performed manually, in all cases by the medical staff.

Due to shortage of personnel and to lack of funds, no trace-back of death certificate notifications was performed until 1993. Since 1995, active follow-up of incident cases is being performed, with the aim of obtaining survival rates.

Use of the data

The initial objectives of the registry were to develop and maintain a source of information on cancer incidence, mortality and prevalence in the country, mainly descriptive. In 1993 the registry expanded its fields of interest and began to undertake analytical and descriptive epidemiological studies on the Uruguayan population. These studies (currently more than 60) were mainly supported by funds coming from a national NGO, the Comisión Honoraria de Lucha Contra el Cáncer. Further financial support was provided by IARC.



Source of population

The populations were estimated by linear interpolation on the basis of the 1985 and 1996 national censuses, taking into account sex and age groups for the county of Montevideo only.

Ref. Censos: 1985 and 1996. Dirección General de Estadísticas y Censos. Cuarto Censo General de Población y Vivienda, Montevideo 1985. Quinto Censo General de Población y Vivienda, Montevideo 1996.

Notes on the data

* A high proportion of cases are registered on the basis of a death certificate alone.

† 34.7% of breast cancers were diagnosed on clinical imaging only.

***URUGUAY, MONTEVIDEO (1993-1995)**

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				0-64	0-74			
Lip	8	0.1	0.4	0.3	0.01	0.03	2	0.0	0.1	0.0	0.00	0.00	C00		
Tongue	84	1.0	4.5	3.4	0.22	0.43	30	0.3	1.4	0.7	0.05	0.09	C01-02		
Mouth	65	0.7	3.5	2.8	0.21	0.34	17	0.2	0.8	0.4	0.03	0.05	C03-06		
Salivary glands	22	0.3	1.2	0.9	0.06	0.09	18	0.2	0.8	0.6	0.05	0.06	C07-08		
Tonsil	58	0.7	3.1	2.5	0.20	0.31	12	0.1	0.6	0.3	0.02	0.04	C09		
Other oropharynx	18	0.2	1.0	0.7	0.06	0.08	5	0.1	0.2	0.1	0.01	0.02	C10		
Nasopharynx	16	0.2	0.9	0.7	0.05	0.07	15	0.2	0.7	0.5	0.05	0.05	C11		
Hypopharynx	73	0.8	3.9	3.1	0.20	0.42	5	0.1	0.2	0.2	0.01	0.02	C12-13		
Pharynx unspecified	13	0.1	0.7	0.5	0.02	0.05	1	0.0	0.0	0.0	0.00	0.00	C14		
Oesophagus	271	3.1	14.5	10.7	0.62	1.32	108	1.1	5.0	2.5	0.14	0.26	C15		
Stomach	519	6.0	27.7	19.2	0.85	2.23	351	3.6	16.4	7.6	0.33	0.82	C16		
Small intestine	18	0.2	1.0	0.8	0.05	0.10	19	0.2	0.9	0.5	0.02	0.08	C17		
Colon	638	7.3	34.1	24.0	1.12	2.79	807	8.4	37.7	18.9	0.92	2.13	C18		
Rectum	344	4.0	18.4	12.8	0.60	1.45	262	2.7	12.2	6.4	0.29	0.79	C19-20		
Anus	28	0.3	1.5	1.1	0.05	0.12	53	0.5	2.5	1.3	0.07	0.13	C21		
Liver	54	0.6	2.9	2.1	0.10	0.30	24	0.2	1.1	0.6	0.04	0.06	C22		
Gallbladder etc.	101	1.2	5.4	3.7	0.14	0.44	209	2.2	9.8	4.5	0.20	0.50	C23-24		
Pancreas	215	2.5	11.5	8.4	0.46	1.07	225	2.3	10.5	4.9	0.19	0.58	C25		
Nose, sinuses etc.	13	0.1	0.7	0.5	0.02	0.06	11	0.1	0.5	0.4	0.02	0.03	C30-31		
Larynx	295	3.4	15.7	12.2	0.82	1.58	26	0.3	1.2	0.8	0.05	0.11	C32		
Trachea, bronchus and lung	1885	21.7	100.6	76.5	4.80	9.52	332	3.4	15.5	9.4	0.56	1.12	C33-34		
Other thoracic organs	28	0.3	1.5	1.2	0.06	0.14	21	0.2	1.0	0.7	0.06	0.07	C37-38		
Bone	25	0.3	1.3	1.1	0.08	0.10	32	0.3	1.5	1.4	0.09	0.12	C40-41		
Melanoma of skin	121	1.4	6.5	5.4	0.38	0.60	110	1.1	5.1	3.8	0.31	0.39	C43		
Other skin	1168		62.3	44.1	2.05	5.08	929		43.4	24.2	1.33	2.85	C44		
Mesothelioma	13	0.1	0.7	0.5	0.03	0.05	7	0.1	0.3	0.2	0.00	0.02	C45		
Kaposi sarcoma	13	0.1	0.7	0.6	0.05	0.06	10	0.1	0.5	0.3	0.01	0.02	C46		
Connective and soft tissue	67	0.8	3.6	2.9	0.15	0.29	76	0.8	3.5	2.5	0.18	0.25	C47+C49		
†Breast	31	0.4	1.7	1.2	0.07	0.14	3679	38.1	171.7	114.9	8.35	13.21	C50		
Vulva							62	0.6	2.9	1.5	0.09	0.18	C51		
Vagina							12	0.1	0.6	0.3	0.02	0.03	C52		
Cervix uteri							476	4.9	22.2	17.8	1.41	1.79	C53		
Corpus uteri							484	5.0	22.6	13.6	0.94	1.70	C54		
Uterus unspecified							64	0.7	3.0	1.6	0.09	0.15	C55		
Ovary							264	2.7	12.3	8.4	0.60	0.96	C56		
Other female genital organs							26	0.3	1.2	0.7	0.04	0.07	C57		
Placenta							5	0.1	0.2	0.2	0.02	0.02	C58		
Penis	29	0.3	1.5	1.1	0.04	0.12							C60		
Prostate	1175	13.5	62.7	40.2	1.12	4.40							C61		
Testis	148	1.7	7.9	7.3	0.54	0.59							C62		
Other male genital organs	3	0.0	0.2	0.1	0.00	0.02							C63		
Kidney	324	3.7	17.3	13.4	0.81	1.67	177	1.8	8.3	5.2	0.31	0.62	C64		
Renal pelvis	2	0.0	0.1	0.1	0.00	0.01	2	0.0	0.1	0.1	0.00	0.01	C65		
Ureter	9	0.1	0.5	0.3	0.01	0.05	0	0.0	0.0	0.0	0.00	0.00	C66		
Bladder	601	6.9	32.1	22.6	1.02	2.69	189	2.0	8.8	4.3	0.16	0.51	C67		
Other urinary organs	3	0.0	0.2	0.1	0.01	0.02	2	0.0	0.1	0.0	0.00	0.00	C68		
Eye	7	0.1	0.4	0.4	0.02	0.04	7	0.1	0.3	0.3	0.01	0.02	C69		
Brain, nervous system	179	2.1	9.6	8.4	0.57	0.87	192	2.0	9.0	6.8	0.46	0.67	C70-72		
Thyroid	25	0.3	1.3	1.1	0.09	0.13	123	1.3	5.7	4.7	0.35	0.44	C73		
Adrenal gland	9	0.1	0.5	0.5	0.04	0.05	4	0.0	0.2	0.1	0.01	0.02	C74		
Other endocrine	7	0.1	0.4	0.3	0.03	0.04	7	0.1	0.3	0.3	0.02	0.03	C75		
Hodgkin disease	76	0.9	4.1	3.9	0.28	0.33	58	0.6	2.7	2.4	0.18	0.21	C81		
Non-Hodgkin lymphoma	233	2.7	12.4	9.9	0.59	1.07	247	2.6	11.5	7.1	0.40	0.77	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	83	1.0	4.4	3.3	0.20	0.36	71	0.7	3.3	1.9	0.11	0.22	C90		
Lymphoid leukaemia	59	0.7	3.1	2.6	0.12	0.26	48	0.5	2.2	1.6	0.08	0.11	C91		
Myeloid leukaemia	78	0.9	4.2	3.4	0.20	0.34	65	0.7	3.0	2.0	0.13	0.21	C92-94		
Leukaemia unspecified	29	0.3	1.5	1.2	0.05	0.11	33	0.3	1.5	0.9	0.04	0.09	C95		
Other and unspecified	573	6.6	30.6	21.8	0.99	2.55	579	6.0	27.0	12.8	0.53	1.40	O&U		
All sites	9856		526.0	386.0	20.28	44.96	10593		494.3	303.2	19.37	34.10	ALL		
All sites but C44	8688	100.0	463.7	341.9	18.23	39.88	9664	100.0	451.0	279.0	18.04	31.26	ALLbC44		

‡Includes 76 cases of unknown age

§Includes 50 cases of unknown age

†See note following population pyramid