



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

**Oncology Center
Research Unit**

TUMOR REGISTRY

Annual Report

2018





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**Oncology Centre
Research Unit**

TUMOR REGISTRY ANNUAL REPORT 2018

Annual Report Prepared by the Staff of the Tumor Registry
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INTRODUCTION

We are pleased to present 2018 Annual Tumor Registry Report for the King Faisal Specialist Hospital & Research Centre's Oncology Centre in Riyadh. The Cancer Registry maintains a complete database of information on all cancer cases diagnosed and/or treated at KFSH&RC. This database is an important patient care and quality assessment tool used by medical staff and administration for special studies, medical planning, resource allocation and utilization, education and research for comparing quality of care, monitoring patient care and continuous quality improvement. This report highlights the statistical overview of newly diagnosed cancer cases by site, gender, and AJCC Staging for both analytic and non-analytic cases. During 2018, the Tumor Registry abstracted 2,733 new cancer cases. 2,645 cases were analytic and 88 were non analytic; the highest incidence of cancer among males by site was leukemia, NHL and Hodgkin lymphoma and among females was carcinomas of Breast, Thyroid, and leukemia. The Tumor Registry database includes over 93,213 cases and reports to the Saudi Cancer Registry (SCR).

Oncology Centre continues to provide comprehensive multidisciplinary care to our cancer patients. The Centre provides latest advances in radiation therapy, chemotherapy, hematopoietic stem cell transplantation, palliative and rehabilitation care to our patients. We also continue to be a center of excellence in cancer clinical research. Involvement in clinical trials allows our physicians and researchers to play an active role in advancing new cancer treatments and in providing the newest and most promising treatment options for our cancer patients. We have maintained our international cooperative group affiliations as the member of Southwest Oncology Group (SWOG), Radiation Therapy Oncology Group (RTOG/ NRG) and Canadian Blood & Marrow Transplantation Group (CBMTG). KFSH&RC has spearheaded the local and regional research consortiums as well, notably, Gulf Oncology Regional Group (GORG) and Eastern Mediterranean Blood and Marrow Transplantation (EMBMT) Group. Research unit work load has mounted exponentially to keep pace with this exorbitant expansion of world class clinical research.

The Oncology Center is committed to serve as the pinnacle of excellence in the entire region. As we look to the future of cancer care in the Kingdom of Saudi Arabia, Oncology Centre will continue to deliver evidence based care centered upon the state-of-the art clinical and translational research.

We are extremely grateful to 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. Hats off to our physicians, patient caregivers and support staff; it is their commitment and dedication that is the foundation for our success.

This report can be accessed online via Oncology Centre's website at <https://www.kfshrc.edu.sa/en/home/hospitals/riyadh/oncologycentreadults/tumorregistryreports>

Your comments and suggestions are welcome to improve our future reports and can be sent to dfatani@kfshrc.edu.sa or f1515605@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 93,213 malignant cases seen at KFSH&RC from June 1975 through December 31, 2018.

The Registry is primarily staffed with 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.

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 2018, the Tumor Registry supported myriad of data requests. It also identified and reported to the Saudi Cancer Registry 2,733 new cases seen in 2018.

II. 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, and extent of disease at diagnosis, treatment, cancer trends, and outcomes to better understand the changing patterns of cancer.

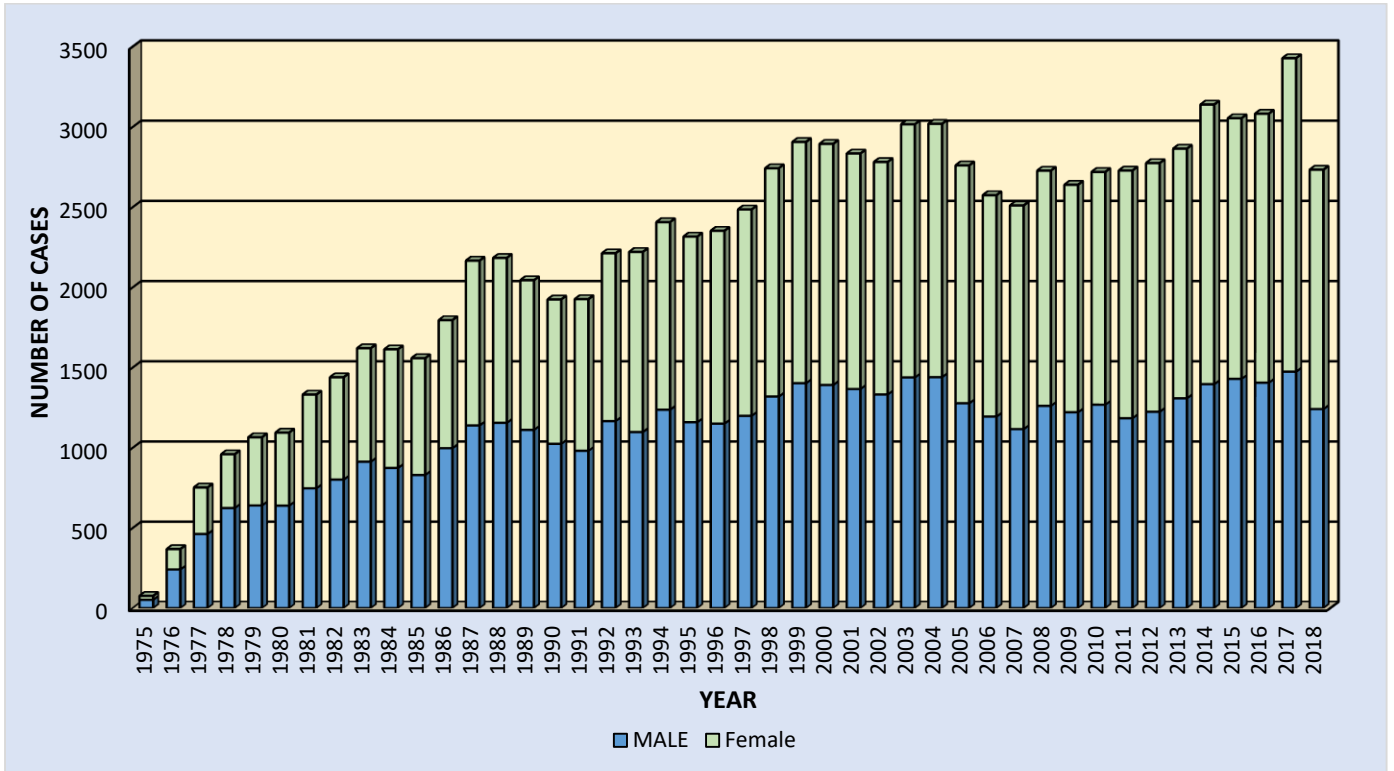
The following departments have assisted throughout the year and without their support this report would not have been possible. The Tumor Registry staff takes pride in acknowledging these departments:

- 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
- Home Health Care
- Oncology Centre

III. KFSH&RC CANCER PATIENT POPULATION

A total of 2,733 cases were accessioned in 2018, with 1,241 males and 1,492 females or a male/female ratio of 0.8:1.

**FIGURE 1
DISTRIBUTION OF CASES ACCESSIONED BY YEAR
1975-2018 (TOTAL CASES = 93,213)**



From the opening of the hospital (mid 1975) until December 2018, 93,213 cancer cases were registered (45,964 males and 47,249 females) with a male/female ratio of 0.9:1.

There were 11,433 (12.3%) pediatric cases (0 to 14 years of age) and 81,780 (87.7%) adults (15 years old and above). In 2018, the proportions were 8.7% (237) for pediatrics and 91.3% (2,496) for adults.

TABLE 1
CASES SEEN AT KFSH&RC (MALE/FEMALE & PEDIATRICS/ADULTS) BY 5-YEAR PERIOD
1975-2018

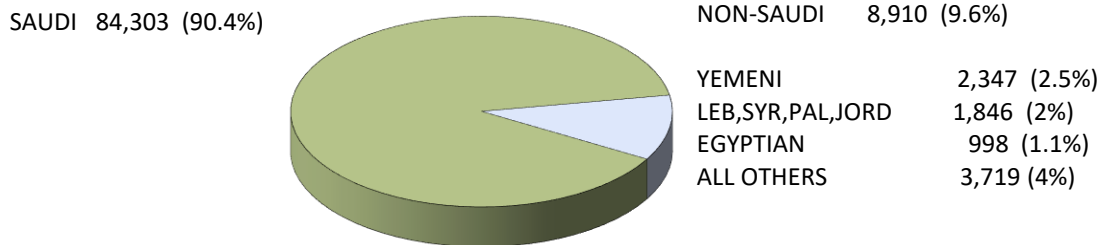
	1975-1976*	1977-1981	1982-1986	1987-1991	1992-1996	1997-2001	2002 - 2006	2007-2011	2012-2016	2017-2018	TOTAL
MALE	280	2,978	4,150	4,969	5,561	6,429	6,530	5,839	6,556	2,672	45,964
FEMALE	135	1,946	3,361	4,341	5,349	6,753	7,205	6,974	7,814	3,371	47,249
TOTAL	415	4,924	7,511	9,310	10,910	13,182	13,735	12,813	14,370	6,043	93,213
M/F RATIO	2.1:1	1.5:1	1.2:1	1.1:1	1.0:1	0.9:1	0.9:1	0.8:1	0.8:1	0.7:1	0.9:1
PEDIATRICS**	55	593	985	1164	1397	1893	1894	1569	1368	515	11,433
(%)	13.25%	12.04%	13.12%	12.50%	12.80%	14.36%	13.79%	12.25%	9.52%	8.52%	12.27%
ADULTS	360	4,331	6,523	8,146	9,513	11,289	11,841	11,244	13,005	5,528	81,780
(%)	86.75%	87.96%	86.88%	87.50%	87.20%	85.64%	86.21%	87.75%	90.48%	91.48%	87.73%
TOTAL	415	4,924	7,508	9,310	10,910	13,182	13,735	12,813	14,373	6,043	93,213

* First two years of KFSH&RC partial operation.

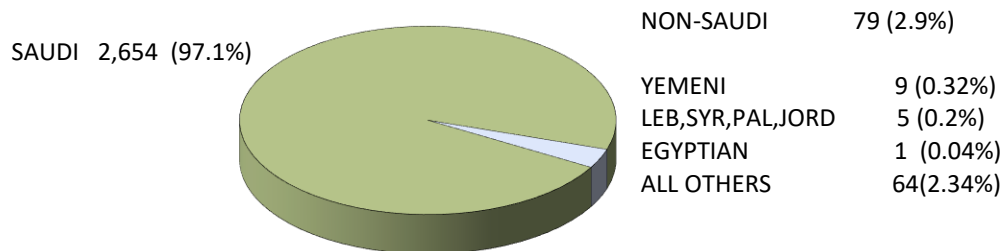
** Pediatrics = 0 to 14 years of age; Adults = 15 years and above.

FIGURE 2

DISTRIBUTION OF CASES BY NATIONALITY
1975 - 2018 (TOTAL CASES = 93,213)



2018 (TOTAL CASES = 2,733)

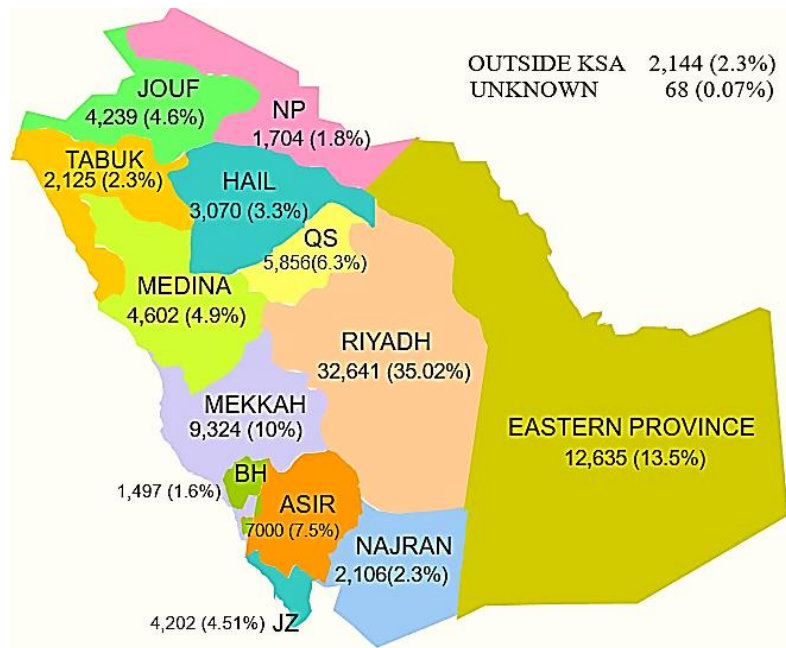


Saudi nationals totaled 2,654 (97.1%) in 2018 and the non-Saudi, 79 (2.9%). During the period 1975 to 2018, the former accounted for 90.4% (84,303) while the latter, 9.6% (8,910).

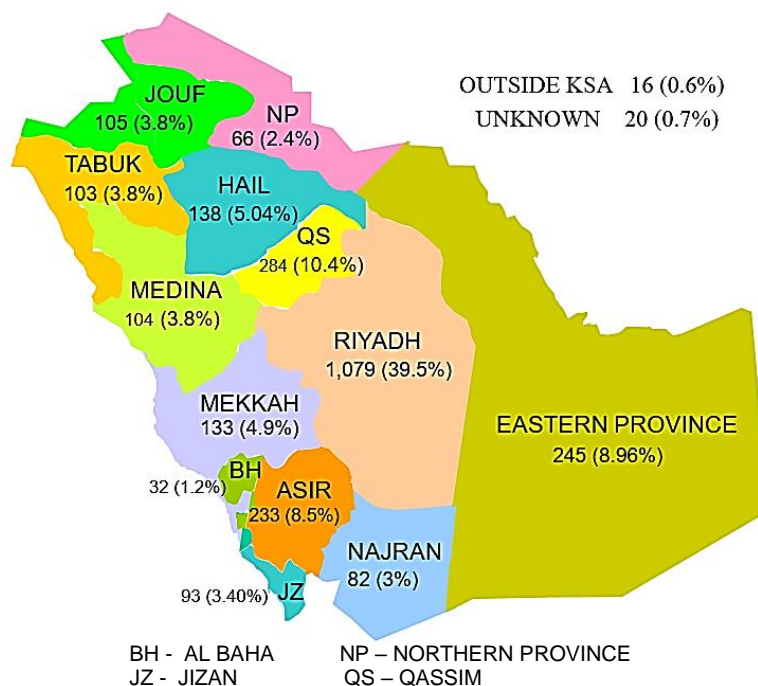
Geographically, the referral pattern in 2018 was mainly from the Riyadh region with 39.5% of all cases, followed by the Qassim Region with 10.4% then Eastern Province with 8.96% respectively. During the 42 years in review, 35.02% were referred from Riyadh, 13.5% from the Eastern Province and 10% from 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 - 2018 (TOTAL CASES = 93,213)



2018 (TOTAL CASES = 2,733)



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 2018 with (12.4%), followed by leukemia (8.9%), Thyroid (7.3%), Non-Hodgkin Lymphoma (7.2%) and Brain (4.4%).

FIGURE 4
DISTRIBUTION OF 20 MOST COMMON MALIGNANCIES
1975-2018 (TOTAL CASES = 93,213)

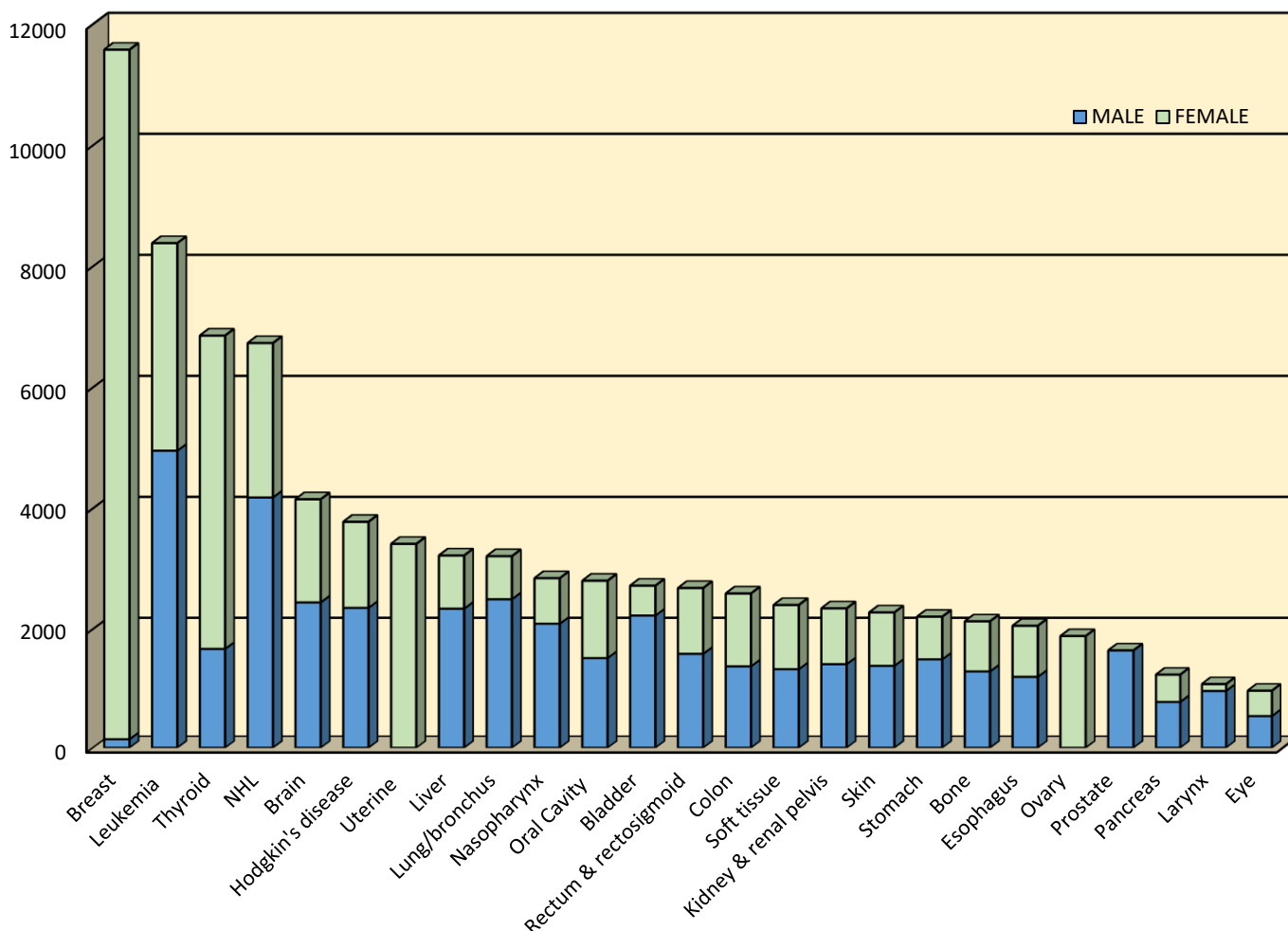
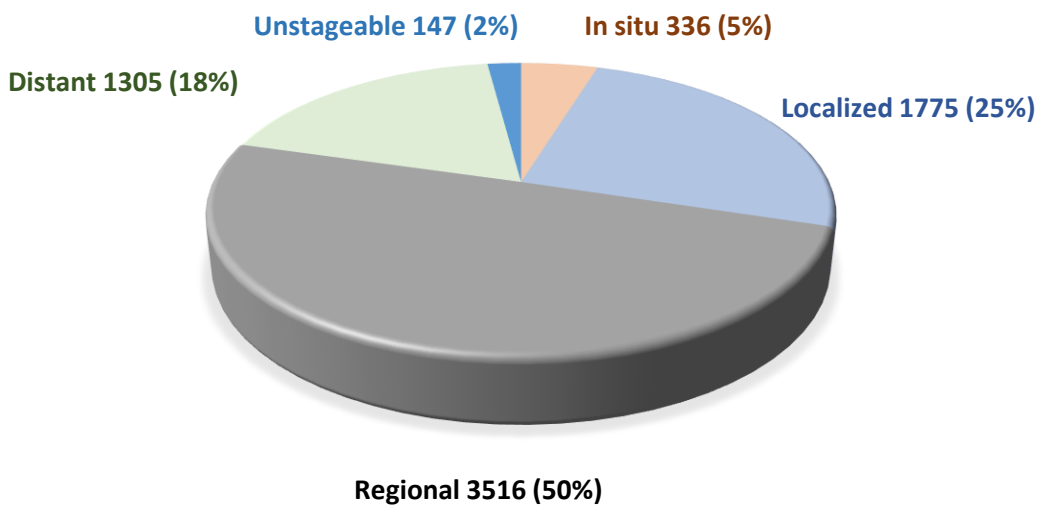
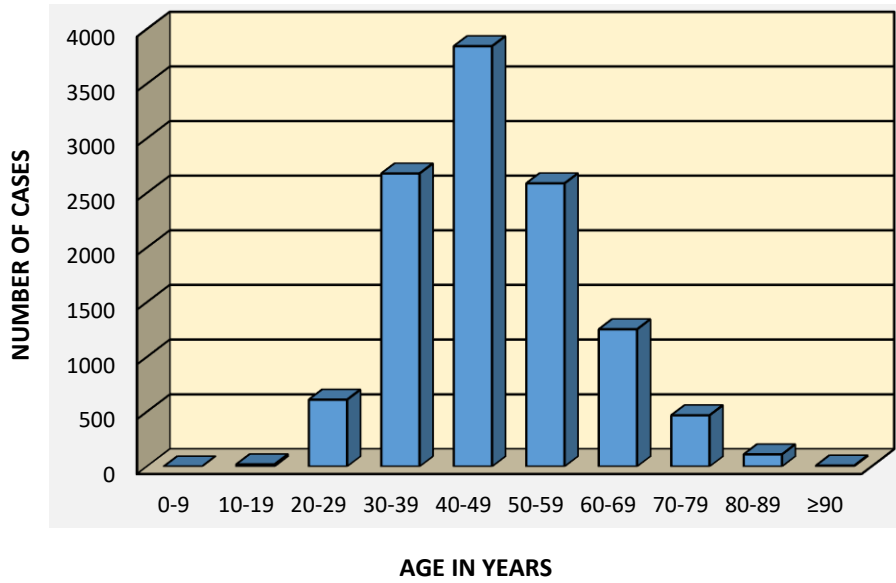
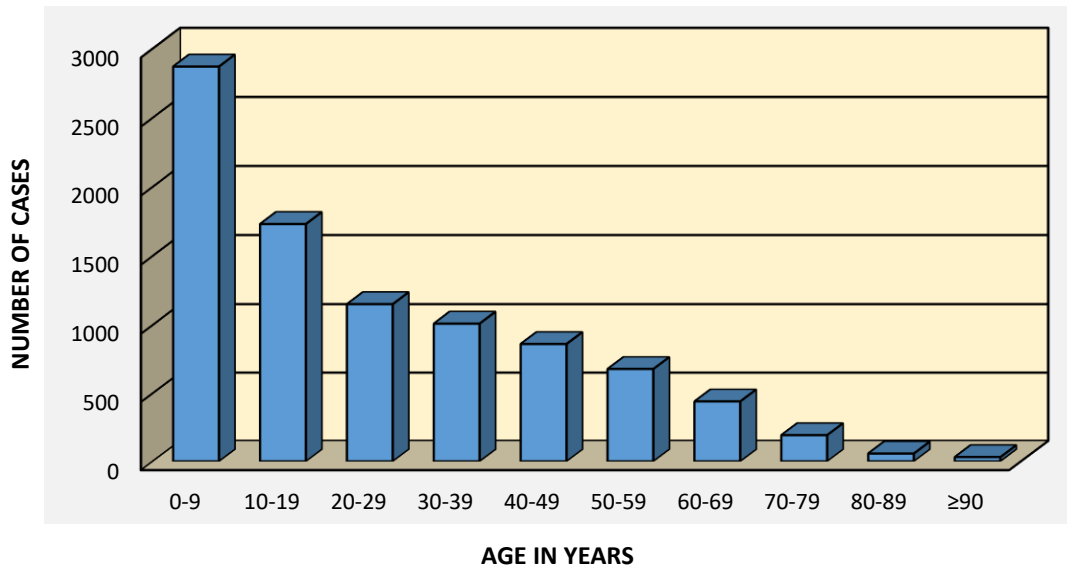


FIGURE 5
DISTRIBUTION OF 5 MOST COMMON MALIGNANCIES
BY AGE AT DIAGNOSIS AND SEER SUMMARY STAGE
(1975 – 2018)

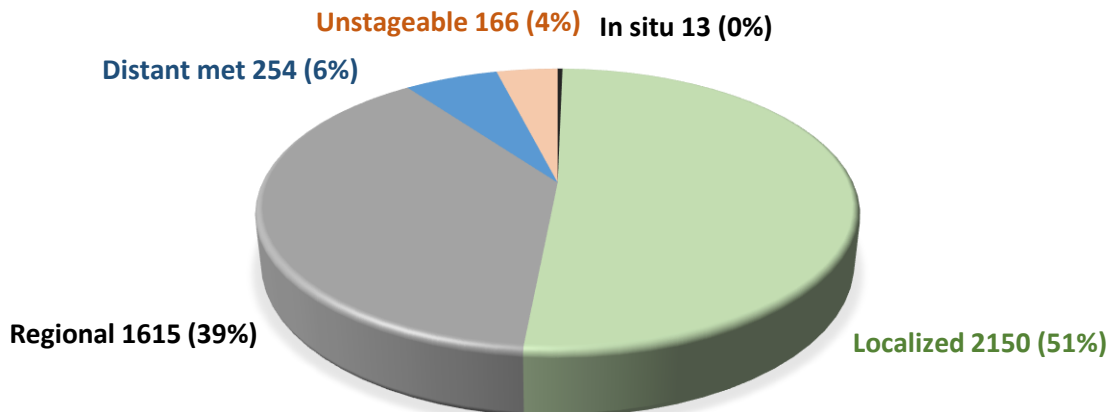
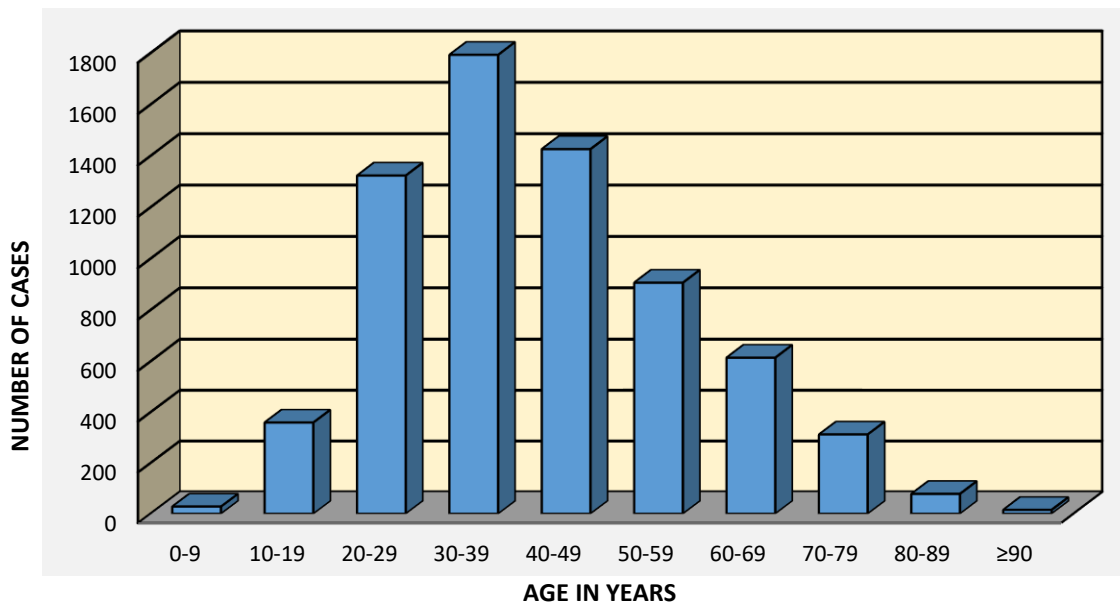
BREAST CANCER CASES



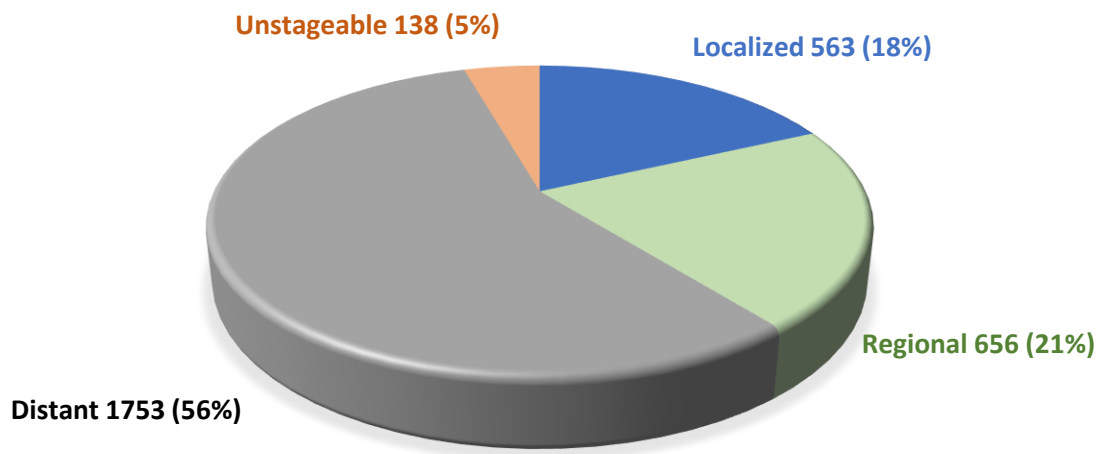
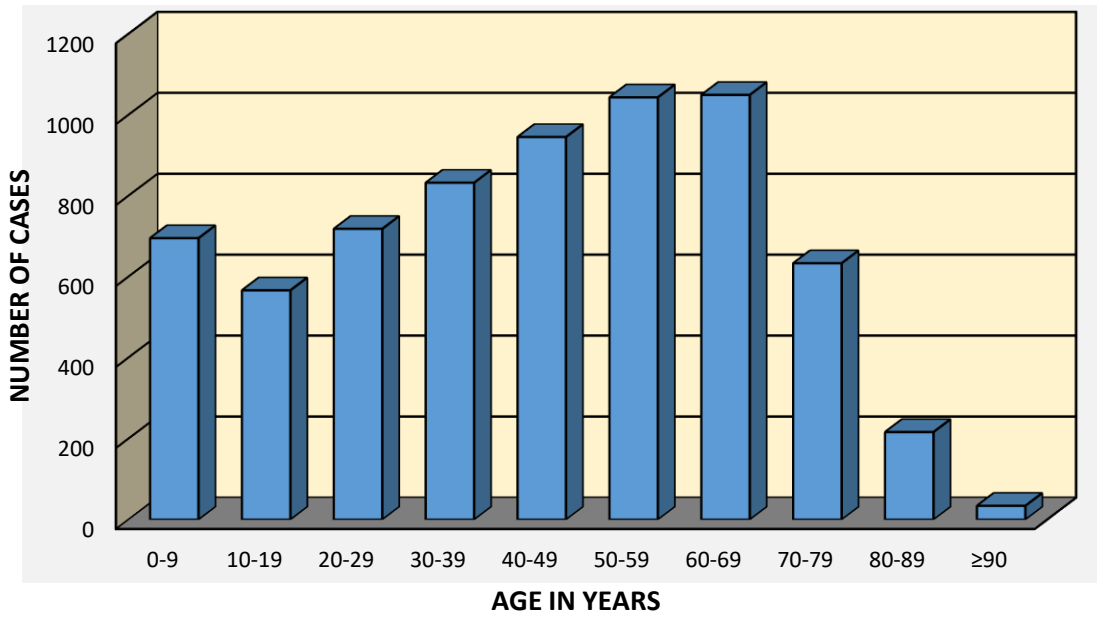
LEUKEMIA CASES



THYROID CANCER CASES



NON-HODGKIN'S LYMPHOMA CASES



BRAIN CANCER CASES

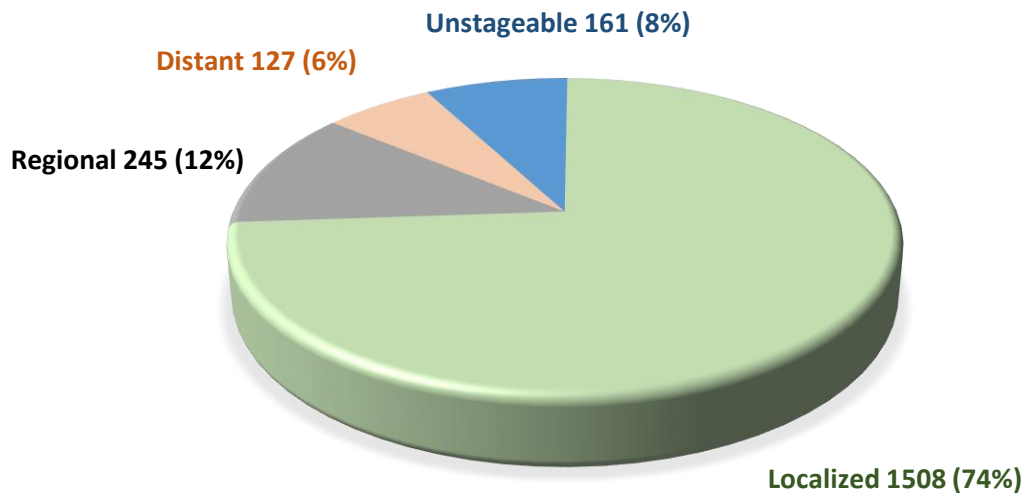
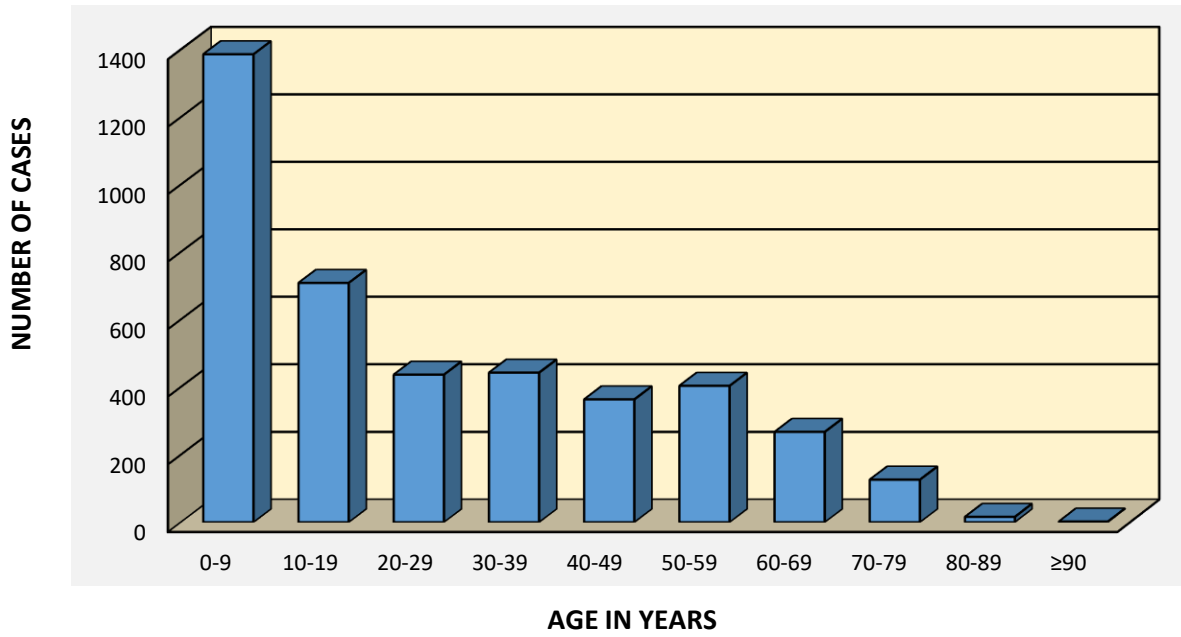


TABLE 2

**TEN MOST COMMON MALIGNANCIES BY AGE GROUP AT DIAGNOSIS
1975 - 2018**

SITE	AGE GROUP	No	%
BREAST	00 - 14	2	0.0
	15 - 39	3,306	28.5
	40 - 60	6,432	55.5
	>60	1,839	15.9

SITE	AGE GROUP	No	%
HODGKIN LYMPHOMA	00 - 14	1,020	27.0
	15 - 39	2,105	55.7
	40 - 60	469	12.4
	>60	182	4.8

SITE	AGE GROUP	No	%
LEUKEMIA	00 - 14	3,700	41.0
	15 - 39	3,059	33.9
	40 - 60	1,537	17.0
	>60	719	7.9

SITE	AGE GROUP	No	%
UTERINE	00 - 14	7	0.2
	15 - 39	608	16.4
	40 - 60	1,693	45.7
	>60	1,399	37.7

SITE	AGE GROUP	No	%
THYROID	00 - 14	129	1.9
	15 - 39	3,374	49.2
	40 - 60	2,332	34.0
	>60	1019	14.9

SITE	AGE GROUP	No	%
LIVER	00 - 14	122	3.8
	15 - 39	174	5.4
	40 - 60	1,154	35.8
	>60	1,770	54.9

SITE	AGE GROUP	No	%
NON-HODGKIN LYMPHOMA	00 - 14	944	14.0
	15 - 39	1,867	27.7
	40 - 60	1,988	29.5
	>60	1,932	28.7

SITE	AGE GROUP	No	%
LUNG & BRONCHUS	00 - 14	15	0.5
	15 - 39	215	6.7
	40 - 60	1,214	37.8
	>60	1,774	55.3

SITE	AGE GROUP	No	%
BRAIN, CNS	00 - 14	1,849	35.09
	15 - 39	1,433	27.2
	40 - 60	1335	25.3
	>60	652	12.4

SITE	AGE GROUP	No	%
NASOPHARYNX	00 - 14	108	3.8
	15 - 39	843	29.6
	40 - 60	1,320	46.4
	>60	575	20.2

Cancer among pediatrics (under the age of 15) accounted for 12.3% of all cases from 1975 to 2018. The five most common pediatric malignancies were Leukemia (30.4%), brain (15.9%), Hodgkin disease (8.9%), Non-Hodgkin Lymphoma (8.3%), Bone (6.8%).

FIGURE 6

**DISTRIBUTION OF 10 MOST COMMON PEDIATRIC MALIGNANCIES
1975-2018 (TOTAL CASES = 11,433)**

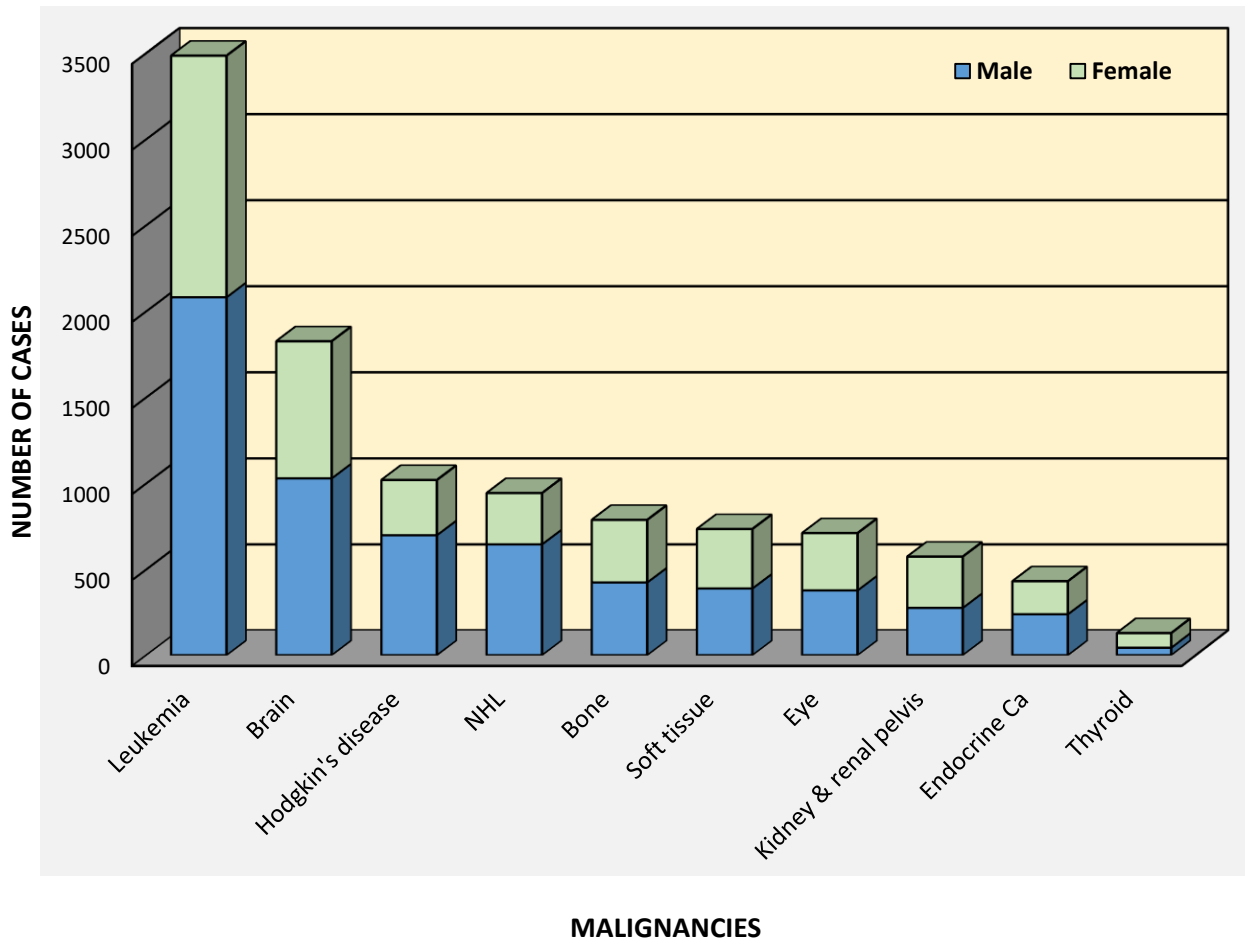
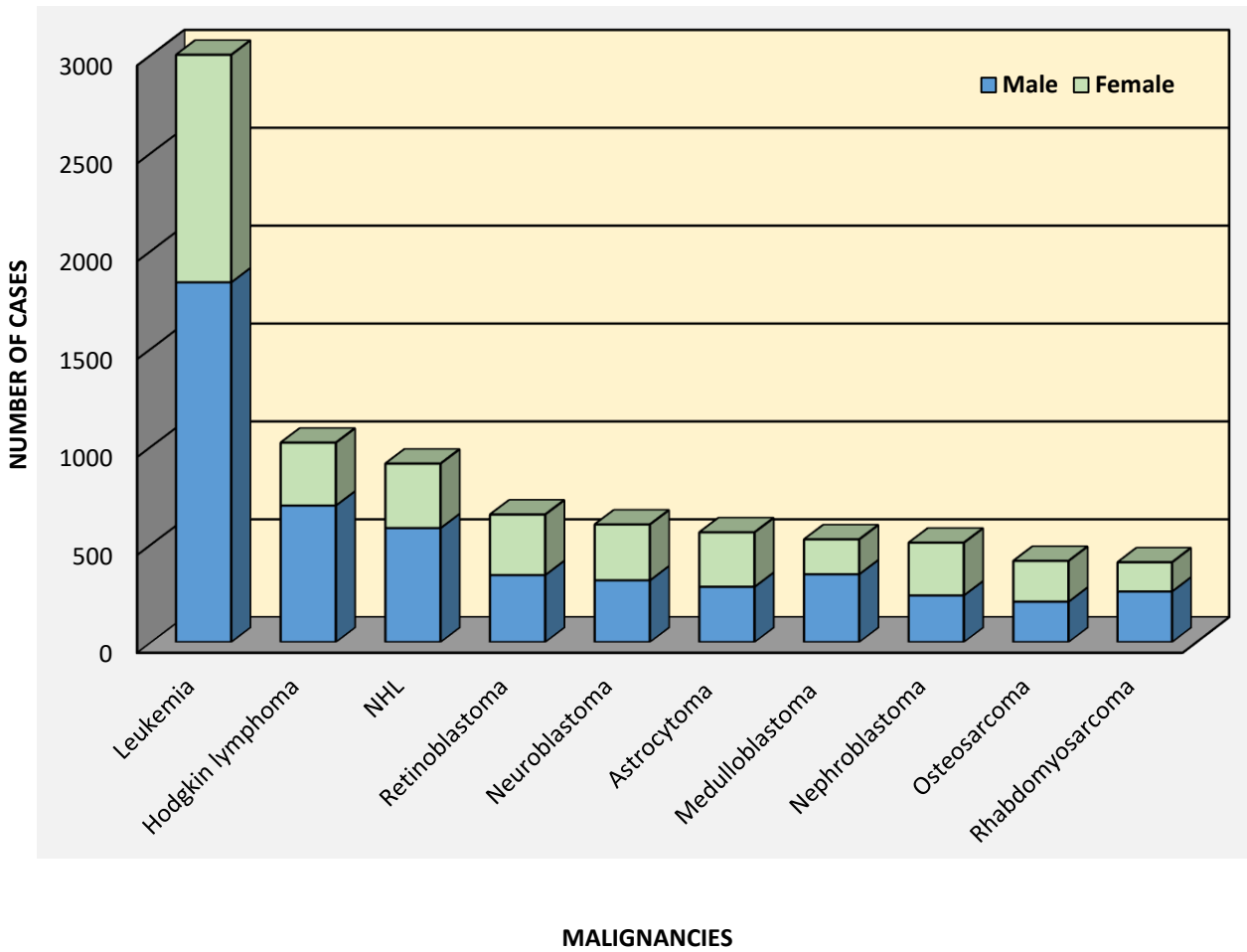


FIGURE 7

**DISTRIBUTION OF 10 MOST COMMON PEDIATRIC MALIGNANCIES BY HISTOLOGY
1975-2018 (TOTAL CASES = 11,433)**



**TABLE 3
CASES SEEN AT KFSH&RC BY SITE AND YEAR
1975-2018**

Site Group	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989
Oral Cavity	1	9	23	62	50	55	46	60	80	52	84	56	76	97	84
Nasopharynx	3	16	48	51	56	51	60	66	85	70	64	69	100	97	82
Esophagus	1	15	51	62	67	67	57	62	77	78	56	69	76	66	68
Stomach	2	15	32	35	50	37	49	51	64	60	49	64	61	47	52
Small intestine	0	0	4	0	2	2	2	1	0	5	3	5	1	1	6
Colon	1	10	10	12	12	16	20	19	16	24	13	24	35	35	30
Rectum & rectosigmoid	0	3	11	8	16	21	24	16	20	26	26	20	31	43	26
Anus,anal canal,anorectum	0	0	1	4	3	1	7	4	7	9	6	7	4	4	5
Liver	7	15	33	44	49	33	41	54	53	64	57	84	78	71	68
Gallbladder	0	2	3	4	2	2	4	6	4	4	6	7	14	9	5
Bile ducts	1	1	0	2	2	4	1	2	3	4	3	6	6	6	2
Pancreas	1	5	7	11	15	14	20	22	14	20	16	28	20	16	27
Peritoneum ,Retroperitoneum	0	0	2	1	2	1	0	0	2	1	0	1	0	1	1
Other digestive	0	0	0	2	2	5	4	1	1	0	3	1	4	3	6
Nasal cavity,sinus,ear	1	3	9	7	5	7	9	10	10	5	7	5	16	14	7
Larynx	1	5	12	12	12	14	20	13	23	22	25	16	23	33	21
Lung/Bronchus	3	11	23	34	45	40	56	63	74	74	87	84	83	106	90
Pleura	0	0	1	0	0	0	0	0	1	1	0	1	0	1	2
Other respir & thoracic	0	0	0	1	1	1	3	1	1	0	4	0	6	1	1
Leukemia	7	29	40	88	92	85	123	127	120	128	123	168	190	160	157
Myeloma	1	5	6	11	9	11	8	13	13	12	19	13	29	22	33
Bone	1	6	13	25	20	20	22	42	31	40	19	31	35	44	41
Soft tissue	1	16	29	29	31	23	29	40	32	35	38	47	48	49	59
Kaposi sarcoma	0	1	1	0	6	4	2	2	5	4	5	9	5	9	5
Skin	2	17	30	40	49	41	55	58	62	64	69	68	54	55	59
Breast	3	24	53	46	57	65	101	111	111	153	131	127	174	194	137
Uterus	1	11	20	23	31	22	34	33	44	47	51	65	67	71	54
Ovary	2	6	10	10	17	21	20	35	31	26	24	34	41	47	52
Vagina	0	0	5	2	0	1	2	0	2	2	3	1	2	1	2
Vulva	0	0	0	1	1	0	2	1	3	2	5	5	1	2	1
Other female genital	0	1	5	4	6	7	5	7	19	5	4	13	19	14	10
Prostate	0	7	5	4	5	10	11	18	28	19	19	17	22	27	27
Testis	0	3	9	8	10	11	15	11	7	12	14	14	17	17	9
Penis	0	1	1	0	1	0	2	2	3	4	0	0	0	2	2
Other male genital	0	0	0	0	2	0	1	0	1	0	3	0	3	0	2
Bladder	4	7	12	24	29	39	37	23	41	35	46	51	79	74	73
Kidney and renal pelvis	0	9	18	18	18	15	18	30	23	20	24	41	31	58	31
Ureter	0	0	0	0	0	0	0	0	0	1	1	0	3	1	1
Other urinary	0	0	0	0	0	0	0	0	0	1	0	1	0	0	1
Eye	0	6	11	19	12	24	29	34	25	17	30	24	35	44	26
Brain , CNS	3	24	27	40	26	31	31	77	53	59	49	71	88	92	98
Thyroid	2	8	17	28	33	44	57	51	66	71	63	82	119	112	110
Other endocrine	1	1	3	3	2	9	10	8	14	12	17	10	11	13	2
Hodgkin's disease	13	19	40	41	36	42	47	42	54	50	49	45	65	57	76
Non-hodgkin's lymphoma	4	23	73	75	103	112	128	116	172	139	124	142	157	153	165
Unknown or ill-defined	3	11	23	24	20	27	34	30	33	26	25	25	37	32	42
TOTAL	70	345	721	915	1007	1035	1246	1362	1528	1503	1464	1651	1966	2001	1858

TABLE 3 (cont 'd)
CASES SEEN AT KFSH&RC BY SITE AND YEAR
1975-2018

Site Group	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
Oral Cavity	79	85	85	72	76	98	80	92	71	91	102	73	73	107
Nasopharynx	86	78	80	85	79	85	113	109	124	119	98	143	87	111
Esophagus	72	66	69	47	50	50	52	51	62	34	52	37	42	43
Stomach	53	36	48	42	68	61	57	45	42	54	53	40	50	60
Small intestine	4	1	5	4	4	6	6	4	7	7	9	5	3	5
Colon	25	39	33	25	33	37	34	34	57	48	73	72	92	104
Rectum & rectosigmoid	31	35	48	46	52	48	54	62	59	94	75	77	106	99
Anus,anal canal,anorectum	8	6	7	12	10	5	6	6	7	4	7	7	8	14
Liver	55	66	76	82	103	102	103	96	84	89	85	92	73	70
Gallbladder	9	9	13	19	21	9	11	11	12	15	13	11	12	15
Bile ducts	4	2	7	2	7	3	9	7	10	9	8	9	10	7
Pancreas	12	13	27	21	22	25	21	24	34	18	38	26	31	30
Peritoneum ,Retroperitoneum	1	0	2	1	0	1	0	0	1	2	2	1	1	1
Other digestive	2	1	2	4	0	3	0	0	0	0	0	2	0	2
Nasal cavity,sinus,ear	13	12	8	9	11	10	9	4	8	14	10	9	11	10
Larynx	26	34	27	31	35	37	36	31	30	35	32	33	26	47
Lung/Bronchus	74	85	79	85	89	87	84	88	106	108	91	80	91	86
Pleura	2	0	3	4	3	1	2	1	1	2	3	8	1	4
Other respir & thoracic	2	7	3	7	8	4	4	8	8	8	2	1	5	2
Leukemia	134	158	146	192	171	211	168	229	238	262	268	249	269	267
Myeloma	15	28	26	25	40	30	21	14	23	16	28	20	19	20
Bone	37	40	52	54	56	56	56	63	71	63	75	83	74	62
Soft tissue	59	61	47	50	72	81	54	67	74	87	69	73	59	78
Kaposis sarcoma	4	5	14	2	3	6	11	6	8	8	4	7	9	9
Skin	46	56	62	60	68	51	66	57	40	64	57	67	44	57
Breast	168	169	188	251	241	232	281	292	336	341	383	362	377	409
Uterus	62	48	79	70	78	71	67	72	91	90	75	103	100	114
Ovary	46	36	44	55	50	55	56	60	63	53	53	51	44	55
Vagina	3	3	2	0	5	5	2	2	1	2	1	0	1	1
Vulva	4	5	1	4	5	5	2	1	0	1	2	3	2	2
Other female genital	9	13	12	12	19	7	11	8	6	6	5	5	10	13
Prostate	24	16	41	27	45	37	49	43	44	63	47	49	49	59
Testis	14	14	21	25	21	14	14	17	16	19	20	18	28	19
Penis	5	2	0	1	3	0	1	3	0	0	2	0	1	1
Other male genital	0	0	0	1	1	0	0	0	1	0	0	1	2	1
Bladder	60	44	65	88	72	60	56	65	85	91	80	81	71	93
Kidney and renal pelvis	35	33	52	51	65	48	47	49	58	70	57	72	64	55
Ureter	0	1	1	1	1	1	1	0	3	1	2	3	2	2
Other urinary	0	1	1	0	0	0	0	0	0	2	1	0	0	0
Eye	30	9	15	39	27	15	22	30	17	24	26	17	16	20
Brain , CNS	81	84	112	88	116	128	129	133	162	145	149	151	143	161
Thyroid	94	110	141	135	158	134	162	161	192	210	186	189	169	215
Other endocrine	7	10	14	15	15	14	14	20	12	15	23	14	18	38
Hodgkin's disease	56	57	75	73	78	88	76	76	98	117	131	121	121	132
Non-hodgkin's lymphoma	154	123	150	154	160	158	157	193	208	207	204	175	186	206
Unknown or ill-defined	39	40	51	42	50	36	41	35	50	42	45	49	53	45
TOTAL	1744	1741	2034	2113	2291	2215	2245	2369	2620	2750	2746	2689	2653	2951

TABLE 3 (cont 'd)
CASES SEEN AT KFSH&RC BY SITE AND YEAR
1975-2018

Site Group	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	TOTAL
Oral Cavity	77	106	83	108	93	92	61	91	75	82	88	90	98	79	80	3322
Nasopharynx	117	97	91	84	89	67	85	86	70	81	69	68	76	85	70	3550
Esophagus	37	41	36	30	31	31	29	31	30	21	31	25	26	29	27	2054
Stomach	68	57	59	48	49	64	59	56	60	63	76	56	43	38	33	2206
Small intestine	9	6	4	5	5	7	5	6	8	11	21	6	9	13	5	222
Colon	76	80	95	88	83	96	84	103	101	119	132	153	142	154	103	2592
Rectum & rectosigmoid	113	112	93	92	82	92	83	93	99	92	102	111	120	150	71	2682
Anus,anal canal,anorectum	5	5	3	5	5	1	4	2	3	5	7	4	10	6	2	236
Liver	60	37	68	50	72	89	97	112	104	104	93	100	111	101	95	3220
Gallbladder	14	8	8	11	10	6	9	11	5	11	23	17	12	24	21	442
Bile ducts	4	8	6	11	7	12	13	8	10	9	12	17	16	8	8	286
Pancreas	34	27	41	26	32	40	36	31	46	61	62	50	51	65	51	1231
Peritoneum ,Retroperitoneum	4	2	2	2	3	1	3	2	5	8	5	5	15	15	9	106
Other digestive	4	2	1	1	4	1	2	0	0	0	0	3	2	9	6	83
Nasal cavity,sinus,ear	9	13	11	12	8	8	5	4	7	4	4	11	10	13	14	386
Larynx	41	36	26	32	31	26	10	17	19	21	18	24	20	18	21	1072
Lung/Bronchus	94	84	64	60	63	61	63	73	72	81	92	64	82	84	66	3209
Pleura	3	3	1	3	2	4	1	0	3	3	0	4	1	2	1	73
Other respir & thoracic	4	3	3	1	4	7	7	6	5	5	2	3	6	2	0	147
Leukemia	229	214	236	212	250	233	260	230	291	263	256	251	286	308	264	8382
Myeloma	23	23	22	31	18	39	36	28	16	31	26	25	30	23	29	930
Bone	68	69	66	52	74	59	56	62	54	49	64	40	53	71	59	2128
Soft tissue	79	70	54	83	56	54	72	67	74	72	62	66	54	45	56	2401
Kaposi sarcoma	6	8	9	7	7	7	10	5	3	5	12	10	4	7	2	256
Skin	57	61	74	35	49	47	46	47	43	53	49	55	55	55	34	2278
Breast	431	380	326	349	357	338	375	412	375	431	490	396	414	545	443	11579
Uterus	109	94	97	107	107	120	89	107	115	98	145	124	122	141	144	3413
Ovary	51	48	55	44	54	49	69	51	47	49	56	53	57	48	52	1880
Vagina	2	1	0	0	0	2	0	2	1	0	1	5	3	1	1	70
Vulva	3	2	0	2	4	3	2	5	4	2	2	1	2	7	1	101
Other female genital	12	12	15	8	6	10	3	4	2	4	4	5	2	0	2	344
Prostate	59	75	46	39	60	45	47	38	37	48	68	66	60	66	73	1639
Testis	20	17	11	15	28	26	27	23	14	27	33	38	26	26	27	775
Penis	0	2	0	0	0	1	0	0	2	0	0	0	1	0	3	46
Other male genital	2	1	2	0	0	0	0	1	1	0	0	2	3	0	0	31
Bladder	102	88	66	69	65	66	82	66	62	79	75	76	93	76	71	2721
Kidney and renal pelvis	70	61	67	67	85	86	85	86	82	78	98	93	101	102	75	2346
Ureter	1	2	0	1	0	2	2	2	0	0	0	1	1	0	0	38
Other urinary	1	2	0	0	0	0	0	0	3	1	1	2	1	1	0	20
Eye	18	15	20	11	19	17	24	32	27	22	23	20	21	27	21	960
Brain , CNS	167	128	126	91	95	86	100	107	99	88	95	113	140	120	101	4207
Thyroid	214	216	205	229	254	225	212	245	248	245	288	293	297	312	252	6854
Other endocrine	27	26	23	17	30	24	28	17	25	14	20	23	22	28	22	691
Hodgkin's disease	144	130	101	118	118	122	104	96	117	107	148	113	124	146	113	3776
Non-hodgkin's lymphoma	218	181	167	178	172	149	163	140	154	160	156	195	172	230	175	6731
Unknown or ill-defined	49	32	28	19	25	31	31	24	22	39	30	27	50	50	30	1497
TOTAL	2935	2685	2511	2453	2606	2546	2579	2629	2640	2746	3039	2904	3044	3330	2733	93213

The largest number of cases in 2018 was noted in the 5th and 6th decades of life in males and in the 4th and 5th in females. The mean age was 46, the median was 49 and the mode was at 50. Pediatric malignancies were most common among children at two years of age and at one year of age.

FIGURE 8
DISTRIBUTION OF ALL CASES BY AGE AT DIAGNOSIS
2018 (TOTAL CASES = 2,733)

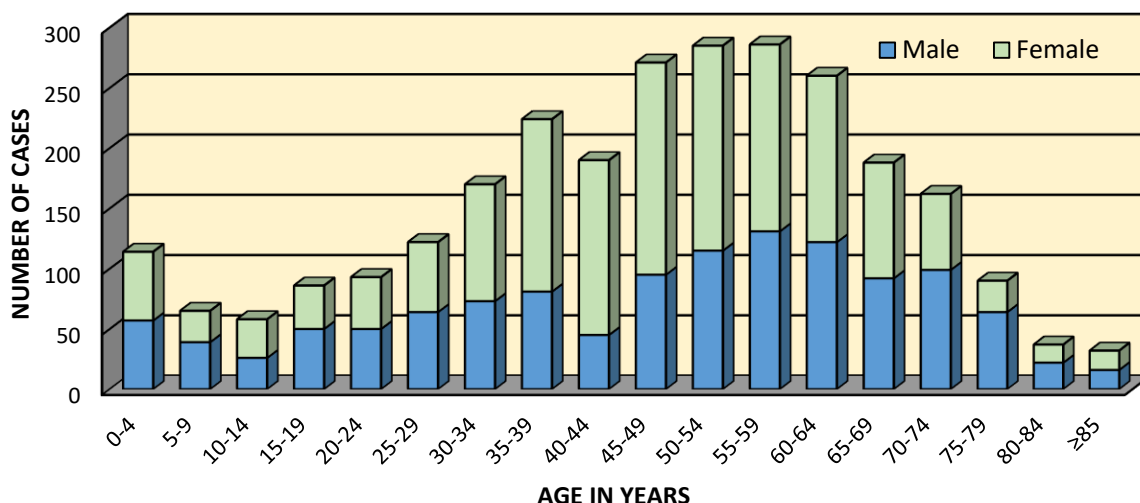
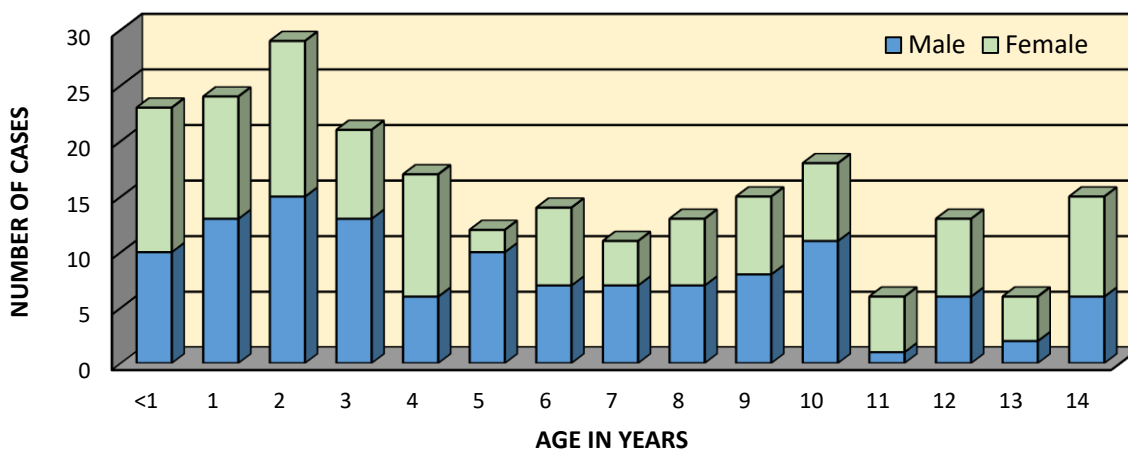


FIGURE 9
DISTRIBUTION OF PEDIATRIC CASES BY AGE AT DIAGNOSIS
2018 (TOTAL CASES = 237)



Of the 2,733 cases in 2018, 2,645 (96.8%) were analytic (defined as cases which were first diagnosed and/or received all or part of their first course of treatment at KFSH&RC). The remaining 88 cases (3.2%) were non-analytic (defined as cases diagnosed elsewhere and received all of their first course of treatment elsewhere). Out of the 2,645 analytic cases, pediatric cases totaled 237, with 122 males and 115 females.

See Table 4 for the distribution of cases by site, sex, class of case, and stage at diagnosis.

**TABLE 4
CASES SEEN AT KFSH&RC BY SITE, SEX, CLASS OF CASE, AND SUMMARY STAGE
2018**

Site Group	Total Cases	Class		Sex		STAGE				
		Analytic	NonAn	M	F	In Situ	Local	Regional	Distant	Unstageable
Oral Cavity	80	79	1	46	34	0	28	43	6	3
Nasopharynx	70	69	1	40	30	0	8	51	8	3
Esophagus	27	26	1	19	8	0	4	10	11	2
Stomach	33	31	2	23	10	0	8	6	15	4
Small Intestine	5	3	2	3	2	0	3	1	0	1
Colon	103	95	8	61	42	1	12	41	42	7
Rectum & Rectosigmoid	71	70	1	43	28	1	7	40	21	2
Anus,Anal Canal,Anorectum	2	2	0	2	0	0	0	2	0	0
Liver	95	92	3	66	29	0	55	8	19	13
Gallbladder	21	21	0	8	13	0	4	5	10	2
Bile Ducts	8	8	0	6	2	0	5	2	1	0
Pancreas	51	49	2	31	20	0	8	13	30	0
Peritoneum, Retroperitoneum	9	9	0	5	4	0	3	0	5	1
Other Digestive	6	5	1	4	2	0	1	0	5	0
Nasal Cavity,Sinus,Ear	14	13	1	11	3	0	3	6	3	2
Larynx	21	21	0	19	2	0	12	7	0	2
Lung/ Bronchus	66	65	1	48	18	0	13	15	38	0
Pleura	1	1	0	0	1	0	0	0	1	0
Leukemia	264	255	9	153	111	0	1	0	259	4
Myeloma	29	28	1	17	12	0	2	0	27	0
Bone	59	57	2	29	30	0	33	7	12	7
Soft Tissue	56	55	1	31	25	0	30	6	14	6
Skin	34	32	2	22	12	1	22	6	3	2
Kaposi Sarcoma	2	2	0	2	0	0	2	0	0	0
Breast	443	434	9	3	440	25	126	212	77	3
Uterus	144	144	0	0	144	11	74	26	34	10
Ovary	52	49	3	0	52	0	11	9	30	2
Vagina	1	1	0	0	1	0	0	0	1	0
Vulva	1	1	0	0	1	0	0	1	0	0
Other Female Genital	2	2	0	0	2	0	0	0	2	0
Prostate	73	70	3	73	0	2	34	12	23	2
Testis	27	23	4	27	0	0	14	8	4	1
Penis	3	3	0	3	0	1	2	0	0	0
Bladder	71	67	4	59	12	18	26	14	8	5
Kidney And Renal Pelvis	75	71	4	46	29	0	51	8	13	2
Eye	21	21	0	12	9	0	17	2	1	1
Brain , Cns	118	117	1	55	63	0	54	15	8	41
Thyroid	252	244	8	58	194	2	149	79	10	12
Other Endocrine	25	25	0	14	11	0	7	5	8	5
Hodgkin's Disease	113	109	4	79	34	0	21	13	65	14
Non-Hodgkin's Lymphoma	175	166	9	118	57	0	38	17	107	13
Unknown Or Ill-Defined	10	10	0	5	5	0	1	0	1	9
TOTAL	2733	2645	88	1241	1492	62	884	688	919	179

**TABLE 5
ANALYTIC CASES SEEN AT KFSH&RC BY SITE AND AGE
2018**

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	2	0	0	1	2	5	6	2	5	7	16	13	8	8	2	1	1	79
Nasopharynx	0	0	2	4	0	4	4	6	4	17	3	9	5	7	3	1	0	0	69
Esophagus	0	0	0	0	1	0	0	1	0	0	1	5	4	3	4	3	2	2	26
Stomach	0	0	0	0	2	0	3	3	0	4	5	2	3	2	2	4	1	0	31
Small intestine	0	0	0	0	0	0	1	0	0	0	0	1	1	0	0	0	0	0	3
Colon	0	1	0	1	0	2	2	8	5	14	12	13	14	7	7	6	2	1	95
Rectum & rectosigmoid	0	0	0	0	0	0	2	5	3	3	12	14	11	9	7	3	0	1	70
Anus,anal canal,anorectum	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	2
Liver	6	0	0	1	0	1	0	0	1	1	5	13	17	16	18	9	2	2	92
Gallbladder	0	0	0	0	0	0	1	1	0	2	1	1	7	3	2	1	0	2	21
Bile Ducts	0	0	0	0	0	0	0	0	0	0	1	3	0	0	2	2	0	0	8
Pancreas	0	0	0	0	0	1	3	5	2	5	6	10	3	5	8	1	0	0	49
Peritoneum,Retroperitoneum	1	0	0	0	0	0	1	1	0	0	1	3	0	1	1	0	0	0	9
Other digestive	0	0	0	0	0	0	0	0	0	0	2	2	1	0	0	0	0	0	5
Nasal cavity,sinus,ear	0	0	1	0	0	0	1	0	1	1	4	1	3	0	0	0	1	0	13
Larynx	0	0	0	0	0	0	0	0	1	1	5	3	4	1	0	5	1	0	21
Lung	0	0	0	0	1	1	2	3	1	3	4	11	11	11	7	7	2	1	65
Pleura	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1
Myeloma	0	0	0	0	0	0	1	0	0	3	10	3	4	5	1	0	0	1	28
leukemia	48	17	18	19	18	13	18	16	18	12	17	12	16	6	4	3	0	0	255
Bone	1	12	6	10	3	1	4	8	3	2	0	4	0	2	1	0	0	0	57
Soft tissue	6	2	3	3	2	4	4	2	4	8	4	3	0	4	1	3	0	2	55
Kaposi sarcoma	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	2
Skin	0	0	0	0	0	3	2	1	1	2	1	2	4	3	6	2	2	3	32
Breast	0	0	0	0	3	10	26	47	79	82	65	48	35	23	11	4	0	1	434
Uterus	0	0	0	0	0	1	4	16	9	12	16	16	24	16	16	4	4	6	144
Ovary	0	0	0	0	0	3	2	3	6	6	9	7	3	3	2	4	1	0	49
Vagina	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1
Vulva	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1
Other female genital	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	2
Prostate	0	0	0	0	0	0	0	0	1	0	6	9	8	12	17	10	5	2	70
Testis	1	0	0	2	3	10	5	1	0	0	1	0	0	0	0	0	0	0	23
Penis	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	1	0	3
Bladder	1	0	0	0	0	1	0	1	4	4	9	10	10	10	11	2	2	2	67
Kidney and renal pelvis	10	1	1	0	0	1	3	5	2	10	11	7	7	6	4	2	0	1	71
Eye	14	2	0	0	0	1	0	0	0	0	0	0	0	0	2	1	1	0	21
Brain ,CNS	14	9	5	7	7	9	5	19	8	7	9	6	7	1	2	0	1	1	117
Thyroid	0	2	1	7	14	20	30	43	18	31	28	16	14	10	3	3	3	1	244
Other endocrine	6	3	0	0	1	1	5	1	1	3	2	1	1	0	0	0	0	0	25
Hodgkin's disease	0	7	12	14	18	16	16	8	3	8	2	4	0	0	1	0	0	0	109
Non-hodgkin's lymphoma	4	4	5	16	13	13	14	7	8	15	16	17	16	7	3	5	2	1	166
Unknown or ill-defined	0	0	1	1	1	0	0	0	1	1	1	1	0	1	1	0	1	0	10
TOTAL	112	62	55	85	88	118	164	217	187	263	276	273	249	186	156	88	35	31	2645

**TABLE 6
ANALYTIC MALE CASES SEEN AT KFSH&RC BY SITE AND AGE
2018**

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	2	0	0	1	2	2	4	2	2	4	10	6	3	4	2	1	1	46
Nasopharynx	0	0	0	2	0	4	1	1	2	12	2	6	4	4	1	0	0	0	39
Esophagus	0	0	0	0	1	0	0	1	0	0	1	4	2	3	2	3	1	0	18
Stomach	0	0	0	0	2	0	1	2	0	3	2	2	3	1	1	4	1	0	22
Small intestine	0	0	0	0	0	0	1	0	0	0	0	1	1	0	0	0	0	0	3
Colon	0	0	0	1	0	1	1	7	1	8	7	7	7	4	6	5	1	1	57
Rectum & rectosigmoid	0	0	0	0	0	0	1	3	3	3	8	7	4	6	5	3	0	0	43
Anus,anal canal,anorectum	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	2
Liver	4	0	0	0	0	1	0	0	1	1	4	9	11	13	13	5	1	2	65
Gallbladder	0	0	0	0	0	0	0	0	0	1	0	0	3	1	1	1	0	1	8
Bile ducts	0	0	0	0	0	0	0	0	0	0	1	3	0	0	1	1	0	0	6
Pancreas	0	0	0	0	0	1	1	3	0	3	5	6	3	2	4	1	0	0	29
Peritoneum,Retroperitoneum	1	0	0	0	0	0	1	0	0	0	0	1	0	1	1	0	0	0	5
Other digestive	0	0	0	0	0	0	0	0	0	0	1	2	1	0	0	0	0	0	4
Nasal cavity,sinus,ear	0	0	1	0	0	0	1	0	0	0	3	1	3	0	0	0	1	0	10
Larynx	0	0	0	0	0	0	0	0	1	1	4	2	4	1	0	5	1	0	19
Lung / Bronchus	0	0	0	0	0	0	1	2	0	3	1	7	9	11	6	5	2	0	47
Myeloma	0	0	0	0	0	0	0	0	0	3	6	1	2	3	1	0	0	1	17
Leukemia	22	10	8	13	10	7	10	9	10	9	11	5	12	4	4	3	0	0	147
Bone	1	6	3	5	1	1	2	5	2	2	0	0	0	0	0	0	0	0	28
Soft tissue	3	1	0	1	1	2	2	2	4	6	1	1	0	2	0	3	0	1	30
Kaposi sarcoma	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	2
Skin	0	0	0	0	0	3	1	1	1	1	1	2	2	1	4	1	1	2	21
Breast	0	0	0	0	0	0	0	0	0	0	1	1	0	1	0	0	0	0	3
Prostate	0	0	0	0	0	0	0	0	1	0	6	9	8	12	17	10	5	2	70
Testis	1	0	0	2	3	10	5	1	0	0	1	0	0	0	0	0	0	0	23
Penis	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	1	0	3
Bladder	0	0	0	0	0	1	0	1	3	4	7	10	8	7	10	2	2	2	57
Kidney and renal pelvis	3	0	0	0	0	0	3	3	1	8	7	5	6	4	2	2	0	1	45
Eye	6	2	0	0	0	1	0	0	0	0	0	0	0	0	2	0	1	0	12
Brain , CNS	9	5	1	4	3	2	3	8	4	2	7	1	3	1	1	0	0	0	54
Thyroid	0	0	0	2	2	3	10	11	2	6	6	4	3	0	2	2	1	0	54
Other endocrine	3	1	0	0	1	0	4	0	0	2	2	1	0	0	0	0	0	0	14
Hodgkin's disease	0	6	8	7	13	12	10	7	2	6	1	4	0	0	1	0	0	0	77
Non-hodgkin's lymphoma	3	3	4	11	9	11	9	5	4	8	12	9	11	4	2	3	2	1	111
Unknown or ill-defined	0	0	0	1	0	0	0	0	1	1	0	0	0	1	1	0	0	0	5
TOTAL	56	36	25	49	47	62	70	76	45	95	112	121	118	92	93	62	22	15	1196

**TABLE 7
ANALYTIC FEMALE CASES SEEN AT KFSH&RC BY SITE AND AGE
2018**

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	0	0	0	3	2	0	3	3	6	7	5	4	0	0	0	33
Nasopharynx	0	0	2	2	0	0	3	5	2	5	1	3	1	3	2	1	0	0	30
Esophagus	0	0	0	0	0	0	0	0	0	0	0	1	2	0	2	0	1	2	8
Stomach	0	0	0	0	0	0	2	1	0	1	3	0	0	1	1	0	0	0	9
Colon	0	1	0	0	0	1	1	1	4	6	5	6	7	3	1	1	1	0	38
Rectum & rectosigmoid	0	0	0	0	0	0	1	2	0	0	4	7	7	3	2	0	0	1	27
Liver	2	0	0	1	0	0	0	0	0	0	1	4	6	3	5	4	1	0	27
Gallbladder	0	0	0	0	0	0	1	1	0	1	1	1	4	2	1	0	0	1	13
Bile ducts	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	2
Pancreas	0	0	0	0	0	0	2	2	2	2	1	4	0	3	4	0	0	0	20
Peritoneum,Retroperitoneum	0	0	0	0	0	0	0	1	0	0	1	2	0	0	0	0	0	0	4
Other digestive	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1
Nasal cavity,sinus,ear	0	0	0	0	0	0	0	0	1	1	1	0	0	0	0	0	0	0	3
Larynx	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	2
Lung	0	0	0	0	1	1	1	1	1	0	3	4	2	0	1	2	0	1	18
Pleura	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1
Myeloma	0	0	0	0	0	0	1	0	0	0	4	2	2	2	0	0	0	0	11
Leukemia	26	7	10	6	8	6	8	7	8	3	6	7	4	2	0	0	0	0	108
Bone	0	6	3	5	2	0	2	3	1	0	0	4	0	2	1	0	0	0	29
Soft tissue	3	1	3	2	1	2	2	0	0	2	3	2	0	2	1	0	0	1	25
Skin	0	0	0	0	0	0	1	0	0	1	0	0	2	2	2	1	1	1	11
Breast	0	0	0	0	3	10	26	47	79	82	64	47	35	22	11	4	0	1	431
Uterus	0	0	0	0	0	1	4	16	9	12	16	16	24	16	16	4	4	6	144
Ovary	0	0	0	0	0	3	2	3	6	6	9	7	3	3	2	4	1	0	49
Vagina	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1
Vulva	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1
Other female genital	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	2
Bladder	1	0	0	0	0	0	0	0	1	0	2	0	2	3	1	0	0	0	10
Kidney and renal pelvis	7	1	1	0	0	1	0	2	1	2	4	2	1	2	2	0	0	0	26
Eye	8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	9
Brain , CNS	5	4	4	3	4	7	2	11	4	5	2	5	4	0	1	0	1	1	63
Thyroid	0	2	1	5	12	17	20	32	16	25	22	12	11	10	1	1	2	1	190
Other endocrine	3	2	0	0	0	1	1	1	1	1	0	0	1	0	0	0	0	0	11
Hodgkin's disease	0	1	4	7	5	4	6	1	1	2	1	0	0	0	0	0	0	0	32
Non-hodgkin's lymphoma	1	1	1	5	4	2	5	2	4	7	4	8	5	3	1	2	0	0	55
Unknown or ill-defined	0	0	1	0	1	0	0	0	0	0	1	1	0	0	0	0	1	0	5
TOTAL	56	26	30	36	41	56	94	141	142	168	164	152	131	94	63	26	13	16	1449

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 cancers are more common. The following 2018 analytic cases exhibit significant differences in trends from those of the U.S.A when compared to the data published in Cancer Facts & Figures - 2018, by the American Cancer Society:

TABLE 8
COMPARATIVE DATA - KFSH&RC vs USA
(% to TOTAL CANCER CASES)

SITE	KFSH&RC 2018 Analytics	USA 2018 Estimates
BREAST	16.2%	15.5%
LEUKEMIA	9.7%	3.5%
THYROID	9.3%	3.1%
NON-HODGKIN LYMPHOMA	6.4%	4.3%
UTERUS	5.3%	3.6%
BRAIN,CNS	4.2%	1.4%
HODGKIN DISEASE	4.1%	0.5%
COLON	3.8%	5.6%
LIVER	3.5%	2.4%
KIDNEY & RENAL PELVIS	2.7%	3.8%

Breast - The most common malignancy seen at KFSH&RC is breast cancer, comprising 16.2% of all cases, as compared to 15.5% of all neoplasms diagnosed in the U.S.A. It affects mostly women under the age of 50, while in the U.S.A., those more than 50 years of age are most frequently affected. As in the Western countries, it is the number one cancer among women.

Leukemia - The most striking feature is the high crude relative frequency of leukemia cases, 9.7% of all cases seen at KFSH&RC, as compared to 3.68% of all neoplasms diagnosed in the U.S.A.

Thyroid – 9.3% of all malignancies in KFSH&RC are thyroid cancer, much higher than in the West, it accounts for only 3.1% of all cases in the U.S.A.

Non-Hodgkin Lymphoma - Cases of non-Hodgkin's lymphoma account for 6.4% of all cases. In the U.S.A., NHL accounts for only 4.3% of all cancers.

Uterus - Primary malignant neoplasms of the Uterus account for 5.3% of all malignancies. This is higher than in the U.S.A., with only 3.6% of all cases.

Brain, CNS – The incidence of Brain & CNS is comparatively more frequent at KFSH&RC than in Western countries. In the U.S.A., it constitutes 1.4% of all cancers, compared to 4.2% at KFSH&RC.

Hodgkin Disease – The relative frequency of Hodgkin Disease cases at KFSH&RC is 4.1% as compared to the West recorded as 0.5%.

Colon – A crude relative frequency rate was also noted in cancer of colon. In Western countries it accounts for 5.6% of all cancers, whereas at KFSH&RC represents 3.8% of the cases.

Liver - The relative frequency of Liver cases at KFSH&RC is 3.5% as compared to the West recorded as 2.4%.

Kidney & renal pelvis – frequency of Kidney & Renal Pelvis malignancies in Western Countries is 3.8%, while in KFSH&RC it accounts for 2.7% of all cancers.

FIGURE 10
DISTRIBUTION OF 20 MOST COMMON MALIGNANCIES
2018 ANALYTIC CASES (TOTAL CASES = 2,645)

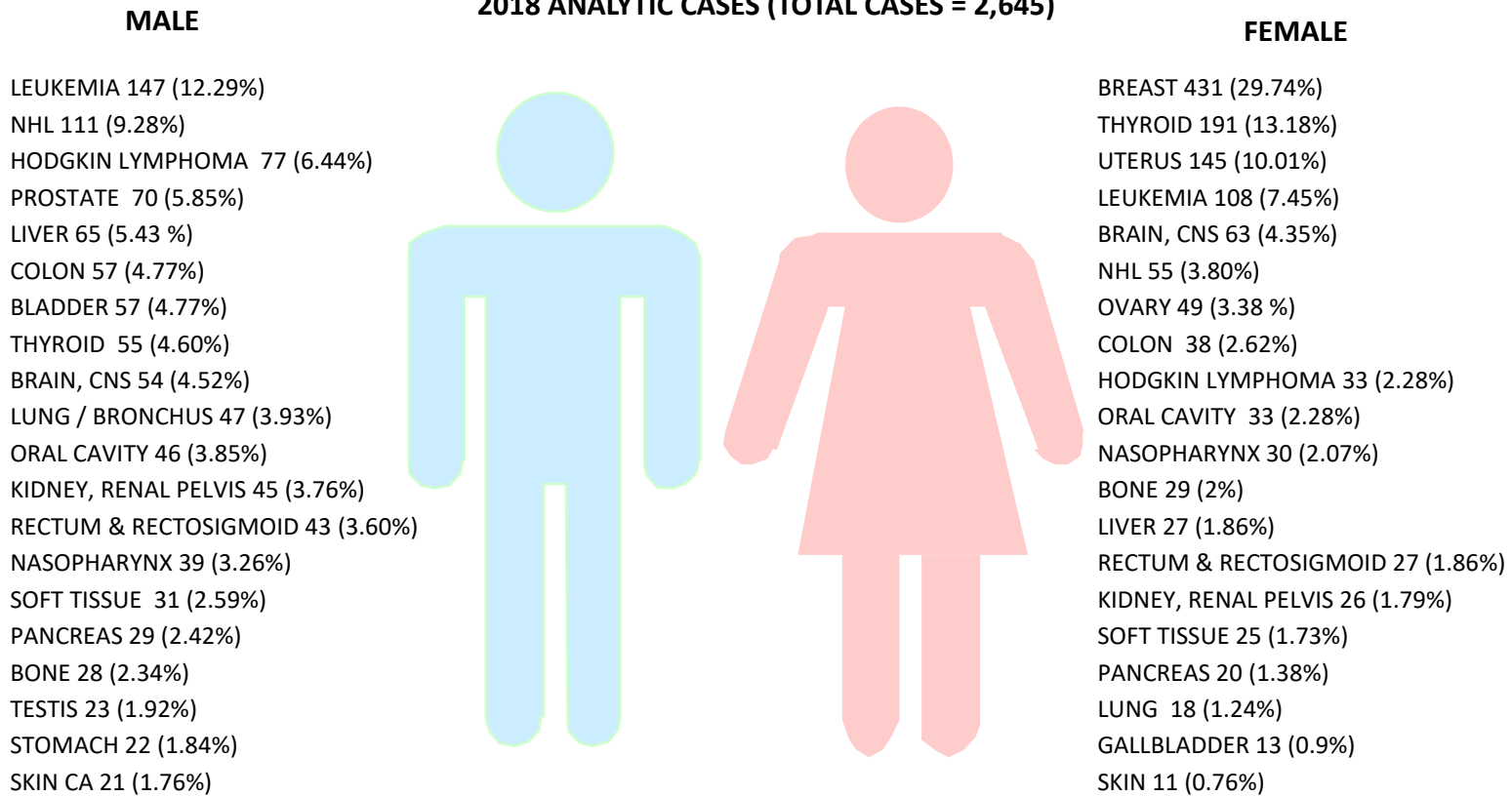


FIGURE 11
DISTRIBUTION OF MOST COMMON PEDIATRIC MALIGNANCIES
2018 ANALYTIC CASES (TOTAL CASES= 229)

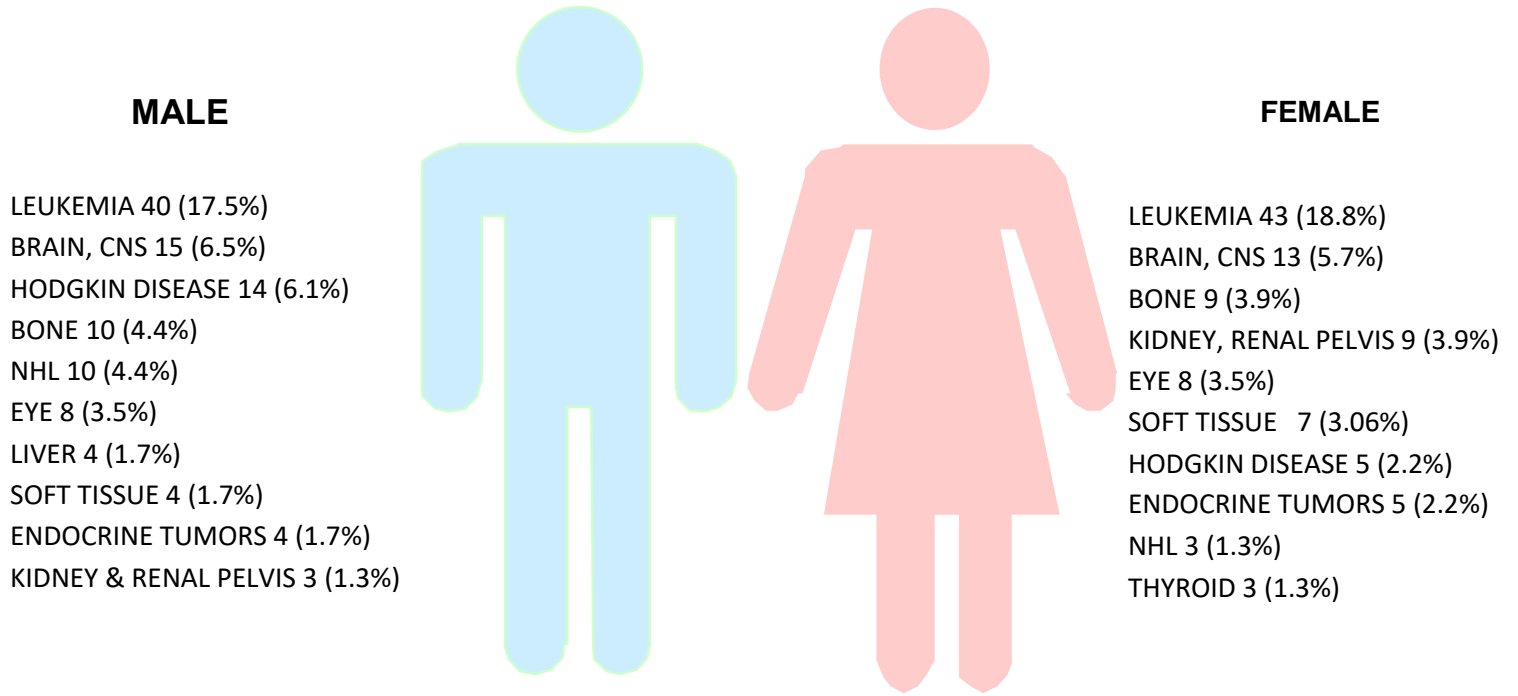


FIGURE 12
DISTRIBUTION OF MOST COMMON PEDIATRIC MALIGNANCIES BY HISTOLOGY
2018 ANALYTIC CASES (TOTAL CASES= 229)

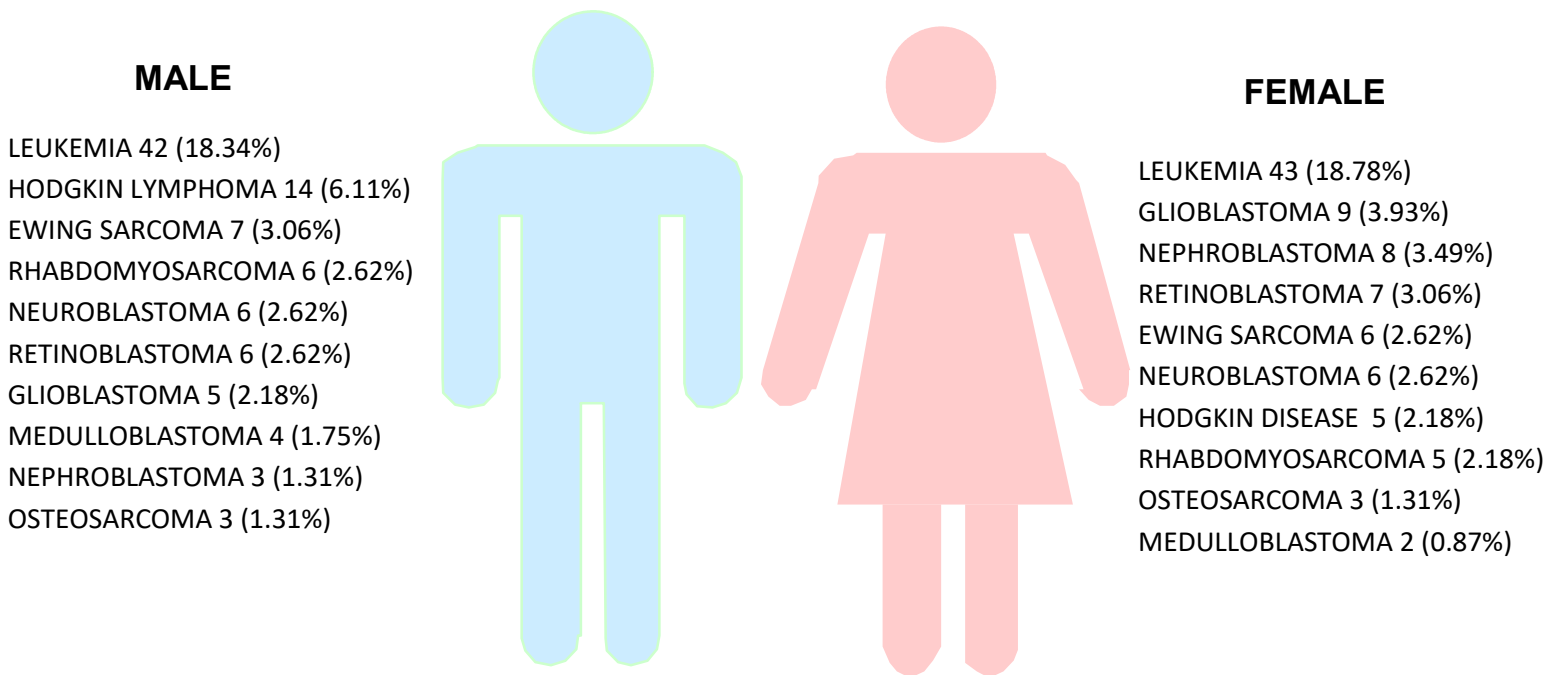


TABLE 9
PRIMARY SITE TABLE
(INCLUDES MULTIPLE PRIMARIES)
2018

SITE	HISTOLOGY (NOS - Not Otherwise Specified)	ALL CASES	ADULTS		PEADIATRICS	
			MALE	FEMALE	MALE	FEMALE
		2,733	1,119	1,377	122	115
LIP		5	4	1	0	0
	Basal cell carcinoma	1	1	0	0	0
	Squamous cell carcinoma Keratinizing NOS	1	1	0	0	0
	Squamous cell carcinoma NOS	3	2	1	0	0
TONGUE		35	21	14	0	0
	Squamous cell carcinoma Keratinizing NOS	3	2	1	0	0
	Squamous cell carcinoma NOS	32	19	13	0	0
GUM		4	3	1	0	0
	Squamous cell carcinoma NOS	4	3	1	0	0
SALIVARY GLANDS, MAJOR		12	5	7	0	0
	Acinar cell carcinoma	2	1	1	0	0
	Adenocarcinoma NOS	1	0	1	0	0
	Basal cell adenocarcinoma	1	0	1	0	0
	Carcinoma in pleopmorphic adenoma	1	1	0	0	0
	Invasive carcinoma of no special type	1	1	0	0	0
	Mucoepidermoid carcinoma	3	2	1	0	0
	Pleopmorphic carcinoma	1	0	1	0	0
	Squamous cell Keratinizing NOS	1	0	1	0	0
	Squamous cell carcinoma NOS	1	0	1	0	0
OTHER PARTS OF MOUTH		24	11	11	2	0
	Adenoid cystic carcinoma	3	2	1	0	0
	Sq cell carcinoma keratinizing NOS	4	3	1	0	0
	Squamous cell carcinoma NOS	15	6	9	0	0
	Rhabdomyosarcoma NOS	2	0	0	2	0
NASOPHARYNX		63	37	22	2	2
	Carcinoma NOS	11	6	5	0	0
	Carcinoma undiffernetiated NOS	33	20	11	1	1
	Papillary adenocarcinoma NOS	1	0	1	0	0
	Sqcell ca large cell nonkeratinizing NOS	16	11	5	0	0
	Chondroid chordoma	2	0	0	1	1
HYPOPHARYNX		5	1	4	0	0
	Squamous cell carcinoma NOS	5	1	4	0	0
LARYNX		20	18	2	0	0
	Carcinoma NOS	1	1	0	0	0
	Nut carcinoma	1	1	0	0	0
	Pseudosarcomatous carcinoma	1	1	0	0	0
	Squamous cell carcinoma keratinizing	2	2	0	0	0
	Squamous cell carcinoma NOS	15	13	2	0	0

SITE	HISTOLOGY (NOS - Not Otherwise Specified)	ALL CASES	ADULTS		PEADIATRICS	
			MALE	FEMALE	MALE	FEMALE
NASAL CAVITY, MIDDLE EAR		15	11	3	1	0
	Adenocarcinoma NOS	1	0	1	0	0
	Adenoid cystic carcinoma	1	0	1	0	0
	Basal cell carcinoma nodular	1	1	0	0	0
	Carcinoma NOS	1	1	0	0	0
	Undifferentiated carcinoma	2	1	1	0	0
	Clear cell sarcoma (Except of kidney)	1	1	0	0	0
	Hemangiosarcoma	1	1	0	0	0
	Malignant Melanoma (Except juvenile melanoma)	1	1	0	0	0
	Squamous cell carcinoma keratinizing	1	1	0	0	0
	squamous cell carcinoma NOS	3	3	0	0	0
	Small cell carcinoma NOS	1	0	0	1	0
	Squamous cell carcinoma spindle cell	1	1	0	0	0
ESOPHAGUS		27	19	8	0	0
	Adenocarcinoma intestinal type	2	2	0	0	0
	Adenocarcinoma NOS	11	10	1	0	0
	Signet ring cell carcinoma	1	1	0	0	0
	Small cell carcinoma NOS	1	1	0	0	0
	Squamous cell carcinoma NOS	12	5	7	0	0
STOMACH		33	23	10	0	0
	Adenocarcinoma NOS	19	14	5	0	0
	Atypical carcinoid tumor	2	1	1	0	0
	Carcinoid tumor NOS	1	1	0	0	0
	Carcinoma diffuse type	2	1	1	0	0
	Carcinoma NOS	1	1	0	0	0
	Gastrointestinal stromal sarcoma	1	1	0	0	0
	Mucinous adenocarcinoma	2	2	0	0	0
	Signet ring cell carcinoma	5	2	3	0	0
SMALL INTESTINE		5	3	2	0	0
	Adenocarcinoma NOS	4	2	2	0	0
	Gasrointestinal stromal Sarcoma	1	1	0	0	0
COLON		104	61	41	1	1
	Adenocarcinoma in tubulovillous adenoma	1	1	0	0	0
	Adenocarcinoma NOS	87	51	36	0	0
	Atypical carcinoid tumor	1	0	1	0	0
	Carcinoma in situ NOS	1	1	0	0	0
	Mucinous adenocarcinoma	9	6	3	0	0
	Neoplasm malignant	2	1	1	0	0
	Signet ring cell carcinoma	1	1	0	0	0
	Carcinoid tumor NOS	2	0	0	1	1
OTHER DIGESTIVE		6	4	2	0	0
	Adenocarcinoma NOS	4	4	0	0	0
	Mucinous adenocarcinoma	1	0	1	0	0
	Neuroendocrine carcinoma NOS	1	0	1	0	0
RECTUM & RECTOSIGMOID JUNCTION		70	42	28	0	0
	Adenocarcinoid tumor	1	1	0	0	0
	Adenocarcinoma in tubulovillous adenoma	1	1	0	0	0
	Adenocarcinoma NOS	65	38	27	0	0
	Carcinoid tumor NOS	1	1	0	0	0
	Mucinous adenocarcinoma	1	0	1	0	0
	Neuroendocrine carcinoma NOS	1	1	0	0	0

SITE	HISTOLOGY (NOS - Not Otherwise Specified)	ALL CASES	ADULTS		PEADIATRICS	
			MALE	FEMALE	MALE	FEMALE
ANUS, ANAL CANAL, ANORECTUM		2	2	0	0	0
	Adenocarcinoma NOS	2	2	0	0	0
LIVER		95	62	27	4	2
	Adenocarcinoma NOS	2	1	1	0	0
	Carcinoma NOS	1	0	1	0	0
	Cholangiocarcinoma	4	4	0	0	0
	Combined hepatocellular and cholangiocarcinoma	1	0	1	0	0
	Hepatocellular carcinoma clear cell type	1	0	1	0	0
	Hepatocellular carcinoma NOS	83	57	23	2	1
	Hepatoblastoma	3	0	0	2	1
GALLBLADDER		22	9	13	0	0
	Adenocarcinoma NOS	11	3	8	0	0
	Carcinoma NOS	2	0	2	0	0
	Cholangiocarcinoma	8	6	2	0	0
	Neoplasm malignant	1	0	1	0	0
PANCREAS		51	31	20	0	0
	Adenocarcinoma NOS	45	29	16	0	0
	Carcinoid tumor NOS	1	1	0	0	0
	Neuroendocrine carcinoma NOS	5	1	4	0	0
BILE DUCTS		8	6	2	0	0
	Adenocarcinoma NOS	5	3	2	0	0
	Cholangiocarcinoma	3	3	0	0	0
SOFT TISSUES,CONNECTIVE, SUBCUTEANEOUS		55	27	18	5	5
	Clear cell sarcoma NOS (except of kidney)	1	0	1	0	0
	Dermatofibrosarcoma NOS	3	2	0	0	1
	Desmoplastic small cell tumor	1	1	0	0	0
	Fibromyxosarcoma	1	1	0	0	0
	Giant cell sarcoma (except of bone)	2	1	1	0	0
	Leiomyosarcoma NOS	3	2	1	0	0
	Liposarcoma NOS	3	3	0	0	0
	Liposarcoma well differentiated	2	2	0	0	0
	Malignant myoepithelioma	1	1	0	0	0
	Malignant tynosynovial giant cell tumor	1	1	0	0	0
	Myxoid leiomyosarcoma	1	1	0	0	0
	Myxoid liposarcoma	5	3	2	0	0
	Pleomorphic liposarcoma	1	1	0	0	0
	Pleomorphic rhabdomyosarcoma adut type	1	0	1	0	0
	Primitve neuroectodermal tumor NOS	1	0	1	0	0
	Rhabdomyosarcoma NOS	8	1	0	4	3
	Sarcoma NOS	7	3	4	0	0
	Small cell sarcoma	2	0	2	0	0
	Spindle cell sarcoma	6	2	4	0	0
	Squmous cell carcinoma NOS	1	1	0	0	0
	Synovial sarcoma NOS	4	1	1	1	1

SITE	HISTOLOGY (NOS - Not Otherwise Specified)	ALL CASES	ADULTS		PEADIATRICS	
			MALE	FEMALE	MALE	FEMALE
LUNG, BRONCHUS		46	28	18	0	0
	Adenocarcinoma NOS	9	2	7	0	0
	Adenosquamous carcinoma	2	1	1	0	0
	Carcinoid tumor NOS	1	0	1	0	0
	Carcinoma NOS	2	2	0	0	0
	Epithelioid hemangioendothelioma	1	0	1	0	0
	Large cell carcinoma	1	1	0	0	0
	Non mucinous adenocarcinoma minimally invasive	1	1	0	0	0
	Mucinous adenocarcinoma	1	0	1	0	0
	Mucoepidermoid carcinoma	1	1	0	0	0
	Neoplasm Malignant	1	1	0	0	0
	Neuroendocrine carcinoma	2	2	0	0	0
	Non-small cell carcinoma	5	3	2	0	0
	Squamous cell carcinoma keratinizing	1	1	0	0	0
	Squamous cell carcinoma NOS	12	9	3	0	0
	Small cell carcinoma NOS	6	4	2	0	0
PLEURA		1	0	1	0	0
	Mesothelioma malignant	1	0	1	0	0
BONE, JOINTS, CARTILAGE		59	19	20	10	10
	Adamantinoma of long bones	2	0	2	0	0
	Chondroblastic osteosarcoma	3	1	0	1	1
	Chondrosarcoma NOS	4	3	1	0	0
	Epithelioid sarcoma	1	1	0	0	0
	Ewing sarcoma	20	6	2	7	5
	Fibroblastic osteosarcoma	1	1	0	0	0
	Giant cell tumor of bone malignant	1	1	0	0	0
	Malignant tumor giant cell type	1	1	0	0	0
	Osteosarcoma NOS	14	4	6	2	2
	Sarcoma NOS	1	0	1	0	0
	Small cell sarcoma	1	0	1	0	0
	Spindle cell sarcoma	2	1	1	0	0
	Squamous cell carcinoma keratinizing NOS	1	0	1	0	0
	Squamous cell carcinoma NOS	5	0	5	0	0
	Osteosarcoma in pagets disease of bone	1	0	0	0	1
	Rhabdomyosarcoma NOS	1	0	0	0	1
KAPOSIS SARCOMA		2	2	0	0	0
	Kaposis sarcoma	0	2	0	0	0
BONE MARROW		251	101	65	42	43
	Acute leukemia NOS	10	4	1	1	4
	Acute myeloid leukemia 11q23 abnormalities	2	0	1	0	1
	AML minimal differentiation	16	7	4	4	1
	Acute myeloid leukemia NOS	39	16	11	7	5
	Acute myelomonocytic leukemia	1	1	0	0	0

SITE	HISTOLOGY (NOS - Not Otherwise Specified)	ALL CASES	ADULTS		PEADIATRICS	
			MALE	FEMALE	MALE	FEMALE
	Acute promyelocytic leukemia	6	5	1	0	0
	Adult t-cell leukemia/lymphoma	1	1	0	0	0
	B lymphoblastic leukemia/lymphoma, NOS	22	5	7	6	4
	B-cell CLL/small lymphocytic lymphoma	11	7	4	0	0
	Burkitt cell leukemia	22	4	2	8	8
	Chronic myeloid leukemia NOS	28	15	13	0	0
	Chronic myelomonocytic leukemia NOS	2	2	0	0	0
	Essential thrombocythemia	5	2	3	0	0
	Hairy cell leukemia	6	6	0	0	0
	Hypereosinophilic syndrome	2	2	0	0	0
	Langerhans cell histiocytosis NOS	2	1	0	0	1
	Langerhans cell sarcoma	1	1	0	0	0
	Leukemia NOS	51	13	7	14	17
	Myelodysplastic syndrome NOS	3	1	2	0	0
	Myelodysplastic/MPN , unclassifiable	5	3	2	0	0
	Myelosclerosis with myeloid metaplasia	3	1	2	0	0
	Polycythemia vera	6	3	3	0	0
	Precursor b-cell lymphoblastic leukemia	1	0	1	0	0
	Precursor t-cell lymphoblastic leukemia	4	1	1	1	1
	Juvenile myelomonocytic leukemia	1	0	0	0	1
	Refractory thrombocytopenia	1	0	0	1	0
MULTIPLE MYELOMA		29	17	12	0	0
	Multiple myeloma	27	16	11	0	0
	Plasmacytoma NOS	2	1	1	0	0
OTHER HEMATOPOIETIC		13	10	3	0	0
	Essential Thrombocythemia	1	0	1	0	0
	Myelodysplastic syndrome NOS	8	6	2	0	0
	Myelodysplastic/MPN , unclassifiable	2	2	0	0	0
	Polycythemia vera	2	2	0	0	0
SKIN (MELANOMA)		3	2	1	0	0
	Malignant melanoma NOS	3	2	1	0	0
SKIN (NON MELANOMA)		31	20	10	0	1
	Basal cell carcinoma nodular	2	1	1	0	0
	Basal cell carcinoma NOS	10	6	4	0	0
	Dermatofibrosarcoma NOS	2	2	0	0	0
	Malignant giant cell tumor of soft parts	1	0	1	0	0
	Neoplasm malignant	1	0	1	0	0
	Squamous cell carcinoma in situ NOS	1	0	1	0	0
	Squamous cell carcinoma keratinizing NOS	1	0	1	0	0
	Squamous cell carcinoma NOS	13	11	1	0	1

SITE	HISTOLOGY (NOS - Not Otherwise Specified)	ALL CASES	ADULTS		PEADIATRICS	
			MALE	FEMALE	MALE	FEMALE
RETROPERITONEUM, PERITONEUM		9	5	3	1	0
	Adenocarcinoma NOS	1	1	0	0	0
	Leiomyosarcoma NOS	1	0	1	0	0
	Liposarcoma well differentiated	1	1	0	0	0
	Mesothelioma malignant	1	0	1	0	0
	Mucinous adenocarcinoma	1	1	0	0	0
	Paraganglioma malignant	1	1	0	0	0
	Pleomorphic rhabdomyosarcoma adult	1	1	0	0	0
	Spindle cell sarcoma	1	0	1	0	0
	Neuroblastoma NOS	1	0	0	1	0
BREAST		443	3	440	0	0
	Adenocarcinoma NOS	3	0	3	0	0
	Carcinoma NOS	1	0	1	0	0
	Cribriform carcinoma in situ	2	0	2	0	0
	Cribriform carcinoma NOS	1	0	1	0	0
	Dcis & mixed w/other in situ	1	0	1	0	0
	Invasive duct and lobular carcinoma	2	0	2	0	0
	Intraductal carcinoma noninvasive NOS	17	0	17	0	0
	Invasive ductal carcinoma	370	3	367	0	0
	Lobular carcinoma in situ NOS	4	0	4	0	0
	Lobular carcinoma NOS	32	0	32	0	0
	Mucinous adenocarcinoma	1	0	1	0	0
	Noninvasive intracystic carcinoma	1	0	1	0	0
	Papillary carcinoma NOS	1	0	1	0	0
	Phyllodes tumor malignant	2	0	2	0	0
	Spindle cell carcinoma NOS	2	0	2	0	0
	Squamous cell carcinoma NOS	1	0	1	0	0
	Tubular adenocarcinoma	2	0	2	0	0
VULVA		1	0	1	0	0
	Squamous cell carcinoma NOS	1	0	1	0	0
VAGINA		1	0	1	0	0
	Squamous cell carcinoma NOS	1	0	1	0	0
CERVIX UTERI		50	0	50	0	0
	Squamous cell carcinoma in situ NOS	2	0	2	0	0
	Squamous intraepithelial neoplasia GR III	9	0	9	0	0
	Adenocarcinoma NOS	9	0	9	0	0
	Carcinoma NOS	1	0	1	0	0
	Carcinosarcoma NOS	1	0	1	0	0
	Endometrioid adenocarcinoma NOS	2	0	2	0	0
	Rhabdomyosarcoma NOS	1	0	1	0	0
	Serous cystadenocarcinoma NOS	2	0	2	0	0
	Sq cell ca keratinizing NOS	2	0	2	0	0
	Sq cell ca large cell nonkeratinizingNOS	3	0	3	0	0
	Squamous cell carcinoma NOS	18	0	18	0	0

SITE	HISTOLOGY (NOS - Not Otherwise Specified)	ALL CASES	ADULTS		PEADIATRICS	
			MALE	FEMALE	MALE	FEMALE
CORPUS UTERI		84	0	84	0	0
	Adenocarcinoma NOS	38	0	38	0	0
	Adenocarcinoma with mixed subtypes	1	0	1	0	0
	Adenosquamous carcinoma	4	0	4	0	0
	Carcinoma NOS	4	0	4	0	0
	Carcinosarcoma NOS	1	0	1	0	0
	Endometrial stromal sarcoma NOS	2	0	2	0	0
	Endometrioid adenocarcinoma NOS	21	0	21	0	0
	Malignant serous tumor	1	0	1	0	0
	Mucinous adenocarcinoma	2	0	2	0	0
	Papillary serous cystadenocarcinoma	1	0	1	0	0
	Serous cystadenocarcinoma NOS	7	0	7	0	0
	Squamous cell carcinoma NOS	1	0	1	0	0
	Stromal sarcoma NOS	1	0	1	0	0
UTERUS, NOS		11	0	11	0	0
	Adenocarcinoma NOS	1	0	1	0	0
	Adenocarcinoma W/ Squamous Metaplasia	1	0	1	0	0
	Carcinosarcoma NOS	2	0	2	0	0
	Clear Cell Adenocarcinoma NOS	1	0	1	0	0
	Endometrial Stromal Sarcoma NOS	1	0	1	0	0
	Leiomyosarcoma NOS	4	0	4	0	0
	Serous Cystadenocarcinoma NOS	1	0	1	0	0
OVARY		52	0	52	0	0
	Adenocarcinoma NOS	7	0	7	0	0
	Carcinoid Tumor NOS	1	0	1	0	0
	Carcinoma NOS	4	0	4	0	0
	Endometrioid Adenocarcinoma	1	0	1	0	0
	Granulosa Cell Tumor Malignant	1	0	1	0	0
	Malignant Serous Tumor	2	0	2	0	0
	Mucinous Adenocarcinoma	5	0	5	0	0
	Papillary Serous Cystadenocarcinoma	1	0	1	0	0
	Serous Adenocarcinofibroma	1	0	1	0	0
	Serous Cystadenocarcinoma	26	0	26	0	0
	Sertoli-Leydig Cell Tumor Poorly Differentiated	1	0	1	0	0
	Teratoma Malignant	1	0	1	0	0
	Undifferentiated Sarcoma	1	0	1	0	0
OTHER FEMAL GENITAL		2	0	2	0	0
	Adenocarcinoma NOS	1	0	1	0	0
	Trophoblastic Placenta Malignant	1	0	1	0	0

SITE	HISTOLOGY (NOS - Not Otherwise Specified)	ALL CASES	ADULTS		PEADIATRICS	
			MALE	FEMALE	MALE	FEMALE
PROSTATE		74	73	0	1	0
	Adenocarcinoma NOS	68	68	0	0	0
	Glandular Intraepithelial Neoplasia Grade III	2	2	0	0	0
	Invasive Carcinoma Of No Special Type	1	1	0	0	0
	Neoplasm Malignant	1	1	0	0	0
	Small Cell Carcinoma	1	1	0	0	0
TESTIS		28	26	0	2	0
	Yolk Sac Tumor	2	0	0	2	0
	Embryonal Carcinoma NOS	5	5	0	0	0
	Germ Cell Tumor Nonseminomatous	1	1	0	0	0
	Germinoma	3	3	0	0	0
	Leiomyosarcoma NOS	1	1	0	0	0
	Mixed Germ Cell Tumor	8	8	0	0	0
	Seminoma NOS	5	5	0	0	0
	Teratocarcinoma	1	1	0	0	0
	Teratoma Malignant NOS	2	2	0	0	0
PENIS		3	3	0	0	0
	Squamous Cell Carcinoma	2	2	0	0	0
	Squamous Intraepithelial Neoplasia Grade III	1	1	0	0	0
KIDNEY		75	43	19	3	10
	Nephroblastoma	12	0	0	3	9
	Neuroblastoma	1	0	0	0	1
	Clear Cell Adenocarcinoma	6	5	1	0	0
	Papillary Adenocarcinoma	5	4	1	0	0
	Renal Cell Carcinoma Chromophobe Type	8	5	3	0	0
	Renal Cell Carcinoma	41	27	14	0	0
	Renal Cell Carcinoma Sarcomatoid	1	1	0	0	0
	Transitional Cell Carcinoma	1	1	0	0	0
URINARY BLADDER		1	0	0	0	1
	Rhabdomyosarcoma NOS	1	0	0	0	1
EYE		21	4	1	8	8
	Alveolar Soft Part Sarcoma	1	0	0	0	1
	Adenoid Cystic Carcinoma	1	1	0	0	0
	Squamous Cell Carcinoma	4	3	1	0	0
	Retinoblastoma Differentiated	2	0	0	1	1
	Retinoblastoma NOS	9	0	0	4	5
	Retinoblastoma Undifferentiated	2	0	0	1	1
	Rhabdomyosarcoma NOS	1	0	0	1	0
	Teratoid Medulloepithelioma	1	0	0	1	0

SITE	HISTOLOGY (NOS - Not Otherwise Specified)	ALL CASES	ADULTS		PEADIATRICS	
			MALE	FEMALE	MALE	FEMALE
BRAIN		118	39	49	15	15
	Astrocytoma NOS	14	5	6	1	2
	Astrocytoma Anaplastic	3	1	2	0	0
	Angiocentric Glioma	1	0	1	0	0
	Atypical Meningioma	1	0	1	0	0
	Cavernous Hemangioma	1	0	0	1	0
	Choroid Plexus Carcinoma	1	0	0	1	0
	Dysembryoplastic Neuroepithelial Tumor	1	1	0	0	0
	Ependymoma Anaplastic	4	1	0	2	1
	Ependymoma Myxopapillary Malignant	1	1	0	0	0
	Ependymoma NOS	2	1	1	0	0
	Fibrous Meningioma	1	0	1	0	0
	Ganglioglioma NOS	2	0	1	0	1
	Gemistocytic Astrocytoma	1	1	0	0	0
	Glioblastoma NOS	21	13	7	0	1
	Glioblastoma IDH-Mutant	2	0	2	0	0
	Glioma Malignant	6	0	1	3	2
	Gliosarcoma	2	1	1	0	0
	Hemangiopericytoma Malignant	1	1	0	0	0
	Medulloblastoma NOS	8	2	0	4	2
	Meningioma Malignant	7	0	7	0	0
	Meningioma NOS	5	1	4	0	0
	Neurilemoma Malignant	1	0	1	0	0
	Neurilemoma NOS	3	2	1	0	0
	Neuroblastoma NOS	4	1	0	1	2
	Oligodendroglioma Anaplastic	5	2	3	0	0
	Oligodendroglioma NOS	11	3	7	1	0
	Papillary Meningioma	1	0	1	0	0
	Paraganglioma	1	1	0	0	0
	Pilocytic Astrocytoma	7	1	1	1	4
OTHER NERVOUS SYSTEM		2	1	1	0	0
	Meningioma NOS	2	1	1	0	0
THYROID		240	44	192	1	3
	Papillary Adenocarcinoma	205	59	144	0	2
	Mixed Medullarypapillary Carcinoma	3	2	0	0	1
	Carcinoma Anaplastic NOS	2	0	2	0	0
	Carcinoma NOS	3	0	3	0	0
	Follicular Adenocarcinoma NOS	6	1	5	0	0
	Follicular Carcinoma Minimally Invasive	6	2	4	0	0
	Follicular Thyroid Carcinoma (FTC)	1	0	1	0	0
	Neoplasm Malignant	1	0	1	0	0
	Noninvasive FTN W/ (NIFTP)	2	0	2	0	0
	Nonencapsulated Sclerosing Carcinoma	1	0	1	0	0
	Oxyphilic Adenocarcinoma	2	1	1	0	0
	Papillary Carcinoma Columnar Cell	5	0	5	0	0
	Papillary Carcinoma Follicular Variant	14	1	13	0	0
	Papillary Microcarcinoma	13	3	10	0	0

SITE	HISTOLOGY (NOS - Not Otherwise Specified)	ALL CASES	ADULTS		PEADIATRICS	
			MALE	FEMALE	MALE	FEMALE
OTHER ENDOCRINE GLANDS		24	10	6	4	4
	Neuroblastoma NOS	7	0	0	4	3
	Ganglioneuroblastoma	1	0	0	0	1
	Adrenal Cortical Carcinoma	2	1	1	0	0
	Carcinoma NOS	3	2	1	0	0
	Germinoma	1	1	0	0	0
	Neuroendocrine Carcinoma NOS	1	0	1	0	0
	Paraganglioma Malignant	1	0	1	0	0
	Pituitary Adenoma NOS	3	2	1	0	0
	Squamous Cell Carcinoma NOS	2	1	1	0	0
	Thymoma Type B1 Malignant	1	1	0	0	0
	Thymoma Type B2 Malignant	2	2	0	0	0
LYMPH NODES (HODGKIN'S LYMPHOMA)		114	65	30	14	5
	Hodgkin lymphoma lymphocyte-rich	3	3	0	0	0
	Hodgkin lymphoma mixed cellularity NOS	13	10	2	1	0
	HL nodular lymphocyte predominance	4	2	1	0	1
	Hodgkin lymphoma nodular sclerosis NOS	51	22	20	6	3
	Hodgkin lymphoma NOS	42	28	7	6	1
	HL lymphocyte depletion NOS	1	0	0	1	0
LYMPH NODES (NON HODGKIN'S LYMPHOMA)		175	102	54	12	3
	Adult T-cell leukemia/lymphoma (HTLV-1 +)	1	1	0	0	0
	Anaplastic lrg cell lymph T & null cell type	1	1	0	0	0
	Angioimmunoblastic T-cell lymphoma	1	0	1	0	0
	B lymphoblastic leukemia/lymphoma, NOS	2	1	0	0	1
	B-cell CLL/small lymphocytic lymphoma	6	4	2	0	0
	Burkitt lymphoma NOS	11	5	2	4	0
	Follicular lymphoma GR 1	2	2	0	0	0
	Follicular lymphoma GR 2	3	2	1	0	0
	Follicular lymphoma GR 3	1	1	0	0	0
	Follicular lymphoma NOS	5	4	1	0	0
	Diffuse large B-cell lymphoma	57	36	21	0	0
	Malignant lymphoma lymphoplasmacytic	3	1	1	0	1
	Malignant lymphoma non-hodgkin NOS	30	18	9	2	1
	Malignant lymphoma NOS	20	14	4	2	0
	Mantle cell lymphoma	2	1	1	0	0
	Marginal zone B-cell lymphoma NOS	1	0	1	0	0
	Mature T-cell lymphoma NOS	5	4	1	0	0
	Mycosis fungoides	17	10	6	1	0
	Precursor T-cell lymphoblastic leukemia	6	1	2	3	0
	Primary cutaneous CD30+ T-cell LPD	1	0	1	0	0
PRIMARY UNKNOWN OR ILL DEFINED		4	3	1	0	0
	Ewing Sarcoma	2	1	0	0	1
	Adenocarcinoma NOS	1	0	1	0	0
	Basal Cell Carcinoma NOS	1	1	0	0	0
	Carcinoma NOS	1	1	0	0	0

**TABLE 10
MULTIPLE PRIMARY SITE TABLE
2018**

PRIMARY SITE	HISTOLOGY	OTHER PRIMARIES	ALL CASES	
2018	(NOS - Not Otherwise Specified)	(PREVIOUS OR CONCURRENT)	MALE	FEMALE
			26	6
LIP			1	1
Sq Cell Carcinoma		Esophagus - Adenocarcinoma	1	1
				0
MOUTH			1	0
Small Cell Carcinoma		Breast - Ductal Carcinoma	1	0
				1
COLON			2	1
Adenocarcinoma		Nasal Cavity - Carcinoma	1	1
Adenocarcinoma		Thyroid - Papillary Adenocarcinoma	1	0
				1
SKIN			1	1
Sq Cell Carcinoma		Thyroid - Papillary Adenocarcinoma	1	1
				0
BREAST			11	0
Ductal Carcinoma		Breast - Ductal Carcinoma	6	0
Ductal Carcinoma		Breast - Intraductal Ca NonInfiltrating	1	0
Ductal Carcinoma		Rectum - Adenocarcinoma	1	0
Ductal Carcinoma		Thymus - Sq Cell Carcinoma	1	0
Ductal Carcinoma		Breast - Lobular Carcinoma	1	0
Lobular Carcinoma		Breast - Lobular Carcinoma	1	0
				11
CORPUS UTERI			2	0
Adenocarcinoma		Thyroid - Papillary Adenocarcinoma	1	0
Sq Cell Carcinoma		Skin - Basal Cell Ca	1	0
				1
KIDNEY			1	1
Renal Cell Ca		Prostate - Adenocarcinoma	1	1
				0
URINARY BLADDER			1	1
Transitional Cell Ca		Prostate - Adenocarcinoma	1	1
				0
THYROID			6	1
Papillary Adenocarcinoma		Breast - Lobular Carcinoma	1	0
Papillary Adenocarcinoma		Breast - Ductal Carcinoma	1	0
Papillary Adenocarcinoma		Retroperitoneum - Leiomyosarcoma	1	0
Papillary Adenocarcinoma		Nasopharynx - Sq Cell Ca Nonkeratinizing	1	1
Papillary Adenocarcinoma		Endometrium - Adenocarcinoma	2	0
				5

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 2018 (Figure 13).

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

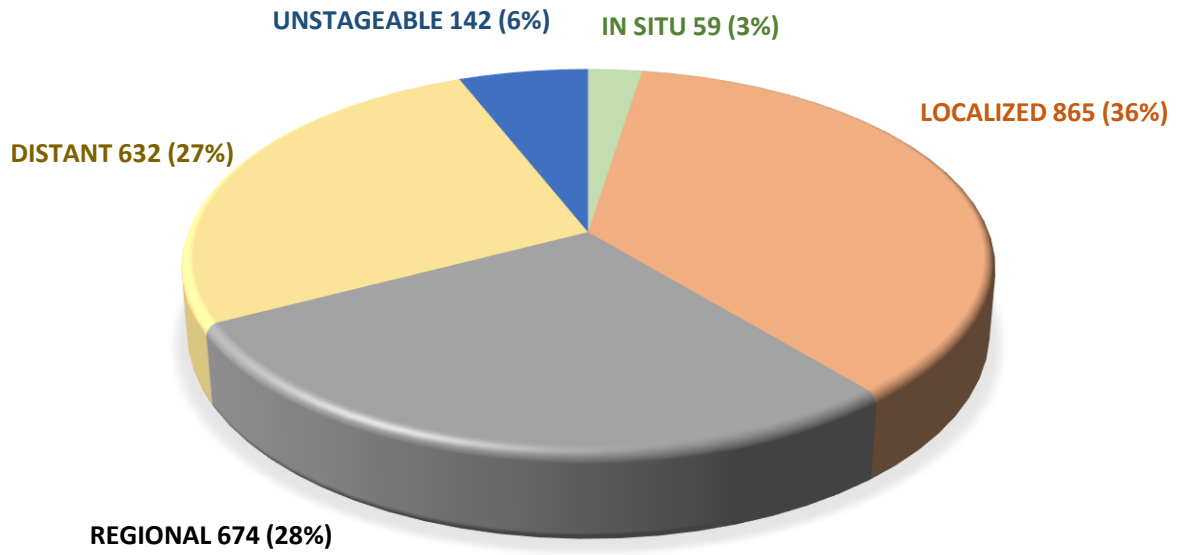
N: Absence or presence and extent of regional lymph node involvement

M: Absence or presence of distant metastasis

Analytic cases of five major sites, i.e., Breast, Thyroid, Non-Hodgkin Lymphoma, Uterus and Hodgkin lymphoma are presented in Table 12 with their clinical group stages and yearly comparative figures from 2013 to 2018.

FIGURE 13

**DISTRIBUTION OF ANALYTIC CASES BY (SEER) STAGE AT DIAGNOSIS
2018 (TOTAL CASES=2,645)**



*Excludes Hematopoietic Primaries (255 cases)

**Excludes Unstageable Unknown Primaries (16 cases)

TABLE 12

AJCC CLINICAL TNM STAGE GROUP OF 2013-2018 CASES OF MAJOR SITES *BY YEAR

BREAST							
STAGE	2013	2014	2015	2016	2017	2018	TOTAL
0	13	9	14	4	51	19	110
0A	0	0	0	2	0	2	4
0IS	0	0	1	1	2	1	5
1	7	12	7	11	17	28	82
1A	27	14	37	11	24	33	146
1B	2	0	1	1	4	18	26
1C	0	0	0	0	1	6	7
2	1	1	0	1	0	0	3
2A	84	50	68	28	44	70	344
2B	61	62	71	23	57	58	332
3	0	1	1	2	2	10	16
3A	47	43	62	19	35	54	260
3B	50	48	46	11	39	42	236
3C	2	9	14	8	11	23	67
4	70	52	73	23	50	74	342
4B	0	1	1	1	0	1	4
UNSTAGEABLE	1	0	0	0	3	0	4
UNK	66	30	0	9	86	4	195
TOTAL	431	332	396	155	426	443	2183

THYROID							
STAGE	2013	2014	2015	2016	2017	2018	TOTAL
0	0	0	0	0	1	1	2
1	166	64	86	37	65	154	572
1A	0	0	0	2	4	0	6
1B	0	0	0	0	1	0	1
2	15	8	16	9	16	22	86
3	8	8	11	11	29	8	75
4	0	4	3	1	3	7	18
4A	6	0	4	1	4	5	20
4B	0	0	0	2	0	3	5
4C	8	0	8	0	0	0	16
UNSTAGEABLE	0	0	1	0	5	9	15
UNK	40	19	47	17	89	43	255
TOTAL	243	103	176	80	217	252	1071

NON-HODGKIN LYMPHOMA							
STAGE	2013	2014	2015	2016	2017	2018	TOTAL
1	6	5	12	1	5	8	37
1A	17	11	12	1	4	2	47
1B	7	7	12	1	6	4	37
2	2	3	3	1	4	1	14
2A	14	17	17	1	3	4	56
2B	10	5	13	0	3	2	33
3	2	8	7	1	2	2	22
3A	13	4	12	1	3	1	34
3B	16	5	9	0	5	3	38
3C	0	0	1	0	0	1	2
4	5	12	35	3	14	18	87
4A	17	11	15	0	2	1	46
4B	46	30	30	4	10	3	123
UNSTAGEABLE	1	1	16	2	81	95	196
UNK	3	6	0	27	28	30	94
TOTAL	159	125	194	43	170	175	866

UTERUS							
STAGE	2013	2014	2015	2016	2017	2018	TOTAL
0	4	2	1	0	2	1	10
1	0	3	2	8	11	12	36
1A	6	6	5	4	13	21	55
1B	7	1	2	1	8	25	44
1C	0	0	0	0	1	0	1
2	3	1	0	3	7	6	20
2A	0	0	1	0	1	2	4
2B	8	6	5	7	6	9	41
3	0	0	0	0	1	2	3
3A	0	1	0	1	0	4	6
3B	7	5	11	0	1	7	31
3C	2	2	2	3	5	6	20
4	0	8	3	4	9	20	44
4A	4	1	2	0	1	0	8
4B	12	14	8	0	8	8	50
UNSTAGEABLE	1	0	1	1	7	0	10
UNK	43	27	28	5	26	21	150
TOTAL	97	77	71	37	107	144	533

HODGKIN LYMPHOMA							
STAGE	2013	2014	2015	2016	2017	2018	TOTAL
1	0	1	1	0	1	0	3
1A	8	14	11	0	4	2	39
1B	1	1	0	0	0	1	3
2	0	3	2	1	5	2	13
2A	17	27	27	0	10	10	91
2B	13	17	7	1	2	3	43
3	3	6	5	1	3	0	18
3A	14	17	12	0	3	1	47
3B	17	13	7	5	4	2	48
4	5	5	13	1	9	10	43
4A	3	3	5	0	0	1	12
4B	25	34	20	1	10	4	94
UNSTAGEABLE	0	0	2	3	47	70	122
UNK	1	0	0	23	8	7	39
TOTAL	107	141	112	36	106	113	615

IV. APPENDIX

REQUESTS FOR TUMOR REGISTRY DATA 2018

January

Need Random sample of AML/ALL patients transplanted from sibling to MAC and peripheral blood source to calculate the sample of a planned prospective trial.	Dr. R. Elfakih
Time and type of surgery post neo adjuvant chemo survival and recurrence in Breast cancer patients of different sub-types to assess what will be optioned time acceptable for patients.	Dr. K. Suliman
Any Nasopharyngeal patients received radiation therapy and required any nasal surgery.	Dr. I. Alnofal
Numbering of carcinoma of larynx cases as KFSHRC for 20 years 1. Stages 2. main treatment 3. Histopathology 4. Recurrence rate 5. Number of laryngectomy 6. Number of complications of laryngectomy (fistula).	Dr. N. Zaher

February

Outcome of stem cell transplantation in sickle cell disease.	Dr. A. Alzahrani
The Prevalence of Hepatitis B in Breast cancer patients.	Dr. A. Alsayed
The Prevalence of Hepatitis C in Breast Cancer Patients.	Dr. A. Alsayed
Retrospective review of our surgical outcome of lumpectomy mastectomy and Local rearrange as well as mets from 2011.	Dr. K. Suliman
Patients of T-cell lymphoma from 2000 onwards from database with as many Variables.	Dr. S. Rauf

March

Main request: Medical record numbers list, Patient population: Patients with Malignant Thymoma at KFSHRC. Time period: 1978-2014 (56 total cases).	H. Alothaimeen
Retrospective analysis of KFSHRC experience of Metaplastic Brest Cancer From 2002-2014 will update published data as well as will get PDL and K1-67 On prospective cases and to access progression and survival of patients PDL + ve cases.	Dr. K. Suliman
Compare our MUD outcomes to our Haplo outcomes. Retrospectively.	Dr. R. Elfakih
Otolaryngology Cancer patients, we need MRN, date of treatment. Demographics staging/Histology, and if available date of last follow-up and status (Alive, Died) for the last year.	Dr. M. Elrashid

	Impact of adjuvant radiation on loco-regional control in Breast Cancer Patients receiving Neoadjuvant chemotherapy.	Dr. N. Jastaniyah
	For B. Holistic trial need to know the numbers HL stage IIB, III, IV diagnosed 2008-2014 age less than 18 years to check if this study is appropriate or not.	Dr. S. Akhtar
	Evaluation of outcome in Adolescent and young adult of AML underwent SCT.	Dr. A. Kotb
May	Need MRN and histological diagnosis of all Neuro-endocrine tumors from 2011-2016 for Retrospective study approved by RAC# 2181-063.	Dr. S. Bazarbashi
	MRN of Cases of Gastro intestinal stromal tumor (GIST) diagnosed from 2005-2015	Dr. S. Bazarbashi
July	Need data for SCD patients undergoing HSCT.	Dr. F. Almohareb
September		
	We want address quality of life assessment in Pt with Lymphedema dissection and SLND biopsy pts. To evaluate Lymphedema in Pts with SLND and LND and quality of life.	Dr. K. Suliman
	The role of Oncotype diagnosis in decision making of adjuvant therapy for Invasive Breast Cancer.	Dr. A. Alsayed
	Review ALL patients on AYA protocol.	Dr. A. Hanbali
	Need all patients from 2009-2015 with sarcoma if they received temazalomide/Irinotecan.	Dr. J. Paul
	All transplanted Multiple Myeloma Patients data including presentation Management (treatment) result and outcome of Auto stem cell transplant and follow-up from 1997-2017.	Dr. F. Alsharif
October		
	Survival analysis of Multiple Myeloma patients	Dr. F. Alsharif
	Outcome of Allo-SCT in adolescents and young patients with Monosomy	Dr. S. Ahmed
	Advanced NSCLC received patients based chemotherapy from 2003-2015.	Dr. M. Elshenawy

November

Database of Allo transplanted and Auto Transplanted from 2004-2014.	Dr. R. Elfakih
Prevalence of Anxiety and depression among Saudi Brest Cancer Patients.	Dr. A. Alsayed
Outcome and Disease chemotherapies of patients in FLAV-RIC patients.	Dr. S. Osman
2004-2014 Cases early stage Neo adjuvant chemo and adjuvant transplant Treatment patient's data.	Dr. K. Suliman

December

MRN of Prostate cancer patients since 2012 till 2018.	Dr. A. Omer
Transplant outcomes in SAA patient's conditional with FLU/CY	Dr. R. Elfakih
To investigate the ocular finding in long term survives after Allo SCT, we review all chats of patients retrospectively up to 5 years after transplantation.	Dr. H. Alhusaini

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.