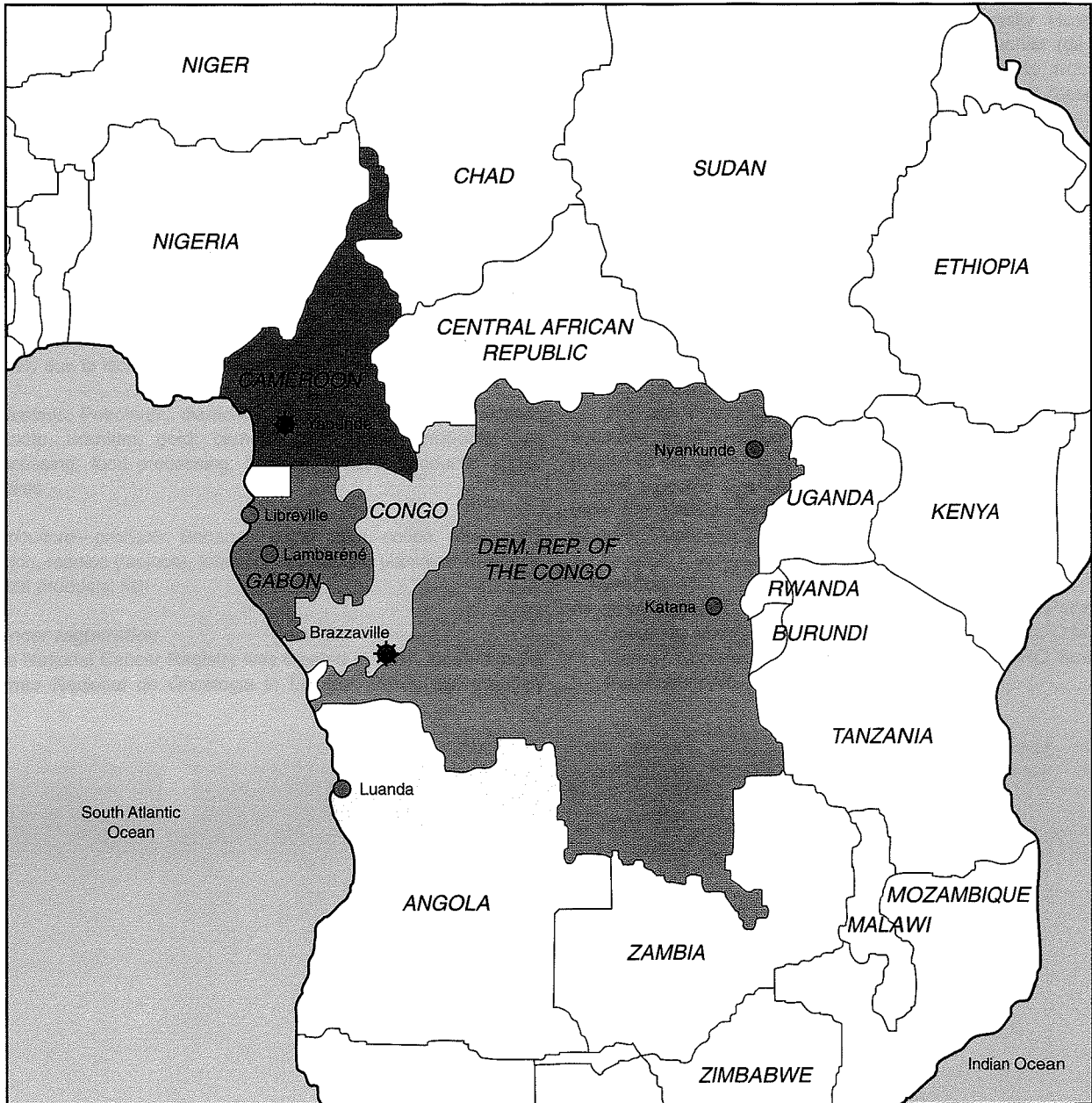


### 3.3 Central Africa



## 3.3.1 Angola

### **Background**

*Climate:* Semiarid in south and along coast to Luanda; north has cool, dry season (May to October) and hot, rainy season (November to April)

*Terrain:* Narrow coastal plain rises abruptly to vast interior plateau

*Ethnic groups:* Ovimbundu 37%, Kimbundu 25%, Bakongo 13%, mestico (mixed European and native African) 2%, European 1%, other 22%

*Religions:* Indigenous beliefs 47%, Roman Catholic 38%, Protestant 15% (1998 est.)

*Economy—overview:* Angola has an economy in disarray because of more than 20 years of nearly continuous warfare. Despite its abundant natural resources, output per capita is among the world's lowest. Subsistence agriculture provides the main livelihood for 85% of the population. Oil production and the supporting activities are vital to the economy, contributing about 50% to GDP. Notwithstanding the signing of a peace accord in November 1994, sporadic violence continues, millions of land mines remain, and many farmers are reluctant to return to their fields. As a result, much of the country's food must still be imported. Despite the high inflation and political difficulties, total output grew an estimated 9% in 1996, largely due to increased oil production and higher oil prices.

*Industries:* Petroleum, diamonds, iron ore, phosphates, feldspar, bauxite, uranium, gold; cement; basic metal products; fish processing; food processing; brewing; tobacco products; sugar; textiles

*Agriculture—products:* Bananas, sugar cane, coffee, sisal, corn, cotton, manioc (tapioca), tobacco, vegetables, plantains; livestock; forest products; fish

### **Cancer registration**

The National Cancer Registry was created in 1987, located in the Centro Nacional de Oncologia in Luanda. Previously, the only

available statistics on cancer were derived from the Department of Pathology in the major university hospital (Americo Boavida). A report of the first four years of registration (1987–90) was published in 1990. The major source of notification to the registry remains the pathology departments of three hospitals in Luanda (including the Oncology Centre) (85% of recorded cases with histology), and the other cases registered are primarily from the same hospitals. Only 2% of registrations come from laboratories outside Luanda Province.

### **Review of data**

Data from the Department of Pathology, University Hospitals, Luanda for the years 1977–1980 were published earlier (da Silva Lopes, 1986). The more recently published results from the National Cancer Registry are shown in Table 1, and it is these that have been used in preparing national estimates of incidence.

There is a small excess of cases in females, in whom cervix cancer is the major cancer (23.3%), followed by cancer of the breast (15.6%), skin (8.2%), stomach (5.1%) and non-Hodgkin lymphomas (4.5%). In men, the principal cancers are skin (10.2%), stomach (9.5%), non-Hodgkin lymphomas (6.9%), liver (5.6%) and Kaposi sarcoma (5.0%).

These results have to be interpreted cautiously, because of the high percentage of cases derived from pathology departments. Nevertheless, the high frequency of stomach cancer is noteworthy (85% with histology). Liver cancer (61% of cases with histology) is probably underestimated.

The age distribution of the Kaposi sarcoma cases was not available, so it is difficult to be certain whether they are AIDS-related or not. However, the high sex ratio (37:6) and the fact that Kaposi sarcoma was observed to be 'frequent' in the 1977–80 data (da Silva Lopes, 1986) suggests that many are of the 'endemic' type.

### **Reference**

da Silva Lopes, C.A. (1986) Angola. Department of Pathology, University Hospitals, Luanda, 1977–1980. In: Parkin, D.M., ed., *Cancer Occurrence in Developing Countries* (IARC Scientific Publications No. 75), Lyon, IARC, pp. 33–35

Table 1. Angola 1987-90: frequency data

Site	Male		Female		%HV
	No.	%	No.	%	
Oral cavity	35	4.7%	20	2.5%	93
Nasopharynx	4	0.5%	6	0.7%	70
Other pharynx	15	2.0%	11	1.4%	77
Oesophagus	32	4.3%	3	0.4%	77
Stomach	71	9.5%	41	5.1%	85
Colon/rectum	22	3.0%	15	1.9%	86
Liver	42	5.6%	17	2.1%	61
Pancreas	9	1.2%	1	0.1%	90
Larynx	19	2.6%	4	0.5%	74
Lung	30	4.0%	9	1.1%	67
Melanoma	15	2.0%	17	2.1%	100
Other skin	76	10.2%	66	8.2%	97
Kaposi sarcoma	37	5.0%	6	0.7%	100
Breast	3	0.4%	126	15.6%	82
Cervix uteri			188	23.3%	87
Corpus uteri			25	3.1%	88
Ovary etc.			34	4.2%	76
Prostate	30	4.0%			93
Penis					
Testis	5	0.7%			80
Bladder	28	3.8%	9	1.1%	89
Kidney etc.	8	1.1%	12	1.5%	90
Eye					
Brain, nervous system	3	0.4%	4	0.5%	57
Thyroid	7	0.9%	16	2.0%	96
Non Hodgkin lymphoma	51	6.9%	36	4.5%	98
Hodgkin disease	12	1.6%	1	0.1%	100
Myeloma	2	0.3%	0	0.0%	100
Leukaemia	12	1.6%	9	1.1%	100
ALL SITES	744	100.0%	808	100.0%	86
ALL SITES excl. other skin	668		742		

Source: Relatório Annual, Centro Nacional de Cancro, Registro Nacional de Cancro, 1990

## 3.3.2 Cameroon

### **Background**

*Climate:* Varies with terrain, from tropical along coast to semiarid and hot in north

*Terrain:* Diverse, with coastal plain in southwest, dissected plateau in centre, mountains in west, plains in north

*Ethnic groups:* Cameroon Highlanders 31%, Equatorial Bantu 19%, Kirdi 11%, Fulani 10%, Northwestern Bantu 8%, Eastern Nigritic 7%, other African 13%, non-African less than 1%

*Religions:* Indigenous beliefs 51%, Christian 33%, Muslim 16%

*Economy—overview:* Because of its oil resources and favourable agricultural conditions, Cameroon has one of the best-endowed primary commodity economies in sub-Saharan Africa. Still, it faces many of the serious problems facing other under-developed countries, such as a top-heavy civil service and a generally unfavourable climate for business enterprise. The development of the oil sector led to rapid economic growth between 1970 and 1985. Growth came to an abrupt halt in 1986, precipitated by steep declines in the prices of major exports: petroleum, coffee and cocoa. Export earnings were cut by almost one third, and inefficiencies in fiscal management were exposed. Inflation, which rose to 48% after the devaluation of 1994, has been brought under control.

*Industries:* Petroleum production and refining, food processing, light consumer goods, textiles, lumber

*Agriculture—products:* Coffee, cocoa, cotton, rubber, bananas, oilseed, grains, root starches; livestock; timber

### **Cancer registration**

A cancer registry was established in the Anti-Cancer Centre in the Central Hospital, Yaounde, in 1994. The objective was to collect data on cancer cases for the resident population of the city (estimated as 561 600 males and 517 300 females in mid-1995).

### **Review of data**

The results of the first two years of operation in the Anti-Cancer Centre, Yaounde are shown in Table 1. The great majority of cases

(80%) were identified in the two principal hospitals of the city (Central Hospital and University Teaching Hospital), and all had a histologically-based diagnosis. Calculation of incidence rates for this two-year period suggests a very low crude rate (24.1 per 100 000 in males and 33.7 per 100 000 in women). These figures imply considerable underascertainment, notably of cancer cases not diagnosed via the pathology laboratory, so that the calculated incidence rates are not presented.

The most common cancer in males is liver cancer (38.2%) followed by prostate (15.5%). In females, the most common cancers are cervix (30.7%), breast (27.1%), liver (10.3%) and ovary (6.7%). The category "skin" includes Kaposi sarcoma—it comprises 12.1% of cancers in men and 5.4% in women.

Previously, the most comprehensive picture of the cancer profile of Cameroon was the description of the series from the pathology laboratory of the Institut Pasteur, Yaounde, from the years 1969–73 (Table 2) (Jensen *et al.*, 1978). During these years, this was the only pathology laboratory in the country, and it recorded 3077 cancer cases (Table 2). As in all pathology series, superficial cancers are very evident (skin cancers and, in men, Kaposi sarcoma). Other than these, non-Hodgkin lymphoma (11.5%) and cancers of the liver (9.6%) are the most frequent in men, and cancers of the cervix (18.4%), breast (11.7%) and non-Hodgkin lymphoma (6.7%) in women.

Mbakop *et al.* (1992) provides some later information about histologically diagnosed cancers from 1986–91 (presumably from the authors' laboratory in Yaounde). This paper gives no breakdown by sex, but the most common sites are reported as liver (20%), skin (15%), cervix (11%), breast (11%) and lymph nodes (8%). The equality of the frequency of breast and cervix cancers is noteworthy.

### **References**

- Jensen, O.M., Tuyns, A.J. & Ravisse, P. (1978) Cancer in Cameroon: a relative frequency study. *Rev. Epid. Santé Publ.*, **26**, 147–159
- Mbakop, A., Essame Oyono, J.L., Ngbangako, M.C. & Abondo, A. (1992) Epidémiologie actuelle des cancers au Cameroun (Afrique Centrale). *Bull. Cancer*, **79**, 1101–1104

Table 1. Cameroon, Yaounde (1995-1996)

NUMBER OF CASES BY AGE GROUP - MALE

SITE	ALL AGES	AGE UNK	MY (%)	0-	15-	25-	35-	45-	55-	65+	%	ICD (10th)
Mouth	10	0	100	-	1	1	1	3	2	2	4.2	C00-06
Salivary gland	3	0	100	1	-	-	-	2	-	-	1.3	C07-08
Nasopharynx	7	0	100	1	2	1	2	1	-	-	2.9	C11
Other pharynx	4	0	100	-	-	1	1	1	1	-	1.7	C09-10,C12-14
Oesophagus	2	0	100	1	-	-	-	1	-	-	0.8	C15
Stomach	1	0	100	-	-	-	-	-	1	-	0.4	C16
Colon, rectum and anus	11	0	100	-	2	2	1	5	1	-	4.6	C18-21
Liver	91	2	100	6	5	9	15	15	18	21	38.2	C22
Gallbladder etc.	7	0	100	-	-	1	1	-	5	-	2.9	C23-24
Pancreas	1	0	100	-	-	-	-	-	1	-	0.4	C25
Larynx	8	0	100	-	-	-	1	-	3	4	3.4	C32
Trachea, bronchus and lung	6	0	100	-	-	1	-	-	5	-	2.5	C33-34
Bone	2	0	100	1	1	-	-	-	-	-	0.8	C40-41
Melanoma of skin	1	0	100	-	-	-	-	-	1	-	0.4	C43
Other skin	33	2	100	1	2	5	7	6	7	3	0.0	C44
Mesothelioma	0	0	-	-	-	-	-	-	-	-	0.0	C45
Kaposi sarcoma	0	0	-	-	-	-	-	-	-	-	0.0	C46
Peripheral nerves	0	0	-	-	-	-	-	-	-	-	0.0	C47
Connective and soft tissue	0	0	-	-	-	-	-	-	-	-	0.0	C49
Breast	0	0	-	-	-	-	-	-	-	-	0.0	C50
Penis	0	0	-	-	-	-	-	-	-	-	0.0	C60
Prostate	37	1	100	-	-	-	-	3	12	21	15.5	C61
Testis	0	0	-	-	-	-	-	-	-	-	0.0	C62
Kidney	1	0	100	1	-	-	-	-	-	-	0.4	C64
Renal pelvis, ureter and other urinary	0	0	-	-	-	-	-	-	-	-	0.0	C65-66,C68
Bladder	0	0	-	-	-	-	-	-	-	-	0.0	C67
Eye	2	0	100	2	-	-	-	-	-	-	0.8	C69
Brain, nervous system	0	0	-	-	-	-	-	-	-	-	0.0	C70-72
Thyroid	2	0	100	-	-	-	1	1	-	-	0.8	C73
Hodgkin disease	0	0	-	-	-	-	-	-	-	-	0.0	C81
Non-Hodgkin lymphoma	1	0	100	-	-	-	-	-	-	1	0.4	C82-85,C96
Multiple myeloma	0	0	-	-	-	-	-	-	-	-	0.0	C90
Lymphoid leukaemia	1	0	100	1	-	-	-	-	-	-	0.4	C91
Myeloid leukaemia	1	0	100	-	-	1	-	-	-	-	0.4	C92-94
Leukaemia, unspecified	0	0	-	-	-	-	-	-	-	-	0.0	C95
Other and unspecified	39	0	100	8	2	5	3	6	4	11	16.4	O&U
All sites	271	5	100	23	15	27	33	44	61	63		ALL
All sites but C44	238	3	100	22	13	22	26	38	54	60	100.0	ALLbC44

**Table 1. Cameroon, Yaounde (1995-1996)**

NUMBER OF CASES BY AGE GROUP - FEMALE

S I T E	ALL AGES	AGE UNK	MV (%)	0-	15-	25-	35-	45-	55-	65+	%	ICD (10th)
Mouth	6	0	100	1	1	-	3	1	-	-	1.8	C00-06
Salivary gland	1	0	100	1	-	-	-	-	-	-	0.3	C07-08
Nasopharynx	1	0	100	-	-	1	-	-	-	-	0.3	C11
Other pharynx	3	1	100	-	1	1	-	-	-	-	0.9	C09-10,C12-14
Oesophagus	0	0	-	-	-	-	-	-	-	-	0.0	C15
Stomach	8	0	100	-	-	2	1	2	2	1	2.4	C16
Colon, rectum and anus	12	0	100	-	-	1	-	7	4	-	3.6	C18-21
Liver	34	1	100	6	2	1	4	3	11	6	10.3	C22
Gallbladder etc.	0	0	-	-	-	-	-	-	-	-	0.0	C23-24
Pancreas	1	1	100	-	-	-	-	-	-	-	0.3	C25
Larynx	3	0	100	-	-	-	-	-	3	-	0.9	C32
Trachea, bronchus and lung	1	0	100	-	-	-	-	-	1	-	0.3	C33-34
Bone	5	0	100	-	-	-	2	-	2	1	1.5	C40-41
Melanoma of skin	0	0	-	-	-	-	-	-	-	-	0.0	C43
Other skin	19	0	100	-	2	-	3	4	5	5	5.5	C44
Mesothelioma	0	0	-	-	-	-	-	-	-	-	0.0	C45
Kaposi sarcoma	0	0	-	-	-	-	-	-	-	-	0.0	C46
Peripheral nerves	0	0	-	-	-	-	-	-	-	-	0.0	C47
Connective and soft tissue	0	0	-	-	-	-	-	-	-	-	0.0	C49
Breast	89	2	100	-	3	18	20	18	19	9	27.1	C50
Vulva	0	0	-	-	-	-	-	-	-	-	0.0	C51
Vagina	6	1	100	-	-	-	1	-	4	-	1.8	C52
Cervix uteri	101	3	100	-	4	9	14	36	27	8	30.7	C53
Uterus	5	0	100	-	-	2	-	1	2	-	1.5	C54-55
Ovary	22	1	100	-	4	3	5	7	2	-	6.7	C56
Placenta	0	0	-	-	-	-	-	-	-	-	0.0	C58
Kidney	1	0	100	-	-	-	-	-	1	-	0.3	C64
Renal pelvis, ureter and other urinary	0	0	-	-	-	-	-	-	-	-	0.0	C65-66,C68
Bladder	0	0	-	-	-	-	-	-	-	-	0.0	C67
Eye	0	0	-	-	-	-	-	-	-	-	0.0	C69
Brain, nervous system	0	0	-	-	-	-	-	-	-	-	0.0	C70-72
Thyroid	2	0	100	-	-	-	-	2	-	-	0.6	C73
Hodgkin disease	0	0	-	-	-	-	-	-	-	-	0.0	C81
Non-Hodgkin lymphoma	0	0	-	-	-	-	-	-	-	-	0.0	C82-85,C96
Multiple myeloma	0	0	-	-	-	-	-	-	-	-	0.0	C90
Lymphoid leukaemia	0	0	-	-	-	-	-	-	-	-	0.0	C91
Myeloid leukaemia	1	0	100	-	-	-	-	1	-	-	0.3	C92-94
Leukaemia, unspecified	0	0	-	-	-	-	-	-	-	-	0.0	C95
Other and unspecified	27	2	100	3	5	1	1	3	7	5	8.2	O&U
All sites	348	12	100	11	22	39	54	85	90	35	100.0	ALL
All sites but C44	329	12	100	11	20	39	51	81	85	30	100.0	ALLbC44

Table 2. Cameroon: case series

Site	Pasteur Institute, Yaounde, 1968-73 (Jensen <i>et al.</i> , 1978)				%HV
	Male		Female		
	No.	%	No.	%	
Oral cavity	66	4.4%	31	2.0%	100
Nasopharynx	6	0.4%	4	0.3%	100
Other pharynx	23	1.5%	8	0.5%	100
Oesophagus	5	0.3%	0	0.0%	100
Stomach	41	2.7%	37	2.4%	100
Colon/rectum	49	3.2%	30	1.9%	100
Liver	146	9.6%	45	2.9%	100
Pancreas	6	0.4%	4	0.3%	100
Lung	34	2.2%	8	0.5%	100
Melanoma	55	3.6%	73	4.7%	100
Other skin	288	19.0%	240	15.4%	100
Kaposi sarcoma	157	10.4%	14	0.9%	100
Breast	28	1.8%	182	11.7%	100
Cervix uteri			287	18.4%	100
Corpus uteri			58	3.7%	100
Ovary etc.			83	5.3%	100
Prostate	44	2.9%			100
Penis	10	0.7%			100
Bladder	36	2.4%	14	0.9%	100
Kidney etc.	15	1.0%	15	1.0%	100
Eye	22	1.5%	13	0.8%	100
Brain, nervous system	7	0.5%	4	0.3%	100
Thyroid	4	0.3%	22	1.4%	100
Non-Hodgkin lymphoma	174	11.5%	104	6.7%	100
Hodgkin disease	31	2.0%	13	0.8%	100
Myeloma	5	0.3%	3	0.2%	100
Leukaemia	10	0.7%	3	0.2%	100
ALL SITES	1515	100.0%	1562	100.0%	100

### 3.3.3 Central African Republic

#### **Background**

*Climate:* tropical; hot, dry winters; mild to hot, wet summers

*Terrain:* vast, flat to rolling, monotonous plateau; scattered hills in northeast and southwest

*Ethnic groups:* Baya 34%, Banda 27%, Sara 10%, Mandjia 21%, Mboum 4%, M'Baka 4%, Europeans 6500 (including 3600 French)

*Religions:* indigenous beliefs 24%, Protestant 25%, Roman Catholic 25%, Muslim 15%, other 11%. Note: animistic beliefs and practices strongly influence the Christian majority

*Economy—overview:* Subsistence agriculture, together with forestry, remains the backbone of the economy of the Central African Republic, with more than 70% of the population living in

outlying areas. The agricultural sector generates half of the GDP. Timber has accounted for about 16% of export earnings and the diamond industry for nearly 54%.

*Industries:* diamond mining, sawmills, breweries, textiles, footwear, assembly of bicycles and motorcycles

*Agriculture—products:* cotton, coffee, tobacco, manioc (tapioca), yams, millet, corn, bananas, timber

#### **Cancer registration**

There has been no organized cancer registration in the country.

#### **Review of data**

We could trace no description of the cancer profile in the country.



### 3.3.4 Chad

#### **Background**

*Climate:* Tropical in south, desert in north

*Terrain:* Broad, arid plains in centre, desert in north, mountains in northwest, lowlands in south

*Ethnic groups:* Muslims (Arabs, Toubou, Hadjerai, Fulbe, Kotoko, Kanembou, Baguirmi, Boulala, Zaghawa, and Maba), non-Muslims (Sara, Ngambaye, Mbaye, Goulaye, Moundang, Moussei, Massa), non-indigenous 150 000 (of whom 1000 are French)

*Religions:* Muslim 50%, Christian 25%, indigenous beliefs (mostly animism) 25%

*Economy—overview:* Landlocked Chad's economic development suffers from its geographic remoteness, drought, lack of

infrastructure, and political turmoil. About 85% of the population depends on agriculture, including the herding of livestock.

*Industries:* Cotton textiles, meat packing, beer brewing, natron (sodium carbonate), soap, cigarettes, construction materials

*Agriculture—products:* Cotton, sorghum, millet, peanuts, rice, potatoes, manioc (tapioca); cattle, sheep, goats, camels

#### **Cancer registration**

There has been no organized cancer registration in the country.

#### **Review of data**

We could trace no description of the cancer profile in the country.

## 3.3.5 Congo

### **Background**

*Climate:* Tropical; rainy season (March to June); dry season (June to October); constantly high temperatures and humidity; particularly enervating climate astride the Equator

*Terrain:* Coastal plain, southern basin, central plateau, northern basin

*Ethnic groups:* Kongo 48%, Sangha 20%, M'Bochi 12%, Teke 17%

*Religions:* Christian 50%, animist 48%, Muslim 2%

*Economy—overview:* The economy is a mixture of village agriculture and handicrafts, and an industrial sector based largely on oil and related support services. Oil has supplanted forestry as the mainstay of the economy, providing about 90% of government revenues and exports. In the early 1980s, rapidly rising oil revenues enabled the government to finance large-scale development projects with GDP growth averaging 5% annually, one of the highest rates in Africa. Subsequently, falling oil prices cut GDP growth by half

*Industries:* Petroleum extraction, cement kilning, lumbering, brewing, sugar milling, palm oil, soap, cigarette making

*Agriculture—products:* Cassava (tapioca) accounts for 90% of food output, sugar, rice, corn, peanuts, vegetables, coffee, cocoa; forest products

### **Cancer registration**

A population-based cancer registry was established in 1995, in the Department of Medical Oncology, situated in the largest hospital in the capital, Brazzaville. The registry aimed to register cases among the population of the city of Brazzaville. Before 1995, a register of cases attending the medical oncology service had been maintained. The registry functions by active case-finding through visits to all hospitals in the city, and collection of all pathology reports mentioning cancer. A few cases are notified by private practitioners.

The outbreak of civil war in 1997 caused a major disruption to medical and laboratory services, and a cessation of registry activity. However, this was able to restart towards the end of the year. The results presented in Table 1 are for three years, 1996 and 1998–99.

### **Review of data**

1449 cases were registered in the three-year period, 51% of which had microscopically verified diagnosis. Table 1 presents incidence data based on the estimated population of Brazzaville. The calculated incidence rates are likely to be underestimates, given the social and political instability and consequent disruption to medical services.

In males, liver cancer is the most commonly registered tumour (26.4%) with 34% microscopic verification, followed by prostate (7.9%) non-Hodgkin lymphoma (6.9%) and Kaposi sarcoma (6.5%). In women, cervix cancer predominates (32.8% cancers). The age-standardized incidence, even though an underestimate, is rather high (31.7 per 100 000). Breast cancer is second in frequency (24.1%) with an estimated (minimum) ASR of 22.5 per 100 000. Liver is third in frequency (8.9%) and ovary (5.9%) fourth.

It is interesting to compare these results with the series compiled in 1965–66 from various hospitals and the Department of Pathology at the Institut Pasteur. There were 505 cases, most (70%) from Brazzaville, and 53% had a pathological diagnosis (Tuyns & Ravisse, 1970) (see Table 2).

At that time, the most frequently diagnosed cancers were, in males, liver (40.7%), prostate (9.5%), skin (9.1%), non-Hodgkin lymphoma (7%), and in women, cervix (21.8%), breast (14.1%), liver (13.4%) and skin (9.2%). The profile is similar to the more recent one, with the exception of the high apparent relative frequency of skin cancer. Burkitt's lymphoma was noted to be 'infrequent'.

### **Reference**

Tuyns, A.J. & Ravisse, P. (1970) Cancer in Brazzaville, the Congo. *J. Natl Cancer Inst.*, **44**, 1121–1127

Table 1. Congo, Brazzaville (1996-1999)

NUMBER OF CASES BY AGE GROUP AND SUMMARY RATES OF INCIDENCE - MALE

SITE	ALL AGES	AGE UNK	MV (%)	0-	15-	25-	35-	45-	55-	65+	CRUDE RATE	%	CR 64	ASR (W)	ICD (10th)
Mouth	9	0	44	-	-	-	3	-	4	2	0.7	1.6	0.10	1.2	C00-06
Salivary gland	5	0	60	1	-	1	-	2	1	-	0.4	0.9	0.05	0.5	C07-08
Nasopharynx	3	0	100	-	-	-	-	2	1	-	0.2	0.5	0.04	0.4	C11
Other pharynx	13	0	62	-	-	1	1	5	3	3	1.1	2.3	0.13	1.7	C09-10,C12-14
Oesophagus	4	0	75	-	-	-	1	1	1	1	0.3	0.7	0.04	0.5	C15
Stomach	15	0	47	-	-	2	1	3	5	4	1.2	2.6	0.15	2.0	C16
Colon, rectum and anus	34	0	38	-	-	1	10	7	4	12	2.8	6.0	0.25	4.4	C18-21
Liver	150	0	34	1	17	33	35	21	20	23	12.4	26.4	1.23	17.2	C22
Gallbladder etc.	1	0	0	-	-	-	-	-	1	-	0.1	0.2	0.02	0.2	C23-24
Pancreas	16	0	6	-	-	2	2	3	6	3	1.3	2.8	0.17	2.1	C25
Larynx	15	0	67	-	-	-	1	2	6	6	1.2	2.6	0.15	2.2	C32
Trachea, bronchus and lung	28	0	36	-	-	-	3	6	11	8	2.3	4.9	0.29	3.9	C33-34
Bone	22	0	73	1	2	11	4	2	2	-	1.8	3.9	0.18	2.2	C40-41
Melanoma of skin	8	0	75	-	-	1	-	2	3	2	0.7	1.4	0.09	1.1	C43
Other skin	12	0	33	1	-	1	3	3	3	1	1.0	0.0	0.12	1.4	C44
Mesothelioma	0	0	-	-	-	-	-	-	-	-	0.0	0.0	0.00	0.0	C45
Kaposi sarcoma	37	0	76	1	1	4	15	10	3	3	3.1	6.5	0.34	4.3	C46
Peripheral nerves	0	0	-	-	-	-	-	-	-	-	0.0	0.0	0.00	0.0	C47
Connective and soft tissue	24	0	63	3	2	2	5	7	2	3	2.0	4.2	0.20	2.8	C49
Breast	4	0	25	-	-	-	2	-	1	1	0.3	0.7	0.03	0.5	C50
Penis	0	0	-	-	-	-	-	-	-	-	0.0	0.0	0.00	0.0	C60
Prostate	45	0	58	-	-	1	-	3	18	23	3.7	7.9	0.36	6.4	C61
Testis	4	0	50	1	-	-	-	2	1	-	0.3	0.7	0.04	0.4	C62
Kidney	8	0	0	4	-	2	1	-	1	-	0.7	1.4	0.05	0.7	C64
Renal pelvis, ureter and other urinary	0	0	-	-	-	-	-	-	-	-	0.0	0.0	0.00	0.0	C65-66,C68
Bladder	3	0	33	-	-	-	-	1	2	-	0.2	0.5	0.04	0.4	C67
Eye	6	0	50	3	-	-	1	-	-	2	0.5	1.1	0.02	0.6	C69
Brain, nervous system	2	0	0	-	1	-	1	-	-	-	0.2	0.4	0.01	0.2	C70-72
Thyroid	2	0	50	-	-	1	-	1	-	-	0.2	0.4	0.02	0.2	C73
Hodgkin disease	2	0	100	-	-	-	1	1	-	-	0.2	0.4	0.02	0.3	C81
Non-Hodgkin lymphoma	39	0	92	8	4	3	8	9	5	2	3.2	6.9	0.32	4.1	C82-85,C96
Multiple myeloma	9	0	56	-	-	-	-	4	2	3	0.7	1.6	0.08	1.2	C90
Lymphoid leukaemia	18	0	94	5	3	1	5	1	2	1	1.5	3.2	0.13	1.8	C91
Myeloid leukaemia	9	0	100	-	3	4	-	-	1	1	0.7	1.6	0.06	0.9	C92-94
Leukaemia, unspecified	9	0	100	1	2	2	1	-	2	1	0.7	1.6	0.06	0.9	C95
Other and unspecified	25	0	32	2	3	10	3	3	3	1	2.1	4.4	0.21	2.6	O&U
All sites	581	0	52	32	38	83	107	101	114	106	48.0		4.99	69.2	ALL
All sites but C44	569	0	52	31	38	82	104	98	111	105	47.1	100.0	4.87	67.7	ALLbC44
Average annual population				130895	59256	37934	26555	21572	14490	11606					

**Table 1. Congo, Brazzaville (1996-1999)**

NUMBER OF CASES BY AGE GROUP AND SUMMARY RATES OF INCIDENCE - FEMALE

SITE	ALL AGES	AGE UNK	MV (%)	0-	15-	25-	35-	45-	55-	65+	CRUDE RATE	%	CR 64	ASR (W)	ICD (10th)
Mouth	13	0	31	-	-	-	-	3	6	4	1.1	1.5	0.12	<b>1.6</b>	C00-06
Salivary gland	5	0	20	1	-	-	1	1	-	-	0.4	0.6	0.04	<b>0.5</b>	C07-08
Nasopharynx	2	0	100	1	-	-	1	-	-	-	0.2	0.2	0.01	<b>0.2</b>	C11
Other pharynx	5	0	60	1	-	-	-	1	2	1	0.4	0.6	0.04	<b>0.5</b>	C09-10, C12-14
Oesophagus	1	0	100	-	-	-	-	-	-	1	0.1	0.1	0.00	<b>0.1</b>	C15
Stomach	11	0	64	-	-	-	1	4	3	3	0.9	1.3	0.10	<b>1.3</b>	C16
Colon, rectum and anus	25	0	24	-	-	6	4	7	5	3	2.1	2.9	0.23	<b>2.8</b>	C18-21
Liver	76	0	37	1	4	9	17	19	11	15	6.3	8.9	0.61	<b>8.4</b>	C22
Gallbladder etc.	0	0	-	-	-	-	-	-	-	-	0.0	0.0	0.00	<b>0.0</b>	C23-24
Pancreas	9	0	0	-	-	1	2	1	2	3	0.7	1.1	0.07	<b>1.1</b>	C25
Larynx	0	0	-	-	-	-	-	-	-	-	0.0	0.0	0.00	<b>0.0</b>	C32
Trachea, bronchus and lung	4	0	0	-	-	-	-	1	1	2	0.3	0.5	0.03	<b>0.5</b>	C33-34
Bone	12	0	42	-	3	2	2	2	2	1	1.0	1.4	0.09	<b>1.2</b>	C40-41
Melanoma of skin	9	0	100	-	-	-	2	1	1	5	0.7	1.1	0.04	<b>1.1</b>	C43
Other skin	17	0	41	-	-	7	5	1	-	4	1.4	1.4	0.10	<b>1.8</b>	C44
Mesothelioma	0	0	-	-	-	-	-	-	-	-	0.0	0.0	0.00	<b>0.0</b>	C45
Kaposi sarcoma	14	0	86	-	1	6	4	1	1	1	1.2	1.6	0.11	<b>1.4</b>	C46
Peripheral nerves	0	0	-	-	-	-	-	-	-	-	0.0	0.0	0.00	<b>0.0</b>	C47
Connective and soft tissue	10	0	60	1	2	2	-	-	2	3	0.8	1.2	0.06	<b>1.0</b>	C49
Breast	205	0	48	-	10	35	64	54	34	8	17.0	24.1	1.95	<b>22.5</b>	C50
Vulva	4	0	75	-	1	-	-	1	-	2	0.3	0.5	0.02	<b>0.4</b>	C51
Vagina	1	0	100	-	-	-	-	1	-	-	0.1	0.1	0.01	<b>0.1</b>	C52
Cervix uteri	279	0	56	-	2	19	49	90	77	42	23.1	32.8	2.67	<b>31.7</b>	C53
Uterus	10	0	30	-	1	1	2	2	2	2	0.8	1.2	0.08	<b>1.1</b>	C54-55
Ovary	50	0	10	-	8	10	13	7	7	5	4.1	5.9	0.40	<b>5.2</b>	C56
Placenta	1	0	100	-	-	1	-	-	-	-	0.1	0.1	0.01	<b>0.1</b>	C58
Kidney	6	0	33	3	-	1	1	-	-	1	0.5	0.7	0.03	<b>0.5</b>	C64
Renal pelvis, ureter and other urinary	0	0	-	-	-	-	-	-	-	-	0.0	0.0	0.00	<b>0.0</b>	C65-66, C68
Bladder	3	0	0	-	1	-	1	-	1	-	0.2	0.4	0.03	<b>0.3</b>	C67
Eye	9	0	33	6	-	-	1	-	1	1	0.7	1.1	0.04	<b>0.7</b>	C69
Brain, nervous system	0	0	-	-	-	-	-	-	-	-	0.0	0.0	0.00	<b>0.0</b>	C70-72
Thyroid	5	0	80	-	-	4	1	-	-	-	0.4	0.6	0.04	<b>0.5</b>	C73
Hodgkin disease	2	0	100	-	-	1	-	1	-	-	0.2	0.2	0.02	<b>0.2</b>	C81
Non-Hodgkin lymphoma	26	0	88	10	3	6	3	2	2	-	2.2	3.1	0.17	<b>2.2</b>	C82-85, C96
Multiple myeloma	12	0	75	-	-	-	1	4	5	2	1.0	1.4	0.12	<b>1.4</b>	C90
Lymphoid leukaemia	19	0	100	-	1	1	4	3	6	4	1.6	2.2	0.17	<b>2.2</b>	C91
Myeloid leukaemia	6	0	100	-	-	-	1	4	1	-	0.5	0.7	0.07	<b>0.7</b>	C92-94
Leukaemia, unspecified	7	0	100	-	2	3	1	-	1	-	0.6	0.8	0.05	<b>0.6</b>	C95
Other and unspecified	10	0	10	-	1	4	4	1	-	-	0.8	1.2	0.08	<b>1.0</b>	O&U
All sites	868	0	50	24	40	120	186	212	173	113	72.0		7.60	<b>94.9</b>	ALL
All sites but C44	851	0	50	24	40	113	181	211	173	109	70.6	100.0	7.50	<b>93.1</b>	ALLbC44
Average annual population				123377	57910	38009	26009	24557	17120	14324					

Table 2. Congo, 1965-66: case series

Site	Brazzaville, 1965-66 (Tuyns & Ravisse, 1970)				%HV
	Male		Female		
	No.	%	No.	%	
Oral cavity	} 5	2.1%	3	1.1%	64
Nasopharynx					
Other pharynx					
Oesophagus					
Stomach					
Colon/rectum					
Liver	99	40.7%	35	13.4%	28
Pancreas					
Lung	5	2.1%	2	0.8%	14
Melanoma	6	2.5%	14	5.3%	91
Other skin	22	9.1%	24	9.2%	82
Kaposi sarcoma					
Breast			37	14.1%	51
Cervix uteri			57	21.8%	53
Corpus uteri			16	6.1%	56
Ovary etc			12	4.6%	67
Prostate	23	9.5%			61
Penis					
Bladder					
Kidney etc.					
Eye					
Brain, nervous system					
Thyroid					
Non Hodgkin lymphoma	17	7.0%	8	3.1%	72
Hodgkin disease					
Myeloma					
Leukaemia					
ALL SITES	243	100.0%	262	100.0%	53

## 3.3.6 Democratic Republic of the Congo (formerly Zaire)

### Background

**Climate:** Tropical; hot and humid in equatorial river basin; cooler and drier in southern highlands; cooler and wetter in eastern highlands; north of equator – wet season April to October, dry season December to February; south of equator – wet season November to March, dry season April to October

**Terrain:** Vast central basin is a low-lying plateau; mountains in east

**Ethnic groups:** Over 200 African ethnic groups of which the majority are Bantu; the four largest tribes—Mongo, Luba, Kongo (all Bantu), and the Mangbetu-Azande (Hamitic) make up about 45% of the population

**Religions:** Roman Catholic 50%, Protestant 20%, Kimbanguist 10%, Muslim 10%, other syncretic sects and traditional beliefs 10%

**Economy—overview:** The economy of the Democratic Republic of the Congo—a nation endowed with vast potential wealth—has declined significantly since the mid-1980s. Most individuals and families survive through subsistence farming or petty trade. A barter economy flourishes in all but the largest cities.

**Industries:** Mining, mineral processing, consumer products (including textiles, footwear, cigarettes, processed foods and beverages), cement, diamonds

**Agriculture—products:** Coffee, sugar, palm oil, rubber, tea, quinine, cassava (tapioca), palm oil, bananas, root crops, corn, fruits; wood products

### Cancer registration

There has been no organized cancer registration in the country.

### Review of data

Several case series have been reported, giving an insight into the cancer profile of this vast country. Thijs (1957) published results from the pathology laboratory in Stanleyville (modern Kisangani) from the years 1939–1955. There were 2418 cancer cases, with specimens coming from hospitals all over the country, but mainly from Orientale province (44.6%) and Kivu (16.6%). Since sex was unknown for about one fifth of cases, the relative frequencies are a little difficult to interpret, but there were clearly high frequencies of liver cancer in males (15.9% of cancers), and cervix and breast cancers in females (17.9% and 12% respectively). Kaposi sarcoma was very frequent, 13.4% cancers in men, 2% in women.

Oates *et al.* (1984) and Oates (1986) described a histopathology series, based on biopsies performed in the surgical department of the Centre Médical Evangelique (C.M.E.) hospital, Nyankunde, Orientale Province, taken during 1971–83. The 794 malignant cancers detected (Table 1) showed, as might be expected, a considerable excess of superficial tumours, and deficit of poorly accessible cancers (the authors commented that the low frequency of liver cancer was surely an underestimate of true frequency). Of interest is the high relative frequency of Kaposi

sarcoma (16.4% cancers in males); the authors noted that these occurred at younger ages than melanomas (the median age appears to be about 35 years), and that no increase in frequency was noted in the 13-year period. Breast cancer (17.9%) was more common than cervix cancer (10.8%) in women. Of interest too were the 25 eye cancers, 15 of which were squamous cell cancers, and 14 cases of Burkitt lymphoma (10 male, 4 female) among the 70 cases of non-Hodgkin lymphoma.

A more representative series was reported from a hospital at Katana, on the western shores of Lake Kivu (Kivu province), representing all cancer cases diagnosed in 1983–1986 (Bourdeaux *et al.*, 1988). In all, there were 494 cancer cases (six with sex not recorded) (Table 1); 73% were diagnosed with histology. Liver cancer is the most common cancer in both sexes, followed by Kaposi sarcoma in men (17.4%) and cervix cancer in women (12.1%). Stomach cancer was the third most common cancer in both sexes. The authors also provide tabulations for the 272 cases diagnosed among the residents of the four health districts served by the hospital (a total population of 204 000). For males, the profile is similar to that of the total series, while for females, stomach cancer appeared to be the most frequent (17.8%), followed by liver (16.8%) and cervix (13.1%). The crude incidence rate (all sites) for the resident cases was 40.7 per 100 000 for males and 26.4 per 100 000 for females. The authors note that the high frequency of stomach cancer had been noted previously in this region (Ceuterick, 1960), while Gigase *et al.* (1984) had drawn attention to the high frequency of Kaposi sarcoma. At the time this case series was collected (1983–1986), very few cases of Kaposi sarcoma were associated with HIV infection.

In a study of liver cancer, Kashala *et al.* (1992) observed the familiar association with chronic carriage of hepatitis B virus (HBV) (56.7% of 40 liver cancer cases HBsAg-positive, compared with 7.4% of 68 controls), and also noted higher levels of serum alpha-fetoprotein in the HBV-positive cases, compared with those HBV-negative.

### Childhood cancer

A report from the C.M.E. hospital, Nyankunde, described 73 biopsied cancers among children from 1983–1988 (Fischer *et al.*, 1990). Lymphomas were the most common malignant tumour (38.4%), of which just over half were Burkitt lymphoma (Table 2).

### References

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**Table 1. Democratic Republic of the Congo: case series**

Site	C.M.E. Nyankunde, 1971–83 (Oates <i>et al.</i> , 1984)					Katana, 1983–86 (Bourdeaux <i>et al.</i> , 1988)				
	Male		Female		%HV	Male		Female		%HV
	No.	%	No.	%		No.	%	No.	%	
Oral cavity*	22	6.1%	27	7.1%	100	5	1.8%	3	1.5%	88
Nasopharynx	18	5.0%	10	2.6%	100	2	0.7%	0	0.0%	100
Other pharynx	0	0.0%	0	0.0%	100	1	0.4%	0	0.0%	100
Oesophagus	1	0.3%	0	0.0%	100	1	0.4%	0	0.0%	100
Stomach*	19	5.3%	9	2.4%	100	32	11.3%	24	11.7%	64
Colon/rectum*	11	3.1%	8	2.1%	100	2	0.7%	5	2.4%	100
Liver	9	2.5%	11	2.9%	100	76	27.0%	35	17.0%	54
Pancreas*	2	0.6%	1	0.3%	100	3	1.1%	7	3.4%	60
Lung	0	0.0%	0	0.0%	100	0	0.0%	0	0.0%	
Melanoma	28	7.8%	22	5.8%	100	5	1.8%	3	1.5%	100
Other skin	51	14.2%	26	6.8%	100	16	5.7%	18	8.7%	91
Kaposi sarcoma	59	16.4%	6	1.6%	100	49	17.4%	9	4.4%	84
Breast	3	0.8%	68	17.9%	100	2	0.7%	16	7.8%	89
Cervix uteri			41	10.8%	100		0.0%	25	12.1%	76
Corpus uteri			1	0.3%	100		0.0%	4	1.9%	100
Ovary etc.			31	8.2%	100		0.0%	5	2.4%	80
Prostate	17	4.7%		0.0%	100	20	7.1%		0.0%	75
Penis	6	1.7%		0.0%	100	4	1.4%		0.0%	75
Bladder	9	2.5%	1	0.3%	100	2	0.7%	0	0.0%	100
Kidney etc.	6	1.7%	5	1.3%	100	6	2.1%	5	2.4%	54
Eye*	11	3.1%	14	3.7%	100	2	0.7%	3	1.5%	80
Brain, nervous system	0	0.0%	0	0.0%	100	1	0.4%	0	0.0%	0
Thyroid	6	1.7%	11	2.9%	100	3	1.1%	3	1.5%	83
Non-Hodgkin lymphoma	42	11.7%	28	7.4%	100	17	6.0%	16	7.8%	88
Hodgkin disease	6	1.7%	2	0.5%	100					
Myeloma*	1	0.3%	2	0.5%	100					
Leukaemia	3	0.8%	2	0.5%	100	3	1.1%	2	1.0%	40
ALL SITES	359	100.0%	380	100.0%	100	282	100.0%	206	100.0%	73

\* Distribution between males and females estimated from subtotals

**Table 2. Democratic Republic of the Congo: childhood case series**

Cancer	Nyankunde, 1983–88 (Fischer <i>et al.</i> , 1990)	
	No.	%
Leukaemia	0	0.0%
Acute lymphocytic leukaemia		0.0%
Lymphoma	28	38.4%
Burkitt lymphoma	15	20.5%
Hodgkin disease	3	4.1%
Brain and spinal neoplasms	0	0.0%
Neuroblastoma	2	2.7%
Retinoblastoma	5	6.8%
Wilms tumour	6	8.2%
Bone tumours		0.0%
Soft-tissue sarcomas		0.0%
Kaposi sarcoma	5	6.8%
Other	27	37.0%
Total	73	100.0%

### 3.3.7 Equatorial Guinea

**Background**

*Climate:* Tropical; always hot, humid

*Terrain:* Coastal plains rise to interior hills; islands are volcanic

*Ethnic groups:* Bioko (primarily Bubi, some Fernandinos), Rio Muni (primarily Fang), Europeans less than 1000, mostly Spanish

*Religions:* Nominally Christian and predominantly Roman Catholic, pagan practices

*Economy—overview:* The discovery and exploitation of large oil reserves have contributed to dramatic economic growth in recent years. Farming, forestry, and fishing are also major components of GDP. Subsistence farming predominates.

Undeveloped natural resources include titanium, iron ore, manganese, uranium and alluvial gold.

*Industries:* Fishing, sawmilling

*Agriculture—products:* Coffee, cocoa, rice, yams, cassava (tapioca), bananas, palm oil nuts, manioc; livestock; timber

**Cancer registration**

There has been no organized cancer registration in the country.

**Review of data**

We could trace no description of the cancer profile in the country.



## 3.3.8 Gabon

### Background

*Climate:* Tropical; always hot, humid

*Terrain:* Narrow coastal plain; hilly interior; savanna in east and south

*Ethnic groups:* Bantu tribes including four major tribal groupings (Fang, Eshira, Bapounou, Bateke), other Africans and Europeans 154 000, including 6000 French and 11 000 persons of dual nationality

*Religions:* Christian 55–75%, Muslim less than 1%, animist

*Economy—overview:* Gabon enjoys a per capita income four times that of most nations of sub-Saharan Africa. This has supported a sharp decline in extreme poverty, but because of high income inequality a large proportion of the population remains poor. Gabon depended on timber and manganese until oil was discovered offshore in the early 1970s. The oil sector now accounts for 50% of GDP. Gabon continues to face fluctuating prices for its oil, timber, manganese and uranium exports.

*Industries:* Food and beverages; textile; lumber and plywood; cement; petroleum extraction and refining; manganese, uranium and gold mining; chemicals; ship repair

*Agriculture—products:* Cocoa, coffee, sugar, palm oil; rubber; okoume (a tropical softwood); cattle; small fishing operations (which provide a catch of about 30 000 metric tons)

### Cancer registration

There has been no population-based cancer registration in the country, although there is a pathology-based register in the capital, Libreville, which has published its results (see below).

### Review of data

Denués and Munz (1967) published the results of an analysis of the 196 histologically-proved malignancies seen in the Dr Schweitzer Hospital, Lambaréné, between 1950 and 1965 (Table 1). Other than the usual finding in histology series of large numbers of skin cancers, the commonest cancers in men were liver (14.6%), prostate (8.3%) and non-Hodgkin lymphoma (8.3%), and in women, cervix (18%), ovary (11%) and non-Hodgkin lymphoma

(6%). The authors noted that only one case of Burkitt lymphoma was observed among the non-Hodgkin lymphoma cases, a male aged 24 years.

Walter *et al.* (1986) published the results from the Department of Pathology, Centre for Health Sciences, Libreville, for the years 1978–84. The series comprises surgical biopsy results (excluding, therefore, haematological malignancies) (Table 1). Ignoring cutaneous malignancies, the most common cancers in men were prostate (13.2%), non-Hodgkin lymphoma (12.1%), oral cavity (10.8%) and liver (4.8%), and in women, cervix (27.1%), breast (13.8%) and ovary (5.8%). The authors commented that the low frequency of liver cancer reflected reluctance to perform biopsies, rather than a low incidence of this cancer. Burkitt lymphoma comprised 80% of the childhood non-Hodgkin lymphoma (10/13 cases in boys, 2/2 in girls), and accounted for one third of childhood cancers. Kaposi sarcoma was more common in men, affecting mainly the lower limb (25/27 cases), but surprisingly was most frequent in the 25–34-year age group in men (7/30 cancers), and unusual in older men (only 5/167 cancers aged 55 years or more).

Nze-Nguema *et al.* (1996) published a sequential series (1984–93) from the same source (Table 1). The basic profile was unchanged, other than the emergence of oral cavity cancers (tongue and mouth) as the most common cancers in males (9.6% cases) and a rather higher frequency of liver cancers (8.9% in males, 3.9% in females). While the relative frequency of Kaposi sarcoma is much the same in the two series, cancers of the eye are much more frequent in the later period – 34 cases (26 in adults) in men (2.5% of cancers). In a separate analysis of childhood cancers (Table 2), the authors drew attention to the frequency of Burkitt lymphoma.

### References

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Table 1. Gabon: case series

Site	A. Schweitzer Hospital, Lambarene, 1950-65 (Denués & Munz, 1967)				Dept. of Pathology, Centre for Health Sciences, Libreville, 1978-84 (Walter <i>et al.</i> , 1986)				Dept. of Pathology, Centre for Health Sciences, Libreville, 1984-93 (Nze-Nguema <i>et al.</i> , 1996)			
	Male		Female		Male		Female		Male		Female	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
Oral cavity	3	3.1%	0	0.0%	58	10.8%	21	3.8%	131	9.6%	44	3.6%
Nasopharynx	0	0.0%	0	0.0%	7	1.3%	5	0.9%	3	0.2%	3	0.2%
Other pharynx	0	0.0%	0	0.0%	9	1.7%	0	0.0%	68	5.0%	6	0.5%
Oesophagus	0	0.0%	0	0.0%	6	1.1%	2	0.4%	42	3.1%	19	1.5%
Stomach	0	0.0%	0	0.0%	6	1.1%	10	1.8%	29	2.1%	16	1.3%
Colon/rectum	6	6.3%	5	5.0%	11	2.0%	16	2.9%	57	4.2%	57	4.6%
Liver	14	14.6%	2	2.0%	26	4.8%	6	1.1%	121	8.9%	48	3.9%
Pancreas	4	4.2%	0	0.0%	4	0.7%	0	0.0%	10	0.7%	3	0.2%
Larynx	1	1.0%	0	0.0%	21	3.9%	3	0.5%	57	4.2%	4	0.3%
Lung	2	2.1%	1	1.0%	33	6.1%	11	2.0%	94	6.9%	18	1.5%
Melanoma	5	5.2%	6	6.0%	23	4.3%	21	3.8%	16	1.2%	32	2.6%
Other skin	7	7.3%	17	17.0%	36	6.7%	32	5.8%	90	6.6%	54	4.4%
Kaposi sarcoma					24	4.5%	3	0.5%	61	4.5%	9	0.7%
Breast	0	0.0%	7	7.0%	5	0.9%	76	13.8%	21	1.5%	172	13.9%
Cervix uteri			18	18.0%			149	27.1%			325	26.3%
Corpus uteri			1	1.0%			24	4.4%				
Ovary etc.			11	11.0%			32	5.8%			41	3.3%
Prostate	8	8.3%			71	13.2%			106	7.8%		
Penis	2	2.1%			11	2.0%						
Bladder	4	4.2%	0	0.0%	13	2.4%	4	0.7%	22	1.6%	8	0.6%
Kidney etc.	6	6.3%	1	1.0%	6	1.1%	6	1.1%	18	1.3%	16	1.3%
Brain, nervous system	2	2.1%	0	0.0%	0	0.0%	0	0.0%	34	2.5%	5	0.4%
Eye	2	2.1%	0	0.0%	0	0.0%	2	0.4%	7	0.5%	13	1.1%
Thyroid	0	0.0%	2	2.0%	3	0.6%	14	2.5%	119	8.7%	88	7.1%
Non-Hodgkin lymphoma	8	8.3%	6	6.0%	65	12.1%	20	3.6%				
Hodgkin disease	4	4.2%	1	1.0%	3	0.6%	2	0.4%				
Myeloma	0	0.0%	0	0.0%	4	0.7%	0	0.0%				
Leukaemia	1	1.0%	0	0.0%	0	0.0%	2	0.4%	13	1.0%	13	1.1%
ALL SITES	96	100.0%	100	100.0%	539	100.0%	550	100.0%	1367	100.0%	1235	100.0%

\* Distribution between males and females estimated from subtotals

**Table 2. Gabon: childhood case series**

Cancer	Dept of Pathology, Libreville, 1984-93 (Nze-nguema <i>et al.</i> 1996)	
	No.	%
Leukaemia	11	7.7%
Acute lymphocytic leukaemia		
Lymphoma	61	43.0%
Burkitt lymphoma	47	33.1%
Hodgkin disease	5	3.5%
Brain and spinal neoplasms	0	0.0%
Neuroblastoma	2	1.4%
Retinoblastoma	10	7.0%
Wilms tumour	27	19.0%
Bone tumours		
Soft-tissue sarcomas		
Kaposi sarcoma	3	2.1%
Other	28	19.7%
Total	142	100.0%