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

1998
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 patient with cancer. In addition, nearly everyone associated with the hospital comes in contact with the cancer patient 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 Oncology
Home Health Care

Tumor Registry Staff:

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1998 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 37,954 malignant cases seen at KFSH&RC from June 1975 through December 31, 1998, 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 staffed with four 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 1998, the Tumor Registry supported 62 data requests (see Appendix A for a listing of requests for Tumor Registry data). It also identified and reported to the National Cancer Registry 2,527 cases seen in 1998 that were diagnosed on or after 01 January 1994.

FIGURE 1-A

PATIENT NAMEPLATE

KING FAISAL SPECIALIST HOSPITAL AND RESEARCH CENTRE

CANCER REGISTRY WORKSHEET
(CanSur 3.0)

PF 10 TACS – ACCESSION FILE MAINTENANCE

ACCESSION NUMBER (ACSN) : 8 7 0 1 2 3

TUMOR SEQUENCE (SEQ) : 0 0

Malignant/In situ tumors	Benign tumors
00 - One primary only	XX - One primary only
01 - First of two or more	AA - First of two or more
....	....
98 - 98th or later primary	181 - 8th or later primary
99 - Unspecified sequence	8 - Unspecified sequence

THIS CANCER ACCESSION YEAR : 8 7

MEDICAL RECORD NO. : 3 9 4 6 5 7

CASE STATUS : 3

0 - Suspense
1 - Incomplete
3 - Completed per Release 3

PATIENT NAME

Last : _____

First : _____

Second : _____

Third : _____

ADDRESS AT DIAGNOSIS

P.O. Box _____

Riyadh
City

R Y
Prov.

ZIP Code: _____ - _____

PF 11 TPAT – PATIENT IDENTIFICATION

SAUDI ID : 1 2 3 4 5 _____

BIRTHDATE: 0 1 / 0 1 / 1 9 4 6

AGE AT DX : 0 4 1

SEX : 2

1 - Male (2) Female 9 - Unknown

NATIONALITY : 0 0

(00) Saudi	04 - Yemeni	08 -
01 - Aman, Can, Brit	05 - Other Arab	09 - Other
02 - Egyptian	06 - Ind, Pak	
03 - Leb, Syr, Pal	07 - African	

MARITAL STATUS AT DX : 2

1 - Single	3 - Separated	5 - Widowed
(2) Married	4 - Divorced	9 - Unknown

RELIGION : 0 1

(01) Muslim	03 - Hindu	06 - Other
02 - Christian	04 - Buddhist	99 - Unknown

ALCOHOL USAGE : 3

1 - Current alcohol usage (3) - Never used alcohol
2 - Past history of alcohol usage 9 - Unknown

FAMILY HISTORY OF CANCER : 1

(1) Family history of cancer 9 - Unknown
2 - No family history of cancer

SMOKING/CHEWING HISTORY 3

1 - Current smoker cig.	5 - Shamma
2 - Past smoker	6 - Shisha
(3) Patient never smoked	7 - Combo
4 - Ghat	8 - Other
	9 - Unknown

TOTAL PACK YEARS : _____

INDUSTRY : _____

OCCUPATION : Teacher

DATE ADMITTED: (mm/dd/yyyy) 0 1 / 2 0 / 1 9 8 7

DATE DISCHARGED: (mm/dd/yyyy) 0 2 / 1 5 / 1 9 8 7

REPORTING SOURCE : 1

(1) Inpatient	4 - Physician's office	7 - Death Cert.
2 - Clinic/outpatient	5 - Nursing home	9 - Unknown
3 - Laboratory	6 - Autopsy	

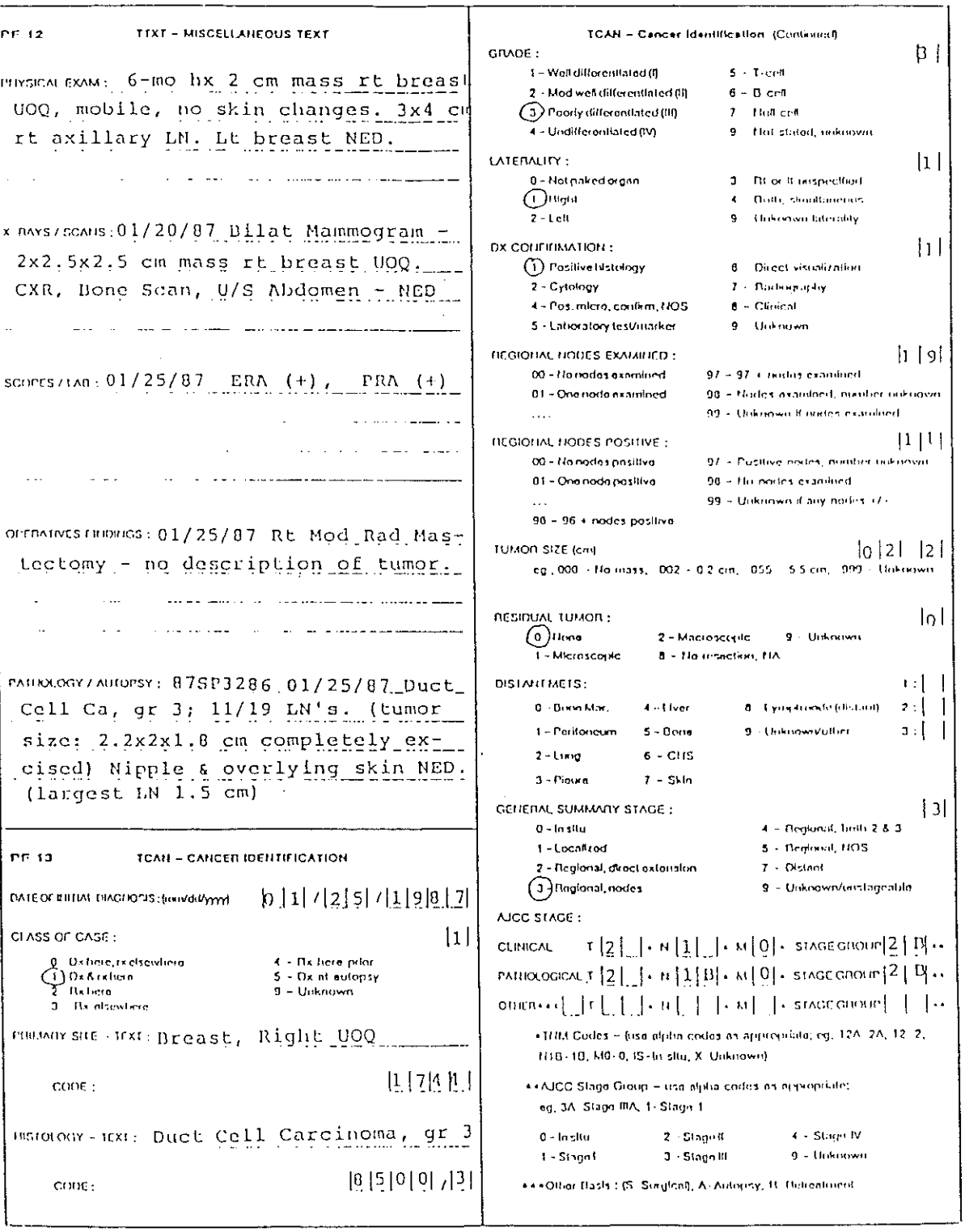
HOSPITAL REFERRED FROM : 0 0 0 0 1 0 1

Riyadh Central Hospital

HOSPITAL REFERRED TO _____

Form 380-13 (Rev. 3-10)

FIGURE 1-B



PF 12 TTXT – MISCELLANEOUS TEXT

PHYSICAL EXAM: 6-mo hx 2 cm mass rt breast UOQ, mobile, no skin changes. 3x4 cm rt axillary LN. Lt breast NED.

X RAYS / SCANS: 01/20/87 Bilat Mammogram – 2x2.5x2.5 cm mass rt breast UOQ. CXR, Bone Scan, U/S Abdomen – NED

SCORES / LAB: 01/25/87 ERA (+), PRA (+)

OPERATIVES FINDINGS: 01/25/87 Rt Mod Rad Mastectomy – no description of tumor.

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)

PF 13 TCAN – CANCER IDENTIFICATION

DATE OF INITIAL DIAGNOSIS (mm/dd/yyyy): 01/25/1987

CLASS OF CASE: 1

0 Dx here, rx elsewhere
1 Dx & rx here
2 Rx here
3 Rx elsewhere
4 Dx here prior
5 Dx at autopsy
9 Unknown

PRIMARY SITE – TEXT: Breast, Right UOQ

CODE: 174 1

HISTOLOGY – TEXT: Duct Cell Carcinoma, gr 3

CODE: 8500/3

TCAN – Cancer Identification (Continued)

GRADE: 3

1 – Well differentiated (I)
2 – Mod well differentiated (II)
3 – Poorly differentiated (III)
4 – Undifferentiated (IV)
5 – T-cell
6 – B-cell
7 – Null cell
9 – Not stated, unknown

LATERALITY: 1

0 – Not paired organ
1 – Right
2 – Left
3 – Rt or lt unspecified
4 – Both, simultaneous
9 – Unknown laterality

DX CONFIRMATION: 1

1 – Positive histology
2 – Cytology
4 – Pos. micro. confirm. NOS
5 – Laboratory test/marker
6 – Direct visualization
7 – Radiography
8 – Clinical
9 – Unknown

REGIONAL NODES EXAMINED: 19

00 – No nodes examined
01 – One node examined
...
97 – 97 + nodes examined
98 – Nodes examined, number unknown
99 – Unknown if nodes examined

REGIONAL NODES POSITIVE: 11

00 – No nodes positive
01 – One node positive
...
96 – 96 + nodes positive
97 – Positive nodes, number unknown
98 – No nodes examined
99 – Unknown if any nodes +/-

TUMOR SIZE (cm): 022

eg, 000 – No mass, 002 – 0.2 cm, 055 – 5.5 cm, 999 – Unknown

RESIDUAL TUMOR: 0

0 – None
1 – Microscopic
2 – Macroscopic
8 – No resection, NA
9 – Unknown

DISTANT METS: 1: 2: 3:

0 – Bone Mar.
1 – Peritoneum
2 – Lung
3 – Pleura
4 – Liver
5 – Bone
6 – CNS
7 – Skin
8 – Lymph node (distant)
9 – Unknown/other

GENERAL SUMMARY STAGE: 3

0 – In situ
1 – Localized
2 – Regional, direct extension
3 – Regional, nodes
4 – Regional, both 2 & 3
5 – Regional, NOS
7 – Distant
9 – Unknown/unstageable

AJCC STAGE:

CLINICAL T 2 • N 1 • M 0 • STAGE GROUP 2 ••

PATHOLOGICAL T 2 • N 1B • M 0 • STAGE GROUP 2 ••

OTHER ••• T • N • M • STAGE GROUP ••

• TNM Codes – (use alpha codes as appropriate; eg, 12A 2A, 12 2, N1B-10, M0-0, IS-In situ, X Unknown)

•• AJCC Stage Group – use alpha codes as appropriate; eg, 3A Stage IIIA, 1 Stage 1

0 – In situ
1 – Stage I
2 – Stage II
3 – Stage III
4 – Stage IV
9 – Unknown

••• Other Basis: (S Surgical), A Autopsy, N Non-treatment

FIGURE 1-C

PF 14 TRX1 – 1ST COURSE TREATMENT (SURGERY, RADIATION)

SURGERY

REASON : |0|

(0) Can directed surg performed
1 - Not recommended
2 - Contraindicated, other
6 - Reason unknown, no surg
7 - Patient/guardian refused
8 - Recommended, unk if done
9 - unknown

SUMMARY : (Entire 1st course)* |5|0|

AT THIS HOSPITAL : |5|0|

* Refer to Appendix A in CanSur User Manual for site specific codes.

STARTED: (mm/dd/yyyy) |0|1|/|2|5|/|1|9|8|7|

TEXT: Rt Mod Rad Mastectomy w/ Rt Axillary Dissection

RADIATION

SUMMARY :

AT THIS HOSPITAL |1|

0 - No Radiation therapy
(1) Beam radiation
2 - Radioactive implants
3 - Radioisotopes
4 - Combi 1 + 2 or 3
5 - Radiation therapy, NOS
7 - Patient/guardian refused
8 - Recommended, unk if done
9 - Unknown

|1|

STARTED: (mm/dd/yyyy) |0|8|/|2|9|/|1|9|8|7|

TO BRAIN & CNS : (Lung & leukemia cases only) |9|

0 - None to CNS
1 - Radiation therapy
7 - Patient/guardian refused
8 - Recommended, unk if done
(9) Unknown/not applicable

RADIATION/SURGERY SEQ: |3|

0 - Not applicable
2 - Radiation before surgery
(3) Radiation after surgery
4 - Before & after surgery
5 - Intraoperative radiation
6 - Intraoperative plus 2, 3 or 4
9 - Sequence unknown

TEXT: Chest Wall 6000

PF 15 TRX2 – SUB. THERAPY

	Started mm/dd/yyyy	Course	Type	Code	Desc.
1.	| | |/| | |/| | | |	| |	| |	| |	
2.	| | |/| | |/| | | |	| |	| |	| |	
3	| | |/| | |/| | | |	| |	| |	| |	

PF 16 TRX3 – 1st COURSE TREATMENT (CHEMO, HORMONES, BRM, OTHER)

CHEMOTHERAPY

SUMMARY : |3|

AT THIS HOSPITAL : |3|

0 - No chemotherapy
1 - Chemotherapy, NOS
2 - Chemotherapy, single agent
(3) Chemotherapy, multi-agent combination
7 - Patient/guardian refused
8 - Recommended, unk if done
9 - Unknown

STARTED: (mm/dd/yyyy) |0|2|/|1|3|/|1|9|8|7|

TEXT: 5-FU, Adria, Ctx

HORMONE/STEROIDS

SUMMARY : |1|

AT THIS HOSPITAL : |1|

0 - No hormonal therapy
(1) Hormonal therapy
2 - Endocrine surg/radiation
3 - Hormones + endcr surg/rad
7 - Patient/guardian refused
8 - Recommended, unk if done
9 - Unknown

STARTED: (mm/dd/yyyy) |0|2|/|0|9|/|1|9|8|7|

TEXT: Tamoxifen

BIO-RESPONSE MODIFIER (BRM)

SUMMARY : |0|

AT THIS HOSPITAL : |0|

(0) No BRM
1 - BRM
2 - Allo BMT
3 - Auto BMT
7 - Patient/guardian refused
8 - Recommended, unk if done
9 - Unknown

STARTED: (mm/dd/yyyy) | | |/| | |/| | | | |

TEXT:

OTHER RX

SUMMARY : |0|

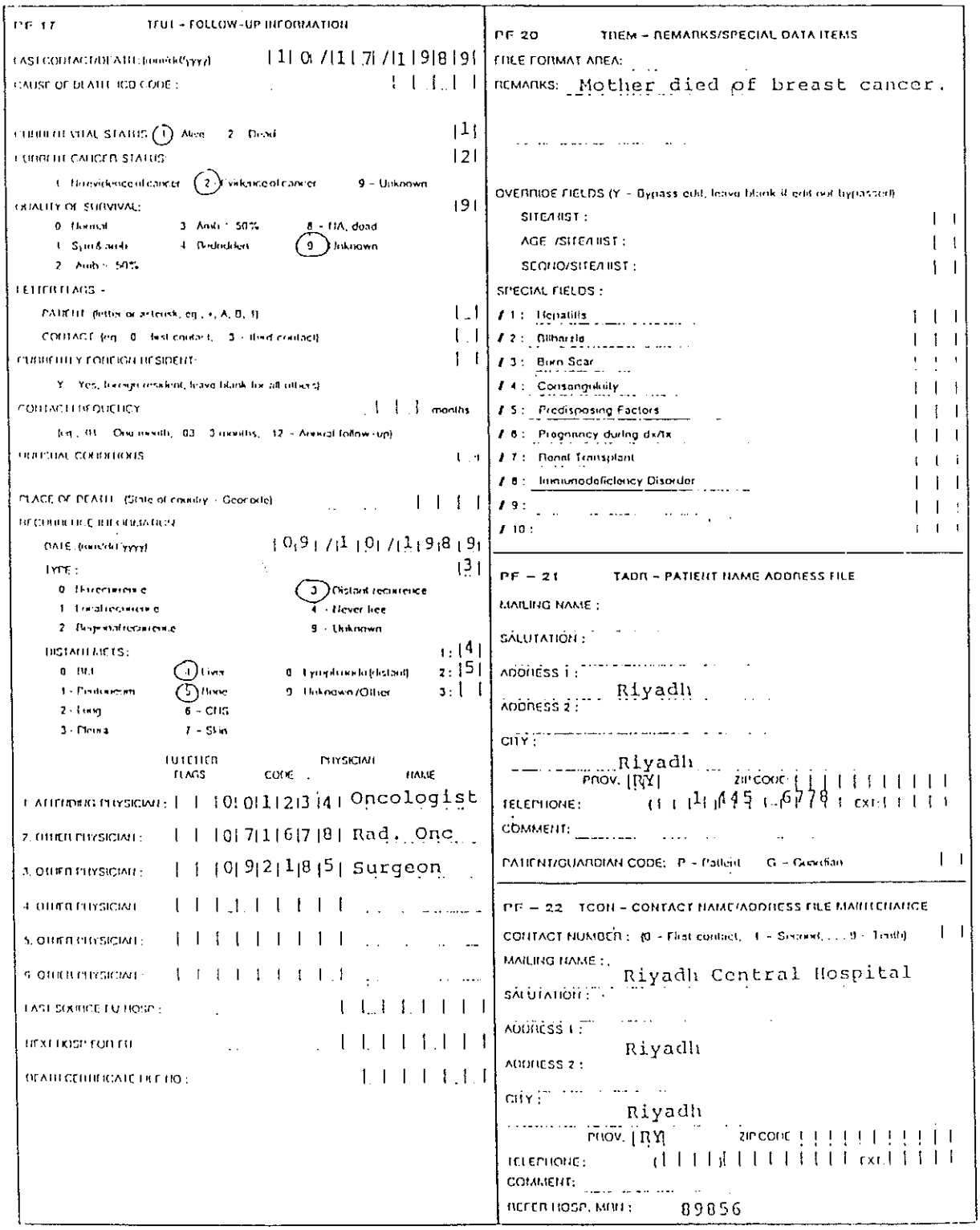
AT THIS HOSPITAL : |0|

(0) No other cancer directed rx
1 - Other ca-directed rx
2 - Experimental ca rx
3 - Double-blind study
6 - Unproven therapy
7 - Patient/guardian refused
8 - Recommended, unk if done
9 - Unknown

STARTED: (mm/dd/yyyy) | | |/| | |/| | | | |

TEXT:

FIGURE 1-D



PF 17 TFUI – FOLLOW-UP INFORMATION

LAST CONTACT/DEATH (mm/dd/yyyy) | 1 | 0 | / | 1 | 7 | / | 1 | 9 | 8 | 9 |

CAUSE OF DEATH ICD CODE :

CURRENT VITAL STATUS (1) Alive 2 Dead | 1 |

CURRENT CANCER STATUS | 2 |

1 No evidence of cancer (2) Evidence of cancer 9 Unknown

QUALITY OF SURVIVAL: | 9 |

0 Normal 3 Ambl < 50% 8 ITA, dead

1 Symptomatic 4 Bedridden (9) Unknown

2 Ambl > 50%

LETTER FLAGS -

PATIENT (letter or asterisk, eg , *, A, B, 1) | |

CONTACT (eg 0 last contact, 3 = third contact) | |

CURRENTLY FOREIGN RESIDENT | |

Y Yes, foreign resident, leave blank for all others)

CONTACT FREQUENCY | | | months

(eg , 01 One month, 03 3 months, 12 = Annual follow-up)

CLINICAL CONDITIONS | |

PLACE OF DEATH (State of country - Geocode) | | | |

RECURRENCE INFORMATION

DATE (mm/dd/yyyy) | 0 | 9 | / | 1 | 0 | / | 1 | 9 | 8 | 9 |

TYPE : | 3 |

0 Recurrence 3 Distant recurrence

1 Local recurrence 4 Never free

2 Regional recurrence 9 Unknown

DISTANT METS : 1 : | 4 |

0 Bld (1) Liver 6 Lymphnode(distant) 2 : | 5 |

1 Peritoneum (5) Bone 9 Unknown/Other 3 : | |

2 Lung 6 CNS

3 Pleura 7 Skin

	LETTER FLAGS	PHYSICIAN CODE	PHYSICIAN NAME
1. ATTENDING PHYSICIAN :		0 0 1 2 3 4	Oncologist
2. OTHER PHYSICIAN :		0 7 1 6 7 8	Rad. Onc
3. OTHER PHYSICIAN :		0 9 2 1 8 5	Surgeon
4. OTHER PHYSICIAN :			
5. OTHER PHYSICIAN :			
6. OTHER PHYSICIAN :			

LAST SOURCE TO HOSP : | | | | | | |

NEXT HOSP FOLLOW : | | | | | | |

DEATH CERTIFICATE FILE NO : | | | | | | |

PF 20 TREM – REMARKS/SPECIAL DATA ITEMS

FILE FORMAT AREA:

REMARKS: Mother died of breast cancer.

OVERRIDE FIELDS (Y – Bypass edit, leave blank if edit not bypassed)

SITE/HIST : | |

AGE /SITE/HIST : | |

SEX/NO/SITE/HIST : | |

SPECIAL FIELDS :

# 1 :	Hepatitis			
# 2 :	Bilharzia			
# 3 :	Burn Scar			
# 4 :	Consanguinity			
# 5 :	Predisposing Factors			
# 6 :	Pregnancy during dx/tx			
# 7 :	Renal Transplant			
# 8 :	Immunodeficiency Disorder			
# 9 :				
# 10 :				

PF – 21 TADR – PATIENT NAME ADDRESS FILE

MAILING NAME :

SALUTATION :

ADDRESS 1 :

ADDRESS 2 : Riyadh

CITY :

Riyadh

PROV. | RY | ZIP CODE | | | | | | | | | |

TELEPHONE: (| | | 1 | | | 4 | 5 | – | 6 | 7 | 7 | 8 | EXT: | | | | |

COMMENT:

PATIENT/GUARDIAN CODE: P – Patient G – Guardian | |

PF – 22 TCON – CONTACT NAME/ADDRESS FILE MAINTENANCE

CONTACT NUMBER : (0 – First contact, 1 – Second, ... 9 – Tenth) | |

MAILING NAME : Riyadh Central Hospital

SALUTATION :

ADDRESS 1 : Riyadh

ADDRESS 2 :

CITY : Riyadh

PROV. | RY | ZIP CODE | | | | | | | | | |

TELEPHONE: (| | | | | | | | | | | | EXT: | | | | |

COMMENT:

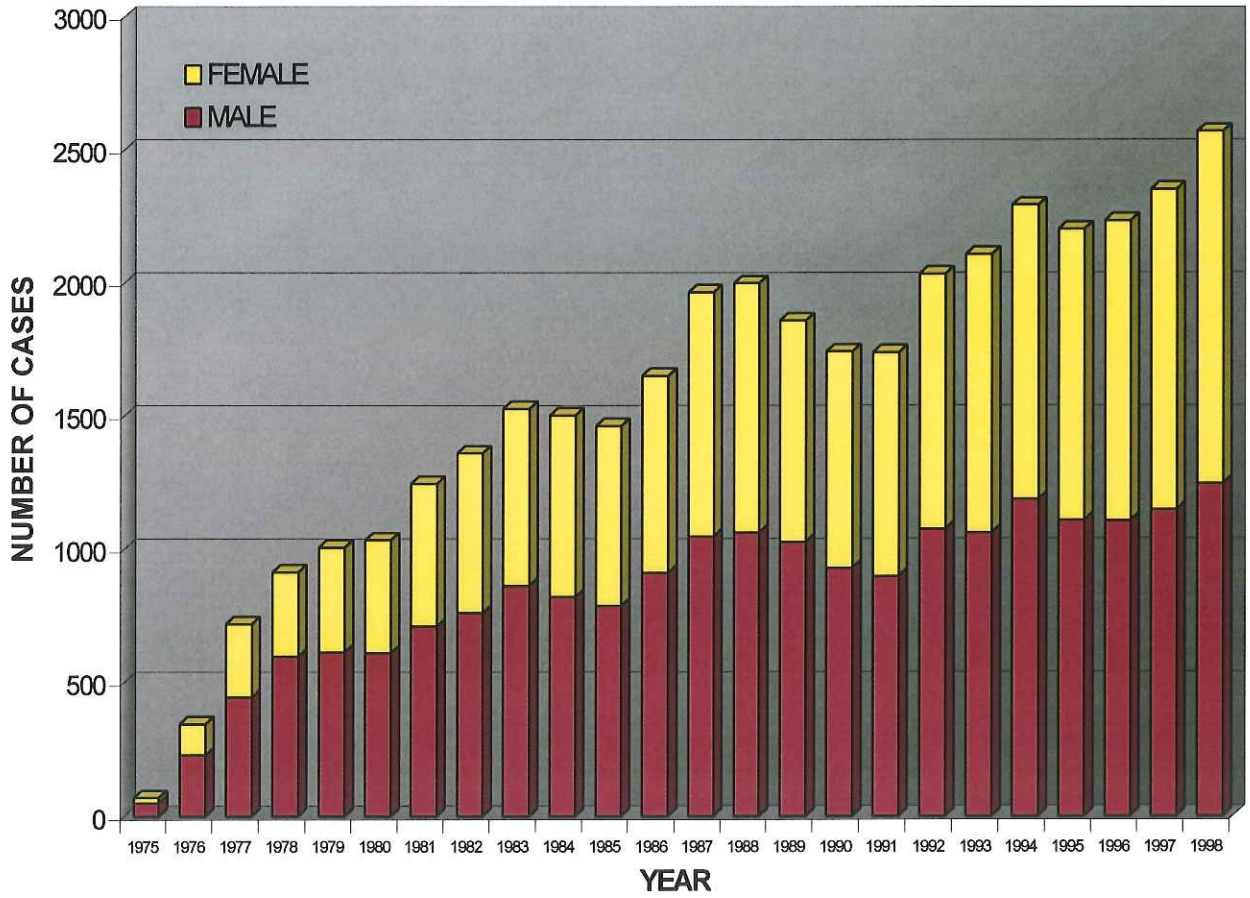
REFER HOSP. MNH : 89856

II. KFSH&RC *CANCER* PATIENT POPULATION

A total of 2,570 cases were accessioned in 1998, with 1,247 males and 1,323 females or a male/female ratio of 0.9:1. This represents a 9.3% increase from 1997.

FIGURE 2

DISTRIBUTION OF ALL CASES ACCESSIONED BY YEAR
1975 - 1998 (TOTAL CASES = 37,954)



From the opening of the hospital (mid 1975) until December 1998, 37,954 cancer cases were registered (20,321 males and 17,633 females) with a male/female ratio of 1.2:1. There were 4,927 (13.0%) pediatric cases (0 to 14 years of age) and 33,027 (87.0%) adults (15 years old and above). A small difference in the proportion was noted in 1998, 15.2% (390) for pediatrics and 84.8% (2,180) for adults.

TABLE 1

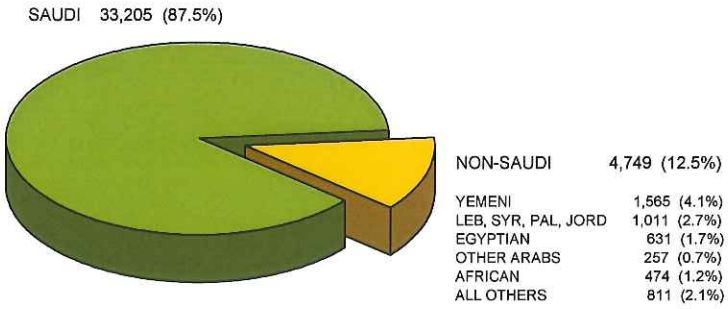
ALL CASES SEEN AT KFSH&RC (MALE/FEMALE & PEDIATRICS/ADULTS) BY 5-YEAR PERIOD
1975 - 1998

	1975-1976*	1977-1981	1982-1986	1987-1991	1992-1996	1997-1998**	TOTAL
MALE	280	2,981	4,149	4,970	5,545	2,396	20,321
FEMALE	135	1,946	3,358	4,338	5,330	2,526	17,633
TOTAL	415	4,927	7,507	9,308	10,875	4,922	37,954
M/F RATIO	2.1:1	1.5:1	1.2:1	1.2:1	1.0:1	1.0:1	1.2:1
PEDIATRICS***	55	593	984	1,161	1,390	744	4,927
(%)	13.2%	12.0%	13.1%	12.5%	12.8%	15.1%	13.0%
ADULTS	360	4,334	6,523	8,147	9,485	4,178	33,027
(%)	86.8%	88.0%	86.9%	87.5%	87.2%	84.9%	87.0%
TOTAL	415	4,927	7,507	9,308	10,875	4,922	37,954

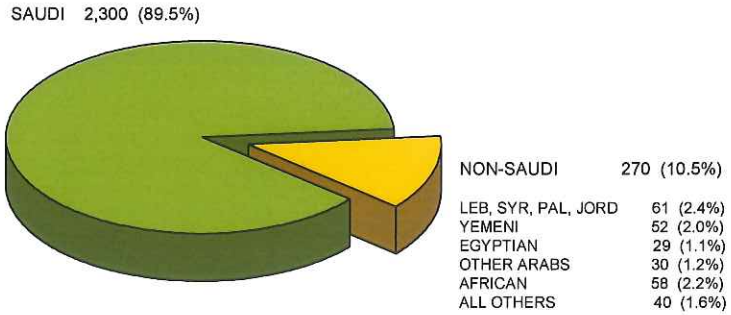
* First two years of KFSH&RC partial operation.
** Two years data only.
*** Pediatrics = 0 to 14 years of age; Adults = 15 years and above.

FIGURE 3

DISTRIBUTION OF ALL CASES BY NATIONALITY
1975 - 1998 (TOTAL CASES = 37,954)



1998 (TOTAL CASES = 2,570)



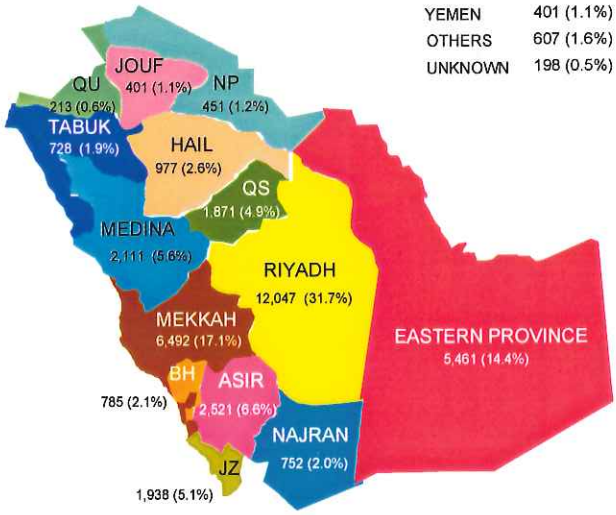
Saudi nationals totaled 2,300 (89.5%) in 1998 and the non-Saudi, 270 (10.5%). During the period 1975 to 1998, the former accounted for 87.5% (33,205) while the latter, 12.5% (4,749).

Geographically, the referral pattern in 1998 is mainly from the Riyadh Region with 34.4% of all cases, followed by the Eastern Province and the Mekkah Region with 17.6% and 12.1%, respectively. These same regions had the highest number of cases during the 24 years in review, i.e., 31.7% from Riyadh, 17.1% from Mekkah and 14.4% from the Eastern Province.

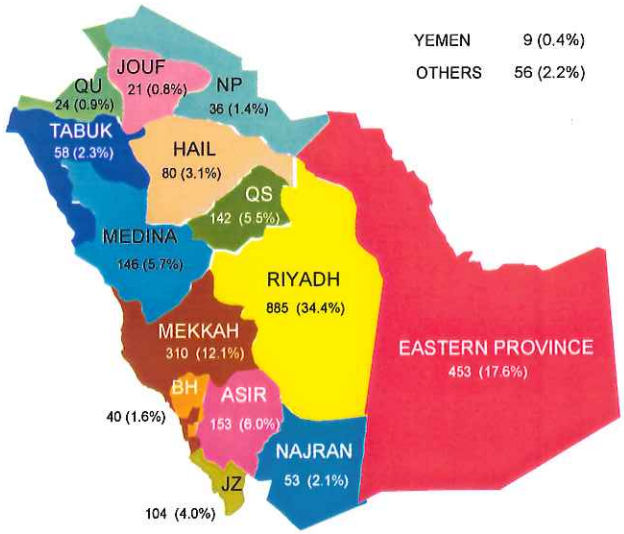
These percentages reflect the KFSH&RC actual experience rather than adjusted to reflect the population of those regions.

FIGURE 4

DISTRIBUTION OF CASES BY REGION
(Based on Given Address at Time of Diagnosis)
1975 - 1998 (TOTAL CASES = 37,954)



1998 (TOTAL CASES = 2,570)



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 1998 with 9.6%, followed by Leukemia (8.5%), Non-Hodgkin's Lymphoma (8.3%), Thyroid (5.6%) and Oral Cavity (5.3%).

FIGURE 5

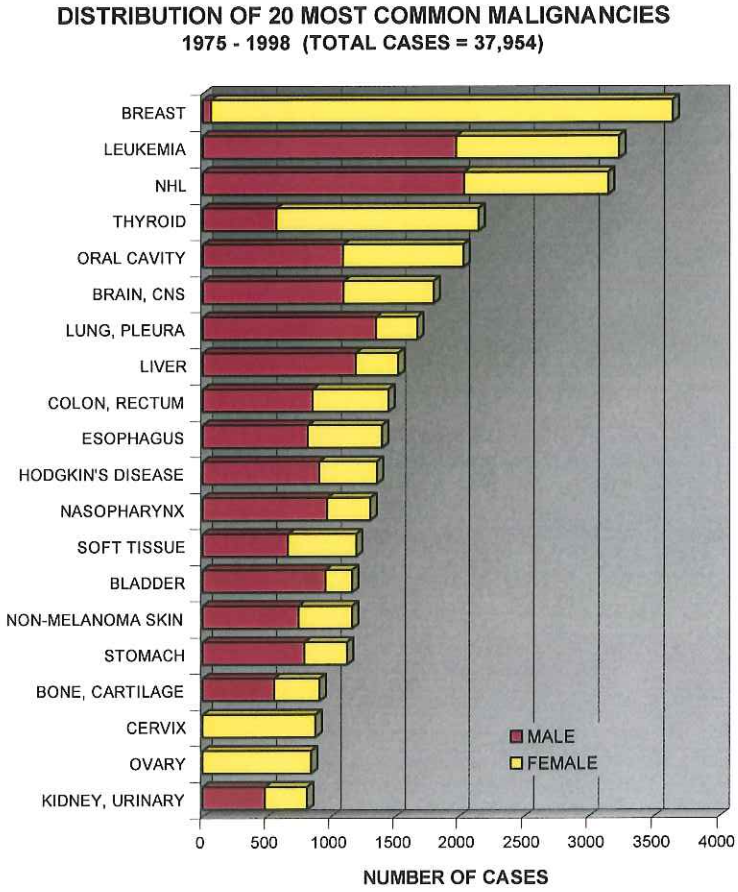


TABLE 2

TEN MOST COMMON MALIGNANCIES BY THE MOST COMMON AGE GROUP AT DIAGNOSIS

1975 - 1998

SITE	AGE GROUP	No.	%
Breast	40 - 49	1,121	30.8%
	30 - 39	953	26.2%
	50 - 59	734	20.2%
	60 - 69	384	10.6%
	20 - 29	266	7.3%

SITE	AGE GROUP	No.	%
Brain, CNS	00 - 09	622	34.6%
	10 19	349	19.4%
	20 - 29	186	10.4%
	50 - 59	174	9.7%
	30 - 39	171	9.5%

SITE	AGE GROUP	No.	%
Leukemia	00 - 09	1,037	32.2%
	10 19	601	18.6%
	20 - 29	389	12.1%
	30 - 39	378	11.7%
	40 - 49	283	8.8%

SITE	AGE GROUP	No.	%
Lung, Pleura	60 - 69	555	33.4%
	50 - 59	426	25.6%
	70 - 79	286	17.2%
	40 - 49	218	13.1%
	30 - 39	83	5.0%

SITE	AGE GROUP	No.	%
Non-Hodgkin's Lymphoma	60 - 69	512	16.3%
	50 - 59	489	15.6%
	00 - 09	436	13.9%
	40 - 49	408	13.0%
	30 - 39	328	10.4%

SITE	AGE GROUP	No.	%
Liver	60 - 69	480	31.7%
	50 - 59	409	27.0%
	70 - 79	242	16.0%
	40 - 49	195	12.9%
	30 - 39	64	4.2%

SITE	AGE GROUP	No.	%
Thyroid	30 - 39	490	22.9%
	20 - 29	434	20.3%
	40 - 49	366	17.1%
	50 - 59	307	14.3%
	60 - 69	246	11.5%

SITE	AGE GROUP	No.	%
Colon, Rectum	50 - 59	327	22.7%
	60 - 69	326	22.6%
	40 - 49	246	17.1%
	30 - 39	197	13.7%
	70 - 79	176	12.2%

SITE	AGE GROUP	No.	%
Oral Cavity	60 - 69	499	24.6%
	50 - 59	466	23.0%
	70 - 79	355	17.5%
	40 - 49	264	13.0%
	30 - 39	162	8.0%

SITE	AGE GROUP	No.	%
Esophagus	60 - 69	438	31.5%
	70 - 79	304	21.9%
	50 - 59	301	21.6%
	40 - 49	138	9.9%
	80 - 89	109	7.8%

Cancer among pediatrics (under the age of 15) accounted for 13.0% of all cases from 1975 to 1998. The five most common pediatric malignancies were Leukemia (27.1%), Lymphoma (19.1%)[NHL 10.9% and HD 8.2%], Brain/CNS (17.0%), Soft Tissue (8.3%) and Eye (6.9%).

FIGURE 6

DISTRIBUTION OF 10 MOST COMMON PEDIATRIC MALIGNANCIES, 1975 - 1998 (TOTAL CASES = 4,927)

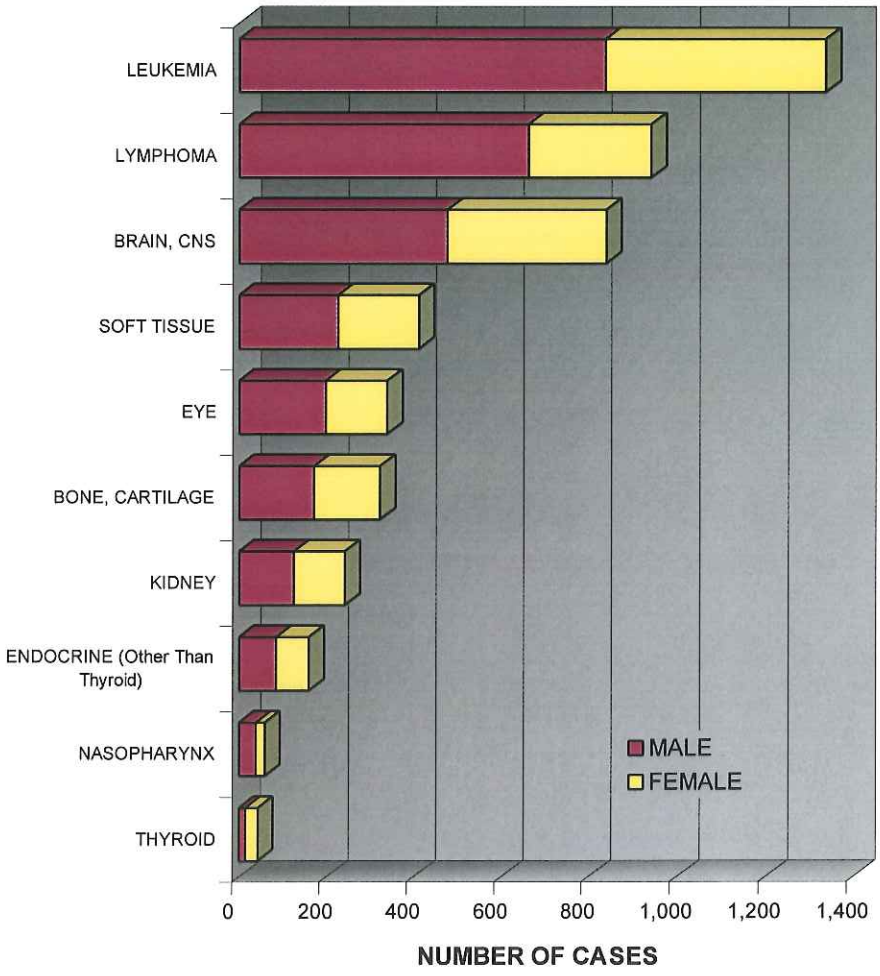


FIGURE 7

DISTRIBUTION OF 10 MOST COMMON PEDIATRIC MALIGNANCIES BY HISTOLOGY

1975 - 1998 (TOTAL CASES = 4,927)

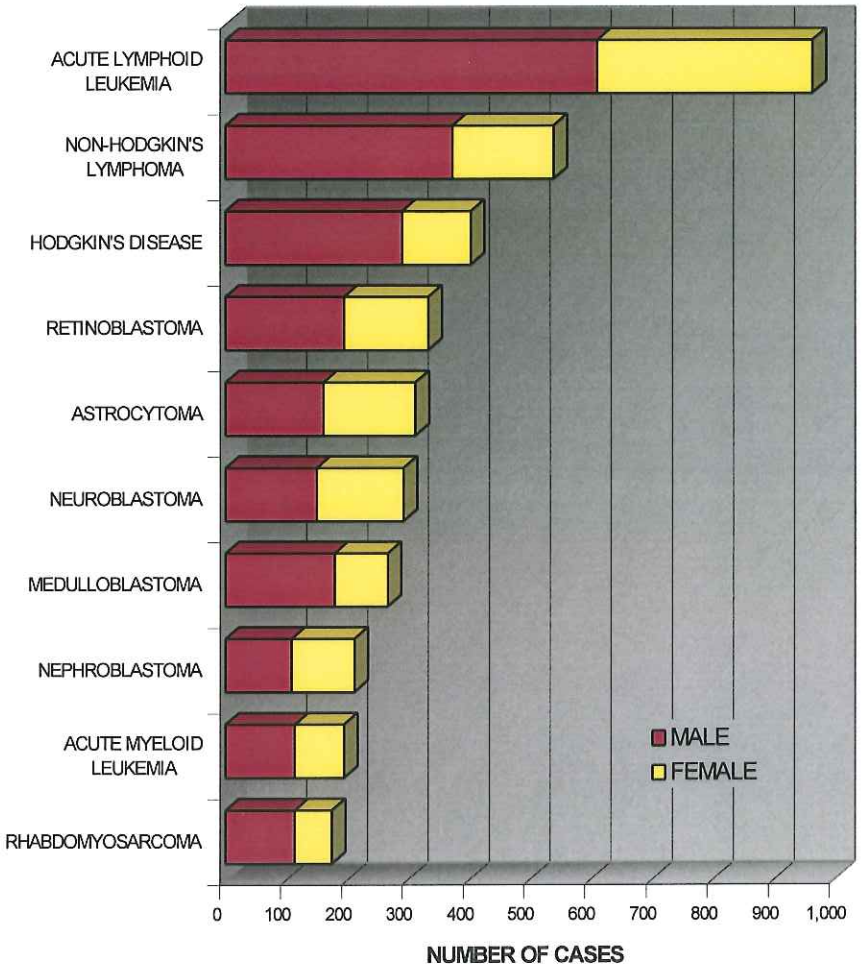


TABLE 3

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

1975 - 1998

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	TOTAL
Oral Cavity	1	14	33	79	69	71	58	80	101	76	104	76	96	129	104	103	103	112	98	97	121	105	112	86	2,028
Nasopharynx	3	11	38	34	37	35	48	46	65	46	45	49	80	65	62	62	62	53	59	58	62	86	88	107	1,301
Esophagus	1	15	51	62	67	67	57	62	77	78	56	69	76	66	68	72	66	69	47	50	50	52	51	62	1,391
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	1,120
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	117	1,440
Liver	7	15	33	44	49	33	41	54	53	64	57	84	78	71	68	55	66	76	82	103	102	103	95	82	1,515
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	435
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	28	420
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	540
Lung, Pleura	3	11	24	34	45	39	56	62	75	74	86	84	83	107	92	75	84	82	89	92	86	86	89	106	1,664
Multiple Myeloma	0	5	6	11	7	9	7	13	9	12	14	13	24	20	29	13	24	24	23	32	25	20	10	21	371
Lymphoid Leukemia	4	14	15	38	32	38	53	69	66	48	59	84	92	77	75	55	74	79	89	71	87	90	113	127	1,549
Myeloid Leukemia	3	13	23	47	54	42	65	55	44	75	59	73	90	73	76	72	74	60	96	88	116	74	109	97	1,578
Other Leukemias	0	1	2	2	4	3	3	1	7	4	3	2	3	7	5	5	10	5	7	9	4	3	3	5	98
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	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	907
Soft Tissue	1	16	29	32	34	28	35	40	34	37	42	49	55	51	63	66	76	52	54	85	92	61	75	82	1,189
Skin Melanoma	0	4	4	8	8	6	7	4	11	12	7	7	11	12	6	5	9	14	8	7	6	9	5	4	174
Non-Melanoma Skin Ca	2	14	27	32	48	40	50	56	55	56	67	70	48	51	58	45	52	61	53	64	48	66	55	41	1,159
Breast	3	24	53	46	57	65	101	111	111	153	131	127	174	194	137	168	169	188	250	241	231	280	290	330	3,634
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	35	649
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	873
Ovary	2	6	10	10	17	21	20	35	31	27	24	34	41	47	53	46	36	44	55	49	54	56	61	62	841
Prostate	0	7	5	4	5	10	11	18	28	19	19	17	22	27	27	24	16	41	27	45	37	49	42	42	542
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	364
Bladder	4	7	12	24	29	39	37	23	41	35	46	51	79	74	73	60	44	65	87	71	60	56	63	80	1,160
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	810
Eye	0	6	11	19	12	24	29	34	25	17	30	24	35	43	26	30	9	16	39	26	15	22	30	16	538
Brain, CNS	3	24	27	40	26	31	31	77	53	58	49	71	88	92	98	81	84	112	88	116	127	127	132	161	1,796
Thyroid	2	8	17	28	33	44	57	51	66	71	63	82	119	112	110	93	110	141	134	157	134	160	160	191	2,143
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	211
NHL - Lymph Nodes	4	19	62	69	97	92	95	91	116	98	88	85	95	99	93	92	70	89	80	79	68	82	92	98	1,953
NHL - Extra-nodal	0	4	11	6	7	20	34	25	56	41	36	57	62	54	73	62	53	61	74	79	91	74	100	107	1,187
Hodgkin's Disease-LN	13	19	40	41	36	42	47	42	52	50	49	44	65	57	74	56	56	72	71	77	88	76	75	98	1,340
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	12
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	50	780
All Other Sites	1	3	10	6	4	7	7	12	11	8	9	6	18	14	4	12	8	10	16	12	13	10	9	8	218
TOTAL	70	345	721	915	1008	1036	1247	1361	1528	1503	1464	1651	1966	2000	1859	1743	1740	2034	2109	2294	2203	2235	2352	2570	37,954

* Includes Multiple Primary Neoplasms.

TABLE 4

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

1975 - 1998

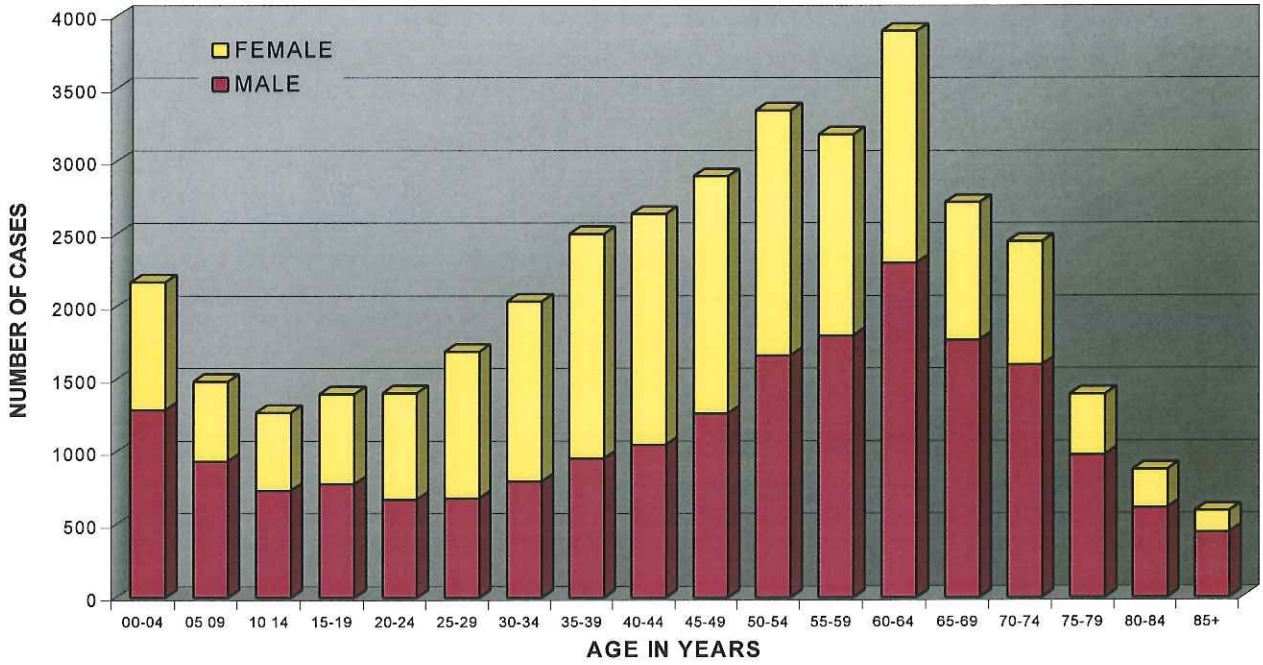
SITE	1975-1976**		1977-1981		1982-1986		1987-1991		1992-1996		1997-1998***		TOTAL	
	No	%	No	%	No	%	No	%	No	%	No	%	No	%
Oral Cavity	15	3.6%	310	6.3%	437	5.8%	535	5.8%	533	4.9%	198	4.0%	2,028	5.3%
Nasopharynx	14	3.4%	192	3.9%	251	3.3%	331	3.6%	318	2.9%	195	4.0%	1,301	3.4%
Esophagus	16	3.9%	304	6.2%	342	4.6%	348	3.7%	268	2.5%	113	2.3%	1,391	3.7%
Stomach	17	4.1%	204	4.1%	288	3.8%	249	2.7%	275	2.5%	87	1.8%	1,120	3.0%
Colon, Rectum	14	3.4%	166	3.4%	237	3.2%	357	3.8%	448	4.1%	218	4.4%	1,440	3.8%
Liver	22	5.3%	200	4.1%	312	4.2%	338	3.6%	466	4.3%	177	3.6%	1,515	4.0%
Pancreas	6	1.4%	67	1.4%	100	1.3%	88	1.0%	116	1.1%	58	1.2%	435	1.1%
Other G.I.	5	1.2%	53	1.1%	72	1.0%	101	1.1%	139	1.3%	50	1.0%	420	1.1%
Larynx	6	1.4%	70	1.4%	99	1.3%	137	1.5%	167	1.5%	61	1.2%	540	1.4%
Lung, Pleura	14	3.4%	198	4.0%	381	5.1%	441	4.7%	435	4.0%	195	4.0%	1,664	4.4%
Multiple Myeloma	5	1.2%	40	0.8%	61	0.8%	110	1.2%	124	1.1%	31	0.6%	371	1.0%
Lymphoid Leukemia	18	4.3%	176	3.6%	326	4.3%	373	4.0%	416	3.8%	240	4.9%	1,549	4.1%
Myeloid Leukemia	16	3.9%	231	4.7%	306	4.1%	385	4.1%	434	4.0%	206	4.2%	1,578	4.2%
Other Leukemias	1	0.2%	14	0.3%	17	0.2%	30	0.3%	28	0.3%	8	0.2%	98	0.3%
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	2.3%	282	2.6%	136	2.8%	907	2.4%
Soft Tissue	17	4.1%	158	3.2%	202	2.7%	311	3.3%	344	3.2%	157	3.2%	1,189	3.1%
Skin Melanoma	4	1.0%	33	0.7%	41	0.6%	43	0.5%	44	0.4%	9	0.2%	174	0.5%
Non-Melanoma Skin C	16	3.9%	197	4.0%	304	4.0%	254	2.7%	292	2.7%	96	2.0%	1,159	3.1%
Breast	27	6.5%	322	6.5%	633	8.4%	842	9.1%	1190	10.9%	620	12.6%	3,634	9.6%
Uterus, Genital	3	0.7%	66	1.3%	125	1.7%	178	1.9%	206	1.9%	71	1.4%	649	1.7%
Cervix	10	2.4%	105	2.1%	187	2.5%	213	2.3%	251	2.3%	107	2.2%	873	2.3%
Ovary	8	1.9%	78	1.6%	151	2.0%	223	2.4%	258	2.4%	123	2.5%	841	2.2%
Prostate	7	1.7%	35	0.7%	101	1.4%	116	1.2%	199	1.8%	84	1.7%	542	1.4%
Testis, Genital	4	1.0%	60	1.2%	71	0.9%	87	0.9%	104	1.0%	38	0.8%	364	1.0%
Bladder	11	2.7%	141	2.9%	196	2.6%	330	3.6%	339	3.1%	143	2.9%	1,160	3.1%
Kidney, Urinary	9	2.2%	87	1.8%	142	1.9%	196	2.1%	267	2.5%	109	2.2%	810	2.1%
Eye	6	1.4%	95	1.9%	130	1.7%	143	1.5%	118	1.1%	46	0.9%	538	1.4%
Brain, CNS	27	6.5%	155	3.1%	308	4.1%	443	4.8%	570	5.2%	293	6.0%	1,796	4.7%
Thyroid	10	2.4%	179	3.6%	333	4.4%	544	5.8%	726	6.7%	351	7.1%	2,143	5.6%
Other Endocrine	2	0.5%	26	0.5%	57	0.8%	41	0.4%	57	0.5%	28	0.6%	211	0.6%
NHL - Lymph Nodes	23	5.5%	415	8.4%	478	6.4%	449	4.8%	398	3.7%	190	3.9%	1,953	5.1%
NHL - Extra-nodal	4	1.0%	78	1.6%	215	2.9%	304	3.3%	379	3.5%	207	4.2%	1,187	3.1%
Hodgkin's Disease-L	32	7.7%	206	4.2%	237	3.2%	308	3.3%	384	3.5%	173	3.5%	1,340	3.5%
HD - Extra-nodal	0	0.0%	0	0.0%	3	0.0%	1	0.0%	7	0.1%	1	0.0%	12	0.0%
Primary Unknown	14	3.4%	126	2.6%	137	1.8%	188	2.0%	230	2.1%	85	1.7%	780	2.1%
All Other Sites	4	1.0%	34	0.7%	46	0.6%	56	0.6%	61	0.6%	17	0.3%	218	0.6%
TOTAL	415	100.0%	4,927	100.0%	7,507	100.0%	9,308	100.0%	10,875	100.0%	4,922	100.0%	37,954	100.0%

* Includes Multiple Primary Neoplasms. ** First Two Years of KFSH&RC Partial Operation. *** Two 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 1998, the mean age was 44.2, 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 - 1998 (TOTAL CASES = 37,954)



1998 (TOTAL CASES = 2,570)

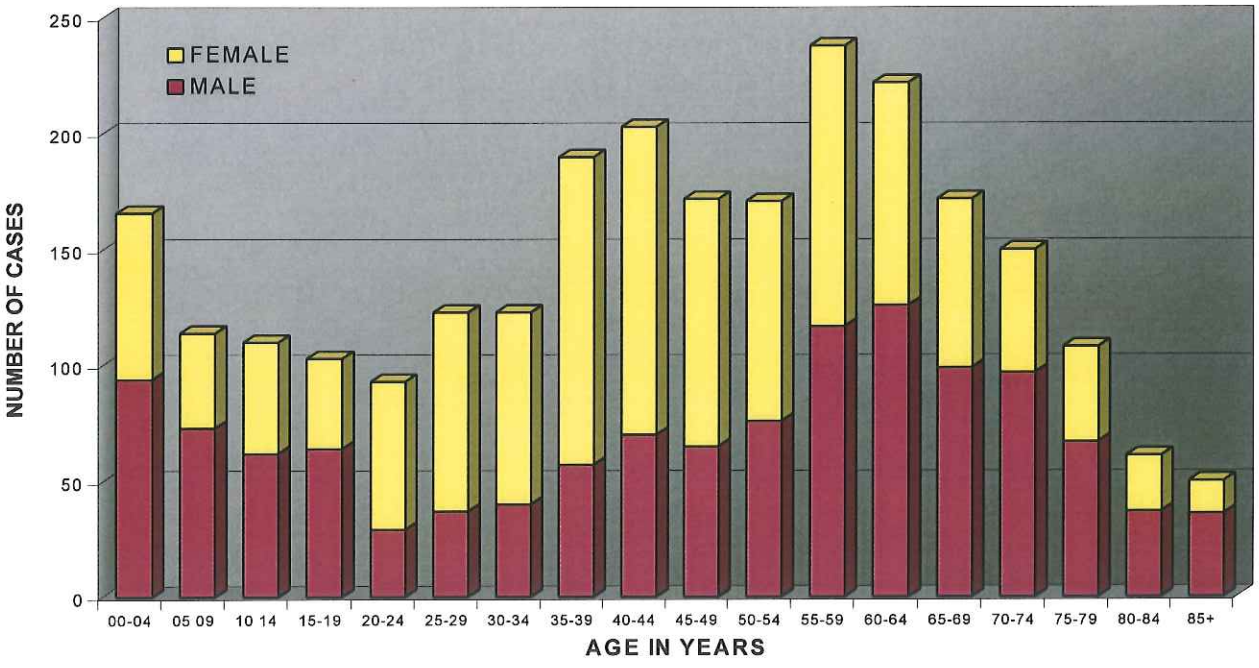
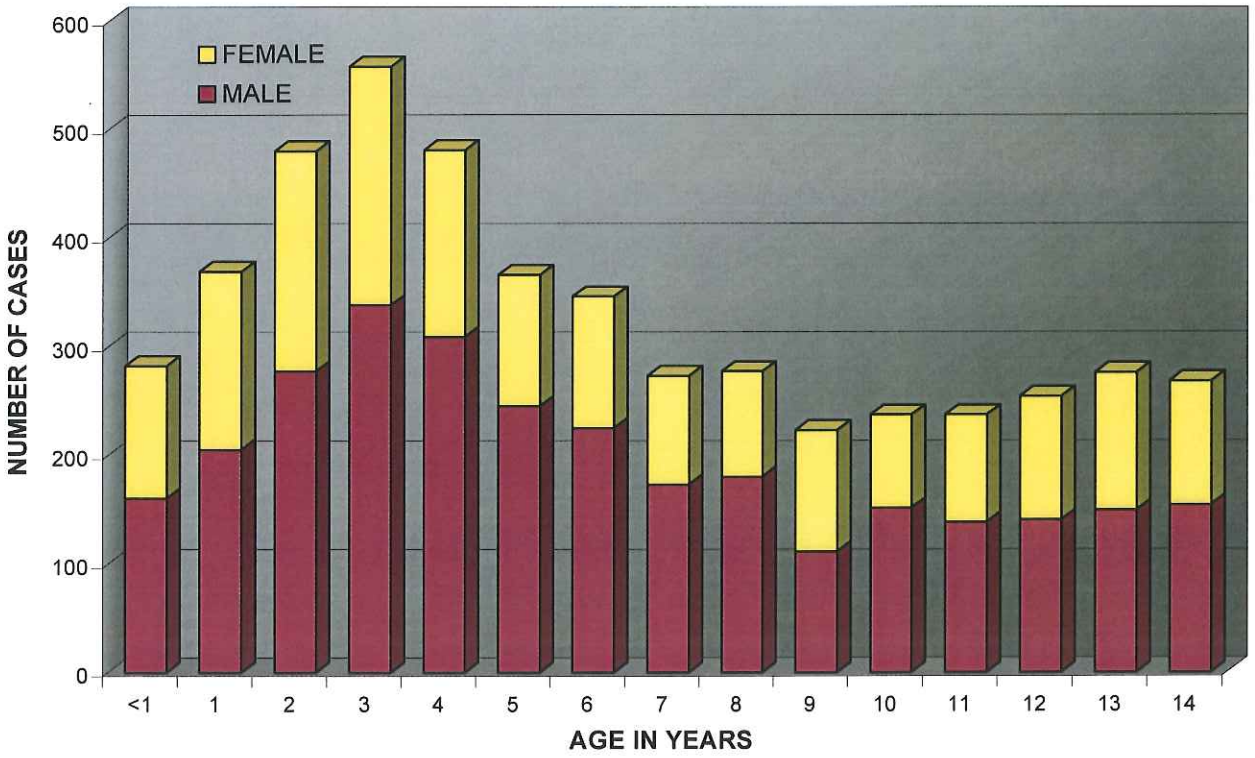


FIGURE 9

DISTRIBUTION OF ALL PEDIATRIC CASES BY AGE AT DIAGNOSIS
1975 - 1998 (TOTAL CASES = 4,927)



Of the 2,570 cases in 1998, 2,218 (86.3%) 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 352 cases (13.7%) were **non-analytic** (defined as cases diagnosed elsewhere and received all of their first course of treatment elsewhere). Out of the 2,218 analytic cases, pediatric cases totaled 344, with 197 males and 147 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

1998

SITE	TOTAL		SEX		CLASS OF CASE**		ANALYTIC CASES GENERAL SUMMARY STAGE				
	Numbe	%	Male	Female	Analyti	Non-Anal	In Situ	Localize	Regiona	Distant	Unstageable
Breast	330	12.8%	6	324	281	49	10	51	151	67	2
Leukemia	228	8.9%	131	97	190	38	0	0	0	190	0
Non-Hodgkin's Lymphoma	205	8.0%	135	70	167	38	0	24	66	76	1
Thyroid	191	7.4%	47	144	170	21	0	55	99	15	1
Brain, CNS	161	6.3%	84	77	153	8	0	100	44	5	4
Colon, Rectum	117	4.6%	60	57	84	33	0	9	47	27	1
Nasopharynx	107	4.2%	82	25	101	6	0	1	53	47	0
Lung, Pleura	106	4.1%	89	17	99	7	0	15	27	55	2
Hodgkin's Disease	98	3.8%	64	34	89	9	0	10	34	45	0
Oral Cavity	86	3.3%	35	51	77	9	0	14	54	8	1
Liver	82	3.2%	61	21	71	11	0	12	7	50	2
Soft Tissue	82	3.2%	44	38	68	14	0	27	19	22	0
Bladder	80	3.1%	68	12	61	19	7	22	14	17	1
Bone, Cartilage	70	2.7%	38	32	65	5	0	4	36	24	1
Esophagus	62	2.4%	38	24	57	5	0	17	19	17	4
Ovary	62	2.4%	0	62	51	11	0	7	1	42	1
Cervix	61	2.4%	0	61	60	1	4	12	34	10	0
Kidney, Urinary	60	2.3%	37	23	54	6	1	29	8	16	0
Primary Unknown	50	1.9%	21	29	44	6	0	0	0	0	44
Stomach	42	1.6%	35	7	37	5	0	4	23	10	0
Prostate	42	1.6%	42	0	35	7	0	14	3	18	0
Non-Melanoma Skin Ca	41	1.6%	22	19	34	7	0	22	4	8	0
Uterus, Genital	35	1.4%	0	35	24	11	0	11	9	4	0
Pancreas	34	1.3%	19	15	30	4	0	5	14	11	0
Larynx	30	1.2%	26	4	28	2	0	13	12	3	0
Other G.I.	28	1.1%	9	19	19	9	0	4	11	4	0
Multiple Myeloma	21	0.8%	12	9	20	1	0	0	0	20	0
Testis, Genital	18	0.7%	18	0	15	3	0	6	4	5	0
Eye	16	0.6%	12	4	14	2	0	6	6	1	1
Other Endocrine	11	0.4%	4	7	10	1	0	1	1	8	0
All Other Sites	9	0.4%	5	4	6	3	0	0	5	1	0
Skin Melanoma	4	0.2%	2	2	3	1	0	2	1	0	0
Reticuloendothelium	1	0.0%	1	0	1	0	0	0	0	1	0
TOTAL	2,570	100.0%	1,247	1,323	2,218	352	22	497	806	827	66

* 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

1 9 9 8

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	7	4	6	6	16	9	7	6	6	4	2	77
Nasopharynx	0	0	2	8	2	5	8	18	10	16	8	4	9	3	5	2	0	1	101
Esophagus	0	0	0	0	0	1	0	0	0	2	2	8	6	9	10	5	5	9	57
Stomach	0	0	0	0	0	1	0	3	1	1	2	5	3	6	6	1	6	2	37
Colon, Rectum	0	0	0	0	2	1	1	6	7	9	9	9	16	8	6	4	4	2	84
Liver	2	0	2	0	0	1	0	0	5	4	4	15	9	10	10	6	1	2	71
Pancreas	0	0	0	0	0	0	0	3	3	2	3	2	5	6	2	1	3	0	30
Other G.I.	1	0	0	0	0	0	0	1	2	0	1	4	3	1	2	0	4	0	19
Larynx	0	1	0	0	0	0	0	1	3	0	1	7	7	3	3	2	0	0	28
Lung, Pleura	2	0	0	0	0	1	2	3	7	3	6	13	18	15	16	7	2	4	99
Multiple Myeloma	0	0	0	0	1	0	0	0	1	2	2	4	4	3	1	0	0	2	20
Lymphoid Leukemia	41	25	13	10	3	0	3	3	1	0	2	1	0	2	0	1	1	0	106
Myeloid Leukemia	10	4	6	7	10	5	7	7	6	4	5	3	5	1		1	0	0	81
Other Leukemias	0	0	0	0	0	1	0	0	1	1	0	0	0	0	0	0	0	0	3
Reticuloendothelium	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
Bone, Cartilage	3	8	21	17	7	4	1	2	1	0	0	1	0	0	0	0	0	0	65
Soft Tissue	20	8	7	7	5	1	2	3	6	0	1	2	2	1	2	0	1	0	68
Skin Melanoma	0	0	0	0	0	0	0	0	0	1	1	0	1	0	0	0	0	0	3
Non-Melanoma Skin Ca	0	0	0	0	0	1	1	3	5	4	2	4	4	1	4	2	1	2	34
Breast	0	0	0	0	4	24	30	38	41	37	26	29	18	12	10	9	3	0	281
Uterus, Genital	0	0	0	0	1	1	0	3	1	2	3	3	0	4	3	1	1	1	24
Cervix	0	0	0	0	0	0	3	4	10	9	14	6	3	5	2	2	2	0	60
Ovary	0	0	2	0	1	1	1	3	7	4	5	5	11	2	3	4	1	1	51
Prostate	0	0	0	0	0	0	0	0	0	0	1	1	8	3	7	9	1	5	35
Testis, Genital	1	0	0	2	0	5	3	1	0	2	0	1	0	0	0	0	0	0	15
Bladder	0	0	0	0	0	0	1	4	0	3	7	6	8	10	7	7	4	4	61
Kidney, Urinary	9	2	0	1	0	1	0	1	5	4	4	6	4	2	10	4	1	0	54
Eye	12	1	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	14
Brain, CNS	30	27	19	6	8	5	6	9	8	3	8	7	5	6	1	3	2	0	153
Thyroid	0	1	4	9	18	25	19	21	13	9	12	12	15	7	3	1	1	0	170
Other Endocrine	7	1	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	10
NHL - Lymph Nodes	4	4	4	4	3	7	2	6	3	5	3	8	5	6	9	3	2	1	79
NHL - Extra-nodal	2	3	1	4	3	6	3	4	12	6	5	11	5	7	3	5	4	4	88
Hodgkin's Disease-LNs	4	12	17	15	8	8	4	3	5	2	1	3	4	0	1	2	0	0	89
HD - Extra-nodal																			
Primary Unknown	0	0	0	2	0	0	0	4	5	1	1	7	10	7	2	4	1	0	44
All Other Sites	0	0	0	1	0	0	0	1	2	0	0	0	1	1	0	0	0	0	6
TOTAL	149	97	98	95	76	108	98	162	175	142	146	203	198	148	134	92	55	42	2,218

* Includes Multiple Primary Neoplasms.

TABLE 7

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

1 9 9 8

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	0	0	1	0	1	2	3	9	5	4	2	3	2	0	32
Nasopharynx	0	0	2	5	1	3	7	11	9	13	7	4	6	2	5	2	0	0	77
Esophagus	0	0	0	0	0	0	0	0	0	1	1	4	3	7	6	3	2	8	35
Stomach	0	0	0	0	0	1	0	1	1	0	2	3	3	5	6	1	6	2	31
Colon, Rectum	0	0	0	0	2	1	0	0	5	3	4	5	7	5	3	2	3	1	41
Liver	1	0	1	0	0	0	0	0	4	1	2	14	7	7	8	5	1	2	53
Pancreas	0	0	0	0	0	0	0	1	2	0	1	1	5	4	0	1	2	0	17
Other G.I.	0	0	0	0	0	0	0	0	0	0	0	1	2	1	1	0	3	0	8
Larynx	0	1	0	0	0	0	0	0	2	0	0	6	7	3	3	2	0	0	24
Lung, Pleura	2	0	0	0	0	1	2	3	6	2	5	10	16	14	15	5	1	2	84
Multiple Myeloma	0	0	0	0	0	0	0	0	0	2	2	2	2	1	1	0	0	1	11
Lymphoid Leukemia	23	18	7	7	2	0	3	3	1	0	2	1	0	1	0	1	1	0	70
Myeloid Leukemia	7	2	4	3	2	0	2	2	2	4	3	2	2	0	0	1	0	0	36
Other Leukemias	0	0	0	0	0	1	0	0	1	1	0	0	0	0	0	0	0	0	3
Reticuloendothelium	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
Bone, Cartilage	3	5	8	12	3	2	1	1	1	0	0	1	0	0	0	0	0	0	37
Soft Tissue	11	3	5	4	0	0	1	3	3	0	1	2	1	1	1	0	0	0	36
Skin Melanoma	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	2
Non-Melanoma Skin Ca	0	0	0	0	0	0	0	0	3	2	2	3	2	1	2	1	1	1	18
Breast	0	0	0	0	0	1	1	0	1	0	1	1	0	0	0	1	0	0	6
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	1	8	3	7	9	1	5	35
Testis, Genital	1	0	0	2	0	5	3	1	0	2	0	1	0	0	0	0	0	0	15
Bladder	0	0	0	0	0	0	1	3	0	2	6	4	8	6	7	6	3	4	50
Kidney, Urinary	5	1	0	1	0	1	0	0	0	4	3	2	3	1	7	3	1	0	32
Eye	9	1	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	11
Brain, CNS	11	14	12	4	5	5	3	3	3	2	5	3	4	3	0	1	2	0	80
Thyroid	0	0	1	2	3	2	4	3	3	4	5	3	6	3	1	0	1	0	41
Other Endocrine	2	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	3
NHL - Lymph Nodes	2	4	2	2	2	4	0	3	2	4	3	5	4	5	7	2	1	1	53
NHL - Extra-nodal	2	2	1	4	1	3	2	0	6	3	3	5	2	6	3	4	3	2	52
Hodgkin's Disease-LNs	3	10	10	12	2	3	2	3	5	0	1	1	2	0	1	1	0	0	56
HD - Extra-nodal																			
Primary Unknown	0	0	0	1	0	0	0	1	1	1	1	3	3	4	1	1	0	0	17
All Other Sites	0	0	0	1	0	0	0	0	2	0	0	0	1	0	0	0	0	0	4
TOTAL	83	61	53	60	23	34	33	42	64	54	65	97	110	87	87	55	34	29	1,071

* Includes Multiple Primary Neoplasms.

TABLE 8

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

1 9 9 8

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	0	7	3	4	3	7	4	3	4	3	2	2	45
Nasopharynx	0	0	0	3	1	2	1	7	1	3	1	0	3	1	0	0	0	1	24
Esophagus	0	0	0	0	0	1	0	0	0	1	1	4	3	2	4	2	3	1	22
Stomach	0	0	0	0	0	0	0	2	0	1	0	2	0	1	0	0	0	0	6
Colon, Rectum	0	0	0	0	0	0	1	6	2	6	5	4	9	3	3	2	1	1	43
Liver	1	0	1	0	0	1	0	0	1	3	2	1	2	3	2	1	0	0	18
Pancreas	0	0	0	0	0	0	0	2	1	2	2	1	0	2	2	0	1	0	13
Other G.I.	1	0	0	0	0	0	0	1	2	0	1	3	1	0	1	0	1	0	11
Larynx	0	0	0	0	0	0	0	1	1	0	1	1	0	0	0	0	0	0	4
Lung, Pleura	0	0	0	0	0	0	0	0	1	1	1	3	2	1	1	2	1	2	15
Multiple Myeloma	0	0	0	0	1	0	0	0	1	0	0	2	2	2	0	0	0	1	9
Lymphoid Leukemia	18	7	6	3	1	0	0	0	0	0	0	0	0	1	0	0	0	0	36
Myeloid Leukemia	3	2	2	4	8	5	5	5	4	0	2	1	3	1	0	0	0	0	45
Other Leukemias	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Reticuloendothelium	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Bone, Cartilage	0	3	13	5	4	2	0	1	0	0	0	0	0	0	0	0	0	0	28
Soft Tissue	9	5	2	3	5	1	1	0	3	0	0	0	1	0	1	0	1	0	32
Skin Melanoma	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1
Non-Melanoma Skin Ca	0	0	0	0	0	1	1	3	2	2	0	1	2	0	2	1	0	1	16
Breast	0	0	0	0	4	23	29	38	40	37	25	28	18	12	10	8	3	0	275
Uterus, Genital	0	0	0	0	1	1	0	3	1	2	3	3	0	4	3	1	1	1	24
Cervix	0	0	0	0	0		3	4	10	9	14	6	3	5	2	2	2	0	60
Ovary	0	0	2	0	1	1	1	3	7	4	5	5	11	2	3	4	1	1	51
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	0	0	1	0	1	1	2	0	4	0	1	1	0	11
Kidney, Urinary	4	1	0	0	0	0	0	1	5	0	1	4	1	1	3	1	0	0	22
Eye	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3
Brain, CNS	19	13	7	2	3	0	3	6	5	1	3	4	1	3	1	2	0	0	73
Thyroid	0	1	3	7	15	23	15	18	10	5	7	9	9	4	2	1	0	0	129
Other Endocrine	5	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	7
NHL - Lymph Nodes	2	0	2	2	1	3	2	3	1	1	0	3	1	1	2	1	1	0	26
NHL - Extra-nodal	0	1	0	0	2	3	1	4	6	3	2	6	3	1	0	1	1	2	36
Hodgkin's Disease-LNs	1	2	7	3	6	5	2	0	0	2	0	2	2	0	0	1	0	0	33
HD - Extra-nodal																			
Primary Unknown	0	0	0	1	0	0	0	3	4	0	0	4	7	3	1	3	1	0	27
All Other Sites	0	0	0	0	0	0	0	1	0	0	0	0	0	1	0	0	0	0	2
TOTAL	66	36	45	35	53	74	65	120	111	88	81	106	88	61	47	37	21	13	1,147

* 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 1998 analytic cases exhibit significant differences in trends from those of the West when compared to the data published in *Cancer Facts & Figures - 1998,* by the American Cancer Society:

Breast - The most common malignancy seen at KFSH&RC is breast cancer, comprising 12.7% of all cases, as compared to 14.7% 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 8.6% of all cases seen at KFSH&RC, as compared to about 2.3% 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 - 7.7% 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 0.3:1. Thyroid cancer accounts for only 1.4% of all cases in the U.S.A. and 2.1% of female malignancies.

Non-Hodgkin's Lymphoma - Cases of non-Hodgkin's lymphoma account for 7.5% of all cases. The male/female ratio is 1.7:1. In the U.S.A., NHL accounts for only 4.5% of all cancer.

Brain/CNS - Primary malignant neoplasm of the brain and CNS accounts for 6.9% of all malignancies and ranks second among the most common pediatric malignancies. The male/female ratio is 1.1:1. This is comparatively higher than in the West with only 1.4% of all cases.

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 (14.6% in males, and 13.3% in females). At KFSH&RC, 4.5% of all diagnoses are lung cancer; in males it is the third most common tumor, constituting 7.8% of male malignancies and in females, 1.3%. The male/female ratio is 5.6:1, in the West, 1.1:1.

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 4.0% at KFSH&RC. The male/female ratio is 1.7:1, in the West, 1.1:1.

Colo-Rectal - Markedly less common than in the West, this disease represents only 3.8% of all tumors. In the U.S.A. it constitutes 11.0% of newly diagnosed cancer cases. Dietary factors, particularly lower animal fat intake, may play a role. The male/female ratio at KFSH&RC is 1:1.

Liver - The relative frequency of liver cancer at KFSH&RC (3.2%) is about three times higher than that of the West (1.1%). The male/female ratio is 2.9:1 at KFSH&RC and 2:1 in the West (2:1).

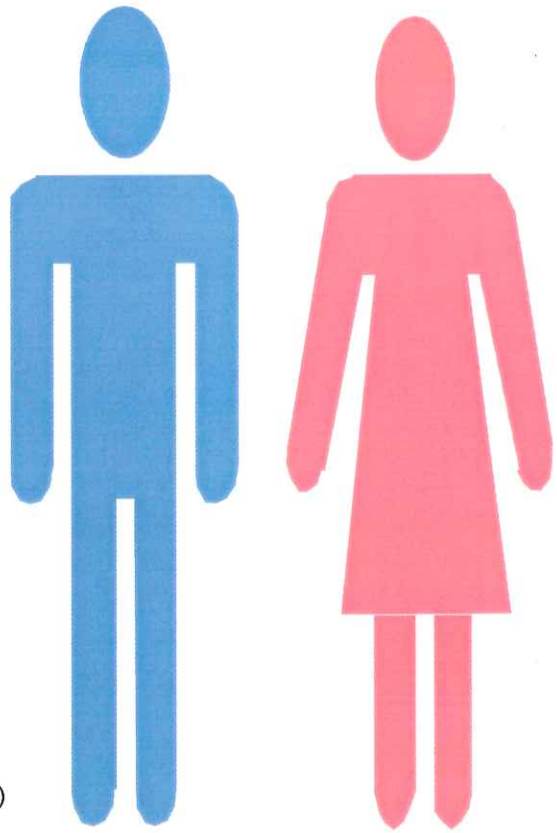
Soft Tissue - KFSR&RC cases show a higher rate of soft tissue malignancies than the U.S.A., with 3.1% against the latter's 0.6 % of all cases. The male/female ratio is 1.1:1 at KFSH&RC and in the West.

Bone - A higher crude relative frequency rate is seen in bone cancer. It constitutes 0.2% of the all cancers in most centers in the West, but is 2.9% of the cases at KFSH&RC. The male/female ratio at KFSH&RC is 1.3:1.

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 29.4% of the male malignancies). This is in contrast to the KFSH&RC experience, where prostatic cancer makes up only 3.3% 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
1998 ANALYTIC CASES (TOTAL CASES = 2,218)



MALE

LEUKEMIA 109 (10.2%)
NHL 105 (9.8%)
LUNG, PLEURA 84 (7.8%)
BRAIN, CNS 80 (7.5%)
NASOPHARYNX 77 (7.2%)
HODGKIN'S DISEASE 56 (5.2%)
LIVER 53 (4.9%)
BLADDER 50 (4.7%)
COLON, RECTUM 41 (3.8%)
THYROID 41 (3.8%)
BONE, CARTILAGE 37 (3.5%)
SOFT TISSUE 36 (3.4%)
ESOPHAGUS 35 (3.3%)
PROSTATE 35 (3.3%)
ORAL CAVITY 32 (3.0%)
KIDNEY 32 (3.0%)
STOMACH 31 (2.9%)
LARYNX 24 (2.2%)
NON-MELANOMA SKIN 18 (1.7%)
PANCREAS 17 (1.6%)

FEMALE

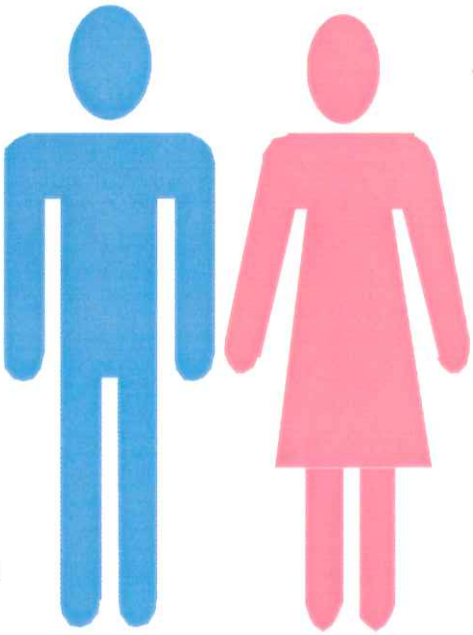
BREAST 275 (24.0%)
THYROID 129 (11.2%)
LEUKEMIA 81 (7.1%)
BRAIN, CNS 73 (6.4%)
NHL 62 (5.4%)
CERVIX 60 (5.2%)
OVARY 51 (4.4%)
ORAL CAVITY 45 (3.9%)
COLON, RECTUM 43 (3.7%)
HODGKIN'S DISEASE 33 (2.9%)
SOFT TISSUE 32 (2.8%)
BONE, CARTILAGE 28 (2.4%)
PRIMARY UNKNOWN 27 (2.4%)
NASOPHARYNX 24 (2.1%)
UTERUS, GENITAL 24 (2.1%)
ESOPHAGUS 22 (1.9%)
KIDNEY 22 (1.9%)
LIVER 18 (1.6%)
NON-MELANOMA SKIN 16 (1.4%)
LUNG, PLEURA 15 (1.3%)

FIGURE 11

DISTRIBUTION OF PEDIATRIC MALIGNANCIES
1998 ANALYTIC CASES (TOTAL CASES = 344)

MALE

LEUKEMIA 61 (31.0%)
BRAIN, CNS 37 (18.8%)
HODGKIN'S DISEASE 23 (11.7%)
SOFT TISSUE 19 (9.6%)
BONE, CARTILAGE 16 (8.1%)
NHL 13 (6.6%)
EYE 10 (5.1%)
KIDNEY 6 (3.0%)
NASOPHARYNX 2 (1.0%)
LIVER 2 (1.0%)
LUNG 2 (1.0%)
ENDOCRINE 2 (1.0%) (Other Than Thyroid)
LARYNX 1 (0.5%)
THYROID 1 (0.5%)
TESTIS 1 (0.5%)
RETICULOENDOTHELIUM 1 (0.5%)



FEMALE

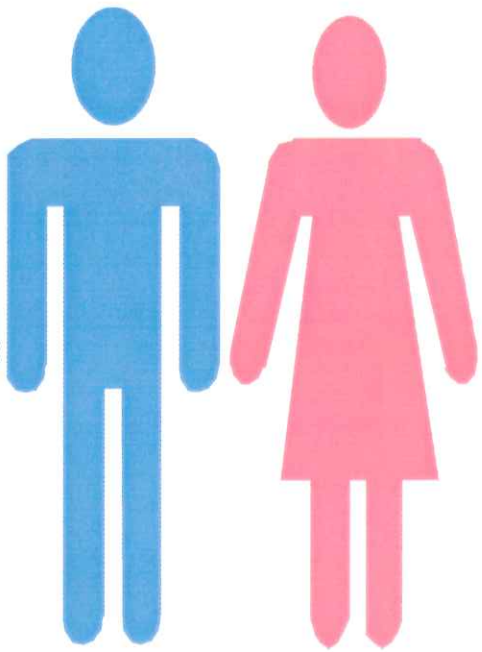
BRAIN, CNS 39 (26.5%)
LEUKEMIA 38 (25.9%)
BONE, CARTILAGE 16 (10.9%)
SOFT TISSUE 16 (10.9%)
HODGKIN'S DISEASE 10 (6.8%)
ENDOCRINE 6 (4.1%) (Other Than Thyroid)
NHL 5 (3.4%)
KIDNEY 5 (3.4%)
THYROID 4 (2.7%)
EYE 3 (2.0%)
LIVER 2 (1.4%)
OVARY 2 (1.4%)
CYSTIC DUCT 1 (0.7%)

FIGURE 12

DISTRIBUTION OF 10 MOST COMMON PEDIATRIC MALIGNANCIES BY HISTOLOGY
1998 ANALYTIC CASES (TOTAL CASES = 344)

MALE

ALL 48 (24.4%)
HODGKIN'S DISEASE 23 (11.7%)
ASTROCYTOMA 14 (7.1%)
NHL 13 (6.6%)
RETINOBLASTOMA 10 (5.1%)
AML 10 (5.1%)
MEDULLOBLASTOMA 9 (4.6%)
RHABDOMYOSARCOMA 8 (4.1%)
EWING'S SARCOMA 8 (4.1%)
NEPHROBLASTOMA 7 (3.6%)
OSTEOSARCOMA 7 (3.6%)



FEMALE

ALL 31 (21.1%)
NEUROBLASTOMA 15 (10.2%)
ASTROCYTOMA 13 (8.8%)
OSTEOSARCOMA 10 (6.8%)
HODGKIN'S DISEASE 10 (6.8%)
MEDULLOBLASTOMA 9 (6.1%)
EWING'S SARCOMA 6 (4.1%)
NHL 5 (3.4%)
RHABDOMYOSARCOMA 5 (3.4%)
NEPHROBLASTOMA 5 (3.4%)
GLIOMA, NOS 5 (3.4%)
EPENDYMOMA 5 (3.4%)

TABLE 9

PRIMARY SITE TABLE
(INCLUDES MULTIPLE PRIMARIES)
1 9 9 8

SITE / HISTOLOGY (NOS-Not Otherwise Specified)	ALL CASES	ADULTS		PEDIATRICS	
		MALE	FEMALE	MALE	FEMALE
	2,570	1,018	1,162	229	161
LIP	2	2	0	0	0
Squamous Cell Carcinoma					
TONGUE	29	10	19	0	0
Squamous Cell Carcinoma	27	9	18	0	0
Non-Hodgkin's Lymphoma	2	1	1	0	0
MAJOR SALIVARY GLANDS	10	6	4	0	0
Squamous Cell Carcinoma	3	2	1	0	0
Non-Hodgkin's Lymphoma	3	2	1	0	0
Carcinoma, NOS	1	0	1	0	0
Mucoepidermoid Carcinoma	1	1	0	0	0
Epithelial-Myoepithelial Ca	1	0	1	0	0
Malignant Mixed Tumor	1	1	0	0	0
GUM	13	6	7	0	0
Squamous Cell Carcinoma					
FLOOR OF MOUTH	3	3	0	0	0
Squamous Cell Carcinoma	1	1	0	0	0
Adenoid Cystic Carcinoma	1	1	0	0	0
Carcinoma, NOS	1	1	0	0	0
OTHER PARTS OF MOUTH	16	6	10	0	0
Squamous Cell Carcinoma	14	6	8	0	0
Verrucous Carcinoma	2	0	2	0	0
OROPHARYNX	15	8	5	2	0
Non-Hodgkin's Lymphoma	13	7	4	2	0
Squamous Cell Carcinoma	2	1	1	0	0
NASOPHARYNX	113	85	26	2	0
Carcinoma, NOS	86	67	27	2	0
Squamous Cell Carcinoma	20	13	7	0	0
Non-Hodgkin's Lymphoma	6	5	1	0	0
Adenocarcinoma, NOS	1	0	1	0	0
HYPOPHARYNX	16	4	12	0	0
Squamous Cell Carcinoma					
PHARYNX	2	1	1	0	0
Non-Hodgkin's Lymphoma					

Primary Site Table (cont'd)

SITE / HISTOLOGY (NOS-Not Otherwise Specified)	ALL CASES	ADULTS		PEDIATRICS	
		MALE	FEMALE	MALE	FEMALE
ESOPHAGUS	**62**	**38**	**24**	**0**	**0**
Squamous Cell Carcinoma	50	28	22	0	0
Adenocarcinoma, NOS	9	7	2	0	0
Carcinoma, NOS	2	2	0	0	0
Small Cell Carcinoma	1	1	0	0	0
STOMACH	**65**	**50**	**15**	**0**	**0**
Adenocarcinoma, NOS	27	24	3	0	0
Non-Hodgkin's Lymphoma	23	15	8	0	0
Signet Ring Cell Carcinoma	7	6	1	0	0
Squamous Cell Carcinoma	3	3	0	0	0
Mucinous Carcinoma	3	2	1	0	0
Endometrial Stromal Sarcoma	1	0	1	0	0
SMALL INTESTINE	**11**	**6**	**5**	**0**	**0**
Non-Hodgkin's Lymphoma	5	4	1	0	0
Carcinoid Tumor	2	2	0	0	0
Adenocarcinoma, NOS	2	0	2	0	0
Signet Ring Cell Carcinoma	1	0	1	0	0
Malignant Gastrinoma	1	0	1	0	0
COLON	**55**	**32**	**22**	**1**	**0**
Adenocarcinoma, NOS	29	15	14	0	0
Mucinous Adenocarcinoma	14	10	4	0	0
Non-Hodgkin's Lymphoma	3	2	0	1	0
Adenocarcinoma in Villous Adenoma	2	0	2	0	0
Signet Ring Cell Carcinoma	2	2	0	0	0
Carcinoma, NOS	2	2	0	0	0
Malignant Neoplasm, NOS	2	0	2	0	0
Neuroendocrine Carcinoma	1	1	0	0	0
RECTUM/RECTOSIGMOID JUNCTION/ANUS	**65**	**30**	**35**	**0**	**0**
Adenocarcinoma, NOS	53	25	28	0	0
Adenocarcinoma in Villous Adenoma	4	1	3	0	0
Squamous Cell Carcinoma	4	1	3	0	0
Mucinous Adenocarcinoma	1	1	0	0	0
Carcinoma, NOS	1	1	0	0	0
Basaloid Carcinoma	1	0	1	0	0
Malignant Neoplasm, NOS	1	1	0	0	0
LIVER/INTRAHEPATIC BILE DUCTS	**82**	**59**	**19**	**2**	**2**
Hepatocellular Carcinoma	73	56	16	0	1
Cholangiocarcinoma	3	1	2	0	0
Hepatoblastoma	2	0	0	1	1
Adenocarcinoma, NOS	1	1	0	0	0
Leiomyosarcoma, NOS	1	0	0	1	0
Malig Epithelioid Hemangioendothelioma	1	0	1	0	0
Malignant Neoplasm, NOS	1	1	0	0	0
GALLBLADDER/EXTRAHEPATIC BILE DUCTS	**22**	**7**	**14**	**0**	**1**
Adenocarcinoma, NOS	14	5	9	0	0
Carcinoma, NOS	3	0	3	0	0
Mucinous Adenocarcinoma	1	0	1	0	0
Squamous Cell Carcinoma	1	0	1	0	0
Adenocarcinoma in Villous Adenoma	1	1	0	0	0

Primary Site Table (cont'd)

SITE	HISTOLOGY (NOS-Not Otherwise Specified)	ALL CASES	ADULTS		PEDIATRICS	
			MALE	FEMALE	MALE	FEMALE
GALLBLADDER/EXTRAHEPATIC BILE DUCTS (cont'd)						
	Embryonal Rhabdomyosarcoma	1	0	0	0	1
	Cholangiocarcinoma	1	1	0	0	0
PANCREAS		**34**	**19**	**15**	**0**	**0**
	Adenocarcinoma, NOS	20	10	10	0	0
	Carcinoma, NOS	8	8	0	0	0
	Neuroendocrine Carcinoma	2	0	2	0	0
	Malignant Neoplasm, NOS	2	1	1	0	0
	Carcinoid Tumor	1	0	1	0	0
	Duct Cell Carcinoma	1	0	1	0	0
NASAL CAVITIES/ACCESSORY SINUSES		**18**	**7**	**7**	**2**	**2**
	Non-Hodgkin's Lymphoma	10	3	5	1	1
	Squamous Cell Carcinoma	3	2	1	0	0
	Rhabdomyosarcoma	3	1	0	1	1
	Carcinosarcoma	1	0	1	0	0
LARYNX		**31**	**26**	**4**	**1**	**0**
	Squamous Cell Carcinoma	26	22	4	0	0
	Carcinoma, NOS	2	2	0	0	0
	Spindle Cell Carcinoma	1	1	0	0	0
	Synovial Sarcoma	1	0	0	1	0
	Non-Hodgkin's Lymphoma	1	1	0	0	0
TRACHEA		**1**	**0**	**1**	**0**	**0**
	Adenoid Cystic Carcinoma					
BRONCHUS/LUNG		**105**	**86**	**17**	**2**	**0**
	Squamous Cell Carcinoma	31	27	4	0	0
	Adenocarcinoma, NOS	29	22	7	0	0
	Carcinoma, NOS	27	24	3	0	0
	Small Cell Carcinoma	8	6	2	0	0
	Large Cell Carcinoma	3	3	0	0	0
	Embryonal Rhabdomyosarcoma	2	0	0	2	0
	Neuroendocrine Carcinoma	1	1	0	0	0
	Carcinoid Tumor	1	1	0	0	0
	Clear Cell Carcinoma	1	1	0	0	0
	Leiomyosarcoma	1	0	1	0	0
	Carcinosarcoma	1	1	0	0	0
PLEURA		**1**	**1**	**0**	**0**	**0**
	Mesothelioma					
THYMUS/MEDIASTINUM		**9**	**2**	**1**	**2**	**4**
	Ganglioneuroblastoma	3	0	0	1	2
	Neuroblastoma	2	0	0	1	1
	Malignant Thymoma	1	0	1	0	0
	Lymphoepithelial Carcinoma	1	1	0	0	0
	Sarcoma, NOS	1	0	0	0	1
	Seminoma	1	1	0	0	0
MULTIPLE MYELOMA		**21**	**12**	**9**	**0**	**0**

Primary Site Table (cont'd)

SITE / HISTOLOGY (NOS-Not Otherwise Specified)	ALL CASES	ADULTS MALE	ADULTS FEMALE	PEDIATRICS MALE	PEDIATRICS FEMALE
BONE MARROW	**229**	**56**	**54**	**76**	**43**
Acute Lymphoid Leukemia	117	19	4	60	34
Chronic Myeloid Leukemia	42	14	24	2	2
Acute Myeloid Leukemia	38	8	16	9	5
Acute Promyelocytic Leukemia	15	4	7	2	2
Chronic Lymphoid Leukemia	10	7	3	0	0
Acute Leukemia, NOS	2	1	0	1	0
Acute Monocytic Leukemia	1	0	0	1	0
Myeloid Leukemia, NOS	1	0	0	1	0
Hairy Cell Leukemia	1	1	0	0	0
Malig Myeloproliferative Disorder	1	1	0	0	0
Non-Hodgkin's Lymphoma	1	1	0	0	0
SPLEEN	**1**	**0**	**1**	**0**	**0**
Non-Hodgkin's Lymphoma					
RETICULOENDOTHELIAL SYSTEM	**1**	**0**	**0**	**1**	**0**
Malignant Histiocytosis					
BONE/CARTILAGE	**70**	**22**	**14**	**16**	**18**
Osteosarcoma, NOS	29	7	7	4	11
Ewing's Sarcoma	24	7	3	7	7
Chondrosarcoma	5	1	3	1	0
Chondroblastic Osteosarcoma	5	3	1	1	0
Chordoma	4	3	0	1	0
Telangiectasis Ostosarcoma	2	0	0	2	0
Plasmacytoma	1	1	0	0	0
CONNECTIVE/SUBCUTANEOUS/SOFT TISSUE	**80**	**23**	**24**	**21**	**12**
Embryonal Rhabdomyosarcoma	9	0	0	7	2
Synovial Sarcoma	8	2	4	2	0
Neuroblastoma	8	0	0	3	5
Malignant Fibrous Histiocytoma	7	4	3	0	0
Non-Hodgkin's Lymphoma	7	3	3	1	0
Peripheral Neuroectodermal Tumor	5	1	1	2	1
Rhabdomyosarcoma	5	2	1	1	1
Sarcoma, NOS	5	1	2	1	1
Spindle Cell Sarcoma	5	4	1	0	0
Leiomyosarcoma	4	1	3	0	0
Myxoid Liposarcoma	3	1	2	0	0
Ewing's Sarcoma (extra-skeletal)	3	0	1	1	1
Alveolar Soft Part Sarcoma	2	0	1	0	1
Fibrosarcoma, NOS	2	1	1	0	0
Osteosarcoma, NOS (extra-skeletal)	2	2	0	0	0
Malignant Neurilomma	1	0	1	0	0
Endodermal Sinus Tumor	1	0	0	1	0
Mesothelioma	1	0	0	1	0
Mesenchymal Chondrosarcoma	1	1	0	0	0
Nephroblastoma (extra-renal)	1	0	0	1	0
SKIN (MELANOMA)	**4**	**2**	**2**	**0**	**0**

Primary Site Table (cont'd)

SITE	HISTOLOGY (NOS-Not Otherwise Specified)	ALL CASES	ADULTS MALE	ADULTS FEMALE	PEDIATRICS MALE	PEDIATRICS FEMALE
SKIN (NON-MELANOMA)		**50**	**31**	**19**	**0**	**0**
	Squamous Cell Carcinoma	14	3	11	0	0
	Basal Cell Carcinoma	14	10	4	0	0
	Kaposi's Sarcoma	7	6	1	0	0
	Non-Hodgkin's Lymphoma	5	5	0	0	0
	Mycosis Fungoides	4	4	0	0	0
	Basosquamous Carcinoma	3	2	1	0	0
	Dermatofibrosarcoma	2	1	1	0	0
	Mucinous Adenocarcinoma	1	0	1	0	0
BREAST, FEMALE		**326**	**0**	**326**	**0**	**0**
	Duct Cell Carcinoma	270	0	270	0	0
	Carcinoma, NOS	13	0	13	0	0
	Lobular Carcinoma	11	0	11	0	0
	Paget's Disease & Duct Cell Ca	9	0	9	0	0
	Cystosarcoma Phylloides	3	0	3	0	0
	Comedocarcinoma	3	0	3	0	0
	Malignant Neoplasm, NOS	3	0	3	0	0
	Duct & Lobular Carcinoma	2	0	2	0	0
	Papillary Carcinoma	2	0	2	0	0
	Intracystic Carcinoma	2	0	2	0	0
	Adenocarcinoma, NOS	2	0	2	0	0
	Non-Hodgkin's Lymphoma	2	0	2	0	0
	Medullary Carcinoma	1	0	1	0	0
	Mucinous Adenocarcinoma	1	0	1	0	0
	Signet Ring Cell Carcinoma	1	0	1	0	0
	Juvenile Carcinoma	1	0	1	0	0
BREAST, MALE		**8**	**8**	**0**	**0**	**0**
	Duct Cell Carcinoma	6	6	0	0	0
	Non-Hodgkin's Lymphoma	2	2	0	0	0
CERVIX UTERI		**61**	**0**	**61**	**0**	**0**
	Squamous Cell Carcinoma	52	0	52	0	0
	Adenocarcinoma, NOS	4	0	4	0	0
	Papillary Adenocarcinoma	1	0	1	0	0
	Clear Cell Adenocarcinoma	1	0	1	0	0
	Endometrioid Carcinoma	1	0	1	0	0
	Small Cell Carcinoma	1	0	1	0	0
	Carcinoma in Situ	1	0	1	0	0
PLACENTA		**6**	**0**	**6**	**0**	**0**
	Choriocarcinoma					
CORPUS UTERI		**28**	**0**	**28**	**0**	**0**
	Adenocarcinoma, NOS	15	0	15	0	0
	Leiomyosarcoma	4	0	4	0	0
	Endometrioid Carcinoma	3	0	3	0	0
	Carcinosarcoma	2	0	2	0	0
	Papillary Cystadenocarcinoma	2	0	2	0	0
	Adenosarcoma	1	0	1	0	0
	Endometrial Stromal Sarcoma	1	0	1	0	0

Primary Site Table (cont'd)

SITE	HISTOLOGY (NOS-Not Otherwise Specified)	ALL CASES	ADULTS MALE	ADULTS FEMALE	PEDIATRICS MALE	PEDIATRICS FEMALE
OVARY		**62**	**0**	**60**	**0**	**2**
	Papillary Serous Cystadenocarcinoma	20	0	20	0	0
	Mucinous Cystadenocarcinoma	11	0	11	0	0
	Adenocarcinoma, NOS	10	0	10	0	0
	Endometrioid Carcinoma	6	0	6	0	0
	Serous Cystadenocarcinoma	4	0	4	0	0
	Papillary Adenocarcinoma	3	0	3	0	0
	Dysgerminoma	2	0	1	0	1
	Mucinous Adenocarcinoma	1	0	1	0	0
	Endodermal Sinus Tumor	1	0	1	0	0
	Malignant Teratoma	1	0	0	0	1
	Mixed Germ Cell Tumor	1	0	1	0	0
	Papillary Carcinoma	1	0	1	0	0
	Clear Cell Adenocarcinoma	1	0	1	0	0
OTHER FEMALE GENITAL ORGANS		**1**	**0**	**1**	**0**	**0**
	Rhabdomyosarcoma, NOS					
PROSTATE		**42**	**42**	**0**	**0**	**0**
	Adenocarcinoma, NOS	37	37	0	0	0
	Carcinoma, NOS	5	5	0	0	0
TESTIS		**16**	**15**	**0**	**1**	**0**
	Seminoma	7	7	0	0	0
	Mixed Germ Cell Tumor	6	6	0	0	0
	Embryonal Carcinoma	2	2	0	0	0
	Endodermal Sinus Tumor	1	0	0	1	0
OTHER MALE GENITAL ORGANS		**2**	**2**	**0**	**0**	**0**
	Squamous Cell Carcinoma	1	1	0	0	0
	Kaposi's Sarcoma	1	1	0	0	0
URINARY BLADDER		**80**	**67**	**12**	**1**	**0**
	Transitional Cell Carcinoma	37	31	5	1	0
	Papillary Transitional Cell Ca	33	27	6	0	0
	Squamous Cell Carcinoma	7	6	1	0	0
	Small Cell Carcinoma	1	1	0	0	0
	Adenocarcinoma, NOS	1	1	0	0	0
	Carcinoma in Situ	1	1	0	0	0
KIDNEY/URETER		**60**	**30**	**17**	**7**	**6**
	Renal Cell Carcinoma	30	16	14	0	0
	Nephroblastoma	13	0	0	7	6
	Transitional Cell Carcinoma	5	4	1	0	0
	Papillary Transitional Cell Ca	4	3	1	0	0
	Chromophobe Carcinoma	2	1	1	0	0
	Papillary Adenocarcinoma	2	2	0	0	0
	Mucinous Adenocarcinoma	1	1	0	0	0
	Small Cell Carcinoma	1	1	0	0	0
	Carcinoma, NOS	1	1	0	0	0
	Clear Cell Carcinoma	1	1	0	0	0

Primary Site Table (cont'd)

SITE / HISTOLOGY (NOS-Not Otherwise Specified)	ALL CASES	ADULTS MALE	ADULTS FEMALE	PEDIATRICS MALE	PEDIATRICS FEMALE
EYE/LACRIMAL GLAND	**18**	**3**	**2**	**10**	**3**
Retinoblastoma	13	0	0	10	3
Non-Hodgkin's Lymphoma	2	1	1	0	0
Squamous Cell Carcinoma	1	1	0	0	0
Sebaceous Adenocarcinoma	1	1	0	0	0
Spindle Cell Melanoma	1	0	1	0	0
BRAIN	**153**	**45**	**32**	**38**	**38**
Glioblastoma	38	21	15	0	2
Medulloblastoma	25	2	2	11	10
Astrocytoma, NOS	17	7	3	6	1
Pilocytic Astrocytoma	17	2	1	7	7
Malignant Glioma, NOS	14	1	3	5	5
Ependymoma	14	2	2	5	5
Non-Hodgkin's Lymphoma	7	5	2	0	0
Oligodendroglioma	5	2	2	1	0
Anaplastic Astrocytoma	4	1	1	1	1
Germinoma	2	0	0	1	1
Pleomorphic Xanthoastrocytoma	2	1	0	0	1
Gemistocytic Astrocytoma	2	0	2	0	0
Fibrillary Astrocytoma	2	2	0	0	0
Malignant Neoplasm, NOS	2	0	0	0	2
Neuroepithelioma	1	0	0	0	1
Neuroblastoma	1	0	0	0	1
OTHER NERVOUS SYSTEM	**15**	**4**	**4**	**2**	**5**
Pilocytic Astrocytoma	6	1	0	1	4
Malignant Meningioma	3	0	3	0	0
Ependymoma	2	2	0	0	0
Astrocytoma, NOS	2	1	0	0	1
Malignant Glioma, NOS	1	0	1	0	0
Primitive Neuroectodermal Tumor	1	0	0	1	0
THYROID	**199**	**47**	**147**	**1**	**4**
Papillary Carcinoma	150	31	114	1	4
Papillary & Follicular Adenoca	22	4	18	0	0
Medullary Carcinoma	12	7	5	0	0
Non-Hodgkin's Lymphoma	8	1	7	0	0
Anaplastic Carcinoma	5	3	2	0	0
Oxyphilic Adenocarcinoma	2	1	1	0	0
OTHER ENDOCRINE GLANDS	**11**	**1**	**1**	**3**	**6**
Neuroblastoma	8	0	0	2	6
Ganglioneuroblastoma	1	0	0	1	0
Pineoblastoma	1	0	1	0	0
Germinoma	1	1	0	0	0
LYMPH NODES, NON-HODGKIN'S LYMPHOMA (Excluding Extra-Nodal Lymphoma)	**98**	**56**	**26**	**11**	**5**
Large Cell, Diffuse	28	15	12	1	0
Lymphoblastic	10	3	1	3	3
T-Cell Rich B-Cell	8	6	1	1	0
Non-Hodgkin's Lymphoma, NOS	8	4	3	1	0
Small Cleaved Cell, Follicular	6	4	2	0	0
Burkitt's	6	1	0	4	1

Primary Site Table (cont'd)

SITE	HISTOLOGY (NOS-Not Otherwise Specified)	ALL CASES	ADULTS MALE	ADULTS FEMALE	PEDIATRICS MALE	PEDIATRICS FEMALE
LYMPH NODES, NON-HODGKIN'S LYMPHOMA (cont'd)						
	(Excluding Extra-Nodal Lymphoma)					
	Lymphocytic	6	5	1	0	0
	Immunoblastic	5	4	1	0	0
	Ki-1	4	3	0	0	1
	Small Lymphocytic	4	3	1	0	0
	Mixed Small Cleaved & Lge Cell, Foll	4	2	2	0	0
	T-Cell Lymphoma	3	2	1	0	0
	Mixed Small & Lge Cleaved Cell,Diffuse	2	1	1	0	0
	Large cell, Follicular	2	1	0	1	0
	Lymphoepithelioid	1	1	0	0	0
	Small Cleaved Cell, Diffuse	1	1	0	0	0
LYMPH NODES, HODGKIN'S DISEASE		**98**	**37**	**24**	**27**	**10**
	Nodular Sclerosis	78	29	20	21	8
	Mixed Cellularity	10	3	3	3	1
	Hodgkin's Disease, NOS	6	3	1	1	1
	Lymphocytic Predominance	4	2	0	2	0
PRIMARY UNKNOWN		**50**	**21**	**29**	**0**	**0**
	Adenocarcinoma, NOS	20	8	12	0	0
	Carcinoma, NOS	17	10	7	0	0
	Squamous Cell Carcinoma	3	1	2	0	0
	Mucinous Adenocarcinoma	3	2	1	0	0
	Malignant Neoplasm, NOS	3	0	3	0	0
	Neuroendocrine Carcinoma	2	0	2	0	0
	Pleomorphic Carcinoma	1	0	1	0	0
	Papillary Adenocarcinoma	1	0	1	0	0

TABLE 10

MULTIPLE PRIMARY SITES TABLE
1 9 9 8

PRIMARY SITE 1998	HISTOLOGY (NOS-Not Otherwise Specified)	OTHER PRIMARIES (PREVIOUS OR CONCURRENT)	ALL PATIENTS	MALE	FEMALE
			70	26	44
TONGUE			1	1	0
	Squamous Cell Carcinoma	Thyroid - Papillary Ca			
SALIVARY GLAND			1	1	0
	Squamous Cell Carcinoma	Skin - Basal Cell Ca			
FLOOR OF MOUTH			1	1	0
	Carcinoma, NOS	Lung, Carcinoma, NOS			
BUCCAL MUCOSA			2	0	2
	Squamous Cell Carcinoma	Soft Tissue - Sarcoma, NOS	1	0	1
	Squamous Cell Carcinoma	Lower Gum - Verrucous Ca	1	0	1
NASOPHARYNX			1	1	0
	Carcinoma, NOS	LNs - NHL			
HYPOPHARYNX			2	1	1
	Squamous Cell Carcinoma	Buccal Mucosa - Sq Cell Ca	1	0	1
	Squamous Cell Carcinoma	Stomach - Adenocarcinoma	1	1	0
ESOPHAGUS			3	2	1
	Squamous Cell Carcinoma	Bladder - Pap Trans Cell Ca	1	1	0
	Squamous Cell Carcinoma	Thyroid - Pap & Foll Adenoca	1	0	1
	Squamous Cell Ca-Upper 3rd	Mid 3rd Esoph - Adenoca, NOS	1	1	0
STOMACH			1	1	0
	Signet Ring Cell Ca	LNs - Hodgkin's Disease			
COLON			4	1	3
	Adenoca in Tubulovillous Adenoma	Cervix - Squamous Cell Ca	1	0	1
	Adenocarcinoma, NOS	Maxillary Sinus - NHL	1	0	1
	Adenocarcinoma In Situ	Breast - Duct Cell Ca	1	0	1
	Carcinoma, NOS	Lung - Adenocarcinoma, NOS	1	1	0
LIVER			3	3	0
	Hepatocellular Carcinoma	LNS - Hodgkin's Disease	2	2	0
	Hepatocellular Carcinoma	Prostate - Intraepithelial Neoplasia	1	1	0
LARYNX			1	1	0
	Squamous Cell Carcinoma	Thyroid - Papillary Ca			
LUNG			4	1	3
	Squamous Cell Carcinoma	Breast - Duct Cell Ca	1	0	1
	Squamous Cell Carcinoma	Tongue - Sq Cell Ca	1	0	1
	Adenocarcinoma, NOS	Larynx - Sq Cell Ca	1	1	0
	Small Cell Carcinoma	Breast - Duct Cell Ca	1	0	1

Multiple Primary Sites Table (cont'd)

PRIMARY SITE 1998	HISTOLOGY (NOS-Not Otherwise Specified)	OTHER PRIMARIES (PREVIOUS OR CONCURRENT)	ALL PATIENTS	MALE	FEMALE
BONE MARROW			**3**	**3**	**0**
	Acute Lymphoid Leukemia	Soft Tissue-Ewing's Sarcoma	1	1	0
	Chronic Lymphoid Leukemia	Skin - Sq Cell Ca	1	1	0
	Ac Promyelocytic Leukemia	Stomach - Malt Lymphoma	1	1	0
SKIN			**5**	**1**	**4**
	Basal Cell Carcinoma	Salivary Gland - Adenoca	1	0	1
	Basal Cell Carcinoma	Kidney - Renal Cell Ca	1	0	1
	Squamous Cell Carcinoma	Colon - NHL	1	1	0
	Dermatofibrosarcoma	Breast - Medullary Ca	1	0	1
	Basal Cell Carcinoma*	Ovary - Mucinous Adenoca Thyroid - Pap & Foll Adenoca	1	0	1
BREAST			**18**	**0**	**18**
	Duct Cell Carcinoma	Contralateral Breast	10	0	10
	Duct Cell Carcinoma	Contra Breast - Intracystic Papillary Ca	1	0	1
	Duct Cell Carcinoma	Contra Breast - Comedoca	1	0	1
	Duct Cell carcinoma	Contra Breast-Malig Neoplasm	1	0	1
	Duct Cell carcinoma	Stomach - Adenocarcinoma	1	0	1
	Lobular Carcinoma	Contra Breast-Carcinoma, NOS	1	0	1
	Intraductal & Lobular Ca In Situ	Contra Breast - Duct Cell Ca	1	0	1
	Intracystic Carcinoma	Thyroid-Papillary Carcinoma	1	0	1
	Carcinoma, NOS	Contra Breast	1	0	1
CERVIX			**1**	**0**	**1**
	Squamous Cell Carcinoma	Duodenum - NHL			
OVARY			**3**	**0**	**3**
	Adenocarcinoma, NOS	Kidney - Renal Cell Ca	1	0	1
	Adenocarcinoma, NOS	Common Bile Duct-Cholangioca	1	0	1
	Pap Serous Cystadenoca*	Rt Breast - Medullary Ca Lt Breast - Duct Cell Ca	1	0	1
PROSTATE			**1**	**1**	**0**
	Adenocarcinoma, NOS	Lung - Sq Cell Ca			
URINARY BLADDER			**3**	**3**	**0**
	Transitional Cell Ca	Kidney - Papillary Ca	1	1	0
	Transitional Cell Ca	Larynx - Sq Cell Ca	1	1	0
	Papillary Trans Cell Ca	Lung - Sq Cell Ca	1	1	0
KIDNEY			**3**	**1**	**2**
	Renal Cell Carcinoma	Contralateral	2	1	1
	Renal Cell Carcinoma	LN - Hodgkin's Disease	1	0	1
CONJUNCTIVA			**1**	**1**	**0**
	Squamous Cell Carcinoma	LNs - NHL			
BRAIN			**1**	**0**	**1**
	Oligodendroglioma	Cervix - Sq Cell Ca			

Multiple Primary Sites Table (cont'd)

PRIMARY SITE 1998	HISTOLOGY (NOS-Not Otherwise Specified)	OTHER PRIMARIES (PREVIOUS OR CONCURRENT)	ALL PATIENTS	MALE	FEMALE
THYROID			**6**	**1**	**5**
	Papillary Carcinoma	Larynx - Sq Cell Ca	1	1	0
	Papillary Carcinoma	Ovary-Pap Serous Cystadenoca	1	0	1
	Papillary Carcinoma	Thyroid - MALT Lymphoma	1	0	1
	Papillary Carcinoma	Breast - Duct Cell Ca	1	0	1
	Papillary carcinoma	Skin - Sq Cell Ca	1	0	1
	Papillary Carcinoma	Unknown Primary-Adenoca, NOS	1	0	1
LYMPH NODES			**1**	**1**	**0**
	Hodgkin's Disease	Chronic Myeloid Leukemia			

***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 1998 (Figure 13). The 22 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 1998 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

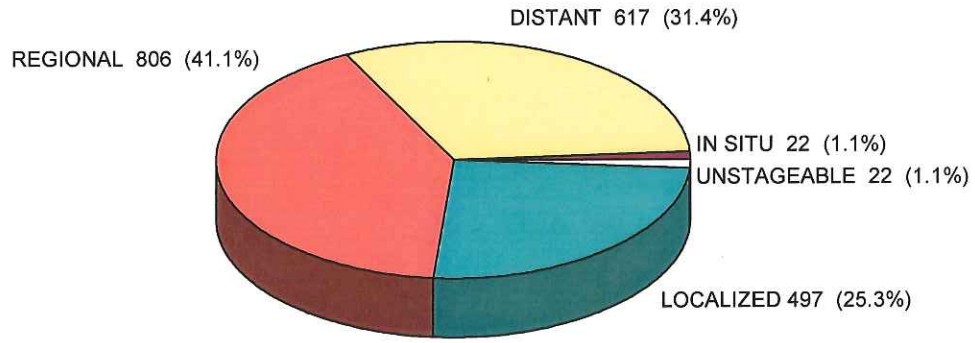
N: Absence or presence and extent of regional lymph node involvement

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 1994 to 1998. 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 - 1998 (TOTAL CASES = 1,964)



*Excludes Unknown Primaries (44 cases)
*Excludes Leukemia and Multiple Myeloma (210 cases)

FIGURE 14

DISTRIBUTION OF ANALYTIC CASES BY FIRST TREATMENT MODALITY 1998 (TOTAL CASES = 2,218)

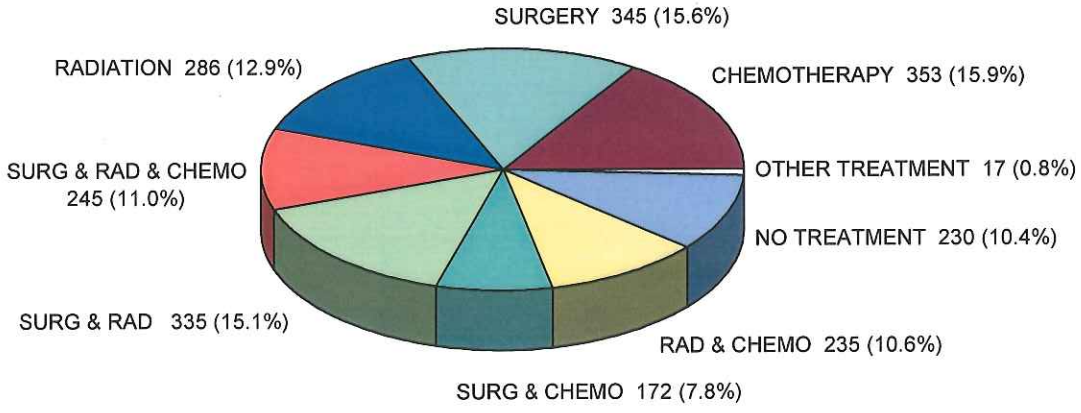


TABLE 11

AJCC CLINICAL TNM GROUP STAGE OF ANALYTIC CASES OF MAJOR SITES* BY YEAR
1994 - 1998

BREAST

Stage	1994		1995		1996		1997		1998		TOTAL	
	No	%	No	%	No	%	No	%	No	%	No	%
0	0	0.0	2	1.0	4	1.7	3	1.2	3	1.1	12	1.0
1	9	4.6	12	6.0	22	9.5	15	5.9	10	3.5	68	5.9
2A	43	22.1	40	20.0	52	22.4	51	20.2	53	18.9	239	20.6
2B	40	20.5	36	18.0	38	16.4	42	16.7	27	9.6	183	15.8
3A	15	7.7	19	9.5	19	8.2	13	5.2	27	9.6	93	8.0
3B	31	15.9	29	14.5	21	9.1	36	14.3	37	13.2	154	13.3
4	27	13.8	33	16.5	36	15.5	50	19.8	63	22.4	209	18.0
Unstageable	30	15.4	29	14.5	40	17.2	42	16.7	61	21.7	202	17.4
Total	195	100.0	200	100.0	232	100.0	252	100.0	281	100.0	1,160	100.0

LUNG

Stage	1994		1995		1996		1997		1998		TOTAL	
	No	%	No	%	No	%	No	%	No	%	No	%
1	13	16.9	8	10.3	2	2.6	5	6.8	11	11.2	39	9.6
2	3	3.9	2	2.6	3	3.8	0	0.0	3	3.0	11	2.7
3A	5	6.5	9	11.5	6	7.7	7	9.4	13	13.3	40	9.9
3B	24	31.1	22	28.2	26	33.3	18	24.3	14	14.3	104	25.7
4	17	22.1	28	35.9	27	34.6	33	44.6	44	44.9	149	36.8
Unstageable	15	19.5	9	11.5	14	18.0	11	14.9	13	13.3	62	15.3
Total	77	100.0	78	100.0	78	100.0	74	100.0	98	100.0	405	100.0

NASOPHARYNX

Stage	1994		1995		1996		1997		1998		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	1.9	1	1.8	0	0.0	0	0.0	0	0.0	2	0.5
2	1	1.9	3	5.4	2	2.5	0	0.0	2	2.0	8	2.1
3	4	7.5	7	12.5	7	8.9	6	7.4	11	10.9	35	9.5
4	47	88.7	44	78.5	67	84.8	75	92.6	88	87.1	321	86.8
Unstageable	0	0.0	1	1.8	3	3.8	0	0.0	0	0.0	4	1.1
Total	53	100.0	56	100.0	79	100.0	81	100.0	101	100.0	370	100.0

* Excludes Lymphoma Cases

Table 11 (cont'd)

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

1994 - 1998

HODGKIN'S DISEASE

Stage	1994		1995		1996		1997		1998		TOTAL	
	No	%	No	%	No	%	No	%	No	%	No	%
1A	11	16.4	13	16.7	8	11.3	4	5.9	7	7.9	43	11.5
1B	2	3.0	1	1.3	1	1.4	1	1.5	3	3.4	8	2.2
2A	20	29.9	21	26.9	20	28.2	22	32.3	21	23.6	104	27.9
2B	3	4.5	10	12.8	10	14.1	10	14.7	13	14.6	46	12.3
3A	9	13.4	11	14.1	6	8.4	10	14.7	14	15.7	50	13.4
3B	12	17.9	11	14.1	10	14.1	7	10.3	13	14.6	53	14.2
4A	1	1.5	2	2.6	3	4.2	4	5.9	3	3.4	13	3.5
4B	9	13.4	9	11.5	13	18.3	10	14.7	15	16.8	56	15.0
Total	67	100.0	78	100.0	71	100.0	68	100.0	89	100.0	373	100.0

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

1994 - 1998

STOMACH

Stage	1994		1995		1996		1997		1998		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	1	2.1	2	3.9	0	0.0	0	0.0	4	0.9
1B	3	6.4	2	4.3	3	5.9	0	0.0	1	2.7	9	1.9
2	7	14.9	4	8.5	0	0.0	2	6.2	4	0.0	17	3.3
3A	8	17.0	7	14.9	18	35.3	3	9.4	8	5.4	44	9.8
3B	2	4.3	4	8.5	4	7.8	4	12.5	3	10.8	17	9.8
4	2	4.3	5	10.6	1	2.0	1	3.1	2	29.7	11	24.3
Unstageable	24	51.0	24	51.1	23	45.1	22	68.8	19	51.4	112	50.0
Total	47	100.0	47	100.0	51	100.0	32	100.0	37	100.0	214	100.0

COLON, RECTUM

Stage	1994		1995		1996		1997		1998		TOTAL	
	No	%	No	%	No	%	No	%	No	%	No	%
0	1	1.5	0	0.0	0	0.0	1	1.3	0	0.0	2	0.5
1	4	6.1	5	7.3	3	3.8	3	3.9	3	3.6	18	4.8
2	8	12.1	16	23.2	17	21.5	12	15.6	13	15.5	66	17.6
3	19	28.8	14	20.3	13	16.5	15	19.5	17	20.2	78	20.8
4	6	9.1	9	13.0	7	8.9	7	9.1	9	10.7	38	10.2
Unstageable	28	42.4	25	36.2	39	49.4	39	50.6	42	50.0	173	46.1
Total	66	100.0	69	100.0	79	100.1	77	100.0	84	100.0	375	100.0

* Excludes Lymphoma Cases

APPENDIX A

1998 REQUESTS FOR TUMOR REGISTRY DATA

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

January	
Pediatric Cancer Cases with Site and Histology (1997) (MR Numbers)	Dr. H. Solh
Pediatric Brain & CNS Malignant Cases by Histology and Age Group (1975-1996)**	Dr. M. Mustafa
NHL Cases by Sex, Age Group, Nodal vs Extra-Nodal, Grade, Treatment, Stage and Year Diagnosed (1976-1995)*	Dr. A. Ezzat
February	
Breast Lymphoma Cases (1975-present) (MR Numbers)	Dr. A. Rostom
100 Breast Cancer Cases with City/Region where Diagnosed (1996) (MR Numbers) (Update of Previous Request)	Dr. O. Sjoklint
Brain Lymphoma Cases (1975-1996) (MR Numbers)*	Dr. A. Rostom
Ewing's Sarcoma Cases (except Head and Neck) (1975-present) (MR Numbers)	Dr. A. Allam
Pediatric Neuroblastoma Cases with Site, Stage and Treatment (1995-1996) (MR Numbers)**	Dr. M. Ayas
Adult Leiomyosarcoma Cases with Site (1975-1998) (MR Numbers)	Dr. A. Rifai
Pediatric Acute Myeloid Leukemia Cases with or without Radiation and Vital Status as of Last Contact Date (1983-1997)	Dr. D. Jenkin
March	
Acute Myeloid, Chronic Myeloid and Acute Lymphoid Leukemia Cases with City/Region where Diagnosed and Referring Hospital (1996-1997) (MR Numbers)	Dr. A Sullivan
Pediatric Hodgkin's Disease Cases (1975-1997) (MR Numbers)	Dr. M Mustafa
Pediatric High Grade Astrocytoma, Malignant Brain Rhabdoid and Germ Cell Tumor Cases (1975-1997) (MR Numbers)*	Dr. A. Kofide
April	
Oligodendroglioma Cases with Histology Grade (1975-1997) (MR Numbers)	Dr. A. Allam
Breast Cancer Cases with Neoadjuvant FAC (1997) (MR Numbers) (Update of Previous Request)	Dr. A. Ezzat
Non-Hodgkin's Lymphoma of the Bone Cases (1975-1982) (MR Numbers)*	Dr. Y. Khafaga
Small Cell Lung Cancer Cases with Stage and Other Relevant Information (1991-1996) (MR Numbers)	Dr. A. Radwi
Pediatric Neuroblastoma Cases (1994-1998) (MR Numbers)*	Dr. A. Kofide
Breast Cancer Cases with Family History of Cancer (1990-1995) (MR Numbers)	Dr. A. Ezzat
Adult Acute Myeloid by Year Diagnosed and Sex (1975-1996)**	Dr. F. Mohareb
Tongue Cancer Cases, T1-2 (1990-1995) (MR Numbers)*	Dr. N. Al Rajhi

Appendix A (cont'd)

May	
Male Breast Cancer Cases (1975-1996) (MR Numbers)	Dr. A. Ezzat
Adult Non-Hodgkin's Lymphoma Cases with Relevant Information (1990-1994) (MR Numbers)*	Dr. A. Kandil
Nasopharyngeal Cancer Cases who Had Chemotherapy (1990-1997) (MR Numbers)	Dr. A. Radwi
Pediatric Acute Myeloid Leukemia Cases (1997) (MR Numbers)**	Dr. S. Rifai
Uterine Sarcoma Cases (1975-1996) (MR Numbers)*	Dr. G. El Hosseiny
Bladder Cancer Cases with Bone Metastasis Pre-Cystectomy (1975-1997) (MR Numbers)	Dr. A. Peracha
Head and Neck Cancer Cases Treated by Radiation Therapy, with Site, Histology and Stage (1980-1995) (MR Numnbers)	Dr. A. Al Amro
Gynecological Malignant Cases by Age Group, Histology Stage and Treatment (1995-1997)	Dr. J. Hollanders
Pediatric Osteogenic Sarcoma Cases (1992-1997) (MR Numbers)	Dr. N. Mahgoub
Malignant Brain Tumors with Site, Histology, Age at Diagnosis and City/Region where Diagnosed (19785-1997) (MR Numbers)***	Dr. J. Al Watban
Male Breast Cancer Cases who Had Surgery, Radiation and Adjuvant Chemotherapy and/or Hormone (1975-1997) (MR Numbers)	Dr. A. Ezzat
July	
Pediatric Cancer Cases by Site and Year Diagnosed (1975-1997)	Dr. H. El Solh
Male Breast Cancer Cases from the Eastern Province (1975-1997) (MR Numbers)	Dr. A. Ezzat
Pediatric Acute Myeloid Leukemia Cases with Age at Diagnosis and Vital Status as of Last Contact Date (1995-1997) (MR Numbers)	Dr. S. Rifai
August	
Thyroid Cancer Cases, download from the Tumor Registry Database (1975-1997)	Dr. A. Al Arifi
September	
Pediatric Acute Lymphoid Leukemia Cases (1996-1997) (MR Numbers)	Dr. H. El Solh
Osteosarcoma and Ewing's Sarcoma Cases (1993-1997) (MR Numbers)	Dr. M. Memon
Pediatric Acute Myeloid Leukemia, Acute Lymphoid Leukemia and Non-Hodgkin's Lymphoma Cases (1997-1998) (MR Numbers)	Dr. M. Mustafa
Adult Acute Lymphoid Leukemia and Lymphoblastic Lymphoma Cases (1980-present) (MR Numbers)	Dr. O. Ayoub
Breast Cancer Cases who Had Neoadjuvant FAC or FEC or AC (1994-1997) (MR Numbers) (Update of Previous Request)	Dr. A. Ezzat
Adult Non-Hodgkin's Lymphoma Cases (1990-1995) (MR Numbers)*	Dr. A. Ezzat
Pediatric Malignant Brain Tumor Cases by Histology (1975-1997)	Dr. A. Kofide
Adult Malignant Germ Cell Tumor Cases, excluding Testis (1975-1998) (MR Numbers)*	Dr. S. Bazarbashi

Appendix A (cont'd)

October	
Pediatric Osteosarcoma Cases, Non-Metastatic, with Vital Status as of Last Contact Date (1994-1997) (MR Numbers)	Dr. M. Mustafa
Medulloblastoma Cases (1988-1997) (MR Numbers)	Dr. D. Jenkin
Pediatric Acute Lymphoid Leukemia Cases (1998) (MR Numbers)	Dr. H. El Solh
Breast and Ovarian Cancer Cases by Age Group, City/Region where Diagnosed and Family History of Cancer. Also MR Listing with Treatment and Vital Status as of Last Contact Date (1993-1997)***	Dr. M. Ranginwala
Giant Cell Bone Tumor Cases (1975-1997) (MR Numbers)	Dr. D. Younge
Ki-1 Lymphoma Cases with Age at Diagnosis, Sex, Site, Stage and Treatment (1990-1997)	Dr. A. Ezzat
Cutaneous T-Cell Lymphoma Cases (1975-1998) (MR Numbers)	Dr. A. Ezzat
November	
Pediatric Acute Lymphoid Leukemia and Acute Myeloid Leukemia Cases (1993-1998) (MR Numbers)	Dr. M. Al Bagshi
Renal Cell Carcinoma Cases, 0-18 Years Old, with Sex and Age at Diagnosis (1975-1997) (MR Numbers)**	Dr. M. Al Shabanah
Mantle Cell Lymphoma Cases (1975-1998) (MR Numbers)*	Dr. A. Ezzat
Adult Thyroid Cancer Cases with Relevant Information (1996-1997)	Ms. S. Tragoulia
Bone and Soft Tissue Malignant Cases Seen by Drs Younge and Moreau (1989-1997) (MR Numbers)	Dr. D. Younge
Breast Cancer Cases with Age at Diagnosis, Stage and Treatment (1995-1998) (MR Numbers)**	Dr. D. Menengami
Pediatric Acute Lymphoid Leukemia (1993-1998) (MR Numbers)	Dr. N. Mahgoub
Thyroid Cancer Cases, 0-20 Years Old (1975-1997) (MR Numbers)	Dr. A. Al Mutair
December	
Anal Canal Cancer Cases (1992-1997) (MR Numbers)	Dr. M. Manji
Pelvic Chondrosarcoma and Soft Tissue Sarcoma Cases (1975-1997 & 1994-1995, respectively) (MR Numbers)	Dr. Panta
Pituitary Tumor Cases (1985-1993) (MR Numbers)	Dr. I. Kanaan

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.