

**1994  
ANNUAL REPORT  
OF THE  
TUMOR REGISTRY**



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

#### 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 and members of the Tumor Committee recognize 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 Department  
Department of Oncology  
Home Health Care

#### SPECIAL THANKS TO:

Shouki Bazarbashi, M.D., Chairman, Tumor Committee  
Rajeh Sabbah, M.D., Chairman, Oncology Department  
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July 1995

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

### TUMOR REGISTRY

#### History

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 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 more than 28,400 malignant cases seen at KFSH&RC from June 1975 through December 31, 1994. About 2,000 new cases are added annually.

There are four (4) certified tumor registrars out of six (6) approved positions that 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 is the mechanism by 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.)

#### Data Use

Besides providing the statistics for the publication of the KFSH&RC annual report which summarizes the hospital's cancer experience, the data maintained in the Tumor Registry also support 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 1994, the Tumor Registry supported 45 data requests (see Appendix A for a listing of requests for Tumor Registry data).

#### Procedural and Administrative Activities During 1994

Staff vacancies continue to impact the Tumor Registry's ability to conduct comprehensive follow up on patients which entails review of the medical record for readmissions and clinic visits as well as contact with referral hospitals, patients and family. This function permits the medical staff to assess management decisions based on outcome, intervals from initiation of management and recurrence, along with the patient's quality of life and overall survival. It is the most labor intensive function within the Tumor Registry and requires personnel that have the technical knowledge to assess when a recurrence occurs versus when a patient develops a new primary cancer. There is a critical world-wide shortage of certified tumor registrars which has impacted in KFSH&RC ability to recruit for the vacancies. In response to the continued staff vacancies and with the support of the Tumor Committee and Chairman of the Department of Oncology, the following actions have been initiated:

Revision of two of the grade 8 job descriptions to permit recruitment of non-certified candidates who are credentialed in other allied health professions with the stipulation that they would be expected to become certified tumor registrars within two years of hire. Action: Revised job descriptions approved.

Addition of one grade 7 Tumor Registry Assistant who is bilingual and has a background in medical terminology, anatomy and computer applications. Action: This position has been filled.

Justification for wage and salary adjustments for the certified tumor registrar was sent to the Director of Manpower Services through the Chairman of the Department of Oncology. Action is still pending.

The CansurFacs software of the American College of Surgeons has been purchased and will provide the electronic support for international standardization of oncology data acquisition, reduce redundancies in data collection activities and promote better utilization of personnel. The Tumor Registry will continue to be hospital-wide core data base for all malignancies seen at KFSH&RC. The new software has an expanded core data set that meets the current basic data requirements and also offers the ability to support quality assurance through the collection of clinical indicator data as defined by the Joint Commission on Accreditation of Healthcare Organizations (JCAHO). The special purpose data bases will be able to access the Tumor Registry data through a local area network environment (LAN) and add to the core data set the specifics of the research investigations.

With the advent of the National Cancer Registry (NCR), the Tumor Registry was required to report all new malignancies diagnosed on or after 01 January 1994 to the NCR. This has been achieved through the use of the additional grade 7 Tumor Registry Assistant.

Based on quality control assessment of the 1993 paper abstracts, it was determined that the accuracy level for data collection was excellent. As a result, the tumor registrars directly enter the data to the computer from the medical record. With the time saved in duplication of collecting data, abstracting backlog has been reduced to two-three months from the date of discharge or completion of treatment. Another result of direct data entry is the earlier publication of the 1994 Annual Report.

At the request of the Tumor Registry, Medical Records Department and Computer Hospital Information Centre have developed an automated method of death notification within all areas of the hospital. This process will permit the unofficial notation on the patient's medical record that the information has been received that the patient has expired. This usually occurs through calls to the family when there is a "no show" to the clinic. Although this process is pending final approval, it will provide a service to many areas of the hospital with no limitation to patients with cancer.

Members of the Tumor Registry have supported and served as faculty in both external and internal training programs in Fundamental in Tumor Registry Operations. These training modules are products of the American College of Surgeons. One external two-day program was conducted in Jeddah and seven personnel from outside hospitals received on-site training at the KFSH&RC Tumor Registry.

All personnel of the Tumor Registry have attended external and internal educational programs that serve as continuing education of the staff.

#### **TUMOR COMMITTEE**

The multidisciplinary Tumor Committee, which meets bimonthly, is the policy-making body of the Cancer Program at KFSH&RC (see Appendix B for membership listing). During 1994, the Committee provided professional and administrative guidance to the Tumor Registry (as mentioned in the Tumor Registry Activity) and supported the following additional activities:

Continued development of oncology patient educational brochures.

Continued with the process of mandatory staging of newly diagnosed malignancies on the medical record through the Medical Record Committee.

Approved the collaborative effort between the Quality Assurance Department and the Tumor Registry of collecting oncology clinical indicators.

Approved participation in the Patient Care Evaluation Studies conducted yearly by the American College of Surgeons beginning with Carcinoma of the Esophagus.

Supported the Department of Oncology's review of oncology data collection areas directed at coordinating activities and reducing redundancies.

Approved the transfer of 1990 to present, Tumor Registry data to the new CansurFacs software, once available. The 1975-1989 data will be retained on the current system. This action is justified in that the 1990 to present data is more complete and also, follow up of patient will be easier to conduct on this population.

#### **TUMOR BOARD**

This educational conference is held as frequently as twice a month for the benefit of the attending staff, house staff, allied health professionals and visiting attending staff from other hospitals. Cases of various types of malignant disease are selected for presentation on the basis of complexity, unusual manifestations of the disease, or interest. Each presentation includes an outline of the medical history, physical findings, clinical course, radiographic studies, and pathological interpretations. Following each presentation, there is an informal discussion of the case and a review of pertinent medical literature. Those attending are encouraged to share personal experience in the management of similar cases. Please refer to Appendix C for a summary of cases presented in 1994.

#### **ONCOLOGY GRAND ROUNDS**

This didactic conference is held every other week and is attended by the Medical staff and allied health professionals. Speakers are drawn from the KFSH&RC Medical and Research staff as well as from visiting guests. Please refer to Appendix D for listing of the topics presented at the Oncology Grand Rounds in 1994.

# FIGURE 1-A

## KING FAISAL SPECIALIST HOSPITAL AND RESEARCH CENTRE

### CANCER REGISTRY WORKSHEET (CanSur 3.0)

PATIENT NAMEPLATE

<p><b>PF 10 TACS - ACCESSION FILE MAINTENANCE</b></p> <p>ACCESSION NUMBER (ACSN): <u>870123</u></p> <p>TUMOR SEQUENCE (SEQ): <u>00</u></p> <table style="width: 100%; font-size: small;"> <tr> <td style="width: 50%;"><b>Malignant/In situ tumors</b></td> <td style="width: 50%;"><b>Benign tumors</b></td> </tr> <tr> <td>00 - One primary only</td> <td>XX - One primary only</td> </tr> <tr> <td>01 - First of two or more</td> <td>AA - First of two or more</td> </tr> <tr> <td>....</td> <td>....</td> </tr> <tr> <td>98 - 8th or later primary</td> <td>III - 8th or later primary</td> </tr> <tr> <td>99 - Unspecified sequence</td> <td>II - Unspecified sequence</td> </tr> </table> <p>THIS CANCER ACCESSION YEAR: <u>87</u></p> <p>MEDICAL RECORD NO.: <u>394657</u></p> <p>CASE STATUS: <u>3</u></p> <table style="width: 100%; font-size: small;"> <tr> <td>0 - Suspense</td> <td>1 - Incomplete</td> <td>3 - Completed per Release 3</td> </tr> </table> <p>PATIENT NAME</p> <p>Last: _____</p> <p>First: _____</p> <p>Second: _____</p> <p>Third: _____</p> <p>ADDRESS AT DIAGNOSIS</p> <p>P.O. Box _____</p> <p style="text-align: center;"><u>Riyadh</u></p> <p style="text-align: center;">City</p> <p><u>RY</u> Prov. ZIP Code: _____ - _____</p>	<b>Malignant/In situ tumors</b>	<b>Benign tumors</b>	00 - One primary only	XX - One primary only	01 - First of two or more	AA - First of two or more	....	....	98 - 8th or later primary	III - 8th or later primary	99 - Unspecified sequence	II - Unspecified sequence	0 - Suspense	1 - Incomplete	3 - Completed per Release 3	<p><b>MARITAL STATUS AT DX:</b> <u>2</u></p> <table style="width: 100%; font-size: small;"> <tr> <td>1 - Single</td> <td>3 - Separated</td> <td>5 - Widowed</td> </tr> <tr> <td><u>2</u> - Married</td> <td>4 - Divorced</td> <td>9 - Unknown</td> </tr> </table> <p><b>RELIGION:</b> <u>01</u></p> <table style="width: 100%; font-size: small;"> <tr> <td><u>01</u> - Muslim</td> <td>03 - Hindu</td> <td>06 - Other</td> </tr> <tr> <td>02 - Christian</td> <td>04 - Buddhist</td> <td>99 - Unknown</td> </tr> </table> <p><b>ALCOHOL USAGE:</b> <u>3</u></p> <table style="width: 100%; font-size: small;"> <tr> <td>1 - Current alcohol usage</td> <td><u>3</u> - Never used alcohol</td> </tr> <tr> <td>2 - Past history of alcohol usage</td> <td>9 - Unknown</td> </tr> </table> <p><b>FAMILY HISTORY OF CANCER:</b> <u>1</u></p> <table style="width: 100%; font-size: small;"> <tr> <td><u>1</u> - Family history of cancer</td> <td>9 - Unknown</td> </tr> <tr> <td>2 - No family history of cancer</td> <td></td> </tr> </table> <p><b>SMOKING/CHEWING HISTORY:</b> <u>3</u></p> <table style="width: 100%; font-size: small;"> <tr> <td>1 - Current smoker cig.</td> <td>5 - Shamma</td> </tr> <tr> <td>2 - Past smoker</td> <td>6 - Shisha</td> </tr> <tr> <td><u>3</u> - Patient never smoked</td> <td>7 - Combo</td> </tr> <tr> <td>4 - Ghut</td> <td>8 - Other</td> </tr> <tr> <td></td> <td>9 - Unknown</td> </tr> </table> <p>TOTAL PACK YEARS: _____</p> <p>INDUSTRY: _____</p> <p>OCCUPATION: <u>Teacher</u></p> <p>DATE ADMITTED: (mm/dd/yyyy) <u>01/20/1987</u></p> <p>DATE DISCHARGED: (mm/dd/yyyy) <u>02/15/1987</u></p> <p><b>REPORTING SOURCE:</b> <u>1</u></p> <table style="width: 100%; font-size: small;"> <tr> <td><u>1</u> - Inpatient</td> <td>4 - Physician's office</td> <td>7 - Death Cert.</td> </tr> <tr> <td>2 - Clinic/outpatient</td> <td>5 - Nursing home</td> <td>9 - Unknown</td> </tr> <tr> <td>3 - Laboratory</td> <td>6 - Autopsy</td> <td></td> </tr> </table> <p>HOSPITAL REFERRED FROM: <u>0000101</u></p> <p style="text-align: center;"><u>Riyadh Central Hospital</u></p> <p>HOSPITAL REFERRED TO: _____</p>	1 - Single	3 - Separated	5 - Widowed	<u>2</u> - Married	4 - Divorced	9 - Unknown	<u>01</u> - Muslim	03 - Hindu	06 - Other	02 - Christian	04 - Buddhist	99 - Unknown	1 - Current alcohol usage	<u>3</u> - Never used alcohol	2 - Past history of alcohol usage	9 - Unknown	<u>1</u> - Family history of cancer	9 - Unknown	2 - No family history of cancer		1 - Current smoker cig.	5 - Shamma	2 - Past smoker	6 - Shisha	<u>3</u> - Patient never smoked	7 - Combo	4 - Ghut	8 - Other		9 - Unknown	<u>1</u> - Inpatient	4 - Physician's office	7 - Death Cert.	2 - Clinic/outpatient	5 - Nursing home	9 - Unknown	3 - Laboratory	6 - Autopsy	
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<p><b>PF 11 TPAT - PATIENT IDENTIFICATION</b></p> <p>SAUDI ID: <u>12345</u></p> <p>BIRTH DATE: <u>01/01/1946</u></p> <p>AGE AT DX: <u>41</u></p> <p>SEX: <u>2</u></p> <table style="width: 100%; font-size: small;"> <tr> <td>1 - Male</td> <td><u>2</u> - Female</td> <td>9 - Unknown</td> </tr> </table> <p>NATIONALITY: <u>00</u></p> <table style="width: 100%; font-size: small;"> <tr> <td><u>00</u> - Saudi</td> <td>04 - Yemeni</td> <td>08 -</td> </tr> <tr> <td>01 - Amer, Can, Brit</td> <td>05 - Other Arab</td> <td>09 - Other</td> </tr> <tr> <td>02 - Egyptian</td> <td>06 - Ind, Pak</td> <td></td> </tr> <tr> <td>03 - Leb, Syr, Pal</td> <td>07 - African</td> <td></td> </tr> </table>	1 - Male	<u>2</u> - Female	9 - Unknown	<u>00</u> - Saudi	04 - Yemeni	08 -	01 - Amer, Can, Brit	05 - Other Arab	09 - Other	02 - Egyptian	06 - Ind, Pak		03 - Leb, Syr, Pal	07 - African																																									
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FIGURE 1-B

PF 12                      TEXT - 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

---

SCOPES / 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) 01/19/87

CLASS OF CASE: 1

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

PRIMARY SITE - TEXT: Breast, Right UOQ

CODE: 1741

HISTOLOGY - TEXT: Duct Cell Carcinoma, gr 3

CODE: 8500/3

TCAN - Cancer Identification (Continued)

GRADE: 3 |

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

LATERALITY: 1 |

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

DX CONFIRMATION: 1 |

1 - Positive histology	6 - Direct visualization
2 - Cytology	7 - Pathography
4 - Pos. micro, confirm, HOS	8 - Clinical
5 - Laboratory test/marker	9 - Unknown

REGIONAL NODES EXAMINED: 1 | 9 |

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

REGIONAL NODES POSITIVE: 1 | 1 |

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

TUMOR SIZE (cm) 10 | 2 | 2 |

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

RESIDUAL TUMOR: 10 |

0 - None	2 - Macroscopic	9 - Unknown
1 - Microscopic	8 - No reaction, NA	

DISANT METS: 1 | |

0 - Bone Mar.	4 - Liver	8 - Lymphnode (distal)	2
1 - Peritoneum	5 - Bone	9 - Unknown/other	3
2 - Lung	6 - CNS		
3 - Pleura	7 - Skin		

GENERAL SUMMARY STAGE: 1 | 3 |

0 - In situ	4 - Regional, both 2 & 3
1 - Localized	5 - Regional, HOS
2 - Regional, direct extension	7 - Distant
3 - Regional, nodes	9 - Unknown/instageable

AJCC STAGE:

CLINICAL T 2 | N 1 | M 0 | STAGE GROUP 2 | B |

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

OTHER \*\*\* [ ] T [ ] N [ ] M [ ] STAGE GROUP [ ] |

\*TNM Codes - (use alpha codes as appropriate; eg. T2A 2A, T2 2, N1B 1B, M0 0, IS - in situ, X - Unknown)

\*\*AJCC Stage Group - use alpha codes as appropriate; eg. 3A Stage IIIA, 1 - Stage I

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

\*\*\*Other Basis: (S - Single), A - Autopsy, N - Not treated

FIGURE 1-C

<p><b>PF 14 TRX1 - 1ST COURSE TREATMENT (SURGERY, RADIATION)</b></p> <p><b>SURGERY</b></p> <p>REASON: <span style="float: right;">  0  </span></p> <table style="width: 100%; border: none;"> <tr> <td style="width: 50%; border: none;"> <input checked="" type="radio"/> Can directed surg performed                  1 - Not recommended                  2 - Contraindicated, other             </td> <td style="width: 50%; border: none;">                 6 - Reason unknown, no surg                  7 - Patient/guardian refused                  8 - Recommended, unk if done                  9 - unknown             </td> </tr> </table> <p>SUMMARY: (Entire 1st course) <span style="float: right;">b   0  </span></p> <p>AT THIS HOSPITAL: <span style="float: right;">b   0  </span></p> <p>* Refer to Appendix A in CanSur User Manual for site specific codes.</p> <p>STARTED: (mm/dd/yyyy) <span style="float: right;">  0   1   /   2   5   /   1   9   8   7  </span></p> <p>TEXT: <u>Rt Mod Rad Mastectomy w/ Rt Axillary Dissection</u></p> <hr/> <p><b>RADIATION</b></p> <p>SUMMARY:</p> <p>AT THIS HOSPITAL <span style="float: right;">  1  </span></p> <table style="width: 100%; border: none;"> <tr> <td style="width: 50%; border: none;">                 0 - No Radiation therapy  <input checked="" type="radio"/> No radiation                  2 - Radioactive implants                  3 - Radioisotopes                  4 - Combs 1 + 2 or 3             </td> <td style="width: 50%; border: none;">                 5 - Radiation therapy, NOS <span style="float: right;">  1  </span>                  7 - Patient/guardian refused                  8 - Recommended, unk if done                  9 - Unknown             </td> </tr> </table> <p>STARTED: (mm/dd/yyyy) <span style="float: right;">  0   8   /   2   9   /   1   9   8   7  </span></p> <p>TO BRAIN &amp; CNS: (Lung &amp; leukemia cases only) <span style="float: right;">  9  </span></p> <table style="width: 100%; border: none;"> <tr> <td style="width: 50%; border: none;">                 0 - None to CNS                  1 - Radiation therapy                  7 - Patient/guardian refused             </td> <td style="width: 50%; border: none;">                 6 - Recommended, unk if done  <input checked="" type="radio"/> Unknown/not applicable             </td> </tr> </table> <p>RADIATION/SURGERY SEQ: <span style="float: right;">  3  </span></p> <table style="width: 100%; border: none;"> <tr> <td style="width: 50%; border: none;">                 0 - Not applicable                  2 - Radiation before surgery  <input checked="" type="radio"/> Radiation after surgery                  4 - Before &amp; after surgery             </td> <td style="width: 50%; border: none;">                 5 - Intraoperative radiation                  6 - Intraoperative plus 2, 3 or 4                  9 - Sequence unknown             </td> </tr> </table> <p>TEXT: <u>Chest Wall 6000</u></p>	<input checked="" type="radio"/> 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	0 - No Radiation therapy <input checked="" type="radio"/> No radiation 2 - Radioactive implants 3 - Radioisotopes 4 - Combs 1 + 2 or 3	5 - Radiation therapy, NOS <span style="float: right;">  1  </span> 7 - Patient/guardian refused 8 - Recommended, unk if done 9 - Unknown	0 - None to CNS 1 - Radiation therapy 7 - Patient/guardian refused	6 - Recommended, unk if done <input checked="" type="radio"/> Unknown/not applicable	0 - Not applicable 2 - Radiation before surgery <input checked="" type="radio"/> Radiation after surgery 4 - Before & after surgery	5 - Intraoperative radiation 6 - Intraoperative plus 2, 3 or 4 9 - Sequence unknown	<p><b>PF 16 TRX3 - 1st COURSE TREATMENT (CHEMO, HORMONES, BMT, OTHER)</b></p> <p><b>CHEMOTHERAPY</b></p> <p>SUMMARY: <span style="float: right;">  3  </span></p> <p>AT THIS HOSPITAL: <span style="float: right;">  3  </span></p> <table style="width: 100%; border: none;"> <tr> <td style="width: 50%; border: none;">                 0 - No chemotherapy                  1 - Chemotherapy, NOS  <input checked="" type="radio"/> Chemotherapy, multi-agent combination             </td> <td style="width: 50%; border: none;">                 7 - Patient/guardian refused                  8 - Recommended, unk if done                  9 - Unknown             </td> </tr> </table> <p>STARTED: (mm/dd/yyyy) <span style="float: right;">  0   2   /   1   3   /   1   9   8   7  </span></p> <p>TEXT: <u>5-FU, Adria, Ctx</u></p> <hr/> <p><b>HORMONE/STEROIDS</b></p> <p>SUMMARY: <span style="float: right;">  1  </span></p> <p>AT THIS HOSPITAL: <span style="float: right;">  1  </span></p> <table style="width: 100%; border: none;"> <tr> <td style="width: 50%; border: none;">                 0 - No hormonal therapy  <input checked="" type="radio"/> Hormonal therapy                  2 - Endocrine surg/radiation                  3 - Hormones + ender surg/rad             </td> <td style="width: 50%; border: none;">                 7 - Patient/guardian refused                  8 - Recommended, unk if done                  9 - Unknown             </td> </tr> </table> <p>STARTED: (mm/dd/yyyy) <span style="float: right;">  0   2   /   0   9   /   1   9   8   7  </span></p> <p>TEXT: <u>Tamoxifen</u></p> <hr/> <p><b>BIO-RESPONSE MODIFIER (BRM)</b></p> <p>SUMMARY: <span style="float: right;">  0  </span></p> <p>AT THIS HOSPITAL: <span style="float: right;">  0  </span></p> <table style="width: 100%; border: none;"> <tr> <td style="width: 50%; border: none;"> <input checked="" type="radio"/> No BRM                  1 - BRM                  2 - Allo BMT                  3 - Auto BMT             </td> <td style="width: 50%; border: none;">                 7 - Patient/guardian refused                  8 - Recommended, unk if done                  9 - Unknown             </td> </tr> </table> <p>STARTED: (mm/dd/yyyy) <span style="float: right;">      /       /                </span></p> <p>TEXT: _____</p> <hr/> <p><b>OTHER RX</b></p> <p>SUMMARY: <span style="float: right;">  0  </span></p> <p>AT THIS HOSPITAL: <span style="float: right;">  0  </span></p> <table style="width: 100%; border: none;"> <tr> <td style="width: 50%; border: none;"> <input checked="" type="radio"/> In other ca directed rx                  1 - Other ca directed rx                  2 - Experimental ca rx                  3 - Double-blind study             </td> <td style="width: 50%; border: none;">                 0 - Unknown therapy                  7 - Patient/guardian refused                  8 - Recommended, unk if done                  9 - Unknown             </td> </tr> </table> <p>STARTED: (mm/dd/yyyy) <span style="float: right;">      /       /                </span></p> <p>TEXT: _____</p>	0 - No chemotherapy 1 - Chemotherapy, NOS <input checked="" type="radio"/> Chemotherapy, multi-agent combination	7 - Patient/guardian refused 8 - Recommended, unk if done 9 - Unknown	0 - No hormonal therapy <input checked="" type="radio"/> Hormonal therapy 2 - Endocrine surg/radiation 3 - Hormones + ender surg/rad	7 - Patient/guardian refused 8 - Recommended, unk if done 9 - Unknown	<input checked="" type="radio"/> No BRM 1 - BRM 2 - Allo BMT 3 - Auto BMT	7 - Patient/guardian refused 8 - Recommended, unk if done 9 - Unknown	<input checked="" type="radio"/> In other ca directed rx 1 - Other ca directed rx 2 - Experimental ca rx 3 - Double-blind study	0 - Unknown therapy 7 - Patient/guardian refused 8 - Recommended, unk if done 9 - Unknown								
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<p><b>PF 18 TRX2 - SUB. THERAPY</b></p> <table style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 10%;"></th> <th style="width: 15%;">Started mm/dd/yyyy</th> <th style="width: 15%;">Course</th> <th style="width: 10%;">Type</th> <th style="width: 10%;">Code</th> <th style="width: 10%;">Desc.</th> </tr> </thead> <tbody> <tr> <td>1.</td> <td>      /       /                </td> <td>     </td> <td>   </td> <td>   </td> <td>     </td> </tr> <tr> <td>2.</td> <td>      /       /                </td> <td>     </td> <td>   </td> <td>   </td> <td>     </td> </tr> <tr> <td>3.</td> <td>      /       /                </td> <td>     </td> <td>   </td> <td>   </td> <td>     </td> </tr> </tbody> </table>			Started mm/dd/yyyy	Course	Type	Code	Desc.	1.	/       /					2.	/       /					3.	/       /				
	Started mm/dd/yyyy	Course	Type	Code	Desc.																				
1.	/       /																								
2.	/       /																								
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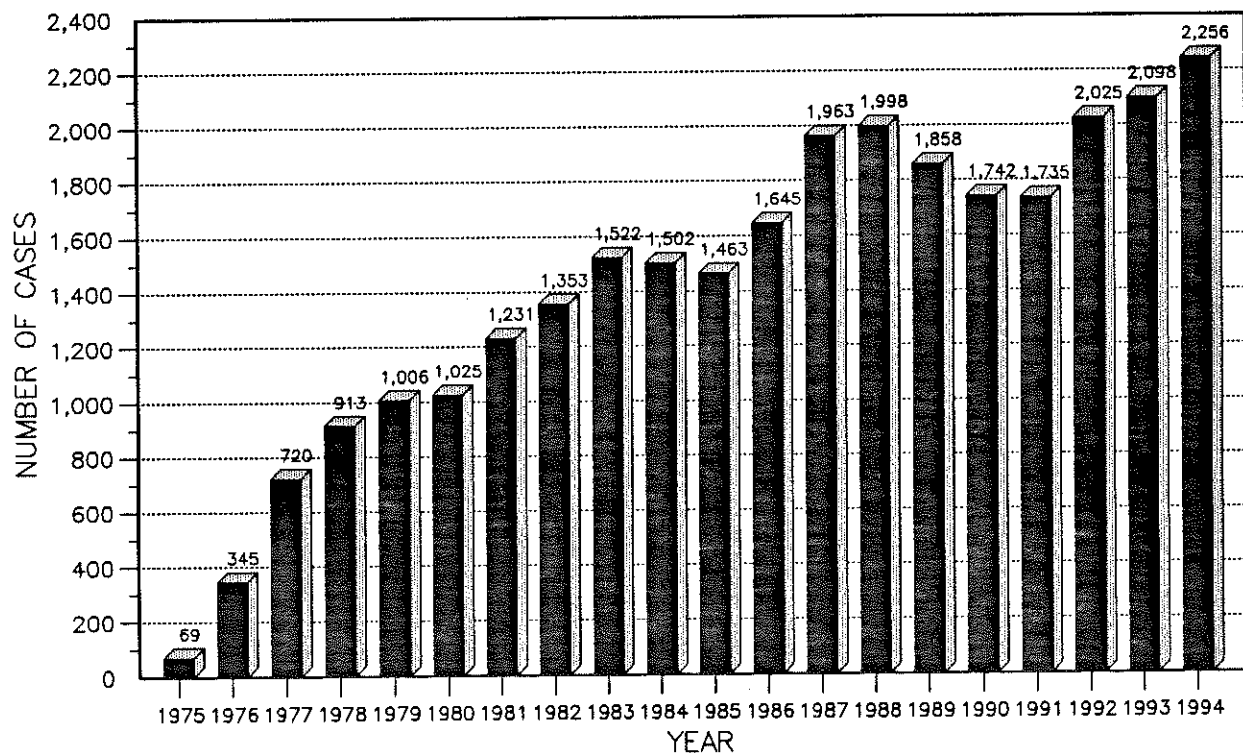
FIGURE 1-D

PF 17 TFUI - FOLLOW-UP INFORMATION	PF 20 THEM - REMARKS/SPECIAL DATA ITEMS
LAST CONTACT/DATE: (mm/dd/yyyy)   1   0   /   1   7   /   1   9   8   9	FILE FORMAT AREA: REMARKS: <u>Mother died of breast cancer.</u>
CAUSE OF DEATH ICD CODE:	
CURRENT VITAL STATUS: (1) Alive 2 Dead   1	
CURRENT CANCER STATUS: 1 - No evidence of cancer (2) Evidence of cancer 9 - Unknown   2	OVERRIDE FIELDS (Y - Bypass edit, leave blank if edit not bypassed)
QUALITY OF SURVIVAL: 0 - Normal 3 - Amb - 50% 8 - NA, dead 1 - Sym & amb 4 - Bedridden (9) Unknown   19	SITE/INST: AGE /SITE/INST: SEQNO/SITE/INST:
LETTER FLAGS - PATIENT (letter or asterisk, eg., *, A, B, I)	SPECIAL FIELDS: / 1: Hepatitis
CONTACT (eg. 0 - last contact, 3 - third contact)	/ 2: Bilharzia
CURRENTLY FOREIGN RESIDENT: Y - Yes, foreign resident, leave blank for all others	/ 3: Burn Scar
CONTACT FREQUENCY:         months (eg. 01 - One month, 03 - 3 months, 12 - Annual follow-up)	/ 4: Consanguinity
CHRONIC CONDITIONS:	/ 5: Predisposing Factors
PLACE OF DEATH (State of country - Geocode)	/ 6: Pregnancy during dx/tx
RECURRENTS OR OBSESSION DATE: (mm/dd/yyyy)   1   0   9   /   1   0   /   1   9   8   9	/ 7: Bone Transplant
TYPE: 0 - No recurrence (3) Distant recurrence 1 - Local recurrence 4 - Never free 2 - Regional recurrence 9 - Unknown   13	/ 8: Immunodeficiency Disorder
DISTAL METS: 0 - Nil (1) Liver 8 - Lymph node (distant) 2:   4   1 - Peritoneum (5) Bone 9 - Unknown/Other 3:   5   2 - Lung 6 - CNS 3 - Pleura 7 - Skin	PF 21 TADM - PATIENT NAME ADDRESS FILE
MUTATION FLAGS CODE PHYSICIAN NAME	MAILING NAME:
1. ATTENDING PHYSICIAN:       1   0   1   1   2   3   4   Oncologist	SALUTATION:
2. OTHER PHYSICIAN:       1   0   7   1   6   7   8   Rad. Onc	ADDRESS 1: Riyadh
3. OTHER PHYSICIAN:       1   0   9   2   1   8   5   Surgeon	ADDRESS 2:
4. OTHER PHYSICIAN:	CITY: Riyadh
5. OTHER PHYSICIAN:	PROV. [RY] ZIP CODE:
6. OTHER PHYSICIAN:	TELEPHONE: (         ) 445 1-6778 EXT:
LAST SOURCE TO HOSP:	COMMENT:
NEXT HOSP FOR FD:	PATIENT/GUARDIAN CODE: P - Patient G - Guardian
DEATH CERTIFICATE FILE NO:	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. NUM: 89856

## II. KFSH&RC CANCER PATIENT POPULATION

A total of 2,256 cases were accessioned in 1994, with 1,167 males and 1,089 females or a male/female ratio of 1.1:1. This represents a 7.5% increase from 1993.

FIGURE 2  
DISTRIBUTION OF ALL CASES ACCESSIONED BY YEAR  
1975 - 1994 (TOTAL CASES = 28,469)



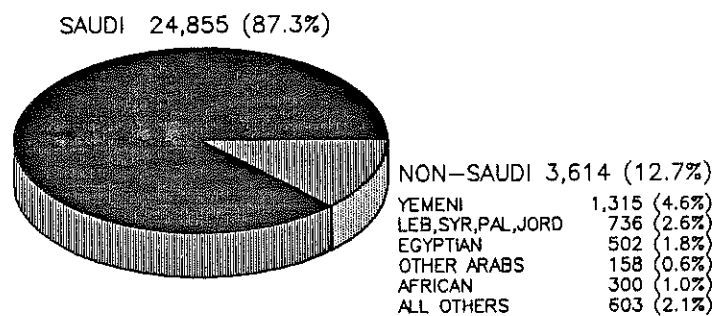
From the opening of the hospital (mid 1975) until December 1994, 28,469 cancer cases were registered (15,643 males and 12,826 females) with a male/female ratio of 1.2:1. There were 3,588 (12.6%) pediatric cases (0 to 14 years of age) and 24,881 (87.4%) adults (15 years old and above). Only a slight difference in the proportion was noted in 1994, 12.5% (281) for pediatrics and 87.5% (1,975) for adults.

TABLE 1  
ALL CASES SEEN AT KFSH&RC (MALE/FEMALE & CHILDREN/ADULTS) BY 5-YEAR PERIOD  
1975 - 1994

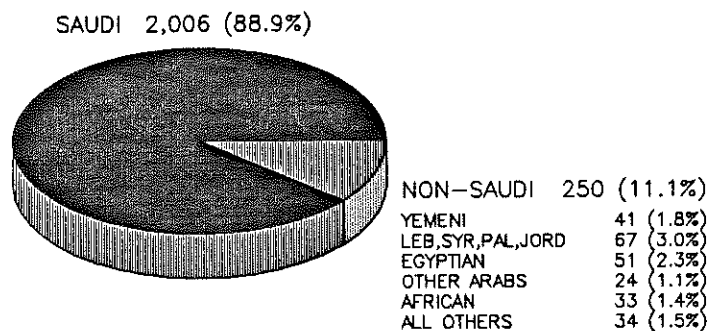
	1975-1976*		1977-1981		1982-1986		1987-1991		1992-1994		T O T A L	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
MALE	280		2,968		4,137		4,962		3,296		15,643	
FEMALE	134		1,927		3,348		4,334		3,083		12,826	
TOTAL	414		4,895		7,485		9,296		6,379		28,469	
M/F RATIO	2.1:1		1.5:1		1.2:1		1.1:1		1.1:1		1.2:1	
CHILDREN**	55	13.3	588	12.0	985	13.2	1,158	12.5	802	12.6	3,588	12.6
ADULTS	359	86.7	4,307	88.0	6,500	86.8	8,138	87.5	5,577	87.4	24,881	87.4
TOTAL	414	100	4,895	100	7,485	100	9,296	100	6,379	100	28,469	100

\* First two years of KFSH&RC partial operation.  
\*\* Children = 0 to 14 years of age; Adults = 15 years and above.

FIGURE 3  
DISTRIBUTION OF ALL CASES BY NATIONALITY  
1975 - 1994 (TOTAL CASES = 28,469)



1994 CASES (TOTAL = 2,256)

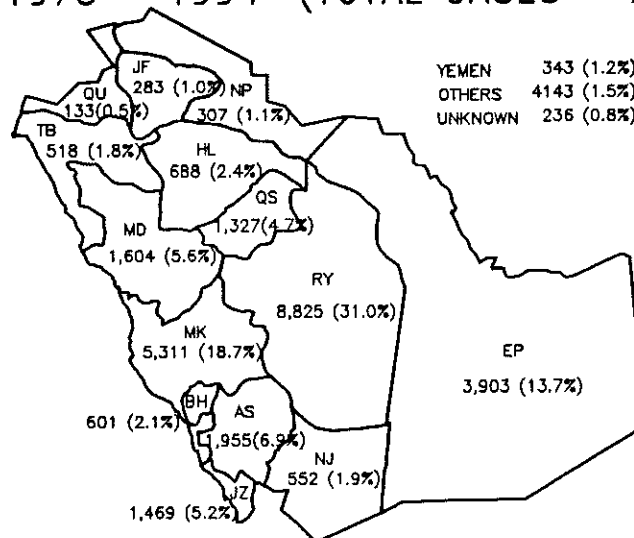


Saudi nationals totalled 2,006 (88.9%) in 1994 and the non-Saudi, 250 (11.1%). During the period 1975 to 1994, the former accounted for 87.3% (24,855) while the latter, 12.7% (3,614).

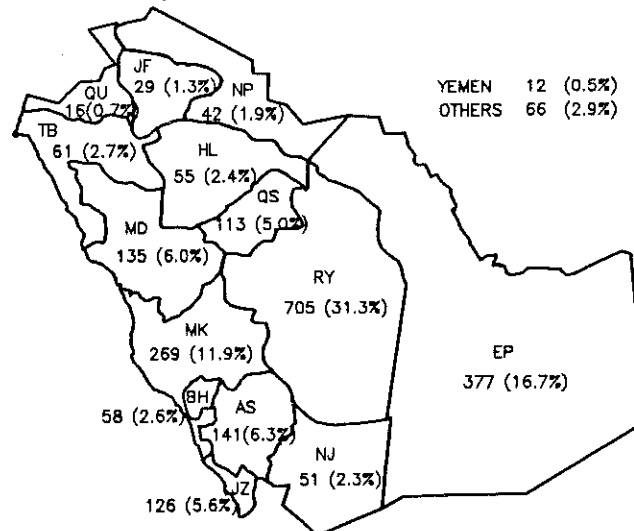
Geographically, the referral pattern is mainly from the Riyadh Region with 31.3% of all cases, followed by the Eastern Province and the Makkah Region with 16.7% and 11.9%, respectively, in 1994. The same regions had the most number of cases during the 20 years in review, i.e., 31.0% from Riyadh, 18.7% from Makkah and 13.7% from the Eastern Province.

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

FIGURE 4  
DISTRIBUTION OF ALL CASES BY GEOGRAPHIC REGION  
(Based on Given Address at the Time of Diagnosis)  
1975 - 1994 (TOTAL CASES = 28,469)



1994 (TOTAL CASES = 2,256)



AS - ASIR	JZ - JIZAN	QS - AL QASSIM
BH - AL BAHA	MD - AL MADINAH	QU - AL QURAYYAT
EP - EASTERN PROVINCE	MK - MAKKAH	RY - RIYADH
HL - HAIL	NJ - NAJRAN	TB - TABUK
JF - AL JAWF	NP - NORTHERN PROVINCE	

## TRENDS IN RELATIVE FREQUENCY OF CANCER AT KFSH&RC

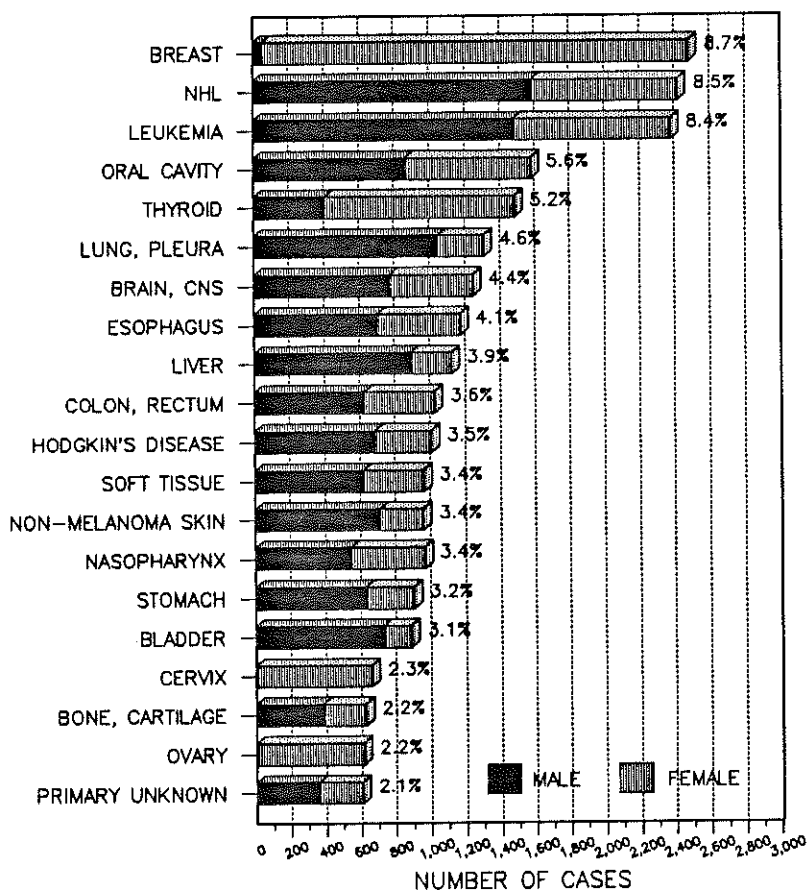
The crude relative frequency is the proportion of a given cancer in relation to all cases in a clinical or pathological series. Although such frequencies are subject to many biases, historically many elevated frequencies have been confirmed when complete cancer registration was introduced.

Biases that may have an affect 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 a speciality service 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 1994 with 8.7%, followed by Non-Hodgkin's Lymphoma (8.5%), Leukemia (8.4%), Oral Cavity (5.6%) and Thyroid (5.2%).

FIGURE 5  
DISTRIBUTION OF 20 MOST COMMON MALIGNANCIES  
1975 - 1994 ( TOTAL CASES = 28,469)



Cancer among children (under the age of 15) accounted for 12.6% of all cases from 1975 to 1994. The five most common childhood malignancies were Leukemia (26.1%), Lymphoma (20.7%) [NHL 12.5% and HD 8.2%], Brain/CNS (15.5%), Soft Tissue (9.2%) and Eye (7.7%).

FIGURE 6  
DISTRIBUTION OF 10 MOST COMMON CHILDHOOD MALIGNANCIES  
1975 - 1994 (TOTAL CASES = 3,588)

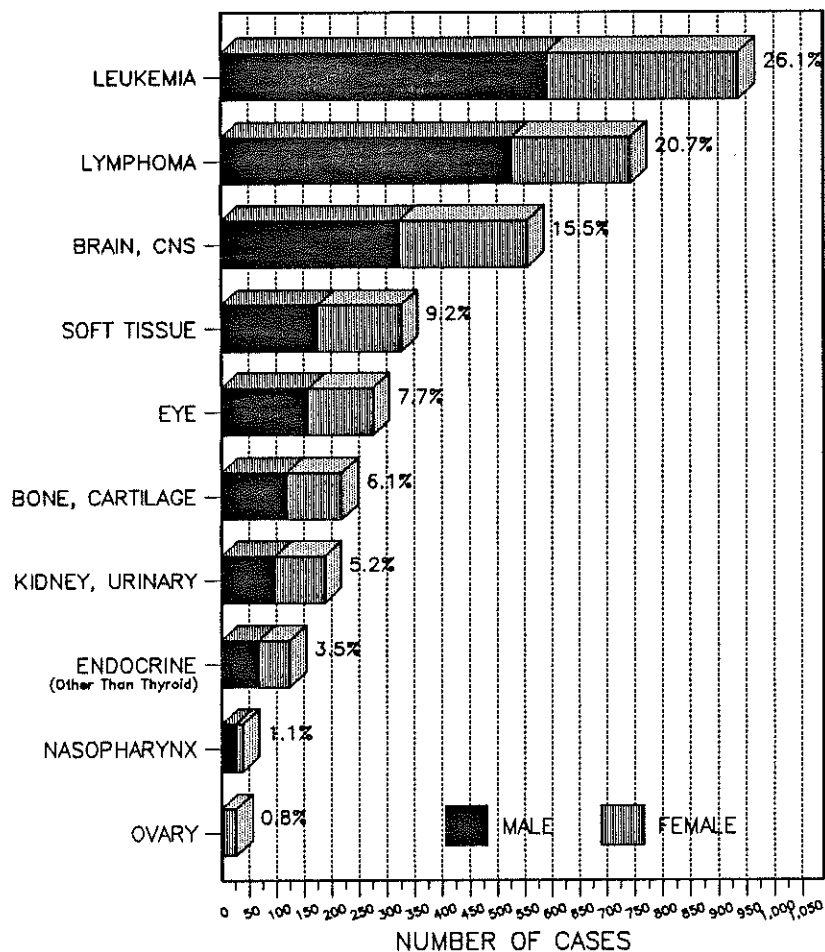


Table 2 shows the number of all malignant cases seen at KFSH&RC from 1975 to 1994 by site and year and Table 3, the 5-year summaries.



FIGURE 7  
 DISTRIBUTION OF 10 MOST COMMON CHILDHOOD MALIGNANCIES  
 BY HISTOLOGY, 1975 - 1994 (TOTAL CASES = 3,588)

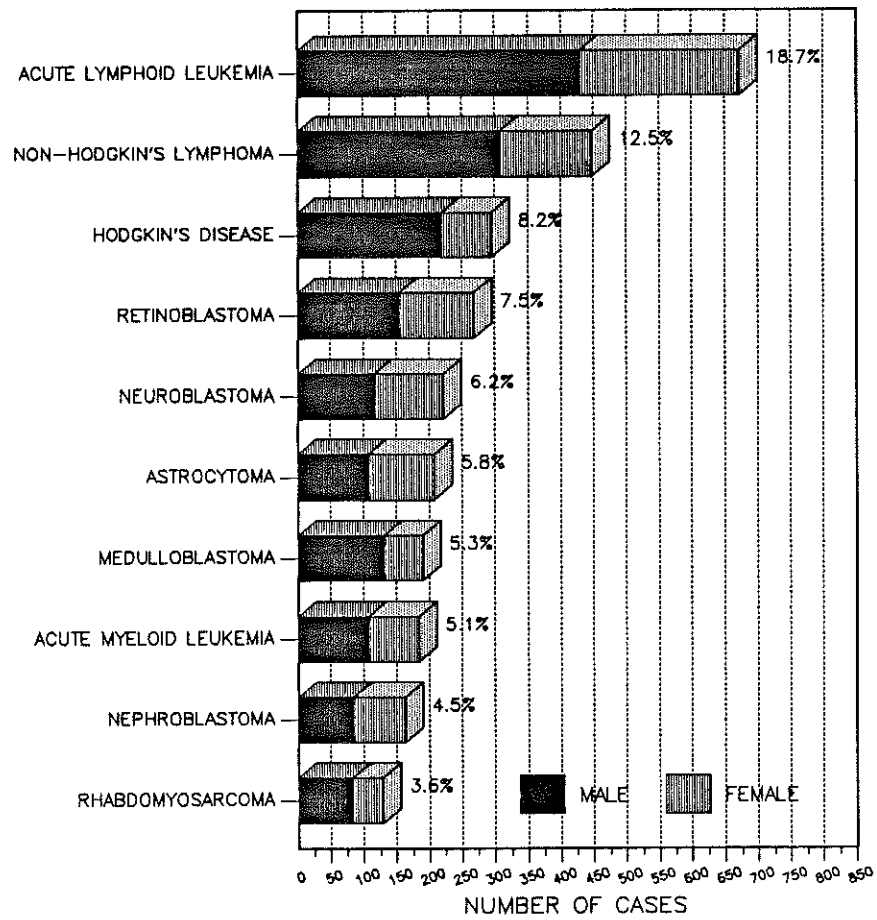


TABLE 2

ALL CASES SEEN AT KFSHRC BY SITE\* AND YEAR  
1975 - 1994

SITE	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	TOTAL
Oral Cavity	1	14	33	80	67	68	54	79	99	82	100	73	95	127	103	103	101	111	98	96	1,584
Nasopharynx	3	11	39	35	38	34	48	45	64	46	45	48	79	64	62	62	61	53	59	58	954
Esophagus	1	15	51	62	67	68	58	62	75	76	56	69	77	66	68	72	66	68	47	50	1,174
Stomach	2	15	32	35	49	37	48	51	66	58	48	63	59	47	51	51	35	48	42	68	905
Colon, Rectum	1	13	22	24	30	36	47	38	42	59	45	50	70	82	61	64	80	88	82	92	1,026
Liver	7	15	33	44	49	33	43	55	52	64	56	84	76	71	68	54	65	75	81	98	1,123
Pancreas	1	5	7	11	16	11	21	20	14	20	17	27	19	16	27	12	13	26	21	22	326
Other G.I.	2	5	10	11	10	15	10	10	11	14	16	22	28	22	20	20	13	28	31	32	330
Larynx	1	5	11	11	13	16	23	14	23	19	25	16	24	33	21	26	34	27	31	35	408
Lung, Pleura	3	11	24	34	45	40	54	63	76	77	89	85	83	108	91	76	85	83	90	93	1,310
Multiple Myeloma	0	5	6	11	8	8	9	13	9	12	14	12	24	20	29	13	24	24	22	32	294
Lymphoid Leukemia	4	14	15	38	32	37	53	69	65	48	59	84	92	78	75	55	74	77	87	69	1,125
Myeloid Leukemia	3	13	22	44	50	38	62	49	42	69	55	72	86	71	72	70	71	60	92	75	1,116
Other Leukemias	0	1	3	5	9	6	6	6	9	10	6	3	7	8	9	7	12	6	10	16	139
Reticuloendothelium	0	1	0	1	1	1	1	1	1	1	1	6	2	1	1	1	0	0	0	2	22
Bone, Cartilage	1	6	12	25	18	22	21	40	35	40	23	29	38	43	45	36	37	50	52	55	628
Soft Tissue	1	14	32	33	38	27	41	45	36	45	49	57	60	58	65	71	84	61	57	90	964
Skin Melanoma	0	4	4	8	8	4	7	4	11	12	9	8	11	12	6	5	8	13	8	7	149
Non-Melanoma Skin Ca	2	14	27	31	47	42	51	56	55	56	69	69	49	51	58	46	53	61	54	64	955
Breast	3	24	53	46	57	63	101	110	110	151	131	125	174	193	137	168	168	187	249	236	2,486
Uterus, Genital	0	2	10	10	15	11	16	15	35	21	19	28	36	37	33	34	31	41	36	53	483
Cervix	0	10	18	18	23	18	23	25	33	32	41	54	51	50	33	44	35	52	50	52	662
Ovary	2	6	10	10	17	20	21	35	32	27	24	35	43	48	53	46	37	45	54	50	615
Prostate	0	7	5	4	5	11	11	18	26	17	21	16	22	27	27	23	16	37	26	45	364
Testis, Genital	0	4	10	8	13	10	15	13	11	15	13	14	17	19	13	19	15	21	27	25	282
Bladder	4	7	12	23	29	37	35	23	42	35	45	52	79	74	73	58	44	63	87	69	891
Kidney, Urinary	0	9	18	19	18	16	18	31	24	22	26	43	34	58	33	34	35	53	51	64	606
Eye	0	6	11	18	11	22	27	35	25	16	30	22	32	41	24	28	6	15	38	25	432
Brain, CNS	3	24	27	38	26	31	31	77	51	58	49	72	88	92	98	81	84	112	88	117	1,247
Thyroid	2	8	17	29	33	43	57	50	64	71	63	82	119	112	110	93	110	141	133	151	1,488
Other Endocrine	1	1	2	2	2	9	7	8	15	9	18	9	12	13	2	6	8	14	11	9	158
MHL - Lymph Nodes	4	19	62	72	97	97	113	99	136	109	88	84	96	100	92	92	70	88	79	79	1,676
MHL - Extra-nodal	0	4	10	2	6	15	17	16	36	30	36	57	61	53	73	62	53	61	75	78	745
Hodgkin's Disease-LNs	13	19	40	41	35	42	45	42	53	50	48	44	64	57	74	56	56	72	71	76	998
HD - Extra-nodal	0	0	0	0	0	0	0	0	1	0	0	1	0	0	1	0	0	3	2	2	10
Primary Unknown	3	11	23	21	19	27	31	25	33	25	22	23	36	32	43	41	40	50	41	61	607
All Other Sites	1	3	9	9	5	9	8	11	10	6	7	7	20	14	7	13	11	11	16	10	187
TOTAL	69	345	720	913	1006	1025	1231	1353	1522	1502	1463	1645	1963	1998	1858	1742	1735	2025	2098	2256	28,469

\* Includes Multiple Primary Neoplasms.

TABLE 3

ALL CASES SEEN AT KFSHRC BY SITE\* AND 5-YEAR PERIOD  
1975 - 1994

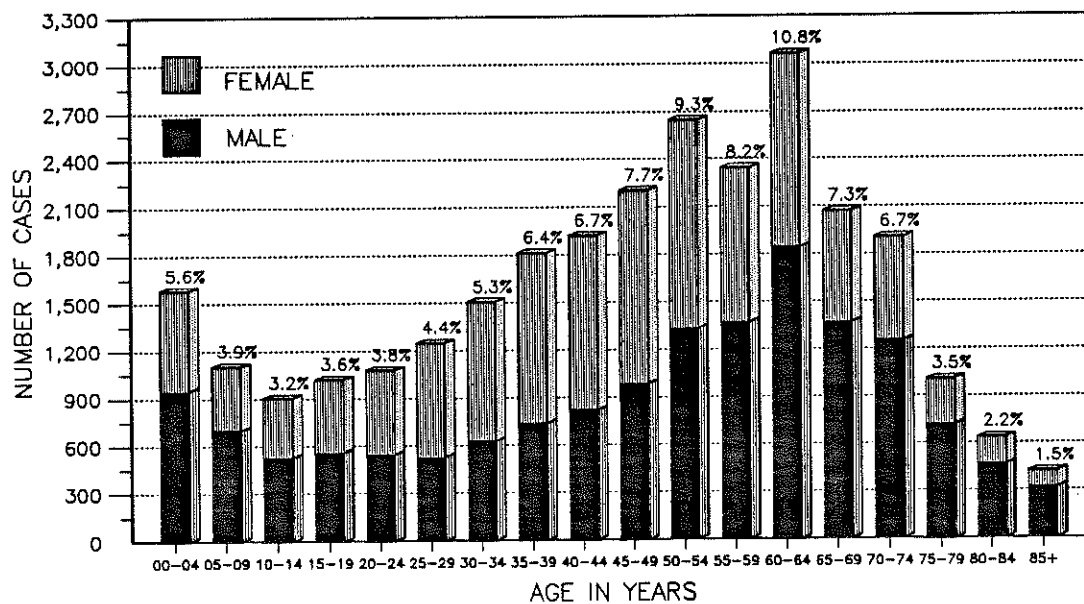
SITE	1975-1976**		1977-1981		1982-1986		1987-1991		1992-1994		TOTAL	
	No	%	No	%	No	%	No	%	No	%	No	%
Oral Cavity	15	3.6%	302	6.2%	433	5.8%	529	5.7%	305	4.8%	1,584	5.6%
Nasopharynx	14	3.4%	194	4.0%	248	3.3%	328	3.5%	170	2.7%	954	3.4%
Esophagus	16	3.9%	306	6.3%	338	4.5%	349	3.8%	165	2.6%	1,174	4.1%
Stomach	17	4.1%	201	4.1%	286	3.8%	243	2.6%	158	2.5%	905	3.2%
Colon, Rectum	14	3.4%	159	3.2%	234	3.1%	357	3.8%	262	4.1%	1,026	3.6%
Liver	22	5.3%	202	4.1%	311	4.2%	334	3.6%	254	4.0%	1,123	3.9%
Pancreas	6	1.4%	66	1.3%	98	1.3%	87	0.9%	69	1.1%	326	1.1%
Other G.I.	7	1.7%	56	1.1%	73	1.0%	103	1.1%	91	1.4%	330	1.2%
Larynx	6	1.4%	74	1.5%	97	1.3%	138	1.5%	93	1.5%	408	1.4%
Lung, Pleura	14	3.4%	197	4.0%	390	5.2%	443	4.8%	266	4.2%	1,310	4.6%
Multiple Myeloma	5	1.2%	41	0.8%	60	0.8%	110	1.2%	78	1.2%	294	1.0%
Lymphoid Leukemia	18	4.3%	175	3.6%	325	4.3%	374	4.0%	233	3.7%	1,125	4.0%
Myeloid Leukemia	16	3.9%	216	4.4%	287	3.8%	370	4.0%	227	3.6%	1,116	3.9%
Other Leukemias	1	0.2%	29	0.6%	34	0.5%	43	0.5%	32	0.5%	139	0.5%
Reticuloendothelium	1	0.2%	4	0.1%	10	0.1%	5	0.1%	2	0.0%	22	0.1%
Bone, Cartilage	7	1.7%	98	2.0%	167	2.2%	199	2.1%	157	2.5%	628	2.2%
Soft Tissue	15	3.6%	171	3.5%	232	3.1%	338	3.6%	208	3.3%	964	3.4%
Skin Melanoma	4	1.0%	31	0.6%	44	0.6%	42	0.4%	28	0.4%	149	0.5%
Non-Melanoma Skin Ca	16	3.9%	198	4.0%	305	4.1%	257	2.8%	179	2.8%	955	3.4%
Breast	27	6.5%	320	6.5%	627	8.4%	840	9.0%	672	10.5%	2,486	8.7%
Uterus, Genital	2	0.5%	62	1.3%	118	1.6%	171	1.8%	130	2.0%	483	1.7%
Cervix	10	2.4%	100	2.0%	185	2.5%	213	2.3%	154	2.4%	662	2.3%
Ovary	8	1.9%	78	1.6%	153	2.0%	227	2.4%	149	2.3%	615	2.2%
Prostate	7	1.7%	36	0.7%	98	1.3%	115	1.2%	108	1.7%	364	1.3%
Testis, Genital	4	1.0%	56	1.1%	66	0.9%	83	0.9%	73	1.1%	282	1.0%
Bladder	11	2.7%	136	2.8%	197	2.6%	328	3.5%	219	3.4%	891	3.1%
Kidney, Urinary	9	2.2%	89	1.8%	146	2.0%	194	2.1%	168	2.6%	606	2.1%
Eye	6	1.4%	89	1.8%	128	1.7%	131	1.4%	78	1.2%	432	1.5%
Brain, CNS	27	6.5%	153	3.1%	307	4.1%	443	4.8%	317	5.0%	1,247	4.4%
Thyroid	10	2.4%	179	3.7%	330	4.4%	544	5.9%	425	6.7%	1,488	5.2%
Other Endocrine	2	0.5%	22	0.4%	59	0.8%	41	0.4%	34	0.5%	158	0.6%
MHL - Lymph Nodes	23	5.6%	441	9.0%	516	6.9%	450	4.8%	246	3.9%	1,676	5.9%
MHL - Extra-nodal	4	1.0%	50	1.0%	175	2.3%	302	3.2%	214	3.4%	745	2.6%
Hodgkin's Disease-LNs	32	7.7%	203	4.1%	237	3.2%	307	3.3%	219	3.4%	998	3.5%
HD - Extra-nodal	0	0.0%	0	0.0%	2	0.0%	1	0.0%	7	0.1%	10	0.0%
Primary Unknown	14	3.4%	121	2.5%	128	1.7%	192	2.1%	152	2.4%	607	2.1%
All Other Sites	4	1.0%	40	0.8%	41	0.5%	65	0.7%	37	0.6%	187	0.7%
TOTAL	414	100.0%	4,895	100.0%	7,485	100.0%	9,296	100.0%	6,379	100.0%	28,469	100.0%

\* Includes Multiple Primary Neoplasms.

\*\* First Two Years of KFSHRC Partial Operation.

The largest number of cases was noted in the 5th and 6th decades in males and in the 4th and 5th in females. In 1994, the mean age was 46.3, the median is 50.2 and the mode is 54. Childhood malignancies are most common among children three years of age.

FIGURE 8  
 DISTRIBUTION OF ALL CASES BY AGE AT DIAGNOSIS  
 1975 - 1994 (TOTAL CASES = 28,469)



1994 (TOTAL CASES = 2,256)

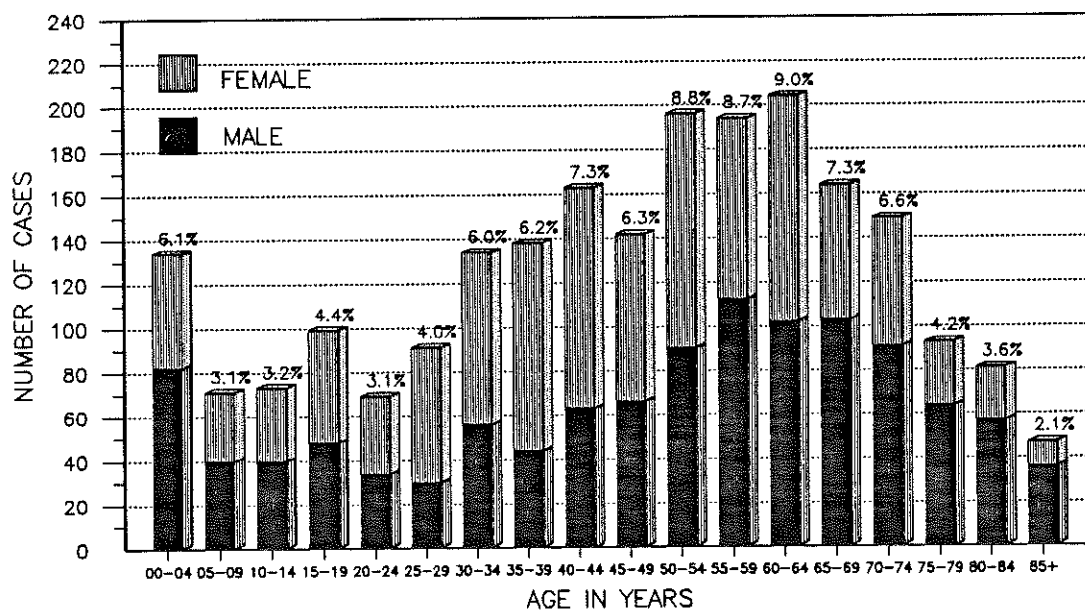
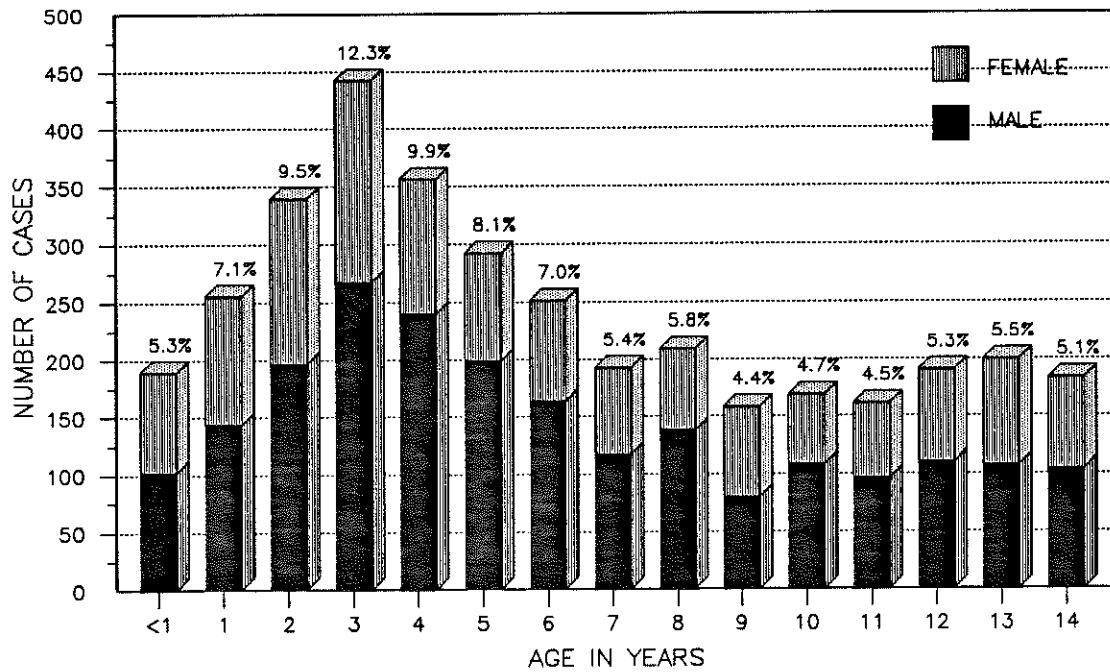


FIGURE 9  
 DISTRIBUTION OF ALL PEDIATRIC CASES BY AGE AT DIAGNOSIS  
 1975 - 1994 (TOTAL CASES = 3,588)



Of the 2,256 cases in 1994, 1,755 (77.8%) 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 501 cases (22.2%) were *non-analytic* (defined as cases diagnosed elsewhere and received all of their first course of treatment elsewhere). Out of the 1,755 analytic cases, pediatric cases totalled 237, with 140 males and 97 females.

See Table 4 for the distribution of cases by site, sex, class of case, and stage at diagnosis and Tables 5, 6 and 7 for the distributions of analytic cases by site, sex and age at diagnosis.

TABLE 4

ALL CASES SEEN AT KFSH&RC BY SITE\*, SEX, CLASS OF CASE AND SUMMARY STAGE  
1994

SITE	TOTAL Number	%	SEX		CLASS OF CASE** Analytic Non-Anal	In Situ	ANALYTIC CASES GENERAL SUMMARY STAGE			
			Male	Female			Localized	Regional	Distant	Unstageable
Breast	236	10.5%	5	231	194	42	53	104	26	7
Leukemia	160	7.1%	97	63	135	25	0	0	135	0
Non-Hodgkin's Lymphoma	157	7.0%	99	58	137	20	26	54	53	4
Thyroid	151	6.7%	43	108	128	23	47	68	12	1
Brain, CNS	117	5.2%	71	46	100	17	61	28	6	5
Liver	98	4.4%	67	31	48	50	18	13	15	2
Oral Cavity	96	4.3%	49	47	80	16	13	53	13	1
Lung, Pleura	93	4.1%	76	17	80	13	13	32	32	3
Colon, Rectum	92	4.1%	59	33	64	28	11	32	17	3
Soft Tissue	90	4.0%	54	36	71	19	19	24	23	5
Hodgkin's Disease	78	3.5%	47	31	67	11	11	25	31	0
Bladder	69	3.1%	62	7	50	19	23	19	7	1
Stomach	68	3.0%	46	22	47	21	5	29	13	0
Non-Melanoma Skin	64	2.9%	45	19	40	24	26	5	5	2
Kidney	64	2.9%	37	27	48	16	30	9	9	0
Unknown Primary	61	2.7%	27	34	42	19	0	0	0	42
Nasopharynx	58	2.6%	39	19	53	5	3	26	24	0
Bone, Cartilage	55	2.5%	35	20	48	7	6	27	14	1
Uterus, Genital	53	2.4%	0	53	38	15	16	13	8	1
Cervix	52	2.3%	0	52	46	6	5	31	5	0
Esophagus	50	2.2%	26	24	37	13	7	19	9	2
Ovary	50	2.2%	0	50	40	10	8	5	27	0
Prostate	45	2.0%	45	0	32	13	5	8	18	1
Larynx	35	1.6%	31	4	22	13	10	11	1	0
Other G.I.	32	1.4%	11	21	18	14	0	10	8	0
Multiple Myeloma	32	1.4%	25	7	24	8	0	0	24	0
Eye	25	1.1%	16	9	9	16	3	4	0	1
Testis, Genital	25	1.1%	25	0	21	4	8	9	3	1
Pancreas	22	0.9%	14	8	19	3	3	9	4	3
All Other Sites	10	0.4%	5	5	8	2	1	5	2	0
Other Endocrine	9	0.4%	4	5	5	4	1	1	3	0
Skin Melanoma	7	0.3%	6	1	3	4	1	1	1	0
Reticuloendothelium	2	0.1%	1	1	1	1	0	0	1	0
TOTAL	2,256	100.0%	1,167	1,089	1,755	501	433	674	549	86

\* 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 first diagnosed elsewhere and received all of their first course of treatment elsewhere.

TABLE 5

ANALYTIC CASES SEEN AT KFSHERC BY SITE\* AND AGE  
1994

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	4	1	5	4	4	9	4	7	9	11	7	9	6	80
Nasopharynx	0	1	4	3	3	3	6	4	5	6	7	4	1	3	3	0	0	0	53
Esophagus	0	0	0	0	0	0	1	0	2	2	2	3	3	7	9	5	1	2	37
Stomach	0	0	0	0	0	1	0	2	2	0	3	9	5	3	13	2	5	2	47
Colon, Rectum	0	0	0	0	0	1	3	4	4	3	7	10	6	6	9	5	5	1	64
Liver	2	0	0	0	0	1	1	1	1	1	9	9	9	7	2	0	5	0	48
Pancreas	0	0	0	0	0	0	0	0	0	1	3	4	5	1	2	1	0	0	19
Other G.I.	0	0	0	0	0	0	0	1	1	1	3	1	6	2	1	1	0	1	18
Larynx	0	0	0	0	0	1	0	0	1	1	2	6	3	3	2	1	0	0	22
Lung, Pleura	0	0	0	0	0	2	0	5	4	5	8	10	11	6	19	7	2	1	80
Multiple Myeloma	0	0	0	0	0	0	1	0	1	1	4	6	4	4	2	1	0	0	24
Lymphoid Leukemia	22	12	8	5	3	3	5	0	1	1	0	0	0	0	0	0	0	1	61
Myeloid Leukemia	3	4	6	4	6	5	4	8	4	3	0	3	1	4	3	1	0	0	59
Other Leukemias	5	4	3	2	0	0	1	0	0	1	0	1	1	1	0	0	0	0	15
Reticuloendothelium	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
Bone, Cartilage	1	6	11	18	5	1	1	0	1	1	0	0	1	0	1	0	0	1	48
Soft Tissue	18	5	0	8	2	6	4	2	5	2	4	4	2	6	2	1	0	0	71
Skin Melanoma	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	3
Non-Melanoma Skin Ca	0	0	0	2	0	2	0	1	1	3	1	2	6	6	5	3	7	1	40
Breast	0	0	0	0	1	7	26	28	38	17	30	15	14	6	6	3	2	1	194
Uterus, Genital	0	0	0	4	2	2	1	2	1	6	2	1	7	5	2	1	2	0	38
Cervix	0	0	0	0	3	0	6	8	7	4	5	4	3	1	3	0	1	1	46
Ovary	0	1	2	4	2	2	3	1	2	2	8	5	2	2	2	2	0	0	40
Prostate	0	0	0	0	0	0	0	0	0	0	4	2	1	5	6	7	3	4	32
Testis, Genital	1	0	0	4	3	2	1	3	3	0	0	2	1	0	0	0	1	0	21
Bladder	1	0	0	0	0	0	1	4	1	2	8	5	5	3	7	4	3	6	50
Kidney	22	1	0	0	0	0	1	1	1	2	3	4	5	3	3	1	1	0	48
Eye	5	0	0	0	0	0	0	0	0	0	0	0	0	1	2	0	0	0	9
Brain, CNS	23	15	8	10	5	4	7	4	3	1	4	6	3	4	1	1	1	0	100
Thyroid	0	1	5	5	11	11	13	16	5	14	10	9	15	5	2	3	2	1	128
Other Endocrine	3	1	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	5
NHL - Lymph Nodes	2	8	1	6	2	1	2	1	5	3	1	7	9	6	6	3	3	0	66
NHL - Extra-nodal	1	2	5	0	5	3	3	3	5	6	8	9	5	6	5	2	2	1	71
Hodgkin's Disease-LNs	2	5	9	12	8	5	3	6	5	1	1	1	3	1	1	1	0	0	65
HD - Extra-nodal	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	2
Primary Unknown	1	0	0	0	0	3	2	2	4	1	4	6	5	5	3	4	0	2	42
All Other Sites	0	0	0	0	0	0	2	0	0	1	0	1	2	0	1	1	0	0	8
TOTAL	113	62	62	87	61	70	100	112	118	96	150	152	155	123	134	70	58	32	1,755

\* Includes Multiple Primary Neoplasms.

TABLE 6

ANALYTIC MALE\* CASES SEEN AT KFHSERC BY SITE\* AND AGE

1994

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	1	0	0	1	1	7	4	2	4	6	4	5	4	39
Nasopharynx	0	0	3	1	2	1	4	3	3	3	4	4	1	3	2	0	0	0	34
Esophagus	0	0	0	0	0	0	0	0	1	0	0	2	2	3	6	4	0	1	19
Stomach	0	0	0	0	0	0	0	1	1	0	2	5	4	3	8	2	5	2	33
Colon, Rectum	0	0	0	0	0	0	1	2	1	1	5	7	3	4	8	4	3	1	40
Liver	1	0	0	0	0	0	1	0	1	1	5	9	6	3	2	0	4	0	33
Pancreas	0	0	0	0	0	0	0	0	0	0	1	3	4	1	1	1	0	1	12
Other G.I.	0	0	0	0	0	0	0	0	1	0	0	0	2	1	0	0	1	1	5
Larynx	0	0	0	0	0	0	0	0	1	1	2	5	2	2	2	2	1	0	18
Lung, Pleura	0	0	0	0	0	1	0	3	4	4	6	9	9	4	16	7	1	1	65
Multiple Myeloma	0	0	0	0	0	0	1	0	1	1	3	3	3	4	2	1	0	0	19
Lymphoid Leukemia	12	7	5	5	2	1	5	0	1	1	0	0	0	0	2	0	0	1	40
Myeloid Leukemia	2	2	4	3	2	2	3	4	3	2	0	0	0	1	0	0	0	0	33
Other Leukemias	5	0	2	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	10
Reticuloendothelium	1	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0	1
Bone, Cartilage	0	3	7	11	4	1	3	4	1	1	0	2	1	0	0	0	0	1	31
Soft Tissue	11	4	0	5	1	3	4	1	3	0	2	2	2	4	0	1	0	0	43
Skin Melanoma	0	0	0	0	0	2	0	0	0	1	0	2	2	4	4	3	5	1	26
Non-Melanoma Skin Ca	0	0	0	0	0	0	1	0	0	0	0	0	0	2	0	0	1	0	4
Breast	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
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	4	1	2	5	6	7	3	4	32
Testis, Genital	1	0	0	4	3	2	1	3	3	0	0	2	1	0	0	0	1	0	21
Bladder	1	0	0	0	0	0	1	4	1	2	5	5	5	3	5	4	3	5	44
Kidney	10	1	0	0	0	0	0	1	1	2	2	4	2	2	3	1	0	0	29
Eye	3	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	5
Brain, CNS	16	6	4	4	4	1	5	2	2	1	3	4	3	3	1	1	1	0	61
Thyroid	0	0	2	0	3	2	5	2	1	6	3	3	5	1	0	0	2	1	36
Other Endocrine	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
MHL - Lymph Nodes	2	7	1	0	2	0	2	1	2	3	1	0	0	0	3	2	3	0	41
MHL - Extra-nodal	1	2	2	0	4	0	2	2	3	6	4	7	2	3	3	2	1	1	45
Hodgkin's Disease-LNs	1	2	6	6	6	2	3	3	4	1	1	0	0	1	0	1	0	0	37
HD - Extra-nodal	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	1	1
Primary Unknown	1	0	0	0	0	2	0	1	1	1	2	3	2	1	2	2	0	1	19
All Other Sites	0	0	0	0	0	0	1	0	0	0	0	1	2	0	0	0	0	0	4
TOTAL	70	34	36	41	33	21	41	33	42	40	62	87	75	71	83	49	41	25	884

\* Includes Multiple Primary Neoplasms.



TABLE 7

ANALYTIC "FEMALE" CASES SEEN AT KFHS&RC BY SITE\* AND AGE

1994

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	3	1	5	3	3	2	0	5	5	5	3	4	2	41
Nasopharynx	0	1	1	2	1	2	2	1	2	3	3	0	0	0	1	0	0	0	19
Esophagus	0	0	0	0	0	0	1	0	1	2	2	1	1	4	3	1	1	1	18
Stomach	0	0	0	0	0	1	0	1	1	0	1	4	1	0	5	0	0	0	14
Colon, Rectum	0	0	0	0	0	1	2	2	3	2	2	3	3	2	1	1	2	0	24
Liver	1	0	0	0	0	1	0	1	0	0	4	1	3	4	0	0	1	0	15
Pancreas	0	0	0	0	0	0	0	0	0	1	2	1	1	0	1	1	0	0	7
Other G.I.	0	0	0	0	0	0	0	1	0	1	3	1	4	1	1	1	0	0	13
Larynx	0	0	0	0	0	1	0	0	0	0	0	1	1	1	0	0	0	0	4
Lung, Pleura	0	0	0	0	0	1	0	2	0	1	2	1	2	2	3	0	1	0	15
Multiple Myeloma	0	0	0	0	0	0	0	0	0	0	1	3	1	0	0	0	0	0	5
Lymphoid Leukemia	10	5	3	0	1	2	0	0	0	0	0	0	0	0	0	0	0	0	21
Myeloid Leukemia	1	2	2	1	4	3	1	4	1	1	0	3	1	1	1	0	0	0	26
Other Leukemias	0	0	1	2	0	0	1	0	0	0	0	1	0	0	0	0	0	0	5
Reticuloendothelium	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Bone, Cartilage	1	3	4	7	1	0	0	0	0	0	0	0	0	0	1	0	0	0	17
Soft Tissue	7	1	0	3	1	3	0	1	2	2	2	2	0	2	2	0	0	0	28
Skin Melanoma	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1	0	0	0	1
Non-Melanoma Skin Ca	0	0	0	0	1	7	25	28	38	17	30	15	14	4	6	3	1	1	190
Breast	0	0	0	4	2	2	1	2	1	6	2	1	7	5	2	1	2	0	38
Uterus, Genital	0	0	0	0	3	0	6	8	7	4	5	4	3	1	3	0	1	1	46
Cervix	0	1	2	4	2	2	3	1	2	2	8	5	2	2	2	2	0	0	40
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	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	0	0	0	3	0	0	0	2	0	0	0	6
Kidney	12	0	0	0	0	0	1	0	0	0	1	0	3	1	0	0	1	0	19
Eye	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4
Brain, CNS	7	9	4	6	1	3	2	2	1	0	1	2	0	1	0	0	0	0	39
Thyroid	0	1	3	5	8	9	8	14	4	8	7	6	10	4	2	3	0	0	92
Other Endocrine	1	1	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	3
NHL - Lymph Nodes	0	1	0	6	0	0	0	0	3	0	0	5	2	3	3	1	0	0	25
NHL - Extra-nodal	0	3	3	0	1	3	1	1	2	0	4	2	3	3	2	0	1	0	26
Hodgkin's Disease-LNs	1	3	3	6	2	3	0	3	1	0	0	1	3	0	1	1	0	0	28
HD - Extra-nodal	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1
Primary Unknown	0	0	0	0	0	1	2	1	3	0	2	3	3	4	1	2	0	1	23
All Other Sites	0	0	0	0	0	0	1	0	0	1	0	0	0	0	1	1	0	0	4
TOTAL	43	28	26	46	28	49	59	79	76	56	88	65	80	52	51	21	17	7	871

\* 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 soft tissue sarcoma, among others, is more common. The following 1994 analytic cases exhibit significant differences in trends from those of the West:

**Breast** - The most common malignancy seen at KFSH&RC is breast cancer, comprising 11.1% of all cases, as compared to about 16% of all neoplasms diagnosed in the U.S.A. It affects mostly women less than the age of 50, while in the U.S.A. those more than 50 years of age are mostly affected. As in the Western countries, it is the number one cancer among women.

**Non-Hodgkin's Lymphoma** - The most striking feature is the unusually high crude relative frequency of non-Hodgkin's lymphoma, accounting for 7.8% of all cases. The male/female ratio is 1.7:1. In the U.S.A., NHL accounts for only about 4% of all cancer.

**Leukemia** - Leukemia constitutes 7.7% of all cases seen at KFSH&RC, as compared to about 2% of all neoplasms diagnosed in the U.S.A. The male/female ratio is 1.6:1. It is the most common type of malignancy seen in males and the third most common in females. It is also the most common malignancy in children under the age of 15.

**Thyroid** - 4.1% of all male malignancies in KFSH&RC are thyroid tumors. However, they represent 10.6% of female malignant neoplasms, second to breast cancer. The male/female ratio is 0.4:1. Thyroid cancer accounts for only 1.1% of all cases in the U.S.A. and 1.6% of female malignancies.

**Brain/CNS** - Primary malignant neoplasm of the brain and CNS accounts for 5.7% of all malignancies and ranks second among the most common childhood malignancies. The male/female ratio is 1.6:1. This is comparatively higher than in the West with only 1.5% of all cases.

**Oral Cavity** - A high crude relative frequency rate was also noted in cancer of the oral cavity. In Western countries, oral cancer accounts for no more than 3% of all cancers, whereas at KFSH&RC it represents 4.6% of the cases. The male/female ratio is 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 about 15% of all cancer cases (17% in males, and 12% in females). At KFSH&RC, 4.6% of the diagnoses are lung cancer, although in males it is the third most common tumor, constituting 7.4% of male malignancies and 1.7% in females. The male/female ratio is 4.3:1.

**Colo-Rectal** - Markedly less common than in the West, for which dietary factors (particularly lower animal fat intake) may play a role, this disease represents only 3.7% of all tumors. In the U.S.A. it constitutes 13% of newly diagnosed cancer cases. The male/female ratio at KFSH&RC is 1.7:1.

**Esophagus** - The incidence of esophageal carcinoma is comparatively more frequent at KFSH&RC than in Western countries. In the U.S.A. it constitutes 1% of all cancers, compared to 2.1% at KFSH&RC. The male/female ratio is 1.1:1.

**Liver** - Although the relative frequency of liver cancer at the KFSH&RC (2.7%) is almost the same as that of the West, the male/female ratio appears to be significant and may be an area for future research investigations. KFSH&RC has 2.2:1 and the West, 1.2:1.

**Nasopharynx** - A higher crude relative frequency rate is seen in nasopharyngeal cancer. It constitutes less than 1% of the pathologically diagnosed cancers in most centers in the West, but is 3.0% of the cases at KFSH&RC. The male/female ratio is 1.8:1.

**Soft Tissue** - KFSH&RC cases show a higher rate of soft tissue malignancies than the U.S.A., with 4.1% against the latter's 0.5% of all cases. The male/female ratio is 1.5:1.

**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 14% of the malignancies). This is in contrast to the KFSH&RC experience, where prostatic cancer makes up only 3.6% 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 1994 ANALYTIC CASES (TOTAL CASES = 1,755)

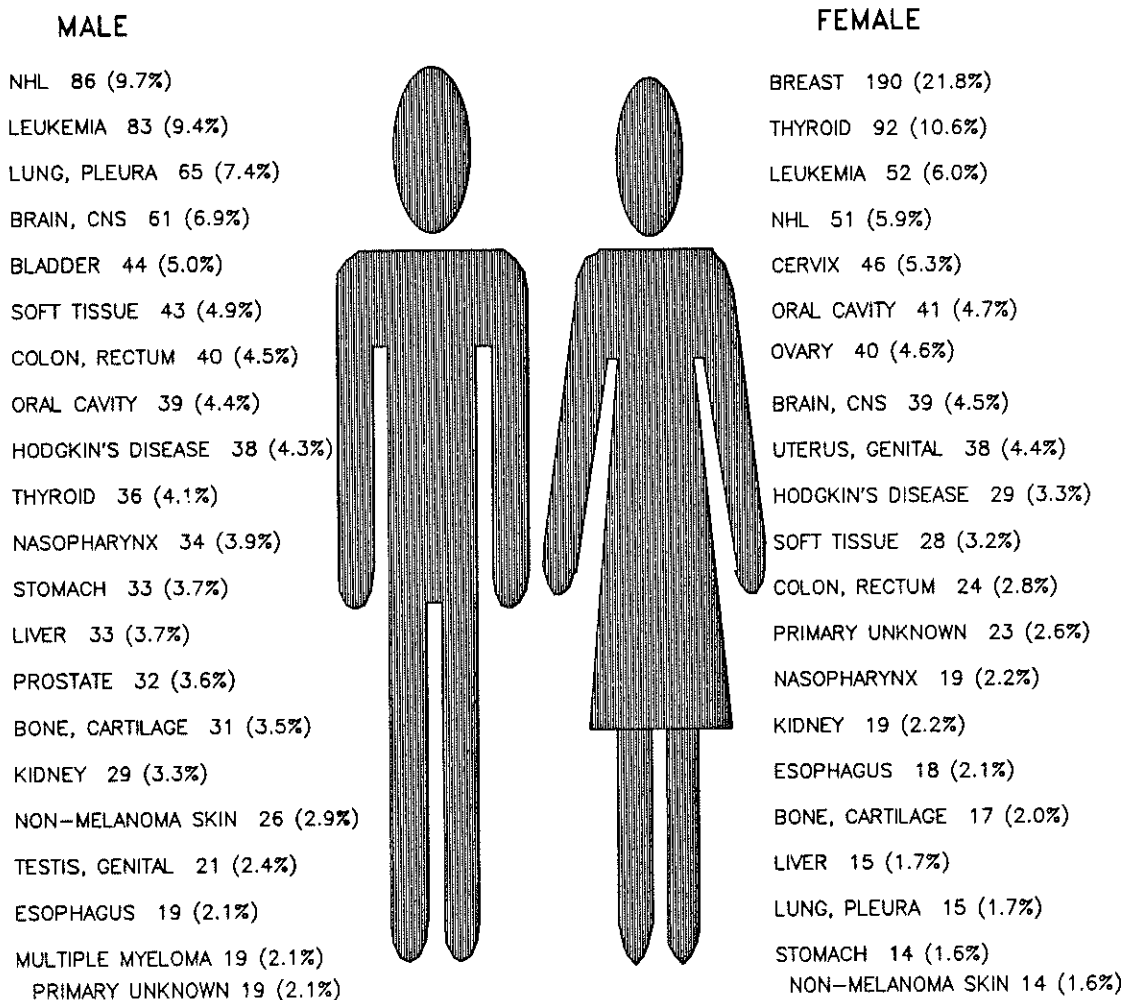


FIGURE 11  
DISTRIBUTION OF CHILDHOOD MALIGNANCIES  
1994 ANALYTIC CASES (TOTAL CASES = 237)

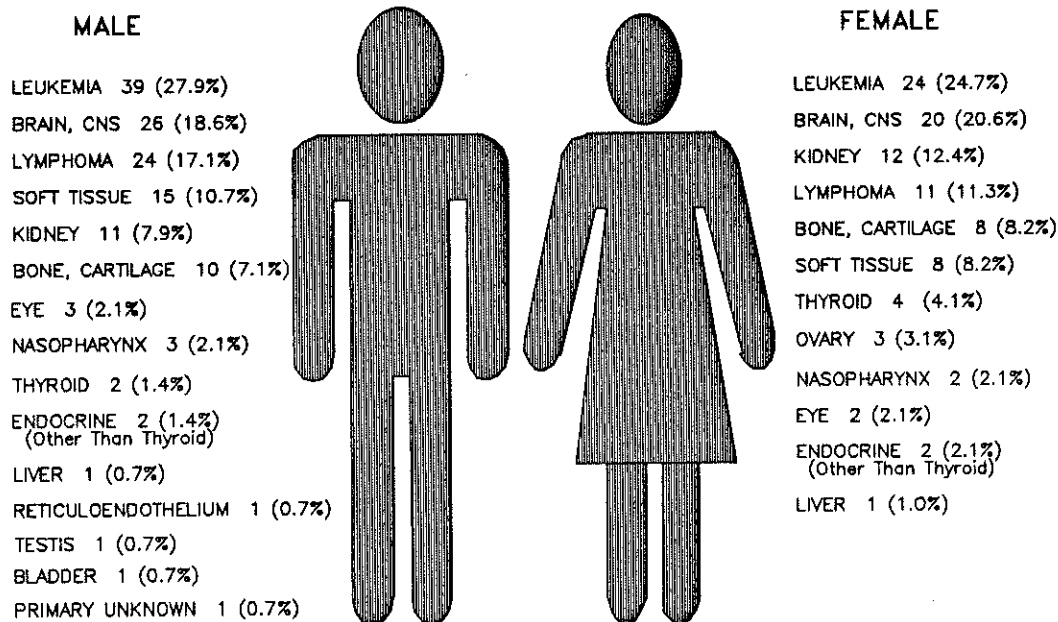
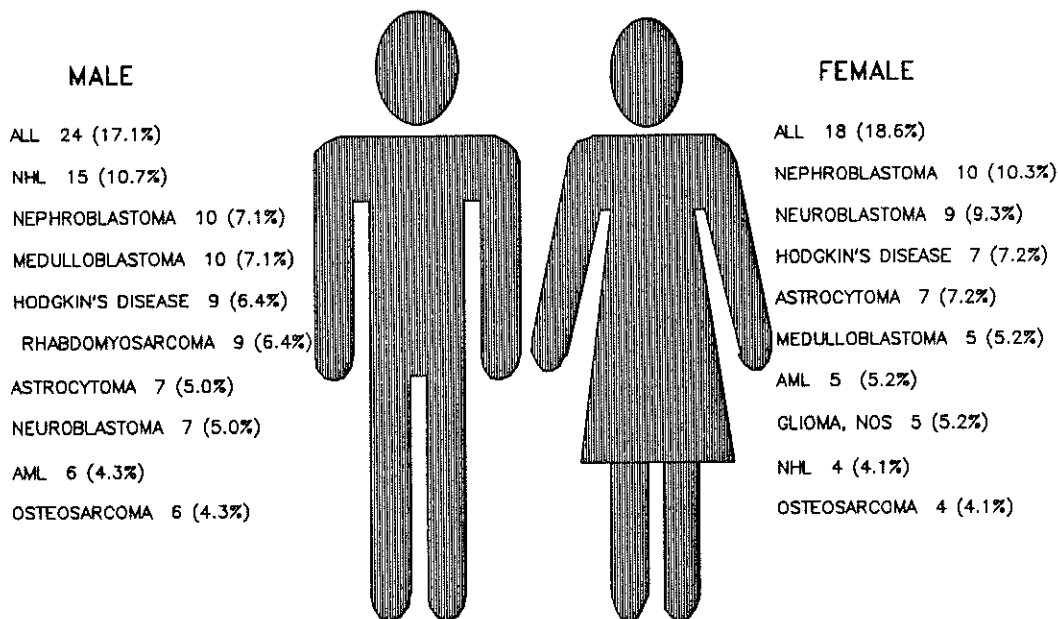


FIGURE 12  
DISTRIBUTION OF 10 MOST COMMON CHILDHOOD MALIGNANCIES  
BY HISTOLOGY, 1994 ANALYTIC CASES (TOTAL CASES = 237)



**TABLE 8**  
**PRIMARY SITE TABLE**  
**(INCLUDES MULTIPLE PRIMARIES)**  
**1 9 9 4**

SITE	HISTOLOGY	ALL CASES	ADULTS		PEDIATRICS	
			MALE	FEMALE	MALE	FEMALE
<b>(NOS - Not Otherwise Specified)</b>		<b>2,256</b>	<b>1,003</b>	<b>972</b>	<b>164</b>	<b>117</b>
<b>LIP</b>		<b>7</b>	<b>7</b>	<b>0</b>	<b>0</b>	<b>0</b>
	Squamous Cell Carcinoma					
<b>TONGUE</b>		<b>37</b>	<b>23</b>	<b>14</b>	<b>0</b>	<b>0</b>
	Squamous Cell Carcinoma	35	23	12	0	0
	Carcinoma, NOS	1	0	1	0	0
	Non-Hodgkin's Lymphoma	1	0	1	0	0
<b>MAJOR SALIVARY GLANDS</b>		<b>6</b>	<b>2</b>	<b>4</b>	<b>0</b>	<b>0</b>
	Adenoid Cystic Carcinoma	2	0	2	0	0
	Squamous Cell Carcinoma	2	1	1	0	0
	Mucoepidermoid Carcinoma	1	1	0	0	0
	Carcinoma, NOS	1	0	1	0	0
<b>GUM</b>		<b>9</b>	<b>3</b>	<b>5</b>	<b>0</b>	<b>1</b>
	Squamous Cell Carcinoma	5	2	3	0	0
	Verrucous Carcinoma	2	1	1	0	0
	Burkitt's Lymphoma	1	0	0	0	1
	Hodgkin's Disease	1	0	1	0	0
<b>FLOOR OF MOUTH</b>		<b>1</b>	<b>0</b>	<b>1</b>	<b>0</b>	<b>0</b>
	Squamous Cell Carcinoma					
<b>OTHER PARTS OF MOUTH</b>		<b>17</b>	<b>8</b>	<b>9</b>	<b>0</b>	<b>0</b>
	Squamous Cell Carcinoma	10	6	4	0	0
	Adenoid Cystic Carcinoma	2	1	1	0	0
	Mucoepidermoid Carcinoma	1	1	0	0	0
	Verrucous Carcinoma	1	0	1	0	0
	Adenocarcinoma	1	0	1	0	0
	Melanoma	1	0	1	0	0
	Non-Hodgkin's Lymphoma	1	0	1	0	0
<b>OROPHARYNX</b>		<b>12</b>	<b>7</b>	<b>5</b>	<b>0</b>	<b>0</b>
	Non-Hodgkin's Lymphoma	9	5	4	0	0
	Squamous Cell Carcinoma	2	2	0	0	0
	Mucoepidermoid Carcinoma	1	0	1	0	0
<b>NASOPHARYNX</b>		<b>61</b>	<b>38</b>	<b>18</b>	<b>3</b>	<b>2</b>
	Squamous Cell Carcinoma	34	24	7	2	1
	Undifferentiated Carcinoma	6	4	1	0	1
	Carcinoma, NOS	17	8	8	1	0
	Mucoepidermoid Carcinoma	1	0	1	0	0
	Non-Hodgkin's Lymphoma	2	1	1	0	0
	Hodgkin's Disease	1	1	0	0	0
<b>HYPOPHARYNX</b>		<b>18</b>	<b>3</b>	<b>15</b>	<b>0</b>	<b>0</b>
	Squamous Cell Carcinoma					
<b>PHARYNX, NOS</b>		<b>2</b>	<b>1</b>	<b>1</b>	<b>0</b>	<b>0</b>
	Squamous Cell Carcinoma					

Primary Site Table (cont'd)

SITE	HISTOLOGY	ALL CASES	ADULTS		PEDIATRICS	
			MALE	FEMALE	MALE	FEMALE
<b>ESOPHAGUS</b>		<b>50</b>	<b>26</b>	<b>24</b>	<b>0</b>	<b>0</b>
	Squamous Cell Carcinoma	46	22	24	0	0
	Carcinoma, NOS	3	3	0	0	0
	Adenocarcinoma	1	1	0	0	0
<b>STOMACH</b>		<b>87</b>	<b>61</b>	<b>26</b>	<b>0</b>	<b>0</b>
	Adenocarcinoma, NOS	50	33	17	0	0
	Non-Hodgkin's Lymphoma	17	13	4	0	0
	Signet Ring Cell Carcinoma	10	8	2	0	0
	Mucinous Adenocarcinoma	4	2	2	0	0
	Squamous Cell Carcinoma	3	3	0	0	0
	Carcinoma, NOS	2	1	1	0	0
	Malignant Neoplasm	1	1	0	0	0
<b>SMALL INTESTINE</b>		<b>11</b>	<b>4</b>	<b>6</b>	<b>1</b>	<b>0</b>
	Non-Hodgkin's Lymphoma	7	4	2	1	0
	Adenocarcinoma, NOS	3	0	3	0	0
	Mucinous Carcinoma	1	0	1	0	0
<b>COLON</b>		<b>35</b>	<b>20</b>	<b>14</b>	<b>1</b>	<b>0</b>
	Adenocarcinoma, NOS	21	10	10	1	0
	Non-Hodgkin's Lymphoma	4	3	1	0	0
	Mucinous Adenocarcinoma	4	3	1	0	0
	Adenocarcinoma in Villous Adenoma	1	1	0	0	0
	Adenoca in Tubulovillous Adenoma	1	1	0	0	0
	Mucin-Producing Adenocarcinoma	1	1	0	0	0
	Adenosquamous Carcinoma	1	0	1	0	0
	Papillary Adenocarcinoma	1	1	0	0	0
	Malignant Neoplasm	1	0	1	0	0
<b>RECTUM/RECTOSIGMOID JUNCTION/ANUS</b>		<b>61</b>	<b>41</b>	<b>20</b>	<b>0</b>	<b>0</b>
	Adenocarcinoma, NOS	44	29	15	0	0
	Mucinous Adenocarcinoma	6	5	1	0	0
	Squamous Cell Carcinoma	3	2	1	0	0
	Adenocarcinoma in Villous Adenoma	2	0	2	0	0
	Adenoca in Tubulovillous Adenoma	1	1	0	0	0
	Mucin-Producing Adenocarcinoma	1	0	1	0	0
	Anaplastic Carcinoma	1	1	0	0	0
	Basaloid Carcinoma	1	1	0	0	0
	Carcinoma, NOS	1	1	0	0	0
	Melanoma	1	1	0	0	0
<b>LIVER/INTRAHEPATIC BILE DUCTS</b>		<b>98</b>	<b>66</b>	<b>30</b>	<b>1</b>	<b>1</b>
	Hepatocellular Carcinoma	88	63	25	0	0
	Cholangiocarcinoma	4	0	4	0	0
	Hepatoblastoma	2	0	0	1	1
	Carcinoma, NOS	2	1	1	0	0
	Malignant Neoplasm	2	2	0	0	0
<b>GALLBLADDER/EXTRAHEPATIC BILE DUCTS</b>		<b>28</b>	<b>11</b>	<b>17</b>	<b>0</b>	<b>0</b>
	Adenocarcinoma, NOS	21	8	13	0	0
	Adenosquamous Carcinoma	2	1	1	0	0
	Carcinoma, NOS	2	0	2	0	0
	Signet Ring Cell Carcinoma	1	0	1	0	0
	Papillary Adenocarcinoma	1	1	0	0	0
	Mucinous Adenocarcinoma	1	1	0	0	0

## Primary Site Table (cont'd)

SITE	HISTOLOGY	ALL CASES	ADULTS		PEDIATRICS	
			MALE	FEMALE	MALE	FEMALE
<b>PANCREAS</b>		<b>23</b>	<b>15</b>	<b>8</b>	<b>0</b>	<b>0</b>
	Adenocarcinoma, NOS	16	10	6	0	0
	Mucinous Adenocarcinoma	2	1	1	0	0
	Carcinoma, NOS	3	2	1	0	0
	Non-Hodgkin's Lymphoma	1	1	0	0	0
	Malignant Neoplasm	1	1	0	0	0
<b>NASAL CAVITIES/ACCESSORY SINUSES</b>		<b>13</b>	<b>6</b>	<b>4</b>	<b>1</b>	<b>2</b>
	Squamous Cell Carcinoma	4	2	2	0	0
	Non-Hodgkin's Lymphoma	3	1	0	1	1
	Rhabdomyosarcoma	2	0	1	0	1
	Hemangiosarcoma	1	1	0	0	0
	Solitary Plasmacytoma	1	0	1	0	0
	Ewing's Sarcoma	1	1	0	0	0
	Undifferentiated Carcinoma	1	1	0	0	0
<b>LARYNX</b>		<b>36</b>	<b>31</b>	<b>4</b>	<b>1</b>	<b>0</b>
	Squamous Cell Carcinoma	34	29	4	1	0
	T-Cell Lymphoma	1	1	0	0	0
	Carcinoma, NOS	1	1	0	0	0
<b>BRONCHUS/LUNG</b>		<b>90</b>	<b>73</b>	<b>17</b>	<b>0</b>	<b>0</b>
	Squamous Cell Carcinoma	37	34	3	0	0
	Adenocarcinoma	22	16	6	0	0
	Carcinoma, NOS	10	8	2	0	0
	Small Cell Carcinoma	7	5	2	0	0
	Carcinoid Tumor	4	2	2	0	0
	Large Cell Carcinoma	3	3	0	0	0
	Bronchio-Alveolar Adenocarcinoma	3	3	0	0	0
	Papillary Adenocarcinoma	1	1	0	0	0
	Solid Carcinoma	1	0	1	0	0
	Undifferentiated Carcinoma	1	1	0	0	0
	Malignant Neoplasm	1	0	1	0	0
<b>PLEURA</b>		<b>3</b>	<b>3</b>	<b>0</b>	<b>0</b>	<b>0</b>
	Mesothelioma					
<b>THYMUS/MEDIASTINUM/HEART</b>		<b>10</b>	<b>1</b>	<b>4</b>	<b>2</b>	<b>3</b>
	Neuroblastoma	4	0	0	1	3
	Malignant Thymoma	3	1	2	0	0
	Ganglioneuroblastoma	1	0	0	1	0
	Hemangiosarcoma	1	0	1	0	0
	Malignant Neurilemmoma	1	0	1	0	0
<b>MULTIPLE MYELOMA</b>		<b>32</b>	<b>25</b>	<b>7</b>	<b>0</b>	<b>0</b>
<b>BONE MARROW</b>		<b>160</b>	<b>55</b>	<b>35</b>	<b>42</b>	<b>28</b>
	Acute Lymphoid Leukemia	66	16	3	26	21
	Chronic Myeloid Leukemia	32	15	14	3	0
	Acute Myeloid Leukemia	30	13	8	5	4
	Acute Myelomonocytic Leukemia	6	1	3	1	1
	Acute Monocytic Leukemia	6	2	1	2	1
	Acute Promyelocytic Leukemia	5	2	2	0	1
	Megakaryocytic Leukemia	4	0	1	3	0
	Chronic Lymphoid Leukemia	3	3	0	0	0
	Acute Leukemia, NOS	3	1	2	0	0
	Chronic Myelomonocytic Leukemia	2	1	1	0	0
	Hairy Cell Leukemia	1	1	0	0	0
	Leukemia, NOS	1	0	0	1	0
	Acute Myelofibrosis	1	0	0	1	0

Primary Site Table (cont'd)

SITE	HISTOLOGY	ALL CASES	ADULTS		PEDIATRICS	
			MALE	FEMALE	MALE	FEMALE
<b>RETICULOENDOTHELIAL SYSTEM</b>		<b>2</b>	<b>0</b>	<b>1</b>	<b>1</b>	<b>0</b>
	Malignant Histiocytosis	1	0	1	0	0
	Letterer-Siwe's Disease	1	0	0	1	0
<b>BONE &amp; CARTILAGE</b>		<b>61</b>	<b>29</b>	<b>13</b>	<b>10</b>	<b>9</b>
	Osteosarcoma, NOS	28	19	5	2	2
	Ewing's Sarcoma	10	2	1	4	3
	Non-Hodgkin's Lymphoma	6	4	2	0	0
	Chondroblastic Osteosarcoma	5	1	2	1	1
	Solitary Plasmacytoma	4	3	1	0	
	Telangiectatic Osteosarcoma	3	0	0	1	2
	Juxtacortical Osteosarcoma	3	0	2	1	0
	Fibroblastic Osteosarcoma	1	0	0	1	0
	Chondrosarcoma	1	0	0	0	1
<b>CONNECTIVE/SUBCUTANEOUS/SOFT TISSUE</b>		<b>82</b>	<b>37</b>	<b>21</b>	<b>16</b>	<b>8</b>
	Leiomyosarcoma	10	4	5	0	1
	Embryonal Rhabdomyosarcoma	9	1	0	7	1
	Synovial Sarcoma	7	6	1	0	0
	Spindle Cell Sarcoma	7	4	2	1	0
	Neuroblastoma	7	0	0	2	5
	Malignant Fibrous Histiocytoma	6	1	4	1	0
	Liposarcoma	6	4	2	0	0
	Chordoma	4	3	1	0	0
	Sarcoma, NOS	4	1	2	1	0
	Rhabdomyosarcoma, NOS	3	2	0	1	0
	Alveolar Rhabdomyosarcoma	3	1	1	1	0
	Ganglioneuroblastoma	2	0	0	1	1
	Peripheral Neuroectodermal Tumor	2	0	1	1	0
	Extra-skeletal Osteosarcoma	2	2	0	0	0
	Solitary Plasmacytoma	2	2	0	0	0
	Angiosarcoma	1	1	0	0	0
	Clear Cell Sarcoma of Tendon	1	1	0	0	0
	Giant Cell Sarcoma	1	0	1	0	0
	Fibrosarcoma, NOS	1	1	0	0	0
	Soft Tissue Melanoma	1	0	1	0	0
	Extra-skeletal Ewing's Sarcoma	1	1	0	0	0
	T-Cell Lymphoma	1	1	0	0	0
	Malignant Neoplasm	1	1	0	0	0
<b>SKIN (MELANOMA)</b>		<b>7</b>	<b>6</b>	<b>1</b>	<b>0</b>	<b>0</b>
<b>SKIN (NON-MELANOMA)</b>		<b>68</b>	<b>46</b>	<b>21</b>	<b>0</b>	<b>1</b>
	Squamous Cell Carcinoma	28	22	6	0	0
	Basal Cell Carcinoma	21	12	9	0	0
	Basosquamous Carcinoma	4	2	2	0	0
	Dermatofibrosarcoma	4	3	0	0	1
	Kaposi's Sarcoma	3	3	0	0	0
	Mycosis Fungoides	3	1	2	0	0
	Bowen's Disease	2	2	0	0	0
	Sebaceous Adenocarcinoma	1	1	0	0	0
	Adenoid Cystic Carcinoma	1	0	1	0	0
	T-Cell Lymphoma	1	0	1	0	0



Primary Site Table (cont'd)

SITE	HISTOLOGY	ALL CASES	ADULTS		PEDIATRICS	
			MALE	FEMALE	MALE	FEMALE
<b>BREAST, FEMALE</b>		<b>232</b>	<b>0</b>	<b>232</b>	<b>0</b>	<b>0</b>
	Duct Cell Carcinoma	191	0	191	0	0
	Lobular Carcinoma	10	0	10	0	0
	Carcinoma, NOS	6	0	6	0	0
	Paget's Disease & Duct Cell Ca	5	0	5	0	0
	Comedocarcinoma	4	0	4	0	0
	Medullary Carcinoma	3	0	3	0	0
	Inflammatory Carcinoma	3	0	3	0	0
	Adenocarcinoma, NOS	3	0	3	0	0
	Scirrhus Adenocarcinoma	1	0	1	0	0
	Mucinous Adenocarcinoma	1	0	1	0	0
	Mucin-Producing Adenocarcinoma	1	0	1	0	0
	Pleomorphic Carcinoma	1	0	1	0	0
	Carcinosarcoma	1	0	1	0	0
	Non-Infiltrating Intracystic Adenoca	1	0	1	0	0
	Non-Hodgkin's Lymphoma	1	0	1	0	0
<b>BREAST, MALE</b>		<b>5</b>	<b>5</b>	<b>0</b>	<b>0</b>	<b>0</b>
	Duct Cell Carcinoma	4	4	0	0	0
	Carcinoma, NOS	1	1	0	0	0
<b>CERVIX UTERI</b>		<b>52</b>	<b>0</b>	<b>52</b>	<b>0</b>	<b>0</b>
	Squamous Cell Carcinoma	44	0	44	0	0
	Papillary Adenocarcinoma	3	0	3	0	0
	Adenocarcinoma, NOS	2	0	2	0	0
	Carcinoma, NOS	2	0	2	0	0
	Adenosarcoma	1	0	1	0	0
<b>PLACENTA</b>		<b>18</b>	<b>0</b>	<b>18</b>	<b>0</b>	<b>0</b>
	Choriocarcinoma	9	0	9	0	0
	Trophoblastic Tumor	9	0	9	0	0
<b>CORPUS UTERI</b>		<b>26</b>	<b>0</b>	<b>26</b>	<b>0</b>	<b>0</b>
	Adenocarcinoma, NOS	10	0	10	0	0
	Mullerian Mixed Tumor	3	0	3	0	0
	Leiomyosarcoma	3	0	3	0	0
	Mesodermal Mixed Tumor	2	0	2	0	0
	Adenosquamous Carcinoma	2	0	2	0	0
	Carcinosarcoma	2	0	2	0	0
	Endometrial Stromal Sarcoma	1	0	1	0	0
	Endometrioid Carcinoma	1	0	1	0	0
	Papillary Carcinoma	1	0	1	0	0
	Sarcoma, NOS	1	0	1	0	0
<b>OVARY</b>		<b>49</b>	<b>0</b>	<b>46</b>	<b>0</b>	<b>3</b>
	Adenocarcinoma, NOS	9	0	9	0	0
	Papillary Serous Cystadenocarcinoma	8	0	8	0	0
	Papillary Adenocarcinoma	5	0	5	0	0
	Papillary Serous, Borderline Malig	4	0	4	0	0
	Endometrioid Carcinoma	4	0	4	0	0
	Dysgerminoma	4	0	3	0	1
	Serous Cystadenocarcinoma	3	0	3	0	0
	Mixed Germ Cell Tumor	3	0	2	0	1
	Endodermal Sinus Tumor	2	0	1	0	1
	Carcinoma, NOS	2	0	2	0	0

## Primary Site Table (cont'd)

SITE	HISTOLOGY	ALL CASES	ADULTS		PEDIATRICS	
			MALE	FEMALE	MALE	FEMALE
<b>OVARY (Cont'd)</b>						
	Mucin-Producing Adenocarcinoma	1	0	1	0	0
	Papillary Mucinous Cystadenoca	1	0	1	0	0
	Pleomorphic Carcinoma	1	0	1	0	0
	Squamous Cell Carcinoma	1	0	1	0	0
	Malignant Neoplasm	1	0	1	0	0
<b>FALLOPIAN TUBE</b>						
	Adenocarcinoma, NOS	1	0	1	0	0
<b>OTHER FEMALE GENITAL ORGANS</b>						
	Squamous Cell Carcinoma	7	0	7	0	0
	Verrucous Carcinoma	1	0	1	0	0
	Papillary Adenocarcinoma	1	0	1	0	0
	Non-Hodgkin's Lymphoma	1	0	1	0	0
<b>PROSTATE</b>						
	Adenocarcinoma, NOS	34	34	0	0	0
	Carcinoma, NOS	11	11	0	0	0
<b>TESTIS</b>						
	Mixed Germ Cell Tumor	8	7	0	1	0
	Seminoma, NOS	7	7	0	0	0
	Non-Hodgkin's Lymphoma	2	2	0	0	0
	Teratocarcinoma	1	1	0	0	0
	Malignant Teratoma	1	1	0	0	0
	Endodermal Sinus Tumor	1	0	0	1	0
	Choriocarcinoma w/ Embryonal Ca	1	1	0	0	0
	Carcinoid Tumor	1	1	0	0	0
	Malignant Neoplasm	1	1	0	0	0
<b>OTHER MALE GENITAL ORGANS</b>						
	Squamous Cell Carcinoma	4	4	0	0	0
<b>URINARY BLADDER</b>						
	Papillary Transitional Cell Ca	29	25	4	0	0
	Transitional Cell Carcinoma	26	24	2	0	0
	Squamous Cell Carcinoma	8	7	1	0	0
	Rhabdomyosarcoma	2	0	0	2	0
	Adenocarcinoma, NOS	2	2	0	0	0
	Carcinoma	2	2	0	0	0
<b>KIDNEY</b>						
	Renal Cell Carcinoma	32	22	9	0	1
	Nephroblastoma	22	0	0	11	11
	Malignant Neoplasm	3	1	1	0	1
	Clear Cell Adenocarcinoma	1	0	1	0	0
	Chromophobe Carcinoma	1	1	0	0	0
	Papillary Carcinoma	1	0	1	0	0
	Transitional Cell Carcinoma	1	1	0	0	0
	Clear Cell Sarcoma of Kidney	1	0	0	1	0
	Rhabdoid Sarcoma	1	0	0	0	1
	Burkitt's Lymphoma	1	0	0	1	0
	Carcinoma, NOS	1	0	1	0	0
<b>EYE</b>						
	Retinoblastoma	16	0	0	10	6
	Squamous Cell Carcinoma	9	6	3	0	0

Primary Site Table (cont'd)

SITE	HISTOLOGY	ALL CASES	ADULTS		PEDIATRICS	
			MALE	FEMALE	MALE	FEMALE
<b>BRAIN</b>		<b>111</b>	<b>40</b>	<b>23</b>	<b>27</b>	<b>21</b>
	Astrocytoma, NOS	34	13	9	6	6
	Glioblastoma	29	16	9	3	1
	Medulloblastoma	19	2	1	10	6
	Malignant Glioma	16	5	1	5	5
	Ependymoma	4	1	1	2	0
	Non-Hodgkin's Lymphoma	4	2	1	0	1
	Pilocytic Astrocytoma	2	1	0	0	1
	Mixed Glioma	1	0	0	1	0
	Primitive Neuroectodermal Tumor	1	0	0	0	1
	Gemistocytic Astrocytoma	1	0	1	0	0
<b>OTHER NERVOUS SYSTEM</b>		<b>11</b>	<b>5</b>	<b>2</b>	<b>2</b>	<b>2</b>
	Astrocytoma, NOS	3	0	0	2	1
	Malignant Meningioma	3	2	1	0	0
	Ependymoma	2	1	1	0	0
	Malignant Teratoma	1	0	0	0	1
	Non-Hodgkin's Lymphoma	1	1	0	0	0
	Ewing's Sarcoma	1	1	0	0	0
<b>THYROID</b>		<b>158</b>	<b>44</b>	<b>108</b>	<b>2</b>	<b>4</b>
	Papillary Carcinoma, NOS	110	29	75	2	4
	Papillary & Follicular Adenocarcinoma	25	7	18	0	0
	Follicular Adenocarcinoma	9	3	6	0	0
	Non-Hodgkin's Lymphoma	7	3	4	0	0
	Medullary Carcinoma	3	2	1	0	0
	Anaplastic Adenocarcinoma	3	0	3	0	0
	Plasmacytoma	1	0	1	0	0
<b>OTHER ENDOCRINE GLANDS</b>		<b>9</b>	<b>1</b>	<b>1</b>	<b>3</b>	<b>4</b>
	Neuroblastoma	6	0	0	3	3
	Ganglioneuroblastoma	1	0	0	0	1
	Adrenal Cortical Carcinoma	1	0	1	0	0
	Carcinoma, NOS	1	1	0	0	0
<b>LYMPH NODES, NON-HODGKIN'S LYMPHOMA (Excluding Extra-Nodal Lymphomas)</b>		<b>79</b>	<b>39</b>	<b>28</b>	<b>11</b>	<b>1</b>
	Large Cell	43	24	17	1	1
	Non-Hodgkin's Lymphoma, NOS	8	3	4	1	0
	Immunoblastic	6	4	1	1	0
	Lymphoblastic	6	2	2	2	0
	Ki-1	5	2	2	1	0
	Burkitt's	3	0	0	3	0
	Small Lymphocytic	2	2	0	0	0
	Mixed Small & Large Cell, Diffuse	2	0	2	0	0
	Small Cell, Non-Cleaved	1	0	0	1	0
	Lymphoplasmacytic	1	1	0	0	0
	Lymphocytic	1	1	0	0	0
	Lymphoma, NOS	1	0	0	1	0

## Primary Site Table (cont'd)

SITE	HISTOLOGY	ALL CASES	ADULTS		PEDIATRICS	
			MALE	FEMALE	MALE	FEMALE
<b>LYMPH NODES, HODGKIN'S DISEASE</b>		<b>76</b>	<b>34</b>	<b>23</b>	<b>12</b>	<b>7</b>
	Nodular Sclerosis	44	16	17	5	6
	Mixed Cellularity	16	9	4	2	1
	Hodgkin's Disease, NOS	11	6	2	3	0
	Lymphocytic Predominance	5	3	0	2	0
<b>PRIMARY UNKNOWN</b>		<b>61</b>	<b>26</b>	<b>34</b>	<b>1</b>	<b>0</b>
	Adenocarcinoma, NOS	29	13	16	0	0
	Squamous Cell Carcinoma	9	6	3	0	0
	Carcinoma, NOS	8	5	3	0	0
	Malignant Neoplasm	8	2	6	0	0
	Papillary Carcinoma	2	0	2	0	0
	Undifferentiated Carcinoma	2	0	2	0	0
	Malignant Teratoma	1	0	0	1	0
	Large Cell Carcinoma	1	0	1	0	0
	Anaplastic Carcinoma	1	0	1	0	0

**TABLE 9**  
**PATIENTS WITH MULTIPLE PRIMARIES**  
**1 9 9 4**

PRIMARY SITE 1994	HISTOLOGY	OTHER PRIMARIES (PREVIOUS OR CONCURRENT)	ALL CASES	MALES	FEMALES
(NOS - Not Otherwise Specified)			50	34	16
<b>ORAL CAVITY</b>			2	1	1
Sq Cell Ca - Tongue		Hypopharynx - Sq Cell Ca	1	1	0
Sq Cell Ca-Hypopharynx		Breast - Duct Cell Ca	1	0	1
<b>ESOPHAGUS</b>			1	1	0
Sq Cell Carcinoma		Rectum - Carcinoma, NOS			
<b>STOMACH</b>			4	2	2
Adenocarcinoma		Lung - NHL	1	1	0
Adenocarcinoma		Stomach - NHL	1	0	1
Adenocarcinoma		Esophagus - Sq Cell Ca	1	0	1
Adenocarcinoma		Kidney - Renal Cell Ca	1	1	0
<b>SMALL INTESTINE</b>			1	0	1
Mucinous Adenocarcinoma		Thyroid - Papillary Ca			
<b>COLON</b>			1	1	0
Adenoca-Transverse Colon		Descending Colon - Adenoca			
<b>RECTUM</b>			2	2	0
Adenocarcinoma		Non-Hodgkin's Lymphoma	1	1	0
Adenocarcinoma		Skin - Basal Cell Ca	1	1	0
<b>LIVER</b>			2	2	0
Hepatocellular Ca		Nasopharynx - Undiff Ca	1	1	0
Hepatocellular Ca		Stomach - NHL	1	1	0
<b>GALLBLADDER</b>			2	1	1
Papillary Adenocarcinoma		Skin - Sq Cell Ca	1	1	0
Signet Ring Cell Ca*		Breast - Duct Cell Ca			
		Cervix - Sq Cell Ca			
<b>AMPULLA OF VATER</b>			1	1	0
Adenocarcinoma		Stomach - NHL			
<b>LUNG</b>			2	2	0
Sq Cell Carcinoma		Contralateral Lung	1	1	0
Carcinoma, NOS		Buccal Mucosa-Verrucous Ca	1	1	0
<b>BONE MARROW</b>			4	3	1
Acute Myeloid Leukemia		Hodgkin's Disease	1	0	1
Acute Myeloid Leukemia		Multiple Myeloma	1	1	0
Acute Lymphoid Leukemia		Brain - Glioblastoma	1	1	0
Multiple Myeloma		Esophagus - Sq Cell Ca	1	1	0
<b>BONE</b>			1	0	1
Chondroblastic O.S.		Trachea - Sq Cell Ca			
<b>SKIN</b>			10	9	1
Basal Cell Carcinoma		Skin- Sq Cell Ca	1	1	0
Basal Cell Carcinoma		Stomach - NHL	1	1	0
Basal Cell Carcinoma		Bladder - Trans Cell Ca	1	1	0
Basal Cell Carcinoma		Skin - Basosquamous Ca	1	0	1

## Multiple Primaries con't

PRIMARY SITE	HISTOLOGY	OTHER PRIMARIES (PREVIOUS OR CONCURRENT)	ALL CASES	MALES	FEMALES
<b>SKIN (Cont'd)</b>					
	Sq Cell Carcinoma	Skin - Basal Cell Ca	1	1	0
	Sq Cell Carcinoma	Skin - Basal Cell CA	1	1	0
	Sq Cell Carcinoma	Unknown Primary - Adenoca	1	1	0
	Sq Cell Carcinoma*	Skin - Basal Cell Ca	1	1	0
		Skin - Melanoma			
	Basosquamous Carcinoma	Prostate - Adenoca	1	1	0
	Bowen's Disease	Skin - Basal Cell Ca	1	1	0
<b>BREAST</b>			<b>3</b>	<b>0</b>	<b>3</b>
	Duct Cell Carcinoma	Contralateral Breast	1	0	1
	Duct Cell Carcinoma	Contralateral Breast	1	0	1
	Duct Cell Carcinoma	Brain - Astrocytoma	1	0	1
<b>CORPUS UTERI</b>			<b>2</b>	<b>0</b>	<b>2</b>
	Sarcoma, NOS	Thyroid - Papillary Ca	1	0	1
	Mullerian Mixed Tumor	Anorectum - Sq Cell Ca	1	0	1
<b>OVARY</b>			<b>1</b>	<b>0</b>	<b>1</b>
	Pap Mucinous Cystadenoca	Ampulla of Vater - Ca, NOS			
<b>PROSTATE</b>			<b>4</b>	<b>4</b>	<b>0</b>
	Adenocarcinoma	Skin - Verrucous Ca	1	1	0
	Adenocarcinoma	Bladder - Trans Cell Ca	1	1	0
	Carcinoma, NOS	Bladder - Pap Trans Cell	1	1	0
	Carcinoma, NOS	Rectum - Carcinoma, NOS	1	1	0
<b>BLADDER</b>			<b>1</b>	<b>1</b>	<b>0</b>
	Transitional Cell Ca	Stomach - Adenoca			
<b>BRAIN &amp; CNS</b>			<b>1</b>	<b>0</b>	<b>1</b>
	PNET	Nasopharynx - NHL	1	0	1
<b>THYROID</b>			<b>3</b>	<b>2</b>	<b>1</b>
	Papillary Carcinoma	Breast - Duct Cell Ca	1	0	1
	Papillary Carcinoma*	Nasopharynx - Sq Cell Ca	1	1	0
		Chr Lymphoid Leukemia			
	Papillary & Follicular Ca	Prostate - Adenoca	1	1	0
<b>LYMPH NODES</b>			<b>1</b>	<b>1</b>	<b>0</b>
	Lymphoma, NOS	Soft Tissue Sarcoma			
<b>UNKNOWN PRIMARY</b>			<b>1</b>	<b>1</b>	<b>0</b>
	Adenocarcinoma	Chr 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.

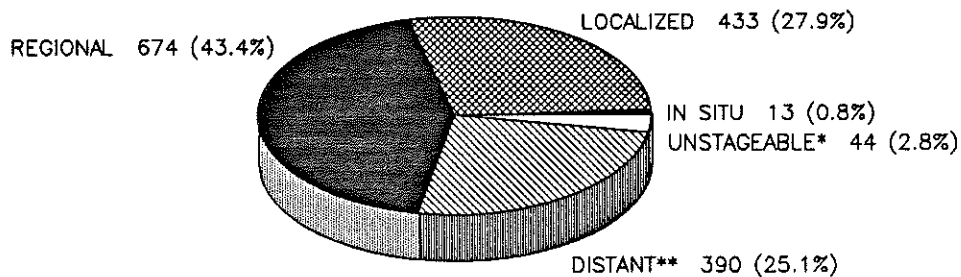
**Summary Staging Definitions:**

- 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 1994. The 44 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 4, page 17, for the distribution of the 1994 analytic cases by site and stage at diagnosis.

FIGURE 13

DISTRIBUTION OF ANALYTIC CASES BY STAGE AT  
DIAGNOSIS - 1994 (TOTAL CASES = 1,554)

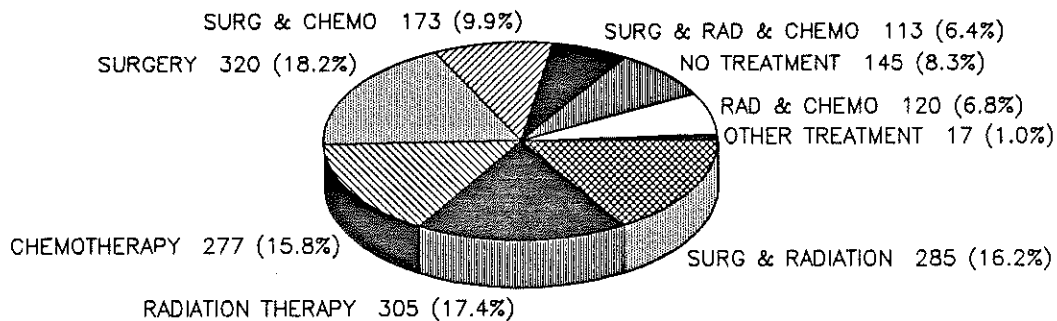


\*Excludes Unknown Primaries (42 cases)

\*\*Excludes Leukemia and Multiple Myeloma (159 cases)

FIGURE 14

DISTRIBUTION OF ANALYTIC CASES BY FIRST COURSE  
OF TREATMENT (SINGLY OR IN COMBINATION)  
1994 (TOTAL CASES = 1,755)





**OVERVIEW OF BREAST CANCER AT KFSH&RC  
(1975 - 1991)**

Dr Adnan Ezzat, Dr Assem Rostom, Dr John Berry,  
Dr Dorothy Rhydderch, Dr Inas Taha  
on behalf of the Breast Cancer Working Group

Breast cancer continues to be a major health problem worldwide. The impact of breast cancer in the Kingdom of Saudi Arabia is unknown due to the lack of reliable data on the incidence of the disease. The recently established National Cancer Registry will provide this information in the future.

During the study period, a total of 22,088 cases were registered at the Hospital Tumor Registry. Breast cancer cases (1,705) represented 8%.

In this overview we describe our experience with patients who underwent curative management (stages I, II, III) during the study period.

Only 1,015 (60%) of the patients fulfilled the criteria for review. The remaining 40% were either metastatic at the time of referral to KFSH&RC or received all primary treatment in outside institutions and only diagnosed and/or followed up at KFSH&RC (Figure 1).

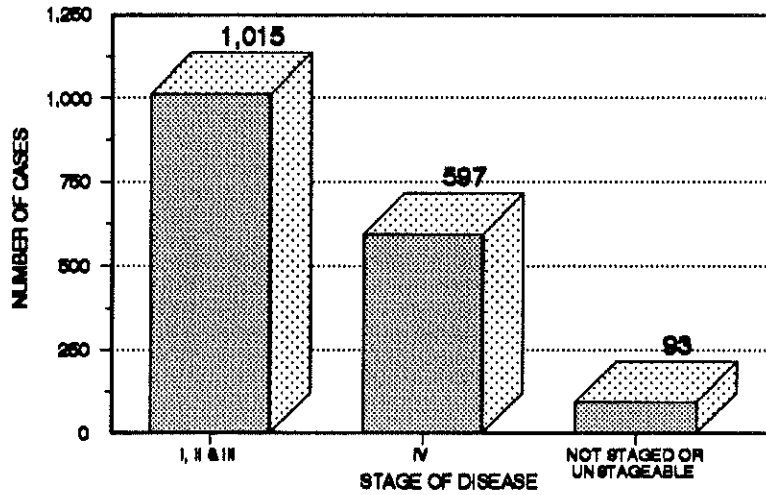
The mean age was 45 years (range 16-87). The pattern of referrals reflected the population density in the major five regions of the country (Figure 2). A striking difference in menopausal status of our patients from the western literature is observed in that 63% of our patients were premenopausal (Figure 3). No differences were observed in the laterality of involvement. The most frequent histology was infiltrating ductal carcinoma (76%). A major proportion of patients had histological involvement of lymph nodes (71.5%). Estrogen and progesterone receptors were positive in 31% and 27% respectively of the samples tested. Since surgery was done outside KFSH&RC in the majority (58%), clinical and pathological reports pertaining to the size of the tumor were frequently lacking. It was therefore decided to report the cases by UICC Summary Stage (Figure 4).

Surgery was performed in 97% of the patients. In 42%, surgery was at KFSH&RC, modified radical mastectomy in 45%, mastectomy (NOS) in 40% and conservative surgery in 15%. Adjuvant chemotherapy was given to 47% of patients, adjuvant tamoxifen to 25% and adjuvant radiation therapy to 53%.

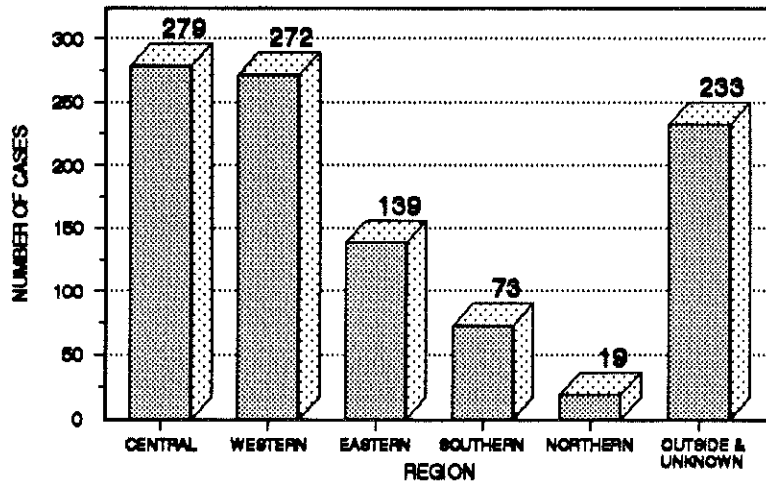
To date, 45% of patients have relapsed. Overall survival is shown in Figure 5.

Since 1990, a multidisciplinary team consisting of a surgeon, radiation oncologist and medical oncologist has participated in decision making and follow up of patients. Currently two combined clinics are held weekly by the team, one for management decision making and the other for follow up of patients who are disease free.

**FIGURE 1**  
**DISTRIBUTION OF 1,705 BREAST CANCER CASES BY STAGE**



**FIGURE 2**  
**DISTRIBUTION OF STAGES I-III BREAST CANCER CASES BY REGION**



**FIGURE 3**  
**DISTRIBUTION OF STAGES I-III BREAST CANCER CASES BY MENOPAUSAL STATE**

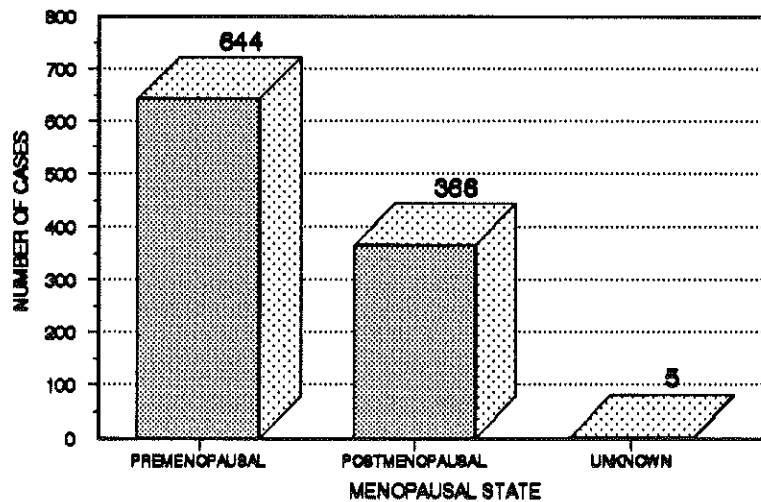


FIGURE 4  
DISTRIBUTION OF STAGES I-III BREAST CANCER CASES

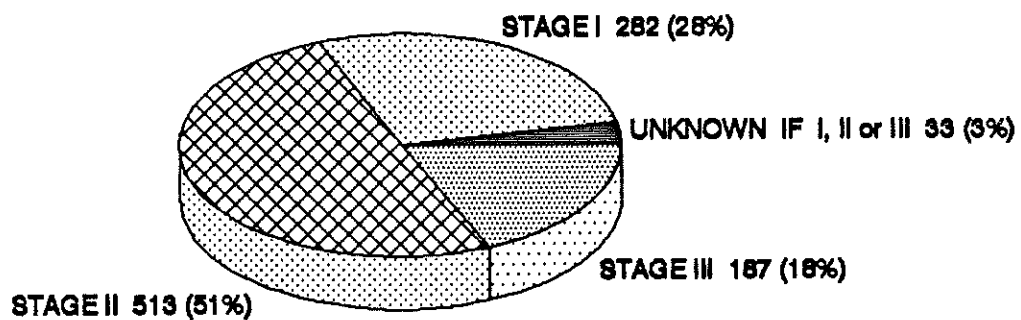
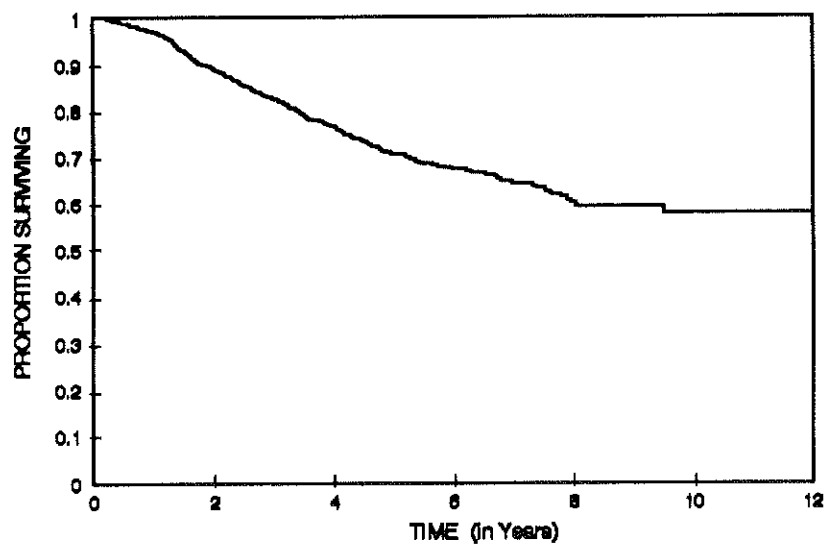


FIGURE 6  
OVERALL SURVIVAL OF STAGES I-III BREAST CANCER CASES



## APPENDIX A

## 1994 REQUESTS FOR TUMOR REGISTRY DATA

\*Publication \*\*KFSH&amp;RC Presentation \*\*\*Outside KFSH&amp;RC Presentation

## January

Site, Histology and Date of Biopsy of Cases for the Tissue Bank	Dr. S. Al Sedairy
Pediatric A.L.L. Cases on '87-'90 Protocol with Status as of Last Contact Date***	Dr. A. Al Nasser
Osteogenic Sarcoma Cases with Surgery at KFSH, w/ Sex, Age, Date of Dx, Stage, Distant Site/s if Metastatic, Size of Tumor, Type of Surgery and Other Rx Modality (MR Numbers) (1988-1992)*	Dr. D. Younge

## February

Osteogenic Sarcoma Cases with Site, Histology, Sex, Status as of Last Contact Date (MR Numbers). Distribution by Age & Sex; Site & Distant Site/s; Site & 1st Course of Rx; and Site & Histology (1975-1992)* (Update of previous request)	Dr. S. Lindahl
Osteogenic Sarcoma Cases by Attending Physician (MR Numbers)(1989-1993)(Update of previous request)	Dr. R. Wierzbicki

## March

Anal Canal Carcinoma Cases with Histology and Rx Modality (MR Numbers) (1980-1993)	Dr. S. Bazarbashi
Meningosarcoma Cases (diagnosed pathologically) (MR Numbers) (1985-1993)*	Dr. A. Khani
Pediatric Leukemia Cases by Year (1989-1993)	Ms. E. Furukawa
Malignant Cases by Site (1993)	Dr. A. Rostom

## April

Thyroid Cancer Cases (MR Numbers) (1989-Jan 1994)	Dr. S. Bakheet
Chordoma of Lower Spine Cases with Sex, Age, Date of Dx, Rx & Date of Last Contact (1975-1993)	Dr. D. Younge
Breast Cancer Cases with Mastectomy (1992-1993)	Ms. E. Furukawa
Childhood Lymphoma by Type (NHL/HD) & Age	Dr. R. Sabbah
Ovarian Germ Cell Tumor by Histology (MR Numbers) (1990-1992) (Update of previous request)*	Dr. A. Ezzat

## May

Thyroid Cancer Cases, downloading of info into a diskette (1975-1993) (Update of the KACST Study)	Ms. A. Sandridge
Hodgkin's Disease Cases, Stages I & II (MR Numbers) (1982-1992)	Dr. A. Rostom
Adult C.M.L. Cases (MR Numbers) (1975-1990) (Update of previous study)	CRU for Dr. Ernst
Cancer of the Cervix Cases with Age, Sex, Histology, & Treatment (MR Numbers) (1975-1993)	Dr. M. Manji

## June

Adult A.M.L. Cases with Age and Status as of Last Contact Date (MR Numbers)(1975-1987 & 1993) (Update of previous request)	Dr. N. Giri
Pediatric Malignant Cases by Region/City and Type of Malignancy (Leukemia/Lymphoma/Solid Tumor) (1989-1992)	Dr. A. Al Nasser
Top 10 Malignancies in Men, Women and Children (Numbers and Percentages) (1975-1992)	Ministry of Health

June (cont'd)

Retinoblastoma Cases by Year and Those with Multiple Primaries (1975-1992)***	Dr. A. Gray
Pediatric Malignant Cases (Leukemia vs Solid Tumor) with Site, Histology, Age & Sex (MR Numbers) (1988-1994)*	Dr. K. Rao
Thymoma Cases with Age, Treatment Modality and Status as of Last Contact Date	Dr. D. Pradhan

July

Leukemia Cases by Age Group & Region/City and Malignant Brain Cases by Age Group & Region/City	Ministry of Health
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September

Pediatric Non-Hodgkin's Lymphoma, Large Cell, Cases with Age, Sex and Site (MR Numbers) (1975-1988)	Dr. V. Rao
Chronic Lymphocytic Leukemia Cases, highlighting those w/ a Second Primary (MR Numbers) (1975-1993)*	Dr. P. Ernst
Pediatric Leukemia Cases by Referring Hospital and Region/City (1989-1992)	Dr. D. Mahoney
Breast Cancer Cases who were Pregnant at Time of Dx or During Treatment (MR Numbers) (Update of previous request)	Dr. A. Ezzat

October

Non-Epithelial Ovarian Cancer Cases (MR Numbers) (1980-1993) (Update of previous request)	Dr. A. Ezzat
A.L.L. Cases (13 yrs & above) (MR Numbers) (1991-1993). Lymphoblastic Lymphoma Cases (13 yrs & above) (MR Numbers) (1987-1993) (Update of previous request)	CRU for Dr. Clink
NHL of the Stomach Cases (15 yrs & above) w/ Surgery at KFSH, Analytic Cases (MR Numbers) (1985-1993)	Dr. A. Ezzat
NHL of the Colon Cases (MR Numbers) (1993)	Dr. A. Ezzat
Pediatric A.L.L. Cases on '81, '84 & '87 Protocols w/ Status as of Last Contact Date (MR Numbers)**	Dr. N. Giri

November

Testicular Cancer Cases with Age, Histology & Status as of Last Contact Date (MR Numbers) (1975-1994)*	Dr. T. Merdad
Optic Nerve Glioma Cases (MR Numbers) (1991-1993)**	Dr. D. Pradhan
Adult NHL of the Bone Cases (MR Numbers) (1983-1993)*	Dr. A. Ezzat
Cancer of the Vulva Cases (MR Numbers) (1980-1990)	Dr. M. Manji
Multiple Myeloma Cases with Age & Sex (MR Numbers) (1975-1994)	Dr. F. Zwaan
Ewing's Sarcoma Cases with Stage at Dx & Treatment (MR Numbers) (1975-1990)*	Dr. Y. Khafaga
Adult Cancer Cases by Age, Sex, Nationality, Region, Histology, Site/System (1976-1993)*	Dr. A. Ezzat

December

Pediatric Osteosarcoma Cases with Sex, Age, Site, Laterality, Stage, Treatment & Status as of Last Contact Date (MR Numbers) (1975-1993)	Dr. M. Mustafa
10 Most Common Pediatric Malignancies by Histology (1975-present)	Dr. A. Gray
Pediatric A.L.L. Cases (MR Numbers) (1990-1992) (Update of previous request)	Dr. A. Al Nasser
Malignant Cases by Site and Sex (1993)	Ministry of Health

## APPENDIX B

## 1994 Tumor Committee Members

William Allard, D.M.D.	Dentistry
Hamad Al Daig	CHIC
Shouki Bazarbashi, M.D.*	Medical Oncology
Peter Ernst, M.D.	Medical Hematology
Adnan Ezzat, M.D.	Medical Oncology
Mohd Hannan, Ph.D.	B&MR Research Centre
Stig Ingemansson, M.D.	Surgery
Justin Martin, M.D.**	Pathology
Peter McArthur, M.D.	Surgery
Dolores K. Michels, C.T.R.	Tumor Registry
Lamia NouNou	Social Services
Assem Rostom, M.D.	Radiation Oncology
Rajeh Sabbah, M.D.***	Chairman, Oncology
Sultan Al Sedairy, Ph.D.	Research Centre
Jens O. Sieck, M.D.	Medicine
Jamal Al Subhi, M.D.	Obstetrics/Gynecology
Beth Ann Tomasek***	Quality Assurance

\* Chairman  
 \*\* Deputy Chairman  
 \*\*\* Ad hoc Members

**APPENDIX C****SUMMARY OF CASES PRESENTED  
KFSH&RC TUMOR BOARD - 1994**

<b>SITE</b>	<b>NO.</b>
Lymphatic System	
Hodgkin's Disease	3
Non-Hodgkin's Lymphoma	2
Brain	3
Bone	2
Leukemia	1
Soft Tissue	1
Undifferentiated Neoplasm	2
Autoimmune Anemia	2
CMV Infection in BMT Recipients	1

**Tumor Board Coordinator: Dr. Shouki Bazarbashi**

## APPENDIX D

## 1994 SUMMARY OF ONCOLOGY GRAND ROUNDS TOPICS

11 Jan	Osteogenic Sarcoma	Dr. R. Wierzbicki
25 Jan	Role of Radiotherapy for Colorectal Cancer	Dr. M. Manji
01 Feb	Update on Clinical Trials in Medical Oncology	Drs. Ezzat and Wierzbicki
08 Feb	Mid-Facial Necrotizing Lesions	Prof. J. Batsakis
12 Apr	Chemotherapy vs BMT for AML: Is There A Best Choice?	Dr. M. Mustafa
26 Apr	The Treatment & Prognosis of Early Stage Hodgkin's Disease	Dr. S. Bazarbashi
10 May	Irradiation in Myeloma with Emphasis on Whole Body Irradiation	Dr. A. Rostom
28 June	Skin Things in Non-Hodgkin's Lymphoma	Dr. J. Berry
13 Sept	BMT In Saudi Arabia: A Coordinator's Perspective	Ms. F. Skabo
27 Sept	Risk Classifications in Childhood ALL - New Directions	Dr. D. Mahoney
11 Oct	Granulopoiesis: Kinetics and Morphological Features	Dr. Ottolander
08 Nov	Presentation & Interpretation of Survival Analysis in Clinical Trials	Dr. E. de Vol
22 Nov	Acute Leukemia at KFSH	Dr. N. Giri
06 Dec	Head and Neck Irradiated Patient	Dr. C. Smith
13 Dec	Spleen & Splenectomy	Prof. H. Pearson
27 Dec	KFSH Treatment Results of Medulloblastoma - 17 Yrs Experience	Dr. Y. Khafaga

Oncology Grand Rounds Coordinator: Dr. Kwesi Sackey



## V. 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 Summary Staging Guide:

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

**Local:** Tumor is confined to organ of origin.

**Regional:** Tumor has spread by direct extension to immediately adjacent organs and/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.

