

***Oncology Data Unit
Department of Oncology
King Faisal Specialist Hospital
& Research Centre***

**1999
Tumor Registry Annual Report**

ACKNOWLEDGEMENTS :

The Cancer Program is a combined effort of many individuals. It is not possible to enumerate all the nurses, technicians, therapists, pharmacists, dentists, physicians, scientists, social workers and others whose work is primarily on behalf of the patients with cancer. In addition, nearly everyone associated with the hospital comes in contact with the cancer patients from time to time, frequently contributing significantly to their care. The staff of the Tumor Registry recognizes this hospital-wide involvement in the care of cancer patients. The information in this report is provided to assist all health care professionals to better understand the problems faced in treating patients with cancer.

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

Department of Pathology & Laboratory Medicine
Computer and Hospital Information Centre
Medical Records Services
Department of Radiation Therapy
Department of Oncology
Home Health Care

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1999 TUMOR REGISTRY ANNUAL REPORT

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I. KING FAISAL SPECIALIST HOSPITAL & RESEARCH CENTRE TUMOR REGISTRY

The King Faisal Specialist Hospital and Research Centre (KFSH&RC) opened in June 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 and international tertiary care hospital for Oncology and the principal center for cancer therapy in Saudi Arabia.

The KFSH&RC Tumor Registry is a hospital-wide data system designed for the collection, management, and analysis of data on patients with the diagnosis of a malignant neoplasm (cancer). The Registry was established to meet one of the requirements for an Approved Cancer Program of the American College of Surgeons (ACoS) and is under the supervision of the Tumor Committee. The database now includes 40,698 malignant cases seen at KFSH&RC from June 1975 through December 31, 1999, as well as cases seen at the Children's Cancer Centre since its opening in March 1997. More than 2,000 new cases are added annually.

The Registry is primarily staffed with certified tumor registrars who support the database in case ascertainment, abstracting, follow up and statistical analyses. The basic source document is the patient's medical record from which pertinent information is abstracted for use in the Registry. The electronic data system used is the Cansur 3.0 designed by the ACoS in which the details of each diagnosed cancer case is entered and stored. (Please refer to Figures 1-A to 1-D for a sample data set.)

The data maintained in the Tumor Registry provides the statistics for the publication of the KFSH&RC Annual Report which summarizes the hospital's cancer experience. The data also supports a wide variety of reports at the request of physicians, researchers, and ancillary personnel. These reports support patient management and outcome, basic and clinical research investigations, educational publications and presentations, and resource utilization. In 1999, the Tumor Registry supported 53 data requests (see Appendix A for a listing of requests for Tumor Registry data). It also identified and reported to the National Cancer Registry 2,662 cases seen in 1999 that were diagnosed on or after 01 January 1994.

FIGURE 1-A

KING FAISAL SPECIALIST HOSPITAL AND RESEARCH CENTRE

CANCER REGISTRY WORKSHEET (CanSur 3.0)

PATIENT NAME PLATE

PF 10 TACS - ACCESSION FILE MAINTENANCE ACCESSION NUMBER (ACSN): <u>870123</u> TUMOR SEQUENCE (SEQ): <u>010</u> Malignant/In situ tumors: 00 - One primary only, 01 - First of two or more, 98 - 98th or later primary, 99 - Unspecified sequence Benign tumors: XX - One primary only, AA - First of two or more, IIII - 8th or later primary, II - Unspecified sequence THIS CANCER ACCESSION YEAR: <u>87</u> MEDICAL RECORD NO.: <u>3194657</u> CASE STATUS: <u>3</u> 0 - Suspense, 1 - Incomplete, 3 - Completed per Release 3 PATIENT NAME: Last: _____, First: _____, Second: _____, Third: _____ ADDRESS AT DIAGNOSIS: P.O. Box _____, Riyadh, City, RY, ZIP Code: _____ - _____ PF 11 TPAT - PATIENT IDENTIFICATION SAUDI ID: <u>12345111</u> BIRTH DATE: <u>01/01/1946</u> AGE AT DX: <u>041</u> SEX: <u>2</u> (1 - Male, 2 - Female, 9 - Unknown) NATIONALITY: <u>01</u> (01 - Saudi, 02 - Egyptian, 03 - Leb, Syr, Pal, 04 - Yemeni, 05 - Other Arab, 06 - Ind, Pak, 07 - African, 08 - , 09 - Other)		MARITAL STATUS AT DX: <u>2</u> 1 - Single, 2 - Married, 3 - Separated, 4 - Divorced, 5 - Widowed, 9 - Unknown RELIGION: <u>01</u> 01 - Muslim, 02 - Christian, 03 - Hindu, 04 - Buddhist, 08 - Other, 99 - Unknown ALCOHOL USAGE: <u>3</u> 1 - Current alcohol usage, 2 - Past history of alcohol usage, 3 - Never used alcohol, 9 - Unknown FAMILY HISTORY OF CANCER: <u>1</u> 1 - Family history of cancer, 2 - No family history of cancer, 9 - Unknown SMOKING/CHEWING HISTORY: <u>3</u> 1 - Current smoker cig., 2 - Past smoker, 3 - Patient never smoked, 4 - Ghat, 5 - Shamma, 6 - Shisha, 7 - Combo, 8 - Other, 9 - Unknown TOTAL PACK YEARS: _____ INDUSTRY: _____ OCCUPATION: <u>Teacher</u> DATE ADMITTED: (mm/dd/yyyy) <u>01/20/1987</u> DATE DISCHARGED: (mm/dd/yyyy) <u>02/15/1987</u> REPORTING SOURCE: <u>1</u> 1 - Inpatient, 2 - Clinic/outpatient, 3 - Laboratory, 4 - Physician's office, 5 - Nursing home, 6 - Autopsy, 7 - Death Cert., 9 - Unknown HOSPITAL REFERRED FROM: <u>00001011</u> <u>Riyadh Central Hospital</u> HOSPITAL REFERRED TO: _____	
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FIGURE 1-B

<p>PF 12 TEXT - MISCELLANEOUS TEXT</p> <p>PHYSICAL EXAM: 6-mo hx 2 cm mass rt breast UOQ, mobile, no skin changes. 3x4 cm rt axillary LN. Lt breast NED.</p> <p>X RAYS / SCANS: 01/20/87 Bilat Mammogram - 2x2.5x2.5 cm mass rt breast UOQ. CXR, Bone Scan, U/S Abdomen - NED.</p> <p>SCOPES / LAB: 01/25/87 ERA (+), PRA (+)</p> <p>OPERATIVE FINDINGS: 01/25/87 Rt Mod Rad Mastectomy - no description of tumor.</p> <p>PATHOLOGY / AUTOPSY: 87SP3286 01/25/87 Duct Cell Ca, gr 3; 11/19 LN's. (tumor size: 2.2x2x1.8 cm completely excised) Nipple & overlying skin NED. (largest LN 1.5 cm)</p>	<p>TCAN - Cancer Identification (Continued)</p> <p>GRADE: []</p> <p>1 - Well differentiated (I) 5 - T-cell</p> <p>2 - Mod well differentiated (II) 6 - B cell</p> <p>3 - Poorly differentiated (III) 7 - Null cell</p> <p>4 - Undifferentiated (IV) 9 - Not stated, unknown</p> <p>LATERALITY: []</p> <p>0 - Not paired organ 3 - Rt or Lt unspecified</p> <p>1 - Right 4 - Both, simultaneous</p> <p>2 - Left 9 - Unknown laterality</p> <p>DX CONFIRMATION: []</p> <p>1 - Positive histology 6 - Direct visualization</p> <p>2 - Cytology 7 - Radiography</p> <p>4 - Pos. micro, confirm, NOS 8 - Clinical</p> <p>5 - Laboratory test/marker 9 - Unknown</p> <p>REGIONAL NODES EXAMINED: [] []</p> <p>00 - No nodes examined 97 - 97 + nodes examined</p> <p>01 - One node examined 98 - Nodes examined, number unknown</p> <p>... 99 - Unknown if nodes examined</p> <p>REGIONAL NODES POSITIVE: [] []</p> <p>00 - No nodes positive 97 - Positive nodes, number unknown</p> <p>01 - One node positive 98 - No nodes examined</p> <p>... 99 - Unknown if any nodes +/-</p> <p>98 - 98 + nodes positive</p> <p>TUMOR SIZE (cm) [] [] []</p> <p>eg. 000 - No mass, 002 - 0.2 cm, 055 - 5.5 cm, 999 - Unknown</p> <p>RESIDUAL TUMOR: []</p> <p>0 - None 2 - Macroscopic 9 - Unknown</p> <p>1 - Microscopic 8 - No reaction, IIA</p> <p>DISSEMINATIONS: [] [] []</p> <p>0 - Bone Mar. 4 - Liver 8 - Lymph nodes (ft. Ln.)</p> <p>1 - Peritoneum 5 - Bone 9 - Unknown/other</p> <p>2 - Lung 6 - CNS</p> <p>3 - Pleura 7 - Skin</p> <p>GENERAL SUMMARY STAGE: []</p> <p>0 - In situ 4 - Regional, both 2 & 3</p> <p>1 - Localized 5 - Regional, NOS</p> <p>2 - Regional, direct extension 7 - Distant</p> <p>3 - Regional, nodes 9 - Unknown/Unstageable</p> <p>AJCC STAGE:</p> <p>CLINICAL T [] N [] M [] STAGE GROUP []</p> <p>PATHOLOGICAL T [] N [] M [] STAGE GROUP []</p> <p>OTHER [] [] [] [] [] [] STAGE GROUP []</p> <p>*THER Codes - (use alpha codes as appropriate; eg. 12A, 2A, 12, 2, NIB-10, M0-0, IS-In situ, X-Unknown)</p> <p>*AJCC Stage Group - use alpha codes as appropriate; eg. 3A, Stage IIIA, 1, Stage I</p> <p>0 - In situ 2 - Stage II 4 - Stage IV</p> <p>1 - Stage I 3 - Stage III 9 - Unknown</p> <p>**Other (basis): (S - Surgical, A - Autopsy, H - Retreatment)</p>
<p>PF 13 TCAN - CANCER IDENTIFICATION</p> <p>DATE OF INITIAL DIAGNOSIS: (mm/dd/yyyy) 01/11/87</p> <p>CLASS OF CASE: []</p> <p>0 - Dx here, rx elsewhere 4 - Rx here prior</p> <p>1 - Dx & rx here 5 - Dx at autopsy</p> <p>2 - Rx here 9 - Unknown</p> <p>3 - Rx elsewhere</p> <p>PRIMARY SITE - TEXT: Breast, Right UOQ</p> <p>CODE: [] [] [] []</p> <p>HISTOLOGY - TEXT: Duct Cell Carcinoma, gr 3</p> <p>CODE: [] [] [] [] [] []</p>	

FIGURE 1-C

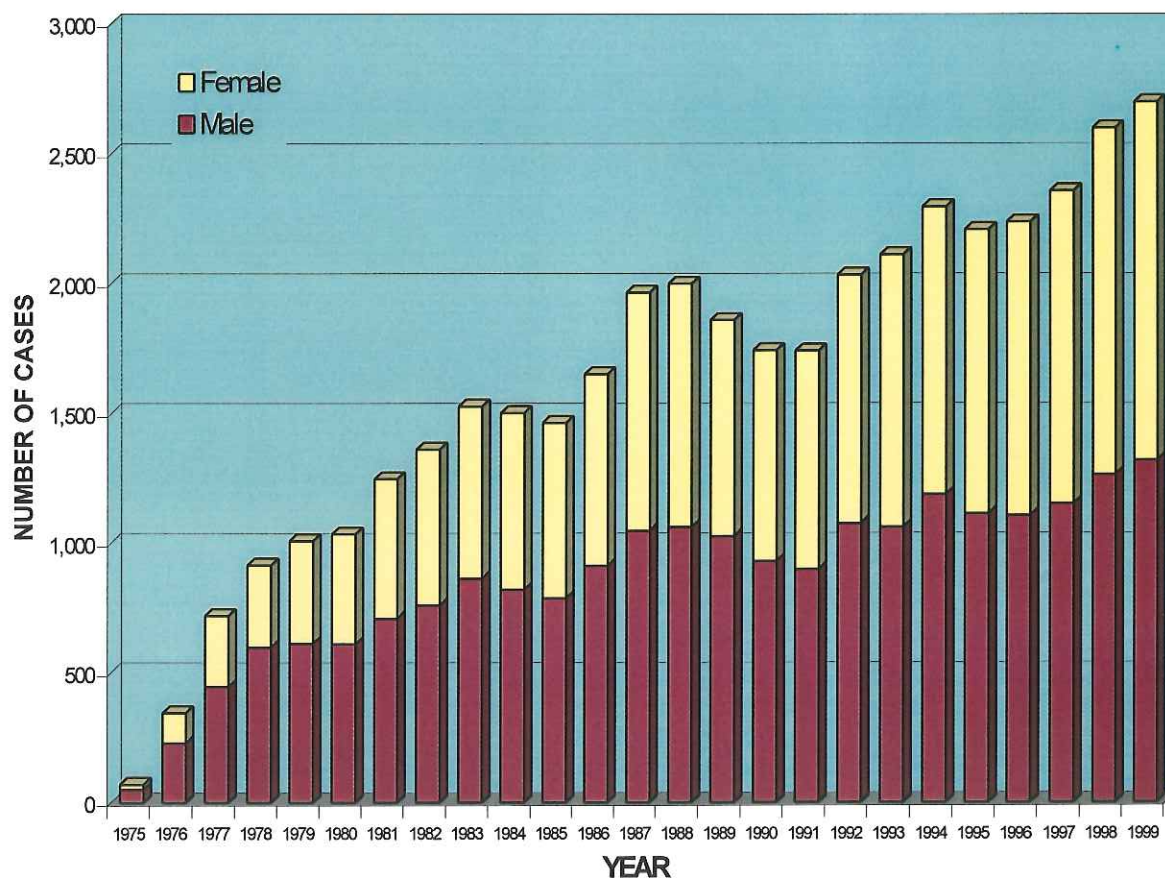
<p>PF 14 TRX1 - 1ST COURSE TREATMENT (SURGERY, RADIATION)</p> <p>SURGERY</p> <p>REASON: 0 </p> <p><input checked="" type="radio"/> 0 - Car directed surg performed 8 - Reason unknown, no surg</p> <p>1 - Not recommended 7 - Patient/guardian refused</p> <p>2 - Contraindicated, other 8 - Recommended, unk if done</p> <p>9 - unknown</p> <p>SUMMARY: (Entire 1st course) 5 0 </p> <p>AT THIS HOSPITAL: 6 0 </p> <p>* Refer to Appendix A in CanSur User Manual for site specific codes.</p> <p>STARTED: (mm/dd/yyyy) 0 1 / 2 5 / 1 9 8 7 </p> <p>TEXT: <u>Rt Mod Rad Mastectomy w/ Rt Axillary Dissection</u></p> <hr/> <p>RADIATION</p> <p>SUMMARY: 1 </p> <p>AT THIS HOSPITAL: 1 </p> <p>0 - No radiation therapy 5 - Radiation therapy, NOS</p> <p><input checked="" type="radio"/> 1 - External radiation 7 - Patient/guardian refused</p> <p>2 - Radioactive implants 8 - Recommended, unk if done</p> <p>3 - Radioisotopes 9 - Unknown</p> <p>4 - Comb 1 + 2 or 3</p> <p>STARTED: (mm/dd/yyyy) 0 8 / 2 9 / 1 9 8 7 </p> <p>TO BRAIN & CNS: (lung & leukemia cases only) 9 </p> <p>0 - None to CNS 8 - Recommended, unk if done</p> <p>1 - Radiation therapy <input checked="" type="radio"/> 9 - Unknown/not applicable</p> <p>7 - Patient/guardian refused</p> <p>RADIATION/SURGERY SEQ: 3 </p> <p>0 - Not applicable 5 - Intraoperative radiation</p> <p>2 - Radiation before surgery 6 - Intraoperative plus 2, 3 or 4</p> <p><input checked="" type="radio"/> 3 - Radiation after surgery 9 - Sequence unknown</p> <p>4 - Before & after surgery</p> <p>TEXT: <u>Chest Wall 6000</u></p>	<p>PF 16 TRX3 - 1st COURSE TREATMENT (CHEMO, HORMONES, BRM, OTHER)</p> <p>CHEMOTHERAPY</p> <p>SUMMARY: 3 </p> <p>AT THIS HOSPITAL: 3 </p> <p>0 - No chemotherapy 7 - Patient/guardian refused</p> <p>1 - Chemotherapy, NOS 8 - Recommended, unk if done</p> <p>2 - Chemotherapy, single agent 9 - Unknown</p> <p><input checked="" type="radio"/> 3 - Chemotherapy, multi-agent combination</p> <p>STARTED: (mm/dd/yyyy) 0 2 / 1 3 / 1 9 8 7 </p> <p>TEXT: <u>5-FU, Adria, Ctx</u></p> <hr/> <p>HORMONES/STEROIDS</p> <p>SUMMARY: 1 </p> <p>AT THIS HOSPITAL: 1 </p> <p>0 - No hormonal therapy 7 - Patient/guardian refused</p> <p><input checked="" type="radio"/> 1 - Hormonal therapy 8 - Recommended, unk if done</p> <p>2 - Endocrine surg/radiation 9 - Unknown</p> <p>3 - Hormones + endcr surg/rad</p> <p>STARTED: (mm/dd/yyyy) 0 2 / 0 9 / 1 9 8 7 </p> <p>TEXT: <u>Tamoxifen</u></p> <hr/> <p>BIO-RESPONSE MODIFIER (BRM)</p> <p>SUMMARY: 0 </p> <p>AT THIS HOSPITAL: 0 </p> <p><input checked="" type="radio"/> 0 - No BRM 7 - Patient/guardian refused</p> <p>1 - BRM 8 - Recommended, unk if done</p> <p>2 - Allo BMT 9 - Unknown</p> <p>3 - Auto BMT</p> <p>STARTED: (mm/dd/yyyy) / / </p> <p>TEXT: _____</p> <hr/> <p>OTHER TX</p> <p>SUMMARY: 0 </p> <p>AT THIS HOSPITAL: 0 </p> <p><input checked="" type="radio"/> 0 - In other controlled tx 0 - Unproven therapy</p> <p>1 - Other controlled tx 7 - Patient/guardian refused</p> <p>2 - Experimental care 8 - Recommended, unk if done</p> <p>3 - Double-blind study 9 - Unknown</p> <p>STARTED: (mm/dd/yyyy) / / </p> <p>TEXT: _____</p>																				
<p>PF 18 TRX2 - SUB. THERAPY</p> <table border="1" style="width:100%; border-collapse: collapse;"> <thead> <tr> <th>Start</th> <th>Course</th> <th>Type</th> <th>Code</th> <th>Desc.</th> </tr> </thead> <tbody> <tr> <td>1 / / </td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>2 / / </td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>3 / / </td> <td></td> <td></td> <td></td> <td></td> </tr> </tbody> </table>	Start	Course	Type	Code	Desc.	1 / /					2 / /					3 / /					
Start	Course	Type	Code	Desc.																	
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II. KFSH&RC CANCER PATIENT POPULATION

A total of 2,698 cases were accessioned in 1999, with 1,320 males and 1,378 females or a male/female ratio of almost 1:1. This represents a 3.8% increase from 1998.

FIGURE 2

DISTRIBUTION OF ALL CASES ACCESSIONED BY YEAR 1975 - 1999 (TOTAL CASES = 40,698)



From the opening of the hospital (mid 1975) until December 1999, 40,698 cancer cases were registered (21,664 males and 19,034 females) with a male/female ratio of 1.1:1. There were 5,296 (13.0%) pediatric cases (0 to 14 years of age) and 35,402 (87.0%) adults (15 years old and above). A slight difference in the proportion was noted in 1999, 13.4% (361) for pediatrics and 86.6% (2,337) for adults.

TABLE 1

ALL CASES SEEN AT KFSH&RC (MALE/FEMALE & PEDIATRICS/ADULTS) BY 5-YEAR PERIOD
1975 - 1999

	1975-1976*	1977-1981	1982-1986	1987-1991	1992-1996	1997-1999**	TOTAL
MALE	280	2,981	4,149	4,970	5,548	3,736	21,664
FEMALE	135	1,946	3,358	4,340	5,337	3,918	19,034
TOTAL	415	4,927	7,507	9,310	10,885	7,654	40,698
M/F RATIO	2.1:1	1.5:1	1.1:1	1.1:1	1.0:1	1.0:1	1.1:1
PEDIATRICS*** (%)	55 13.2%	593 12.0%	984 13.1%	1,162 12.5%	1,393 12.8%	1,109 14.5%	5,296 13.0%
ADULTS (%)	360 86.8%	4,334 88.0%	6,523 86.9%	8,148 87.5%	9,492 87.2%	6,545 85.5%	35,402 87.0%
TOTAL	415	4,927	7,507	9,310	10,885	7,654	40,698

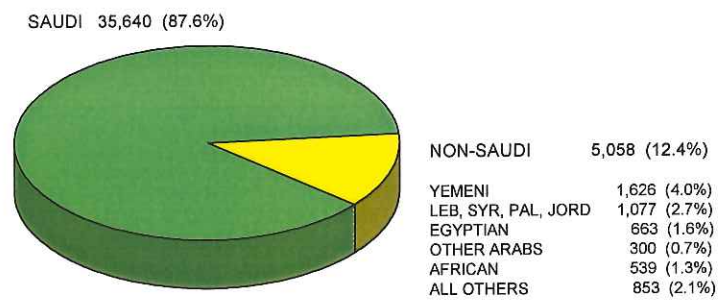
* First two years of KFSH&RC partial operation.

** Three years data only.

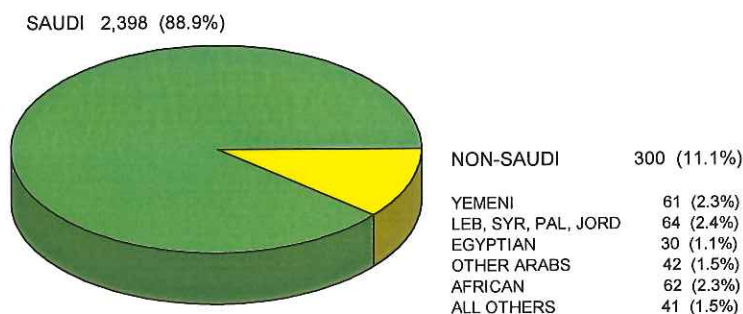
*** Pediatrics = 0 to 14 years of age; Adults = 15 years and above.

FIGURE 3

DISTRIBUTION OF ALL CASES BY NATIONALITY
1975 - 1999 (TOTAL CASES = 40,698)



1999 (TOTAL CASES = 2,698)



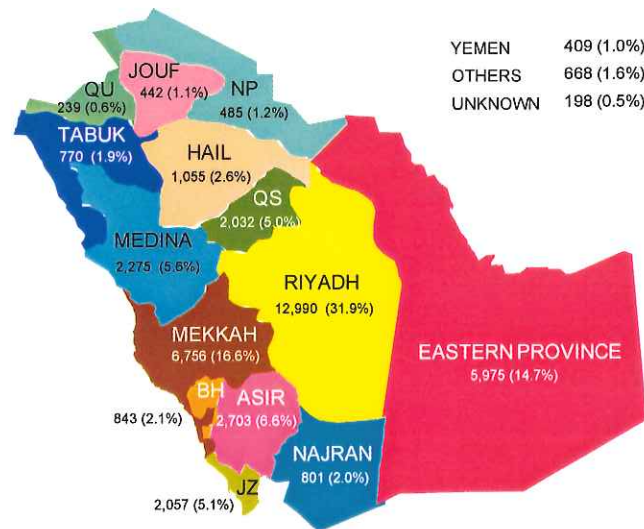
Saudi nationals totaled 2,398 (88.9%) in 1999 and the non-Saudi, 300 (11.1%). During the period 1975 to 1999, the former accounted for 87.6% (35,640) while the latter, 12.4% (5,058).

Geographically, the referral pattern in 1999 is mainly from the Riyadh Region with 34.3% of all cases, followed by the Eastern Province and the Mekkah Region with 18.6% and 9.5%, respectively. These same regions had the highest number of cases during the 25 years in review, i.e., 31.9% from Riyadh, 16.6% from Mekkah and 14.7% from the Eastern Province.

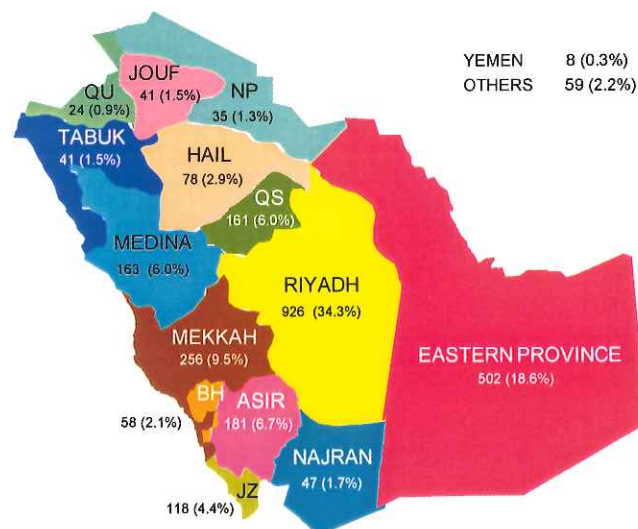
These percentages reflect the KFSH&RC actual experience rather than adjusted to reflect the population of those regions.

FIGURE 4

DISTRIBUTION OF CASES BY REGION
(Based on Given Address at Time of Diagnosis)
1975 - 1999 (TOTAL CASES = 40,698)



1999 (TOTAL CASES = 2,698)



BH - AL BAHA NP - NORTHERN PROVINCE QS - AL QASSIM
JZ - JIZAN QU - AL QURAYYAT

TRENDS IN RELATIVE FREQUENCY OF CANCER AT KFSH&RC

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 effect on the relative frequencies of cancer cases at KFSH&RC 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 the specialty services available
- eligibility criteria for admission to KFSH&RC
- age distribution of the population

Breast cancer led the list of total cancer cases seen from 1975 to 1999 with 9.8%, followed by Leukemia (8.5%), Non-Hodgkin's Lymphoma (8.2%), Thyroid (5.8%) and Oral Cavity (5.2%).

FIGURE 5

DISTRIBUTION OF 20 MOST COMMON MALIGNANCIES 1975 - 1999 (TOTAL CASES = 40,698)

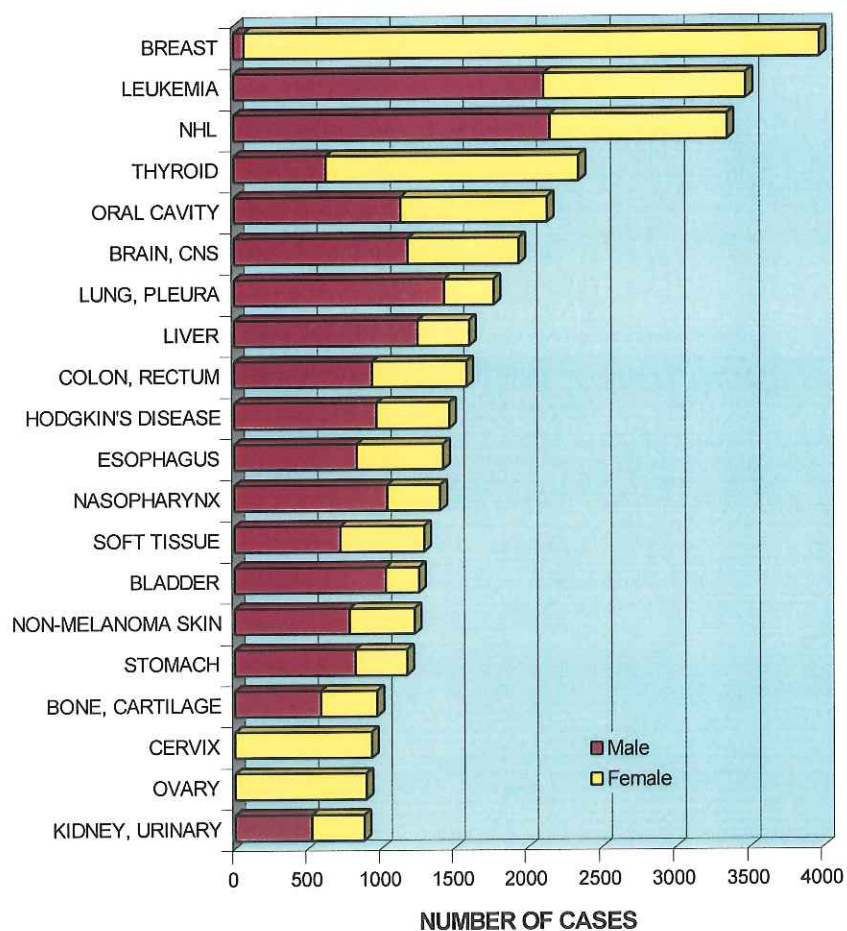


TABLE 2

TEN MOST COMMON MALIGNANCIES BY THE MOST COMMON AGE GROUP AT DIAGNOSIS
1975 - 1999

SITE	AGE GROUP	No.	%
Breast	40 - 49	1,235	31.1%
	30 - 39	1045	26.3%
	50 - 59	794	20.0%
	60 - 69	412	10.4%
	20 - 29	288	7.2%

SITE	AGE GROUP	No.	%
Brain, CNS	00 - 09	671	34.5%
	10 - 19	377	19.4%
	20 - 29	197	10.1%
	30 - 39	186	9.6%
	50 - 59	185	9.5%

SITE	AGE GROUP	No.	%
Leukemia	00 - 09	1,132	32.6%
	10 - 19	646	18.6%
	20 - 29	419	12.1%
	30 - 39	411	11.8%
	40 - 49	307	8.8%

SITE	AGE GROUP	No.	%
Lung, Pleura	60 - 69	591	33.3%
	50 - 59	449	25.3%
	70 - 79	309	17.4%
	40 - 49	228	12.9%
	30 - 39	89	5.0%

SITE	AGE GROUP	No.	%
Non-Hodgkin's Lymphoma	60 - 69	551	16.5%
	50 - 59	517	15.4%
	00 - 09	452	13.5%
	40 - 49	431	12.9%
	30 - 39	350	10.5%

SITE	AGE GROUP	No.	%
Liver	60 - 69	517	32.3%
	50 - 59	424	26.5%
	70 - 79	255	15.9%
	40 - 49	203	12.7%
	30 - 39	65	4.1%

SITE	AGE GROUP	No.	%
Thyroid	30 - 39	553	23.5%
	20 - 29	467	19.9%
	40 - 49	402	17.1%
	50 - 59	334	14.2%
	60 - 69	264	11.2%

SITE	AGE GROUP	No.	%
Colon, Rectum	50 - 59	368	23.2%
	60 - 69	356	22.5%
	40 - 49	270	17.0%
	30 - 39	209	13.2%
	70 - 79	198	12.5%

SITE	AGE GROUP	No.	%
Oral Cavity	60 - 69	518	24.3%
	50 - 59	494	23.1%
	70 - 79	381	17.8%
	40 - 49	275	12.9%
	30 - 39	166	7.8%

SITE	AGE GROUP	No.	%
Hodgkin's Disease	10 - 19	419	28.6%
	20 - 29	295	20.1%
	00 - 09	246	16.8%
	30 - 39	206	14.1%
	40 - 49	122	8.3%

Cancer among pediatrics (under the age of 15) accounted for 13.0% of all cases from 1975 to 1999. The five most common pediatric malignancies were Leukemia (27.4%), Lymphoma (18.9%) [NHL 10.6% and HD 8.3%], Brain/CNS (17.1%), Soft Tissue (8.4%) and Eye (6.8%).

FIGURE 6

DISTRIBUTION OF 10 MOST COMMON PEDIATRIC MALIGNANCIES, 1975 - 1999 (TOTAL CASES = 5,296)

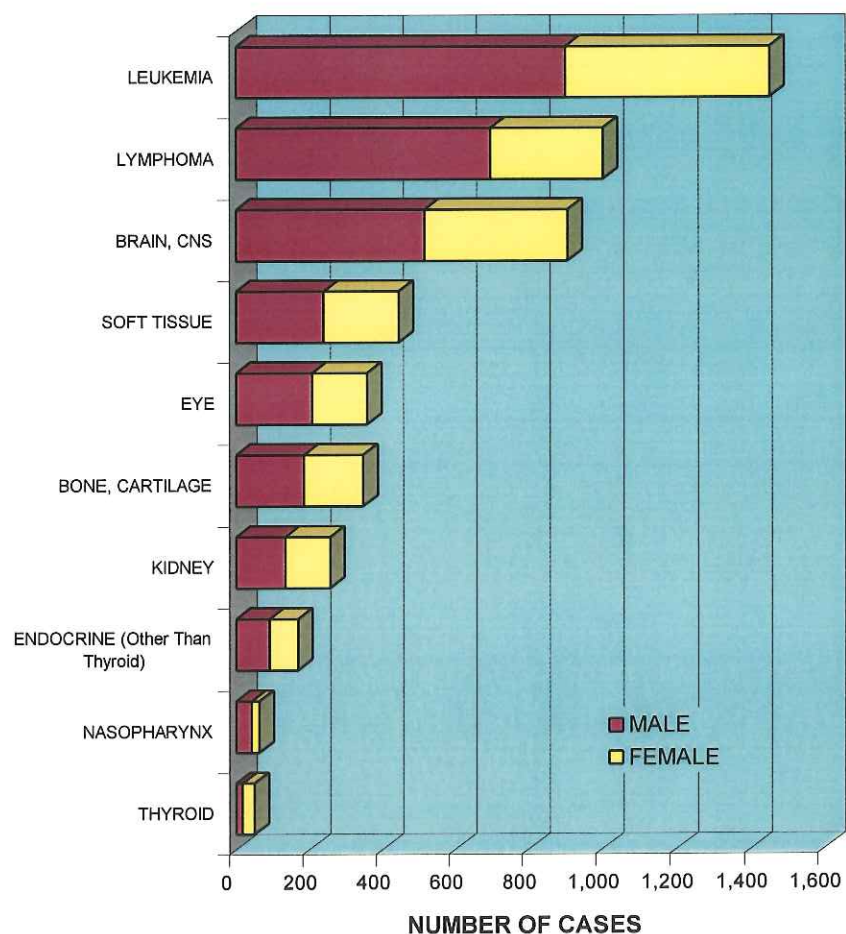


FIGURE 7

**DISTRIBUTION OF 10 MOST COMMON PEDIATRIC
MALIGNANCIES BY HISTOLOGY
1975 - 1999 (TOTAL CASES = 5,296)**

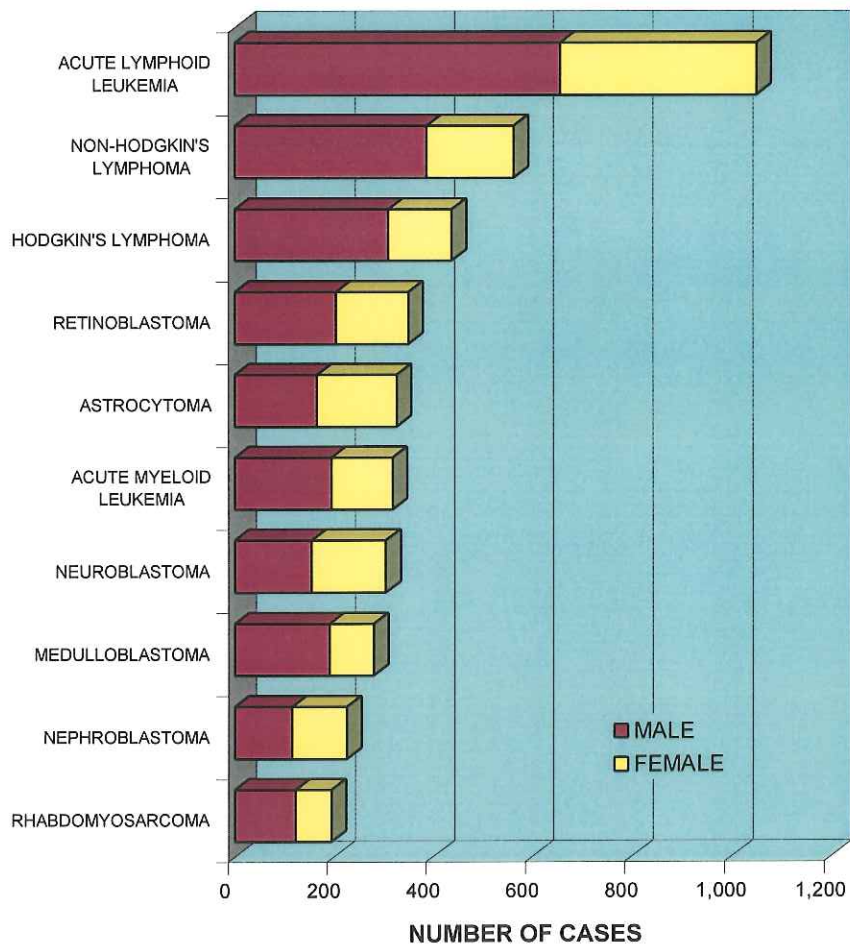


TABLE 3

ALL CASES SEEN AT KFSH&RC BY SITE* AND YEAR

1975 - 1999

SITE	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	TOTAL
Oral Cavity	1	14	33	79	69	71	58	80	101	76	104	76	96	129	104	103	103	112	98	97	121	106	112	86	106	2,135
Nasopharynx	3	11	38	34	37	35	48	46	65	46	45	49	80	65	62	62	62	53	59	58	62	86	88	108	101	1,403
Esophagus	1	15	51	62	67	67	57	62	77	78	56	69	76	66	68	72	66	66	69	47	50	52	51	62	34	1,425
Stomach	2	15	32	35	50	37	50	51	64	60	49	64	61	47	52	53	36	47	42	68	61	57	45	42	54	1,174
Colon, Rectum	1	13	22	24	31	38	51	39	43	59	45	51	70	82	61	64	80	88	83	95	88	94	101	121	141	1,585
Liver	7	15	33	44	49	33	41	54	53	64	57	84	78	71	68	55	66	76	82	103	102	103	95	84	86	1,603
Pancreas	1	5	7	11	15	14	20	22	14	20	16	28	20	16	27	12	13	27	21	22	25	21	24	34	17	452
Other G.I.	2	3	9	9	10	14	11	11	11	14	15	21	25	22	20	21	13	29	31	32	21	26	22	29	33	454
Larynx	1	5	12	12	12	14	20	13	23	22	25	16	23	33	21	26	34	27	31	35	38	36	31	30	34	574
Lung, Pleura	3	11	24	34	45	39	56	62	75	74	86	83	107	92	75	84	82	89	82	92	86	86	89	106	109	1,773
Multiple Myeloma	0	5	6	11	7	9	7	13	9	12	14	13	24	20	29	13	24	24	23	32	26	20	10	22	16	389
Lymphoid Leukemia	4	14	15	38	32	38	53	69	66	48	59	84	92	77	75	55	74	79	89	71	88	90	114	127	130	1,681
Myeloid Leukemia	3	13	23	47	54	42	65	55	44	75	59	73	90	73	76	73	74	61	97	91	117	75	112	99	116	1,707
Other Leukemias	0	1	2	2	4	3	3	1	7	4	3	2	3	7	5	4	10	4	6	6	3	2	0	4	3	89
Reticuloendothelium	0	1	0	1	1	1	1	1	1	1	1	6	3	1	1	1	0	0	0	2	0	0	0	1	0	24
Bone, Cartilage	1	6	13	25	21	20	23	42	35	40	23	31	40	46	45	37	41	52	55	61	57	57	66	70	61	968
Soft Tissue	1	16	29	32	34	28	35	40	34	37	42	49	55	51	63	66	76	52	54	85	92	61	77	83	101	1,293
Skin Melanoma	0	1	4	7	8	6	7	4	11	12	7	7	11	12	6	5	9	14	8	7	6	9	5	4	6	180
Non-Melanoma Skin Ca	2	14	27	32	48	40	50	56	55	56	67	70	48	51	58	45	52	61	53	64	49	66	56	42	64	1,226
Breast	3	24	53	46	57	65	101	111	111	153	131	127	174	194	137	168	169	188	251	241	231	280	290	333	336	3,974
Uterus, Genital	1	2	12	12	13	12	17	16	35	23	22	29	38	38	34	34	34	42	36	55	39	34	36	36	42	692
Cervix	0	10	18	18	25	18	26	25	33	33	41	55	51	50	33	44	35	52	50	52	49	48	46	61	57	930
Ovary	2	6	10	10	17	21	20	35	31	27	24	34	41	47	53	46	36	44	55	49	54	56	61	63	52	894
Prostate	0	7	5	4	5	10	11	18	28	19	19	17	22	27	27	24	16	41	27	45	37	49	43	44	57	602
Testis, Genital	0	4	10	8	13	11	18	13	11	16	17	14	20	19	13	19	16	22	28	25	14	15	20	18	20	384
Bladder	4	7	12	24	29	39	37	23	41	35	46	51	79	74	73	60	44	65	87	71	60	56	64	84	91	1,256
Kidney, Urinary	0	9	18	18	18	15	18	30	23	22	25	42	34	59	33	35	35	54	51	65	49	48	49	60	69	879
Eye	0	6	11	19	12	24	29	34	25	17	30	24	35	43	26	28	6	15	38	26	13	22	28	17	23	551
Brain, CNS	3	24	27	40	26	31	31	77	53	58	49	71	88	92	98	81	84	112	88	116	128	128	133	161	144	1,943
Thyroid	2	8	17	28	33	44	57	51	66	71	63	82	119	112	110	94	110	141	135	159	134	160	160	192	202	2,350
Other Endocrine	1	1	2	2	2	11	9	7	13	8	17	12	11	13	2	7	8	14	13	10	9	11	17	11	13	224
NHL - Lymph Nodes	4	19	62	69	97	92	95	91	116	98	88	85	95	99	93	92	71	89	80	80	68	82	93	99	97	2,054
NHL - Extra-nodal	0	4	11	6	7	20	34	25	56	41	36	57	62	54	73	62	52	61	74	79	91	74	100	107	107	1,293
Hodgkin's Disease-LNs	13	19	40	41	36	42	47	42	52	50	49	44	65	57	74	56	57	72	71	76	88	76	75	98	112	1,452
HD - Extra-nodal	0	0	0	0	0	0	0	0	2	0	0	1	0	0	1	0	0	3	2	2	0	0	1	0	2	14
Primary Unknown	3	11	23	24	20	25	34	30	33	26	25	23	36	32	42	38	40	51	40	62	36	41	35	51	49	830
All Other Sites	1	3	10	6	4	7	7	12	11	8	9	6	18	14	4	14	11	11	17	12	15	10	9	9	13	241
TOTAL	70	345	721	915	1008	1036	1247	1361	1528	1503	1464	1651	1966	2000	1859	1744	1741	2034	2111	2296	2207	2237	2358	2598	2698	40,698

* Includes Multiple Primary Neoplasms.

TABLE 4

ALL CASES SEEN AT KFSH&RC BY SITE* AND 5-YEAR PERIOD
1975 - 1999

SITE	1975-1976**		1977-1981		1982-1986		1987-1991		1992-1996		1997-1999***		TOTAL	
	No	%	No	%	No	%	No	%	No	%	No	%	No	%
Oral Cavity	15	3.6%	310	6.3%	437	5.8%	535	5.7%	534	4.9%	304	4.0%	2,135	5.2%
Nasopharynx	14	3.4%	192	3.9%	251	3.3%	331	3.6%	318	2.9%	297	3.9%	1,403	3.4%
Esophagus	16	3.9%	304	6.2%	342	4.6%	348	3.7%	268	2.5%	147	1.9%	1,425	3.5%
Stomach	17	4.1%	204	4.1%	288	3.8%	249	2.7%	275	2.5%	141	1.8%	1,174	2.9%
Colon, Rectum	14	3.4%	166	3.4%	237	3.2%	357	3.8%	448	4.1%	363	4.7%	1,585	3.9%
Liver	22	5.3%	200	4.1%	312	4.2%	338	3.6%	466	4.3%	265	3.5%	1,603	3.9%
Pancreas	6	1.4%	67	1.4%	100	1.3%	88	0.9%	116	1.1%	75	1.0%	452	1.1%
Other G.I.	5	1.2%	53	1.1%	72	1.0%	101	1.1%	139	1.3%	84	1.1%	454	1.1%
Larynx	6	1.4%	70	1.4%	99	1.3%	137	1.5%	167	1.5%	95	1.2%	574	1.4%
Lung, Pleura	14	3.4%	198	4.0%	381	5.1%	441	4.7%	435	4.0%	304	4.0%	1,773	4.4%
Multiple Myeloma	5	1.2%	40	0.8%	61	0.8%	110	1.2%	125	1.1%	48	0.6%	389	1.0%
Lymphoid Leukemia	18	4.3%	176	3.6%	326	4.3%	373	4.0%	417	3.8%	371	4.8%	1,681	4.1%
Myeloid Leukemia	16	3.9%	231	4.7%	306	4.1%	386	4.1%	441	4.1%	327	4.3%	1,707	4.2%
Other Leukemias	1	0.2%	14	0.3%	17	0.2%	29	0.3%	21	0.2%	7	0.1%	89	0.2%
Reticuloendothelium	1	0.2%	4	0.1%	10	0.1%	6	0.1%	2	0.0%	1	0.0%	24	0.1%
Bone, Cartilage	7	1.7%	102	2.1%	171	2.3%	209	2.2%	282	2.6%	197	2.6%	968	2.4%
Soft Tissue	17	4.1%	158	3.2%	202	2.7%	311	3.3%	344	3.2%	261	3.4%	1,293	3.2%
Skin Melanoma	4	1.0%	33	0.7%	41	0.6%	43	0.5%	44	0.4%	15	0.2%	180	0.4%
Non-Melanoma Skin Ca	16	3.9%	197	4.0%	304	4.0%	254	2.7%	293	2.7%	162	2.1%	1,226	3.0%
Breast	27	6.5%	322	6.5%	633	8.4%	842	9.0%	1191	10.9%	959	12.5%	3,974	9.8%
Uterus, Genital	3	0.7%	66	1.3%	125	1.7%	178	1.9%	206	1.9%	114	1.5%	692	1.7%
Cervix	10	2.4%	105	2.1%	187	2.5%	213	2.3%	251	2.3%	164	2.1%	930	2.3%
Ovary	8	1.9%	78	1.6%	151	2.0%	223	2.4%	258	2.4%	176	2.3%	894	2.2%
Prostate	7	1.7%	35	0.7%	101	1.4%	116	1.2%	199	1.8%	144	1.9%	602	1.5%
Testis, Genital	4	1.0%	60	1.2%	71	0.9%	87	0.9%	104	1.0%	58	0.8%	384	0.9%
Bladder	11	2.7%	141	2.9%	196	2.6%	330	3.5%	339	3.1%	239	3.1%	1,256	3.1%
Kidney, Urinary	9	2.2%	87	1.8%	142	1.9%	196	2.1%	267	2.5%	178	2.3%	879	2.2%
Eye	6	1.4%	95	1.9%	130	1.7%	138	1.5%	114	1.0%	68	0.9%	551	1.4%
Brain, CNS	27	6.5%	155	3.1%	308	4.1%	443	4.8%	572	5.3%	438	5.7%	1,943	4.8%
Thyroid	10	2.4%	179	3.6%	333	4.4%	545	5.9%	729	6.7%	554	7.2%	2,350	5.8%
Other Endocrine	2	0.5%	26	0.5%	57	0.8%	41	0.4%	57	0.5%	41	0.5%	224	0.6%
NHL - Lymph Nodes	23	5.5%	415	8.4%	478	6.4%	450	4.8%	399	3.7%	289	3.8%	2,054	5.0%
NHL - Extra-nodal	4	1.0%	78	1.6%	215	2.9%	303	3.3%	379	3.5%	314	4.1%	1,293	3.2%
Hodgkin's Disease-LNs	32	7.7%	206	4.2%	237	3.2%	309	3.3%	383	3.5%	285	3.7%	1,452	3.6%
HD - Extra-nodal	0	0.0%	0	0.0%	3	0.0%	1	0.0%	7	0.1%	3	0.0%	14	0.0%
Primary Unknown	14	3.4%	126	2.6%	137	1.8%	188	2.0%	230	2.1%	135	1.8%	850	2.0%
All Other Sites	4	1.0%	34	0.7%	46	0.6%	61	0.7%	65	0.6%	31	0.4%	241	0.6%
TOTAL	415	100.0%	4,927	100.0%	7,507	100.0%	9,310	100.0%	10,885	100.0%	7,654	100.0%	40,698	100.0%

* Includes Multiple Primary Neoplasms.

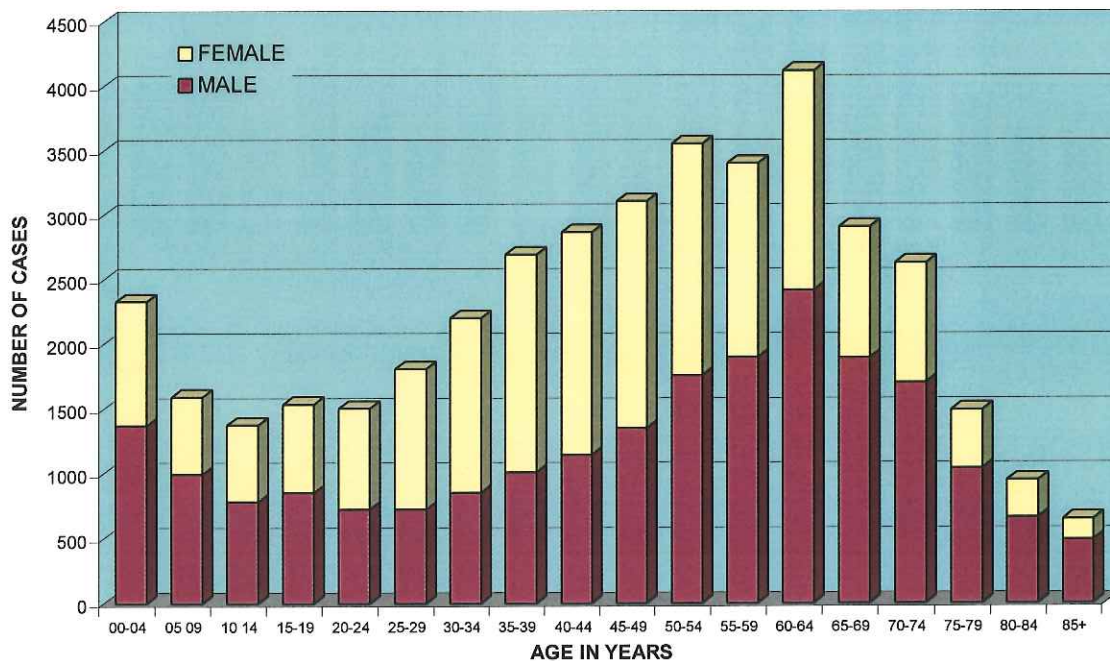
** First Two Years of KFSH&RC Partial Operation.

*** Three Years Data Only.

The largest number of cases was noted in the 5th and 6th decades of life in males and in the 4th and 5th in females. In 1999, the mean age was 44.6, the median was 46.8 and the mode was at 59. Pediatric malignancies are most common among children three years of age.

FIGURE 8

**DISTRIBUTION OF ALL CASES BY AGE AT DIAGNOSIS
1975 - 1999 (TOTAL CASES = 40,698)**



1999 (TOTAL CASES = 2,698)

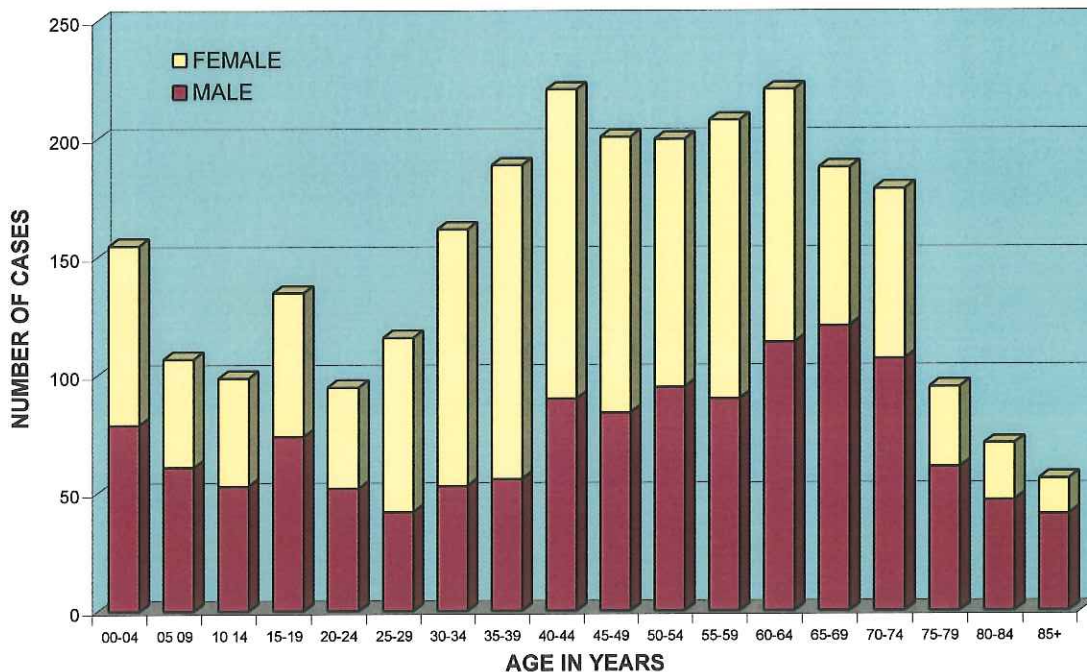
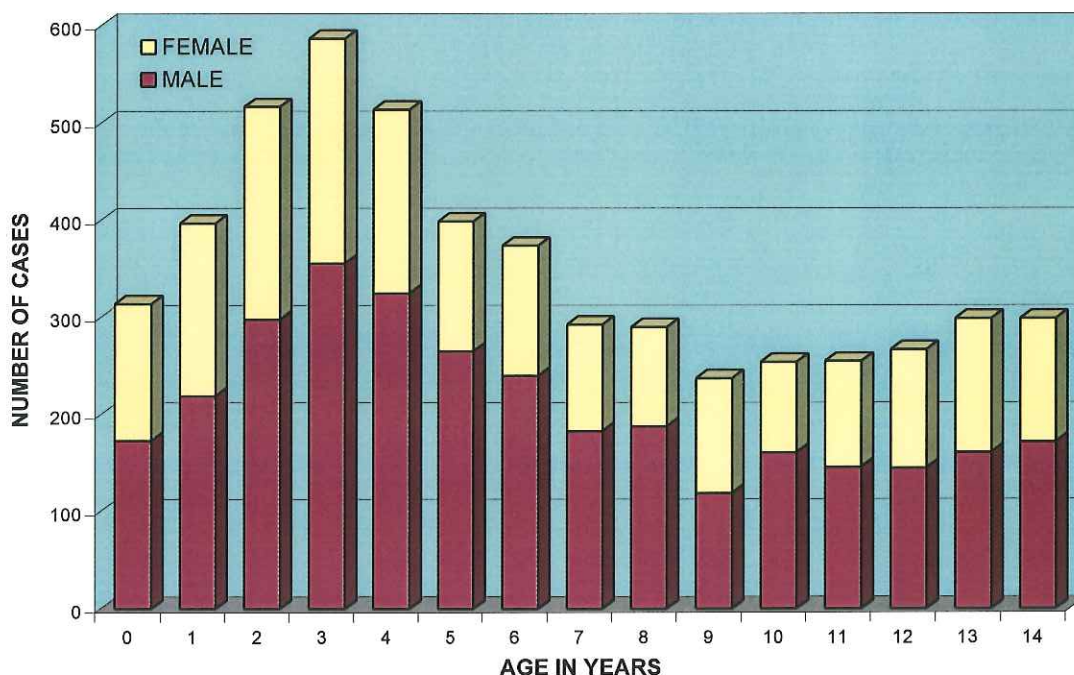


FIGURE 9
DISTRIBUTION OF ALL PEDIATRIC CASES BY AGE AT DIAGNOSIS
1975 - 1999 (TOTAL CASES = 5,296)



Of the 2,698 cases in 1999, 2,356 (87.3%) were **analytic** (defined as cases which were first diagnosed and/or received all or part of their first course of treatment at KFSH&RC). The remaining 342 cases (12.7%) were **non-analytic** (defined as cases diagnosed elsewhere and received all of their first course of treatment elsewhere). Out of the 2,356 analytic cases, pediatric cases totaled 327, with 176 males and 151 females.

See Table 5 for the distribution of cases by site, sex, class of case, and stage at diagnosis and Tables 6, 7 and 8 for the distributions of analytic cases by site, sex and age at diagnosis.

TABLE 5

ALL CASES SEEN AT KFSH&RC BY SITE*, SEX, CLASS OF CASE AND SUMMARY STAGE

1999

SITE	TOTAL		SEX		CLASS OF CASE**		ANALYTIC CASES				
	Number	%	Male	Female	Analytic	Non-Anal	In Situ	Localized	Regional	Distant	Unstageable
Breast	336	12.5%	6	330	290	46	6	78	161	44	1
Leukemia	249	9.2%	144	105	217	32	0	0	0	217	0
Non-Hodgkin's Lymphoma	204	7.6%	122	82	178	26	0	46	48	83	1
Thyroid	202	7.5%	59	143	190	12	0	63	106	18	3
Brain, CNS	144	5.3%	93	51	134	10	0	105	25	3	1
Colon, Rectum	141	5.2%	84	57	122	19	0	31	60	28	3
Hodgkin's Disease	114	4.2%	67	47	103	11	0	21	42	40	0
Lung, Pleura	109	4.0%	91	18	97	12	0	8	24	62	3
Oral Cavity	106	3.9%	47	59	91	15	0	13	63	14	1
Nasopharynx	101	3.7%	73	28	94	7	0	2	52	40	0
Soft Tissue	101	3.7%	55	46	81	20	0	37	28	16	0
Bladder	91	3.4%	72	19	69	22	11	24	19	13	2
Liver	86	3.2%	62	24	78	8	0	18	15	43	2
Kidney, Urinary	69	2.6%	36	33	61	8	0	28	14	19	0
Non-Melanoma Skin Ca	64	2.4%	35	29	48	16	0	36	5	6	1
Bone, Cartilage	61	2.3%	33	28	57	4	0	2	40	15	0
Cervix	57	2.1%	0	57	50	7	3	12	29	6	0
Prostate	57	2.1%	57	0	44	13	1	16	10	15	2
Stomach	54	2.0%	31	23	47	7	0	4	27	13	3
Ovary	52	1.9%	0	52	46	6	0	17	5	23	1
Primary Unknown	49	1.8%	30	19	45	4	0	0	0	0	45
Uterus, Genital	42	1.6%	0	42	32	10	0	18	7	6	1
Esophagus	34	1.3%	16	18	33	1	2	10	7	10	4
Larynx	34	1.3%	27	7	26	8	1	11	14	0	0
Other G.I.	33	1.2%	12	21	29	4	1	7	13	6	2
Eye	23	0.9%	11	12	18	5	0	7	10	1	0
Testis, Genital	20	0.7%	20	0	18	2	0	11	5	2	0
Pancreas	17	0.6%	10	7	17	0	0	0	9	6	2
Multiple Myeloma	16	0.6%	10	6	16	0	0	0	0	16	0
Other Endocrine	13	0.5%	7	6	10	3	0	2	4	4	0
All Other Sites	13	0.5%	8	5	11	2	0	2	4	5	0
Skin Melanoma	6	0.2%	2	4	4	2	0	1	1	2	0
TOTAL	2,698	100.0%	1,320	1,378	2,356	342	25	630	847	776	78

* Includes Multiple Primary Neoplasms.

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

Non-Analytic Cases - cases which were diagnosed elsewhere and received all of their first course of treatment elsewhere.

TABLE 6
ANALYTIC CASES SEEN AT KFSH&RC BY SITE* AND AGE
1999

SITE	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+	TOTAL
Oral Cavity	0	0	0	1	1	6	1	3	4	5	16	9	10	8	11	9	5	2	91
Nasopharynx	0	1	2	2	4	2	6	10	16	6	7	13	11	6	5	1	1	1	94
Esophagus	0	0	0	0	0	0	0	1	3	1	1	1	3	4	7	2	9	1	33
Stomach	0	0	0	0	0	0	4	3	5	3	2	4	6	10	6	3	1	0	47
Colon, Rectum	0	0	0	1	4	4	5	5	11	7	16	20	17	9	10	10	1	2	122
Liver	3	1	1	0	0	1	1	0	2	4	4	8	19	14	10	2	3	5	78
Pancreas	0	0	0	0	0	0	0	0	1	2	1	2	5	2	1	2	1	0	17
Other G.I.	0	0	0	0	0	1	0	1	1	0	4	5	4	2	4	4	3	0	29
Larynx	0	0	0	0	0	0	0	1	0	3	5	3	4	5	3	1	0	1	26
Lung, Pleura	0	1	0	0	0	0	4	2	4	5	11	8	11	20	13	8	6	4	97
Multiple Myeloma	0	0	0	0	0	0	0	1	2	2	0	1	5	0	3	1	0	1	16
Lymphoid Leukemia	36	29	11	13	5	1	1	3	4	1	1	2	0	2	2	0	0	0	111
Myeloid Leukemia	6	13	7	8	11	8	12	10	11	6	6	3	2	2	0	0	0	0	105
Other Leukemias	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1
Bone, Cartilage	2	7	16	18	4	3	2	2	1	0	1	1	0	0	0	0	0	0	57
Soft Tissue	17	2	5	8	7	5	3	6	5	6	3	2	1	4	4	1	0	2	81
Skin Melanoma	0	0	0	0	0	0	0	0	1	1	1	0	0	0	0	0	1	0	4
Non-Melanoma Skin Ca	0	2	3	3	0	2	2	2	5	4	4	2	0	2	6	3	3	5	48
Breast	0	0	0	0	3	15	32	45	53	47	26	26	12	13	11	2	3	2	290
Uterus, Genital	0	0	0	1	0	0	0	2	3	2	5	7	5	2	2	1	0	2	32
Cervix	0	0	0	0	1	0	3	11	7	7	2	6	7	3	2	0	1	0	50
Ovary	0	1	5	4	4	3	0	2	3	3	9	6	1	3	1	0	1	0	46
Prostate	0	0	0	0	0	0	0	0	0	0	1	2	8	13	8	3	5	4	44
Testis, Genital	2	0	0	0	2	2	0	3	4	3	1	1	0	0	0	0	0	0	18
Bladder	0	0	0	0	0	1	2	5	3	7	4	7	6	9	9	6	7	3	69
Kidney, Urinary	15	0	0	3	2	2	1	5	4	4	5	4	3	6	2	2	1	2	61
Eye	14	0	0	0	0	0	0	0	1	1	0	0	0	0	1	1	0	0	18
Brain, CNS	21	26	14	9	5	4	7	6	5	8	2	9	4	6	7	1	0	0	134
Thyroid	0	2	4	9	15	16	29	28	22	10	11	12	14	4	8	1	3	2	190
Other Endocrine	5	2	2	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	10
NHL - Lymph Nodes	2	3	2	4	4	5	3	5	3	10	6	8	11	6	1	0	4	2	79
NHL - Extra-nodal	5	5	5	6	4	6	4	2	3	3	6	6	9	9	9	11	3	3	99
Hodgkin's Disease-LNs	6	9	12	26	9	8	9	4	3	9	1	1	3	0	1	0	0	0	101
HD - Extra-nodal	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	2
Primary Unknown	0	0	0	0	1	1	3	0	1	3	10	6	5	2	6	4	1	2	45
ALL Other Sites	0	0	0	1	0	0	2	0	2	1	0	1	1	1	0	1	1	0	11
TOTAL	134	104	89	117	87	98	136	168	193	174	172	187	187	167	153	80	64	46	2,356

* Includes Multiple Primary Neoplasms.

TABLE 7
ANALYTIC MALE CASES SEEN AT KFSH&RC BY SITE* AND AGE
1999

SITE	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+	TOTAL
Oral Cavity	0	0	0	0	1	4	0	1	1	3	4	3	4	5	4	5	2	1	38
Nasopharynx	0	1	1	2	4	2	1	7	13	5	5	9	7	4	4	1	1	1	68
Esophagus	0	0	0	0	0	0	0	0	1	0	0	0	1	3	3	1	5	1	15
Stomach	0	0	0	0	0	0	3	2	3	3	0	1	4	7	3	2	0	0	28
Colon, Rectum	0	0	0	1	3	3	2	3	9	1	9	12	11	6	7	5	1	1	74
Liver	1	1	1	0	0	0	1	0	1	3	3	4	15	11	7	2	3	4	57
Pancreas	0	0	0	0	0	0	0	0	1	1	1	0	2	2	0	2	1	0	10
Other G.I.	0	0	0	0	0	0	0	0	1	0	2	0	0	2	2	1	2	0	10
Larynx	0	0	0	0	0	0	0	1	0	2	3	3	3	3	3	0	0	1	19
Lung, Pleura	0	0	0	0	0	0	4	2	2	3	8	4	10	18	13	8	5	3	80
Multiple Myeloma	0	0	0	0	0	0	0	0	2	0	0	1	2	0	3	1	0	1	10
Lymphoid Leukemia	16	16	8	11	4	1	1	2	4	1	0	2	0	2	1	0	0	0	69
Myeloid Leukemia	2	6	6	4	9	4	7	2	5	2	4	2	1	1	0	0	0	0	55
Other Leukemias	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1
Bone, Cartilage	1	5	8	8	2	1	1	2	1	0	0	1	0	0	0	0	0	0	30
Soft Tissue	6	0	3	5	5	3	1	3	3	6	3	2	0	2	2	1	0	2	47
Skin Melanoma	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	1
Non-Melanoma Skin Ca	0	2	1	0	0	1	1	0	3	4	3	1	0	1	3	1	2	4	27
Breast	0	0	0	0	0	0	1	0	0	1	0	1	0	0	1	1	0	0	5
Uterus, Genital	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Cervix	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Ovary	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Prostate	0	0	0	0	0	0	0	0	0	0	1	2	8	13	8	3	5	4	44
Testis, Genital	2	0	0	0	2	2	0	3	4	3	1	1	0	0	0	0	0	0	18
Bladder	0	0	0	0	0	0	2	5	3	6	3	5	5	4	8	4	6	3	54
Kidney, Urinary	8	0	0	1	1	0	1	1	3	2	3	3	1	6	1	0	0	2	33
Eye	7	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1	0	0	9
Brain, CNS	14	15	8	6	4	4	4	3	4	5	1	8	2	4	4	1	0	0	87
Thyroid	0	1	2	4	4	2	4	7	6	3	4	3	3	2	5	1	3	1	55
Other Endocrine	2	1	2	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	6
NHL - Lymph Nodes	2	2	1	2	1	2	2	3	2	7	4	6	5	5	1	0	3	2	50
NHL - Extra-nodal	3	2	3	5	2	4	3	2	2	1	4	5	5	5	3	6	1	0	56
Hodgkin's Disease-LNs	4	6	6	13	5	4	5	3	2	6	1	1	1	0	1	0	0	0	58
HD - Extra-nodal	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	2
Primary Unknown	0	0	0	0	0	0	1	0	0	1	9	2	4	0	5	3	1	2	28
ALL Other Sites	0	0	0	1	0	0	1	0	1	1	0	0	1	1	0	0	1	0	7
TOTAL	68	58	50	63	48	39	46	52	77	72	76	83	95	107	92	50	42	33	1,151

* Includes Multiple Primary Neoplasms.

TABLE 8

ANALYTIC FEMALE CASES SEEN AT KFSH&RC BY SITE* AND AGE

1999

SITE	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+	TOTAL
Oral Cavity	0	0	0	1	0	2	1	2	3	2	12	6	6	3	7	4	3	1	53
Nasopharynx	0	0	1	0	0	0	5	3	3	1	2	4	4	2	1	0	0	0	26
Esophagus	0	0	0	0	0	0	0	1	2	1	1	1	2	1	4	1	4	0	18
Stomach	0	0	0	0	0	0	1	1	2	0	2	3	2	3	3	1	1	0	19
Colon, Rectum	0	0	0	0	1	1	3	2	2	6	7	8	6	3	3	5	0	1	48
Liver	2	0	0	0	0	1	0	0	1	1	1	4	4	3	3	0	0	1	21
Pancreas	0	0	0	0	0	0	0	0	0	1	0	2	3	0	1	0	0	0	7
Other G.I.	0	0	0	0	0	1	0	1	0	0	2	5	4	0	2	3	1	0	19
Larynx	0	0	0	0	0	0	0	0	0	1	2	0	1	2	0	1	0	0	7
Lung, Pleura	0	1	0	0	0	0	0	0	2	2	3	4	1	2	0	0	1	1	17
Multiple Myeloma	0	0	0	0	0	0	0	1	0	2	0	0	3	0	0	0	0	0	6
Lymphoid Leukemia	20	13	3	2	1	0	0	1	0	0	1	0	0	0	1	0	0	0	42
Myeloid Leukemia	4	7	1	4	2	4	5	8	6	4	2	1	1	1	0	0	0	0	50
Other Leukemias	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Bone, Cartilage	1	2	8	10	2	2	1	0	0	0	1	0	0	0	0	0	0	0	27
Soft Tissue	11	2	2	3	2	2	2	3	2	0	0	0	1	2	2	0	0	0	34
Skin Melanoma	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	1	0	3
Non-Melanoma Skin Ca	0	0	2	3	3	1	1	2	2	0	1	1	0	1	3	2	1	1	21
Breast	0	0	0	0	3	15	31	45	53	46	26	25	12	13	10	1	3	2	285
Uterus, Genital	0	0	0	1	0	0	0	2	3	2	5	7	5	2	2	1	0	2	32
Cervix	0	0	0	0	1	0	3	11	7	7	2	6	7	3	2	0	1	0	50
Ovary	0	1	5	4	4	3	0	2	3	3	9	6	1	3	1	0	1	0	46
Prostate	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Testis, Genital	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Bladder	0	0	0	0	0	1	0	0	0	1	1	2	1	5	1	2	1	0	15
Kidney, Urinary	7	0	0	2	1	2	0	4	1	2	2	1	2	0	1	2	1	0	28
Eye	7	0	0	0	0	0	0	0	1	0	0	0	0	0	1	0	0	0	9
Brain, CNS	7	11	6	3	1	0	3	3	1	3	1	1	2	2	3	0	0	0	47
Thyroid	0	1	2	5	11	14	25	21	16	7	7	9	11	2	3	0	0	1	135
Other Endocrine	3	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4
NHL - Lymph Nodes	0	1	1	2	3	3	1	2	1	3	2	2	6	1	0	0	1	0	29
NHL - Extra-nodal	2	3	2	1	2	2	1	0	1	2	2	1	4	4	6	5	2	3	43
Hodgkin's Disease-LNs	2	3	6	13	4	4	4	1	1	3	0	0	2	0	0	0	0	0	43
HD - Extra-nodal	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Primary Unknown	0	0	0	0	1	1	2	0	1	2	1	4	1	2	1	1	0	0	17
ALL Other Sites	0	0	0	0	0	0	1	0	1	0	0	1	0	0	0	1	0	0	4
TOTAL	66	46	39	54	39	59	90	116	116	102	96	104	92	60	61	30	22	13	1,205

* Includes Multiple Primary Neoplasms.

TRENDS IN RELATIVE FREQUENCY OF CANCER AT KFSH&RC (cont'd)

The relative frequencies of primary cancers seen at KFSH&RC are very different from the Western world. Common tumors of the West (lung, colon, and prostate) are much less frequent here while leukemia and thyroid cancer, among others, are more common. The following 1999 analytic cases exhibit significant differences in trends from those of the West when compared to the data published in *Cancer Facts & Figures - 1999*, by the American Cancer Society:

Breast - The most common malignancy seen at KFSH&RC is breast cancer, comprising 12.3% of all cases, as compared to 14.4% of all neoplasms diagnosed in the U.S.A. It affects mostly women under the age of 50, while in the U.S.A., those more than 50 years of age are most frequently affected. As in the Western countries, it is the number one cancer among women.

Leukemia - The most striking feature is the unusually high crude relative frequency of leukemia cases, constituting 9.2% of all cases seen at KFSH&RC, as compared to about 2.5% of all neoplasms diagnosed in the U.S.A. The male/female ratio is 1.4:1. It is the most common type of malignancy seen in males and third in females. It is also the most common malignancy among pediatric cases.

Thyroid - 8.1% of all male malignancies in KFSH&RC are thyroid tumors. However, they represent 11.2% of female malignant neoplasms, second to breast cancer. The male/female ratio is 0.4:1. Thyroid cancer accounts for only 1.5% of all cases in the U.S.A. and 2.3% of female malignancies.

Non-Hodgkin's Lymphoma - Cases of non-Hodgkin's lymphoma account for 7.6% of all cases. The male/female ratio is 1.5:1. In the U.S.A., NHL accounts for only 4.6% of all cancer.

Brain/CNS - Primary malignant neoplasm of the brain and CNS accounts for 5.7% of all malignancies and ranks second among the most common pediatric malignancies. The male/female ratio is 1.8:1. This is comparatively higher than in the West with only 1.4% of all cases.

Colo-Rectal - Markedly less common than in the West, this disease represents only 5.2% of all tumors. In the U.S.A. it constitutes 10.6% of newly diagnosed cancer cases. Dietary factors, particularly lower animal fat intake, may play a role. The male/female ratio at KFSH&RC is 1.5:1.

Hodgkin's Disease - The incidence of Hodgkin's lymphoma is comparatively more frequent at KFSH&RC than in Western countries. In the U.S.A. it constitutes 0.6% of all cancers, compared to 4.4% at KFSH&RC. The male/female ratio is 1.4:1, in the West, 1.1:1.

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 the U.S.A., primary lung cancer represents 14.0% of all cancer cases (15.1% in males, and 13.0% in females). At KFSH&RC, 4.1% of all diagnoses are lung cancer; in males it is the fourth most common tumor, constituting 7.0% of male malignancies and in females, 1.4%. The male/female ratio is 4.7:1, in the West, 1.2:1.

Soft Tissue - KFSR&RC cases show a higher rate of soft tissue malignancies than the U.S.A., with 3.4% against the latter's 0.6% of all cases. The male/female ratio is 1.4:1 at KFSH&RC and 1.2:1 in the West.

Liver - The relative frequency of liver cancer at KFSH&RC (3.3%) is about three times higher than that of the West (1.2%). The male/female ratio is 2.7:1 at KFSH&RC and 2:1 in the West.

Bone - A higher crude relative frequency rate is seen in bone cancer. It constitutes 0.2% of all the cancers in most centers in the West, but is 2.4% of the cases at KFSH&RC. The male/female ratio at KFSH&RC is 1.1:1.

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 28.7% of the male malignancies). This is in contrast to the KFSH&RC experience, where prostatic cancer makes up only 3.8% 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.

FIGURE 10

**DISTRIBUTION OF 20 MOST COMMON MALIGNANCIES
1999 ANALYTIC CASES (TOTAL CASES = 2,356)**

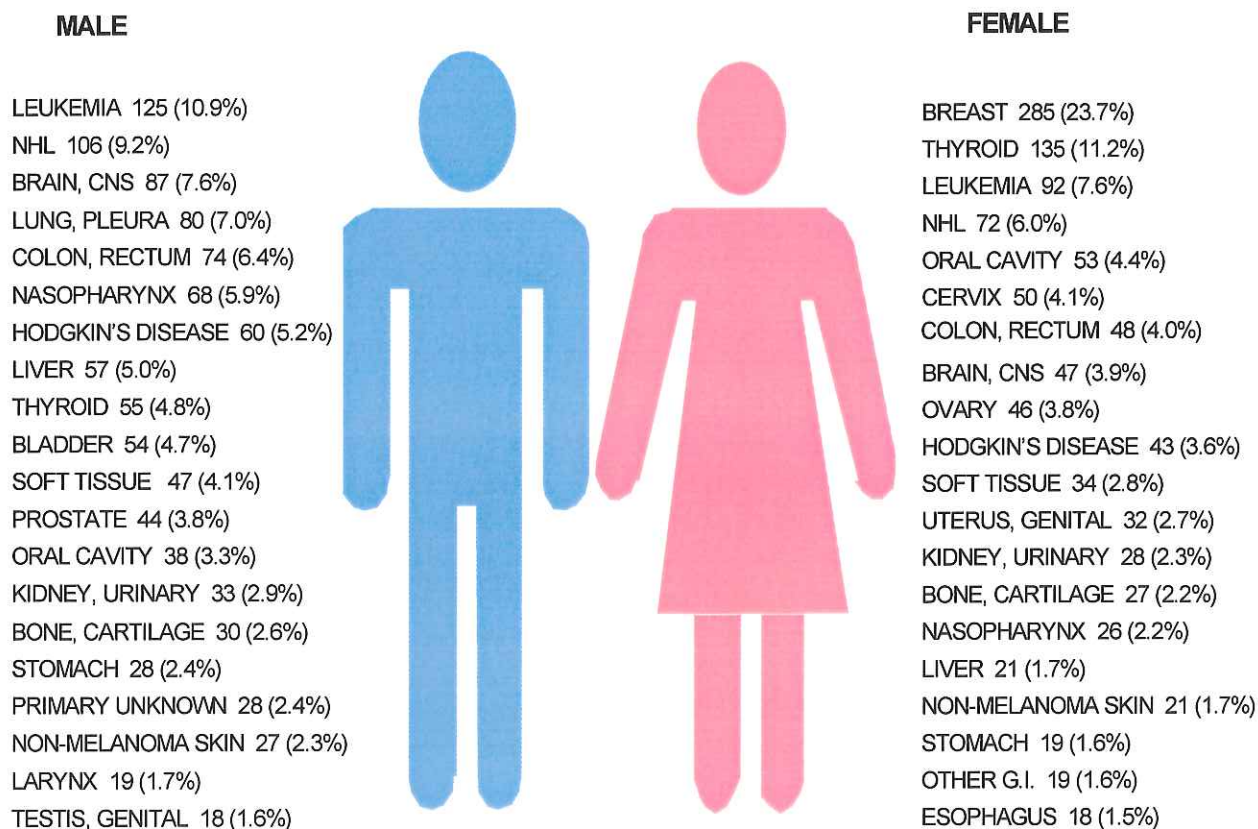


FIGURE 11
DISTRIBUTION OF PEDIATRIC MALIGNANCIES
1999 ANALYTIC CASES (TOTAL CASES = 327)

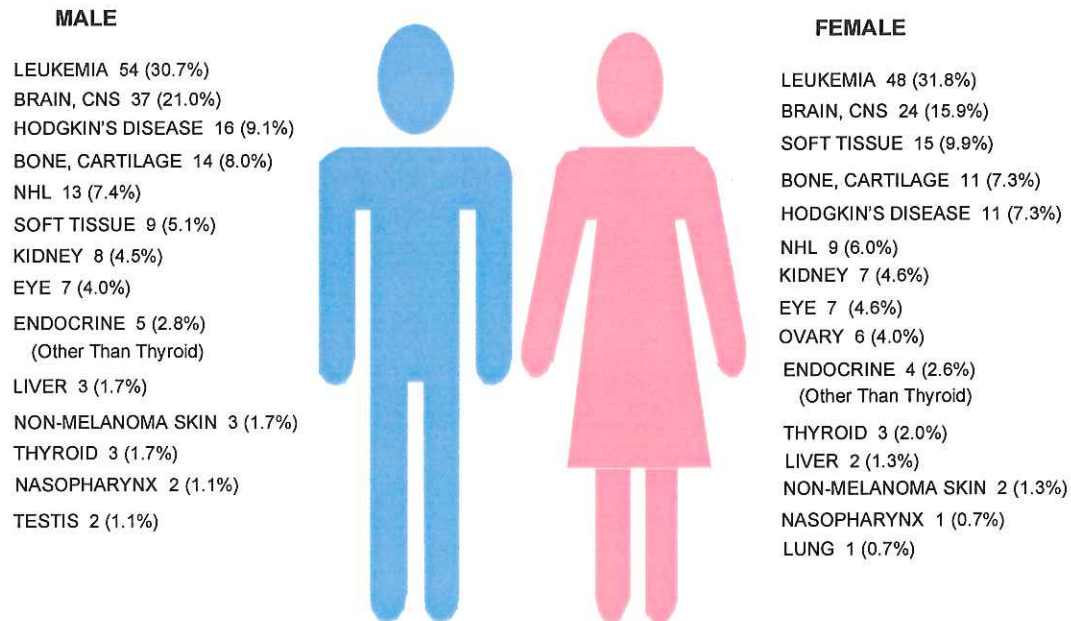


FIGURE 12
DISTRIBUTION OF 10 MOST COMMON PEDIATRIC MALIGNANCIES BY HISTOLOGY
1999 ANALYTIC CASES (TOTAL CASES = 327)

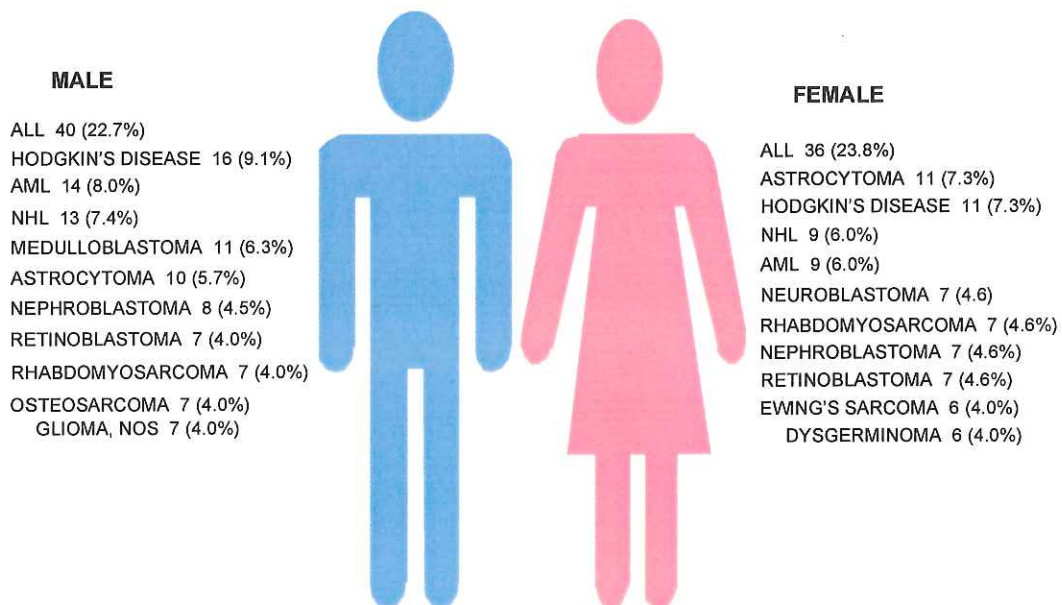


TABLE 9
PRIMARY SITE TABLE
(INCLUDES MULTIPLE PRIMARIES)
1 9 9 9

SITE	HISTOLOGY (NOS-Not Otherwise Specified)	ALL CASES	ADULTS		PEDIATRICS	
			MALE	FEMALE	MALE	FEMALE
		2,698	1,127	1,210	193	168
LIP		2	0	2	0	0
	Squamous Cell Carcinoma					
TONGUE		27	12	15	0	0
	Squamous Cell Carcinoma	25	10	15	0	0
	Verrucous Carcinoma	1	1	0	0	0
	Carcinoma, NOS	1	1	0	0	0
MAJOR SALIVARY GLANDS		11	8	2	0	1
	Carcinoma, NOS	3	3	0	0	0
	Non-Hodgkin's Lymphoma	2	0	1	0	1
	Adenocarcinoma, NOS	1	0	1	0	0
	Adenosarcoma, NOS	1	1	0	0	0
	Mucoepidermoid Carcinoma	1	1	0	0	0
	Lymphoepithelial Carcinoma	1	1	0	0	0
	Large Cell Carcinoma	1	1	0	0	0
	Hodgkin's Disease	1	1	0	0	0
GUM		37	15	22	0	0
	Squamous Cell Carcinoma	36	15	21	0	0
	Verrucous Carcinoma	1	0	1	0	0
FLOOR OF MOUTH		1	1	0	0	0
	Squamous Cell Carcinoma	1	1	0	0	0
OTHER PARTS OF MOUTH		15	8	7	0	0
	Squamous Cell Carcinoma	12	6	6	0	0
	Basal Cell Adenocarcinoma	1	1	0	0	0
	Mucoepidermoid Carcinoma	1	1	0	0	0
	Clear Cell Adenocarcinoma	1	0	1	0	0
OROPHARYNX		15	10	4	1	0
	Non-Hodgkin's Lymphoma	13	8	4	1	0
	Squamous Cell Carcinoma	2	2	0	0	0
NASOPHARYNX		104	72	28	2	2
	Carcinoma, Undifferentiated	41	25	13	2	1
	Squamous Cell Carcinoma	38	28	10	0	0
	Carcinoma, NOS	22	18	4	0	0
	Non-Hodgkin's Lymphoma	3	1	1	0	1
HYPOPHARYNX		14	2	12	0	0
	Squamous Cell Carcinoma	12	2	10	0	0
	Adenosquamous Carcinoma	1	0	1	0	0
	Synovial Sarcoma	1	0	1	0	0

Primary Site Table (cont'd)

SITE	HISTOLOGY (NOS-Not Otherwise Specified)	ALL CASES	ADULTS		PEDIATRICS	
			MALE	FEMALE	MALE	FEMALE
ESOPHAGUS		34	16	18	0	0
	Squamous Cell Carcinoma	30	14	16	0	0
	Adenocarcinoma, NOS	3	1	2	0	0
	Adenosquamous Carcinoma	1	1	0	0	0
STOMACH		79	42	37	0	0
	Adenocarcinoma, NOS	38	25	13	0	0
	Non-Hodgkin's Lymphoma	25	11	14	0	0
	Signet Ring Cell Carcinoma	12	4	8	0	0
	Carcinoma, NOS	2	2	0	0	0
	Squamous Cell Carcinoma	1	0	1	0	0
	Mucinous Adenocarcinoma	1	0	1	0	0
SMALL INTESTINE		12	5	4	2	1
	Non-Hodgkin's Lymphoma	6	2	1	2	1
	Adenocarcinoma, NOS	3	3	0	0	0
	Carcinoid Tumor	1	0	1	0	0
	Endometrial Stromal Tumor	1	0	1	0	0
	Malignant Neoplasm, NOS	1	0	1	0	0
COLON		50	25	24	0	1
	Adenocarcinoma, NOS	35	15	20	0	0
	Non-Hodgkin's Lymphoma	5	4	0	0	1
	Mucinous Adenocarcinoma	4	3	1	0	0
	Malignant Neoplasm, NOS	2	1	1	0	0
	Signet Ring Cell Carcinoma	1	1	0	0	0
	Adenoca in Tubulovillous Adenoma	1	0	1	0	0
	Carcinoma, NOS	1	1	0	0	0
	Mucinous Cystadenocarcinoma	1	0	1	0	0
RECTUM/RECTOSIGMOID JUNCTION/ANUS		96	63	33	0	0
	Adenocarcinoma, NOS	71	45	26	0	0
	Mucinous Adenocarcinoma	10	6	4	0	0
	Adenocarcinoma in Villous Adenoma	6	4	2	0	0
	Squamous Cell Carcinoma	3	3	0	0	0
	Signet Ring Cell Carcinoma	2	2	0	0	0
	Carcinoma, NOS	2	2	0	0	0
	Mucin-producing Adenocarcinoma	1	1	0	0	0
	Malignant Neoplasm, NOS	1	0	1	0	0
LIVER/INTRAHEPATIC BILE DUCTS		86	59	22	3	2
	Hepatocellular Carcinoma	73	55	18	0	0
	Cholangiocarcinoma	5	2	3	0	0
	Hepatoblastoma	5	0	0	3	2
	Adenocarcinoma, NOS	2	2	0	0	0
	Malignant Neoplasm, NOS	1	0	1	0	0
GALLBLADDER/EXTRAHEPATIC BILE DUCTS		24	9	15	0	0
	Adenocarcinoma, NOS	14	4	10	0	0
	Papillary Adenocarcinoma	3	2	1	0	0
	Mucinous Adenocarcinoma	3	2	1	0	0
	Adenosquamous Cell Carcinoma	1	0	1	0	0
	Signet Ring Cell Carcinoma	1	0	1	0	0
	Malignant Neoplasm, NOS	1	1	0	0	0
	Carcinoma In Situ	1	0	1	0	0

Primary Site Table (cont'd)

SITE	HISTOLOGY (NOS-Not Otherwise Specified)	ALL CASES	ADULTS		PEDIATRICS	
			MALE	FEMALE	MALE	FEMALE
PANCREAS		18	11	7	0	0
	Adenocarcinoma, NOS	11	7	4	0	0
	Malignant Neoplasm, NOS	3	2	1	0	0
	Carcinoma, NOS	1	1	0	0	0
	Small Cell Carcinoma	1	0	1	0	0
	Non-Hodgkin's Lymphoma	1	1	0	0	0
	Duct Cell Carcinoma	1	0	1	0	0
OTHER G.I. SITES		2	0	2	0	0
	Malignant Mesothelioma	1	0	1	0	0
	Serous Surface Papillary Adenoca	1	0	1	0	0
NASAL CAVITIES/ACCESSORY SINUSES		19	12	4	1	2
	Non-Hodgkin's Lymphoma	6	3	0	1	2
	Squamous Cell Carcinoma	3	3	0	0	0
	Embryonal Rhabdomyosarcoma	2	2	0	0	0
	Adenocystic Carcinoma	2	1	1	0	0
	Giant Cell Carcinoma	1	0	1	0	0
	Leiomyosarcoma	1	0	1	0	0
	Peripheral Neuroectodermal Tumor	1	1	0	0	0
	Melanoma	1	0	1	0	0
	Undifferentiated Carcinoma	1	1	0	0	0
	Esthesioneuroblastoma	1	1	0	0	0
LARYNX		34	27	7	0	0
	Squamous Cell Carcinoma	33	26	7	0	0
	Carcinoma, NOS	1	1	0	0	0
TRACHEA		1	0	1	0	0
	Squamous Cell Carcinoma					
BRONCHUS/LUNG		110	91	18	0	1
	Adenocarcinoma, NOS	40	29	11	0	0
	Squamous Cell Carcinoma	28	27	1	0	0
	Small Cell Carcinoma	13	11	2	0	0
	Carcinoma, NOS	11	10	1	0	0
	Large Cell Carcinoma	5	4	1	0	0
	Carcinoma, Undifferentiated	3	3	0	0	0
	Carcinoid Tumor	3	2	0	0	1
	Non-Hodgkin's Lymphoma	3	1	2	0	0
	Papillary Adenocarcinoma	2	2	0	0	0
	Solid Carcinoma	1	1	0	0	0
	Carcinoma, Anaplastic	1	1	0	0	0
PLEURA		2	1	1	0	0
	Mesothelioma					
THYMUS/MEDIASTINUM		9	5	0	2	2
	Neuroblastoma	2	0	0	1	1
	Malignant Thymoma	1	1	0	0	0
	Leiomyosarcoma	1	1	0	0	0
	Neurofibrosarcoma	1	1	0	0	0
	Mixed Germ Cell Tumor	1	1	0	0	0
	Seminoma	1	1	0	0	0
	Ganglioneuroblastoma	1	0	0	1	0
	Peripheral Neuroectodermal Tumor	1	0	0	0	1

Primary Site Table (cont'd)

SITE	HISTOLOGY (NOS-Not Otherwise Specified)	ALL CASES	ADULTS		PEDIATRICS	
			MALE	FEMALE	MALE	FEMALE
BLOOD		1	0	1	0	0
	Waldenstrom's Macroglobulemia					
MULTIPLE MYELOMA		16	10	6	0	0
BONE MARROW		249	83	52	61	53
	Acute Lymphoid Leukemia	117	25	6	46	40
	Acute Myeloid Leukemia	55	19	14	13	9
	Chronic Myeloid Leukemia	44	15	26	0	3
	Chronic Lymphoid Leukemia	11	11	0	0	0
	Acute Promyelocytic Leukemia	7	5	1	1	0
	Acute Myelomonocytic Leukemia	6	4	1	0	1
	Acute Monocytic Leukemia	4	1	2	1	0
	Prolymphocytic Leukemia	2	1	1	0	0
	Hairy Cell Leukemia	2	2	0	0	0
	Acute Leukemia, NOS	1	0	1	0	0
SPLEEN		2	1	1	0	0
	Non-Hodgkin's Lymphoma					
BONE/CARTILAGE		72	26	20	15	11
	Ewing's Sarcoma	26	8	7	6	5
	Osteosarcoma	23	5	7	6	5
	Non-Hodgkin's Lymphoma	9	6	2	1	0
	Chordoma	5	2	1	1	1
	Juxtacortical Osteosarcoma	3	2	1	0	0
	Chondrosarcoma	2	2	0	0	0
	Fibroblastic Osteosarcoma	1	0	0	1	0
	Myxoid Chondrosarcoma	1	0	1	0	0
	Reticulosarcoma	1	0	1	0	0
	Hodgkin's Disease	1	1	0	0	0
CONNECTIVE/SUBCUTANEOUS/SOFT TISSUE		93	40	28	8	17
	Synovial Sarcoma	12	6	5	1	0
	Embryonal Rhabdomyosarcoma	10	1	0	4	5
	Spindle Cell Sarcoma	6	5	1	0	0
	Leiomyosarcoma	6	3	3	0	0
	Malignant Fibrous Histiocytoma	5	3	2	0	0
	Sarcoma, NOS	5	2	3	0	0
	Non-Hodgkin's Lymphoma	5	1	3	1	0
	Myxoid Liposarcoma	4	2	2	0	0
	Liposarcoma, NOS	4	3	1	0	0
	Ewing's Sarcoma	4	1	2	0	1
	Rhabdomyosarcoma, NOS	3	0	0	1	2
	Peripheral Neuroectodermal Tumor	3	0	2	0	1
	Neurofibrosarcoma	2	2	0	0	0
	Infantile Fibrosarcoma	2	0	0	1	1
	Pleomorphic Liposarcoma	2	2	0	0	0
	Hemangiosarcoma	2	2	0	0	0
	Neuroblastoma	2	0	0	0	2
	Malignant Teratoma	2	0	0	0	2
	Fibrosarcoma	1	1	0	0	0
	Myeloid Sarcoma	1	1	0	0	0
	Alveolar Rhabdomyosarcoma	1	1	0	0	0
	Fibromyxosarcoma	1	1	0	0	0
	Giant Cell Sarcoma	1	0	1	0	0

Primary Site Table (cont'd)

SITE	HISTOLOGY (NOS-Not Otherwise Specified)	ALL CASES	ADULTS		PEDIATRICS	
			MALE	FEMALE	MALE	FEMALE
CONNECTIVE/SUBCUTANEOUS/SOFT TISSUE (cont'd)						
	Round Cell Liposarcoma	1	0	1	0	0
	Mixed Type Liposarcoma	1	0	1	0	0
	Myxoid Chondrosarcoma	1	1	0	0	0
	Ganglioneuroblastoma	1	0	0	0	1
	Nephroblastoma (extra-renal)	1	0	0	0	1
	Seminoma	1	1	0	0	0
	Small Cell Sarcoma	1	1	0	0	0
	Endodermal Sinus Tumor	1	0	0	0	1
	Malignant Neurilemmoma	1	0	1	0	0
SKIN (MELANOMA)		6	2	4	0	0
SKIN (NON-MELANOMA)		75	41	28	4	2
	Squamous Cell Carcinoma	28	17	10	1	0
	Basal Cell Carcinoma	23	11	9	1	2
	Kaposi's Sarcoma	7	2	4	1	0
	Non-Hodgkin's Lymphoma	6	4	1	1	0
	Mycosis Fungoides	5	5	0	0	0
	Dermatofibrosarcoma	4	1	3	0	0
	Carcinoma, NOS	2	2	1	0	0
BREAST, FEMALE		330	0	330	0	0
	Duct Cell Carcinoma	275	0	275	0	0
	Lobular Carcinoma	14	0	14	0	0
	Infiltrating Duct & Lobular Ca	7	0	7	0	0
	Paget's Disease & Duct Cell Ca	6	0	6	0	0
	Carcinoma, NOS	6	0	6	0	0
	Comedocarcinoma	6	0	6	0	0
	Mucinous Adenocarcinoma	4	0	4	0	0
	Cystosarcoma Phyllodes	4	0	4	0	0
	Malignant Neoplasm, NOS	4	0	4	0	0
	Adenocarcinoma, NOS	2	0	2	0	0
	Giant Cell Sarcoma	1	0	1	0	0
	Scirrhous Adenocarcinoma	1	0	1	0	0
BREAST, MALE		6	6	0	0	0
	Duct Cell Carcinoma	5	5	0	0	0
	Adenocarcinoma, NOS	1	1	0	0	0
UTERUS, NOS		1	0	1	0	0
	Leiomyosarcoma					
CERVIX UTERI		57	0	57	0	0
	Squamous Cell Carcinoma	45	0	45	0	0
	Adenocarcinoma, NOS	3	0	3	0	0
	Carcinoma In Situ	2	0	2	0	0
	Carcinoma, NOS	2	0	2	0	0
	Papillary Adenocarcinoma	1	0	1	0	0
	Endometrioid Adenocarcinoma	1	0	1	0	0
	Melanoma	1	0	1	0	0
	Adenosarcoma	1	0	1	0	0
	Carcinosarcoma	1	0	1	0	0

Primary Site Table (cont'd)

SITE	HISTOLOGY (NOS-Not Otherwise Specified)	ALL CASES	ADULTS		PEDIATRICS	
			MALE	FEMALE	MALE	FEMALE
PLACENTA		5	0	5	0	0
	Choriocarcinoma	4	0	4	0	0
	Malig Placental Site Trophoblastoma	1	0	1	0	0
CORPUS UTERI		32	0	32	0	0
	Endometrioid Carcinoma	11	0	11	0	0
	Adenocarcinoma, NOS	10	0	10	0	0
	Endometrial Stromal Sarcoma	2	0	2	0	0
	Leiomyosarcoma	2	0	2	0	0
	Papillary Serous Cystadenocarcinoma	1	0	1	0	0
	Adenosarcoma	1	0	1	0	0
	Serous Surface Adenocarcinoma	1	0	1	0	0
	Adenoca with Squamous Metaplasia	1	0	1	0	0
	Carcinoma, NOS	1	0	1	0	0
	Sarcoma, NOS	1	0	1	0	0
	Mixed Mullerian Tumor	1	0	1	0	0
OVARY		52	0	46	0	6
	Papillary Serous Cystadenocarcinoma	10	0	10	0	0
	Dysgerminoma	8	0	3	0	5
	Mucinous Cystadenocarcinoma	7	0	7	0	0
	Serous Surface Papillary Adenoca	5	0	5	0	0
	Carcinoma, NOS	2	0	2	0	0
	Papillary Carcinoma	2	0	2	0	0
	Endometrioid Carcinoma	2	0	2	0	0
	Malignant Teratoma	2	0	2	0	0
	Endodermal Sinus Tumor	2	0	2	0	1
	Papillary Serous, Borderline Malig	2	0	2	0	0
	Papillary Cystadenocarcinoms	1	0	1	0	0
	Adenocarcinoma, NOS	1	0	1	0	0
	Mixed Germ Cell Tumor	1	0	1	0	0
	Papillary Adenocarcinoma	1	0	1	0	0
	Squamous Cell Carcinoma	1	0	1	0	0
	Mixed Germ Cell Tumor	1	0	1	0	0
	Malignant Sex Cord Stromal Tumor	1	0	1	0	0
	Malignant Granulosa Cell Tumor	1	0	1	0	0
	Serous Cystadenocarcinoma	1	0	1	0	0
	Serous Borderline Malignant Tumor	1	0	1	0	0
	Papillary Mucinous Cystadenocarcinoma	1	0	1	0	0
OTHER FEMALE GENITAL ORGANS		4	0	4	0	0
	Squamous Cell Carcinoma	3	0	3	0	0
	Carcinosarcoma	1	0	1	0	0
PROSTATE		57	57	0	0	0
	Adenocarcinoma, NOS	48	48	0	0	0
	Carcinoma, NOS	6	6	0	0	0
	Malignant Neoplasm, NOS	2	2	0	0	0
	Transitional Cell Carcinoma	1	1	0	0	0

Primary Site Table (cont'd)

SITE	HISTOLOGY (NOS-Not Otherwise Specified)	ALL CASES	ADULTS		PEDIATRICS	
			MALE	FEMALE	MALE	FEMALE
TESTIS		19	17	0	2	0
	Seminoma	11	11	0	0	0
	Mixed Germ Cell Tumor	2	2	0	0	0
	Endodermal Sinus Tumor	2	1	0	1	0
	Embryonal Rhabdomyosarcoma	1	0	0	1	0
	Embryonal Carcinoma	1	1	0	0	0
	Malignant Teratoma	1	1	0	0	0
	Germinoma	1	1	0	0	0
OTHER MALE GENITAL ORGANS		1	1	0	0	0
	Kaposi's Sarcoma					
URINARY BLADDER		91	72	19	0	0
	Transitional Cell Carcinoma	41	32	9	0	0
	Papillary Transitional Cell Ca	41	32	9	0	0
	Squamous Cell Carcinoma	3	3	0	0	0
	Adenocarcinoma, NOS	3	2	1	0	0
	Carcinosarcoma	1	1	0	0	0
	Carcinoma, Undifferentiated	1	1	0	0	0
	Signet Ring Cell Carcinoma	1	1	0	0	0
KIDNEY/URETER/URETHRA		69	28	26	8	7
	Renal Cell Carcinoma	40	21	19	0	0
	Nephroblastoma	14	0	0	8	6
	Clear Cell Adenocarcinoma	2	1	1	0	0
	Chromophobe Carcinoma	2	1	1	0	0
	Leiomyosarcoma	2	1	1	0	0
	Medullary Carcinoma	1	0	1	0	0
	Carcinoma, NOS	1	1	0	0	0
	Clear Cell Sarcoma	1	0	0	0	1
	Peripheral Neuroectodermal Tumor	1	1	0	0	0
	Transitional Cell Carcinoma	1	0	1	0	0
	Malignant Neoplasm, NOS	1	1	0	0	0
	Papillary Transitional Cell Ca	1	0	1	0	0
	Squamous Cell Carcinoma	1	1	0	0	0
	Transitional Cell Ca, Spindle Cell	1	0	1	0	0
EYE/LACRIMAL GLAND		26	3	3	9	11
	Retinoblastoma	18	0	0	9	9
	Squamous Cell Carcinoma	5	2	2	0	1
	Non-Hodgkin's Lymphoma	2	1	1	0	0
	Embryonal Rhabdomyosarcoma	1	0	0	0	1
BRAIN		148	57	29	39	23
	Glioblastoma	36	22	8	4	2
	Astrocytoma, NOS	24	11	8	4	1
	Malignant Glioma, NOS	18	4	2	7	5
	Pilocytic Astrocytoma	15	1	0	6	8
	Medulloblastoma	13	0	1	11	1
	Ependymoma	11	3	1	5	2
	Oligodendroglioma	9	7	2	0	0
	Non-Hodgkin's Lymphoma	7	3	3	1	0
	Mixed Glioma	4	2	2	0	0
	Malignant Ganglioma	2	0	0	1	1
	Pleomorphic Xanthoastrocytoma	2	1	0	0	1

Primary Site Table (cont'd)

SITE	HISTOLOGY (NOS-Not Otherwise Specified)	ALL CASES	ADULTS		PEDIATRICS	
			MALE	FEMALE	MALE	FEMALE
BRAIN (cont'd)						
	Desmoplastic Medulloblastoma	2	1	1	0	0
	Fibrillary Astrocytoma	1	0	1	0	0
	Malignant Teratoma	1	0	0	0	1
	Melanoma	1	1	0	0	0
	Dysgerminoma	1	0	0	0	1
	Malignant Hemangiopericytoma	1	1	0	0	0
OTHER NERVOUS SYSTEM						
	Non-Hodgkin's Lymphoma	5	1	0	1	3
	Malignant Meningioma	2	0	0	1	1
	Pilocytic Astrocytoma	1	1	0	0	0
	Fibrosarcoma	1	0	0	0	1
THYROID						
	Papillary Carcinoma	208	57	145	3	3
	Papillary & Follicular Adenocarcinoma	168	46	118	1	3
	Non-Hodgkin's Lymphoma	15	2	13	0	0
	Follicular Adenocarcinoma	6	1	5	0	0
	Anaplastic Carcinoma	5	1	4	0	0
	Medullary Carcinoma	5	4	1	0	0
	Carcinoma, NOS	5	1	2	2	0
	Oxyphilic Adenocarcinoma	2	1	1	0	0
	Carcinosarcoma	1	1	0	0	0
		1	0	1	0	0
OTHER ENDOCRINE GLANDS						
	Neuroblastoma	13	2	1	5	5
	Adrenal Cortical Carcinoma	7	0	0	4	3
	Malignant Pheochromocytoma	4	2	0	0	2
	Malignant Teratoma	1	0	1	0	0
		1	0	0	1	0
LYMPH NODES, NON-HODGKIN'S LYMPHOMA (Excluding Extra-Nodal Lymphoma)						
	Large Cell, Diffuse	97	54	34	7	2
	Burkitt's	47	28	19	0	0
	Non-Hodgkin's Lymphoma, NOS	11	2	2	5	2
	Small Lymphocytic	7	6	1	0	0
	Lymphoblastic	5	3	2	0	0
	Follicular, NOS	5	3	0	2	0
	T-Cell Lymphoma	5	2	3	0	0
	Small Cleaved Cell, Follicular	4	3	1	0	0
	T-Cell Rich B-Cell	4	2	2	0	0
	Immunoblastic	3	1	2	0	0
	Lymphoplasmacytic	2	0	2	0	0
	Large cell, Follicular	2	2	0	0	0
	Ki-1	1	1	0	0	0
		1	1	0	0	0
LYMPH NODES, HODGKIN'S DISEASE						
	Nodular Sclerosis	112	45	34	20	13
	Lymphocytic Predominance	78	28	25	15	10
	Mixed Cellularity	12	8	2	1	1
	Hodgkin's Disease, NOS	11	4	4	2	1
		11	5	3	2	1

Primary Site Table (cont'd)

SITE	HISTOLOGY (NOS-Not Otherwise Specified)	ALL CASES	ADULTS		PEDIATRICS	
			MALE	FEMALE	MALE	FEMALE
PRIMARY UNKNOWN		49	30	19	0	0
	Adenocarcinoma, NOS	23	13	10	0	0
	Carcinoma, NOS	11	6	5	0	0
	Malignant Neoplasm, NOS	5	4	1	0	0
	Squamous Cell Carcinoma	3	1	2	0	0
	Mucinous Adenocarcinoma	3	2	1	0	0
	Carcinoma, Undifferentiated	2	2	0	0	0
	Neuroendocrine Carcinoma	1	1	0	0	0
	Malignant Small Cell Tumor	1	1	0	0	0

TABLE 10
 MULTIPLE PRIMARY SITES TABLE
 1 9 9 9

PRIMARY SITE 1999	HISTOLOGY (NOS-Not Otherwise Specified)	OTHER PRIMARIES (PREVIOUS OR CONCURRENT)	ALL PATIENTS	MALE	FEMALE
			64	28	36
LIP			1	0	1
	Squamous Cell Carcinoma	LN's - NHL			
TONGUE			1	1	0
	Carcinoma, NOS	Cecum - Mucinous Adenoca			
NASOPHARYNX			1	1	0
	Non-Hodgkin's Lymphoma	Nasopharynx-Carcinoma, NOS			
HYPOPHARYNX			1	0	1
	Adenosquamous Carcinoma	Hypopharynx - Synovial Ca			
ESOPHAGUS			1	1	0
	Squamous Cell Carcinoma	Thyroid - Papillary Ca			
STOMACH			1	1	0
	Malt Lymphoma	Tonsil - Sq Cell Ca			
COLON			4	4	0
	Adenocarcinoma, NOS	Rectum - Adenocarcinoma	1	1	0
	Adenocarcinoma, NOS	Bladder - Pap Trans Cell Ca	1	1	0
	Adenocarcinoma, NOS	Lung - Adenocarcinoma	1	1	0
	Carcinoma, NOS	Bladder - Trans Cell Ca	1	1	0
Liver			3	2	1
	Hepatocellular Carcinoma	Skin - Kaposi's Sarcoma	1	0	1
	Hepatocellular Carcinoma	Lip - Sq Cell Ca	1	1	0
	Hepatocellular Carcinoma	Larynx - Sq Cell Ca	1	1	0
PANCREAS			1	1	0
	Adenocarcinoma, NOS	Extrahepatic Bile Duct - Carcinoma In situ			
BONE MARROW			4	2	2
	Acute lymphoid Leukemia	Thyroid - Papillary Adenoca	1	0	1
	Chronic Myeloid Leukemia	Thyroid - Papillary Ca	1	1	0
	Acute Myeloid Leukemia	Breast - Duct Cell Ca	1	0	1
	Chronic Lymphoid Leukemia*	Prostate - Adenocarcinoma	1	1	0
		Kidney - Renal Cell Ca			
BONE			1	1	0
	Chondrosarcoma	Brain - Astrocytoma			
CONNECTIVE/SOFT TISSUE			1	1	0
	Rhabdomyosarcoma	Retina - Retinoblastoma			

Multiple Primary Sites Table (cont'd)

PRIMARY SITE 1999	HISTOLOGY (NOS-Not Otherwise Specified)	OTHER PRIMARIES (PREVIOUS OR CONCURRENT)	ALL PATIENTS	MALE	FEMALE
SKIN			6	3	3
Squamous Cell Carcinoma	Skin - Basal Cell Ca		2	1	1
Squamous Cell Carcinoma	Bone Marrow - CML		1	1	0
Squamous Cell Carcinoma	Breast - Duct Cell Ca		1	0	1
Squamous Cell Carcinoma*	Skin - Basal Cell Ca		1	1	0
	Bladder - Trans Cell Ca				
Dermatofibrosarcoma	Breast - Duct Cell Ca		1	0	1
BREAST			16	0	16
Duct Cell Carcinoma	Contralateral Breast		8	0	8
Lobular Carcinoma	Contralateral Breast		2	0	2
Duct Cell Carcinoma	Breast-Cystosarcoma Phyllodes		1	0	1
Duct Cell Carcinoma*	Contralateral Breast		1	0	1
	Thyroid - Papillary Ca				
Scirrhus Adenocarcinoma	Breast-Duct & Lobular Ca		1	0	1
Comedocarcinoma	Contralateral Breast		1	0	1
Malignant Neoplasm, NOS	LN's - NHL		1	0	1
Malignant Neoplasm, NOS	Ampulla of Vater - Adenoca		1	0	1
CERVIX			1	0	1
Adenosarcoma	Thyroid - Papillary Ca				
CORPUS UTERI			1	0	1
Endometrioid Carcinoma	Cervix - Sq Cell Ca				
OVARY			3	0	3
Pap Serous Cystadenoca	Cervix - Sq Cell Ca		1	0	1
Pap Serous Cystadenoca	Corpus Uteri-Endometrioid Ca		1	0	1
Carcinoma, NOS	Soft Tissue - Sarcoma		1	0	1
PROSTATE			2	2	0
Adenocarcinoma, NOS	Skin - Mycosis Fungoides		1	1	0
Adenocarcinoma, NOS	Lung - Sq Cell Ca		1	1	0
URINARY BLADDER			3	3	0
Pap Transitional Cell Ca	Esophagus - Sq Cell Ca		1	1	0
Pap Transitional Cell Ca	Prostate - Adenocarcinoma		1	1	0
Adenocarcinoma, NOS	Bladder - Trans Cell Ca		1	1	0
KIDNEY			1	0	1
Clear Cell Carcinoma	Unknown Primary - Adenoca				
CONJUNCTIVA			2	0	2
Squamous Cell Carcinoma	Skin - Sq Cell Ca		1	0	1
Squamous Cell Carcinoma	Skin - Basal Cell Ca		1	0	1
BRAIN			1	1	0
Melanoma	LN's - Hodgkin's Disease				

Multiple Primary Sites Table (cont'd)

PRIMARY SITE 1999	HISTOLOGY (NOS-Not Otherwise Specified)	OTHER PRIMARIES (PREVIOUS OR CONCURRENT)	ALL PATIENTS	MALE	FEMALE
THYROID			5	1	4
Papillary Carcinoma		Tonsil - Sq Cell Carcinoma	1	0	1
Papillary Carcinoma		Thyroid - Medullary Ca	1	1	0
Papillary Carcinoma		Ovary - Mucinous Cystadenoca	1	0	1
Papillary carcinoma*		Thyroid - Follicular Adenoca	1	0	1
		LN's - Hodgkin's Disease			
Follicular Carcinoma		Breast - Duct Cell Ca	1	0	1
LYMPH NODES			3	3	0
NHL, T-Cell Rich B-Cell		LN's - Hodgkin's Disease	1	1	0
NHL, Small Cleaved		LN's - Hodgkin's Disease	1	1	0
Hodgkin's Disease		Liver - Hepatocellular Ca	1	1	0

*Patient has three primary malignancies.

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 is one of the predictors for outcome and treatment selection assigned at the time of initial diagnosis. 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 four general staging groups (i.e. in situ, localized, regional, and distant). Stage categories are based on a combination of clinical observations and operative-pathological evaluation.

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

Systemic diseases, i.e., leukemia and multiple myeloma and cases of unknown primary were disregarded in graphically illustrating the stages for all analytic cases seen at KFSH&RC in 1999 (Figure 13). The 33 cases unstageable at diagnosis were those patients who refused further diagnostic workup or further workup was not possible due to the patients' state of health; e.g. terminal cases or those with co-morbid conditions. Please refer also to Table 5 for the distribution of the 1999 analytic cases by site and stage at diagnosis.

In addition to the SEER Summary Staging, the cases were also staged according to the American Joint Committee on Cancer (AJCC) TNM system. This scheme is based on the premise that cancers of similar histology or site of origin share similar patterns of growth and extension. This system is based on the assessment of three components:

T: Extent of the primary tumor

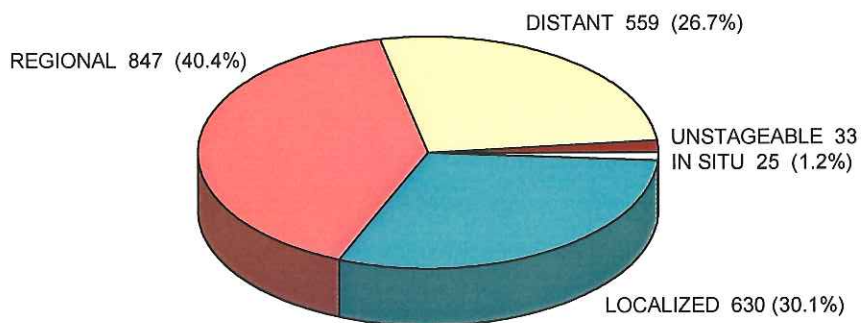
N: Absence or presence and extent of regional lymph node involvement

M: Absence or presence of distant metastasis

Analytic cases of four major sites, i.e., breast, lung, nasopharynx and Hodgkin's Disease are presented in Table 11 with their clinical group stage and yearly comparative figures from 1995 to 1999. The pathologic group stages of stomach and colorectum are also presented in the same table.

FIGURE 13

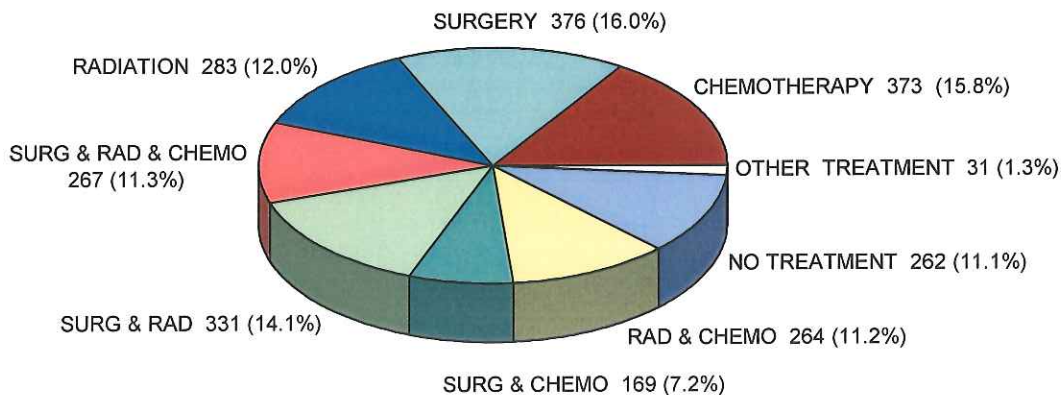
**DISTRIBUTION OF ANALYTIC CASES
BY STAGE (SEER) AT DIAGNOSIS
1999 (TOTAL CASES = 2,094)**



*Excludes Unknown Primaries (45 cases)
*Excludes Leukemia and Multiple Myeloma (217 cases)

FIGURE 14

**DISTRIBUTION OF ANALYTIC CASES
BY FIRST TREATMENT MODALITY
1999 (TOTAL CASES = 2,356)**



AJCC CLINICAL TNM GROUP STAGE OF ANALYTIC CASES OF MAJOR SITES* BY YEAR
1995 - 1999

BREAST												
Stage	1995		1996		1997		1998		1999		TOTAL	
	No	%	No	%	No	%	No	%	No	%	No	%
0	2	1.0	4	1.7	3	1.2	3	1.1	0	0.0	12	1.0
1	12	6.0	22	9.5	15	6.0	11	3.9	22	7.6	82	6.5
2A	40	20.0	52	22.5	51	20.3	53	18.8	43	14.9	239	19.1
2B	36	18.0	38	16.5	42	16.7	27	9.6	63	21.8	206	16.4
3A	19	9.5	19	8.2	13	5.2	27	9.6	20	6.9	98	7.8
3B	29	14.5	21	9.1	36	14.4	37	13.1	42	14.5	165	13.2
4	33	16.5	36	15.6	49	19.5	63	22.3	43	14.9	224	17.9
Unstageable	29	14.5	39	16.9	42	16.7	61	21.6	56	19.4	227	18.1
Total	200	100.0	231	100.0	251	100.0	282	100.0	289	100.0	1,253	100.0

LUNG												
Stage	1995		1996		1997		1998		1999		TOTAL	
	No	%	No	%	No	%	No	%	No	%	No	%
1	8	10.1	2	2.6	5	6.8	12	12.2	0	0.0	27	6.3
1A	-	-	-	-	-	-	-	-	2	2.1	2	0.5
1B	-	-	-	-	-	-	-	-	3	3.1	3	0.7
2	2	2.6	3	3.8	0	0.0	3	3.0	0	0.0	8	1.9
2A	-	-	-	-	-	-	-	-	1	1.1	1	0.3
2B	-	-	-	-	-	-	-	-	3	3.1	3	0.7
3A	9	11.4	6	7.7	7	9.4	12	12.2	7	7.3	41	9.6
3B	22	27.8	26	33.3	18	24.3	14	14.1	19	19.8	99	23.2
4	28	35.4	27	34.6	33	44.6	44	44.4	49	51.0	181	42.5
Unstageable	10	12.7	14	18.0	11	14.9	14	14.1	12	12.5	61	14.3
Total	79	100.0	78	100.0	74	100.0	99	100.0	96	100.0	426	100.0

NASOPHARYNX												
Stage	1995		1996		1997		1998		1999		TOTAL	
	No	%	No	%	No	%	No	%	No	%	No	%
0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
1	1	1.8	0	0.0	0	0.0	0	0.0	1	1.1	2	0.5
2	3	5.4	2	2.5	0	0.0	2	2.0	-	-	7	1.7
2A	-	-	-	-	-	-	-	-	3	3.2	3	0.7
2B	-	-	-	-	-	-	-	-	8	8.5	8	2.0
3	7	12.5	7	8.9	6	7.4	11	10.9	20	21.3	51	12.4
4	44	78.5	67	84.8	75	92.6	88	87.1	-	-	274	66.7
4A	-	-	-	-	-	-	-	-	24	25.5	24	5.8
4B	-	-	-	-	-	-	-	-	24	25.5	24	5.8
4C	-	-	-	-	-	-	-	-	11	11.7	11	2.7
Unstageable	1	1.8	3	3.8	0	0.0	0	0.0	3	3.2	7	1.7
Total	56	100.0	79	100.0	81	100.0	101	100.0	94	100.0	411	100.0

* Excludes Lymphoma Cases.

N.B. New staging scheme for Lung & Nasopharynx effective 1999.

AJCC CLINICAL GROUP STAGE OF ANALYTIC CASES OF A MAJOR SITE BY YEAR
1995 - 1999

HODGKIN'S DISEASE

Stage	1995		1996		1997		1998		1999		TOTAL	
	No	%	No	%	No	%	No	%	No	%	No	%
1A	13	16.7	8	11.3	4	5.9	7	7.9	20	19.4	52	12.7
1B	1	1.3	1	1.4	1	1.5	3	3.4	0	0.0	6	1.5
2A	21	26.9	20	28.2	22	32.3	21	23.6	29	28.2	113	27.6
2B	10	12.8	10	14.1	10	14.7	13	14.6	13	12.6	56	13.7
3A	11	14.1	6	8.4	10	14.7	14	15.7	10	9.7	51	12.5
3B	11	14.1	10	14.1	7	10.3	13	14.6	10	9.7	51	12.5
4A	2	2.6	3	4.2	4	5.9	3	3.4	4	3.9	16	3.9
4B	9	11.5	13	18.3	10	14.7	15	16.8	17	16.5	64	15.6
Total	78	100.0	71	100.0	68	100.0	89	100.0	103	100.0	409	100.0

AJCC PATHOLOGIC TNM GROUP STAGE OF ANALYTIC CASES OF MAJOR SITES* BY YEAR
1995 - 1999

STOMACH

Stage	1995		1996		1997		1998		1999		TOTAL	
	No	%	No	%	No	%	No	%	No	%	No	%
0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
1A	1	2.1	2	3.9	0	0.0	0	0.0	0	0.0	3	1.4
1B	2	4.3	3	5.9	0	0.0	1	2.7	2	4.3	8	3.8
2	4	8.5	0	0.0	2	6.2	4	10.8	5	10.9	15	7.0
3A	7	14.9	18	35.3	3	9.4	8	21.6	5	10.9	41	19.2
3B	4	8.5	4	7.8	4	12.5	3	8.1	2	4.3	17	8.0
4	5	10.6	1	2.0	1	3.1	2	5.4	4	8.7	13	6.1
Unstageable	24	51.1	23	45.1	22	68.8	19	51.4	28	60.9	116	54.5
Total	47	100.0	51	100.0	32	100.0	37	100.0	46	100.0	213	100.0

COLON, RECTUM

Stage	1995		1996		1997		1998		1999		TOTAL	
	No	%	No	%	No	%	No	%	No	%	No	%
0	0	0.0	0	0.0	1	1.3	0	0.0	0	0.0	1	0.2
1	5	7.3	3	3.8	3	4.0	2	2.3	12	9.8	25	5.8
2	15	22.1	17	21.5	12	15.8	13	15.1	23	18.9	80	18.6
3	13	19.1	13	16.4	14	18.4	18	20.9	19	15.6	77	17.9
4	10	14.7	7	8.9	7	9.2	9	10.5	7	5.7	40	9.3
Unstageable	25	36.8	39	49.4	39	51.3	44	51.2	61	50.0	208	48.2
Total	68	100.0	79	100.0	76	100.0	86	100.0	122	100.0	431	100.0

* Excludes Lymphoma Cases.

**AJCC CLINICAL GROUP STAGE OF ANALYTIC CASES OF A MAJOR SITE BY YEAR
1995 - 1999**

HODGKIN'S DISEASE

Stage	1995		1996		1997		1998		1999		TOTAL	
	No	%	No	%	No	%	No	%	No	%	No	%
1A	13	16.7	8	11.3	4	5.9	7	7.9	7	7.9	39	9.9
1B	1	1.3	1	1.4	1	1.5	3	3.4	3	3.4	9	2.3
2A	21	26.9	20	28.2	22	32.3	21	23.6	21	23.6	105	26.6
2B	10	12.8	10	14.1	10	14.7	13	14.6	13	14.6	56	14.2
3A	11	14.1	6	8.4	10	14.7	14	15.7	14	15.7	55	13.9
3B	11	14.1	10	14.1	7	10.3	13	14.6	13	14.6	54	13.6
4A	2	2.6	3	4.2	4	5.9	3	3.4	3	3.4	15	3.8
4B	9	11.5	13	18.3	10	14.7	15	16.8	15	16.8	62	15.7
Total	78	100.0	71	100.0	68	100.0	89	100.0	89	100.0	395	100.0

**AJCC PATHOLOGIC TNM GROUP STAGE OF ANALYTIC CASES OF MAJOR SITES* BY YEAR
1995 - 1999**

STOMACH

Stage	1995		1996		1997		1998		1999		TOTAL	
	No	%	No	%	No	%	No	%	No	%	No	%
0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
1A	1	2.1	2	3.9	0	0.0	0	0.0	0	0.0	3	1.4
1B	2	4.3	3	5.9	0	0.0	1	2.7	2	4.3	8	3.8
2	4	8.5	0	0.0	2	6.2	4	10.8	5	10.9	15	7.0
3A	7	14.9	18	35.3	3	9.4	8	21.6	5	10.9	41	19.2
3B	4	8.5	4	7.8	4	12.5	3	8.1	2	4.3	17	8.0
4	5	10.6	1	2.0	1	3.1	2	5.4	4	8.7	13	6.1
Unstageable	24	51.1	23	45.1	22	68.8	19	51.4	28	60.9	116	54.5
Total	47	100.0	51	100.0	32	100.0	37	100.0	46	100.0	213	100.0

COLON, RECTUM

Stage	1995		1996		1997		1998		1999		TOTAL	
	No	%	No	%	No	%	No	%	No	%	No	%
0	0	0.0	0	0.0	1	1.3	0	0.0	0	0.0	1	0.2
1	5	7.3	3	3.8	3	4.0	2	2.3	12	9.8	25	5.8
2	15	22.1	17	21.5	12	15.8	13	15.1	23	18.9	80	18.6
3	13	19.1	13	16.4	14	18.4	18	20.9	19	15.6	77	17.9
4	10	14.7	7	8.9	7	9.2	9	10.5	7	5.7	40	9.3
Unstageable	25	36.8	39	49.4	39	51.3	44	51.2	61	50.0	208	48.2
Total	68	100.0	79	100.0	76	100.0	86	100.0	122	100.0	431	100.0

* Excludes Lymphoma Cases.

APPENDIX A

1999 REQUESTS FOR TUMOR REGISTRY DATA

*Publication **KFSH&RC Presentation ***Outside KFSH&RC Presentation

January	Pelvic Ewing's Sarcoma and PNET Cases (1987-1998) (MR Numbers)	Dr. H. El-Foudeh
	Pediatric Non-Hodgkin's Lymphoma and B-Cell Acute Lymphoblastic Leukemia Cases (1996-1998) (MR Numbers)	Dr. A. Belgaumi
	Malignant Gestational Trophoblastic (Hydatidiform Mole, Choriocarcinoma) Cases (1975-1998) (MR Numbers)*	Dr. I. Kerr
February	Adult Acute Myeloid Leukemia Cases (1996-1998) (MR Numbers)	Dr. G. Roberts
	Pediatric Malignant Brain Rhabdoid Tumor Cases (1975-1998) (MR Numbers)*	Dr. A. Kofide
	Pediatric Osteogenic Sarcoma Cases (1994-1998) (MR Numbers)*	Dr. N. Mahgoub
	Adult Osteosarcoma with Treatment for Metastatic vs non-Metastatic Cases (1990-1997) (MR Numbers)	Dr. M. Memon
March	Pediatric Non-Hodgkin's Lymphoma (1988-1998) (MR Numbers)*	Dr. L. Shalaby
	Analytic Non-Hodgkin's Lymphoma Cases (1988-1990) (MR Numbers) (Update of Previous Request)	Dr. J. Martin
	Cancer Cases by Site and Sex (Adults vs Pediatrics) (1997)	Ministry of Health
	Pediatric Acute Myeloid Leukemia Cases (1996-1997) (MR Numbers)	Dr. S. Rifai
April	Malignant Brain Tumor Cases in Children less than 3 Years of Age (1988-1998) (MR Numbers)*	Dr. A. Kofide
	Pediatric Rhabdomyosarcoma, Ewing's Sarcoma and Wilm's Tumor Cases (1994-1998 by Year) (MR Numbers)	Dr. I. Fawaz
	Pediatric Malignant Germ Cell Tumor Cases (1976- 1998) (MR Numbers)	Dr. I. Fawaz
	Pediatric Neuroblastoma Cases (1996-1998) (MR Numbers)	Dr. S. Rifai
	Soft Tissue Sarcoma Cases (excluding Rhabdomyo- sarcoma and Ewing's Sarcoma) (1989-1998) (MR Numbers)	Dr. A. Allam
May	Lymphoma Cases (1981-1998) (MR Numbers)	Dr. A. Al Rajhi
	Pediatric Acute Myeloid Leukemia Cases (1993- 1996) (MR Numbers)	Dr. S. Rifai
	Pediatric Malignant Brain and CNS Tumor and Retinoblastoma Cases with Stage of Disease and Treatment (1997-present) (MR Numbers)	Mr. G. Webb
	Poorly Differentiated Metastatic Carcinoma of Unknown Primary (1985-1997) (MR Numbers)	Dr. A. Radwi

Appendix A (cont'd)

June	Nasopharyngeal Non-Hodgkin's Lymphoma Cases (1975-present) (MR Numbers)*	Dr. A. El Weshi
	KFSH&RC Employees with Cancer (1975-present) (MR Numbers)	Ms. A. Dooley
July	Nasopharyngeal Cancer Cases who Received Chemotherapy (1990-present) (MR Numbers) (Update of Previous Request)	Dr. A. Radwi
	Adult CNS Lymphoma Cases (1975-1995) (MR Numbers)	Dr. A. Belal
	Adult Lung Carcinoid Tumor Cases (1991-1998) (MR Numbers) (Update of Previous Request)	Dr. A. Radwi
	Malignant Thymoma Cases with Stage at Diagnosis and Treatment (1990-1997) (MR Numbers) (Update of Previous Request)	Dr. A. Radwi
	Bone Ewing's Sarcoma and PNET Cases (1975-1997) (MR Numbers)*	Dr. R. Jenkin
	Osteosarcoma Cases Seen by Drs Younge and Moreau (1997-1998) (MR Numbers) (Update of Previous Request)	Dr. D. Younge
August	Pediatric Cancer Cases (1998-1999) (MR Numbers)	Dr. H. Solh
	Brain Stem Glioma Cases (1976-1998) (MR Numbers)**	Dr. M. Al Shabanah
	Malignant CNS Germ Cell Tumor Cases (1976-1998) (MR Numbers)**	Dr. M. Al Shabanah
September	High Grade Astrocytoma/Glioblastoma Multiforme who Received Chemotherapy (1994-1998) (MR Numbers)	Dr. A. Kofide
	Retinoblastoma Cases who Received Chemotherapy (1994-1998) (MR Numbers)	Dr. A. Kofide
	Bilateral Breast Cancer Cases (1985-1998) (MR Numbers)	Dr. A. Ezzat
	Analytic Non-Hodgkin's Lymphoma Cases (1995-1996) (MR Numbers) (Update of Previous Request)	Dr. J. Martin
	Malignant Fibrous Histiocytoma Cases with Age, Sex, Site, Grade and Stage (1975-1998) (MR Numbers)	Dr. A. Allam
October	Male Breast Cancer Cases (1975-present) (MR Numbers)*	Dr. M. Baslain
	Adult Malignant Germ Cell Tumor Cases (1998-present) (MR Numbers)*	Dr. S. Bazarbashi
	Nasopharyngeal, Tonsillar and Base of Tongue Cancer Cases (1975-present) (MR Numbers)	Dr. A. El Weshi
	Testicular Non-Hodgkin's Lymphoma (1975-1998) (MR Numbers)	Dr. A. El Weshi
	Pediatric Malignant Brain Germ Cell Tumor Cases (1979-198) (MR Numbers)*	Dr. A. Kofide
	Malignant Brain Rhabdoid Tumor Cases (1979-1998) (MR Numbers)*	Dr. A. Kofide
November	Adult Testicular Non-Seminoma Germ Cell Tumor Cases Treated by Surgery Only (1980-1998) (MR Numbers)**	Dr. S. Bazarbashi
	Breast Cancer Cases with All Relevant Information (1975-1998) (MR Numbers) and Breakdown by Age, Histology, Grade, Stage, Tumor Size, Number Lymph Nodes Positive, Metastatic Sites and Surgery Type	Dr. A. Tulbah

Appendix A (cont'd)

November (cont'd)

Pediatric Non-Hodgkin's Lymphoma Cases with Age at Diagnosis (1991-present) (MR Numbers)	Dr. R. Sabbah
Non-Metastatic Breast Cancer Cases (1980-1995) (MR Numbers)*	Dr. G. Bryant
Pediatric Osteosarcoma Cases (1994-1998) (MR Numbers)	Dr. I. Fawaz
Thyroid Non-Hodgkin's Lymphoma Cases (1975-1995) (MR Numbers)	Dr. A. Belal
Multiple Myeloma Cases with Age, Sex, Date of Diagnosis and Region where Diagnosed (1998-present) (MR Numbers)	Dr. F. Al Sharif

December

Brain Non-Hodgkin's Lymphoma Cases (1997-1998) (MR Numbers)*	Dr. G. El Hussein
Pediatric Cancer Cases by Site and Histology (1998-present) (MR Numbers) (Update of Previous Request)	Dr. H. Solh
Last 50 Deaths from Cervical Carcinoma (MR Numbers)	Dr. A. Nixon
Pediatric Wilm's Tumor (1999), Rhabdomyosarcoma 1993-1999) and Malignant Germ Cell Tumor (1997-present) Cases (MR Numbers)	Dr. I. Fawaz

IV. 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.

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

Non-Analytic Cases: Cases diagnosed elsewhere and received all of their first course of treatment elsewhere.

Case: A diagnosis or finished abstract. A patient who has more than one primary is reported as multiple cases.

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

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

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

SEER (Surveillance, Epidemiology and End Results) Summary Staging:

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/or lymph nodes 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.

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

T+N+M = Stage

T: Extent of primary tumor

N: Extent of regional lymph node involvement

M: Distant Metastasis

Clinical Stage: Classification based on the evidence acquired before treatment. Such evidence arises from physical examination, imaging, endoscopy, biopsy, surgical exploration and other relevant findings.

Pathologic Stage: Classification based on the evidence acquired before treatment, supplemented or modified by the additional evidence acquired from surgery and from pathologic examination of the resected specimen.

