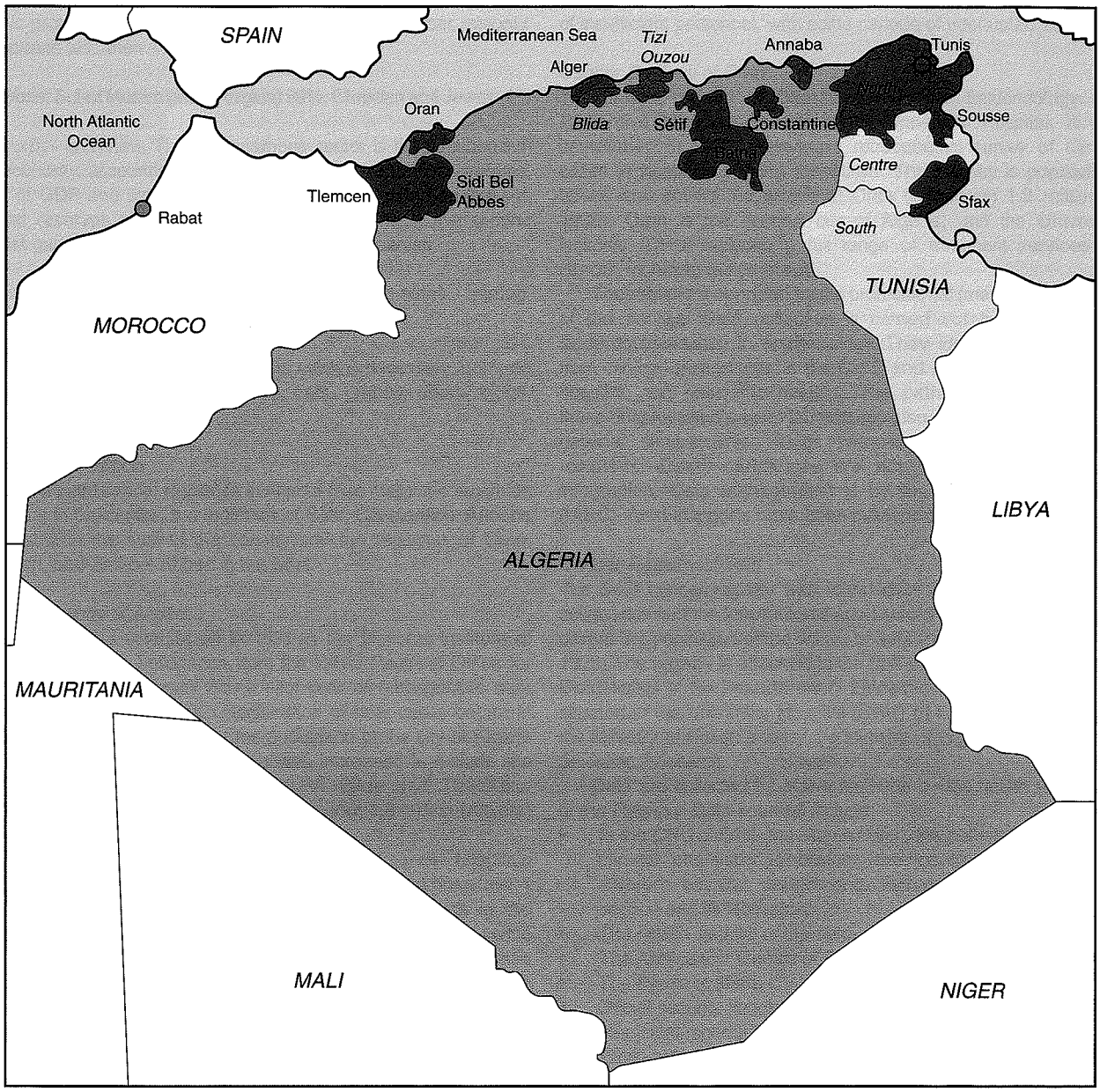
3. Cancer occurrence by country

3.1 North Africa



3.1.1 Algeria

Background

Climate: In the north, typically Mediterranean climate with hot, dry summers and mild, wet winters. Average temperatures 25°C in August and 12°C in January in Algiers. On the high plateaus and in the Sahara, low rainfall, with very large diurnal variations in temperature; occasional very violent sand storms.

Terrain: In the north, the Atlas chain of mountains and a narrow discontinuous coastal plain covering an area of 1000 km^2; in the south, the Sahara desert.

Ethnic groups: Largely Arabs (80%) with a strong Berber minority. Europeans less than 1%.

Religions: Sunni Muslim (state religion) 99%, Christian and Jewish 1%

Economy—overview: The hydrocarbons sector is the backbone of the economy, accounting for roughly 57% of government revenues, 25% of GDP and almost all export earnings. Algeria has the fifth largest reserves of natural gas in the world and is the second largest gas exporter; it ranks fourteenth for oil reserves.

Industries: Petroleum, natural gas, light industries, mining, electrical, petrochemical, food processing

Agriculture: Low wheat production has made it necessary to import food. Other products include barley, oats, grapes, olives, citrus, fruits; sheep, cattle

Cancer registration

There are eight cancer registries in Algeria (see map): the registries of Algiers in the capital, the registries of Sétif, Constantine, Annaba and Batna in the east of the country and the registries of Oran, Tlemcen, and Sidi-bel-Abbès in the west.

Cancer Registry of Algiers

The registry was established in 1991 in the National Institute of Public Health, with assistance from the WHO Regional Office for Africa. The registry began with a pilot year of retrospective data collection for the year 1990. Registration of new cases began in January 1993, covering at first the population of the city of Algiers (Alger). In 1997, registry coverage was increased to include the neighbouring wilayas (departments) of Blida and Tizi-Ouzu, increasing the population coverage from about 1.8 million (Algiers) to 4.3 million.

Data collection is active, in two specialized cancer hospitals (Algiers and Blida), 11 teaching hospitals, 9 specialist hospitals, 1 military hospital, 17 pathology laboratories (10 of which in the private sector), 5 private surgical clinics, the social security service financing overseas treatment. Death certificates are also consulted. There are six full-time data collectors with training in registration methods. A consulting pathologist assists with quality control of diagnosis.

Cancer Registry of Batna

The registry was established in 1995. Data collection is both active and passive. Information on cancer cases is collected primarily from the pathology laboratory of Batna University Hospital and a private laboratory, as well as chemotherapy clinics in Constantine and Anaba, the Sétif University Hospital, and private clinics in Batna wilaya. The registry receives bi-annual reports from hospitals in the wilaya on new cancer cases that have been treated.

Cancer Registry of Constantine

The registry was established in 1994, in the epidemiology service of the University Hospital (CHU) of Constantine. A retrospective survey of cancer cases for 1994–97 was followed by prospective registration from 1998. The principal sources of information are clinical services of the CHU (especially the departments of radiotherapy, oncology and nuclear medicine, paediatrics and haematology) and the department of pathology. Several private clinics and laboratories also contribute cases, Data collection is active by specially trained personnel. Death certificates are not used as a source of information. The registry has had problems because of insufficient personnel, with some periods of interrupted activity.

Cancer Registry of Oran

The cancer registry of Oran is part of the Epidemiology and Preventive Medicine Service of the University Hospital. It was established in 1993, following a retrospective survey of cancer cases in hospitals serving the wilaya. The registry is population-based and covers the wilaya of Oran (population 1.2 million in 1998). Oran is the second city of Algeria, and the University Hospital (CHU) includes a full range of treatment services for cancer, including radiotherapy.

The registry is operated by the professional (medical) personnel of the service. Data collection is carried out by postgraduate students (residents) in epidemiology. They identify cancer cases from clinical departments in the CHU, and from one large private hospital, and paediatric hospital. The pathology laboratories in these hospitals and private laboratories also contribute, as does the national service which funds overseas treatment for Algerian residents. Death certificates are not used as a source of information. Data management is by the CANREG-3 package (IARC). Annual reports have been published since 1992.

Cancer Registry of Sétif

The Sétif cancer registry was founded in January 1989 with the collaboration of the International Agency for Research on Cancer. It covers the population of the wilaya of Setif (population 1.3 million in 1998).The registry is attached to the Unit of Health Information and Biostatistics of the Department of Epidemiology and Public Health situated in the University Hospital (CHU) of Sétif. It is financed by the Ministry of Health and by the Ministry of Higher Education and Scientific Research.

Data are collected by active methods by the health technician of the Registry. Data sources include:

- In the CHU of Sétif: the 'Admissions', the pathology laboratory, clinical chemistry laboratory, the central pharmacy and different hospital departments including the haematology service and its laboratory.
- The health sectors of the dairas,
- The Anti-cancer Centre of Constantine,
- The Pierre et Marie Curie Centre in Algiers
- Social security (insurance),
- Municipal records for death certificates,
- Physicians in the private sector.

Cancer Registry of Sidi-bel-Abbès

Registration began in 1994 with retrospective collection of data for the years 1991–93; registration has been prospective since 1995.

Cancer Registry of Tlemcen

A cancer registry for the wilaya of Tlemcen was set up in the Epidemiology Department of the medical school in 1994. It is part

of a registration network in western Algeria (comprising Oran, Sidi bel Abbès and Tlemcen) using a common protocol. It relied entirely upon postgraduate students (residents) for case-finding in the services of the main teaching hospital (CHU) and several smaller private hospitals. At the CHU, there is a service of medical oncology (for day cases), but no other specialized cancer treatment facilities; patients are referred to Oran for radiotherapy. Pathologists have been asked to complete notification forms. Cases of cancer from Tlemcen identified by the Oran cancer registry are notified.

Cooperation with the various medical services has been uneven, and pathology notifications are inadequate (most pathology has devolved to the private sector), so that registration cannot be considered complete. A report was prepared based on the registrations for the years 1994–96 and a population estimated from the census of 1988, but has not been published.

Review of data

Algiers

Since 1993, the registry has published annual reports presenting results for the wilaya of Algiers. Since 1997, results from Blida and Tizi Ouzou have been included.

The results for 1993–97 are shown in Table 1. In men, the highest incidence rates are observed for tobacco-related cancers: lung (ASR 17.2 per 100 000) and bladder (10.8). Cancers of the gastrointestinal tract have shown steady increases in incidence, with colorectal cancers now third in frequency in both sexes (ASR 7.1 in men, 6.1 in women). Prostate cancer has also been increasing in incidence and is now fifth in frequency in men. The incidence of nasopharyngeal cancer in men is modest (ASR 2.7).

In women, breast cancer (ASR 21.2) and cervix cancer (ASR 12.6) are the dominant cancers. Of note is the relatively high incidence of gallbladder cancer in women (ASR 5.3; F:M sex ratio of 3.5:1).

Batna

The results for the four-year period 1995–98 are shown in Table 2. The calculated incidence rates are low, so that data are shown simply as relative frequency of different cancers.

Cancer of the stomach (10.3%) is the most frequent cancer of men; the frequency of cancer of the nasopharynx (10.7%) is rather higher than in the other series reported in this volume. In women, breast cancer (24.2% of the total) is dominant, with slightly more cases of gallbladder cancer (11.6%) than of cervix cancer (9.6%).

Constantine

The results for 1994–97 are shown in Table 3. The incidence for all cancers (excluding non-melanoma skin cancers) is low (ASR 79.0 per 100 000 in men and 90.4 per 100 000 in women) in comparison with the other major cities (Algiers, Oran) suggesting some under-registration. Nevertheless, the cancer profile is broadly similar, although in men bladder cancer incidence is rather low, being sixth in frequency following cancers of the lung (ASR 13.1), larynx (ASR 5.8), prostate (ASR 5.8), non-Hodgkin lymphoma (ASR 5.4) and nasopharynx (ASR 5.3).

The pattern of female cancer is similar to that elsewhere: breast (ASR 28.3), cervix (12.1) and gallbladder (ASR 6.3) are the principal sites.

Oran

The results for 1996–98 are presented in Table 4. Overall incidence rates are rather higher than for Algiers, despite a relatively high proportion of cases with morphological verification of diagnosis (93% in males, 95% in females). In men, the principal cancers (excluding non-melanoma skin cancers) are lung cancer (ASR 23.7), bladder cancer (ASR 13.6) and non-Hodgkin lymphoma (ASR 8.2); the rates for the latter are considerably higher than recorded in the other Algerian registries. In women, breast cancer is the principal cancer (ASR 34.5), followed by cancer of the cervix (ASR 24.9), and gallbladder (ASR 6.6). The incidence of non-Hodgkin lymphoma is also high (ASR 6.2).

Sétif

The first results from the population-based cancer registry in Sétif for the years 1986–88 were published by Hamdi-Chérif *et al.* (1991). The standardized incidence rates for all sites (excluding non-melanoma skin cancer), were 70.1 per 100 000 for men and 59.9 per 100 000 for women. The most frequent cancers were lung, stomach and nasopharynx in men, and cervix, breast and gallbladder in women. These results represented the first detailed incidence data for all cancers in an Algerian population.

Data from Sétif were subsequently published in volumes VI (1986–89) and VII (1990–93) of *Cancer Incidence in Five Continents* and Volume II of *International Incidence of Childhood Cancer.*

In this volume, the results are presented for the five year period 1993–97 (Table 5). A total of 2865 new cases were registered. The standardized incidence rate for males is 78.5 per 100 000 and for females 74.8 per 100 000.

In men, lung cancer was the most frequent malignancy (ASR 15.5), followed by cancer of the stomach (ASR 7.8), nasopharyngeal carcinoma (ASR 6.3), large bowel (ASR 4.6) and non-Hodgkin lymphomas (ASR 3.6).

The most frequently reported cancers in women were breast (ASR 17.0); cervix (ASR 11.5); gallbladder (ASR 8.6); large bowel (colon and rectum) (ASR 4.3) and stomach (ASR 3.1).

Tlemcen

The results from 1994–96 are shown in Table 6. Cancer of the stomach (15.4% of cases) is the most common cancer of men, and is third in frequency (6.6%) in women. Breast cancer dominates the picture (29.4% of cases) in women.

Previous studies

A study was carried out on histological material from the anatomo-pathology laboratories in Algiers, Oran and Constantine from the years 1966–75 (Yaker, 1980, 1986). This involved retrospective extraction of data on cancer cases from the records of each of the laboratories onto edge-punched cards. Each register was extracted twice and the cards were verified after perforation. The cases included were limited to those coming from the three *wilayate* (prefectures), so that minimal rates of incidence were calculated. In males the most commonly recorded sites were larynx (9.2%), nasopharynx (5%) and buccal cavity (4.1%) and lymphomas (Table 6). Cervix cancer was the most common (30%) among female cancers; with an age-standardized rate of 24.1 per 100 000), it was almost three times more frequent than breast cancer.

In the years 1986–92, a population-based cancer registry for the wilaya of Algiers, confined to tumours of the gastrointestinal tract, was maintained in the department of surgery at Bologhine Hospital. Case-finding procedures were quite extensive, and similar to those later employed by the general population-based registry of Algiers (see above). A report for the three-year period 1987–89 has been published (Abid & Benabadji, 1999). 1143 cases were recorded (80% with histological verification of diagnosis), with an average of 1.9 notifications (sources) per case. The results are presented in Table 7. The incidence rates are somewhat similar to those in the general registry of Algiers in 1993–97, except for a rather higher incidence of stomach and colorectal cancers in men (ASR 17.5 and 15.2, respectively) in the digestive registry compared with the general registry (ASR 5.6 and 7.1, respectively). Most biliary tract malignancies were gallbladder cancers (94/120 in women, for example), and 75% of the latter had associated gallstones.

Summary

In all of the recent registry data, lung cancer is the major neoplasm of men, reflecting a high and increasing prevalence of smoking. Other tobacco-related cancers, notably bladder cancers and larynx cancers, are also common in most series. Lung cancer remains rare among women who, for the great majority, are non-smokers.

In the gastro-intestinal tract, cancers of the large bowel are generally the leading site, followed by stomach cancer. Cancer of the oesophagus is rare.

The incidence of cancers of the nasopharynx is moderately high, with rates between 3.9 per 100 000 and 7.6 per 100 000 in men, and 1.8–3.7 per 100 000 in women. As noted in earlier studies of populations in the Maghreb (see chapter on nasopharyngeal carcinoma), there is a bimodal incidence peak, with the first in adolescents (age 15–19 years) and the second in older adults (age 50+ years).

Cancer of the gallbladder is relatively common in women, with age-standardized rates in the range 6.3–8.9 per 100 000. It is much less common in men, with the sex ratio (F:M) generally around 4:1. This probably relates to the frequency of gallstones in the population.

In all of the recent series, breast cancer is the most common cancer, with incidence rates in some of the registries that are quite high (an ASR of 34.5 per 100 000 in Oran, for example). The registry reports often remark upon the low average age of the cases, but this almost certainly relates to the young age of the population at risk. Age-specific incidence rates appear to rise until around the menopause, and then are more or less constant.

In the early data from 1966–75, based on histopathology only, the incidence of cervix cancer was quite high (ASR 27.1). Incidence in more recent series is generally lower (ASR 12.1–29.3), although these rates are rather higher than those observed in Arab populations in western Asia.

Childhood cancer

Results from three registries are presented in Table 8 (Algiers, 1993–96), Table 9 (Oran, 1996–98) and Table 10 (Sétif, 1993–97). The data from these three series, plus 139 cases registered in Constantine in 1994–97 are pooled in Table 11.

In Algiers, childhood cancers comprise 4.5% of the total, and are more common in boys (218 cases versus 121 among girls). There is a slight preponderance of central nervous system tumours over lymphomas and leukaemias. The incidence of neuroblastoma (10.5 per million) is rather high.

Childhood cancers comprise 6.2% of the total in Oran (Table 9), with lymphomas (mainly non-Hodgkin lymphoma) the most commonly registered cancer. Wilms tumour (18.5 per million) and retinoblastoma (17.2 per million) have high incidence.

In Sétif, the overall childhood cancer incidence rate of 71.2 per million is relatively low compared with other registries (Table 10). Underdiagnosis of cases probably plays a role. Leukaemia and lymphomas are the most common malignancies in children, representing 62% of childhood cancer.

The pooled data-set (Table 11) includes 815 cases. Overall incidence is 99.7 per million. Lymphoma (ASR 22.0) is slightly more common than leukaemia (ASR 20.9), and Wilms tumour has a higher incidence rate than CNS tumours, although numerically less common.

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Table 1. Algeria, Algiers (1993-1997)

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	49	1	100	2	1	3	5	6	15	16	0.9	1.4	0.08	**1.3**	*C00-06*
Salivary gland	18	3	94	-	1	3	3	2	3	3	0.3	0.5	0.03	**0.4**	*C07-08*
Nasopharynx	128	6	93	5	18	23	12	28	24	12	2.3	3.7	0.22	**2.7**	*C11*
Other pharynx	31	1	87	-	1	2	4	5	6	12	0.6	0.9	0.05	**0.8**	*C09-10,C12-14*
Oesophagus	34	0	74	-	-	1	4	4	11	14	0.6	1.0	0.06	**0.9**	*C15*
Stomach	211	7	89	1	4	5	18	35	61	80	3.8	6.2	0.35	**5.6**	*C16*
Colon, rectum and anus	284	10	88	-	6	29	44	39	56	100	5.2	8.3	0.41	**7.1**	*C18-21*
Liver	34	2	76	2	-	1	1	2	7	19	0.6	1.0	0.04	**0.9**	*C22*
Gallbladder etc.	53	4	83	-	-	-	1	5	15	28	1.0	1.5	0.07	**1.5**	*C23-24*
Pancreas	44	0	57	-	1	-	4	7	10	22	0.8	1.3	0.06	**1.2**	*C25*
Larynx	155	9	92	-	-	2	7	27	45	65	2.8	4.5	0.26	**4.3**	*C32*
Trachea, bronchus and lung	635	48	81	-	1	13	41	111	184	237	11.5	18.5	1.08	**17.2**	*C33-34*
Bone	94	2	80	25	22	13	8	3	9	12	1.7	2.7	0.11	**1.8**	*C40-41*
Melanoma of skin	22	2	100	1	-	-	3	4	5	7	0.4	0.6	0.03	**0.6**	*C43*
Other skin	292	19	98	2	5	4	26	41	73	122	5.3		0.44	**7.8**	*C44*
Mesothelioma	17	1	100	-	-	-	5	2	6	3	0.3	0.5	0.04	**0.4**	*C45*
Kaposi sarcoma	16	0	100	-	-	1	-	1	4	10	0.3	0.5	0.02	**0.4**	*C46*
Peripheral nerves	2	0	100	-	1	-	-	-	1	-	0.0	0.1	0.00	**0.0**	*C47*
Connective and soft tissue	51	1	84	10	3	4	11	3	11	8	0.9	1.5	0.08	**1.1**	*C49*
Breast	26	1	92	-	-	1	3	5	8	8	0.5	0.8	0.05	**0.7**	*C50*
Penis	0	0	-	-	-	-	-	-	-	-	0.0	0.0	0.00	**0.0**	*C60*
Prostate	194	31	89	1	-	2	5	4	35	116	3.5	5.7	0.18	**5.4**	*C61*
Testis	38	1	82	2	7	9	13	3	1	2	0.7	1.1	0.05	**0.7**	*C62*
Kidney	30	2	100	12	1	1	-	5	5	4	0.5	0.9	0.05	**0.7**	*C64*
Renal pelvis, ureter and other urinary	30	4	77	-	1	3	1	2	10	9	0.5	0.9	0.05	**0.7**	*C65-66,C68*
Bladder	402	56	85	3	5	12	22	43	103	158	7.3	11.7	0.61	**10.8**	*C67*
Eye	20	1	90	11	1	-	1	2	-	4	0.4	0.6	0.02	**0.5**	*C69*
Brain, nervous system	128	3	91	34	8	18	18	15	12	20	2.3	3.7	0.17	**2.7**	*C70-72*
Thyroid	52	1	92	1	6	4	8	8	10	14	0.9	1.5	0.08	**1.2**	*C73*
Hodgkin disease	33	2	100	4	6	11	6	3	1	-	0.6	1.0	0.04	**0.5**	*C81*
Non-Hodgkin lymphoma	161	5	100	23	11	16	26	16	42	22	2.9	4.7	0.28	**3.6**	*C82-85,C96*
Multiple myeloma	24	0	100	-	-	-	-	2	9	13	0.4	0.7	0.04	**0.7**	*C90*
Lymphoid leukaemia	56	1	100	27	2	2	2	5	7	10	1.0	1.6	0.07	**1.2**	*C91*
Myeloid leukaemia	37	1	100	11	2	4	9	4	2	4	0.7	1.1	0.05	**0.8**	*C92-94*
Leukaemia, unspecified	18	1	100	5	2	2	3	-	2	3	0.3	0.5	0.02	**0.4**	*C95*
Other and unspecified	299	21	73	36	15	17	36	41	56	77	5.4	8.7	0.45	**7.2**	*O&U*
All sites	3718	247	87	218	131	206	350	483	849	1234	67.6		5.65	**93.8**	*ALL*
All sites but C44	3426	228	86	216	126	202	324	442	776	1112	62.3	100.0	5.21	**86.0**	*ALLbC44*
Average annual population				334285	248972	205423	120263	81940	59187	49549					

Table 1. Algeria, Algiers (1993-1997)

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	29	0	93	-	1	1	7	4	6	10	0.5	0.8	0.05	**0.7**	*C00-06*
Salivary gland	9	1	78	-	-	-	2	3	-	3	0.2	0.2	0.01	**0.2**	*C07-08*
Nasopharynx	61	3	97	5	9	10	10	10	8	6	1.1	1.7	0.09	**1.2**	*C11*
Other pharynx	10	0	70	-	-	-	3	3	1	3	0.2	0.3	0.02	**0.2**	*C09-10,C12-14*
Oesophagus	19	0	74	-	-	1	2	1	3	12	0.3	0.5	0.02	**0.5**	*C15*
Stomach	155	4	87	1	4	17	23	20	39	47	2.8	4.3	0.25	**3.7**	*C16*
Colon, rectum and anus	248	20	90	-	8	17	32	35	65	71	4.6	6.8	0.42	**6.1**	*C18-21*
Liver	34	3	68	-	1	1	2	2	6	19	0.6	0.9	0.03	**0.9**	*C22*
Gallbladder etc.	204	6	82	-	1	5	21	27	61	83	3.7	5.6	0.33	**5.3**	*C23-24*
Pancreas	36	4	58	-	1	-	4	5	8	14	0.7	1.0	0.05	**0.9**	*C25*
Larynx	11	1	73	-	-	-	1	1	2	6	0.2	0.3	0.01	**0.3**	*C32*
Trachea, bronchus and lung	73	6	81	-	1	2	5	7	22	30	1.3	2.0	0.12	**1.9**	*C33-34*
Bone	56	3	80	8	20	5	8	3	3	6	1.0	1.5	0.06	**1.0**	*C40-41*
Melanoma of skin	19	1	100	2	1	2	1	4	3	5	0.3	0.5	0.03	**0.4**	*C43*
Other skin	142	10	93	2	9	4	8	18	25	66	2.6		0.17	**3.5**	*C44*
Mesothelioma	5	0	100	-	-	1	2	-	-	2	0.1	0.1	0.00	**0.1**	*C45*
Kaposi sarcoma	3	0	100	-	-	-	-	-	2	1	0.1	0.1	0.01	**0.1**	*C46*
Peripheral nerves	2	0	100	-	-	2	-	-	-	-	0.0	0.1	0.00	**0.0**	*C47*
Connective and soft tissue	48	2	92	5	6	13	11	3	2	6	0.9	1.3	0.06	**0.9**	*C49*
Breast	906	35	95	-	3	82	259	239	169	119	16.6	25.0	1.73	**21.2**	*C50*
Vulva	3	0	33	-	-	-	1	1	-	1	0.1	0.1	0.00	**0.1**	*C51*
Vagina	3	0	100	-	-	-	-	1	1	1	0.1	0.1	0.01	**0.1**	*C52*
Cervix uteri	506	26	94	-	4	20	83	139	153	81	9.3	14.0	1.07	**12.6**	*C53*
Uterus	125	7	94	-	2	2	12	25	38	39	2.3	3.4	0.23	**3.2**	*C54-55*
Ovary	42	5	100	-	-	5	7	12	8	5	0.8	1.2	0.08	**1.0**	*C56*
Placenta	0	0	-	-	-	-	-	-	-	-	0.0	0.0	0.00	**0.0**	*C58*
Kidney	33	2	94	15	-	1	2	3	6	4	0.6	0.9	0.05	**0.7**	*C64*
Renal pelvis, ureter and other urinary	34	1	79	-	3	3	5	6	8	8	0.6	0.9	0.06	**0.8**	*C65-66,C68*
Bladder	86	8	84	-	-	-	5	7	24	42	1.6	2.4	0.12	**2.3**	*C67*
Eye	22	1	86	10	1	-	1	2	3	4	0.4	0.6	0.03	**0.5**	*C69*
Brain, nervous system	70	3	97	16	11	10	9	7	8	6	1.3	1.9	0.10	**1.4**	*C70-72*
Thyroid	192	11	93	-	24	23	31	45	31	27	3.5	5.3	0.33	**4.2**	*C73*
Hodgkin disease	27	0	100	7	9	8	-	1	1	1	0.5	0.7	0.03	**0.5**	*C81*
Non-Hodgkin lymphoma	109	4	100	7	11	16	17	12	19	23	2.0	3.0	0.16	**2.4**	*C82-85,C96*
Multiple myeloma	23	0	100	-	-	-	2	4	4	13	0.4	0.6	0.03	**0.6**	*C90*
Lymphoid leukaemia	29	0	100	16	1	1	3	-	3	5	0.5	0.8	0.03	**0.7**	*C91*
Myeloid leukaemia	26	0	100	4	3	5	4	5	3	2	0.5	0.7	0.04	**0.5**	*C92-94*
Leukaemia, unspecified	14	0	100	3	1	1	1	1	5	2	0.3	0.4	0.02	**0.3**	*C95*
Other and unspecified	353	16	80	20	14	34	48	66	64	91	6.5	9.7	0.54	**8.3**	*O&U*
All sites	3767	183	90	121	149	292	632	722	804	864	69.2		6.37	**89.4**	*ALL*
All sites but C44	3625	173	90	119	140	288	624	704	779	798	66.6	100.0	6.20	**85.9**	*ALLbC44*
Average annual population				326543	243710	199869	120925	86448	58799	52034					

Table 2. Algeria, Batna (1995-1999)

NUMBER OF CASES BY AGE GROUP - MALE

SITE	ALL AGES	AGE UNK	MV (%)	0-	15-	25-	35-	45-	55-	65+	%	*ICD (10th)*
Mouth	20	0	100	-	-	2	-	1	8	9	3.1	*C00-06*
Salivary gland	0	0	-	-	-	-	-	-	-	-	0.0	*C07-08*
Nasopharynx	70	0	100	8	10	6	13	15	11	7	10.7	*C11*
Other pharynx	11	0	100	-	-	-	-	2	2	7	1.7	*C09-10,C12-14*
Oesophagus	5	0	100	-	-	-	-	1	-	4	0.8	*C15*
Stomach	67	0	88	-	-	-	6	11	15	35	10.3	*C16*
Colon, rectum and anus	45	0	87	-	1	7	5	10	9	13	6.9	*C18-21*
Liver	12	0	8	-	1	-	-	1	3	7	1.8	*C22*
Gallbladder etc.	20	0	70	-	-	-	1	2	6	11	3.1	*C23-24*
Pancreas	13	0	23	-	-	-	1	1	3	8	2.0	*C25*
Larynx	24	0	92	-	-	-	2	6	8	8	3.7	*C32*
Trachea, bronchus and lung	65	0	77	-	-	-	5	11	31	18	10.0	*C33-34*
Bone	22	0	77	9	4	2	2	-	1	4	3.4	*C40-41*
Melanoma of skin	2	0	100	-	-	-	-	-	-	2	0.3	*C43*
Other skin	127	0	94	1	1	4	10	8	26	77		*C44*
Mesothelioma	1	0	100	-	-	-	-	-	-	1	0.2	*C45*
Kaposi sarcoma	0	0	-	-	-	-	-	-	-	-	0.0	*C46*
Peripheral nerves	0	0	-	-	-	-	-	-	-	-	0.0	*C47*
Connective and soft tissue	15	0	93	1	3	2	4	1	2	2	2.3	*C49*
Breast	12	0	100	-	-	-	-	-	4	8	1.8	*C50*
Penis	0	0	-	-	-	-	-	-	-	-	0.0	*C60*
Prostate	25	0	84	-	-	-	2	1	3	19	3.8	*C61*
Testis	6	0	83	-	-	2	2	-	2	-	0.9	*C62*
Kidney	16	0	75	3	-	-	-	3	3	7	2.5	*C64*
Renal pelvis, ureter and other urinary	1	0	100	-	-	-	-	1	-	-	0.2	*C65-66,C68*
Bladder	18	0	67	-	-	1	1	2	4	10	2.8	*C67*
Eye	3	0	67	-	2	-	-	-	-	1	0.5	*C69*
Brain, nervous system	36	0	22	6	4	4	10	3	2	7	5.5	*C70-72*
Thyroid	9	0	100	-	1	1	-	3	1	3	1.4	*C73*
Hodgkin disease	12	0	83	5	3	3	-	1	-	-	1.8	*C81*
Non-Hodgkin lymphoma	30	0	100	6	5	3	3	3	1	9	4.6	*C82-85,C96*
Multiple myeloma	3	0	0	-	-	-	-	-	-	3	0.5	*C90*
Lymphoid leukaemia	24	0	8	10	3	-	-	-	4	7	3.7	*C91*
Myeloid leukaemia	28	0	7	4	5	2	6	4	5	2	4.3	*C92-94*
Leukaemia, unspecified	2	0	0	1	-	-	-	1	-	-	0.3	*C95*
Other and unspecified	35	0	54	8	4	3	3	4	3	10	5.4	*O&U*
All sites	779	0	76	62	47	42	76	96	157	299		*ALL*
All sites but C44	652	0	73	61	46	38	66	88	131	222	100.0	*ALLbC44*

Table 2. Algeria, Batna (1995-1999)

NUMBER OF CASES BY AGE GROUP - FEMALE

SITE	ALL AGES	AGE UNK	MV (%)	0-	15-	25-	35-	45-	55-	65+	%	*ICD (10th)*
Mouth	5	0	100	-	-	-	-	1	1	3	0.7	*C00-06*
Salivary gland	0	0	-	-	-	-	-	-	-	-	0.0	*C07-08*
Nasopharynx	22	0	100	1	4	3	5	2	3	4	2.9	*C11*
Other pharynx	4	0	100	-	-	-	1	-	1	2	0.5	*C09-10,C12-14*
Oesophagus	9	0	89	-	-	-	1	1	2	5	1.2	*C15*
Stomach	34	0	85	-	-	-	2	10	8	14	4.5	*C16*
Colon, rectum and anus	47	0	81	-	-	7	4	8	15	13	6.2	*C18-21*
Liver	21	0	24	1	-	-	2	6	5	7	2.8	*C22*
Gallbladder etc.	87	0	76	-	-	-	7	23	28	29	11.6	*C23-24*
Pancreas	9	0	44	-	-	-	-	1	4	4	1.2	*C25*
Larynx	3	0	67	-	-	-	1	-	1	1	0.4	*C32*
Trachea, bronchus and lung	11	0	100	-	-	1	1	4	4	1	1.5	*C33-34*
Bone	15	0	73	3	3	1	1	3	1	3	2.0	*C40-41*
Melanoma of skin	2	0	100	-	-	-	-	-	2	-	0.3	*C43*
Other skin	92	0	90	1	3	4	4	14	13	53		*C44*
Mesothelioma	2	0	100	-	-	-	-	-	-	2	0.3	*C45*
Kaposi sarcoma	0	0	-	-	-	-	-	-	-	-	0.0	*C46*
Peripheral nerves	0	0	-	-	-	-	-	-	-	-	0.0	*C47*
Connective and soft tissue	10	0	100	1	1	1	2	2	2	1	1.3	*C49*
Breast	182	0	99	-	-	20	64	47	26	25	24.2	*C50*
Vulva	5	0	100	-	-	-	-	4	1	-	0.7	*C51*
Vagina	3	0	100	-	-	-	2	-	1	-	0.4	*C52*
Cervix uteri	72	0	100	-	1	2	6	20	20	23	9.6	*C53*
Uterus	22	0	100	-	-	-	5	6	3	8	2.9	*C54-55*
Ovary	29	0	97	-	2	3	7	8	3	6	3.9	*C56*
Placenta	1	0	100	-	-	-	1	-	-	-	0.1	*C58*
Kidney	8	0	75	2	1	-	-	2	3	-	1.1	*C64*
Renal pelvis, ureter and other urinary	0	0	-	-	-	-	-	-	-	-	0.0	*C65-66,C68*
Bladder	1	0	100	-	-	-	-	-	-	1	0.1	*C67*
Eye	0	0	-	-	-	-	-	-	-	-	0.0	*C69*
Brain, nervous system	27	0	19	5	3	4	3	4	2	6	3.6	*C70-72*
Thyroid	22	0	86	-	1	3	2	7	6	3	2.9	*C73*
Hodgkin disease	9	0	89	1	4	2	2	-	-	-	1.2	*C81*
Non-Hodgkin lymphoma	19	0	95	1	3	2	2	3	1	7	2.5	*C82-85,C96*
Multiple myeloma	3	0	33	-	-	-	-	2	-	1	0.4	*C90*
Lymphoid leukaemia	14	0	14	10	-	-	-	1	3	-	1.9	*C91*
Myeloid leukaemia	24	0	13	7	3	6	-	4	3	1	3.2	*C92-94*
Leukaemia, unspecified	2	0	0	-	1	-	1	-	-	-	0.3	*C95*
Other and unspecified	29	0	66	3	2	2	1	4	10	7	3.9	*O&U*
All sites	845	0	82	36	32	61	127	187	172	230		*ALL*
All sites but C44	753	0	81	35	29	57	123	173	159	177	100.0	*ALLbC44*

Table 3. Algeria, Constantine (1994-1997)

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	21	0	90	-	1	-	2	3	7	8	1.4	3.0	0.16	**2.5**	*C00-06*
Salivary gland	2	0	100	-	-	-	1	1	-	-	0.1	0.3	0.02	**0.2**	*C07-08*
Nasopharynx	51	0	100	2	4	3	7	9	14	12	3.3	7.3	0.38	**5.3**	*C11*
Other pharynx	7	0	100	-	-	-	1	2	2	2	0.5	1.0	0.06	**0.8**	*C09-10,C12-14*
Oesophagus	3	0	33	-	-	-	-	1	-	2	0.2	0.4	0.01	**0.4**	*C15*
Stomach	32	0	84	-	1	4	6	2	7	12	2.1	4.6	0.20	**3.6**	*C16*
Colon, rectum and anus	42	0	93	-	3	9	7	8	6	9	2.7	6.0	0.28	**4.1**	*C18-21*
Liver	6	0	83	1	-	-	1	1	2	1	0.4	0.9	0.05	**0.6**	*C22*
Gallbladder etc.	15	0	53	-	-	1	-	1	4	9	1.0	2.1	0.08	**1.8**	*C23-24*
Pancreas	13	0	46	-	-	1	3	1	1	7	0.8	1.8	0.06	**1.5**	*C25*
Larynx	49	0	92	-	-	1	4	9	16	19	3.2	7.0	0.37	**5.8**	*C32*
Trachea, bronchus and lung	108	0	74	-	-	2	7	16	47	36	7.0	15.4	0.96	**13.1**	*C33-34*
Bone	16	0	100	1	5	2	3	1	3	1	1.0	2.3	0.10	**1.3**	*C40-41*
Melanoma of skin	3	0	100	-	-	1	-	-	1	1	0.2	0.4	0.02	**0.3**	*C43*
Other skin	27	0	100	1	-	1	3	3	6	13	1.7		0.15	**3.2**	*C44*
Mesothelioma	6	0	100	-	-	-	1	1	1	3	0.4	0.9	0.03	**0.7**	*C45*
Kaposi sarcoma	2	0	100	-	-	-	-	-	-	2	0.1	0.3	0.00	**0.3**	*C46*
Peripheral nerves	0	0	-	-	-	-	-	-	-	-	0.0	0.0	0.00	**0.0**	*C47*
Connective and soft tissue	5	0	100	1	1	1	-	-	2	-	0.3	0.7	0.04	**0.4**	*C49*
Breast	6	0	83	-	-	-	-	1	-	5	0.4	0.9	0.01	**0.7**	*C50*
Penis	0	0	-	-	-	-	-	-	-	-	0.0	0.0	0.00	**0.0**	*C60*
Prostate	46	0	93	-	-	-	-	3	7	36	3.0	6.5	0.15	**5.8**	*C61*
Testis	4	0	100	1	-	2	1	-	-	-	0.3	0.6	0.02	**0.2**	*C62*
Kidney	10	0	100	3	-	-	2	2	3	-	0.6	1.4	0.09	**0.9**	*C64*
Renal pelvis, ureter and other urinary	0	0	-	-	-	-	-	-	-	-	0.0	0.0	0.00	**0.0**	*C65-66,C68*
Bladder	37	0	76	-	-	-	2	2	13	20	2.4	5.3	0.23	**4.6**	*C67*
Eye	2	0	100	-	-	-	-	1	-	1	0.1	0.3	0.01	**0.2**	*C69*
Brain, nervous system	13	0	62	3	3	1	1	1	3	1	0.8	1.8	0.09	**1.1**	*C70-72*
Thyroid	11	0	100	-	1	2	3	2	1	2	0.7	1.6	0.07	**1.1**	*C73*
Hodgkin disease	19	0	100	2	5	3	2	5	-	2	1.2	2.7	0.10	**1.5**	*C81*
Non-Hodgkin lymphoma	57	0	98	7	6	7	10	6	7	14	3.7	8.1	0.32	**5.4**	*C82-85,C96*
Multiple myeloma	13	0	92	-	3	1	3	2	2	2	0.8	1.8	0.08	**1.2**	*C90*
Lymphoid leukaemia	29	0	90	7	2	1	4	3	4	8	1.9	4.1	0.15	**2.7**	*C91*
Myeloid leukaemia	25	0	96	5	-	3	2	6	2	7	1.6	3.6	0.13	**2.4**	*C92-94*
Leukaemia, unspecified	2	0	100	1	-	-	1	-	-	-	0.1	0.3	0.01	**0.2**	*C95*
Other and unspecified	48	0	71	4	3	3	4	11	13	10	3.1	6.8	0.38	**5.1**	*O&U*
All sites	730	0	87	39	38	49	81	104	174	245	47.3		4.82	**79.0**	*ALL*
All sites but C44	703	0	86	38	38	48	78	101	168	232	45.5	100.0	4.66	**75.9**	*ALLbC44*
Average annual population				155198	84204	59284	31858	24629	17086	13725					

Table 3. Algeria, Constantine (1994-1997)

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	9	0	100	-	-	-	1	2	1	5	0.6	1.0	0.04	**1.0**	*C00-06*
Salivary gland	2	0	100	1	-	-	-	-	-	1	0.1	0.2	0.00	**0.2**	*C07-08*
Nasopharynx	26	0	100	-	1	4	6	6	7	2	1.7	2.8	0.22	**2.5**	*C11*
Other pharynx	1	0	100	-	-	-	-	-	1	-	0.1	0.1	0.02	**0.1**	*C09-10,C12-14*
Oesophagus	1	0	100	-	-	-	-	-	1	-	0.1	0.1	0.02	**0.1**	*C15*
Stomach	21	0	71	-	-	1	3	4	7	6	1.4	2.3	0.16	**2.2**	*C16*
Colon, rectum and anus	43	0	98	-	3	7	4	7	7	15	2.8	4.7	0.24	**4.2**	*C18-21*
Liver	6	0	67	-	-	-	1	3	1	1	0.4	0.7	0.04	**0.6**	*C22*
Gallbladder etc.	58	0	81	-	-	1	8	13	15	21	3.8	6.4	0.40	**6.3**	*C23-24*
Pancreas	14	0	50	-	-	1	-	2	4	7	0.9	1.5	0.08	**1.5**	*C25*
Larynx	8	0	88	-	-	-	-	2	4	2	0.5	0.9	0.06	**0.8**	*C32*
Trachea, bronchus and lung	20	0	85	-	-	-	2	3	6	9	1.3	2.2	0.12	**2.2**	*C33-34*
Bone	13	0	92	6	2	-	1	4	-	-	0.9	1.4	0.07	**0.9**	*C40-41*
Melanoma of skin	3	0	100	-	-	-	-	-	1	2	0.2	0.3	0.02	**0.4**	*C43*
Other skin	15	0	93	-	-	1	3	1	5	5	1.0		0.10	**1.5**	*C44*
Mesothelioma	2	0	100	-	-	1	-	-	1	-	0.1	0.2	0.02	**0.2**	*C45*
Kaposi sarcoma	2	0	50	-	-	-	-	-	1	1	0.1	0.2	0.02	**0.3**	*C46*
Peripheral nerves	0	0	-	-	-	-	-	-	-	-	0.0	0.0	0.00	**0.0**	*C47*
Connective and soft tissue	8	0	100	-	3	-	-	1	1	3	0.5	0.9	0.03	**0.7**	*C49*
Breast	291	0	95	-	-	32	103	74	45	37	19.1	31.9	2.25	**28.3**	*C50*
Vulva	2	0	100	-	-	-	-	-	1	1	0.1	0.2	0.01	**0.2**	*C51*
Vagina	2	0	100	-	-	1	-	-	-	1	0.1	0.2	0.00	**0.2**	*C52*
Cervix uteri	113	0	99	-	-	3	16	32	32	30	7.4	12.4	0.89	**12.1**	*C53*
Uterus	23	0	100	-	-	1	3	3	8	8	1.5	2.5	0.18	**2.6**	*C54-55*
Ovary	43	0	93	1	4	7	8	9	7	7	2.8	4.7	0.28	**3.8**	*C56*
Placenta	0	0	-	-	-	-	-	-	-	-	0.0	0.0	0.00	**0.0**	*C58*
Kidney	12	0	75	8	-	2	1	-	-	1	0.8	1.3	0.04	**0.8**	*C64*
Renal pelvis, ureter and other urinary	1	0	0	-	-	1	-	-	-	-	0.1	0.1	0.01	**0.1**	*C65-66,C68*
Bladder	6	0	83	-	-	-	-	2	2	2	0.4	0.7	0.05	**0.7**	*C67*
Eye	2	0	100	-	-	-	-	-	2	-	0.1	0.2	0.03	**0.2**	*C69*
Brain, nervous system	12	0	67	3	1	1	2	3	1	1	0.8	1.3	0.07	**0.9**	*C70-72*
Thyroid	31	0	97	-	1	8	7	3	6	6	2.0	3.4	0.20	**2.8**	*C73*
Hodgkin disease	16	0	100	4	3	2	5	2	-	-	1.1	1.8	0.08	**1.1**	*C81*
Non-Hodgkin lymphoma	36	0	97	3	6	7	4	2	9	5	2.4	3.9	0.24	**3.1**	*C82-85,C96*
Multiple myeloma	7	0	100	-	-	-	1	1	-	5	0.5	0.8	0.01	**0.8**	*C90*
Lymphoid leukaemia	13	0	92	3	2	2	2	-	1	3	0.9	1.4	0.05	**1.1**	*C91*
Myeloid leukaemia	24	0	92	2	1	7	3	5	4	2	1.6	2.6	0.16	**2.0**	*C92-94*
Leukaemia, unspecified	0	0	-	-	-	-	-	-	-	-	0.0	0.0	0.00	**0.0**	*C95*
Other and unspecified	42	0	88	7	3	2	4	11	5	10	2.8	4.6	0.24	**3.9**	*O&U*
All sites	928	0	92	38	30	92	188	195	186	199	61.0		6.44	**90.4**	*ALL*
All sites but C44	913	0	92	38	30	91	185	194	181	194	60.0	100.0	6.34	**88.8**	*ALLbC44*
Average annual population				148012	81398	56096	34737	27460	18256	14654					

Table 4. Algeria, Oran (1996-1998)

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	26	0	96	1	-	1	2	5	7	10	1.5	1.7	0.14	**2.3**	*C00-06*
Salivary gland	3	0	100	-	-	-	-	-	-	3	0.2	0.2	0.00	**0.3**	*C07-08*
Nasopharynx	103	0	99	5	16	18	26	18	11	9	5.8	6.6	0.50	**6.6**	*C11*
Other pharynx	15	0	93	-	-	-	3	-	7	5	0.8	1.0	0.10	**1.3**	*C09-10,C12-14*
Oesophagus	17	0	76	-	-	1	2	3	4	7	1.0	1.1	0.08	**1.5**	*C15*
Stomach	91	0	98	-	2	4	16	16	18	35	5.1	5.9	0.42	**7.6**	*C16*
Colon, rectum and anus	87	0	91	-	-	8	15	15	26	23	4.9	5.6	0.51	**7.2**	*C18-21*
Liver	2	0	0	-	-	-	-	-	1	1	0.1	0.1	0.01	**0.2**	*C22*
Gallbladder etc.	18	0	50	-	-	-	1	2	7	8	1.0	1.2	0.11	**1.7**	*C23-24*
Pancreas	16	0	56	-	-	-	1	2	4	9	0.9	1.0	0.06	**1.5**	*C25*
Larynx	91	0	100	2	1	-	3	20	24	41	5.1	5.9	0.46	**8.3**	*C32*
Trachea, bronchus and lung	263	0	90	-	-	5	25	42	86	105	14.8	16.9	1.48	**23.7**	*C33-34*
Bone	29	0	83	4	15	-	4	-	2	4	1.6	1.9	0.09	**1.7**	*C40-41*
Melanoma of skin	9	0	100	-	1	2	1	2	2	1	0.5	0.6	0.05	**0.6**	*C43*
Other skin	130	0	98	1	2	2	11	18	28	68	7.3		0.53	**11.7**	*C44*
Mesothelioma	3	0	100	-	-	1	-	1	1	-	0.2	0.2	0.02	**0.2**	*C45*
Kaposi sarcoma	3	0	100	-	-	2	-	1	-	-	0.2	0.2	0.02	**0.2**	*C46*
Peripheral nerves	0	0	-	-	-	-	-	-	-	-	0.0	0.0	0.00	**0.0**	*C47*
Connective and soft tissue	29	0	93	9	3	2	2	4	3	6	1.6	1.9	0.12	**2.1**	*C49*
Breast	11	0	100	-	-	1	2	3	1	4	0.6	0.7	0.05	**0.9**	*C50*
Penis	0	0	-	-	-	-	-	-	-	-	0.0	0.0	0.00	**0.0**	*C60*
Prostate	74	0	96	-	-	-	-	5	13	56	4.2	4.8	0.20	**7.2**	*C61*
Testis	8	0	100	-	3	-	1	3	-	1	0.5	0.5	0.03	**0.5**	*C62*
Kidney	22	0	77	8	-	1	-	1	6	6	1.2	1.4	0.10	**1.7**	*C64*
Renal pelvis, ureter and other urinary	5	0	100	-	-	-	-	1	2	2	0.3	0.3	0.03	**0.5**	*C65-66,C68*
Bladder	148	0	93	-	1	5	5	18	44	75	8.4	9.5	0.70	**13.6**	*C67*
Eye	18	0	100	12	-	-	2	-	-	4	1.0	1.2	0.04	**1.2**	*C69*
Brain, nervous system	42	0	64	11	3	5	8	6	6	3	2.4	2.7	0.21	**2.8**	*C70-72*
Thyroid	7	0	86	-	-	2	3	1	1	-	0.4	0.5	0.04	**0.4**	*C73*
Hodgkin disease	56	0	100	19	14	9	6	3	4	1	3.2	3.6	0.22	**3.1**	*C81*
Non-Hodgkin lymphoma	125	0	99	34	20	9	14	18	15	15	7.1	8.0	0.54	**8.2**	*C82-85,C96*
Multiple myeloma	13	0	100	-	-	-	-	3	7	3	0.7	0.8	0.11	**1.2**	*C90*
Lymphoid leukaemia	25	0	88	16	1	1	-	1	3	3	1.4	1.6	0.09	**1.5**	*C91*
Myeloid leukaemia	13	0	100	2	2	2	2	-	2	3	0.7	0.8	0.05	**0.9**	*C92-94*
Leukaemia, unspecified	5	0	80	1	1	2	-	-	-	1	0.3	0.3	0.01	**0.3**	*C95*
Other and unspecified	178	0	96	8	12	21	17	31	39	50	10.0	11.4	0.92	**14.2**	*O&U*
All sites	1685	0	93	133	97	104	172	243	374	562	95.1		8.04	**136.9**	*ALL*
All sites but C44	1555	0	93	132	95	102	161	225	346	494	87.8	100.0	7.51	**125.2**	*ALLbC44*
Average annual population				191541	127986	102891	70736	44279	29493	23673					

Table 4. Algeria, Oran (1996-1998)

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	10	0	100	-	-	-	-	4	3	3	0.6	0.6	0.07	**0.9**	*C00-06*
Salivary gland	5	0	80	-	-	-	3	1	-	1	0.3	0.3	0.02	**0.3**	*C07-08*
Nasopharynx	50	0	94	4	4	10	12	7	10	3	2.8	2.9	0.28	**3.3**	*C11*
Other pharynx	6	0	100	1	-	-	-	2	2	1	0.3	0.3	0.04	**0.5**	*C09-10,C12-14*
Oesophagus	8	0	88	-	1	-	-	1	1	5	0.5	0.5	0.02	**0.6**	*C15*
Stomach	52	0	88	-	-	8	5	12	9	18	3.0	3.0	0.24	**4.0**	*C16*
Colon, rectum and anus	83	0	92	-	5	6	22	11	15	24	4.7	4.8	0.39	**6.1**	*C18-21*
Liver	10	0	100	-	-	-	-	3	5	2	0.6	0.6	0.08	**0.9**	*C22*
Gallbladder etc.	77	0	82	-	-	1	3	18	29	26	4.4	4.5	0.49	**6.6**	*C23-24*
Pancreas	22	0	55	-	-	-	2	3	6	11	1.2	1.3	0.10	**1.8**	*C25*
Larynx	2	0	100	-	-	1	-	-	-	1	0.1	0.1	0.00	**0.1**	*C32*
Trachea, bronchus and lung	30	0	87	-	-	1	5	7	9	8	1.7	1.7	0.18	**2.4**	*C33-34*
Bone	25	0	92	11	4	2	3	-	3	2	1.4	1.4	0.09	**1.5**	*C40-41*
Melanoma of skin	15	0	100	-	-	-	2	4	4	5	0.9	0.9	0.08	**1.2**	*C43*
Other skin	89	0	98	3	2	7	4	18	19	36	5.1		0.41	**7.1**	*C44*
Mesothelioma	1	0	100	-	-	-	-	-	1	-	0.1	0.1	0.01	**0.1**	*C45*
Kaposi sarcoma	1	0	100	-	-	-	-	-	1	-	0.1	0.1	0.01	**0.1**	*C46*
Peripheral nerves	2	0	100	1	-	-	1	-	-	-	0.1	0.1	0.01	**0.1**	*C47*
Connective and soft tissue	20	0	100	3	4	3	1	3	2	4	1.1	1.2	0.08	**1.3**	*C49*
Breast	481	0	98	-	3	54	158	137	73	56	27.3	27.8	2.83	**34.5**	*C50*
Vulva	2	0	100	-	-	-	-	1	-	1	0.1	0.1	0.01	**0.2**	*C51*
Vagina	9	0	78	1	-	1	1	3	2	1	0.5	0.5	0.05	**0.7**	*C52*
Cervix uteri	324	0	98	-	-	18	81	117	70	38	18.4	18.7	2.14	**24.9**	*C53*
Uterus	48	0	98	-	1	4	14	11	9	9	2.7	2.8	0.27	**3.5**	*C54-55*
Ovary	50	0	96	1	1	7	7	14	11	9	2.8	2.9	0.29	**3.7**	*C56*
Placenta	0	0	-	-	-	-	-	-	-	-	0.0	0.0	0.00	**0.0**	*C58*
Kidney	28	0	93	13	-	-	4	2	6	3	1.6	1.6	0.14	**1.9**	*C64*
Renal pelvis, ureter and other urinary	4	0	100	-	-	-	-	1	2	1	0.2	0.2	0.03	**0.3**	*C65-66,C68*
Bladder	15	0	73	-	-	-	1	2	4	8	0.9	0.9	0.07	**1.3**	*C67*
Eye	8	0	100	6	-	-	-	-	-	2	0.5	0.5	0.02	**0.6**	*C69*
Brain, nervous system	19	0	68	5	1	2	1	3	6	1	1.1	1.1	0.12	**1.3**	*C70-72*
Thyroid	62	0	97	1	5	20	9	10	7	10	3.5	3.6	0.28	**4.0**	*C73*
Hodgkin disease	20	0	100	3	5	1	4	-	3	4	1.1	1.2	0.08	**1.3**	*C81*
Non-Hodgkin lymphoma	88	0	100	16	10	6	10	10	20	16	5.0	5.1	0.44	**6.2**	*C82-85,C96*
Multiple myeloma	16	0	100	-	1	2	4	1	4	4	0.9	0.9	0.08	**1.2**	*C90*
Lymphoid leukaemia	12	0	100	7	1	1	-	1	-	2	0.7	0.7	0.03	**0.8**	*C91*
Myeloid leukaemia	10	0	100	1	1	3	1	2	2	-	0.6	0.6	0.06	**0.6**	*C92-94*
Leukaemia, unspecified	0	0	-	-	-	-	-	-	-	-	0.0	0.0	0.00	**0.0**	*C95*
Other and unspecified	114	0	97	8	7	7	12	22	25	33	6.5	6.6	0.59	**8.7**	*O&U*
All sites	1818	0	95	85	56	165	370	431	363	348	103.2		10.14	**134.4**	*ALL*
All sites but C44	1729	0	95	82	54	158	366	413	344	312	98.1	100.0	9.73	**127.3**	*ALLbC44*
Average annual population				186009	126289	102612	70593	44430	29832	27584					

Table 5. Algeria, Setif (1993-1997)

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	46	0	98	1	-	1	1	6	11	26	1.5	3.4	0.14	**2.8**	*C00-06*
Salivary gland	7	0	100	-	1	1	-	2	-	3	0.2	0.5	0.01	**0.4**	*C07-08*
Nasopharynx	134	0	98	3	35	23	17	26	20	10	4.5	9.8	0.52	**6.3**	*C11*
Other pharynx	58	0	100	1	-	1	1	9	25	21	1.9	4.3	0.30	**3.8**	*C09-10,C12-14*
Oesophagus	9	0	89	-	-	-	1	-	2	6	0.3	0.7	0.02	**0.5**	*C15*
Stomach	131	0	89	1	4	6	14	38	21	47	4.4	9.6	0.51	**7.8**	*C16*
Colon, rectum and anus	82	0	90	1	4	12	11	20	18	16	2.7	6.0	0.36	**4.6**	*C18-21*
Liver	23	0	22	-	-	-	3	1	8	11	0.8	1.7	0.09	**1.4**	*C22*
Gallbladder etc.	29	0	69	-	-	1	3	3	8	14	1.0	2.1	0.11	**1.8**	*C23-24*
Pancreas	3	0	33	-	-	-	1	-	1	1	0.1	0.2	0.01	**0.2**	*C25*
Larynx	37	0	89	-	-	-	3	3	14	17	1.2	2.7	0.16	**2.3**	*C32*
Trachea, bronchus and lung	246	0	91	-	1	2	14	38	81	110	8.2	18.1	1.04	**15.5**	*C33-34*
Bone	23	0	96	4	6	1	5	-	4	3	0.8	1.7	0.07	**1.0**	*C40-41*
Melanoma of skin	0	0	-	-	-	-	-	-	-	-	0.0	0.0	0.00	**0.0**	*C43*
Other skin	55	0	100	2	1	7	6	5	10	24	1.8		0.17	**3.0**	*C44*
Mesothelioma	0	0	-	-	-	-	-	-	-	-	0.0	0.0	0.00	**0.0**	*C45*
Kaposi sarcoma	0	0	-	-	-	-	-	-	-	-	0.0	0.0	0.00	**0.0**	*C46*
Peripheral nerves	4	0	100	4	-	-	-	-	-	-	0.1	0.3	0.00	**0.1**	*C47*
Connective and soft tissue	16	0	100	1	4	3	3	1	1	3	0.5	1.2	0.04	**0.7**	*C49*
Breast	8	0	100	-	-	-	1	3	3	1	0.3	0.6	0.05	**0.5**	*C50*
Penis	1	0	100	-	-	-	-	-	-	1	0.0	0.1	0.00	**0.1**	*C60*
Prostate	71	0	94	-	-	-	-	4	15	52	2.4	5.2	0.16	**4.3**	*C61*
Testis	4	0	100	-	-	-	1	-	1	2	0.1	0.3	0.01	**0.2**	*C62*
Kidney	14	0	79	4	-	-	1	3	3	3	0.5	1.0	0.06	**0.8**	*C64*
Renal pelvis, ureter and other urinary	0	0	-	-	-	-	-	-	-	-	0.0	0.0	0.00	**0.0**	*C65-66,C68*
Bladder	62	0	87	-	-	1	3	8	25	25	2.1	4.6	0.29	**4.0**	*C67*
Eye	4	0	100	2	-	-	-	1	1	-	0.1	0.3	0.02	**0.2**	*C69*
Brain, nervous system	31	0	58	6	2	4	6	6	2	5	1.0	2.3	0.10	**1.4**	*C70-72*
Thyroid	7	0	86	-	2	1	1	1	-	2	0.2	0.5	0.02	**0.3**	*C73*
Hodgkin disease	55	0	100	14	8	12	5	5	6	5	1.8	4.0	0.16	**2.3**	*C81*
Non-Hodgkin lymphoma	79	0	100	21	7	9	10	7	12	13	2.6	5.8	0.25	**3.6**	*C82-85,C96*
Multiple myeloma	6	0	100	-	-	-	4	-	-	2	0.2	0.4	0.01	**0.3**	*C90*
Lymphoid leukaemia	43	0	100	25	4	1	4	-	3	6	1.4	3.2	0.08	**1.5**	*C91*
Myeloid leukaemia	22	0	100	4	4	2	3	3	1	5	0.7	1.6	0.06	**1.0**	*C92-94*
Leukaemia, unspecified	9	0	100	4	-	1	-	3	-	1	0.3	0.7	0.03	**0.4**	*C95*
Other and unspecified	97	0	74	7	4	10	7	14	25	30	3.2	7.1	0.38	**5.4**	*O&U*
All sites	1416	0	90	105	87	99	129	210	321	465	47.3		5.25	**78.5**	*ALL*
All sites but C44	1361	0	90	103	86	92	123	205	311	441	45.5	100.0	5.08	**75.5**	*ALLbC44*
Average annual population				255997	131540	76749	54443	32852	22393	24376					

Table 5. Algeria, Setif (1993-1997)

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	16	0	100	1	-	-	2	2	4	7	0.5	1.1	0.05	**0.9**	*C00-06*
Salivary gland	8	0	100	-	1	2	-	3	2	-	0.3	0.6	0.04	**0.4**	*C07-08*
Nasopharynx	51	0	84	8	8	10	4	5	10	6	1.7	3.6	0.17	**2.2**	*C11*
Other pharynx	9	0	100	-	-	-	-	1	4	4	0.3	0.6	0.04	**0.5**	*C09-10,C12-14*
Oesophagus	5	0	80	-	-	-	2	-	2	1	0.2	0.4	0.02	**0.3**	*C15*
Stomach	56	0	89	-	-	2	15	14	15	10	1.9	3.9	0.26	**3.1**	*C16*
Colon, rectum and anus	89	0	93	1	4	16	23	16	13	16	3.0	6.2	0.32	**4.3**	*C18-21*
Liver	32	0	47	-	1	-	4	5	12	10	1.1	2.2	0.15	**1.9**	*C22*
Gallbladder etc.	152	0	90	1	-	2	28	40	43	38	5.1	10.7	0.69	**8.6**	*C23-24*
Pancreas	10	0	70	-	-	-	2	1	2	5	0.3	0.7	0.03	**0.6**	*C25*
Larynx	2	0	100	-	-	1	-	-	-	1	0.1	0.1	0.00	**0.1**	*C32*
Trachea, bronchus and lung	31	0	97	-	-	-	2	1	7	21	1.0	2.2	0.07	**1.7**	*C33-34*
Bone	31	0	97	7	8	3	4	2	4	3	1.0	2.2	0.09	**1.2**	*C40-41*
Melanoma of skin	1	0	100	-	-	-	-	-	-	1	0.0	0.1	0.00	**0.1**	*C43*
Other skin	24	0	100	-	1	3	3	3	4	10	0.8		0.07	**1.3**	*C44*
Mesothelioma	0	0	-	-	-	-	-	-	-	-	0.0	0.0	0.00	**0.0**	*C45*
Kaposi sarcoma	1	0	100	-	-	-	-	-	-	1	0.0	0.1	0.00	**0.1**	*C46*
Peripheral nerves	1	0	100	-	1	-	-	-	-	-	0.0	0.1	0.00	**0.0**	*C47*
Connective and soft tissue	11	0	91	-	3	4	-	2	1	1	0.4	0.8	0.03	**0.5**	*C49*
Breast	317	0	96	-	1	31	80	90	73	42	10.5	22.2	1.47	**17.0**	*C50*
Vulva	5	0	100	-	-	-	1	1	3	-	0.2	0.4	0.04	**0.3**	*C51*
Vagina	4	0	100	-	-	-	-	-	3	1	0.1	0.3	0.03	**0.3**	*C52*
Cervix uteri	203	0	96	-	-	5	40	48	66	44	6.7	14.2	0.96	**11.5**	*C53*
Uterus	17	0	94	-	-	-	-	3	6	8	0.6	1.2	0.07	**1.0**	*C54-55*
Ovary	65	0	91	1	7	8	14	14	12	9	2.2	4.6	0.26	**3.2**	*C56*
Placenta	0	0	-	-	-	-	-	-	-	-	0.0	0.0	0.00	**0.0**	*C58*
Kidney	6	0	100	3	-	-	1	2	-	-	0.2	0.4	0.02	**0.3**	*C64*
Renal pelvis, ureter and other urinary	1	0	0	-	1	-	-	-	-	-	0.0	0.1	0.00	**0.0**	*C65-66,C68*
Bladder	2	0	50	-	-	-	-	-	2	-	0.1	0.1	0.02	**0.1**	*C67*
Eye	5	0	100	4	-	-	-	-	-	1	0.2	0.4	0.00	**0.2**	*C69*
Brain, nervous system	17	0	71	1	1	4	4	4	3	-	0.6	1.2	0.07	**0.8**	*C70-72*
Thyroid	36	0	94	1	6	8	3	7	5	6	1.2	2.5	0.12	**1.7**	*C73*
Hodgkin disease	29	0	100	5	5	8	4	4	2	1	1.0	2.0	0.09	**1.1**	*C81*
Non-Hodgkin lymphoma	50	0	100	12	5	7	7	7	6	6	1.7	3.5	0.15	**2.1**	*C82-85,C96*
Multiple myeloma	3	0	100	-	-	-	1	1	1	-	0.1	0.2	0.02	**0.2**	*C90*
Lymphoid leukaemia	22	0	100	16	2	-	1	-	1	2	0.7	1.5	0.03	**0.7**	*C91*
Myeloid leukaemia	34	0	100	6	3	7	1	1	10	6	1.1	2.4	0.12	**1.6**	*C92-94*
Leukaemia, unspecified	11	0	91	5	-	1	-	2	1	2	0.4	0.8	0.03	**0.5**	*C95*
Other and unspecified	92	0	64	4	6	8	12	17	21	24	3.1	6.5	0.34	**4.8**	*O&U*
All sites	1449	0	91	76	64	130	258	296	338	287	48.1		5.88	**74.8**	*ALL*
All sites but C44	1425	0	91	76	63	127	255	293	334	277	47.4	100.0	5.81	**73.5**	*ALLbC44*
Average annual population				245685	130365	79658	59563	36286	24550	25765					

Table 6. Algeria: case series

Site	Histopathology series: Algiers, Oran, Constantine. 1966–75 (Yaker, 1980, 1986)					Tlemcen, 1994–96 (Meguenni, 1998)				
	Male		Female		%HV	Male		Female		%HV
	No.	%	No.	%		No.	%	No.	%	
Oral cavity[1]	402	4.1%	136	1.4%	100	10	2.9%	10	2.1%	
Nasopharynx	497*	5.0%	222*	2.2%	100	25	7.3%	10	2.1%	
Other pharynx						2	0.6%	1	0.2%	
Oesophagus	56	0.6%	30	0.3%	100	6	1.7%	7	1.5%	
Stomach	436	4.4%	174	1.7%	100	53	15.4%	31	6.6%	
Colon/rectum	398	4.0%	266	2.7%	100	16	4.7%	24	5.1%	
Liver	189	1.9%	180	1.8%	100	16	4.7%	20	4.3%	
Pancreas	33	0.3%	21	0.2%	100	13	3.8%	12	2.6%	
Larynx	907	9.2%	82	0.8%	100	29	8.4%	1	0.2%	
Lung	309	3.1%	50	0.5%	100	19	5.5%	4	0.9%	
Melanoma	111	1.1%	82	0.8%	100	4	1.2%	0	0.0%	
Other skin	2449	24.8%	1267	12.7%	100	13	3.8%	9	1.9%	
Kaposi sarcoma										
Breast	53	0.5%	1147	11.5%	100	1	0.3%	138	29.4%	
Cervix uteri			3002	30.1%	100			26	5.5%	
Corpus uteri			502	5.0%	100			5	1.1%	
Ovary etc.			241	2.4%	100			32	6.8%	
Prostate	138	1.4%			100	3	0.9%			
Penis	47	0.5%			100	0	0.0%			
Bladder	314	3.2%	48	0.5%	100	3	0.9%	0	0.0%	
Kidney etc.	121	1.2%	88	0.9%	100	1	0.3%	0	0.0%	
Eye	154	1.6%	126	1.3%	100	0	0.0%	1	0.2%	
Brain, nervous system	112	1.1%	81	0.8%	100	1	0.3%	3	0.6%	
Thyroid	83	0.8%	183	1.8%	100	1	0.3%	6	1.3%	
Non-Hodgkin lymphoma	788	8.0%	412	4.1%	100	7	2.0%	5	1.1%	
Hodgkin disease	383	3.9%	112	1.1%	100	17	4.9%	14	3.0%	
Myeloma	12	0.1%	9	0.1%	100	9	2.6%	7	1.5%	
Leukaemia	431	4.4%	300	3.0%	100	27	7.8%	30	6.4%	
ALL SITES	9867	100.0%	9957	100.0%	100	344	100.0%	470	100.0%	

[1] Includes salivary gland tumours

* Includes oropharynx

Table 7. Registry of digestive tract cancer, Algiers, 1987–89 (Abid & Benabadji, 1999)

Male		0–14	15–24	25–34	35–44	45–54	55–64	65+	Total	%	Crude rate	ASR (world)
Oesophagus	C15	0	0	0	0	6	8	9	25	3.8%	1.0	2.1
Stomach	C16	0	5	17	30	43	43	84	241	36.9%	9.2	17.5
Colon/rectum	C18–21	4	12	18	26	44	40	66	215	32.9%	8.2	15.2
Liver	C22	1	0	1	4	9	5	14	34	5.2%	1.3	2.5
Gallbladder etc.	C23–24	0	0	0	1	6	12	14	33	5.1%	1.3	2.6
Pancreas	C25	0	0	0	1	6	15	13	36	5.5%	1.4	2.9
All sites	C15–C26	22	26	41	64	117	131	220	653	100.0%	24.9	46.6
Population (1988)		413372	177571	114135	57793	49674	30468	30989	874005			

Female		0–14	15–24	25–34	35–44	45–54	55–64	65+	Total	%	Crude rate	ASR (world)
Oesophagus	C15	0	0	0	0	4	4	3	11	2.2%	0.4	0.8
Stomach	C16	3	0	13	23	24	28	29	126	25.7%	4.8	7.7
Colon/rectum	C18–21	1	4	10	22	25	29	40	136	27.8%	5.2	8.4
Liver	C22	0	0	3	3	7	9	8	30	6.1%	1.1	2.0
Gallbladder etc.	C23–24	0	0	3	10	32	31	43	120	24.5%	4.6	7.8
Pancreas	C25	0	0	0	0	3	6	6	15	3.1%	0.6	1.0
All sites	C15–C26	13	5	31	60	98	122	146	490	100.0%	18.7	30.8
Population (1988)		393171	168923	111122	66589	58070	36068	37329	871272			

Table 8. Childhood cancer, Algeria, Algiers (1993-1997)

	NUMBER OF CASES					REL. FREQ.(%)	RATES PER MILLION					
	0-4	5-9	10-14	All	*M/F*	Overall	0-4	5-9	10-14	Crude	ASR	%MV
Leukaemia	25	22	19	**66**	*1.9*	19.5	24.6	20.0	15.9	20.0	**20.6**	100.0
Acute lymphoid leukaemia	16	15	9	**40**	*1.7*	11.8	15.8	13.7	7.5	12.1	**12.7**	100.0
Lymphoma	10	17	14	**41**	*1.9*	12.1	9.9	15.5	11.7	12.4	**12.2**	100.0
Hodgkin disease	3	3	5	**11**	*0.6*	3.2	3.0	2.7	4.2	3.3	**3.2**	100.0
Burkitt lymphoma	0	0	0	**0**	-	-	-	-	-	-	-	-
Brain and spinal neoplasms	7	22	15	**44**	*1.9*	13.0	6.9	20.0	12.6	13.3	**12.8**	93.2
Neuroblastoma	12	16	5	**33**	*3.1*	9.7	11.8	14.6	4.2	10.0	**10.5**	100.0
Retinoblastoma	14	4	1	**19**	*0.9*	5.6	13.8	3.6	0.8	5.8	**6.8**	100.0
Wilms tumour	15	8	4	**27**	*0.8*	8.0	14.8	7.3	3.4	8.2	**9.0**	96.3
Bone tumours	1	7	25	**33**	*3.1*	9.7	1.0	6.4	21.0	10.0	**8.5**	87.9
Soft tissue sarcomas	4	5	6	**15**	*2.0*	4.4	3.9	4.6	5.0	4.5	**4.5**	80.0
Kaposi sarcoma	0	0	0	**0**	-	-	-	-	-	-	-	-
Germ cell tumours	9	0	2	**11**	*0.8*	3.2	8.9	-	1.7	3.3	**3.9**	100.0
Other	14	14	22	**50**	*1.9*	14.7	13.8	12.8	18.5	15.1	**14.8**	76.0
All	111	115	113	**339**	*1.8*	100.0	109.4	104.8	94.8	102.6	**103.7**	93.2

Table 9. Childhood cancer, Algeria, Oran (1996-1998)

	NUMBER OF CASES					REL. FREQ.(%)	RATES PER MILLION					
	0-4	5-9	10-14	**All**	*M/F*	Overall	0-4	5-9	10-14	Crude	**ASR**	%MV
Leukaemia	3	11	13	**27**	*2.4*	12.4	8.5	29.3	32.3	23.8	**22.1**	100.0
Acute lymphoid leukaemia	3	8	9	**20**	*2.3*	9.2	8.5	21.3	22.4	17.7	**16.6**	95.0
Lymphoma	19	34	19	**72**	*2.8*	33.0	53.6	90.5	47.2	63.6	**63.6**	100.0
Hodgkin disease	2	12	8	**22**	*6.3*	10.1	5.6	31.9	19.9	19.4	**18.3**	100.0
Burkitt lymphoma	0	0	0	**0**	-	-	-	-	-	-	**-**	-
Brain and spinal neoplasms	2	3	3	**8**	*3.0*	3.7	5.6	8.0	7.5	7.1	**6.9**	50.0
Neuroblastoma	6	3	1	**10**	*1.5*	4.6	16.9	8.0	2.5	8.8	**9.8**	90.0
Retinoblastoma	11	6	0	**17**	*2.4*	7.8	31.0	16.0	-	15.0	**17.2**	100.0
Wilms tumour	8	8	4	**20**	*0.7*	9.2	22.6	21.3	9.9	17.7	**18.5**	100.0
Bone tumours	3	2	10	**15**	*0.4*	6.9	8.5	5.3	24.8	13.2	**12.2**	93.3
Soft tissue sarcomas	3	5	4	**12**	*3.0*	5.5	8.5	13.3	9.9	10.6	**10.5**	91.7
Kaposi sarcoma	0	0	0	**0**	-	-	-	-	-	-	**-**	-
Germ cell tumours	0	0	0	**0**	-	-	-	-	-	-	**-**	-
Other	9	10	18	**37**	*0.8*	17.0	25.4	26.6	44.7	32.7	**31.4**	97.3
All	64	82	72	**218**	*1.6*	100.0	180.6	218.3	178.9	192.5	**192.2**	95.9

Table 10. Childhood cancer, Algeria, Setif (1993-1997)

	NUMBER OF CASES					REL. FREQ.(%)	RATES PER MILLION					
	0-4	5-9	10-14	**All**	*M/F*	Overall	0-4	5-9	10-14	Crude	**ASR**	%MV
Leukaemia	16	28	16	**60**	*1.2*	33.1	19.4	32.9	19.2	23.9	**23.7**	94.7
Acute lymphoid leukaemia	13	19	9	**41**	*1.6*	22.7	15.7	22.3	10.8	16.3	**16.4**	100.0
Lymphoma	15	17	20	**52**	*2.1*	28.7	18.1	20.0	24.1	20.7	**20.5**	100.0
Hodgkin disease	3	10	6	**19**	*2.8*	10.5	3.6	11.8	7.2	7.6	**7.3**	100.0
Burkitt lymphoma	0	1	2	**3**	*2.0*	1.7	-	1.2	2.4	1.2	**1.1**	100.0
Brain and spinal neoplasms	1	3	3	**7**	*6.0*	3.9	1.2	3.5	3.6	2.8	**2.7**	85.7
Neuroblastoma	5	1	0	**6**	-	3.3	6.0	1.2	-	2.4	**2.7**	100.0
Retinoblastoma	4	0	0	**4**	*0.3*	2.2	4.8	-	-	1.6	**1.9**	100.0
Wilms tumour	4	2	0	**6**	*1.0*	3.3	4.8	2.4	-	2.4	**2.6**	100.0
Bone tumours	0	5	6	**11**	*0.6*	6.1	-	5.9	7.2	4.4	**4.0**	90.9
Soft tissue sarcomas	0	0	1	**1**	-	0.6	-	-	1.2	0.4	**0.3**	100.0
Kaposi sarcoma	0	0	0	**0**	-	-	-	-	-	-	**-**	-
Germ cell tumours	0	0	0	**0**	-	-	-	-	-	-	**-**	-
Other	6	9	19	**34**	*0.9*	18.8	7.3	10.6	22.9	13.6	**12.9**	67.6
All	51	65	65	**181**	*1.4*	100.0	61.7	76.4	78.2	72.2	**71.2**	92.3

Table 11. Childhood cancer, Algeria, 4 Registries

	NUMBER OF CASES					REL. FREQ.(%)	RATES PER MILLION					
	0-4	5-9	10-14	**All**	*M/F*	Overall	0-4	5-9	10-14	Crude	**ASR**	%MV
Leukaemia	49	69	53	**171**	*1.7*	21.0	18.6	25.3	19.0	21.0	**20.9**	98.3
Acute lymphoid leukaemia	35	47	29	**111**	*1.8*	13.6	13.3	17.2	10.4	13.6	**13.7**	99.1
Lymphoma	49	75	57	**181**	*2.2*	22.2	18.6	27.5	20.4	22.2	**22.0**	100.0
Hodgkin disease	9	29	20	**58**	*2.1*	7.1	3.4	10.6	7.2	7.1	**6.8**	100.0
Burkitt lymphoma	0	1	2	**3**	*2.0*	0.4	-	0.4	0.7	0.4	**0.3**	100.0
Brain and spinal neoplasms	13	28	24	**65**	*2.1*	8.0	4.9	10.3	8.6	8.0	**7.7**	83.1
Neuroblastoma	25	20	8	**53**	*2.5*	6.5	9.5	7.3	2.9	6.5	**6.9**	98.1
Retinoblastoma	29	10	1	**40**	*1.2*	4.9	11.0	3.7	0.4	4.9	**5.5**	100.0
Wilms tumour	35	20	8	**63**	*0.7*	7.7	13.3	7.3	2.9	7.7	**8.3**	96.8
Bone tumours	5	16	45	**66**	*1.1*	8.1	1.9	5.9	16.1	8.1	**7.3**	90.9
Soft tissue sarcomas	7	10	12	**29**	*2.6*	3.6	2.7	3.7	4.3	3.6	**3.5**	86.2
Kaposi sarcoma	0	0	0	**0**	-	-	-	-	-	-	**-**	-
Germ cell tumours	9	2	2	**13**	*0.9*	1.6	3.4	0.7	0.7	1.6	**1.8**	100.0
Other	34	37	63	**134**	*1.2*	16.4	12.9	13.6	22.6	16.4	**15.9**	81.3
All	255	287	273	**815**	*1.5*	100.0	96.7	105.2	97.7	99.9	**99.7**	93.7

3.1.2 Egypt

Background

Climate: Desert; hot dry summers with moderate winters.

Terrain: Vast desert plateau interrupted by Nile valley and delta.

Ethnic groups: Eastern Hamitic stock (Egyptians, Bedouins and Berbers) 99%, Greek, Nubian, Armenian, other European (primarily Italian and French) 1%.

Religions: Muslim (mostly Sunni) 94% (official estimate), Coptic Christian and other 6% (official estimate).

Economy—overview: At the end of the 1980s, Egypt faced problems of low productivity and a poor economy with excessive population growth, high inflation and urban overcrowding. Substantial progress has been made in improving macroeconomic performance, with moves towards a more decentralized, market-oriented economy. Foreign investment has been increasing but since 1997 there has been a sharp downturn in tourism.

Industries: Textiles, food processing, tourism, chemicals, petroleum, construction, cement, metals.

Agriculture—products: Cotton, rice, corn, wheat, beans, fruits, vegetables; cattle, water buffalo, sheep, goats. The annual fish catch is about 140 000 metric tons.

Cancer registration

Cancer Registry of Alexandria

Alexandria is the second largest governorate in Egypt, situated on the Mediterranean coast, with an estimated population of over three million. The Alexandria Regional Cancer Registry was initiated by the Alexandria Faculty of Medicine in 1960. In its early phase, it was a hospital registry covering only university hospitals. In 1963, the registry headquarters was transferred to the Department of Medical Statistics at the Medical Research Institute and the registry became a central hospital-based registry, covering 18 hospitals all over Alexandria (university, health insurance, medical organization, school health, and Ministry of Health hospitals).

Data are collected actively on standardized registration forms. Cases are ascertained from a variety of sources (medical and surgical departments, radiology, pathology and medical records). The data collected are revised and coded centrally. An index system is used to allow rapid manual retrieval of information and to avoid duplicate registration. Tumour diagnoses are classified according to the ninth revision of the ICD and to the ICD-O coding systems.

Cairo Metropolitan Cancer Registry

The cancer registry of the metropolitan Cairo area (CMCR) was started in 1973 and has published several reports. The registry was a multi-hospital register of patients with cancer attending nine hospitals belonging to the Universities of Cairo, Azhar and Ain Shams and six Ministry of Health hospitals in the metropolitan Cairo area. Hospitals in the private sector were not included, but these provided only a small percentage of hospital care for cancer at that time. Cases were also contributed from Assiut University hospital, located 350 km to the south of Cairo. Data on cancer cases were recorded on reporting forms from inpatient departments, outpatient clinics and pathology and haematology departments and sent to the central registry, which maintains an alphabetical index in order to avoid duplicate registrations. At the time, the estimated population of the Greater Cairo Area was 8.6 million and that of Assiut Governorate 1.8 million.

Registry of the National Cancer Institute, Cairo

The Registry of the National Cancer Institute (NCI) in Cairo has recorded details of all patients hospitalized at the Institute since 1970. At least until 1988, registration was restricted to inpatients. A card system with different indices was in use at least until 1987 (Sherif & Ibrahim, 1987).

The NCI has a wide catchment area, covering the entire country. Although this might in theory allow a fairly good estimate of the relative frequencies of different types of cancer in Egypt, there is undoubtedly some selection of the type of patients referred and admitted to the Institute, related to the facilities and expertise available.

Pathology Registry of Cairo

This registry was established in 1969 at the National Cancer Institute. It has published frequencies for the five years 1985–89 (see below).

Population-based cancer registration

In 2000, a national Cancer Registry project was launched by the Ministry of Health and Population. A coordinating centre in Cairo was charged with the tasks of coordinating the work of eight regional cancer registries, located in Aswan, Damanhour, Elsalem, Menya, Tanta, Sohag, Domiatt and Nasser Institute Hospital (Cairo). Some of the registries had been established for some time, including the registries in Aswan (1988) and Tanta, Gharbia Governorate (1997). Detailed results are not so far available (2002).

Review of data

Alexandria cancer registry

Frequency data have been published for the period 1972–91, together with estimated incidence rates, based on the estimated average population at risk during this period (Table 1). Out of a total of 43 496 cases, 21 792 were men and 21 604 women. In men, bladder cancer occupies the first place (15.9%), followed by brain and central nervous system cancers (11%), non-Hodgkin lymphomas (10.8%) and lung (7.9%) and larynx (6.2%) cancers. Breast cancer is the commonest cancer in women (32.7%), followed by central nervous system cancers (7.2%), non-Hodgkin lymphomas (6.3%), cervix cancer (4.5%) and cancers of the colon and rectum (4.2%).

The estimated incidence rates must be considered approximations. They suggest a relatively high incidence of breast cancer in women (ASR 35.6 per 100 000), bladder cancer in men (ASR 19.2) and non-Hodgkin lymphoma in both sexes (ASR 10.1 in men and 6.4 in women). The rather high relative frequency of 'brain cancer' presumably represents mis-diagnosis or misrecording of metastatic cancers.

Cairo Metropolitan Cancer Registry

The data presented in Table 2 are for 1978 and 1979, from Aboul Nasr *et al.* (1986). The most striking feature is the very high frequency of bladder cancer, which comprises 28.8% of cancers in males and 11.7% of cancers in females. This elevated frequency has often been reported (Ibrahim & Elsebai, 1983) and is related to the prevalence of schistosomiasis in Egypt. The frequency in this series is somewhat higher than in the general population, since the National Cancer Institute (one of the hospitals reporting to the

Registry) has a particular interest and expertise in the management of this cancer; 31.8% of cases registered at the Institute in 1976–77 were bladder cancer (Ibrahim, 1982).

In females, breast cancer is the dominant tumour (23.3% of cases); it is considerably more common than cervical cancer (8.8%).

The relatively high frequencies of lymphomas in people of each sex are of note, and are partly related to the young age structure of the population.

Registry of the National Cancer Institute, Cairo

The results for 1970–85 (Sherif & Ibrahim, 1987) are shown in Table 2. The frequency of bladder cancers (40.6% of cancers in men, 14.3% in women) and of female breast cancer (33.9% of female cancers) are more extreme than those in the CMCR, presumably reflecting the special treatment services provided by this hospital.

Pathology Registry of Cairo

This has published frequencies for the five years 1985 to 1989, out of a total of 23 567 biopsies, 26.3% were cancer of the bladder, 12.2% lymphomas, 11.3% breast, 7.6% oral cavity and pharynx, 6.7% leukaemias and 3.5% cervix cancer.

Cancer mortality rates in Egypt

Soliman *et al.* (1999) have published cancer mortality rates, based on the mandatory and routinely available mortality records of Menofeia province in the Nile Delta region of Egypt (Table 3). They compared the results with data from the Surveillance Epidemiology, and End Results (SEER) mortality rates of the United States.

Bladder and liver cancers are the two most common causes of cancer mortality in Menofeia province. The high frequency and age-adjusted mortality rates of bladder and liver cancer revealed by this study may be explained by the fact that Menofeia is a rural region exposed to schistosomal infections.

Childhood cancer

Data on childhood cancer from the Alexandria cancer registry (Bedwani, 1992; Bedwani *et al.*, 1998) and from the register of tumour pathology in the National Cancer Institute (Mokhtar, 1991) are summarized in Table 4.

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Table 1. Alexandria Cancer Registry: 1972–91

Site		Male				Female			
		Total	%	Crude rate	ASR (world)	Total	%	Crude rate	ASR (world)
Mouth	C00–08	669	3.1%	2.6	3.2	333	1.5%	1.4	2
Nasopharynx	C11	328	1.5%	1.3	1.5	163	0.8%	0.7	0.6
Other pharynx	C09–10,C12–14	719	3.3%	2.8	2.1	309	1.4%	1.3	0.8
Oesophagus	C15	729	3.3%	2.8	2.9	1062	4.9%	4.3	1.1
Stomach	C16	399	1.8%	1.5	2.0	346	1.6%	1.4	1.5
Colon/rectum	C18–21	937	4.3%	3.6	4.4	914	4.2%	3.7	1.9
Liver	C22	60	0.3%	0.2	0.6	568	2.6%	2.3	1.8
Pancreas	C25	299	1.4%	1.2	2.0	180	0.8%	0.7	0.5
Larynx	C32	1346	6.2%	5.2	7.4	146	0.7%	0.6	0.9
Lung	C33–34	1726	7.9%	6.6	9.5	368	1.7%	1.5	1.8
Melanoma of skin	C43	0	0.0%			0	0.0%		
Other skin	C44	1420	6.5%	5.5	6.9	568	2.6%	2.3	2.9
Kaposi sarcoma	C46	0	0.0%			0	0.0%		
Breast	C50					7068	32.7%	27.9	35.6
Cervix	C53					970	4.5%	3.9	5.5
Corpus	C54					625	2.9%	2.5	3.8
Ovary etc.	C56–57					526	2.4%	2.1	2.4
Prostate	C61	442	2.0%	1.7	2.6				
Testis	C62	115	0.5%	0.4	0.6				
Bladder	C67	3466	15.9%	13.3	19.2	675	3.1%	2.7	3.6
Kidney etc.	C64–66	263	1.2%	1.0	1.1	230	1.1%	0.9	1.0
Brain	C71–72	2398	11.0%	9.2	10.2	1561	7.2%	6.3	6.1
Thyroid	C73	294	1.4%	1.1	1.4	568	2.6%	2.3	2.9
Non-Hodgkin lymphoma	C82–85,C96	2349	10.8%	9.0	10.1	1369	6.3%	5.5	6.4
Hodgkin disease	C81	656	3.0%	2.5	2.6	378	1.7%	1.5	1.5
Myeloma	C90	198	0.9%	0.8	1.0	131	0.6%	0.5	0.7
Leukaemia	C91–95	1065	4.9%	4.1	4.0	776	3.6%	3.1	3.4
Other sites	Other	1591	7.3%	6.1	6.8	1517	7.0%	6.1	7.0
All sites	ALL	21792	100.0%	82.4	102.0	21604	100.0%	85.6	95.6

Source: Alexandria Cancer Registry 1972–1991. Alexandria University Medical Research Institute, The Medical Statistics and Clinical Epidemiology Unit, 1992

Table 2. Egypt: frequency data

Site	Cairo Metropolitan Cancer Registry 1978–79 (Aboul Nasr *et al.*, 1986)					National Cancer Institute (NCI), 1970–85 (Sherif & Ibrahim, 1987)				
	Male		Female		%HV	Male		Female		%HV
	No.	%	No.	%		No.	%	No.	%	
Oral cavity[1]	194	4.6%	95	3.5%		815	4.2%	565	4.5%	
Nasopharynx	49	1.2%	16	0.6%		136	0.7%	67	0.5%	
Other pharynx	142	3.3%	53	1.9%		548	2.8%	376	3.0%	
Oesophagus	68	1.6%	16	0.6%		710	3.6%	211	1.7%	
Stomach	42	1.0%	27	1.0%		252	1.3%	87	0.7%	
Colon/rectum	199	4.7%	108	4.0%		783	4.0%	243	1.9%	
Liver	104	2.4%	47	1.7%		33	0.2%	13	0.1%	
Pancreas	10	0.2%	11	0.4%		113	0.6%	33	0.3%	
Lung	121	2.8%	18	0.7%		440	2.2%	74	0.6%	
Melanoma	234	5.5%	241	8.8%		1002	5.1%	529	4.2%	
Other skin										
Kaposi sarcoma										
Breast	52	1.2%	635	23.3%		228	1.2%	4305	33.9%	
Cervix uteri			241	8.8%				579	4.6%	
Corpus uteri			40	1.5%				267	2.1%	
Ovary etc.			94	3.4%				357	2.8%	
Prostate						103	0.5%		0.0%	
Penis						28	0.1%		0.0%	
Bladder	1225	28.8%	319	11.7%		7953	40.6%	1820	14.3%	
Kidney etc.	31	0.7%	14	0.5%						
Eye	72	1.7%	40	1.5%		122	0.6%	71	0.6%	
Brain, nervous system	78	1.8%	45	1.6%		28	0.1%	13	0.1%	
Thyroid	47	1.1%	65	2.4%		183	0.9%	320	2.5%	
Non-Hodgkin lymphoma	224	5.3%	106	3.9%		1024	5.2%	446	3.5%	
Hodgkin disease	142	3.3%	62	2.3%		861	4.4%	244	1.9%	
Myeloma	15	0.4%	8	0.3%		37	0.2%	29	0.2%	
Leukaemia	157	3.7%	105	3.8%		931	4.7%	363	2.9%	
ALL SITES	4252	100.0%	2729	100.0%		19610	100.0%	12695	100.0%	

[1] Includes salivary gland tumours

Table 3. Menofeia, Egypt: age-adjusted mortality rates (per 100 000) (1992–96) (Soliman *et al.*, 1999)

Site (ICD)	Total	Male	Female
Urinary bladder	9.5	15.6	3.9
Liver	8.4	10.5	4.4
Leukaemia	4.0	5.0	3.5
Breast	4.8	0.4	8.9
Colorectum	3.5	4.4	2.7
Lung	3.3	5.4	0.9
Brain	1.8	2.2	1.5
Stomach	1.8	2.2	1.5
Non-Hodgkin lymphoma	1.2	1.6	0.9

Table 4. Egypt: Childhood cancer

Cancer	Cancer Pathology Register National Cancer Institute 1985–89 (Mokhtar, 1991)[a]		Alexandria Cancer Registry 1972–1991 (Bedwani, 1992)		1980–89 (Bedwani *et al.*, 1998)	
	No.	%	No.	%	No.	%
Leukaemia	409	25.9%	1023	24.5%	259	19.7%
Acute lymphocytic leukaemia					81	6.2%
Lymphoma	512	32.5%	1102	26.4%	400	30.4%
Burkitt lymphoma					1	0.1%
Hodgkin disease					126	9.6%
Brain and spinal neoplasms	10	0.6%	1064	25.4%	244	18.6%
Neuroblastoma			142	3.4%	66	5.0%
Retinoblastoma			43	1.0%	8	0.6%
Wilms tumour	44	2.8%	335	8.0%	50	3.8%
Bone tumour	124	7.9%	335	8.0%	83	6.3%
Soft-tissue sarcomas	151	9.6%	66	1.6%	62	4.7%
Kaposi sarcoma					0	0.0%
Other	327	20.7%	71		143	10.9%
Total	1577	100.0%	4181	100.0%	1315	100.0%

[a] Cases aged <20 years

3.1.3 Libya

Background

Climate: Mediterranean along coast; dry, extreme desert interior.

Terrain: mostly barren, flat to undulating plains, plateaux, depressions.

Ethnic groups: Berber and Arab 97%; remainder Greek, Maltese, Italian, Egyptian, Pakistani, Turkish, Indian and Tunisian.

Religions: Sunni Muslim 97%.

Economy—overview: The economy depends primarily upon revenues from the oil sector, which contributes practically all export earnings and about one-third of GDP. The non-oil manufacturing and construction sectors, which account for about 20% of GDP, have expanded from processing mostly agricultural products to include production of petrochemicals, iron, steel, and aluminium. Although agriculture accounts for only 5% of GDP, it employs 18% of the labour force. Climatic conditions and poor soils severely limit farm output and Libya imports about 75% of its food requirements.

Industries: petroleum, food processing, textiles, handicrafts, cement.

Agriculture—products: wheat, barley, olives, dates, citrus, vegetables, peanuts; meat, eggs.

Cancer registration

There has been no cancer registration in Libya.

Review of data

A study on 1124 histologically-diagnosed cases (664 males and 460 females), seen at the oncology clinic of the central Hospital, Tripoli, from 1981 to 1985 was reported by Akhtar *et al.* (1993). In males, lung cancer was the most common cancer (22.4%), followed by non-Hodgkin lymphoma (10.4%), Hodgkin disease (9.0%), larynx caner (4.7%) and stomach cancer (4.7%). In females, breast cancer was in the first position (29.8%), followed by ovary (7.8%), non-Hodgkin lymphoma (7.6%) and Hodgkin disease (3.7%).

Reference

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3.1.4 Morocco

Background

Climate: Mediterranean, becoming more extreme in the interior

Terrain: Northern coast and interior are mountainous with large areas of bordering plateaux, intermontane valleys, and rich coastal plains

Ethnic groups: Arab-Berber 99.1%, other 0.7%, Jewish 0.2%

Religions: Muslim 98.7%, Christian 1.1%, Jewish 0.2%

Economy—overview: Morocco is essentially an agricultural country, although only 19% of the total land is cultivated

Industries: Phosphate rock mining and processing, food processing, leather goods, textiles, construction, tourism

Agriculture—products: Barley, wheat, citrus, wine, vegetables, olives; livestock

Cancer registration

A hospital-based registry was set up in the newly founded National Institute of Oncology in 1986. This registry expanded its activities to cover the province of Rabat-Salé in October 1990.

Review of data

Data from the hospital registry of the National Institute of Oncology (Table 1) were published for 1986 to 1987 on the basis of 5148 cases (Chaoki & Gueddari, 1991). In women, cervix cancer accounts for 35% of all cancers, followed by breast cancer (22.3%). In men, cancer of the nasopharynx came first at 12.3%, followed by lymphomas 10.1%, larynx 8.2%, and lung cancers 6.5%.

Childhood cancer

Table 2 shows details of a series of 444 cases of childhood cancer admitted to the Hospital for Children in Rabat over a three-year period, 1983–85 (Msefer Alaoui, 1988). It excludes children requiring neurosurgery, who were not treated in this hospital. The most commonly recorded childhood cancers were lymphomas (32.6% of the total), of which about 20% were Burkitt lymphoma, leukaemias (22.7% of cases) and Wilms tumour (10%).

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Table 1. Morocco: case series

Site	National Oncology Institute,1986–87 (Chaouki & Gueddari, 1991)				
	Male		Female		%HV
	No.	%	No.	%	
Oral cavity[1]	73	4.5%	25	1.2%	
Nasopharynx	200	12.3%	107	5.3%	
Other pharynx					
Oesophagus	37	2.3%	22	1.1%	
Stomach	25	1.5%	8	0.4%	
Colon/rectum					
Liver					
Pancreas					
Lung	106	6.5%		0.0%	
Melanoma					
Other skin	82	5.1%		0.0%	
Kaposi sarcoma					
Breast	21	1.3%	453	22.3%	
Cervix uteri			710	34.9%	
Corpus uteri			47	2.3%	
Ovary etc.			60	2.9%	
Prostate	39	2.4%			
Penis		0.0%			
Bladder	25	1.5%	5	0.2%	
Kidney etc.					
Eye					
Brain, nervous system	67	4.1%		0.0%	
Thyroid					
Non-Hodgkin lymphoma	103	6.4%	56	2.8%	
Hodgkin's disease	61	3.8%	23	1.1%	
Myeloma					
Leukaemia					
ALL SITES	1620	100.0%	2034	100.0%	

[1]Lip and tongue

Table 2. Morocco: childhood case series

Cancer	Rabat, Hospital for Children, 1983–85 (Msefer Alaoui, 1988)	
	No.	%
Leukaemia	101	22.7%
Acute lymphocytic leukaemia	75	16.9%
Lymphoma	145	32.7%
Burkitt lymphoma	30	6.8%
Hodgkin disease	49	11.0%
Brain and spinal neoplasms	15	3.4%
Neuroblastoma	39	8.8%
Retinoblastoma	21	4.7%
Wilms tumour	44	9.9%
Bone tumours	16	3.6%
Soft-tissue sarcomas	20	4.5%
Kaposi sarcoma	0	0.0%
Other	43	9.7%
Total	444	100.0%

3.1.5 Sudan

Background

Climate: Tropical in south; arid desert in north; rainy season (April to October)

Terrain: Generally flat, featureless plain; mountains in east and west

Ethnic groups: Black 52%, Arab 39%, Beja 6%, foreigners 2%, other 1%

Religions: Sunni Muslim 70% (in north), indigenous beliefs 25%, Christian 5% (mostly in south and Khartoum)

Economy—overview: Sudan is very poor. The income per inhabitant is $250 a year and inflation is high. The private sector's main areas of activity are agriculture and trading, with most private industrial investment predating 1980. Agriculture employs 80% of the work force. Industry mainly processes agricultural items. There are potentially lucrative oilfields in south-central Sudan

Industries: Cotton ginning, textiles, cement, edible oils, sugar, soap distilling, shoes, petroleum refining

Agriculture—products: Cotton, groundnuts, sorghum, millet, wheat, gum arabic, sesame; sheep

Cancer registration

There has been no population-based cancer registry in Sudan. Registration activity has been confined to a hospital-based registry, based on records of patients attending the only oncological hospital, the Radiation and Isotope Centre, Khartoum (the only facility offering specialized treatment for cancer in the country), and the Sudan Cancer Registry, based on histopathologically confirmed cases dianosed in the National Health Laboratories in Khartoum.

Review of data

Early reports presented data on histopathologically confirmed cases. Hickey (1959) described 1335 malignant epithelial neoplasms collected from the Stack Medical Research Laboratories during the period 1935–54. Lynch *et al.* (1963) published a report on 2234 malignant tumours collected from the same source and from the Department of Pathology, University of Khartoum, for the period 1954–61. This series was reproduced by Daoud *et al.* (1968) and compared with 1578 malignant tumours from Khartoum district examined at the Department of Pathology in 1957–65.

Data from the pathology-based Sudan Cancer Registry for 1978 were published by Mukhtar (1986) (Table 1). Breast cancer was the dominant tumour (26% of tumours in females). Other cancers of particular interest in this series were nasopharyngeal cancer, the relative importance of which, especially in males, was described previously (Hidayatalla *et al.*, 1983), eye tumours, which are mainly epithelial tumours of the conjunctiva (Malik *et al.*, 1974), and oral cancer.

Hidayatalla and Rahman (1986) published a series of 10 410 cases seen in the Radiation and Isotope Centre for the years 1967–84 (Table 1). The distribution of cases is on the whole similar to that at the Sudan Cancer Registry, with some bias towards the more radiosensitive tumours (of the breast and nasopharynx) and against surgically treated and radioresistant cancers (of the skin and digestive tract). The commonest cancers in males are those of the nasopharynx, which is most frequent among the southern and Sudanic tribes (Hidayatalla *et al.*, 1983), non-Hodgkin lymphoma (Malik *et al.*, 1974), cancer of the mouth, especially the gingiva (Lynch *et al.*, 1963), and of the bladder. Kaposi sarcoma, which comprises 1.2% of tumours in males, is commoner in patients from the four provinces in the south and west, as noted previously by Wasfi *et al.* (1967); in that area, it comprises 7.2% of cancers in males. In females, the commonest cancers are of the breast (Hidayatalla, 1969), cervix, ovary and mouth.

Childhood cancer

A series of 775 childhood cancer cases from the Registry of the Radiation and Isotope Centre, Khartoum, in the period 1967–84 was published by Hidayatalla (1988). The series was divided into two broad ethnic groupings—Arabs (including Arabs, Mowalad, Nubians and Bejas) and Sudanics (including Nilotic and Sudanic tribes, and Beggara). However, it was emphasized that there is no clear demarcation between the two; there is, in fact, considerable sharing of characteristics between them.

Table 2 shows the results. For the two groups taken together, and for the Arab subgroup, the commonest diagnostic category was the lymphomas, with 23% of all cases. For Hodgkin disease, the relative frequencies were similar for Arabs and Sudanics, while Burkitt lymphoma had a higher relative frequency among Sudanics. Leukaemia was uncommon in both groups, but particularly in the Sudanics. An exceptionally high proportion (29%) of all leukaemias were classified as chronic myeloid. The next largest category is retinoblastoma (15% of the total); however, among the Sudanic subgroup this tumour accounted for 23% of all cases and was more common than the lymphomas. The proportion of brain tumours, neuroblastoma and Ewing sarcoma was low in both ethnic groups.

Although not shown in the table, nasopharyngeal cancers were common in both groups: 8.2% of cancers in Arab children and 14.8% in the Sudanic

A previous report (Abdel Rahman & Hidayatalla, 1969) described the 63 childhood cancer cases seen at the Centre in its first two years.

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Table 1. Sudan: case series

Site	Sudan Cancer Registry, 1978 (Mukhtar, 1986)					Radiation and Isotope Centre, Khartoum, 1967–84 (Hidayatalla & Rahman, 1986)				
	Male		Female		%HV	Male		Female		%HV
	No.	%	No.	%		No.	%	No.	%	
Oral cavity[1]	33	6.7%	22	4.0%	100	471	10.0%	350	6.2%	
Nasopharynx	22	4.5%	8	1.5%	100	560	11.9%	166	2.9%	
Other pharynx	7	1.4%	1	0.2%	100	102	2.2%	83	1.5%	
Oesophagus	16	3.3%	21	3.8%	100	159	3.4%	188	3.3%	
Stomach	13	2.7%	8	1.5%	100	26	0.6%	18	0.3%	
Colon/rectum	22	4.5%	19	3.5%	100	154	3.3%	69	1.2%	
Liver	25	5.1%	14	2.6%	100	43	0.9%	19	0.3%	
Pancreas						6	0.1%	7	0.1%	
Lung	4	0.8%	4	0.7%	100	89	1.9%	26	0.5%	
Melanoma	14	2.9%	10	1.8%	100	39	0.8%	16	0.3%	
Other skin	53	10.8%	30	5.5%	100	311	6.6%			
Kaposi sarcoma						59	1.2%	3	0.1%	
Breast	7	1.4%	142	26.0%	100	122	2.6%	1962	34.5%	
Cervix uteri			82	15.0%	100			812	14.3%	
Corpus uteri			21	3.8%	100			144	2.5%	
Ovary etc			38	6.9%	100			206	3.6%	
Prostate	19	3.9%			100	40	0.8%			
Penis										
Bladder	20	4.1%	4	0.7%	100	224	4.7%	68	1.2%	
Kidney etc.	7	1.4%	7	1.3%	100	101	2.1%	78	1.4%	
Eye	27	5.5%	6	1.1%	100	156	3.3%	110	1.9%	
Brain, nervous system	2	0.4%	1	0.2%	100	99	2.1%	79	1.4%	
Thyroid	6	1.2%	10	1.8%	100	73	1.5%	136	2.4%	
Non-Hodgkin lymphoma	36	7.4%	16	2.9%	100	472	10.0%	180	3.2%	
Hodgkin disease	16	3.3%	3	0.5%	100	215	4.6%	89	1.6%	
Myeloma										
Leukaemia	22	4.5%	10	1.8%	100	246	5.2%	189	3.3%	
ALL SITES	489	100.0%	547	100.0%	100	4721	100.0%	5689	100.0%	

[1] Includes salivary gland tumours

Table 2. Sudan: childhood cancer

Cancer	Radiation and Isotope Centre, Khartoum, 1967–84 (Hidayatalla, 1988)			
	Arab		Sudanic	
	No.	%	No.	%
Leukaemia	63	11.3%	10	4.6%
Acute lymphocytic leukaemia	37	6.6%	4	1.8%
Lymphoma	129	23.1%	46	21.2%
Burkitt lymphoma	16	2.9%	15	6.9%
Hodgkin disease	52	9.3%	19	8.8%
Brain and spinal neoplasms	25	4.5%	5	2.3%
Neuroblastoma	12	2.2%	4	1.8%
Retinoblastoma	72	12.9%	49	22.6%
Wilms tumour	47	8.4%	15	6.9%
Bone tumours	40	7.1%	9	4.1%
Soft-tissue sarcomas	46	8.2%	15	6.9%
Kaposi sarcoma	1	0.2%	1	0.5%
Other	124	22.2%	64	29.5%
Total	558	100.0%	217	100.0%

3.1.6 Tunisia

Background

Climate: Mediterranean climate, with temperatures averaging 10.6°C in January and 26.1°C in July. Mild rainy winters in the north. Going south, the climate becomes progressively hotter and dryer.

Terrain: The low Atlas mountain range crosses the north of the country from south-west to north-east, with valleys and fertile plains between the mountains. To the south, a plateau descends progressively to a succession of salty depressions known as 'sebkhas' on the border of the Sahara desert, which constitutes nearly 40% of the Tunisian land surface.

Ethnic groups: Arab 98%, European 1%, Jewish and other 1%

Religions: Muslim 98%, Christian 1%, Jewish and other 1%

Economy—overview: The economy is diverse, with important agricultural, mining, energy, tourism and manufacturing sectors. Government control of economic affairs has gradually lessened over the past decade with increasing privatization of trade and commerce. Both tourism and trade have markedly increased in recent years.

Industries: Tunisia possesses many large oil deposits, concentrated in the south, that easily cover the needs of the country. The reserves of phosphate in the south-west are the greatest in the world. Other mineral resources are iron, lead and zinc.

Agriculture—products: Olives, dates, oranges, almonds, grain, sugar beet, grapes, poultry, beef, dairy products

Cancer registration

Until fairly recently, the only information available on cancer patterns in Tunisia was derived from the hospital registry of the Institut Salah Azaiz, the main cancer treatment centre in the country. However, there are now three regional population-based cancer registries, covering the entire national population. These are, in the northern region, the Cancer Registry of Tunis, in the centre, the Cancer Registry of Sousse, and in the south, the Cancer Registry of Sfax.

Cancer Registry of Tunis

The registry was established in 1997 and covers the populations of the 10 governorates of the northern region of the country (4.3 million inhabitants in 1994). It is located in the Institut Salah Azaiz in Tunis, the only specialized public cancer hospital in the country. The registry depends upon active case-finding by physicians attached temporarily to the registry, during their training in public health. The hospital cancer registry of Institut Salah Azaiz is an important source of cancer cases (40% of registrations), but there are many other public and private hospitals in Tunis (including fifteen teaching hospitals, and two private radiotherapy centres), and nine regional hospitals in the governorates. Private practice in surgery and medical oncology is common. Information on cancers diagnosed in 15 pathology laboratories is an important source of information, but can be used only if the hospital admission can be traced, as the demographic data available, notably the address, are otherwise too sparse. Death certification is unreliable and incomplete, and this source is not used for case-finding. For 1994 (see below), there were an average of 1.3 sources per case registered, with 87% of cases having a single source of information.

Cancer Registry of Sousse

The registry was established in 1987 with the support of the Ministry of Health, and is located in the pathology laboratory of the University Hospital Farhat Hached, the principal hospital of the city of Sousse. The registry aims to cover the population of the central region of Tunisia, comprising six governorates, with a population estimated (mid-1996) at 2.5 million. Initially, however, the registry has restricted registration to the governorate of Sousse, with a population of 455 000 (mid-1996).

Information is collected on cancer cases diagnosed in the pathology department and in the services of haematology, medical oncology and radiotherapy of Farhat Hached hospital, as well as from private pathology laboratories, and other hospitals. Registration is largely limited to cases with a diagnosis based upon histology or cytology.

Cancer Registry of Sfax

The registry was established in 1997, and covers the wilaya (district) of Sfax (population 771 000 in 1997), in the southern region of the country. It is located in the pathology department of the Habib Bourgiba University Hospital. The registry depends on active case-finding by physicians (two public health specialists, two part-time) in hospitals (including two university hospitals and two regional hospitals, as well as smaller local hospitals), laboratories (one public, one private) and departments of haematology and radiotherapy (one public service, one private), plus private practitioners. Death certificates are not used as a source of information.

Review of data

Cancer Registry of Tunis

Data from the first year of registration (1994) are presented (Table 1). There were 2085 cases in males (ASR 122 per 100 000) and 1601 cases in females (ASR 94.7 per 100 000). The principal cancers in men are cancers of lung (ASR 26.6) and bladder (12.3). In women, breast is the leading cancer site (24.1). The incidence of nasopharyngeal cancer appears to be rather lower than in northern Algeria.

There is a relatively high proportion of cases with morphological verification of diagnosis (89% in men, 92% in women).

Cancer Registry of Sousse

2039 cases were registered in the period 1993–97 among the residents of Sousse (Table 2). Almost all cases were morphologically verified (the registry is essentially pathology-based). The age-standardized incidence rates are 138.7 per 100 000 in men and 91.4 per 100 000 in women. The principal cancers in men are lung (ASR 30.6), bladder (ASR 17.4), skin (ASR 12.4), prostate (ASR 9.3) and non-Hodgkin lymphoma (ASR 8.2). The principal cancers among women were breast (ASR 22.7), non-melanoma skin cancers (ASR 8.9) and cervix cancer (ASR 7.9); this latter rate is a little higher than in the other Tunisian data.

The registry has published its results in reports for an earlier period (1987–93) as well as for 1993–97.

Cancer Registry of Sfax

Data for 1997 are presented (Table 3). The recorded incidence (ASR 140.5 per 100 000 in men, 99.1 per 100 000 in women) is rather higher than in the northern region, in part due to the relatively large numbers of skin cancers recorded (13.4% of the total cases). The majority of cases (96%) have a morphological validation of diagnosis, suggesting that the pathology department

where the registry is located is the major source of cases. The principal sites in men are cancers of the lung (ASR 24.2), bladder (ASR 14.9) and prostate (ASR 12.4), and in women, cancer of the breast (ASR 22.7).

Other data

Before the establishment of cancer registration in Tunisia, information on the cancer profile was obtainable from published case series. For example, Chadli *et al.* (1976) reported on 7959 cancers diagnosed histologically in 1960–69 in the Institut Pasteur laboratory in Tunis; at that time, this was the only histopathology laboratory in the country (Table 4). The data from the hospital cancer registry of the National Cancer Institute (Institut Salah Azaiz) have also been published (Mourali, 1986; Ben Abdallah, 1997). Table 4 shows the results for the 17-year period 1969–85 (Ben Abdallah, 1997). There are some similarities between them. Breast cancer (especially in the hospital series) and cervix cancer are the dominant malignancies, and there are raised frequencies of skin cancers, respiratory cancer in men (in the hospital series), and nasopharyngeal cancer and non-Hodgkin lymphoma.

Childhood cancer

Table 5 shows the distribution by type of 1637 childhood cancers recorded in the hospital cancer registry of the Institut Salah Azaiz in the 17-year period 1969–85 (Ben Abdallah, 1997). Lymphomas were the most common cancers (28.2%) with 12% leukaemias (mainly acute lymphocytic).

The population-based data are in Table 6. They represent a pooled data-set from the three registries, with 112 cases contributed from the Northern Region (Tunis) for 1994, 68 from Sousse (Centre) for 1993–97 and 28 cases from Sfax in 1997. Leukaemias are the most common childhood cancers (ASR 27.8 per million), of which the majority (72%) are acute lymphocytic. Lymphomas comprise 17% of childhood cancers, with an ASR of 14.7 per million. Few cases of Burkitt lymphoma are recorded, although this may be due to differences in diagnostic practice: in Tunis, five cases were recorded among the 16 childhood non-Hodgkin lymphomas, in Sousse none among 4 non-Hodgkin lymphomas. Among the 'other' category were seven cancers of the nasopharynx and six skin cancers.

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Table 1. Tunisia, North, Tunis (1994)

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	48	0	98	-	-	3	3	6	22	14	2.2	2.5	0.23	**2.8**	*C00-06*
Salivary gland	3	0	100	-	-	-	-	-	1	2	0.1	0.2	0.01	**0.2**	*C07-08*
Nasopharynx	67	0	99	1	2	8	13	7	28	8	3.1	3.4	0.34	**3.7**	*C11*
Other pharynx	16	0	88	-	1	-	3	3	7	2	0.7	0.8	0.09	**0.9**	*C09-10,C12-14*
Oesophagus	19	1	89	-	-	-	-	2	9	7	0.9	1.0	0.09	**1.2**	*C15*
Stomach	102	2	91	-	-	2	13	13	29	43	4.7	5.2	0.37	**6.1**	*C16*
Colon, rectum and anus	109	4	94	-	1	6	20	13	29	36	5.0	5.6	0.41	**6.2**	*C18-21*
Liver	49	0	65	3	1	1	3	8	7	26	2.3	2.5	0.13	**2.9**	*C22*
Gallbladder etc.	29	0	59	-	-	-	2	-	10	17	1.3	1.5	0.08	**1.7**	*C23-24*
Pancreas	39	1	33	-	-	-	-	4	8	26	1.8	2.0	0.09	**2.4**	*C25*
Larynx	103	0	99	-	-	-	6	18	31	48	4.8	5.3	0.38	**6.3**	*C32*
Trachea, bronchus and lung	437	7	86	-	1	2	26	65	160	176	20.2	22.4	1.78	**26.6**	*C33-34*
Bone	15	0	93	3	8	-	1	-	2	1	0.7	0.8	0.04	**0.7**	*C40-41*
Melanoma of skin	8	0	100	-	1	-	-	1	2	4	0.4	0.4	0.02	**0.5**	*C43*
Other skin	138	1	100	1	3	4	13	19	32	65	6.4		0.44	**8.1**	*C44*
Mesothelioma	4	0	100	-	1	-	1	1	-	1	0.2	0.2	0.01	**0.2**	*C45*
Kaposi sarcoma	2	0	100	-	-	-	-	-	-	2	0.1	0.1	0.00	**0.1**	*C46*
Peripheral nerves	1	0	100	-	-	-	-	1	-	-	0.0	0.1	0.01	**0.1**	*C47*
Connective and soft tissue	30	0	100	1	2	6	3	2	8	8	1.4	1.5	0.11	**1.6**	*C49*
Breast	6	0	100	-	-	1	-	1	1	3	0.3	0.3	0.02	**0.3**	*C50*
Penis	1	0	100	-	-	-	-	-	1	-	0.0	0.1	0.01	**0.1**	*C60*
Prostate	132	4	89	-	-	-	1	2	20	105	6.1	6.8	0.18	**7.9**	*C61*
Testis	12	0	92	-	1	4	2	3	-	2	0.6	0.6	0.04	**0.6**	*C62*
Kidney	24	0	92	3	1	1	4	2	6	7	1.1	1.2	0.09	**1.4**	*C64*
Renal pelvis, ureter and other urinary	5	0	100	-	-	-	-	1	2	2	0.2	0.3	0.02	**0.3**	*C65-66,C68*
Bladder	204	2	99	1	-	2	8	15	65	111	9.4	10.5	0.64	**12.3**	*C67*
Eye	9	0	78	2	-	1	-	1	2	3	0.4	0.5	0.03	**0.5**	*C69*
Brain, nervous system	48	1	88	9	6	4	3	7	12	6	2.2	2.5	0.19	**2.6**	*C70-72*
Thyroid	12	0	100	-	-	3	3	2	2	2	0.6	0.6	0.05	**0.6**	*C73*
Hodgkin disease	33	0	100	4	7	4	6	5	5	2	1.5	1.7	0.13	**1.6**	*C81*
Non-Hodgkin lymphoma	97	2	99	9	6	9	6	13	22	30	4.5	5.0	0.34	**5.4**	*C82-85,C96*
Multiple myeloma	30	0	90	-	-	-	4	4	11	11	1.4	1.5	0.13	**1.8**	*C90*
Lymphoid leukaemia	42	0	100	9	4	4	6	3	5	11	1.9	2.2	0.12	**2.2**	*C91*
Myeloid leukaemia	37	0	100	2	9	6	3	3	3	11	1.7	1.9	0.10	**1.9**	*C92-94*
Leukaemia, unspecified	3	0	100	1	-	-	-	-	-	2	0.1	0.2	0.00	**0.2**	*C95*
Other and unspecified	171	3	68	5	6	3	13	22	39	80	7.9	8.8	0.53	**10.1**	*O&U*
All sites	2085	28	89	54	61	74	166	247	581	874	96.5		7.24	**122.0**	*ALL*
All sites but C44	1947	27	88	53	58	70	153	228	549	809	90.1	100.0	6.80	**113.9**	*ALLbC44*
Average annual population				702684	425829	359013	269655	153026	133480	117433					

Table 1. Tunisia, North, Tunis (1994)

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	16	0	100	-	-	-	2	-	5	9	0.8	1.1	0.05	**1.0**	*C00-06*
Salivary gland	5	0	100	-	-	-	-	-	2	3	0.2	0.3	0.02	**0.3**	*C07-08*
Nasopharynx	33	0	100	-	5	3	8	7	7	3	1.6	2.2	0.15	**1.8**	*C11*
Other pharynx	6	0	100	-	-	2	-	2	1	1	0.3	0.4	0.03	**0.3**	*C09-10,C12-14*
Oesophagus	16	0	94	-	-	-	2	1	6	7	0.8	1.1	0.06	**1.0**	*C15*
Stomach	61	1	92	-	-	10	8	5	20	17	2.9	4.0	0.25	**3.5**	*C16*
Colon, rectum and anus	113	9	95	-	1	3	12	16	23	49	5.4	7.5	0.37	**7.0**	*C18-21*
Liver	29	0	62	1	-	-	2	4	8	14	1.4	1.9	0.10	**1.8**	*C22*
Gallbladder etc.	71	0	65	-	-	3	5	8	21	34	3.4	4.7	0.24	**4.4**	*C23-24*
Pancreas	26	1	46	-	-	-	1	1	9	14	1.2	1.7	0.09	**1.7**	*C25*
Larynx	4	0	100	-	-	-	-	1	2	1	0.2	0.3	0.02	**0.3**	*C32*
Trachea, bronchus and lung	37	2	95	-	-	-	7	6	10	12	1.8	2.5	0.16	**2.3**	*C33-34*
Bone	8	0	100	3	2	2	1	-	-	-	0.4	0.5	0.02	**0.3**	*C40-41*
Melanoma of skin	12	0	100	1	-	1	2	1	3	4	0.6	0.8	0.04	**0.7**	*C43*
Other skin	91	3	100	-	2	3	8	17	17	41	4.3		0.30	**5.7**	*C44*
Mesothelioma	0	0	-	-	-	-	-	-	-	-	0.0	0.0	0.00	**0.0**	*C45*
Kaposi sarcoma	2	1	100	-	-	-	-	1	-	-	0.1	0.1	0.01	**0.1**	*C46*
Peripheral nerves	5	0	100	-	1	1	-	-	-	3	0.2	0.3	0.01	**0.3**	*C47*
Connective and soft tissue	17	1	94	2	1	5	1	3	3	1	0.8	1.1	0.07	**0.9**	*C49*
Breast	409	0	98	-	-	40	107	113	74	75	19.4	27.1	1.85	**24.1**	*C50*
Vulva	14	0	100	-	-	-	1	4	3	6	0.7	0.9	0.05	**0.9**	*C51*
Vagina	5	0	100	-	-	-	1	2	1	1	0.2	0.3	0.02	**0.3**	*C52*
Cervix uteri	103	0	99	-	2	6	28	23	28	16	4.9	6.8	0.51	**6.1**	*C53*
Uterus	37	0	100	-	-	-	2	6	18	11	1.8	2.5	0.19	**2.4**	*C54-55*
Ovary	50	0	98	2	2	4	10	10	12	10	2.4	3.3	0.23	**2.9**	*C56*
Placenta	3	0	67	-	1	-	2	-	-	-	0.1	0.2	0.01	**0.1**	*C58*
Kidney	19	0	74	4	-	1	-	5	3	6	0.9	1.3	0.07	**1.2**	*C64*
Renal pelvis, ureter and other urinary	1	0	100	-	-	-	-	-	-	1	0.0	0.1	0.00	**0.1**	*C65-66,C68*
Bladder	15	0	100	-	-	-	-	3	4	8	0.7	1.0	0.05	**1.0**	*C67*
Eye	6	0	100	1	-	-	2	1	1	1	0.3	0.4	0.02	**0.4**	*C69*
Brain, nervous system	27	0	93	9	4	6	4	3	1	-	1.3	1.8	0.09	**1.3**	*C70-72*
Thyroid	55	0	100	-	4	11	18	5	4	13	2.6	3.6	0.18	**2.9**	*C73*
Hodgkin disease	18	0	100	1	4	6	2	3	1	1	0.9	1.2	0.06	**0.9**	*C81*
Non-Hodgkin lymphoma	60	1	100	7	2	6	6	6	8	24	2.9	4.0	0.17	**3.5**	*C82-85,C96*
Multiple myeloma	25	0	96	-	-	-	1	1	13	10	1.2	1.7	0.11	**1.6**	*C90*
Lymphoid leukaemia	32	0	100	10	6	1	-	3	9	3	1.5	2.1	0.13	**1.7**	*C91*
Myeloid leukaemia	47	1	100	7	1	5	8	7	12	6	2.2	3.1	0.21	**2.6**	*C92-94*
Leukaemia, unspecified	3	0	100	2	-	-	1	-	-	-	0.1	0.2	0.01	**0.1**	*C95*
Other and unspecified	120	3	73	8	-	6	13	18	28	44	5.7	7.9	0.44	**7.3**	*O&U*
All sites	1601	23	93	58	38	125	265	286	357	449	76.1		6.41	**94.7**	*ALL*
All sites but C44	1510	20	92	58	36	122	257	269	340	408	71.8	100.0	6.11	**89.1**	*ALLbC44*
Average annual population				673698	415596	362546	260562	152397	129125	109870					

Table 2. Tunisia, Centre, Sousse (1993-1997)

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	31	0	100	-	-	-	3	4	7	17	2.7	2.8	0.19	**3.7**	*C00-06*
Salivary gland	3	0	100	-	-	1	-	-	-	2	0.3	0.3	0.01	**0.3**	*C07-08*
Nasopharynx	46	0	100	1	4	7	9	8	8	9	4.0	4.2	0.36	**4.9**	*C11*
Other pharynx	6	0	100	-	-	-	-	2	2	2	0.5	0.6	0.06	**0.8**	*C09-10,C12-14*
Oesophagus	3	0	100	-	-	-	-	1	-	2	0.3	0.3	0.01	**0.4**	*C15*
Stomach	42	0	100	-	-	-	4	5	10	23	3.6	3.9	0.26	**5.0**	*C16*
Colon, rectum and anus	65	0	100	1	2	2	6	10	15	29	5.6	6.0	0.45	**7.7**	*C18-21*
Liver	11	0	100	1	-	-	2	2	3	3	1.0	1.0	0.10	**1.3**	*C22*
Gallbladder etc.	6	0	100	-	-	-	-	-	2	4	0.5	0.6	0.03	**0.7**	*C23-24*
Pancreas	19	0	100	-	-	-	2	3	6	8	1.6	1.7	0.15	**2.3**	*C25*
Larynx	51	0	100	-	-	-	5	5	20	21	4.4	4.7	0.43	**6.2**	*C32*
Trachea, bronchus and lung	255	0	99	-	-	2	20	26	73	134	22.1	23.4	1.70	**30.6**	*C33-34*
Bone	10	0	100	2	2	3	2	1	-	-	0.9	0.9	0.06	**0.8**	*C40-41*
Melanoma of skin	4	0	100	-	-	-	-	-	2	2	0.3	0.4	0.03	**0.5**	*C43*
Other skin	109	0	100	2	1	5	19	20	16	46	9.4		0.70	**12.4**	*C44*
Mesothelioma	0	0	-	-	-	-	-	-	-	-	0.0	0.0	0.00	**0.0**	*C45*
Kaposi sarcoma	11	0	100	-	-	3	1	1	1	5	1.0	1.0	0.05	**1.2**	*C46*
Peripheral nerves	1	0	100	1	-	-	-	-	-	-	0.1	0.1	0.00	**0.1**	*C47*
Connective and soft tissue	15	0	100	2	2	1	3	3	1	3	1.3	1.4	0.10	**1.5**	*C49*
Breast	5	0	100	-	-	1	-	-	2	2	0.4	0.5	0.04	**0.6**	*C50*
Penis	1	0	100	-	-	-	-	-	-	1	0.1	0.1	0.00	**0.1**	*C60*
Prostate	79	0	99	-	-	-	-	2	5	72	6.8	7.2	0.11	**9.3**	*C61*
Testis	7	0	100	1	2	1	3	-	-	-	0.6	0.6	0.04	**0.6**	*C62*
Kidney	19	0	100	3	-	-	1	4	7	4	1.6	1.7	0.18	**2.3**	*C64*
Renal pelvis, ureter and other urinary	9	0	100	-	-	-	-	3	-	6	0.8	0.8	0.04	**1.1**	*C65-66,C68*
Bladder	146	0	99	-	-	4	3	11	40	88	12.7	13.4	0.83	**17.4**	*C67*
Eye	5	0	100	2	1	-	-	-	2	-	0.4	0.5	0.04	**0.5**	*C69*
Brain, nervous system	15	0	93	-	2	3	4	2	1	3	1.3	1.4	0.10	**1.5**	*C70-72*
Thyroid	7	0	100	-	1	-	1	1	1	3	0.6	0.6	0.04	**0.8**	*C73*
Hodgkin disease	20	0	100	3	1	1	4	6	2	3	1.7	1.8	0.16	**2.2**	*C81*
Non-Hodgkin lymphoma	76	0	100	3	5	8	14	4	21	21	6.6	7.0	0.57	**8.2**	*C82-85,C96*
Multiple myeloma	4	0	100	-	-	-	-	3	-	1	0.3	0.4	0.04	**0.6**	*C90*
Lymphoid leukaemia	25	0	100	12	-	2	1	5	1	4	2.2	2.3	0.14	**2.5**	*C91*
Myeloid leukaemia	21	0	100	1	4	2	5	3	-	6	1.8	1.9	0.11	**2.1**	*C92-94*
Leukaemia, unspecified	1	0	100	-	-	-	-	1	-	-	0.1	0.1	0.01	**0.1**	*C95*
Other and unspecified	71	0	97	3	2	4	4	10	21	27	6.2	6.5	0.54	**8.3**	*O&U*
All sites	1199	0	99	38	29	50	116	146	269	551	103.9		7.73	**138.7**	*ALL*
All sites but C44	1090	0	99	36	28	45	97	126	253	505	94.5	100.0	7.03	**126.2**	*ALLbC44*
Average annual population				78380	47180	37480	27820	15320	12460	12160					

Table 2. Tunisia, Centre, Sousse (1993-1997)

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	8	0	100	-	-	-	1	1	4	2	0.7	1.1	0.08	**1.0**	*C00-06*
Salivary gland	4	0	100	-	2	-	-	-	-	2	0.4	0.5	0.01	**0.4**	*C07-08*
Nasopharynx	16	0	100	1	2	3	6	2	1	1	1.4	2.1	0.12	**1.5**	*C11*
Other pharynx	2	0	100	-	-	1	-	1	-	-	0.2	0.3	0.02	**0.2**	*C09-10,C12-14*
Oesophagus	3	0	100	-	-	-	-	-	2	1	0.3	0.4	0.03	**0.4**	*C15*
Stomach	24	0	100	-	1	2	3	4	4	10	2.1	3.2	0.15	**2.7**	*C16*
Colon, rectum and anus	77	0	100	-	1	3	9	14	20	30	6.8	10.2	0.58	**8.8**	*C18-21*
Liver	6	0	100	-	-	1	1	1	1	2	0.5	0.8	0.04	**0.7**	*C22*
Gallbladder etc.	19	0	100	-	-	-	1	1	4	13	1.7	2.5	0.09	**2.2**	*C23-24*
Pancreas	7	0	100	-	-	-	-	1	1	5	0.6	0.9	0.03	**0.8**	*C25*
Larynx	1	0	100	-	-	-	-	1	-	-	0.1	0.1	0.01	**0.1**	*C32*
Trachea, bronchus and lung	16	0	100	-	1	-	1	3	2	9	1.4	2.1	0.08	**1.8**	*C33-34*
Bone	5	0	100	2	1	1	1	-	-	-	0.4	0.7	0.03	**0.4**	*C40-41*
Melanoma of skin	9	0	100	-	1	-	1	-	1	6	0.8	1.2	0.03	**1.0**	*C43*
Other skin	82	0	100	3	3	3	10	6	8	49	7.3		0.32	**8.9**	*C44*
Mesothelioma	0	0	-	-	-	-	-	-	-	-	0.0	0.0	0.00	**0.0**	*C45*
Kaposi sarcoma	3	0	100	-	1	-	-	-	-	2	0.3	0.4	0.00	**0.3**	*C46*
Peripheral nerves	0	0	-	-	-	-	-	-	-	-	0.0	0.0	0.00	**0.0**	*C47*
Connective and soft tissue	15	0	100	1	2	-	2	2	3	5	1.3	2.0	0.10	**1.6**	*C49*
Breast	209	0	100	-	-	20	60	47	36	46	18.6	27.6	1.71	**22.7**	*C50*
Vulva	1	0	100	-	1	-	-	-	-	-	0.1	0.1	0.00	**0.1**	*C51*
Vagina	2	0	100	-	1	1	-	-	-	-	0.2	0.3	0.01	**0.1**	*C52*
Cervix uteri	70	0	100	-	-	4	18	20	13	15	6.2	9.2	0.61	**7.9**	*C53*
Uterus	20	0	95	-	-	-	1	-	12	7	1.8	2.6	0.20	**2.4**	*C54-55*
Ovary	24	0	96	-	-	2	-	3	11	8	2.1	3.2	0.22	**2.8**	*C56*
Placenta	0	0	-	-	-	-	-	-	-	-	0.0	0.0	0.00	**0.0**	*C58*
Kidney	14	0	100	3	1	-	1	1	2	6	1.2	1.8	0.07	**1.5**	*C64*
Renal pelvis, ureter and other urinary	3	0	100	-	-	-	1	1	-	1	0.3	0.4	0.02	**0.3**	*C65-66,C68*
Bladder	12	0	100	-	-	1	-	1	2	8	1.1	1.6	0.05	**1.4**	*C67*
Eye	5	0	100	2	-	-	-	-	1	2	0.4	0.7	0.02	**0.5**	*C69*
Brain, nervous system	13	0	92	4	-	1	2	2	4	-	1.2	1.7	0.12	**1.3**	*C70-72*
Thyroid	27	0	100	-	4	6	8	2	2	5	2.4	3.6	0.16	**2.5**	*C73*
Hodgkin disease	15	0	100	3	7	2	2	-	-	1	1.3	2.0	0.07	**1.2**	*C81*
Non-Hodgkin lymphoma	47	0	100	1	1	4	7	8	11	15	4.2	6.2	0.35	**5.1**	*C82-85,C96*
Multiple myeloma	10	0	100	-	-	-	2	2	3	3	0.9	1.3	0.09	**1.2**	*C90*
Lymphoid leukaemia	13	0	100	7	1	-	-	-	2	3	1.2	1.7	0.07	**1.3**	*C91*
Myeloid leukaemia	12	0	100	1	2	-	1	1	3	4	1.1	1.6	0.08	**1.3**	*C92-94*
Leukaemia, unspecified	1	0	0	-	-	-	-	-	-	1	0.1	0.1	0.00	**0.1**	*C95*
Other and unspecified	45	0	96	2	1	4	3	3	12	20	4.0	5.9	0.28	**5.0**	*O&U*
All sites	840	0	99	30	34	59	142	128	165	282	74.7		5.85	**91.4**	*ALL*
All sites but C44	758	0	99	27	31	56	132	122	157	233	67.4	100.0	5.54	**82.5**	*ALLbC44*
Average annual population				74740	44160	36780	27500	16200	13040	12600					

Table 3. Tunisia, Sfax (1997)

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	13	0	100	-	-	1	-	2	4	6	3.3	3.3	0.26	**4.2**	*C00-06*
Salivary gland	1	0	100	-	-	-	1	-	-	-	0.3	0.3	0.02	**0.3**	*C07-08*
Nasopharynx	12	0	100	-	-	-	4	3	2	3	3.1	3.1	0.27	**3.7**	*C11*
Other pharynx	4	0	100	-	-	-	-	-	2	2	1.0	1.0	0.09	**1.3**	*C09-10,C12-14*
Oesophagus	2	0	50	-	-	-	-	-	-	2	0.5	0.5	0.00	**0.6**	*C15*
Stomach	10	0	100	-	-	-	2	-	3	5	2.5	2.6	0.18	**3.1**	*C16*
Colon, rectum and anus	28	0	100	-	1	-	-	3	6	18	7.1	7.2	0.38	**8.9**	*C18-21*
Liver	5	0	100	-	-	1	-	-	-	4	1.3	1.3	0.02	**1.4**	*C22*
Gallbladder etc.	4	0	100	-	-	-	-	-	2	2	1.0	1.0	0.09	**1.3**	*C23-24*
Pancreas	2	0	50	-	-	-	-	-	1	1	0.5	0.5	0.04	**0.7**	*C25*
Larynx	18	0	100	-	-	-	-	3	10	5	4.6	4.6	0.56	**6.2**	*C32*
Trachea, bronchus and lung	76	0	92	-	-	-	4	6	23	43	19.3	19.5	1.32	**24.2**	*C33-34*
Bone	1	0	100	-	-	1	-	-	-	-	0.3	0.3	0.02	**0.2**	*C40-41*
Melanoma of skin	2	0	100	-	-	-	1	-	-	1	0.5	0.5	0.02	**0.6**	*C43*
Other skin	65	0	100	-	-	2	10	8	9	36	16.5		0.95	**20.2**	*C44*
Mesothelioma	0	0	-	-	-	-	-	-	-	-	0.0	0.0	0.00	**0.0**	*C45*
Kaposi sarcoma	1	0	100	-	-	-	-	-	-	1	0.3	0.3	0.00	**0.3**	*C46*
Peripheral nerves	0	0	-	-	-	-	-	-	-	-	0.0	0.0	0.00	**0.0**	*C47*
Connective and soft tissue	5	0	100	-	1	-	-	1	2	1	1.3	1.3	0.14	**1.6**	*C49*
Breast	4	0	100	-	-	-	-	-	1	3	1.0	1.0	0.04	**1.2**	*C50*
Penis	0	0	-	-	-	-	-	-	-	-	0.0	0.0	0.00	**0.0**	*C60*
Prostate	41	0	98	-	-	-	-	-	5	36	10.4	10.5	0.22	**12.4**	*C61*
Testis	2	0	100	-	1	1	-	-	-	-	0.5	0.5	0.03	**0.5**	*C62*
Kidney	4	0	75	1	-	-	-	1	-	2	1.0	1.0	0.05	**1.3**	*C64*
Renal pelvis, ureter and other urinary	6	0	83	-	-	-	-	1	2	3	1.5	1.5	0.12	**2.0**	*C65-66,C68*
Bladder	47	0	98	-	-	2	4	4	14	23	12.0	12.1	0.89	**14.9**	*C67*
Eye	2	0	100	1	-	1	-	-	-	-	0.5	0.5	0.03	**0.5**	*C69*
Brain, nervous system	11	0	64	3	3	1	-	-	3	1	2.8	2.8	0.22	**2.9**	*C70-72*
Thyroid	1	0	100	-	-	-	1	-	-	-	0.3	0.3	0.02	**0.3**	*C73*
Hodgkin disease	10	0	100	2	3	1	1	1	2	-	2.5	2.6	0.23	**2.8**	*C81*
Non-Hodgkin lymphoma	17	0	100	2	1	1	3	2	2	6	4.3	4.4	0.27	**4.9**	*C82-85,C96*
Multiple myeloma	3	0	100	1	-	-	-	-	-	2	0.8	0.8	0.01	**0.8**	*C90*
Lymphoid leukaemia	19	0	100	5	2	-	1	-	2	9	4.8	4.9	0.19	**5.3**	*C91*
Myeloid leukaemia	13	0	100	2	1	-	2	1	1	6	3.3	3.3	0.17	**3.8**	*C92-94*
Leukaemia, unspecified	1	0	100	-	-	-	-	-	-	1	0.3	0.3	0.00	**0.3**	*C95*
Other and unspecified	24	0	92	1	-	-	-	4	5	14	6.1	6.2	0.38	**7.8**	*O&U*
All sites	454	0	96	18	13	12	34	40	101	236	115.5		7.24	**140.5**	*ALL*
All sites but C44	389	0	95	18	13	10	24	32	92	200	98.9	100.0	6.29	**120.3**	*ALLbC44*
Average annual population				128200	78400	64400	48400	27400	22800	23600					

Table 3. Tunisia, Sfax (1997)

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	2	0	100	-	-	-	1	-	1	-	0.5	0.7	0.06	**0.6**	*C00-06*
Salivary gland	0	0	-	-	-	-	-	-	-	-	0.0	0.0	0.00	**0.0**	*C07-08*
Nasopharynx	3	0	100	-	1	-	-	1	-	1	0.8	1.1	0.05	**0.9**	*C11*
Other pharynx	4	0	100	-	-	-	-	2	-	2	1.1	1.4	0.06	**1.4**	*C09-10,C12-14*
Oesophagus	2	0	100	-	-	-	-	1	-	1	0.5	0.7	0.04	**0.7**	*C15*
Stomach	9	0	100	-	-	1	-	-	4	4	2.4	3.2	0.19	**2.9**	*C16*
Colon, rectum and anus	31	0	100	-	-	3	7	3	5	13	8.2	11.2	0.54	**9.6**	*C18-21*
Liver	1	0	100	1	-	-	-	-	-	-	0.3	0.4	0.01	**0.3**	*C22*
Gallbladder etc.	8	0	100	-	-	-	1	1	3	3	2.1	2.9	0.19	**2.6**	*C23-24*
Pancreas	3	0	33	-	-	-	-	-	1	2	0.8	1.1	0.04	**1.0**	*C25*
Larynx	1	0	100	-	-	-	-	-	-	1	0.3	0.4	0.00	**0.3**	*C32*
Trachea, bronchus and lung	7	0	100	-	-	-	1	-	3	3	1.9	2.5	0.15	**2.2**	*C33-34*
Bone	5	0	80	-	3	-	-	-	1	1	1.3	1.8	0.09	**1.4**	*C40-41*
Melanoma of skin	1	0	100	-	1	-	-	-	-	-	0.3	0.4	0.01	**0.2**	*C43*
Other skin	38	0	100	1	3	1	4	8	5	16	10.1		0.66	**12.0**	*C44*
Mesothelioma	0	0	-	-	-	-	-	-	-	-	0.0	0.0	0.00	**0.0**	*C45*
Kaposi sarcoma	1	0	100	-	-	-	-	-	1	-	0.3	0.4	0.04	**0.3**	*C46*
Peripheral nerves	0	0	-	-	-	-	-	-	-	-	0.0	0.0	0.00	**0.0**	*C47*
Connective and soft tissue	6	0	100	1	2	2	1	-	-	-	1.6	2.2	0.09	**1.4**	*C49*
Breast	73	0	100	-	-	7	24	14	15	13	19.3	26.4	1.81	**22.7**	*C50*
Vulva	0	0	-	-	-	-	-	-	-	-	0.0	0.0	0.00	**0.0**	*C51*
Vagina	0	0	-	-	-	-	-	-	-	-	0.0	0.0	0.00	**0.0**	*C52*
Cervix uteri	10	0	100	-	-	-	2	3	4	1	2.6	3.6	0.32	**3.4**	*C53*
Uterus	13	0	100	-	-	-	1	3	5	4	3.4	4.7	0.35	**4.5**	*C54-55*
Ovary	9	0	100	-	-	-	1	2	2	4	2.4	3.2	0.17	**3.0**	*C56*
Placenta	1	0	100	-	1	-	-	-	-	-	0.3	0.4	0.01	**0.2**	*C58*
Kidney	2	0	100	-	-	-	-	-	-	2	0.5	0.7	0.00	**0.6**	*C64*
Renal pelvis, ureter and other urinary	5	0	100	-	-	-	-	1	-	4	1.3	1.8	0.03	**1.6**	*C65-66,C68*
Bladder	13	0	100	-	-	-	-	3	7	3	3.4	4.7	0.41	**4.6**	*C67*
Eye	1	0	100	-	-	1	-	-	-	-	0.3	0.4	0.02	**0.2**	*C69*
Brain, nervous system	5	0	40	-	1	2	-	2	-	-	1.3	1.8	0.11	**1.4**	*C70-72*
Thyroid	7	0	100	-	1	1	-	1	1	3	1.9	2.5	0.11	**2.1**	*C73*
Hodgkin disease	4	0	100	-	1	1	-	-	-	2	1.1	1.4	0.03	**1.0**	*C81*
Non-Hodgkin lymphoma	11	0	91	-	1	-	-	2	4	4	2.9	4.0	0.26	**3.6**	*C82-85,C96*
Multiple myeloma	3	0	100	-	-	-	-	1	1	1	0.8	1.1	0.07	**1.0**	*C90*
Lymphoid leukaemia	11	0	100	4	-	1	-	-	2	4	2.9	4.0	0.15	**3.2**	*C91*
Myeloid leukaemia	4	0	100	1	-	-	-	-	1	2	1.1	1.4	0.06	**1.2**	*C92-94*
Leukaemia, unspecified	2	0	50	1	-	-	-	-	-	1	0.5	0.7	0.01	**0.5**	*C95*
Other and unspecified	19	0	89	1	1	1	1	2	6	7	5.0	6.9	0.40	**6.0**	*O&U*
All sites	315	0	97	10	16	21	44	50	72	102	83.4		6.57	**99.1**	*ALL*
All sites but C44	277	0	96	9	13	20	40	42	67	86	73.3	100.0	5.91	**87.1**	*ALLbC44*
Average annual population				120000	73400	63700	46600	28600	23000	22400					

Table 4. Tunisia: case series

Site	Institut Pasteur,Tunis: 1960–69 (Chadli *et al.*, 1976)					Institut Salah Azaiz,Tunis: 1969–85 (Ben Abdallah, 1997)				
	Male		Female		%HV	Male		Female		%HV
	No.	%	No.	%		No.	%	No.	%	
Oral cavity[1]	297	7.0%	107	2.9%	100	1027	8.2%	466	4.0%	
Nasopharynx	236	5.6%	101	2.7%	100	1324	10.5%	570	4.9%	
Other pharynx	49	1.2%	27	0.7%	100	224	1.8%	144	1.2%	
Oesophagus	31	0.7%	15	0.4%	100	121	1.0%	81	0.7%	
Stomach	138	3.3%	61	1.6%	100	241	1.9%	139	1.2%	
Colon/rectum	299	7.1%	157	4.2%	100	418	3.3%	312	2.7%	
Liver	65	1.5%	24	0.6%	100	64	0.5%	33	0.3%	
Pancreas	43	1.0%	15	0.4%	100	21	0.2%	8	0.1%	
Lung	167	4.0%	14	0.4%	100	1425	11.3%	87	0.7%	
Melanoma	56	1.3%	33	0.9%	100	103	0.8%	79	0.7%	
Other skin	631	14.9%	381	10.2%	100	1645	13.1%	993	8.5%	
Kaposi sarcoma	24	0.6%	6	0.2%	100					
Breast	20	0.5%	799	21.4%	100	108	0.9%	3429	29.2%	
Cervix uteri			758	20.3%	100			1872	15.9%	
Corpus uteri			122	3.3%	100			194	1.7%	
Ovary etc.			102	2.7%	100			376	3.2%	
Prostate	155	3.7%			100	150	1.2%			
Penis					100	23	0.2%			
Bladder	168	4.0%	22	0.6%	100	300	2.4%	38	0.3%	
Kidney etc.	60	1.4%	41	1.1%	100	135	1.1%	111	0.9%	
Eye	70	1.7%	35	0.9%	100	85	0.7%	69	0.6%	
Brain, nervous system	71	1.7%	23	0.6%	100	167	1.3%	103	0.9%	
Thyroid	36	0.9%	101	2.7%	100	129	1.0%	401	3.4%	
Non-Hodgkin lymphoma	369	8.7%	171	4.6%	100	976	7.8%	500	4.3%	
Hodgkin disease	195	4.6%	64	1.7%	100	460	3.7%	181	1.5%	
Myeloma	13	0.3%	8	0.2%	100	74	0.6%	33	0.3%	
Leukaemia	18	0.4%	5	0.1%	100	316	2.5%	122	1.0%	
ALL SITES	4222	100.0%	3737	100.0%	100	12571	100.0%	11747	100.0%	

[1] Includes salivary gland tumours

Table 5. Institut Salah Azaiz: childhood case series, 1969–85 (Ben Abdallah, 1997)

Cancer	Institute Salah Azaiz, Tunis: 1969–85 (Ben Abdallah, 1997)	
	No.	%
Leukaemia	198	12.1%
Acute lymphocytic leukaemia	149	9.1%
Lymphoma	462	28.2%
Burkitt lymphoma	86	5.3%
Hodgkin disease	176	10.8%
Brain and spinal neoplasms	73	4.5%
Neuroblastoma	54	3.3%
Retinoblastoma	77	4.7%
Wilms tumour	118	7.2%
Bone tumours	117	7.1%
Soft-tissue sarcomas	126	7.7%
Kaposi sarcoma		
Other*	412	25.2%
Total	1637	100.0%

*Includes nasopharynx (90; 5.5%) and skin (96; 5.9%)

Table 6. Childhood cancer, Tunisia, 3 Registries

	NUMBER OF CASES					REL. FREQ.(%)	RATES PER MILLION					
	0-4	5-9	10-14	**All**	*M/F*	Overall	0-4	5-9	10-14	Crude	**ASR**	%MV
Leukaemia	24	24	17	**65**	*1.0*	31.3	31.7	29.3	20.9	27.2	**27.8**	100.0
Acute lymphoid leukaemia	18	20	9	**47**	*1.2*	22.6	23.8	24.4	11.0	19.7	**20.3**	100.0
Lymphoma	8	16	12	**36**	*2.0*	17.3	10.6	19.5	14.7	15.1	**14.7**	100.0
Hodgkin disease	1	8	4	**13**	*2.3*	6.3	1.3	9.8	4.9	5.4	**5.1**	100.0
Burkitt lymphoma	3	2	1	**6**	*1.0*	2.9	4.0	2.4	1.2	2.5	**2.7**	83.3
Brain and spinal neoplasms	9	11	3	**23**	*0.9*	11.1	11.9	13.4	3.7	9.6	**10.0**	91.3
Neuroblastoma	19	1	0	**20**	*0.8*	9.6	25.1	1.2	-	8.4	**10.1**	85.0
Retinoblastoma	5	1	0	**6**	*1.0*	2.9	6.6	1.2	-	2.5	**3.0**	100.0
Wilms tumour	11	1	0	**12**	*1.4*	5.8	14.5	1.2	-	5.0	**6.0**	91.7
Bone tumours	0	1	9	**10**	*1.0*	4.8	-	1.2	11.0	4.2	**3.6**	100.0
Soft tissue sarcomas	4	0	3	**7**	*0.8*	3.4	5.3	-	3.7	2.9	**3.1**	100.0
Kaposi sarcoma	0	0	0	**0**	-	-	-	-	-	-	**-**	-
Germ cell tumours	1	0	3	**4**	*1.0*	1.9	1.3	-	3.7	1.7	**1.6**	100.0
Other	10	5	10	**25**	*1.3*	12.0	13.2	6.1	12.3	10.5	**10.6**	84.0
All	91	60	57	**208**	*1.1*	100.0	120.2	73.3	70.0	87.0	**90.5**	94.7