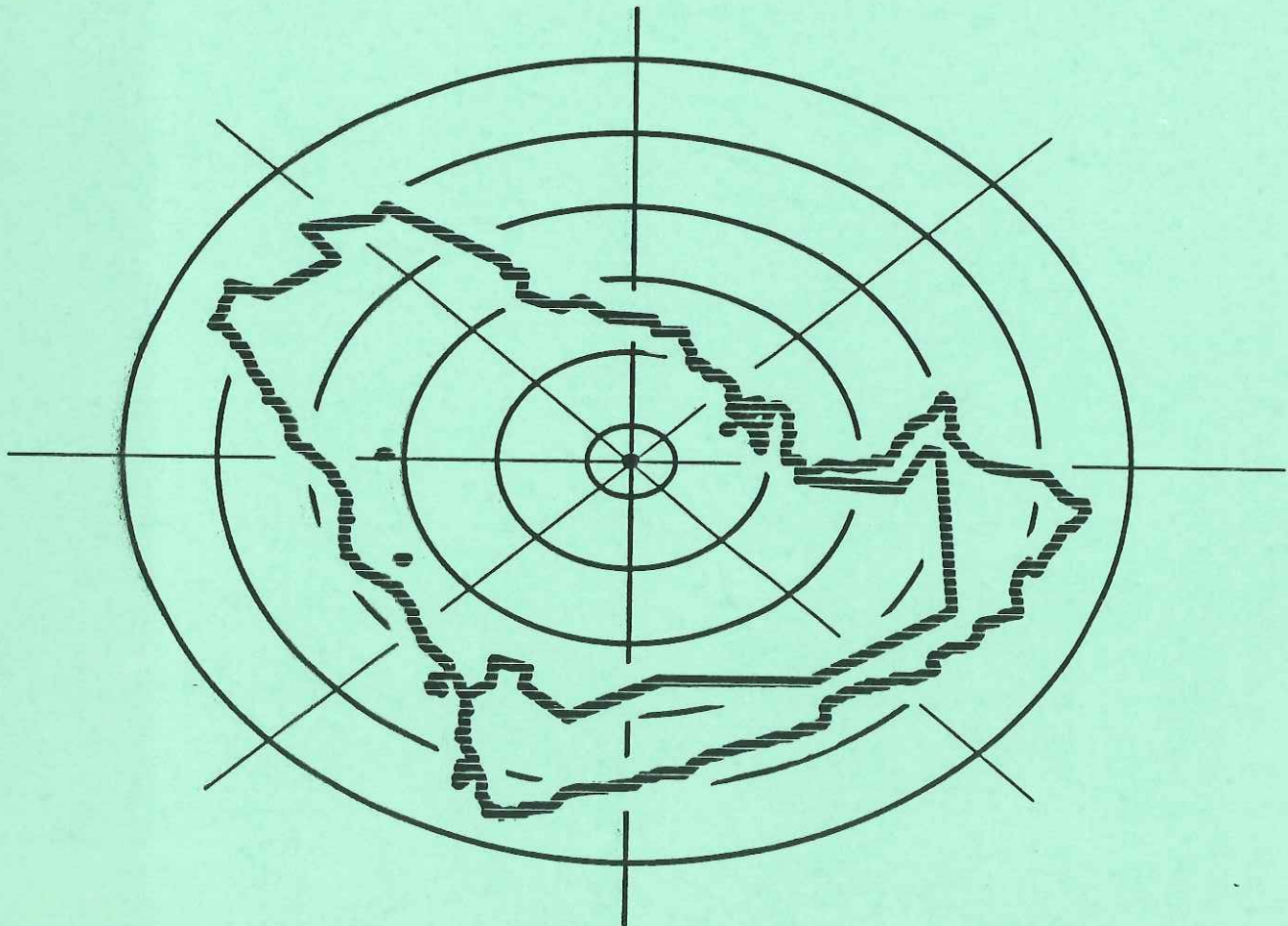


**1988
ANNUAL REPORT
OF THE
TUMOR REGISTRY**



**KING FAISAL SPECIALIST HOSPITAL & RESEARCH CENTRE
RIYADH, KINGDOM OF SAUDI ARABIA**

1988 ANNUAL REPORT OF THE TUMOR REGISTRY

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The following Departments have assisted throughout the year and without their invaluable support this report would not be possible. The Registry staff acknowledges these Departments:

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Computer and Hospital Information Centre
Medical Records Department
Photographics Department

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I. KING FAISAL SPECIALIST HOSPITAL & RESEARCH CENTRE CANCER PROGRAM ACTIVITIES

Tumor Registry

The KFSH&RC Tumor Registry is a data system designed for the collection, management, and analysis of data on patients with the diagnosis of a malignant disease (cancer). The basic source document is the patient's medical record from which pertinent information is abstracted for use in the Registry.

The primary responsibility of the Registrar is to assure that complete and accurate data are collected and maintained on all cancer patients diagnosed and/or treated within this institution. Records are reviewed for both inpatients (patients admitted to the Hospital) and outpatients (patients seen in a clinic, emergency room, Polyclinic, Family Health, or other hospital facility). The Cancer Registry Abstract is the primary document on which the details of each diagnosed cancer patient are recorded. Included are pertinent facts such as demographic information, medical history, diagnostic findings, stage of disease, cancer therapy, and follow-up data. Please refer to Figure 1 for a sample abstract.

Once the data are collected, the ability and need to utilize them is paramount. One of the major functions of the Tumor Registry is to prepare annual reports which summarize the Registry's cancer experience. In addition, the Registry provides a wide variety of reports at the request of physicians and researchers. The goal of the Tumor Registry of KFSH&RC is to provide the medical staff with data that will enable them to see the results of their diagnostic and therapeutic efforts, and to provide them with information with which to improve the care of the patient with cancer.

Additionally the Registry serves as a resource for continuing education of physicians and paramedical personnel at clinical conferences, medical society meetings, seminars, and discussion groups. The Tumor Registry can serve as the focus for the interdisciplinary approach to cancer management, including surgery, radiotherapy, chemotherapy, immunotherapy, and hormone therapy. The Registry can provide the hospital staff, both medical and administrative, with statistical and analytic summary reports evaluating the cancer problem in the institution. These reports assist administrators with solving their operational problems and assist physicians with the development of comprehensive cancer care.

The registry, under the medical supervision of the Tumor Committee maintains a complete data base of all cancer cases diagnosed and/or treated at KFSH & RC. This database now includes more than 17,000 cases diagnosed from June 1975 through December 31, 1988. Approximately 2,100 new cases are being added annually.

The data maintained by the registry are available for use by the medical staff for special studies, audits, and research. During 1988, the Registry participated in 46 special studies utilizing data from the computerized file. The use of registry data has steadily increased during the past year and its continued use is encouraged. Please refer to Appendix A for a listing of Special Studies requested in 1988.

**KING FAISAL SPECIALIST HOSPITAL
AND RESEARCH CENTRE**

CANCER REGISTRY ABSTRACT

Abstract No. 870123	Seq. No. 00 CC 2 RS 1	MR # 214657	Patient's Full Name
Address: Riyadh		Name	041
Telephone: 01461234		Age	1946
Referral Clinic: Riyadh Central Hospital		Sex	F
Comments:		Mat.	SA
PRIMARY SITE: Breast, UOQ, Right Laterality <u>right</u> Other Primary Tumors <u>none</u> Diagnostic Confirmation Hist. <u>X</u> Cytol. _____ Clinical _____ Radlog _____ HISTOLOGY: Infiltrating Ductal Carcinoma KFSH Pathology Numbers: Grade III 871570		Clinic No. 0101 Referral Clinic I.D. No. 81458	
Size of Primary Tumor: No. nodes Exam. 14 3.5cm No. Pos. Nodes 2		Primary Site 1744 Lat. DC 11 Histology 856033 Date Initial Symptoms 010886 Date of Diagnosis 05 JAN 87 Date of KFSH Referral 20 JAN 87	
STAGING: AJC STAGING: Clinical/Stage Surgical/Eval Pathological X T 2A N 1A M 0 AJC Stage II Summary Staging: In situ _____ Localized _____ Regional X Distant Unknown Site of Distant Mets _____ Substantiation: 2/14 regional lymph nodes (+) Site Specific Stage: _____		Size 04 Nodes 14 Basis 02A01A0 AUC Stage 2 Stage 0 Sites Mets _____ _____	

Form 980-13 (10-06) (CONTINUED ON THE BACK)

FIGURE 1

TREATMENT	TYPE	DATE DD MM YY	DESCRIPTION	CODE	RESULT
01	S.G.	21 Jan 87	Rt mod rad mastectomy	85.43	
02	C.T.	01 Feb 87	Tamoxifen	99.24	
03	R.T.	16 Feb 87	Chest wall & reg Lymph.	6000	
04	C.T.	01 Mar 87	Adria, Ctx, 5-FU	99.25	
05	S.G.	22 Dec 87	FNA Supraclav. LN (+)	40.11	
06					
07					
08					
09					

OTHER DIAGNOSES:	Mother had breast cancer
SPECIAL STUDIES:	
COMMENTS:	ERA (+), PRA (+)

Date of Last Follow-Up 01 March 1988 Patient Status not free of disease Date of 1st Recurrence 22 December 1987 Type of Recurrence distant Sites of Distant Metastases bone, liver, supraclav. LNS Date of Death _____ Cause of Death _____ KFSH Physician Oncologist Radiation Oncologist Surgeon	Date of FU 01 MAR 88 Patient Status 01 Date 1st Recurrence 22 DEC 87 Type Dist. Sites 05480 Date of Death 000000 Cause of Death 000000 Physician codes 012345 678912 345678
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Tumor Committee

The multidisciplinary Tumor Committee, which meets monthly, is the policy-making body of the Cancer Program at KFSH&RC (see Appendix B for membership listing). During 1988, the Committee provided professional guidance to the Tumor Registry, hosted a workshop for the establishment of a National Cancer Registry, promoted several quality control projects on the Registry database, and initiated contact with the International Association of Cancer Registries.

A. Support of a National Cancer Registry in Saudi Arabia

Interest mounted during 1988 for the establishment of a National Cancer Registry in Saudi Arabia. On 02 November 1988, King Abdulaziz City for Science and Technology (KACST) sponsored a one-day workshop (hosted by KFSH&RC) to formulate specific recommendations for the development and implementation of a Kingdom-wide program.

Approximately fifty participants came from all over the Kingdom. The first half of the day was devoted to presentations from various institutions detailing their experience and recommendations. Dr. A. Bedikian represented KFSH&RC with a presentation and proposed abstract form. The last part of the workshop was a group discussion and drafting of formal recommendations.

B. Implementation of the Computerized Suspense File

Increasing need to know the current number of new cancer patients in a given time period, prompted the development of the suspense file. This temporary computer file contains patient information of cases identified but not available for abstraction. As the patient medical record becomes available (usually within three months of diagnosis), the Registrars complete the abstract and move it to the permanent file. The suspense file allows more effective time-management by the Registrars as well as providing up-to-date information to researchers.

C. Quality Control Project for Entire Cancer Registry Database

In an effort to improve the quality and completeness of the KFSH&RC database, a major quality control project commenced in 1988. Through the cooperation of the Computer & Hospital Information Centre (CHIC) and the Biomedical Statistics & Scientific Computing (BS&SC) staff, we were able to compare these two large databases, identify patients who were omitted from the Tumor Registry database, and add these cases to file. Some 251 cancer cases were identified and added to the computer file.

D. Conversion of Lymphomas to New ICD-0 Coding System

In November 1987 the Neoplasm Chapter of the ICD-10 and ICD-0 was approved by the WHO expert committee and the Field Trial Edition has been tested in the USA since that time. Final approval is expected in 1989 with the new ICD-0 published in 1990.

Major changes appear in the Section on Lymphomas. The International Working Formulation scheme of classification of malignant lymphomas has been incorporated. In addition to its prognostic application the Working Formulation was intended to serve as a universal language that could be used to translate and compare information from one classification to another.

Because a large percentage of the cases in the Registry are malignant lymphomas, conversion of the 2,000+ cases of Hodgkin's Disease and non-Hodgkin's lymphomas was accomplished as quickly as possible. This provides compatibility with other national and regional registries throughout the world. At the same time the conversion was accomplished, the Registrars also updated each patient record for staging, treatment, and follow-up information.

E. Quality Control Project on Cases of Multiple Neoplastic Tumors

A total of 180 cases of multiple primary tumors was reviewed by the Registrars. Each record was checked for completeness and accuracy.

F. Interest in International Association of Cancer Registries (IARC)

The Tumor Committee initiated contact with the IARC. This organization is a professional society whose members are interested in the development and application of cancer registration and morbidity survey techniques to studies of defined population groups.

Tumor Board

This educational conference is held once weekly for the benefit of the attending staff, house staff, allied health professionals and visiting attending staff from other hospitals. Cases of various types of malignant disease are selected for presentation on the basis of complexity, unusual manifestations of the disease, or interest. A total of 77 cases were presented in 1988. Each presentation includes an outline of the medical history, physical findings, clinical course, radiographic studies, and pathological interpretations. Following each presentation, there is an informal discussion of the case and a review of pertinent medical literature. Those attending are encouraged to share personal experience in the management of similar cases. Please refer to Appendix C for a summary of cases presented.

Tumor Conference

This didactic conference is held weekly and is attended by the Medical staff and allied health professionals. Speakers are drawn from the KFSH Medical and Research staff as well as from visiting guests. Please refer to Appendix D for listing of the topics presented at Tumor Conference in 1988.

II. THE KFSH&RC TUMOR REGISTRY DATABASE 1975 - 1988: 17,000+ CASES

The KFSH&RC opened in 1975 to provide specialized medical treatment to the people of Saudi Arabia and to promote the prevention of disease through research and education. It is a national referral hospital and the principal center for cancer therapy in Saudi Arabia. There are over 500 inpatient beds and 3,000 employees. Administratively, the Tumor Registry is part of the Oncology Department and under the direction of the Tumor Committee. The Registry was designed to meet the guidelines for an approved American College of Surgeons (ACoS) Cancer Program and the data set contains all ACoS required data items.

The Registry is large (accessioning over 2,100 cases per year) with 17,848 cases on file to date. The database is computerized using a Digital Equipment Corporation PDP 11/70 Computer. Although the Tumor Registry is not population based, KFSH&RC is the primary referral institution for the Kingdom and therefore represents the majority of oncology patients. Until mid-1981, it was the only facility within the Kingdom able to provide radiation therapy.

A total of 17,668 patients (17,848 cases)* were registered during the period between 1975 and 1988 (9925 males and 7743 females). Overall male to female ratio was 1.3.

The largest male:female ratios in non-sex organs were found in cancer of the larynx (6.4), liver (4.2), bladder (4.1), lung (3.8), pancreas (2.9), nasopharynx (2.7), Hodgkin's Disease (2.5), stomach (2.4) and non-Hodgkin's lymphoma (2.3). Only thyroid disease exhibited a markedly low male:female ratio of 0.4.

Figure 2 illustrates the sex distribution, Figure 3 nationality, and Figure 4 the geographic referral pattern of all patients.

The largest number of cancers was seen in the 5th and 6th decades in males and in the 4th and 5th in females. Please refer to Figure 5. The mean age for all patients is 44, the median is 48, and the mode is 60.

A summary of trends of relative frequency of cancer types follows on page 14. The crude relative frequency is the proportion of a given cancer in relation to all cases in a clinical or pathological series. Although such frequencies are subject to many biases, historically many elevated frequencies have been confirmed when complete cancer registration was introduced.

Biases that may have an affect on the relative frequency of different neoplasms include:

- possible nonusage of medical services by some of the population so that the hospital population may not reflect the disease state of the community
- resistance to examination by part of the female population
- absence of postmortem examinations/death certificates
- selective referral of certain malignancies because of a speciality service provided
- age distribution of the population

*Please note distinction between the terms "patient" and "case" throughout this report. A patient with more than one neoplasm will be reported as multiple cases. When primary anatomic site and histology are analyzed, the term "cases" is used; otherwise the statistics are for individual patients.

FIGURE 2
DISTRIBUTION BY SEX BASED ON 17668 PATIENTS

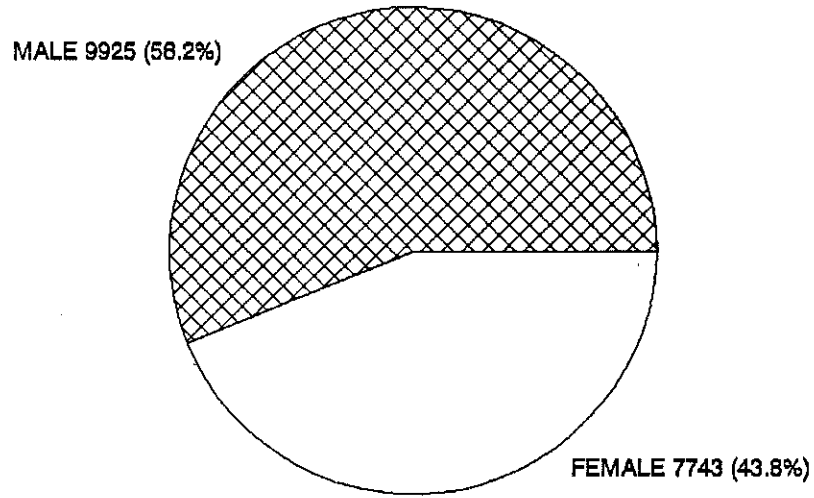


FIGURE 3
NATIONALITY DISTRIBUTION OF 17668 PATIENTS

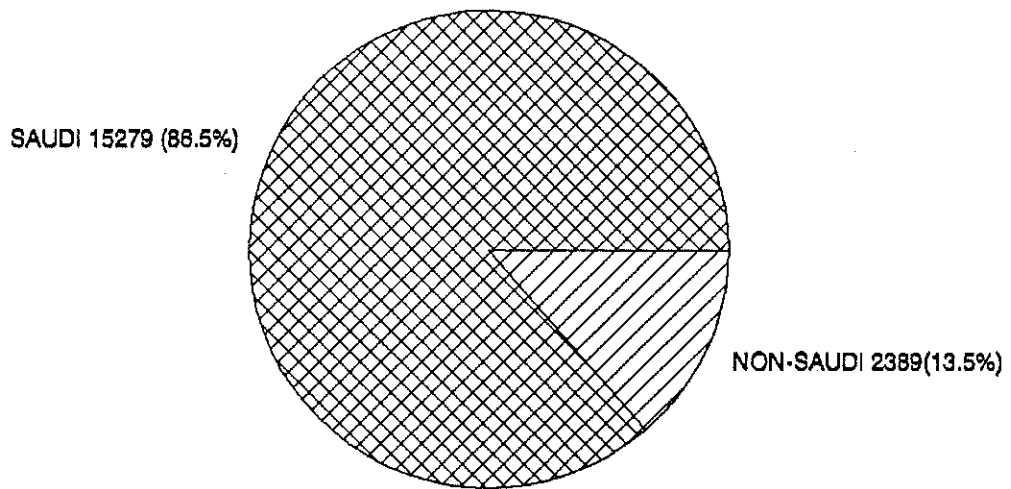


FIGURE 4

DISTRIBUTION OF 17668 PATIENTS BY GEOGRAPHIC REGION
REFERRED TO K F S H 1975 THRU 1988

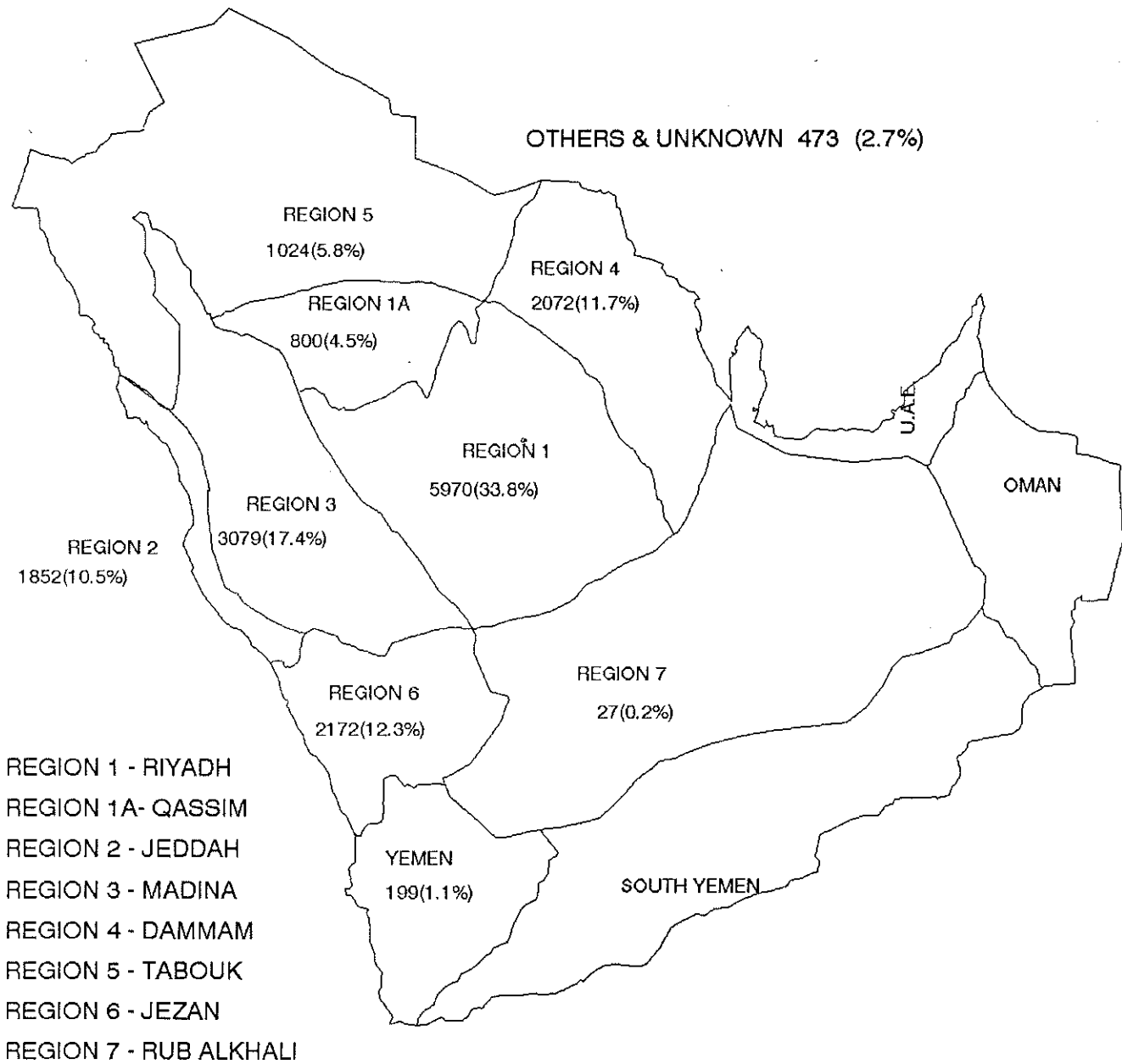


FIGURE 5
DISTRIBUTION BY AGE BASED ON 17668 PATIENTS

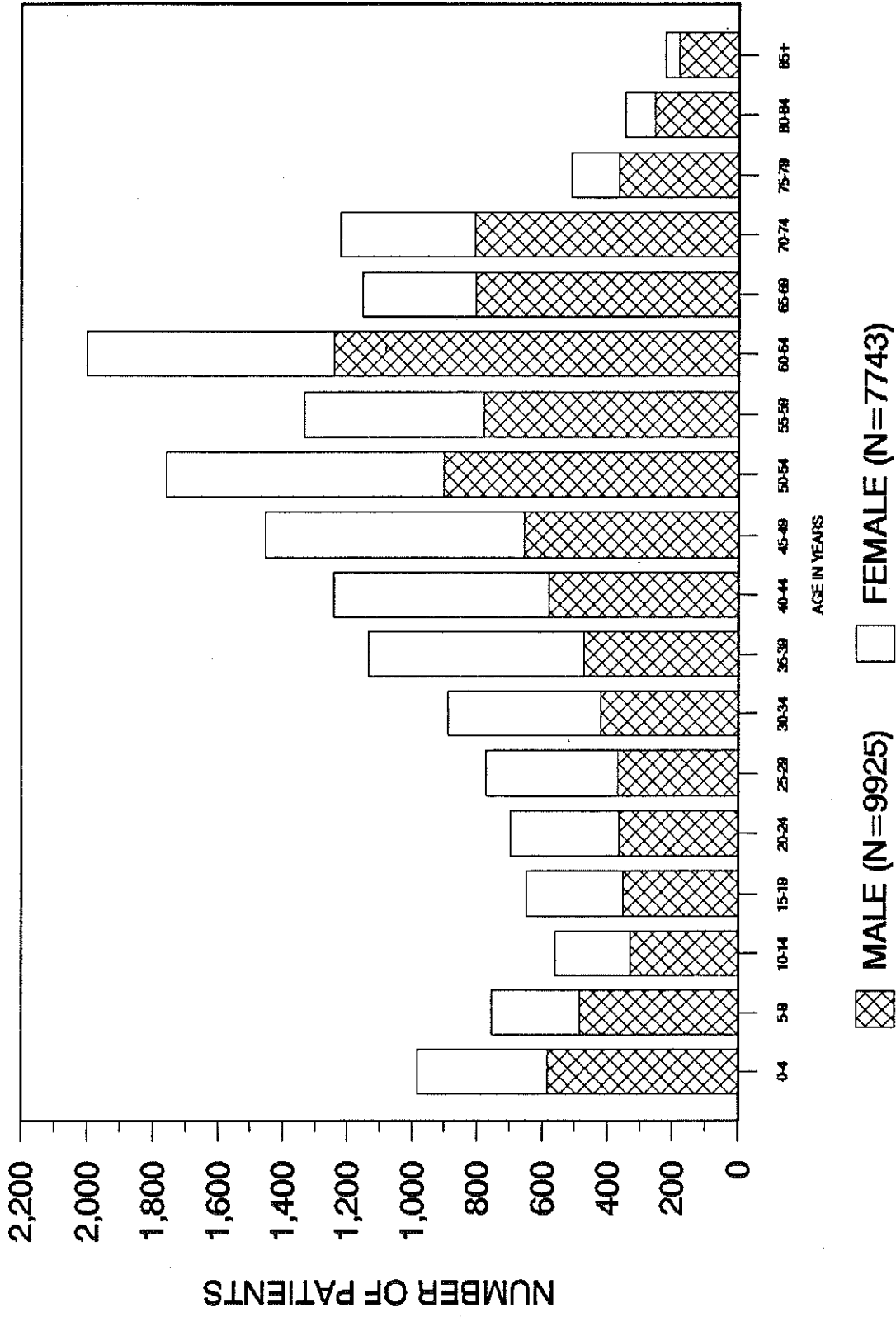
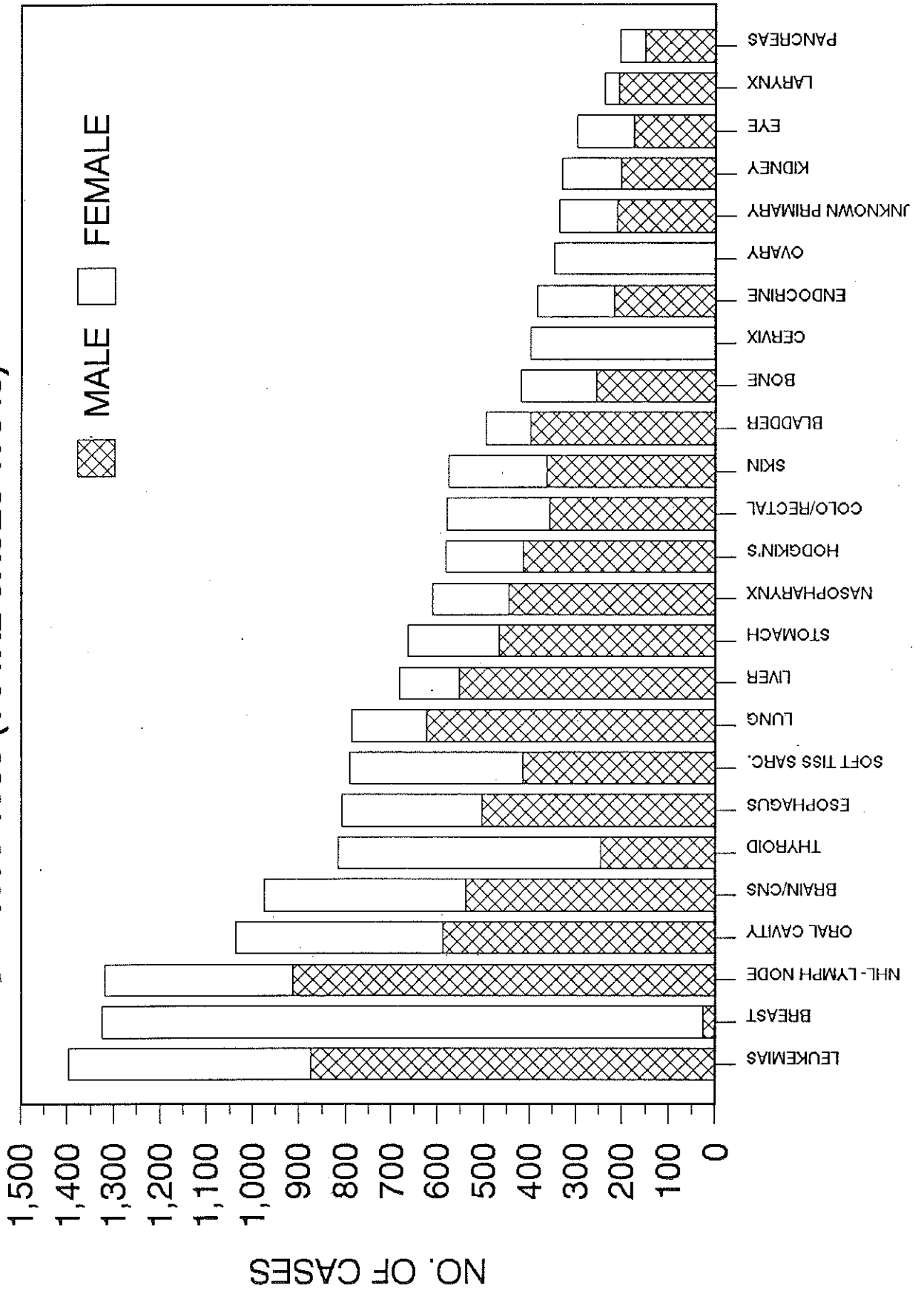


FIGURE 6
FREQUENCY OF 25 MOST COMMON MALIGNANCIES
1975-1988 (TOTAL CASES 17848)



10 MOST COMMON MALIGNANCIES BY SEX

1975 - 1988

FIGURE 7

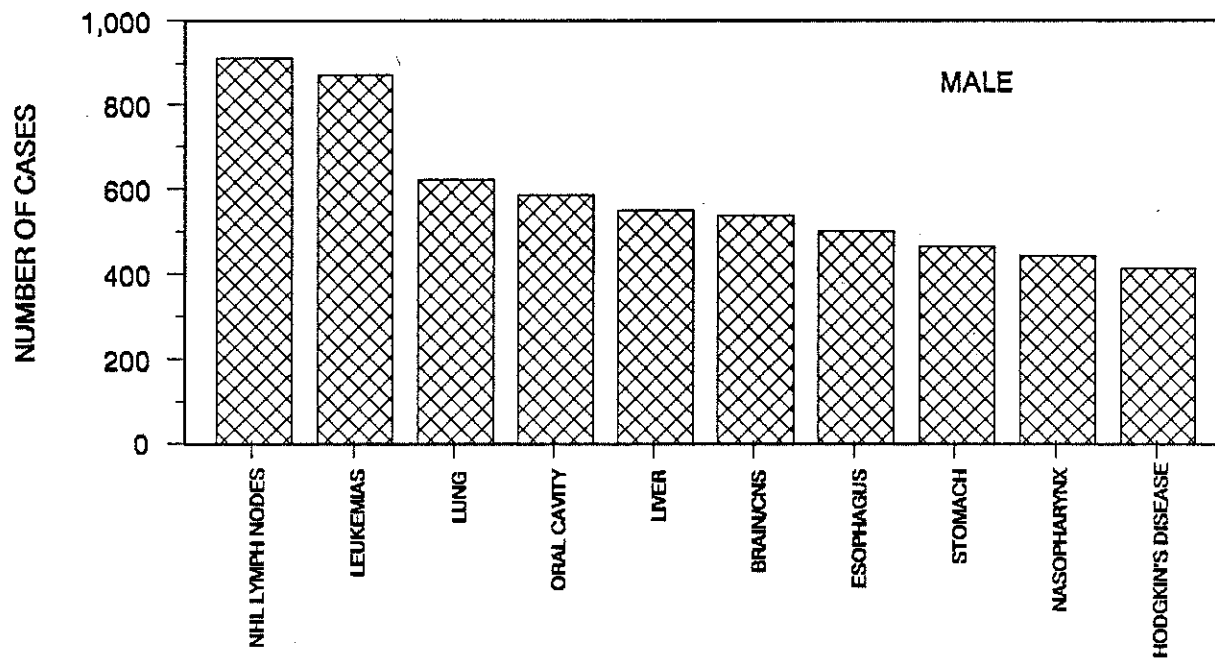


FIGURE 8

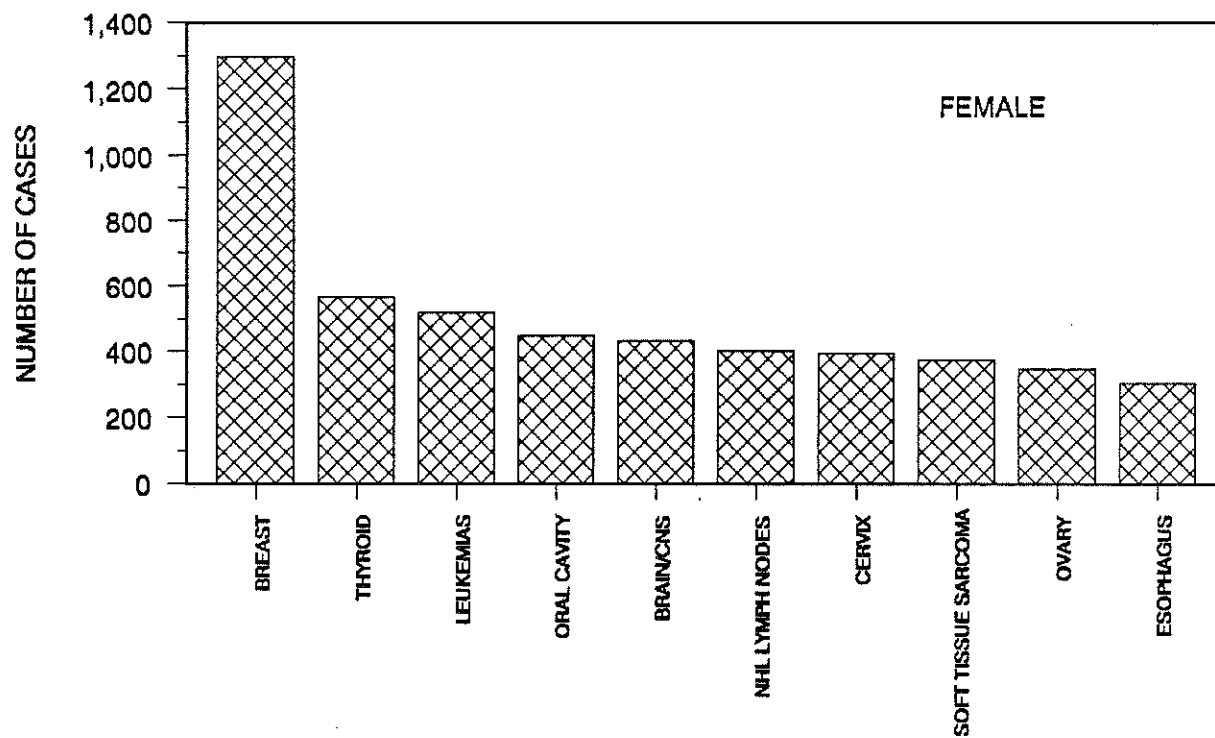


TABLE -1- TOTAL CASES REFERRED TO KFSPH BY AGE AND SITE *
FOR THE YEAR(S) 1975 - 1988

ICD-O	DESCRIPTION	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	75-79	80-84	85+	
140-146,148-9	Oral Cavity	0	5	3	8	18	28	41	48	65	80	133	102	173	108	125	44	32	24	1037
147	Nasopharynx	1	4	20	27	38	27	28	57	54	83	80	51	62	32	29	6	4	8	611
150	Esophagus	0	0	0	1	0	4	13	17	35	48	106	100	169	101	100	50	38	27	809
151	Stomach	0	0	3	0	6	7	21	32	30	41	129	84	129	84	106	40	26	10	666
153-154	Colon, Rectum	2	0	2	6	15	25	39	37	45	56	80	60	94	29	49	20	8	12	579
155	Liver	5	1	0	2	6	10	9	19	45	55	104	89	130	85	72	27	11	12	682
157	Pancreas	1	0	0	0	1	1	3	9	14	18	34	24	35	25	18	11	6	4	204
152,156,158-9	Other GI	7	1	2	4	6	8	8	10	21	22	28	19	30	19	16	8	3	3	215
161	Larynx	0	0	1	0	1	2	6	8	11	14	31	30	49	27	22	20	9	7	238
162-163	Lung	0	0	0	1	4	4	13	25	52	65	96	95	162	117	89	38	17	10	788
169(973)	Multiple Myeloma	0	0	0	0	1	1	1	5	8	16	18	26	16	25	16	8	4	3	165
169(982)	Lymphoid Leukemia	169	148	86	60	35	23	17	11	14	13	17	18	20	13	14	3	7	3	671
169(986)	Myeloid Leukemia	35	47	43	50	47	63	59	51	52	52	48	36	30	16	17	6	6	1	659
169(980-1,3-5,7-94)	Other Leukemias	10	2	6	5	2	4	6	5	4	1	2	2	5	5	6	0	1	1	67
170	Bone, Cartilage Sarc	8	33	78	95	64	39	28	14	14	13	8	3	6	6	7	1	2	0	419
171	Soft Tissue Sarcoma	169	73	50	60	66	44	40	55	31	45	42	31	34	22	16	3	5	5	791
172	Skin Melanoma	0	1	1	0	2	2	6	3	7	10	10	13	18	12	11	3	7	0	106
173	Other Skin Cancer	3	1	3	6	14	14	23	31	45	45	66	46	97	40	61	22	32	27	576
174-175	Breast	0	0	0	1	12	66	119	199	192	219	192	118	103	40	47	10	6	2	1326
179,181-2,184	Uterus, Genital	2	0	0	22	21	28	18	15	34	23	28	16	25	13	13	3	7	3	271
180	Cervix	0	0	0	0	1	13	37	59	38	63	48	36	45	24	20	9	4	1	398
183	Ovary	4	3	11	23	25	18	18	21	22	39	48	24	41	20	21	8	1	1	348
185	Prostate	0	0	0	0	0	0	0	2	1	1	7	17	32	28	38	28	23	13	190
186-187	Testis, Genital	9	0	1	5	12	26	25	21	17	17	12	6	7	2	4	1	0	0	165
188	Bladder	4	2	1	1	2	3	16	29	37	36	58	45	79	52	59	40	18	13	495
189	Kidney, Urinary	76	29	6	6	5	4	12	9	19	23	24	35	31	21	18	7	4	2	331
190	Eye	149	20	3	3	2	2	5	4	11	8	17	7	27	10	16	2	8	3	297
191-192	Brain, CNS	87	137	90	72	52	62	57	73	64	61	52	59	49	26	21	12	1	1	976
193	Thyroid	0	2	12	25	55	64	73	81	80	86	84	48	77	36	50	28	9	6	816
194	Other Endocrine	61	23	22	20	38	32	30	37	33	27	28	16	11	3	3	0	0	0	384
196(959,967-70)	NHL- Lymph Nodes	128	123	38	46	72	67	52	83	78	87	103	81	127	74	87	31	26	16	1319
196(965-66)	Hodgkin's Disease	20	83	65	81	59	58	48	38	26	27	22	15	17	10	6	2	5	0	582
196(972)	Histiocytoses	22	12	4	2	6	10	6	3	2	1	2	3	2	0	2	0	0	0	77
199	Primary Unknown	0	1	1	3	2	4	10	13	27	28	43	36	61	40	32	21	9	5	336
All Others	*****	14	9	10	12	9	13	5	17	20	24	28	12	23	15	22	9	8	4	254
TOTALS		986	760	562	647	699	776	896	1144	1256	1468	1778	1350	2025	1171	1235	521	347	227	17848

* Includes Benign Cases that are Reportable by Agreement of Tumor Committee and Multiple Primary Neoplasms.

TABLE -2-
 MALE CASES REFERRED TO KPFSH BY AGE AND SITE *
 FOR THE YEAR(S) 1975 - 1988

ICD-O	DESCRIPTION	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	75-79	80-84	85+	
140-146,148-9	Oral Cavity	0	2	1	4	12	9	20	23	23	33	61	64	98	75	82	36	24	20	587
147	Nasopharynx	0	3	12	18	23	19	22	44	39	61	60	40	53	24	17	3	2	5	445
150	Esophagus	0	0	0	1	0	4	5	5	11	25	56	64	109	73	63	35	29	23	503
151	Stomach	0	0	0	1	0	2	4	15	18	31	50	32	83	68	82	31	23	10	468
153-154	Colon, Rectum	0	0	1	4	9	18	22	21	26	30	47	35	57	20	38	12	6	11	357
155	Liver	4	1	0	0	4	5	8	10	34	38	83	75	108	76	58	27	9	12	552
157	Pancreas	0	0	0	0	1	1	1	7	12	17	23	16	20	20	15	11	5	3	152
152,156,158-9	Other GI	1	0	1	2	2	4	6	4	11	12	14	11	16	7	6	5	2	2	106
161	Larynx	0	0	0	0	1	1	3	5	9	10	27	27	43	27	19	18	9	7	206
162-163	Lung	0	0	0	1	2	1	11	17	40	50	73	74	135	98	73	29	12	7	623
169(973)	Multiple Myeloma	0	0	0	0	1	1	1	4	11	12	18	8	18	13	15	6	3	3	115
169(982)	Lymphoid Leukemia	112	100	53	39	22	17	10	8	9	8	14	13	18	11	10	2	6	2	454
169(986)	Myeloid Leukemia	18	31	23	34	22	29	31	32	32	30	28	22	20	9	9	4	4	1	379
169(980-1,3-5,7-94)	Other Leukemias	6	1	6	4	1	0	3	1	2	0	1	2	4	4	4	0	1	1	41
170	Bone, Cartilage Sarc	4	17	40	63	39	26	22	7	7	8	5	2	3	5	6	1	1	0	256
171	Soft Tissue Sarcoma	77	42	29	32	34	25	23	23	15	19	20	19	23	14	11	2	3	2	413
172	Skin Melanoma	0	1	1	0	2	2	2	4	7	10	9	9	9	8	7	2	6	0	72
173	Other Skin Cancer	0	1	1	0	2	2	2	2	4	7	10	9	9	8	7	2	6	0	72
174-175	Breast	0	0	0	0	0	0	0	0	1	4	4	1	7	1	3	1	2	1	25
179,181-2,184	Uterus, Genital	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
180	Cervix	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
183	Ovary	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
185	Prostate	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
186-187	Testis, Genital	9	0	1	5	12	26	25	21	17	17	12	6	7	2	4	1	0	0	190
188	Bladder	3	2	1	0	2	3	14	23	24	30	48	38	59	41	50	33	17	10	398
189	Kidney, Urinary	43	15	3	5	1	3	4	4	10	12	15	24	24	17	16	3	2	2	203
190	Eye	84	15	0	1	1	1	3	2	7	5	8	5	16	9	8	2	6	2	175
191-192	Brain,CNS	59	70	53	39	35	32	34	28	26	20	39	28	21	13	7	0	0	0	539
193	Thyroid	0	1	5	3	11	6	16	21	26	28	22	17	33	15	20	14	4	4	246
194	Other Endocrine	34	12	14	9	19	18	16	24	22	16	14	8	10	1	1	0	0	0	218
196(959,967-70)	NHL- Lymph Nodes	88	93	26	25	48	44	38	51	60	60	69	46	88	58	61	22	24	13	914
196(965-66)	Hodgkin's Disease	17	65	47	51	40	45	38	25	21	19	14	10	8	7	3	1	4	0	415
196(972)	Histiocytoses	16	8	1	2	4	8	6	3	1	1	1	2	0	0	2	0	0	0	55
199	Primary Unknown	0	0	1	1	2	1	7	9	20	10	26	22	42	25	21	15	5	4	211
All Others		8	5	7	7	6	6	5	14	14	9	15	8	12	12	17	7	3	4	159
TOTALS		583	484	329	351	366	368	424	479	584	659	909	789	1248	814	812	372	253	183	10007

* Includes Benign Cases that are Reportable by Agreement of Tumor Committee and Multiple Primary Neoplasms

TABLE -3-
FEMALE CASES REFERRED TO KFSH BY AGE AND SITE *
FOR THE YEAR(S) 1975 - 1988

ICD-O	DESCRIPTION	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	75-79	80-84	85+	
140-146,148-9	Oral Cavity	0	3	2	4	6	19	21	25	42	47	72	38	75	33	43	8	8	4	450
147	Nasopharynx	1	1	8	9	15	8	6	13	15	22	20	11	9	8	12	3	2	3	166
150	Esophagus	0	0	0	0	0	0	0	8	12	24	50	36	60	28	37	15	9	4	306
151	Stomach	0	0	2	0	4	3	6	14	12	29	21	9	46	16	24	9	3	0	198
153-154	Colon, Rectum	2	0	1	2	6	7	17	16	19	26	33	25	37	9	11	8	2	1	222
155	Liver	1	0	0	2	2	5	1	9	11	17	21	14	22	9	14	0	2	0	130
157	Pancreas	1	0	0	0	0	0	2	2	2	1	11	8	15	5	3	0	1	1	52
152,156,158-9	Other GI	6	1	1	2	4	4	2	6	10	10	14	8	14	12	10	3	1	1	109
161	Larynx	0	0	1	0	0	1	3	3	2	4	4	3	6	0	3	2	0	0	32
162-163	Lung	0	0	0	0	2	3	2	8	12	15	23	21	27	19	16	9	5	3	165
169(973)	Multiple Myeloma	0	0	0	0	0	0	3	4	5	6	8	8	7	3	3	2	1	0	50
169(982)	Lymphoid Leukemia	57	48	33	21	13	6	7	3	5	5	3	5	2	2	4	1	1	1	217
169(986)	Myeloid Leukemia	17	16	20	16	35	34	28	19	20	22	20	14	10	7	8	2	2	0	280
169(980-1,3-5,7-94)	Other Leukemias	4	1	0	1	1	4	3	4	2	1	1	0	1	1	2	0	0	0	26
170	Bone, Cartilage Sarc	4	16	38	32	25	13	6	7	7	5	3	1	3	1	1	0	1	0	163
171	Soft Tissue Sarcoma	92	31	21	28	32	19	17	32	16	26	22	12	11	8	5	1	2	3	378
172	Skin Melanoma	0	0	0	0	0	0	4	1	3	3	0	4	9	4	4	1	1	0	34
173	Other Skin Cancer	3	1	1	5	6	8	9	16	16	15	22	13	32	15	21	8	14	6	211
174-175	Breast	0	0	0	1	12	66	119	199	191	215	188	117	96	39	44	9	4	1	1301
179,181-2,184	Uterus, Genital	2	0	0	22	21	28	18	15	34	23	28	16	25	13	13	3	7	3	271
180	Cervix	0	0	0	0	1	13	37	59	38	63	48	36	45	24	20	9	4	1	398
183	Ovary	4	3	11	23	25	18	18	21	22	39	48	24	41	20	21	8	1	1	348
185	Prostate	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
186-187	Testis, Genital	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
188	Bladder	1	0	0	1	0	0	2	6	13	6	10	7	20	11	9	7	1	3	97
189	Kidney, Urinary	33	14	3	1	4	1	8	5	9	11	9	11	7	4	2	4	2	0	128
190	Eye	65	5	3	2	1	1	2	2	4	3	9	2	11	1	8	0	2	1	122
191-192	Brain, CNS	28	67	37	33	17	27	25	39	36	35	32	20	21	5	8	5	1	1	437
193	Thyroid	0	1	7	22	44	58	57	60	54	58	62	31	44	21	30	14	5	2	570
194	Other Endocrine	27	11	8	11	19	14	14	13	11	11	14	8	1	2	2	0	0	0	166
196(959,967-70)	NHL- Lymph Nodes	40	30	12	21	24	23	14	32	18	27	34	35	39	16	26	9	2	3	405
196(965-66)	Hodgkin's Disease	3	18	18	30	19	13	10	13	5	8	8	5	9	3	3	1	1	0	167
196(972)	Histiocytoses	6	4	3	0	2	2	0	0	1	0	1	1	2	0	0	0	0	0	22
199	Primary Unknown	0	1	0	2	0	3	3	4	7	18	17	14	19	15	11	6	4	1	125
ALL Others	*****	6	4	3	5	3	7	0	3	6	15	13	4	11	3	5	2	5	0	95
TOTALS		403	276	233	296	333	408	472	665	672	809	869	561	777	357	423	149	94	44	7841

* Includes Benign Cases that are Reportable by Agreement of Tumor Committee and Multiple Primary Neoplasms

TRENDS IN RELATIVE FREQUENCY OF CANCER IN KFSH&RC TUMOR REGISTRY DATABASE

The relative frequencies of primary cancers seen at KFSH&RC are very different than the Western world. Common tumors of the West (lung, colon, and prostate) are much less frequent in Saudi Arabia, although breast cancer in Saudi women is the most common malignancy as it is in the Western countries.

Lymphomas - The most striking feature is the unusually high crude relative frequency of non-Hodgkin's lymphoma (NHL) which is the most common type of malignancy seen in males and sixth most common in females. Male:female ratio is 2.1. NHL is the second most common malignancy in children under the age of 15 years. Overall, 1507 cases were diagnosed with NHL (nodal and extra-nodal), accounting for approximately 8.4% of all neoplasms. In the USA, NHL accounts for only about 2% of all cancer.

Figure 9 illustrates sex and age distribution of these patients. The Pathology Department of KFSH&RC assigns both the Rappaport and Working Formulation classification to each NHL case. Please refer to Figure 10 for graphic display of 1507 NHL cases. Using the Rappaport Classification, the diffuse histiocytic lymphomas constitute the greatest number (702 cases or 46.6%). Diffuse lymphocytic lymphomas make up 14.1% (213 cases) and the diffuse undifferentiated non-Burkitt's lymphomas are 11.5% (173 cases) of the total.

Extranodal disease made up 12.5% of all NHL cases. Of these 188 cases the most common extranodal sites were: Stomach (59 cases), thyroid (31 cases), tonsil (24 cases), and small intestine (19 cases).

Over the past five years, the proportion of referred cancer cases that are diagnosed to be NHL has been coming down (see Page 55). This is so because many of the NHL cases are being treated in other medical facilities with newly established oncology services within the Kingdom.

Hodgkin's Disease represents an additional 3.3% of all cases in the KFSH&RC Registry (compared to only about 1.1% of all forms of cancer in the U.S.A.). The male:female ratio is 2.5.

Figure 11 illustrates sex and age distribution of 582 cases and Figure 12 shows the histologic types. Mixed cellularity type was the most common (252 cases, 43.3%), followed by nodular sclerosis (205 cases, 35.2%).

Second primary neoplasms associated with lymphomas occurred in 26 patients (22 NHL and 4 Hodgkin's Disease).

FIGURE 9
NON-HODGKIN'S LYMPHOMAS DISTRIBUTION BY AGE
(TOTAL CASES= 1507)

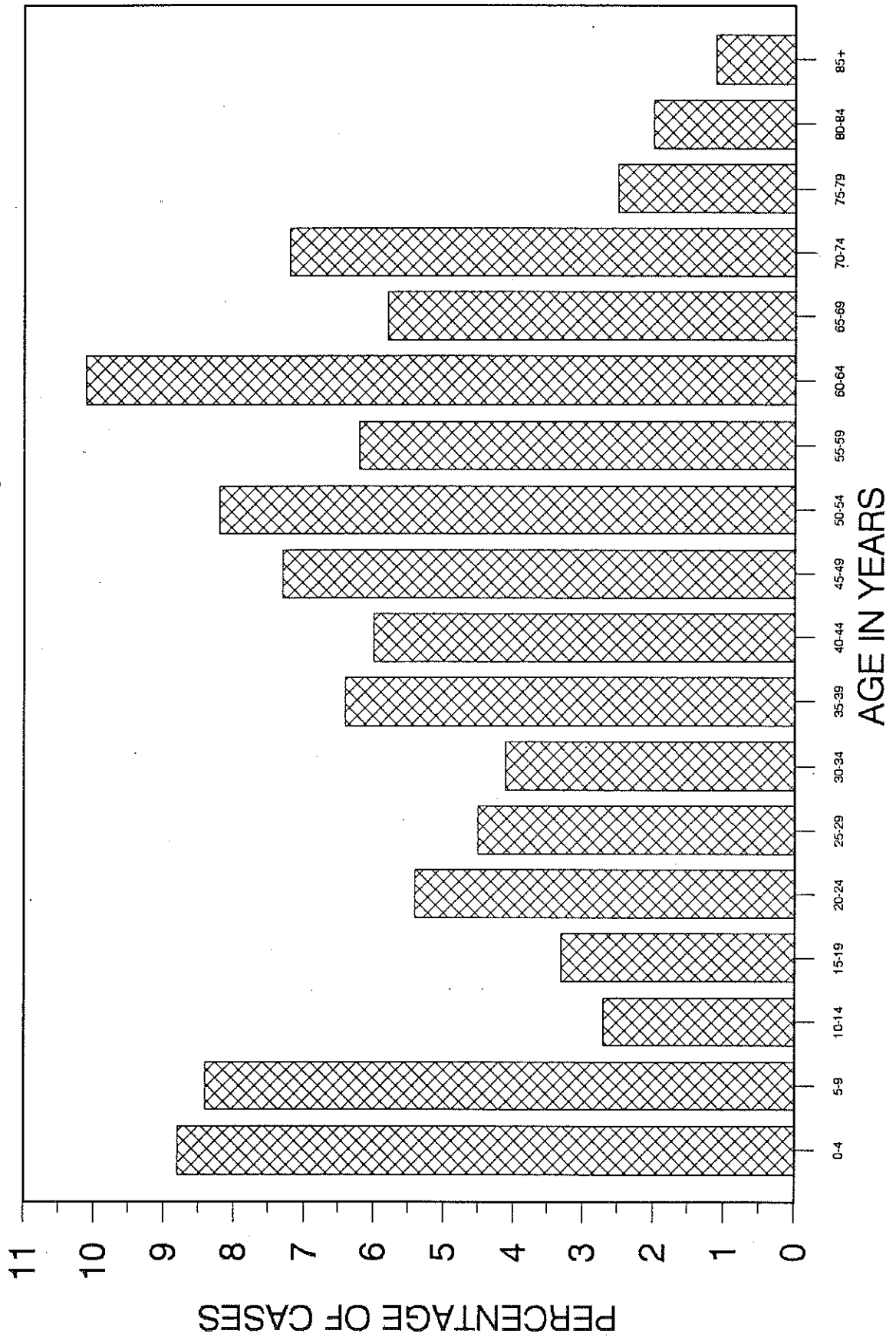
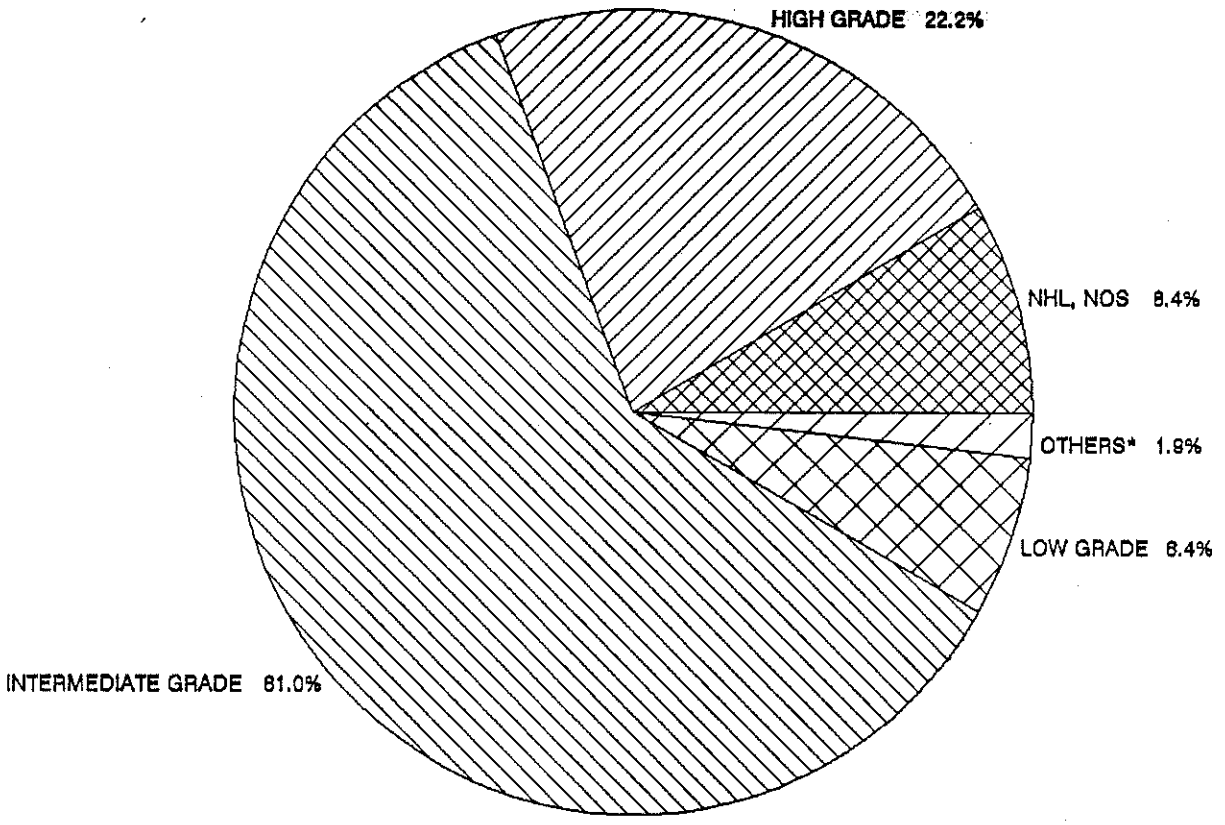


FIGURE 10

**NON-HODGKIN'S LYMPHOMAS WORKING FORMULATION
(TOTAL CASES = 1507)**



* OTHERS INCLUDE MYCOSIS FUNGOIDES,
OTHER LYMPHOMAS

FIGURE 11
HODGKIN'S DISEASE DISTRIBUTION BY AGE
(TOTAL CASES = 582)

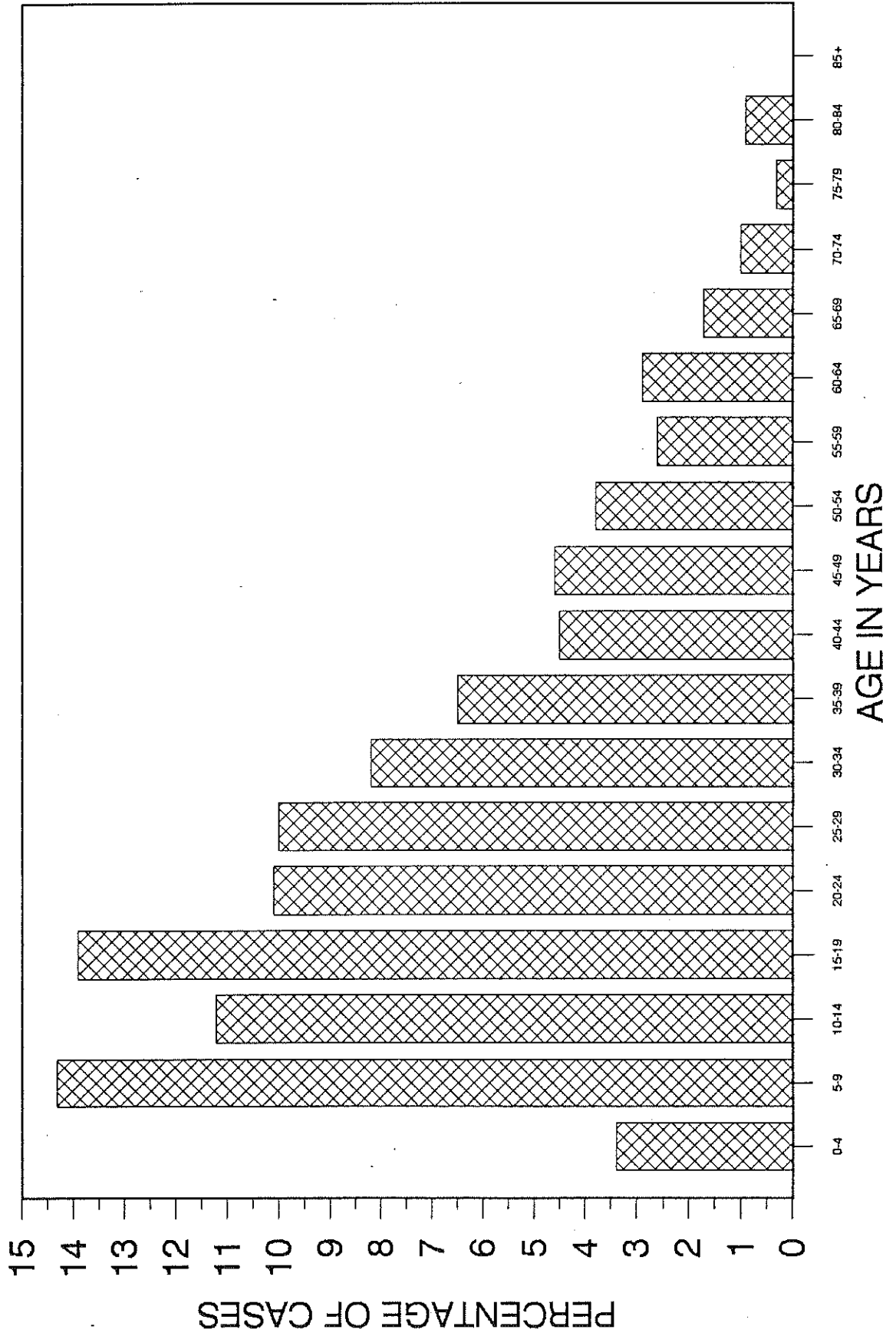
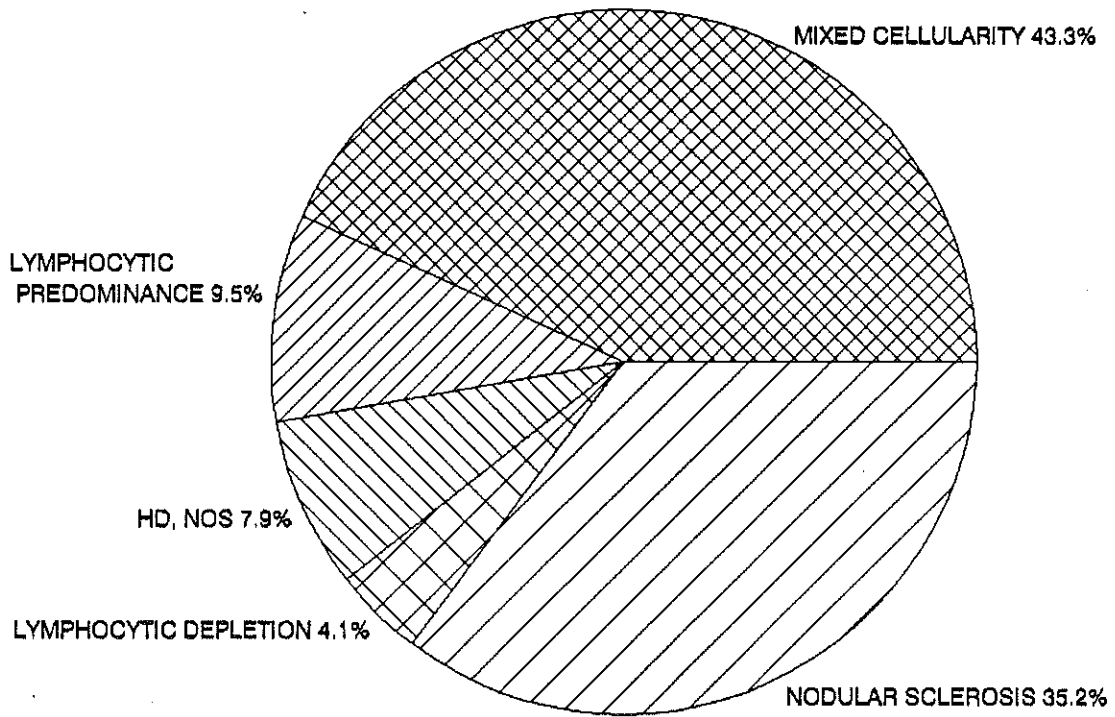


FIGURE 12
HODGKIN'S DISEASE RYE CLASSIFICATION
(TOTAL CASES = 582)



=====
Leukemias - All leukemias constitute the most common neoplasm seen at KFSH&RC. They make up 7.8% of the cases (compared to about 5% of all neoplasms diagnosed in the U.S.A.). The leukemias make up the most common malignancy in children under the age of 15 years.

The male:female ratio is 2.1 for lymphoid leukemia and 1.4 for myeloid.

Breast - In the female, breast cancer was by far the commonest tumor (16.5% of all female malignancies). The mean age at diagnosis was a decade younger than seen in the Western world (average age of a Saudi female with breast cancer is 45 years).

Oral Cavity - High crude relative frequency rates were also found for cancer of the oral cavity. In Western countries, oral cancer accounts for no more than 4% of all cancers, whereas at KFSH&RC it represents 5.8% of the cases. The male:female ratio is 1.3.

Esophagus - The occurrence of esophageal carcinoma is markedly more frequent in Saudi Arabia than in Western countries. In the U.S.A. it constitutes 1.5% of all cancers, compared to 4.5% at KFSH&RC. The male:female ratio is 1.6. The proportion of referred cases with esophageal cancer has steadily decreased during the past 10 years (Page 55).

Lung - Frequency of lung cancer is much lower than in Western countries, most likely reflecting the much lower levels of smoking and industrial pollution. In U.S.A. primary lung cancer represents about 15% of all cancer cases (20% in males, and 11% in females).

At KFSH&RC, 4.4% of the diagnoses are lung cancer, although in males it is the third most common tumor (constituting 6.2% of male malignancies). The male:female ratio is 3.8.

Nasopharynx - The most dramatic crude relative frequency ratios are seen in nasopharyngeal carcinoma when international data are compared. Cancer of the nasopharynx constitutes less than 1% of the pathologically diagnosed cancers in most centers in Europe and America, but is 3.4% of the cases at KFSH&RC. The male:female ratio is 2.7.

Thyroid - 4.5% of all malignancies in the KFSH&RC Registry are thyroid tumors. However, they represent 7.2% of female neoplasms, second only to breast cancer in Saudi women. The male:female ratio is 0.4. The proportion of referred cases of thyroid cancer has steadily increased over the past five years (Page 55).

Colo-Rectal - Markedly less common than in the West, for which dietary factors (particularly lower animal fat intake) may play a role, this disease represents only 3.2% of all tumors. In America it constitutes 15% of newly diagnosed cancer cases. The male:female ratio at KFSH&RC is 1.6.

Prostate - The observed rate of prostatic cancer in men is much lower than in the West, where it is one of the most common male cancers (constituting 20% of the malignancies). This is in contrast to the KFSH&RC experience, where prostatic cancer makes up only 1.9% of the male cancer. This is probably due to the population age difference. Prostate cancer is a disease chiefly of old men, and the population of Saudi Arabia is in general very young.

CHILDHOOD MALIGNANCIES IN SAUDI ARABIA

A total of 2299 children under age 15 were accessioned between 1975 and 1988 (13% of all cases). Boys numbered 1394, and girls 905 (boy:girl ratio was 1.5). Please refer to Figure 13 for age and sex distribution.

The five most common malignancies were:

- Leukemias (547 patients or 23.8% of all childhood malignancies)
- Lymphomas (465 cases or 20.2%)
- Brain/CNS (313 cases or 13.6%)
- Sarcomas (213 cases or 9.3%)
- Eye (169 cases or 7.4%)

The leukemias seen in Saudi children are primarily acute lymphocytic leukemia (about 74%). Acute non-lymphocytic leukemia accounts for 22% and chronic myeloid leukemia for the remaining 4%.

The childhood lymphomas are composed of about one-third Hodgkin's Disease (168 cases) and the remaining two-thirds Non-Hodgkin's lymphoma. Histology in NHL is predominately diffuse undifferentiated lymphoma (145 cases) and Burkitt's lymphoma (59 cases).

See Figure 14 for illustration of ten most common malignancies in children referred to KFSH&RC.

Nine children have multiple neoplasms; one is suspected to have been treatment induced (a patient with malignant fibrous histiocytoma developed osteosarcoma in the irradiated field 11 years later).

FIGURE 13
DISTRIBUTION BY AGE BASED ON 2299 CHILDREN

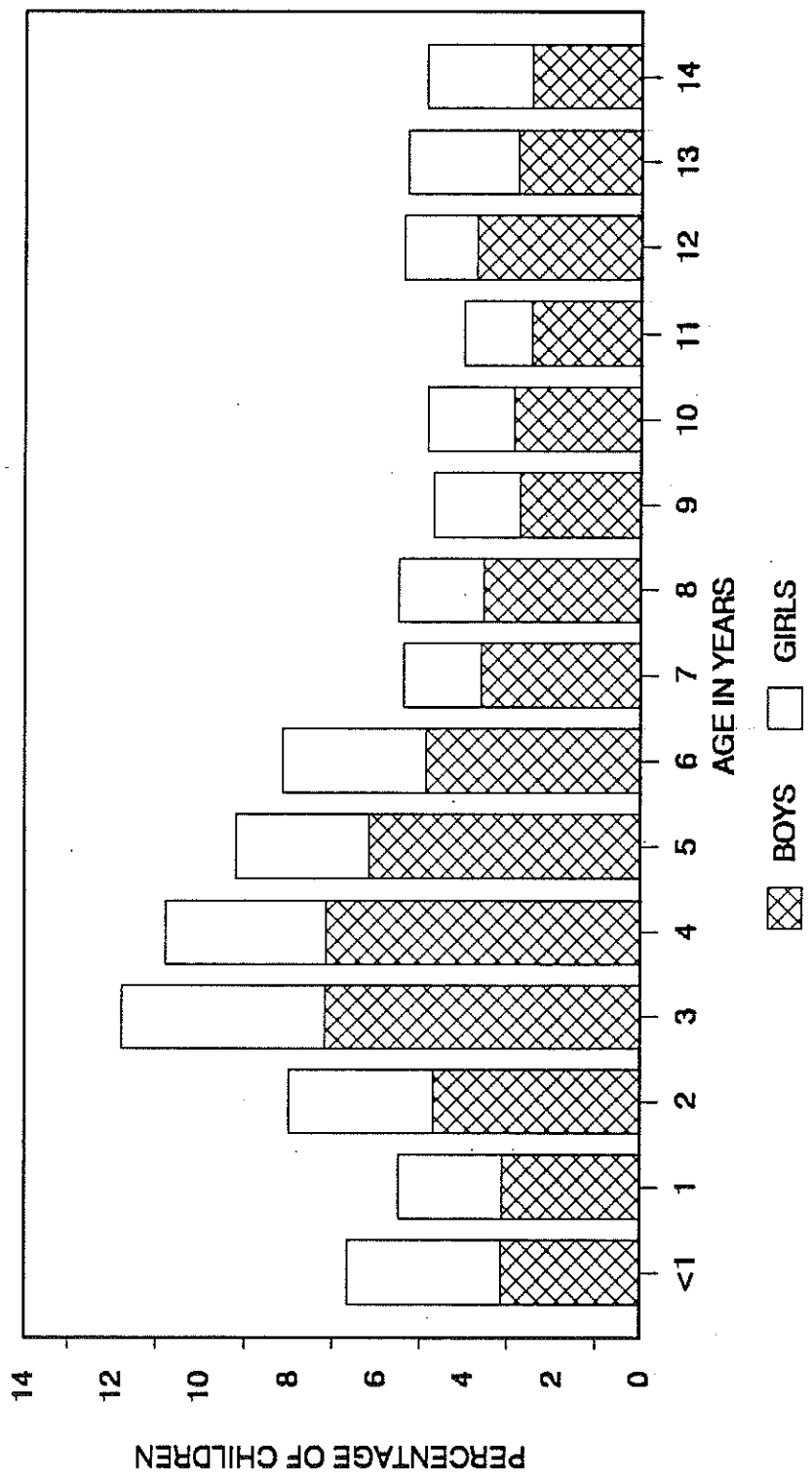
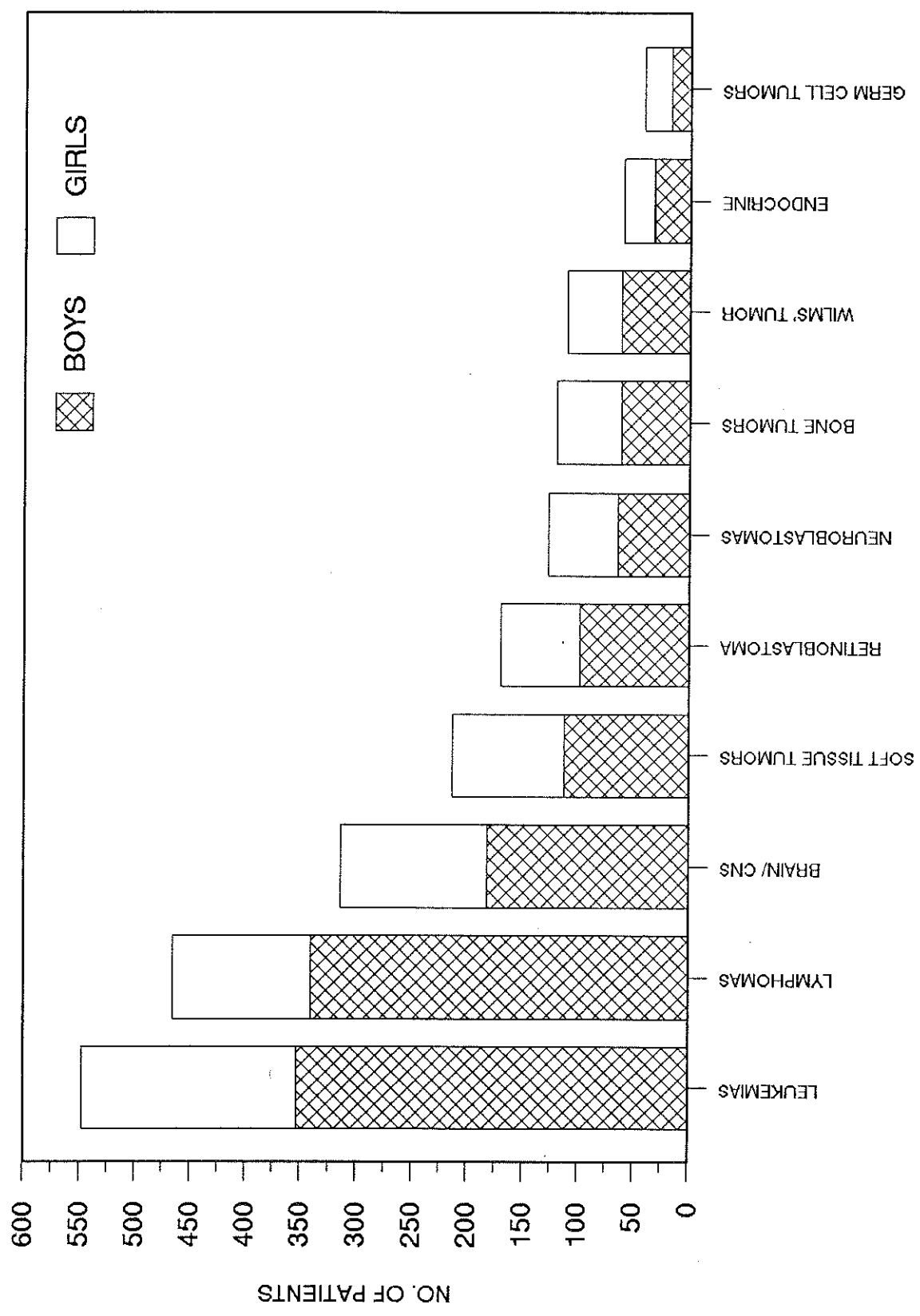


FIGURE 14

FREQUENCY OF 10 MOST COMMON MALIGNANCIES IN CHILDREN (TOTAL = 2299)



III. DESCRIPTION OF THE PATIENT POPULATION - 1988

The total number of cancer patients accrued in 1988 by the King Faisal Specialist Hospital & Research Centre Tumor Registry was 2108 (2149 cases). This represents a slight decrease from 1987.

84% of the cases were analytic (defined as cases which were first diagnosed and/or received all or part of their first course of treatment at KFSH&RC).

Males predominated with a total of 1114 (52.8%); females numbered 994 (47.2%). Please refer to Figure 15 for a graphic illustration of the sex distribution of the patients.

Nationality of the patients treated in 1988 was 83.0% (1750 cases) Saudi Arabian and 17.0% (358 cases) Non-Saudi (Figure 16).

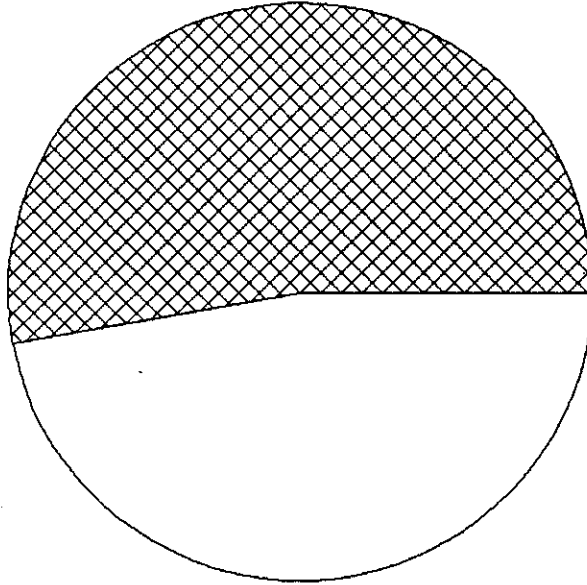
Geographically, the referral pattern is mainly from the Central Region with 32.6% (687 patients) coming from Region 1. Patients from Regions 3, 6, and 4 represent 17.1%, 14.7%, and 13.0% respectively. Please refer to Figure 17 for a summary of the geographical distribution of 1988 patients.

Age distribution of the 1988 patients is illustrated in Figure 18. The mean age is 44.6; the mode 60; and the median age 48. Patients under the age of 15 made up 13.6% (286 children) and adults 86.4% (1822).

FIGURE 15

1988 DISTRIBUTION BY SEX BASED ON 2108 PATIENTS

MALE 1,114 52.8%

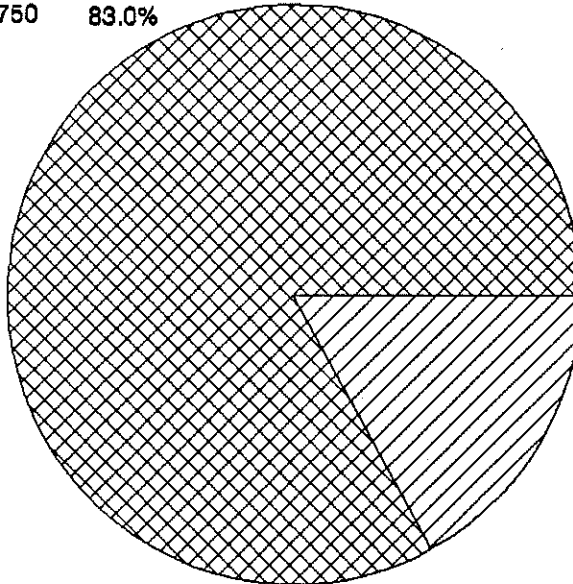


FEMALE 994 47.2%

FIGURE 16

NATIONALITY DISTRIBUTION OF 2108 PATIENTS

SAUDI 1,750 83.0%



NON-SAUDI 358 17.0%

YEMEN 171 (8.10%)

LEB., SYR., PAL., JORD., 87 (3.2%)

EGYPTIAN 42 CASES (2.0%)

AFRICAN 28 CASES (1.3%)

ALL OTHERS 50 (2.4%)

FIGURE 17
DISTRIBUTION OF 2108 PATIENTS BY GEOGRAPHIC REGION
REFERRED TO K F S H IN 1988

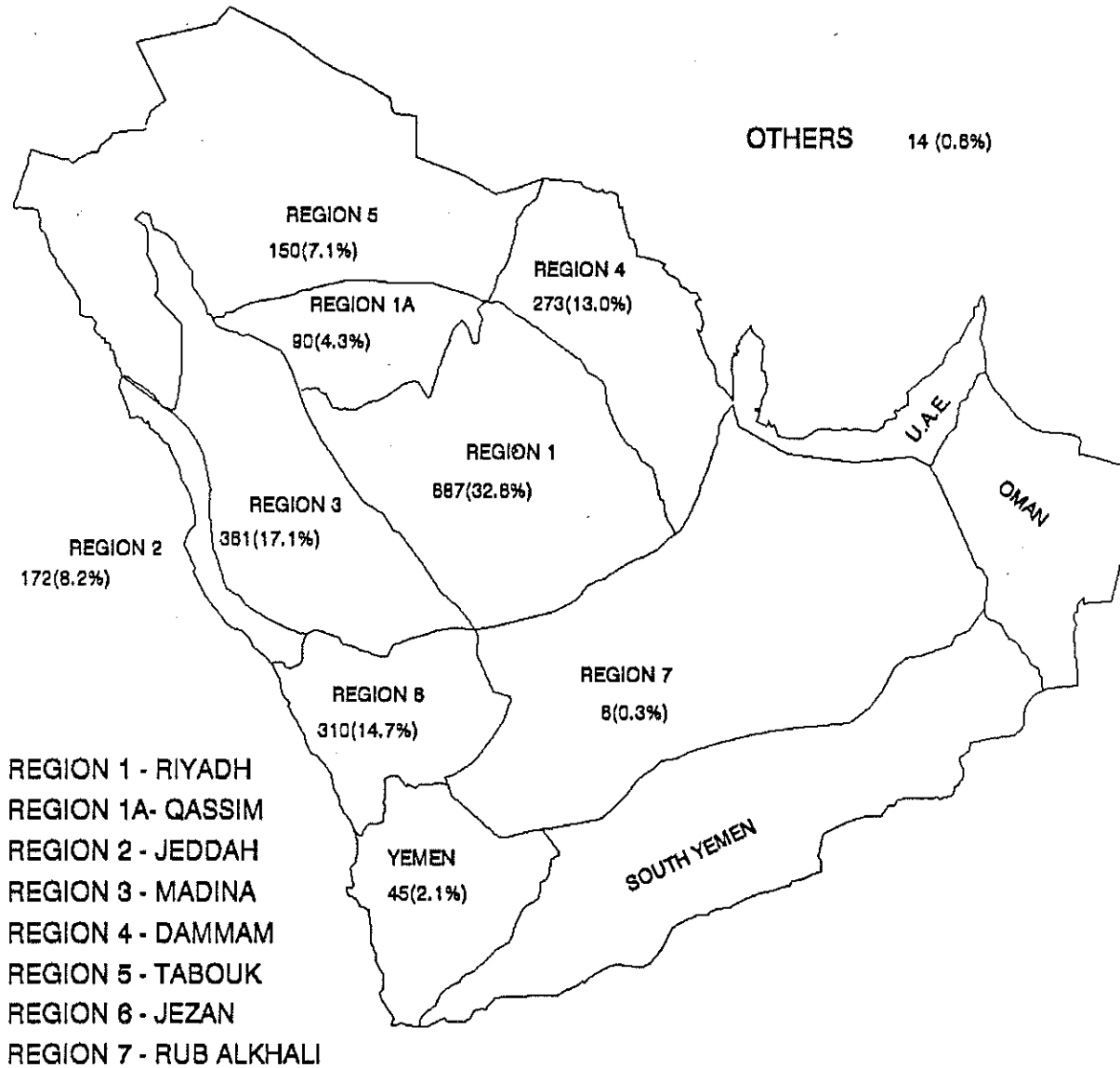
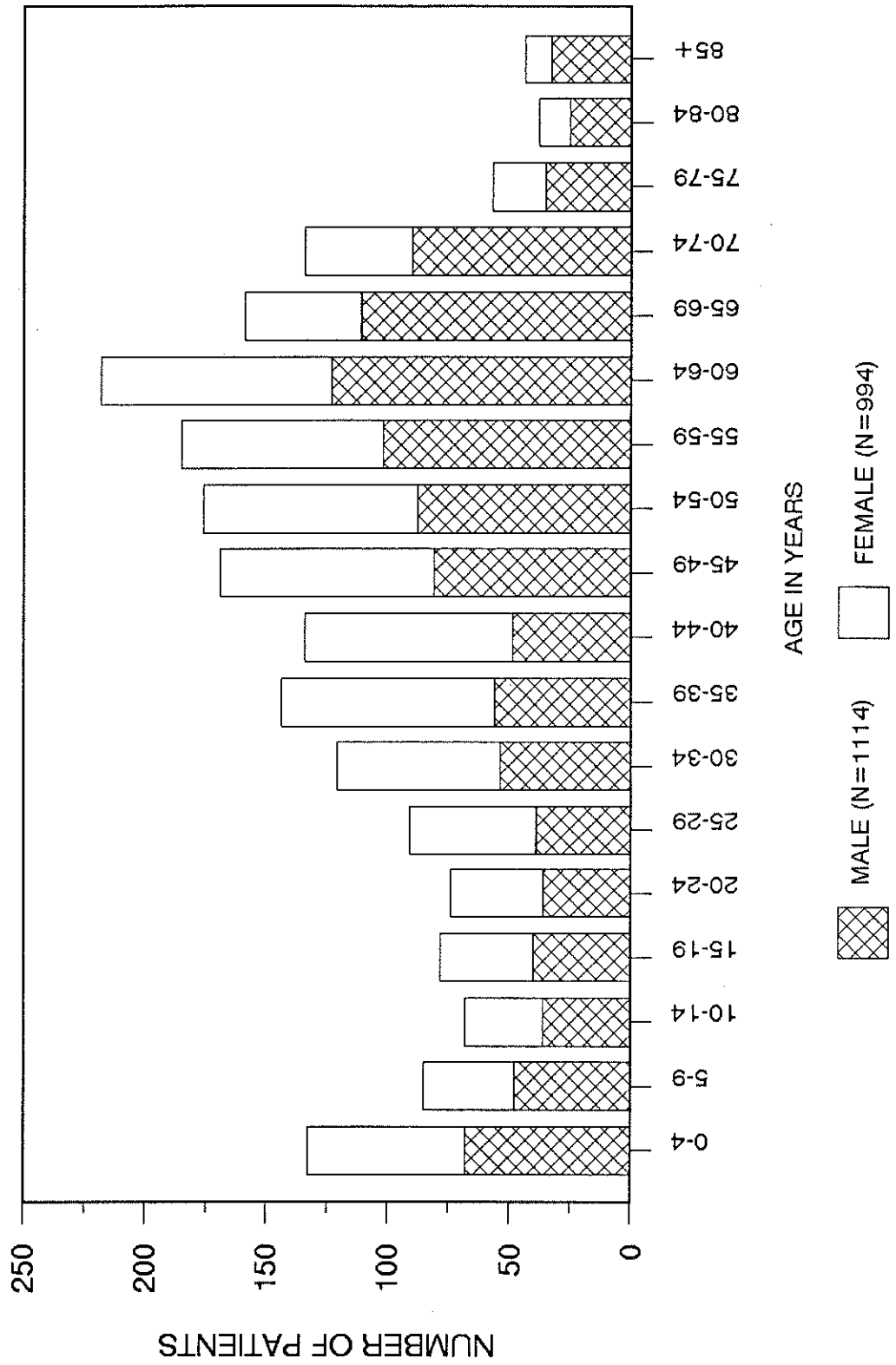


FIGURE 18
1988 DISTRIBUTION BY AGE BASED ON 2108 PATIENTS



III. PRIMARY ANATOMIC SITE AND HISTOLOGY SUMMARIES

Breast cancer led the list of malignancies diagnosed in 1988 (representing 8.7%), followed by leukemias (6.9%), brain/CNS tumors (6.6%), thyroid (5.7%), and non-Hodgkin's lymphoma (5.4%).

The solid tumors represented 76.3% (1639 cases), the lymphatic malignancies 9.9% (213 cases), the hematological malignancies 7.8% (167 cases), benign tumors 4.0% (87 cases) and the neoplasms of uncertain behavior totaled 2.0% (43 cases). For detailed statistics by primary site and histology please refer to Table 4, the Primary Site Table. Figure 19 illustrates the most common sites accessioned in 1988.

97.5% of the cases were pathologically confirmed; 2.2% were confirmed radiologically, and less than 1% were diagnosed on the basis of clinical examination.

Pathologically, the solid tumors were predominately squamous cell carcinoma (397 cases) and adenocarcinomas (360 cases). Other major histologies were the duct cell carcinomas (139 cases) and the sarcomas (134 cases).

The lymphomas make up a large proportion of cases. Non-Hodgkin's lymphoma of extra-nodal sites totaled forty cases. The anatomic locations represented were as follows: stomach (11 cases), tonsil (5 cases), and thyroid (5 cases). Other sites were nasopharynx (3 cases), small intestine (3), brain (3), nasal cavity and maxillary sinus (3).

In 1988, there were 39 patients with second primary malignancies, and two patients with four primary neoplasms. Both of these patients had polyposis coli plus three additional malignancies.

TABLE 4
 KING FAISAL SPECIALIST HOSPITAL & RESEARCH CENTRE
 PRIMARY SITE TABLE
 (INCLUDES MULTIPLE PRIMARIES)
 1988

SITE (ICDO CODE)	HISTOLOGY	TOTAL NO.	MALES	FEMALES
ALL SITES	ALL HISTOLOGIES	2149	1132	1017
LIP (140)		4	1	3
	Squamous Cell			
TONGUE (141)		45	28	17
	Squamous Cell	43	27	16
	Carcinoma, NOS	1	0	1
	NHL - Diffuse Histiocytic	1	1	0
MAJOR SALIVARY GLANDS (142)		11	6	5
	Mucoepidermoid Carcinoma	4	2	2
	Adenoid Cystic Carcinoma	3	1	2
	Squamous Cell Carcinoma	2	2	0
	Pleomorphic Adenoma	1	0	1
	Adenocarcinoma	1	1	0
GUM (143)		14	11	3
	Squamous Cell	13	11	2
	Carcinoma, NOS	1	0	1
FLOOR OF MOUTH (144)		10	6	4
	Squamous Cell	8	6	2
	Adenoid Cystic Carcinoma	2	0	2
BUCCAL MUCOSA (145.0)		9	6	3
	Squamous Cell	8	5	3
	Papillary Carcinoma	1	1	0
PALATE (145.5)		4	3	1
	Squamous Cell	2	2	0
	Mucoepidermoid	1	1	0
	Adenoid Cystic Carcinoma	1	0	1
RETROMOLAR TRIGONE (145.6)		2	1	1
	Squamous Cell			
TONSIL (146)		9	5	4
	NHL - Diffuse Histiocytic	5	2	3
	Squamous Cell	4	3	1

SITE (ICDO CODE)	HISTOLOGY	TOTAL NO.	MALES	FEMALES
NASOPHARYNX (147)		67	48	19
	Squamous Cell	52	37	15
	Carcinoma, NOS	6	5	1
	Undifferentiated Carcinoma	5	4	1
	NHL - Diffuse Histiocytic	3	1	2
	Lymphoepithelial Carcinoma	1	1	0
HYPOPHARYNX (148)		28	13	15
	Squamous Cell			
OTHER SITES, PHARYNX/HYPOPHARYNX (149)		2	2	0
	Squamous Cell			
ESOPHAGUS (150)		66	36	30
	Squamous Cell	63	33	30
	Adenocarcinoma	2	2	0
	Carcinoma, NOS	1	1	0
STOMACH (151)		58	37	21
	Adenocarcinoma	41	28	13
	NHL - Diffuse Histiocytic	11	7	4
	Signet Ring Adenocarcinoma	2	0	2
	Mucin-Producing Adenocarcinoma	1	0	1
	Neuroendocrine Carcinoma	1	1	0
	Leiomyoblastoma	1	1	0
	Squamous Cell	1	0	1
SMALL INTESTINE (152)		7	3	4
	Malignant Lymphoma	3	2	1
	Adenocarcinoma	1	1	0
	Kaposi's Sarcoma	1	0	1
	Malignant Schwannoma	1	0	1
	IPSID	1	0	1
COLON (153)		40	27	13
	Adenocarcinoma	24	16	8
	Mucin-Producing Adenocarcinoma	10	7	3
	Adenomas, Tubular	3	2	1
	Malignant Lymphoma	2	1	1
	Familial Polyposis Coli	1	1	0
RECTOSIGMOID JUNCTION (154.0)		8	2	6
	Adenocarcinoma			
RECTUM/ANUS (154)		38	26	12
	Adenocarcinoma	25	19	6
	Mucin-Producing Adenocarcinoma	5	2	3
	Squamous Cell	3	3	0
	Signet Ring Cell Adenocarcinoma	3	1	2
	Cloacogenic Carcinoma	1	0	1
	Basaloid Carcinoma	1	1	0

SITE (ICDO CODE)	HISTOLOGY	TOTAL NO.	MALES	FEMALES
LIVER (155)		71	61	10
	Hepatocellular Carcinoma	64	55	9
	Adenocarcinoma, NOS	1	1	0
	Malignant Lymphoma	1	1	0
	Cholangiocarcinoma	4	3	1
	Carcinosarcoma	1	1	0
GALLBLADDER/BILE DUCTS (156)		15	5	10
	Adenocarcinoma	9	2	7
	Cholangiocarcinoma	2	1	1
	Mucinous Adenocarcinoma	1	0	1
	Malignant Tumor	1	0	1
	Squamous Cell	1	1	0
	Papillary Carcinoma	1	1	0
PANCREAS (157)		18	13	5
	Adenocarcinoma	8	6	2
	Carcinoma, NOS	7	6	1
	NHL - Diffuse Histiocytic	1	0	1
	Malignant Tumor, NOS	1	0	1
	Malig. Islet Cell Tumor	1	1	0
OTHER GI (159)		1	1	0
	Mucinous Adenocarcinoma			
NASAL CAVITIES (160)		17	11	6
	Squamous Cell	9	7	2
	Adenoid Cystic Adenocarcinoma	4	1	3
	Malignant Lymphoma	3	2	1
	Carcinoma, NOS	1	1	0
LARYNX (161)		32	30	2
	Squamous Cell	30	28	2
	Carcinoma, NOS	1	1	0
	Small Cell Carcinoma	1	1	0
BRONCHUS/LUNG (162)		107	85	22
	Squamous Cell	35	26	9
	Adenocarcinoma	30	23	7
	Oat Cell (Small Cell)	18	15	3
	Large Cell Carcinoma	8	8	0
	Carcinoma, NOS	5	4	1
	Papillary Carcinoma	4	4	0
	Giant Cell Carcinoma	3	3	0
	Neuroendocrine Tumor	2	1	1
	Mucinous Adenocarcinoma	1	0	1
	Malignant Lymphoma	1	1	0
PLEURA (163.9)		1	1	0
	Mesothelioma			
THYMUS (164.0)		1	0	1
	Thymoma			

SITE (ICDO CODE)	HISTOLOGY	TOTAL NO.	MALES	FEMALES
MEDIASTINUM (164.9)		2	2	0
	Small Cell Carcinoma	1	1	0
	Teratoma, mature	1	1	0
MULTIPLE MYELOMA (169)		20	13	7
	Plasma Cell Myeloma	19	12	7
	Plasmacytoma	1	1	0
BONE MARROW (169)		162	107	55
	Acute Lymphoid Leukemia	67	44	23
	Acute Myeloid Leukemia	26	13	13
	Acute Myelomonocytic Leukemia	20	10	10
	Chronic Myeloid Leukemia	19	16	3
	Chronic Lymphoid Leukemia	6	6	0
	Aplastic Anemia	6	4	2
	Myelodysplastic Syndrome	5	4	1
	Other Leukemias	4	3	1
	Chronic Myelomonocytic Leukemia	2	2	0
	Acute Monocytic Leukemia	2	2	0
	Myelofibrosis	2	1	1
	Polycythemia Rubra Vera	2	2	0
	Myeloproliferative Disease	1	0	1
BONE & CARTILAGE (170)		51	31	20
	Ewing's Sarcoma	15	11	4
	Osteosarcoma	19	12	7
	Chondrosarcoma	8	4	4
	Giant Cell Tumor	3	1	2
	Aneurysmal Bone Cyst	3	1	2
	Osteochondroma	1	1	0
	Chondroblastoma, Malignant	1	1	0
	Ameloblastoma	1	0	1
CONNECTIVE & SOFT TISSUE (171)		100	50	50
	Hemangioma/Angiofibroma	20	12	8
	Neuroblastoma	13	5	8
	Malignant Fibrous Histiocytoma	12	8	4
	Neurofibromatosis	8	4	4
	Leiomyosarcoma	7	4	3
	Spindle Cell Sarcoma	7	3	4
	Rhabdomyosarcoma	6	2	4
	Schwannoma, benign	4	2	2
	Liposarcoma	3	2	1
	Fibromatosis/Desmoid Tumor	3	1	2
	Sarcoma, NOS	3	1	2
	Synovial Sarcoma	2	1	1
	Malig. Endodermal Sinus Tumor	2	1	1
	Round Cell Malignant Neoplasm	2	1	1
	Carcinosarcoma	1	0	1
	Ganglioneuroblastoma	1	0	1
	Giant Cell Tumor	1	1	0
	Malignant Schwannoma	1	1	0
	Neurofibrosarcoma	1	0	1
	Fibrosarcoma	1	1	0
	Teratoma	1	0	1
	Hemangiosarcoma	1	0	1

SITE (ICDO CODE)	HISTOLOGY	TOTAL NO.	MALES	FEMALES
SKIN (MELANOMA) (172)		12	10	2
	Malignant Melanoma			
SKIN (NON-MELANOMA) (173)		47	29	18
	Squamous Cell	16	9	7
	Basal Cell	14	10	4
	Kaposi's Sarcoma	8	7	1
	Dermatofibrosarcoma protuberans	3	1	2
	Carcinoma, NOS	2	1	1
	Trichilemmal Carcinoma	1	1	0
	Metatypical Carcinoma	1	0	1
	Clear Cell Hidradenoma	1	0	1
	Basosquamous Carcinoma	1	0	1
BREAST, FEMALE (174)		184	0	184
	Infiltrating Duct Cell	139	0	139
	Carcinoma, NOS	19	0	19
	Lobular Carcinoma	5	0	5
	Infiltrating Duct w/Paget's Disease	4	0	4
	Medullary Carcinoma	3	0	3
	Cystosarcoma Phylloides, Malignant	2	0	2
	Duct Cell & Lobular Carcinoma	2	0	2
	Scirrhous Carcinoma	2	0	2
	Adenocarcinoma, NOS	1	0	1
	Intraductal Carcinoma	1	0	1
	Carcinoma, Secretory Type	1	0	1
	Inflammatory Carcinoma	1	0	1
	Stromal Sarcoma	1	0	1
	Papillary Adenocarcinoma	1	0	1
	Malignant Tumor, NOS	1	0	1
	Colloid Carcinoma	1	0	1
BREAST, MALE (175)		4	4	0
	Infiltrating Duct Cell	1	1	0
	Adenocarcinoma	1	1	0
	Scirrhous Carcinoma	1	1	0
	Carcinoma, NOS	1	1	0
UTERUS (179.9)		2	0	2
	Malig. Mesodermal Mixed Tumor	1	0	1
	Leiomyosarcoma	1	0	1
CERVIX UTERI (180)		52	0	52
	Squamous Cell	33	0	33
	Carcinoma in situ	8	0	8
	Adenocarcinoma	4	0	4
	Carcinoma, NOS	2	0	2
	Adenosquamous	1	0	1
	Mucinous Carcinoma	1	0	1
	Mullerian Adenosarcoma	1	0	1
	Small Cell Carcinoma	1	0	1
	Papillary Adenocarcinoma	1	0	1

SITE (ICDO CODE)	HISTOLOGY	TOTAL NO.	MALES	FEMALES
PLACENTA (181)		16	0	16
	Choriocarcinoma	12	0	12
	Invasive Hydatidiform Mole	3	0	3
	Hydatidiform Mole	1	0	1
CORPUS UTERI (182)		17	0	17
	Adenocarcinoma	12	0	12
	Papillary Adenocarcinoma	2	0	2
	Leiomyosarcoma	2	0	2
	Mixed Mullerian Tumor	1	0	1
OVARY (183)		51	0	51
	Papillary Carcinoma (Adenocarcinoma)	10	0	10
	Papillary Serous Cystadenocarcinoma	7	0	7
	Adenocarcinoma, NOS	6	0	6
	Mucinous Cystadenocarcinoma	6	0	6
	Carcinoma, NOS	4	0	4
	Dysgerminoma	4	0	4
	Malignant Teratoma, immature	2	0	2
	Granulosa Cell Tumor	2	0	2
	Tumor, NOS	1	0	1
	Endometrioid Adenocarcinoma	1	0	1
	Mixed Germ Cell Tumor	1	0	1
	Leiomyosarcoma	1	0	1
	Squamous Cell Carcinoma	1	0	1
	Serous & Endometrioid Carcinoma	1	0	1
	Sex Cord Stromal Tumor	1	0	1
	Sertoli Leydig Cell	1	0	1
	Carcinosarcoma	1	0	1
	Yolk Sac Tumor	1	0	1
FEMALE GENITAL ORGANS (184)		3	0	3
	Squamous Cell			
PROSTATE (185)		26	26	0
	Adenocarcinoma	20	20	0
	Carcinoma, NOS	5	5	0
	Papillary Adenocarcinoma	1	1	0
TESTIS (186)		18	18	0
	Seminoma	10	10	0
	Embryonal Cell Carcinoma	3	3	0
	Yolk Sac Tumor	3	3	0
	Mixed Tumor	1	1	0
	Malignant Lymphoma	1	1	0
MALE GENITAL ORGANS (187)		2	2	0
	Squamous Cell Carcinoma			
BLADDER (188)		74	59	15
	Transitional Cell	30	28	2
	Papillary Transitional Cell	25	18	7
	Squamous Cell	16	11	5
	Rhabdomyosarcoma, Embryonal	2	2	0
	Carcinoma, NOS	1	0	1

SITE (ICDO CODE)	HISTOLOGY	TOTAL NO.	MALES	FEMALES
KIDNEY (189)		57	35	22
	Renal Cell Carcinoma (Hypernephroma)	24	13	11
	Wilms' Tumor	14	5	9
	Clear Cell Carcinoma	7	5	2
	Carcinoma, NOS	3	3	0
	Transitional Cell Carcinoma	3	3	0
	Papillary Adenocarcinoma	1	1	0
	Rhabdoid Tumor	1	1	0
	Sarcoma, NOS	1	1	0
	Large Cell Carcinoma	1	1	0
	Squamous Cell Carcinoma	1	1	0
	Tumor, NOS	1	1	0
EYE (190)		40	22	18
	Retinoblastoma	24	12	12
	Squamous Cell Carcinoma	9	7	2
	Malignant Melanoma	3	3	0
	Adenoid Cystic Carcinoma	1	0	1
	Carcinoma in situ	1	0	1
	Carcinoma, NOS	1	0	1
	Tumor, NOS	1	0	1
BRAIN (191)		95	53	42
	Astrocytoma	47	21	26
	Glioblastoma multiforme	12	8	4
	Medulloblastoma	13	8	5
	Tumor, No Tissue	5	3	2
	Glioma	4	3	1
	Primitive Neuroectodermal Tumor	3	2	1
	Malignant Lymphoma	3	2	1
	Oligodendroglioma	1	0	1
	Hemangioblastoma	1	1	0
	Choroid Plexus Tumor	1	0	1
	Pleomorphic Xanthoastrocytoma	1	1	0
	Cavernous Hemangioma	1	1	0
	Neuroblastoma	1	1	0
	Germinoma	1	1	0
	Gliosarcoma	1	1	0
OTHER NERVOUS SYSTEM (192)		46	11	35
	Meningioma	38	7	31
	Astrocytoma	5	3	2
	Optic Glioma	1	0	1
	Chordoma	2	1	1
THYROID (193)		122	29	93
	Papillary Carcinoma	89	19	70
	Anaplastic Carcinoma	9	3	6
	Follicular Adenocarcinoma	7	1	6
	Medullary Carcinoma	5	3	2
	Malignant Lymphoma	5	1	4
	Follicular Adenoma	6	2	4
	Plexiform Neurofibroma	1	0	1

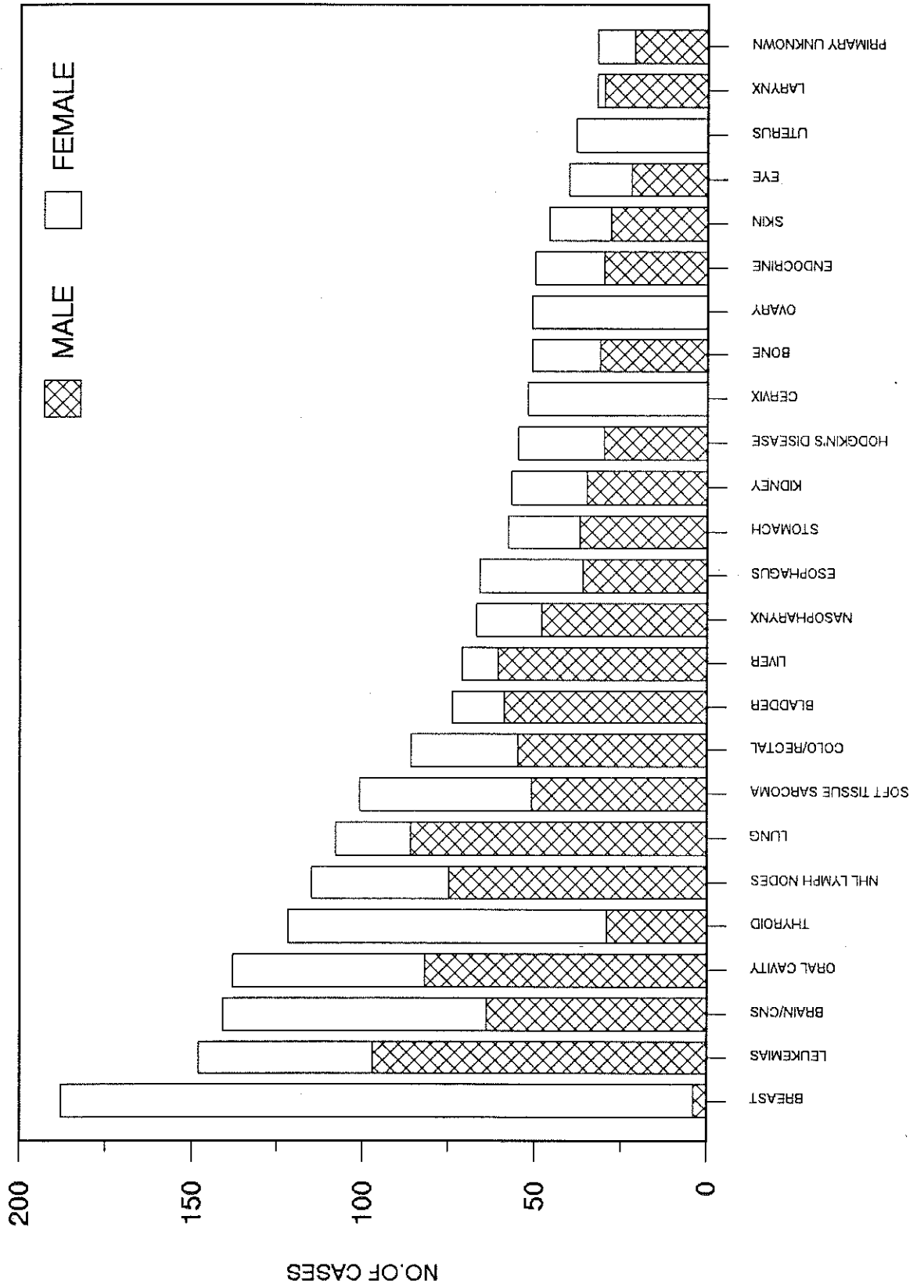
SITE (ICDO CODE)	HISTOLOGY	TOTAL NO.	MALES	FEMALES
ADRENAL GLAND (194.0)		10	4	6
	Neuroblastoma	7	3	4
	Adrenal Cortical Carcinoma	2	1	1
	Pheochromocytoma	1	0	1
PITUITARY/OTHER ENDOCRINE (194)		40	26	14
	Adenoma	26	17	9
	Craniopharyngioma	5	4	1
	Paraganglioma	1	0	1
	Pineoblastoma	1	1	0
	Tumor, benign	3	3	0
	Glomus Jugulare Tumor	3	1	2
	Pineocytoma	1	0	1
LYMPH NODES, NON-HODGKIN'S LYMPHOMA (196)		115	76	39
	Excluding the Extra-Nodal Lymphomas			
	Diffuse Histiocytic Lymphoma	45	31	14
	Diffuse Undifferentiated Lymphoma	16	10	6
	Immunoblastic Lymphoma	14	11	3
	Diffuse Lymphocytic Lymphoma	13	9	4
	Malignant Lymphoma, NOS	9	6	3
	Lymphoblastic Lymphoma	6	3	3
	Burkitt's Lymphoma	6	3	3
	Lymphocytic Nodular Lymphoma	4	2	2
	Mycosis Fungoides	1	0	1
	T-Cell Lymphoma	1	1	0
LYMPH NODES, HODGKIN'S DISEASE (196)		55	30	25
	Nodular-Sclerosis	27	11	16
	Mixed Cellularity	16	10	6
	Lymphocytic Predominance	7	6	1
	Hodgkin's Disease (NOS)	4	2	2
	Lymphocytic Depletion	1	1	0
HISTIOCYTOSSES (196)		9	6	3
	Histiocytosis X	7	5	2
	Malignant Histiocytosis X	2	1	1
PRIMARY UNKNOWN (199)		32	21	11
	Adenocarcinoma	15	10	5
	Carcinoma, NOS	4	1	3
	Squamous Cell Carcinoma	7	5	2
	Papillary Adenocarcinoma	2	1	1
	Mucinous Adenocarcinoma	2	2	0
	Malignant Tumor, NOS	1	1	0
	Adenosquamous Carcinoma	1	1	0

PRIMARY SITE 1988	HISTOLOGY	OTHER PRIMARIES (PREVIOUS OR CONCURRENT)	TOTAL NO.	MALES	FEMALES
ALL MULTIPLE PRIMARIES			39	16	23
BREAST			9	0	9
Duct Cell		CONTRA. BREAST	3	0	3
Duct Cell		THYROID ADENOMA	1	0	1
Carcinoma		CONTRA. BREAST	1	0	1
Duct Cell		MENINGIOMA	1	0	1
Duct Cell		OSTEOGENIC SARC.	1	0	1
Duct Cell		HODGKIN'S DISEASE	1	0	1
Duct Cell		CORPUS UTERI	1	0	1
LUNG			5	3	2
Squamous Cell		CERVIX UTERI	1	0	1
Carcinoma		CONJUNCTIVA	1	1	0
Squamous Cell		SKIN, FOREARM	1	1	0
Adenocarcinoma		MAXILLARY SINUS	1	0	1
Small Cell		SKIN, ANKLE	1	1	0
LYMPH NODES			3	3	0
Diff. Histiocytic		KAPOSI'S SARCOMA	1	1	0
Diff. Histiocytic *		RECTUM, RECTOSIGMOID	1	1	0
Diff. Histiocytic		POLYPOSIS COLI			
		MYELODYSPLASTIC SYN.	1	1	0
GI TRACT			6	4	2
Adenocarcinoma Rectum *		SIGMOID, DESCEND	1	1	0
		POLYPOSIS COLI			
Cloacogenic Rectum		CIS CERVIX UTERI	1	0	1
Adenoma Sigmoid Colon		MENINGIOMA	1	0	1
Adenocarcinoma Stomach		HEMANGIOMA	1	1	0
Hepatocellular Ca		NHL - TONSIL	1	1	0
Hepatocellular Ca		CA LARYNX	1	1	0
GENITOURINARY			3	2	1
Renal Cell Kidney		PITUITARY	1	1	0
TCC Urinary Bladder		OVARY	1	0	1
Ca Kidney		URINARY BLADDER	1	1	0
HEAD & NECK			4	1	3
Squamous Cell Nasopharynx		RECTUM	1	0	1
Squamous Cell Gingiva		TONGUE	1	0	1
Squamous Cell Hypopharynx		URINARY BLADDER	1	1	0
Squamous Cell Esophagus		STOMACH, SCHWANNOMA	1	0	1
ENDOCRINE			3	0	3
Papillary Ca Thyroid		FOLLICULAR ADENOMA	1	0	1
Papillary Ca Thyroid		ACUTE LYMPHOID LEUK	1	0	1
Medullary Ca Thyroid		PHEOCHROMOCYTOMA	1	0	1

PRIMARY SITE	HISTOLOGY	OTHER PRIMARIES (PREVIOUS OR CONCURRENT)	TOTAL NO.	MALES	FEMALES
BONE MARROW			1	1	0
Acute Myeloid Leukemia		NHL - NASOPHARYNX			
CORPUS UTERI			1	0	1
Adenocarcinoma		BREAST			
SARCOMA			1	1	0
Osteosarcoma		MALIG. FIBROUS HIST.			
SKIN			2	1	1
Squamous Cell Nose		LARYNX	1	1	0
Basal Cell Nose		NEUROFIBROMA	1	0	1
BRAIN/CNS			1	0	1
Meninges, Cerebral		NEUROFIBROMATOSIS			

* Patient has three malignancies plus polyposis coli.

FIGURE 19
FREQUENCY OF 25 MOST COMMON MALIGNANCIES OF 1988
(TOTAL CASES 2149)



10 MOST COMMON MALIGNANCIES BY SEX

1988

FIGURE 20

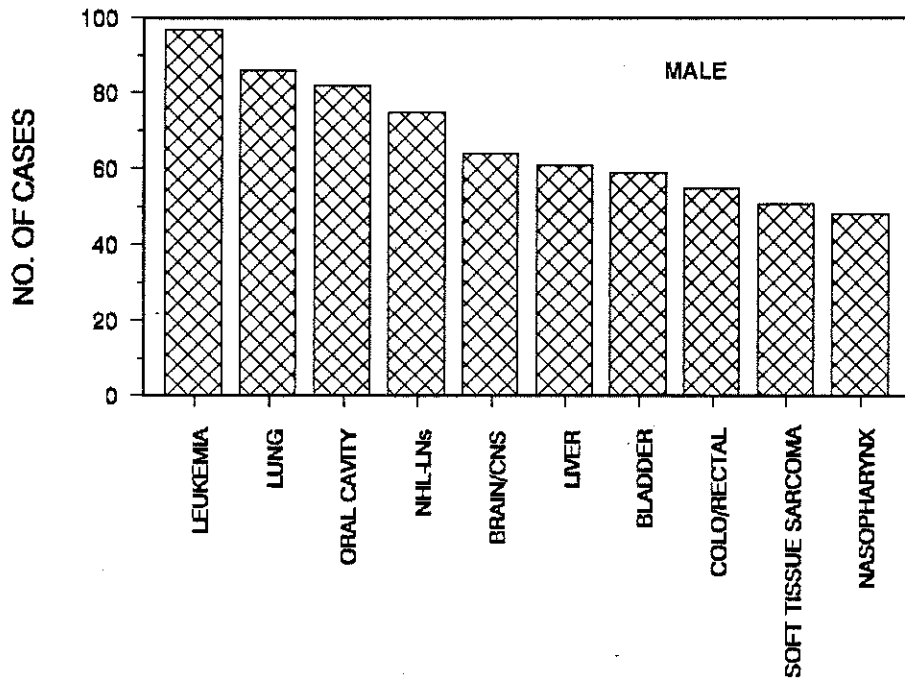


FIGURE 21

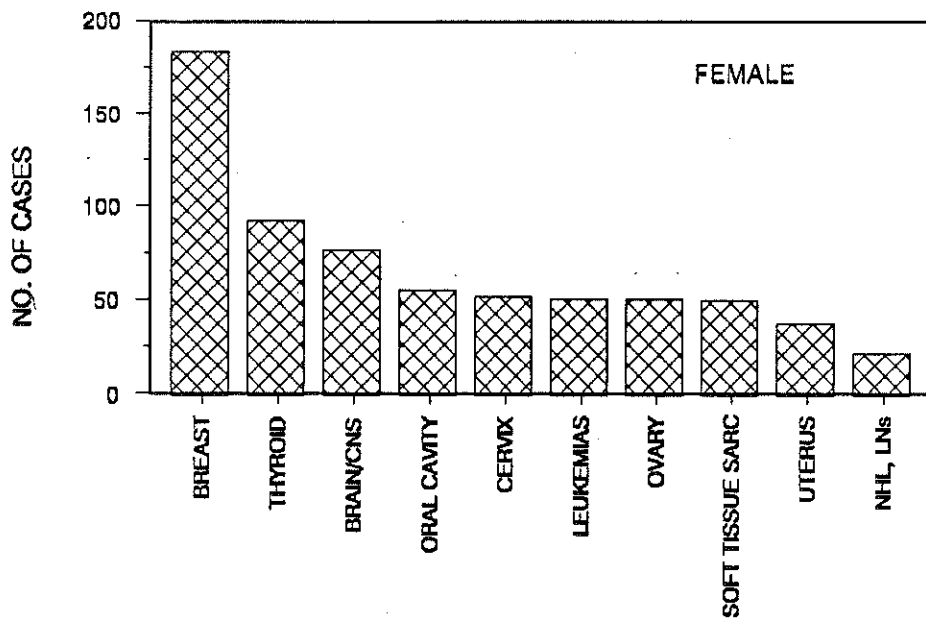


TABLE -5-

TOTAL CASES REFERRED TO KPFSH BY AGE AND SITE *
FOR THE YEAR(S) 1988

ICD-O	DESCRIPTION	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	75-79	80-84	85+	
140-146,148-9	Oral Cavity	0	1	0	2	2	2	6	8	9	11	13	18	24	13	17	6	2	4	138
147	Nasopharynx	1	2	4	3	0	5	5	6	3	11	7	5	6	4	2	2	0	1	67
150	Esophagus	0	0	0	0	0	0	1	1	2	3	4	6	16	12	5	5	2	9	66
151	Stomach	0	0	1	0	3	2	1	1	0	7	7	4	9	8	11	1	1	2	58
153-154	Colon, Rectum	1	0	0	0	1	5	7	2	7	11	14	9	10	7	5	2	1	4	86
155	Liver	0	0	0	0	0	0	1	0	0	3	13	10	14	14	10	4	1	1	71
157	Pancreas	0	0	0	0	0	0	1	0	1	2	2	5	4	2	1	0	0	0	18
152,156,158-9	Other GI	0	0	0	1	1	0	3	1	2	3	2	4	2	2	0	0	1	1	23
161	Larynx	0	0	0	0	0	0	1	1	2	1	5	3	4	4	4	1	5	1	32
162-163	Lung	0	0	0	0	0	0	1	1	5	10	7	13	23	25	12	4	3	0	108
169(973)	Multiple Myeloma	0	0	0	0	0	0	1	1	2	2	2	3	4	1	1	1	1	1	20
169(982)	Lymphoid Leukemia	15	22	9	11	4	2	1	1	0	0	1	3	1	2	1	0	0	1	74
169(986)	Myeloid Leukemia	3	5	5	3	5	8	10	3	6	7	3	3	2	1	1	0	1	1	67
169(980-1,3-5,7-94)	Other Leukemias	1	0	0	0	0	0	1	1	0	1	0	0	0	3	0	0	0	0	7
170	Bone, Cartilage Sarc	2	2	11	8	10	4	2	3	3	2	1	0	1	1	0	1	0	0	51
171	Soft Tissue Sarcoma	28	9	6	9	6	4	5	4	4	6	1	3	11	1	1	1	1	0	100
172	Skin Melanoma	0	0	0	0	1	0	0	1	3	1	0	0	2	3	1	0	0	0	12
173	Other Skin Cancer	0	0	0	0	1	3	3	5	2	4	5	7	3	3	5	0	3	3	47
174-175	Breast	0	0	0	0	4	9	19	34	28	24	28	20	9	4	8	1	0	0	188
179,181-2,184	Uterus, Genital	0	0	0	2	1	3	1	3	7	3	6	4	4	2	1	1	1	0	38
180	Cervix	0	0	0	0	0	1	5	7	6	7	3	7	5	6	3	1	1	0	52
183	Ovary	1	0	2	6	2	1	4	2	2	4	2	6	8	2	7	2	0	0	51
185	Prostate	0	0	0	0	0	0	0	1	0	0	0	5	8	2	2	5	0	3	26
186-187	Testis, Genital	3	0	0	1	2	3	1	3	3	0	2	0	2	0	0	0	0	0	20
188	Bladder	1	1	0	0	1	1	1	3	3	7	9	12	8	10	10	5	0	3	74
189	Kidney, Urinary	12	3	1	1	1	0	3	0	5	6	4	7	4	2	5	2	0	1	57
190	Eye	22	2	1	0	0	0	0	2	0	4	0	1	1	1	1	0	1	1	40
191-192	Brain, CNS	16	16	15	14	7	11	10	15	10	6	3	6	6	3	1	2	0	0	141
193	Thyroid	0	0	1	3	9	12	12	16	11	12	10	8	11	4	6	4	2	1	122
194	Other Endocrine	8	2	3	2	3	5	4	6	4	4	3	2	3	1	0	0	0	0	50
196(959,967-70)	NHL- Lymph Nodes	8	9	3	6	5	7	4	5	4	2	11	9	4	9	10	6	8	5	115
196(965-66)	Hodgkin's Disease	3	7	7	3	6	4	4	2	4	2	1	5	3	3	0	1	0	0	55
196(972)	Histiocytoses	5	1	0	0	1	0	2	0	0	0	0	0	0	0	0	0	0	0	9
199	Primary Unknown	0	0	0	0	0	0	0	1	2	3	6	4	5	3	5	1	1	1	32
All Others	*****	3	4	0	3	1	0	2	3	0	3	2	1	5	2	1	0	3	1	34
TOTALS		133	86	69	78	74	94	122	147	136	176	179	189	224	163	137	59	38	45	2149

* Includes Benign Cases that are Reportable by Agreement of Tumor Committee and Multiple Primary Neoplasms

TABLE -6-

MALE CASES REFERRED TO KPFSH BY AGE AND SITE *
FOR THE YEAR(S) 1988

ICD-O	DESCRIPTION	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	75-79	80-84	85+	
140-146,148-9	Oral Cavity	0	0	0	1	2	0	4	6	4	6	10	11	12	7	10	5	2	2	82
147	Nasopharynx	0	1	3	3	0	3	4	3	2	10	6	4	5	3	1	0	0	0	48
150	Esophagus	0	0	0	0	0	0	0	0	1	2	1	2	9	8	3	3	0	0	7
151	Stomach	0	0	1	0	1	0	0	5	4	5	4	3	4	6	8	1	1	2	37
153-154	Colon, Rectum	0	0	0	0	1	3	5	2	5	6	7	5	7	5	3	1	1	4	55
155	Liver	0	0	0	0	0	0	1	0	0	1	10	9	14	11	9	4	1	1	61
157	Pancreas	0	0	0	0	0	0	1	0	1	2	2	2	2	2	1	0	0	0	13
152,156,158-9	Other GI	0	0	0	0	0	0	1	0	1	3	2	1	1	0	0	0	0	0	9
161	Larynx	0	0	0	0	0	0	1	1	2	1	3	3	4	4	4	1	5	1	30
162-163	Lung	0	0	0	0	0	0	1	2	4	7	6	10	18	23	11	2	2	0	86
169(973)	Multiple Myeloma	0	0	0	0	0	0	0	1	2	1	2	2	3	1	1	1	0	1	13
169(982)	Lymphoid Leukemia	11	13	6	9	2	1	0	1	0	0	1	2	1	2	1	0	0	1	51
169(986)	Myeloid Leukemia	2	3	2	3	2	6	5	2	4	4	1	2	1	1	1	0	1	1	41
169(980-1,3-5,7-94)	Other Leukemias	1	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	5
170	Bone, Cartilage Sarc	0	1	7	5	8	2	2	3	1	1	0	0	0	0	0	1	0	0	31
171	Soft Tissue Sarcoma	9	5	3	4	4	3	3	2	3	4	1	1	5	1	1	1	0	0	50
172	Skin Melanoma	0	0	0	0	1	0	0	0	0	3	1	0	1	3	1	0	0	0	10
173	Other Skin Cancer	0	0	0	0	0	1	4	1	3	3	6	2	2	2	4	0	1	2	29
174-175	Breast	0	0	0	0	0	0	0	0	0	1	0	0	1	0	1	1	0	0	4
179,181-2,184	Uterus, Genital	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
180	Cervix	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
183	Ovary	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
185	Prostate	0	0	0	0	0	0	0	1	0	0	0	5	8	2	2	5	0	0	26
186-187	Testis, Genital	3	0	0	1	2	3	1	3	3	0	2	0	2	0	0	0	0	0	20
188	Bladder	1	1	0	0	0	1	1	2	1	6	9	10	5	8	9	3	0	2	59
189	Kidney, Urinary	5	1	1	1	0	0	2	0	1	4	3	6	2	1	5	2	0	1	35
190	Eye	11	1	0	0	0	0	0	1	0	3	0	0	0	4	1	0	1	0	22
191-192	Brain, CNS	11	8	6	4	3	6	7	7	3	0	0	4	2	3	0	0	0	0	64
193	Thyroid	0	0	0	0	0	0	2	4	2	3	2	4	5	2	3	0	1	1	29
194	Other Endocrine	4	2	2	0	2	3	2	6	3	2	1	0	3	0	0	0	0	0	30
196(959,967-70)	NHL- Lymph Nodes	3	5	1	4	4	4	3	3	3	1	7	6	3	7	7	4	8	3	76
196(965-66)	Hodgkin's Disease	2	4	5	2	2	3	3	0	1	3	0	1	2	2	0	0	0	0	30
196(972)	Histiocytoses	2	1	0	0	1	0	2	0	0	0	0	0	0	0	0	0	0	0	6
199	Primary Unknown	3	2	0	3	1	0	2	2	1	2	1	3	4	2	1	5	1	1	21
All Others	*****	68	48	37	40	36	39	55	56	49	85	88	104	126	113	93	36	25	34	1132
TOTALS																				

* Includes Benign Cases that are Reportable by Agreement of Tumor Committee and Multiple Primary Neoplasms

TABLE -7-

FEMALE CASES REFERRED TO KFSH BY AGE AND SITE *
FOR THE YEAR(S) 1988

ICD-O	DESCRIPTION	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	75-79	80-84	85+	
140-146,148-9	Oral Cavity	0	1	0	1	0	2	2	2	5	5	3	7	12	6	7	1	0	2	56
147	Nasopharynx	1	1	0	0	0	2	1	3	1	1	1	1	1	1	1	2	0	1	19
150	Esophagus	0	0	0	0	0	0	1	1	1	1	3	4	7	4	2	2	2	2	30
151	Stomach	0	0	0	0	2	1	1	1	0	2	3	1	5	2	3	0	0	0	21
153-154	Colon, Rectum	1	0	0	0	0	2	2	0	2	5	7	4	3	2	2	1	0	0	31
155	Liver	0	0	0	0	0	0	0	0	0	2	3	1	0	3	1	0	0	0	10
157	Pancreas	0	0	0	0	0	0	0	0	0	0	0	3	2	0	0	0	0	0	5
152,156,158-9	Other GI	0	0	0	1	1	0	2	1	1	0	0	3	1	2	0	0	1	1	14
161	Larynx	0	0	0	0	0	0	0	0	0	3	1	3	5	2	1	2	1	0	2
162-163	Lung	0	0	0	0	1	0	0	2	1	3	1	3	5	2	1	2	1	0	22
169(973)	Multiple Myeloma	0	0	0	0	0	0	1	1	1	0	1	1	1	0	0	0	1	0	7
169(982)	Lymphoid Leukemia	4	9	3	2	2	1	1	0	0	0	0	1	0	0	0	0	0	0	23
169(986)	Myeloid Leukemia	1	2	3	0	3	2	5	1	2	3	2	1	1	0	0	0	0	0	26
169(980-1,3-5,7-94)	Other Leukemias	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	2
170	Bone, Cartilage Sarc	2	1	4	3	2	2	0	0	2	1	1	0	1	1	0	0	0	0	20
171	Soft Tissue Sarcoma	19	4	3	5	2	1	2	2	1	2	0	2	6	0	0	0	1	0	50
172	Skin Melanoma	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	2
173	Other Skin Cancer	0	0	0	0	1	3	2	1	1	1	2	1	1	1	1	0	2	1	18
174-175	Breast	0	0	0	0	4	9	19	34	28	23	28	20	8	4	7	0	0	0	184
179,181-2,184	Uterus, Genital	0	0	0	2	1	3	1	3	7	3	6	4	4	2	1	1	0	0	38
180	Cervix	0	0	0	0	0	1	5	7	6	7	3	7	5	6	3	1	1	0	52
183	Ovary	1	0	2	6	2	1	4	2	2	4	2	6	8	2	7	2	0	0	51
185	Prostate	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
186-187	Testis, Genital	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
188	Bladder	0	0	0	0	0	0	0	0	1	2	1	0	3	2	1	2	0	0	15
189	Kidney, Urinary	7	2	0	0	1	0	1	0	4	2	1	1	2	1	0	0	0	0	22
190	Eye	11	1	1	0	0	0	0	1	0	1	0	1	1	0	0	0	0	1	18
191-192	Brain, CNS	5	8	9	10	4	5	3	8	7	6	3	2	4	0	1	2	0	0	77
193	Thyroid	0	0	1	3	9	12	10	12	9	9	8	4	6	2	3	4	1	0	93
194	Other Endocrine	4	0	1	2	1	2	2	0	1	2	2	2	0	1	0	0	0	0	20
196(959,967-70)	NHL- Lymph Nodes	5	4	2	2	1	3	1	2	1	1	4	3	1	2	3	2	0	2	39
196(965-66)	Hodgkin's Disease	1	3	2	1	1	3	1	4	1	1	2	0	3	1	0	1	0	0	25
196(972)	Histiocytoses	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3
199	Primary Unknown	0	0	0	0	0	0	0	0	0	2	3	0	3	2	0	0	1	0	11
All Others	*****	0	2	0	0	0	0	0	1	0	2	0	0	3	1	0	0	2	0	11
TOTALS		65	38	32	38	38	55	67	91	87	91	91	85	98	50	44	23	13	11	1017

* Includes Benign Cases that are Reportable by Agreement of Tumor Committee and Multiple Primary Neoplasms

STAGE OF DISEASE AT DIAGNOSIS

Stage in any malignant process may be defined as the particular step, phase, or extent in a tumor's development which predicts the ultimate outcome for the patient and his disease. The microscopic appearance, extent, and biological behavior of a tumor as well as host factors play a part in prognosis and are therefore important in staging.

The SEER (Surveillance, Epidemiology, and End Results) Summary Staging Guide was utilized for all stageable cases. This system summarizes the disease categories into three general staging groups (i.e. localized, regional, and distant). Stage categories are based on a combination of clinical observations and operative-pathological evaluation. The priority order is pathological, operative, clinical.

Summary Staging Definitions:

IN SITU: Intraepithelial, noninvasive, noninfiltrating

LOCALIZED: Within organ

- a. Invasive cancer confined to the organ of origin
- b. Intraluminal extension where specified

REGIONAL: Beyond the organ of origin

- a. By direct extension to adjacent organs/tissues
- b. To regional lymph nodes
- c. Both (a) and (b)

DISTANT: Direct extension or metastasis

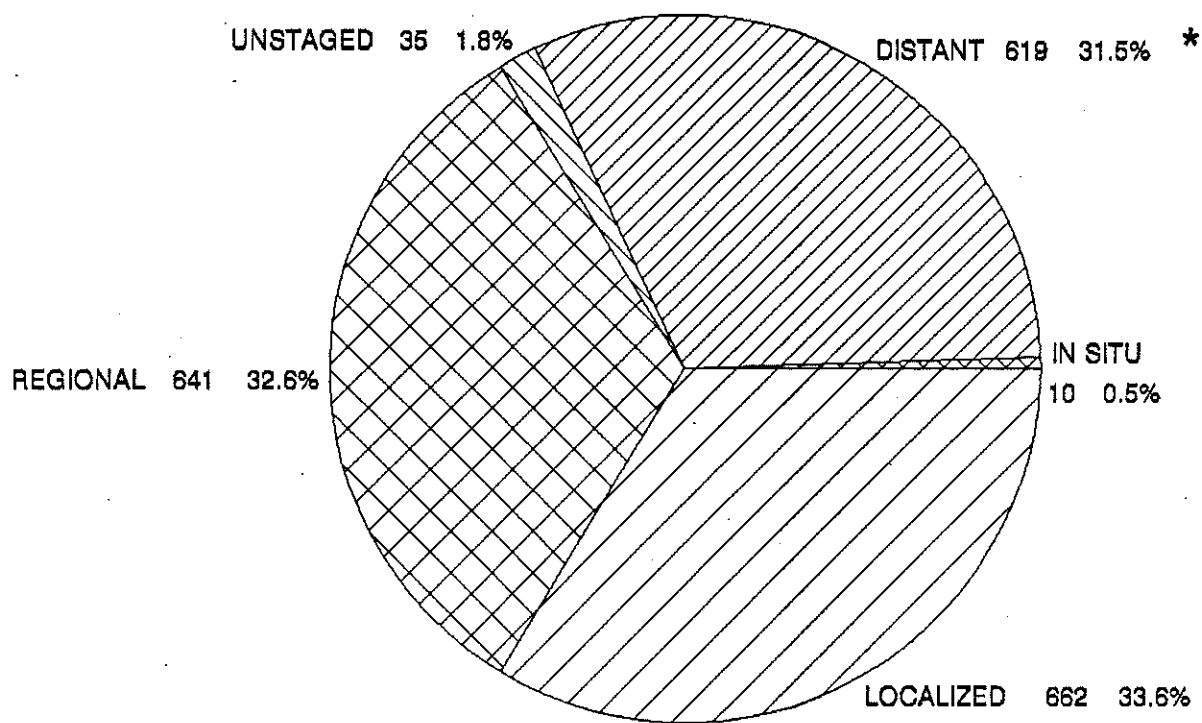
- a. Direct continuity to organs other than above
- b. Discontinuous metastasis
- c. To distant lymph nodes

In addition to the SEER Summary Stage, if a physician utilizes the AJCC (TNM) Staging System or a site-specific staging system (for example FIGO, Dukes, etc.) this is also recorded in the patient record.

TABLE --8--
STAGE AT DIAGNOSIS BY PRIMARY SITE CODE
SEER SUMMARY STAGE

ICD-O	DESCRIPTION	IN-SITU LOCAL			REGIONAL		DIST NOS	UNSTG	TOTAL
		DIRX	LN	BOTH	LN	BOTH			
140-145,146,148-9	Oral Cavity	37	10	20	0	33	2	138	
147	Nasopharynx	3	20	9	0	27	1	67	
150	Esophagus	11	6	5	0	12	0	66	
151	Stomach	9	9	16	0	15	0	58	
153,154	Colon, Rectum	14	10	11	0	25	4	86	
155	Liver	10	3	0	0	23	0	71	
157	Pancreas	9	1	3	0	2	0	18	
152,156,158-9	Other GI	6	1	1	0	10	3	23	
161	Larynx	2	4	1	0	5	2	32	
162-163	Lung	13	9	3	0	71	0	108	
169(973)	Multiple Myeloma	0	0	0	0	20	0	20	
169(982)	Lymphoid Leukemia	0	0	0	0	74	0	74	
169(986)	Myeloid Leukemia	0	0	0	0	67	0	67	
169(980-1,983-5,987-94)	Other Leukemias	0	0	0	0	7	0	7	
170	Bone, Cartilage	18	1	1	0	14	0	51	
171	Soft Tissue Sarcoma	19	3	3	0	27	3	100	
172	Skin Melanoma	1	3	0	0	3	0	12	
173	Skin	2	1	3	0	10	2	47	
174-175	Breast	5	61	24	0	38	5	188	
179,181-2,184	Uterus, Genital	4	2	1	0	14	0	38	
180	Cervix	25	0	0	0	7	1	52	
183	Ovary	6	3	0	0	27	0	51	
185	Prostate	2	2	2	0	13	0	26	
186,187	Testis, Genital	1	4	2	0	4	0	20	
188	Bladder	17	0	5	0	13	3	74	
189	Kidney, Urinary	8	3	3	0	20	0	57	
190	Eye	13	0	1	0	11	2	40	
191-192	CNS	25	1	0	0	3	1	141	
193	Thyroid	10	23	12	0	26	3	122	
194	Other Endocrine	14	0	0	0	9	1	50	
196(959,967-70)	NHL- Lymph Nodes	2	13	17	0	76	1	115	
196(965,966)	Hodgkin's Disease	1	15	0	0	30	0	55	
196(972)	Histiocytoses	0	0	0	0	8	0	8	
199	Primary Unknown	0	0	0	0	32	0	32	
All Others	*****	3	0	1	0	25	1	34	
TOTALS		289	208	144	0	801	35	2149	

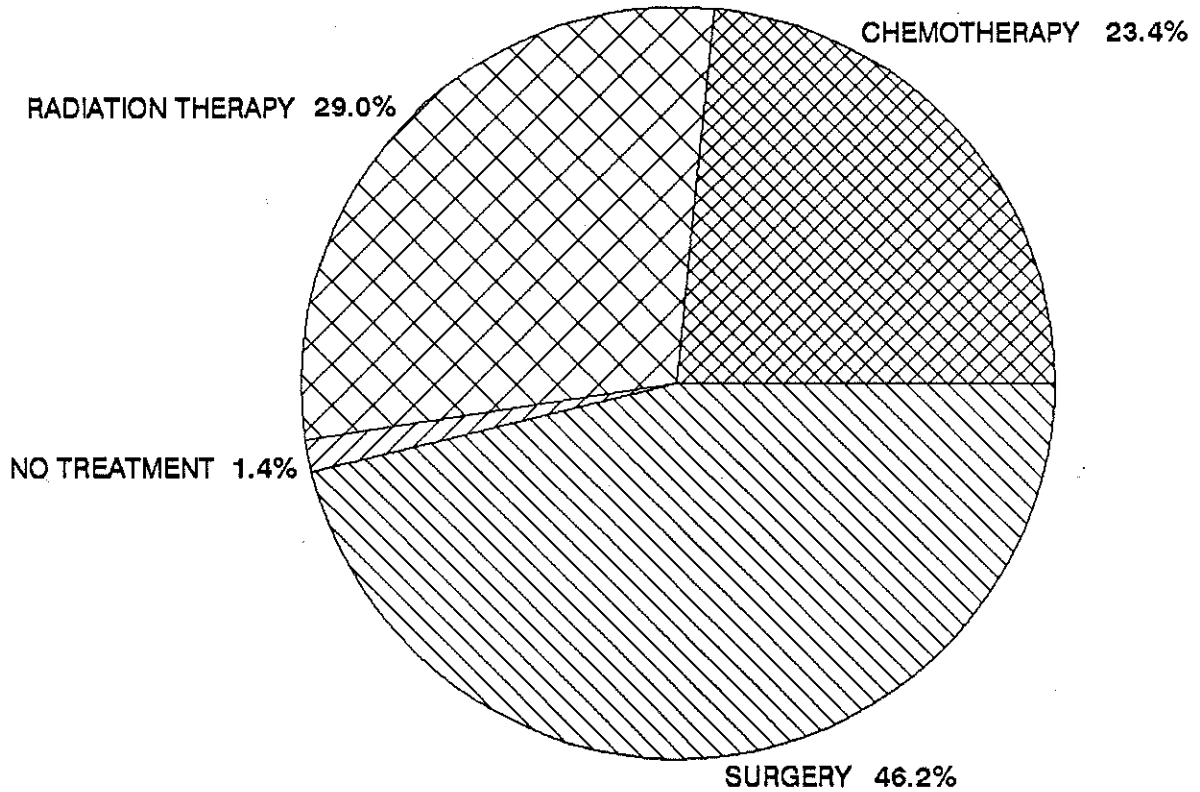
FIGURE 22

**1988 DISTRIBUTION BY STAGE AT DIAGNOSIS BASED ON
1967 CASES**

* EXCLUDES LEUKEMIAS AND
MULTIPLE MYELOMA CASES
(182 CASES)

FIGURE 23

**FIRST COURSE OF TREATMENT*- 2149 CASES
(SINGLY OR IN COMBINATIONS)**



*** INITIAL TUMOR-DIRECTED TREATMENT
WITHIN FOUR MONTH AFTER DIAGNOSIS.**

V. ADMINISTRATIVE REPORT

Total hospital patient discharges have shown a steady increase over the past four years. In 1984 total discharges were 9678, 1985 equaled 10503, in 1986 hospital discharges were 12336, and 1987 the number rose to 13752. For Hijra 1408 total discharges rose to 14136.

Total cancer patient discharges also showed an increase: 1984 equaled 1267 discharges (13.1%), 1985 1436 discharges (13.7%), 1986 1796 (14.6%), and 1987 2131 (15.5%). Patient discharges with a diagnosis of cancer make up the largest single grouping of patients of any disease category.

Not only are the neoplastic diseases the most frequent diagnosis but the average length of stay (ALOS) for these patients is considerable. In 1986, the ALOS for patients with leukemia was 40.15 days. Other malignant diseases had an ALOS of: Esophagus - 23.44; Bladder - 22.76; Uterus/Cervix - 17.87; Lymphoma - 16.84; and Lung - 15.02 days. Whereas in 1408, the average length of stay for all patients combined was 10.3 days.

Figures 24, 25, and 26 illustrate the number of patients accessioned in each year. Tables 9, 10, and 11 show five-year summaries for each anatomic site and Figures 27 and 28 illustrate percentage of cases over the past 14 years for the ten most common sites.

FIGURE 24
NUMBER OF PATIENTS ACCESSIONED IN KFSH & RC
TUMOR REGISTRY (BY YEAR)

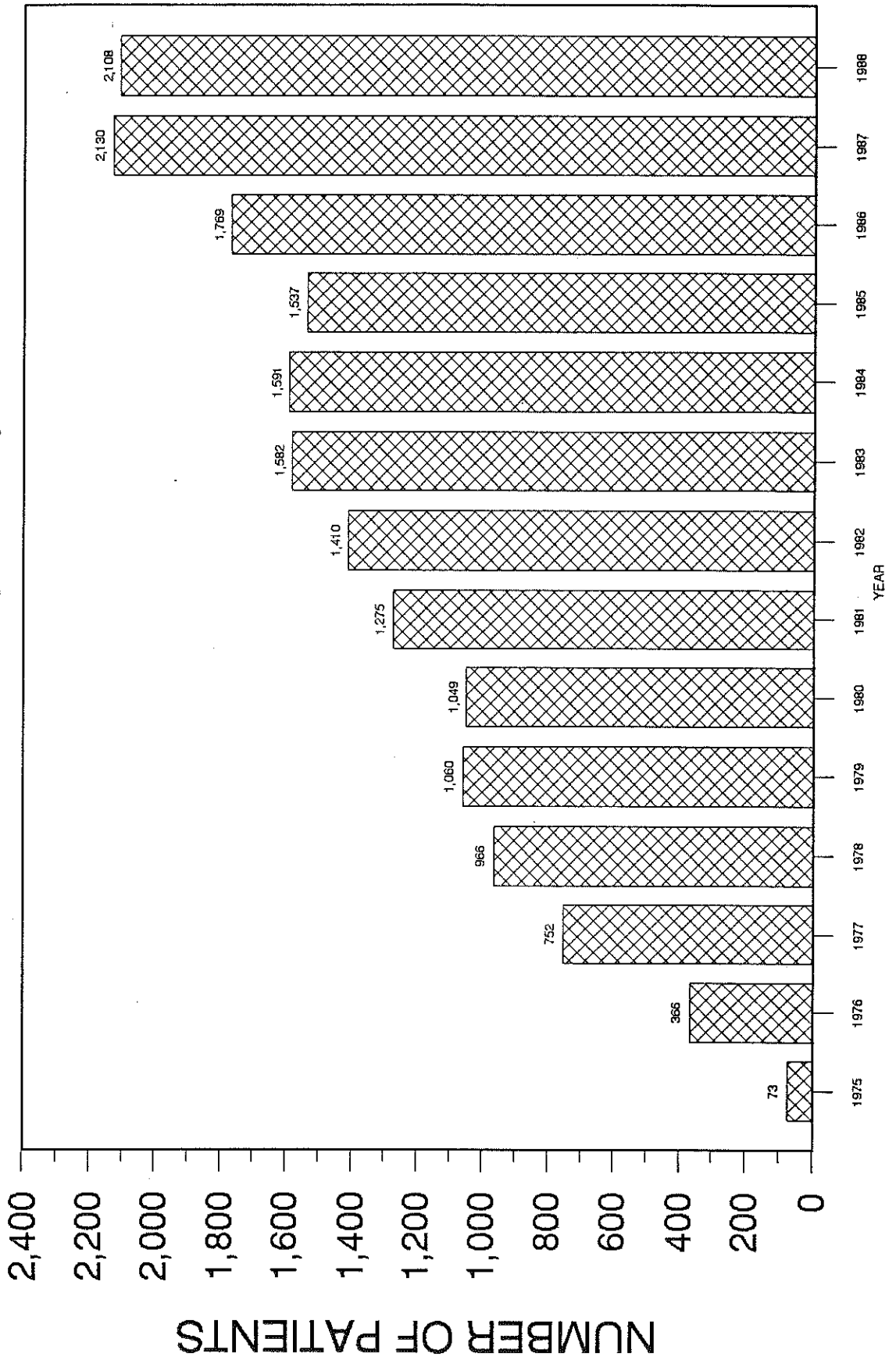


FIGURE 25
SUMMARY OF PATIENTS ACCESSIONED BY SEX

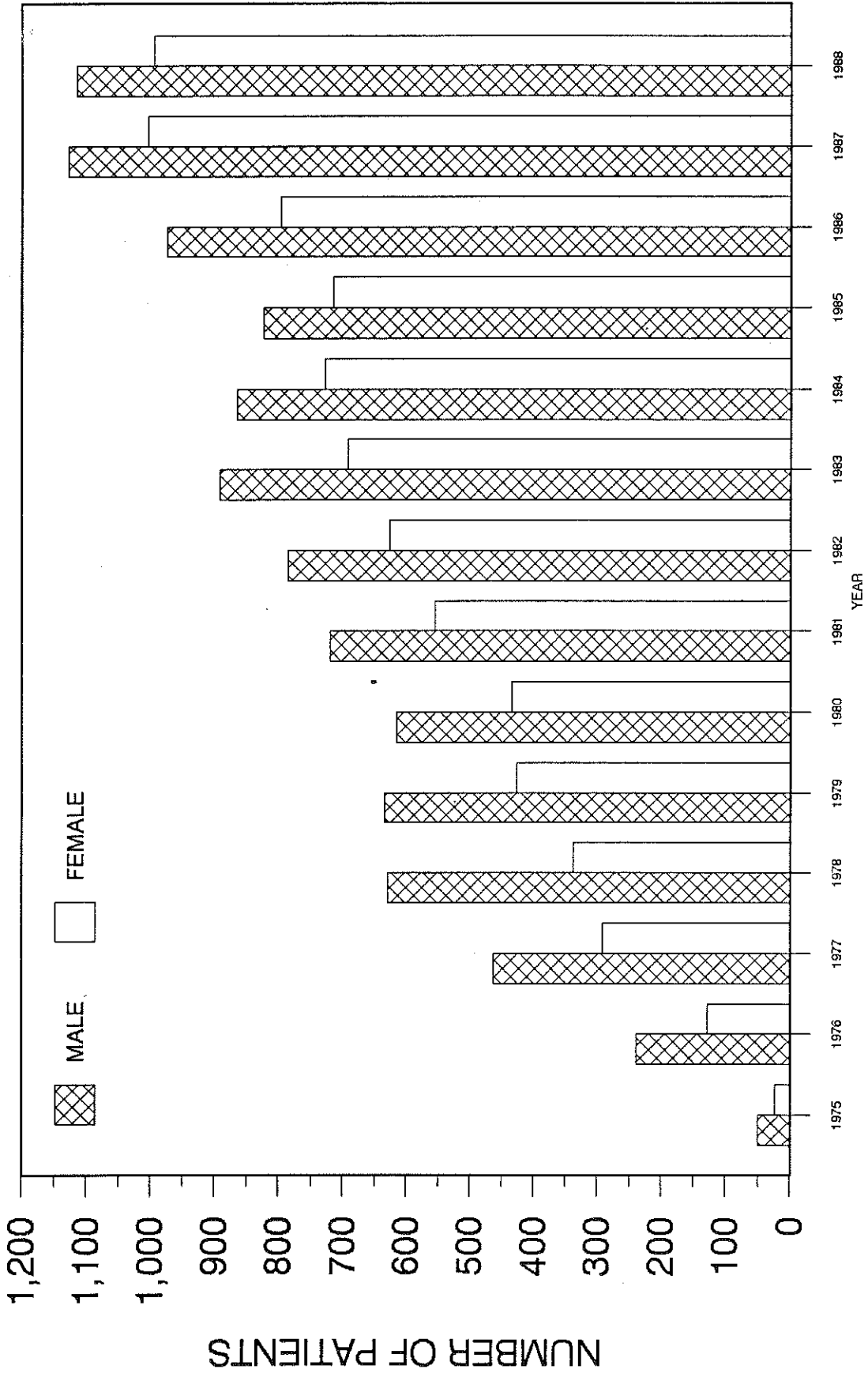


FIGURE 26
SUMMARY OF PATIENTS ACCESSIONED
CHILDREN VS ADULTS

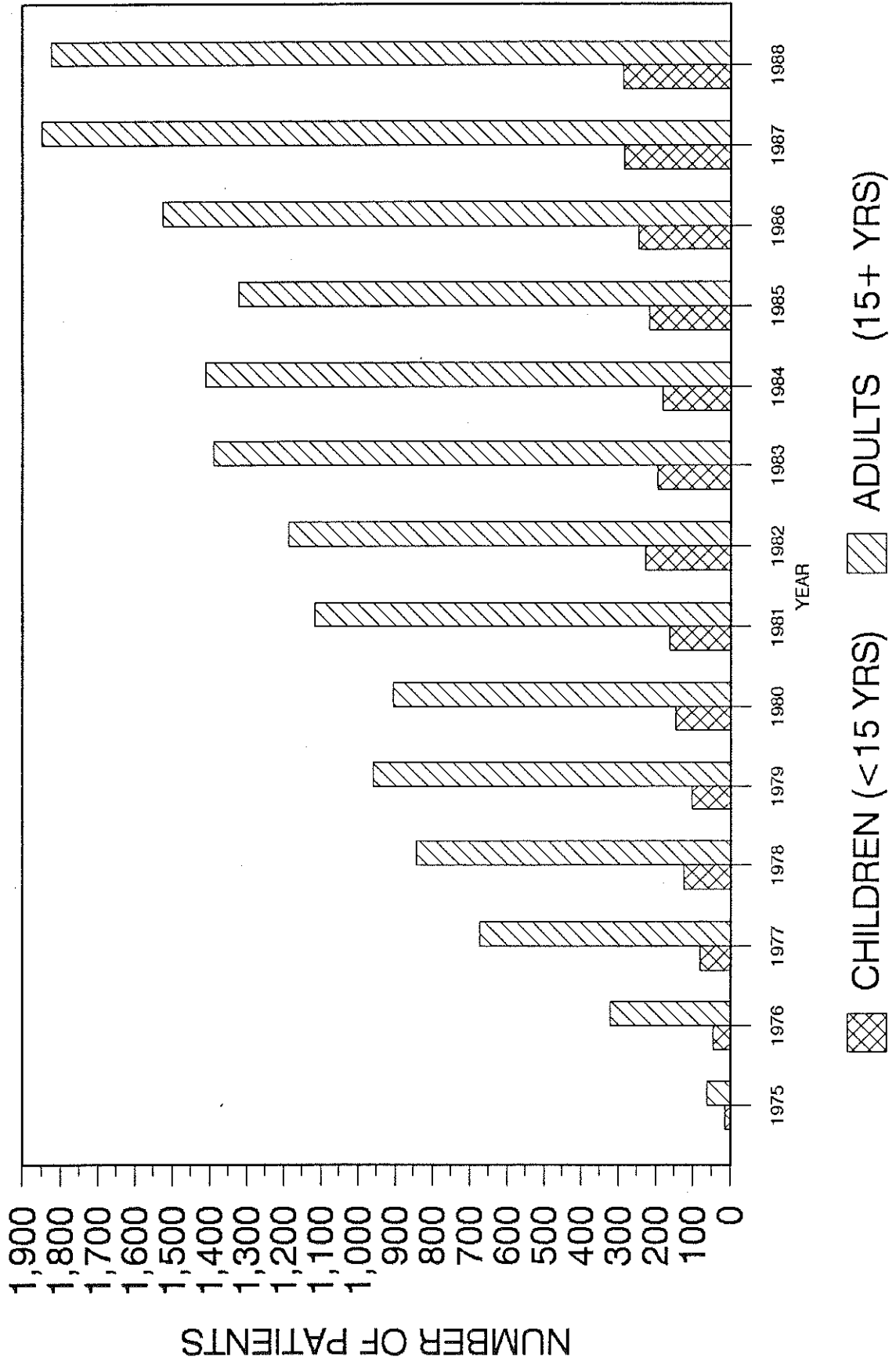


TABLE -9-

TOTAL CASES REFERRED TO KFSH BY SITE
FOR THE YEAR(S) 1975 - 1988
FIVE-YEAR SUMMARIES

ICD-O	DESCRIPTION	75-79	80-84	85-88*	TOTAL
140-146,148-9	Oral Cavity	204	401	432	1037
147	Nasopharynx	125	236	250	611
150	Esophagus	203	338	268	809
151	Stomach	135	278	253	666
153-154	Colon, Rectum	91	226	262	579
155	Liver	150	250	282	682
157	Pancreas	38	85	81	204
152,156,158-9	Other GI	41	72	102	215
161	Larynx	42	98	98	238
162-163	Lung	118	304	366	788
169(973)	Multiple Myeloma	32	55	78	165
169(982)	Lymphoid Leukemia	101	263	307	671
169(986)	Myeloid Leukemia	132	254	273	659
169	Other Leukemias	17	30	20	67
170	Bone, Cartilage Sarc	73	181	165	419
171	Soft Tissue Sarcoma	130	287	374	791
172	Skin Melanoma	25	41	40	106
173	Other Skin Cancer	116	236	224	576
174-175	Breast	184	528	614	1326
179,181-2,184	Uterus, Genital	42	99	130	271
180	Cervix	70	130	198	398
183	Ovary	47	144	157	348
185	Prostate	22	84	84	190
186-187	Testis, Genital	36	63	66	165
188	Bladder	75	173	247	495
189	Kidney, Urinary	63	110	158	331
190	Eye	50	123	124	297
191-192	Brain, CNS	176	343	457	976
193	Thyroid	97	312	407	816
194	Other Endocrine	56	164	164	384
196(959,967-70)	NHL- Lymph Nodes	256	596	467	1319
196(965-66)	Hodgkin's Disease	145	227	210	582
196(972)	Histiocytoses	17	27	33	77
199	Primary Unknown	85	149	102	336
All Others	*****	49	73	132	254
TOTALS		3243	6980	7625	17848

* Four years only

TABLE -10-

MALE CASES REFERRED TO KFSH BY SITE
FOR THE YEAR(S) 1975 - 1988
FIVE-YEAR SUMMARIES

ICD-O	DESCRIPTION	75-79	80-84	85-88*	TOTAL
140-146,148-9	Oral Cavity	120	216	251	587
147	Nasopharynx	95	173	177	445
150	Esophagus	136	209	158	503
151	Stomach	99	198	171	468
153-154	Colon, Rectum	62	135	160	357
155	Liver	130	201	221	552
157	Pancreas	31	67	54	152
152,156,158-9	Other GI	26	32	48	106
161	Larynx	37	84	85	206
162-163	Lung	97	237	289	623
169(973)	Multiple Myeloma	21	37	57	115
169(982)	Lymphoid Leukemia	79	175	200	454
169(986)	Myeloid Leukemia	86	139	154	379
169	Other Leukemias	9	17	15	41
170	Bone, Cartilage Sarc	45	110	101	256
171	Soft Tissue Sarcoma	67	154	192	413
172	Skin Melanoma	19	27	26	72
173	Other Skin Cancer	88	148	129	365
174-175	Breast	7	9	9	25
179,181-2,184	Uterus, Genital	0	0	0	0
180	Cervix	0	0	0	0
183	Ovary	0	0	0	0
185	Prostate	22	84	84	190
186-187	Testis, Genital	36	63	66	165
188	Bladder	62	139	197	398
189	Kidney, Urinary	39	70	94	203
190	Eye	34	74	67	175
191-192	Brain, CNS	115	196	228	539
193	Thyroid	35	106	105	246
194	Other Endocrine	32	90	96	218
196(959,967-70)	NHL- Lymph Nodes	196	398	320	914
196(965-66)	Hodgkin's Disease	108	167	140	415
196(972)	Histiocytoses	9	21	25	55
199	Primary Unknown	56	89	66	211
All Others	*****	28	46	85	159
TOTALS		2026	3911	4070	10007

* Four years only

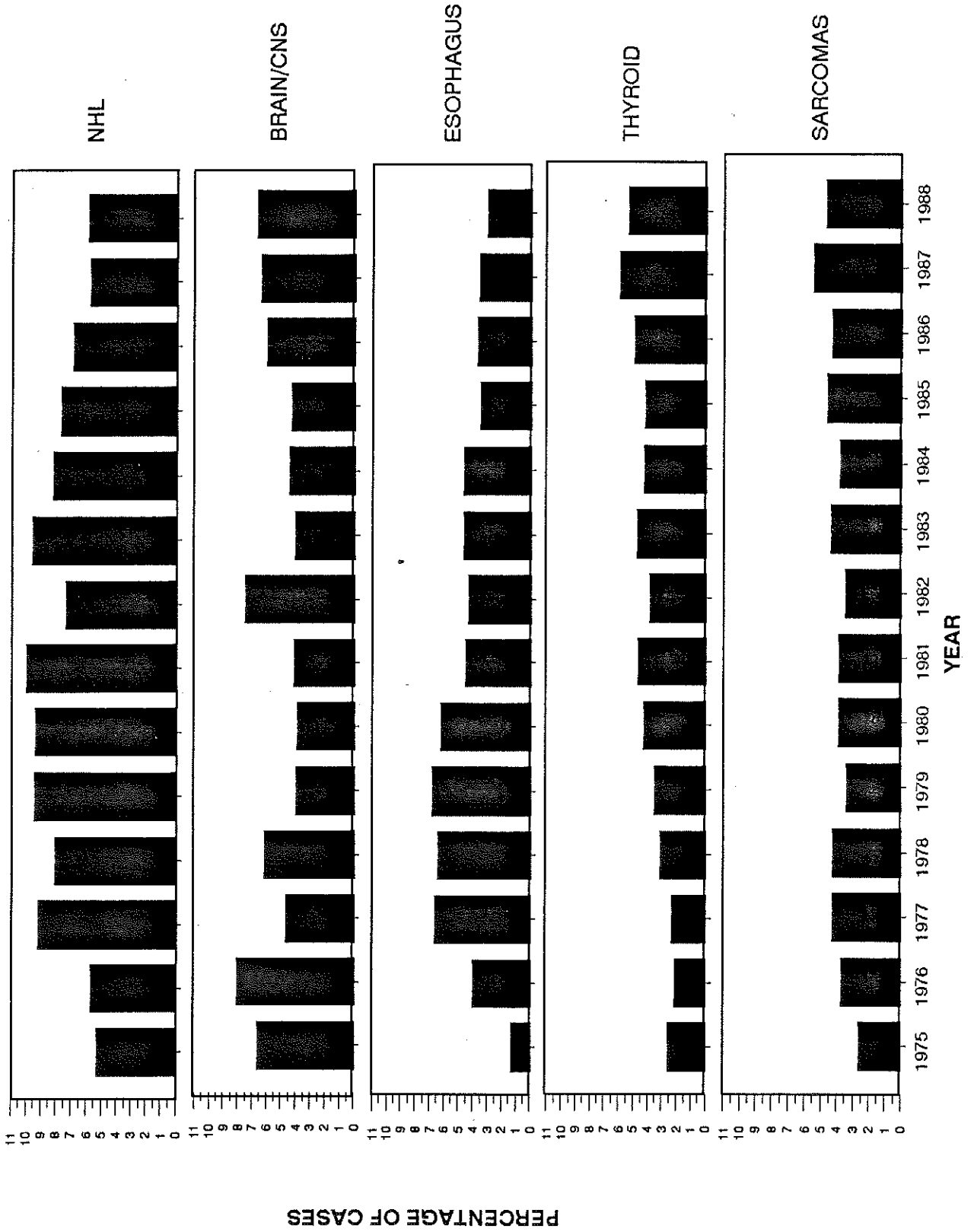
TABLE -11-

FEMALE CASES REFERRED TO KFSH BY SITE
FOR THE YEAR(S) 1975 - 1988
FIVE-YEAR SUMMARIES

ICD-O	DESCRIPTION	75-79	80-84	85-88*	TOTAL
140-146,148-9	Oral Cavity	84	185	181	450
147	Nasopharynx	30	63	73	166
150	Esophagus	67	129	110	306
151	Stomach	36	80	82	198
153-154	Colon, Rectum	29	91	102	222
155	Liver	20	49	61	130
157	Pancreas	7	18	27	52
152,156,158-9	Other GI	15	40	54	109
161	Larynx	5	14	13	32
162-163	Lung	21	67	77	165
169(973)	Multiple Myeloma	11	18	21	50
169(982)	Lymphoid Leukemia	22	88	107	217
169(986)	Myeloid Leukemia	46	115	119	280
169	Other Leukemias	8	13	5	26
170	Bone, Cartilage Sarc	28	71	64	163
171	Soft Tissue Sarcoma	63	133	182	378
172	Skin Melanoma	6	14	14	34
173	Other Skin Cancer	28	88	95	211
174-175	Breast	177	519	605	1301
179,181-2,184	Uterus, Genital	42	99	130	271
180	Cervix	70	130	198	398
183	Ovary	47	144	157	348
185	Prostate	0	0	0	0
186-187	Testis, Genital	0	0	0	0
188	Bladder	13	34	50	97
189	Kidney, Urinary	24	40	64	128
190	Eye	16	49	57	122
191-192	Brain, CNS	61	147	229	437
193	Thyroid	62	206	302	570
194	Other Endocrine	24	74	68	166
196(959,967-70)	NHL- Lymph Nodes	60	198	147	405
196(965-66)	Hodgkin's Disease	37	60	70	167
196(972)	Histiocytoses	8	6	8	22
199	Primary Unknown	29	60	36	125
All Others	*****	21	27	47	95
TOTALS		1217	3069	3555	7841

* Four years only

FIGURE 28
REFERRAL BY YEAR OF MOST COMMON MALIGNANCIES



APPENDIX A

1988 SPECIAL STUDY REQUESTS FROM TUMOR REGISTRY DATA

January		
Adult ALL Cases (1975 - present) Age 15 yrs		Dr. D. Spence
Geographic Distribution of Retinoblastoma Cases -		Dr. B. Clubb
Listing of All Multiple Myeloma Cases		Dr. P. Ernst
Esophageal Patients		Dr. M. Amer
February		
Geographic Distribution 1975-87		Ms. V. Saleh
Malignant Lymphomas in Children		Ms. S. Willoughby
Tumors of the Spine		Drs. Rooney & Moreau
FY 06-07 and FY 07-08 Statistics		Mr. N. Natour
March		
Additional Statistics for Annual Report		Mr. N. Natour
Total Number Patients referred to KFSH&RC		Mr. S. Mahran
Childhood Brain Tumors 1986-87		Drs. Rahm & Kanaan
Cancer of the Lip		Dr. B. Clubb
Childhood Germ Cell Tumors		Dr. RJA Aur
April		
RAC Project 85-0013 Listing		Dr. El Yazigi
Patients with Histiocytosis X		Dr. S. El Akkad
Patients with Malignant Fibrous Histiocytoma		Dr. S. El Akkad
Hodgkin's Patients with Exp. Laparotomy		Dr. S. El Akkad
1987 Annual Report Statistics		Ms. S. Willoughby
Cancer of the Stomach		Dr. B. Harding
May		
Comparison of All Cancer Patients (CHIC vs TR)		Ms. S. Willoughby
June		
No Requests		
July		
Testicular Seminomas		Dr. M. El Senoussi
Additional HD Patients with Exp. Lap.		Dr. S. El Akkad
Retinoblastoma - 1982 to 1986		Dr. R. Sabbah
August		
New Cancer Patients in Med. Oncology		Dr. M. Amer
Pregnancies with Cancer &/or Chemotherapy		Dr. R. Krishnaswamy
September		
Leukemias in Children		Dr. RJA Aur

APPENDIX A - con't

1988 SPECIAL STUDY REQUESTS FROM TUMOR REGISTRY DATA

October

Optic Gliomas	Dr. Kanaan
Bilateral Retinoblastoma 1975 - Present	Dr. K. Sackey
Malignancies of the Eye	Dr. El Senoussi
Bone Tumors at KFSH&RC	Dr. R. Rooney
Malignant Lymphomas in Patients over 14 yrs	Drs. Amer/Esmail
Cancer of the Thyroid - 1987 Only	Dr. S. Dahlan
Colon Cancer in the Past 5 Years	Dr. A. Ayub
Trace Metal Analysis Study	Dr. El Yazigi
All Malignant Lymphomas & Assoc. Disorders	Dr. M. Amer
Nasopharyngeal Cancer at KFSH&RC	Dr. M. Amer
Acute Myeloid Leukemias	Dr. D. Spence
ALL Patients in 1988	Dr. H. Clink
Carcinoma of the Cervix over Past 5 Years	Ms. B. Goodwin
Kaposi's Sarcoma at KFSH&RC	Dr. Qunibi

November

Oral Cavity/Nasal/Larynx Ca by Geographic Region	Dr. S. El Akkad
Children with Cancer in Saudi Arabia	Dr. RJA Aur
Hodgkin's Disease with Stage IA or 2A	Dr. S. El Akkad

December

Total Number Patients Referred Since 1984	Dr. S. Mahran
Breast Cancer through 1987 - With Mastectomy	Dr. M. El Senoussi
Rectal Cancer 1984-1987	Dr. M. Borghol

APPENDIX B

1988 TUMOR COMMITTEE MEMBERS

S. El Akkad, M.D., Radiation Oncology
A. Ali, M.D., Pathology **
J. Atwood, C.T.R., Tumor Registry
A. Bedikian, M.D., Medical Oncology *
W. Greer, Ph.D., BS&SC Research Centre
M. Hannan, Ph.D., B&MR Research Centre
M. Al Jalahma, Social Services
E. Mahboubi, M.D., B&MR Research Centre
P. McArthur, M.D., Surgery
L. NouNou, Social Services
R. Pavillard, M.D., Quality Assurance
P. Pederson, MD., Obstetrics & Gynecology
R. Phillips, Ph.D., BS&SC Research Centre
R. Rooney, M.D., Orthopedic Surgery
S. Al Sedairy, Ph.D., B&MR Research Centre
J.O. Sieck, M.D., Medicine
S. Skillicorn, M.D., Quality Assurance
S. Willoughby, C.T.R., Tumor Registry

* Tumor Committee Chairman

** Deputy Chairman

APPENDIX C

SUMMARY OF CASES PRESENTED
F&S&RC TUMOR BOARD - 1988

SITE	NO.
SARCOMA	20
Rhabdomyosarcoma	4
Fibrosarcoma	3
Malignant Schwannoma	3
Liposarcoma	1
Clear Cell Sarcoma	1
Malignant Fibrous Histiocytoma	1
Spindle Cell Sarcoma	1
Leiomyosarcoma	1
Aggressive Fibromatosis	1
Neuroepithelioma	1
Angiosarcoma	1
Cavernous Hemangioma	1
Synovial Sarcoma	1
NON-HODGKIN'S LYMPHOMA	12
HODGKIN'S DISEASE	6
GYNECOLOGIC	5
Cervix	2
Ovary	1
Placenta (Choriocarcinoma)	1
Uterus	1
GENITO/URINARY SYSTEM	4
Kidney	1
Wilms' Tumor	1
Bladder	1
Penis	1
HEMATOPOIETIC & RETICULOENDO. SYSTEM	3
Acute Lymphoid Leukemia	2
Chronic Lymphoid Leukemia	1
BONE	5
Osteogenic Sarcoma	3
Ewing's Sarcoma	1
Chondromyxosarcoma	1
BREAST	9
SKIN	1
LIVER	2
NERVOUS SYSTEM	2
NEUROBLASTOMA	2
PROSTATE	1
COMMON BILE DUCT	1
ANAL CANAL	1
NASOPHARYNX	1
LYMPHADENOPATHY & SPLENOMEGALY ? ORIGIN	2

Tumor Board Moderator: Dr. B. Clubb

APPENDIX D

1988 SUMMARY OF TUMOR CONFERENCE TOPICS

24 January	Bilateral Wilms' Tumor	Dr. K. Sackey
31 January	Meningiomas	Dr. I. Kanaan
07 February	DNA Repair Defects & Malignancy	Dr. M. Hannan
28 February	Tobacco Import & Lung Cancer in SA	Dr. E. Mahboubi
06 March	Hematology Case Presentations	Drs. Clink/Spence
20 March	Carcinoma of the Colon	Dr. R. Deniord
27 March	Malignant Lymphoma w/Meningeal Inv.	Dr. D. Booser
10 April	Progress in Tx H&N Cancer	Dr. B. Rush (Visiting Prof)
19 June	Case Presentations	Dr. D. Booser
26 June	Carcinoma of the Thyroid	Dr. N. Woodhouse
04 September	Non-Transferrin Bound Iron in Child	Dr. M. Hanna
18 September	Hist. Char. & Rad. Feat. Nasoph Ca.	Drs. Brismar/Ali
25 September	Statistics in Medicine/Cancer Tx	Drs. DeVol/Amer
02 October	Childhood Non-Hodgkin's Lymphoma	Dr. R. Sabbah
16 October	Childhood Non-Hodgkin's Lymphoma	Dr. R. Sabbah
23 October	Basic Science & Oncology Practice	Dr. M. Hannan
30 October	Creatin. Clearance/Complete Remiss.	Drs. Taher/Bedikian
06 November	Progress in Chemotherapy: Real or ?	Dr. P. Salem
13 November	Premalignant Hematologic Disorders	Dr. Gordon-Smith
27 November	Kaposi's Sarcoma in Renal Transpl.	Dr. Qunibi
04 December	Accounting for Death	Dr. P. Herdson
11 December	Survival Statistics/Stress & Cancer	Drs. DeVol/Chaleby/Amer
25 December	Case Presentations	Drs. Rooney/Booser

Tumor Conference Moderators: Dr. H. Clink & Dr. M. Amer

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VI. GLOSSARY OF TERMS

Accessioned: Patients are entered into the Tumor Registry by the year in which they were first seen at KFSH&RC for each primary cancer.

Age of Patient: Recorded in completed years at the time of diagnosis for analytic cases. For nonanalytic cases, it is reported at age first entered into the Tumor Registry.

Analytic Cases: Cases which were first diagnosed and/or received all or part of their first course of treatment at KFSH&RC.

Nonanalytic Cases: Cases diagnosed elsewhere and receiving all of their first course of treatment elsewhere.

Case: A diagnosis or finished abstract.

Patient: An individual who has cancer. A patient who has more than one primary will be reported as multiple cases.

Stage of Disease: Determined at the time of the first course of treatment.

SEER Summary Staging Guide:

In Situ: Tumor meets all microscopic criteria for malignancy except invasion.

Local: Tumor is confined to organ of origin.

Regional: Tumor has spread by direct extension to immediately adjacent organs and appears to have spread no further.

Distant: Tumor has spread beyond immediately adjacent organs or tissues by direct extension and/or has either developed secondary or metastatic tumors, metastasized to distant lymph nodes or has been determined to be systemic in origin.

Unknown: Tumor is said to be unknown when the stage cannot be determined by the medical record or a medical authority.

American Joint Committee on Cancer - TNM Staging: A classification scheme based on the premise that cancers of similar histology or site of origin share similar patterns of growth and extension:

T+N+M = Stage

(T) tumor size

(N) node involvement

(M) distant metastases

First Course of Treatment: The initial tumor-directed treatment or series of treatments, usually initiated within four months after diagnosis.

Crude Relative Frequency: The proportion of a given cancer in relation to all cases in a clinical or pathological series.

VII. REFERENCES

1. "Reporting of Cancer Survival and End Results," **Manual for Staging of Cancer** , third edition, American Joint Committee on Cancer, Philadelphia, Lippincott, 1988.
2. **Summary Staging Guide** , SEER Program, U.S. Department of Health Services, National Institutes of Health, Publication No. (NIH)77-1448, Washington, 1977.
3. **Cancer Patient Survival: SEER Program, 1973-1979** , JNCI, Vol. 70, No. 4, April 1983.
4. **Third National Cancer Survey** , NCI Monograph No. 41. DHEW Publication, 1975.
5. **Cancer Incidence in Five Continents** , Vol. IV, Lyon, France: IARC Scientific Publication No. 42, 1982.
6. **Clinical Oncology, A Multidisciplinary Approach** , 6th Edition, American Cancer Society, 1983.
7. "Pattern of Cancer in Saudi Arabs Referred to King Faisal Specialist Hospital," El-Akkad, et al, **Cancer** , 58:1172-1178. 1 Sept 1986.
8. **Cancer Facts & Figures - 1988** , American Cancer Society
9. **Cancer Occurrence in Developing Countries**, D.M. Parkin, ed. IARC Scientific Publication No. 75, 1986.
10. "Morphologic and Immunopathologic Spectrum of Malignant Lymphoma: Review of 211 Cases," Ali, Et al., **Annals of Saudi Medicine**, Vol. 9, Number 4, 1989.

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KFSH & RC CASES TO BE INCLUDED IN THE REGISTRY

REPORTABLE LIST

All cancer cases with active disease or history of malignancy, diagnosed or receiving cancer treatment, seen as inpatients or outpatients within the hospital are to be included in the registry. Also included are patients with known clinical evidence of cancer (active disease) but who are treated for supportive, symptomatic or other reasons. An example would be a patient admitted with a broken leg, who also has known clinical evidence of prostate cancer.

The KFSH&RC Tumor Registry definition of reportable cancer is as follows:

All cases with a morphology behavior code of "1, 2, 3, 6, or 9" listed in the ICD-0 are reportable.

1 = Uncertain whether benign or malignant
Borderline malignancy

2 = Carcinoma in situ (intraepithelial, noninfiltrating, noninvasive)

3 = Malignant, primary site

6 = Malignant, metastatic site, secondary site

9 = Malignant, uncertain whether primary or metastatic site

Note also that if a "0" (benign) behavior code term in the ICD-0 is verified as in situ or malignant by a pathologist, it becomes a reportable case.

Benign brain tumors (T-191) and central nervous system (T-192) tumors are reportable to the Registry.

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BEHAVIOR CODE "1"

All tumors designated with behavior code "1" are reportable.

Examples of tumors of uncertain behavior that are abstracted and followed by the Registry are:

Bronchial Adenoma (8140.1)
Carcinoids of the Appendix (8240.1)
Carotid Body Tumor/Glomus Jugulare (8692.1, 8690.1)
Chemodectoma (8693.1)
Chronic Lymphoproliferative Disease (9970.1)
Chronic Myeloproliferative Disease (9960.1)
Craniopharyngioma (9350.1)
Desmoid Tumor (8821.1)
Fibromatosis, Aggressive (8821.1)
Myxopapillary or Papillary Ependymoma (9394.1, 9393.1)
Ganglioglioma (9505.1)
Giant Cell Tumors of the Bone (9250.1)
Giant Pigmented Nevus of Skin (8761.1)
Subependymal Glioma (9383.1)
Hemangioblastoma (9161.1)
Hydatidiform Mole, Invasive (9100.1)
Granulosa Cell Tumor (8620.1)
Meningiomatosis (9530.1)
Muco-epidermoid Tumor (8430.1)
Myelodysplastic Syndrome (9980.1)
Neurofibromatosis (9540.1)
Papilloma of Urinary Bladder (8120.1)
Paraganglioma (8680.1)
Pineocytoma/Pinealoma (9361.1, 9360.1)
Polycythemia Rubra Vera (9950.1)
Sex Cord-Stromal Tumor (8590.1)
Sweat Gland Tumor (8400.1)
Von Recklinghausen's Disease (9540.1)
Villous Adenomas of GI Tract (8261.1)

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BEHAVIOR CODE "0"

Following is a list of benign tumors that are abstracted and followed by the Registry:

Aplastic Anemia (9980.0)
Ameloblastoma (9310.0)
Aneurysmal Bone Cyst (9262.0)
All benign intracranial tumors - meningiomas (9530.0)
Choroid plexus papilloma (9390.0)
Cavernous Hemangioma (9121.0)
Chondroblastoma (9230.0)
Eosinophilic Granuloma / Histiocytosis X (9722.0)
Familial Polyposis coli (8220.0)
Hemangioma (9120.0)
Juvenile Angiofibroma (9160.0)
Melanotic Neuroectodermal Tumor (9363.0)
Mixed tumor, salivary gland type (8940.0)
Mucinous Cystadenoma (8470.0)
Myoepithelial tumor (8982.0)
Myxoma (8840.0)
Neurilemmoma (9560.0)
Neurofibroma (9540.0)
Pheochromocytoma (8700.0)
Adenomas of thyroid, Papillary, Follicular, Mixed (8260.0, 8330.0, 8340.0)
Pituitary Adenoma/Chromophobe Adenoma (8140.0, 8270.0)
Plexiform neurofibroma (9550.0)
Pleomorphic Adenoma (8940.0)
Prolactinoma (8140.0)
Osteoblastoma (9200.0)
Rhabdomyoma (8900.0)
Schwannoma (9560.0)
Thymoma (8580.0)
Xanthofibroma (8830.0)

