

CANCER REGISTRATION IN THE SULTANATE OF OMAN

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History of Cancer Registration in Oman

The Sultanate of Oman is located in the southeastern corner of the Arabian Peninsula (Fig 1). The total area 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 riverbeds) and mountains. The estimated mid year population in 1999 was 2,325,460 of which 1,729,330 were Omanis and 596,130 were expatriates. The Omani population shows a sex ratio of 103 males per 100 females (1).

The Cancer Registry in Oman was established in 1985 as a hospital based cancer registry. Only cases treated in tertiary hospitals were included. In 1996, with the establishment of the Non-Communicable Diseases Control Section, the cancer registry was shifted and started functioning under the Directorate General of Health Affairs as a population based registry. New cancer notification forms were developed and distributed to all regional hospitals and sister institutions. The cancer registrar is responsible for data collection, coding and data entry.

Asian Pacific J Cancer Prev, 2, IACR Supplement, 71-74

Present Status

The Sultanate of Oman is administratively divided into 8 Governorate/Regions with 59 Wilayats. These are: Muscat, Dhofar and Musandam Governorates and the regions of Dakhiliya, Sharqiyah, Batinah, Dhahira, and Al-Wousta. The regions of Sharqiyah and Batinah have each been further subdivided into two, for health administration, giving a total of ten health regions. However there is a single population based registry for the whole country. (Fig 1)



Figure 1. Sultanate of Oman

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Collection of data relies upon both passive and active methods. Doctors diagnosing malignancies in regional hospitals are asked to send notification forms to the registry. In addition, the registry staff visit the different sources and abstract data onto cancer registration forms. All cancer diagnoses are coded according to ICD-O. CANREG-3 is used for data capture and management.

Incidence Rates

In 1999, the crude incidence rates for all cancers among Omanis was 51.8 per 100,000 for males and 46.1 per 100,000 for females (Table). The age standardized rates, adjusted to the world standard population, was 103.7 per 100,000 for males and 88.2 per 100,000 for females. The most common cancers among males were stomach 55 cases, lung & bronchus 46 cases and prostate 41 cases. The most common cancers among females were breast 55 cases, thyroid 31 cases and ovary 29 cases. The age standardised incidence for the common cancers in Oman are shown in Fig 2. Fig 3 shows the percentage distribution of liver and stomach cancers by histological type. Fig 4 shows the stage at diagnosis of stomach (male) and breast (female) cancers.

Regional variation

There is still a considerable amount of variation in incidence rates between the different Governorates (Fig 5) possibly reflecting some variation in case ascertainment, as well as variable availability of diagnostic facilities, and referral of cases to the major centres for treatment. **Epidemiology**

Table. Age-specific Incidence Rates per 100,000 Population among Omanis, 1999.

MALE

SITE	ALL AGE AGES UNK	0-	5-	10-	15-	20-	25-	30-	35-	40-	45-	50-	55-	60-	65-	70-	75+	CRUDE RATE	%	ASR (W)	ICD (10th)	
Oral cavity	11	0	0	0	0	0	0	0	3.1	3.5	12.8	9.6	0	0	0	33.2	23.8	1.3	2.4	2.8	C00-C08	
Pharynx	4	0	0	0	0.8	0	0	0	3.1	0	4.3	0	4.9	0	0	0	0	0.4	0.8	0.8	C09-C13	
Oesophagus	10	0	0	0	0	0	0	0	0	0	4.3	9.6	0	15.5	15.2	16.6	23.8	1.1	2.2	2.6	C15	
Stomach	55	0	0	0	0	0	0	2.4	9.2	14	29.9	19.2	29.3	77.7	83.6	83	47.7	6.3	12.1	13.7	C16	
Colon/Rectum	19	0	0	0	0	2.1	0	0	0	10.5	17.1	9.6	19.6	0	7.6	33.2	11.9	2.2	4.2	4.2	C18-C21	
Liver	33	0	0	0	0	0	1.6	0	3.1	3.5	8.5	19.2	14.7	93.2	7.6	83	35.7	3.8	7.3	8.9	C22	
Larynx	6	0	0	0	0	0	0	0	0	3.5	0	4.8	0	23.3	7.6	0	0	0.7	1.3	1.6	C32	
Bronchus,Lung	46	0	0	0.7	0	1.1	0	0		3.1	14	17.1	19.2	19.6	109	22.8	133	23.8	5.2	10.1	12.1	C33-C34
Connective tissue	7	0	0	1.5	0.8	0	1.6	0	0	0	0	0	0	7.8	7.6	16.6	0	0.8	1.5	1.2	C47,C49	
Skin	13	0	0	0	0	0	0	0		3.1	0	4.3	14.4	19.6	15.5	0	16.6	11.9	1.5	2.9	3.1	C43-C44
Prostate	41	0	0	0	0	0	0	0	0	3.5	8.5	19.2	14.7	85.5	38	66.4	131	4.7	9	10.8	C61	
Bladder	23	0	0	0	0	0	0	0		3.1	7	12.8	0	4.9	31.1	38	33.2	59.6	2.6	5.1	5.8	C67
Kidney	8	0	1.6	0	0	0	0	0	0	0	4.3	9.6	4.9	0	7.6	0	11.9	0.9	1.8	1.6	C64-C66:C68	
Brain,nervous system	16	0	1.6	1.5	0	1.6	0	2.4	0	3.5	4.3	4.8	9.8	15.5	0	0	23.8		1.8	3.5	2.8	C70-C72
Thyroid	8	0	0	0	0	0	1.6	0	3.1	7	0	0	0	7.8	22.8	0	0	0.9	1.8	1.7	C73	
Hodgkin's disease	18	0	0.8	3.1	0.7	2.4	2.1	1.6	2.4	3.1	3.5	0	0	0	7.6	0	23.8	2	4	2.2	C81	
Non-Hodgkin's lymphoma	39	0	1.6	1.5	0.7	0	2.1	4.9	4.8	15.4	21.1	4.3	9.6	4.9	62.2	7.6	49.8	0	4.4	8.6	8.1	C82-C85:C96
Multiple myeloma	7	0	0	0	0.8	0	0	0	0	3.5	0	4.8	0	7.8	7.6	16.6	11.9	0.8	1.5	1.6	C88:C90	
Leukaemia	34	0	2.4	3.9	3.7	3.2	1.1	0	2.4	6.2	0	12.8	14.4	0	23.4	0	33.2	23.8	3.9	7.4	5.5	C91-C95
Other& unspecified	57	0	1.6	0.8	0	2.4	3.3	1.6	0	12.4	3.5	8.6	48	48.9	62.2	22.8	99.6	35.7	6.2	12.5	12.6	
All sites	455	0	9.6	10.8	7.3	12	11.8	12.9	14.4	68	102	154	216	196	637	304	714	500	51.5	100	104	ALL

FEMALE

SITE	ALL AGE AGES UNK	0-	5-	10-	15-	20-	25-	30-	35-	40-	45-	50-	55-	60-	65-	70-	75+	CRUDE(%)	ASR (W)	ICD (10th)		
Oral cavity	9	0	0	0	0	0	0	2.4	3	3.1	0	0	10.4	9.1	18.2	0	10.4	1.1	2.3	2.1	C00-C08	
Pharynx	5	0	0	0	0	0	0	0	3	6.1	0	0	5.2	0	0	18.5	0	0.6	1.3	1.2	C09-C13	
Oesophagus	12	0	0	0	0	0	0	0	0	3.1	0	4.8	5.2	9.1	45.4	37.1	10.4	1.4	3.1	3.3	C15	
Stomach	26	0	0	0.8	0	0	0	0	0	3.1	16.6	24.2	15.5	18.3	0	130	31.1	3.1	6.6	7	C16	
Liver	16	0	0.8	0	0	0	0	0	0	0	8.3	19.3	15.5	9.1	0	55.6	20.8	1.9	4.1	4.1	C22	
Bronchus,Lung	9	0	0	0	0	0	0	0	6	0	0	4.8	5.2	9.1	18.2	18.5	10.4	1.1	2.3	2.3	C33-C34	
Bone	6	0	0	0.8	1.5	0.8	2.3	0	0	0	0	0	0	0	0	0	0	0.7	1.5	0.5	C40-C41	
Skin	23	0	0	0.8	0.8	0.8	0	1.8	0	3	3.1	8.3	14.5	5.2	0	27.3	74.1	41.5	2.7	5.9	5.2	C43-C44
Breast	55	0	0	0	0	1.1	3.6	4.9	6	24.6	37.3	67.7	36.2	64	0	37.1	10.4	6.5	14	13.1	C50	
Uterus	6	0	0	0	0	0	0	0	3	3.1	4.1	0	5.2	0	0	37.1	0	0.7	1.6	1.6	C54-C55	
Cervix uteri	22	0	0	0	0	0	0	2.4	12	6.1	8.3	14.5	10.3	36.6	9.1	37.1	10.4	2.6	5.6	5.6	C53	
Ovary	29	0	0	1.5	3.3	0	1.8	0	0	6.1	12.4	24.2	5.2	36.6	9.1	18.5	51.9	3.4	7.4	6.3	C56	
Bladder	12	0	0.8	0	0	0	0	0	3	3.1	8.3	0	0	9.1	18.2	74.1	0	1.4	3.1	3.4	C67	
Brain,nervous system	14	0	0.8	2.4	2.3	1.7	0	0	0	9.2	4.1	4.8	0	0	0	0	0	1.6	3.6	1.7	C70-C72	
Thyroid	31	0	0	0	0	4.1	3.4	7.3	2.4	21	6.1	24.9	9.7	0	0	9.1	0	0	3.6	7.9	5.2	C73
Hodgkin's disease	9	0	0	0.8	0	0.8	1.1	0	0	0	3.1	4.1	0	5.2	18.3	0	18.5	0	1.1	2.3	2	C81

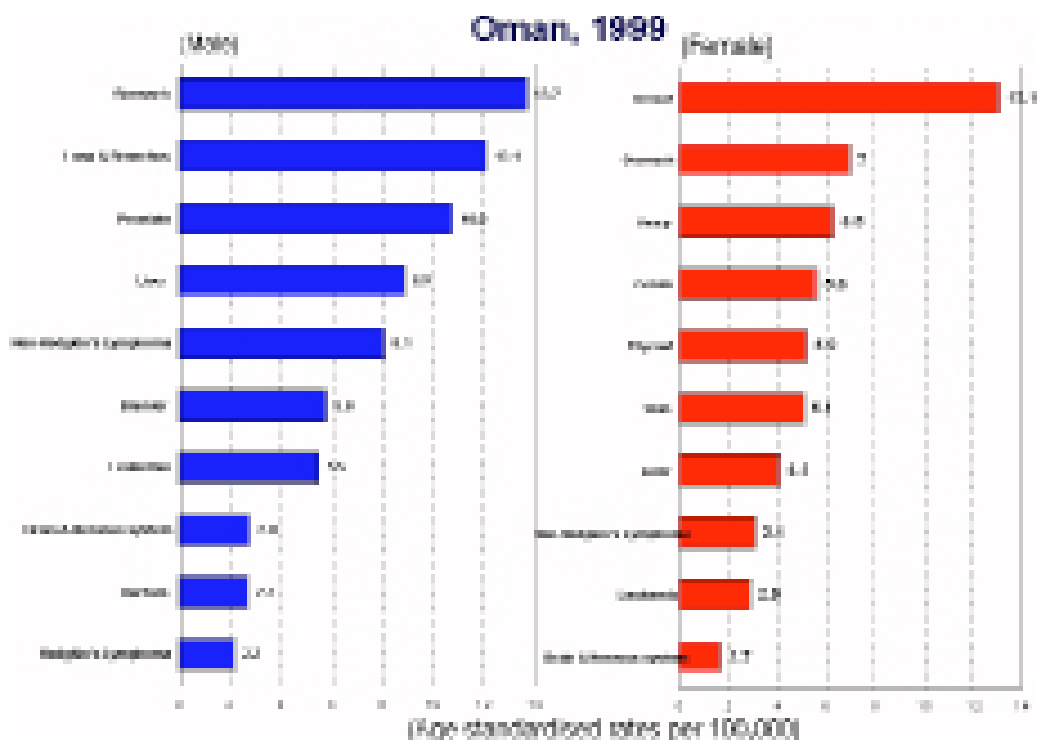


Figure 2. Most Common Cancers in Omani Males and Females

of Principal Cancers

Stomach Cancer

It is the most common cancer in Oman with 55 cases diagnosed among Omani males in 1999 and 26 cases among Omani females in the same year. The age adjusted incidence is estimated to be 13.7 and 7.0 per 100,000 males and females respectively (Fig 2). These rates are higher than those

reported among Kuwaitis, Israelis and Egyptians (3). Etiological factors for this high incidence of stomach cancer in Oman are still not clear. No specific dietary or environmental factors have yet been studied in relation to stomach cancer in Oman. Data regarding Helicobacter Pylori (which has been causally associated with stomach cancer worldwide) is not yet available for Oman.

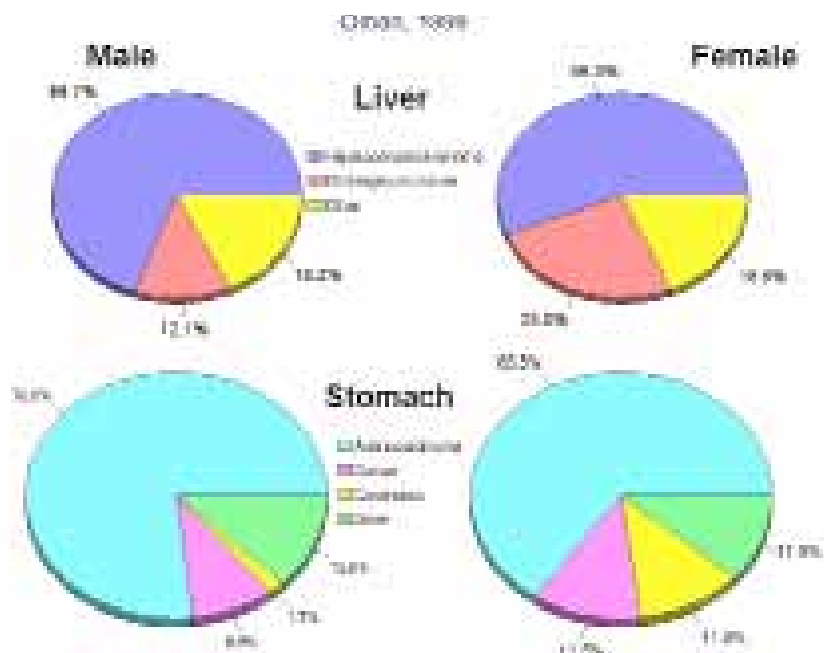


Figure 3. Percentage Distribution of Microscopically Verified Cases by Histological Type

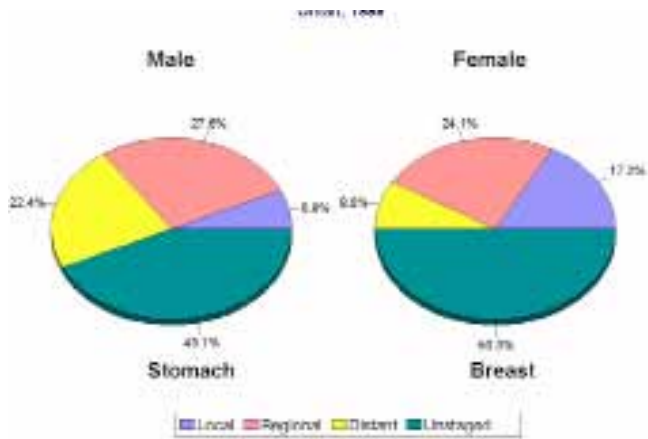


Figure 4. Stage at Diagnosis of Stomach and Breast Cancers

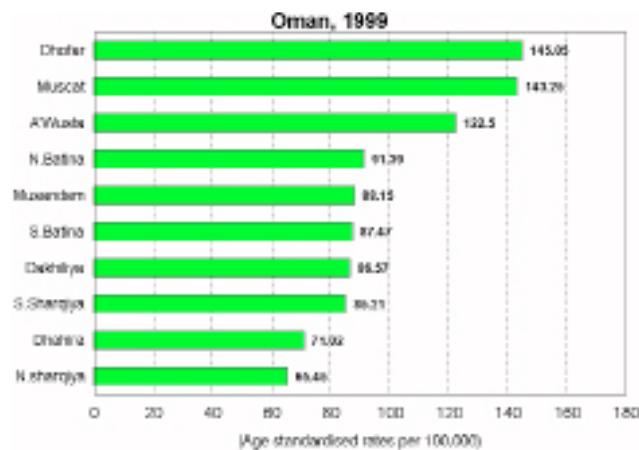


Figure 5. Regional Distribution of Cancer Cases Among Omanis, Oman, 1999

Breast Cancer

It is the most common cancer among Omani females. The age adjusted incidence in 1999 being 13.1/100,000 (Fig 2). A higher incidence is reported from some other Middle Eastern countries e.g. Egypt, Palestine and Kuwait (3). Factors which may contribute to the low incidence of breast cancer in Oman are early age at first childbirth, multiparity, prolonged lactation period and infrequent use of oral contraceptive pill.

Lung Cancer

It is the second most common cancer among males 10.1%, age standardised rate being 12.1/100.000. Cigarette and shisha smoking are thought to be associated, however no analytical studies have been carried out as yet.

Research Studies

An analysis of the cancer incidence in Oman from 1993-1997 has been made. There is a slow increase in the number of cases being registered (Fig 6). Epidemiological studies are being conducted for lung and stomach cancers in the tertiary

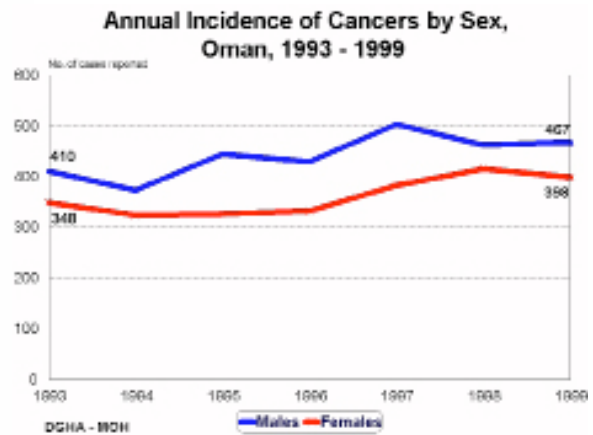


Figure 6. Regional Distribution of Cancer Cases

public hospital in Oman.

National Policy

The Cancer Control Program is a part of the more comprehensive non-communicable diseases program. There is a consultative cancer control committee which oversees the management and control of cancer in Oman.

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