1990 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 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 Cancer Program 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:

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Computer and Hospital Information Centre
Medical Records Department

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Prepared by the Staff of the Tumor Registry
Ofelia B. Te and Julia Atwood, CTR
Department of Oncology
King Faisal Specialist Hospital and Research Centre
P.O. Box 3354 Riyadh 11211
Kingdom of Saudi Arabia
464-7272 ext. 2957, 2958

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

Tumor Registry

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

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

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

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

The Registry, under the medical supervision of the Tumor Committee maintains a complete data base of all cancer cases diagnosed and/or treated at KFSH&RC. This database now includes more than 21,000 cases diagnosed from June 1975 through December 31, 1990. Approximately 2,000 new cases are being added annually.

The data maintained by the Registry are available for use by the medical staff for special studies, audits, and research. During 1990, the Registry participated in 61 special studies utilizing data from the computerized file. The use of Registry data has steadily increased during the past year and its continued use is encouraged. Please refer to Appendix A for a listing of Special Studies requested in 1990.

FIGURE 1

PATIENT NAMEPLATE

KING FAISAL SPECIALIST HOSPITAL AND RESEARCH CENTRE

CANCER REGISTRY WORKSHEET
(CanSur 3.0)

PF 10 TACS - ACCESSION FILE MAINTENANCE

ACCESSION NUMBER (ACSN): 87012 3

TUMOR SEQUENCE (SEQ): 00

Malignant/In situ tumors: 00 – One primary only; 01 – First of two or more; ... ; 06 – Etbn or later primary; 09 – Unspecified sequence
Benign tumors: XX – One primary only; AA – First of two or more; ... ; HH – 8th or later primary; 8 – Unspecified sequence

THIS CANCER ACCESSION YEAR: 87

MEDICAL RECORD NO.: 214657

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
Prov.: RY ZIP Code:

MARITAL STATUS AT DX: 2
1 – Single; 2 – Married; 3 – Separated; 4 – Divorced; 5 – Widowed; 9 – Unknown

RELIGION: 01
01 – Muslim; 02 – Christian; 03 – Hindu; 04 – Buddhist; 05 – Other; 09 – Unknown

ALCOHOL USAGE: 3
1 – Current alcohol usage; 2 – Past history of alcohol usage; 3 – Never used alcohol; 9 – Unknown

FAMILY HISTORY OF CANCER: 1
1 – Family history of cancer; 2 – No family history of cancer; 9 – Unknown

SMOKING/CHEWING HISTORY: 3
1 – Current smoker cig.; 2 – Past smoker; 3 – Patient never smoked; 4 – Other; 5 – Shamma; 6 – Shisha; 7 – Combo; 8 – Other; 9 – Unknown

TOTAL PACK YEARS:
INDUSTRY:
OCCUPATION: Housewife
DATE ADMITTED (mm/dd/yyyy): 01/20/1987
DATE DISCHARGED (mm/dd/yyyy): 02/15/1987

REPORTING SOURCE: 1
1 – Inpatient; 2 – Clinic/outpatient; 3 – Laboratory; 4 – Physician's office; 5 – Nursing home; 6 – Autopsy; 7 – Death Cert; 9 – Unknown

HOSPITAL REFERRED FROM: 00001
Riyadh Central Hospital
HOSPITAL REFERRED TO:

PF 11 TPAT - PATIENT IDENTIFICATION

SAUDI ID: 0001142 34
BIRTH DATE: 01/01/1946
AGE AT DX.: 041
SEX: 2
1 – Male; 2 – Female; 9 – Unknown

NATIONALITY: 00
00 – Saudi; 01 – Amer. Can. Brit; 02 – Egyptian; 03 – Leb. Syr. Pal; 04 – Yemeni; 05 – Other Arab; 06 – Ind. Pak; 07 – African; 08 –; 09 – Other

Form 988-13 (Rev. 9-10)

PF 12 TTXT - MISCELLANEOUS TEXT

PHYSICAL EXAM:
X-RAYS / SCANS:
SCOPES / LAB: ER A (+), PR A (+)
OPERATIVES FINDINGS: 2/14 regional lymph nodes (+)
PATHOLOGY / AUTOPSY: 871570

PF 13 TCAN - CANCER IDENTIFICATION

DATE OF INITIAL DIAGNOSIS (mm/dd/yyyy): 01/05/1987
CLASS OF CASE: 2
0 – Dx here, rx elsewhere; 1 – Dx & rx here; 2 – Rx here; 3 – Rx elsewhere; 4 – Rx here prior; 5 – Dx at autopsy; 9 – Unknown
PRIMARY SITE - TEXT: Breast, UOQ, right
CODE: 1714
HISTOLOGY - TEXT: Infiltrating Ductal Carcinoma Grade III
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 – NuII 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: 14
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: 02
00 – No nodes positive; 01 – One node positive; 02; 86 – 86 + nodes positive; 97 – Positive nodes, number unknown; 98 – No nodes examined; 99 – Unknown if any nodes +/-

TUMOR SIZE (cm): 035
eg., 000 – No mass; 002 – 0.2 cm; 055 – 5.5 cm; 999 – Unknown

RESIDUAL TUMOR: 9
0 – None; 1 – Microscopic; 2 – Macroscopic; 5 – No resection, NA; 9 – Unknown

DISTANT METS: 1: 2: 3:
0 – Bone Met.; 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 | + N | + M | + STAGE GROUP | **
PATHOLOGICAL T 2A + N 1A + M 0 + STAGE GROUP | **
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; 1 – Stage I; 2 – Stage II; 3 – Stage III; 4 – Stage IV; 9 – Unknown

***Other Basis: (S-Surgical), A-Autopsy, R-Retreatment

PF 14 TRU1 - 1ST COURSE TREATMENT (SURGERY, RADIATION)

SURGERY

REASON: 0
0 – Can-directed surg performed; 1 – Not recommended; 2 – Contraindicated other; 5 – Reason unknown, no surg; 7 – Patient/guardian refused; 8 – Recommended, unk if done; 9 – unknown

SUMMARY (Entire 1st course): 50
AT THIS HOSPITAL: * 50
* Refer to Appendix A in CanSur User Manual for site-specific codes
STARTED (mm/dd/yyyy): 01/21/1987
TEXT: Rt. mod rad mastectomy

RADIATION

SUMMARY:
AT THIS HOSPITAL: 1
0 – No Radiation therapy; 1 – Beam irradiation; 2 – Radioactive implants; 3 – Radioisotopes; 4 – Comb 1 + 2 or 3; 5 – Radiation therapy, NOS; 7 – Patient/guardian refused; 8 – Recommended, unk if done; 9 – Unknown
STARTED (mm/dd/yyyy): 02/16/1987
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; 1 – Radiation before surgery; 2 – Radiation after surgery; 3 – Before & after surgery; 4 – Intraoperative radiation; 5 – Intraoperative plus 2, 3 or 4; 9 – Sequence unknown
TEXT: Chest wall and reg. lymph nodes
6000

PF 15 TRU2 - SUB. THERAPY

	Started mm/dd/yyyy	Course	Type	Code	Dose
1	/ /				
2	/ /				
3	/ /				

PF 16 TRU3 - 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): 03/01/1987
TEXT: Adria, Ctx, 5-FU

HORMONE/STEROIDS

SUMMARY: 1
AT THIS HOSPITAL: 1
0 – No hormonal therapy; 1 – Hormonal therapy; 2 – Endocrine surg/radiation; 3 – Hormones + endor surg/rad; 7 – Patient/guardian refused; 8 – Recommended, unk if done; 9 – Unknown
STARTED (mm/dd/yyyy): 02/01/1987
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 ca-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:

PF 17 TRU1 - FOLLOW-UP INFORMATION

LAST CONTACT/DEATH (mm/dd/yyyy): 03/01/1987
CAUSE OF DEATH-ICD CODE:
CURRENT VITAL STATUS: 1 (1 – Alive; 2 – Dead)
CURRENT CANCER STATUS: 2
1 – No evidence of cancer; 2 – Evidence of cancer; 9 – Unknown
QUALITY OF SURVIVAL: 9
0 – Normal; 1 – Sym & smb; 2 – Amb> 50%; 3 – Amb< 50%; 4 – Bedridden; 8 – NA, dead; 9 – Unknown
LETTER FLAGS –
PATIENT: (letter or asterisk, eg., *, A, B, 1)
CONTACT, eg., 0 – first 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
UNUSUAL CONDITIONS:
PLACE OF DEATH: (State of country – Geocode)
RECURRENCE INFORMATION
DATE: (mm/dd/yyyy): 12/22/1987
TYPE: 3 (0 – No recurrence; 1 – Local recurrence; 2 – Regional recurrence; 3 – Distant recurrence; 4 – Never free; 9 – Unknown)
DISTANT METS: 1: 4 2: 5 3: 8
0 – BM; 1 – Peritoneum; 2 – Lung; 3 – Pleura; 4 – Liver; 5 – Bone; 6 – CNS; 7 – Skin; 8 – Lymph node (distant); 9 – Unknown /Other

	FU LETTER FLAGS	CODE	PHYSICIAN NAME
1. ATTENDING PHYSICIAN:		01 2 3 4 5	Oncologist
2. OTHER PHYSICIAN:		6 7 8 9 1 2	Rad Oncologist
3. OTHER PHYSICIAN:		3 4 5 6 7 8	Surgeon
4. OTHER PHYSICIAN:			
5. OTHER PHYSICIAN:			
6. OTHER PHYSICIAN:			

LAST SOURCE FU HOSP:
NEXT HOSP FOR FU:
DEATH CERTIFICATE FILE NO:

PF 20 TREM - REMARKS/SPECIAL DATA ITEMS

FREE FORMAT AREA
REMARKS: Mother had breast cancer

OVERRIDE FIELDS (Y – Bypass edit, leave blank if edit not bypassed)
SITE/HIST:
AGE /SITE/HIST:
SEQNO/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: SAP
ADDRESS 1: Riyadh
ADDRESS 2:
CITY: Riyadh
PROV.: RY ZIP CODE:
TELEPHONE: (966) 464-1234 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. MRN: 81548

Tumor Committee

The multidisciplinary Tumor Committee, which meets monthly, is the policy-making body of the Cancer Program at KFSH&RC (see Appendix B for membership listing). During 1990, the Committee provided professional guidance to the Tumor Registry, modified the Cansur 3.0 Cancer Registry Worksheet, expanded the geographic region codes, promoted the use of subsets of tumor registry data in diskette format, supported the concept of KFSH&RC assisting the Ministry of Health in implementing a comprehensive National Cancer Registry program, and was accepted for membership in the International Association of Cancer Registries.

A. Transfer of Tumor Registry Database

Transfer of the entire database of the Tumor Registry containing more than 19,000 cases to the IBM 3090 mainframe computer was completed. All corrections and incomplete entries related to the conversion of the database were done. This necessitated the approximation of the date of birth and the date of diagnosis of patients seen in the hospital before 1985. Prior to 1985, patient's date of birth was not recorded and the date of diagnosis was inconsistently collected.

B. Modification of the Cansur 3.0 Cancer Registry Worksheet

The Cancer Registry Worksheet (Cansur 3.0) designed by the American College of Surgeons (ACoS) was studied and modified to meet the needs of the KFSH&RC. The Special Fields portion was expanded to include Hepatitis B, Burn Scar/Marjolin's Ulcer, Predisposing Factors, Pregnancy during treatment or at diagnosis, Renal Transplant, and Immunodeficiency. The optional worksheet for First Course of Treatment (Radiation Detail) was also modified.

The Cansur 3.0 Tumor Registry Patient Summary form which is filed in the patient's medical record was revised to conform with the Medical Records Committee standards.

C. Expansion of the Geographic Region Codes

Expansion of the geographic region codes was done to reflect the 14 administrative divisions/regions of Saudi Arabia. Geographic region codes for previous years were converted to reflect the expansion.

D. Subsets of Tumor Registry Data in Diskette Format

Requests for subsets of Tumor Registry data in diskette format can now be provided in DBase III or Lotus 1-2-3 format. The ability to provide data in diskette format will enhance general data collection and analysis for users.

E. Membership to the International Association of Cancer Registries

The KFSH&RC Tumor Registry was accepted as an Associate (non-voting) member of the International Association of Cancer Registries (IACR) whose goal is to foster the exchange of information between cancer registries worldwide in order to improve the quality of data and comparability between registries by standardizing methods of registration, definitions, and coding. Also, the IACR disseminates information on the multiple uses of cancer registry data in planning and evaluation of cancer prevention and therapy, and in epidemiological research into the causes of cancer.

Tumor Board

This educational conference is held once weekly for the benefit of the attending staff, house staff, allied health professionals and visiting attending staff from other hospitals. Cases of various types of malignant disease are selected for presentation on the basis of complexity, unusual manifestations of the disease, or interest. A total of 59 cases were presented in 1990. Each presentation includes an outline of the medical history, physical findings, clinical course, radiographic studies, and pathological interpretations. Following each presentation, there is an informal discussion of the case and a review of pertinent medical literature. Those attending are encouraged to share personal experience in the management of similar cases. Please refer to Appendix C for a summary of cases presented.

Tumor Conference

This didactic conference is held weekly and is attended by the Medical staff and allied health professionals. Speakers are drawn from the KFSH&RC Medical and Research staff as well as from visiting guests. Please refer to Appendix D for listing of the topics presented at Tumor Conference in 1990.

II. THE KFSH&RC TUMOR REGISTRY DATABASE 1975 - 1990: 21,000+ CASES

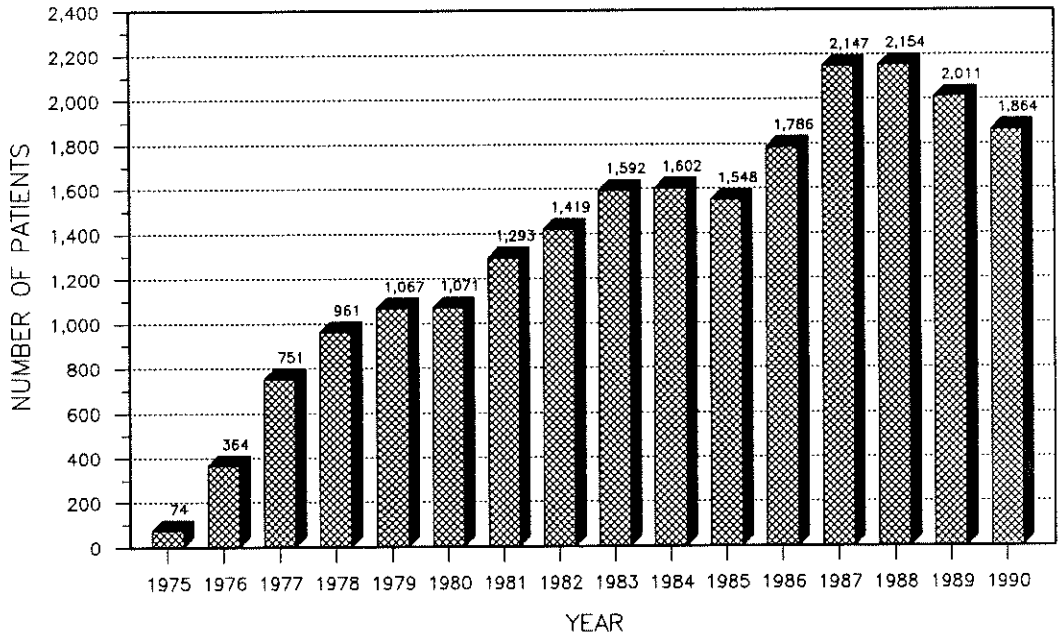
The KFSH&RC opened in 1975 to provide specialized medical treatment to the people of Saudi Arabia and to promote the prevention of disease through research and education. It is a national referral hospital and the principal center for cancer therapy in Saudi Arabia. There are over 500 inpatient beds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

The Registry is large (accessioning over 2,000 cases per year) with 21,945 cases on file to date. The database is computerized using an IBM 3090 Main Frame Computer. Although the Tumor Registry is not population based, KFSH&RC is the primary referral institution for the Kingdom and therefore represents the majority of oncology patients. Until mid-1981, it was the only facility within the Kingdom able to provide radiation therapy.

A total of 21,945 cases (21,704 patients)* were registered during the period between 1975 and 1990 (12,216 males and 9,729 females). Overall male to female ratio was 1.3:1. Figures 2, 3, and 4 illustrate the distribution of patients and cases accessioned by year.

FIGURE 2

DISTRIBUTION OF PATIENTS ACCESSIONED BY YEAR
1975 - 1990



* Please note distinction between the terms "patient" and "case" in this report. A patient with more than one neoplasm is reported as multiple cases.

FIGURE 3

YEARLY DISTRIBUTION OF 21,945 CASES BY SEX
1975 – 1990

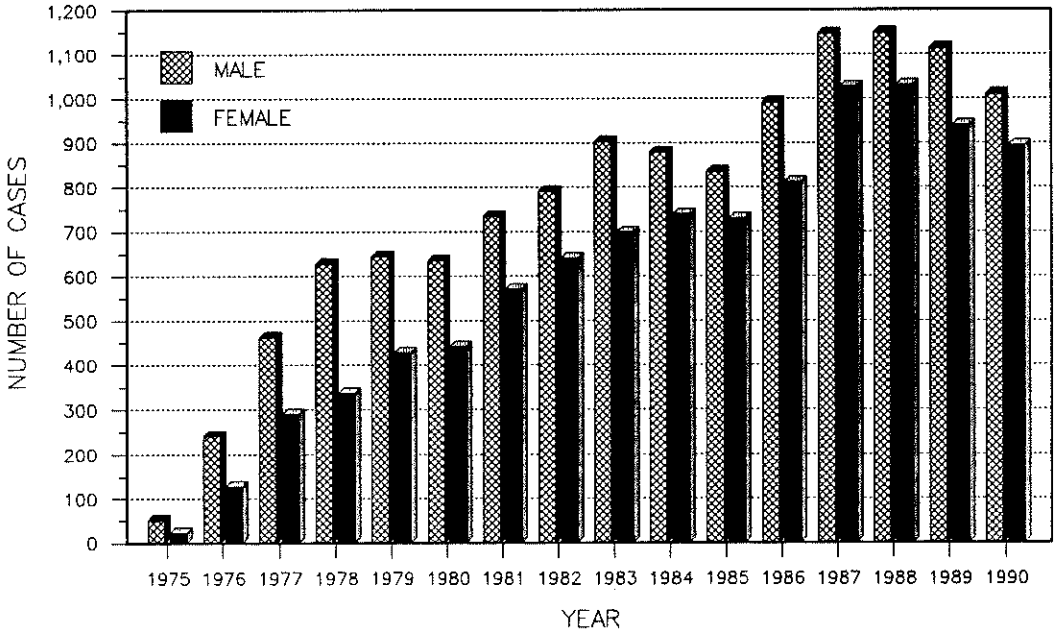
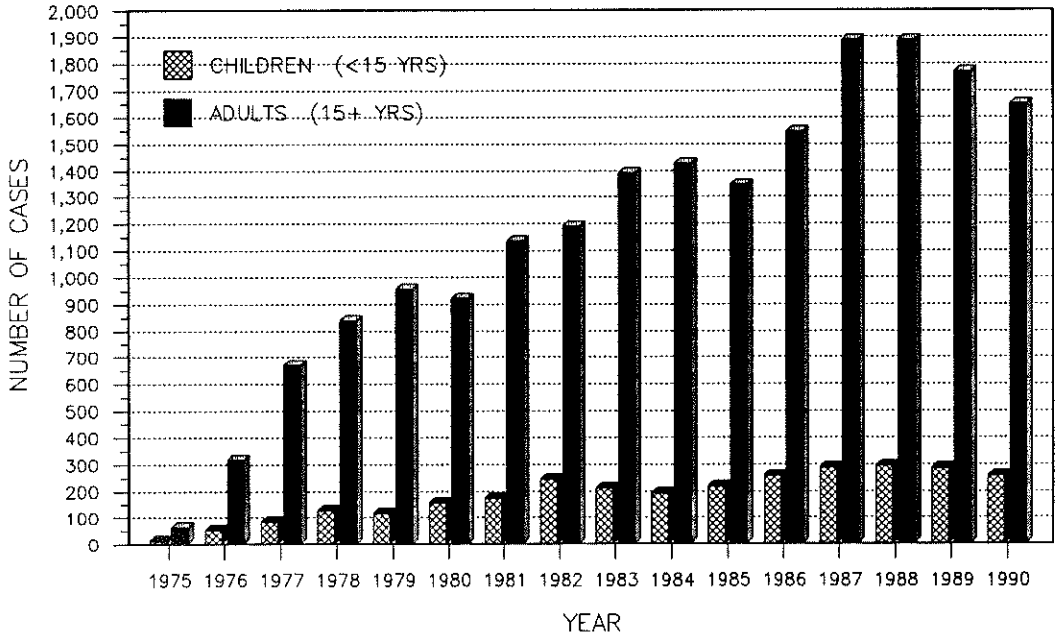


FIGURE 4

YEARLY DISTRIBUTION OF 21,945 CASES (CHILDREN VS ADULTS)
1975 – 1990



The largest male:female ratios in non-sex organs were found in the larynx (7.1:1), liver (4.1:1), bladder (4.1:1), lung (4.0:1), nasopharynx (2.8:1), pancreas (2.6:1), Hodgkin's Disease (2.5:1), stomach (2.4:1), and non-Hodgkin's lymphoma (2.2:1). Only thyroid disease exhibited a markedly low male:female ratio of 0.4:1.

Figure 5 shows the sex distribution, Figure 6, the nationality, and Figure 7, the geographic referral pattern of all cases.

FIGURE 5

DISTRIBUTION OF 21,945 CASES BY SEX

1975 – 1990

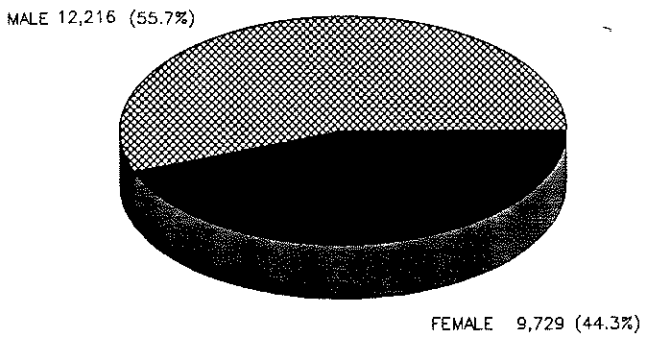


FIGURE 6

DISTRIBUTION OF 21,945 CASES BY NATIONALITY

1975 – 1990

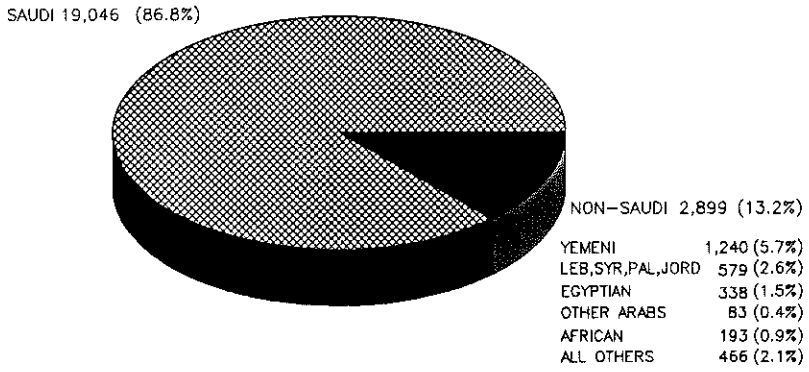
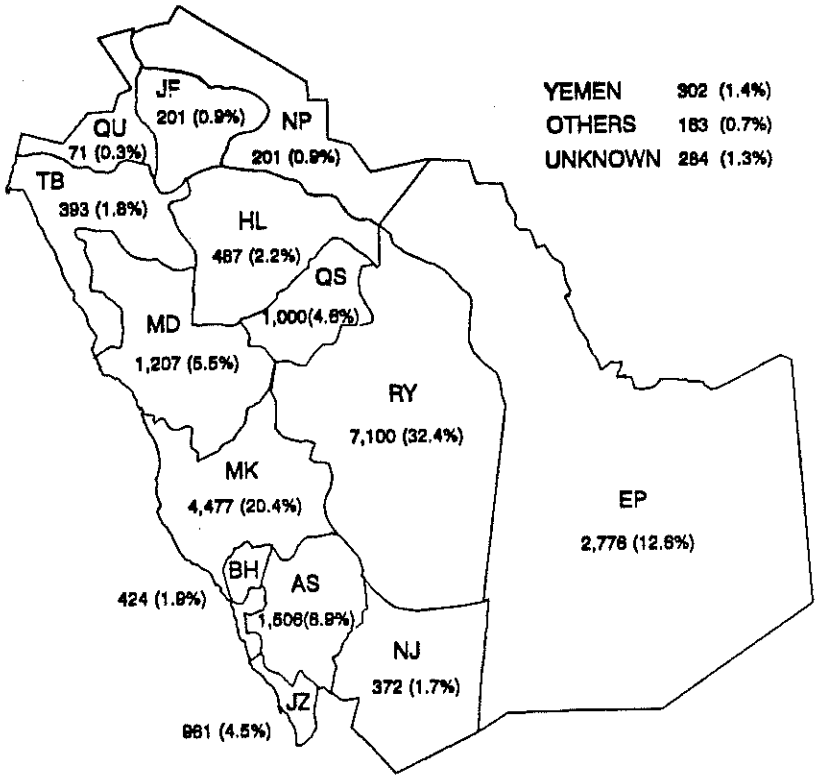


FIGURE 7

DISTRIBUTION OF 21,945 CASES BY GEOGRAPHIC REGION

(Based on Given Address at the Time of Diagnosis)

1975 - 1990

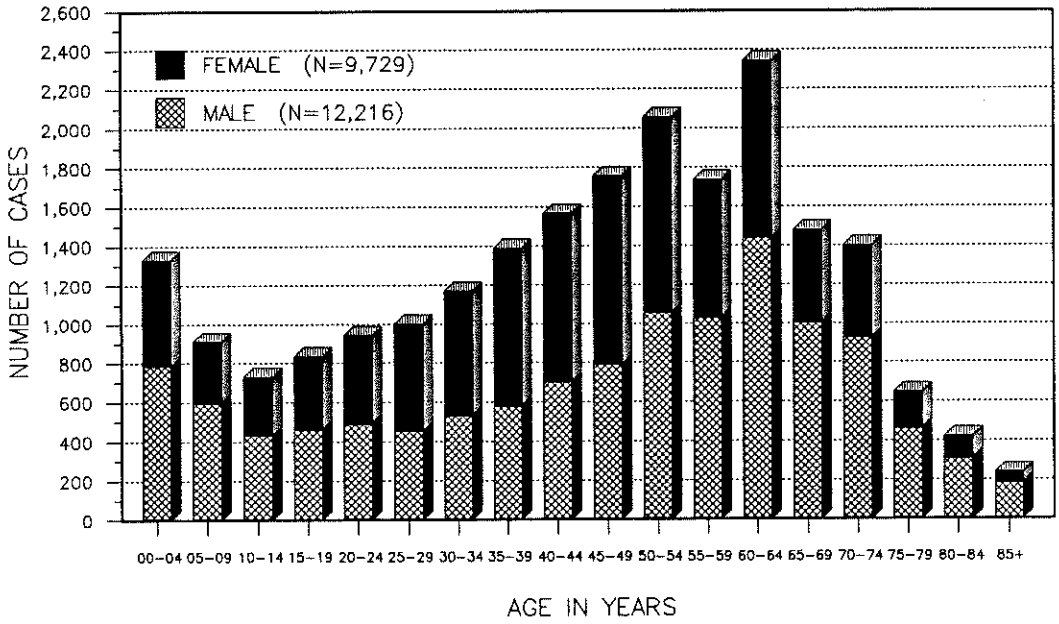


AS - ASIR
BH - AL BAHA
EP - EASTERN PROVINCE
HL - HAIL
JF - AL JAWF
JZ - JIZAN
MD - AL MADINAH
MK - MAKKAH
NJ - NAJRAN
NP - NORTHERN PROVINCE
QS - AL QASSIM
QU - AL QURAYYAT
RY - RIYADH
TB - TABUK

The largest number of cases was seen in the 5th and 6th decades in males and in the 4th and 5th in females. Please refer to Figure 8. The mean age for all patients is 44.3, the median is 48.1, and the mode is 60.0.

FIGURE 8

DISTRIBUTION OF 21,945 CASES BY AGE AT DIAGNOSIS
1975 - 1990



Staging of diseases at diagnosis has improved over the years. There were 2,169 cases (67.1% of all cases) which were unstaged or stages unknown in 1975-1979, 4,718 cases (67.1%) in 1980-1984, and 1,215 cases (12.4%) in 1985-1989. In 1990, only 104 cases (5.5%) were unstaged. Please see Table 1.

A summary of trends of relative frequency of cancer types follows on page 10. The crude relative frequency is the proportion of a given cancer in relation to all cases in a clinical or pathological series. Although such frequencies are subject to many biases, historically many elevated frequencies have been confirmed when complete cancer registration was introduced.

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

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

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

The relative frequencies of primary cancers seen at KFSH&RC are very different from the Western world. Common tumors of the West (lung, colon, and prostate) are much less frequent in Saudi Arabia, although breast cancer in Saudi women is the most common malignancy as it is in the Western countries. See Figures 9, 10, and 11 for the distribution of the most common cases for the period 1975-1990 and Table 1 for the 5-year summaries of the relative frequencies.

FIGURE 9

DISTRIBUTION OF 25 MOST COMMON CASES
1975 - 1990 (TOTAL CASES = 21,945)

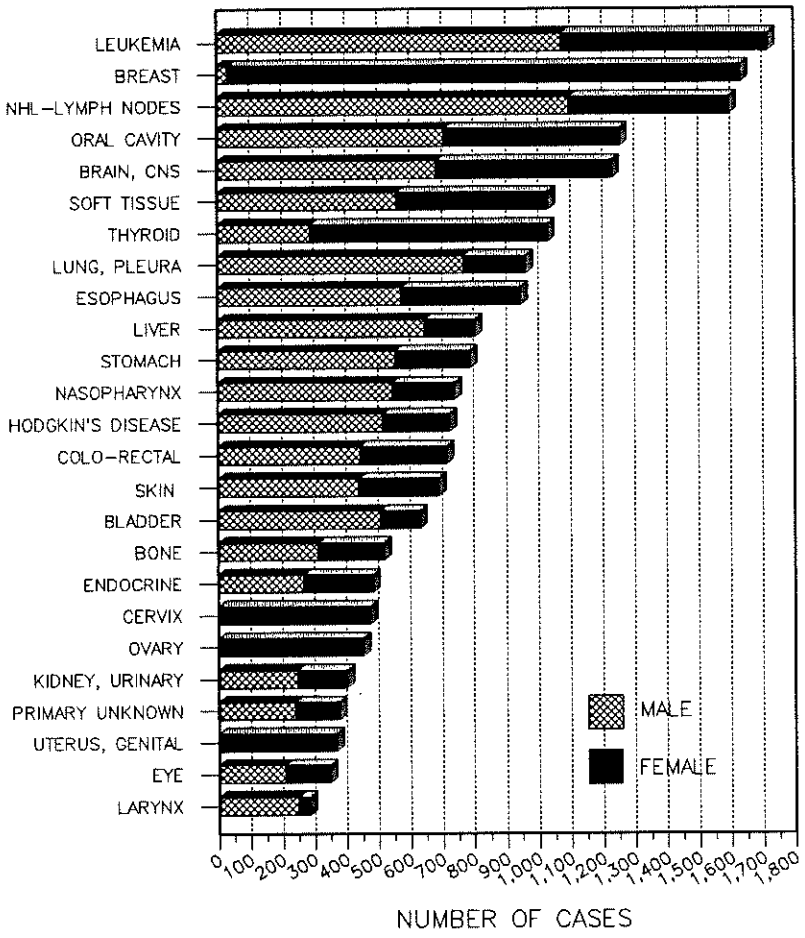


FIGURE 10
DISTRIBUTION OF 10 MOST COMMON CASES IN MALES
1975 - 1990

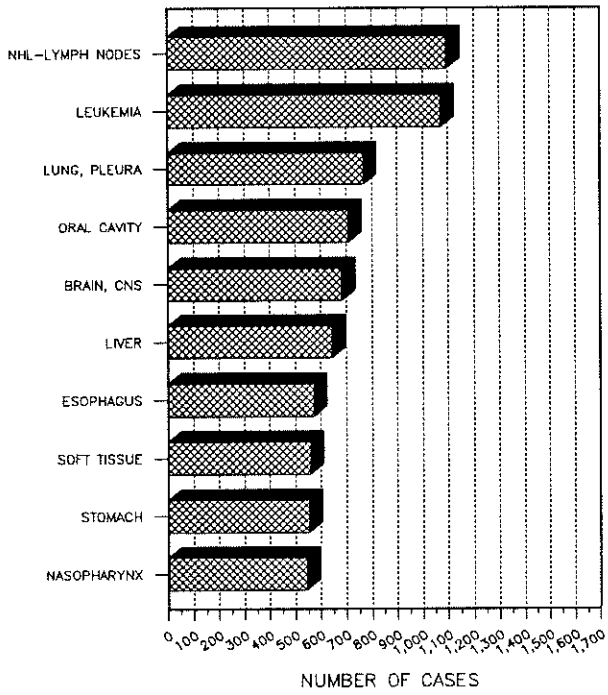
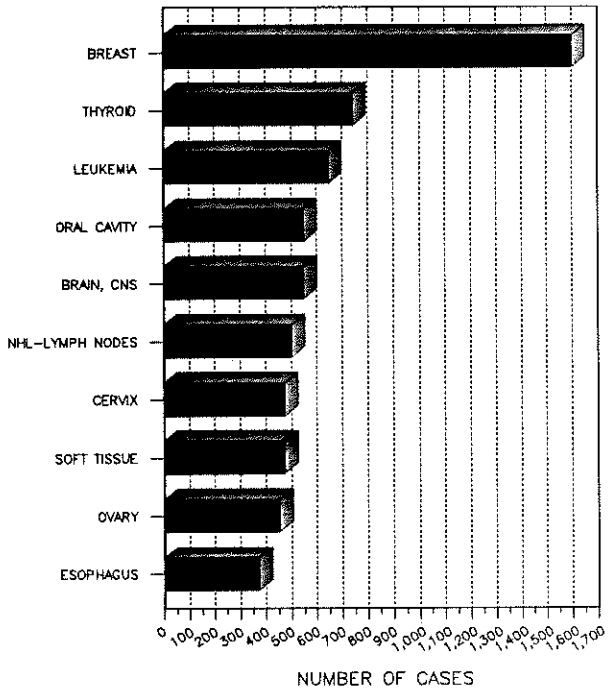


FIGURE 11
DISTRIBUTION OF 10 MOST COMMON CASES IN FEMALES
1975 - 1990



Leukemia - Leukemia constitutes the most common neoplasm seen at KFSH&RC, 7.8% of total cases, as compared to about 3% of all neoplasms diagnosed in the U.S.A. It is also the most common malignancy in children under the age of 15.

The male:female ratio is 2.1:1 for lymphoid leukemia and 1.3:1 for myeloid.

Breast - In the female, breast cancer is by far the commonest tumor (16.4% of all female malignancies). The mean age at diagnosis is a decade younger than seen in the Western world (average age of a Saudi female with breast cancer is 46 years).

Non-Hodgkin's Lymphoma - The most striking feature is the unusually high crude relative frequency of non-Hodgkin's lymphoma which is the most common type of malignancy seen in males and sixth most common in females, accounting for 7.3% of all cases. Male:female ratio is 2.2:1. NHL is the fourth most common malignancy in children under the age of 15. In the U.S.A., NHL accounts for only about 3% of all cancer.

Oral Cavity - A high crude relative frequency rate was also found for 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 5.7% of the cases. The male:female ratio is 1.3:1.

Thyroid - 2.4% of all male malignancies in the KFSH&RC Registry are thyroid tumors. However, they represent 7.6% of female neoplasms, second only to breast cancer in Saudi women. The male:female ratio is 0.4:1.

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 (19% in males, and 11% in females).

At KFSH&RC, 4.4% of the diagnoses are lung cancer, although in males it is the third most common tumor, constituting 6.2% of male malignancies and 2.0% in females. The male:female ratio is 4.0:1.

Esophagus - The occurence of esophageal carcinoma is markedly more frequent in Saudi Arabia than in Western countries. In the U.S.A. it constitutes 1% of all cancers, compared to 4.3% at KFSH&RC. The male:female ratio is 1.5:1.

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 Europe and America, but is 3.4% of the cases at KFSH&RC. The male:female ratio is 2.8:1.

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 3.2% of all tumors. In America it constitutes 14% of newly diagnosed cancer cases. The male:female ratio at KFSH&RC is 1.6:1.

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 22% of the malignancies). This is in contrast to the KFSH&RC experience, where prostatic cancer makes up only 1.1% 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.

Tables 2 to 8 show the number of cases by major site, sex, age, year, and 5-year summaries. Figures 12, 13, and 14 illustrate the yearly distribution of leukemia, lymphoma, and brain and CNS tumor cases (children vs adults), and Figure 15 the yearly distribution of lung cases by sex.

TABLE 1

10 MOST COMMOM CASES BY PERCENTAGE TO TOTAL AND STAGE AT DIAGNOSIS
FOR THE YEAR(S) 1975 - 1990
FIVE-YEAR SUMMARIES

	1975 - 1979							1980 - 1984						
	TOTAL		STAGE AT DIAGNOSIS*					TOTAL		STAGE AT DIAGNOSIS*				
	NO.	%**	IS	LOC	REG	DIST	UNSTG	NO.	%**	IS	LOC	REG	DIST	UNSTG
Leukemia	253	7.8	0	0	0	253	0	568	8.1	0	0	0	568	0
Ac Lymphoid	(75)							(227)						
Chr Lymphoid	(29)							(45)						
Other Lymphoid	(0)							(0)						
Ac Myeloid	(52)							(92)						
Chr Myeloid	(66)							(117)						
Ac Promyelocytic	(1)							(12)						
Ac Myelomonocytic	(11)							(42)						
Chr Myelomonocytic	(0)							(0)						
Other Myeloid	(2)							(2)						
Other Leukemias	(17)							(31)						
Breast	182	5.6	0	5	4	2	171	529	7.5	5	8	25	13	478
NHL-Lymph Nodes	257	8.0	0	12	54	132	59	601	8.5	0	24	139	219	219
Low Grade	(0)							(2)						
Interm. Grade	(1)							(2)						
High Grade	(8)							(30)						
T-Cell	(1)							(0)						
B-Cell	(0)							(0)						
Unknown Grade	(247)							(567)						
Oral Cavity	203	6.3	0	3	6	1	193	405	5.8	0	10	5	5	385
Brain, CNS	174	5.4	0	22	4	0	148	342	4.9	0	34	7	1	300
Soft Tissue	132	4.1	0	14	4	5	109	279	4.0	0	63	17	48	151
Thyroid	97	3.0	0	15	4	8	70	311	4.4	0	24	17	7	263
Lung, Pleura	116	3.6	0	1	0	8	107	305	4.3	0	5	6	16	278
Small Cell	(51)							(136)						
Non-Small Cell	(65)							(169)						
Esophagus	199	6.1	0	3	0	2	194	337	4.8	0	4	5	3	325
Liver	149	4.6	0	4	0	2	143	249	3.5	0	8	1	9	231
TOTAL	1,762	54.5	0	79	76	413	1,194	3,926	55.8	5	180	222	889	2,630

	1985 - 1989							1990***							1975-1990	
	TOTAL		STAGE AT DIAGNOSIS*					TOTAL		STAGE AT DIAGNOSIS*					TOTAL	
	NO.	%**	IS	LOC	REG	DIST	UNSTG	NO.	%**	IS	LOC	REG	DIST	UNSTG	NO.	%**
Leukemia	767	7.8	0	0	0	767	0	131	6.9	0	0	0	131	0	1,719	7.8
Ac Lymphoid	(334)							(48)							(684)	
Chr Lymphoid	(51)							(6)							(131)	
Other Lymphoid	(3)							(0)							(3)	
Ac Myeloid	(138)							(34)							(316)	
Chr Myeloid	(125)							(28)							(336)	
Ac Promyelocytic	(15)							(3)							(31)	
Ac Myelomonocytic	(69)							(4)							(126)	
Chr Myelomonocytic	(4)							(1)							(5)	
Other Myeloid	(0)							(0)							(4)	
Other Leukemias	(28)							(7)							(83)	
Breast	757	7.7	12	150	336	112	147	164	8.6	0	44	87	24	9	1,632	7.4
NHL-Lymph Nodes	613	6.3	0	37	175	355	46	125	6.6	0	6	44	73	2	1,596	7.3
Low Grade	(10)							(6)							(18)	
Interm. Grade	(30)							(37)							(70)	
High Grade	(77)							(29)							(144)	
T-Cell	(20)							(7)							(28)	
B-Cell	(17)							(20)							(37)	
Unknown Grade	(459)							(26)							(1299)	
Oral Cavity	544	5.6	1	121	223	86	113	104	5.5	0	25	48	25	6	1,256	5.7
Brain, CNS	592	6.1	0	406	106	14	66	123	6.4	0	87	29	4	3	1,231	5.6
Soft Tissue	498	5.1	0	222	89	120	67	122	6.4	0	59	23	25	15	1,031	4.7
Thyroid	523	5.4	0	201	180	68	74	99	5.2	0	36	41	15	7	1,030	4.7
Lung, Pleura	460	4.7	0	58	85	223	94	75	3.9	0	3	27	41	4	956	4.4
Small Cell	(225)							(31)							(443)	
Non-Small Cell	(235)							(44)							(513)	
Esophagus	335	3.4	2	112	95	66	60	74	3.9	0	23	41	7	3	945	4.3
Liver	356	3.6	0	126	67	100	63	50	2.6	0	14	11	21	4	804	3.7
TOTAL	5,445	55.7	15	1,433	1,356	1,911	730	1,067	56.0	0	297	351	366	53	12,200	55.6

* SEER Summary Stage. ** Percentage to Over-all Total Cases for the 5-Year Period. *** One Year Only.

TABLE 2

TOTAL CASES REFERRED TO KFSH BY AGE AND SITE*
FOR THE YEARS(S) 1975 - 1990

ICD-O	DESCRIPTION	0-4	5-9	10-14	15-19	20-24	25-29	30-34	35-39	40-44	45-49	50-54	55-59	60-64	65-69	70-74	75-79	80-84	85+	TOTAL
140-146, 148-149	Oral Cavity	7	4	7	13	26	35	47	56	81	97	152	142	197	125	141	60	37	29	1,256
147	Nasopharynx	2	3	25	34	45	37	40	70	66	99	89	58	82	38	27	13	4	7	739
150	Esophagus	0	0	0	1	1	11	12	19	46	64	116	107	198	114	125	56	47	28	945
151	Stomach	1	2	4	2	8	10	20	38	37	69	79	71	122	104	127	47	37	10	788
153-154	Colon, Rectum	2	0	4	5	20	40	46	52	47	78	94	71	102	51	53	24	12	13	714
155	Liver	12	3	2	3	4	10	16	20	45	74	116	105	147	103	81	35	16	12	804
157	Pancreas	2	0	1	0	1	4	3	13	16	21	35	32	41	33	22	10	10	4	248
152, 156, 158-159	Other G.I.	7	2	2	4	7	9	8	14	29	22	32	20	35	23	16	13	3	4	250
161	Larynx	2	2	1	0	0	2	7	10	20	18	32	40	55	35	27	18	8	6	283
162-163	Lung, Pleura	5	0	0	3	7	4	16	26	61	77	115	131	199	140	99	43	25	5	956
169 (973)	Multiple Myeloma	0	0	0	0	1	1	6	13	22	19	36	22	33	25	23	11	5	3	220
169 (982)	Lymphoid Leukemia	211	175	100	71	42	27	17	15	15	24	19	18	34	19	15	6	7	3	818
169 (986)	Myeloid Leukemia	50	58	49	76	67	73	77	67	65	54	58	42	31	20	16	9	3	3	818
169 (980-1,983-5,987-94)	Other Leukemias	15	5	6	6	3	5	7	5	8	1	2	1	5	6	5	0	2	1	83
170	Bone, Cartilage	12	48	98	110	83	42	36	17	13	15	10	4	11	9	5	3	1	1	518
171	Soft Tissue	208	87	64	75	91	63	55	67	65	54	49	39	46	34	21	6	4	3	1,031
172	Skin Melanoma	1	1	1	0	3	4	7	2	11	11	12	13	21	8	11	5	5	0	116
173	Other Skin Cancer	12	5	7	6	21	19	32	34	47	57	69	71	98	49	81	23	30	28	689
174-175	Breast	0	0	0	3	23	96	168	247	249	260	208	136	115	61	40	13	11	2	1,632
179, 181-182, 184	Uterus, Genital	5	0	1	25	25	40	18	25	41	28	38	27	41	18	18	6	9	3	368
180	Cervix	0	0	0	0	4	21	40	66	60	67	51	44	58	28	18	12	4	1	474
183	Ovary	4	5	15	26	29	25	24	24	28	49	54	45	47	36	31	7	2	1	452
185	Prostate	0	0	0	1	0	0	0	1	1	3	14	21	39	43	41	30	30	15	239
186-187	Testis, Genital	10	0	1	4	18	31	28	26	18	18	12	10	7	5	4	1	1	0	194
188	Bladder	8	4	1	2	6	8	18	41	47	48	65	65	91	66	70	52	24	14	630
189	Kidney, Urinary	98	25	7	9	5	6	13	14	20	30	38	39	36	24	20	9	7	2	402
190	Eye	185	23	5	2	2	2	8	6	11	7	15	12	25	12	14	7	9	2	347
191-192	Brain, CNS	121	171	111	88	69	70	75	84	87	69	77	74	56	36	27	13	2	1	1,231
193	Thyroid	1	2	14	35	92	91	110	93	96	106	105	56	81	42	56	34	11	5	1,030
194	Other Endocrine	82	29	29	26	45	36	40	44	43	30	34	25	14	2	4	0	0	0	483
196 (959, 967-970)	NHL - Lymph Nodes	150	138	51	66	83	78	82	87	98	93	125	111	152	91	90	47	34	20	1,596
196 (965-966)	Hodgkin's Disease	32	89	89	101	82	62	64	47	27	34	30	13	23	12	6	4	7	1	723
196 (972)	Histiocytosis	39	8	8	6	8	12	7	2	1	1	2	3	1	0	2	0	0	0	100
199	Primary Unknown	2	3	1	3	4	9	11	20	24	30	43	47	72	44	36	16	6	6	377
All Others	******	43	19	25	29	19	18	11	21	19	31	31	21	26	22	28	14	9	5	391
TOTAL		1329	911	729	835	944	1001	1169	1386	1564	1758	2057	1736	2341	1478	1400	647	422	238	21,945

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

TABLE 3

MALE CASES REFERRED TO KFSH BY AGE AND SITE*
FOR THE YEARS(S) 1975 - 1990

ICD-O	DESCRIPTION	0-4	5-9	10-14	15-19	20-24	25-29	30-34	35-39	40-44	45-49	50-54	55-59	60-64	65-69	70-74	75-79	80-84	85+	TOTAL
140-146, 148-149	Oral Cavity	4	2	5	6	15	10	23	22	33	35	75	89	114	84	96	45	27	22	707
147	Nasopharynx	2	2	17	21	27	27	29	54	50	70	73	46	69	26	16	8	2	5	544
150	Esophagus	0	0	0	1	1	6	3	9	14	28	59	71	121	78	80	42	37	23	573
151	Stomach	1	2	2	0	3	6	13	21	21	38	57	53	78	81	97	40	32	9	554
153-154	Colon, Rectum	0	0	2	4	10	25	26	24	28	46	55	43	64	37	41	17	10	11	443
155	Liver	9	3	0	1	3	6	12	12	34	54	89	89	118	91	65	34	14	11	645
157	Pancreas	1	0	0	0	1	2	2	9	13	19	23	21	22	28	18	10	8	3	180
152, 156, 158-159	Other G.I.	1	0	1	2	2	7	4	7	14	11	16	10	19	10	8	8	1	2	123
161	Larynx	2	2	0	0	0	1	4	5	18	14	28	37	49	32	26	16	8	6	248
162-163	Lung, Pleura	5	0	0	2	6	1	14	18	48	58	85	104	165	122	80	33	18	5	764
169 (973)	Multiple Myeloma	0	0	0	0	1	1	4	8	13	12	23	13	25	18	19	7	4	2	150
169 (982)	Lymphoid Leukemia	138	121	61	47	27	20	9	11	7	17	15	13	28	17	10	5	5	2	553
169 (986)	Myeloid Leukemia	25	37	29	48	33	38	35	41	38	32	29	28	22	12	9	6	2	1	465
169 (980-1,983-5,987-94)	Other Leukemias	9	3	6	5	2	0	5	1	5	0	2	1	4	5	4	0	1	1	54
170	Bone, Cartilage	8	25	53	68	57	26	23	8	7	7	6	3	5	7	4	2	1	1	311
171	Soft Tissue	95	53	37	41	50	37	29	25	34	24	33	21	33	22	16	5	2	2	559
172	Skin Melanoma	1	1	1	0	3	2	3	2	7	8	8	8	13	5	8	3	4	0	77
173	Other Skin Cancer	8	2	5	2	12	8	19	20	31	36	43	51	65	30	54	15	18	21	440
174-175	Breast	0	0	0	0	0	0	0	0	4	3	4	7	5	3	4	2	1	1	34
179, 181-182, 184	Uterus, Genital	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
180	Cervix	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
183	Ovary	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
185	Prostate	0	0	0	1	0	0	0	1	1	3	14	21	39	43	41	30	30	15	239
186-187	Testis, Genital	10	0	1	4	18	31	28	26	18	18	12	10	7	5	4	1	1	0	194
188	Bladder	6	3	1	2	4	4	15	29	34	41	52	53	72	54	56	45	23	12	506
189	Kidney, Urinary	54	14	2	7	2	3	5	4	12	15	22	30	26	21	18	4	5	2	246
190	Eye	105	18	1	0	1	1	5	3	8	4	5	10	17	8	7	6	7	0	206
191-192	Brain, CNS	76	94	66	54	46	39	44	37	30	34	33	45	33	28	16	7	1	0	683
193	Thyroid	0	1	6	4	17	9	25	25	23	38	26	17	38	18	21	12	6	3	289
194	Other Endocrine	42	14	18	12	21	20	22	30	27	17	19	12	10	0	2	0	0	0	266
196 (959, 967-970)	NHL - Lymph Nodes	100	102	36	38	54	48	57	61	74	60	83	71	101	72	61	35	29	14	1,096
196 (965-966)	Hodgkin's Disease	29	70	64	62	53	50	49	32	22	22	20	10	12	7	3	2	6	1	514
196 (972)	Histiocytosis	24	7	3	6	5	10	6	2	0	1	1	2	0	0	2	0	0	0	69
199	Primary Unknown	1	2	1	1	3	3	8	15	19	13	28	28	48	26	24	12	2	5	239
All Others	******	30	14	15	18	12	10	8	14	12	13	17	13	17	14	19	11	3	5	245
TOTAL		786	592	433	457	489	451	529	576	699	791	1055	1030	1439	1004	929	463	308	185	12,216

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

TABLE 4

FEMALE CASES REFERRED TO KFSH BY AGE AND SITE*
FOR THE YEARS(S) 1975 - 1990

ICD-O	DESCRIPTION	0-4	5-9	10-14	15-19	20-24	25-29	30-34	35-39	40-44	45-49	50-54	55-59	60-64	65-69	70-74	75-79	80-84	85+	TOTAL
140-146, 148-149	Oral Cavity	3	2	2	7	11	25	24	34	48	62	77	53	83	41	45	15	10	7	549
147	Nasopharynx	0	1	8	13	18	10	11	16	16	29	16	12	13	12	11	5	2	2	195
150	Esophagus	0	0	0	0	0	5	9	10	32	36	57	36	77	36	45	14	10	5	372
151	Stomach	0	0	2	2	5	4	7	17	16	31	22	18	44	23	30	7	5	1	234
153-154	Colon, Rectum	2	0	2	1	10	15	20	28	19	32	39	28	38	14	12	7	2	2	271
155	Liver	3	0	2	2	1	4	4	8	11	20	27	16	29	12	16	1	2	1	159
157	Pancreas	1	0	1	0	0	2	1	4	3	2	12	11	19	5	4	0	2	1	68
152, 156, 158-159	Other G.I.	6	2	1	2	5	2	4	7	15	11	16	10	16	13	8	5	2	2	127
161	Larynx	0	0	1	0	0	1	3	5	2	4	4	3	6	3	1	2	0	0	35
162-163	Lung, Pleura	0	0	0	1	1	3	2	8	13	19	30	27	34	18	19	10	7	0	192
169 (973)	Multiple Myeloma	0	0	0	0	0	0	2	5	9	7	13	9	8	7	4	4	1	1	70
169 (982)	Lymphoid Leukemia	73	54	39	24	15	7	8	4	8	7	4	5	6	2	5	1	2	1	265
169 (986)	Myeloid Leukemia	25	21	20	28	34	35	42	26	27	22	29	14	9	8	7	3	1	2	353
169 (980-1,983-5,987-94)	Other Leukemias	6	2	0	1	1	5	2	4	3	1	0	0	1	1	1	0	1	0	29
170	Bone, Cartilage	4	23	45	42	26	16	13	9	6	8	4	1	6	2	1	1	0	0	207
171	Soft Tissue	113	34	27	34	41	26	26	42	31	30	16	18	13	12	5	1	2	1	472
172	Skin Melanoma	0	0	0	0	0	2	4	0	4	3	4	5	8	3	3	2	1	0	39
173	Other Skin Cancer	4	3	2	4	9	11	13	14	16	21	26	20	33	19	27	8	12	7	249
174-175	Breast	0	0	0	3	23	96	168	247	245	257	204	129	110	58	36	11	10	1	1,598
179, 181-182, 184	Uterus, Genital	5	0	1	25	25	40	18	25	41	28	38	27	41	18	18	6	9	3	368
180	Cervix	0	0	0	0	4	21	40	66	60	67	51	44	58	28	18	12	4	1	474
183	Ovary	4	5	15	26	29	25	24	24	28	49	54	45	47	36	31	7	2	1	452
185	Prostate	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
186-187	Testis, Genital	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
188	Bladder	2	1	0	0	2	4	3	12	13	7	13	12	19	12	14	7	1	2	124
189	Kidney, Urinary	44	11	5	2	3	3	8	10	8	15	16	9	10	3	2	5	2	0	156
190	Eye	80	5	4	2	1	1	3	3	3	3	10	2	8	4	7	1	2	2	141
191-192	Brain, CNS	45	77	45	34	23	31	31	47	57	35	44	29	23	8	11	6	1	1	548
193	Thyroid	1	1	8	31	75	82	85	68	73	68	79	39	43	24	35	22	5	2	741
194	Other Endocrine	40	15	11	14	24	16	18	14	16	13	15	13	4	2	2	0	0	0	217
196 (959, 967-970)	NHL - Lymph Nodes	50	36	15	28	29	30	25	26	24	33	42	40	51	19	29	12	5	6	500
196 (965-966)	Hodgkin's Disease	3	19	25	39	29	12	15	15	5	12	10	3	11	5	3	2	1	0	209
196 (972)	Histiocytosis	15	1	5	0	3	2	1	0	1	0	1	1	1	0	0	0	0	0	31
199	Primary Unknown	1	1	0	2	1	6	3	5	5	17	15	19	24	18	12	4	4	1	138
All Others	******	13	5	10	11	7	8	3	7	7	18	14	8	9	8	9	3	6	0	146
TOTAL		543	319	296	378	455	550	640	810	865	967	1002	706	902	474	471	184	114	53	9,729

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

TABLE 5

TOTAL CASES REFERRED TO KFSH BY YEAR AND SITE*
FOR THE YEAR(S) 1975 - 1990

ICD-O	DESCRIPTION	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	TOTAL
140-146, 148-149	Oral Cavity	1	14	36	81	71	70	59	85	103	88	104	81	111	138	110	104	1,256
147	Nasopharynx	3	11	39	35	38	34	49	46	63	46	45	52	87	67	63	61	739
150	Esophagus	1	15	51	62	70	66	58	62	75	76	56	68	78	66	67	74	945
151	Stomach	2	16	36	36	49	39	54	52	72	62	51	75	68	58	56	62	788
153-154	Colon, Rectum	1	13	22	24	31	38	48	39	41	61	46	52	78	87	66	67	714
155	Liver	7	15	33	44	50	33	42	56	52	66	56	85	75	72	68	50	804
157	Pancreas	1	5	7	11	16	11	21	21	13	20	17	27	19	18	28	13	248
152, 156, 158-159	Other G.I.	1	7	10	10	12	19	10	11	13	14	18	25	34	25	21	20	250
161	Larynx	1	5	11	11	14	17	23	14	23	20	26	16	24	32	21	25	283
162-163	Lung, Pleura	3	11	24	34	44	38	51	62	78	76	89	85	85	110	91	75	956
169 (973)	Multiple Myeloma	1	5	6	11	9	11	8	13	13	12	19	13	29	22	33	15	220
169 (982)	Lymphoid Leukemia	4	14	16	38	32	38	51	70	65	48	63	84	90	75	76	54	818
169 (986)	Myeloid Leukemia	3	13	22	44	50	38	62	51	42	72	54	72	83	70	72	70	818
169 (980-1,983-5,987-94)	Other Leukemias	0	1	3	5	8	4	6	5	9	7	4	3	7	7	7	7	83
170	Bone, Cartilage	1	7	15	27	22	24	27	45	35	49	28	39	46	52	53	48	518
171	Soft Tissue	3	16	30	42	41	41	54	50	62	72	75	83	118	97	125	122	1,031
172	Skin Melanoma	0	4	4	8	8	6	8	4	11	12	9	8	11	12	6	5	116
173	Other Skin Cancer	2	15	26	31	46	38	46	53	52	54	66	69	44	47	54	46	689
174-175	Breast	3	23	53	46	57	61	100	108	109	151	131	125	173	191	137	164	1,632
179, 181-182, 184	Uterus, Genital	0	2	10	10	18	12	17	17	41	26	22	33	45	41	40	34	368
180	Cervix	0	10	18	18	23	18	22	25	34	31	41	55	52	50	33	44	474
183	Ovary	2	9	10	10	17	22	23	38	32	28	23	38	46	51	54	49	452
185	Prostate	0	7	5	4	5	11	11	18	26	17	21	16	22	26	27	23	239
186-187	Testis, Genital	0	4	10	8	13	10	15	12	12	15	13	14	17	19	13	19	194
188	Bladder	4	7	12	23	29	37	36	23	43	37	45	52	78	75	72	57	630
189	Kidney, Urinary	0	9	18	19	18	16	18	32	23	20	25	44	33	57	35	35	402
190	Eye	0	6	11	18	11	22	26	34	25	17	30	22	32	41	24	28	347
191-192	Brain, CNS	5	30	36	60	43	41	53	108	66	74	68	108	137	141	138	123	1,231
193	Thyroid	2	8	18	31	38	47	61	56	74	73	66	92	126	122	117	99	1,030
194	Other Endocrine	2	11	14	11	21	27	29	30	39	48	37	42	42	54	37	39	483
196 (959, 967-970)	NHL - Lymph Nodes	4	19	63	73	98	102	120	103	150	126	119	114	120	115	145	125	1,596
196 (965-966)	Hodgkin's Disease	13	19	40	41	35	42	45	43	53	50	49	45	63	56	74	55	723
196 (972)	Histiocytosis	0	2	7	4	4	3	7	4	6	7	5	10	8	9	11	13	100
199	Primary Unknown	3	11	23	19	19	23	29	24	26	23	18	17	32	29	46	35	377
All Others	******	2	5	13	16	11	17	17	18	20	20	26	39	60	48	34	45	391
TOTAL		75	369	752	965	1071	1076	1306	1432	1601	1618	1565	1803	2173	2180	2054	1905	21,945

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

TABLE 6

**TOTAL CASES REFERRED TO KFSH BY SITE*
FOR THE YEAR(S) 1975 - 1990
FIVE-YEAR SUMMARIES**

ICD-O	DESCRIPTION	75-79	80-84	85-89	1990	TOTAL
140-146,148-149	Oral Cavity	203	405	544	104	1,256
147	Nasopharynx	126	238	314	61	739
150	Esophagus	199	337	335	74	945
151	Stomach	139	279	308	62	788
153-154	Colon, Rectum	91	227	329	67	714
155	Liver	149	249	356	50	804
157	Pancreas	40	86	109	13	248
152,156,158-159	Other G.I.	40	67	123	20	250
161	Larynx	42	97	119	25	283
162-163	Lung, Pleura	116	305	460	75	956
169(973)	Multiple Myeloma	32	57	116	15	220
169(982)	Lymphoid Leukemia	104	272	388	54	818
169(986)	Myeloid Leukemia	132	265	351	70	818
169	Other Leukemias	17	31	28	7	83
170	Bone, Cartilage	72	180	218	48	518
171	Soft Tissue	132	279	498	122	1,031
172	Skin Melanoma	24	41	46	5	116
173	Other Skin Cancer	120	243	280	46	689
174-175	Breast	182	529	757	164	1,632
179,181-182,184	Uterus, Genital	40	113	181	34	368
180	Cervix	69	130	231	44	474
183	Ovary	48	143	212	49	452
185	Prostate	21	83	112	23	239
186-187	Testis, Genital	35	64	7	19	194
188	Bladder	75	176	322	57	630
189	Kidney, Urinary	64	109	194	35	402
190	Eye	46	124	149	28	347
191-192	Brain, CNS	174	342	592	123	1,231
193	Thyroid	97	311	523	99	1,030
194	Other Endocrine	59	173	212	39	483
196(959,967-970)	NHL - Lymph Nodes	257	601	613	125	1,596
196(965-966)	Hodgkin's Disease	148	233	287	55	723
196(972)	Histiocytosis	17	27	43	13	100
199	Primary Unknown	75	125	142	35	377
All Others	******	47	92	207	45	391
TOTAL		**3,232**	**7,033**	**9,775**	**1,905**	**21,945**

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

TABLE 7

MALE CASES REFERRED TO KFSH BY SITE*
FOR THE YEAR(S) 1975 - 1990
FIVE-YEAR SUMMARIES

ICD-O	DESCRIPTION	75-79	80-84	85-89	1990	TOTAL
140-146,148-149	Oral Cavity	120	218	314	55	707
147	Nasopharynx	96	175	225	48	544
150	Esophagus	134	208	194	37	573
151	Stomach	102	198	210	44	554
153-154	Colon, Rectum	62	134	203	44	443
155	Liver	129	200	279	37	645
157	Pancreas	33	66	72	9	180
152,156,158-159	Other G.I.	25	29	62	7	123
161	Larynx	37	83	103	25	248
162-163	Lung, Pleura	96	236	364	68	764
169(973)	Multiple Myeloma	21	38	81	10	150
169(982)	Lymphoid Leukemia	82	180	254	37	553
169(986)	Myeloid Leukemia	86	143	200	36	465
169	Other Leukemias	9	19	20	6	54
170	Bone, Cartilage	44	108	135	24	311
171	Soft Tissue	69	168	256	66	559
172	Skin Melanoma	18	27	29	3	77
173	Other Skin Cancer	90	154	163	33	440
174-175	Breast	7	10	12	5	34
179,181-182,184	Uterus, Genital	0	0	0	0	0
180	Cervix	0	0	0	0	0
183	Ovary	0	0	0	0	0
185	Prostate	21	83	112	23	239
186-187	Testis, Genital	35	64	76	19	194
188	Bladder	62	142	257	45	506
189	Kidney, Urinary	40	70	118	18	246
190	Eye	31	75	82	18	206
191-192	Brain, CNS	114	192	301	76	683
193	Thyroid	35	108	124	22	289
194	Other Endocrine	35	90	121	20	266
196(959,967-970)	NHL - Lymph Nodes	197	400	414	85	1,096
196(965-966)	Hodgkin's Disease	110	172	196	36	514
196(972)	Histiocytosis	9	21	31	8	69
199	Primary Unknown	50	77	90	22	239
All Others	******	28	54	138	25	245
TOTAL		**2,027**	**3,942**	**5,236**	**1,011**	**12,216**

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

TABLE 8

FEMALE CASES REFERRED TO KFSH BY SITE*
FOR THE YEAR(S) 1975 - 1990
FIVE-YEAR SUMMARIES

ICD-O	DESCRIPTION	75-79	80-84	85-89	1990	TOTAL
140-146,148-149	Oral Cavity	83	187	230	49	549
147	Nasopharynx	30	63	89	13	195
150	Esophagus	65	129	141	37	372
151	Stomach	37	81	98	18	234
153-154	Colon, Rectum	29	93	126	23	271
155	Liver	20	49	77	13	159
157	Pancreas	7	20	37	4	68
152,156,158-159	Other G.I.	15	38	61	13	127
161	Larynx	5	14	16	0	35
162-163	Lung, Pleura	20	69	96	7	192
169(973)	Multiple Myeloma	11	19	35	5	70
169(982)	Lymphoid Leukemia	22	92	134	17	265
169(986)	Myeloid Leukemia	46	122	151	34	353
169	Other Leukemias	8	12	8	1	29
170	Bone, Cartilage	28	72	83	24	207
171	Soft Tissue	63	111	242	56	472
172	Skin Melanoma	6	14	17	2	39
173	Other Skin Cancer	30	89	117	13	249
174-175	Breast	175	519	745	159	1,598
179,181-182,184	Uterus, Genital	40	113	181	34	368
180	Cervix	69	130	231	44	474
183	Ovary	48	143	212	49	452
185	Prostate	0	0	0	0	0
186-187	Testis, Genital	0	0	0	0	0
188	Bladder	13	34	65	12	124
189	Kidney, Urinary	24	39	76	17	156
190	Eye	15	49	67	10	141
191-192	Brain, CNS	60	150	291	47	548
193	Thyroid	62	203	399	77	741
194	Other Endocrine	24	83	91	19	217
196(959,967-970)	NHL - Lymph Nodes	60	201	199	40	500
196(965-966)	Hodgkin's Disease	38	61	91	19	209
196(972)	Histiocytosis	8	6	12	5	31
199	Primary Unknown	25	48	52	13	138
All Others	******	19	38	69	20	146
TOTAL		**1,205**	**3,091**	**4,539**	**894**	**9,729**

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

FIGURE 12

YEARLY DISTRIBUTION OF LEUKEMIA CASES (CHILDREN VS ADULTS)
1975 - 1990

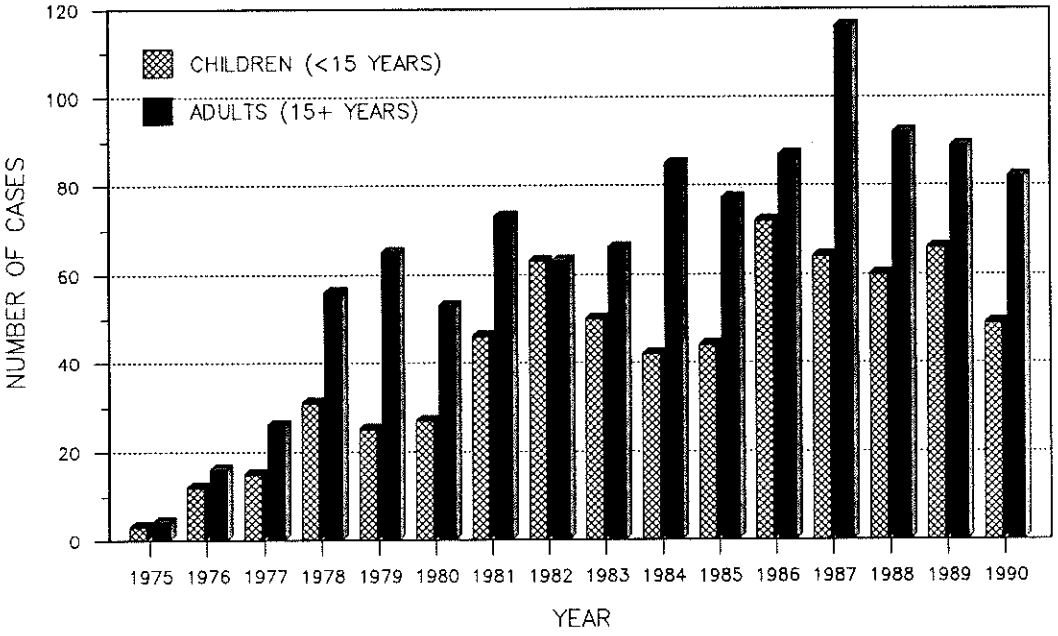


FIGURE 13

YEARLY DISTRIBUTION OF LYMPHOMA CASES (CHILDREN VS ADULTS)
1975 - 1990

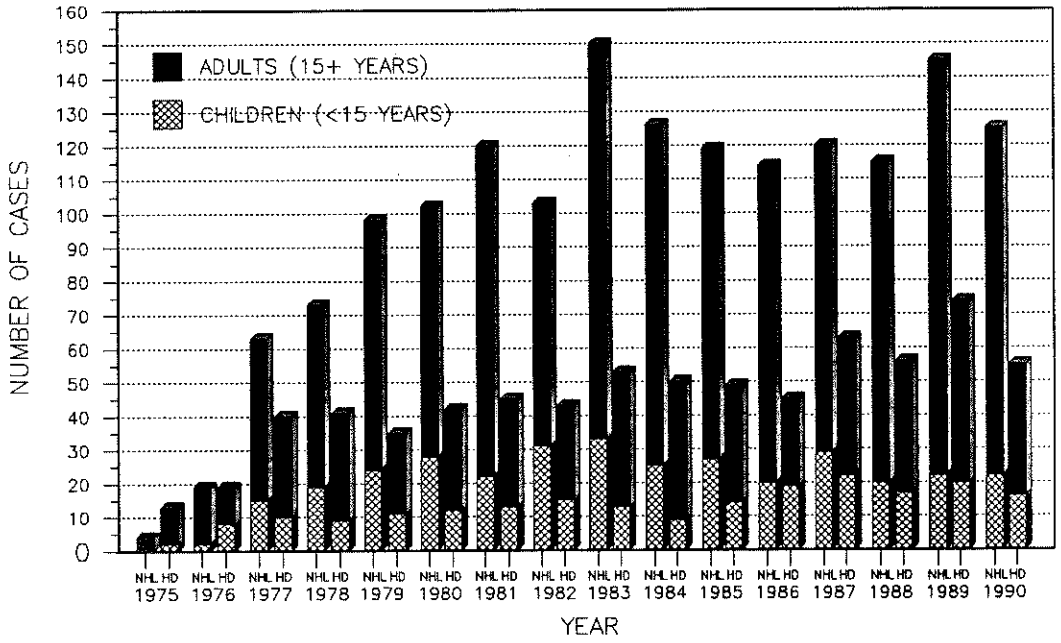


FIGURE 14

YEARLY DISTRIBUTION OF BRAIN & CNS TUMOR CASES (CHILDREN VS ADULTS)
1975 – 1990

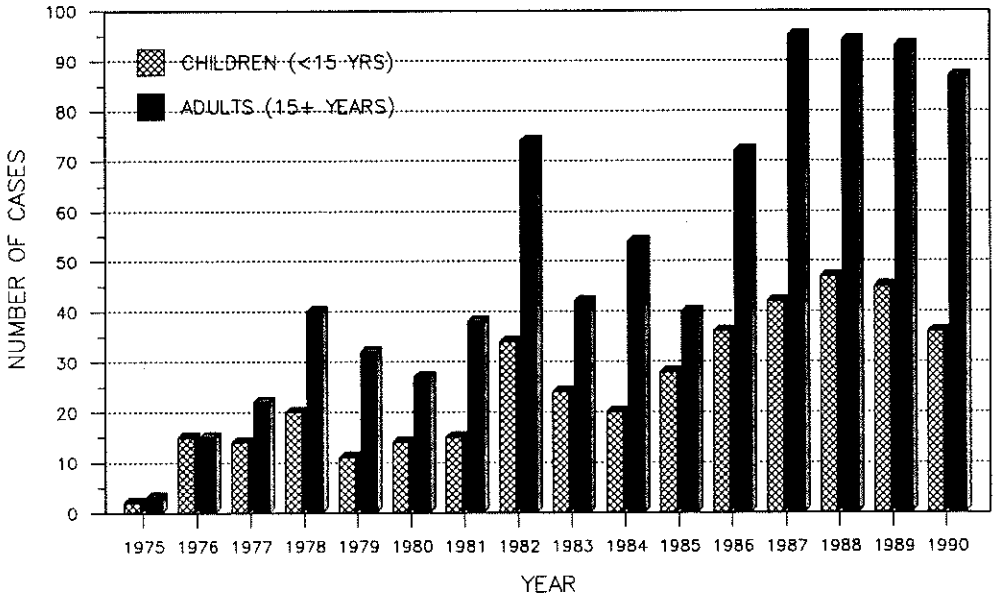
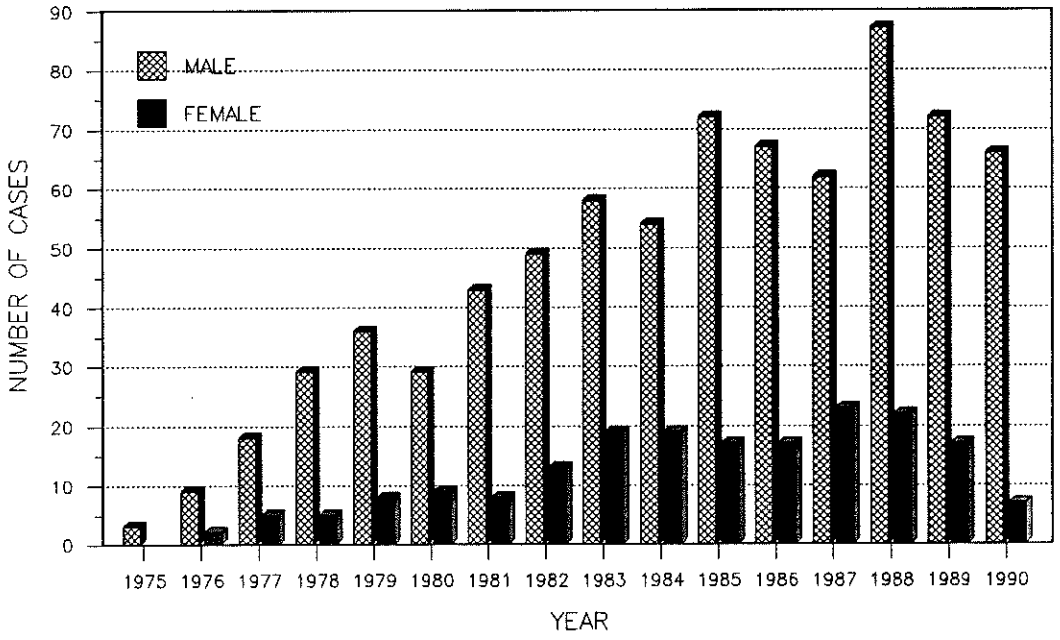


FIGURE 15

YEARLY DISTRIBUTION OF LUNG CASES BY SEX
1975 – 1990

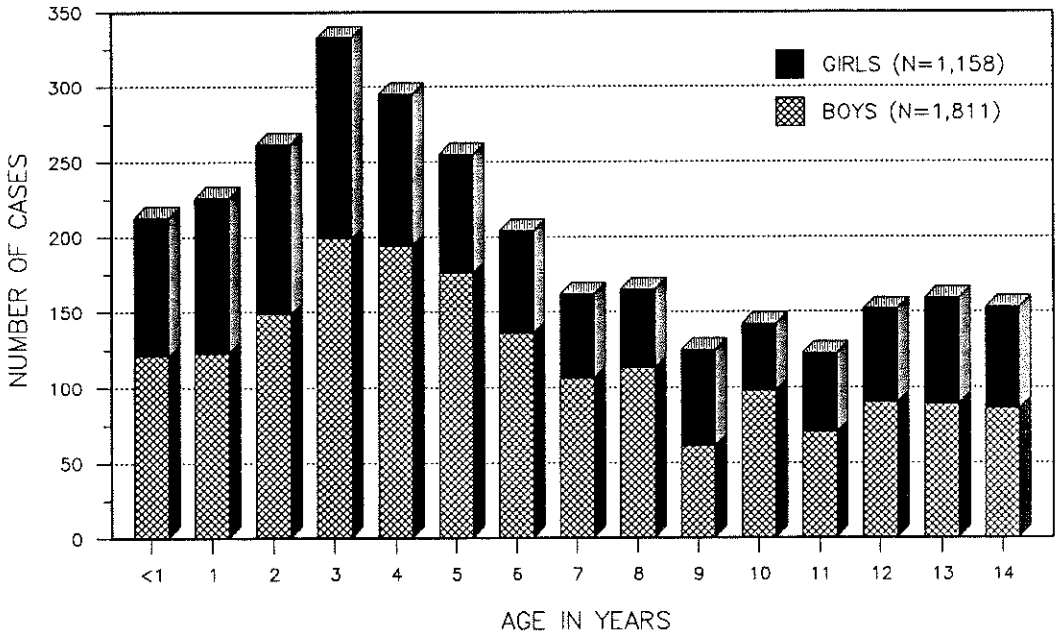


CHILDHOOD MALIGNANCIES IN KFSH&RC

A total of 2,969 cases under age 15 were accessioned between 1975 and 1990 (13.5% of all cases). Boys numbered 1,811 and girls 1,158 (boy:girl ratio was 1.6:1). Please refer to Figure 16 for age and sex distribution.

FIGURE 16

DISTRIBUTION OF CHILDREN (2,969 CASES) BY AGE AT DIAGNOSIS
1975 – 1990



The five most common cases were:

- Leukemia (669 cases or 22.5% of all childhood cases)
- Lymphoma (549 cases or 18.5%)
- Brain/CNS (403 cases or 13.6%)
- Soft Tissue (359 cases or 12.1%)
- Eye (213 cases or 7.2%)

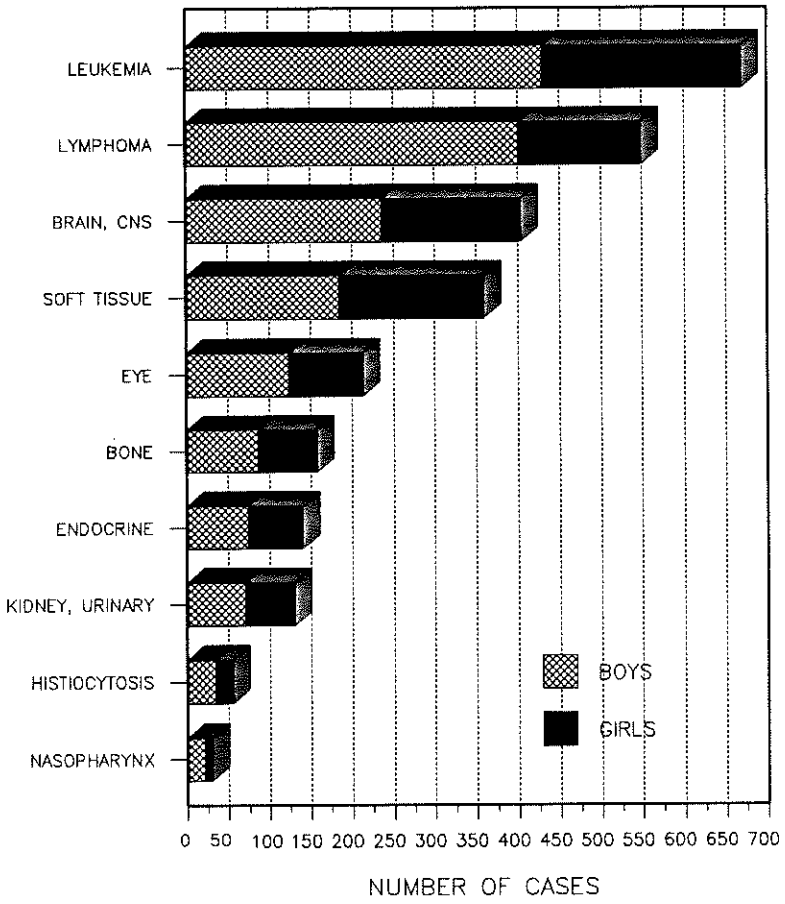
The leukemias seen in children are primarily acute lymphocytic leukemia, representing 72.7% (486 cases). Acute non-lymphocytic leukemia accounts for 23.9% (160 cases) and chronic myeloid leukemia for the remaining 3.4% (23 cases).

The childhood lymphomas are composed of 38.2% Hodgkin's Disease (210 cases) and 61.8% non-Hodgkin's lymphoma (339 cases). Histology in NHL is predominantly diffuse undifferentiated lymphoma (167 cases) and Burkitt's lymphoma (70 cases).

See Figure 17 for the illustration of the 10 most common cases in children referred to KFSH.

FIGURE 17

DISTRIBUTION OF 10 MOST COMMON CASES IN CHILDREN
1975 - 1990 (TOTAL CASES = 2,969)



III. DESCRIPTION OF THE PATIENT POPULATION - 1990

The total number of patients accessioned in 1990 by the King Faisal Specialist Hospital & Research Centre Tumor Registry was 1,864 (1,905 cases). This represents a decrease from 1989 which can be attributed to the Gulf crises from August 1990 until early 1991.

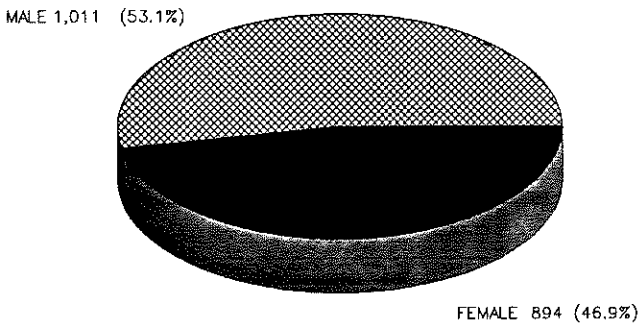
82.8% of the cases were analytic (defined as cases which were first diagnosed and/or received all or part of their first course of treatment at KFSH&RC).

Males predominated with a total of 1,011 cases (53.1%); females numbered 894 (46.9%). Please refer to Figure 18 for a graphic illustration of the sex distribution of the cases.

FIGURE 18

DISTRIBUTION OF 1,905 CASES BY SEX

1990

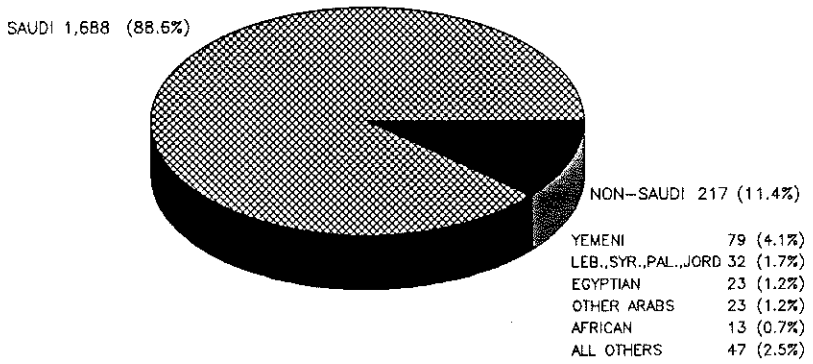


Nationality of the patients treated in 1990 was 88.6% (1,688 cases) Saudi Arabian and 11.4% (217 cases) Non-Saudi (Figure 19).

FIGURE 19

DISTRIBUTION OF 1,905 CASES BY NATIONALITY

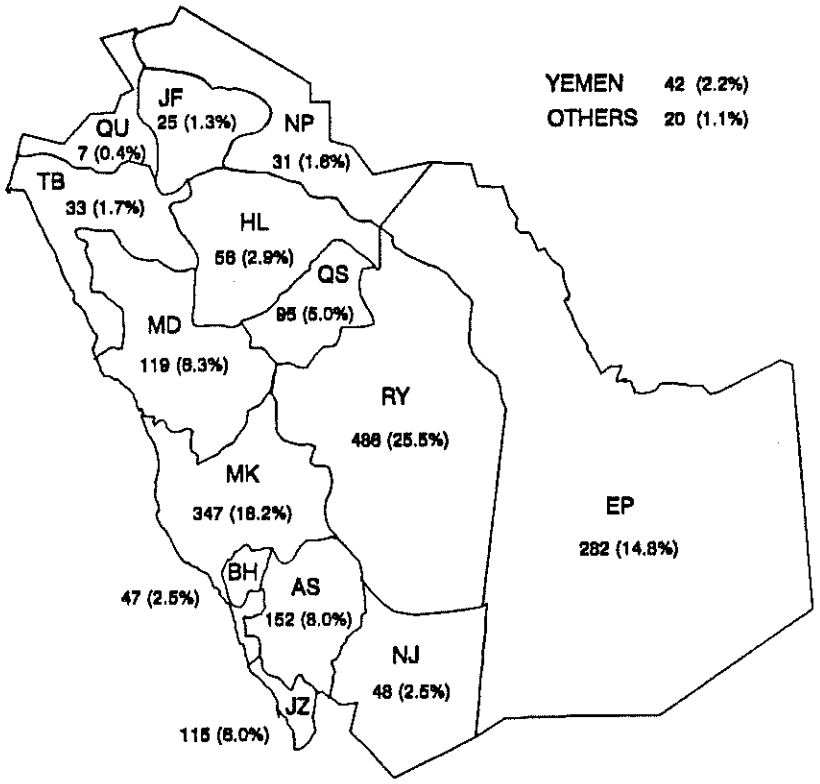
1990



Geographically, the referral pattern is mainly from the Riyadh Region with 25.5% (486 patients), followed by Makkah and the Eastern Regions representing 18.2% and 14.8%, respectively. Please refer to Figure 20 for a summary of the geographical distribution of the 1990 cases.

FIGURE 20

DISTRIBUTION OF 1,905 CASES BY GEOGRAPHIC REGION
(Based on Given Address at the Time of Diagnosis)
1990

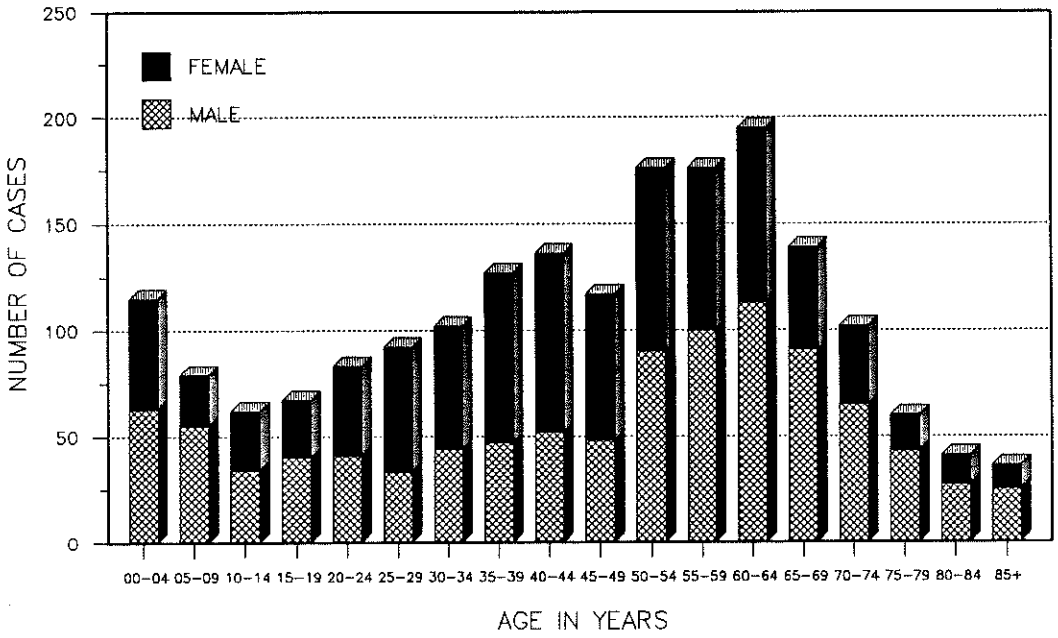


AS - ASIR
BH - AL BAHA
EP - EASTERN PROVINCE
HL - HAIL
JF - AL JAWF
JZ - JIZAN
MD - AL MADINAH
MK - MAKKAH
NJ - NAJRAN
NP - NORTHERN PROVINCE
QS - AL QASSIM
QU - AL QURAYYAT
RY - RIYADH
TB - TABUK

Age distribution of the 1990 cases is illustrated in Figure 21. The mean age is 44.8; the mode 60.0; and the median age 48.8. Children under the age of 15 made up 13.4% (256 cases) and adults, 86.6% (1,649 cases).

FIGURE 21

DISTRIBUTION OF 1,905 CASES BY AGE AT DIAGNOSIS
1990



IV. PRIMARY ANATOMIC SITE AND HISTOLOGY SUMMARIES

Breast cancer led the list of cases diagnosed in 1990 (representing 8.6%), followed by leukemia (6.9%), non-Hodgkin's lymphoma (6.6%), brain/CNS tumors (6.5%), and soft tissue tumors (6.4%).

The solid tumors represented 75.1% (1,430 cases), the lymphatic malignancies 9.5% (181 cases), the hematological malignancies 7.7% (147 cases), benign cases 4.8% (92 cases), and the neoplasms of uncertain behavior totaled 2.9% (55 cases). For detailed statistics by primary site and histology, please refer to Table 9, the Primary Site Table. Figures 22, 23, and 24 illustrate the most common cases accessioned in 1990.

FIGURE 22

DISTRIBUTION OF 25 MOST COMMON CASES
1990 (TOTAL CASES = 1,905)

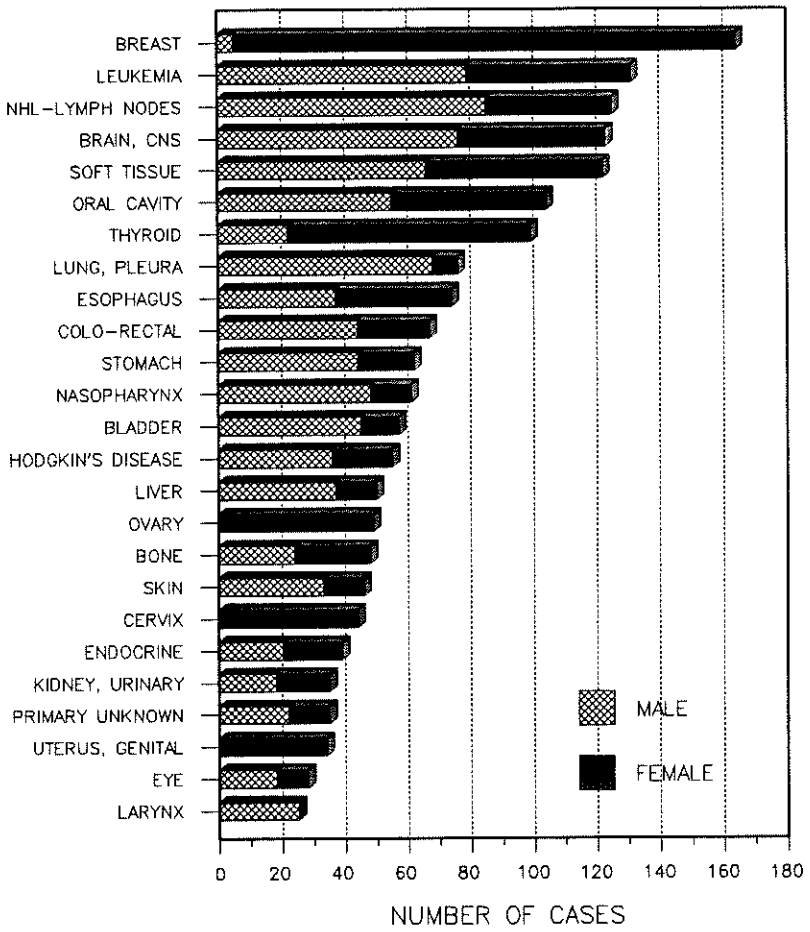


FIGURE 23

DISTRIBUTION OF 10 MOST COMMON CASES IN MALES
1990

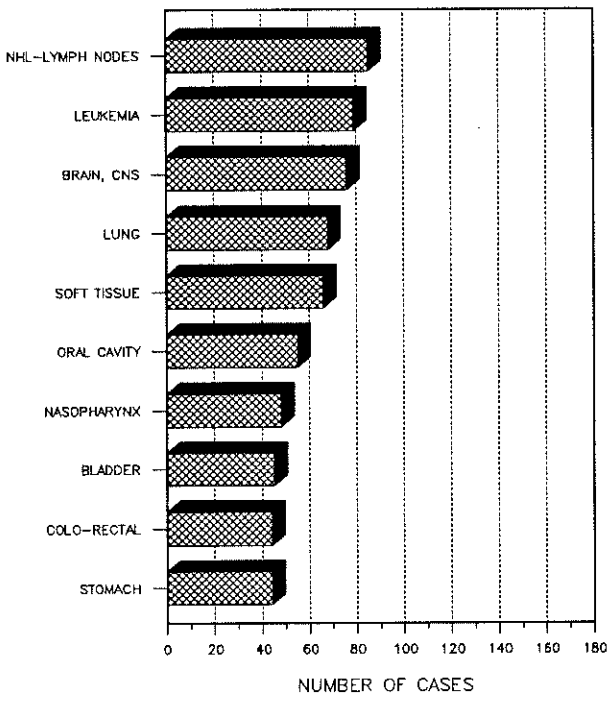
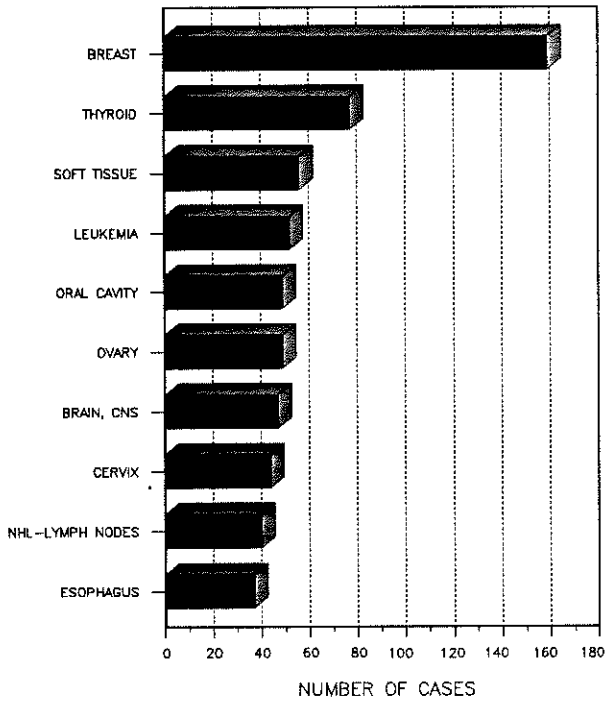


FIGURE 24

DISTRIBUTION OF 10 MOST COMMON CASES IN FEMALES
1990



97.2% of the cases were pathologically confirmed; 2.2% were confirmed radiologically, and less than 1% were diagnosed on the basis of clinical examination.

The lymphomas make up a large proportion of cases. Non-Hodgkin's lymphoma of extra-nodal sites totaled 28 cases. The anatomic locations represented were as follows: stomach (11 cases), bone (5 cases), and brain/CNS (4 cases). Other sites were thyroid (2), nasal cavity (2), esophagus (1), ileum (1), parotid gland (1), and gingiva (1).

In 1990, there were 45 patients with two primaries and three patients with three. See Table 10 for the list of patients with multiple primaries.

For a breakdown of the number of cases by major cancer site, sex, and age, refer to Tables 11, 12, and 13.

TABLE 9

PRIMARY SITE TABLE
(INCLUDES MULTIPLE PRIMARIES)
1990

SITE (ICD-O CODE) HISTOLOGY	TOTAL CASES	MALES	FEMALES
ALL SITES ALL HISTOLOGIES	**1,905**	**1,011**	**894**
LIP (140)	**2**	**2**	**0**
Squamous Cell Carinoma			
TONGUE (141)	**30**	**14**	**16**
Squamous Cell Carinoma	28	14	14
Verrucous Carcinoma, NOS	1	0	1
Neoplasm, NOS	1	0	1
MAJOR SALIVARY GLANDS (142)	**8**	**5**	**3**
Adenoid Cystic Carcinoma	3	2	1
Adenocarcinoma	2	0	2
Squamous cell Carcinoma	1	1	0
NHL, Immunoblastic	1	1	0
Mucoepidermoid Carcinoma	1	1	0
GUM (143)	**13**	**5**	**8**
Squamous Cell Carcinoma	12	5	7
Burkitt's Lymphoma,NOS	1	0	1
FLOOR OF MOUTH (144)	**5**	**5**	**0**
Squamous Cell Carcinoma			
OTHER PARTS OF MOUTH (145)	**20**	**10**	**10**
Squamous Cell Carcinoma	14	6	8
Adenoid Cystic Carcinoma	2	0	2
Mucoepidermoid Carcinoma	1	1	0
Adenocarcinoma, Clear Cell	1	1	0
Carcinoma, NOS	1	1	0
Pleomorphic Adenoma	1	1	0
OROPHARYNX (146)	**7**	**3**	**4**
Squamous Cell Carcinoma	6	3	3
Mucoepidermoid Carcinoma	1	0	1
NASOPHARYNX (147)	**61**	**48**	**13**
Squamous Cell Carcinoma	46	34	12
Undifferentiated Carcinoma	13	12	1
Carcinoma, NOS	1	1	0
Adenocarcinoma	1	1	0
HYPOPHARYNX (148)	**18**	**9**	**9**
Squamous Cell Carcinoma			
OTHER SITES, PHARYNX (149)	**1**	**1**	**0**
Undifferentiated Carcinoma			
ESOPHAGUS (150)	**74**	**37**	**37**
Squamous Cell Carcinoma	66	33	33
Carcinoma, NOS	3	1	2
Adenocarcinoma	2	2	0
Mucinous Adenocarcinoma	1	0	1
Adenosquamous Carcinoma	1	1	0
NHL, Large Cell	1	0	1

Primary Site Table con't

SITE (1CD-0 CODE) HISTOLOGY	TOTAL CASES	MALES	FEMALES
STOMACH (151)	**62**	**44**	**18**
Adenocarcinoma	38	28	10
NHL, Large Cell	7	5	2
Squamous Cell Carcinoma	4	3	1
Signet Ring Cell Carcinoma	3	1	2
NHL, Small Cell	3	2	1
Mucinous Adenocarcinoma	2	1	1
Linitis Plastica	2	1	1
Teratoma, Malignant	1	1	0
Carcinoma, Diffuse	1	1	0
NHL, Mixed, Small and Large, Diffuse	1	1	0
SMALL INTESTINE (152)	**5**	**3**	**2**
Adenocarcinoma	4	3	1
NHL, Mixed, Small and Large, Diffuse	1	0	1
COLON (153)	**26**	**16**	**10**
Adenocarcinoma	17	8	9
Mucinous Adenocarcinoma	5	5	0
Adenocarcinoma in Adenomatous Polyp	1	1	0
Mucin-Producing Adenocarcinoma	1	1	0
Signet Ring Cell Carcinoma	1	1	0
Tubular Adenoma	1	0	1
RECTUM/RECTOSIGMOID JUNCTION/ANUS (154)	**41**	**28**	**13**
Adenocarcinoma	30	19	11
Squamous Cell Carcinoma	3	3	0
Mucinous Adenocarcinoma	2	2	0
Mucin-Producing Adenocarcinoma, NOS	2	2	0
Adenocarcinoma in Villous Adenoma	1	1	0
Soild Carcinoma	1	0	1
Adenomatous Polyposis Coli	1	0	1
Villous Adenoma	1	1	0
LIVER/INTRAHEPATIC BILE DUCTS (155)	**50**	**37**	**13**
Hepatocellular Carcinoma	45	34	11
Hepatoblastoma	2	0	2
Adenocarcinoma	1	1	0
Neoplasm Borderline	1	1	0
Cholangiocarcinoma	1	1	0
GALLBLADDER/EXTRAHEPATIC BILE DUCTS (156)	**12**	**3**	**9**
Adenocarcinoma	9	3	6
Papillary Adenocarcinoma	1	0	1
Signet Ring Cell Carcinoma	1	0	1
Carcinoma, NOS	1	0	1
PANCREAS (157)	**13**	**9**	**4**
Adenocarcinoma	7	5	2
Carcinoma, NOS	4	4	0
Mucinous Cystadenocarcinoma	1	0	1
Papillary Cystic Tumor	1	0	1
RETROPERITONEUM/PERITONEUM (158)	**1**	**0**	**1**
Papillary Mucinous Cystadenocarcinoma			

Primary Site Table con't

SITE (ICD-O CODE) HISTOLOGY	TOTAL CASES	MALES	FEMALES
OTHER G.I. SITES (159)	**2**	**1**	**1**
Adenocarcinoma	1	1	0
Carcinoid Tumor, Malignant	1	0	1
NASAL CAVITY/ACCESSORY SINUS (160)	**12**	**6**	**6**
Squamous Cell Carcinoma	4	2	2
NHL, Mixed Small and Large	1	1	0
Verrucous Carcinoma	1	1	0
Mucoepidermoid Carcinoma	1	1	0
Adenocarcinoma	1	0	1
Adenoid Cystic Carcinoma	1	0	1
Undifferentiated Carcinoma	1	0	1
Carcinoma, NOS	1	0	1
NHL, NOS	1	1	0
LARYNX (161)	**25**	**25**	**0**
Squamous Cell Carcinoma			
TRACHEA/BRONCHUS/LUNG (162)	**74**	**66**	**8**
Adenocarcinoma	30	25	5
Squamous Cell Carcinoma	22	21	1
Small Cell Carcinoma	9	8	1
Carcinoma, NOS	7	6	1
Large Cell Carcinoma	3	3	0
Mucinous Adenocarcinoma	1	1	0
Tumor Cell Malignant	1	1	0
Solid Carcinoma	1	1	0
PLEURA (163)	**2**	**2**	**0**
Mesothelioma, Malignant	1	1	0
Tumor, Malignant	1	1	0
THYMUS/HEART (164)	**3**	**3**	**0**
Thymoma, Malignant	1	1	0
Thymoma, Benign	1	1	0
Myxoma, NOS	1	1	0
MULTIPLE MYELOMA (169)	**15**	**10**	**5**
Plasma Cell Myeloma	12	8	4
Plasmacytoma	3	2	1
BONE MARROW (169)	**152**	**92**	**60**
Acute Lymphoid Leukemia	48	32	16
Acute Myeloid Leukemia	34	18	16
Chronic Myeloid Leukemia	28	13	15
Aplastic Anemia	14	8	6
Chronic Lymphoid Leukemia	6	5	1
Acute Myelomonocytic Leukemia	5	3	2
Acute Promyelocytic Leukemia	3	2	1
Acute Monocytic Leukemia	2	2	0
Acute Myelofibrosis	2	1	1
Chronic Lymphoproliferative Disease	2	2	0
Myelodysplastic Syndrome	2	1	1
Megakaryocytic Leukemia	1	1	0
Hairy Cell Leukemia	1	1	0
Acute Leukemia, NOS	1	1	0
Polycythemia Vera	1	1	0
Myelosclerosis with Myeloid Metaplasia	1	1	0
Waldenstrom's Macroglobulinemia	1	0	1

Primary Site Table con't

SITE (ICD-O CODE) HISTOLOGY	TOTAL CASES	MALES	FEMALES
BONE & CARTILAGE (170)	**48**	**24**	**24**
Osteosarcoma	19	8	11
Ewing's Sarcoma	11	9	2
Giant Cell Tumor	6	1	5
NHL, Large Cell	3	2	1
Chondrosarcoma	3	1	2
Chondroblastic Osteosarcoma	2	1	1
NHL, Small Cell	2	1	1
Aneurysmal Bone Cyst	1	0	1
Chondroblastoma, NOS	1	1	0
CONNECTIVE/SUBCUTANEOUS/SOFT TISSUE (171)	**122**	**66**	**56**
Hemangioma	24	14	10
Schwannoma, NOS	9	4	5
Spindle Cell Sarcoma	8	4	4
Fibrous Histiocytoma	8	7	1
Rhabdomyosarcoma	7	6	1
Neuroblastoma	7	3	4
Aggressive Fibromatosis	5	3	2
Leiomyosarcoma	5	3	2
Embryonal Rhabdomyosarcoma	5	4	1
Synovial Sarcoma	4	2	2
Hemangioblastoma	4	4	0
Sarcoma, NOS	3	0	3
Myxoid Liposarcoma	3	1	2
Neurofibromatosis	3	0	3
Liposarcoma	2	1	1
Angiofibroma	2	2	0
Myxoid Chondrosarcoma	2	1	1
Neurofibrosarcoma	2	0	2
Neoplasm, Malignant	2	1	1
Paraganglioma	1	0	1
Fibrosarcoma	2	0	2
Rhabdoid Sarcoma	2	1	1
Myelofibromatosis	1	1	0
Peripheral Neuroectodermal	1	0	1
Ganglionneuroblastoma	1	1	0
Esthesionneuroblastoma	1	0	1
Neurofibroma	1	0	1
Schwannoma, Malignant	1	0	1
Neurothekeoma	1	0	1
Alveolar Soft Part Sarcoma	1	0	1
Hemangiosarcoma	1	1	0
Neoplasm, Borderline	1	0	1
Clear Cell Sarcoma of Tendon	1	1	0
Mesenchymona, Malignant	1	1	0
SKIN (MELANOMA) (172)	**5**	**3**	**2**
Malignant Melanoma	4	3	1
Nodular Melanoma	1	0	1

Primary Site Table con't

SITE (ICD-O CODE) HISTOLOGY	TOTAL CASES	MALES	FEMALES
SKIN (NON-MELANOMA) (173)	**46**	**33**	**13**
Squamous Cell Carcinoma	21	15	6
Basal Cell Carcinoma	12	9	3
Dermatofibrosarcoma	4	2	2
Kaposi's Sarcoma	4	4	0
Basosquamous Carcinoma	2	1	1
Merkel Cell Carcinoma	1	1	0
Carcinoma In-Situ	1	0	1
Giant Pigmented Nevus	1	1	0
BREAST, FEMALE (174)	**159**	**0**	**159**
Infiltrating Duct Carcinoma	137	0	137
Carcinoma, NOS	7	0	7
Paget's Disease & Infilt. Duct Carcinoma	4	0	4
Lobular Carcinoma	4	0	4
Cystosarcoma Phyllodes	2	0	2
Mucinous Adenocarcinoma	2	0	2
Medulllary Carcinoma	2	0	2
Inflammatory Carcinoma	1	0	1
BREAST, MALE (175)	**5**	**5**	**0**
Infiltrating Duct Carcinoma			
UTERUS (179.9)	**1**	**0**	**1**
Endometrial Stromal Sarcoma			
CERVIX UTERI (180)	**44**	**0**	**44**
Squamous Cell Carcinoma	36	0	36
Adenocarcinoma	4	0	4
Carcinoma In-Situ, NOS	2	0	2
Squamous Cell Carcinoma In-Situ	2	0	2
PLACENTA (181)	**8**	**0**	**8**
Choriocarcinoma	7	0	7
Invasive Hydatidiform Mole	1	0	1
CORPUS UTERI (182)	**17**	**0**	**17**
Adenocarcinoma	9	0	9
Papillary Adenocarcinoma	3	0	3
Endometrioid Carcinoma	2	0	2
Adenosquamous Carcinoma	1	0	1
Endometrial Stromal Sarcoma	1	0	1
Clear Cell Adenocarcinoma	1	0	1
OVARY (183)	**49**	**0**	**49**
Mucinous Cystadenocarcinoma	9	0	9
Adenocarcinoma	6	0	6
Papillary Adenocarcinoma	4	0	4
Endometrioid Carcinoma	4	0	4
Dysgerminoma	4	0	4
Papillary Serous Cystadenocarcinoma	3	0	3
Endodermal Sinus Tumor	3	0	3
Teratoma	3	0	3
Carcinoma, NOS	3	0	3
Papillary Carcinoma	1	0	1
Cystadenocarcinoma	1	0	1
Serous Cystadenocarcinoma	1	0	1
Mucin-Producing Adenocarcinoma	1	0	1
Thecoma, Indeterminate	1	0	1
Granulosa Cell Tumor, NOS	1	0	1

Primary Site Table con't

SITE (ICD-O CODE) HISTOLOGY	TOTAL CASES	MALES	FEMALES
Juvenile Granulosa Cell Tumor	1	0	1
Mullerian Mixed Tumor	1	0	1
Neoplasm, Malignant	1	0	1
Spindle Cell Tumor, Malignant	1	0	1
OTHER FEMALE GENITAL ORGANS (184)	**8**	**0**	**8**
Squamous Cell Carcinoma	6	0	6
Endodermal Sinus Tumor	1	0	1
Bowen's Disease	1	0	1
PROSTATE (185)	**23**	**23**	**0**
Adenocarcinoma	19	19	0
Carcinoma, NOS	3	3	0
Carcinoma, Undifferentiated	1	1	0
TESTIS (186)	**14**	**14**	**0**
Seminoma	8	8	0
Mixed Germ Cell Tumor	2	2	0
Endodermal Sinus Tumor	1	1	0
Teratoma, Malignant, NOS	1	1	0
Teratocarcinoma	1	1	0
Choriocarcinoma	1	1	0
OTHER MALE GENITAL ORGANS (187)	**5**	**5**	**0**
Squamous Cell Carcinoma			
URINARY BLADDER (188)	**57**	**45**	**12**
Transitional Cell Carcinoma	21	17	4
Papillary Transitional Carcinoma	17	13	4
Squamous Cell Carcinoma	16	12	4
Adenocarcinoma	2	2	0
Carcinoma,NOS	1	1	0
KIDNEY (189)	**35**	**18**	**17**
Renal Cell Carcinoma	21	11	10
Nephroblastoma	10	6	4
Neoplasm, Malignant	2	0	2
Mesoblastic Nephroma	1	1	0
Clear Cell Sarcoma	1	0	1
EYE (190)	**28**	**18**	**10**
Retinoblastoma	21	12	9
Squamous Cell Carcinoma	6	5	1
Spindle Cell Melanoma	1	1	0
BRAIN (191)	**90**	**61**	**29**
Astrocytoma	28	19	9
Glioblastoma	17	10	7
Medulloblastoma	14	10	4
Neoplasm, Borderline	7	2	5
Ependymoma, NOS	5	4	1
Glioma, Malignant	4	3	1
Primative Neuroectodermal	3	2	1
NHL, Large Cell	2	1	1
Gemistocytic Astrocytoma	2	2	0
NHL, NOS	1	1	0
Choroid Plexus Papilloma	1	1	0
Pilocytic Astrocytoma	1	1	0
Spongioblastoma	1	1	0
Oligodendroglioma	1	1	0

Primary Site Table con't

SITE (ICD-O CODE) HISTOLOGY	TOTAL CASES	MALES	FEMALES
Desmoplastic Medulloblastoma	1	1	0
Neuroblastoma	1	1	0
Pleomorphic Xanthoastrocytoma	1	1	0
OTHER NERVOUS SYSTEM (192)	**33**	**15**	**18**
Meningioma	27	11	16
Glioma	1	0	1
Acoustic Neuroma	1	1	0
Meningotheliomatous Meningioma	1	0	1
Ependyoma, NOS	1	1	0
Chordoma	1	1	0
NHL, Large Cell	1	1	0
THYROID (193)	**99**	**22**	**77**
Papillary Carcinoma	70	15	55
Papillary & Follicular Adenocarcinoma	9	2	7
Follicular Adenocarcinoma	6	1	5
Follicular Adenoma	3	0	3
Oxyphilic Adenocarcinoma	2	0	2
NHL, Large Cell	2	1	1
Medullary Carcinoma	2	1	1
Microfollicular Adenoma	1	0	1
Papillary Adenocarcinoma	1	0	1
Carcinoma, NOS	1	1	0
Carcinoma, Undifferentiated	1	1	0
Oxphillic Adenoma	1	0	1
OTHER ENDOCRINE GLANDS (194)	**39**	**20**	**19**
Adenoma, NOS	13	11	2
Craniopharyngioma	11	4	7
Neuroblastoma	5	1	4
Glomus Jugulare Tumor	4	1	3
Pheochromocytoma	3	1	2
Carcinoma, NOS	1	1	0
Oxyphilic Adenoma	1	1	0
Carotid Body Tumor	1	0	1
ILL-DEFINED SITES (195)	**8**	**3**	**5**
Carcinoma, Undifferentiated	1	0	1
Squamous Cell Carcinoma	1	0	1
Clear Cell Adenocarcinoma	1	1	0
Teratoma, Malignant	1	1	0
Adenocarcinoma, NOS	1	0	1
Papillary Serous Cystadenocarcinoma	1	0	1
Neoplasm Malignant	1	1	0
Endodermal Sinus Tumor	1	0	1
LYMPH NODES, NON-HODGKIN'S LYMPHOMA (196) (Excluding Extra-Nodal Lymphomas)	**125**	**85**	**40**
Large Cell Lymphoma	62	42	20
Small Cell lymphoma	15	12	3
Immunoblastic Lymphoma	10	6	4
Small Lymphocytic Lymphoma	6	4	2
Lymphoblastic Lymphoma	5	3	2
Burkitt's Lymphoma	5	3	2
Mixed Small and Large Lymphoma	4	2	2
Mycosis Fungoides	3	2	1
Mixed Sm. Cleaved and Lg. Cell Follicular	2	2	0

Primary Site Table con't

SITE (ICD-O CODE) HISTOLOGY	TOTAL CASES	MALES	FEMALES
Non-Hodgkin's Lymphoma	1	1	0
Centroblastic Centrocytic Lymphoma	1	1	0
Small Cleaved Follicular Lymphoma	1	0	1
Large Cell Follicular Lymphoma	1	1	0
Lymphocytic Lymphoma	1	1	0
Nodular Lymphoma	1	0	1
LYMPH NODES, HODGKIN'S DISEASE (196)	**55**	**36**	**19**
Nodular Sclerosis	28	15	13
Mixed Cellularity	14	11	3
Hodgkin's Disease, NOS	7	5	2
Lymphocytic Predominance	5	4	1
Lymphocytic Depletion	1	1	0
HISTIOCYTOSIS (196)	**13**	**9**	**4**
Histiocytosis X	12	8	4
Malignant Histiocytosis	1	1	0
PRIMARY UNKNOWN (199)	**35**	**22**	**13**
Adenocarcinoma	20	12	8
Carcinoma NOS	7	4	3
Squamous Cell Carcinoma	6	5	1
Neuroendocrine Carcinoma	1	1	0
Papillary Adenocarcinoma	1	0	1

TABLE 10

PATIENTS WITH MULTIPLE PRIMARIES
1990

PRIMARY SITE 1990	HISTOLOGY	OTHER PRIMARIES (PREVIOUS OR CONCURRENT)	TOTAL NO.	MALES	FEMALES
ALL MULTIPLE PRIMARIES			**48**	**21**	**27**
ORAL CAVITY			**6**	**3**	**3**
	Squamous Cell Ca-Lip	Thyroid	1	1	0
	Squamous Cell Ca-Tongue	Floor of the Mouth	1	1	0
	Squamous Cell CA-Gum	Suprarenal Gland	1	0	1
	Squamous Cell Ca-Floor of the Mouth	Retromolar	1	1	0
	Adenoid Cystic Ca-Hard Palate	Breast	1	0	1
	Squamous Cell CA -Mucosa	Cavernous Hemangioma	1	0	1
TONSIL			**1**	**0**	**1**
	Squamous Cell Carcinoma	Corpus Uteri			
NASOPHARYNX			**1**	**1**	**0**
	Squamous Cell Carcinoma*	Thyroid Hemangioma-Tongue			
HYPOPHARYNX			**1**	**0**	**1**
	Squamous Cell Carcinoma	Thyroid			
ESOPHAGUS			**4**	**1**	**3**
	Squamous Cell Carcinoma	Suprarenal Gland	1	1	0
	Squamous Cell Carcinoma	Breast	2	0	2
	Squamous Cell Carcinoma	Liver-Hemangioma	1	0	1
STOMACH			**1**	**0**	**1**
	Adencarcinoma	Colon-Tubular Adenoma			
COLON			**3**	**2**	**1**
	Adenocarcinoma-Descending Colon	Cecum	1	0	1
	Mucinous Adenocarcinoma-Descending Colon	Transverse Colon	1	1	0
	Mucin Producing Adenoca.	Prostate	1	1	0
RECTOSIGMOID/ANUS			**3**	**2**	**1**
	Adenoca. - Rectosigmoid	Maxillary Sinus	1	0	1
	Squamous Cell - Anus	Liver-Hemangioma	2	2	0
PANCREAS			**1**	**1**	**0**
	Adenocarcinoma	Thyroid			
LARYNX			**3**	**3**	**0**
	Squamous Cell Carcinoma	Liver-Hemangioma	1	1	0
	Squamous Cell Carcinoma*	Thyroid Liver-Hemangioma	1	1	0
	Squamous Cell Carcinoma	Kaposi's Sarcoma	1	1	0
LUNG			**1**	**1**	**0**
	Squamous Cell Carcinoma	Larynx			

Multiple Primaries con't

PRIMARY SITE HISTOLOGY	OTHER PRIMARIES (PREVIOUS OR CONCURRENT)	TOTAL NO.	MALES	FEMALES
BONE		**1**	**0**	**1**
Osteosarcoma	Breast			
CONNECTIVE/SUBCUTANOUS/ OTHER SOFT TISSUE		**2**	**1**	**1**
Mesenchyoma, Malignant	Tongue	1	1	0
Neurofibrosarcoma	Neurofibromatosis	1	0	1
SKIN		**1**	**1**	**0**
Basal Cell - Shoulder	Face-Basosquamous Ca.			
BREAST		**5**	**0**	**5**
Duct Cell Carcinoma	Thyroid-Follicular Adenoma	1	0	1
Lobular Carcinoma	Contra. Breast-Duct Cell	1	0	1
Carcinoma, NOS	Mycosis Fungoides	1	0	1
Duct Cell Carcinoma	Ovary	1	0	1
Duct Cell Carcinoma	Thyroid	1	0	1
CERVIX UTERI		**1**	**0**	**1**
Squamous Cell Carcinoma	Liver-Hemangioma			
CORPUS UTERI		**1**	**0**	**1**
Adenocarcinoma	Parathyroid Gland-Adenoma			
OVARY		**1**	**0**	**1**
Papillary Serous Cystadenocarcinoma*	Gum Tongue			
TESTIS		**1**	**1**	**0**
Seminoma	Kidney			
KIDNEY		**2**	**1**	**1**
Renal Cell Carcinoma	Head-Hemangioblastoma	1	1	0
Renal Cell Carcinoma	Kidney-Contralateral	1	0	1
EYE		**1**	**1**	**0**
Squamous Cell In-Situ	Conjunctiva			
BRAIN & CNS		**2**	**1**	**1**
Meningioma	Lung	1	1	0
Glioma	Neurofibromatosis	1	0	1
THYROID		**3**	**0**	**3**
Papillary Carcinoma	Adenoma-Microfollicular	1	0	1
Papillary Carcinoma	Adenoma-Oxphillic	1	0	1
Papillary & Follicular Adenocarcinoma	Adenoma-Follicular	1	0	1
PRIMARY UNKNOWN		**2**	**1**	**1**
Papillary Adenocarcinoma	Liver-Hemangioma	1	0	1
Carcinoma, NOS	Liver-Hemangioma	1	1	0

*** Patient has three primaries.**

TABLE 11

TOTAL CASES REFERRED TO KFSH BY AGE AND SITE*
FOR THE YEAR 1990

ICD-O	DESCRIPTION	0-4	5-9	10-14	15-19	20-24	25-29	30-34	35-39	40-44	45-49	50-54	55-59	60-64	65-69	70-74	75-79	80-84	85+	TOTAL
140-146, 148-149	Oral Cavity	2	0	1	1	2	2	3	4	7	5	13	16	12	10	7	10	5	4	104
147	Nasopharynx	0	0	1	0	2	3	5	8	0	8	10	5	9	3	3	3	0	1	61
150	Esophagus	0	0	0	0	0	1	2	0	2	6	6	8	17	11	11	4	2	4	74
151	Stomach	1	2	0	1	1	0	1	1	3	1	6	8	8	11	8	2	6	2	62
153-154	Colon, Rectum	0	0	0	1	1	4	1	8	1	5	11	8	5	11	3	2	4	2	67
155	Liver	2	0	1	0	0	0	0	3	1	5	4	7	4	12	5	4	2	0	50
157	Pancreas	0	0	1	0	0	0	0	0	0	1	1	4	3	0	1	0	2	0	13
152, 156, 158-159	Other G.I.	0	1	0	0	0	0	0	2	2	3	2	3	2	2	1	1	0	1	20
161	Larynx	0	0	0	0	0	0	1	0	4	1	1	5	5	3	3	1	1	0	25
162-163	Lung, Pleura	0	0	0	0	1	0	0	1	5	4	9	12	23	8	7	3	1	1	75
169 (973)	Multiple Myeloma	0	0	0	0	0	0	0	1	1	1	3	3	3	2	1	0	0	0	15
169 (982)	Lymphoid Leukemia	16	10	9	5	2	3	1	1	1	2	0	0	1	1	0	1	0	1	54
169 (986)	Myeloid Leukemia	4	6	1	8	4	11	9	10	5	5	3	0	0	2	1	0	0	1	70
169 (980-1,983-5,987-94)	Other Leukemias	3	0	0	1	0	0	2	0	1	0	0	0	0	0	0	0	0	0	7
170	Bone, Cartilage	1	5	8	12	9	4	0	1	0	1	3	2	0	0	0	2	0	0	48
171	Soft Tissue	18	7	8	7	6	4	10	7	15	7	9	6	6	8	3	0	1	0	122
172	Skin Melanoma	0	0	0	0	1	0	1	2	0	0	1	0	0	0	0	0	0	0	5
173	Other Skin Cancer	0	2	0	0	4	0	5	2	3	0	1	4	7	4	6	2	1	5	46
174-175	Breast	0	0	0	1	1	12	13	25	26	18	21	16	17	5	5	2	2	0	164
179, 181-182, 184	Uterus, Genital	1	0	0	1	1	0	0	4	4	2	3	3	7	2	4	1	1	0	34
180	Cervix	0	0	0	0	2	3	2	5	5	5	8	5	5	0	2	2	0	0	44
183	Ovary	0	1	2	1	3	4	2	1	3	2	6	7	6	8	3	0	0	0	49
185	Prostate	0	0	0	0	0	0	0	0	0	0	2	2	6	3	6	1	1	2	23
186-187	Testis, Genital	1	0	0	1	0	3	3	2	2	2	0	2	0	2	0	0	1	0	19
188	Bladder	0	0	0	0	1	0	1	3	5	4	4	6	7	8	7	5	2	4	57
189	Kidney, Urinary	9	2	2	1	1	1	1	2	1	3	4	3	4	0	0	1	0	0	35
190	Eye	18	3	0	0	0	0	0	1	0	0	1	0	1	2	0	2	0	0	28
191-192	Brain, CNS	11	17	8	7	8	3	5	8	11	4	9	14	9	4	2	2	1	0	123
193	Thyroid	0	0	1	2	10	14	15	11	11	6	10	4	6	3	4	1	0	1	99
194	Other Endocrine	8	3	0	0	2	1	5	4	5	3	1	4	3	0	0	0	0	0	39
196 (959, 967-970)	NHL - Lymph Nodes	6	10	6	4	9	7	6	5	4	5	12	9	11	7	6	7	6	5	125
196 (965-966)	Hodgkin's Disease	4	4	8	7	7	7	4	3	2	2	3	1	2	1	0	0	0	0	55
196 (972)	Histiocytosis	5	1	2	1	2	0	1	1	0	0	0	0	0	0	0	0	0	0	13
199	Primary Unknown	0	0	0	0	1	2	1	1	2	3	5	6	6	4	2	1	1	0	35
All Others	******	5	5	3	5	2	3	2	0	4	3	4	3	0	2	1	0	1	2	45
TOTAL		115	79	62	67	83	92	102	127	136	117	176	176	195	139	102	60	41	36	1,905

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

TABLE 12

MALE CASES REFERRED TO KFSH BY AGE AND SITE*
FOR THE YEAR 1990

ICD-O	DESCRIPTION	0-4	5-9	10-14	15-19	20-24	25-29	30-34	35-39	40-44	45-49	50-54	55-59	60-64	65-69	70-74	75-79	80-84	85+	TOTAL
140-146, 148-149	Oral Cavity	0	0	1	1	0	0	2	2	2	2	5	9	7	7	5	6	3	3	55
147	Nasopharynx	0	0	1	0	1	2	2	6	0	6	10	4	9	1	2	3	0	1	48
150	Esophagus	0	0	0	0	0	0	1	0	1	2	1	6	5	6	7	3	2	3	37
151	Stomach	1	2	0	0	0	0	1	1	2	1	4	5	6	8	5	2	5	1	44
153-154	Colon, Rectum	0	0	0	1	0	2	1	2	1	3	7	7	3	9	2	2	3	1	44
155	Liver	0	0	0	0	0	0	0	3	1	4	4	4	1	10	5	3	2	0	37
157	Pancreas	0	0	0	0	0	0	0	0	0	1	1	2	2	0	1	0	2	0	9
152, 156, 158-159	Other G.I.	0	0	0	0	0	0	0	1	0	1	1	1	1	2	0	0	0	0	7
161	Larynx	0	0	0	0	0	0	1	0	4	1	1	5	5	3	3	1	1	0	25
162-163	Lung, Pleura	0	0	0	0	1	0	0	1	3	3	9	10	21	8	7	3	1	1	68
169 (973)	Multiple Myeloma	0	0	0	0	0	0	0	1	1	0	2	2	3	1	0	0	0	0	10
169 (982)	Lymphoid Leukemia	10	9	4	2	2	2	1	1	0	2	0	0	1	1	0	1	0	1	37
169 (986)	Myeloid Leukemia	1	4	1	4	2	7	2	4	4	3	1	0	0	2	1	0	0	0	36
169 (980-1,983-5,987-94)	Other Leukemias	2	0	0	1	0	0	2	0	1	0	0	0	0	0	0	0	0	0	6
170	Bone, Cartilage	1	1	4	7	7	1	0	0	0	0	1	1	0	0	0	1	0	0	24
171	Soft Tissue	9	4	5	5	4	3	5	0	5	4	6	3	5	5	3	0	0	0	66
172	Skin Melanoma	0	0	0	0	1	0	1	0	1	0	0	0	0	0	0	0	0	0	3
173	Other Skin Cancer	0	1	0	0	3	0	3	2	3	0	1	4	3	3	4	2	1	3	33
174-175	Breast	0	0	0	0	0	0	0	0	1	0	1	1	1	0	0	1	0	0	5
179, 181-182, 184	Uterus, Genital	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
180	Cervix	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
183	Ovary	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
185	Prostate	0	0	0	0	0	0	0	0	0	0	2	2	6	3	6	1	1	2	23
186-187	Testis, Genital	1	0	0	1	0	3	3	2	2	2	0	2	0	2	0	0	1	0	19
188	Bladder	0	0	0	0	1	0	1	0	4	3	4	5	5	7	6	4	1	4	45
189	Kidney, Urinary	5	1	0	1	1	0	1	0	1	1	3	2	2	0	0	0	0	0	18
190	Eye	10	2	0	0	0	0	0	1	0	0	1	0	1	1	0	2	0	0	18
191-192	Brain, CNS	8	13	5	6	6	0	3	5	2	3	6	7	6	3	1	1	1	0	76
193	Thyroid	0	0	1	0	1	0	3	2	1	1	4	1	5	1	2	0	0	0	22
194	Other Endocrine	2	1	0	0	1	1	2	4	3	1	1	3	1	0	0	0	0	0	20
196 (959, 967-970)	NHL - Lymph Nodes	3	8	4	2	5	5	5	5	4	2	7	7	9	4	3	6	3	3	85
196 (965-966)	Hodgkin's Disease	4	4	5	5	3	4	3	1	2	0	2	1	2	0	0	0	0	0	36
196 (972)	Histiocytosis	3	1	1	1	1	0	0	1	0	0	0	0	0	0	0	0	0	0	8
199	Primary Unknown	0	0	0	0	0	1	0	1	2	2	3	4	3	3	2	1	0	0	22
All Others	******	3	4	2	3	1	2	1	1	1	0	2	2	0	1	0	0	0	2	25
TOTAL		63	55	34	40	41	33	44	47	52	48	90	100	113	91	65	43	27	25	1,011

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

TABLE 13

FEMALE CASES REFERRED TO KFSH BY AGE AND SITE*
FOR THE YEAR 1990

ICD-O	DESCRIPTION	0-4	5-9	10-14	15-19	20-24	25-29	30-34	35-39	40-44	45-49	50-54	55-59	60-64	65-69	70-74	75-79	80-84	85+	TOTAL
140-146, 148-149	Oral Cavity	2	0	0	0	2	2	1	2	5	3	8	7	5	3	2	4	2	1	49
147	Nasopharynx	0	0	0	0	1	1	3	2	0	2	0	1	0	2	1	0	0	0	13
150	Esophagus	0	0	0	0	0	1	1	0	1	4	5	2	12	5	4	1	0	1	37
151	Stomach	0	0	0	1	1	0	0	0	1	0	2	3	2	3	3	0	1	1	18
153-154	Colon, Rectum	0	0	0	0	1	2	0	6	0	2	4	1	2	2	1	0	1	1	23
155	Liver	2	0	1	0	0	0	0	0	0	1	0	3	3	2	0	1	0	0	13
157	Pancreas	0	0	1	0	0	0	0	0	0	0	0	2	1	0	0	0	0	0	4
152, 156, 158-159	Other G.I.	0	1	0	0	0	0	0	1	2	2	1	2	1	0	1	1	0	1	13
161	Larynx	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
162-163	Lung, Pleura	0	0	0	0	0	0	0	0	2	1	0	2	2	0	0	0	0	0	7
169 (973)	Multiple Myeloma	0	0	0	0	0	0	0	0	0	1	1	1	0	1	1	0	0	0	5
169 (982)	Lymphoid Leukemia	6	1	5	3	0	1	0	0	1	0	0	0	0	0	0	0	0	0	17
169 (986)	Myeloid Leukemia	3	2	0	4	2	4	7	6	1	2	2	0	0	0	0	0	0	1	34
169 (980-1,983-5,987-94)	Other Leukemias	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
170	Bone, Cartilage	0	4	4	5	2	3	0	1	0	1	2	1	0	0	0	1	0	0	24
171	Soft Tissue	9	3	3	2	2	1	5	7	10	3	3	3	1	3	0	0	1	0	56
172	Skin Melanoma	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	2
173	Other Skin Cancer	0	1	0	0	1	0	2	0	0	0	0	0	4	1	2	0	0	2	13
174-175	Breast	0	0	0	1	1	12	13	25	25	18	20	15	16	5	5	1	2	0	159
179, 181-182, 184	Uterus, Genital	1	0	0	1	1	0	0	4	4	2	3	3	7	2	4	1	1	0	34
180	Cervix	0	0	0	0	2	3	2	5	5	5	8	5	5	0	2	2	0	0	44
183	Ovary	0	1	2	1	3	4	2	1	3	2	6	7	6	8	3	0	0	0	49
185	Prostate	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
186-187	Testis, Genital	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
188	Bladder	0	0	0	0	0	0	0	3	1	1	0	1	2	1	1	1	1	0	12
189	Kidney, Urinary	4	1	2	0	0	1	0	2	0	2	1	1	2	0	0	1	0	0	17
190	Eye	8	1	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	10
191-192	Brain, CNS	3	4	3	1	2	3	2	3	9	1	3	7	3	1	1	1	0	0	47
193	Thyroid	0	0	0	2	9	14	12	9	10	5	6	3	1	2	2	1	0	1	77
194	Other Endocrine	6	2	0	0	1	0	3	0	2	2	0	1	2	0	0	0	0	0	19
196 (959, 967-970)	NHL - Lymph Nodes	3	2	2	2	4	2	1	0	0	3	5	2	2	3	3	1	3	2	40
196 (965-966)	Hodgkin's Disease	0	0	3	2	4	3	1	2	0	2	1	0	0	1	0	0	0	0	19
196 (972)	Histiocytosis	2	0	1	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	5
199	Primary Unknown	0	0	0	0	1	1	1	0	0	1	2	2	3	1	0	0	1	0	13
All Others	******	2	1	1	2	1	1	1	1	1	3	3	0	0	1	1	0	1	0	20
TOTAL		52	24	28	27	42	59	58	80	84	69	86	76	82	48	37	17	14	11	894

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

STAGE OF DISEASE AT DIAGNOSIS

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

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

Summary Staging Definitions:

IN SITU: Intraepithelial, noninvasive, noninfiltrating

LOCALIZED: Within organ

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

REGIONAL: Beyond the organ of origin

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

DISTANT: Direct extension or metastasis

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

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

Please refer to Table 14 for the number of cases by major cancer site and stage at diagnosis and to Figure 25 for the graphic distribution of cases by stage at diagnosis. Figure 26 illustrates the distribution of cases by first course of treatment.

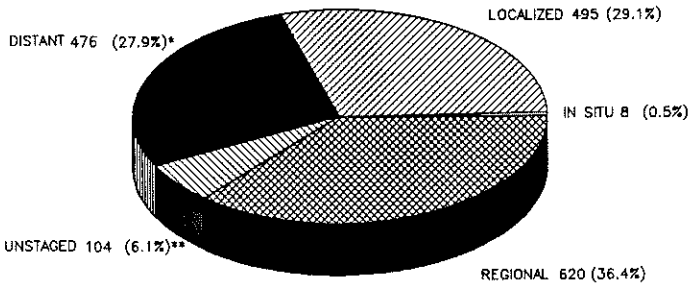
TABLE 14

STAGE AT DIAGNOSIS BY PRIMARY SITE*
SEER SUMMARY STAGE - 1990

ICD-O	DESCRIPTION	IN SITU	LOCAL	REGIONAL				DIST	UNSTG	TOTAL
				DIRX	LN	BOTH	NOS			
140-146, 148-149	Oral Cavity	0	25	22	6	20	0	25	6	104
147	Nasopharynx	0	1	2	14	8	0	33	3	61
150	Esophagus	0	23	23	5	13	0	7	3	74
151	Stomach	0	8	6	3	24	0	20	1	62
153-154	Colon, Rectum	0	11	21	3	13	0	13	6	67
155	Liver	0	14	10	0	1	0	21	4	50
157	Pancreas	0	3	3	0	2	0	2	3	13
152, 156, 158-159	Other G.I.	0	3	7	0	4	0	2	4	20
161	Larynx	1	10	2	1	2	0	7	2	25
162-163	Lung, Pleura	0	3	15	7	5	0	41	4	75
169 (973)	Multiple Myeloma	0	0	0	0	0	0	15	0	15
169 (982)	Lymphoid Leukemia	0	0	0	0	0	0	54	0	54
169 (986)	Myeloid Leukemia	0	0	0	0	0	0	70	0	70
169 (980-1,983-5,987-94)	Other Leukemias	0	0	0	0	0	0	7	0	7
170	Bone, Cartilage	0	6	32	0	0	0	5	5	48
171	Soft Tissue	0	59	20	1	2	0	25	15	122
172	Skin Melanoma	0	2	1	2	0	0	0	0	5
173	Other Skin Cancer	1	24	4	2	0	0	11	4	46
174-175	Breast	0	44	5	60	22	0	24	9	164
179, 181-182, 184	Uterus, Genital	1	12	8	0	1	0	11	1	34
180	Cervix	4	5	26	0	2	0	6	1	44
183	Ovary	0	10	1	0	0	0	34	4	49
185	Prostate	0	7	1	0	0	0	11	4	23
186-187	Testis, Genital	0	11	3	1	1	0	3	0	19
188	Bladder	0	33	14	0	4	0	5	1	57
189	Kidney, Urinary	0	13	5	4	1	0	9	3	35
190	Eye	1	7	6	0	0	0	13	1	28
191-192	Brain, CNS	0	87	29	0	0	0	4	3	123
193	Thyroid	0	36	8	23	10	0	15	7	99
194	Other Endocrine	0	19	11	0	0	0	7	2	39
196 (959, 967-970)	NHL - Lymph Nodes	0	6	23	11	10	0	73	2	125
196 (965-966)	Hodgkin's Disease	0	8	0	14	1	0	30	2	55
196 (972)	Histiocytosis	0	0	0	0	0	0	73	0	73
199	Primary Unknown	0	0	0	0	0	0	0	35	35
All Others	******	0	5	5	0	4	0	27	4	45
TOTAL		8	495	313	157	150	0	643	139	1,905

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

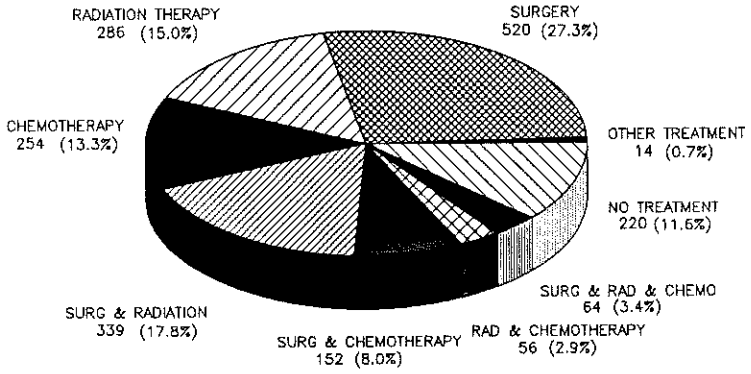
FIGURE 25
DISTRIBUTION OF 1,703 CASES BY STAGE AT DIAGNOSIS
1990



* EXCLUDES LEUKEMIA, MULTIPLE MYELOMA & WALDENSTROM'S MACROGLOBULINEMIA (167 CASES)

** EXCLUDES UNKNOWN PRIMARIES (35 CASES)

FIGURE 26
DISTRIBUTION OF 1,905 CASES BY FIRST COURSE OF TREATMENT*
(SINGLY OR IN COMBINATIONS)
1990



* INITIAL TUMOR-DIRECTED TREATMENT WITHIN FOUR MONTHS AFTER DIAGNOSIS

APPENDIX A

1990 SPECIAL STUDY REQUESTS FROM TUMOR REGISTRY DATA

January	
Hairy Cell Leukemias	Dr. S. Spence
Hepatoma Cases (1987-1990)	Dr. J. Sieck
Retinoblastoma Cases	Dr. K. Sackey
Hypopharynx/Pyriform Sinus/Oropharynx (1975-1988)	Dr. K. Ahmad
February	
None	
March	
Growth in Retinoblastoma Patients (Charts only)	Dr. D. Milner
Nationality of NHL Adult Patients	Dr. K. Sheth
Patients with Myelodysplastic Syndrome	Dr. A. Padmos
Nasopharynx Patients (transfer of data to floppy disc only)	Dr. A. Amer
Estimated Number of Cases Over a 5-year Period (1985-1989) Rhabdomyosarcoma, Ewing's Sarcoma, Neuroblastoma, Germ Cell Tumors and other Sarcomas	Dr. A. Martins
April	
Large Bowel Cancer (sex differences in subsite incidence)	Dr. W.H. Isbister
Bladder Cases (1975-1989)	Dr. H. Abdallah
May	
Frequency of Five Most Common Malignancies in Females (1975-1988)	Dr. M. El Senoussi
Frequency of Female Malignancies (1975-1988)	Dr. M. El Senoussi
CBC for Childhood ALL 84 & 87 Protocol Patients	Dr. Roberts
Ewing's Sarcoma Patients (1984 to May 1990)	Dr. R. Wierzbicki
Non-Hodgkin's Lymphoma Patients <15 yrs with Stage IV Disease (1975-1989)	Dr. Z.A. Nasserallah
June	
Cancer Cases (by site) for each of the Geographical Regions of Saudi Arabia (1985-1988)	Dr. S. El-Akkad
Non-Hodgkin's Lymphoma Patients (age 14-70) on Chemotherapy (1989-1990)	Dr. A. Amer
Testicular Cancer Cases (1989-1990)	Ms. Jamison
Case Identification of Long Term Surviving ALL Children for Growth Study	Dr. D. Milner
Retinoblastoma Cases from Riyadh (1982-1990)	Dr. K. Sackey
July	
Pediatric Neuroblastoma Cases for last 12 months	Ms. Jamison
Esophageal Cancers for last 12 month period	Ms. Jamison
Ovarian Carcinoma excluding Epithelial (1975-1989)	Dr. A. Ezzat
Chronic Myeloid Leukemias for last 12 month period (Dr. Ernst's patients only)	Ms. Jamison
Breast Cancers for last 12 month period (Dr. Ezzat's patients only)	Ms. Jamison
Pediatric Acute Leukemia Cases for last 12 month period (Dr. Aur's patients only)	Ms. Jamison
Nasopharyngeal Carcinoma for last 12 month period (Dr. Ahmad's patients only)	Ms. Jamison

Appendix A con't

Pediatric Non-Hodgkin's Lymphoma Cases (Dr. Sabbah's patients only)	Ms. Jamison
Non-Hodgkin's Lymphoma Cases (Dr. Amer's patients only)	Ms. Jamison
Acute Leukemia Cases for last 12 month period (Dr. Padmos's patients only)	Ms. Jamison
August	
Breast Cancer Cases (1975-1989)	Dr. M. Amer
Primary Malignant Tumors Involving Bone and Soft Tissue of Extremities (1975-1989)	Dr. R. Asirvatham
Oral Cavity Cases (1985-1989)	Dr. K. Ahmad
Myeloma Cases (1985-1987)	Dr. H. Clink
September	
Chronic Lymphoid Leukemia Cases for the last 24 months (patients of Drs Padmos, Spence & Ernst)	Ms. Jamison
Chronic Myeloid Leukemia Cases for the last 24 month period (patients of Drs Padmos and Clink)	Ms. Jamison
Pediatric Acute Leukemia Cases for the last 24 month period (patients of Drs Aur and Martins)	Ms. Jamison
Adult Acute Leukemia Cases for the last 24 months (patients of Drs Ernst, Clink and Spence)	Ms. Jamison
Hodgkin's Disease Cases for last 24 month period (patients of Drs Bedkikian and El-Akkad)	Ms. Jamison
Multiple Myeloma Cases for the last 24 months (patients of Drs Ernst, Padmos, Clink & Spence)	Ms. Jamison
Osteogenic Sarcoma Cases for the last 24 months (patients of Dr. Wierzbicki)	Ms. Jamison
Wilm's Tumor Cases for the last 24 month period (patients of Dr. Sackey)	Ms. Jamison
Brain Tumor Cases for the last 24 month period (patients of Dr. Schultz)	Ms. Jamison
October	
Demographic Data for all Tumor Registry Patients	Dr. S. El Akkad
Nasopharyngeal Carcinoma (1984-1989)	Dr. K. Sheth
Choriocarcinoma for last 24 months (all Doctors)	Ms. Jamison
National Figures on Nasopharyngeal Cancer	Dr. P. McArthur
Total Number of patients with Tumors (1975-1990)	Dr. Y. Barri
Kaposi's Sarcoma Cases (1975-1989)	Dr. Y. Barri
Total Number of Low Grade Non-Hodgkin's Lymphomas (1988-1989)	Dr. R. Wierzbicki
Thyroid Cases - Papillary, Follicular and Mixed	Dr. B. Devi
Papillary Follicular (1975-1990)	Dr. M. Ahmed
Brain Tumors Treated by R. T. (1987-1990)	Dr. H. Schultz
Childhood AML Patients (1975-1989)	Dr. A. Martins
November	
Squamous Cell Carcinoma of Nasopharynx for the last Five Years (medical record numbers only)	Dr. Z. Mahasin
Total Number of Male Breast Cases (1975-1990	Dr. A. Ezzat
December	
Chronic Granulocytic Leukemia Cases by Age Group	Dr. H. Kfoury
Osteogenic Sarcoma and Ewings Sarcoma Cases (1989-1990)	Dr. R. Wierzbicki
Histiocytoses Cases (1975-1990)	J. Chatmas, DDS and Lennart Unell, DDS
Childhood Cancer Cases (1990)	Dr. K. Sackey
Ovarian Cancer Cases by Histology (1975-1990)	Dr. A. Ezzat

APPENDIX B

1990 Tumor Committee Members

S. El Akkad, M.D., Radiation Oncology
M. A. Ali, M.D., Pathology **
J. Atwood, C.T.R., Tumor Registry
R. JA Aur,M.D., Oncology
Y. Bakri, M.D., Obsterics/Gynecology
H. Al Daig, CHIC
P. Ernst, M.D., Medical Hematology*
M. Hannan, Ph.D., B&MR Research Centre
P. McArthur, M.D., Surgery
L. NouNou, Social Services
R. Pavillard, M.D., Quality Assurance
S. Al Sedairy, Ph.D., B&MR Research Centre
J.O. Sieck, M.D., Medicine
O. B. Te, Tumor Registry
S. Willoughby, C.T.R., Tumor Registry

* Tumor Committee Chairman
** Deputy Chairman

APPENDIX C

SUMMARY OF CASES PRESENTED
KFSH&RC TUMOR BOARD - 1990

SITE	NO.
LYMPHATICS SYSTEM	8
Hodgkin's Disease	6
Non-Hodgkin's Lymphoma	1
Histiocytosis X	1
THYROID	6
DIGESTIVE ORGANS & PERITONEUM	5
Stomach	1
Colon	1
Rectum	1
Liver	1
Pancreas	1
SARCOMA	4
Rhabdomyosarcoma	2
Epithelioid Cell Sarcoma	1
Malignant Fibrous Histiocytoma	1
BONE	4
Ewing's Sarcoma	3
Osteogenic Sarcoma	1
GENITO-URINARY ORGANS	4
Cervix	1
Vagina	1
Scrotum	1
Testis	1
CONNECTIVE TISSUE	3
OTHER ENDOCRINE SYSTEM	2
Adrenal	1
Pineal	1
BUCCAL CAVITY & PHARYNX	2
Tongue	1
Nasopharynx	1
RESPIRATORY SYSTEM & INTRATHORACIC ORGANS	2
Maxillary Antrum	1
Lung	1
BREAST	2
EYE	2
BRAIN & NERVOUS SYSTEM	2
NEUROBLASTOMA	1
SKIN	1
OTHER ILL DEFINED SITES	1
MULTIPLE PRIMARIES	1
UNKNOWN PRIMARIES	2
BENIGN & UNCERTAIN BEHAVIOR	7

Tumor Board Moderators: Dr. H. Schultz, Dr. H. Clink, Dr. K. Ahmad

APPENDIX D

1990 SUMMARY OF TUMOR CONFERENCE TOPICS

07 January	Case Presentation	Dr. P. McArthur
14 January	Non-Oncological Agents Which Potentiate the Effect of Anti-Cancer Drugs	Dr. W. Evans
21 January	Case Presentation	Dr. A. Bedikian
28 January	Cancer Profile in Assir Region	Dr. S. Joishy
04 February	Pediatric Soft Tissue Sarcomas	Dr. J. Cassady
18 February	Use of Immunohistochemistry in Classifications of Tumors: Histogenesis and Differentiation in Oncology	Dr. J. Antonius
25 February	The Radiology of Chemodectomas	Dr. M. Banna
04 March	Laser in Oncology	Dr. Y. Bakri
11 March	Results of Latest Protocol in Childhood Non-Hodgkin's Lymphoma	Dr. R. Sabbah
25 March	Conservative Surgery for Renal Cell Carcinoma	Dr. T. Sundin
06 May	Surgery of Rectal Cancer	Dr. W. Isbister
20 May	Malignant Non-Hodgkin's Lymphoma Case Presentation	Dr. M. Amer, Dr. M. Fawzy and Dr. J. Antonius
27 May	Multiple Myeloma: Recent Development in the Understanding of Biology and Management	Professor Durie
03 June	Pre-Operative Radiation Therapy in Carcinoma of the Bladder	Dr. H. Abdallah
17 June	Case Presentations	Dr. B. Devi and Dr. S. Akkad
15 July	Case Presentation: Salvage Surgery for Solitary Lung Metastasis from Cancer of the Cervix	Dr. M. El-Senoussi, Dr. R. Deniord and Dr. A. Ali
29 July	Dental Management of Patients Receiving Head and Neck Radiation Therapy	Dr. W. Allard
05 August	Case Presentations	Dr. G. Brittin
16 September	Thoracic Oncology Standardization of Multidisciplinary Approach	Dr. R. Wierzbicki
30 September	Hairy Cell Leukemia	Dr. R. Nounou
28 October	Standardization of Work-Up and Treatment Policies for Soft Tissue & Bone Sarcomas	Dr. R. Wierzbicki
18 November	Moya-Moya Vasculopathy After Cranio-Spinal Irradiation	Dr. A. Al-Amro
25 November	Childhood and Adult ALL Protocol	Dr. R. Aur and Dr. H. Clink

Appendix D con't

02 December	Aminoglycoside - Pharmacokinetics and Toxicity	W. Thorpe, B.S.Pharm D
16 December	Multidisciplinary Management of Breast Cancer	Dr. A. Abdulkareen, Dr. A. Ezzat and Dr. M. El-Senoussi
23 December	Multidisciplinary Management of Breast Cancer	Dr. A. Ezzat and Dr. M. El-Senoussi
30 December	Tumor Immaging Using Thallium 201 Chloride	Dr. H. Abdul-Dayem

Tumor Conference Moderators: Dr. M. El-Senoussi, Dr. H. Clink, Dr. K. Ahmad, Dr. P. Ernst and Dr. A. Martins

VI. GLOSSARY OF TERMS

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

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

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

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

Case: A diagnosis or finished abstract.

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

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

SEER Summary Staging Guide:

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

Local: Tumor is confined to organ of origin.

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

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

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

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

T+N+M = Stage
(T) tumor size
(N) node involvement
(M) distant metastases

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

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

VII. REFERENCES

1. "Reporting of Cancer Survival and End Results," Manual for Staging of Cancer, third edition, American Joint Committee on Cancer, Philadelphia, Lippincott, 1988.

2. Summary Staging Guide, SEER Program, U.S. Department of Health Services, National Institutes of Health, Publication No. (NIH)77-1448, Washington, 1977.

3. Cancer Patient Survival: SEER Program, 1973-1979, JNCI, Vol. 70, No. 4, April 1983.

4. Third National Cancer Survey, NCI Monograph No. 41. DHEW Publication, 1975.

5. Clinical Oncology, A Multidisciplinary Approach, 6th Edition, American Cancer Society, 1983.

6. Cancer Facts & Figures - 1991, American Cancer Society

KFSH&RC CASES TO BE INCLUDED IN THE REGISTRY

REPORTABLE LIST

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

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

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

1 = Uncertain whether benign or malignant
Borderline Malignancy

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

3 = Malignant, primary site

6 = Malignant, metastatic site, secondary site

9 = Malignant, uncertain whether primary or metastatic site

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

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

BEHAVIOR CODE "1"

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

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

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

BEHAVIOR CODE "O"

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

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

Do not include:

Adrenal Cortical Adenomas (8370.0)
Chondromas (9220.0)
Lymphangioma (9170.0)