



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

**Oncology Center
Research Unit**

TUMOR REGISTRY

Annual Report

2019





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**Oncology Centre
Research Unit**

TUMOR REGISTRY ANNUAL REPORT 2019

Annual Report Prepared by the Staff of the Tumor Registry
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INTRODUCTION

We are pleased to present 2019 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 2019, the Tumor Registry abstracted 3,647 new cancer cases. 3,533 cases were analytic and 114 were non analytic; the highest incidence of cancer among males by site was NHL, Leukemia and Brain, CNS and among females was carcinomas of Breast, Thyroid, and Brain, CNS. The Tumor Registry database includes over 96,860 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 96,860 malignant cases seen at KFSH&RC from June 1975 through December 31, 2019.

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 2019, the Tumor Registry supported myriad of data requests. It also identified and reported to the Saudi Cancer Registry 3,647 new cases seen in 2019.

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.

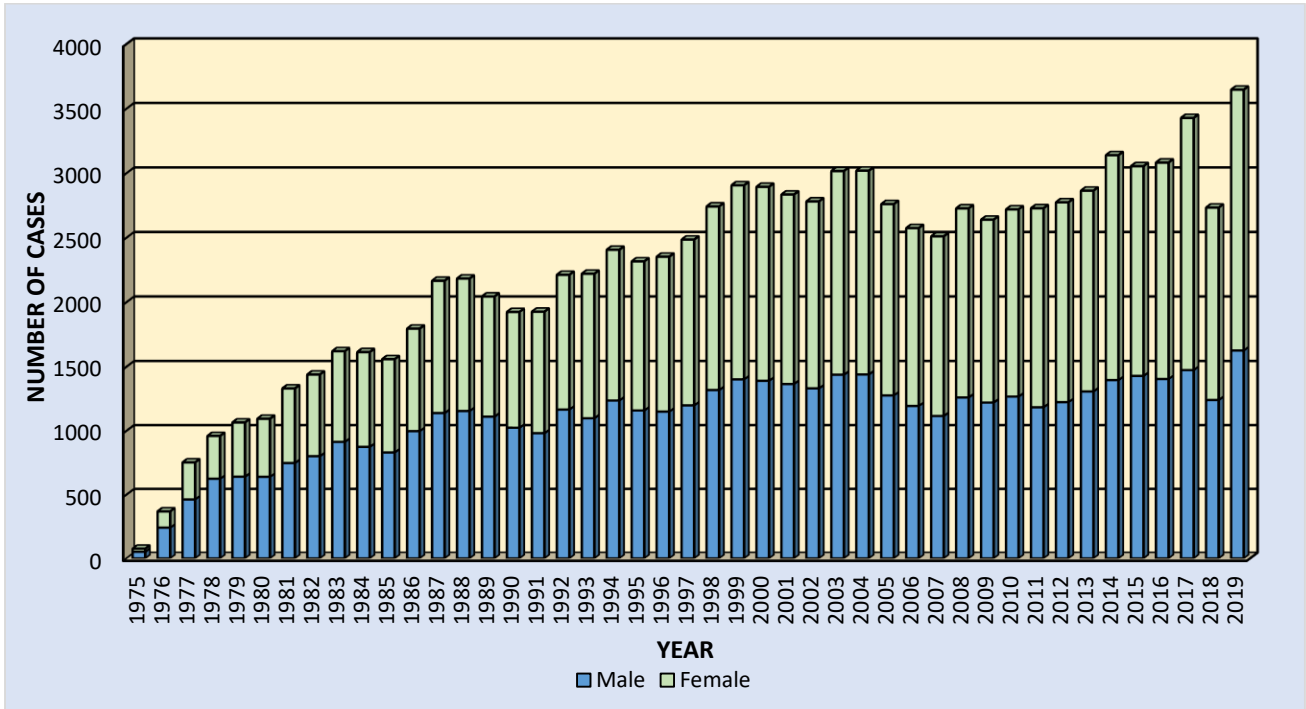
The following departments have assisted throughout the year and without their support this report would not have been possible. The Tumor Registry staff takes pride in acknowledging these departments:

- 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
- Patient Acceptance Affairs
- Home Health Care
- Oncology Centre

III. KFSH&RC CANCER PATIENT POPULATION

A total of 3,647 cases were accessioned in 2019, with 1,626 males and 2,021 females or a male/female ratio of 0.8:1.

**FIGURE 1
DISTRIBUTION OF CASES ACCESSIONED BY YEAR
1975-2019 (TOTAL CASES = 96,860)**



From the opening of the hospital (mid 1975) until December 2019, 96,860 cancer cases were registered (47,590 males and 49,270 females) with a male/female ratio of 0.9:1.

There were 11,702 (12.1%) pediatric cases (0 to 14 years of age) and 85,7158 (87.9%) adults (15 years old and above). In 2019, the proportions were 7.4% (269) for pediatrics and 92.6% (3,378) for adults.

TABLE 1
CASES SEEN AT KFSH&RC (MALE/FEMALE & PEDIATRICS/ADULTS) BY 5-YEAR PERIOD
1975-2019

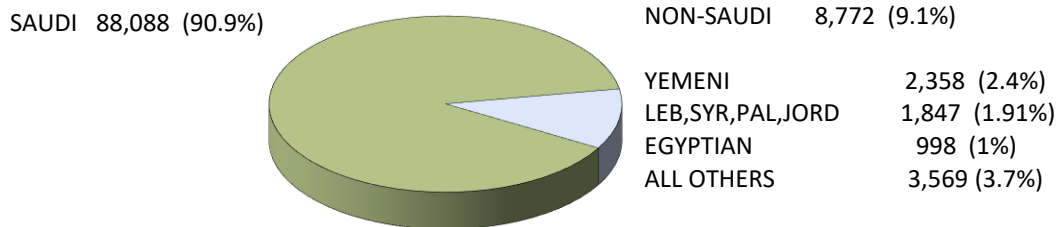
	1975-1976*	1977-1981	1982-1986	1987-1991	1992-1996	1997-2001	2002 - 2006	2007-2011	2012-2016	2017-2019	TOTAL
MALE	280	2,978	4,150	4,969	5,561	6,429	6,530	5,839	6,556	4,298	47,590
FEMALE	135	1,946	3,361	4,341	5,349	6,753	7,205	6,974	7,814	5,392	49,270
TOTAL	415	4,924	7,511	9,310	10,910	13,182	13,735	12,813	14,370	9,690	96,860
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	784	11,702
(%)	13.25%	12.04%	13.12%	12.50%	12.80%	14.36%	13.79%	12.25%	9.52%	8.09%	12.27%
ADULTS	360	4,331	6,523	8,146	9,513	11,289	11,841	11,244	13,005	8,906	85,158
(%)	86.75%	87.96%	86.88%	87.50%	87.20%	85.64%	86.21%	87.75%	90.48%	91.91%	87.92%
TOTAL	415	4,924	7,508	9,310	10,910	13,182	13,735	12,813	14,373	9,690	96,860

* First two years of KFSH&RC partial operation.

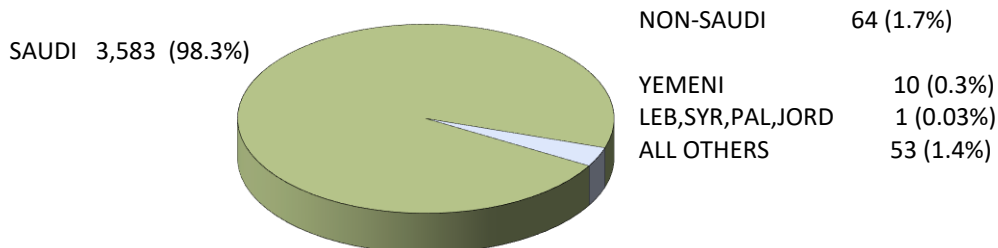
** Pediatrics = 0 to 14 years of age; Adults = 15 years and above.

FIGURE 2

DISTRIBUTION OF CASES BY NATIONALITY
1975 - 2019 (TOTAL CASES = 96,860)



2019 (TOTAL CASES = 3,647)

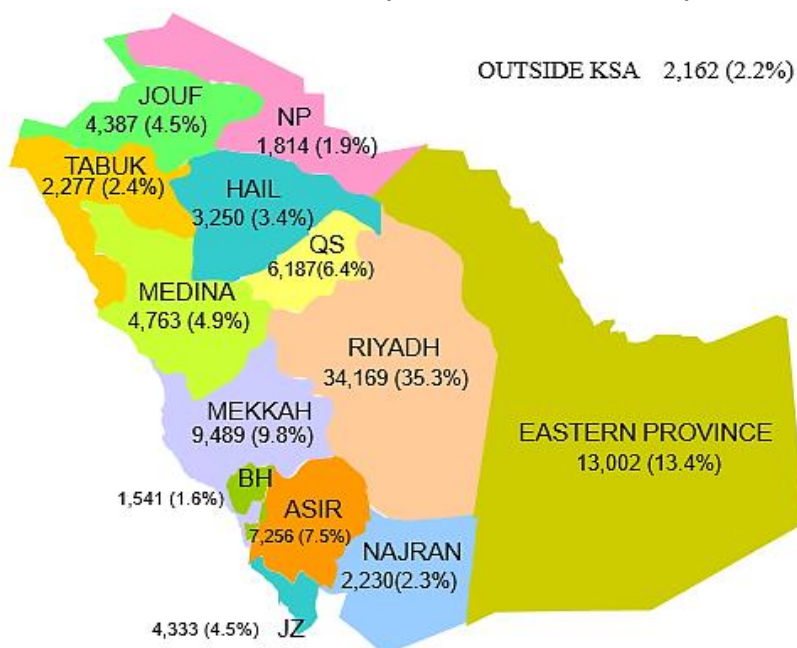


Saudi nationals totaled 3,583 (98.3%) in 2019 and the non-Saudi, 64 (1.7%). During the period 1975 to 2019, the former accounted for 90.9% (88,088) while the latter, 9.1% (8,772).

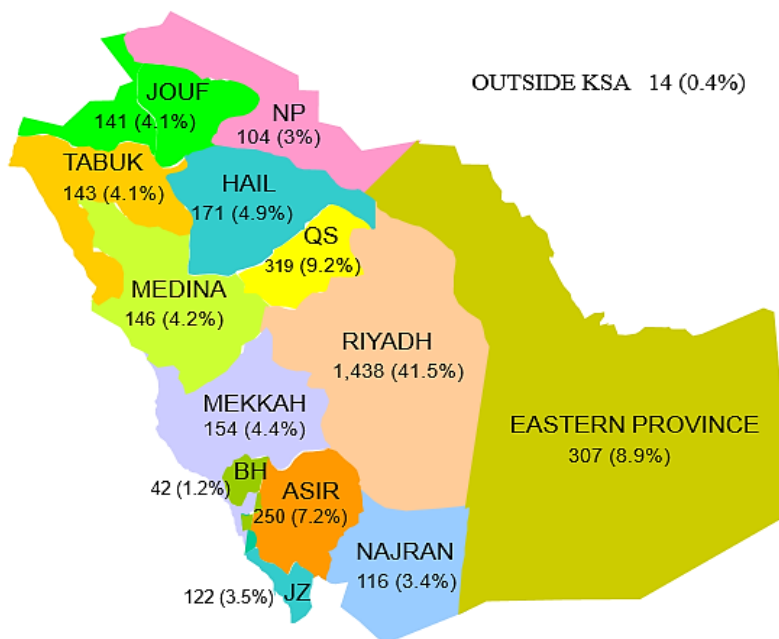
Geographically, the referral pattern in 2019 was mainly from the Riyadh region with 41.5% of all cases, followed by the Qassim Region with 9.2% then Eastern Province with 8.9% respectively. During the 43 years in review, 35.3% were referred from Riyadh, 13.4% from the Eastern Province and 9.8% from Mekkah.

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 - 2019 (TOTAL CASES = 96,860)



2019 (TOTAL CASES = 3,647)



BH - AL BAHA NP - NORTHERN PROVINCE
 JZ - JIZAN 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 2019 with (12.1%), followed by leukemia (8.9%), Thyroid (7.4%), Non-Hodgkin Lymphoma (7.2%) and Brain (5.6%).

FIGURE 4

**DISTRIBUTION OF 20 MOST COMMON MALIGNANCIES
1975-2019 (TOTAL CASES = 96,860)**

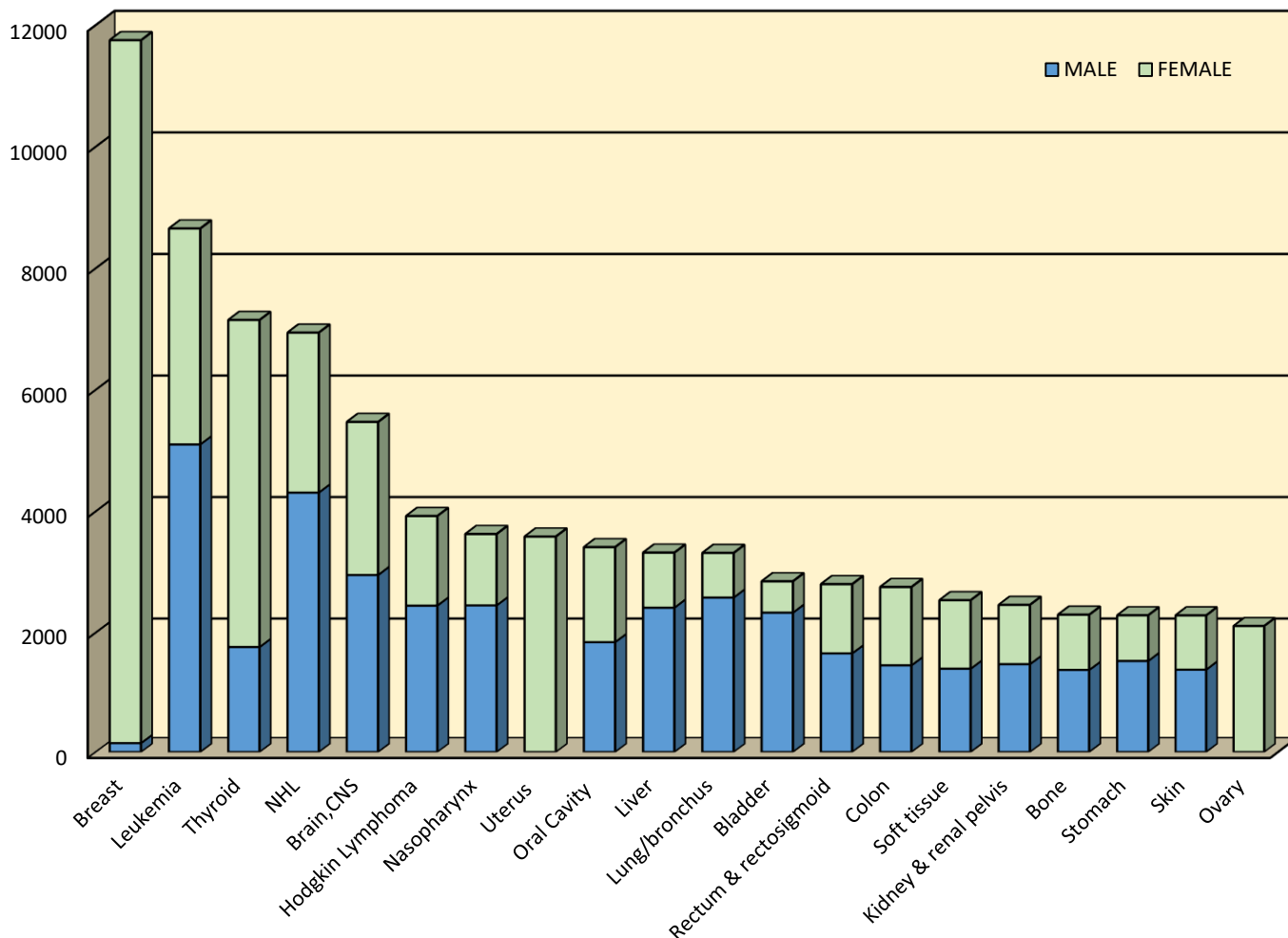
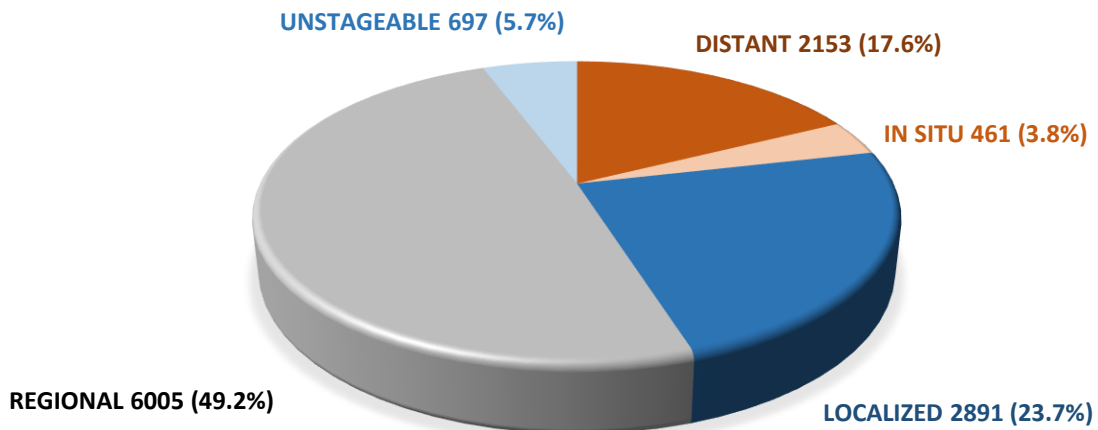
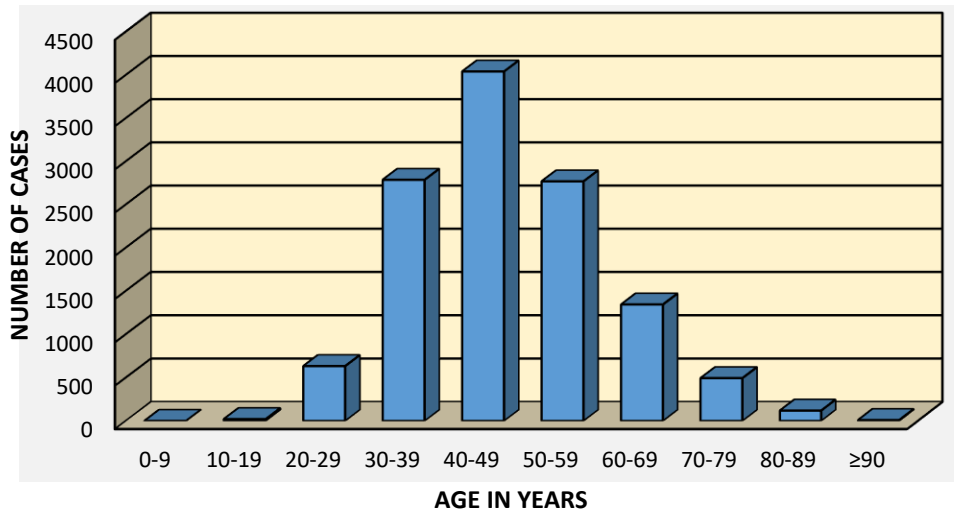
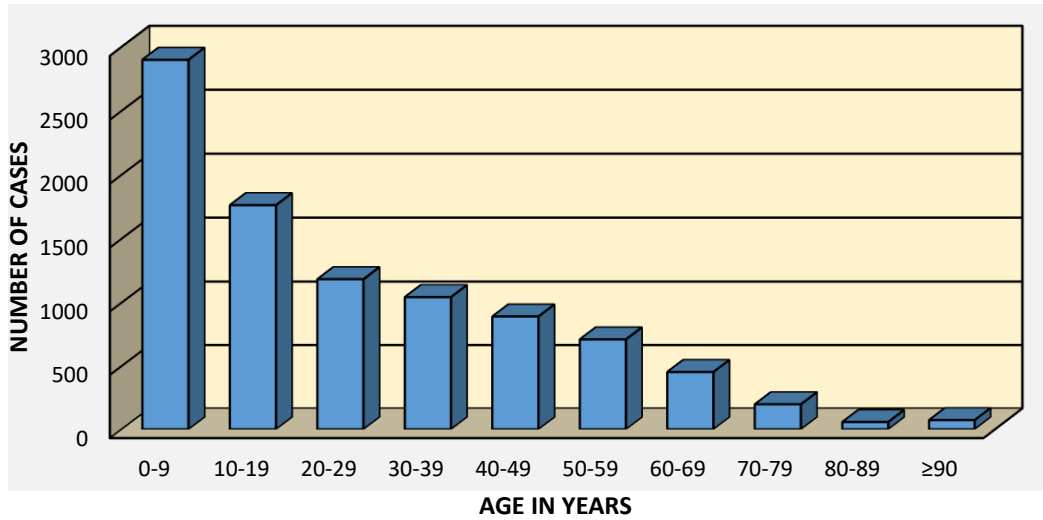


FIGURE 5
DISTRIBUTION OF 5 MOST COMMON MALIGNANCIES
BY AGE AT DIAGNOSIS AND SEER SUMMARY STAGE
(1975 – 2019)

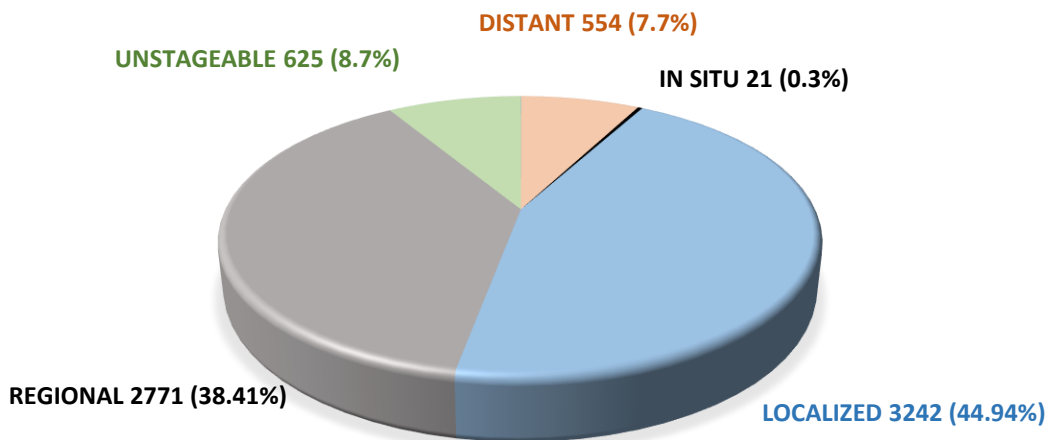
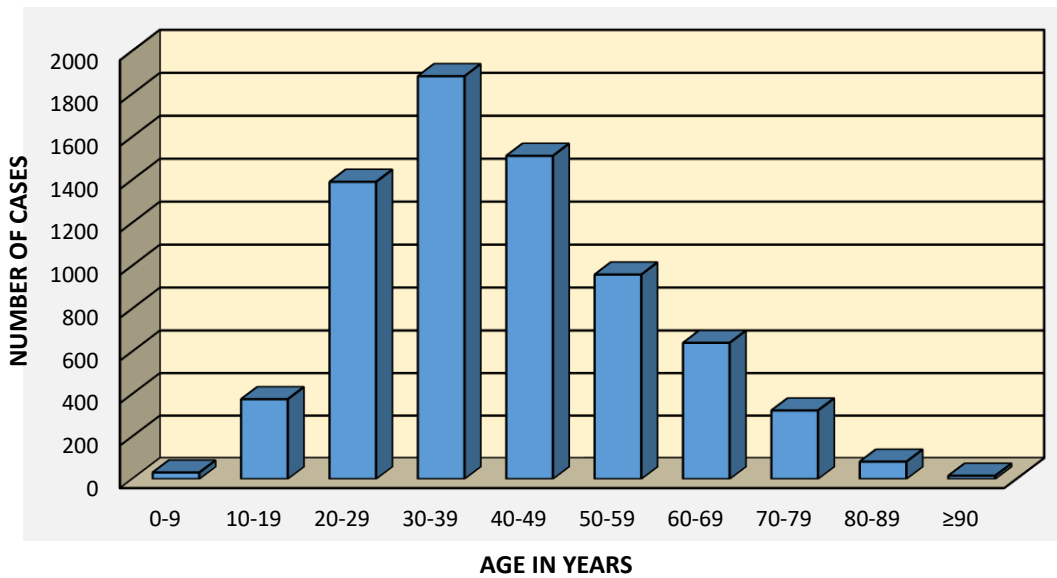
BREAST CANCER CASES



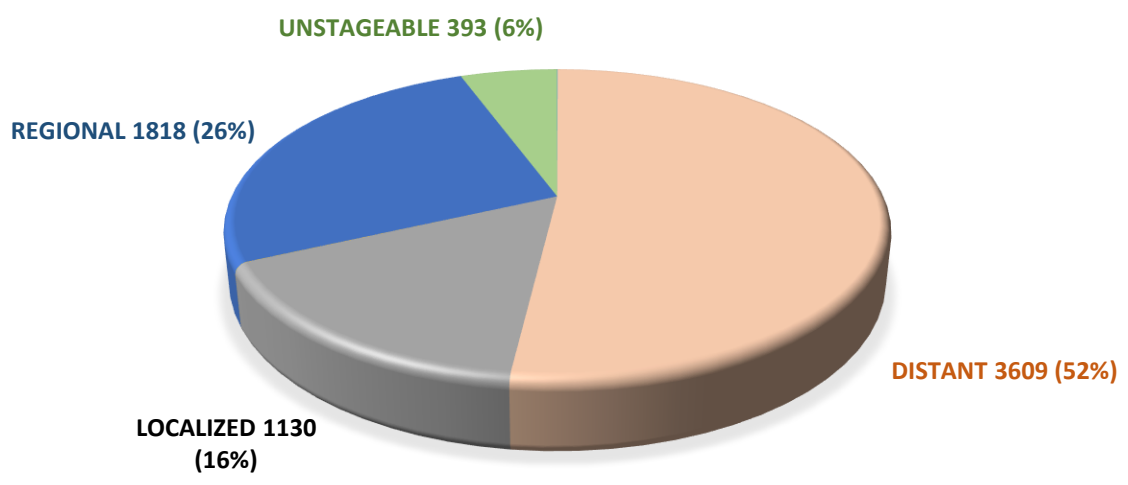
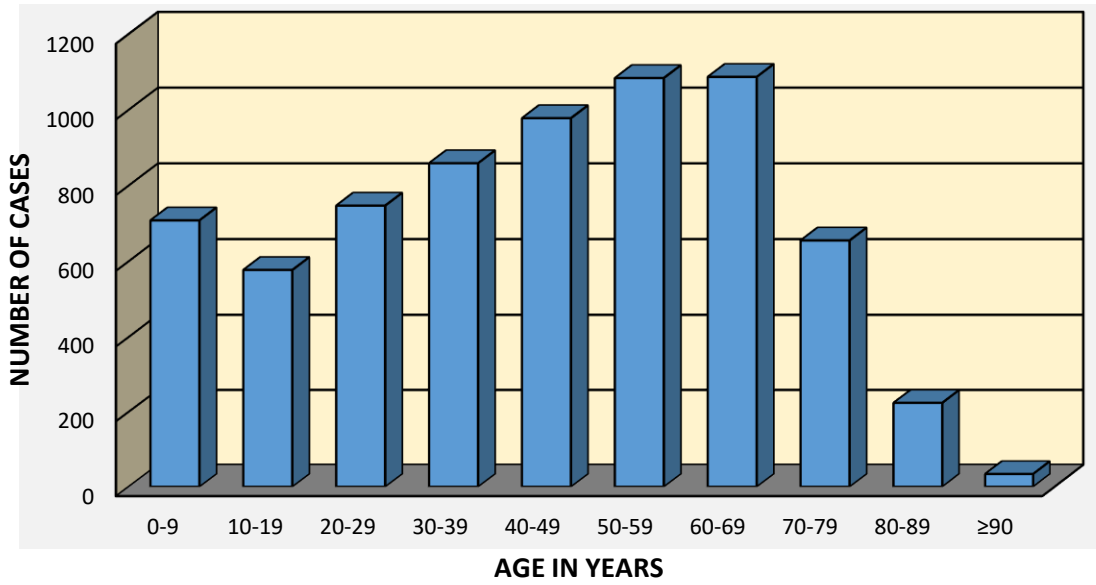
LEUKEMIA CASES



THYROID CANCER CASES



NON-HODGKIN'S LYMPHOMA CASES



BRAIN CANCER CASES

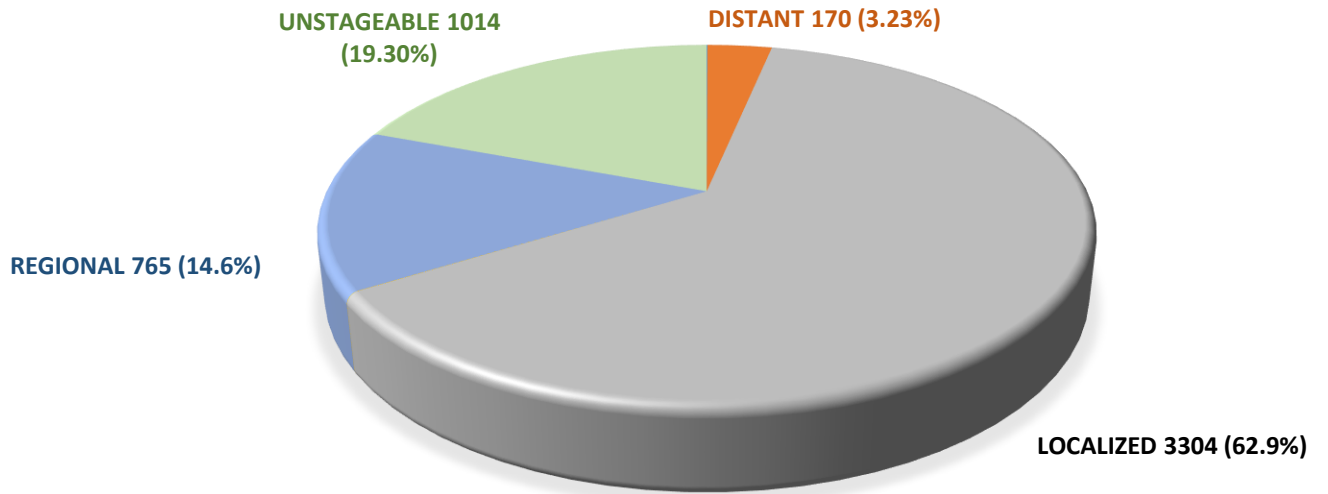
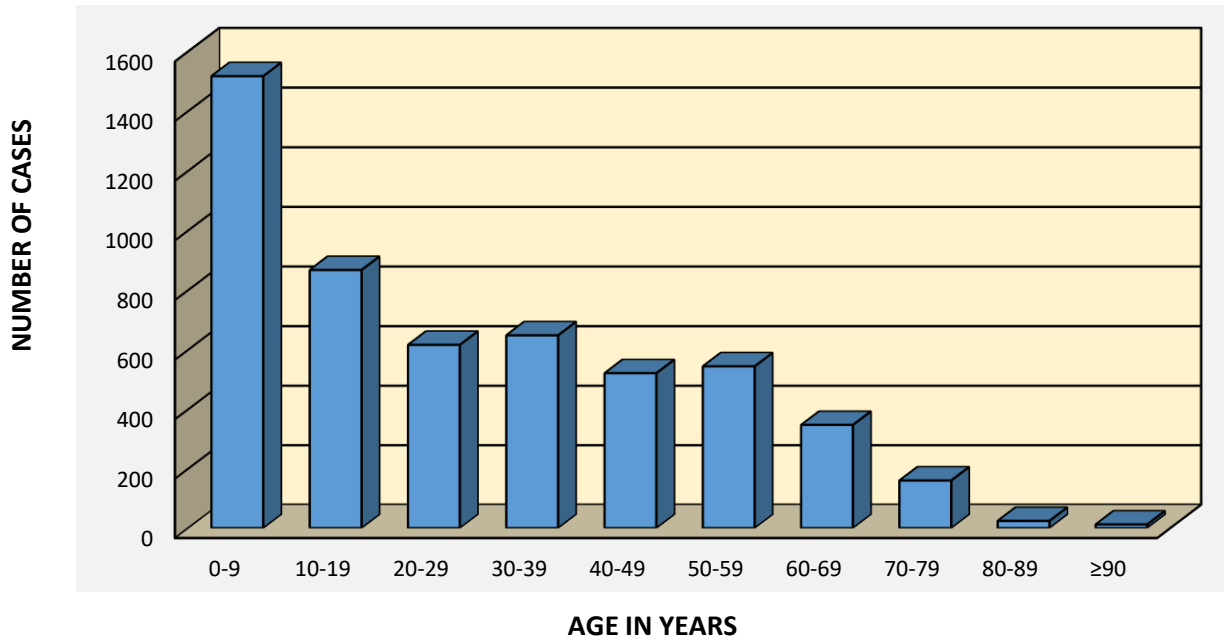


TABLE 2

**TEN MOST COMMON MALIGNANCIES BY AGE GROUP AT DIAGNOSIS
1975 - 2019**

SITE	AGE GROUP	No	%
BREAST	00 - 14	2	0.16
	15 - 39	3,436	28.4
	40 - 60	6,806	55.7
	>60	1,964	16.08

SITE	AGE GROUP	No	%
HODGKIN LYMPHOMA	00 - 14	1,045	26.6
	15 - 39	2,191	55.9
	40 - 60	497	12.7
	>60	189	4.8

SITE	AGE GROUP	No	%
LEUKEMIA	00 - 14	3,743	40.4
	15 - 39	3,140	33.9
	40 - 60	1,599	17.2
	>60	778	8.4

SITE	AGE GROUP	No	%
NASOPHARYNX	00 - 14	121	3.3
	15 - 39	988	27.0
	40 - 60	1,650	45.1
	>60	897	24.5

SITE	AGE GROUP	No	%
THYROID	00 - 14	138	1.03
	15 - 39	3,543	26.5
	40 - 60	2,471	18.4
	>60	1062	7.9

SITE	AGE GROUP	No	%
UTERUS	00 - 14	7	0.18
	15 - 39	621	15.9
	40 - 60	1,737	44.7
	>60	1,518	39.1

SITE	AGE GROUP	No	%
NON-HODGKIN LYMPHOMA	00 - 14	962	13.8
	15 - 39	1,929	27.7
	40 - 60	2,062	29.6
	>60	2000	28.7

SITE	AGE GROUP	No	%
ORAL CAVITY	00 - 14	57	1.6
	15 - 39	504	14.1
	40 - 60	1,241	34.7
	>60	1,771	49.5

SITE	AGE GROUP	No	%
BRAIN, CNS	00 - 14	2,060	32.2
	15 - 39	1,900	29.7
	40 - 60	1,637	25.6
	>60	787	12.3

SITE	AGE GROUP	No	%
LIVER	00 - 14	134	4.0
	15 - 39	185	5.5
	40 - 60	1,194	35.7
	>60	1,825	54.67

Cancer among pediatrics (under the age of 15) accounted for 12.1% of all cases from 1975 to 2019. The five most common pediatric malignancies were Leukemia (31.7%), brain (17.5%), Hodgkin disease (8.9%), Non-Hodgkin Lymphoma (8.2%), Soft tissue (8.1%).

FIGURE 6

**DISTRIBUTION OF 10 MOST COMMON PEDIATRIC MALIGNANCIES
1975-2019 (TOTAL CASES = 11,702)**

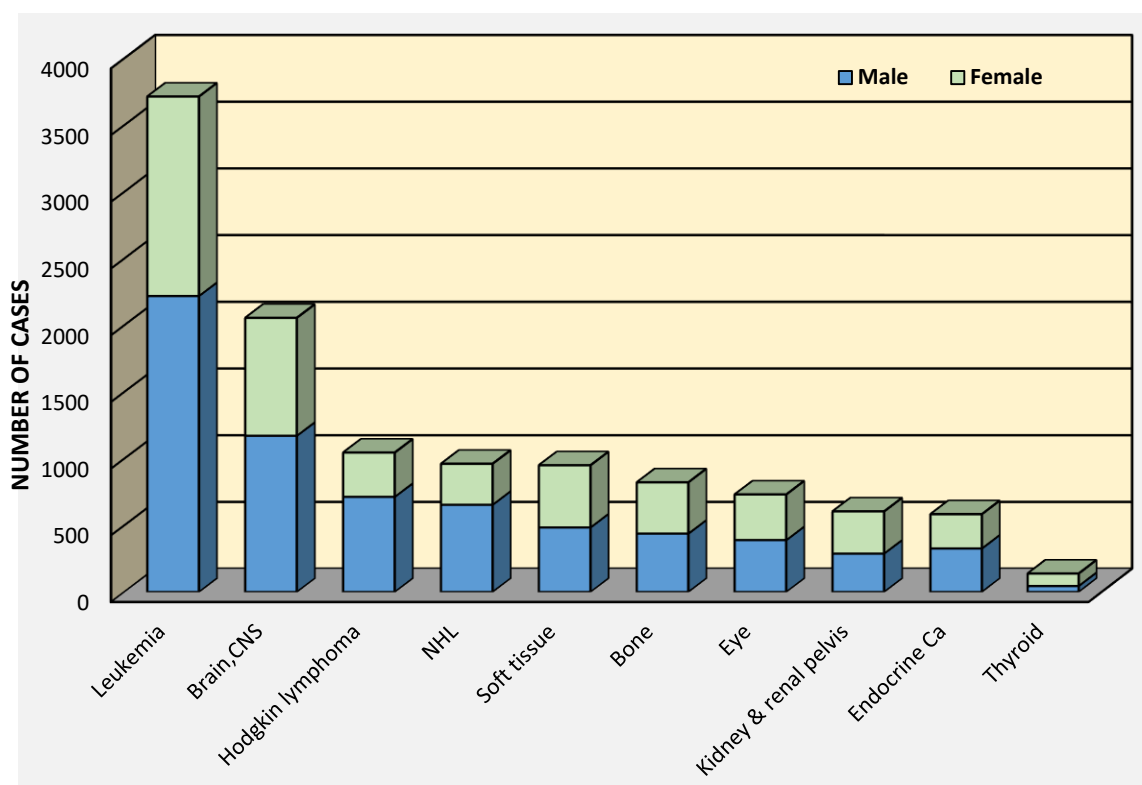
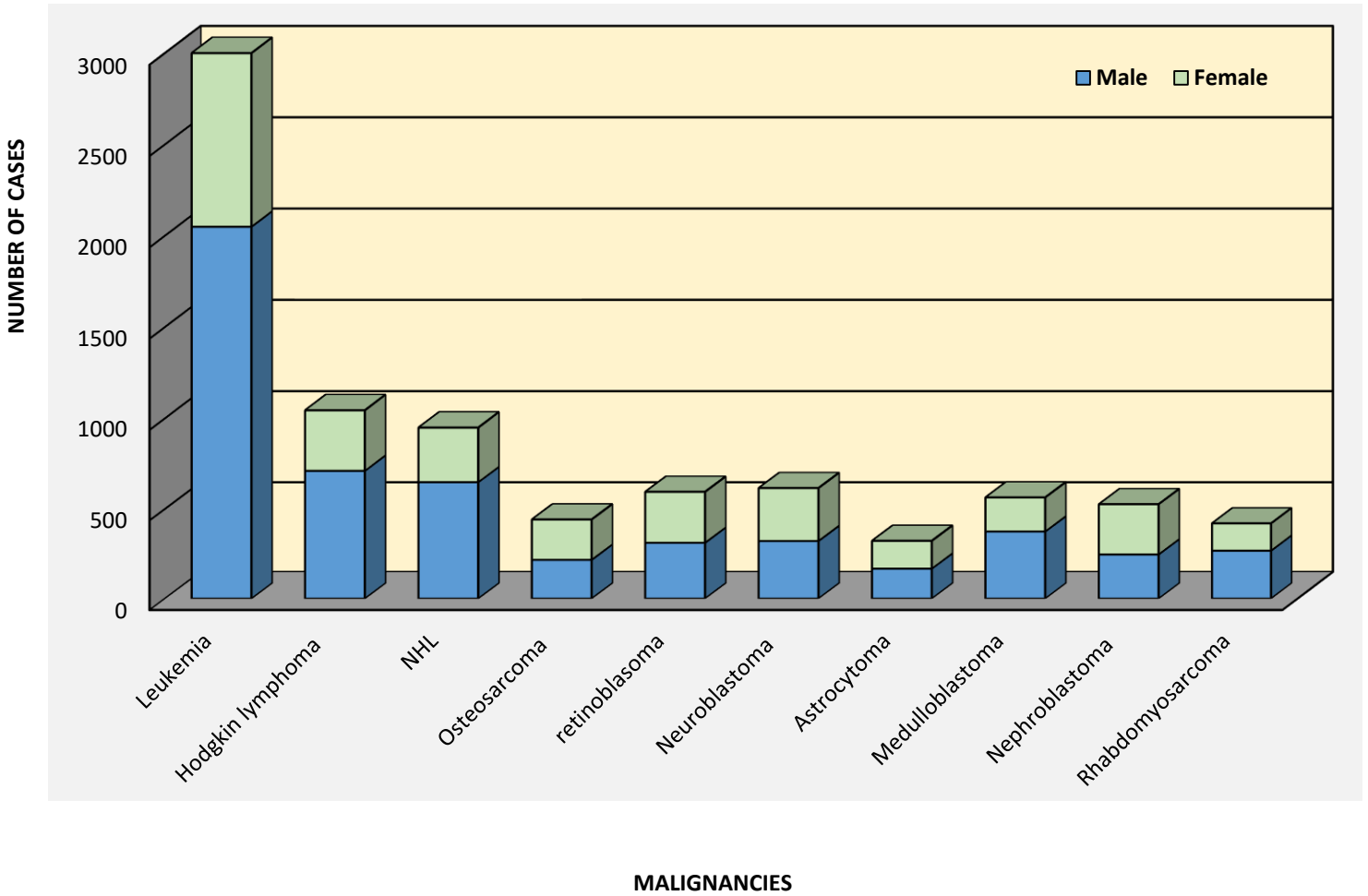


FIGURE 7

**DISTRIBUTION OF 10 MOST COMMON PEDIATRIC MALIGNANCIES BY HISTOLOGY
1975-2019 (TOTAL CASES = 11,702)**



**TABLE 3
CASES SEEN AT KFSH&RC BY SITE AND YEAR
1975-2019**

Site Group	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990
Oral Cavity	1	9	23	62	50	55	46	60	80	52	84	56	76	97	84	79
Nasopharynx	3	16	48	51	56	51	60	66	85	70	64	69	100	97	82	86
Esophagus	1	15	51	62	67	67	57	62	77	78	56	69	76	66	68	72
Stomach	2	15	32	35	50	37	49	51	64	60	49	64	61	47	52	53
Small intestine	0	0	4	0	2	2	2	1	0	5	3	5	1	1	6	4
Colon	1	10	10	12	12	16	20	19	16	24	13	24	35	35	30	25
Rectum & rectosigmoid	0	3	11	8	16	21	24	16	20	26	26	20	31	43	26	31
Anus,anal canal,anorectum	0	0	1	4	3	1	7	4	7	9	6	7	4	4	5	8
Liver	7	15	33	44	49	33	41	54	53	64	57	84	78	71	68	55
Gallbladder	0	2	3	4	2	2	4	6	4	4	6	7	14	9	5	9
Bile ducts	1	1	0	2	2	4	1	2	3	4	3	6	6	6	2	4
Pancreas	1	5	7	11	15	14	20	22	14	20	16	28	20	16	27	12
Peritoneum,Retroperitoneum	0	0	2	1	2	1	0	0	2	1	0	1	0	1	1	1
Other digestive	0	0	0	2	2	5	4	1	1	0	3	1	4	3	6	2
Nasal cavity,sinus,ear	1	3	9	7	5	7	9	10	10	5	7	5	16	14	7	13
Larynx	1	5	12	12	12	14	20	13	23	22	25	16	23	33	21	26
Lung/bronchus	3	11	23	34	45	40	56	63	74	74	87	84	83	106	90	74
Pleura	0	0	1	0	0	0	0	0	1	1	0	1	0	1	2	2
Other respir & thoracic	0	0	0	1	1	1	3	1	1	0	4	0	6	1	1	2
Leukemia	7	29	40	88	92	85	123	127	120	128	123	168	190	160	157	134
Myeloma	1	5	6	11	9	11	8	13	13	12	19	13	29	22	33	15
Bone	1	6	13	25	20	20	22	42	31	40	19	31	35	44	41	37
Soft tissue	1	16	29	29	31	23	29	40	32	35	38	47	48	49	59	59
Skin	2	17	30	40	49	41	55	58	62	64	69	68	54	55	59	46
Kaposi sarcoma	0	1	1	0	6	4	2	2	5	4	5	9	5	9	5	4
Breast	3	24	53	46	57	65	101	111	111	153	131	127	174	194	137	168
Uterus	1	11	20	23	31	22	34	33	44	47	51	65	67	71	54	62
Ovary	2	6	10	10	17	21	20	35	31	26	24	34	41	47	52	46
Vagina	0	0	5	2	0	1	2	0	2	2	3	1	2	1	2	3
Vulva	0	0	0	1	1	0	2	1	3	2	5	5	1	2	1	4
Other female genital	0	1	5	4	6	7	5	7	19	5	4	13	19	14	10	9
Prostate	0	7	5	4	5	10	11	18	28	19	19	17	22	27	27	24
Testis	0	3	9	8	10	11	15	11	7	12	14	14	17	17	9	14
Penis	0	1	1	0	1	0	2	2	3	4	0	0	0	2	2	5
Other male genital	0	0	0	0	2	0	1	0	1	0	3	0	3	0	2	0
Bladder	4	7	12	24	29	39	37	23	41	35	46	51	79	74	73	60
Kidney and renal pelvis	0	9	18	18	18	15	18	30	23	20	24	41	31	58	31	35
Ureter	0	0	0	0	0	0	0	0	0	1	1	0	3	1	1	0
Other urinary	0	0	0	0	0	0	0	0	0	1	0	1	0	0	1	0
Eye	0	6	11	19	12	24	29	34	25	17	30	24	35	44	26	30
Brain,CNS	3	24	27	40	26	31	31	77	53	59	49	71	88	92	98	81
Thyroid	2	8	17	28	33	44	57	51	66	71	63	82	119	112	110	94
Other endocrine	1	1	3	3	2	9	10	8	14	12	17	10	11	13	2	7
Hodgkin's disease	13	19	40	41	36	42	47	42	54	50	49	45	65	57	76	56
Non-hodgkin's lymphoma	4	23	73	75	103	112	128	116	172	139	124	142	157	153	165	154
Unknown or ill-defined	3	11	13	14	10	17	24	20	23	26	25	25	37	32	42	39
TOTAL	70	345	711	905	997	1025	1236	1352	1518	1503	1464	1651	1966	2001	1858	1744

TABLE 3 (cont 'd)
CASES SEEN AT KFSH&RC BY SITE AND YEAR
1975-2019

Site Group	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
Oral Cavity	85	85	72	76	98	80	92	71	91	102	73	73	107	77	106
Nasopharynx	78	80	85	79	85	113	109	124	119	98	143	87	111	117	97
Esophagus	66	69	47	50	50	52	51	62	34	52	37	42	43	37	41
Stomach	36	48	42	68	61	57	45	42	54	53	40	50	60	68	57
Small intestine	1	5	4	4	6	6	4	7	7	9	5	3	5	9	6
Colon	39	33	25	33	37	34	34	57	48	73	72	92	104	76	80
Rectum & rectosigmoid	35	48	46	52	48	54	62	59	94	75	77	106	99	113	112
Anus,anal canal,anorectum	6	7	12	10	5	6	6	7	4	7	7	8	14	5	5
Liver	66	76	82	103	102	103	96	84	89	85	92	73	70	60	37
Gallbladder	9	13	19	21	9	11	11	12	15	13	11	12	15	14	8
Bile ducts	2	7	2	7	3	9	7	10	9	8	9	10	7	4	8
Pancreas	13	27	21	22	25	21	24	34	18	38	26	31	30	34	27
Peritoneum,Retroperitoneum	0	2	1	0	1	0	0	1	2	2	1	1	1	4	2
Other digestive	1	2	4	0	3	0	0	0	0	0	2	0	2	4	2
Nasal cavity,sinus,ear	12	8	9	11	10	9	4	8	14	10	9	11	10	9	13
Larynx	34	27	31	35	37	36	31	30	35	32	33	26	47	41	36
Lung/bronchus	85	79	85	89	87	84	88	106	108	91	80	91	86	94	84
Pleura	0	3	4	3	1	2	1	1	2	3	8	1	4	3	3
Other respir & thoracic	7	3	7	8	4	4	8	8	8	2	1	5	2	4	3
Leukemia	158	146	192	171	211	168	229	238	262	268	249	269	267	229	214
Myeloma	28	26	25	40	30	21	14	23	16	28	20	19	20	23	23
Bone	40	52	54	56	56	56	63	71	63	75	83	74	62	68	69
Soft tissue	61	47	50	72	81	54	67	74	87	69	73	59	78	79	70
Skin	56	62	60	68	51	66	57	40	64	57	67	44	57	57	61
Kaposi sarcoma	5	14	2	3	6	11	6	8	8	4	7	9	9	6	8
Breast	169	188	251	241	232	281	292	336	341	383	362	377	409	431	380
Uterus	48	79	70	78	71	67	72	91	90	75	103	100	114	109	94
Ovary	36	44	55	50	55	56	60	63	53	53	51	44	55	51	48
Vagina	3	2	0	5	5	2	2	1	2	1	0	1	1	2	1
Vulva	5	1	4	5	5	2	1	0	1	2	3	2	2	3	2
Other female genital	13	12	12	19	7	11	8	6	6	5	5	10	13	12	12
Prostate	16	41	27	45	37	49	43	44	63	47	49	49	59	59	75
Testis	14	21	25	21	14	14	17	16	19	20	18	28	19	20	17
Penis	2	0	1	3	0	1	3	0	0	2	0	1	1	0	2
Other male genital	0	0	1	1	0	0	0	1	0	0	1	2	1	2	1
Bladder	44	65	88	72	60	56	65	85	91	80	81	71	93	102	88
Kidney and renal pelvis	33	52	51	65	48	47	49	58	70	57	72	64	55	70	61
Ureter	1	1	1	1	1	1	0	3	1	2	3	2	2	1	2
Other urinary	1	1	0	0	0	0	0	0	2	1	0	0	0	1	2
Eye	9	15	39	27	15	22	30	17	24	26	17	16	20	18	15
Brain,CNS	84	112	88	116	128	129	133	162	145	149	151	143	161	167	128
Thyroid	110	141	135	158	134	162	161	192	210	186	189	169	215	214	216
Other endocrine	10	14	15	15	14	14	20	12	15	23	14	18	38	27	26
Hodgkin's disease	57	75	73	78	88	76	76	98	116	131	121	121	132	144	130
Non-hodgkin's lymphoma	123	150	154	160	158	157	193	208	207	204	175	186	206	218	181
Unknown or ill-defined	30	41	32	50	36	41	35	40	40	35	39	43	35	30	32
TOTAL	1731	2024	2103	2291	2215	2245	2369	2610	2747	2736	2679	2643	2941	2916	2685

TABLE 3 (cont 'd)
CASES SEEN AT KFSH&RC BY SITE AND YEAR
1975-2019

Site Group	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	TOTAL
Oral Cavity	83	107	93	92	61	91	75	82	88	90	98	80	85	77	3404
Nasopharynx	91	84	89	67	85	86	70	81	69	68	77	86	74	75	3631
Esophagus	36	30	31	31	29	31	30	21	30	25	26	30	33	32	2092
Stomach	59	48	49	64	59	56	60	63	76	56	43	38	38	59	2270
Small intestine	4	5	5	7	5	6	8	11	21	6	9	13	6	8	231
Colon	95	88	83	96	84	103	101	119	132	154	142	153	113	152	2754
Rectum & rectosigmoid	93	92	82	92	83	93	99	92	102	111	120	150	84	102	2797
Anus,anal canal,anorectum	3	5	5	1	4	2	3	5	7	4	10	7	2	3	240
Liver	68	50	72	89	97	112	104	104	94	100	112	103	106	85	3320
Gallbladder	8	11	10	6	9	11	5	11	23	17	12	23	22	28	470
Bile ducts	6	11	7	12	13	8	10	9	12	17	16	8	9	18	305
Pancreas	41	26	32	40	36	31	46	61	62	50	51	65	51	78	1309
Peritoneum,Retroperitoneum	2	2	3	1	3	2	5	8	5	5	15	15	10	18	125
Other digestive	1	1	4	1	2	0	0	0	0	3	2	9	6	6	89
Nasal cavity,sinus,ear	11	12	8	8	5	4	7	4	4	11	10	13	15	5	392
Larynx	26	32	31	26	10	17	19	21	18	24	20	18	24	18	1093
Lung/bronchus	64	60	63	61	63	73	72	81	92	64	81	84	74	105	3321
Pleura	1	3	2	4	1	0	3	3	0	4	1	2	1	2	75
Other respir & thoracic	3	1	4	7	7	6	5	5	2	3	6	2	0	6	153
Leukemia	236	212	250	233	260	230	291	263	256	253	287	311	271	256	8651
Myeloma	22	31	18	39	36	28	16	31	26	25	30	23	30	27	958
Bone	66	52	74	59	57	62	54	49	64	40	53	72	64	70	2205
Soft tissue	54	83	56	54	72	67	74	72	62	66	54	45	62	66	2473
Skin	74	35	49	47	46	47	43	53	49	55	55	55	34	56	2334
Kaposis sarcoma	9	7	7	7	10	5	3	5	12	10	4	7	2	6	262
Breast	326	349	357	338	375	412	375	431	488	396	415	541	474	582	12187
Uterus	97	107	107	120	89	107	115	98	144	124	122	141	149	169	3586
Ovary	55	44	54	49	69	51	47	49	55	53	57	48	62	64	1953
Vagina	0	0	0	2	0	2	1	0	1	5	3	1	2	2	73
Vulva	0	2	4	3	2	5	4	2	2	1	2	7	1	1	102
Other female genital	15	8	6	10	3	4	2	4	4	5	2	0	2	1	345
Prostate	46	39	60	45	47	38	37	48	68	66	61	67	79	83	1730
Testis	11	15	28	26	27	23	14	27	33	38	26	26	28	42	818
Penis	0	0	0	1	0	0	2	0	0	0	1	0	3	1	47
Other male genital	2	0	0	0	0	1	1	0	0	2	3	0	1	0	32
Bladder	66	69	65	66	82	66	62	79	75	76	93	79	83	101	2837
Kidney and renal pelvis	67	67	85	86	85	86	82	78	97	93	101	101	82	124	2475
Ureter	0	1	0	2	2	2	0	0	0	1	1	0	0	3	41
Other urinary	0	0	0	0	0	0	3	1	1	2	1	1	0	1	21
Eye	20	11	19	17	24	32	27	22	23	20	21	27	21	19	979
Brain,CNS	126	92	95	86	100	108	99	88	93	113	141	120	114	319	4540
Thyroid	205	229	254	225	212	245	248	245	287	293	297	315	275	290	7169
Other endocrine	23	17	30	24	28	17	25	14	20	23	22	28	25	72	766
Hodgkin's disease	101	118	118	122	104	96	117	107	146	114	121	141	127	142	3922
Non-hodgkin's lymphoma	167	178	172	149	163	140	154	160	156	189	170	208	177	250	6953
Unknown or ill-defined	28	19	20	33	31	24	22	39	30	27	50	50	14	23	1330
TOTAL	2511	2453	2601	2548	2580	2630	2640	2746	3029	2902	3044	3313	2935	3647	96860

The largest number of cases in 2019 was noted in the 5th and 6th decades of life in males and in the 4th and 5th in females. The mean age was 47, the median was 49 and the mode was at 55. 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
2019 (TOTAL CASES = 3,647)

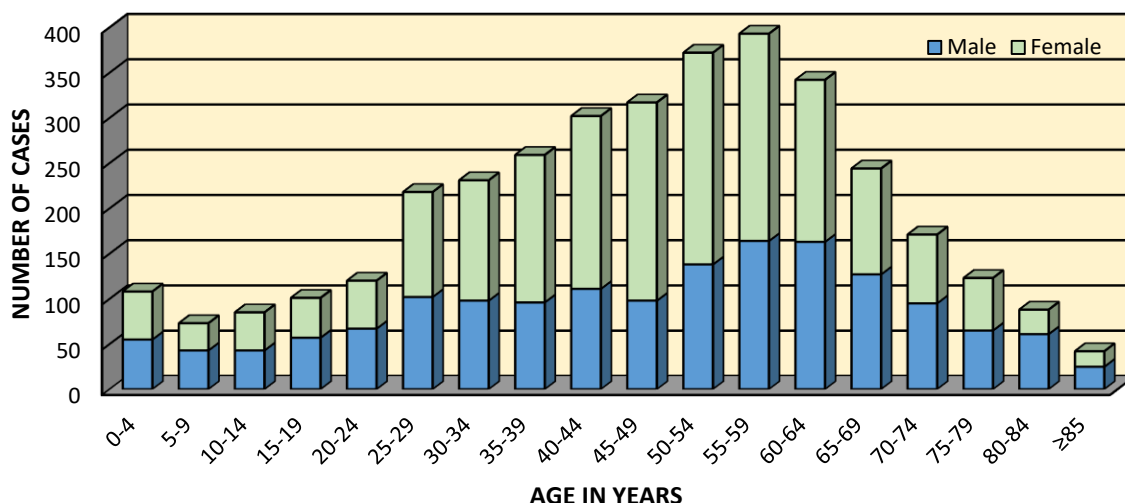
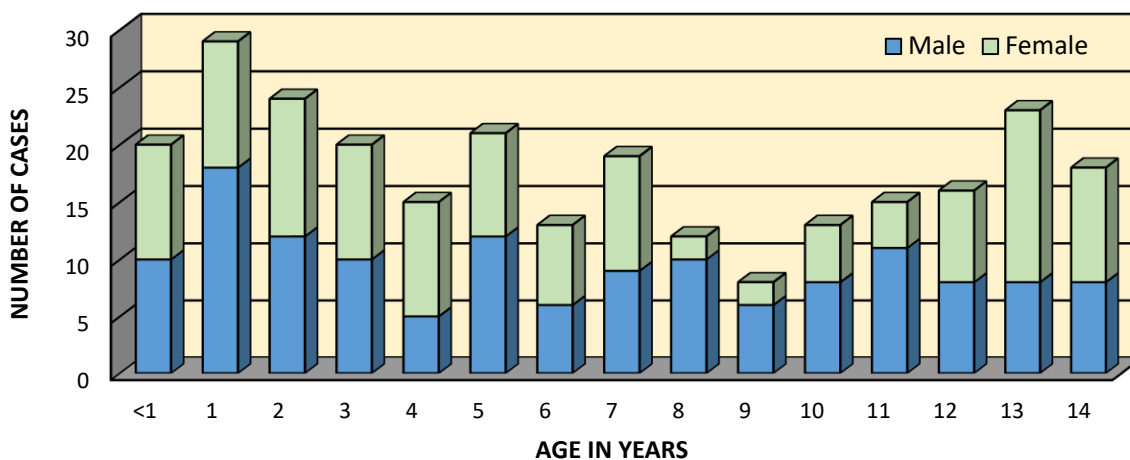


FIGURE 9
DISTRIBUTION OF PEDIATRIC CASES BY AGE AT DIAGNOSIS
2019 (TOTAL CASES = 269)



Of the 3,647 cases in 2019, 3,533 (96.9%) 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 114 cases (3.1%) were non-analytic (defined as cases diagnosed elsewhere and received all of their first course of treatment elsewhere). Out of the 3,533 analytic cases, pediatric cases totaled 253, with 133 males and 120 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
2019**

Site Group	Total Cases	Class		Sex		STAGE				
		Analytic	NonAn	M	F	In Situ	Localized	Regional	Distant	Unstageable
Oral Cavity	77	75	2	38	39	0	24	46	7	0
Nasopharynx	75	75	0	52	23	0	9	51	14	1
Esophagus	32	32	0	19	13	0	13	5	14	0
Stomach	59	58	1	28	31	0	15	11	32	1
Small intestine	8	8	0	3	5	0	3	1	4	0
Colon	152	144	8	81	71	0	41	42	67	2
Rectum & rectosigmoid	102	101	1	58	44	3	11	58	29	1
Anus,anal canal,anorectum	3	3	0	2	1	0	0	2	1	0
Liver	85	84	1	65	20	0	57	8	19	1
Gallbladder	28	28	0	9	19	0	1	3	24	0
Bile ducts	18	18	0	9	9	0	8	4	6	0
Pancreas	78	75	3	53	25	0	9	14	55	0
Peritoneum, Retroperitoneum	18	17	1	10	8	0	6	2	10	0
Other digestive	6	6	0	3	3	0	1	3	2	0
Nasal cavity,sinus,ear	5	5	0	3	2	0	1	2	2	0
Larynx	18	18	0	16	2	0	8	8	2	0
Lung/Bronchus	105	102	3	82	23	1	23	11	70	0
Pleura	2	2	0	2	0	0	0	1	1	0
Other respir & thoracic	6	5	1	4	2	0	5	1	0	0
Leukemia	256	247	9	142	114	0	4	0	249	1
Myeloma	27	27	0	13	14	0	2	0	25	0
Bone	70	67	3	42	28	0	40	9	19	2
Soft tissue	66	63	3	33	33	0	40	10	16	0
Skin	56	56	0	31	25	6	42	2	6	0
Kaposi sarcoma	6	6	0	5	1	0	3	1	2	0
Breast	582	564	18	8	574	31	147	287	114	3
Uterus	169	165	4	0	169	7	87	52	23	0
Ovary	64	63	1	0	64	0	16	18	29	1
Vagina	2	2	0	0	2	0	1	1	0	0
Vulva	1	1	0	0	1	0	0	1	0	0
Other female genital	1	1	0	0	1	0	0	0	1	0
Prostate	83	81	2	83	0	0	47	14	22	0
Testis	42	42	0	42	0	0	30	6	6	0
Penis	1	1	0	1	0	0	1	0	0	0
Bladder	101	97	4	87	14	28	45	17	11	0
Kidney and renal pelvis	124	118	6	70	54	0	79	19	25	1
Ureter	3	3	0	3	0	0	3	0	0	0
Other urinary	1	1	0	1	0	0	1	0	0	0
Eye	19	19	0	10	9	0	14	5	0	0
Brain, CNS	319	303	16	141	178	0	119	33	4	163
Thyroid	290	283	7	89	201	1	158	119	11	1
Other endocrine	72	65	7	39	33	0	20	2	14	36
Hodgkin's disease	142	134	8	84	58	0	14	45	83	0
Non-hodgkin's lymphoma	250	245	5	153	97	0	51	35	161	3
Unknown or ill-defined	23	23	0	12	11	0	1	1	2	21
Total	3647	3533	114	1626	2021	77	1200	950	1182	238

**TABLE 5
ANALYTIC CASES SEEN AT KFSH&RC BY SITE AND AGE
2019**

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	0	1	4	5	6	7	6	5	9	9	5	6	4	7	75
Nasopharynx	0	0	2	0	3	2	5	2	12	9	9	16	9	4	2	0	0	0	75
Esophagus	0	0	0	0	1	4	1	3	2	2	3	3	4	2	2	1	2	2	32
Stomach	0	0	1	0	1	7	4	2	4	2	8	8	8	6	2	3	1	1	58
Small intestine	0	0	0	0	1	0	1	0	1	0	2	1	0	0	1	1	0	0	8
Colon	0	0	0	1	1	1	3	8	15	10	22	21	15	21	17	5	3	1	144
Rectum & rectosigmoid	0	0	0	0	0	2	8	4	11	12	11	15	14	12	5	4	2	1	101
Anus,anal canal,anorectum	0	0	0	0	0	0	0	0	0	0	0	1	2	0	0	0	0	0	3
Liver	4	1	2	1	0	1	1	2	2	2	8	14	13	12	8	7	6	0	84
Gallbladder	0	0	0	0	0	0	0	1	2	3	1	6	4	4	4	3	0	0	28
Bile ducts	0	0	0	0	0	0	0	1	2	1	1	3	3	1	1	4	0	1	18
Pancreas	0	0	0	0	1	1	0	2	1	6	10	14	16	6	9	4	5	0	75
Peritoneum, Retroperitonuem	0	0	0	0	1	1	1	1	0	1	4	3	2	0	1	1	0	1	17
Other digestive	0	0	0	0	0	0	0	1	0	0	2	1	0	0	1	1	0	0	6
Nasal cavity,sinus,ear	0	0	1	0	1	0	0	0	1	0	1	1	0	0	0	0	0	0	5
Larynx	0	0	0	0	0	0	0	0	0	1	1	4	6	1	1	2	1	1	18
Lung/Bronchus	0	0	1	0	0	1	4	2	9	5	13	14	14	14	7	8	9	1	102
Pleura	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	2
Other respir & thoracic	0	0	0	0	0	1	0	1	2	0	0	0	1	0	0	0	0	0	5
Leukemia	20	15	20	20	10	30	20	22	13	19	17	18	11	4	5	3	0	0	247
Myeloma	1	0	0	0	0	0	1	2	2	3	5	5	3	2	1	0	2	0	27
Bone	4	6	8	11	6	6	4	7	3	2	4	0	1	2	3	0	0	0	67
Soft tissue	5	5	4	5	6	11	4	2	5	3	5	2	1	3	1	0	1	0	63
Skin	0	2	1	0	0	3	1	2	4	2	7	8	4	4	6	3	2	7	56
Kaposi sarcoma	0	0	0	0	0	0	0	0	0	0	1	1	1	1	1	1	0	0	6
Breast	0	0	0	0	1	16	37	59	78	95	90	73	52	29	16	9	7	2	564
Uterus	0	0	0	0	1	4	2	14	9	10	17	34	29	16	15	7	4	3	165
Ovary	0	0	0	0	1	0	6	8	3	7	15	7	6	6	3	0	1	0	63
Vagina	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	2
Vulva	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	1
Other female genital	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1
Prostate	0	0	0	0	0	0	0	0	0	0	4	9	13	15	18	7	11	4	81
Testis	1	0	1	2	13	6	11	6	0	1	1	0	0	0	0	0	0	0	42
Penis	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1
Bladder	2	0	0	0	2	1	3	2	2	3	8	10	17	15	7	15	7	3	97
Kidney and renal pelvis	16	3	0	1	2	5	6	8	14	11	9	13	12	4	4	4	4	2	118
Ureter	0	0	0	0	0	0	0	0	0	0	1	0	2	0	0	0	0	0	3
Other urinary	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	1
Eye	14	2	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	1	19
Brain,CNS	18	14	11	12	7	28	28	25	21	30	30	24	23	18	5	4	3	2	303
Thyroid	0	1	4	8	19	36	38	35	33	33	22	20	12	9	5	5	3	0	283
Other endocrine	9	2	4	2	3	7	2	5	6	7	4	5	5	2	2	0	0	0	65
Hodgkin's disease	2	9	12	23	22	12	15	7	11	3	5	4	3	4	0	2	0	0	134
Non-hodgkin's lymphoma	7	10	7	10	12	18	16	16	23	12	20	23	26	15	12	10	7	1	245
Unknown or ill-defined	2	0	1	0	1	1	1	1	1	3	4	1	2	0	1	1	2	1	23
TOTAL	105	70	80	97	117	206	227	257	300	308	371	387	344	242	171	121	88	42	3533

**TABLE 6
ANALYTIC MALE CASES SEEN AT KFSH&RC BY SITE AND AGE
2019**

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	0	0	3	2	5	4	2	2	2	3	1	5	2	4	36
Nasopharynx	0	0	1	0	3	1	2	2	8	6	8	14	3	4	0	0	0	0	52
Esophagus	0	0	0	0	1	1	0	2	1	1	2	3	2	2	2	1	0	1	19
Stomach	0	0	0	0	0	3	3	1	2	1	5	3	2	3	1	2	1	1	28
Small intestine	0	0	0	0	1	0	0	0	0	0	0	1	0	0	0	1	0	0	3
Colon	0	0	0	0	1	1	2	4	4	5	13	11	9	12	12	0	2	0	76
Rectum & rectosigmoid	0	0	0	0	0	2	4	2	9	5	2	8	9	10	2	3	1	0	57
Anus,anal canal,anorectum	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	2
Liver	3	1	1	1	0	1	1	0	1	2	6	11	12	5	8	5	6	0	64
Gallbladder	0	0	0	0	0	0	0	0	1	1	0	1	0	2	3	1	0	0	9
Bile ducts	0	0	0	0	0	0	0	1	2	1	0	0	3	0	1	1	0	0	9
Pancreas	0	0	0	0	0	1	0	2	1	4	8	11	9	5	6	2	4	0	53
Peritoneum, Retorperitoneum	0	0	0	0	1	0	0	1	0	0	2	3	2	0	1	0	0	0	10
Other digestive	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	1	0	0	3
Nasal cavity,sinus,ear	0	0	1	0	1	0	0	0	0	0	1	0	0	0	0	0	0	0	3
Larynx	0	0	0	0	0	0	0	0	0	1	1	4	4	1	1	2	1	1	16
Lung/ Bronchus	0	0	0	0	0	0	3	0	6	5	12	8	12	11	6	7	9	1	80
Pleura	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	2
Other respir & thoracic	0	0	0	0	0	1	0	1	1	0	0	0	0	0	0	0	0	0	3
Myeloma	1	0	0	0	0	0	0	2	0	0	3	1	2	2	1	0	1	0	13
Leukemia	9	9	14	12	6	20	9	14	6	7	10	6	10	3	4	1	0	0	140
Bone	2	3	6	5	5	4	3	3	2	1	2	0	1	0	2	0	0	0	39
Soft tissue	2	0	2	2	2	6	1	1	4	3	3	2	0	2	1	0	1	0	32
Kaposi sarcoma	0	0	0	0	0	0	0	0	0	0	1	1	0	1	1	1	0	0	5
Skin	0	1	0	0	0	2	0	2	1	0	3	4	3	4	4	0	2	5	31
Breast	0	0	0	0	0	0	1	0	1	1	0	2	0	1	0	2	0	0	8
Prostate	0	0	0	0	0	0	0	0	0	0	4	9	13	15	18	7	11	4	81
Testis	1	0	1	2	13	6	11	6	0	1	1	0	0	0	0	0	0	0	42
Penis	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1
Bladder	2	0	0	0	1	1	2	2	2	2	7	9	14	15	5	12	7	3	84
Kidney and renal pelvis	4	2	0	1	0	2	4	2	7	8	4	7	11	4	3	1	3	2	65
Ureter	0	0	0	0	0	0	0	0	0	0	1	0	2	0	0	0	0	0	3
Other urinary	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	1
Eye	7	2	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	10
Brain,CNS	10	11	6	8	2	11	18	11	7	9	12	6	8	5	2	2	2	2	132
Thyroid	0	0	0	0	2	15	8	14	10	8	7	11	8	1	2	1	1	0	88
Other endocrine	5	0	0	1	2	2	1	3	5	6	2	3	2	1	1	0	0	0	34
Hodgkin's disease	0	6	5	14	13	6	10	5	10	3	2	2	0	2	0	1	0	0	79
Non-hodgkin's lymphoma	4	7	3	8	9	10	10	11	13	7	8	15	18	10	7	5	4	1	150
Unknown or ill-defined	1	0	0	0	1	0	1	0	1	1	3	1	0	0	0	1	2	0	12
TOTAL	51	42	40	55	64	96	97	94	110	95	136	161	163	125	95	65	61	25	1575

**TABLE 7
ANALYTIC FEMALE CASES SEEN AT KFSH&RC BY SITE AND AGE
2019**

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	1	1	3	1	3	4	3	7	6	4	1	2	3	39
Nasopharynx	0	0	1	0	0	1	1	0	2	3	1	2	6	0	1	0	0	0	18
Hypopharynx	0	0	0	0	0	0	2	0	2	0	0	0	0	0	1	0	0	0	5
Esophagus	0	0	0	0	0	3	1	1	1	1	1	0	2	0	0	0	2	1	13
Stomach	0	0	1	0	1	4	1	1	2	1	3	5	6	3	1	1	0	0	30
Small intestine	0	0	0	0	0	0	1	0	1	0	2	0	0	0	1	0	0	0	5
Colon	0	0	0	1	0	0	1	4	11	5	9	10	6	9	5	5	1	1	68
Rectum, Rectosigmoid	0	0	0	0	0	0	4	2	2	7	9	7	5	2	3	1	1	1	44
Anus,anal canal,anorectum	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1
Liver	1	0	1	0	0	0	0	2	1	0	2	3	1	7	0	2	0	0	20
Gallbladder	0	0	0	0	0	0	0	1	1	2	1	5	4	2	1	2	0	0	19
Bile ducts	0	0	0	0	0	0	0	0	0	0	1	3	0	1	0	3	0	1	9
Pancreas	0	0	0	0	1	0	0	0	0	2	2	3	7	1	3	2	1	0	22
Retroperitoneum, Peritoneum	0	0	0	0	0	1	1	0	0	1	2	0	0	0	0	1	0	1	7
Other digestive	0	0	0	0	0	0	0	1	0	0	1	0	0	0	1	0	0	0	3
Nasal cavity,sinus,ear	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	2
Larynx	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	2
Lung/Bronchus	0	0	1	0	0	1	1	2	3	0	1	6	2	3	1	1	0	0	22
Other respir & thoracic	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	2
Myeloma	0	0	0	0	0	0	1	0	2	3	2	4	1	0	0	0	1	0	14
leukemis	11	6	6	8	4	10	11	8	7	12	7	12	1	1	1	2	0	0	107
Bone	2	3	2	6	1	2	1	4	1	1	2	0	0	2	1	0	0	0	28
Soft tissue	3	5	2	3	4	5	3	1	1	0	2	0	1	1	0	0	0	0	31
Kaposi sarcoma	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1
Skin	0	1	1	0	0	1	1	0	3	2	4	4	1	0	2	3	0	2	25
Breast	0	0	0	0	1	16	36	59	77	94	90	71	52	28	16	7	7	2	556
Uterus	0	0	0	0	1	4	2	14	9	10	17	34	29	16	15	7	4	3	165
Ovary	0	0	0	0	1	0	6	8	3	7	15	7	6	6	3	0	1	0	63
Vagina	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	2
Vulva	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	1
Other female genital	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1
Bladder	0	0	0	0	1	0	1	0	0	1	1	1	3	0	2	3	0	0	13
Kidney and renal pelvis	12	1	0	0	2	3	2	6	7	3	5	6	1	0	1	3	1	0	53
Eye	7	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	1	9
Brain, CNS	8	3	5	4	5	17	10	14	14	21	18	18	15	13	3	2	1	0	171
Thyroid	0	1	4	8	17	21	30	21	23	25	15	9	4	8	3	4	2	0	195
Other endocrine	4	2	4	1	1	5	1	2	1	1	2	2	3	1	1	0	0	0	31
Hodgkin's disease	2	3	7	9	9	6	5	2	1	0	3	2	3	2	0	1	0	0	55
Non-hodgkin's lymphoma	3	3	4	2	3	8	6	5	10	5	12	8	8	5	5	5	3	0	95
Unknown or ill-defined	1	0	1	0	0	1	0	1	0	2	1	0	2	0	1	0	0	1	11
TOTAL	54	28	40	42	53	110	130	163	190	213	235	226	181	117	76	56	27	17	1958

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 2019 analytic cases exhibit significant differences in trends from those of the U.S.A when compared to the data published in Cancer Facts & Figures - 2019, by the American Cancer Society:

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

SITE	KFSH&RC 2019 Analytics	USA 2019 Estimates
BREAST	15.9%	15.3%
BRAIN, CNS	8.5%	1.3%
THYROID	8.0%	2.9%
LEUKEMIA	6.9%	3.5%
NHL	6.9%	4.2%
UTERUS	4.6%	3.5%
COLON	4.1%	5.7%
HODGKIN LYMPHOMA	3.7%	0.4%
KIDNEY & RENAL PELVIS	3.3%	4.1%
LUNG/ BRONCHUS	2.8%	12.9%

Breast - The most common malignancy seen at KFSH&RC is breast cancer, comprising 15.9% of all cases, as compared to 15.3% 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.

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 1.3% of all cancers, compared to 8.5% at KFSH&RC.

Thyroid – 8.0% of all malignancies in KFSH&RC are thyroid cancer, much higher than in the West, it accounts for only 2.9% of all cases in the U.S.A.

Leukemia - The most striking feature is the high crude relative frequency of leukemia cases, 6.9% of all cases seen at KFSH&RC, as compared to 3.5% of all neoplasms diagnosed in the U.S.A.

Non-Hodgkin Lymphoma - Cases of non-Hodgkin's lymphoma account for 6.9% of all cases. In the U.S.A., NHL accounts for only 4.2% of all cancers.

Uterus - Primary malignant neoplasms of the Uterus account for 4.6% of all malignancies. This is higher than in the U.S.A., with only 3.5% of all cases.

Colon – A crude relative frequency rate was also noted in cancer of colon. In Western countries it accounts for 5.7% of all cancers, whereas at KFSH&RC represents 4.1% of the cases.

Hodgkin Disease – The relative frequency of Hodgkin Disease cases at KFSH&RC is 3.7% as compared to the West recorded as 0.4%.

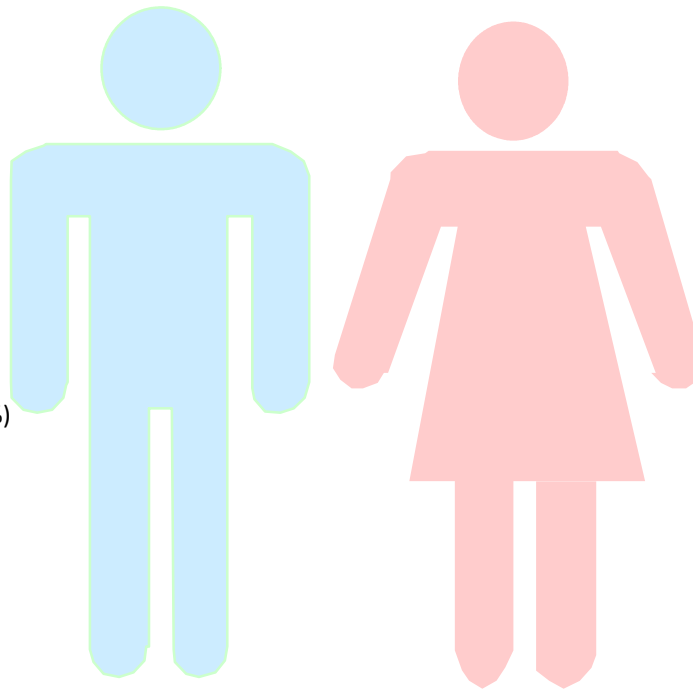
Kidney & renal pelvis – frequency of Kidney & Renal Pelvis malignancies in Western Countries is 4.1%, while in KFSH&RC it accounts for 3.3% of all cancers.

Lung/Bronchus- frequency of Lung and Bronchus malignancies in Western Countries is 12.9%, while in KFSH&RC it accounts for 2.8% of all cancers

FIGURE 10
DISTRIBUTION OF 20 MOST COMMON MALIGNANCIES
2019 ANALYTIC CASES (TOTAL CASES = 3,533)

MALE

- NHL 150 (9.52%)
- LEKUMIA 140 (8.88%)
- BRAIN 132 (8.38%)
- THYROID 88 (5.58%)
- BLADDER 84 (5.33 %)
- PROSTATE 81 (5.14%)
- LUNG/BRONCHUS 80 (5.07%)
- HL 79 (5.01%)
- COLON 76 (4.82%)
- KIDNEY, RENAL PELVIS 65 (4.12%)
- LIVER 64 (4.06%)
- RECTUM & RECTOSIGMOID 57 (3.61%)
- PANCREASE 53 (3.36%)
- NASOPHARYNX 52 (3.30%)
- TESTIS 42 (2.66%)
- BONE 39 (2.47%)
- ORAL CAVITY 36 (2.28%)
- OTHER ENDOCRINE 34 (2.15%)
- SOFT TISSUE 32 (2.03%)
- SKIN CA 31 (1.96%)



FEMALE

- BREAST 556 (35.30%)
- THYROID 195 (12.38%)
- BRAIN, CNS 171(10.85%)
- UTERUS 165 (10.47%)
- LEUKEMIA 107 (6.79%)
- NHL 95 (6.03%)
- COLON 68 (4.31 %)
- OVARY 63 (4.0%)
- HODGKIN LYMPHOMA 55 (3.49%)
- KIDNEY, RENAL PELVIS 44 (2.79%)
- RECTUM & RECTOSIGMOID 44(2.79%)
- ORAL CAVITY 39 (2.47%)
- SOFT TISSUE 31 (1.96%)
- OTHER ENDOCRINE 31 (1.96%)
- STOMACH 30 (1.90%)
- BONE 28 (1.77%)
- SKIN 25 (1.58%)
- PANCREASE 22 (1.39%)
- LUNG 22 (1.39%)
- LIVER 20 (1.26%)

FIGURE 11
DISTRIBUTION OF MOST COMMON PEDIATRIC MALIGNANCIES
2019 ANALYTIC CASES (TOTAL CASES= 253)

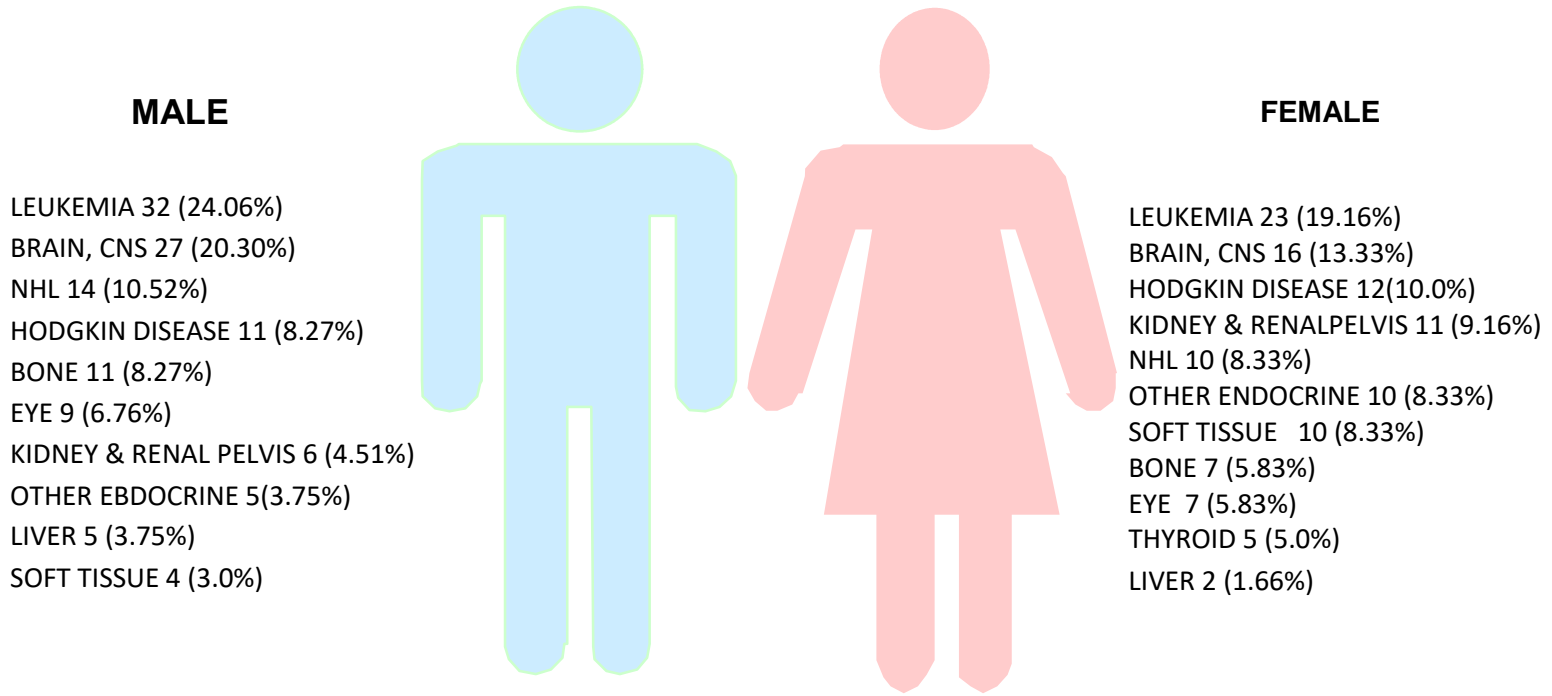


FIGURE 12
DISTRIBUTION OF MOST COMMON PEDIATRIC MALIGNANCIES BY HISTOLOGY
2019 ANALYTIC CASES (TOTAL CASES= 253)

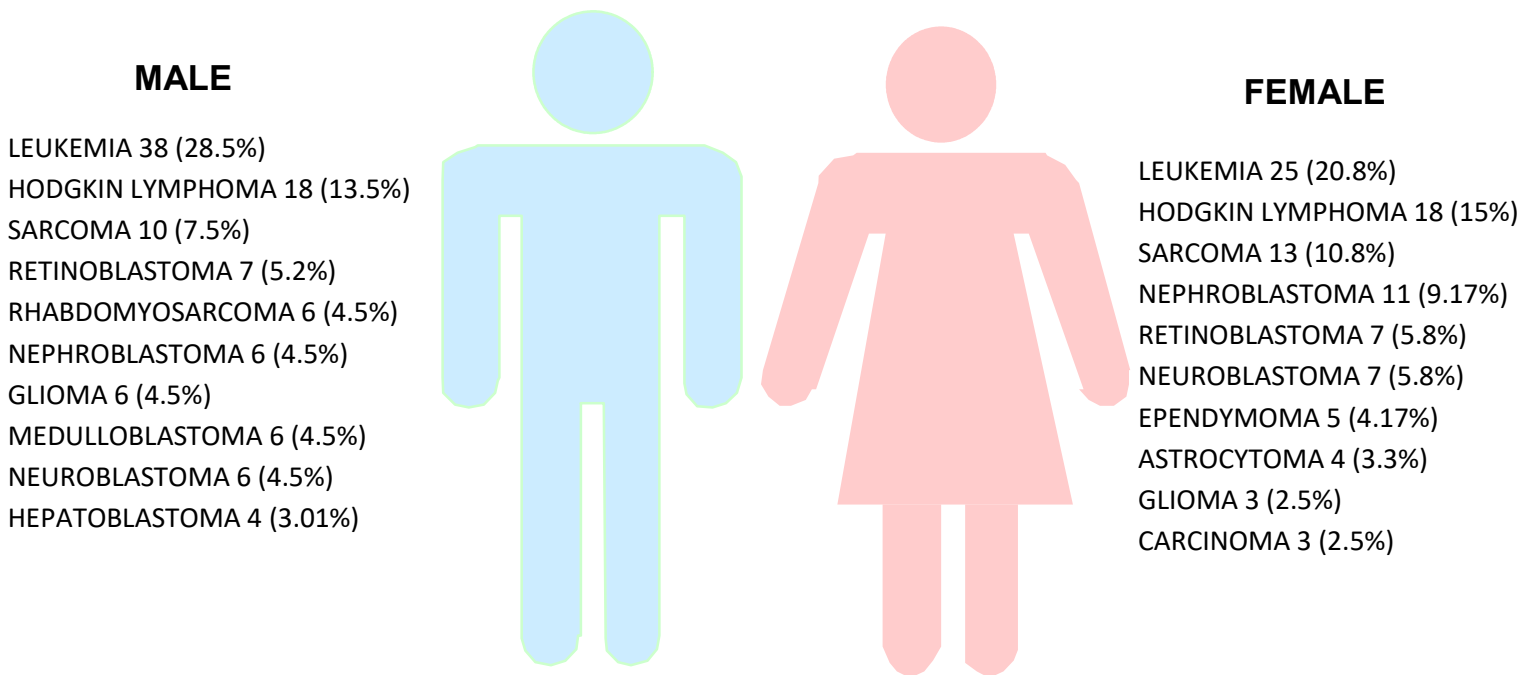


TABLE 9
PRIMARY SITE TABLE
(INCLUDES MULTIPLE PRIMARIES)
2019

SITE	HISTOLOGY (NOS - Not Otherwise Specified)	ALL CASES	ADULTS		PEADIATRICS	
			MALE	FEMALE	MALE	FEMALE
		3,647	1,484	1,894	142	127
LIP		1	0	1	0	0
	Mucoepidermoid carcinoma	1	0	1	0	0
TONGUE		38	17	20	1	0
	Squamous cell carcinoma	28	14	14	0	0
	Squamous cell carcinoma keratinizing	7	3	4	0	0
	Mucoepidermoid carcinoma	2	0	2	0	0
	Rhabdomyosarcoma	1	0	0	1	0
GUM		3	2	1	0	0
	Squamous cell carcinoma	2	2	0	0	0
	Squamous cell carcinoma keratinizing	1	0	1	0	0
SALIVARY GLANDS		10	6	4	0	0
	Acinar cell carcinoma	2	0	2	0	0
	Adenoid cystic carcinoma	2	2	0	0	0
	Mucoepidermoid carcinoma	2	2	0	0	0
	Clear cell adenocarcinoma	1	1	0	0	0
	Ewing sarcoma	1	0	1	0	0
	Malignant myoepithelioma	1	0	1	0	0
	Oxyphilic carcinoma	1	1	0	0	0
FLOOR OF MOUTH		5	4	1	0	0
	Squamous cell carcinoma	5	4	1	0	0
TONSIL		1	1	0	0	0
	Squamous cell carcinoma	1	1	0	0	0
NASOPHARYNX		65	46	17	1	1
	Squamous cell carcinoma Large cell Nonkerat. Carcinoma	26	21	4	1	0
	Squamous cell carcinoma Adenocarcinoma	16	11	4	0	1
	Squamous cell carcinoma small cell Nonkerat. Carcinoma undifferentiated	13	7	6	0	0
	Neoplasm malignant	4	3	1	0	0
	Squamous cell carcinoma keratinizing	3	1	2	0	0
	Squamous cell carcinoma keratinizing	1	1	0	0	0
	Squamous cell carcinoma keratinizing	1	1	0	0	0
HYPOPHARYNX		10	5	5	0	0
	Squamous cell carcinoma	7	4	3	0	0
	Squamous cell carcinoma keratinizing	2	1	1	0	0
	Squamous cell carcinoma Large cell Nonkerat.	1	0	1	0	0
LARYNX		18	16	2	0	0
	Squamous cell carcinoma	13	11	2	0	0
	Squamous cell carcinoma keratinizing	2	2	0	0	0
	Carcinoma	1	1	0	0	0
	Papillary squamous cell carcinoma	1	1	0	0	0
	Squamous cell carcinoma Large cell Nonkerat.	1	1	0	0	0
KAPOSIS SARCOMA		6	5	1	0	0
	Kaposis sarcoma	6	5	1	0	0

SITE	HISTOLOGY (NOS - Not Otherwise Specified)	ALL CASES	ADULTS		PEADIATRICS	
			MALE	FEMALE	MALE	FEMALE
NASAL CAVITY, MIDDLE EAR		5	2	2	1	0
	Adenocarcinoma	1	1	0	0	0
	Adenoid cystic carcinoma	1	1	0	0	0
	Malignant melanoma(except juvenile melanoma)	1	0	1	0	0
	Squamous cell carcinoma keratinizing	1	0	1	0	0
	Embryonal rhabdomyosarcoma	1	0	0	1	0
ESOPHAGUS		32	19	13	0	0
	Adenocarcinoma	15	13	2	0	0
	Squamous cell carcinoma	14	3	11	0	0
	Adenocarcinoma intestinal type	1	1	0	0	0
	Aenosquamous carcinoma	1	1	0	0	0
	Squamous cell carcinoma keratinizing	1	1	0	0	0
STOMACH		59	28	30	0	1
	Adenocarcinoma	32	17	15	0	0
	Signet ring cell carcinoma	10	2	8	0	0
	Gastrointstinal stromal sarcoma	5	3	1	0	1
	Neuroendocrine carcinoma	5	1	4	0	0
	Carcinoid tumor	3	1	2	0	0
	Adenocarcinoma intestinal type	2	2	0	0	0
	Carcinoma	1	1	0	0	0
	Desmoplastic small round cell tumor	1	1	0	0	0
SMALL INTESTINE		8	3	5	0	0
	Adenocarcinoma	3	0	3	0	0
	Neuroendocrine carcinoma	2	2	0	0	0
	Gastrointstinal stromal sarcoma	1	1	0	0	0
	Gastrointstinal stromal tumor	1	0	1	0	0
	Small cell carcinoma	1	0	1	0	0
COLON		152	81	71	0	0
	Adenocarcinoma	135	69	66	0	0
	Mucinous adenocarcinoma	9	6	3	0	0
	Carcinoma	2	1	1	0	0
	Signet ring cell carcinoma	2	1	1	0	0
	Gastrointstinal stromal sarcoma	1	1	0	0	0
	Mucinous adenocarcinofibroma	1	1	0	0	0
	Neoplasm malignant	1	1	0	0	0
	Squamous cell carcinoma	1	1	0	0	0
OTHER DIGESTIVE		6	3	3	0	0
	Adenocarcinoma	2	1	1	0	0
	Neuroendocrine carcinoma	2	2	0	0	0
	Pseudomyxoma peritonei	1	0	1	0	0
	Signet ring cell carcinoma	1	0	1	0	0
ANUS, ANAL CANAL, ANORECTUM		3	2	1	0	0
	Adenocarcinoma	1	1	0	0	0
	Malignant melanoma(except juvenile melanoma)	1	0	1	0	0
	squamous cell carcinoma	1	1	0	0	0

SITE	HISTOLOGY (NOS - Not Otherwise Specified)	ALL CASES	ADULTS		PEADIATRICS	
			MALE	FEMALE	MALE	FEMALE
RECTUM & RECTOSIGMOID JUNCTION		102	58	44	0	0
	Adenocarcinoma	89	49	40	0	0
	Mucinous adenocarcinoma	4	1	3	0	0
	Carcinoma	3	2	1	0	0
	Adenocarcinoma in situ tubulovillous adenoma	1	1	0	0	0
	Atypical carcinoid tumor	1	1	0	0	0
	Non small cell carcinoma	1	1	0	0	0
	Small cell carcinoma	1	1	0	0	0
	squamous cell carcinoma	1	1	0	0	0
	Squamous intraepithelial neoplasm Grade III	1	1	0	0	0
LIVER		85	60	18	5	2
	hepatocellular carcinoma	61	51	10	0	0
	Cholangiocarcinoma	9	4	5	0	0
	hepatoblastoma	6	0	0	4	2
	Carcinoma	2	2	0	0	0
	Combined hepatocellular and cholangio ca	2	2	0	0	0
	Adenocarcinoma	1	1	0	0	0
	Atypical carcinoid	1	0	1	0	0
	Choriocarcinoma	1	0	1	0	0
	Neuroendocrine carcinoma	1	0	1	0	0
	hepatocellular carcinoma	1	0	0	1	0
GALLBLADDER		28	9	19	0	0
	Adenocarcinoma	22	7	15	0	0
	Aenosquamous carcinoma	2	0	2	0	0
	Cholangiocarcinoma	2	2	0	0	0
	Carcinoma	1	0	1	0	0
	Clear cell adenocarcinoma	1	0	1	0	0
PANCREAS		78	53	25	0	0
	Adenocarcinoma	64	45	19	0	0
	Carcinoid tumor	4	2	2	0	0
	Carcinoma	3	2	1	0	0
	Cholangiocarcinoma	2	1	1	0	0
	Neuroendocrine carcinoma	2	1	1	0	0
	Atypical carcinoid tumor	1	0	1	0	0
	carcinoma	1	1	0	0	0
	neoplasm malignant	1	1	0	0	0
BILE DUCTS		18	9	9	0	0
	Adenocarcinoma	9	6	3	0	0
	Cholangiocarcinoma	5	3	2	0	0
	Carcinoma	2	0	2	0	0
	Carcinoid tumor	1	0	1	0	0
	Klastkin tumor	1	0	1	0	0

SITE	HISTOLOGY (NOS - Not Otherwise Specified)	ALL CASES	ADULTS		PEADIATRICS	
			MALE	FEMALE	MALE	FEMALE
SOFT TISSUES		52	29	23	0	0
	Spindle cell sarcoma	6	4	2	0	0
	Synovial sarcoma	6	2	4	0	0
	Sarcoma	5	3	2	0	0
	Dermatofibrosarcoma	3	0	3	0	0
	Ewing sarcoma	3	2	1	0	0
	Leiomyosarcoma	3	1	2	0	0
	Myxoid liposrcoma	3	2	1	0	0
	Squamous cell carcinoma	3	2	1	0	0
	Alveolar soft part carcinoma	2	1	1	0	0
	Giant cell sarcoma(except of bone)	2	2	0	0	0
	Liposarcoma well differentiated	2	2	0	0	0
	Rhabdomyosarcoma	2	1	1	0	0
	Epithelioid sarcoma	1	1	0	0	0
	Ganglioneuroblastoma	1	0	1	0	0
	Gastrointestinal stromal sarcoma	1	1	0	0	0
	Liposarcoma	1	1	0	0	0
	Malignant giant cell tumor of soft parts	1	1	0	0	0
	Malignant tenosynovial giant cell carcinoma	1	1	0	0	0
	Malignant tumor giant cell type	1	0	1	0	0
	Pleomorphic liposarcoma	1	1	0	0	0
	Solitary fibrous tumor malignant	1	0	1	0	0
	Spindle cell carcinoma	1	0	1	0	0
	Spindle cell rhabdomyosarcoma	1	1	0	0	0
	Squamous cell carcinoma Keratinizing	1	0	1	0	0
LUNG, BRONCHUS		105	82	22	0	1
	Adenocarcinoma	45	32	13	0	0
	Non-small cell carcinoma	16	12	4	0	0
	Squamous cell carcinoma	16	15	1	0	0
	Small cell carcinoma	7	6	1	0	0
	Carcinoma NOS	5	4	1	0	0
	Carcinoid Tumor	4	1	2	0	1
	Neuroendocrine carcinoma	3	3	0	0	0
	Adenocarcinoma In situ	1	1	0	0	0
	Adenosquamous carcinoma	1	1	0	0	0
	Carcinoma undifferentiated	1	1	0	0	0
	Large cell Neuroendocrine carcinoma	1	1	0	0	0
	Liposarcoma	1	1	0	0	0
	Mesothelioma	1	1	0	0	0
	Mucinous adenocarcinoma	1	1	0	0	0
	Spindle cell carcinoma	1	1	0	0	0
	Squamous cell carcinoma large cell nonkerat.	1	1	0	0	0
OTHER RESPIRATORY & THORACIC		6	4	2	0	0
	Dermatofibrosarcoma	1	0	1	0	0
	Fibrosarcoma	1	0	1	0	0
	Germinoma	1	1	0	0	0
	Hemangiosarcoma	1	1	0	0	0
	Neuroendocrine carcinoma	1	1	0	0	0
	Seminoma	1	1	0	0	0
PLEURA		4	2	2	0	0
	Epithelioid mesothelioma	2	1	1	0	0
	Mesothelioma	2	1	1	0	0

SITE	HISTOLOGY (NOS - Not Otherwise Specified)	ALL CASES	ADULTS		PEADIATRICS	
			MALE	FEMALE	MALE	FEMALE
BONE, JOINTS, CARTILAGE		70	31	21	11	7
	Osteosarcoma	19	11	4	2	2
	Ewing sarcoma	11	3	2	2	4
	Chondrosarcoma	5	2	3	0	0
	Giant cell tumor	4	2	2	0	0
	Sarcoma	4	3	1	0	0
	Chondroblastic osteosarcoma	3	0	3	0	0
	Spindle cell sarcoma	3	2	0	1	0
	Squamous cell carcinoma NOS	3	1	2	0	0
	Synovial sarcoma biphasic	3	1	0	2	0
	Chordoma NOS	2	1	0	1	0
	Squamous cell carcinoma keratinizing	2	2	0	0	0
	Ameloblastoma	1	1	0	0	0
	Chordoma differentiated	1	1	0	0	0
	Epithelioid sarcoma	1	1	0	0	0
	Liposarcoma	1	0	1	0	0
	Fibrous histiocytoma	1	0	1	0	0
	Myxopapillary ependymoma	1	0	1	0	0
	Telangiectatic osteosarcoma	1	0	1	0	0
	Germinoma	1	0	0	1	0
	Mixed germ cell tumor	1	0	0	0	1
	Rhabdomyosarcoma	1	0	0	1	0
	Small cell sarcoma	1	0	0	1	0
BONE MARROW		238	97	84	32	25
	Acute myeloid leukemia NOS	52	20	20	6	6
	Chronic myeloid leukemia NOS	39	16	23	0	0
	Burkitt cell leukemia	28	9	2	11	6
	Leukemia NOS	26	11	4	6	5
	Myeloproliferative neoplasm, unclassifiable	12	7	4	1	0
	Acute leukemia NOS	11	4	5	2	0
	Polycythemia vera	8	5	3	0	0
	Acute myeloid leukemia with T(1;22)(p13;q13)	7	2	2	2	1
	Acute myeloid leukemia (11Q23 abnormalities)	4	2	1	0	1
	Acute myeloid leukemia M6 type	4	1	1	1	1
	Acute myeloid leukemia minimal Diff.	4	0	2	1	1
	Acute promyelocytic leukemia T(15;17)	4	3	1	0	0
	B-cell chronic lymphocytic leukemia	4	3	1	0	0
	Essential thrombocythemia	4	0	4	0	0
	Langerhans cell histiocytosis NOS	4	2	0	0	2
	Hairy cell leukemia	3	3	0	0	0
	Precursor cell lymphoblastic leukemia NOS	3	1	0	1	1
	Acute monocytic leukemia	2	0	2	0	0
	Acute myeloid leukemia T(8;21)(q22; q22)	2	0	2	0	0
	B lymphoblastic leukemia/lymphoma, NOS	2	1	0	1	0
	Myelodysplastic syndrome NOS	2	2	0	0	0
	Acute myeloid leukemia with maturation	1	0	1	0	0
	B lymphoblastic leukemia/lymphoma with T(9;22)	1	0	1	0	0
	Histiocytic sarcoma	1	1	0	0	0
	Hypereosinophilic syndrome	1	1	0	0	0
	Langerhans cell histiocytosis [OBS]	1	0	1	0	0
	Lymphoid leukemia NOS	1	1	0	0	0
	Myeloid leukemia NOS	1	0	1	0	0
	Polymorphic PTLD	1	0	1	0	0
	Precursor B-cell lymphoblastic leukemia	1	1	0	0	0
	Prolymphocytic leukemia B-cell type	1	1	0	0	0
	Refractory anemia with sideroblasts	1	0	1	0	0
	Waldenstrom macroglobulinemia	1	0	1	0	0
	Juvenile myelomonocytic leukemia	1	0	0	0	1

SITE	HISTOLOGY (NOS - Not Otherwise Specified)	ALL CASES	ADULTS		PEADIATRICS	
			MALE	FEMALE	MALE	FEMALE
MULTIPLE MYELOMA		27	12	14	1	0
	Multiple myeloma	25	11	14	0	0
	Plasmacytoma	2	1	0	1	0
OTHER HEMATOPOIETIC		18	13	5	0	0
	Essential thrombocythemia	4	3	1	0	0
	Myelodysplastic syndrome	4	3	1	0	0
	Myeloproliferative neoplasm unclassifiable	4	3	1	0	0
	Polycythemia vera	4	3	1	0	0
	Myelosclerosis with myeloid metaplasia	2	1	1	0	0
SKIN (MELANOMA)		5	2	3	0	0
	Malignant melanoma	3	2	1	0	0
	Melanoma In situ	1	0	1	0	0
	Nodular melanoma	1	0	1	0	0
SKIN (NON MELANOMA)		50	28	20	0	2
	Squamous cell carcinoma NOS	20	10	10	0	0
	Basal cell carcinoma NOS	10	6	4	0	0
	Basal cell carcinoma nodular	6	3	2	0	1
	Squamous cell carcinoma In situ	5	3	2	0	0
	Dermatofibrosarcoma	4	3	1	0	0
	Sarcoma NOS	2	0	1	0	1
	Epithelioid sarcoma	1	1	0	0	0
	Spindle cell sarcoma	1	1	0	0	0
	Squamous spindle cell carcinoma	1	1	0	0	0
THYROID		290	89	196	0	5
	Papillary adenocarcinoma NOS	237	69	166	0	2
	Papillary microcarcinoma	14	7	7	0	0
	Carcinoma NOS	12	7	3	0	2
	Follicular adenocarcinoma NOS	8	1	6	0	1
	Follicular carcinoma minimally invasive	4	1	3	0	0
	Oxyphilic adenocarcinoma	4	1	3	0	0
	Papillary carcinoma columnar cell	4	0	4	0	0
	Adenocarcinoma NOS	1	0	1	0	0
	Carcinoma anaplastic NOS	1	1	0	0	0
	Inv. encaps. follicular variant of papillary thyroid ca	1	1	0	0	0
	Medullary carcinoma NOS	1	0	1	0	0
	Papillary adenocarcinoma In situ	1	1	0	0	0
	Papillary carcinoma follicular variant	1	0	1	0	0
	Papillary carcinoma NOS	1	0	1	0	0
OTHER ENDOCRINE GLANDS		72	34	23	5	10
	Pituitary adenoma NOS	35	22	11	0	2
	Neuroblastoma NOS	9	0	0	4	5
	Adrenal cortical carcinoma	5	0	3	1	1
	Thymoma malignant NOS	3	2	1	0	0
	Thymoma type B2 malignant	3	2	1	0	0
	Adenocarcinoma NOS	2	1	1	0	0
	Adenoma NOS	2	2	0	0	0
	Pheochromocytoma malignant	2	1	1	0	0
	Carcinoma NOS	1	0	1	0	0
	Craniopharyngioma	1	1	0	0	0
	Paraganglioma malignant	1	0	1	0	0
	Pilocytic astrocytoma	1	1	0	0	0
	Ganglioneuroblastoma	1	0	0	0	1
	Pineoblastoma	1	0	0	0	1

SITE	HISTOLOGY (NOS - Not Otherwise Specified)	ALL CASES	ADULTS		PEADIATRICS	
			MALE	FEMALE	MALE	FEMALE
	Small cell sarcoma	1	0	1	0	0
	Teratoma NOS	1	1	0	0	0
	Thymoma type A malignant	1	0	1	0	0
	Thymoma type B1 malignant	1	0	1	0	0
	Thymoma type B3 malignant	1	1	0	0	0
RETROPERITONEUM, PERITONEUM		18	10	8	0	0
	Leiomyosarcoma	4	1	3	0	0
	Liposarcoma well differentiated	2	2	0	0	0
	Paraganglioma malignant	2	0	2	0	0
	Spindle cell sarcoma	2	2	0	0	0
	Mesothelioma	2	1	1	0	0
	Choriocarcinoma	1	1	0	0	0
	Liposarcoma	1	0	1	0	0
	Myxoid liposarcoma	1	1	0	0	0
	Adenocarcinoma	1	1	0	0	0
	Sarcoma NOS	1	1	0	0	0
	Serous cystadenoma NOS	1	0	1	0	0
BREAST		582	8	574	0	0
	Invasive ductal carcinoma	482	7	475	0	0
	Lobular carcinoma NOS	42	0	42	0	0
	Intraductal carcinoma noninfiltrating	26	0	26	0	0
	Carcinoma NOS	10	0	10	0	0
	Mucinous adenocarcinoma	6	0	6	0	0
	Adenocarcinoma NOS	4	1	3	0	0
	Cribriform carcinoma In situ	2	0	2	0	0
	Adenoid cystic carcinoma	1	0	1	0	0
	Comedocarcinoma noninfiltrating	1	0	1	0	0
	Ductal carcinoma In situ solid type	1	0	1	0	0
	Lobular carcinoma In situ NOS	1	0	1	0	0
	Paget disease mammary	1	0	1	0	0
	Papillary carcinoma In situ	1	0	1	0	0
	Papillary carcinoma NOS	1	0	1	0	0
	Phyllodes tumor malignant	1	0	1	0	0
	Spindle cell carcinoma NOS	1	0	1	0	0
	Squamous cell carcinoma NOS	1	0	1	0	0
VULVA		1	0	1	0	0
	Squamous cell carcinoma	0	0	1	0	0
VAGINA		2	0	2	0	0
	Adenocarcinoma	1	0	1	0	0
	Rhabdomyosarcoma	1	0	1	0	0
CERVIX UTERI		40	0	40	0	0
	Squamous cell carcinoma NOS	14	0	14	0	0
	Squamous cell carcinoma nonkeratinizing	7	0	7	0	0
	Adenocarcinoma	6	0	6	0	0
	Squamous intraepithelial neoplasm	5	0	5	0	0
	Squamous cell carcinoma keratinizing	2	0	2	0	0
	Squamous cell carcinoma In situ	1	0	1	0	0
	Undifferentiated carcinoma	1	0	1	0	0
	Clear cell adenocarcinoma	1	0	1	0	0
	Neuroendocrine carcinoma	1	0	1	0	0
	Serous cystadenocarcinoma	1	0	1	0	0
	Undifferentiated sarcoma	1	0	1	0	0

SITE	HISTOLOGY (NOS - Not Otherwise Specified)	ALL CASES	ADULTS		PEADIATRICS	
			MALE	FEMALE	MALE	FEMALE
CORPUS UTERI		118	0	118	0	0
	Endometrioid adenocarcinoma	57	0	57	0	0
	Adenocarcinoma	16	0	16	0	0
	Serous cysadenocarcinoma	16	0	16	0	0
	Carcinosarcoma	5	0	5	0	0
	Squamous cell carcinoma	4	0	4	0	0
	Clear cell adenocarcinoma	3	0	3	0	0
	Adenosarcoma	2	0	2	0	0
	Endometrial stromal sarcoma	2	0	2	0	0
	Leiomyosarcoma	2	0	2	0	0
	Papillary serous cystadenocarcinoma	2	0	2	0	0
	Stromal sarcoma	2	0	2	0	0
	Carcinoma NOS	1	0	1	0	0
	Liposarcoma	1	0	1	0	0
	Mullerian mixed tumor	1	0	1	0	0
	Myxoid leiomyosarcoma	1	0	1	0	0
	Sarcoma NOS	1	0	1	0	0
	Squamous intraepithelial neoplasia	1	0	1	0	0
	Undifferentiated sarcoma	1	0	1	0	0
UTERUS,NOS		11	0	11	0	0
	Carcinosarcoma	6	0	6	0	0
	Choriocarcinoma	1	0	1	0	0
	Endometrioid adenocarcinoma	1	0	1	0	0
	Sarcoma NOS	1	0	1	0	0
	Serous Cystadenocarcinoma	1	0	1	0	0
	Transitional cell carcinoma	1	0	1	0	0
OVARY		64	0	64	0	0
	Serous cysadenocarcinoma	33	0	33	0	0
	Endometrioid adenocarcinoma	8	0	8	0	0
	Adenocarcinoma	5	0	5	0	0
	Carcinoma NOS	2	0	2	0	0
	Dysgerminoma	2	0	2	0	0
	Mucinous adenocarcinoma	2	0	2	0	0
	Papillary serous cystadenocarcinoma	2	0	2	0	0
	Aenosarcoma	1	0	1	0	0
	Carcinoid tumor	1	0	1	0	0
	Clear cell adenocarcinoma	1	0	1	0	0
	Grandular cell carcinoma	1	0	1	0	0
	Granulosa cell tumor malignant	1	0	1	0	0
	Leiomyosarcoma	1	0	1	0	0
	Malignant serous tumor	1	0	1	0	0
	Mucinous cystadenocarcinoma	1	0	1	0	0
	Serous adenocarcinofibroma	1	0	1	0	0
	Squamous cell carcinoma	1	0	1	0	0
OTHER FEMAL GENITAL		1	0	1	0	0
	Choriocarcinoma NOS	1	0	1	0	0

SITE	HISTOLOGY (NOS - Not Otherwise Specified)	ALL CASES	ADULTS		PEADIATRICS	
			MALE	FEMALE	MALE	FEMALE
PROSTATE		83	83	0	0	0
	Adenocarcinoma NOS	78	78	0	0	0
	Neoplasm malignant	4	4	0	0	0
	Acinar cell cystadenocarcinoma	1	1	0	0	0
TESTIS		42	40	0	2	0
	Mixed germ cell tumor	18	18	0	0	0
	Seminoma NOS	14	14	0	0	0
	Embryonal carcinoma NOS	4	4	0	0	0
	Germinoma	2	2	0	0	0
	Choriocarcinoma combined germ cell elements	1	1	0	0	0
	Seminoma anaplastic	1	1	0	0	0
	Teratoma malignant NOS	1	0	0	1	0
	Yolk sac tumor	1	0	0	1	0
PENIS		1	1	0	0	0
	Squamous cell carcinoma nos	1	1	0	0	0
KIDNEY AND RENAL PELVIS		124	61	41	9	13
	Renal cell carcinoma NOS	72	41	29	2	0
	Nephroblastoma NOS	21	1	0	7	13
	Renal cell carcinoma chromophobe type	9	5	4	0	0
	Clear cell adenocarcinoma NOS	8	4	4	0	0
	Papillary adenocarcinoma NOS	8	7	1	0	0
	Transitional cell carcinoma NOS	4	2	2	0	0
	Medullary carcinoma NOS	1	0	1	0	0
	Papillary transitional cell carcinoma	1	1	0	0	0
BLADDER		101	85	14	2	0
	Papillary transitional cell carcinoma	36	30	6	0	0
	Papillary transitional cell carcinoma non-invasive	28	24	4	0	0
	Transitional cell carcinoma NOS	28	27	1	0	0
	Papillary carcinoma NOS	2	2	0	0	0
	Small cell carcinoma NOS	2	1	1	0	0
	Carcinoma NOS	1	0	1	0	0
	Neoplasm malignant	1	1	0	0	0
	Paragnglioma malignant	1	0	1	0	0
	Embryonal rhabdomyosarcoma NOS	1	0	0	1	0
	Rhabdomyosarcoma NOS	1	0	0	1	0
URETER		3	3	0	0	0
	Papillary transitional cell carcinoma	1	1	0	0	0
	Transitional cell carcinoma NOS	2	2	0	0	0
OTHER URINARY		1	1	0	0	0
	Transitional cell carcinoma NOS	1	1	0	0	0
EYE		19	1	2	9	7
	Retinoblastoma NOS	12	0	0	6	6
	Rhabdomyosarcoma NOS	2	0	0	2	0
	Adenoid cystic carcinoma	1	1	0	0	0
	adenoid cystic carcinoma	1	0	1	0	0
	Malignant melanoma NOS (except juvenile type)	1	0	1	0	0
	Squamous cell carcinoma NOS	1	0	0	1	0
	Retinoblastoma differentiated	1	0	0	0	1

SITE	HISTOLOGY (NOS - Not Otherwise Specified)	ALL CASES	ADULTS		PEADIATRICS	
			MALE	FEMALE	MALE	FEMALE
BRAIN		309	106	153	30	20
	Meningioma NOS	85	15	70	0	0
	Glioblastoma NOS	49	29	18	2	0
	Neurilemoma NOS	25	12	11	1	1
	Glioma malignant	16	10	2	3	1
	Astrocytoma NOS	12	4	7	0	1
	Medulloblastoma NOS	12	2	2	7	1
	Ependymoma NOS	10	1	4	1	4
	Oligodendroglioma NOS	9	4	2	1	2
	Pilocytic astrocytoma	7	0	0	5	2
	Ganglioglioma NOS	6	2	2	2	0
	Glioma benign	5	3	0	0	2
	Hemangioma NOS	5	3	2	0	0
	Astrocytoma anaplastic	4	4	0	0	0
	Meningioma malignant	4	3	1	0	0
	Meningothelial meningioma	4	2	2	0	0
	Neoplasm benign	4	0	3	0	1
	Atypical meningioma	3	0	3	0	0
	Cavernous hemangioma	3	0	3	0	0
	Myxopapillary ependymoma	3	1	1	0	1
	Chordoma NOS	2	2	0	0	0
	Clear cell meningioma	2	0	2	0	0
	Craniopharyngioma adamantinomatous	2	1	1	0	0
	Ependymoma anaplastic	2	0	0	2	0
	Fibrous meningioma	2	1	1	0	0
	Malignant rhabdoid tumor	2	0	0	2	0
	Neoplasm uncertain (benign or malignant)	2	0	2	0	0
	Psammomatous meningioma	2	0	2	0	0
	Ameloblastoma NOS	1	0	0	1	0
	Angiomatous meningioma	1	0	1	0	0
	Astroblastoma	1	0	1	0	0
	Atypical choroid plexus papilloma	1	0	0	0	1
	Atypical teratoid/rhabdoid tumor	1	0	0	0	1
	Central neurocytoma	1	1	0	0	0
	Chondrosarcoma NOS	1	1	0	0	0
	Choroid plexus papilloma NOS	1	0	0	1	0
	Craniopharyngioma	1	1	0	0	0
	Diffuse midline glioma, H3 K27M-mutant	1	0	1	0	0
	Dysembryoplastic neuroepithelial tumor	1	0	0	0	1
	Dysembryoplastic	1	1	0	0	0
	Neuroepithelial	1	0	0	1	0
	Dysembryoplastic	1	0	0	1	0
	Neuroepithelial	1	0	0	0	1
	Dysembryoplastic neuroepithelial tumor	1	1	0	0	0
	Embryonal tumor with multilayered rosettes, NOS	1	0	1	0	0
	Germinoma	1	0	1	0	0
	Giant cell astrocytoma malignant	1	1	0	0	0
	Giant cell glioblastoma	1	0	1	0	0
	Glioblastoma, idh-mutant	1	1	0	0	0
	Hemangioblastoma	1	0	1	0	0
	Hemangiopericytoma NOS	1	0	1	0	0
	Mixed germ cell tumor	1	0	1	0	0
	Neoplasm malignant	1	0	1	0	0
	Oligodendroglioma anaplastic	1	0	1	0	0
	Perineurioma malignant	1	0	1	0	0

SITE	HISTOLOGY (NOS - Not Otherwise Specified)	ALL CASES	ADULTS		PEADIATRICS	
			MALE	FEMALE	MALE	FEMALE
OTHER NERVOUS SYSTEM		10	3	6	1	0
	Meningioma NOS	7	2	5	0	0
	Ependymoma benign	1	0	0	1	0
	Hemangioma NOS	1	0	1	0	0
	Meningioma malignant	1	1	0	0	0
LYMPH NODES (HODGKIN'S LYMPHOMA)		142	73	46	11	12
	Hodgkin lymphoma nodular sclerosis NOS	65	32	24	4	5
	Hodgkin lymphoma NOS	43	25	12	3	3
	HL nodular lymphocyte predominance	19	8	7	2	2
	Hodgkin lymphoma mixed cellularity NOS	10	4	2	2	2
	Hodgkin lymphoma	3	3	0	0	0
	Hodgkin lymphoma lymphocyte depletion NOS	2	1	1	0	0
LYMPH NODES (NON HODGKIN'S LYMPHOMA)		250	139	87	14	10
	Malignant lymphoma large B-cell diffuse NOS	84	42	38	2	2
	Malignant lymphoma non-hodgkin NOS	43	28	15	0	0
	Mycosis fungoides	26	14	9	1	2
	Small lymphocytic lymphoma	13	10	3	0	0
	Mature T-cell lymphoma NOS	11	7	3	1	0
	Follicular lymphoma NOS	9	5	4	0	0
	Precursor T-cell lymphoblastic leukemia	9	4	2	1	2
	B lymphoblastic leukemia/lymphoma, NOS	8	2	1	3	2
	Burkitt lymphoma NOS	6	3	0	3	0
	Follicular lymphoma grade 2	6	3	3	0	0
	Malignant lymphoma NOS	6	2	2	0	2
	Follicular lymphoma grade 1	5	3	2	0	0
	Follicular lymphoma grade 3	4	4	0	0	0
	NK/T-cell lymphoma nasal and nasal-type	3	1	2	0	0
	B lymphoblastic leuk/lymphoma with hyperdiploidy	2	0	0	2	0
	Marginal zone B-cell lymphoma NOS	2	2	0	0	0
	Primary follicle centre lymphoma	2	2	0	0	0
	T-cell/histiocyte rich large B-cell lymphoma	2	2	0	0	0
	ALK positive large B-cell lymphoma	1	1	0	0	0
	Anaplastic large cell lymphoma T cell & null cell	1	0	1	0	0
	B lymphoblastic leuk/lymphoma with hyperdiploidy	1	0	0	1	0
	Cutaneous T-cell lymphoma NOS	1	0	1	0	0
	Mantle cell lymphoma	1	1	0	0	0
	Plasmablastic lymphoma	1	1	0	0	0
	Precursor cell lymphoblastic lymphoma NOS	1	1	0	0	0
	Primary cutaneous CD30+ T-cell lymphoproliferative	1	1	0	0	0
	Splenic marginal zone B-cell lymphoma	1	0	1	0	0
PRIMARY UNKNOWN OR ILL DEFINED		55	18	19	7	11
	Carcinoma NOS	37	10	12	6	9
	Mucinous adenocarcinoma	3	3	0	0	0
	Adenocarcinoma NOS	2	0	2	0	0
	Abdominal fibromatosis	1	0	1	0	0
	Atypical carcinoid tumor	1	1	0	0	0
	Basal cell carcinoma NOS	1	1	0	0	0
	Neoplasm malignant	1	0	1	0	0
	Neuroendocrine carcinoma NOS	1	1	0	0	0
	Papillary transitional cell carcinoma	1	0	1	0	0
	Ewing sarcoma	1	0	0	0	1
	Malignant rhabdoid tumor	1	0	0	1	0
	Neuroblastoma NOS	1	0	0	0	1
	Pheochromocytoma malignant	1	0	1	0	0
	Spindle cell carcinoma NOS	1	1	0	0	0
	Squamous cell carcinoma NOS	1	0	1	0	0
	Transitional cell carcinoma NOS	1	1	0	0	0

TABLE 10
MULTIPLE PRIMARY SITE TABLE
2019

PRIMARY SITE	HISTOLOGY	OTHER PRIMARIES	ALL CASES	MALE	FEMALE
2018	(NOS - Not Otherwise Specified)	(PREVIOUS OR CONCURRENT)	61	21	40
THYROID			11	4	7
Papillary adenocarcinoma	Bone-chordoma		1	1	0
Papillary adenocarcinoma	Nasopharynx-Squamous cell Large cell non-k		1	0	1
Papillary adenocarcinoma	Stomach-Gastrointestinal stromal sarcoma		1	0	1
Papillary adenocarcinoma	Ampulla of vater-Carcinoid tumor		1	0	1
Papillary adenocarcinoma	Testis-Embryonal carcinoma		1	0	1
Papillary adenocarcinoma	Lymph Node-Malignant lymphoma large b-cell		1	0	1
Papillary adenocarcinoma	Breast - Ductal Carcinoma		1	0	1
Papillary adenocarcinoma	Soft tissue - Spindle Cell Sarcoma		1	0	1
Papillary adenocarcinoma	Bone Marrow - Chronic Myeloid Leukemia		1	1	0
Follicular Carcinoma	Larynx - Squamous cell Carcinoma		1	1	0
Papillary adenocarcinoma	Pancreas - Adenocarcinoma		1	1	0
NASOPHARYNX			1	1	0
Squamous cell carcinoma	Liver-Poorly differentiated carcinoma		1	1	0
COLON			1	0	1
Adenocarcinoma	Breast- Ductal carcinoma		1	0	1
BREAST			22	1	21
Ductal Carcinoma	Breast L- Ductal Carcinoma		1	0	1
Ductal Carcinoma	Breast L- Ductal Carcinoma		1	0	1
Ductal Carcinoma	Breast L- Ductal Carcinoma		1	0	1
lobular carcinoma	Breast L- lobular carcinoma in situ		1	0	1
Ductal Carcinoma	Breast L- Ductal Carcinoma		1	0	1
Ductal Carcinoma	Breast L- Ductal Carcinoma		1	0	1
Ductal Carcinoma	Breast L- Ductal Carcinoma		1	0	1
Ductal Carcinoma	Breast L- Ductal Carcinoma		1	0	1
Ductal Carcinoma	Breast L- Ductal Carcinoma		1	0	1
Ductal Carcinoma	Breast L- Ductal Carcinoma		1	0	1
Ductal Carcinoma	Breast L- Ductal Carcinoma		1	0	1
Ductal Carcinoma	Breast L- Ductal Carcinoma		1	0	1
Ductal Carcinoma	Breast L- Ductal Carcinoma		1	0	1
Ductal Carcinoma	Breast L- Ductal Carcinoma		1	0	1
Ductal Carcinoma	Breast L- Ductal Carcinoma		1	0	1
Papillary carcinoma	Prostate - Adenocarcinoma		1	1	0
Ductal Carcinoma	Breast L - Ductal Carcinoma		1	0	1
Ductal Carcinoma	Breast L - Ductal Carcinoma		1	0	1
Ductal Carcinoma	Breast L - Ductal Carcinoma		1	0	1
Ductal Carcinoma	Breast L - Ductal Carcinoma		1	0	1
Ductal Carcinoma	Brain - Meningioma		1	0	1
Ductal Carcinoma	Breast L - Ductal Carcinoma		1	0	1
Ductal Carcinoma	Breast L - Ductal Carcinoma		1	0	1
Ductal Carcinoma	Breast L - Ductal Carcinoma		1	0	1

PRIMARY SITE 2018	HISTOLOGY (NOS - Not Otherwise Specified)	OTHER PRIMARIES (PREVIOUS OR CONCURRENT)	ALL CASES	MALE	FEMALE
RECTUM			2	1	1
Squamous cell carcinoma		Lymph Node-Non Hodgkin lymphoma	1	1	0
Adenocarcinoma		Lymph Node-Follicular Lymphoma	1	0	1
OVARY			6	0	6
Serous cystadenocarcinoma		OVARY L -Serous cystadenocarcinoma	1	0	1
Carcinoma		Corpus uteri-Adenocarcinoma	1	0	1
Endometroid adenocarcinoma		OVARY L -Endometroid adenocarcinoma	1	0	1
Adenocarcinoma		OVARY L-Adenocarcinoma	1	0	1
Serous cystadenocarcinoma		OVARY L - Serous cystadenocarcinoma	1	0	1
Serous cystadenocarcinoma		OVARY L - Serous cystadenocarcinoma	1	0	1
KIDNEY			9	5	4
Transitional cell carcinoma		Ureter-transitional cell carcinoma	1	1	0
Renal cell carcinoma		Pancreas-Atypical carcinoid tumor	1	0	1
Renal cell carcinoma		Kidney L-Renal cell carcinoma	1	1	0
Renal cell carcinoma		Kidney L-Renal cell carcinoma	1	1	0
Renal cell carcinoma		Thyroid - Papillary Adenocarcinoma	1	1	0
Renal cell carcinoma		Kidney L-Renal cell carcinoma	1	0	1
Renal cell carcinoma		Small Intestine-Gastrointestinal Stromal Tumor	1	0	1
Renal cell carcinoma		Kidney L-Renal cell carcinoma	1	0	1
Renal cell carcinoma		Colon - Adenocarcinoma	1	1	0
TESTIS			1	1	0
Germinoma		Seminoma	1	1	0
LIVER			3	3	0
Hepatoblastoma		Skin - Squamous cell carcinoma In situ	1	1	0
Hepatocellular Carcinoma		Thyroid - Papillary Adenocarcinoma	1	1	0
Hepatocellular Carcinoma		Kidney L-Renal cell carcinoma	1	1	0
LYMPH NODES			1	1	0
Follicular Lymphoma		Thyroid - Papillary Adenocarcinoma	1	1	0
BLADDER			1	1	0
Papillary Urothelial Carcinoma		Pancreas - Adenocarcinoma	1	1	0
LUNG			2	2	0
Non-Small Cell Carcinoma		LUNG L - Adenocarcinoma In Situ	1	1	0
Non-Small Cell Carcinoma		LUNG L - Non-Small Cell Carcinoma	1	1	0
SKIN			1	1	0
Squamous cell carcinoma		squamous cell carcinoma	1	1	0

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 2019 (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

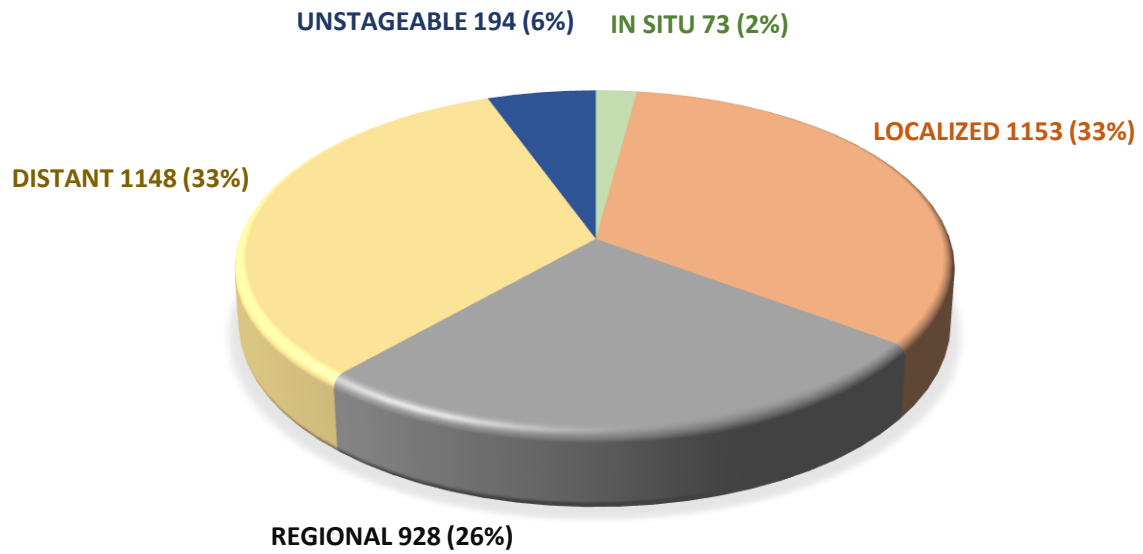
N: Absence or presence and extent of regional lymph node involvement

M: Absence or presence of distant metastasis

Analytic cases of five major sites, i.e., Breast, Thyroid, Non-Hodgkin Lymphoma, Colon and Hodgkin lymphoma are presented in Table 12 with their clinical group stages and yearly comparative figures from 2014 to 2019.

FIGURE 13

**DISTRIBUTION OF ANALYTIC CASES BY (SEER) STAGE AT DIAGNOSIS
2019 (TOTAL CASES=3,533)**



*Excludes Hematopoietic Primaries (247 cases)

**Excludes Unstageable Unknown Primaries (37 cases)

TABLE 12

AJCC CLINICAL TNM STAGE GROUP OF 2014-2019 CASES OF MAJOR SITES *BY YEAR

BREAST							
STAGE	2014	2015	2016	2017	2018	2019	TOTAL
0	8	13	4	49	2	19	95
0A	0	0	2	0	0	10	12
0IS	0	1	1	2	0	1	5
1	11	6	11	28	4	44	104
1A	13	29	11	24	2	34	113
1B	0	1	1	4	0	70	76
1C	0	0	0	1	0	4	5
2	1	0	1	5	0	2	9
2A	47	62	27	49	4	64	253
2B	56	60	23	58	10	55	262
3	1	1	2	6	2	6	18
3A	40	46	19	37	12	55	209
3B	46	39	11	42	5	65	208
3C	9	11	8	11	6	29	74
4	50	58	23	56	11	100	298
4B	1	1	1	0	0	3	6
UNSTAGEABLE	0	0	0	3	2	0	5
UNK	29	0	8	78	3	0	118
TOTAL	312	328	153	453	63	561	1870

THYROID							
STAGE	2014	2015	2016	2017	2018	2019	TOTAL
0	0	0	0	1	0	1	2
1	61	78	37	67	14	232	489
1A	0	0	2	4	0	1	7
1B	0	0	0	1	0	2	3
2	8	16	8	17	3	29	81
3	8	11	11	28	3	2	63
4	4	3	1	3	1	10	22
4A	0	4	1	4	2	3	14
4B	0	0	2	0	1	0	3
4C	0	8	0	0	0	1	9
UNSTAGEABLE	0	1	0	5	6	0	12
UNK	16	36	17	83	20	0	172
TOTAL	97	157	79	213	50	281	877

NON-HODGKIN LYMPHOMA							
STAGE	2014	2015	2016	2017	2018	2019	TOTAL
1	4	6	1	4	0	2	17
1A	10	8	0	3	1	4	26
1B	7	10	1	6	0	3	27
2	3	2	0	5	1	0	11
2A	16	14	0	1	0	3	34
2B	5	11	0	2	0	7	25
3	7	6	1	0	1	3	18
3A	3	11	1	1	0	2	18
3B	4	4	0	5	1	1	15
3C	0	1	0	0	0	0	1
4	10	22	2	6	1	0	41
4A	9	14	0	1	0	1	25
4B	22	23	1	5	2	0	53
UNSTAGEABLE	1	14	4	42	8	138	207
UNK	0	0	18	21	3	21	63
TOTAL	101	146	29	102	18	185	581

COLON							
STAGE	2014	2015	2016	2017	2018	2019	TOTAL
0	0	1	0	4	0	0	5
1	2	6	1	2	1	14	26
2	0	2	1	3	1	4	11
2A	2	14	11	6	1	17	51
2B	0	4	0	2	0	8	14
3	1	1	1	0	1	11	15
3A	1	3	1	0	0	1	6
3B	4	24	8	18	1	16	71
3C	2	2	1	0	3	5	13
4	10	29	17	27	10	68	161
4A	5	11	8	0	0	0	24
4B	1	10	0	2	0	0	13
4C	1	0	0	0	0	0	1
UNSTAGEABLE	0	0	0	2	1	0	3
UNK	13	1	3	34	1	1	53
TOTAL	42	108	52	100	20	145	467

HODGKIN LYMPHOMA							
STAGE	2014	2015	2016	2017	2018	2019	TOTAL
1	1	1	0	0	0	0	2
1A	13	6	0	2	0	0	21
1B	1	0	0	0	0	0	1
2	3	1	1	3	1	0	9
2A	25	16	0	7	1	0	49
2B	14	5	1	1	1	0	22
3	6	3	1	2	0	0	12
3A	15	9	0	2	0	0	26
3B	12	4	4	3	0	0	23
4	4	8	0	5	0	2	19
4A	3	4	0	0	0	0	7
4B	27	11	1	10	1	2	52
UNSTAGEABLE	0	1	2	34	6	91	134
UNK	0	0	10	6	2	9	27
TOTAL	124	69	20	75	12	104	404

IV. APPENDIX

REQUESTS FOR TUMOR REGISTRY DATA 2019

January

Hodgkin Lymphoma cases MRN 2009-2014, B-Holistic Study	Dr. S. Akhtar
All Cases of Uterine cancer in all the sub types Endometrioid, serous of Tumor Registry in KFSH	Dr. I. Badawi
Number of Multiple Myeloma cases for year 2010-2011 with MRN	Dr. F. Alsharif
Number of multiple Myeloma cases for year 2012-2013	Dr. F. Alsharif
Matched related donor BMT, Myeloblastic, ALL, AML and Peripheral stem cells.	Dr. R. El fakih

February

All patients who had uterine, ovarian, fallopian Cancer from 2011-2017	Dr. A. Badran
Medical Record Numbers of patients with Pregnancy and Breast cancer.	Dr. K. Suliman
Rectal Cancer, non-metastatic (Mo), 01/2003-12/2014	Dr. A Alzahrani
Gastric, gastroesophageal junction adenocarcinomas, non-metastatic (Mo), 01/2003-12/2014	Dr. A Alzahrani
Need Data of all Stem Cell Transplant/BMT from 2000-2019.	Dr. S. Hashmi
To compare the outcome of MUD from Saudi MUD's to international MUD's	Dr. R. El fakih
Extended follow up of HSCT outcomes for Acute Lymphoblastic Leukemia patients	Dr. A. Hanbali
Population: T Cell ALL or T Cell Lymphoblastic Lymphoma underwent Allo HSCT from 2009-2019	Dr. H. Alzahrani

March

To compare the outcome of haplo-transplant to the outcomes of MUD's	Dr. R. El fakih
T ALL Patients that treated with Chemotherapy, without proceeding to HSCT till 2019	Dr. A. Hanabli

April

The numbers and MRN's of cases of endometrial cancer last 20 years	Dr. I. Badawi
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	Females 40 age or younger who have cancer plus pediatrics cancer also over the past 20 years (1995-2014)	Dr. S. Hashmi
	2015 cancer cases, to compare Cancer Registry data vs Saudi cancer registry.	Mr. M. Hayder
June	Adult Osteosarcoma patients MRN's 1997-2019	Dr. J. Atallah
July	Following list for all patients MR, Birth Date, Gender, Histology, Contact details and survival status with the last date of contact from 2009-2015	Dr. H. Alsaedi
August	AML cases for cancer patients from 2000-2014	Dr. S. Osman
September	Adult CML cases 2000-2019 MRN, date of diagnosis, demographic, treatment start date and last date of contact.	M. G. Aljuhani
	Nasopharyngeal Carcinoma and MRN's of pt's treated with Xeloda	Dr. B. Alshamsan
	Sarcoma, Pazopanib MRN numbers	Dr. B. Alshamsan
	All Desmoplastic small rounds cell tumor MRN numbers.	Dr. B. Alshamsan
October	Total numbers of patients Hodgkin Lymphoma from 1998-2014 adults and pediatric.	Dr. S. Akhtar
	Tumor Registry Lymphoma patients NHL/HL age younger than 14 data MRN, age, date	Dr. S. Akhtar
November	Non-metastatic Pancreatic cancer 2005-2014.	Dr. A. Aljubran
	All Breast Cancer cases available in Tumor Registry in Excel file.	Dr. T twegieri
	Occular GVHD	Dr. S. Hashmi
	The new cases after Feb 2019 till Nov 2019 for haplo Vs MUD BMT Patients	Dr. A. kotb
	SCD BMT data	Dr. H. Alzahrani
December	All solid cancers, patients' demographic data from 2003-2017 Soft tissue Sarcoma: C47.1-C47.9 and bone sarcoma C40.0-C41.9, separated in 2 Excel sheets	Dr. N. Alrajhi Dr. R. Pant

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.

