

# AN EPIDEMIOLOGICAL STUDY OF CANCERS IN THE UNIVERSITY HOSPITAL: A PRELIMINARY REPORT

LIM HENG HUAT

## INTRODUCTION

IN RECENT YEARS, cancers or malignant neoplasms have emerged as the second leading cause of death (among the medically certified and inspected deaths) in West Malaysia, accounting for 8.9% of these certified deaths in 1976. A decade ago in 1966, the corresponding figure was only 6.7%. These figures are likely to be under-estimations of the true picture as only about 30% of all deaths in West Malaysia are medically certified (Malaysia, 1968 & 1978). Over the 10-year period, from 1966 to 1976, the death rate due to cancer for Peninsula Malaysia rose from 16.4 per 100,000 population to 20.3 per 100,000 population (Malaysia, 1968 & 1978). These rates are again likely to be under-estimations.

In contrast to the emerging importance of cancers as a major health problem, there is still a great lack of documented, large-scale epidemiological studies to describe cancer patterns and frequency in the country. Up to date, cancer research in Malaysia has been mainly centred on clinical studies which focused attention on selected cancers of interest to clinicians in their respective practises (Bahari *et al.*, 1976; Ramanathan, 1973; Silva, 1978; Sinnathuray, 1971; Sivanesaratnam and Ang, 1976), or biopsy series which are understandably biased in favour of sites more accessible to biopsy (Ahluwalia *et al.*, 1966; Kutty *et al.*, 1972). Hospital records can also provide a useful impression of the pattern and frequency of cancer in a population but again constitute biased samples with various limitations.

Ideally, the setting-up of a national cancer registration system, to document all cancer cases occurring in the country, would make possible the carrying out of comprehensive, nation-wide epidemiological studies. Until such time when complete registration of all cancer cases is possible, however, all these various studies — clinical,

biopsy, hospital records, etc., are necessary to provide a general impression of cancer epidemiology in the country.

## METHODOLOGY

The material for this study comprises of about 2000 cancer cases discharged from the University Hospital, Kuala Lumpur, during a 3-year period, from 1972 to 1974. Compilation of data is currently still in progress. This preliminary report is based on an analysis of data for 1973. There were a total of 664 cancer cases discharged from the University Hospital in 1973. Readmissions during the year were programmed by computer to be excluded from the analysis: each case therefore being counted only once. The age, sex and ethnic group distribution of the various types of cancer (using the International Classification of Diseases, W.H.O., 8th Revision, 1965), were analysed. Case records were also examined to determine the basis of diagnosis for each of the cancer cases. The total number of cases discharged from the University Hospital, 1973 (for all diagnoses, including cancers) were also analysed to provide a baseline impression of the hospital intake population. Readmissions were again similarly excluded.

## RESULTS

The total number of patients discharged from the University Hospital during 1973 (for all diagnoses, including cancers) was 13,264. Table I shows the age, sex and ethnic group distribution. 51.2% were males, 48.8% were females. The majority of the patients were Chinese (50.1%), followed by Indians (30.0%), Malays (16.8%), Orang Asli (1.1%) and Others (2.0%). This reflects the greater utilization of the University Hospital by Chinese patients during 1973, and subsequent findings have to be interpreted in this light.

The number of cancer patients during the same period was 644, constituting 4.9% of the total 13,264 patients. The age, sex and ethnic group distribution of the 644 cases is shown in Table II. 55.0% were males compared to 45.0% females. The highest frequency of cancers occurred among the Chinese (69.7%). The percentage distribution of these cancer cases is compared

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LIM HENG HUAT, M.B.B.S. (Malaya)

Department of Social & Preventive Medicine,  
University of Malaya, Kuala Lumpur.

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**TABLE I**  
**DISTRIBUTION OF PATIENTS (ALL DIAGNOSES) BY AGE, SEX AND ETHNIC GROUP,**  
**UNIVERSITY HOSPITAL, 1973**

Age Group (years)	Malay		Chinese		Indian*		Orang Asli		Others		Total	
	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female
Below 1	167	145	382	243	226	214	9	12	10	8	794	622
1 - 4	89	59	184	127	126	97	8	4	6	3	413	290
5 - 14	108	67	324	210	201	132	16	5	9	12	658	426
15 - 24	349	298	676	624	338	336	5	16	20	24	1388	1298
25 - 34	218	247	449	843	266	464	11	8	22	41	966	1603
35 - 44	105	84	302	411	206	269	12	19	14	25	639	808
45 - 54	74	56	238	353	251	152	9	3	17	15	589	579
55 - 64	60	31	368	318	288	114	1	3	11	8	728	474
65+	40	29	321	270	230	71	5	2	14	7	610	379
Total	1210	1016	3244	3399	2132	1849	76	72	123	143	6785	6479

**TABLE II**  
**DISTRIBUTION OF ALL CANCER PATIENTS BY AGE, SEX, AND ETHNIC GROUP,**  
**UNIVERSITY HOSPITAL, 1973**

Age Group (years)	Malay		Chinese		Indian*		Orang Asli		Others		Total	
	M	F	M	F	M	F	M	F	M	F	M	F
Below 1	0	1	0	0	1	0	0	0	0	0	1	1
1 - 4	0	1	9	3	2	1	1	0	0	0	12	5
5 - 14	1	0	9	1	0	2	0	0	0	1	10	4
15 - 24	4	4	11	14	2	2	0	0	0	0	17	20
25 - 34	5	5	18	21	1	4	2	0	0	0	26	30
35 - 44	2	3	26	35	8	5	3	0	0	0	39	43
45 - 54	7	4	28	40	15	12	3	1	0	0	53	57
55 - 64	8	6	62	55	25	10	0	2	0	0	95	73
65+	6	3	73	44	20	8	0	1	2	1	101	57
Total	33	27	235	213	74	44	9	4	2	2	354	290

**TABLE III**

**PERCENTAGE DISTRIBUTION OF ALL CANCER PATIENTS BY ETHNIC GROUP, COMPARED WITH TOTAL UNIVERSITY HOSPITAL PATIENTS, 1973**

Ethnic Group	Total University Hospital Patients		All Cancer Patients	
	Number	Percentage (%)	Number	Percentage (%)
Malay	2226	16.8	60	9.3
Chinese	6643	50.1	449	69.7
Indian	3981	30.0	118	18.3
Orang Asli	148	1.1	13	2.0
Others	266	2.0	4	0.6
Total	13264	100.0	644	100.0

**TABLE IV**

**TEN MOST COMMON CANCERS UNIVERSITY HOSPITAL 1973**

Male			Female		
Site (ICD 8th Revision)	Number of cases		Site (ICD 8th Revision)	Number of cases	
155 Liver	51		180 Cervix	55	
151 Stomach	45		174 Breast	32	
162 Lung	42		151 Stomach	20	
204-7 Leukaemia	21		162 Lung	18	
147 Nasopharynx	20		183 Ovary	18	
154 Rectum	17		155 Liver	14	
150 Oesophagus	15		153 Colon	12	
172-3 Skin (including melanoma)	15		204-7 Leukaemia	12	
153 Colon	14		172-3 Skin (including melanoma)	12	
161 Larynx	14		150 Oesophagus	11	
140-209 All Sites	354		140-209 All Sites	290	

with that of the total hospital patients in Table III. The high percentage of Chinese cancer patients is probably due in part to their greater utilization of the University Hospital, but there is a suggestion of relative Chinese predominance in the types of cancers seen in the hospital in 1973. However, further analytical studies in greater depth would have to be carried out to validate these findings.

**TABLE V**

**FIVE MOST COMMON CANCERS IN CHINESE PATIENTS, UNIVERSITY HOSPITAL, 1973**

Male			Female		
Site (ICD 8th Revision)	Number of cases		Site (ICD 8th Revision)	Number of cases	
155 Liver	39		180 Cervix	38	
162 Lung	33		174 Breast	26	
151 Stomach	31		162 Lung	17	
147 Nasopharynx	15		151 Stomach	16	
204-7 Leukaemia	13		183 Ovary	14	
140-209 All Sites	236		140-209 All Sites	213	

**Cancer patterns**

The ten most common cancers in this series are listed in Table IV. Among males, carcinoma of the liver was the most common cancer, accounting for 14.4% of all cancers in male patients, followed by carcinoma of the stomach (12.7%) and lung (11.9%). The other common sites were blood (leukaemias), nasopharynx, rectum, oesophagus, skin, colon and larynx. Among females, carcinoma of the cervix was the predominant cancer (19.0% of all cancers in female patients). (N.B. This excludes carcinoma-in-situ of the cervix) Breast cancer accounted for 11.0%, stomach (6.9%), lung and ovary (each 6.2%). Other common sites were liver, colon, blood (leukaemias), skin and oesophagus, (Table IV).

Analysis of the results by ethnic group showed that the 5 leading cancers among Chinese males were liver (16.5%, of all cancers among Chinese males), lung (14.0%), stomach (13.1%), nasopharynx (6.4%) and leukaemias (5.5%), (Table V). Carcinoma of the cervix was the leading cancer among Chinese females (17.8% of all cancers among Chinese females), the other 4 leading sites being breast (12.2%), lung (8.0%), stomach (7.5%) and ovary (6.6%), (Table V). For the other ethnic groups, the number of cases in 1973 was too small for any meaningful analysis in this preliminary report. Additional data, currently being compiled for the 3-year period (1972 to 1974) should yield sufficient material for further analysis.

The racial distribution of the more common cancer sites in this series is shown in Table VI. As noted earlier, for all cancer sites, the Chinese had the highest frequency compared to the other races. When these individual cancers (of the

**TABLE VI**  
**DISTRIBUTION OF SELECTED CANCER SITES BY ETHNIC GROUP,**  
**UNIVERSITY HOSPITAL, 1973**

Site (ICD 8th Revision)		Number of cases					Total
		Malay	Chinese	Indian	Orang Asli	Others	
151	Stomach	1	47	16	1	0	65
155	Liver	9	49	6	1	0	65
162	Lung	6	50	4	0	0	60
174	Breast	0	26	7	0	0	33
180	Cervix	7	38	9	1	0	55
204-7	Leukaemia	2	21	8	1	1	33
140-209	All Sites	60	449	118	13	4	644

stomach, liver, lung, breast, cervix and leukaemias) were analysed by racial distribution, the highest percentages were again found in the Chinese (varying from 63.7% for leukaemias to 83.3% for lung cancer).

The age distribution of patients for the more common cancers in the series is shown in Table VII. There was a greater frequency of carcinoma of the stomach, liver, lung, breast and cervix in the older groups. The modal class (with the highest frequency) was the (55-64) years age group for carcinoma of the stomach, liver and breast; (65 and above) years age group for carcinoma of the lung, and (45-54) years age group for carcinoma of the cervix. For leukaemias, the younger age groups show the highest frequency, the modal class being (5-14) years.

### DISCUSSION

It must be borne in mind that the data presented here are based on hospital records, which are, as pointed out earlier, biased samples of the population. Hospital samples represent only a selective proportion of the actual population at any one time period. There is a selective bias

in the hospital utilization and intake of cases, depending on 3 basic factors. The first factor constitutes the local population, and its attitude towards hospitalization, which may be culturally influenced. Secondly, the hospital facilities (for diagnosis and treatment), bed capacities, reputation and policies on admission may also affect the hospital intake. Finally, the available specialist staff and their fields of interest, may influence types of cases admitted.

The reliability of the data may also be affected by problems such as missing/misplaced records, erroneous diagnosis, and errors incurred during any of the stages from initial data recording to final processing. However, bearing these limitations in mind, hospital records can still provide useful impressions of the pattern and frequency of cancer in a local population.

Table VIII shows the basis of diagnosis for the 644 cancer cases in 1973. A high percentage of these cases (81%) was diagnosed by autopsy, biopsy, haematology or cytology. Another 9% of cases was diagnosed by exploratory operation or radiology (including radioactive isotope scans). Only 5.9% of cases was diagnosed "clinically",

**TABLE VII**  
**AGE DISTRIBUTION OF PATIENTS BY SELECTED CANCER SITES,**  
**UNIVERSITY HOSPITAL, 1973**

Site (ICD 8th Revision)	Number of cases in each age-group (years)									
	Below 1	1-4	5-14	15-24	25-34	35-44	45-54	55-64	65+	Total
151 Stomach	0	0	0	0	1	8	8	26	22	65
155 Liver	0	0	1	1	7	7	13	19	17	65
162 Lung	0	0	0	0	2	3	7	21	27	60
174 Breast	0	0	0	2	5	6	4	9	7	33
180 Cervix	0	0	0	1	6	11	21	8	8	55
204-7 Leukaemia	2	6	9	5	5	2	2	1	1	33
140-209 All Sites	2	17	14	37	56	82	110	168	158	644

without any form of investigation. This is a factor in favour of data reliability, in the sense that a great proportion of these cancer cases were diagnosed by methods which were presumably highly accurate and precise.

A few general impressions can be elicited from this preliminary study. Firstly, there seems to be a higher frequency of cancers in the Chinese (in excess of that expected from the utilization rate of the hospital). The significance of this needs to be further investigated. Secondly, the most common cancers among males seen in this series were from the gastro-intestinal tract (stomach, liver) and the respiratory tract (lung). This is especially so among the Chinese. For the other races, the numbers involved at this stage are too small to describe cancer patterns. Among the females, cancer of the cervix and breast were the predominant cancers. Further comparisons with experiences in other neighbouring countries, especially Singapore (Shanmugaratnam, 1973), are deemed premature at this stage. It is hoped that some useful comparisons can be done with subsequent analysis.

### SUMMARY

A descriptive study of approximately 2000 cancer cases discharged from the University Hospital, Kuala Lumpur, during the 3-year period from 1972 to 1974, was carried out to analyse cancer patterns and frequency in the various age, sex and ethnic groups. This preliminary report is based on an analysis of data for 1973. There was a total of 644 cancer cases discharged during 1973, constituting 4.9% of the

**TABLE VIII**  
**BASIS OF DIAGNOSIS OF CANCER CASES**  
**UNIVERSITY HOSPITAL**  
**1973**

Basis of Diagnosis	Number of cases	Percentage
Autopsy	29	4.5
Biopsy	450	69.9
Haematology	31	4.8
Cytology	11	1.7
Exploratory Operation and Radiology	58	9.0
Clinical	38	5.9
Unknown*	27	4.2
Total	644	100.0

total hospital patients (for all diagnoses). The highest frequency of cancers occurred among the Chinese (69.7%), in excess of that expected from their utilization rate of the hospital (50.1%). The 5 most common cancers in males were liver, stomach, lung, leukaemia and nasopharynx. In the females, the 5 leading cancers were cervix, breast, stomach, lung and ovary. This is the pattern reflected among the Chinese; for the other races, the numbers involved at this stage were too small for analysis. The age distribution

of the patients in this study showed that cancers of the stomach, liver, lung, breast and cervix predominate in the older age groups (45 years and above), while leukaemia was more common among the younger age groups.

### ACKNOWLEDGEMENTS

My sincere thanks to Professor Arumanayagam for his constant encouragement and expert guidance during this study; Mrs. Chan Huan Huat and Mr. F.M. Chong for their untiring efforts in assisting me during data collection; Mrs. P.C. Phung for her invaluable help and advice in Medical Records; Mr. P. Arunasalan of the Computer Centre; and Miss M.L. Yap for typing this manuscript. Special thanks also to Professor Prathap for his very kind assistance in making available the Pathology records.

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