



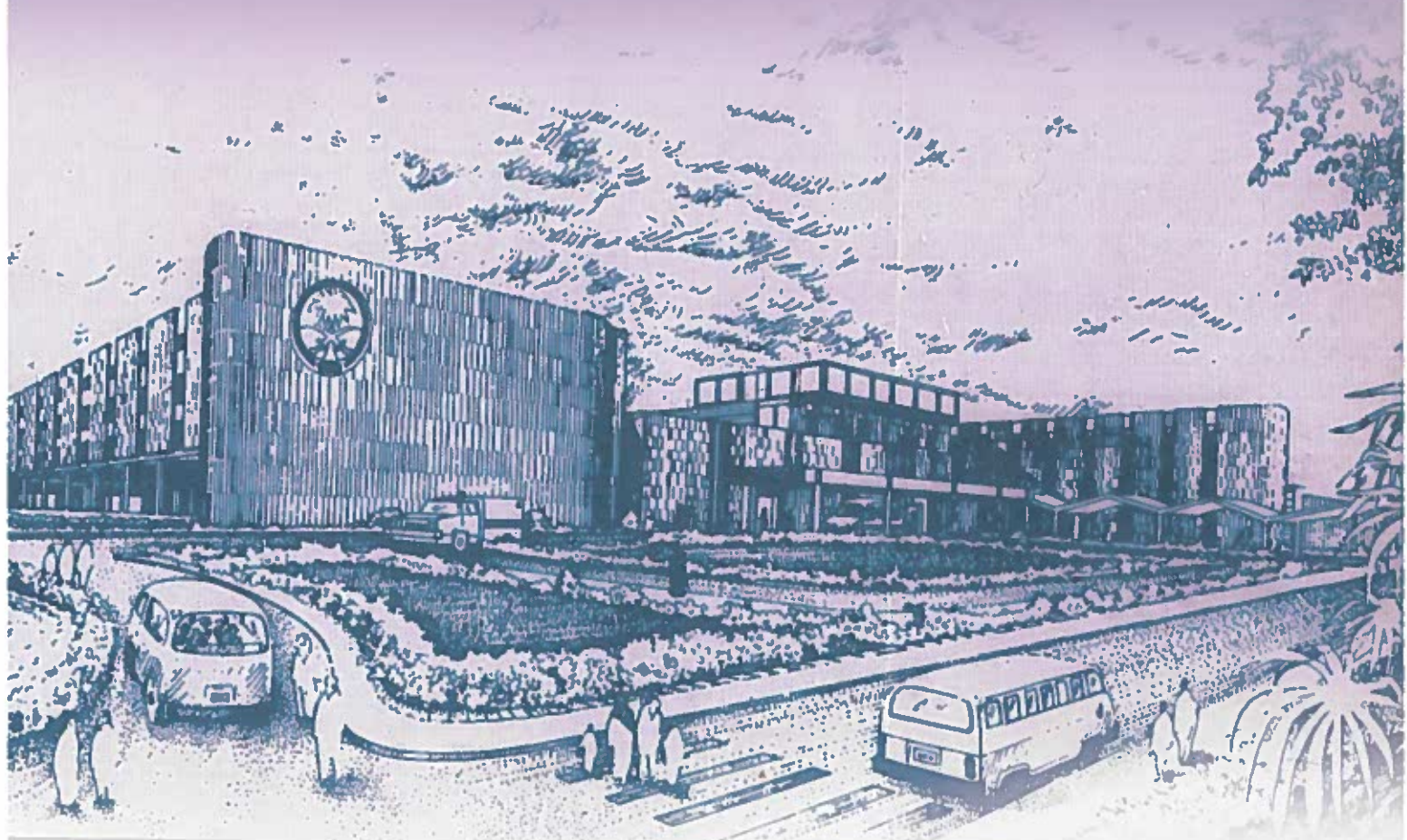
مستشفى الملك فيصل التخصصي ومركز الأبحاث  
King Faisal Specialist Hospital & Research Centre  
Gen. Org. مؤسسة عامة

Oncology Centre  
Research Unit

# TUMOR REGISTRY

## Annual Report

# 2009





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King Faisal Specialist Hospital & Research Centre  
مؤسسة عامة. Gen. Org.

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Research Unit

# TUMOR REGISTRY ANNUAL REPORT 2009

2009 Tumor Registry Annual Report

Annual Report Prepared by the Staff of the Tumor Registry  
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March 2011

## ACKNOWLEDGEMENTS

The cancer program is a combined effort of the extraordinary team of professionals at the King Faisal Specialist Hospital and Research Centre. It is not possible to enumerate all those involved in providing hope and healing to cancer patients and their families. The Tumor Registry staff greatly appreciates the tireless efforts of all the caring professionals from all disciplines for their dedication, commitment and collaboration to ensure highest standards in community outreach, clinical trials, staff education, patient care improvement, outcome analysis and tumor registry quality.

The clinical expertise and proficiency demonstrated by our team, coupled with an incredible dedication to patient care and service excellence, allows the Oncology Centre to achieve remarkable outcomes and to consistently exceed the needs and expectations of patients and their families.

The information in this report includes cancer incidence, site, extent of disease at diagnosis, treatment, cancer trends, and outcomes to better understand the changing patterns of cancer in the region.

The following departments have assisted throughout the year and without their support this report would not have been possible. The Tumor Registry staff takes pride in acknowledging these departments:

- Department of Pathology and Laboratory Medicine
- Medical Records Services
- Information Technology Affairs
- Department of Pediatric Hematology/Oncology
- Central Data Unit, Dept of Ped Hem/Onc
- Saudi Cancer Registry
- Oncology Centre

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## INTRODUCTION

We are pleased to present the 2009 Tumor Registry Annual Report of the Oncology Centre at King Faisal Specialist Hospital & Research Centre, Riyadh. During 2009, the Tumor Registry abstracted 2,475 new cancer cases. Two thousand one hundred and ninety one cases were analytic and 284 were non analytic, with the highest incidence of Colorectal cancer, Leukemia, NHL among males and carcinomas of Breast, Thyroid, and Leukemia among females. The Tumor Registry database includes over 70,000 cases and reports to the Saudi Cancer Registry (SCR). Our cases constitute about 19% of the total cancer cases reported to SCR by all the hospitals in the Kingdom.

Oncology Centre continues to be the center of excellence for comprehensive cancer treatment, education & training and clinical research. We continue to run a robust clinical trials program and remain a member of Southwest Oncology Group (SWOG), Radiation Therapy Oncology Group (RTOG) and Canadian Blood & Marrow Transplantation Group (CBMTG). KFSH&RC has spearheaded the regional research consortiums, notably, Gulf Oncology Regional Group (GORG) and Eastern Mediterranean Blood and Marrow transplantation (EMBMT) Group.

Our radiation oncology section offers most advanced radiation therapy technologies; conventional radiation therapy and stereotactic radiosurgery, offering patients non-invasive, highly precise, and effective treatment options. It offers IMRT, IGRT, Tomotherapy, Robotic Cyberknife and 4-D CT Simulator, and has embarked on Proton and Carbon-Ion Therapy, which are the latest modalities for cancer treatment.

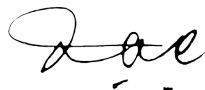
As we look to the future of cancer care in the Kingdom of Saudi Arabia, Oncology Centre will continue to expand cancer treatment based upon cutting edge clinical and translational research.

This message would not be complete without thanking the dedicated staff of the Tumor Registry for their hard work and commitment throughout the year. Special thanks are due to the superb staff of Medical Records, a key component of the Registry's continued success. This report can also be accessed online via Oncology Centre's website at <http://www.kfshrc.edu.sa>

Your comments and suggestions are always welcome to improve our future reports and can be sent to [chaudhri@kfshrc.edu.sa](mailto:chaudhri@kfshrc.edu.sa) or [ofelia@kfshrc.edu.sa](mailto:ofelia@kfshrc.edu.sa).



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## **I. KING FAISAL SPECIALIST HOSPITAL & RESEARCH CENTRE TUMOR REGISTRY**

The King Faisal Specialist Hospital and Research Centre (KFSH&RC) opened in June 1975 to provide specialized medical treatment to the people of Saudi Arabia and to promote the prevention of disease through research and education. It is a national and international tertiary care hospital for Oncology and the principal center for cancer therapy in Saudi Arabia.

The mission of the Tumor Registry, a hospital-wide data system, is to describe the burden of cancer in KFSH&RC by collecting complete and high quality cancer data and compiling timely statistics so that data-driven, evidence-based cancer prevention and control programs can be implemented to reduce cancer morbidity and mortality.

The Registry was established to meet one of the requirements for an Approved Cancer Program of the American College of Surgeons (ACoS). The database now includes 67,348 malignant cases seen at KFSH&RC from June 1975 through December 31, 2009, as well as cases seen at the Children's Cancer Centre since its opening in March 1997.

The Registry is primarily staffed with certified tumor registrars who support the database in case ascertainment, abstracting, follow up and statistical analyses. The basic source document is the patient's medical record from which pertinent information is abstracted for use in the Registry. The electronic data system used was the Cansur 3.0 designed by the ACoS, for cases seen from 1975 to 2007. Starting with 2008 cases, the software being used is CNExT, developed by C/NET Solutions which is part of the U.S. Public Health Institute. Information on each diagnosed cancer case is entered and stored in the software.

The data maintained in the Tumor Registry provides the statistics for the publication of the KFSH&RC Annual Report which summarizes the hospital's cancer experience. The data also supports a wide variety of reports at the request of physicians, researchers and ancillary personnel. These reports support patient management and outcome, basic and clinical research investigations, educational publications and presentations, and resource utilization. In 2009, the Tumor Registry supported 17 data requests (see Appendix for a listing of requests for Tumor Registry data). It also identified and reported to the Saudi Cancer Registry 2,471 new cases seen in 2009 that were diagnosed on or after 01 January 1994.

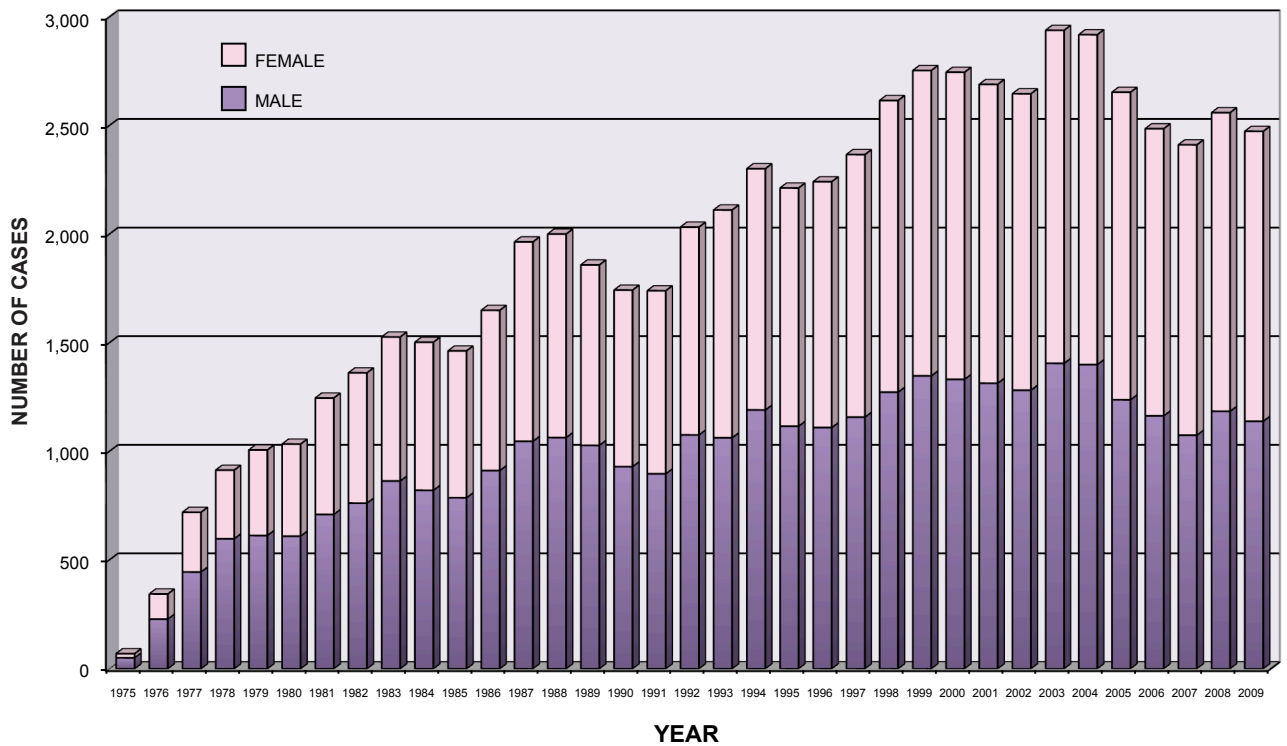


## II. KFSH&RC CANCER PATIENT POPULATION

A total of 2,475 cases were accessioned in 2009, with 1,140 males and 1,335 females or a male/female ratio of 0.8:1. This represents a 3.4% decrease from 2008.

FIGURE 1

DISTRIBUTION OF CASES ACCESSIONED BY YEAR  
1975 - 2009 (TOTAL CASES = 67,348)



From the opening of the hospital (mid 1975) until December 2009, 67,348 cancer cases were registered (34,271 males and 33,077 females) with a male/female ratio of 1.04:1. There were 8,906 (13.2%) pediatric cases (0 to 14 years of age) and 58,442 (86.8%) adults (15 years old and above). In 2009, the proportions were 12.2% (303) for pediatrics and 87.8% (2,172) for adults.

**TABLE 1**

**CASES SEEN AT KFSH&RC (MALE/FEMALE & PEDIATRICS/ADULTS) BY 5-YEAR PERIOD 1975 - 2009**

	1975-1976*	1977-1981	1982-1986	1987-1991	1992-1996	1997-2001	2002 - 2006	2007-2009**	TOTAL
<b>MALE</b>	280	2,981	4,151	4,971	5,561	6,430	6,495	3,402	34,271
<b>FEMALE</b>	135	1,945	3,359	4,342	5,346	6,748	7,155	4,047	33,077
<b>TOTAL</b>	<b>415</b>	<b>4,926</b>	<b>7,510</b>	<b>9,313</b>	<b>10,907</b>	<b>13,178</b>	<b>13,650</b>	<b>7,449</b>	<b>67,348</b>
<b>M/F RATIO</b>	2.1:1	1.5:1	1.2:1	1.1:1	1.0:1	1.0:1	0.9:1	0.8:1	1.0:1
<b>PEDIATRICS***</b>	55	593	985	1,163	1,396	1,889	1,863	962	8,906
(%)	13.2%	12.0%	13.1%	12.5%	12.8%	14.3%	13.6%	12.9%	13.2%
<b>ADULTS</b>	360	4,333	6,525	8,150	9,511	11,289	11,787	6,487	58,442
(%)	86.8%	88.0%	86.9%	87.5%	87.2%	85.7%	86.4%	87.1%	86.8%
<b>TOTAL</b>	<b>415</b>	<b>4,926</b>	<b>7,510</b>	<b>9,313</b>	<b>10,907</b>	<b>13,178</b>	<b>13,650</b>	<b>7,449</b>	<b>67,348</b>

\* First two years of KFSH&RC partial operation.

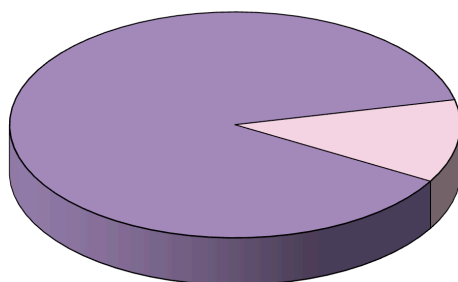
\*\* Three Years Only

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

**FIGURE 2**

**DISTRIBUTION OF CASES BY NATIONALITY 1975 - 2009 (TOTAL CASES = 67,348)**

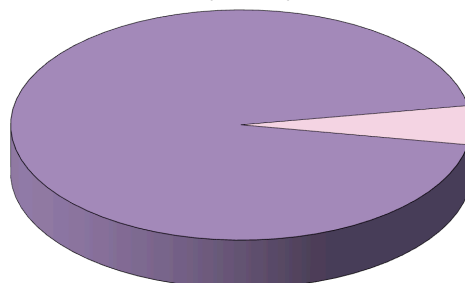
SAUDI 59,338 (88.1%)



<b>NON-SAUDI</b>	<b>8,010 (11.9%)</b>
YEMENI	2,188 (3.3%)
LEB,SYR,PAL,JORD	1,694 (2.5%)
AFRICAN	1,067 (1.6%)
EGYPTIAN	945 (1.4%)
GCC	761 (1.1%)
ALL OTHERS	1,355 (2.0%)

**2009 (TOTAL CASES = 2,475)**

SAUDI 2,340 (94.5%)



<b>NON-SAUDI</b>	<b>135 (5.5%)</b>
YEMENI	27 (1.1%)
GCC	26 (1.1%)
LEB, SYR, PAL, JORD	13 (0.5%)
AFRICAN	21 (0.9%)
EGYPTIAN	15 (0.6%)
ALL OTHERS	33 (1.3%)

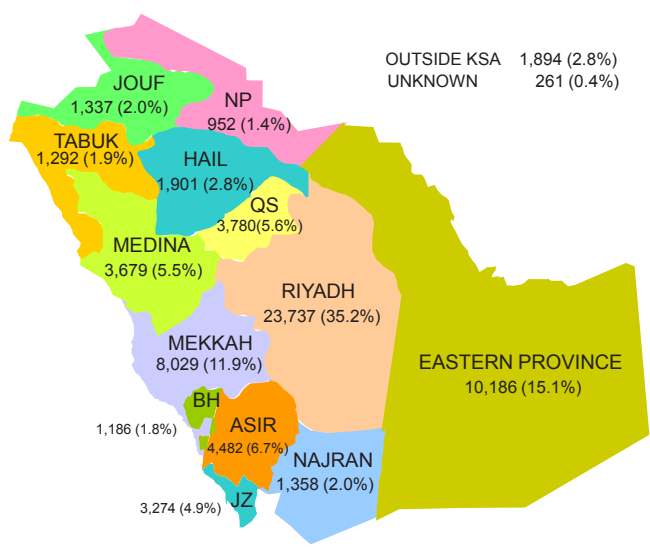
Saudi nationals totaled 2,340 (94.5%) in 2009 and the non-Saudi, 135 (5.5%). During the period 1975 to 2009, the former accounted for 88.1% (59,338) while the latter, 11.9% (8,010).

Geographically, the referral pattern in 2009 was mainly from the Riyadh region with 43.6% of all cases, followed by the Eastern Province and the Asir region with 10.3% and 7.9%, respectively. During the 35 years in review, 35.2% were referred from Riyadh, 15.1% from the Eastern Province and 11.9% from Mekkah.

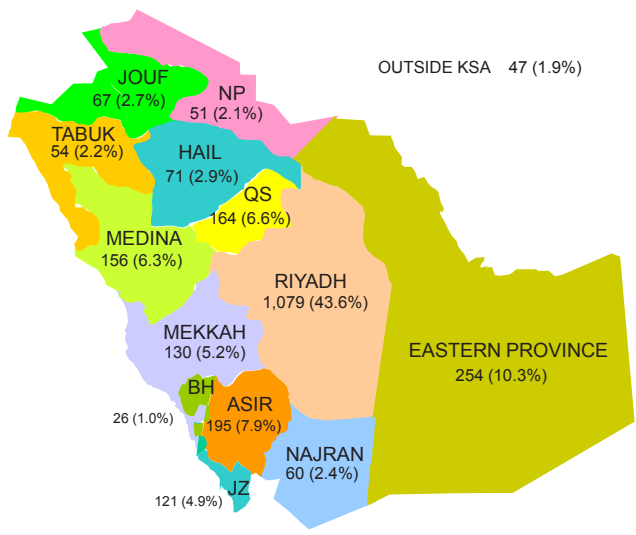
These percentages reflect the KFSH&RC actual experience rather than adjusted to reflect the population of those regions.

**FIGURE 3**

**DISTRIBUTION OF CASES BY REGION  
(Based on Given Address at Time of Diagnosis)  
1975 - 2009 (TOTAL CASES = 67,348)**



**2009 (TOTAL CASES = 2,475)**



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

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

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

Acceptance of cases to KFSH&RC is based on eligibility criteria, considering the nature of disease and availability of services.

Breast cancer led the list of total cancer cases seen from 1975 to 2009 with 11.4%, followed by leukemia (8.6%), non-hodgkin's lymphoma (7.7%), thyroid (6.6%) and colon, rectum (4.8%).

**FIGURE 4**  
**DISTRIBUTION OF 20 MOST COMMON MALIGNANCIES**  
**1975 - 2009 (TOTAL CASES = 67,348)**

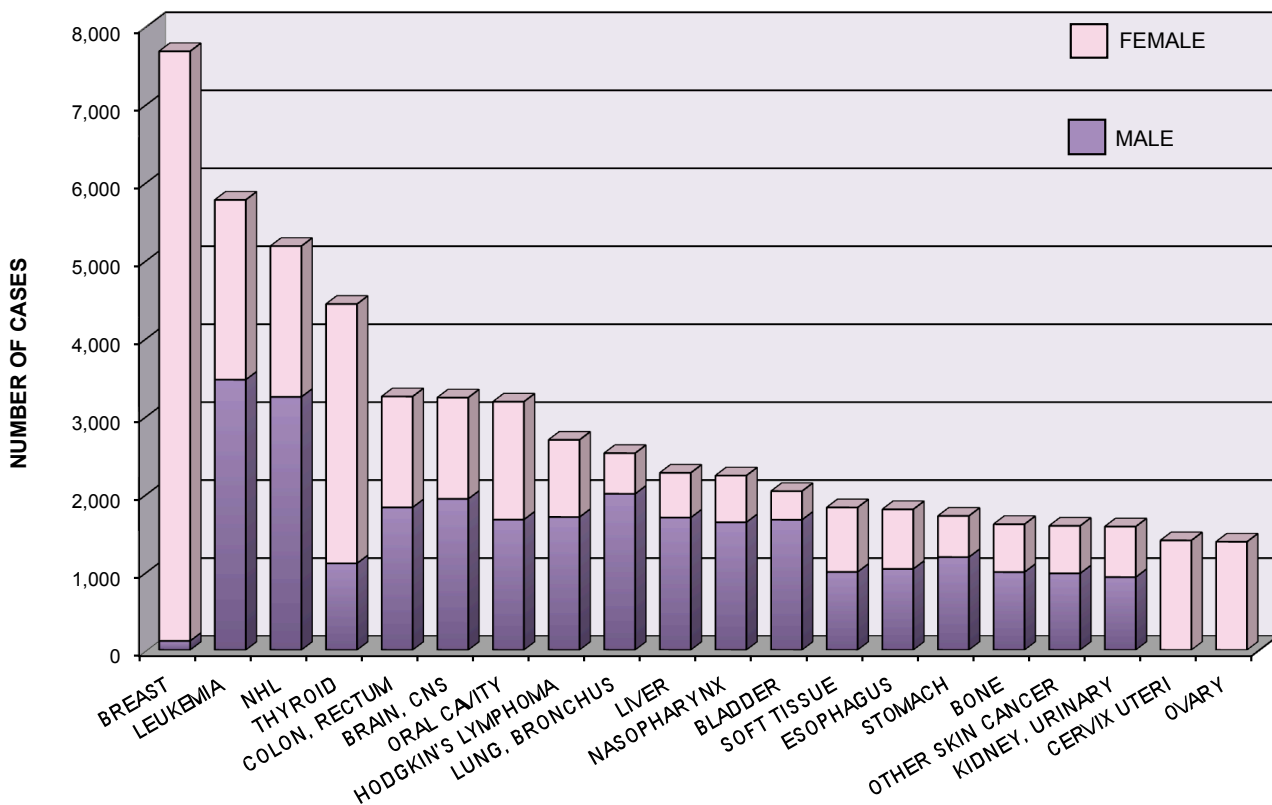
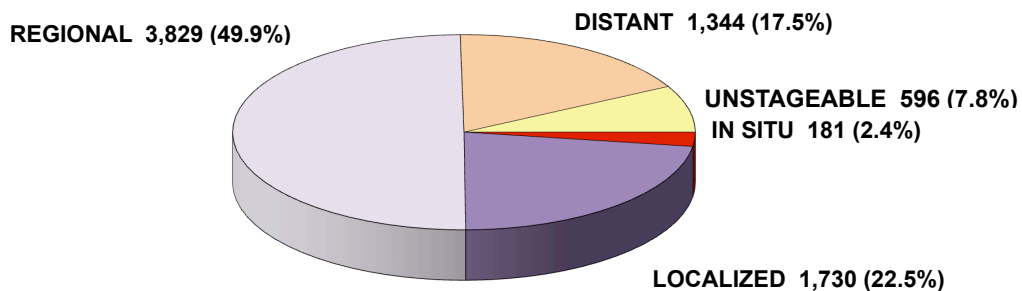
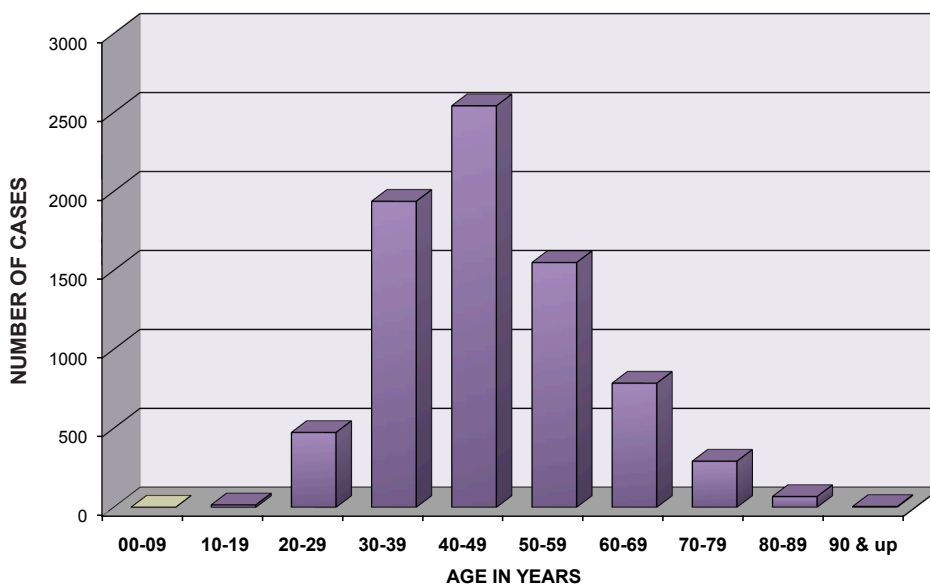


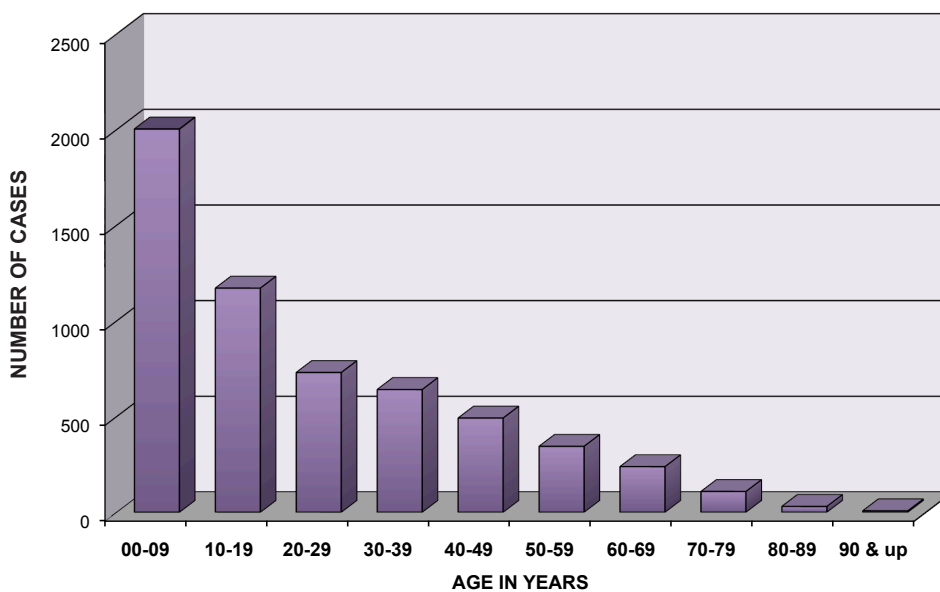
FIGURE 5

DISTRIBUTION OF 5 MOST COMMON MALIGNANCIES  
BY AGE AT DIAGNOSIS AND SEER SUMMARY STAGE  
(1975 - 2009)

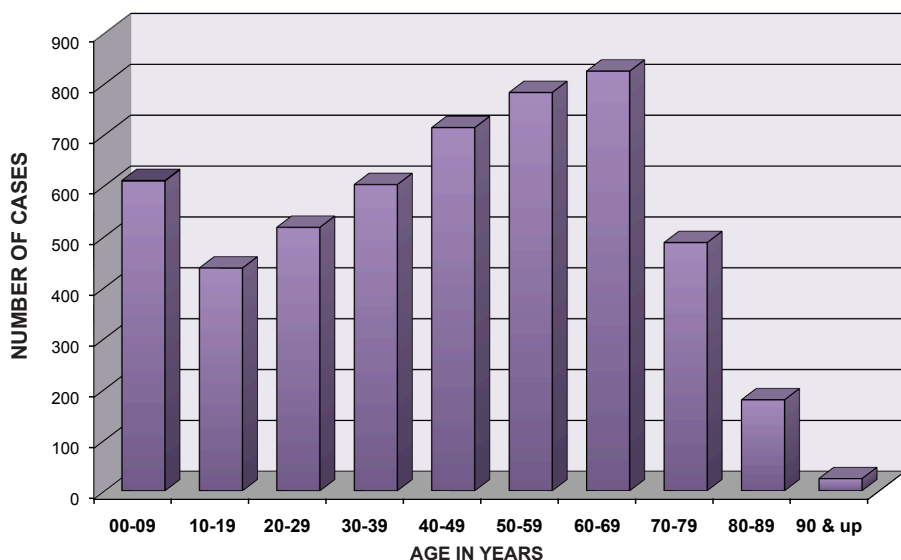
BREAST CANCER CASES



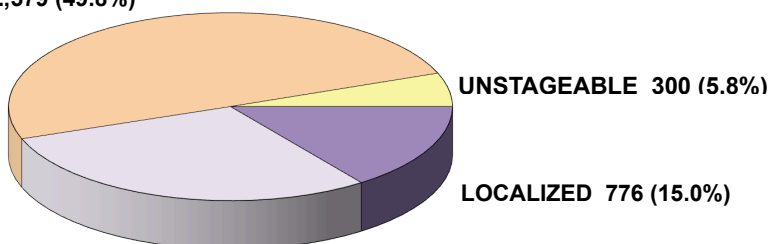
LEUKEMIA CASES



### NON-HODGKIN'S LYMPHOMA CASES

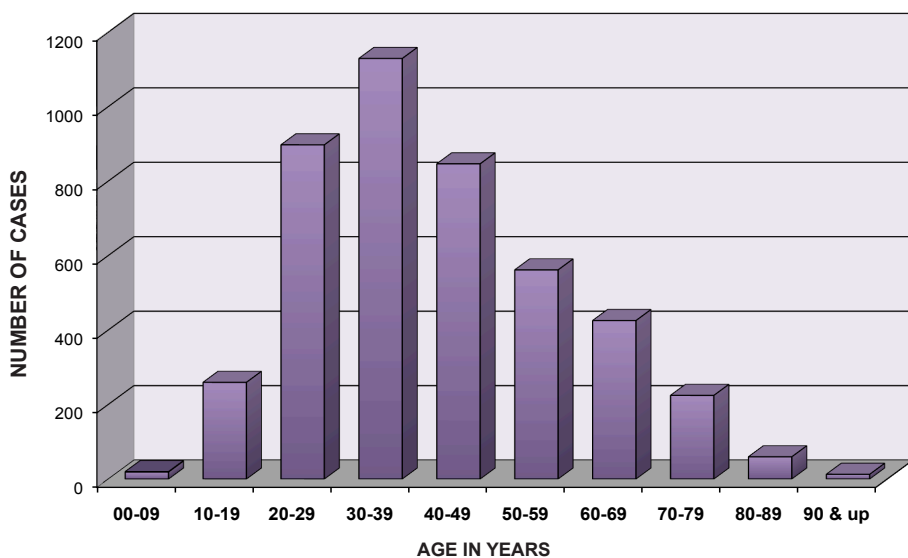


**DISTANT 2,579 (49.8%)**

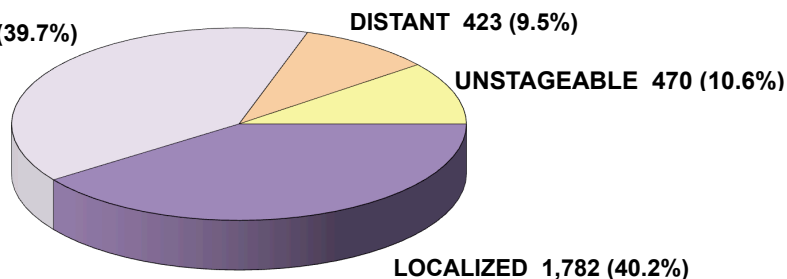


**REGIONAL 1,525 (29.4%)**

### THYROID CANCER CASES



**REGIONAL 1,763 (39.7%)**



**COLON, RECTUM CANCER CASES**

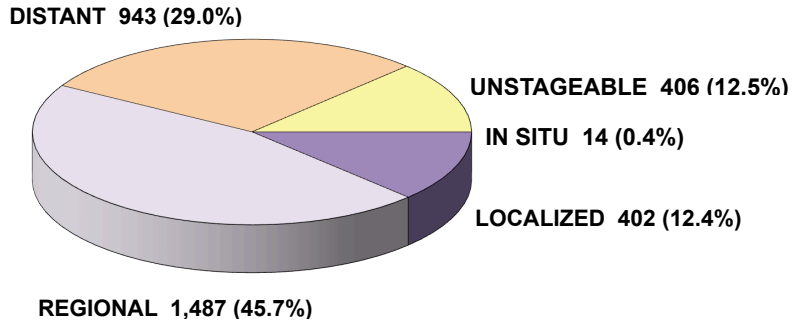
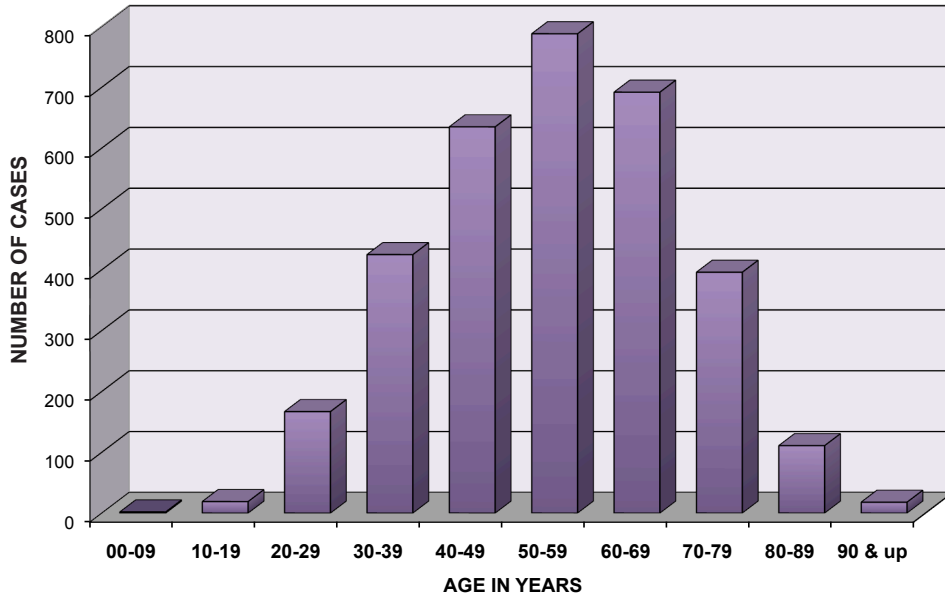


TABLE 2

TEN MOST COMMON MALIGNANCIES BY AGE GROUP AT DIAGNOSIS  
1975 - 2009

SITE	AGE GROUP	No	%
BREAST	00 - 14	2	0.0
	15 - 39	2,428	31.6
	40 - 60	4,277	55.7
	>60	973	12.7

SITE	AGE GROUP	No	%
BRAIN, CNS	00 - 14	1,515	46.8
	15 - 39	848	26.2
	40 - 60	599	18.5
	>60	276	8.5

SITE	AGE GROUP	No	%
LEUKEMIA	00 - 14	2,575	44.6
	15 - 39	1,973	34.2
	40 - 60	904	15.6
	>60	322	5.6

SITE	AGE GROUP	No	%
ORAL CAVITY	00 - 14	35	1.1
	15 - 39	438	13.7
	40 - 60	1,346	42.3
	>60	1,366	42.9

SITE	AGE GROUP	No	%
NON-HODGKIN'S LYMPHOMA	00 - 14	807	15.6
	15 - 39	1,360	26.3
	40 - 60	1,676	32.3
	>60	1,338	25.8

SITE	AGE GROUP	No	%
HODGKIN'S LYMPHOMA	00 - 14	822	30.5
	15 - 39	1,393	51.7
	40 - 60	358	13.3
	>60	123	4.5

SITE	AGE GROUP	No	%
THYROID	00 - 14	93	2.1
	15 - 39	2,214	49.9
	40 - 60	1,495	33.7
	>60	636	14.3

SITE	AGE GROUP	No	%
LUNG	00 - 14	8	0.3
	15 - 39	156	6.2
	40 - 60	1,127	44.6
	>60	1,234	48.9

SITE	AGE GROUP	No	%
COLON, RECTUM	00 - 14	9	0.3
	15 - 39	603	18.5
	40 - 60	1,545	47.5
	>60	1,095	33.7

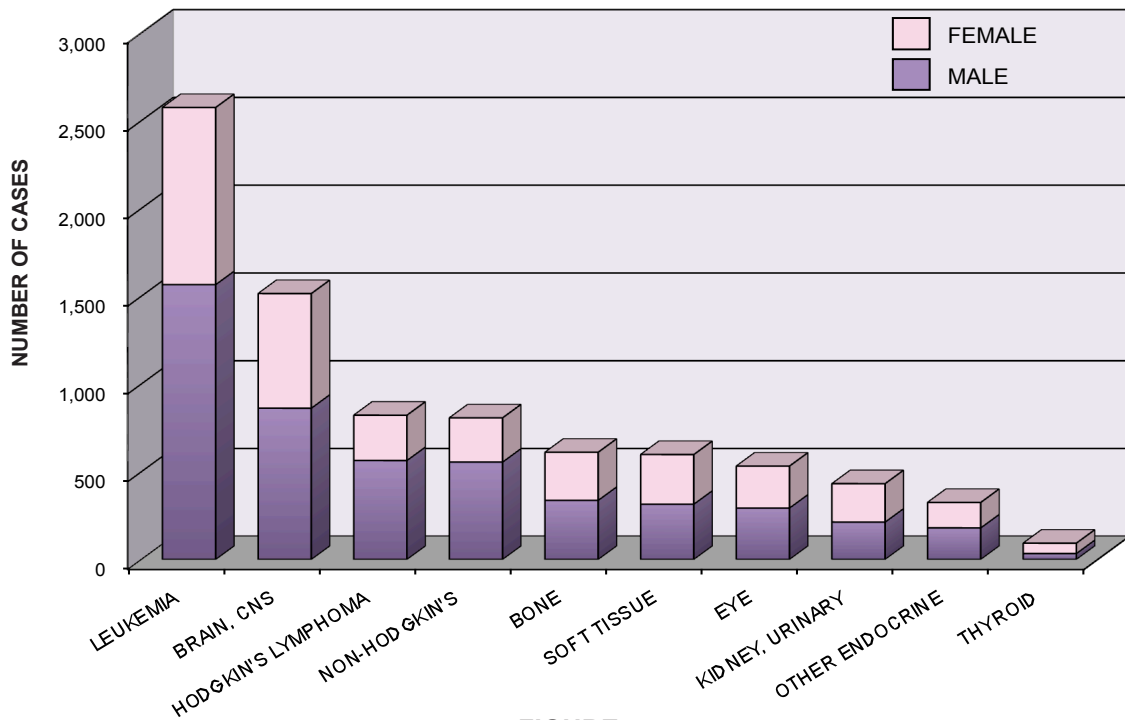
SITE	AGE GROUP	No	%
LIVER	00 - 14	62	2.7
	15 - 39	128	5.6
	40 - 60	1,002	44.1
	>60	1,081	47.6



Cancer among pediatrics (under the age of 15) accounted for 13.2% of all cases from 1975 to 2009. The five most common pediatric malignancies were leukemia (28.9%), brain/CNS (17.0%), hodgkin's lymphoma (9.2%), non-hodgkin's lymphoma (9.1%) and bone (6.9%).

**FIGURE 6**

**DISTRIBUTION OF 10 MOST COMMON PEDIATRIC MALIGNANCIES  
1975 - 2009 (TOTAL CASES = 8,906)**



**FIGURE 7**

**DISTRIBUTION OF 10 MOST COMMON PEDIATRIC MALIGNANCIES BY HISTOLOGY  
1975 - 2009 (TOTAL CASES = 8,906)**

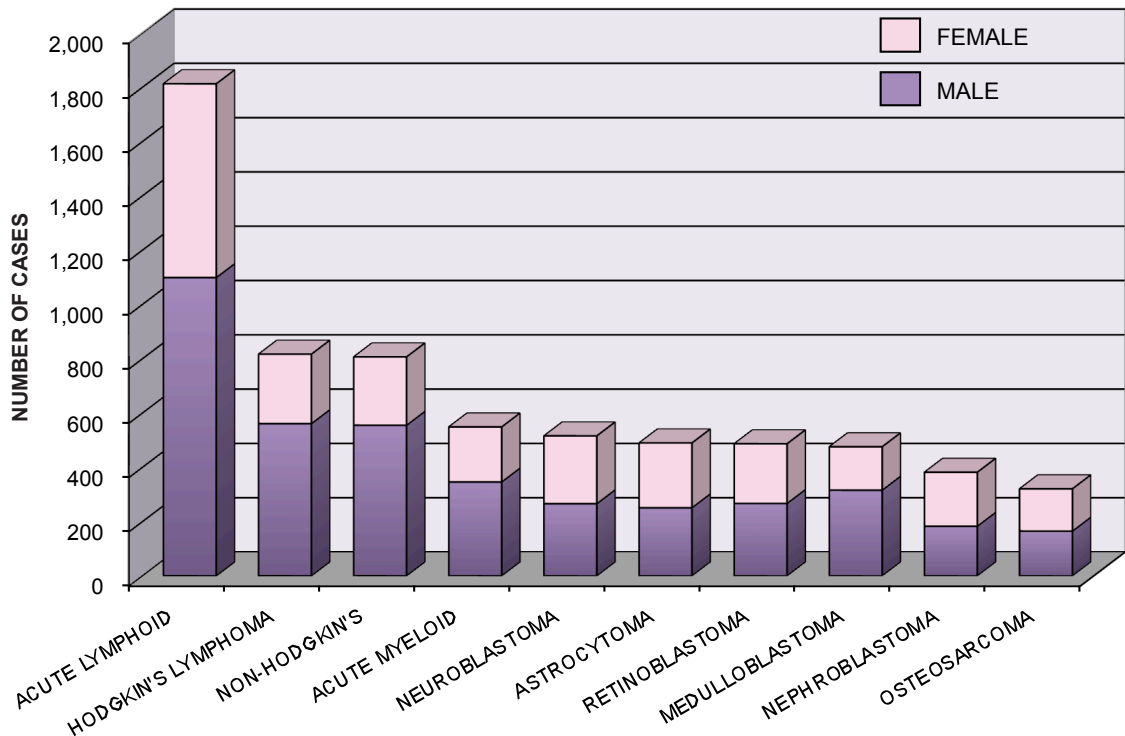


TABLE 3

CASES SEEN AT KFSH&RC BY SITE AND YEAR

1975 - 2009

SITE GROUP	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996
Oral Cavity	1	14	33	79	69	71	58	80	100	76	104	76	96	129	104	103	103	112	98	97	121	106
Nasopharynx	3	11	38	34	37	35	48	46	65	46	44	49	80	65	62	62	60	53	59	58	62	86
Esophagus	1	15	51	62	67	67	57	62	77	78	56	69	76	66	68	72	66	69	47	50	50	52
Stomach	2	15	32	35	50	37	50	51	64	60	49	64	61	47	52	53	36	48	42	68	61	57
Small Intestine	0	0	4	0	2	2	2	1	0	5	3	5	1	1	6	4	1	5	4	4	4	6
Colon	1	10	10	12	12	16	20	19	16	24	13	24	35	35	30	25	39	33	25	33	37	34
Rectum & Rectosigmoid	0	3	11	8	16	21	24	16	20	26	26	20	31	43	26	31	35	48	46	52	48	54
Anus, Anal Canal, Anorectum	0	0	1	4	3	1	7	4	7	9	6	7	4	4	5	8	6	7	12	10	10	6
Liver	7	15	33	44	49	33	41	54	53	64	57	84	78	71	68	55	66	76	82	103	102	103
Gallbladder	0	2	3	4	2	2	4	6	4	4	6	7	14	9	5	9	9	13	19	21	9	11
Bile Ducts	1	1	0	2	2	4	1	2	3	4	3	6	6	6	2	4	2	7	2	2	3	9
Pancreas	1	5	7	11	15	14	20	22	14	20	16	28	20	16	27	12	13	27	21	22	25	21
Retropertoneum, Peritoneum	0	0	2	2	2	1	1	0	2	1	0	1	0	1	1	1	0	2	1	0	0	0
Other Digestive	0	0	1	1	1	5	4	10	10	0	3	1	4	3	6	2	12	4	4	0	3	0
Nasal Cavity, Sinus, Ear	1	3	9	7	5	7	9	10	10	5	7	5	16	14	7	13	12	8	9	11	10	9
Larynx	1	12	12	12	12	14	20	13	23	22	25	16	23	33	21	26	34	27	31	35	37	36
Lung, Bronchus	3	11	23	34	45	40	56	63	74	74	87	84	83	106	90	74	85	79	85	89	87	84
Pleura	0	0	1	0	0	0	0	0	1	1	0	0	1	1	2	2	0	3	4	3	1	2
Other Respiratory & Thoracic	0	0	0	1	1	1	3	1	1	0	4	0	6	1	1	2	7	3	7	8	4	4
Leukemia	7	28	40	87	90	83	121	125	117	127	121	159	185	157	155	132	158	145	192	169	209	166
Myeloma	1	5	6	11	9	11	8	13	13	12	19	13	29	22	33	15	28	26	25	40	30	21
Other Hematopoietic	0	1	0	1	2	2	2	2	3	1	2	9	5	4	3	2	0	1	0	2	2	2
Bone	1	6	13	25	20	20	22	42	31	40	19	31	35	44	41	37	40	52	54	56	56	56
Soft Tissue	1	16	29	29	31	23	29	40	32	35	38	47	48	49	59	59	61	47	50	72	81	54
Melanoma Of Skin	0	4	4	8	8	6	7	4	11	12	7	8	11	12	6	5	9	15	9	7	7	9
Kaposi Sarcoma	0	1	1	0	6	4	2	2	5	4	5	9	5	9	5	5	5	14	2	3	6	11
Other Skin Cancer	2	13	26	32	41	35	48	54	51	52	62	60	43	43	53	41	47	47	51	61	44	57
Breast	3	24	53	46	57	65	101	111	111	153	131	127	174	194	137	168	169	188	251	241	232	280
Cervix Uteri	0	10	18	18	25	18	26	25	33	33	41	55	51	50	33	44	35	52	50	52	49	48
Corpus Uteri	1	1	2	5	6	4	8	8	11	14	10	16	16	21	21	18	13	27	20	26	22	19
Ovary	2	6	10	10	17	21	20	35	31	27	24	34	41	47	53	46	36	44	55	50	54	56
Vagina	0	0	5	2	0	1	2	0	2	2	3	1	2	1	2	3	3	2	0	5	5	2
Vulva	0	0	0	1	1	1	2	1	3	2	5	5	1	2	1	4	5	1	4	5	5	2
Other Female Genital	0	1	5	4	6	7	5	7	19	5	4	13	19	14	10	9	13	12	12	19	7	11
Prostate	0	7	5	4	5	10	11	18	28	19	19	17	22	27	27	24	16	41	27	45	37	49
Testis	0	3	9	8	10	11	15	11	7	12	14	14	17	17	9	14	14	21	25	21	14	14
Penis	0	1	1	0	2	0	2	2	3	4	0	0	0	2	2	5	2	0	1	3	0	0
Other Male Genital	0	0	0	0	2	0	1	0	1	0	3	0	3	0	2	0	0	0	0	1	1	0
Bladder	4	7	12	24	29	39	37	23	41	35	46	51	79	74	73	60	44	65	88	72	60	56
Kidney & Renal Pelvis	0	9	18	18	18	15	18	30	23	20	24	41	31	58	31	35	33	52	51	65	48	47
Ureter	0	0	0	0	0	0	0	0	0	1	1	0	3	1	1	0	1	1	1	1	1	0
Other Urinary	0	0	0	0	0	0	0	0	0	1	1	0	0	0	1	0	0	0	0	0	0	0
Eye	0	6	11	19	12	24	29	34	25	17	30	24	35	44	26	30	9	15	39	27	15	22
Brain	3	23	27	40	26	30	31	77	53	58	49	70	88	91	97	81	84	110	88	113	128	127
Other Nervous System	0	1	0	0	0	1	0	1	0	1	0	1	0	1	1	0	0	2	0	3	0	2
Thyroid	2	8	17	28	33	44	57	51	66	71	63	82	119	112	110	94	110	141	135	158	134	162
Other Endocrine	1	1	3	3	2	9	10	8	14	12	17	17	10	13	2	7	10	14	15	15	14	14
Hodgkin's Lymphoma	13	19	40	41	36	42	47	42	54	50	49	45	65	57	76	56	57	75	73	78	88	76
Non-Hodgkin's Lymphoma	4	23	73	75	104	112	128	116	172	139	124	142	157	153	165	154	123	150	154	160	158	157
Unknown Or Ill-defined	3	11	23	24	20	27	34	30	33	26	25	25	37	32	42	39	40	51	42	62	36	41
<b>TOTAL</b>	<b>70</b>	<b>345</b>	<b>721</b>	<b>915</b>	<b>1,008</b>	<b>1,035</b>	<b>1,247</b>	<b>1,363</b>	<b>1,528</b>	<b>1,504</b>	<b>1,464</b>	<b>1,651</b>	<b>1,966</b>	<b>2,002</b>	<b>1,860</b>	<b>1,744</b>	<b>1,741</b>	<b>2,034</b>	<b>2,113</b>	<b>2,303</b>	<b>2,214</b>	<b>2,243</b>

# 2009 Tumor Registry Annual Report

TABLE 3 (cont'd)  
**CASES SEEN AT KFSSH&RC BY SITE AND YEAR**  
**1975 - 2009**

SITE GROUP	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	TOTAL
Oral Cavity	111	87	108	117	97	87	116	98	121	91	120	103	99	3,185
Nasopharynx	90	108	102	83	119	72	100	96	81	77	69	78	60	2,238
Esophagus	51	62	34	52	37	42	43	37	41	36	30	31	31	1,805
Stomach	45	42	54	53	40	50	60	68	57	58	47	48	64	1,720
Small Intestine	4	7	7	9	5	3	5	9	6	4	5	5	7	138
Colon	34	57	48	73	72	92	103	76	80	94	88	80	94	1,494
Rectum & Rectosigmoid	62	59	94	75	77	106	98	113	112	93	91	82	91	1,758
Anus, Anal Canal, Anorectum	6	7	4	7	7	8	14	5	5	3	5	5	1	193
Liver	96	84	89	85	91	72	70	59	37	66	45	69	72	2,273
Gallbladder	11	12	15	13	11	12	15	14	8	7	7	11	6	308
Bile Ducts	7	10	9	8	9	10	7	4	8	6	11	7	12	185
Pancreas	24	34	18	38	26	31	30	34	27	40	25	30	40	774
Retroperitoneum, Peritoneum	0	1	2	2	1	1	1	4	2	1	2	3	1	38
Other Digestive	0	0	0	0	2	0	2	4	2	1	0	4	1	60
Nasal Cavity, Sinus, Ear	4	8	14	10	9	11	10	9	13	11	12	7	7	312
Larynx	31	30	35	32	33	26	47	41	36	26	31	31	26	903
Lung, Bronchus	88	106	108	91	80	91	86	93	84	63	59	63	57	2,525
Pleura	1	1	2	3	8	1	4	3	3	1	3	2	4	58
Other Respiratory & Thoracic	8	8	8	2	1	5	2	4	3	3	1	4	7	111
Leukemia	228	234	258	257	239	256	254	219	192	223	201	226	214	5,774
Myeloma	14	23	16	28	20	19	20	23	23	22	31	18	38	685
Other Hematopoietic	1	2	3	12	14	14	8	4	5	11	9	15	12	156
Bone	63	71	62	75	82	73	62	67	69	66	52	73	58	1,614
Soft Tissue	67	74	87	69	73	59	78	79	71	53	82	56	51	1,829
Melanoma Of Skin	5	5	6	5	5	6	5	8	5	8	5	8	6	246
Kaposi Sarcoma	6	8	8	4	7	9	9	6	8	9	7	7	7	198
Other Skin Cancer	52	35	58	52	62	38	52	48	55	66	30	41	41	1,593
Breast	291	335	341	383	362	377	410	430	377	326	347	352	333	7,680
Cervix Uteri	46	62	57	42	68	53	55	47	46	37	39	43	45	1,406
Corpus Uteri	26	29	33	33	35	46	59	62	48	59	66	64	72	915
Ovary	60	63	53	53	51	44	55	51	46	54	43	49	48	1,389
Vagina	2	1	2	1	0	1	1	2	1	0	0	0	2	56
Vulva	1	0	1	1	2	2	1	3	2	0	2	4	3	74
Other Female Genital	8	6	6	5	5	10	13	12	12	15	8	6	6	314
Prostate	43	44	63	47	49	48	58	58	75	46	38	56	43	1,126
Testis	17	16	19	20	18	28	19	20	17	11	15	27	25	532
Penis	3	0	0	0	0	1	1	0	2	0	0	0	1	40
Other Male Genital	0	1	0	0	1	2	1	2	1	2	0	0	0	24
Bladder	65	85	91	80	81	72	93	102	88	65	67	64	66	2,038
Kidney & Renal Pelvis	49	58	70	57	72	64	54	70	61	66	67	83	85	1,541
Ureter	0	3	1	2	3	2	2	1	2	0	1	0	2	32
Other Urinary	0	0	2	1	0	0	0	1	2	0	0	0	0	11
Eye	30	17	24	26	17	16	20	18	15	20	11	19	17	743
Brain	131	159	143	143	146	143	158	166	127	125	91	91	84	3,201
Other Nervous System	2	3	2	6	5	0	3	2	0	0	0	0	0	37
Thyroid	161	192	210	186	189	169	215	214	212	203	214	253	223	4,438
Other Endocrine	20	12	15	23	14	17	37	26	26	23	17	29	22	486
Hodgkin's Lymphoma	76	98	116	131	121	121	132	143	126	101	118	118	116	2,696
Non-Hodgkin's Lymphoma	193	208	207	204	175	185	206	216	183	167	178	172	144	5,181
Unknown Or Ill-defined	35	50	50	45	49	53	46	49	32	28	19	25	31	1,215
<b>TOTAL</b>	<b>2,368</b>	<b>2,617</b>	<b>2,755</b>	<b>2,747</b>	<b>2,691</b>	<b>2,648</b>	<b>2,940</b>	<b>2,920</b>	<b>2,655</b>	<b>2,487</b>	<b>2,413</b>	<b>2,561</b>	<b>2,475</b>	<b>67,348</b>

**TABLE 4  
CASES SEEN AT KFSH&RC BY SITE AND 5-YEAR PERIOD  
1975 - 2009**

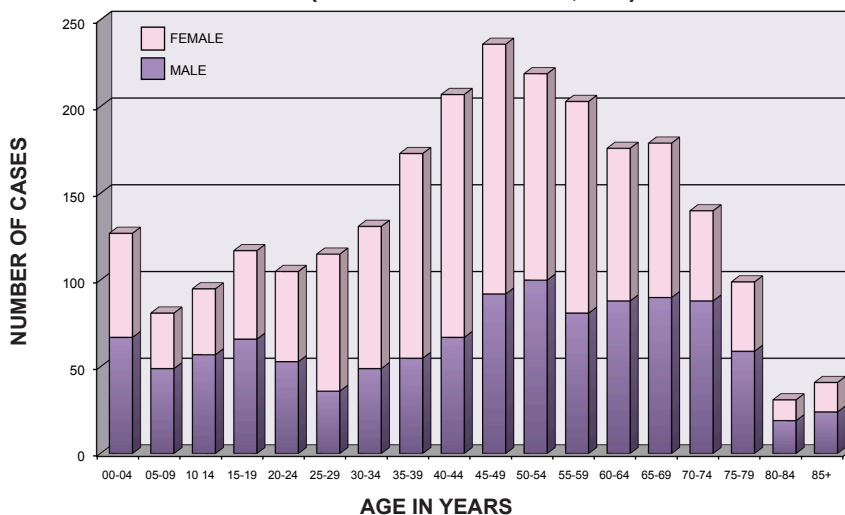
SITE GROUP	1975-1976*		1977-1981		1982-1986		1987-1991		1992-1996		1997-2001		2002-2006		2007-2009**		TOTAL	
	No	%	No	%	No	%	No	%	No	%	No	%	No	%	No	%	No	%
Oral Cavity	15	3.6	310	6.3	436	5.8	535	5.7	534	4.9	520	3.9	513	3.8	322	4.3	3,185	4.7
Nasopharynx	14	3.4	192	3.9	250	3.3	329	3.5	318	2.9	502	3.8	426	3.1	207	2.8	2,238	3.3
Esophagus	16	3.9	304	6.2	342	4.6	348	3.7	268	2.5	236	1.8	199	1.5	92	1.2	1,805	2.7
Stomach	17	4.1	204	4.1	288	3.8	249	2.7	276	2.5	234	1.8	293	2.1	159	2.1	1,720	2.6
Small Intestine	0	0.0	10	0.2	14	0.2	13	0.1	25	0.2	32	0.2	27	0.2	17	0.2	138	0.2
Colon	11	2.7	70	1.4	96	1.3	164	1.8	162	1.5	284	2.2	445	3.3	262	3.5	1,494	2.2
Rectum & Rectosigmoid	3	0.7	80	1.6	108	1.4	166	1.8	248	2.3	367	2.8	522	3.8	264	3.5	1,758	2.6
Anus, Anal Canal, Anorectum	0	0.0	16	0.3	33	0.4	27	0.3	40	0.4	31	0.2	35	0.3	11	0.1	193	0.3
Liver	22	5.3	200	4.1	312	4.2	338	3.6	466	4.3	445	3.4	304	2.2	186	2.5	2,273	3.4
Gallbladder	2	0.5	15	0.3	27	0.4	46	0.5	73	0.7	62	0.5	56	0.4	27	0.4	308	0.5
Bile Ducts	2	0.5	9	0.2	18	0.2	20	0.2	28	0.3	43	0.3	35	0.3	30	0.4	185	0.3
Pancreas	6	1.4	67	1.4	100	1.3	88	0.9	116	1.1	140	1.1	162	1.2	95	1.3	774	1.1
Retropitoneum, Peritoneum	0	0.0	6	0.1	4	0.1	3	0.0	4	0.0	6	0.0	9	0.1	6	0.1	38	0.1
Other Digestive	0	0.0	13	0.3	6	0.1	16	0.2	9	0.1	2	0.0	9	0.1	5	0.1	60	0.1
Nasal Cavity, Sinus, Ear	4	1.0	37	0.8	37	0.5	62	0.7	47	0.4	45	0.3	54	0.4	26	0.3	312	0.5
Larynx	6	1.4	70	1.4	99	1.3	137	1.5	166	1.5	161	1.2	176	1.3	88	1.2	903	1.3
Lung, Bronchus	14	3.4	198	4.0	382	5.1	438	4.7	424	3.9	473	3.6	417	3.1	179	2.4	2,525	3.7
Pleura	0	0.0	1	0.0	3	0.0	5	0.1	13	0.1	15	0.1	12	0.1	9	0.1	58	0.1
Other Respiratory & Thoracic	0	0.0	6	0.1	6	0.1	17	0.2	26	0.2	27	0.2	17	0.1	12	0.2	111	0.2
Leukemia	35	8.4	421	8.5	649	8.6	787	8.5	881	8.1	1216	9.2	1144	8.4	641	8.6	5,774	8.6
Myeloma	6	1.4	45	0.9	70	0.9	127	1.4	142	1.3	101	0.8	107	0.8	87	1.2	685	1.0
Other Hematopoietic	1	0.2	7	0.1	17	0.2	14	0.2	7	0.1	32	0.2	42	0.3	36	0.5	156	0.2
Bone	7	1.7	100	2.0	163	2.2	197	2.1	274	2.5	353	2.7	337	2.5	183	2.5	1,614	2.4
Soft Tissue	17	4.1	141	2.9	192	2.6	276	3.0	304	2.8	370	2.8	340	2.5	189	2.5	1,829	2.7
Melanoma of Skin	4	1.0	33	0.7	42	0.6	43	0.5	47	0.4	26	0.2	32	0.2	19	0.3	246	0.4
Kaposi Sarcoma	1	0.2	13	0.3	25	0.3	28	0.3	36	0.3	33	0.3	21	0.3	19	0.3	198	0.3
Other Skin Cancer	15	3.6	182	3.7	279	3.7	227	2.4	260	2.4	259	2.0	259	1.9	112	1.5	1,593	2.4
Breast	27	6.5	322	6.5	633	8.4	842	9.0	1192	10.9	1712	13.0	1920	14.1	1032	13.9	7,680	11.4
Cervix Uteri	10	2.4	105	2.1	187	2.5	213	2.3	251	2.3	275	2.1	238	1.7	127	1.7	1,406	2.1
Corpus Uteri	2	0.5	25	0.5	53	0.7	89	1.0	114	1.0	156	1.2	274	2.0	202	2.7	915	1.4
Ovary	8	1.9	78	1.6	151	2.0	223	2.4	259	2.4	280	2.1	250	1.8	140	1.9	1,389	2.1
Vagina	0	0.0	10	0.2	8	0.1	11	0.1	14	0.1	6	0.0	5	0.0	2	0.0	56	0.1
Vulva	0	0.0	4	0.1	16	0.2	13	0.1	17	0.2	7	0.1	8	0.1	9	0.1	74	0.1
Other Female Genital	1	0.2	27	0.5	48	0.6	65	0.7	61	0.6	30	0.2	62	0.5	20	0.3	314	0.5
Prostate	7	1.7	35	0.7	101	1.3	116	1.2	199	1.8	246	1.9	285	2.1	137	1.8	1,126	1.7
Testis	3	0.7	53	1.1	58	0.8	71	0.8	95	0.9	90	0.7	95	0.7	67	0.9	532	0.8
Penis	1	0.2	4	0.1	9	0.1	11	0.1	5	0.0	5	0.0	4	0.0	1	0.0	40	0.1
Other Male Genital	0	0.0	3	0.1	4	0.1	5	0.1	2	0.0	2	0.0	8	0.1	0	0.0	24	0.0
Bladder	11	2.7	141	2.9	196	2.6	330	3.5	341	3.1	402	3.1	420	3.1	197	2.6	2,038	3.0
Kidney & Renal Pelvis	9	2.2	87	1.8	138	1.8	188	2.0	263	2.4	306	2.3	315	2.3	235	3.2	1,541	2.3
Ureter	0	0.0	0	0.0	2	0.0	6	0.1	5	0.0	9	0.1	7	0.1	3	0.0	32	0.0
Other Urinary	0	0.0	0	0.0	2	0.0	2	0.0	1	0.0	3	0.0	3	0.0	0	0.0	11	0.0
Eye	6	1.4	95	1.9	130	1.7	144	1.5	118	1.1	114	0.9	89	0.7	47	0.6	743	1.1
Brain	26	6.3	154	3.1	307	4.1	441	4.7	566	5.2	722	5.5	719	5.3	266	3.6	3,201	4.8
Other Nervous System	1	0.2	1	0.0	3	0.0	2	0.0	7	0.1	18	0.1	5	0.0	0	0.0	37	0.1
Thyroid	10	2.4	179	3.6	333	4.4	545	5.9	730	6.7	938	7.1	1013	7.4	690	9.3	4,438	6.6
Other Endocrine	2	0.5	27	0.5	61	0.8	43	0.5	72	0.7	84	0.6	129	0.9	68	0.9	486	0.7
Hodgkin's Lymphoma	32	7.7	206	4.2	240	3.2	311	3.3	390	3.6	542	4.1	623	4.6	352	4.7	2,696	4.0
Non-Hodgkin's Lymphoma	27	6.5	492	10.0	693	9.2	752	8.1	779	7.1	987	7.5	957	7.0	494	6.6	5,181	7.7
Unknown or Ill-Defined	14	3.4	128	2.6	139	1.9	190	2.0	232	2.1	229	1.7	208	1.5	75	1.0	1,215	1.8
<b>TOTAL</b>	<b>415</b>	<b>100.0</b>	<b>4,926</b>	<b>100.0</b>	<b>7,510</b>	<b>100.0</b>	<b>9,313</b>	<b>100.0</b>	<b>10,907</b>	<b>100.0</b>	<b>13,178</b>	<b>100.0</b>	<b>13,650</b>	<b>100.0</b>	<b>7,449</b>	<b>100.0</b>	<b>67,348</b>	<b>100.0</b>

\* First Two Years of KFSH&RC Partial Operation.  
\*\* Three Years Only

The largest number of cases in 2009 was noted in the 5th and 6th decades of life in males and in the 4th and 5th in females. The mean age was 44.2, the median was 46.8 and the mode was at 48. Pediatric malignancies were most common among children less than one year old and at three years of age.

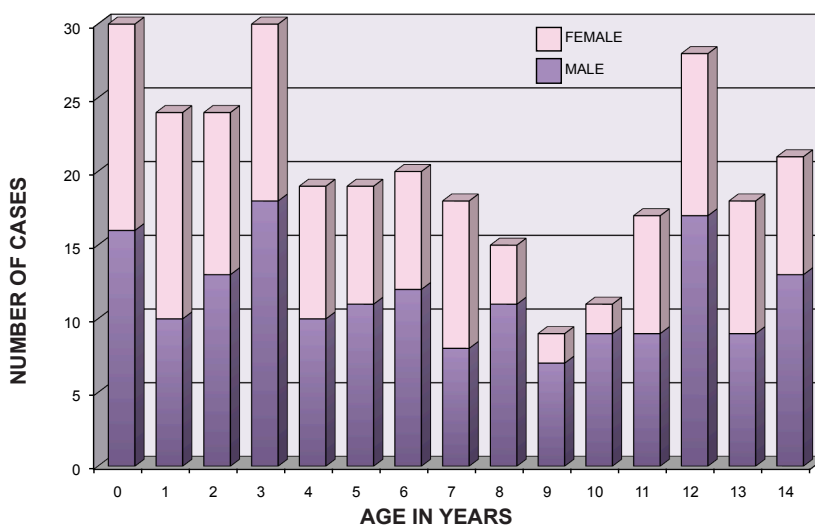
**FIGURE 8**

**DISTRIBUTION OF CASES BY AGE AT DIAGNOSIS  
2009 (TOTAL CASES = 2,475)**



**FIGURE 9**

**DISTRIBUTION OF PEDIATRIC CASES BY AGE AT DIAGNOSIS  
2009 (TOTAL CASES = 303)**



Of the 2,475 cases in 2009, 2,191 (88.5%) were analytic (defined as cases which were first diagnosed and/or received all or part of their first course of treatment at KFSH&RC). The remaining 284 cases (11.5%) were non-analytic (defined as cases diagnosed elsewhere and received all of their first course of treatment elsewhere). Out of the 2,191 analytic cases, pediatric cases totaled 259, with 150 males and 109 females.

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

TABLE 5

CASES SEEN AT KFSH&RC BY SITE, SEX, CLASS OF CASE AND SEER SUMMARY STAGE  
2009

SITE GROUP	TOTAL		GENDER		CLASS OF CASE		SEER GENERAL SUMMARY STAGE			ANALYTIC CASES		
	Number	%	Male	Female	Analytic	Non-Anal	In Situ	Localized	Regional	Distant	Unstageable	
Oral Cavity	99	4.0	49	50	93	6	1	22	57	10	3	
Nasopharynx	60	2.4	43	17	55	5	0	1	40	14	0	
Esophagus	31	1.3	15	16	29	2	2	2	14	8	5	
Stomach	64	2.6	42	22	58	6	0	4	18	31	5	
Small Intestine	7	0.3	3	4	6	1	0	1	2	2	4	
Colon	94	3.8	52	42	76	18	0	8	26	38	4	
Rectum & Rectosigmoid	91	3.7	61	30	85	6	0	8	51	24	2	
Anus, Anal Canal, Anorectum	1	0.0	1	0	1	0	0	1	0	0	0	
Liver	72	2.9	43	29	68	4	0	33	12	8	15	
Gallbladder	6	0.2	2	4	6	0	0	0	2	3	1	
Bile Ducts	12	0.5	7	5	9	3	0	3	4	1	1	
Pancreas	40	1.6	22	18	39	1	0	2	8	22	7	
Retropitoneum, Peritoneum	1	0.0	1	0	1	0	0	0	0	1	0	
Other Digestive	7	0.3	3	4	5	2	0	1	0	1	0	
Nasal Cavity, Sinus, Ear	26	1.1	22	4	23	3	2	8	3	1	0	
Larynx	57	2.3	43	14	53	4	0	6	13	5	0	
Lung, Bronchus	4	0.2	1	3	4	4	0	2	1	33	1	
Pleura	7	0.3	3	4	6	1	0	3	0	3	0	
Other Respiratory & Thoracic	214	8.6	123	91	162	52	0	0	0	162	0	
Leukemia	38	1.5	26	12	32	6	0	3	1	28	0	
Myeloma	12	0.5	9	3	12	0	0	0	0	11	1	
Other Hematopoietic	58	2.3	36	22	54	4	0	13	22	18	1	
Bone	51	2.1	27	24	43	8	0	14	13	16	0	
Soft Tissue	6	0.2	4	2	6	0	2	2	1	0	1	
Melanoma of Skin	7	0.3	7	0	7	0	0	5	1	1	0	
Kaposi's Sarcoma	41	1.7	18	23	33	8	3	17	7	4	2	
Other Skin Cancer	333	13.5	6	327	305	28	12	68	148	71	6	
Breast	45	1.8	0	45	41	4	10	2	18	11	0	
Cervix Uteri	72	2.9	0	72	67	5	0	28	20	15	4	
Corpus Uteri	48	1.9	0	48	43	5	1	7	10	25	0	
Ovary	2	0.1	0	2	2	0	0	0	0	2	0	
Vagina	3	0.1	0	3	3	0	0	2	1	0	0	
Vulva	6	0.2	0	6	6	0	0	2	3	3	0	
Other Female Genital	43	1.7	43	0	39	4	0	22	3	10	0	
Prostate	25	1.0	25	0	24	1	0	12	5	7	0	
Testis	1	0.0	1	0	1	0	0	0	1	0	0	
Penis	66	2.7	56	10	59	7	1	30	14	11	3	
Bladder	85	3.4	53	32	76	9	0	38	19	18	1	
Kidney & Renal Pelvis	2	0.1	2	0	2	2	1	0	0	1	0	
Ureter	17	0.7	9	8	15	2	1	9	4	0	1	
Eye	84	3.4	54	30	75	9	0	65	4	5	1	
Brain	223	9.0	48	175	202	21	0	113	76	10	3	
Thyroid	22	0.9	15	7	22	0	0	2	3	17	0	
Other Endocrine	116	4.7	64	52	90	26	0	3	32	54	1	
Hodgkin's Lymphoma	144	5.8	85	59	122	22	0	19	30	71	2	
Non-Hodgkin's Lymphoma	31	1.3	16	15	30	1	0	0	0	0	30	
Unknown or Ill-Defined												
<b>TOTAL</b>	<b>2,475</b>	<b>100.0</b>	<b>1,140</b>	<b>1,335</b>	<b>2,191</b>	<b>284</b>	<b>34</b>	<b>581</b>	<b>693</b>	<b>777</b>	<b>106</b>	

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TABLE 6

ANALYTIC CASES SEEN AT KFSSH&RC BY SITE AND AGE  
2009

SITE GROUP	0-4	5-9	10-14	15-19	20-24	25-29	30-34	35-39	40-44	45-49	50-54	55-59	60-64	65-69	70-74	75-79	80-84	85+	TOTAL
Oral Cavity	0	1	0	1	3	0	1	3	9	13	8	8	10	14	10	3	1	8	93
Nasopharynx	0	0	1	2	3	0	1	5	4	11	9	4	5	5	1	1	0	0	55
Esophagus	0	0	0	0	0	2	0	2	4	4	2	1	4	4	4	4	3	2	29
Stomach	0	0	0	1	0	3	0	4	4	7	4	4	5	9	10	5	1	1	58
Small Intestine	0	0	0	0	0	0	0	1	2	0	0	2	0	0	0	0	0	1	6
Colon	0	0	0	0	1	2	2	9	8	7	8	9	10	8	5	4	2	1	76
Rectum & Rectosigmoid	0	0	0	0	0	1	3	7	6	12	13	9	10	9	8	4	1	2	85
Anus, Anal Canal, Anorectum	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1
Liver	0	1	0	1	1	0	1	1	4	7	8	13	9	10	4	5	0	3	68
Gallbladder	0	0	0	0	0	0	0	0	1	1	1	2	0	1	0	0	0	0	6
Bile Ducts	0	0	0	0	0	0	0	0	1	0	0	0	2	0	2	2	1	1	9
Pancreas	1	0	0	0	1	0	0	2	3	1	6	2	6	3	9	3	1	1	39
Retropertitoneum, Peritoneum	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1
Other Digestive	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
Nasal Cavity, Sinus, Ear	0	0	1	0	0	1	1	0	0	0	1	0	0	0	0	0	0	0	5
Larynx	0	0	0	0	0	0	0	0	1	3	8	5	7	2	5	4	2	2	23
Lung, Bronchus	0	0	0	1	1	3	0	2	2	3	8	10	6	5	4	4	2	2	53
Pleura	0	0	0	0	0	0	0	0	2	0	1	0	0	0	0	0	0	0	4
Other Respiratory & Thoracic	4	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	6
Leukemia	36	24	24	19	13	5	9	7	3	10	3	4	3	0	1	0	1	0	162
Myeloma	0	0	0	0	1	1	1	2	1	3	9	4	4	2	3	1	0	0	32
Other Hematopoietic	2	1	1	1	4	2	1	1	0	0	0	2	0	1	0	0	0	0	12
Bone	1	10	12	18	8	1	1	1	0	0	0	3	0	1	1	0	0	0	54
Soft Tissue	8	3	2	5	8	1	1	3	2	3	5	1	1	0	0	0	0	0	43
Melanoma of Skin	0	0	0	0	0	0	1	0	1	0	0	1	1	0	1	1	0	1	7
Kaposi Sarcoma	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	6
Other Skin Cancer	0	0	0	2	1	0	1	2	1	0	3	2	0	4	2	5	3	2	33
Breast	0	0	0	1	4	12	28	40	54	53	36	28	18	20	4	4	1	2	305
Cervix Uteri	0	0	0	0	0	2	4	3	11	5	2	7	2	4	0	1	0	0	41
Corpus Uteri	0	0	0	0	0	0	1	3	2	3	8	11	10	12	8	7	1	1	67
Ovary	0	0	1	0	1	3	3	4	4	3	1	5	4	5	1	1	0	2	43
Vagina	0	0	0	0	0	0	0	0	0	1	0	0	1	1	0	0	0	0	2
Vulva	0	0	0	0	0	0	0	0	0	0	1	0	0	2	0	0	0	0	3
Other Female Genital	0	0	0	1	0	0	1	0	3	1	0	0	0	0	0	0	0	0	6
Prostate	1	0	0	0	0	0	0	1	0	0	2	5	4	7	9	5	4	1	39
Testis	0	0	0	3	4	8	3	4	2	0	0	0	0	0	0	0	0	0	24
Penis	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1
Bladder	0	0	0	0	0	0	0	0	0	2	6	7	9	8	11	7	1	2	59
Kidney & Renal Pelvis	12	2	1	0	0	3	6	2	5	13	8	5	4	3	9	1	0	2	76
Ureter	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1	0	0	2
Eye	11	0	1	0	0	0	0	0	0	0	0	1	0	0	0	1	0	1	15
Brain	16	17	6	4	3	4	2	2	5	4	1	3	2	2	1	2	1	0	75
Thyroid	0	0	2	10	14	25	25	32	23	31	14	7	7	6	6	2	1	3	202
Other Endocrine	12	4	3	3	0	0	0	0	5	4	2	0	0	0	0	0	0	0	22
Hodgkin's Lymphoma	0	6	20	21	12	8	5	1	5	4	2	2	1	0	1	1	1	0	90
Non-Hodgkin's Lymphoma	4	2	6	6	5	9	9	3	8	8	13	14	10	11	6	6	1	1	122
Unknown or Ill-Defined	0	0	0	0	0	1	0	0	2	2	7	1	2	5	6	3	0	1	30
<b>TOTAL</b>	<b>108</b>	<b>70</b>	<b>81</b>	<b>105</b>	<b>81</b>	<b>98</b>	<b>112</b>	<b>148</b>	<b>185</b>	<b>211</b>	<b>197</b>	<b>184</b>	<b>160</b>	<b>165</b>	<b>130</b>	<b>88</b>	<b>27</b>	<b>41</b>	<b>2,191</b>

TABLE 7

ANALYTIC MALE CASES SEEN AT KFSSH&RC BY SITE AND AGE  
2009

SITE GROUP	0-4	5-9	10-14	15-19	20-24	25-29	30-34	35-39	40-44	45-49	50-54	55-59	60-64	65-69	70-74	75-79	80-84	85+	TOTAL
Oral Cavity	0	1	0	0	2	0	1	1	5	5	3	3	4	11	6	2	0	3	47
Nasopharynx	0	0	1	0	1	0	1	5	4	9	2	2	4	3	1	3	0	0	39
Esophagus	0	0	0	0	0	0	0	1	0	1	1	1	4	2	3	1	1	2	14
Stomach	0	0	0	1	0	0	0	2	2	5	2	2	3	6	8	4	1	1	37
Small Intestine	0	0	0	0	0	0	0	0	1	0	0	1	3	0	0	0	1	3	3
Colon	0	0	0	0	0	0	1	7	4	6	4	6	5	2	3	2	2	1	43
Rectum & Rectosigmoid	0	0	0	0	0	0	2	5	4	7	8	5	8	6	6	4	1	0	56
Anus, Anal Canal, Anorectum	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1
Liver	0	1	0	0	1	0	1	0	3	2	3	9	4	8	2	4	0	3	41
Gallbladder	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	2
Bile Ducts	0	0	0	0	0	0	0	0	1	0	0	0	2	0	0	2	0	0	6
Pancreas	0	0	0	0	0	0	0	1	1	1	5	1	3	3	3	2	0	1	21
Retropertitoneum, Peritoneum	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1
Other Digestive	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Other Digestive	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Nasal Cavity, Sinus, Ear	0	0	1	0	0	0	1	0	1	0	3	3	6	2	4	0	1	0	19
Larynx	0	0	0	0	0	0	0	0	0	0	6	7	5	4	4	4	1	2	40
Lung, Bronchus	0	0	0	0	1	2	0	2	1	1	0	0	0	0	0	0	0	0	1
Pleura	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	3
Other Respiratory & Thoracic	2	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	3
Leukemia	18	14	10	13	10	3	5	5	1	7	2	1	2	0	0	0	0	0	91
Myeloma	0	0	0	0	1	1	0	2	0	1	6	2	3	2	3	1	0	0	22
Other Hematopoietic	1	0	1	0	1	0	0	1	0	1	2	1	0	0	0	0	0	0	9
Bone	0	6	5	13	4	1	1	1	0	0	0	1	0	0	1	0	0	0	32
Soft Tissue	3	2	2	3	3	1	0	0	2	2	2	1	0	0	0	0	0	0	21
Melanoma of Skin	0	0	0	0	0	0	1	0	0	0	0	0	1	0	1	0	0	1	4
Kaposi Sarcoma	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	7
Other Skin Cancer	0	0	0	0	0	0	0	0	1	0	1	2	2	1	2	2	1	1	15
Breast	0	0	0	0	1	0	0	0	0	1	1	0	0	3	0	0	0	0	6
Cervix Uteri	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Corpus Uteri	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Ovary	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Vagina	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Vulva	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Other Female Genital	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Prostate	1	0	0	0	0	0	0	1	0	0	2	5	4	7	9	5	4	1	39
Testis	0	0	0	3	4	8	3	4	2	0	0	0	0	0	0	0	0	0	24
Penis	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1
Bladder	0	0	0	0	0	0	2	0	3	2	6	5	8	8	9	4	1	1	49
Kidney & Renal Pelvis	4	2	1	0	0	0	4	0	4	8	5	3	4	1	8	1	0	1	46
Ureter	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	2
Eye	5	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	7
Brain	12	10	5	3	2	1	1	1	3	3	1	1	2	1	1	0	1	0	48
Thyroid	0	0	0	2	3	2	5	5	4	8	1	1	2	3	2	0	0	1	43
Other Endocrine	8	2	2	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	15
Hodgkin's Lymphoma	0	4	15	10	6	2	4	1	2	4	2	1	1	0	0	0	0	0	52
Non-Hodgkin's Lymphoma	4	1	5	5	2	5	6	0	6	4	7	6	4	6	3	4	1	1	70
Unknown or Ill-Defined	0	0	0	0	0	1	0	0	2	1	2	0	1	3	3	2	0	1	16
<b>TOTAL</b>	<b>58</b>	<b>43</b>	<b>49</b>	<b>58</b>	<b>42</b>	<b>28</b>	<b>38</b>	<b>46</b>	<b>60</b>	<b>79</b>	<b>86</b>	<b>73</b>	<b>78</b>	<b>84</b>	<b>83</b>	<b>52</b>	<b>15</b>	<b>24</b>	<b>996</b>



# 2009 Tumor Registry Annual Report

TABLE 8

ANALYTIC FEMALE CASES SEEN AT KF&H&RC BY SITE AND AGE

SITE GROUP	0-4	5-9	10-14	15-19	20-24	25-29	30-34	35-39	40-44	45-49	50-54	55-59	60-64	65-69	70-74	75-79	80-84	85+	TOTAL
Oral Cavity	0	0	0	1	1	0	0	2	4	8	5	5	6	3	4	1	1	5	46
Nasopharynx	0	0	0	2	2	2	0	0	0	2	4	2	1	2	0	1	0	0	16
Esophagus	0	0	0	0	0	3	0	2	2	2	2	2	3	3	1	3	2	0	15
Stomach	0	0	0	0	0	0	0	1	1	0	0	1	0	0	2	1	0	0	21
Small Intestine	0	0	0	0	0	0	0	2	4	1	4	3	5	6	0	0	0	0	33
Colon	0	0	0	0	1	1	1	2	2	5	4	4	2	3	2	2	0	2	29
Rectum & Rectosigmoid	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Anus, Anal Canal, Anorectum	0	0	0	0	0	0	0	1	1	5	5	4	5	2	2	1	0	0	27
Liver	0	0	0	1	0	0	0	0	1	1	1	1	0	0	2	0	0	0	4
Gallbladder	0	0	0	0	0	0	0	0	0	0	1	0	0	0	2	0	0	0	3
Bile Ducts	0	0	0	0	0	0	0	0	1	0	1	1	0	0	0	0	1	0	3
Pancreas	1	0	0	0	1	0	0	1	2	0	1	1	3	0	6	1	1	0	18
Retroperitoneum, Peritoneum	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Other Digestive	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1
Nasal Cavity, Sinus, Ear	0	0	0	0	0	1	0	0	0	0	1	0	0	0	0	0	0	0	2
Larynx	0	0	0	0	0	0	0	0	0	0	0	2	1	0	1	0	0	0	4
Lung, Bronchus	0	0	0	1	0	1	0	0	1	2	2	3	1	1	0	0	1	0	13
Pleura	0	0	0	0	0	0	0	0	1	1	1	0	0	0	0	0	0	0	3
Other Respiratory & Thoracic	2	0	0	0	0	0	0	1	2	0	0	0	0	0	0	0	0	0	3
Leukemia	18	10	14	6	3	2	4	2	0	3	1	3	1	0	1	0	1	0	71
Myeloma	0	0	0	0	0	0	1	0	1	2	3	2	1	0	0	0	0	0	10
Other Hematopoietic	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3
Bone	4	4	7	5	1	0	1	0	0	0	0	2	1	1	0	0	0	0	22
Soft Tissue	5	1	0	2	5	1	0	3	0	1	3	0	1	0	0	0	0	0	22
Melanoma of Skin	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	2
Kaposi's Sarcoma	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Other Skin Cancer	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Breast	0	0	0	1	1	1	1	1	0	0	2	0	2	3	0	3	2	1	18
Cervix Uteri	0	0	0	0	3	12	28	40	54	52	35	28	18	17	4	4	1	2	299
Corpus Uteri	0	0	0	0	0	2	4	3	11	5	2	7	2	4	0	1	0	0	41
Ovary	0	0	0	0	0	0	1	3	2	3	8	11	10	12	8	7	1	1	67
Vagina	0	0	0	5	1	3	3	4	4	3	1	5	4	5	1	1	0	2	43
Vulva	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	2
Other Female Genital	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	3
Prostate	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	6
Testis	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Penis	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Bladder	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Kidney & Renal Pelvis	8	0	0	0	0	3	2	2	1	5	3	2	1	0	2	3	0	1	10
Ureter	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	30
Eye	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	8
Brain	4	7	1	1	1	3	1	1	2	1	0	1	1	1	0	1	0	0	27
Thyroid	0	0	2	8	11	23	20	27	19	23	9	6	5	3	0	1	0	2	159
Other Endocrine	4	2	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	7
Hodgkin's Lymphoma	0	2	5	11	6	6	1	0	3	0	0	1	0	0	1	1	0	0	38
Non-Hodgkin's Lymphoma	0	1	1	1	3	4	3	3	2	4	6	8	6	5	3	2	0	0	52
Unknown or Ill-Defined	0	0	0	0	0	0	0	0	0	1	5	1	1	2	3	1	0	0	14
<b>TOTAL</b>	<b>50</b>	<b>27</b>	<b>32</b>	<b>47</b>	<b>40</b>	<b>70</b>	<b>73</b>	<b>102</b>	<b>125</b>	<b>132</b>	<b>111</b>	<b>111</b>	<b>82</b>	<b>81</b>	<b>47</b>	<b>36</b>	<b>12</b>	<b>17</b>	<b>1,195</b>

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

The crude relative frequencies of primary cancers seen at KFSH&RC are very different from the Western world. Common tumors of the West (lung, colon, and prostate) are much less frequent here while leukemia, lymphoma and thyroid cancer are more common. The following 2009 analytic cases, which show a quite similar pattern with the data from the Saudi Cancer Registry (SCR), exhibit significant differences in trends from those of the West when compared to the data published in *Cancer Facts & Figures - 2009*, by the American Cancer Society:

**TABLE 9**  
**COMPARATIVE DATA - KFSH&RC vs SCR vs USA**  
**(% to TOTAL CANCER CASES)**

SITE	KFSH&RC 2009 Analytics	SCR 2007 Saudis	USA 2009 Estimates
BREAST	13.9%	13.8%	13.1%
THYROID	9.2%	6.4%	2.5%
LEUKEMIA	7.4%	6.2%	3.0%
COLON, RECTUM	7.3%	9.9%	9.9%
NON-HODGKIN'S LYMPHOMA	5.6%	7.7%	4.5%
HODGKIN'S LYMPHOMA	4.1%	3.4%	0.6%
BRAIN, CNS	3.4%	2.8%	1.5%
LUNG, BRONCHUS	2.4%	4.5%	14.8%
BONE	2.5%	1.1%	0.2%
SKIN MELANOMA	0.3%	0.4%	4.6%
PROSTATE (% to MALES)	3.9%	6.0%	25.1%

**Breast** - The most common malignancy seen at KFSH&RC is breast cancer, comprising 13.9% of all cases, as compared to 13.1% of all neoplasms diagnosed in the U.S.A. It affects mostly women under the age of 50, while in the U.S.A., those more than 50 years of age are most frequently affected. As in the Western countries, it is the number one cancer among women.

**Thyroid** - 9.2% of all malignancies in KFSH&RC are thyroid cancer, much higher than in the West. It represents 13.3% of female malignant neoplasms, second to breast cancer. The male/female ratio is 0.3:1. Thyroid cancer accounts for only 2.5% of all cases in the U.S.A. and 3.8% of female malignancies.

**Leukemia** - The most striking feature is the high crude relative frequency of leukemia cases, constituting 7.4% of all cases seen at KFSH&RC, as compared to 3.0% of all neoplasms diagnosed in the U.S.A. The male/female ratio is 1.3:1. It is the second most common type of malignancy seen in males and third in females. It is also the most common malignancy among pediatric cases.

**Colon, Rectum** - Less common than in the West, this disease represents only 7.3% of all cancer cases. In the U.S.A. it constitutes 9.9% of newly diagnosed cancer cases. Dietary factors, particularly lower animal fat intake, may play a role. The male/female ratio at KFSH&RC is 1.6:1.

**Non-Hodgkin's Lymphoma** - Cases of non-hodgkin's lymphoma account for 5.6% of all cases. The male/female ratio is 1.3:1. In the U.S.A., NHL accounts for only 4.5% of all cancers.

**Hodgkin's Lymphoma** - The incidence of hodgkin's lymphoma is comparatively more frequent at KFSH&RC than in Western countries. In the U.S.A. it constitutes 0.6% of all cancers, compared to 4.1% at KFSH&RC. The male/female ratio is 1.4:1.

**Brain, CNS** - Primary malignant neoplasm of the brain and CNS accounts for 3.4% of all malignancies and ranks second among the most common pediatric malignancies. The male/female ratio is 1.8:1. This is much higher than in the West with only 1.5% of all cases.

**Lung** - Frequency of lung cancer is much lower than in Western countries, most likely reflecting the much lower levels of smoking and industrial pollution. In the U.S.A., primary lung cancer represents 14.8% of all cancer cases (15.2% in males, and 14.5% in females). At KFSH&RC, 2.4% of all diagnoses are lung cancer, 4.0% of male malignancies and 1.1% of females. The male/female ratio is 3.1:1, in the West, 1.1:1.

**Skin Melanoma** - The relative frequency of skin melanoma at KFSH&RC (0.3%) is much lower than that of the West (4.6%). The male/female ratio is 2:1 at KFSH&RC and 1.3:1 in the West.

**Prostate** - The observed rate of prostatic cancer in men is significantly lower than in the West, where it is the most common male cancer (constituting 25.1% of the male malignancies). This is in contrast to the KFSH&RC experience, where prostatic cancer makes up only 3.9% of the male cancer. This is probably due to the population age difference, screening and early detection. Prostate cancer is a disease predominantly of older men and the population of Saudi Arabia is, in general, very young.

**FIGURE 10**

**DISTRIBUTION OF 20 MOST COMMON MALIGNANCIES  
2009 ANALYTIC CASES (TOTAL CASES = 2,191)**

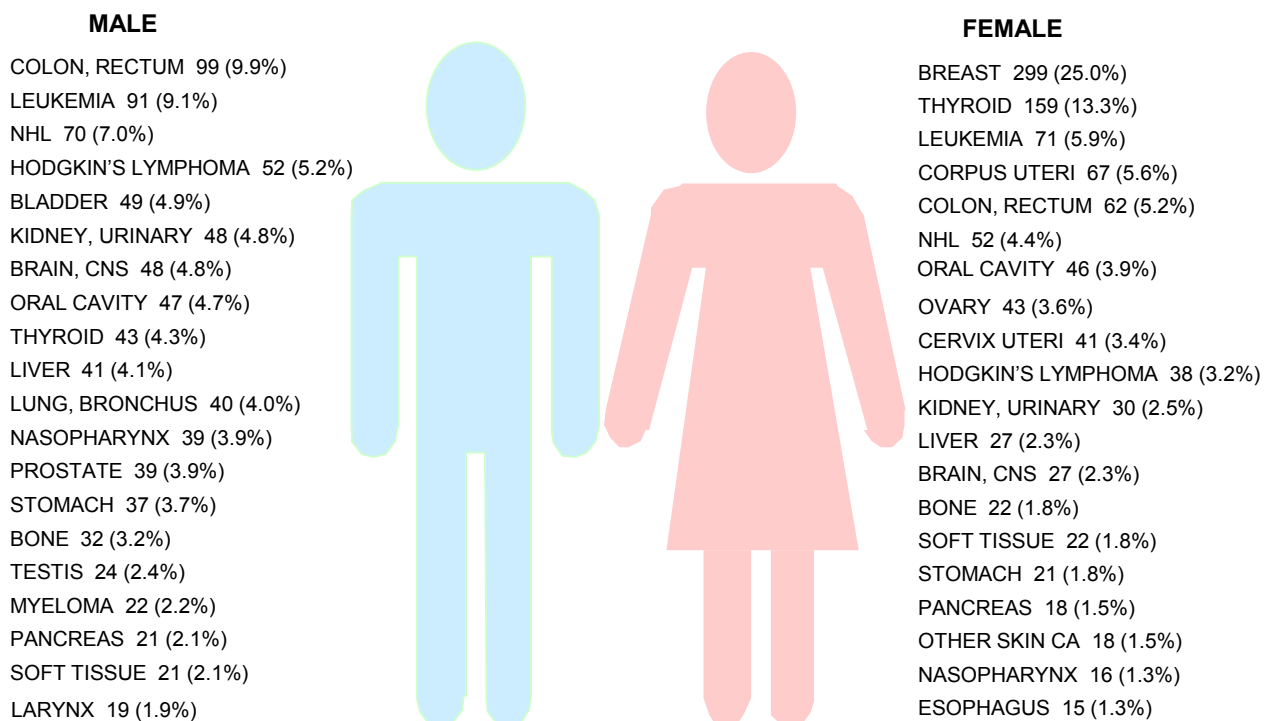


FIGURE 11

**DISTRIBUTION OF PEDIATRIC MALIGNANCIES  
2009 ANALYTIC CASES (TOTAL CASES = 259)**

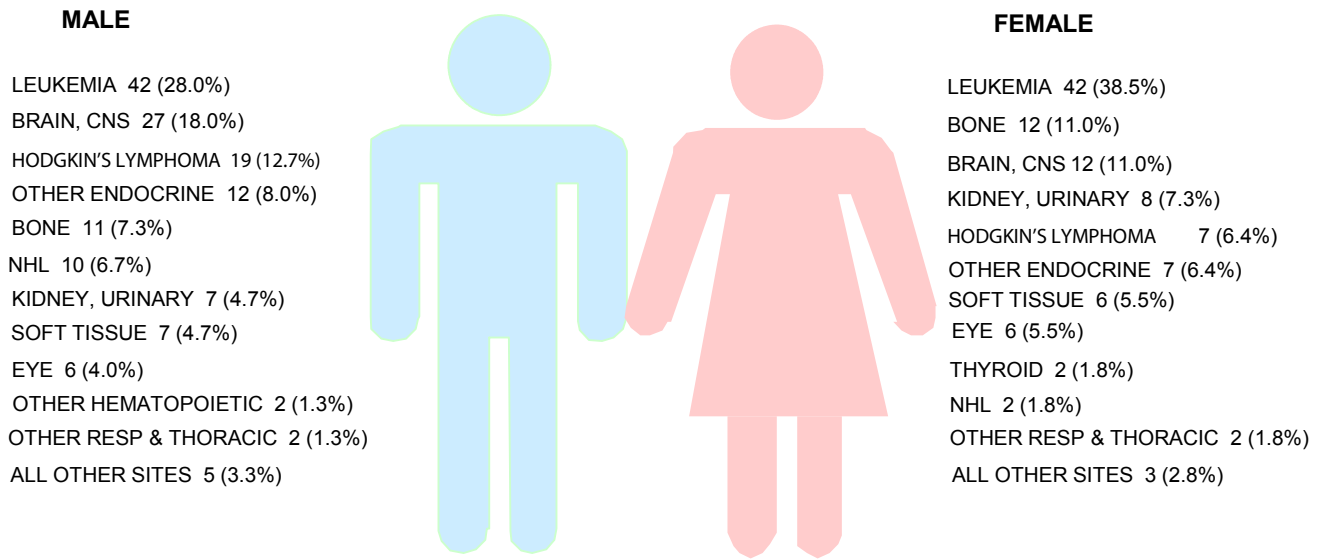
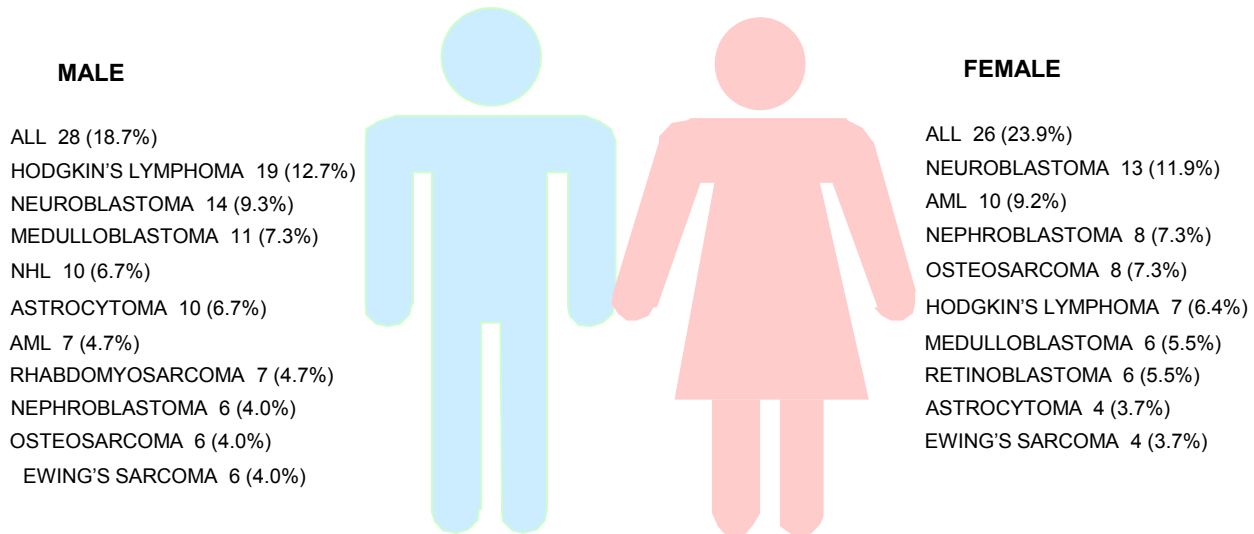


FIGURE 12

**DISTRIBUTION OF 10 MOST COMMON PEDIATRIC MALIGNANCIES BY HISTOLOGY  
2009 ANALYTIC CASES (TOTAL CASES = 259)**



**TABLE 10**  
**PRIMARY SITE TABLE**  
**(INCLUDES MULTIPLE PRIMARIES)**  
**2 0 0 9**

SITE	HISTOLOGY (NOS-Not Otherwise Specified)	ALL CASES	ADULTS		PEDIATRICS	
			MALE	FEMALE	MALE	FEMALE
		<b>2,475</b>	<b>967</b>	<b>1,205</b>	<b>173</b>	<b>130</b>
<b>LIP</b>		<b>7</b>	<b>3</b>	<b>4</b>	<b>0</b>	<b>0</b>
	Squamous Cell Carcinoma	6	3	3	0	0
	Verrucous Carcinoma	1	0	1	0	0
<b>TONGUE</b>		<b>37</b>	<b>19</b>	<b>18</b>	<b>0</b>	<b>0</b>
	Squamous Cell Carcinoma	32	14	18	0	0
	Mucoepidermoid Carcinoma	2	2	0	0	0
	Verrucous Carcinoma	1	1	0	0	0
	Pseudosarcomatous Carcinoma	1	1	0	0	0
	Non-Hodgkin's Lymphoma	1	1	0	0	0
<b>GUM</b>		<b>12</b>	<b>5</b>	<b>7</b>	<b>0</b>	<b>0</b>
	Squamous Cell Carcinoma	10	5	5	0	0
	Adenoid Cystic Carcinoma	1	0	1	0	0
	Verrucous Carcinoma	1	0	1	0	0
<b>FLOOR OF MOUTH</b>		<b>3</b>	<b>3</b>	<b>0</b>	<b>0</b>	<b>0</b>
	Squamous Cell Carcinoma	2	2	0	0	0
	Carcinoma NOS	1	1	0	0	0
<b>PALATE</b>		<b>3</b>	<b>2</b>	<b>1</b>	<b>0</b>	<b>0</b>
	Mucoepidermoid Carcinoma	1	1	0	0	0
	Papillary Squamous Cell Carcinoma	1	0	1	0	0
	Polymorphous Low Grade Adenocarcinoma	1	1	0	0	0
<b>OTHER PARTS OF MOUTH</b>		<b>16</b>	<b>9</b>	<b>7</b>	<b>0</b>	<b>0</b>
	Squamous Cell Carcinoma	14	9	5	0	0
	Verrucous Carcinoma	2	0	2	0	0
<b>SALIVARY GLANDS, MAJOR</b>		<b>14</b>	<b>5</b>	<b>8</b>	<b>1</b>	<b>0</b>
	Mucoepidermoid Carcinoma	4	1	3	0	0
	Squamous Cell Carcinoma	3	1	2	0	0
	Carcinoma NOS	2	0	2	0	0
	Acinar Cell Carcinoma	1	1	0	0	0
	Adenoid Cystic Carcinoma	1	1	0	0	0
	Carcinoma In Pleomorphic Adenoma	1	1	0	0	0
	Embryonal Rhabdomyosarcoma	1	0	0	1	0
	Lymphoepithelial Carcinoma	1	0	1	0	0
<b>TONSIL</b>		<b>6</b>	<b>3</b>	<b>1</b>	<b>2</b>	<b>0</b>
	Non-Hodgkin's Lymphoma	5	3	0	2	0
	Squamous Cell Carcinoma	1	0	1	0	0
<b>NASOPHARYNX</b>		<b>64</b>	<b>45</b>	<b>18</b>	<b>1</b>	<b>0</b>
	Carcinoma Undifferentiated	31	21	9	1	0
	Squamous Cell Carcinoma	27	19	8	0	0
	Non-Hodgkin's Lymphoma	3	3	0	0	0
	Carcinoma NOS	2	2	0	0	0
	Hodgkin's Lymphoma	1	0	1	0	0
<b>HYPOPHARYNX</b>		<b>6</b>	<b>3</b>	<b>3</b>	<b>0</b>	<b>0</b>
	Squamous Cell Carcinoma	5	2	3	0	0
	Adenocarcinoma NOS	1	1	0	0	0

SITE	HISTOLOGY (NOS-Not Otherwise Specified)	ALL CASES	ADULTS		PEDIATRICS	
			MALE	FEMALE	MALE	FEMALE
<b>OTHER SITES IN LIP, ORAL CAVITY, PHARYNX</b>		<b>2</b>	<b>1</b>	<b>1</b>	<b>0</b>	<b>0</b>
	Plasmacytoma Extramedullary	1	1	0	0	0
	Squamous Cell Carcinoma	1	0	1	0	0
<b>ESOPHAGUS</b>		<b>31</b>	<b>15</b>	<b>16</b>	<b>0</b>	<b>0</b>
	Squamous Cell Carcinoma	17	6	11	0	0
	Adenocarcinoma NOS	10	8	2	0	0
	Carcinoma NOS	1	0	1	0	0
	Signet Ring Cell Carcinoma	1	1	0	0	0
	Small Cell Carcinoma	1	0	1	0	0
	Neoplasm Malignant	1	0	1	0	0
<b>STOMACH</b>		<b>78</b>	<b>50</b>	<b>28</b>	<b>0</b>	<b>0</b>
	Adenocarcinoma NOS	41	27	14	0	0
	Signet Ring Cell Carcinoma	14	9	5	0	0
	Non-Hodgkin's Lymphoma	13	7	6	0	0
	Adenocarcinoma Intestinal Type	2	1	1	0	0
	Carcinoma NOS	2	2	0	0	0
	Neuroendocrine Carcinoma	2	1	1	0	0
	Carcinoma Diffuse Type	1	1	0	0	0
	Gastrointestinal Stromal Sarcoma	1	0	1	0	0
	Histiocytic Sarcoma	1	1	0	0	0
	Squamous Cell Carcinoma	1	1	0	0	0
<b>SMALL INTESTINE</b>		<b>9</b>	<b>4</b>	<b>4</b>	<b>1</b>	<b>0</b>
	Adenocarcinoma NOS	4	2	2	0	0
	Neuroendocrine Carcinoma	2	1	1	0	0
	Non-Hodgkin's Lymphoma	2	1	0	1	0
	Gastrointestinal Stromal Sarcoma	1	0	1	0	0
<b>COLON</b>		<b>97</b>	<b>54</b>	<b>43</b>	<b>0</b>	<b>0</b>
	Adenocarcinoma NOS	66	35	31	0	0
	Mucinous Adenocarcinoma	17	9	8	0	0
	Signet Ring Cell Carcinoma	7	5	2	0	0
	Non-Hodgkin's Lymphoma	3	2	1	0	0
	Adenocarcinoma In Tubulovillous Adenoma	1	0	1	0	0
	Adenocarcinoma In Villous Adenoma	1	1	0	0	0
	Mucin-Producing Adenocarcinoma	1	1	0	0	0
	Papillary Adenocarcinoma	1	1	0	0	0
<b>RECTOSIGMOID JUNCTION</b>		<b>22</b>	<b>15</b>	<b>7</b>	<b>0</b>	<b>0</b>
	Adenocarcinoma NOS	20	13	7	0	0
	Carcinoma NOS	1	1	0	0	0
	Mucinous Adenocarcinoma	1	1	0	0	0
<b>RECTUM</b>		<b>69</b>	<b>46</b>	<b>23</b>	<b>0</b>	<b>0</b>
	Adenocarcinoma NOS	60	39	21	0	0
	Mucinous Adenocarcinoma	4	4	0	0	0
	Adenocarcinoma In Tubulovillous Adenoma	2	1	1	0	0
	Adenocarcinoma In Villous Adenoma	1	1	0	0	0
	Carcinoma NOS	1	0	1	0	0
	Neoplasm Malignant	1	1	0	0	0
<b>ANUS, ANAL CANAL, ANORECTUM</b>		<b>1</b>	<b>1</b>	<b>0</b>	<b>0</b>	<b>0</b>
	Squamous Cell Carcinoma	1	1	0	0	0
<b>LIVER, INTRAHEPATIC BILE DUCTS</b>		<b>78</b>	<b>43</b>	<b>33</b>	<b>2</b>	<b>0</b>
	Hepatocellular Carcinoma	60	38	22	0	0
	Non-Hodgkin's Lymphoma	5	1	3	1	0
	Adenocarcinoma NOS	3	2	1	0	0

SITE	HISTOLOGY (NOS-Not Otherwise Specified)	ALL CASES	ADULTS		PEDIATRICS	
			MALE	FEMALE	MALE	FEMALE
	Cholangiocarcinoma	3	1	2	0	0
	Carcinoma NOS	1	0	1	0	0
	Hepatoblastoma	1	0	0	1	0
	Hodgkin's Lymphoma	1	0	1	0	0
	Klatskin Tumor	1	1	0	0	0
	Neuroendocrine Carcinoma	1	0	1	0	0
	Small Cell Carcinoma	1	0	1	0	0
	Neoplasm Malignant	1	0	1	0	0
	<b>GALLBLADDER, EXTRAHEPATIC BILE DUCTS</b>	<b>18</b>	<b>9</b>	<b>9</b>	<b>0</b>	<b>0</b>
	Adenocarcinoma NOS	9	6	3	0	0
	Cholangiocarcinoma	4	1	3	0	0
	Carcinoma NOS	3	1	2	0	0
	Adenocarcinoma Intestinal Type	1	0	1	0	0
	Mucinous Adenocarcinoma	1	1	0	0	0
	<b>PANCREAS</b>	<b>40</b>	<b>22</b>	<b>17</b>	<b>0</b>	<b>1</b>
	Adenocarcinoma NOS	17	11	6	0	0
	Neoplasm Malignant	8	3	5	0	0
	Carcinoma NOS	5	2	3	0	0
	Duct Carcinoma	4	2	2	0	0
	Neuroendocrine Carcinoma	3	2	1	0	0
	Mucinous Adenocarcinoma	2	2	0	0	0
	Pancreatoblastoma	1	0	0	0	1
	<b>OTHER DIGESTIVE ORGANS</b>	<b>2</b>	<b>1</b>	<b>1</b>	<b>0</b>	<b>0</b>
	Kaposi Sarcoma	1	1	0	0	0
	Mucinous Adenocarcinoma	1	0	1	0	0
	<b>NASAL CAVITY, MIDDLE EAR</b>	<b>4</b>	<b>1</b>	<b>3</b>	<b>0</b>	<b>0</b>
	Non-Hodgkin's Lymphoma	2	0	2	0	0
	Neuroendocrine Carcinoma	1	1	0	0	0
	Olfactory Neuroblastoma	1	0	1	0	0
	<b>ACCESSORY SINUSES</b>	<b>6</b>	<b>2</b>	<b>3</b>	<b>1</b>	<b>0</b>
	Adenoid Cystic Carcinoma	2	0	2	0	0
	Adenocarcinoma NOS	2	1	1	0	0
	Non-Hodgkin's Lymphoma	1	1	0	0	0
	Embryonal Rhabdomyosarcoma	1	0	0	1	0
	<b>LARYNX</b>	<b>26</b>	<b>22</b>	<b>4</b>	<b>0</b>	<b>0</b>
	Squamous Cell Carcinoma	25	22	3	0	0
	Carcinoma NOS	1	0	1	0	0
	<b>LUNG, BRONCHUS</b>	<b>57</b>	<b>43</b>	<b>14</b>	<b>0</b>	<b>0</b>
	Adenocarcinoma NOS	22	15	7	0	0
	Squamous Cell Carcinoma	19	17	2	0	0
	Small Cell Carcinoma	7	7	0	0	0
	Bronchiolo-Alveolar Adenocarcinoma	2	0	2	0	0
	Carcinoid Tumor	1	0	1	0	0
	Carcinoma NOS	1	0	1	0	0
	Mucinous Adenocarcinoma	1	1	0	0	0
	Mucoepidermoid Carcinoma	1	0	1	0	0
	Neuroendocrine Carcinoma	1	1	0	0	0
	Papillary Adenocarcinoma	1	1	0	0	0
	Pseudosarcomatous Carcinoma	1	1	0	0	0
	<b>THYMUS</b>	<b>1</b>	<b>1</b>	<b>0</b>	<b>0</b>	<b>0</b>
	Thymic Carcinoma	1	1	0	0	0

SITE	HISTOLOGY (NOS-Not Otherwise Specified)	ALL CASES	ADULTS		PEDIATRICS	
			MALE	FEMALE	MALE	FEMALE
<b>MEDIASTINUM</b>		<b>7</b>	<b>1</b>	<b>2</b>	<b>2</b>	<b>2</b>
	Neuroblastoma	3	0	0	1	2
	Fibromyxosarcoma	1	0	1	0	0
	Paraganglioma Malignant	1	1	0	0	0
	Ganglioneuroblastoma	1	0	0	1	0
	Neoplasm Malignant	1	0	1	0	0
<b>PLEURA</b>		<b>4</b>	<b>1</b>	<b>3</b>	<b>0</b>	<b>0</b>
	Epithelioid Mesothelioma Malignant	1	0	1	0	0
	Mesothelioma Malignant	3	1	2	0	0
<b>BONES, JOINTS, CARTILAGE</b>		<b>74</b>	<b>35</b>	<b>13</b>	<b>14</b>	<b>12</b>
	Osteosarcoma NOS	23	9	2	7	5
	Ewing Sarcoma	18	7	2	5	4
	Non-Hodgkin's Lymphoma	11	7	2	2	0
	Chondroblastic Osteosarcoma	6	3	1	0	2
	Plasmacytoma	5	4	1	0	0
	Chondrosarcoma	4	2	2	0	0
	Chordoma	2	1	1	0	0
	Chondroid Chordoma	1	0	1	0	0
	Hemangiopericytoma Malignant	1	1	0	0	0
	High Grade Surface Osteosarcoma	1	1	0	0	0
	Parosteal Osteosarcoma	1	0	1	0	0
	Telangiectatic Osteosarcoma	1	0	0	0	1
<b>BONE MARROW</b>		<b>223</b>	<b>78</b>	<b>40</b>	<b>51</b>	<b>54</b>
	Acute Lymphoblastic Leukemia	105	29	11	31	34
	Acute Myeloid Leukemia	57	24	14	8	11
	Chronic Myeloid Leukemia	23	7	7	5	4
	Chronic Lymphocytic Leukemia/Small Lymphocytic Lymphoma	8	6	2	0	0
	Acute Biphenotypic Leukemia	5	1	1	1	2
	Acute Myelomonocytic Leukemia	5	2	1	1	1
	Juvenile Myelomonocytic Leukemia	4	0	0	3	1
	Myelodysplastic Syndrome NOS	3	2	0	1	0
	Acute Monocytic Leukemia	2	0	1	1	0
	Chronic Myelomonocytic Leukemia	2	2	0	0	0
	Refractory Anemia With Sideroblasts	2	2	0	0	0
	Refractory Anemia With Excess Blasts	2	1	0	0	1
	Chronic Myelogenous Leukemia	1	0	1	0	0
	Hairy Cell Leukemia	1	1	0	0	0
	Essential Thrombocythemia	1	0	1	0	0
	Polycythemia Vera	1	1	0	0	0
	Myelosclerosis With Myeloid Metaplasia	1	0	1	0	0
<b>MULTIPLE MYELOMA</b>		<b>33</b>	<b>22</b>	<b>11</b>	<b>0</b>	<b>0</b>
	Multiple Myeloma	33	22	11	0	0
<b>SPLEEN</b>		<b>1</b>	<b>1</b>	<b>0</b>	<b>0</b>	<b>0</b>
	Non-Hodgkin's Lymphoma	1	1	0	0	0
<b>OTHER HEMATOPOIETIC</b>		<b>1</b>	<b>0</b>	<b>0</b>	<b>1</b>	<b>0</b>
	Langerhans Cell Histiocytosis Disseminated	1	0	0	1	0
<b>SKIN (MELANOMA)</b>		<b>6</b>	<b>4</b>	<b>2</b>	<b>0</b>	<b>0</b>
	Melanoma NOS	3	3	0	0	0
	Acral Lentiginous Melanoma	1	0	1	0	0
	Desmoplastic Melanoma	1	0	1	0	0
	Lentigo Maligna Melanoma	1	1	0	0	0



SITE	HISTOLOGY (NOS-Not Otherwise Specified)	ALL CASES	ADULTS		PEDIATRICS	
			MALE	FEMALE	MALE	FEMALE
<b>SKIN (NON MELANOMA)</b>		<b>59</b>	<b>28</b>	<b>29</b>	<b>2</b>	<b>0</b>
Basal Cell Carcinoma		15	9	6	0	0
Squamous Cell Carcinoma		13	4	9	0	0
Mycosis Fungoides		9	3	4	2	0
Dermatofibrosarcoma		5	1	4	0	0
Kaposi Sarcoma		5	5	0	0	0
Non-Hodgkin's Lymphoma		4	2	2	0	0
Bowen Disease		2	1	1	0	0
Desmoplastic Small Round Cell Tumor		1	1	0	0	0
Epithelioid Sarcoma		1	0	1	0	0
Sebaceous Adenocarcinoma		1	0	1	0	0
Skin Appendage Carcinoma		1	1	0	0	0
Adenocarcinoma NOS		1	0	1	0	0
Carcinoma NOS		1	1	0	0	0
<b>RETROPERITONEUM, PERITONEUM</b>		<b>1</b>	<b>1</b>	<b>0</b>	<b>0</b>	<b>0</b>
Carcinoid Tumor		1	1	0	0	0
<b>CONNECTIVE, SUBCUTANEOUS, SOFT TISSUE</b>		<b>52</b>	<b>19</b>	<b>16</b>	<b>9</b>	<b>8</b>
Neuroblastoma		7	0	0	1	6
Malignant Fibrous Histiocytoma		5	2	3	0	0
Rhabdomyosarcoma		5	0	0	4	1
Fibromyxosarcoma		4	3	1	0	0
Synovial Sarcoma		3	1	2	0	0
Liposarcoma		3	2	1	0	0
Epithelioid Sarcoma		2	1	0	1	0
Ewing Sarcoma		2	0	1	1	0
Leiomyosarcoma		2	1	1	0	0
Malignant Peripheral Nerve Sheath Tumor		2	0	2	0	0
Malignant Rhabdoid Tumor		2	0	1	0	1
Peripheral Neuroectodermal Tumor		2	1	1	0	0
Round Cell Liposarcoma		2	1	1	0	0
Spindle Cell Sarcoma		2	1	1	0	0
Chondrosarcoma		1	0	1	0	0
Clear Cell Sarcoma		1	1	0	0	0
Fibrosarcoma		1	1	0	0	0
Non-Hodgkin's Lymphoma		1	1	0	0	0
Myxoid Chondrosarcoma		1	1	0	0	0
Paraganglioma Malignant		1	1	0	0	0
Pseudosarcomatous Carcinoma		1	1	0	0	0
Infantile Fibrosarcoma		1	0	0	1	0
Mesenchymal Chondrosarcoma		1	0	0	1	0
<b>BREAST</b>		<b>333</b>	<b>6</b>	<b>327</b>	<b>0</b>	<b>0</b>
Duct Carcinoma		283	5	278	0	0
Lobular Carcinoma		15	0	15	0	0
Intraductal Carcinoma Noninfiltrating		11	0	11	0	0
Carcinoma NOS		5	0	5	0	0
Duct and Lobular Carcinoma		3	0	3	0	0
Duct Mixed with Other Types of Carcinoma		3	0	3	0	0
Lobular Mixed with Other Types of Carcinoma		2	0	2	0	0
Phyllodes Tumor Malignant		2	0	2	0	0
Carcinosarcoma		1	0	1	0	0
Cribriform Carcinoma		1	0	1	0	0
Medullary Carcinoma		1	0	1	0	0
Micropapillary Carcinoma		1	0	1	0	0
Mucinous Adenocarcinoma		1	0	1	0	0
Paget Disease and Duct Carcinoma		1	1	0	0	0

SITE	HISTOLOGY (NOS-Not Otherwise Specified)	ALL CASES	ADULTS		PEDIATRICS	
			MALE	FEMALE	MALE	FEMALE
	Papillary Carcinoma	1	0	1	0	0
	Tubular Adenocarcinoma	1	0	1	0	0
	Neoplasm Malignant	1	0	1	0	0
<b>VULVA</b>		<b>3</b>	<b>0</b>	<b>3</b>	<b>0</b>	<b>0</b>
	Squamous Cell Carcinoma	3	0	3	0	0
<b>VAGINA</b>		<b>2</b>	<b>0</b>	<b>2</b>	<b>0</b>	<b>0</b>
	Squamous Cell Carcinoma	2	0	2	0	0
<b>CERVIX UTERI</b>		<b>45</b>	<b>0</b>	<b>44</b>	<b>0</b>	<b>1</b>
	Squamous Cell Carcinoma	32	0	32	0	0
	Squamous Intraepithelial Neoplasia Grade III	5	0	5	0	0
	Adenocarcinoma NOS	3	0	3	0	0
	Basaloid Squamous Cell Carcinoma	1	0	1	0	0
	Large Cell Neuroendocrine Carcinoma	1	0	1	0	0
	Mullerian Mixed Tumor	1	0	1	0	0
	Papillary Serous Cystadenocarcinoma	1	0	0	0	1
	Carcinoma NOS	1	0	1	0	0
<b>CORPUS UTERI</b>		<b>67</b>	<b>0</b>	<b>67</b>	<b>0</b>	<b>0</b>
	Endometrioid Adenocarcinoma	46	0	46	0	0
	Mullerian Mixed Tumor	5	0	5	0	0
	Serous Cystadenocarcinoma	4	0	4	0	0
	Clear Cell Adenocarcinoma	3	0	3	0	0
	Papillary Serous Cystadenocarcinoma	3	0	3	0	0
	Endometrial Stromal Sarcoma	2	0	2	0	0
	Adenocarcinoma NOS	1	0	1	0	0
	Leiomyosarcoma	1	0	1	0	0
	Mucinous Adenocarcinoma	1	0	1	0	0
	Papillary Carcinoma	1	0	1	0	0
<b>UTERUS, NOS</b>		<b>5</b>	<b>0</b>	<b>5</b>	<b>0</b>	<b>0</b>
	Leiomyosarcoma	4	0	4	0	0
	Mullerian Mixed Tumor	1	0	1	0	0
<b>OVARY</b>		<b>48</b>	<b>0</b>	<b>45</b>	<b>0</b>	<b>3</b>
	Serous Cystadenocarcinoma	11	0	11	0	0
	Papillary Serous Cystadenocarcinoma	9	0	9	0	0
	Dysgerminoma	6	0	5	0	1
	Mucinous Adenocarcinoma	6	0	6	0	0
	Adenocarcinoma NOS	4	0	4	0	0
	Mixed Germ Cell Tumor	3	0	1	0	2
	Carcinoma NOS	2	0	2	0	0
	Clear Cell Adenocarcinoma	2	0	2	0	0
	Teratoma Malignant	2	0	2	0	0
	Endometrioid Adenocarcinoma	1	0	1	0	0
	Mucinous Cystadenocarcinoma	1	0	1	0	0
	Serous Adenocarcinofibroma	1	0	1	0	0
<b>PLACENTA</b>		<b>6</b>	<b>0</b>	<b>6</b>	<b>0</b>	<b>0</b>
	Choriocarcinoma	3	0	3	0	0
	Trophoblastic Placental Tumor Malignant	3	0	3	0	0
<b>PENIS</b>		<b>1</b>	<b>1</b>	<b>0</b>	<b>0</b>	<b>0</b>
	Squamous Cell Carcinoma	1	1	0	0	0
<b>PROSTATE</b>		<b>43</b>	<b>42</b>	<b>0</b>	<b>1</b>	<b>0</b>
	Adenocarcinoma NOS	41	41	0	0	0
	Embryonal Rhabdomyosarcoma	1	0	0	1	0
	Neoplasm Malignant	1	1	0	0	0

SITE	HISTOLOGY (NOS-Not Otherwise Specified)	ALL CASES	ADULTS		PEDIATRICS	
			MALE	FEMALE	MALE	FEMALE
<b>TESTIS</b>		<b>26</b>	<b>26</b>	<b>0</b>	<b>0</b>	<b>0</b>
	Seminoma	12	12	0	0	0
	Mixed Germ Cell Tumor	6	6	0	0	0
	Yolk Sac Tumor	3	3	0	0	0
	Alveolar Rhabdomyosarcoma	1	1	0	0	0
	Embryonal Carcinoma	1	1	0	0	0
	Ewing Sarcoma	1	1	0	0	0
	Non-Hodgkin's Lymphoma	1	1	0	0	0
	Teratoma Malignant	1	1	0	0	0
<b>OTHER MALE GENITAL ORGANS</b>		<b>1</b>	<b>1</b>	<b>0</b>	<b>0</b>	<b>0</b>
	Kaposi Sarcoma	1	1	0	0	0
<b>KIDNEY</b>		<b>84</b>	<b>44</b>	<b>22</b>	<b>9</b>	<b>9</b>
	Renal Cell Carcinoma	53	32	20	1	0
	Nephroblastoma	15	0	0	6	9
	Carcinoma NOS	4	3	1	0	0
	Adenocarcinoma NOS	5	5	0	0	0
	Collecting Duct Carcinoma	2	1	1	0	0
	Squamous Cell Carcinoma	2	2	0	0	0
	Non-Hodgkin's Lymphoma	1	1	0	0	0
	Clear Cell Sarcoma of Kidney	1	0	0	1	0
	Ewing Sarcoma	1	0	0	1	0
<b>RENAL PELVIS</b>		<b>2</b>	<b>1</b>	<b>1</b>	<b>0</b>	<b>0</b>
	Papillary Transitional Cell Carcinoma	1	1	0	0	0
	Renal Cell Carcinoma	1	0	1	0	0
<b>URETER</b>		<b>2</b>	<b>2</b>	<b>0</b>	<b>0</b>	<b>0</b>
	Papillary Transitional Cell Carcinoma	1	1	0	0	0
	Transitional Cell Carcinoma	1	1	0	0	0
<b>URINARY BLADDER</b>		<b>66</b>	<b>56</b>	<b>10</b>	<b>0</b>	<b>0</b>
	Papillary Transitional Cell Carcinoma	35	31	4	0	0
	Transitional Cell Carcinoma	22	19	3	0	0
	Squamous Cell Carcinoma	6	4	2	0	0
	Adenocarcinoma NOS	3	2	1	0	0
<b>EYE, ADNEXA</b>		<b>19</b>	<b>2</b>	<b>4</b>	<b>7</b>	<b>6</b>
	Retinoblastoma	11	0	0	5	6
	Non-Hodgkin's Lymphoma	2	0	2	0	0
	Leiomyosarcoma	1	0	1	0	0
	Mesenchymal Chondrosarcoma	1	1	0	0	0
	Squamous Cell Carcinoma	1	0	1	0	0
	Embryonal Rhabdomyosarcoma	1	0	0	1	0
	Epithelioid Sarcoma	1	0	0	1	0
	Carcinoma NOS	1	1	0	0	0
<b>BRAIN</b>		<b>84</b>	<b>24</b>	<b>17</b>	<b>30</b>	<b>13</b>
	Glioblastoma	22	11	8	3	0
	Medulloblastoma	19	0	2	11	6
	Astrocytoma	18	4	0	12	2
	Glioma Malignant	5	1	0	1	3
	Ependymoma Anaplastic	4	2	0	2	0
	Mixed Glioma	4	1	3	0	0
	Oligodendroglioma	4	3	1	0	0
	Non-Hodgkin's Lymphoma	2	0	1	1	0
	Burkitt Lymphoma	1	0	1	0	0
	Ependymoma	1	1	0	0	0

SITE	HISTOLOGY (NOS-Not Otherwise Specified)	ALL CASES	ADULTS		PEDIATRICS	
			MALE	FEMALE	MALE	FEMALE
	Gemistocytic Astrocytoma	1	1	0	0	0
	Oligodendroglioma Anaplastic	1	0	1	0	0
	Atypical Teratoid/Rhabdoid Tumor	1	0	0	0	1
	Pleomorphic Xanthoastrocytoma	1	0	0	0	1
	<b>OTHER NERVOUS SYSTEM</b>	<b>3</b>	<b>0</b>	<b>1</b>	<b>1</b>	<b>1</b>
	Ependymoma	2	0	1	1	0
	Pilocytic Astrocytoma	1	0	0	0	1
	<b>THYROID</b>	<b>228</b>	<b>50</b>	<b>176</b>	<b>0</b>	<b>2</b>
	Papillary Adenocarcinoma	130	29	100	0	1
	Papillary Carcinoma Follicular Variant	38	6	32	0	0
	Papillary Microcarcinoma	12	3	8	0	1
	Papillary Carcinoma Encapsulated	8	1	7	0	0
	Follicular Adenocarcinoma	7	2	5	0	0
	Papillary Carcinoma Columnar Cell	6	0	6	0	0
	Follicular Carcinoma Minimally Invasive	5	0	5	0	0
	Medullary Carcinoma	5	3	2	0	0
	Oxyphilic Adenocarcinoma	5	1	4	0	0
	Non-Hodgkin's Lymphoma	5	2	3	0	0
	Carcinoma Anaplastic	2	1	1	0	0
	Papillary Carcinoma Oxyphilic Cell	2	2	0	0	0
	Insular Carcinoma	1	0	1	0	0
	Nonencapsulated Sclerosing Carcinoma	1	0	1	0	0
	Neoplasm Malignant	1	0	1	0	0
	<b>ADRENAL GLAND</b>	<b>19</b>	<b>1</b>	<b>0</b>	<b>11</b>	<b>7</b>
	Neuroblastoma	15	0	0	10	5
	Ganglioneuroblastoma	3	0	0	1	2
	Pheochromocytoma Malignant	1	1	0	0	0
	<b>OTHER ENDOCRINE GLANDS</b>	<b>2</b>	<b>1</b>	<b>0</b>	<b>1</b>	<b>0</b>
	Germinoma	1	1	0	0	0
	Pineoblastoma	1	0	0	1	0
	<b>LYMPH NODES, HODGKIN'S DISEASE</b>	<b>114</b>	<b>43</b>	<b>41</b>	<b>21</b>	<b>9</b>
	Nodular Sclerosis	75	27	29	13	6
	Hodgkin's Lymphoma NOS	14	5	7	1	1
	Nodular Lymphocyte Predominance	12	4	2	5	1
	Mixed Cellularity	10	6	2	2	0
	Lymphocyte-Rich	2	1	1	0	0
	Lymphocyte Depletion	1	0	0	0	1
	<b>LYMPH NODES, NON HODGKIN'S LYMPHOMA</b>	<b>71</b>	<b>34</b>	<b>30</b>	<b>5</b>	<b>2</b>
	Large B-Cell Diffuse	38	18	16	3	1
	Follicular	12	5	7	0	0
	Non-Hodgkin's Lymphoma NOS	5	3	2	0	0
	Small B Lymphocytic	5	3	2	0	0
	Anaplastic Large Cell	4	1	3	0	0
	Burkitt's	2	1	0	1	0
	Mature T-Cell	2	1	0	1	0
	Precursor T-Cell Lymphoblastic	2	1	0	0	1
	Large B-Cell Diffuse Immunoblastic	1	1	0	0	0
	<b>PRIMARY UNKNOWN</b>	<b>31</b>	<b>16</b>	<b>15</b>	<b>0</b>	<b>0</b>
	Adenocarcinoma NOS	12	5	7	0	0
	Carcinoma NOS	8	5	3	0	0
	Neoplasm Malignant	5	4	1	0	0
	Mucinous Adenocarcinoma	2	0	2	0	0
	Neuroendocrine Carcinoma	2	2	0	0	0
	Squamous Cell Carcinoma	1	0	1	0	0
	Tumor Cells Malignant	1	0	1	0	0

**TABLE 11**  
**MULTIPLE PRIMARY SITES TABLE**  
**2 0 0 9**

PRIMARY SITE 2009	HISTOLOGY (NOS-Not Otherwise Specified)	OTHER PRIMARIES (PREVIOUS OR CONCURRENT)	ALL CASES	MALE	FEMALE
			<b>89</b>	<b>43</b>	<b>46</b>
<b>LIP</b>			<b>2</b>	<b>1</b>	<b>1</b>
	Verrucous Carcinoma	Gum - Verrucous Carcinoma	1	0	1
	Squamous Cell Carcinoma	Tongue - Verrucous Carcinoma	1	1	0
<b>TONGUE</b>			<b>3</b>	<b>2</b>	<b>1</b>
	Squamous Cell Carcinoma	Skin - Sq Cell Carcinoma	1	1	0
	Squamous Cell Carcinoma	Thyroid - Papillary Carcinoma	1	0	1
	Mucoepidermoid Carcinoma	Thyroid - Papillary Carcinoma	1	1	0
<b>GUM</b>			<b>1</b>	<b>1</b>	<b>0</b>
	Squamous Cell Carcinoma	Kidney - Renal Cell Carcinoma	1	1	0
<b>SUBMANDIBULAR GLAND</b>			<b>1</b>	<b>1</b>	<b>0</b>
	Squamous Cell Carcinoma*	Skin - Basal Cell Carcinoma	1	1	0
		Gum - Sq Cell Carcinoma			
<b>NASOPHARYNX</b>			<b>1</b>	<b>0</b>	<b>1</b>
	Undifferentiated Carcinoma	Thyroid - Papillary Carcinoma	1	0	1
<b>ESOPHAGUS</b>			<b>1</b>	<b>0</b>	<b>1</b>
	Squamous Cell Carcinoma	Thyroid - Papillary Carcinoma	1	0	1
<b>STOMACH</b>			<b>1</b>	<b>1</b>	<b>0</b>
	Adenocarcinoma, NOS	Thyroid - Papillary Carcinoma	1	1	0
<b>COLON</b>			<b>3</b>	<b>2</b>	<b>1</b>
	Mucinous Adenocarcinoma	Lung - Small Cell Carcinoma	1	1	0
	Mucinous Adenocarcinoma	Jejunum - Adenocarcinoma	1	1	0
	Adenocarcinoma, NOS	Kidney - Renal Cell Carcinoma	1	0	1
<b>RECTOSIGMOID JUNCTION</b>			<b>1</b>	<b>1</b>	<b>0</b>
	Carcinoma, NOS*	Chronic Lymphocytic Leukemia	1	1	0
		Prostate - Adenocarcinoma			
<b>RECTUM</b>			<b>5</b>	<b>3</b>	<b>2</b>
	Adenocarcinoma, NOS	Stomach - NHL	1	0	1
	Adenocarcinoma, NOS	Stomach - Signet Ring Cell Ca	1	0	1
	Adenocarcinoma, NOS	Prostate - Adenocarcinoma	1	1	0
	Adenocarcinoma, NOS	Small Bowel - Adenocarcinoma	1	1	0
	Adenocarcinoma, NOS***	Cecum - Adenocarcinoma	1	1	0
		Descending Colon - Carcinoma			
		Ascending Colon - Adenoca			
<b>INTRAHEPATIC DUCT</b>			<b>1</b>	<b>0</b>	<b>1</b>
	Cholangiocarcinoma	Endometrium-Stromal Sarcoma	1	0	1
<b>NASAL CAVITY</b>			<b>1</b>	<b>0</b>	<b>1</b>
	Non-Hodgkin's Lymphoma	Thyroid - Papillary Carcinoma	1	0	1
<b>LUNG</b>			<b>2</b>	<b>1</b>	<b>1</b>
	Mucinous Adenocarcinoma	Contra Lung - Mucinous Adenoca	1	1	0
	Bronchiolo-Alveolar Adenoca	Endometrium-Endometrioid Adenoca	1	0	1
<b>BONE MARROW</b>			<b>4</b>	<b>4</b>	<b>0</b>
	Acute Myeloid Leukemia	LN's - Hodgkin's Lymphoma	1	1	0
	Acute Lymphocytic Leukemia	Hypereosinophyllic Leukemia	1	1	0

PRIMARY SITE 2009	HISTOLOGY (NOS-Not Otherwise Specified)	OTHER PRIMARIES (PREVIOUS OR CONCURRENT)	ALL CASES	MALE	FEMALE
	Acute Myeloid Leukemia	Lymph Nodes - NHL	1	1	0
	Acute Myeloid Leukemia	Cecum - NHL	1	1	0
<b>SKIN</b>			<b>8</b>	<b>4</b>	<b>4</b>
	Squamous Cell Carcinoma	Stomach - Carcinoma	1	1	0
	Squamous Cell Carcinoma	Rectum - Adenocarcinoma	1	0	1
	Squamous Cell Carcinoma	Skin Nose-Basal Cell Ca	1	0	1
	Squamous Cell Carcinoma	Eyelid-Sebaceous Adenocarcinoma	1	1	0
	Basal Cell Carcinoma	Nasopharynx-Carcinoma	1	0	1
	Non-Hodgkin's Lymphoma	Liver - NHL	1	1	0
	Melanoma**	Thyroid - Papillary Carcinoma	1	0	1
		Eyelid - Sq Cell Carcinoma	1	1	0
		Skin Nose-Basal Cell Ca			
		Cornea - Carcinoma			
<b>SOFT TISSUE</b>			<b>1</b>	<b>1</b>	<b>0</b>
	Ewing's Sarcoma	Acute Myeloid Leukemia	1	1	0
<b>BREAST</b>			<b>20</b>	<b>1</b>	<b>19</b>
	Ductal Carcinoma	Contra Breast - Ductal Ca	10	0	10
	Ductal Carcinoma	Contra Breast - Tubular Ca	1	0	1
	Ductal Carcinoma	Thyroid - Papillary Carcinoma	3	0	3
	Ductal Carcinoma	LN's - Hodgkin's Lymphoma	2	0	2
	Ductal Carcinoma	LN's - NHL	2	1	1
	Ductal Carcinoma	Ovary - Malignant Teratoma	1	0	1
	Lobular Carcinoma	Contra Breast - Lobular Ca	1	0	1
<b>CERVIX UTERI</b>			<b>1</b>	<b>0</b>	<b>1</b>
	Adenocarcinoma, NOS	Lymphoblastic Leukemia	1	0	1
<b>CORPUS UTERI</b>			<b>5</b>	<b>0</b>	<b>5</b>
	Endometrioid Adenocarcinoma	Breast - Ductal Carcinoma	2	0	2
	Endometrioid Adenocarcinoma	Lung - Adenocarcinoma	1	0	1
	Serous Carcinoma	Liver-Hepatocellular Carcinoma	1	0	1
	Leiomyosarcoma	Thyroid - Papillary Carcinoma	1	0	1
<b>OVARY</b>			<b>1</b>	<b>0</b>	<b>1</b>
	Mucinous Adenocarcinoma	Lymph Nodes - NHL	1	0	1
<b>TESTIS</b>			<b>1</b>	<b>1</b>	<b>0</b>
	Seminoma	Contra Testis - Seminoma	1	1	0
<b>KIDNEY</b>			<b>3</b>	<b>3</b>	<b>0</b>
	Renal Cell Carcinoma	Contra Kidney - Renal Cell Ca	1	1	0
	Renal Cell Carcinoma	Contra Kidney-Pap Renal Ca	1	1	0
	Renal Cell Carcinoma	Liver - Hepatocellular Ca	1	1	0
<b>RENAL PELVIS</b>			<b>1</b>	<b>1</b>	<b>0</b>
	Pap Transitional Carcinoma	Skin - Basal Cell Carcinoma	1	1	0
<b>URINARY BLADDER</b>			<b>7</b>	<b>6</b>	<b>1</b>
	Pap Urothelial Carcinoma	Kidney - Renal Cell Carcinoma	1	1	0
	Pap Urothelial Carcinoma	Renal Pelvis-Pap Transitional Ca	1	1	0
	Pap Urothelial Carcinoma	Breast - Ductal Carcinoma	1	0	1
	Pap Urothelial Carcinoma	Nasopharynx - Carcinoma	1	1	0
	Pap Urothelial Carcinoma	Liver-Hepatocellular Ca	1	1	0
	Urothelial Carcinoma	Prostate - Adenocarcinoma	1	1	0
	Urothelial Carcinoma	Pancreas-Neuroendocrine Ca	1	1	0
<b>RETINA</b>			<b>1</b>	<b>1</b>	<b>0</b>
	Retinoblastoma	Adrenal Gland-Neuroblastoma	1	1	0

PRIMARY SITE 2009	HISTOLOGY (NOS-Not Otherwise Specified)	OTHER PRIMARIES (PREVIOUS OR CONCURRENT)	ALL CASES	MALE	FEMALE
<b>BRAIN</b>			<b>1</b>	<b>0</b>	<b>1</b>
	Glioblastoma	Skin - Basal Cell Carcinoma	1	0	1
<b>THYROID</b>			<b>9</b>	<b>5</b>	<b>4</b>
	Papillary Carcinoma	Breast - Ductal Carcinoma	1	0	1
	Papillary Carcinoma	Rectum - Mucinous Adenoca	1	0	1
	Papillary Ca, Oncocytic	Nasopharynx-Sq Cell Carcinoma	1	1	0
	Cystic Papillary Carcinoma	Larynx - Squamous Cell Ca	1	1	0
	Papillary Microcarcinoma	Liver - Neuroendocrine Ca	1	0	1
	Follicular Adenocarcinoma	Vocal Cord-Squamous Cell Ca	1	1	0
	Follicular Carcinoma	Kidney-Renal Cell Carcinoma	1	0	1
	Hurtle Cell Carcinoma	Thyroid - Papillary Carcinoma	1	1	0
	Non-Hodgkin's Lymphoma	Thyroid - Micropapillary Ca	1	1	0
<b>ADRENAL GLAND</b>			<b>1</b>	<b>1</b>	<b>0</b>
	Neuroblastoma	Contra Adrenal Gland - Neuroblastoma	1	1	0
<b>LYMPH NODES</b>			<b>2</b>	<b>2</b>	<b>0</b>
	Non-Hodgkin's Lymphoma	Nasopharynx - Carcinoma	1	1	0
	Hodgkin's Lymphoma	Thyroid - Papillary Carcinoma	1	1	0

\*Patient has three primary malignancies

\*\*Patient has four primary malignancies

## STAGE OF DISEASE AT DIAGNOSIS

Stage in any malignant process may be defined as the particular step, phase, or extent in a tumor's development, which is one of the predictors for outcome and treatment selection assigned at the time of initial diagnosis. The microscopic appearance, extent, and biological behavior of a tumor, as well as host factors, play a part in prognosis and are therefore important in staging.

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

### Summary Staging Definitions:

- IN SITU : Intraepithelial, noninvasive, noninfiltrating
- LOCALIZED : Within organ
- a. Invasive cancer confined to the organ of origin
  - b. Intraluminal extension where specified
- REGIONAL : Beyond the organ of origin
- a. By direct extension to adjacent organs/tissues
  - b. To regional lymph nodes
  - c. Both (a) and (b)
- DISTANT : Direct extension or metastasis
- a. Direct continuity to organs other than above
  - b. Discontinuous metastasis
  - c. To distant lymph nodes

Systemic diseases, i.e., leukemia and multiple myeloma and cases of unstageable unknown primary were disregarded in graphically illustrating the stages for all analytic cases seen at KFSH&RC in 2009 (Figure 13). The 30 cases unstageable at diagnosis were those patients who refused further diagnostic workup, or further workup was not possible due to the patients' state of health, e.g., terminal cases or those with co-morbid conditions, or those with not enough information from the referring hospitals to stage the disease. Please refer also to Table 5 for the distribution of the 2009 analytic cases by site and stage at diagnosis.

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

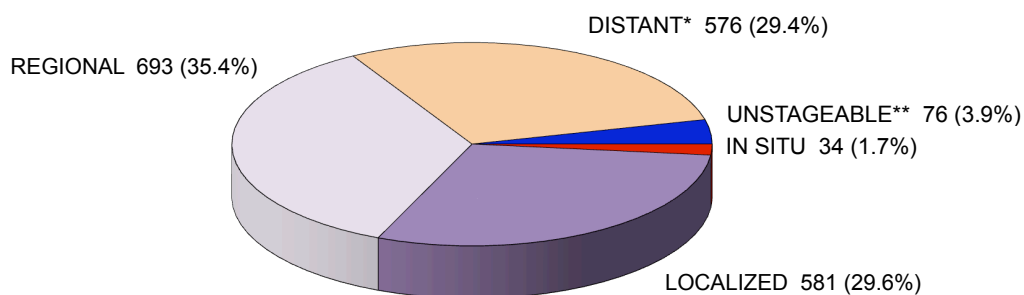
- T: Extent of the primary tumor
- N: Absence or presence and extent of regional lymph node involvement
- M: Absence or presence of distant metastasis

Analytic cases of four major sites, i.e., breast, lung, nasopharynx and hodgkin's lymphoma are presented in Table 12 with their clinical group stages and yearly comparative figures from 2005 to 2009. The pathologic group stages of stomach and colon, rectum are also presented in the same table.



**FIGURE 13**

**DISTRIBUTION OF ANALYTIC CASES  
BY STAGE (SEER) AT DIAGNOSIS  
2009 (TOTAL CASES = 1,960)**



\*Excludes Hematopoietic Primaries (201 cases)

\*\*Excludes Unstageable Unknown Primaries (30 cases)

**FIGURE 14**

**DISTRIBUTION OF ANALYTIC CASES BY  
FIRST COURSE OF TREATMENT MODALITY  
2009 (TOTAL CASES = 2,191)**

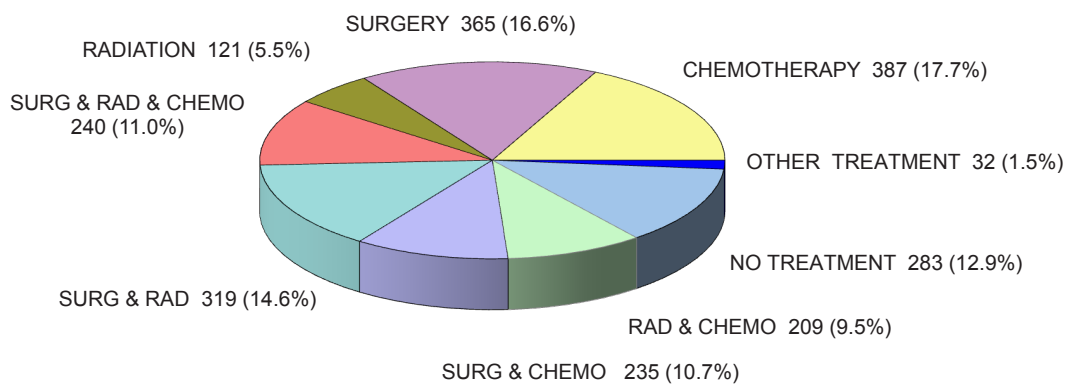


TABLE 12

AJCC CLINICAL TNM GROUP STAGE OF ANALYTIC CASES OF MAJOR SITES\* BY YEAR  
2005 - 2009

BREAST

Stage	2005		2006		2007		2008		2009		TOTAL	
	No	%	No	%	No	%	No	%	No	%	No	%
0	7	2.0	5	1.6	8	2.4	11	3.3	10	3.3	41	2.5
1	30	8.6	23	7.5	24	7.3	32	9.5	33	10.8	142	8.7
2A	62	17.8	56	18.2	57	17.3	61	18.2	42	13.8	278	17.1
2B	56	16.0	54	17.6	70	21.2	59	17.6	40	13.1	279	17.1
3A	26	7.4	27	8.8	15	4.5	17	5.1	17	5.6	102	6.3
3B	43	12.3	47	15.3	38	11.5	34	10.1	36	11.8	198	12.2
3C	5	1.4	7	2.3	3	0.9	1	0.3	5	1.6	21	1.3
4	77	22.1	50	16.3	62	18.8	70	20.8	70	23.0	329	20.2
Unstageable	43	12.3	38	12.4	53	16.1	51	15.2	52	17.1	237	14.6
<b>Total</b>	<b>349</b>	<b>100.0</b>	<b>307</b>	<b>100.0</b>	<b>330</b>	<b>100.0</b>	<b>336</b>	<b>100.0</b>	<b>305</b>	<b>100.0</b>	<b>1,627</b>	<b>100.0</b>

LUNG

Stage	2005		2006		2007		2008		2009		TOTAL	
	No	%	No	%	No	%	No	%	No	%	No	%
0	0	0.0	1	1.7	0	0.0	0	0.0	0	0.0	1	0.3
1A	2	2.5	1	1.7	2	3.4	3	5.0	3	5.7	11	3.6
1B	5	6.3	2	3.4	1	1.7	3	5.0	6	11.3	17	5.5
2A	0	0.0	1	1.7	1	1.7	0	0.0	0	0.0	2	0.6
2B	6	7.6	5	8.6	0	0.0	1	1.7	1	1.9	13	4.2
3A	3	3.8	6	10.3	3	5.1	7	11.7	3	5.7	22	7.1
3B	10	12.7	6	10.3	10	16.9	4	6.7	9	17.0	39	12.6
4	46	58.2	29	50.0	29	49.2	35	58.3	28	52.8	167	54.0
Unstageable	7	8.9	7	12.1	13	22.0	7	11.7	3	5.7	37	12.0
<b>Total</b>	<b>79</b>	<b>100.0</b>	<b>58</b>	<b>100.0</b>	<b>59</b>	<b>100.0</b>	<b>60</b>	<b>100.0</b>	<b>53</b>	<b>100.0</b>	<b>309</b>	<b>100.0</b>

NASOPHARYNX

Stage	2005		2006		2007		2008		2009		TOTAL	
	No	%	No	%	No	%	No	%	No	%	No	%
0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
1	0	0.0	2	2.6	0	0.0	0	0.0	1	1.8	3	0.9
2A	2	2.6	1	1.3	1	1.5	1	1.3	1	1.8	6	1.7
2B	3	3.9	5	6.6	2	3.0	2	2.6	2	3.6	14	4.0
3	20	26.0	10	13.2	17	25.8	18	23.7	21	38.2	86	24.6
4A	18	23.4	22	28.9	18	27.3	19	25.0	9	16.4	86	24.6
4B	21	27.3	17	22.4	14	21.2	12	15.8	13	23.6	77	22.0
4C	11	14.3	18	23.7	12	18.2	21	27.6	7	12.7	69	19.7
Unstageable	2	2.6	1	1.3	2	3.0	3	3.9	1	1.8	9	2.6
<b>Total</b>	<b>77</b>	<b>100.0</b>	<b>76</b>	<b>100.0</b>	<b>66</b>	<b>100.0</b>	<b>76</b>	<b>100.0</b>	<b>55</b>	<b>100.0</b>	<b>350</b>	<b>100.0</b>

\* Excludes Lymphoma Cases

## AJCC CLINICAL TNM GROUP STAGE OF ANALYTIC CASES OF MAJOR SITES BY YEAR 2005 - 2009

### HODGKIN'S LYMPHOMA

Stage	2005		2006		2007		2008		2009		TOTAL	
	No	%	No	%	No	%	No	%	No	%	No	%
1A	4	3.7	4	5.0	4	4.1	2	2.3	2	2.2	16	3.5
1B	0	0.0	0	0.0	0	0.0	0	0.0	2	2.2	2	0.4
2A	52	48.1	27	33.8	37	37.8	30	34.5	22	24.4	168	36.3
2B	6	5.6	5	6.3	7	7.1	4	4.6	9	10.0	31	6.7
3A	13	12.0	13	16.2	9	9.2	14	16.1	19	21.1	68	14.7
3B	9	8.3	8	10.0	9	9.2	10	11.5	9	10.0	45	9.7
4A	11	10.2	9	11.3	12	12.2	10	11.5	10	11.1	52	11.2
4B	13	12.0	14	17.5	20	20.4	17	19.5	16	17.8	80	17.3
Unstageable	0	0.0	0	0.0	0	0.0	0	0.0	1	1.1	1	0.2
<b>Total</b>	<b>108</b>	<b>100.0</b>	<b>80</b>	<b>100.0</b>	<b>98</b>	<b>100.0</b>	<b>87</b>	<b>100.0</b>	<b>90</b>	<b>100.0</b>	<b>463</b>	<b>100.0</b>

## AJCC PATHOLOGIC TNM GROUP STAGE OF ANALYTIC CASES OF MAJOR SITES\* BY YEAR 2005 - 2009

### STOMACH

Stage	2005		2006		2007		2008		2009		TOTAL	
	No	%	No	%	No	%	No	%	No	%	No	%
0	0	0.0	0	0	0	0.0	0	0.0	0	0.0	0	0.0
1A	0	0.0	2	3.5	1	2.2	2	4.4	0	0.0	5	1.9
1B	2	3.8	6	10.5	2	4.4	2	4.4	3	5.2	15	5.8
2	3	5.7	2	3.5	0	0.0	2	4.4	5	8.6	12	4.7
3A	6	11.3	4	7.0	3	6.7	5	11.1	1	1.7	19	7.4
3B	6	11.3	3	5.3	0	0.0	1	2.2	4	6.9	14	5.4
4	6	11.3	5	8.8	7	15.6	9	20.0	8	13.8	35	13.6
Unstageable	30	56.6	35	61.4	32	71.1	24	53.3	37	63.8	158	61.2
<b>Total</b>	<b>53</b>	<b>100.0</b>	<b>57</b>	<b>100.0</b>	<b>45</b>	<b>100.0</b>	<b>45</b>	<b>100.0</b>	<b>58</b>	<b>100.0</b>	<b>258</b>	<b>100.0</b>

### COLON, RECTUM

Stage	2005		2006		2007		2008		2009		TOTAL	
	No	%	No	%	No	%	No	%	No	%	No	%
0	0	0.0	1	0.6	0	0.0	2	1.3	0	0.0	3	0.4
1	9	5.5	7	4.0	7	4.2	5	3.3	9	5.6	37	4.5
2A	15	9.1	25	14.3	18	10.9	21	13.9	18	11.2	97	11.9
2B	2	1.2	6	3.4	2	1.2	0	0.0	1	0.6	11	1.3
3A	3	1.8	4	2.3	5	3.0	1	0.7	2	1.2	15	1.8
3B	16	9.7	16	9.1	18	10.9	16	10.6	14	8.7	80	9.8
3C	4	2.4	14	8.0	8	4.8	7	4.6	4	2.5	37	4.5
4	24	14.5	20	11.4	23	13.9	17	11.3	17	10.6	101	12.4
Unstageable	92	55.8	82	46.9	84	50.9	82	54.3	96	59.6	436	53.4
<b>Total</b>	<b>165</b>	<b>100.0</b>	<b>175</b>	<b>100.0</b>	<b>165</b>	<b>100.0</b>	<b>151</b>	<b>100.0</b>	<b>161</b>	<b>100.0</b>	<b>817</b>	<b>100.0</b>

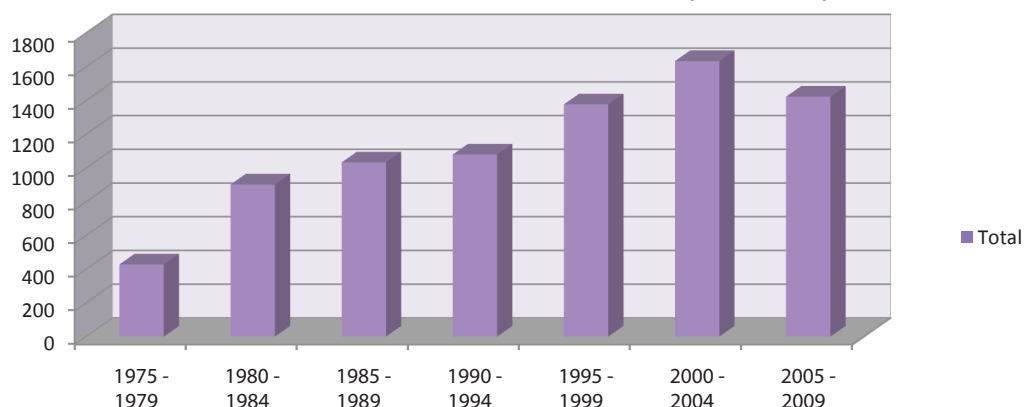
\* Excludes Lymphoma Cases

## Lymphoma at King Faisal Specialist Hospital & Research Centre

Irfan Maghfoor, MD, Saad Akhtar, MD, Consultants, Medical Oncology

In 2009, 260 new cases of lymphoma were registered at KFSHRC (compared to 290 in 2008). This includes both non-Hodgkin's and Hodgkin's lymphomas. Since its inception, KFSHRC has been a tertiary care referral center and we had seen a steady increase in the number of lymphoma cases since 1975 to 2004 (Figure A). With the expansion of cancer services in the Kingdom, there has been a slight decrease in the number of lymphoma referrals over the past several years. A total of 7,877 lymphoma cases had been registered at KFSHRC out of a total of 67,348 cases by the end of 2009 accounting for 11.75% of all cancers.

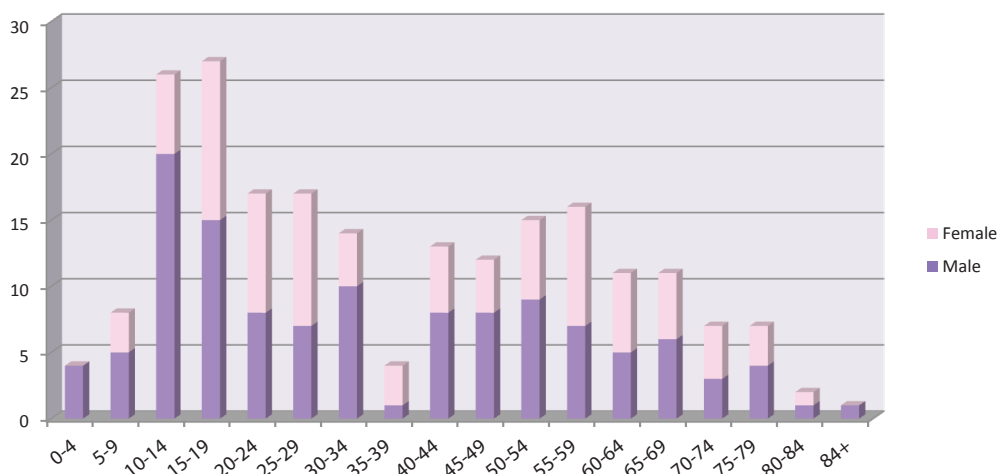
**FIGURE A**  
**DISTRIBUTION OF LYMPHOMA CASES (1975-2009)**



Relative frequencies of major cancers seen at our center although reflect the national trends as evidenced by national registry data, are very different from the Western countries. For instance, non-Hodgkin's lymphomas account for 6.4% of all cancer cases at our center, while they represent 4.6% of cancers in the United States. Similar frequencies for Hodgkin's lymphomas are 3.7% vs. 0.6% respectively. This likely represents a true difference rather than referral bias since these frequencies are similar across the Kingdom of Saudi Arabia as reflected in Saudi Cancer Registry data.

Majority of our lymphoma patients present in adolescence and young adulthood (Figures B), however, if analyzed separately, Hodgkin's lymphoma presents almost exclusively between the ages of 10-24 with very few cases occurring in either younger or older populations, whereas non-Hodgkin's lymphoma age distribution is more widely distributed with majority presenting in 5th and 6th decades of life.

**FIGURE B**  
**DISTRIBUTION OF 2009 LYMPHOMA ANALYTICAL CASES BY AGE VS. SEX**

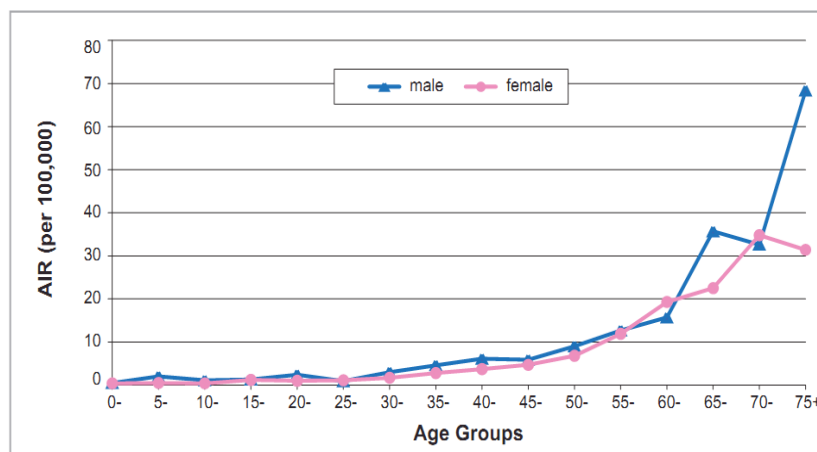


Global incidence of lymphomas for 2008 has been reported to be 67,919 for Hodgkin's and 356,431 for non-Hodgkin's lymphoma with an ASR of 1.0 and 5.1, respectively. Corresponding mortality is 29,377 and 191,599 with an ASR of 0.4 and 2.7, respectively. Annual incidence rates for Saudi Arabia in 2008 were 360 Hodgkin's (ASR of 1.6) and 845 non-Hodgkin's lymphomas (ASR 5.2). Reported mortality rates were 237 for Hodgkin's (ASR of 1.1) and 610 for non-Hodgkin's lymphoma (ASR of 3.9). The incidence rates for Saudi Arabia are similar to global incidence, however mortality rates differ slightly from those of Western countries. For instance ASR for incidence for HL and NHL for the United States were 2.4 and 13.7 for 2008 and ASR for mortality for the same period was 0.3 and 3.3. Similar differences can also be seen with European countries and Canada (Data source Globocan 2008; Accessed March 11, 2011). Figures C-F show the age standardized incidence rates and comparisons with different populations for both Hodgkin's and non-Hodgkin's lymphomas for the year 2006 as reported by Saudi Cancer Registry.

**FIGURES C-F WITH PERMISSION FROM SAUDI CANCER REGISTRY ANNUAL REPORT, 2006**

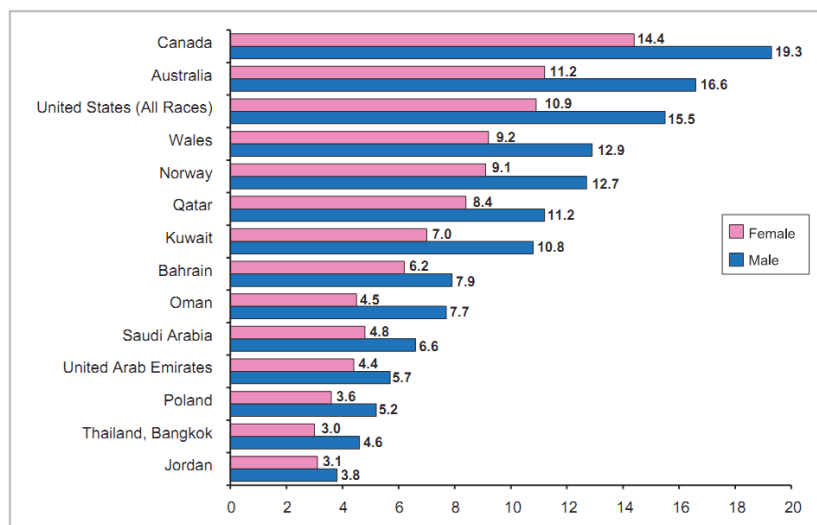
**FIGURE C**

**AGE-SPECIFIC INCIDENCE RATE (AIR) FOR NHL IN SAUDI ARABIA, 2006**



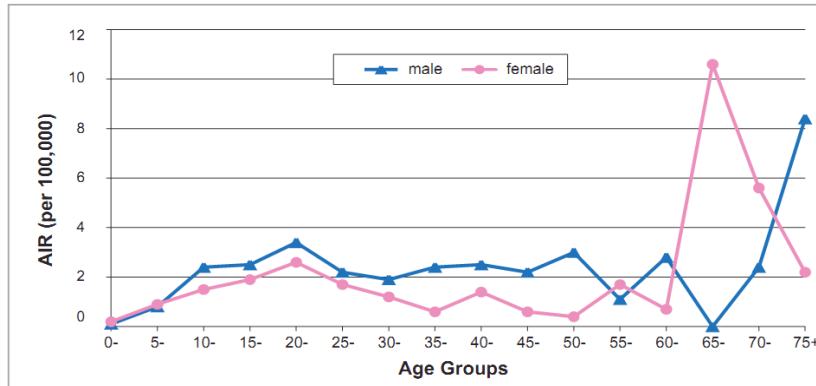
**FIGURE D**

**COMPARISON OF ASR FOR NHL CANCER AMONG SAUDIS WITH ASR IN SELECTED COUNTRIES**



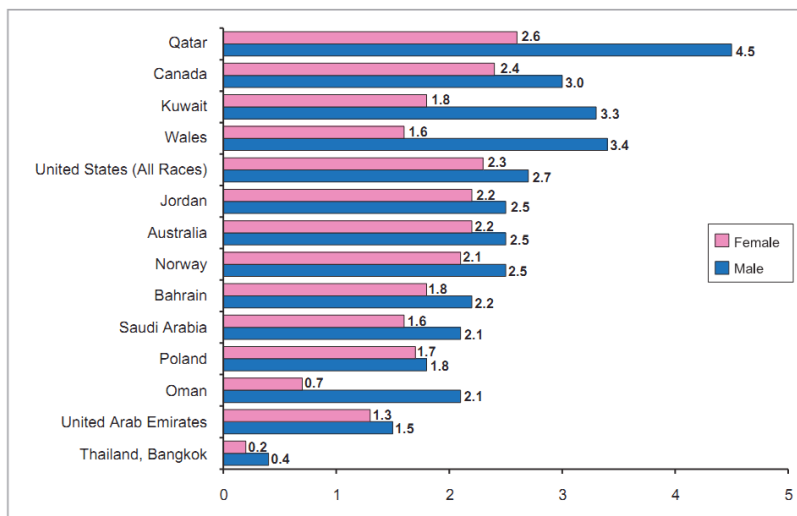
**FIGURE E**

**AGE-SPECIFIC INCIDENCE RATE (AIR) FOR HODGKIN DISEASE IN SAUDI ARABIA, 2006**



**FIGURE F**

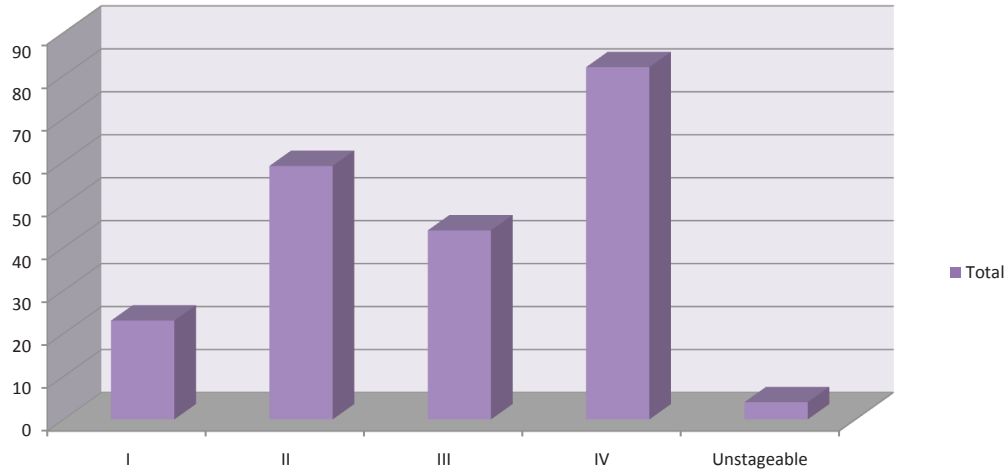
**COMPARISON OF ASR FOR HODGKIN DISEASE AMONG SAUDIS WITH ASR IN SELECTED COUNTRIES**



Majority of lymphomas seen at KFSHRC are advanced stage. In 2009, 59.4% of all lymphomas seen at our institution were staged as Ann Arbor Stage III or IV (Figure G). Of Hodgkin's lymphomas 60% of the patients presented with either stage III or IV disease, while among non-Hodgkin's lymphomas 59% presented with advanced stage. However, our overall 5-year survival rate (2004-2008) is 83%.

**FIGURE G**

**DISTRIBUTION OF KFSHRC 2009 LYMPHOMA ANALYTICAL CASES BY ANN ARBOR STAGE**



Lymphomas at KFSHRC are managed by three separate services. While pediatric lymphomas are seen by Pediatric Hematology and Medical Oncology service, adult patients are seen by either Medical Oncology or Hematology. Hematology and Stem Cell Transplant service caters to high grade lymphomas, i.e., Burkitt’s, lymphoblastic lymphomas while the rest are seen and managed by adult Medical Oncology service. Autologous stem cell transplant for relapsed or refractory lymphomas is performed by Medical Oncology while allogeneic transplant for appropriate indication is performed by Hematology and Stem Cell Transplant team.

In summary, lymphomas remain one of the leading cancers in the Kingdom of Saudi Arabia and form a significant proportion of new patients referred to King Faisal Specialist Hospital & Research Centre. Management of lymphomas continues to evolve with significant improvements in therapeutic strategies and prognosis over the course of last two decades. At our center, management follows established evidence based guidelines which are updated as soon as new evidence becomes available. The center also is a major autologous and allogeneic stem cell and bone marrow transplant center for relapsed and refractory lymphomas. We have recently joined hands with Saudi Lymphoma Group in an effort to establish national guidelines as well as to promote research and training in the field.

**DATA SOURCES:**

1. Saudi Arabian Cancer Registry Annual Report, 2006
2. KFSH&RC, Oncology Centre Tumor Registry Annual Report, 2008
3. Globocan 2008: <http://globocan.iarc.fr/>, Accessed March 12, 2011

## APPENDIX

### REQUESTS FOR TUMOR REGISTRY DATA 2009

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

#### January

Uterine Endometrioid Adenocarcinoma, Papillary Serous Ca and Other Cancer Cases, Stage 3 & 4 who Received Chemotherapy or Radiation or Chemoradiation Dr. H. Al Hussein

Pediatric Brain Cancer Cases by Gender, Age at Diagnosis, Region at Diagnosis, Year Seen, Histology and Treatment Modality (1990-2007) Dr. A. Kofide

#### February

Laryngeal Cancer Cases by Histology, Stage, Treatment Modality and Recurrence (1990-2006) Dr. N. Al-Zaher

Thyroid Cancer Cases by Histology, Stage, Treatment Modality and Recurrence (1990-2006)

#### March

Breast Cancer Cases by Year Seen and Histology (2005-2008) Dr. A. Al Sugair

Head and Neck Cancer Cases by Year (2005-2008) Dr. A. Al Sugair

#### April

Cancer Cases by Site and Gender (2008) Ministry of Health

#### May

Breast Angiosarcoma and Breast Lymphoma Cases Dr. M. Al Madani

#### June

Cervical Cancer Cases (1996-2006) (MR Numbers) Dr. M. El Sebaie

Lymphoma Cases by Year Seen, Age at Diagnosis and Histology (2004-2007) Dr. S. Akhtar

#### October

Uterine Cancer Cases Who Had Surgery Followed by Chemotherapy, Radiation or Chemoradiation (1985-2007) (MR Numbers)\* Dr. H. Al Hussein

#### November

Pediatric Acute Myeloid Leukemia Cases with Age at Diagnosis, Date of Diagnosis, FAB Classification, Date of Recurrence and Vital Status as of Last Contact (1997-2004) (MR Numbers) Dr. A. Belgaumi

Burkitt's and Burkitt's-Like Lymphoma Cases (14 Years Old and Above) with Gender, Age at Diagnosis, Date of Diagnosis, Stage, Treatment, Recurrence Date & Type and Vital Status as of Last Contact (1995-2008) (MR Numbers)\* Dr. W. Rasheed

Acute Lymphoblastic Leukemia Cases with Date of Diagnosis and Vital Status as of Last Contact (2004) (MR Numbers) Dr. A. Belgaumi

Cancer Cases by Age Groups [00-13, 14-17, 18-20, 21-25], Primary Site and Region at Diagnosis (1975-2007) Dr. A. Ali

Osteogenic Sarcoma Cases (30 Years Old and Below) by Primary Site and Region at Diagnosis (1975-2007) Dr. A. Ali

#### December

24 Mediastinal Lymphoma Cases – Provide the Radiation Dose Dr. S. Akhtar



## V. GLOSSARY OF TERMS

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

**Age of Patient:** Recorded in completed years at the time of diagnosis.

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

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

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

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

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

**Stage of Disease:** Extent of disease process determined at first course of treatment.

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

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

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

**Regional:** Tumor has spread by direct extension to immediately adjacent organs and/or lymph nodes and appears to have spread no further.

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

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

### **T+N+M = Stage**

**T:** Extent of primary tumor

**N:** Extent of regional lymph node involvement

**M:** Distant Metastasis

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

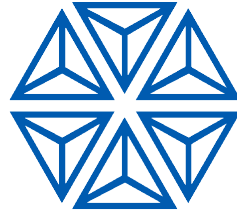
**Pathologic Stage:** Classification based on the evidence acquired before treatment, supplemented or modified by the additional evidence acquired from surgery and from pathologic examination of the resected specimen.



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