2000

Ministry of Health
Sultanate of Oman

Cancer Incidence in Oman
2000

Non-Communicable Disease Control Section
Directorate General of Health Affairs

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Preface

If we were to develop effective strategies to prevent and control cancer, we must first understand the size and cause of the problem. Reliable data on the distribution and incidence of cancers, as well as on the survival of cancer patients, are therefore essential for planning and monitoring cancer control strategies and for identifying public health priorities.

This year has witnessed two important milestones that will enhance cancer registration in Oman. First, a Ministerial Decree has declared cancer as a notifiable disease (4/2001). The decree makes it incumbent on physicians who diagnise, manage or treat cancer cases to notify them to the Cancer Registry, in the Non-communicable Disease Section at the Ministry of Health. Cancer has been a notifiable disease in many developed countries (Sweden, Norway and others) from the early 1950's (Silva IDS, Cancer epidemiology: Principles and methods, 1999, p387). The Ministerial decision comes to enhance the cancer registration process and to consolidate the completeness of data reported to the Registry.

Second, the process of evaluation is indispensable in any data collection method. In the early 1991, the Ministry of Health commissioned a WHO consultant form the International Agency for Research on Cancer (IARC), a World Health Organisation agency, to evaluate Oman's Cancer Registry. At the time many recommendations were put forward to improve the registration process. Since then, many ideas were implemented such as active data collection, improving coverage to involve the entire Sultanate, allocation and training of full time staff members for the registry. As a result Oman's National Cancer Registry stands as one of the most comprehensive registries in the Eastern Mediterranean Region of WHO.

This year's issue of "Cancer Incidence in Oman" summarizes the available data for the year 2000. Data on childhood cancers has been presented in the format of the International Classification of Childhood Cancers (ICCC). This year, and for the first time, histology tables, where applicable, are presented in the same manner as recommended by the IARC (Parkin et al., Histological groups for comparative studies. 1998).

In bringing out this issue I wish to thank all the health professionals working in the regional hospitals, as well as those from sister institutions of the Ministry of Health for promptly notifying cancer cases under their care. I also express my sincere thanks to the staff of the Non-Communicable diseases section for their earnest effort in preparing this publication in time. I sincerely hope that this report would serve as a reference book for all those interested in the study of the patterns of cancer in the Sultanate of Oman.

Dr. Ali Jaffer Mohammed
Chairman,
National Cancer Control Committee

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Mr. Salem Al-Waheibi

Armed Forces Hospital

Mulazim 2\ Nassir Mubarak Ali

Ministerial Decree No. 4/2001: Notification of Cancer Cases

On the basis the Law organizing the state administrative structure issued by Royal Decree No. 26/75, the Ministerial Decision No. 120/95 regarding formation of National Cancer Control Committee and the decision No. 2 of the 49th meeting of the GCC Health Ministers Council, the following have been decided:

Article No. (1): The following diseases are considered malignancies or carcinoma in-situ numbered as per ICD-10 classification:

a. C00 - C97
b. D00 - D09
c. D37 – D48

Article No. (2): All cancer cases including carcinoma in-situ, diagnosed either clinically or surgically or by laboratory investigation, shall be reported to the National Cancer Registry at the Non-Communicable Diseases Control Section of the Directorate General of Health Affairs within 30 days from the date of diagnosis.

Article No. (3): Reporting of cancer cases mentioned in the aforesaid Article shall be the responsibility of the following:

a. Doctor who examined the case
b. Head of laboratory in which the sample was confirmed positive
c. Head of health institution in which the positive case was detected

Article No. (4): Reporting of confirmed or suspected cases shall include the 1st, 2nd and 3rd name, tribe name, surname, sex, residence, age and nationality (Form No. MR-123 – to be filled completely).

Article No. (5): This decision shall come into effect from the date of issue of the karar and the concerned officials shall implement it, within their respective responsibilities.

Dr. Ali bin Mohammed bin Moosa
Minister of Health

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Sultanate of Oman

Geographical Features

The Sultanate of Oman is located in the southeastern corner of the Arabian Peninsula. It has a coastal line extending almost 1,700 kilometers from the Strait of Hormuz in the north to the borders of the Republic of Yemen, overlooking three seas; the Arabian Gulf, Gulf of Oman and the Arabian Sea. The country borders Saudi Arabia and United Arab Emirates (UAE) in the west, the Republic of Yemen in the south, the Strait of Hormuz in the north and the Arabian Sea in the east. Besides, there are a number of scattered Omani islands in the Arabian Sea; the most important are Masirah and Al-Halaniyat.

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

The Sultanate of Oman is administratively divided into Governorates and Regions (province) with 59 Wilayat (district). These are: Muscat, Dhofar and Musandum Governorates and regions of Dakhliyah, Sharqiyah, Batinah, Dhahirah, and Al-Wousta. The regions of Sharqiyah and Batinah have each been further subdivided into two, for the purpose of health administration, giving a total of ten health regions.

Population Structure

The estimated mid year population in 2000 was 2,401,256 of which 1,777,685 were Omanis and 623,571 were Non-Omanis (Table 1). The Omani population shows a sex ratio of 968 females per 1000 males. About 14% of the population is under-5 years and 43.2% is under-15 years. Only 4.8% of the total Omani population is above the age of 60 years.

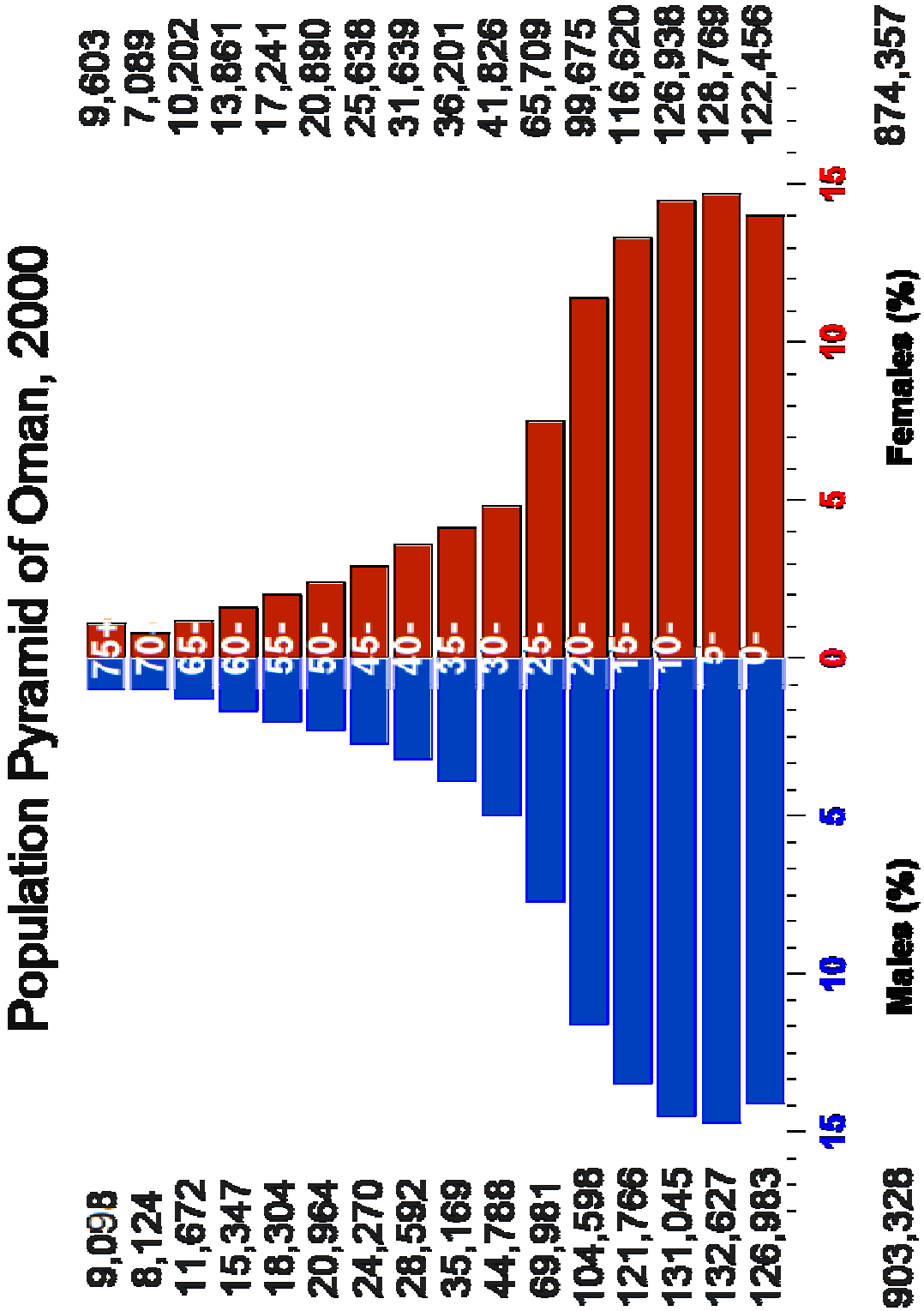
Table 2 gives the population distribution of Omanis by region and gender, which was used to calculate incidence rates for different regions.

Table 1: Age Structure of the Omani Population

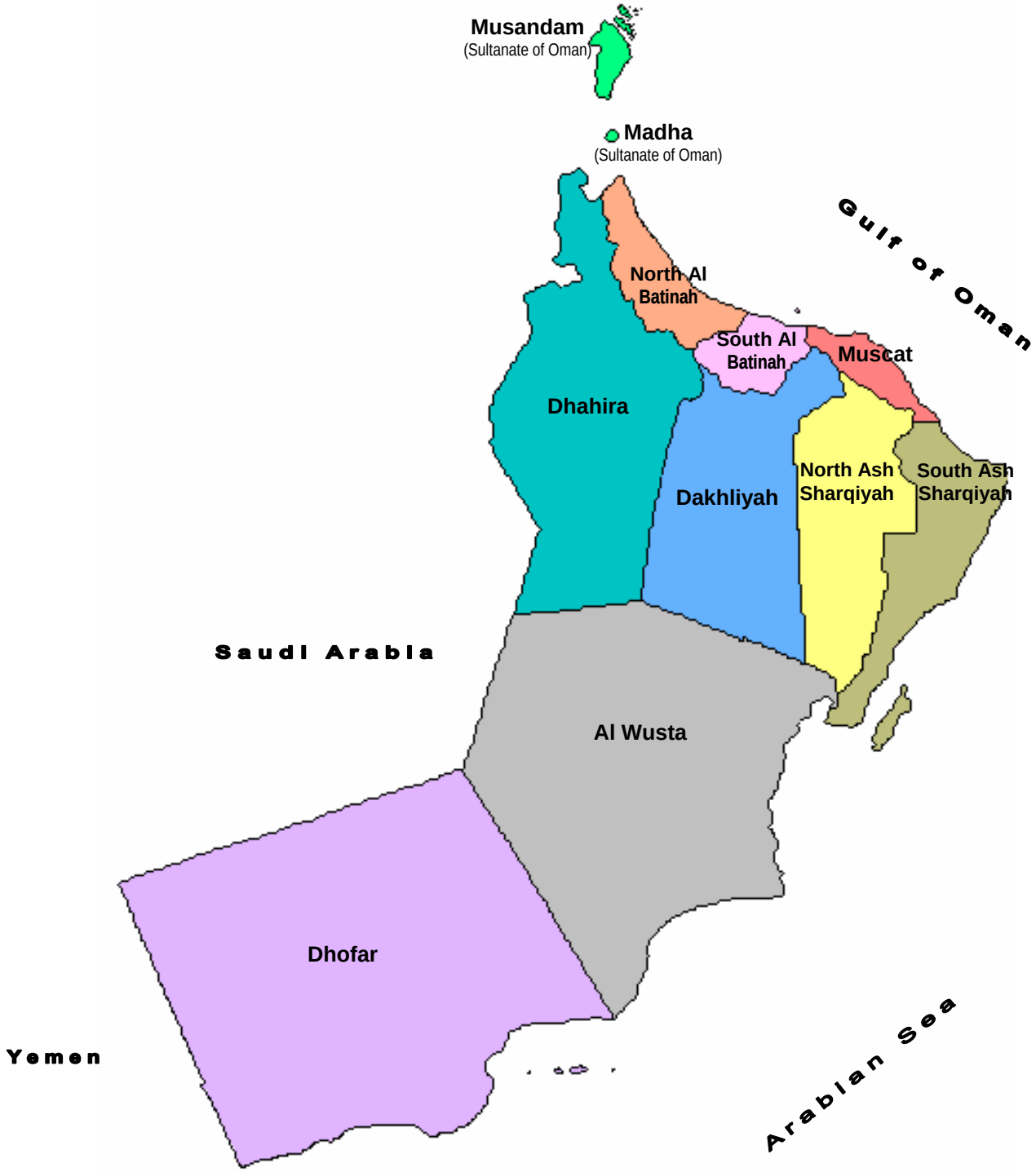
Age Group	Male		Female		Total	
	Number	%	Number	%	Number	%
00–04	126,983	14.1	122,456	14.0	249439	14.0
05–09	132,627	14.7	128,769	14.7	261396	14.7
10–14	131,045	14.5	126,938	14.5	257983	14.5
15–19	121,766	13.5	116,620	13.3	238386	13.4
20–24	104,598	11.6	99,675	11.4	204273	11.5
25–29	69,981	7.7	65,709	7.5	135690	7.6
30–34	44,788	5.0	41,826	4.8	86614	4.9
35–39	35,169	3.9	36,201	4.1	71370	4.0
40–44	28,592	3.2	31,639	3.6	60231	3.4
45–49	24,270	2.7	25,638	2.9	49908	2.8
50–54	20,964	2.3	20,890	2.4	41854	2.3
55–59	18,304	2.0	17,241	2.0	35545	2.0
60–64	15,347	1.7	13,861	1.6	29208	1.6
65–69	11,672	1.3	10,202	1.2	21874	1.2
70–74	8,124	1.0	7,089	0.8	15213	0.9
75 +	9,098	1.0	9,603	1.1	18701	1.0
Total	903,328	100	874,357	100	1,777,685	100

Table 2: Population Distribution by Regions and Gender (Omanis)

Region	Males	Females	Total
Al-Wousta	8,682	7,649	16,331
Dakhliyah	117,142	119,466	236,608
Dhahirah	82,863	78,371	161,234
Dhofar	77,685	73,194	150,879
Musandum	13,909	12,806	26,715
Muscat	191,922	174,342	366,264
North Batinah	178,146	176,039	354,185
North Sharqiyah	60,582	60,916	121,498
South Batinah	102,904	101,693	204,597
South Sharqiyah	69,493	69,881	139,374
Total	903,328	874,357	1,777,685


Population Pyramid of Oman, 2000
9,603
7,089
10,202
13,861
17,241
20,890
25,638
31,639
36,201
41,826
65,709
99,675
116,620
126,938
128,769
122,456
874,357
9,098
8,124
11,672
15,347
18,304
20,964
24,270
28,592
35,169
44,788
69,981
104,598
121,766
131,045
132,627
126,983
903,328
75+
70-
65-
60-
55-
50-
45-
40-
35-
30-
25-
20-
15-
10-
5-
0-
15
10
5
0
5
10
15
Males (%)
Females (%)

Health Administrative Regions of The Sultanate of Oman



Note: This map is not an authority on international boundaries.

Oman National Cancer Registry

The Oman National Cancer Registry was established in 1985 as a hospital based registry. Only cases treated in tertiary hospitals were registered. In 1996, with the establishment of the Non-Communicable Diseases Section, the cancer registry was transferred and started functioning under the Directorate General of Health Affairs. New cancer notification forms were developed and distributed to all regional hospitals and sister institutions. In the year 2000, the registration form was simplified (see annex 2), printed and distributed to all institutions that could potentially report cancer cases. Two trained cancer registrars are responsible for data collection, coding and data entry.

Methods

1. Data Collection

a) Active Collection

Active collection involves the registry personnel visiting different sources and abstracting data on Cancer Registry Forms. Being the largest tertiary centre for diagnosis and treatment of cancer, registrars visit the Royal Hospital twice a week and abstracts data on the notification forms. Similarly, other tertiary hospitals like Khoulah Hospital and Al-Nahdah Hospital are visited once a month.

Patients diagnosed abroad are traced through the Oncology Outpatient Register at the Royal Hospital and subsequently data are extracted from their case notes. Details of patients treated abroad are obtained from the Department of Treatment Abroad, Ministry of Health.

b) Passive Reporting

Cancer notification was made mandatory in the year 2000 through a Ministerial Decision (4/2000). When a case of cancer is diagnosed, the attending physician of the relevant specialty at the regional hospital completes the notification forms and sends them to the registry. Other institutions like the Armed Forces Hospital and Sultan Qaboos University Hospital do similar passive reporting.

2. Data-Coding, Entry and Validity Checks

All cancer cases are coded using International Classification of Diseases for Oncology (ICD-O-2) codes, 2nd Edition, with topography 'C' and morphology 'M' codes. Data are entered in CanReg-3 programme, supplied by the International Agency for Research on Cancer (IARC), Lyon, France. This programme has a duplicate entry checking facility, which avoids the same case being registered more than once. Prior to analysis the entire database is checked using IARC-CHECK programme (Parkin et al., 1994). Validity checks are performed for consistency between items: site/histology, gender/site and age/site/histology combinations.

3. Completeness of Data Reporting

Data are obtained from pathology laboratories for all cases diagnosed as cancer. Data are also obtained from the Medical Records Department of the Royal Hospital regarding discharges and hospital deaths due to cancer. The paediatric oncology departments of the Royal Hospital and Sultan Qaboos University Hospital supply data on childhood cancers. These data are compared with that in the registry. Details of missing data are sought from the respective institutions. This ensures completeness of data reporting.

4. Data Analysis

Frequency distribution and incidence tables are generated using CanReg-3 programme. Data are then exported to EPINFO version 6.0 (Centre for Disease Control and Prevention, Georgia, Atlanta, USA), for further analysis of incidence by region and histological types.

The Ministry of National Economy provides population denominators (by 5-year age group and gender by region) used for the calculation of incidence rates.

The results for childhood cancers are presented for the whole Sultanate according to the diagnostic groups defined in the “International Classification of Childhood Cancers 1996” Kramarova et al., 1996)

5. Definitions

Incidence
is the number of new cancer cases in a defined population within a specific period.

Date of Diagnosis
is the date documented on the histopathology report. For clinical cases, the date of diagnosis is the date stated in patient’s case notes to have cancer.

Population at Risk
The part of the Omani population that is susceptible to have a specific cancer.

Crude incidence rate
Is the number of new cancer cases in the Omani population occurring within a Gregorian calendar (1st January to 31st December) divided by the population at risk in the same period expressed per 100,000.

Age-specific rate
Incidence rate in a specific age group.

Age-standardized rate (ASR)
Age standardization is necessary when comparing several populations that differ with respect to age. Hence the *World Standard Population of Segi***,** (Table 3) *(Segi M. Cancer mortality for selected sites in 24 countries (1950-57).*

57). Sendai: Tohuku University, School of Medicine, 1960) was used to adjust the crude incidence rates and to remove the confounding effect of age. Therefore, the age-adjusted rates (ASR) given in tables 8 and 9 could be used for comparison purposes with other rates where the same world standard population was used, especially those issued by the World Health Organization's agency, the International Agency for Research on Cancer (IARC), in its periodic publication Cancer Incidence in Five Continents.

Table 3: Age Structure of the World Standard Population of Segi, used for Age-adjustment

Age Group	Population
00-04	12,000
05-09	10,000
10-14	9,000
15-19	9,000
20-24	8,000
25-29	8,000
30-34	6,000
35-39	6,000
40-44	6,000
45-49	6,000
50-54	5,000
55-59	4,000
60-64	4,000
65-69	3,000
70-74	2,000
75+	2,000
Total	100,000

Overall Results

Table 4: Distribution of Cancer Cases in Oman by Nationality

Nationality	Frequency	Percentage (%)
Omanis	883	90.2
Non-Omanis	96	9.8
Total	979	100

The total number of cancer cases registered in 2000 in the Oman National Cancer Registry was 979 (Table 4). Of these, 883 (90.2%) cases were among Omanis, and 96 (9.8%) cases were Non-Omanis. Of the total of 979 cases, males accounted for 457 cases (51.8%), and females accounted for 426 cases (48.2%) (Table 5); the male: female ratio being 1.1: 1. Eighty-four cases (9.5%) were reported in children aged 14 years and below. The median age at diagnosis was 54 years. This was higher in males (58 years) than in females (50 years).

Table 5: Distribution of Cancer Cases among Omanis by Gender

Gender	Frequency	Percentage (%)
Male	457	51.8
Female	426	48.2
Total	883	100

Tables 6 and 7 give the frequency distribution of incident cases of cancer by site and age group in Omani males and females respectively.

Incidence Rates

In 2000, the crude incidence rates for all cancers among Omanis were 50.5 per 100,000 for males and 48.6 per 100,000 for females. The age standardised rates, adjusted to the world standard population of Segi, was 96.5 per 100,000 for males and 87.8 per 100,000 for females (Tables 8 and 9). Figure 1 shows the age specific incidence rates for all cancers among males and females.

Basis of Diagnosis

Table 10 gives the most valid basis of diagnosis of the various cancers. The majority of cases (84.0%) were diagnosed by histology of either the primary site or of metastasis. Cases diagnosed by cytological and haematological investigations are also combined in this category. Clinical investigation (e.g. x-ray, isotopes), specific biochemical or Immunological test and exploration surgery but without histology or death certificate only, were combined together and formed the second most common method of diagnosis contributing 14.0% of cases. Finally cases diagnosed on pure clinical grounds constituted 1.5%.

Figure 1: Age Specific Incidenc Rates by Gender, 2000.

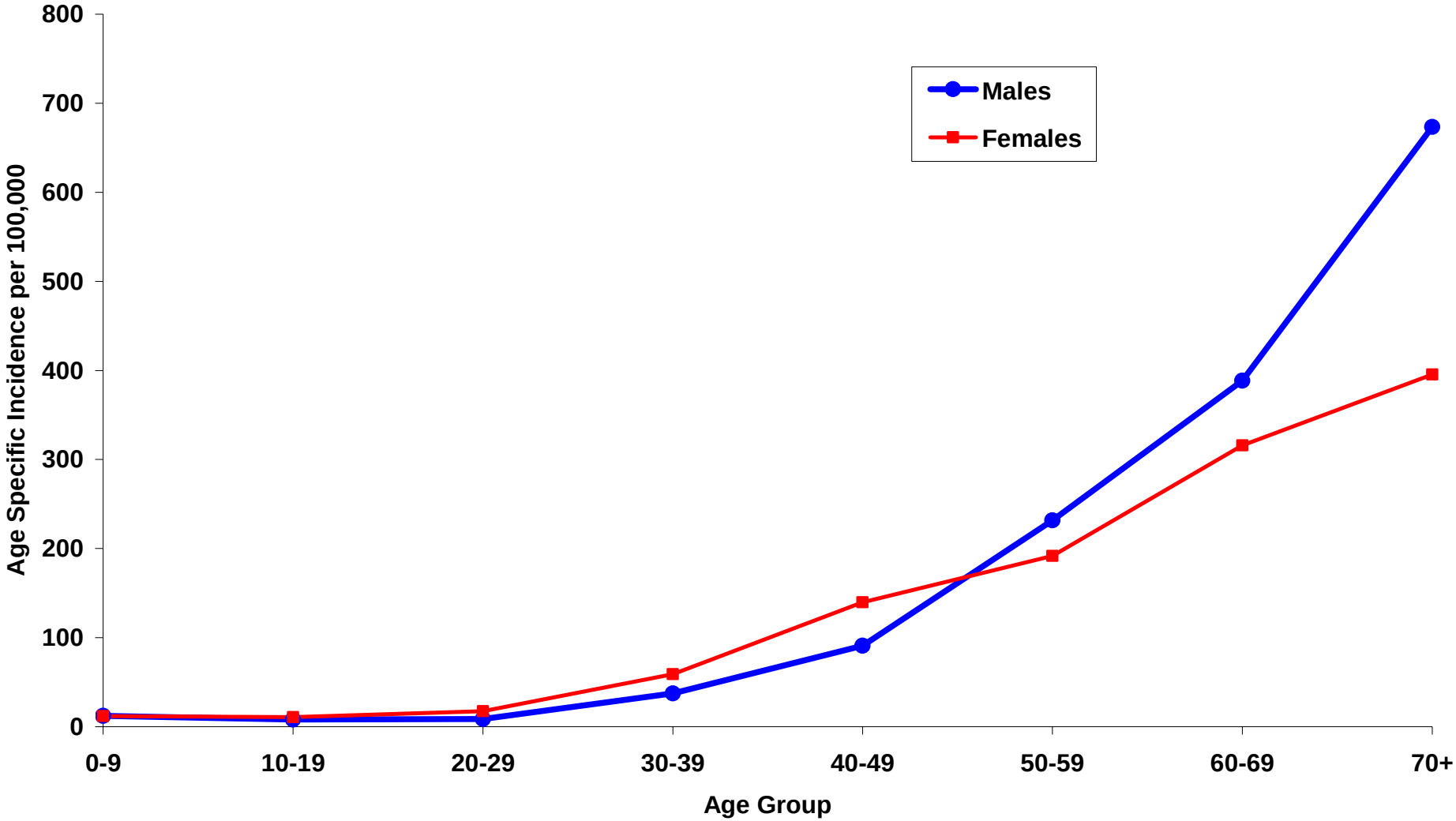


Table 6: Frequency of Incident Cases among Omanis by Site and Age (Male)

SITE	ALL AGES	AGE UNK.	0- - 4	5- - 9	10- -14	15- -19	20- -24	25- -29	30- -34	35- -39	40- -44	45- -49	50- -54	55- -59	60- -64	65- -69	70- -74	75+	% of Total	ICD (10th)
Lip	2	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0.4%	C00
Tongue	6	0	0	0	0	0	0	0	1	0	0	2	1	1	0	0	1	0	1.3%	C01-C02
Salivary gland	1	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0.2%	C07-C08
Mouth	3	0	0	0	0	0	0	0	0	0	0	0	1	0	2	0	0	0	0.7%	C03-C06
Oropharynx	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0.4%	C09-C10
Nasopharynx	7	0	0	0	0	0	1	0	0	0	1	1	0	2	1	0	1	0	1.5%	C11
Hypopharynx	1	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0.2%	C12-C13
Pharynx unspec.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0%	C14
Esophagus	10	0	0	0	0	0	0	0	0	1	0	0	0	1	4	1	2	1	2.2%	C15
Stomach	54	0	0	0	0	0	0	0	2	2	2	2	7	5	7	7	8	12	11.8%	C16
Small intestine	2	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	0.4%	C17
Colon	13	0	0	0	0	0	0	2	0	0	3	2	3	0	2	0	0	1	2.8%	C18
Rectum	7	0	0	0	0	1	0	0	2	0	0	0	0	1	1	1	1	0	1.5%	C19-C21
Liver	26	0	1	1	0	1	0	0	1	0	0	1	4	6	3	4	4	0	5.7%	C22
Gallbladder etc.	5	0	0	0	0	0	0	0	0	0	0	2	1	0	0	1	1	0	1.1%	C23-C24
Pancreas	9	0	0	0	0	0	0	0	0	0	1	0	2	1	2	0	0	3	2.0%	C25
Nose, sinuses etc.	2	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1	0	0.4%	C30-C31
Larynx	5	0	0	0	0	0	0	0	0	0	1	0	2	0	2	0	0	0	1.1%	C32
Bronchus, lung	37	0	0	0	0	0	0	0	0	0	1	4	3	8	9	2	4	6	8.1%	C33-C34
Other Thoracic organs	3	0	0	0	0	1	0	0	0	0	0	0	0	0	2	0	0	0	0.7%	C37-C38
Bone	4	0	1	0	1	0	0	0	0	0	0	1	0	0	1	0	0	0	0.9%	C40-C41
Connective tissue	13	0	2	1	1	3	1	1	0	0	0	2	0	1	1	0	0	0	2.8%	C47;C49
Mesothelioma	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0.2%	C45
Kaposi's sarcoma	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0.2%	C46
Melanoma of skin	1	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0.2%	C43
Other skin	15	0	0	0	0	0	1	0	0	1	0	0	3	0	1	1	7	1	3.3%	C44
Breast	3	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1	1	0.7%	C50
Prostate	35	0	0	0	0	0	0	0	0	0	0	0	1	3	6	7	11	7	7.7%	C61
Testis	1	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0.2%	C62
Penis	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0%	C60
Other male genital	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0%	C63
Bladder	15	0	0	0	0	0	0	0	1	1	0	2	2	4	2	0	0	3	3.3%	C67
Kidney etc.	13	0	2	1	0	0	0	1	1	0	1	0	2	1	1	1	1	1	2.8%	C64-C66;C68
Eye	2	0	1	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0.4%	C69
Brain, nervous system	18	0	5	1	1	1	0	0	0	2	0	2	2	0	0	1	2	1	3.9%	C70-C72
Thyroid	5	0	0	0	0	0	0	0	1	0	0	0	0	2	2	0	0	0	1.1%	C73
Other endocrine	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0.2%	C74-C75
Hodgkin's disease	18	0	1	3	1	1	0	2	2	2	1	1	2	0	0	1	0	1	3.9%	C81
Non-Hodgkin lymphoma	41	0	2	3	0	3	0	4	1	3	3	1	3	0	5	2	6	5	9.0%	C82-C85;C96
Multiple myeloma	10	0	0	0	0	0	0	0	0	0	1	0	1	1	3	2	0	2	2.2%	C88;C90
Lymphoid leukemia	17	0	2	2	2	3	1	0	1	0	0	0	1	0	3	0	1	1	3.7%	C91
Myeloid leukemia	13	0	2	0	0	0	0	0	1	0	0	0	1	1	2	1	1	4	2.8%	C92
Monocytic leukemia	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0%	C93
Other leukemia	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0%	C94
Leukaemia unspec.	4	0	1	0	0	0	1	0	0	0	0	0	1	1	0	0	0	0	0.9%	C95
Other & unspecified	31	0	0	0	0	0	0	0	0	2	5	3	4	1	7	2	5	2	6.8%	
All sites	457	0	20	12	6	14	5	10	14	16	22	26	49	42	70	35	62	54	100.0%	

Table 7: Frequency of Incident Cases among Omanis by Site and Age (Female)

SITE	ALL AGES	AGE UNK.	0- - 4	5- - 9	10- -14	15- -19	20- -24	25- -29	30- -34	35- -39	40- -44	45- -49	50- -54	55- -59	60- -64	65- -69	70- -74	75+	% of Total	ICD (10th)
Lip	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0%	C00
Tongue	2	0	0	0	0	0	0	0	0	1	0	0	0	0	1	0	0	0	0.5%	C01-C02
Salivary gland	1	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0.2%	C07-C08
Mouth	2	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0.5%	C03-C06
Oropharynx	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0%	C09-C10
Nasopharynx	2	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0.5%	C11
Hypopharynx	1	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0.2%	C12-C13
Pharynx unspec.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0%	C14
Oesophagus	9	0	0	0	0	0	0	1	0	0	0	0	2	0	1	1	1	3	2.1%	C15
Stomach	22	0	0	0	0	0	0	0	0	1	2	1	1	2	8	1	4	2	5.2%	C16
Small intestine	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0%	C17
Colon	10	0	0	0	0	0	0	1	1	0	1	2	2	0	1	0	1	1	2.3%	C18
Rectum	9	0	0	0	0	0	0	0	0	1	0	1	3	1	0	1	2	0	2.1%	C19-C21
Liver	12	0	1	0	0	0	0	0	0	0	1	1	1	2	5	0	0	1	2.8%	C22
Gallbladder etc.	3	0	0	0	0	0	0	0	0	0	0	0	1	0	1	1	0	0	0.7%	C23-C24
Pancreas	5	0	0	0	0	0	0	0	0	0	0	1	1	0	1	0	1	1	1.2%	C25
Nose, sinuses etc.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0%	C30-C31
Larynx	2	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1	0.5%	C32
Bronchus, lung	8	0	0	0	0	0	0	0	0	0	0	1	1	0	3	0	0	3	1.9%	C33-C34
Other Thoracic organs	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0%	C37-C38
Bone	3	0	1	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0.7%	C40-C41
Connective tissue	10	0	0	1	2	1	0	1	0	0	1	0	0	2	0	0	0	2	2.3%	C47;C49
Mesothelioma	1	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0.2%	C45
Kaposi's sarcoma	2	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0.5%	C46
Melanoma of skin	4	0	0	0	0	0	0	1	0	0	0	1	0	0	2	0	0	0	0.9%	C43
Other skin	19	0	0	0	0	0	0	0	0	1	0	3	3	0	5	0	2	5	4.5%	C44
Breast	70	0	0	0	0	0	0	3	4	12	12	13	9	5	3	3	3	3	16.4%	C50
Uterus unspec.	3	0	0	0	0	0	0	2	0	0	0	1	0	0	0	0	0	0	0.7%	C55
Cervix uteri	31	0	0	0	0	0	0	0	3	5	1	4	1	6	2	0	8	1	7.3%	C53
Placenta	2	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0.5%	C58
Corpus uteri	3	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	1	0	0.7%	C54
Ovary etc.	27	0	0	0	2	0	0	0	1	2	4	3	3	2	5	1	3	1	6.3%	C56
Other female genital	5	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1	3	1.2%	C51-C52;C57
Bladder	6	0	0	0	0	0	0	0	0	0	0	2	0	0	3	0	0	1	1.4%	C67
Kidney etc.	12	0	5	0	1	0	0	0	0	2	0	0	0	2	0	1	0	1	2.8%	C64-C66;C68
Eye	2	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.5%	C69
Brain, nervous system	11	0	1	2	3	0	1	0	0	0	0	0	2	1	0	1	0	0	2.6%	C70-C72
Thyroid	25	0	0	0	0	3	2	8	0	2	3	3	1	1	2	0	0	0	5.9%	C73
Other endocrine	3	0	1	0	0	0	0	0	1	0	0	0	0	0	0	1	0	0	0.7%	C74-C75
Hodgkin's disease	12	0	0	1	3	1	0	1	1	1	0	2	0	1	1	0	0	0	2.8%	C81
Non-Hodgkin lymphoma	29	0	2	3	0	1	3	2	1	2	2	1	3	0	7	0	2	0	6.8%	C82-C85;C96
Multiple myeloma	11	0	0	0	0	0	1	0	0	0	0	1	2	1	1	2	3	0	2.6%	C88;C90
Lymphoid leukaemia	12	0	6	2	1	1	0	0	0	0	0	0	0	0	2	0	0	0	2.8%	C91
Myeloid leukaemia	11	0	0	0	2	2	0	0	1	0	0	1	1	2	1	0	0	1	2.6%	C92
Monocytic leukaemia	1	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0.2%	C93
Other leukaemia	2	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.5%	C94
Leukaemia unspec.	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0.2%	C95
Other & unspecified	20	0	0	0	1	0	1	0	1	0	1	2	3	1	3	3	3	1	4.7%	
All sites	426	0	20	10	16	10	8	21	15	31	34	46	42	31	59	17	35	31	100.0%	

Table 8: Age-specific Incidence Rates per 100,000 among Omanis (Males)

SITE	ALL AGES	AGE UNK.	0- - 4	5- - 9	10- -14	15- -19	20- -24	25- -29	30- -34	35- -39	40- -44	45- -49	50- -54	55- -59	60- -64	65- -69	70- -74	75+	CRUDE RATE	ASR WORLD	ICD (10th)
Lip	2	0	-	-	-	-	-	-	-	-	-	-	-	5.5	-	-	12.3	-	0.2	0.5	C00
Tongue	6	0	-	-	-	-	-	-	2.2	-	-	8.2	4.8	5.5	-	-	12.3	-	0.7	1.3	C01-C02
Salivary gland	1	0	-	-	-	-	-	-	-	2.8	-	-	-	-	-	-	-	-	0.1	0.2	C07-C08
Mouth	3	0	-	-	-	-	-	-	-	-	-	-	4.8	-	13.0	-	-	-	0.3	0.8	C03-C06
Oropharynx	2	0	-	-	-	-	-	-	-	-	-	-	-	-	-	8.5	-	11.0	0.2	0.5	C09-C10
Nasopharynx	7	0	-	-	-	-	1.0	-	-	-	3.5	4.1	-	10.9	6.5	-	12.3	-	0.8	1.5	C11
Hypopharynx	1	0	-	-	-	-	-	-	-	-	-	-	-	5.5	-	-	-	-	0.1	0.2	C12-C13
Pharynx unspec.	0	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.0	0.0	C14
Oesophagus	10	0	-	-	-	-	-	-	-	2.8	-	-	-	5.5	26.0	8.5	24.6	11.0	1.1	2.4	C15
Stomach	54	0	-	-	-	-	-	-	4.5	5.7	7.0	8.2	33.3	27.3	45.5	59.8	98.3	131.6	6.0	12.5	C16
Small intestine	2	0	-	-	-	-	-	-	-	-	-	-	-	-	6.5	-	12.3	-	0.2	0.5	C17
Colon	13	0	-	-	-	-	-	2.9	-	-	10.5	8.2	14.3	-	13.0	-	-	11.0	1.4	2.8	C18
Rectum	7	0	-	-	-	0.8	-	-	4.5	-	-	-	-	5.5	6.5	8.5	12.3	-	0.8	1.3	C19-C21
Liver	26	0	0.8	0.8	-	0.8	-	-	2.2	-	-	4.1	19.0	32.7	19.5	34.2	49.1	-	2.9	5.7	C22
Gallbladder etc.	5	0	-	-	-	-	-	-	-	-	-	8.2	4.8	-	-	8.5	12.3	-	0.6	1.2	C23-C24
Pancreas	9	0	-	-	-	-	-	-	-	-	3.5	-	9.5	5.5	13.0	-	-	32.9	1.0	2.1	C25
Nose, sinuses etc.	2	0	-	-	-	-	-	-	-	-	3.5	-	-	-	-	-	12.3	-	0.2	0.5	C30-C31
Larynx	5	0	-	-	-	-	-	-	-	-	3.5	-	9.5	-	13.0	-	-	-	0.6	1.2	C32
Bronchus, lung	37	0	-	-	-	-	-	-	-	-	3.5	16.4	14.3	43.6	58.5	17.1	49.1	65.8	4.1	8.8	C33-C34
Other Thoracic organs	3	0	-	-	-	0.8	-	-	-	-	-	-	-	-	13.0	-	-	-	0.3	0.6	C37-C38
Bone	4	0	0.8	-	0.8	-	-	-	-	-	-	4.1	-	-	6.5	-	-	-	0.4	0.7	C40-C41
Connective tissue	13	0	1.6	0.8	0.8	2.5	1.0	1.4	-	-	-	8.2	-	5.5	6.5	-	-	-	1.4	1.7	C47;C49
Mesothelioma	1	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	11.0	0.1	0.2	C45
Kaposi's sarcoma	1	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	12.3	-	0.1	0.2	C46
Melanoma of skin	1	0	-	-	-	-	-	-	-	-	-	-	4.8	-	-	-	-	-	0.1	0.2	C43
Other skin	15	0	-	-	-	-	1.0	-	-	2.8	-	-	14.3	-	6.5	8.5	86.0	11.0	1.7	3.4	C44
Breast	3	0	-	-	-	-	-	-	-	-	3.5	-	-	-	-	-	12.3	11.0	0.3	0.7	C50
Prostate	35	0	-	-	-	-	-	-	-	-	-	-	4.8	16.4	39.0	59.8	135.1	76.8	3.9	8.5	C61
Testis	1	0	-	-	-	-	-	-	-	2.8	-	-	-	-	-	-	-	-	0.1	0.2	C62
Penis	0	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.0	0.0	C60
Other male genital	0	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.0	0.0	C63
Bladder	15	0	-	-	-	-	-	-	2.2	2.8	-	8.2	9.5	21.8	13.0	-	-	32.9	1.7	3.3	C67
Kidney etc.	13	0	1.6	0.8	-	-	-	1.4	2.2	-	3.5	-	9.5	5.5	6.5	8.5	12.3	11.0	1.4	2.4	C64-C66;C68
Eye	2	0	0.8	-	-	-	-	-	-	-	-	-	4.8	-	-	-	-	-	0.2	0.3	C69
Brain, nervous system	18	0	3.9	0.8	0.8	0.8	-	-	-	5.7	-	8.2	9.5	-	-	8.5	24.6	11.0	2.0	3.0	C70-C72
Thyroid	5	0	-	-	-	-	-	-	2.2	-	-	-	-	10.9	13.0	-	-	-	0.6	1.1	C73
Other endocrine	1	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	12.3	-	0.1	0.2	C74-C75
Hodgkin's disease	18	0	0.8	2.3	0.8	0.8	-	2.9	4.5	5.7	3.5	4.1	9.5	-	-	8.5	-	11.0	2.0	2.7	C81
Non-Hodgkin lymphoma	41	0	1.6	2.3	-	2.5	-	5.7	2.2	8.5	10.5	4.1	14.3	-	32.5	17.1	73.7	54.8	4.5	7.7	C82-C85;C96
Multiple myeloma	10	0	-	-	-	-	-	-	-	-	3.5	-	4.8	5.5	19.5	17.1	-	21.9	1.1	2.4	C88;C90
Lymphoid leukaemia	17	0	1.6	1.5	1.5	2.5	1.0	-	2.2	-	-	-	4.8	-	19.5	-	12.3	11.0	1.9	2.4	C91
Myeloid leukaemia	13	0	1.6	-	-	-	-	-	2.2	-	-	-	4.8	5.5	13.0	8.5	12.3	43.9	1.4	2.7	C92
Monocytic leukaemia	0	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.0	0.0	C93
Other leukaemia	0	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.0	0.0	C94
Leukaemia unspec.	4	0	0.8	-	-	-	1.0	-	-	-	-	-	4.8	5.5	-	-	-	-	0.4	0.6	C95
Other & unspecified	31	0	-	-	-	-	-	-	-	5.7	17.5	12.3	19.0	5.5	45.5	17.1	61.4	21.9	3.4	7.3	
All sites	457	0	16	9	5	11	5	14	31	45	77	107	233	229	455	299	762	592	50.5	96.5	

Table 9: Age Specific Incidence Rates per 100,000 among Omanis (Females)

SITE (10th)	ALL AGES	AGE 0-UNK.	0-4	5-9	10-14	15-19	20-24	25-29	30-34	35-39	40-44	45-49	50-54	55-59	60-64	65-69	70-74	75+	CRUDE RATE	ASR WORLD	ICD
Lip C00	0	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.0	0.0
Tongue C01-C02	2	0	-	-	-	-	-	-	-	2.8	-	-	-	-	7.2	-	-	-	0.2	0.5	
Salivary gland C07-C08	1	0	-	-	-	-	-	-	-	-	-	-	-	5.8	-	-	-	-	0.1	0.2	
Mouth C03-C06	2	0	-	-	-	-	-	-	-	2.8	3.2	-	-	-	-	-	-	-	0.2	0.4	
Oropharynx C09-C10	0	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.0	0.0	
Nasopharynx C11	2	0	-	-	-	0.9	-	-	2.4	-	-	-	-	-	-	-	-	-	0.2	0.2	
Hypopharynx C12-C13	1	0	-	-	-	-	-	-	-	-	-	-	-	5.8	-	-	-	-	0.1	0.2	
Pharynx unspec. C14	0	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.0	0.0	
Oesophagus C15	9	0	-	-	-	-	-	1.5	-	-	-	-	9.6	-	7.2	9.8	14.1	31.2	1.0	2.1	
Stomach C16	22	0	-	-	-	-	-	-	-	2.8	6.3	3.9	4.8	11.6	57.6	9.8	56.3	20.8	2.5	5.6	
Small intestine C17	0	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.0	0.0	
Colon C18	10	0	-	-	-	-	-	1.5	2.4	-	3.2	7.8	9.6	-	7.2	-	14.1	10.4	1.1	2.2	
Rectum C19-C21	9	0	-	-	-	-	-	-	-	2.8	-	3.9	14.3	5.8	-	9.8	28.2	-	1.0	2.2	
Liver C22	12	0	0.8	-	-	-	-	-	-	-	3.2	3.9	4.8	11.6	36.0	-	-	10.4	1.4	2.9	
Gallbladder etc. C23-C24	3	0	-	-	-	-	-	-	-	-	-	-	4.8	-	7.2	9.8	-	-	0.3	0.8	
Pancreas C25	5	0	-	-	-	-	-	-	-	-	-	3.9	4.8	-	7.2	-	14.1	10.4	0.6	1.2	
Nose, sinuses etc. C30-C31	0	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.0	0.0	
Larynx C32	2	0	-	-	-	-	-	-	-	-	3.2	-	-	-	-	-	-	10.4	0.2	0.4	
Bronchus, lung C33-C34	8	0	-	-	-	-	-	-	-	-	-	3.9	4.8	-	21.6	-	-	31.2	0.9	2.0	
Other Thoracic organs C37-C38	0	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.0	0.0	
Bone C40-C41	3	0	0.8	-	0.8	-	-	1.5	-	-	-	-	-	-	-	-	-	-	0.3	0.3	
Connective tissue C47;C49	10	0	-	0.8	1.6	0.9	-	1.5	-	-	3.2	-	-	11.6	-	-	-	20.8	1.1	1.5	
Mesothelioma C45	1	0	-	-	-	-	-	-	-	-	-	3.9	-	-	-	-	-	-	0.1	0.2	
Kaposi's sarcoma C46	2	0	-	-	-	-	-	-	-	-	6.3	-	-	-	-	-	-	-	0.2	0.4	
Melanoma of skin	4	0	-	-	-	-	-	1.5	-	-	-	3.9	-	-	14.4	-	-	-	0.5	0.9	

C43																						
Other skin	19	0	-	-	-	-	-	-	-	2.8	-	11.7	14.3	-	36.0	-	28.2	52.0	2.2	4.6
C44																						
Breast	70	0	-	-	-	-	-	4.6	9.5	33.1	37.9	50.6	43.0	28.9	21.6	29.3	42.2	31.2	8.0	14.7
C50																						
Uterus unspec.	3	0	-	-	-	-	-	3.0	-	-	-	3.9	-	-	-	-	-	-	0.3	0.5
C55																						
Cervix uteri	31	0	-	-	-	-	-	-	7.2	13.8	3.2	15.6	4.8	34.7	14.4	-	112.6	10.4	3.5	7.0
C53																						
Placenta	2	0	-	-	-	-	-	-	-	-	-	3.9	4.8	-	-	-	-	-	0.2	0.5
C58																						
Corpus uteri	3	0	-	-	-	-	-	-	-	-	3.2	-	-	-	7.2	-	14.1	-	0.3	0.8
C54																						
Ovary etc.	27	0	-	-	1.6	-	-	-	2.4	5.5	12.6	11.7	14.3	11.6	36.0	9.8	42.2	10.4	3.1	6.0
C56																						
Other female genital	5	0	-	-	-	-	-	-	-	-	3.2	-	-	-	-	-	14.1	31.2	0.6	1.1
C51-C52;C57																						
Bladder	6	0	-	-	-	-	-	-	-	-	-	7.8	-	-	21.6	-	-	10.4	0.7	1.5
C67																						
Kidney etc.	12	0	4.1	-	0.8	-	-	-	-	5.5	-	-	-	11.6	-	9.8	-	10.4	1.4	1.9
C64-C66;C68																						
Eye	2	0	0.8	0.8	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.2	0.2
C69																						
Brain, nervous system	11	0	0.8	1.5	2.4	-	1.0	-	-	-	-	-	9.6	5.8	-	9.8	-	-	1.3	1.5
C70-C72																						
Thyroid	25	0	-	-	-	2.6	2.0	12.1	-	5.5	9.5	11.7	4.8	5.8	14.4	-	-	-	2.9	4.0
C73																						
Other endocrine	3	0	0.8	-	-	-	-	-	2.4	-	-	-	-	-	-	9.8	-	-	0.3	0.5
C74-C75																						
Hodgkin's disease	12	0	-	0.8	2.4	0.9	-	1.5	2.4	2.8	-	7.8	-	5.8	7.2	-	-	-	1.4	1.8
C81																						
Non-Hodgkin lymphoma	29	0	1.6	2.3	-	0.9	3.0	3.0	2.4	5.5	6.3	3.9	14.3	-	50.4	-	28.2	-	3.3	5.4
C82-C85;C96																						
Multiple myeloma	11	0	-	-	-	-	1.0	-	-	-	-	3.9	9.6	5.8	7.2	19.6	42.2	-	1.3	2.7
C88;C90																						
Lymphoid leukaemia	12	0	4.9	1.5	0.8	0.9	-	-	-	-	-	-	-	-	14.4	-	-	-	1.4	1.5
C91																						
Myeloid leukaemia	11	0	-	-	1.6	1.7	-	-	2.4	-	-	3.9	4.8	11.6	7.2	-	-	10.4	1.3	1.9
C92																						
Monocytic leukaemia	1	0	-	-	-	-	-	-	-	-	-	-	4.8	-	-	-	-	-	0.1	0.2
C93																						
Other leukaemia	2	0	1.6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.2	0.2
C94																						
Leukaemia unspec.	1	0	-	-	-	-	-	-	-	-	-	-	-	-	-	9.8	-	-	0.1	0.3
C95																						
Other & unspecified	20	0	-	-	0.8	-	1.0	-	2.4	-	3.2	7.8	14.3	5.8	21.6	29.3	42.2	10.4	2.3	4.7
All sites	426	0	16	8	13	9	8	32	36	85	107	179	201	179	425	166	493	322	48.6	87.8

Table 10: Incident Cases by Most Valid Basis of Diagnosis among Omanis

Site	A†	B†	C†	D†
Lip	0	2	0	0
Tongue	0	6	0	2
Mouth	0	5	0	0
Salivary gland	0	1	1	0
Oropharynx	0	2	0	0
Nasopharynx	0	9	0	0
Hypopharynx	0	2	0	0
Esophagus	0	16	3	0
Stomach	0	67	8	1
Small intestine	0	2	0	0
Colon	0	22	1	0
Rectum	1	14	1	0
Liver	0	23	15	0
Gall bladder	1	6	1	0
Pancreas	1	5	8	0
Nose, Sinuses	0	2	0	0
Larynx	0	6	0	1
Bronchus, Lung	0	35	10	0
Other thoracic organs	0	3	0	0
Bone	1	4	1	1
Connective Tissue	1	17	5	0
Melanoma of skin	0	5	0	0
Other skin	1	33	0	0
Kaposi's sarcoma	0	3	0	0
Mesothelioma	0	2	0	0
Breast	1	68	4	0
Cervix Uteri	0	30	0	1
Uterus Unspecified	0	1	2	0
Ovary	0	24	3	0
Other female genital	0	5	0	0
Prostate	0	33	2	0
Testis	0	1	0	0
Penis	0	0	0	0
Kidney	1	20	4	0
Bladder	0	21	0	0
Eye	1	3	0	0
Brain, Nervous system	0	23	5	1
Thyroid	0	29	1	0
Hodgkin's disease	0	27	3	0
Non-Hodgkin's disease	2	60	7	1
Multiple myeloma	1	12	8	0
Lymphoid leukemia	0	22	7	0
Myeloid leukemia	1	20	3	0
Leukemia unspecified	0	8	0	0
Other and unspecified	0	42	18	0
Total	13	741	121	8
Percentage	1.5	84.0	14.0	1.0

†Key to Basis of Diagnosis

A = Clinical only
B = Cytological/ hematological or histology of primary/ metastasis
C = includes clinical investigation (e.g. X-ray, isotopes), specific biochemical, Immunological test, exploration surgery but without histology and death certificate only

Common Cancers in Omanis

Table 11: Ten Most Common Cancers among Omanis (Males & Females)

Topography	Frequency
Stomach	76
Breast *	73
Non-Hodgkin's Lymphoma	70
Leukemia	61
Liver	38
Skin	34
Cervix	31
Hodgkin's Lymphoma	30
Ovary	27
Thyroid	25

*Includes 3 cases of male breast cancer

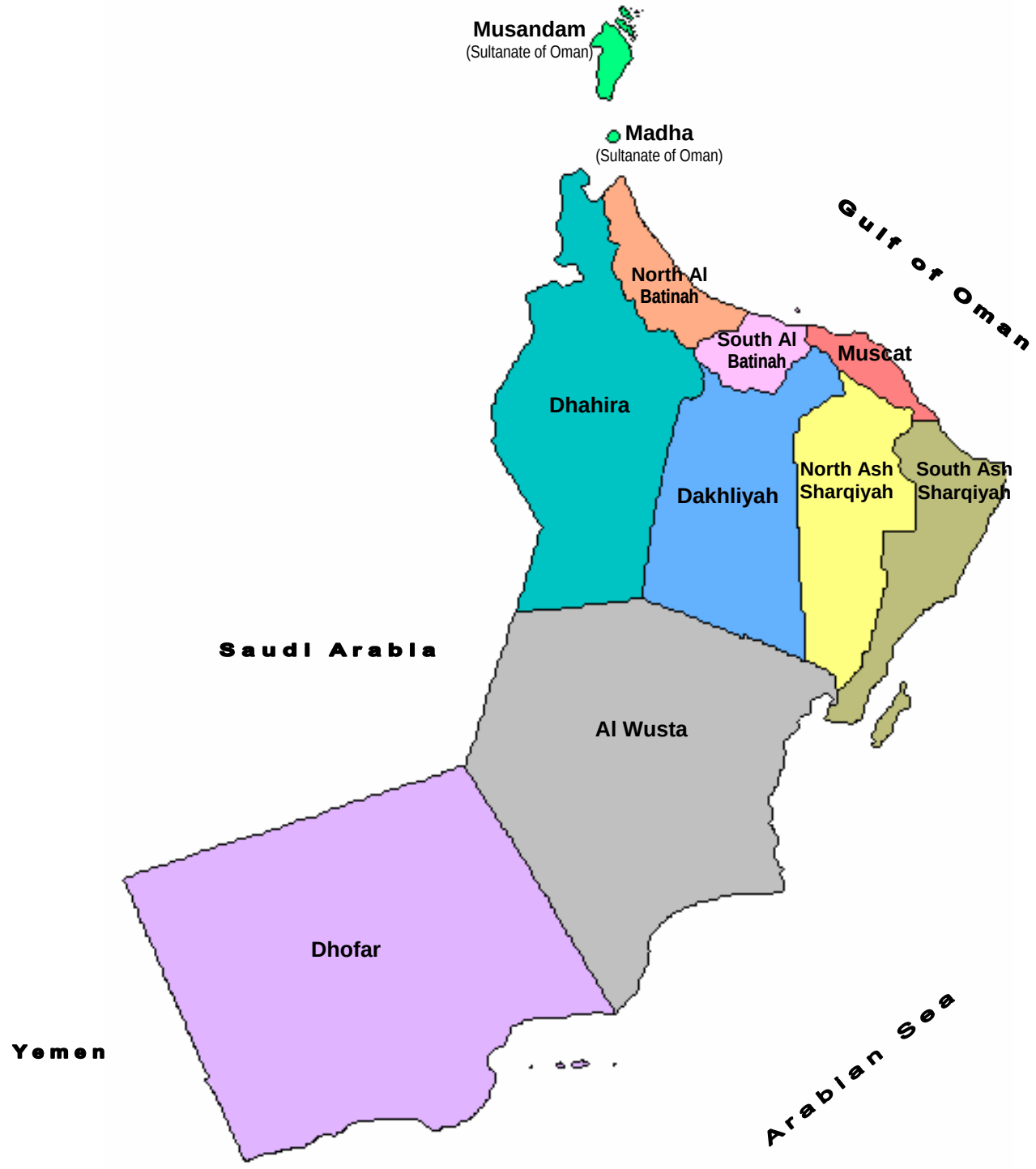
Overall, Stomach cancer was the commonest cancer in the Omani population followed by breast cancer (predominantly female) and Non-Hodgkin's Lymphoma (Table 11, and Figure 2). The most common cancer in males was cancer of the stomach followed by Non-Hodgkin's lymphoma and carcinoma of the lung and bronchus (Table 12). In females, the most common cancer was breast cancer followed by cancer of the cervix uteri (Table 13).

Table 12: Ten Most Common Cancers among Omani Males

Topography	Frequency	Percentage (%)
Stomach	54	11.8
Non-Hodgkin's Lymphoma	41	9.0
Lung & Bronchus	37	8.1
Prostate	35	7.7
Leukemia	34	7.4
Liver	26	5.7
Hodgkin's Lymphoma	18	4.0
Brain & Nervous System	18	4.0
Bladder	15	3.3
Skin	15	3.3

Table 13: Ten Most Common Cancers among Omani Females

Topography	Frequency	Percentage (%)
Breast	70	16.4
Cervix	31	7.3
Non-Hodgkin's Lymphoma	29	6.8
Ovary	27	6.3
Leukemia	27	6.3
Thyroid	25	6.0
Stomach	22	5.2
Skin	19	4.5
Liver	12	3.0
Hodgkin's Lymphoma	12	3.0



Note: This map is not an authority on international boundaries.

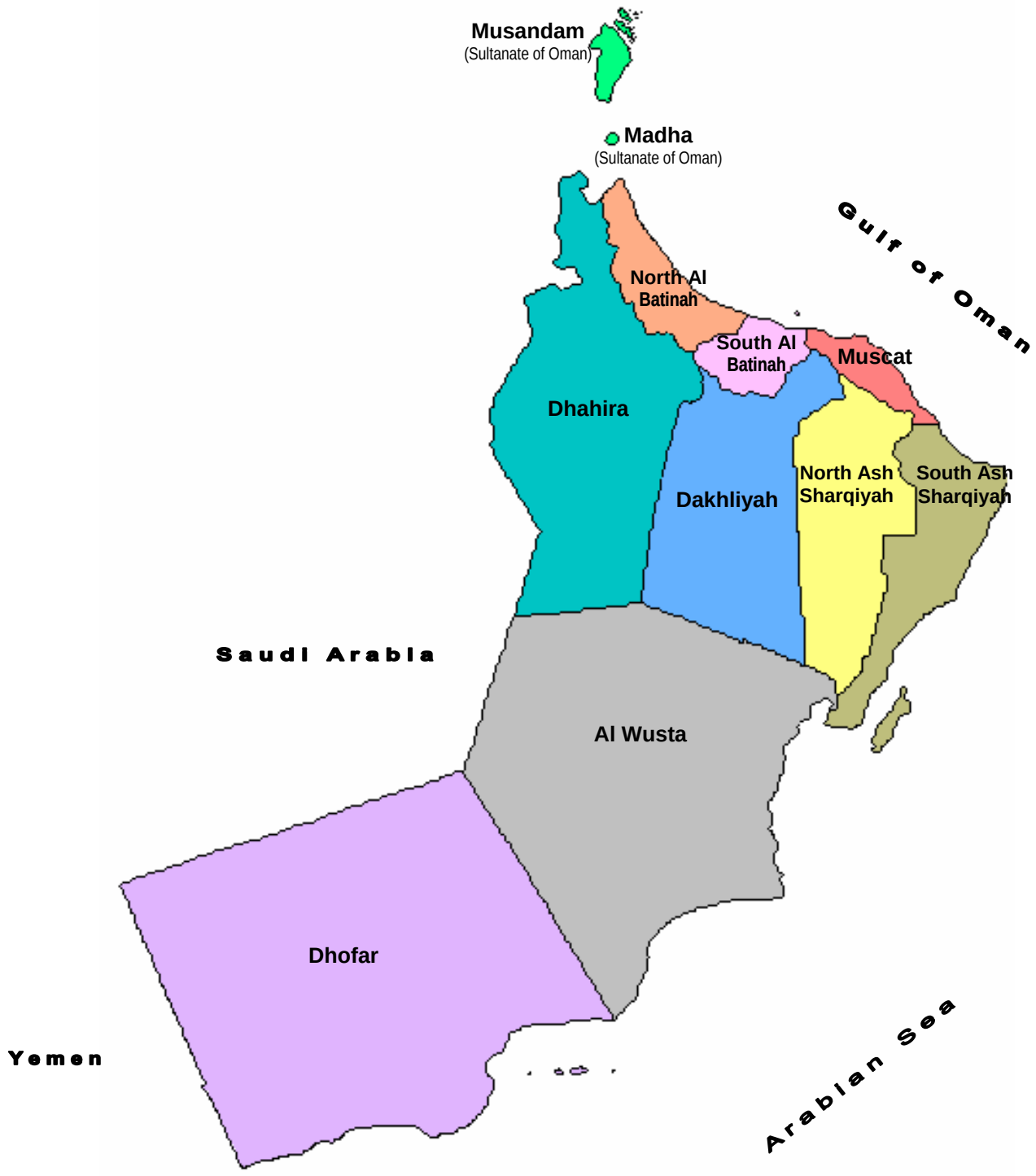
Regional Distribution

The incidence rate in the various regions varied from 18.4 per 100,000 populations to 59.0 per 100,000 populations. The highest incidence was seen in Dhofar and the lowest in Al-Wousta. Figure 3 presents the incidence rates by region and table 14 gives the number of cases of cancer reported from each region. The high frequency of cancer reported from Muscat could be biased since a majority of the cancer cases are referred to the tertiary centers in Muscat and people sometimes give a local address in Muscat, rather than their original place of residence.

Table 14: Regional Distribution of Cancer Cases among Omanis

Region	Frequency
Al-Wousta	3
Dakhliyah	105
Dhahirah	69
Dhofar	89
Musandum	5
Muscat	209
North Batinah	163
North Sharqiyah	43
South Batinah	100
South Sharqiyah	64
Unknown	33
Total	883

†Per 100,000 population



Note: This map is not an authority on international boundaries.

Lymphoma

There were 100 cases of lymphomas reported in 2000. Of these 70 cases (70%) were Non-Hodgkin's lymphomas and 30 cases (30%) were Hodgkin's lymphomas. Non-Hodgkin's lymphomas formed the third most common cancer among the Omani population. The male: female ratio was 1.4:1 for Non-Hodgkin's lymphomas and 1.5:1 for Hodgkin's lymphomas.

Table 15: Regional Distribution of Lymphoma

	Lymphoma	
	Hodgkin's	Non-Hodgkin's
Region	Frequency	Frequency
Al-Wousta	0	1
Dakhliyah	1	9
Dhahirah	1	4
Dhofar	6	5
Musandum	0	0
Muscat	7	19
North Batinah	5	15
North Sharqiyah	2	6
South Batinah	5	3
South Sharqiyah	3	5
Unknown	-	3
Total	30	70

†Incidence per 100,000 per year

The highest incidence rate for Non-Hodgkin's Lymphoma was seen in AL-Wousta region (6.1 per 100,000) followed by Muscat (5.2 per 100,000). The highest incidence rate for Hodgkin's lymphoma was seen in Dhofar (4.0 per 100,000) followed by South Batinah (2.4 per 100,000) (Figure 4 & 5). The regional distribution, gender distribution, morphological types and the trends of the lymphomas (1996-2000) reported, are presented in tables 15-20 respectively.

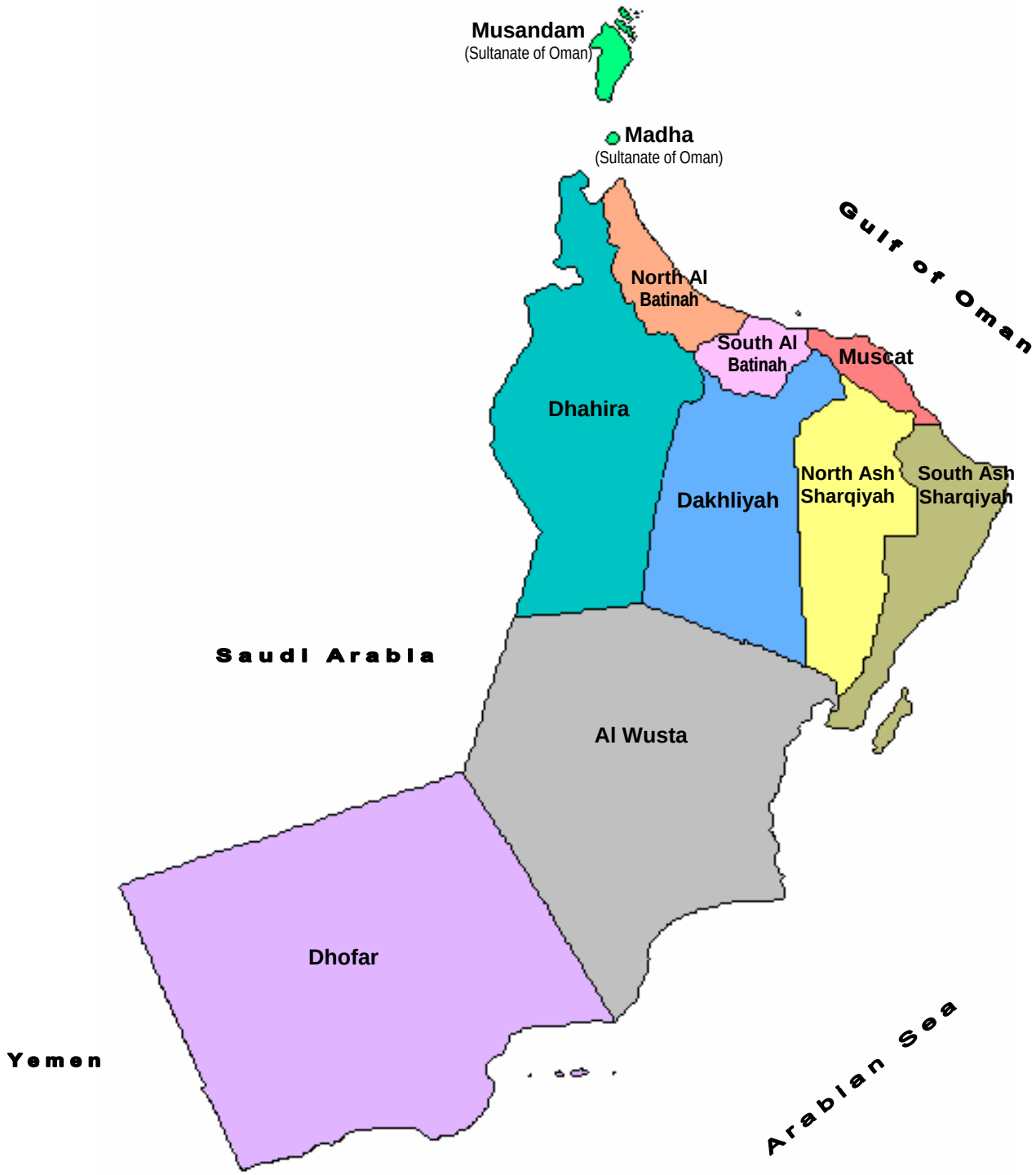
Table 16: Gender Distribution of Lymphoma

	Hodgkin's Lymphoma		Non-Hodgkin's Lymphoma	
Gender	Frequency	Incidence†	Frequency	Incidence†
Male	18	2.0	41	4.5
Female	12	1.4	29	3.2
Total	30	--	70	--

†Incidence per 100,000 per year

Table 17: Morphology of Hodgkin's Disease

	Morphology	Frequency
1	Lymphocytic predominance	4
2	Nodular sclerosis	15
3	Mixed cellularity	6
4	Lymphocytic depletion	2
5	Unspecified Hodgkin's disease	3
	Total	30



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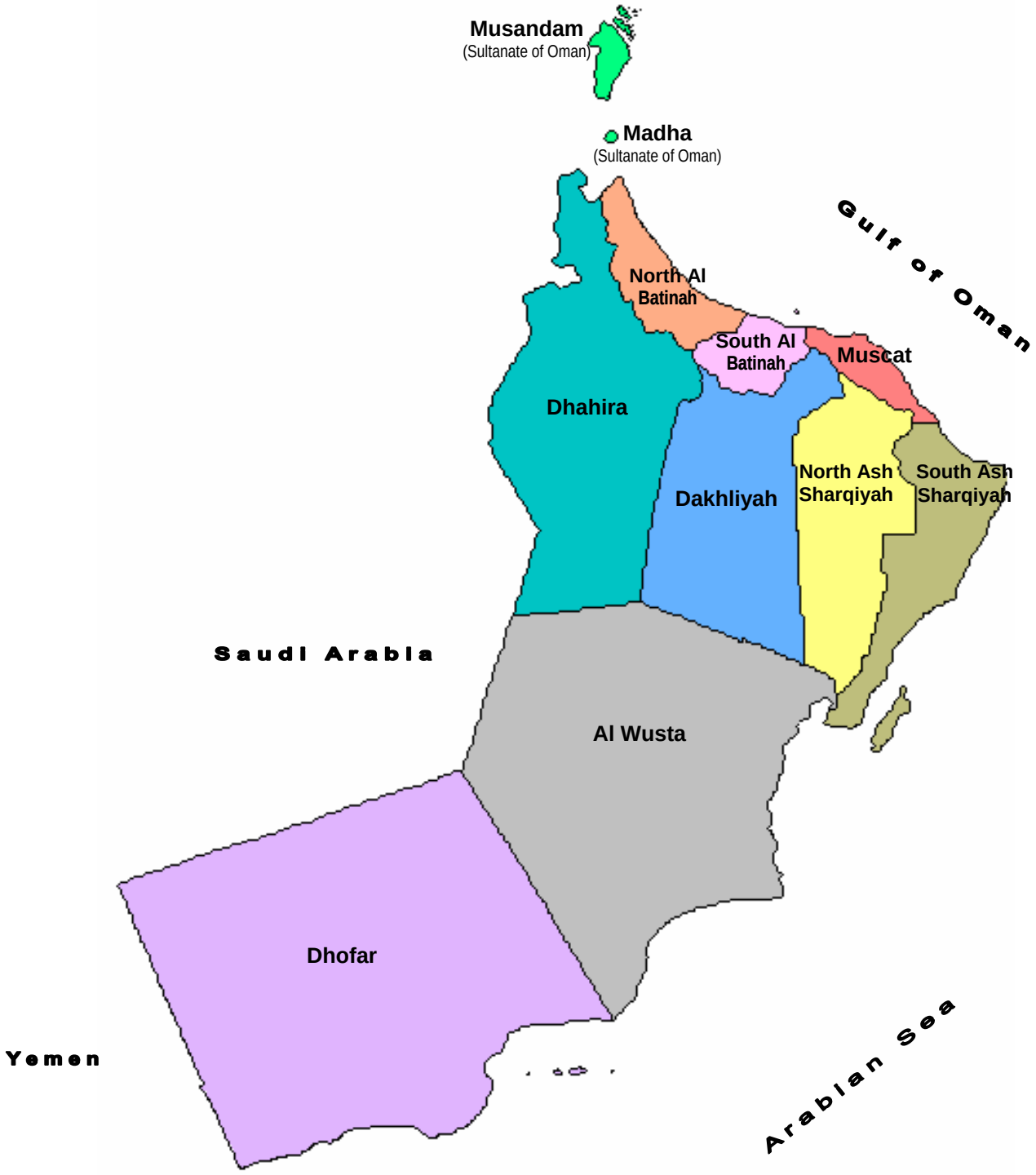


Note: This map is not an authority on international boundaries.

Table 18: Morphology of Non-Hodgkin's Disease

Morphology	Frequency
Malignant lymphoma (NOS)*	10
Malignant lymphoma, non-Hodgkin's (NOS)*	40
Malignant lymphoma, small lymphocytic (NOS)*	1
Malignant lymphoma, mixed small and large cell, diffuse	1
Malignant lymphoma, large cell, diffuse (NOS)*	6
Malignant lymphoma, Immunoblastic, (NOS)*	3
Burkett's Lymphoma, (NOS)*	1
Malignant lymphoma, follicular, (NOS)*	3
Malignant lymphoma, mixed small cleaved and large cell, follicular	1
Mycosis Fungoides	2
Peripheral T-cell lymphoma, AILD	1

* NOS, Not Otherwise Specified

Table 19: Trends of Hodgkin's Lymphoma, 1996–2000

	ASR World	
Year	Male	Female
1996	1.9	2.0
1997	1.9	0.7
1998	3.4	0.5
1999	2.2	2.0
2000	2.7	1.8

ASR, Age-standardized incidence rate per 100,000

Table 20: Trends of Non-Hodgkin's Lymphoma, 1996 –2000

	ASR World	
Year	Male	Female
1996	8.6	3.0
1997	7.9	6.1
1998	9.0	3.6
1999	8.1	3.1
2000	7.7	5.4

ASR, Age-standardized incidence rate per 100,000

Stomach

Table 21: Regional Distribution of Stomach Cancer

Region	Frequency
Al-Wousta	0
Dakhliyah	7
Dhahirah	1
Dhofar	9
Musandum	2
Muscat	22
North Batinah	19
North Sharqiyah	6
South Batinah	8
South Sharqiyah	10
Total	84

Stomach cancer was the most common cancer among the Omanis. There were 84 cases reported this year. Among these, 56 were males and 28 were females, giving the male: female ratio of 2:1. The highest incidence rate (Figure 6) was seen in Musandum (7.5 per 100,000) followed by South Sharqiyah (7.2 per 100,000) and Dhofar and Muscat (6.0 per 100,000). The regional distribution, gender distribution, morphology and trends (1996-2000) of cancer cases reported are presented in Tables 21- 24 respectively.

Table 22: Gender Distribution of Stomach Cancer

Gender	Frequency	Incidence/100,000
Male	56	6.2
Female	28	3.2
Total	84	--

Table 23: Morphology of Stomach Cancer

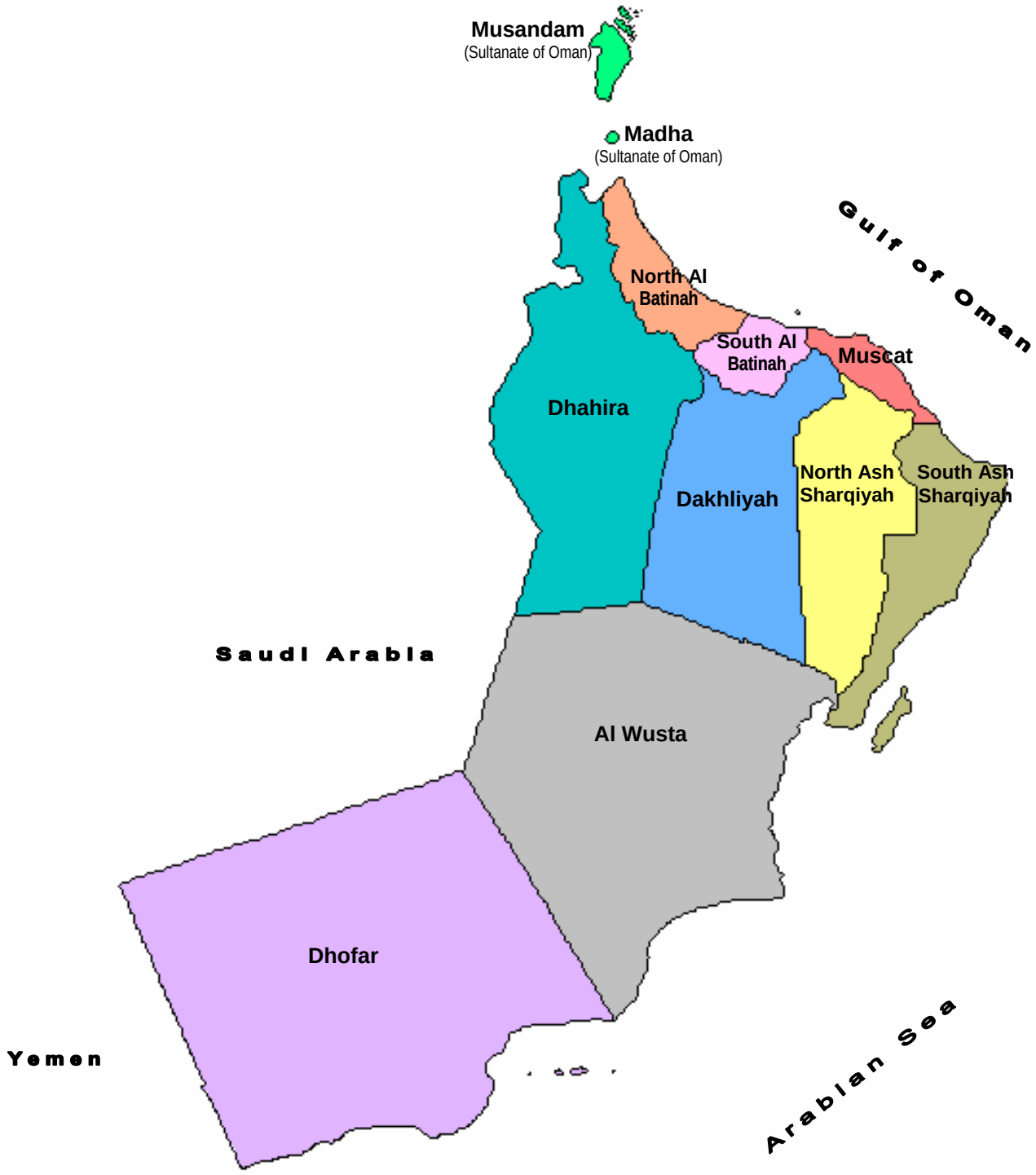
Morphology	Frequency
Neoplasm, malignant	6
Carcinoma (NOS)*	2
Squamous cell carcinoma, (NOS)*	1
Adenocarcinoma (NOS)*	51
Carcinoid tumour, (NOS)*	1
Papillary adenocarcinoma, (NOS)*	1
Mucinous adenocarcinomas	1
Mucin-producing adenocarcinomas	11
Signet ring cell carcinoma	2
Kaposi’s sarcoma	1
Lymphoma	7

*(NOS), Not otherwise specified

Table 24: Trends of Stomach Cancer, 1996 – 2000

	ASR World	
Year	Male	Female
1996	11.4	6.9
1997	14.6	6.9
1998	13.3	8.2
1999	13.7	7.0
2000	12.5	5.6

ASR, Age-standardized incidence rate per 100,000



Note: This map is not an authority on international boundaries.

Breast

Breast cancer was the most common cancer among Omani females. In all there were 73 cases of breast cancer, 70 cases among females and only 3 among males. The incidence rate (Figure 7) was highest in Muscat (17.8 per 100,000) followed by Dhahirah (11.5 per 100,000) and Dhofar (9.6 per 100,000). The regional distribution and the morphology as well as trends (1996-2000) of breast cancer cases reported, are presented in Tables 25-27 respectively. Three cases of breast cancer were reported among males.

Table 25: Regional Distribution of Breast Cancer

Region	Frequency
Al-Wousta	0
Dakhliyah	5
Dhahirah	9
Dhofar	7
Musandum	0
Muscat	31
North Batinah	4
North Sharqiyah	1
South Batinah	5
South Sharqiyah	4
Unknown	4
Total	70

Table 26: Morphology of Breast Cancer

Morphology	Frequency
Malignant neoplasm	1
Carcinoma (NOS)*	8
Mucinous adenocarcinomas	1
Infiltrating duct carcinoma	50
Comedocarcinoma, (NOS)*	1
Medullary carcinoma, (NOS)*	2
Lobular carcinoma (NOS)*	4
Infiltrating duct and lobular carcinoma	2
Paget's Disease, mammary	1
Paget's Disease and infiltrating duct carcinoma of breast	3

*(NOS), Not otherwise specified

Table 27: Trends of Breast Cancer, 1996–2000

Year	ASR
1996	14.4
1997	12.6
1998	13.0
1999	13.1
2000	14.7

ASR, Age-standardized incidence rate per 100,000

Lung and Bronchus

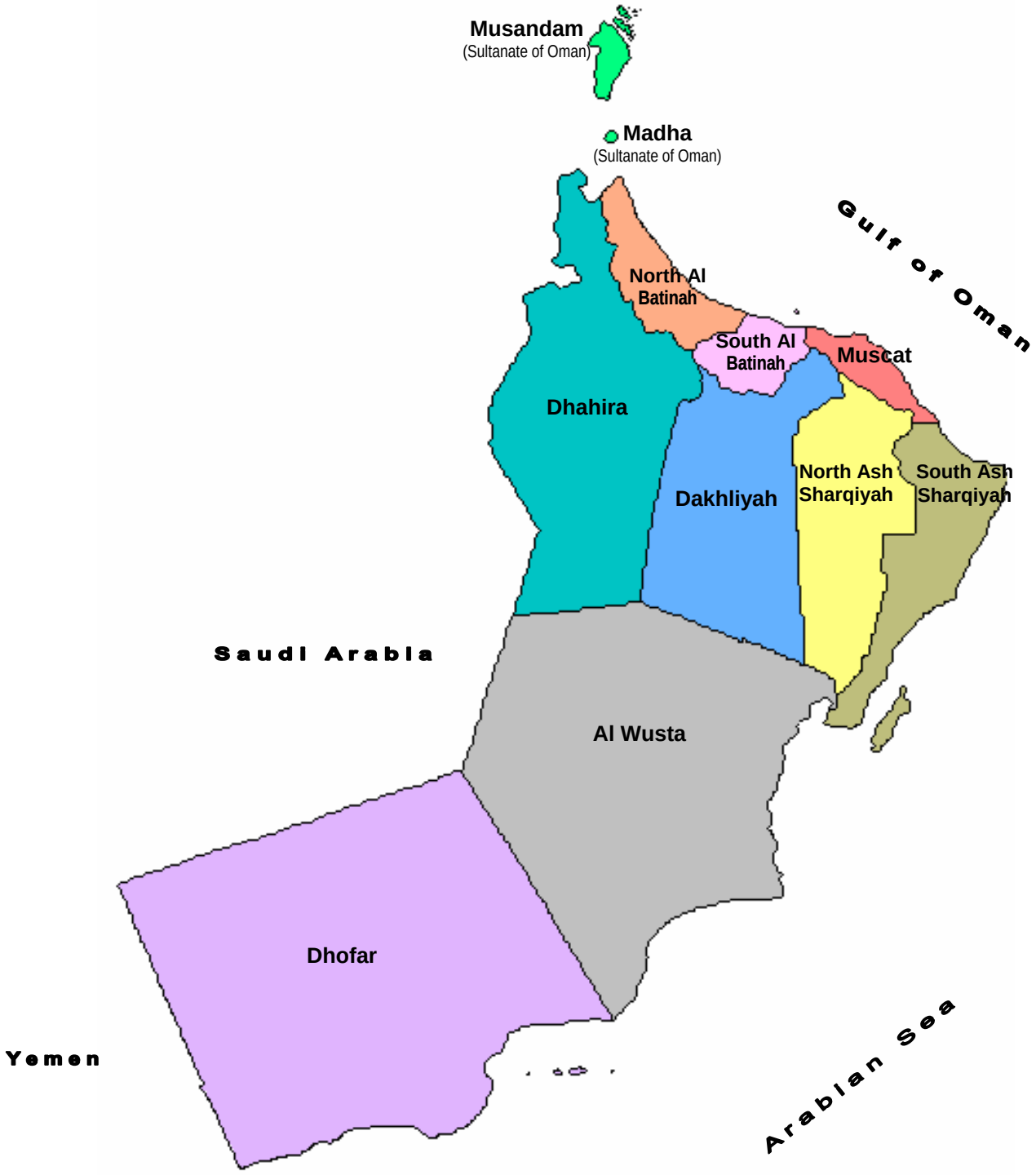
There were 45 cases of cancer of the lung & bronchus. Of these 37 were males and 8 were females, with the male: female ratio being 4.6:1. This cancer formed the third most common cancer among Omani males. The highest incidence rate (Figure 8) was seen in South Batinah (4.4 per 100,000), followed by North Batinah (3.1 per 100,000) and Muscat and Dhofar (2.7 per 100,000). The regional distribution, gender distribution and the morphology of this cancer and its trends (1996-2000) reported, are presented in Tables 28-31 respectively.

Table 28: Regional Distribution of Lung & Bronchial Cancer

Region	Frequency
Al-Wousta	0
Dakhliyah	5
Dhahirah	2
Dhofar	4
Musandum	0
Muscat	10
North Batinah	11
North Sharqiyah	2
South Batinah	9
South Sharqiyah	1
Unknown	1
Total	45

Table 29: Gender Distribution of Lung & Bronchial Cancer

Gender	Frequency	Incidence/100,000
Male	37	4.1
Female	8	0.9
Total	45	--



Note: This map is not an authority on international boundaries.

Table 30: Morphology of Lung Cancer

	Morphology	Frequency
1	Carcinoma	36
	1.1 Squamous cell carcinoma	14
	1.2 Adenocarcinoma	11
	1.3 Small-cell carcinoma	2
	1.4 Large-cell carcinoma (include giant cell, clear-cell and large-cell undifferentiated carcinoma)	3
	1.5 † Other specified carcinomas (include adenoid cystic, mucoepidermoid, and large-cell neuroendocrine carcinomas, and carcinoid tumour)	-
	1.6 Unspecified carcinoma	6
2	Sarcoma	1
3	Other specified cancer (include pulmonary blastoma)	-
4	Unspecified cancer	8
	Total	45

† The separation of bronchial gland carcinomas (adenoid cystic and mucoepidermoid carcinomas) from other adenocarcinomas, as in the WHO classification, is based on differences in etiology and prognosis

Table 31: Trends of Lung & Bronchus Cancer, 1996–2000

	ASR World	
Year	Male	Female
1996	7.3	4.1
1997	12.8	2.8
1998	8.8	1.6
1999	12.1	2.3
2000	8.8	2.0

ASR, Age-standardized incidence rate per 100,000

Urinary Bladder

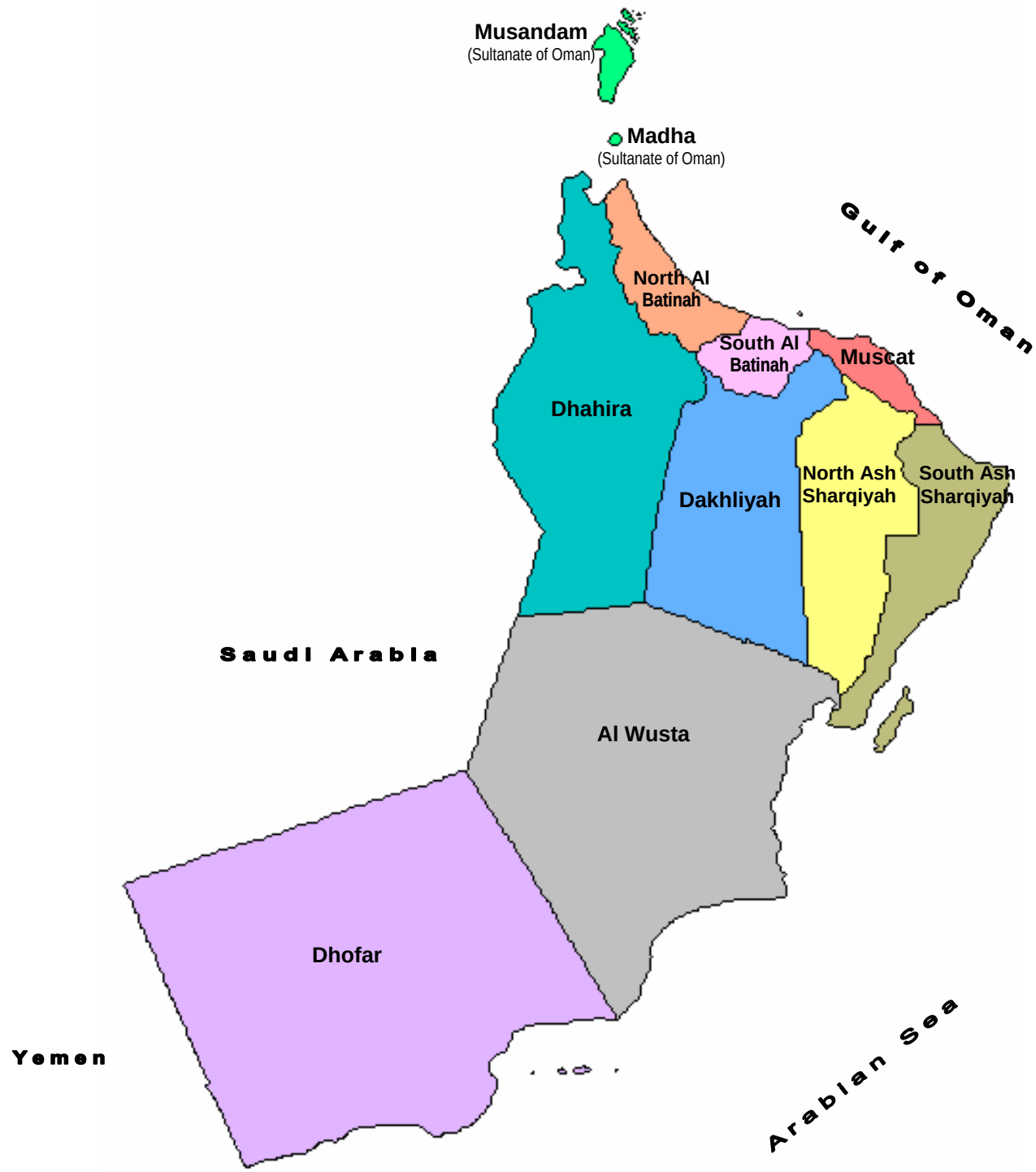
Cancer of the urinary bladder was diagnosed in 21 cases. Among these there were 15 males and 6 females, the male: female ratio being 2.5: 1. The highest incidence rate (Figure 9) was observed in Dakhliyah (1.7 per 100,000) followed by North Sharqiyah and Muscat (1.6 per 100,000). The regional distributions, gender distribution and the morphology of this cancer and its trends (1996-2000) reported, are presented in Tables 32-35 respectively. Transitional cell carcinomas constituted 76.1% of the tumours whereas squamous cell carcinomas constituted only 14.3%.

Table 32: Regional Distribution of Malignancies of the Urinary Bladder

Region	Frequency
Al-Wousta	0
Dakhliyah	4
Dhahirah	0
Dhofar	2
Musandum	0
Muscat	6
North Batinah	2
North Sharqiyah	2
South Batinah	1
South Sharqiyah	0
Unknown	4
Total	21

Table 33: Gender Distribution of Malignancies of the Urinary Bladder

Gender	Frequency	Incidence/100,000
Male	15	1.7
Female	6	0.7
Total	21	--



Note: This map is not an authority on international boundaries.

Table 34: Morphology of Bladder Cancer

	Morphology	Frequency
1	Carcinoma	20
	1.1 Squamous cell carcinoma	3
	1.2 Transitional cell carcinoma (include transitional cell carcinoma with squamous and/or glandular differentiation)	16
	1.3 Adenocarcinoma	1
	1.4 Other specified carcinoma	-
	1.5 Unspecified carcinoma	-
2	Sarcoma	-
3	Other specified cancer (include phaeochromocytoma, malignant paraganglioma, melanoma, carcinosarcoma)	-
4	Unspecified cancer	1
	Total	21

Table 35: Trends of Bladder Cancer, 1996–2000

	ASR World	
Year	Male	Female
1996	8.2	2.4
1997	7.4	2.9
1998	6.2	1.6
1999	5.8	3.4
2000	3.3	1.5

ASR, Age-standardized incidence rate per 100,000

Prostate

Carcinoma of the prostate was the fourth commonest cancer among Omani males, with 35 cases being reported. The highest incidence rate (Figure 10) was seen in Dhofar (6.4 per 100,000) followed by South Batinah (5.8 per 100,000) and Dakhliyah (5.1 per 100,000). The Regional distribution, and the morphology of this cancer as well as its trends (1996-2000) reported are presented in Tables 36-38 respectively.

Table 36: Regional Distribution of Carcinoma of the Prostate

Region	Frequency
Al-Wousta	0
Dakhliyah	6
Dhahirah	4
Dhofar	5
Musandum	0
Muscat	6
North Batinah	4
North Sharqiyah	2
South Batinah	6
South Sharqiyah	0
Unknown	2
Total	35

Table 37: Morphology of carcinoma of the prostate

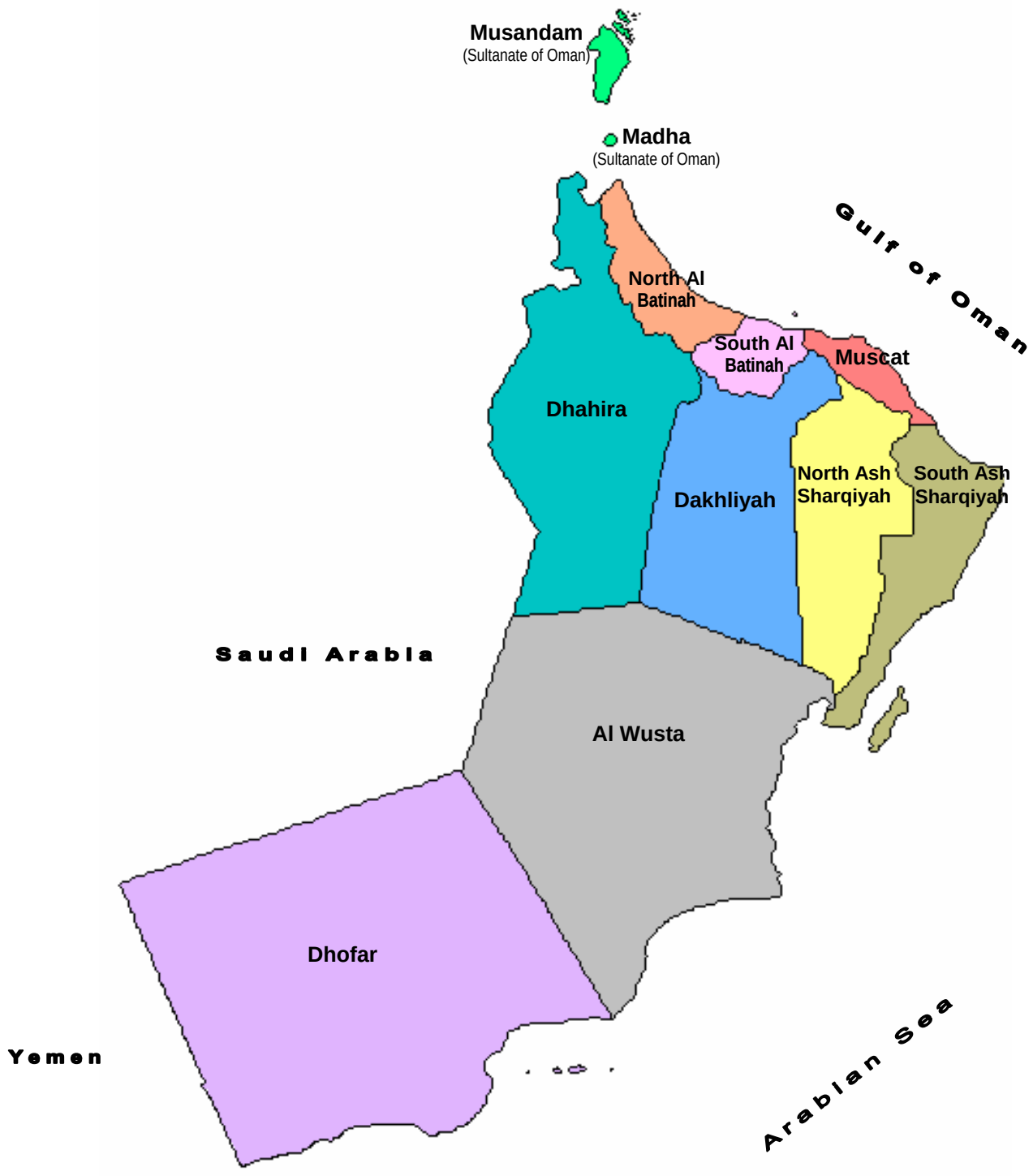
Morphology	Frequency
Carcinoma (NOS)*	3
Squamous cell carcinoma, keratinizing, (NOS)*	1
Transitional cell carcinoma (NOS)*	1
Adenocarcinoma (NOS)*	30

*(NOS), Not otherwise specified

Table 38: Trends of Prostate Cancer, 1996–2000

Year	ASR World
1996	10.8
1997	12.8
1998	10.8
1999	10.8
2000	8.5

ASR, Age-standardized incidence rate per 100,000



Note: This map is not an authority on international boundaries.

Skin

Table 39: Regional Distribution of Skin Cancer

Region	Frequency
Al-Wousta	0
Dakhliyah	7
Dhahirah	8
Dhofar	1
Musandum	0
Muscat	10
North Batinah	8
North Sharqiyah	5
South Batinah	1
South Sharqiyah	4
Total	44

The frequency of skin cancers, including melanomas, in 2000 was 44. Among these 19 were males and 25 were females, with the male: female ratio being 1:1.3. It was the 8th commonest cancer among the Omani females. The highest incidence rate (Figure 11) was seen in Dhahirah (5.0 per 100,000) followed by North Sharqiyah (4.1 per 100,000) and Dakhliyah (3.0 per 100,000). The regional distribution, gender distribution and the morphology of skin cancers and its trends (1996-2000) reported, are presented in Tables 39-42 respectively. Basal cell carcinomas constituted 56.1% and squamous cell carcinomas 17.1 % of the skin cancers.

Table 40: Gender Distribution of Skin Cancer

Gender	Frequency	Incidence/100,000
Male	19	2.1
Female	25	2.8
Total	44	--

Table 41: Morphology of Skin Cancer

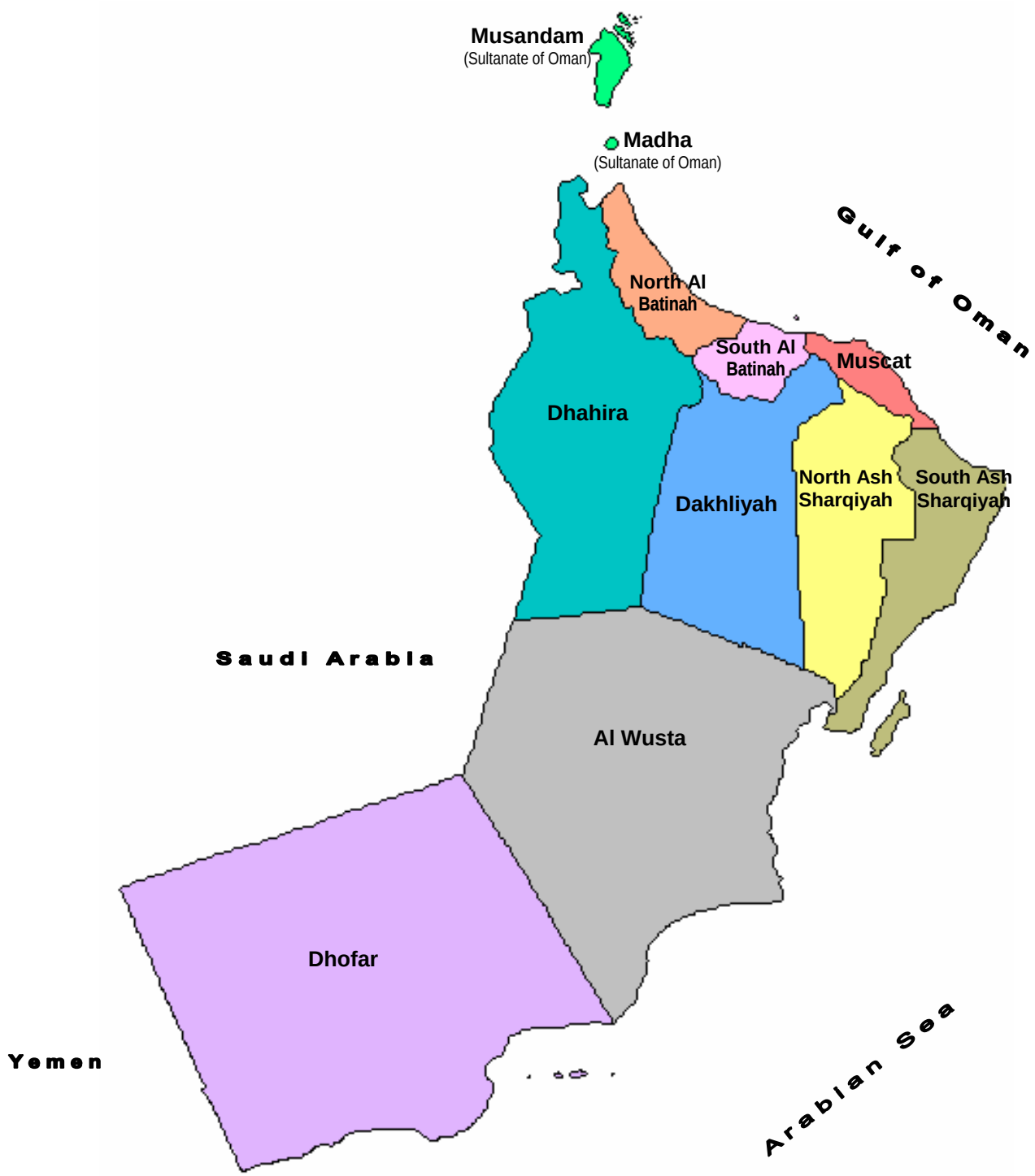
Morphology	Frequency
Carcinoma, (NOS)*	1
Squamous cell carcinoma, (NOS)*	7
Basal cell carcinoma, (NOS)*	23
Multicentric basal cell carcinoma	1
Basosquamous Carcinoma	1
Malignant melanoma, (NOS)*	5
Spindle cell sarcoma	1
Dermatofibrosarcoma, (NOS)*	1
Kaposi's sarcoma	2
Mycosis fungoides	2

*(NOS), Not otherwise specified

Table 42: Trends of Skin Cancer, 1996–2000

	ASR World	
Year	Male	Female
1996	7.7	3.4
1997	6.5	2.6
1998	5.8	3.1
1999	3.1	5.1
2000	3.4	4.6

ASR, Age-standardized incidence rate per 100,000



Note: This map is not an authority on international boundaries.

Colon

Table 43: Regional Distribution of Carcinoma of the Colon

Region	Frequency
Al-Wousta	0
Dakhliyah	0
Dhahirah	3
Dhofar	8
Musandum	0
Muscat	7
North Batinah	2
North Sharqiyah	1
South Batinah	0
South Sharqiyah	2
Unknown	1
Total	24

A total of 24 cases of cancer of the colon were reported. Of these, 13 were males and 11 were females, the male: female ratio being 1.2: 1. Adenocarcinomas constituted the majority of these cancers (66.7%). The incidence rate (Figure 12) was the highest in Dhofar (5.3 per 100,000) followed by Muscat and Dhahirah (1.9 per 100,000). The regional distribution, gender distribution and the morphology of this cancer as well as its trends (1996-2000) reported are presented in Tables 43 - 46.

Table 44: Gender Distribution of Carcinoma of Colon

Gender	Frequency	Incidence/100,000
Male	13	1.4
Female	11	1.3
Total	24	--

Table 45: Morphology of Carcinoma of the Colon

Morphology	Frequency
Neoplasm, malignant	1
Adenocarcinoma, (NOS)*	16
Mucin-producing adenocarcinoma	5
Signet ring cell carcinoma	1
Malignant lymphoma, large cell, diffuse, (NOS)*	1

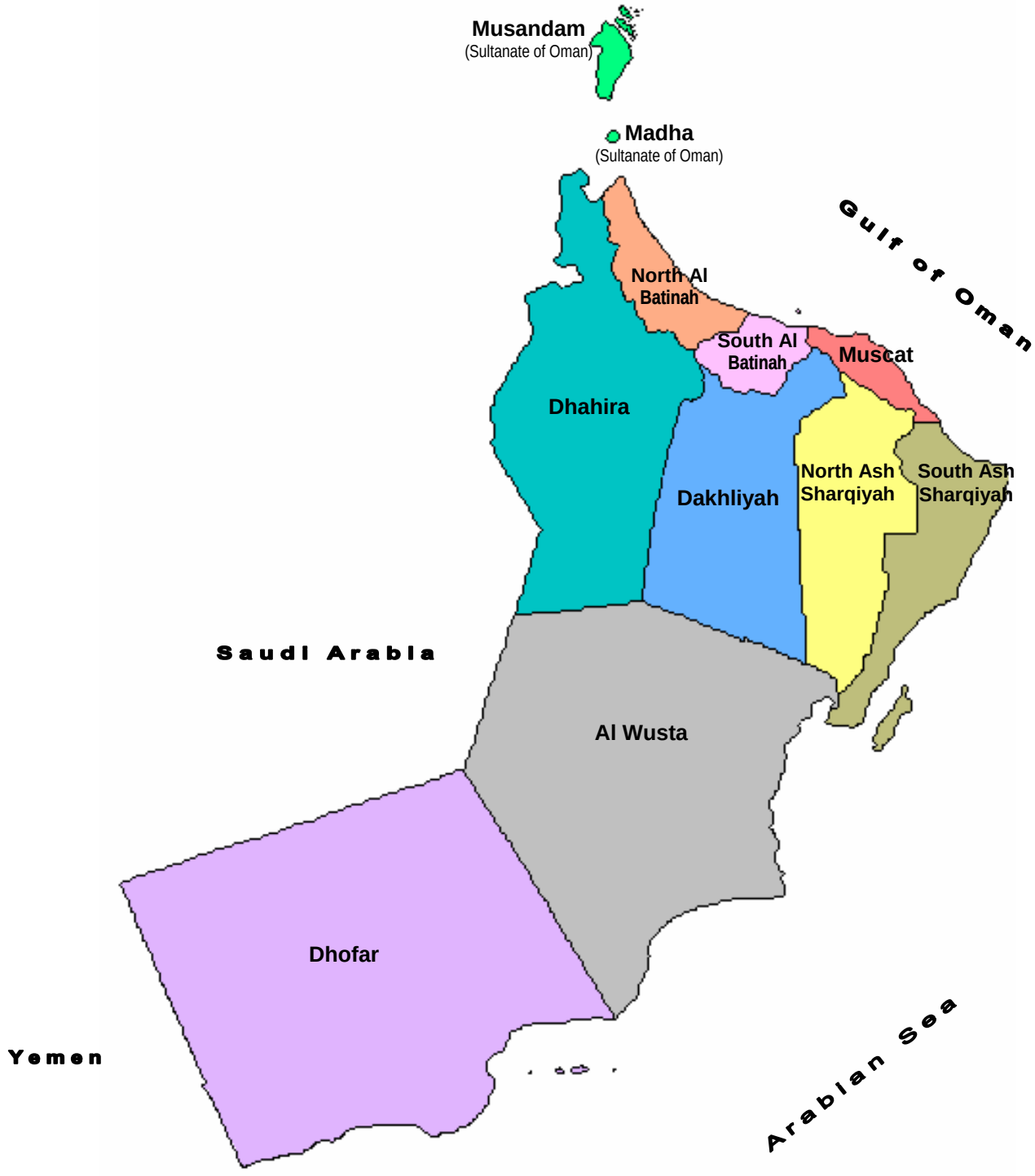
*(NOS), Not otherwise specified

Table 46: Trends of Colon Cancer, 1996–2000

	ASR World	
Year	Male	Female
1996	2.4	2.1
1997	2.6	1.6
1998	3.5	3.1
1999	1.5	1.2
2000	2.8	2.2

ASR, Age-standardized incidence rate per 100,000

Colon



Note: This map is not an authority on international boundaries.

Rectum and Anal Canal

Table 47: Regional Distribution of Carcinoma of the Rectum and Anal Canal

Region	Frequency
Al-Wousta	0
Dakhliyah	3
Dhahirah	1
Dhofar	0
Musandum	0
Muscat	5
North Batinah	3
North Sharqiyah	0
South Batinah	1
South Sharqiyah	3
Total	16

Sixteen cases were reported as cancer of the rectum and anal canal. Seven of them were males and 9 were females. Adenocarcinomas constituted the majority of these cancers (62.5%). The highest incidence rate (Figure 13) was seen in South Sharqiyah (2.2 per 100,000) followed by Muscat (1.4 per 100,000) and Dakhliyah (1.3 per 100,000). The regional distribution, gender distribution and the morphology of these cases and trends (1996-2000) reported are presented in Tables 47 - 50 respectively.

Table 48: Gender Distribution of Carcinoma of the Rectum and Anal Canal

Gender	Frequency	Incidence/100,000
Male	7	0.8
Female	9	1.0
Total	16	--

Table 49: Morphology of Carcinoma of the Rectum and Anal Canal

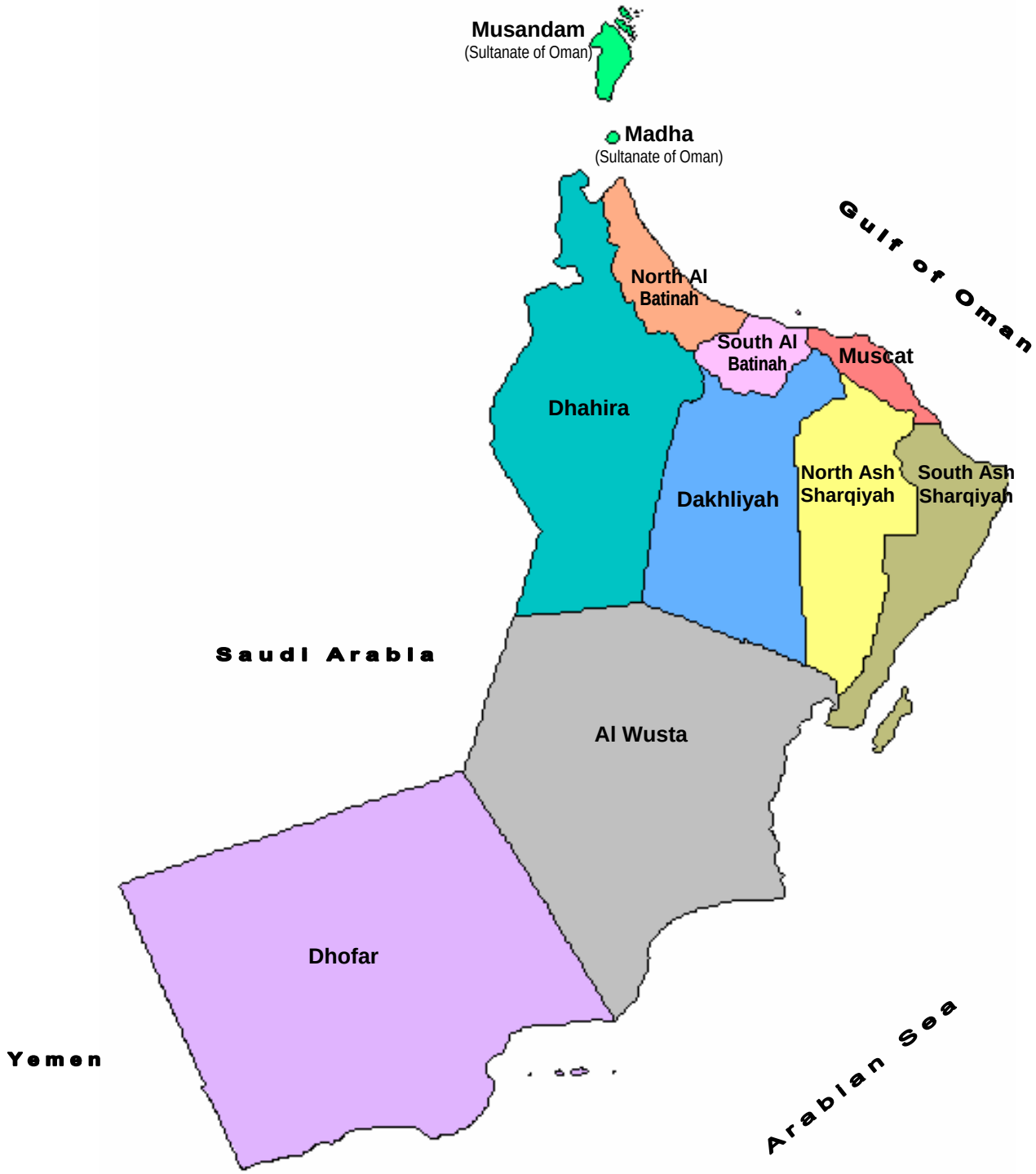
Morphology	Frequency
Neoplasm, malignant	1
Carcinoma (NOS)*	3
Adenocarcinoma (NOS)*	10
Mucin-producing adenocarcinomas	1
Alveolar rhabdomyosarcoma	1

*(NOS), Not otherwise specified

Table 50: Trends of Rectal Cancer, 1996–2000

	ASR World	
Year	Male	Female
1996	2.3	1.1
1997	3.4	1.6
1998	2.7	2.1
1999	2.7	0.0
2000	1.3	2.2

ASR, Age-standardized incidence rate per 100,000



Note: This map is not an authority on international boundaries.

Bone

Table 51: Regional Distribution of Bone Malignancies

Region	Frequency
Al-Wousta	0
Dakhliyah	1
Dhahirah	1
Dhofar	0
Musandum	0
Muscat	0
North Batinah	1
North Sharqiyah	0
South Batinah	0
South Sharqiyah	0
Total	3

There were 3 cases of bone cancer in 2000; 2 female and 1 male. The male: female ratio was 1: 2. Two of these cases were Ewing's Sarcoma. The highest incidence rate (Figure 14) was seen in Dhahirah (0.6 per 100,000) followed by Dakhliyah (0.4 per 100,000). The regional distribution, gender distribution and the morphology and trends of bone cancer (1996-2000) reported are presented in Tables 51 - 54 respectively.

Table 52: Gender Distribution of Bone Malignancies

Gender	Frequency	Incidence/100,000
Male	1	0.1
Female	2	0.2
Total	3	--

Table 53: Morphology of Bone Malignancies

	Morphology	Number
1	Sarcoma	3
	1.1 Osteosarcoma	-
	1.2 Chondrosarcoma	-
	1.3 Ewing sarcoma	2
	1.4 Fibrosarcoma and malignant fibrous histiocytoma	-
	1.5 Other specified sarcomas (include angiosarcoma, malignant giant cell tumour and PNET)	1
	1.6 Unspecified sarcoma	-
2	Other specified cancer (include chondroma, adamantinoma of long bones)	-
3	Unspecified cancer	-
	Total	3

Table 54: Trends of Bone Malignancies, 1996–2000

	ASR World	
Year	Male	Female
1996	0.5	0.2
1997	1.3	1.1
1998	0.7	0.2
1999	0.5	0.5
2000	0.7	0.3

ASR, Age-standardized incidence rate per 100,000

Thyroid

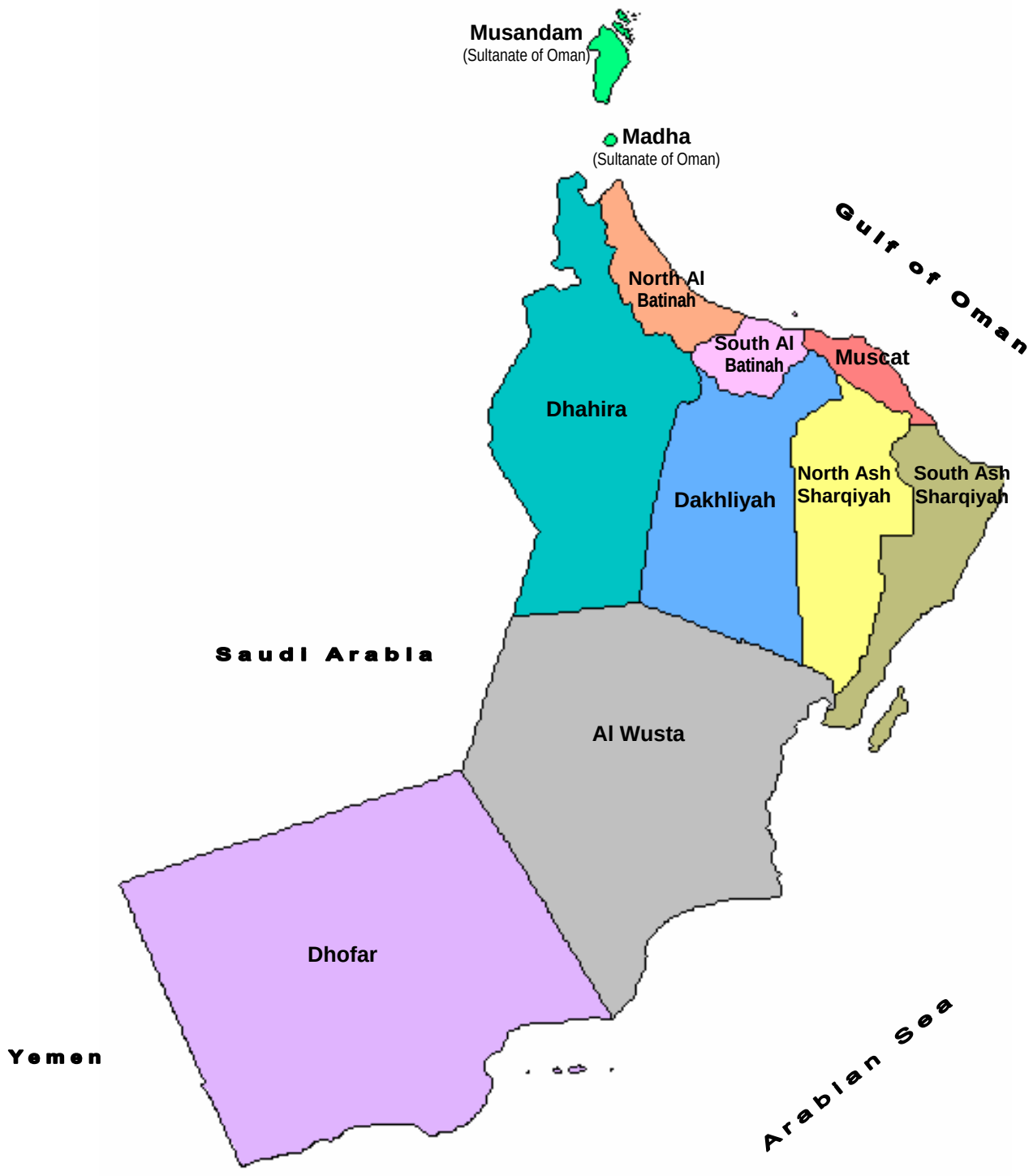
A diagnosis of cancer of the thyroid was made in 30 cases this year. Among these 5 were males and 25 were females, the male: female ratio being 1:5. Carcinoma of the thyroid formed the 6th commonest tumour among Omani women. The incidence rate (Figure 15) was the highest in South Batinah (4.4 per 100,000) followed by Dhofar (3.3 per 100,000) and North Sharqiyah (1.6 per 100,000).The regional distribution, gender distribution and the morphology of this cancer as well as its trends (1996-2000) reported, are presented in Tables 55 - 58 respectively. The commonest thyroid neoplasm was papillary carcinoma, which constituted 76.7% followed by follicular carcinoma which constituted 20% of the cases.

Table 55: Regional Distribution of Thyroid Cancers

Region	Frequency
Al-Wousta	0
Dakhliyah	3
Dhahirah	2
Dhofar	5
Musandum	0
Muscat	3
North Batinah	4
North Sharqiyah	2
South Batinah	9
South Sharqiyah	0
Unknown	2
Total	30

Table 56: Gender Distribution of Thyroid Cancers

Gender	Frequency	Incidence/100,000
Male	5	0.6
Female	25	2.9
Total	30	--



Note: This map is not an authority on international boundaries.

Table 57: Morphology of Thyroid Cancers

	Morphology	Number
1	Carcinoma	30
	1.1 Follicular carcinoma	6
	1.2 Papillary carcinoma	23
	1.3 Medullary carcinoma	1
	1.4 Anaplastic carcinoma (include undifferentiated carcinoma, giant cell carcinoma)	-
	1.5 Other specified carcinoma	-
	1.6 Unspecified carcinoma	-
2	Sarcoma	-
3	Other specified cancer	-
4	Unspecified cancer	-
	Total	30

Table 58: Trends of Thyroid Cancer, 1996–2000

	ASR World	
Year	Male	Female
1996	1.9	6.6
1997	2.2	7.0
1998	1.3	6.8
1999	1.7	5.2
2000	1.1	4.0

ASR, Age-standardized incidence rate per 100,000

Leukemia

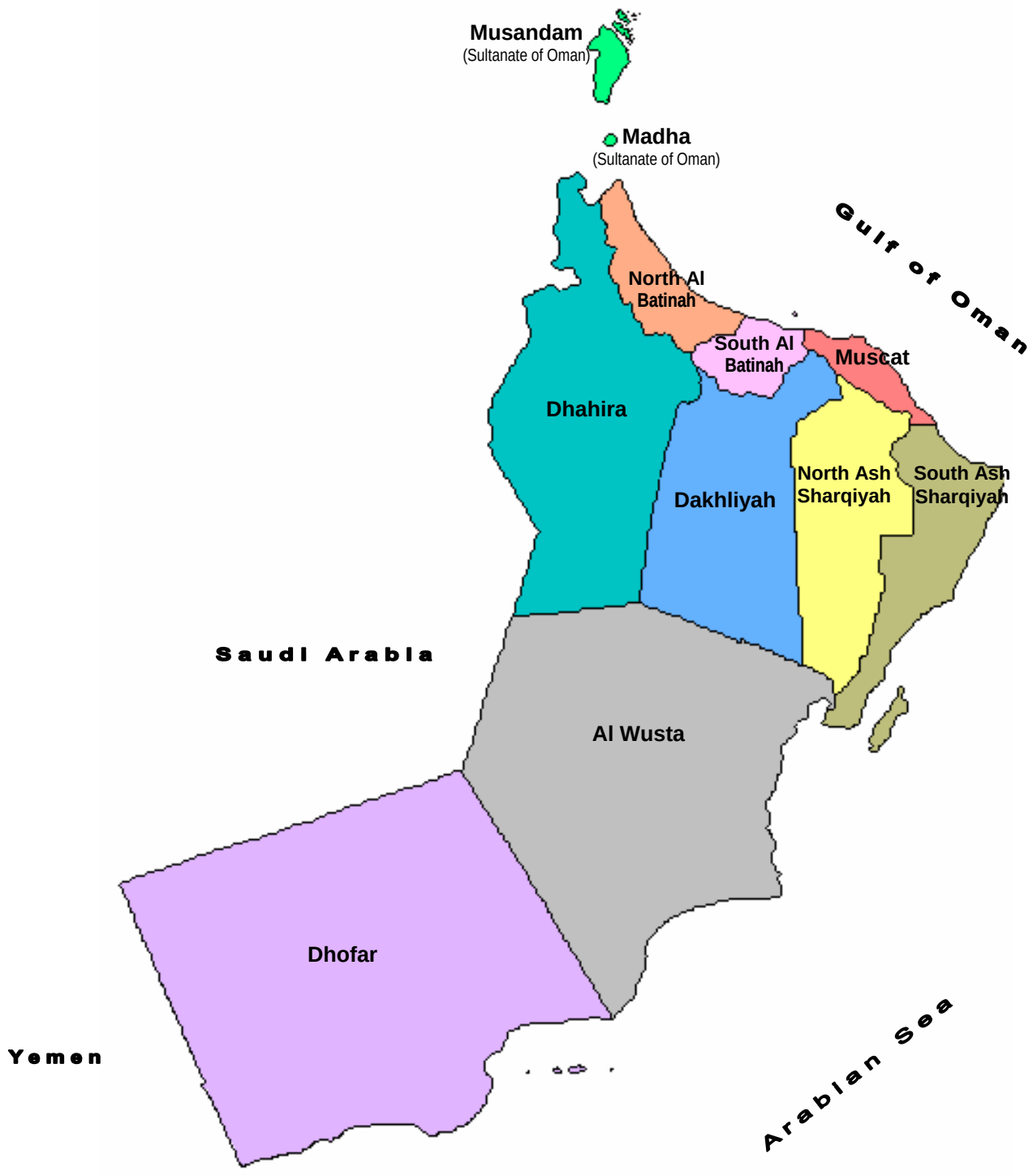
Leukemia was reported in 61 cases. Of these, 34 were males and 27 were females, the male: female ratio being 1.3: 1. Leukemia formed the commonest cancer in children 14 years and below. The incidence rate (Figure 16) was the highest in Dakhliyah (6.3 per 100,000) followed by North Batinah (4.5 per 100,000) and South Sharqiyah (4.3 per 100,000). The regional distribution, gender distribution and the morphology of leukemia and its trends (1996-2000) reported, are presented in Tables 59 - 62 respectively.

Table 59: Regional Distribution of Leukemia

Region	Frequency
Al-Wousta	0
Dakhliyah	15
Dhahirah	6
Dhofar	6
Musandum	0
Muscat	6
North Batinah	16
North Sharqiyah	2
South Batinah	4
South Sharqiyah	6
Total	61

Table 60: Gender Distribution of Leukemia

Gender	Frequency	Incidence/100,000
Male	34	3.8
Female	27	3.1
Total	61	--



Note: This map is not an authority on international boundaries.

Leukemia

Table 61: Morphology of Leukemia

	Morphology	Frequency
1	† Lymphoid	29
	1.1 Acute	23
	1.2 Chronic	4
	1.3 Other specified leukemia	2
	1.4 Unspecified	-
2	* Myeloid	24
	2.1 Acute	14
	2.2 Chronic	10
	2.3 Other specified (includes granulocytic sarcoma)	-
	2.4 Unspecified	-
3	Monocytic	1
	3.1 Acute	1
	3.2 Chronic	-
	3.3 Other specified	-
	3.4 Unspecified	-
4	Other specified leukemia	5
	4.1 Acute	5
	4.2 Chronic	-
	4.3 Other	-
5	Unspecified leukemia	2
	Total	61

† Hairy cell leukaemia and leukaemic reticuloendotheliosis included within lymphoid leukaemia in ICD-10.

* Plasma cell leukaemia (9830) is excluded (it is classified with myeloma in ICD-9 203.1 and ICD-10 C90.1).

Hairy cell leukaemia (9940) and leukaemic reticuloendotheliosis (9941) are excluded (they are classified with the non-Hodgkin lymphomas in ICD-9 (202.4) and with lymphoid leukaemias in ICD-10 (C91.4).

Table 62: Trends of Leukemia, 1996–2000

	ASR World	
Year	Male	Female
1996	3.7	2.8
1997	4.7	3.4
1998	5.2	3.6
1999	5.5	2.9
2000	5.7	4.1

ASR, Age-standardized incidence rate per 100,000

Brain and Spinal Cord

There were 32 cases of brain and spinal cord tumours. Glioblastomas constituted 46.9%, followed by embryonal tumours (18.8%). The highest incidence rate (Figure 17) was seen in Musandum (3.7 per 100,000) followed by Dhahirah, North Batinah and North Sharqiyah (2.5 per 100,000). The regional distribution, gender distribution and the morphology of this cancer and its trends (1996-2000) reported, are presented in Tables 63- 66 respectively.

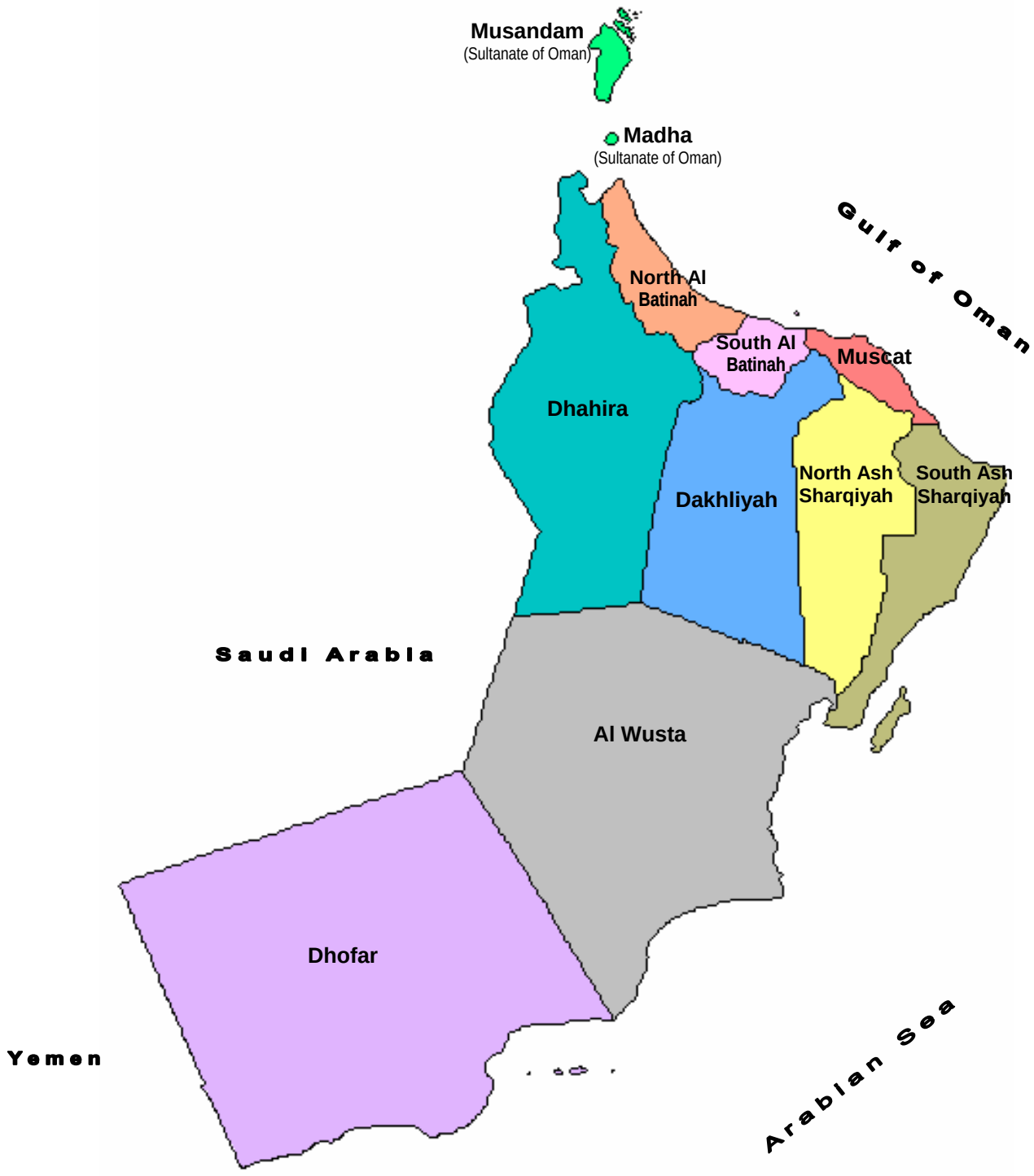
Table 63: Regional Distribution of Brain & Spinal Cord Tumors

Region	Frequency
Al-Wousta	0
Dakhliyah	4
Dhahirah	4
Dhofar	1
Musandum	1
Muscat	6
North Batinah	9
North Sharqiyah	3
South Batinah	4
South Sharqiyah	0
Total	32

† Per 100,000 population

Table 64: Gender Distribution of Brain & Spinal Cord Tumors

Gender	Frequency	Incidence/100,000
Male	19	2.1
Female	13	1.5
Total	32	--



Note: This map is not an authority on international boundaries.

Table 65: Morphology of Brain & Central Nervous System Malignancies

	Morphology	Frequency
1	Tumours of Neuroepithelial Tissue	21
	1.1 Gliomas	15
	1.1.1 Astrocytic tumours	9
	1.1.2Oligodendroglial tumours and mixed gliomas	-
	1.1.3 Ependymal tumours	5
	1.1.4 Gliomas of uncertain origin	1
	1.2 Embryonal tumours	6
	1.2.1 Medulloblastoma	5
	1.2.2 Other	1
	1.3 Other neuroepithelial tumours	-
	1.3.1 Choroid plexus tumours	-
	1.3.2 Neuronal & mixed neuronal glial tumours	-
	1.3.3 Olfactory tumours	-
	1.3.4 Pineal parenchymal tumours	-
2	Tumours of cranial nerves	-
3	Tumours of meningeal & related tissue	-
	1.4 Meningioma	4
	1.5 Soft tissue	-
	1.6 Melanoma	-
4	Germ cell tumours	-
	4.1 Germinoma	-
	4.2 Other	-
5	Sellar region	-
	5.1 Pituitary tumours	-
	5.2 Craniopharyngioma	-
6	Other specified tumours	3
7	Unspecified tumours	4
	Total	32

Table 66: Trends of Brain Malignancies, 1996–2000

	ASR World	
Year	Male	Female
1996	2.3	1.2
1997	3.7	2.5
1998	3.5	2.7
1999	2.8	1.7
2000	3.0	1.5

ASR, Age-standardized incidence rate per 100,000

Cervix

Table 67: Regional Distribution of Carcinoma of the Cervix

Region	Frequency
Al-Wousta	1
Dakhliyah	3
Dhahirah	6
Dhofar	2
Musandum	0
Muscat	2
North Batinah	5
North Sharqiyah	1
South Batinah	6
South Sharqiyah	2
Unknown	3
Total	31

Per 100,000 population

The second most common cancer among Omani females was cancer of the cervix uteri with 31 new cases reported. The incidence rate (Figure 18) was the highest in Al-Wousta (13.1 per 100,000) followed by Dhahirah (7.7 per 100,000) and South Batinah (5.9 per 100,000). The regional distribution and the morphology of cervical cancer and its trends (1996-2000) reported are presented in Tables 67-69 respectively.

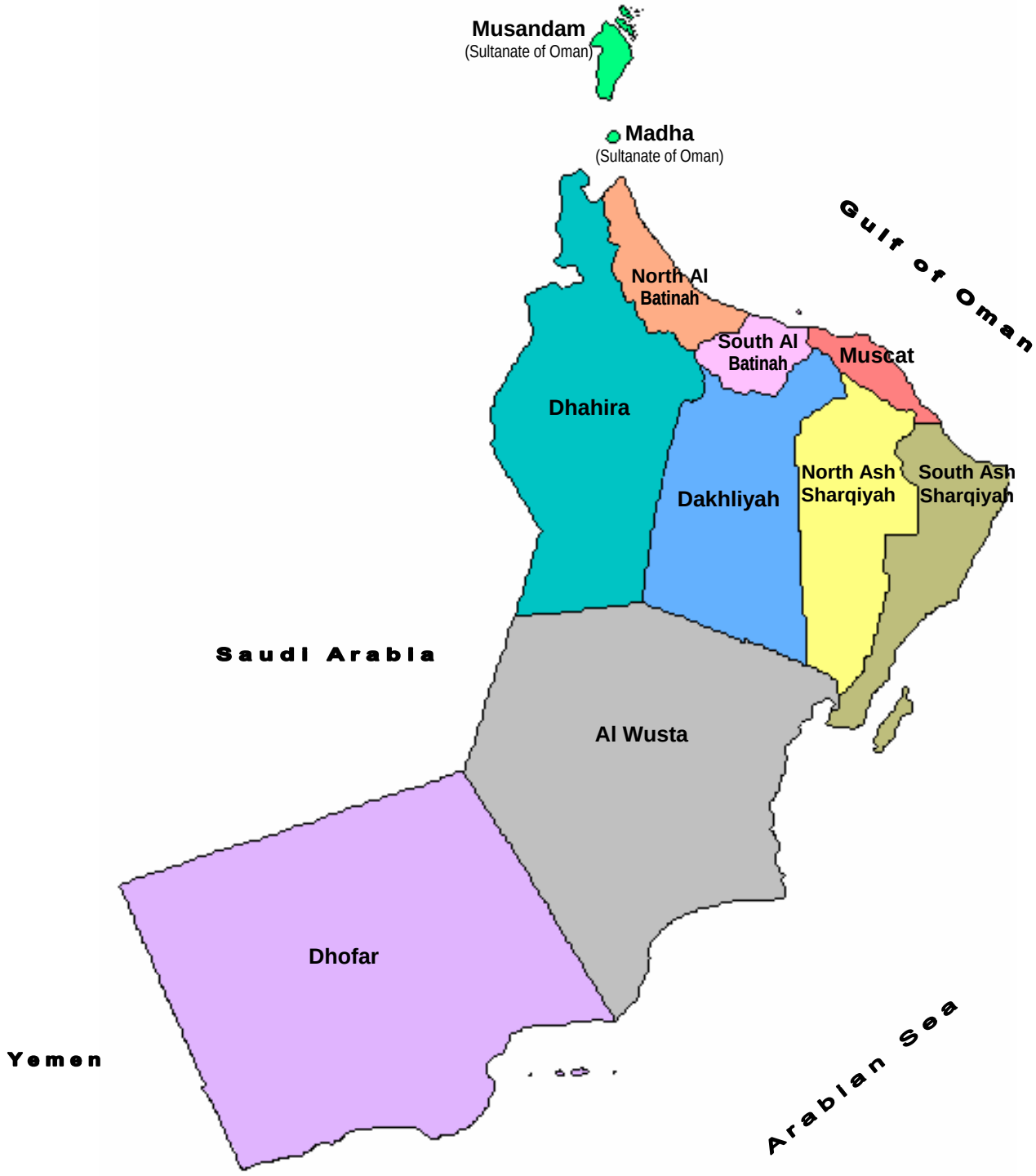
Table 68: Morphology of Cervical Cancer

	Morphology	Frequency
1	Carcinoma	30
	1.1 Squamous cell carcinoma	26
	1.2 Adenocarcinoma (include adenosquamous carcinoma, adenocarcinoma with squamous differentiation, mucoepidermoid and adenoid cystic carcinomas)	3
	1.3 Other specified carcinomas	1
	1.4 Unspecified carcinoma	-
2	Sarcoma	-
3	Other specified cancer (include mullerian mixed tumour, carcinosarcoma, melanoma)	-
4	Unspecified cancer	1
	Total	31

Table 69: Trends of Cervical Cancer, 1996–2000

Year	ASR World
1996	6.4
1997	6.7
1998	7.0
1999	5.6
2000	7.0

ASR, Age standardized rate



Note: This map is not an authority on international boundaries.

Liver

Liver cancer was diagnosed in 38 cases. Among these, 26 were males and 12 were females, giving a male: female ratio of 2.2:1. Hepatocellular carcinoma was the commonest cancer and constituted 76.3%. The highest incidence rate (Figure 19) was seen in South Batinah (4.4 per 100,000) followed by Dhofar (3.3 per 100,000) and South Sharqiyah (2.9 per 100,000). The regional distribution, gender distribution and the morphology of this cancer and its trends (1996-2000) reported, are presented in Tables 70 - 73 respectively.

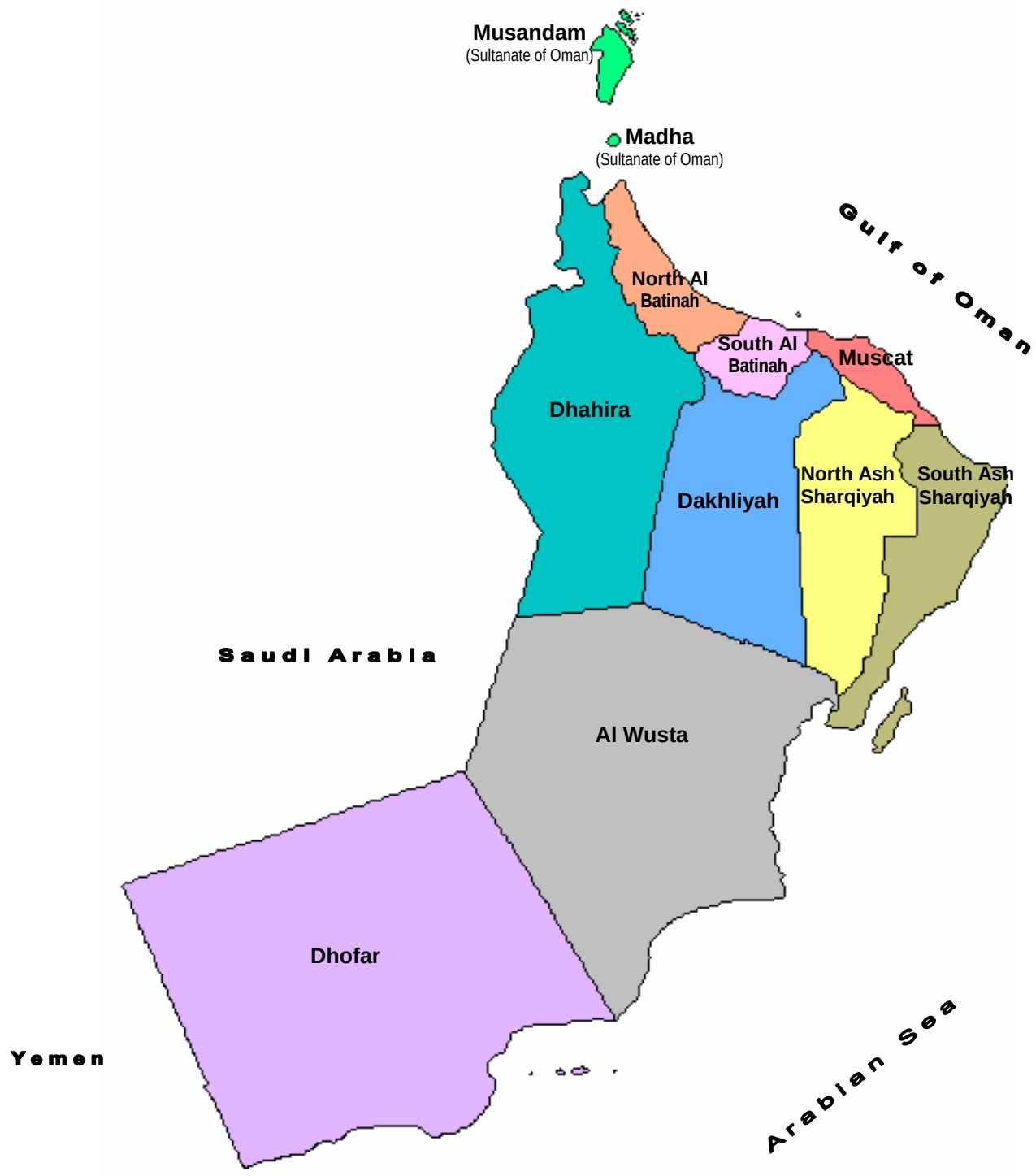
Table 70: Regional Distribution of Liver Cancer

Region	Frequency
Al-Wousta	0
Dakhliyah	5
Dhahirah	2
Dhofar	5
Musandum	0
Muscat	7
North Batinah	2
North Sharqiyah	1
South Batinah	9
South Sharqiyah	4
Unknown	3
Total	38

† Per 100,000 population

Table 71: Gender Distribution of Liver Cancer

Gender	Frequency	Incidence/100,000
Male	26	2.9
Female	12	1.4
Total	38	--



Note: This map is not an authority on international boundaries.

Table 72: Morphology of Liver Cancer

	Morphology	Frequency
1	Carcinoma	33
	1.1 Hepatocellular carcinoma	29
	1.2 †Cholangiocarcinoma (all intrahepatic biliary carcinomas, i.e. all adenocarcinomas and adenosquamous carcinoma)	3
	Other specified carcinomas (include combined hepatocellular and cholangiocarcinoma, carcinoid)	1
	1.3 Unspecified carcinoma	-
2	Hepatoblastoma	2
3	Sarcoma	-
	1.4 Haemangiosarcoma	-
	1.5 Other sarcomas	1
4	Other specified cancer	-
5	Unspecified cancer	2
	Total	38

† The category Cholangiocarcinoma applies to all primary carcinomas of the liver of biliary epithelial type, i.e. all carcinomas other than hepatocellular carcinoma and combined hepatocellular and cholangiocarcinoma

Table 73: Trends of Liver Cancer, 1996–2000

	ASR World	
Year	Male	Female
1996	5.6	0.6
1997	3.9	3.6
1998	7.8	3.3
1999	8.9	4.1
2000	5.7	2.9

ASR, Age-standardized incidence rate per 100,000

Esophagus

Table 74: Regional Distribution of Carcinoma of the Esophagus

Region	Frequency
Al-Wousta	0
Dakhliyah	4
Dhahirah	0
Dhofar	2
Musandum	1
Muscat	2
North Batinah	5
North Sharqiyah	1
South Batinah	4
South Sharqiyah	0
Total	19

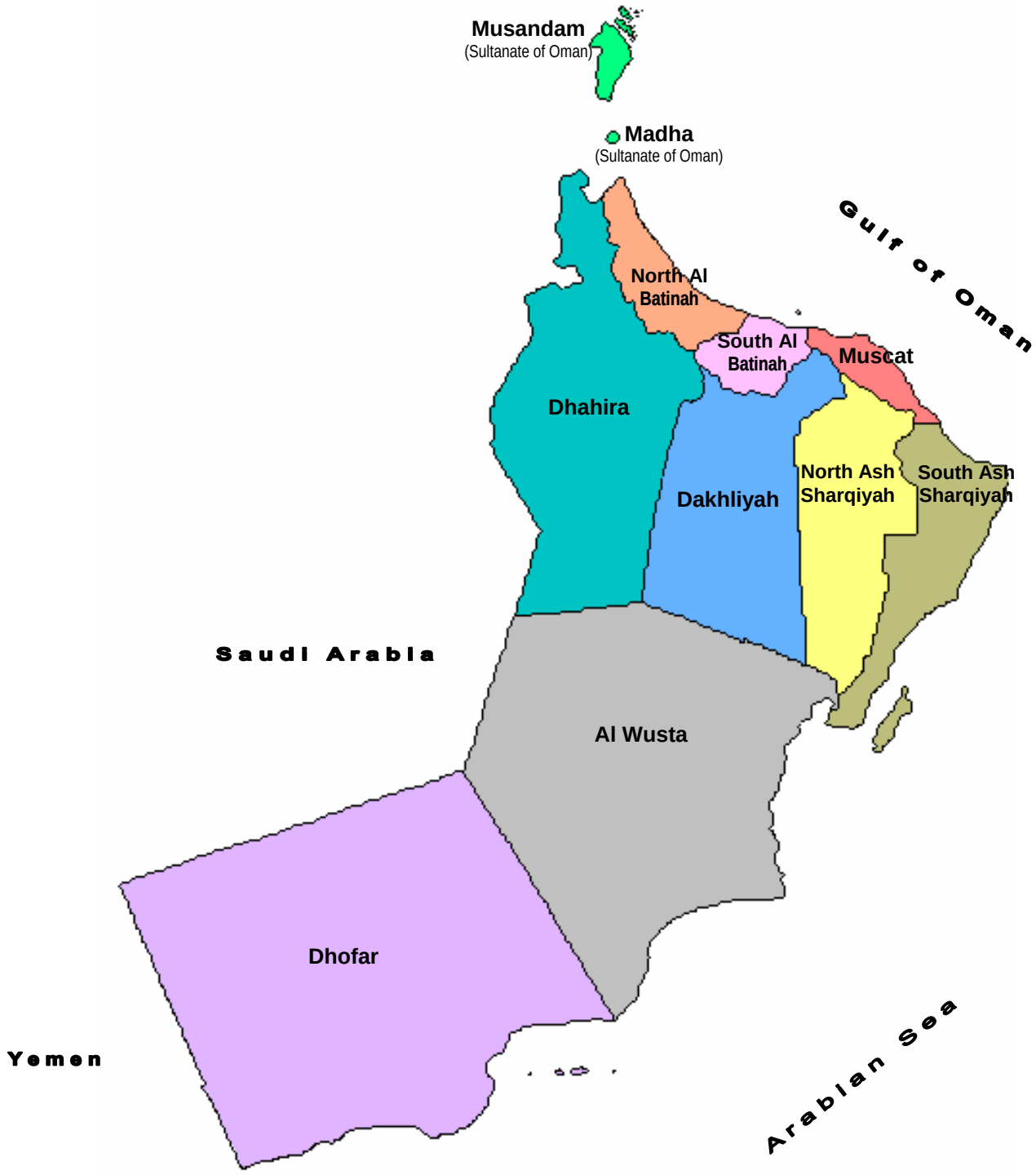
There were 19 cases of carcinoma of the esophagus. Ten of these were males and 9 were females, the male: female ratio being 1.1:1. The incidence rate was (Figure 20) the highest in Musandum (3.7 per 100,000) followed by South Batinah (2.0 per 100,000) and Dakhliyah (1.7 per 100,000). The regional distribution, gender distribution and the morphology of esophageal cancer and its trends (1996-2000) reported, are presented in Tables 74 - 77 respectively. The majority of cancers were squamous cell carcinoma (63.2%).

Table 75: Gender Distribution of Carcinoma of the Esophagus

Gender	Frequency	Incidence/100,000
Male	10	1.1
Female	9	1.0
Total	19	--

Table 76: Morphology of Carcinoma of the Esophagus

	Morphology	Frequency
1	Carcinoma	18
	1.1 Squamous cell carcinoma	12
	1.2 Adenocarcinoma (include adenosquamous, mucinous, adenoid cystic, mucoepidermoid and Barret carcinoma)	3
	1.3 Other specified carcinomas	-
	1.4 Unspecified carcinoma	3
2	Sarcoma	-
3	Other specified cancer (include melanoma, carcinosarcoma	-
4	Unspecified cancer	1
	Total	19



Note: This map is not an authority on international boundaries.

Table 77: Trends of Esophageal Cancer, 1996–2000

	ASR World	
Year	Male	Female
1996	3.6	1.8
1997	2.9	3.0
1998	2.6	4.4
1999	2.6	3.3
2000	2.4	2.1

ASR, Age-standardized incidence rate per 100,000

Kidney and Ureter

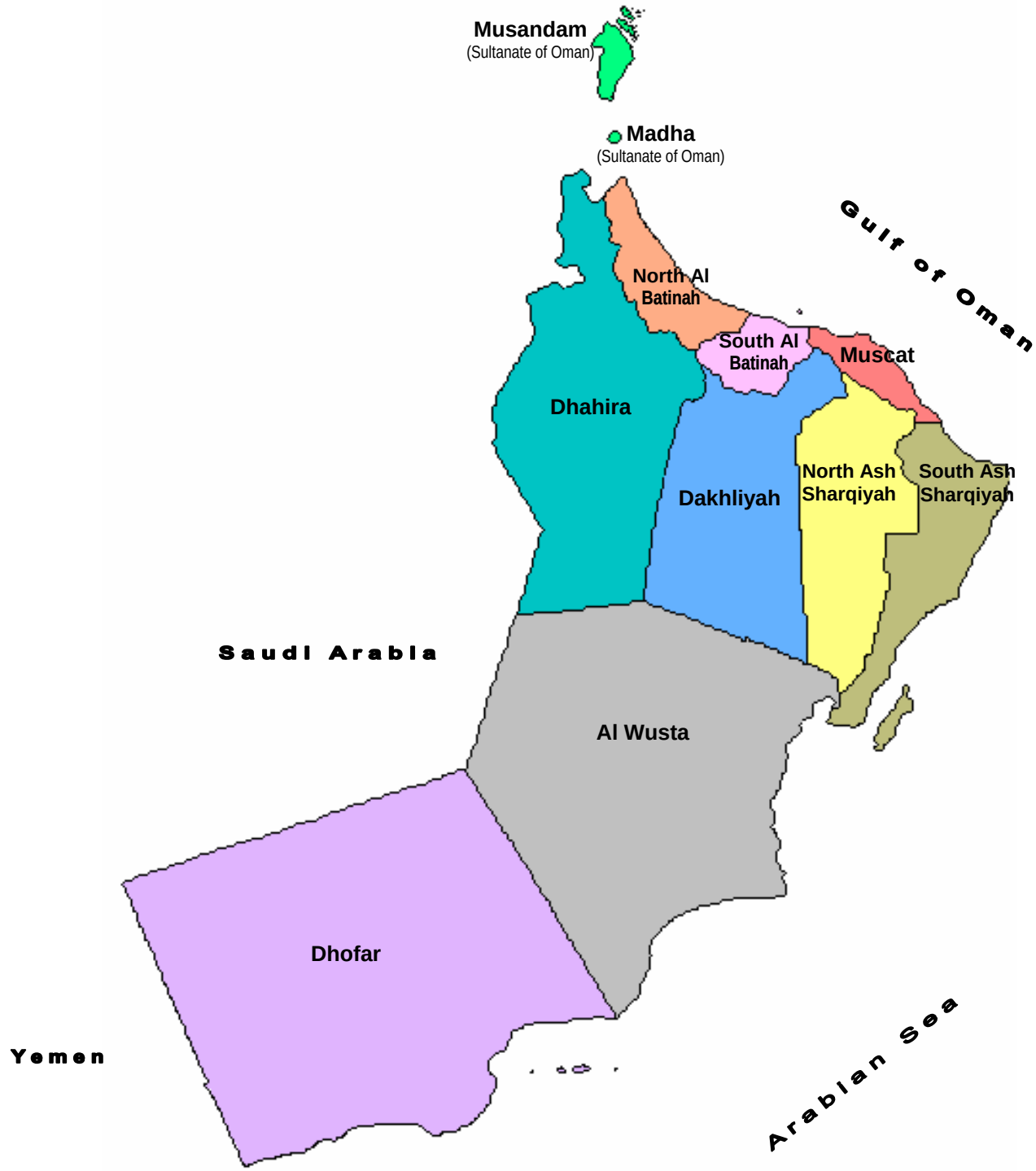
Cancer of the kidney & ureter were reported in 24 cases. There were 12 cases each of males and females. Renal cell carcinoma constituted 58.3% and nephroblastomas 29.2 % of the cases. The highest incidence rate (Figure 21) was seen in Muscat (2.2 per 100,000) followed by Dakhliyah (1.7 per 100,000) and South Batinah (1.5 per 100,000). The regional distribution, gender distribution and the morphology of the cancer and its trends (1996-2000) reported, are presented in Tables 78-81 respectively.

Table 78: Regional Distribution of Carcinoma of the Kidney & Ureter

Region	Frequency
Al-Wousta	0
Dakhliyah	4
Dhahirah	1
Dhofar	0
Musandum	0
Muscat	8
North Batinah	4
North Sharqiyah	0
South Batinah	3
South Sharqiyah	2
Unknown	2
Total	24

Table 79: Gender Distribution of Carcinoma of the Kidney & Ureter

Gender	Frequency	Incidence/100,000
Male	12	1.3
Female	12	1.4
Total	24	--



Note: This map is not an authority on international boundaries.

Table 80: Morphology of Renal Malignancies

	Morphology	Frequency
1	Carcinoma	17
	1.1 Squamous, transitional cell carcinomas (epithelial tumours of renal pelvis)	2
	1.2 Renal cell carcinoma	14
	1.3 Other specified carcinoma	-
	1.4 Unspecified carcinoma	1
2	Nephroblastoma (Wilm's tumour) (include rhabdoid tumour, clear cell sarcoma)	7
3	Sarcoma	-
4	Other specified cancer	-
5	Unspecified cancer	-
	Total	24

Table 81: Trends of Renal Malignancies, 1996–2000

	ASR World	
Year	Male	Female
1996	1.9	2.1
1997	1.9	1.2
1998	1.0	1.7
1999	1.6	1.0
2000	2.4	1.9

ASR, Age-standardized incidence rate per 100,000

Pancreas

Pancreatic cancers were reported in 14 cases. Of these, 9 were in males and 5 in females, the male: female ratio being 1.8:1. The highest incidence rate (Figure 22) was observed in South Sharqiyah (2.2 per 100,000) followed by Dakhliyah (1.7 per 100,000) followed by Muscat (1.4 per 100,000). The regional distribution, gender distribution and the morphology of pancreatic cancer cases and their trends (1996-2000) reported, are presented in Tables 82-85 respectively.

Table 82: Regional Distribution of Carcinoma of the Pancreas

Region	Frequency
Al-Wousta	0
Dakhliyah	4
Dhahirah	1
Dhofar	0
Musandum	0
Muscat	5
North Batinah	1
North Sharqiyah	0
South Batinah	0
South Sharqiyah	3
Total	14

Table 83: Gender Distribution of Carcinoma of the Pancreas

Gender	Frequency	Incidence/100,000
Male	9	1.0
Female	5	0.6
Total	14	--

Table 84: Morphology of Carcinoma of the Pancreas

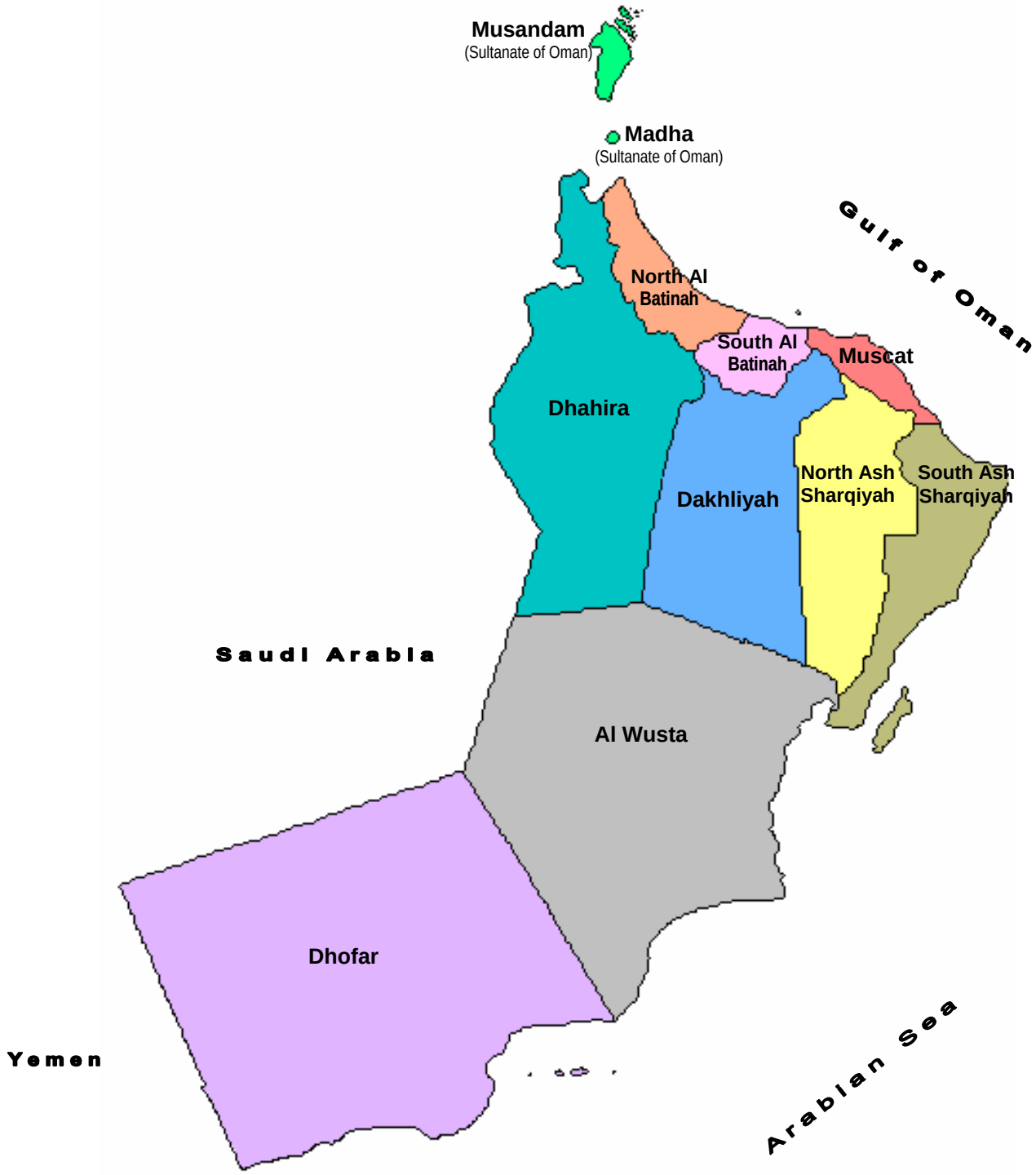
Morphology	Frequency
Neoplasm, malignant	6
Carcinoma, (NOS)*	6
Adenocarcinoma (NOS)*	2

*(NOS), Not otherwise specified

Table 85: Trends of Pancreatic Cancer, 1996–2000

	ASR World	
Year	Male	Female
1996	2.3	0.8
1997	2.8	0.8
1998	1.3	2.4
1999	1.5	1.2
2000	2.1	1.2

ASR, Age-standardized incidence rate per 100,000



Note: This map is not an authority on international boundaries.

Ovary

Table 86: Regional Distribution of Ovarian Cancer

Region	Frequency
Al-Wousta	0
Dakhliyah	2
Dhahirah	4
Dhofar	4
Musandum	0
Muscat	7
North Batinah	3
North Sharqiyah	2
South Batinah	1
South Sharqiyah	2
Unknown	2
Total	27

A diagnosis of ovarian cancer was made in 28 cases, one of which was a lymphoma. These constituted the 4th most common cancer among Omani females. The highest incidence rate (Figure 23) was seen in Dhofar (5.5 per 100,000) followed by Dhahirah (5.1 per 100,0000) and Muscat (4.6 per 100,000). The regional distribution of ovarian cancer, morphology and its trends (1996-2000) are reported, in Tables 86-89 respectively.

Table 87: Morphology of Ovarian Cancer

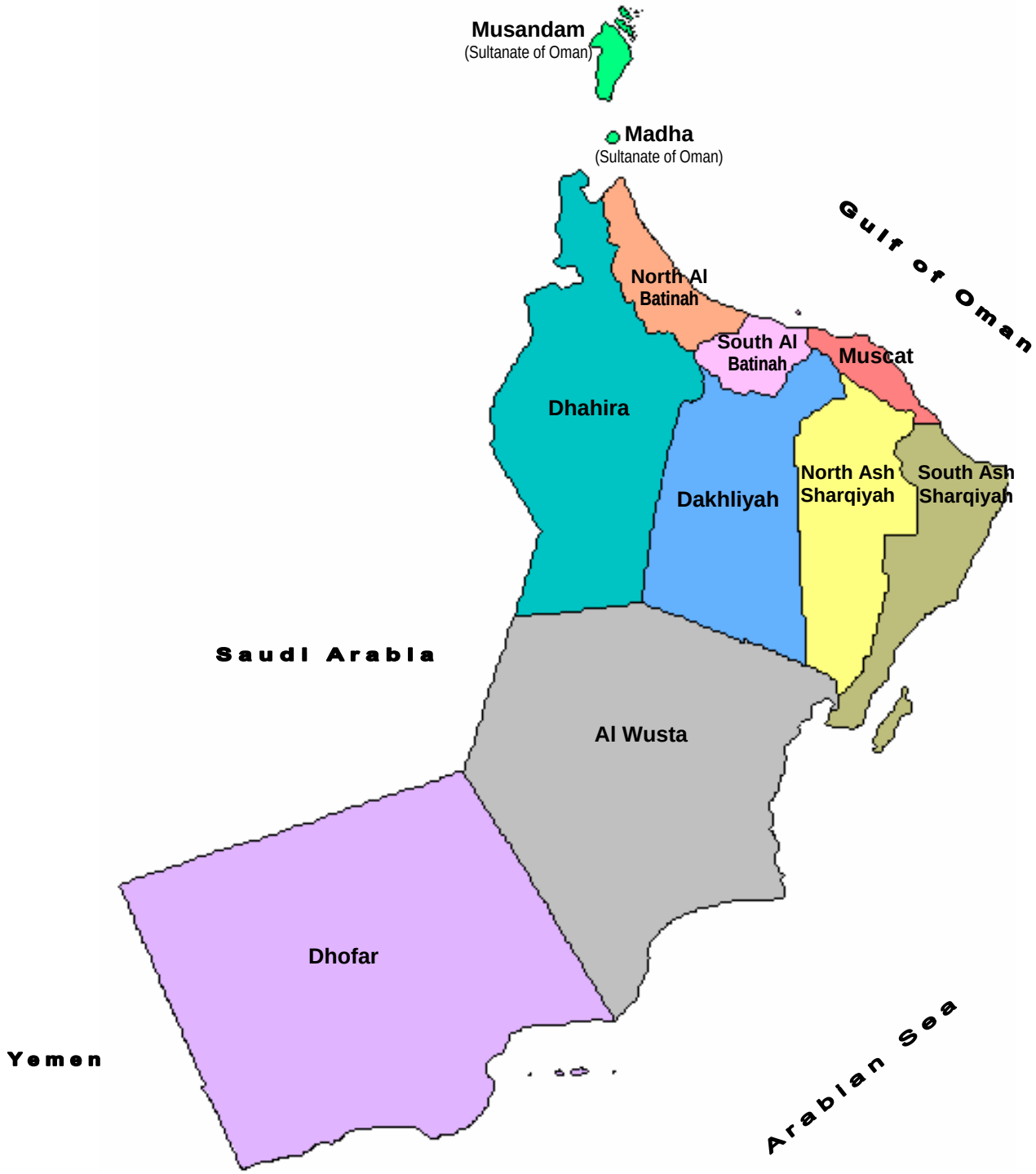
	Morphology	Frequency
1	* Carcinoma	19
	1.1 † Serous carcinoma	6
	1.2 † Mucinous carcinoma	2
	1.3 Endometrioid carcinoma	4
	1.4 Clear cell carcinoma	-
	1.5 Adenocarcinoma NOS	6
	1.6 Other specified carcinomas	1
	1.7 Unspecified carcinoma	-
2	Sex cord-stromal tumours	-
3	Germ cell tumours	5
4	Other specified cancers (include malignant Brenner tumour, mullerian mixed tumour, carcinosarcoma)	-
5	Unspecified cancer	3
	Total	27

† 1.1-1.2: Categories 1.1 and 1.2 include tumours of borderline malignancy (low malignant potential). Unlike other borderline tumours, ICD-O includes borderline tumours of serous and mucinous type with carcinomas. This approach remains to be fully validated

Table 88: Trends of Ovarian Cancer, 1996–2000

Year	ASR World
1996	2.0
1997	3.5
1998	7.7
1999	6.3
2000	6.0

ASR, Age-standardized incidence rate per 100,000



Note: This map is not an authority on international boundaries.

Larynx & Trachea

Table 89: Regional Distribution of Carcinoma of the Larynx & Trachea

Region	Frequency
Al-Wousta	0
Dakhliyah	0
Dhahirah	0
Dhofar	0
Musandum	0
Muscat	3
North Batinah	2
North Sharqiyah	0
South Batinah	0
South Sharqiyah	1
Unknown	1
Total	7

There were 7 cases of carcinoma of the larynx and trachea reported. Five of them were males and 2 were females, the male: female ratio being 2.5:2. The highest incidence rate (Figure 24) was seen in Muscat (0.8 per 100,000) followed closely by South Sharqiyah (0.7 per 100,000) and North Batinah (0.6 per 100,000). The regional distribution, gender distribution and the morphology of this cancer as well as its trends (1996-2000) reported, are presented in Tables 89-92 respectively. Squamous cell carcinoma was the commonest malignancy constituting 57.1% of the tumours.

Table 90: Gender Distribution of Carcinoma of the Larynx & Trachea

Gender	Frequency	Incidence/100,000
Male	5	0.6
Female	2	0.2
Total	7	--

Table 91: Morphology of Carcinoma of the Larynx & Trachea

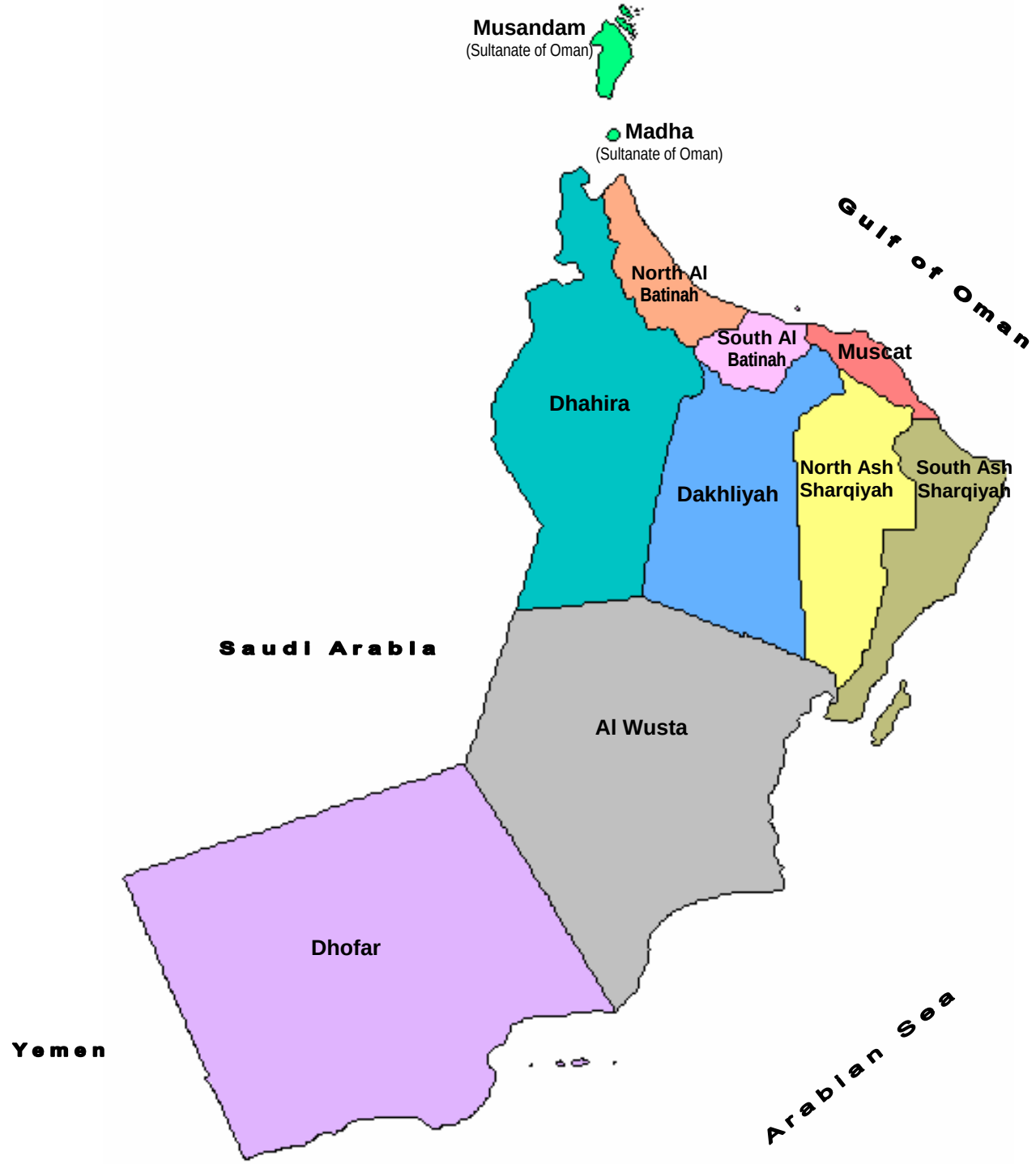
Morphology	Frequency
Neoplasm, malignant	1
Squamous cell carcinoma, (NOS)*	4
Squamous cell carcinoma, keratinizing, (NOS)*	2

*(NOS), Not otherwise specified

Table 92: Trends of Laryngeal Cancer, 1996–2000

	ASR World	
Year	Male	Female
1996	1.7	0.5
1997	1.1	0.2
1998	2.3	0.4
1999	1.6	0.0
2000	1.2	0.4

ASR, Age-standardized incidence rate per 100,000



Note: This map is not an authority on international boundaries.

Uterus

There were 4 cases of uterine cancer in 2000, one of which was a lymphoma. They were from only 2 regions; South Sharqiyah (1.4 per 100,000) followed by North Batinah (1.1 per 100,000) (Figure 25). The regional distribution and morphology of this cancer and its trends (1996-2000) reported are presented in Tables 93-95 respectively. Two of the three cases were adenocarcinoma (66.6%).

Table 93: Regional Distribution of Uterine Cancer

Region	Frequency
Al-Wousta	0
Dakhliyah	0
Dhahirah	0
Dhofar	0
Musandum	0
Muscat	0
North Batinah	2
North Sharqiyah	0
South Batinah	0
South Sharqiyah	1
Total	3

Table 94: Morphology of Uterus Cancer

	Morphology	Frequency
1	Carcinoma	3
	1.1 Adenocarcinoma (include adenosquamous carcinoma and adenocarcinoma with squamous differentiation)	2
	1.2 Other specified carcinoma (include squamous cell carcinoma, clear-cell carcinoma)	1
	1.3 Unspecified carcinoma	-
2	Sarcoma (include leiomyosarcoma, endometrial Stromal sarcoma)	-
3	Other specified cancer (include mullerian mixed tumour, carcinosarcoma, adenocarcinoma)	-
5	Unspecified cancer	-
	Total	3

Table 95: Trends of Uterine Cancer, 1996–2000

Year	ASR World
1996	2.8
1997	2.0
1998	2.2
1999	1.6
2000	0.8

ASR, Age-standardized incidence rate per 100,000

Childhood Cancers

Table 96: Frequency Distribution of Cancers in Omani Children (Boys & Girls)

Topography	Frequency
Lymphoid Leukemia	15
Hodgkin's Lymphoma	9
Non Hodgkin's Lymphoma	8
Wilm's Tumour	7
Acute Non Lymphocytic Leukemia	6
Primitive Neuroectodermal Tumours	5
Neuroblastoma	5
Rhabdomyosarcoma	4
Ependymoma	3
Retinoblastoma	3

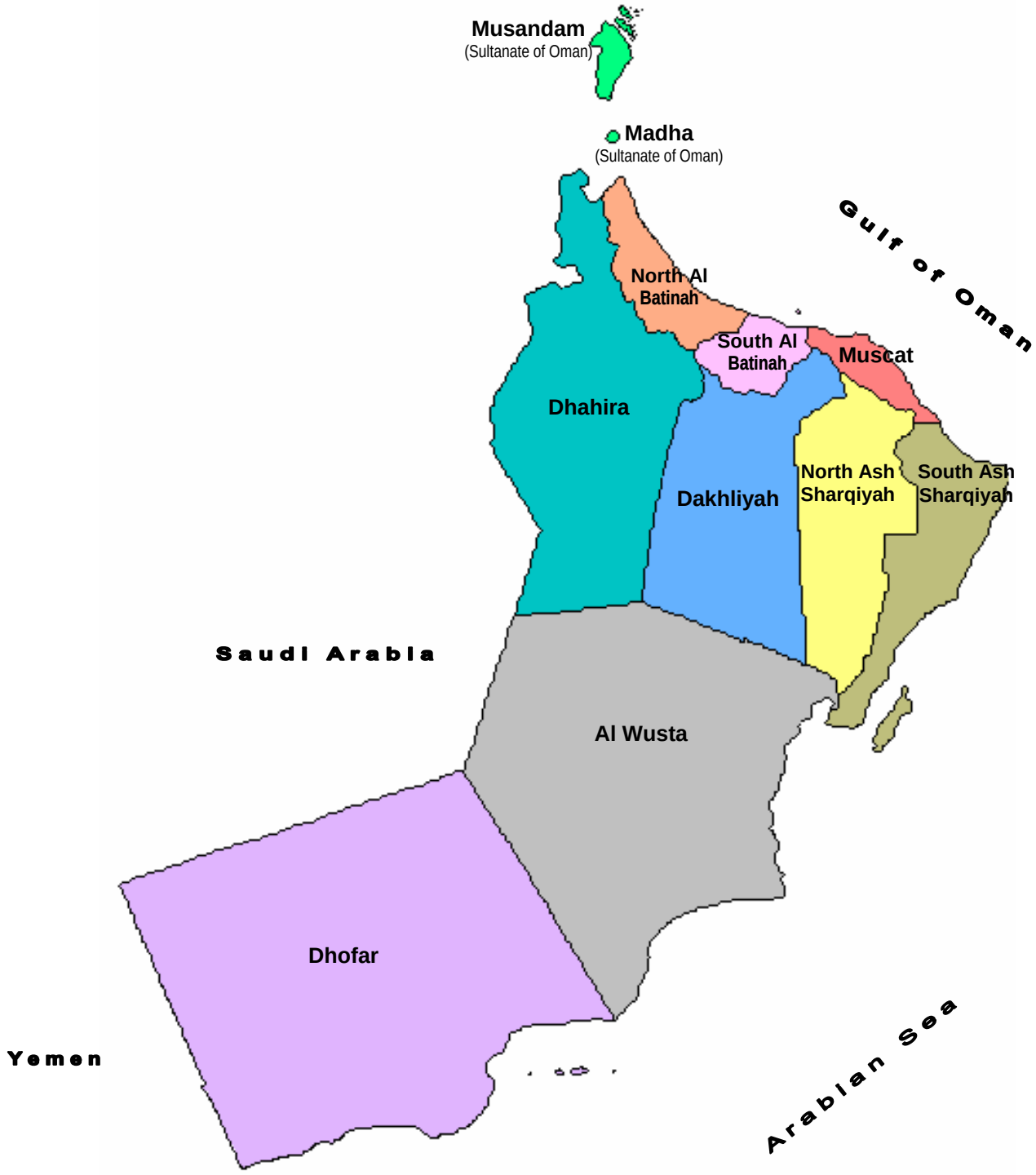
Of the 883 cases reported during 2000, 84 cases were among children aged 14 years and below, constituting 9.5% of the total cancers reported. Leukemias, lymphomas followed by Wilm's tumour, were the commonest tumours seen in this age group (Figure 26). Tables 96-98 list the common childhood cancers in Omani children. The age specific incidence rates of childhood cancer classified according to the international classification of childhood cancer are given in table 99. The age standardized rates were 103.4 per million for males and 124.9 per million for females.

Table 97: Frequency Distribution of Cancers in Omani Boys

Topography	Frequency	Percentage (%)
Lymphoid Leukemia	6	15.8
Hodgkin's Lymphoma	5	13.2
Non Hodgkin's Lymphoma	5	13.2
Ependymoma	3	7.9
Rhabdomyosarcoma	3	7.9
Chronic myeloid Leukemia	2	5.3
Primitive Neuroectodermal Tumours	2	5.3
Neuroblastoma	2	5.3
Wilm's Tumours	2	5.3
Retinoblastoma	1	2.6

Table 98: Frequency Distribution of Cancers in Omani Girls

Topography	Frequency	Percentage (%)
Lymphoid Leukemia	9	19.5
Wilm's Tumour	5	10.9
Acute Non Lymphocytic Leukemia	4	8.7
Hodgkin's Lymphoma	4	8.7
Non Hodgkin's lymphoma	3	6.5
Primitive Neuroectodermal Tumours	3	6.5
Neuroblastoma	3	6.5
Gonadal Germ Cell Tumours	2	4.3
Retinoblastoma	2	4.3
Renal Carcinoma	1	2.2



Note: This map is not an authority on international boundaries.

Table 99: Frequency Distribution of Childhood Cancers in Oman (International Classification of Childhood Cancers)

Site	Male						Female					
	0-	5-	10-	All	*CR	*ASR	0-	5-	10-	All	*CR	*ASR
Leukemia	**5**	**2**	**2**	**9**	**23.0**	**24.5**	**8**	**2**	**3**	**13**	**34.4**	**37.2**
Lymphoid	2	2	2	6	15.4	15.3	6	2	1	9	23.8	26.3
Acute non-lymphocytic	2	0	0	2	5.1	6.1	2	0	2	4	10.6	10.9
Chronic myeloid	0	0	0	0	0.0	0.0	0	0	0	0	0.0	0.0
Other specified	0	0	0	0	0.0	0.0	0	0	0	0	0.0	0.0
Unspecified	1	0	0	1	2.6	3.0	0	0	0	0	0.0	0.0
Lymphomas	**3**	**6**	**1**	**10**	**25.6**	**25.9**	**2**	**4**	**3**	**9**	**23.8**	**23.2**
Hodgkin's disease	1	3	1	5	12.8	12.6	0	1	3	4	10.6	9.4
Non-Hodgkin lymphomas	2	3	0	5	12.8	13.4	1	2	0	3	7.9	8.2
Burkett's lymphoma	0	0	0	0	0.0	0.0	1	0	0	1	2.6	3.2
Miscellaneous lymphoreticular neoplasms	0	0	0	0	0.0	0.0	0	0	0	0	0.0	0.0
Unspecified	0	0	0	0	0.0	0.0	0	1	0	1	2.6	2.5
Brain and Spinal Neoplasms	**5**	**1**	**1**	**7**	**17.9**	**19.9**	**0**	**2**	**3**	**5**	**13.2**	**11.9**
Ependymoma	3	0	0	3	7.7	9.1	0	0	0	0	0.0	0.0
Astrocytoma	0	0	0	0	0.0	0.0	0	0	1	1	2.6	2.2
Primitive neuroectodermal tumours	1	1	0	2	5.1	5.5	0	1	2	3	7.9	7.1
Other gliomas	0	0	0	0	0.0	0.0	0	0	0	0	0.0	0.0
Other specified	1	0	0	1	2.6	3.0	0	0	0	0	0.0	0.0
Unspecified	0	0	1	1	2.6	2.2	0	1	0	1	2.6	2.5
Sympathetic Nervous System Tumours	1	**1**	**0**	**2**	**5.1**	**5.5**	**2**	**0**	**1**	**3**	**7.9**	**8.6**
Neuroblastoma	1	1	0	2	5.1	5.4	2	0	1	3	7.9	8.6
Other	0	0	0	0	0.0	0.0	0	0	0	0	0.0	0.0
Retinoblastoma	**1**	**0**	**0**	**1**	**2.6**	**3.05**	**1**	**1**	**0**	**2**	**5.9**	**5.7**
Renal Tumours	**1**	**1**	**0**	**2**	**5.1**	**5.5**	**5**	**0**	**1**	**6**	**15.9**	**18.1**
Wilm's tumour	1	1	0	2	5.1	5.5	5	0	0	5	13.2	15.8
Renal carcinoma	0	0	0	0	0.0	0.0	0	0	1	1	2.6	2.3
Unspecified	0	0	0	0	0.0	0.0	0	0	0	0	0.0	0.0
Hepatic Tumours	**1**	**1**	**0**	**2**	**5.1**	**5.48**	**1**	**0**	**0**	**1**	**2.6**	**3.2**
Hepatoblastoma	1	0	0	1	2.6	3.0	1	0	0	1	2.6	3.2
Hepatic carcinoma	0	1	0	1	2.6	2.4	0	0	0	0	0.0	0.0
Unspecified	0	0	0	0	0.0	0.0	0	0	0	0	0.0	0.0
Malignant Bone Tumours	**0**	**0**	**1**	**1**	**2.6**	**2.2**	**1**	**0**	**1**	**2**	**5.3**	**5.4**
Osteosarcoma	0	0	0	0	0.0	0.0	0	0	0	0	0.0	0.0
Chondrosarcoma	0	0	1	1	2.6	2.2	0	0	1	1	2.6	2.3
Ewing's sarcoma	0	0	0	0	0.0	0.0	1	0	0	1	2.6	3.2
Other specified	0	0	0	0	0.0	0.0	0	0	0	0	0.0	0.0
Unspecified	0	0	0	0	0.0	0.0	0	0	0	0	0.0	0.0
Soft Tissue Sarcomas	**3**	**0**	**1**	**4**	**10.2**	**11.4**	**0**	**1**	**1**	**2**	**5.3**	**4.8**
Rhabdomyosarcoma	2	0	1	3	7.8	8.3	0	1	0	1	2.6	2.5
Fibrosarcoma	0	0	0	0	0.0	0.0	0	0	0	0	0.0	0.0
Kaposi's sarcoma	0	0	0	0	0.0	0.0	0	0	0	0	0.0	0.0
Other specified	1	0	0	1	2.6	3.0	0	0	1	1	2.6	2.3
Unspecified	0	0	0	0	0.0	0.0	0	0	0	0	0.0	0.0
Germ Cell and Gonadal Neoplasms	**0**	**0**	**0**	**0**	**0.0**	**0.0**	**0**	**0**	**2**	**2**	**5.3**	**4.6**
Intracranial and intraspinal germ cell	0	0	0	0	0.0	0.0	0	0	0	0	0.0	0.0
Other & unspecified non-gonadal germ cell	0	0	0	0	0.0	0.0	0	0	0	0	0.0	0.0
Gonada germ cell	0	0	0	0	0.0	0.0	0	0	2	2	5.3	4.6
Gonadal carcinoma	0	0	0	0	0.0	0.0	0	0	0	0	0.0	0.0
Other and unspecified	0	0	0	0	0.0	0.0	0	0	0	0	0.0	0.0
Carcinomas and Epithelial Neoplasms	**0**	**0**	**0**	**0**	**0.0**	**0.0**	**0**	**0**	**0**	**0**	**0.0**	**0.0**
Adrenocortical	0	0	0	0	0.0	0.0	0	0	0	0	0.0	0.0
Thyroid	0	0	0	0	0.0	0.0	0	0	0	0	0.0	0.0
Nasopharyngeal	0	0	0	0	0.0	0.0	0	0	0	0	0.0	0.0
Melanoma	0	0	0	0	0.0	0.0	0	0	0	0	0.0	0.0
Skin	0	0	0	0	0.0	0.0	0	0	0	0	0.0	0.0
Other and unspecified	0	0	0	0	0.0	0.0	0	0	0	0	0.0	0.0
Other and Unspecified Neoplasms	**0**	**0**	**0**	**0**	**0.0**	**0.0**	**0**	**0**	**1**	**1**	**2.6**	**2.3**
Other specified	0	0	0	0	0.0	0.0	0	0	0	0	0.0	0.0
Other unspecified	0	0	0	0	0.0	0.0	0	0	1	1	2.6	2.3
Total	**20**	**12**	**6**	**38**	**97.3**	**103.4**	**20**	**10**	**16**	**46**	**121.6**	**124.9**

*CR, Crude incidence rate; ASR, Age-Standardized incidence rate. Both rates are per million per year. The above analysis is restricted to children aged 0-14 years inclusive.

Cancer among Non-Omanis

Non-Omanis constitute 26% of the total population of Oman. In 2000 there were 96 cases of cancer among the expatriate population giving a crude incidence rate of 15.4 per 100,000 populations. The low rate does not reflect the incidence rates of the respective countries since the expatriate population is a highly selected population, with the majority being adult males. This is also confounded by a detection bias since the majority of the Non-Omanis return to their homeland for major medical problems such as cancer, once suspected or diagnosed.

The commonest cancer among the Non-Omanis was breast cancer followed by Non-Hodgkin's Lymphoma and Leukemia. The gender distribution, the common cancers among the Non-Omanis (males and females), the common cancers among the Non-Omani males, the common cancers among Non-Omani females, the regional distribution, and the distribution by nationality are given in Tables 100-105 respectively.

Table 100: Gender Distribution of Cancer Cases among Non-Omanis

Gender	Frequency
Male	57
Female	39
Total	96

Table 101: Ten Most Common Cancers in Non-Omanis (Males & Females)

Topography	Frequency	Percentage (%)
Breast	17	17.7
Non-Hodgkin's Lymphoma	8	8.3
Leukemia	7	7.3
Nasopharynx	5	5.2
Ovary	4	4.2
Thyroid	3	3.1
Prostate	3	3.1
Brain	3	3.1
Stomach	2	2.1
Hodgkin's Lymphoma	2	2.1

Table 102: Ten Most Common Cancers in Non-Omanis (Males)

Topography	Frequency	Percentage (%)
Non-Hodgkin's Lymphoma	6	10.5
Nasopharynx	4	7.0
Leukemia	4	7.0
Prostate	3	5.3
Brain& Spinal Cord	3	5.3
Tongue	2	3.5
Esophagus	2	3.5
Colon	2	3.5
Rectum& Anal Canal	2	3.5
Lung	2	3.5

Table 103: Ten Most Common Cancers among Non-Omanis (Females)

Topography	Frequency	Percentage (%)
Breast	17	43.6
Ovary	4	10.3
Thyroid	3	7.7
Leukemia	3	7.7
Hodgkin's Lymphoma	2	5.1
Non-Hodgkin's Lymphoma	2	5.1
Cervix	2	5.1
Stomach	1	2.6
Multiple Myeloma	1	2.6
Nasopharynx	1	2.6

Table 104: Regional Distribution of Cancer Cases among Non-Omanis

Region	Frequency
Al-Wousta	1
Dakhliyah	4
Dhahirah	0
Dhofar	16
Musandum	0
Muscat	60
North Batinah	9
North Sharqiyah	2
South Batinah	3
South Sharqiyah	0
Unknown	1
Total	96

Table 105: Distribution of Cancer Cases among Non-Omanis by Nationality

Country	Frequency
India	42
Egypt	12
Philippines	4
United Kingdom	8
Pakistan	10
Bangladesh	4
Sri Lanka	1
Yemen	2
Sudan	3
Morocco	2
Canada	1
United Arab Emirates	1
Jordan	1
Malaysia	1
United States of America	1
Syria	1
United Republic of Tanzania	1
Venezuela	1
Total	96

Members of the National Cancer Control Committee

Dr. Ali Jaffer Mohammed	Director General of Health Affairs	Chairman
Dr. Mohammed Ali Jaffer	Head, Division of Surgery, Royal Hospital	Member
Dr. Ibrahim Abdul Rahim	WHO Representative, Oman	Member
Dr. Saadia Al-Riyami	Head, Dept. of Obs/Gyn, Royal Hospital	Member
Dr. Jawad Al-Lawati	Head, Non-Communicable Diseases Control Section, DGHA	Member
Dr. Shalini Chandrashaker	Epidemiologist, Non-Communicable Diseases Control Section, DGHA	Member
Dr. Eileen Thomas	Senior Consultant, Paediatric Oncology, Royal Hospital	Member
Ms. Sabah Al-Bahlani	Director, Health Education & Information	Member
Dr. Khalid Al-Moshaikhi	Director, Dept. of Monitoring & Evaluation, DG Planning	Member
Salim Al-Wahibi	Director, Environmental Health & Malaria Eradication	Member
Najla A. M. Al-Riyami	Director of International Relations	Member
----------	Head, Oncology Dept., Royal Hospital	Member
----------	Senior Specialist, Histopathology Dept., Royal Hospital	Member

Annex 1: Data Request Form

Oman National Cancer Registry
Non-Communicable Diseases Control Section
Directorate General of Health Affairs (HQ)
Ministry of Health
Sultanate of Oman

Request for Data from the Oman National Cancer Registry

All requests should be submitted to the attention of the Head, Non-Communicable Diseases Control Section, DGHA (HQ), Post Box 393, Area Code 113, Muscat, Sultanate of Oman.
Tel : (968) 696187 Fax : (968) 695480

Date Submitted: ……..

Name:……

Department:……..

Institution:……

Telephone No:…… Fax No:……

Information Requested:
(Specify patient population, Time period, Year/s, Anatomic site/Histology, Region / Wilayat etc.)

Purpose of Request:
(Specify presentation at conference/meeting/publication, clinical/epidemiological study, personal information, etc.)

Collaborators and Co-authors:

Requester's affirmation statement:

I hereby, the requester of the above data affirm that the data given to me by the Oman National Cancer Registry will be treated with utmost confidentiality in relation to patient's identity. I also affirm that the data given to me will not be presented or published by me or any of my collaborators as an original work but rather can be cited in my presentation and / or publication with acknowledgement to the ONCR.

Requester's signature:…….. Date:……..

For official use only:

Request: **Approved: ……** **Denied: ……**

Head of Non-Communicable Diseases Control Section Signature**:……**

Date:……

Annex 2: Case Notification Form