

ANNUAL CANCER REGISTRY REPORT-2013

CANCER STATISTICS

Distribution of neoplasms

Of a total of 4,995 new neoplasms diagnosed or treated at the Hospital from January 01, 2013 to December 31, 2013, 2,372 were seen in male (47.49%) and 2,623 (52.51%) in female patients. Four thousand, four hundred and seventy four (4,474 (89.57%)) neoplasms were found in adults, whereas, 521 (10.43%) were seen in children. Children were classified as those 18 years or less in age and adults as more than 18 years of age. Table 1 shows the stratification of cases by behavior and age-group.

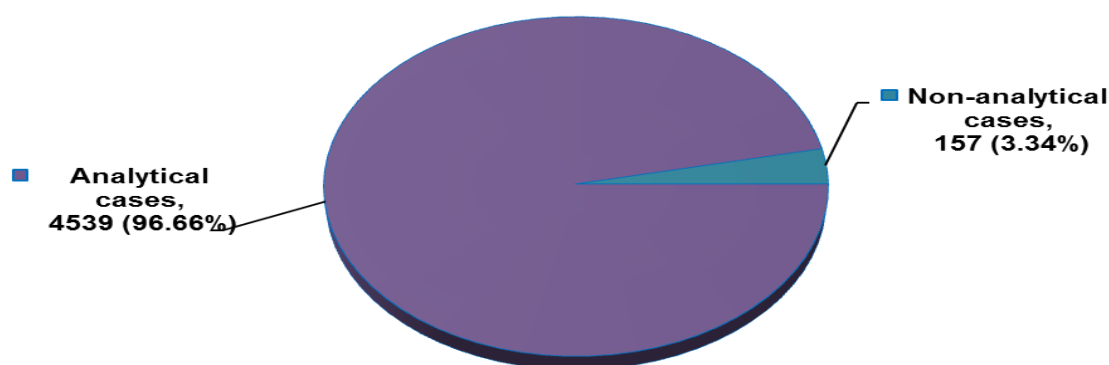
Table 1. Distribution of neoplasms by behavior and age-group.

Behavior	Age Group	Registered patients (4,937)	Reported neoplasm* (4995)
Malignant[♦]	Adults	4,159	4,204
	Pediatrics	492	492
	Total	4,651	4,696
Benign[€] & Uncertain Behavior	Adults	268	281
	Pediatrics	18	18
	Total	286	299

Class of Case

Of a total of 4,696 malignant cases registered at the Hospital from January 2013 to December 2013, 4,539 (96.66%) were analytical cases and 157 (3.34%) were found to be non-analytical. Figure 1 shows the stratification of analytical and non-analytical cases[¥].

Figure 1. Stratification of analytical and non-analytical cases



Data Source: Cancer Registry & Clinical Data Management, SKMCH & RC

* The difference in the number of registered patients and reported neoplasms is attributed to multiple malignancies and benign neoplasms diagnosed in 45 and 13 patients respectively. Also 73 patients have both malignant and benign neoplasm simultaneously.

♦ Cases with behavior code /3 and /2 are considered as malignant cases.

€ Cases with behavior code /0 and /1 are considered as benign and uncertain, respectively.

¥ Class of case 0 to 2 and 3 to 9 are considered analytical cases and non-analytical cases respectively according to the Facility Oncology Revised Data Standards (FORDS) Revised for 2004.

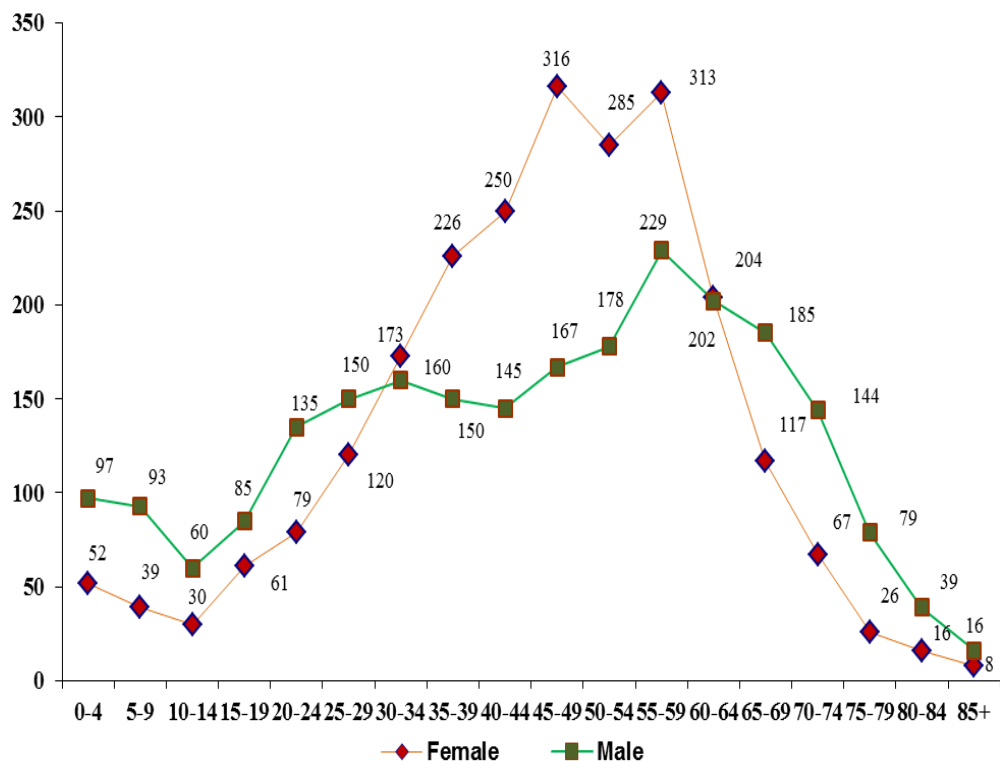
Distribution of malignancies

In the year 2013, 4,696 malignant cases were diagnosed at the Hospital with 2,382 seen amongst females and 2,314 amongst males. Table 2 displays the distributions of female and male patients according to age-groups and gender.

Table 2. Distribution of cancer cases by sex and age-group

Age range	Female	Male	Total
0-4	52	97	149
5-9	39	93	132
10-14	30	60	90
15-19	61	85	146
20-24	79	135	214
25-29	120	150	270
30-34	173	160	333
35-39	226	150	376
40-44	250	145	395
45-49	316	167	483
50-54	285	178	463
55-59	313	229	542
60-64	204	202	406
65-69	117	185	302
70-74	67	144	211
75-79	26	79	105
80-84	16	39	55
85+	8	16	24
Total	2382	2314	4696

Fig. 2. Distribution of malignancies by age-groups and sex



Data Source: Cancer Registry & Clinical Data Management, SKMCH & RC

Demographics

Of the 4,696 patients diagnosed with malignant cancers, nearly 61.78% (2,901) belonged to the province of Punjab and approximately 19.55% (918) to the Khyber Pakhtoonkhwa (Table 3). The fact that the geographic area of residence of a vast majority of patients was Punjab can be explained in light of the information that the Hospital is situated in the provincial capital of Punjab and that, this province accounts for almost 60% of the total population of the country.

Table 3. Province-wise distribution of patients

Province/Region	Malignancies	Percentage
Punjab	2,901	61.78
Khyber Pakhtoonkhwa ^[1]	918	19.55
Sindh	230	4.90
F.A.T.A	118	2.51
Balochistan	82	1.75
Federal Capital	70	1.49
Azad Jammu & Kashmir	41	0.87
Afghanistan & others countries	336	7.16
Total	4,696	100.00

^[1] Khyber Pakhtoonkhwa formerly known as N.W.F.P

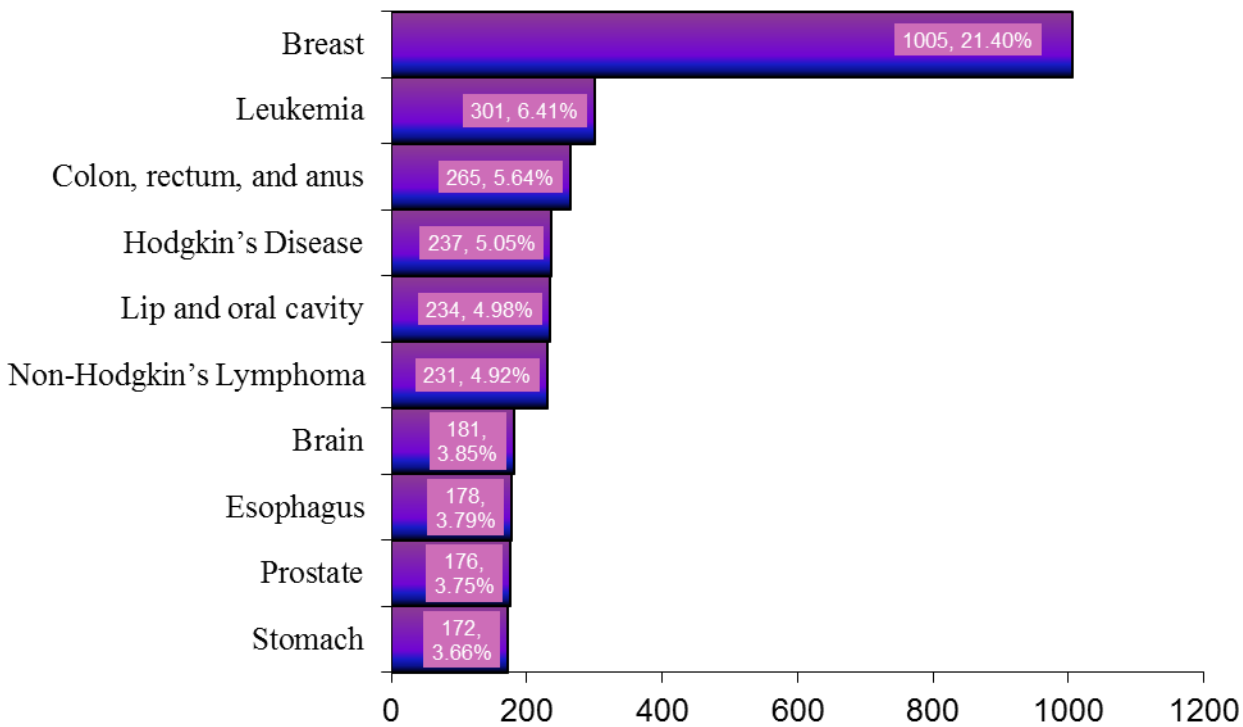
Top Ten Cancers

Tables 4 to 8 show the list of the ten commonest malignancies seen at SKMCH & RC during the year 2013. Breast cancer was the leading malignancy with 1030 cases accessioned into the Registry. Leukemia and colorectal were the second and third most frequently seen cancers, respectively.

Table 4. Top 10 malignancies seen amongst all age-groups & both sexes combined, from Jan. 2013 to Dec. 2013.

Sr. No.	ICD-O-3 Category	Count	Percentage	ICD-O-3 Code
1	Breast	1005	21.40	C50.0 - C50.9
2	Leukemia	301	6.41	M9800 - M9948
3	Colon, rectum, and anus	265	5.64	C18.0 - C21.8
4	Hodgkin's Disease	237	5.05	M9650 - M9667
5	Lip and oral cavity	234	4.98	C00.0 - C08.9
6	Non-Hodgkin's Lymphoma	231	4.92	M9590-91, M967-972
7	Brain	181	3.85	C71.0 – C71.9
8	Esophagus	178	3.79	C15
9	Prostate	176	3.75	C61.9
10	Stomach	172	3.66	C16

Fig. 3. Top 10 malignancies seen amongst all age-groups & both sexes combined, from Jan. 2013 to Dec. 2013.



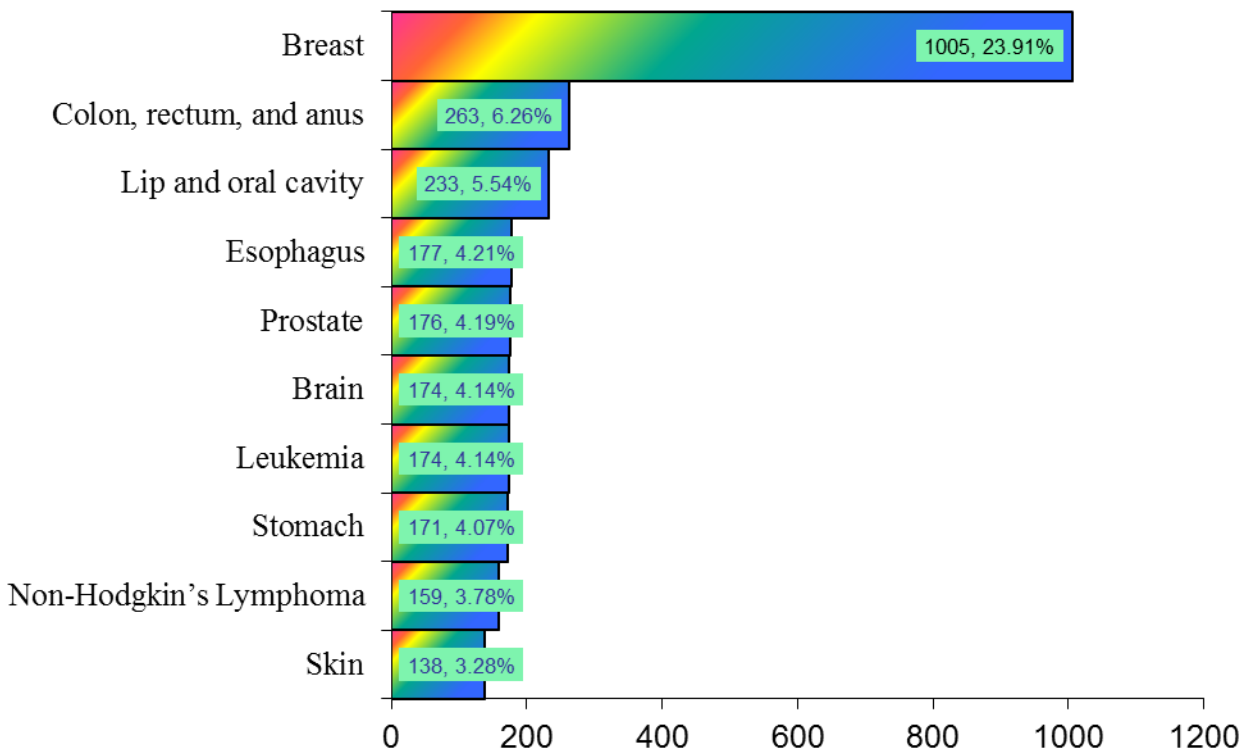
Data Source: Cancer Registry & Clinical Data Management, SKMCH & RC

Amongst adults, during the year 2013, a total of 4,204 malignancies were diagnosed or treated at the Hospital. Breast cancer, colorectal and lip & oral cavity were registered as the most frequently seen cancers.

Table 5. Top 10 malignancies seen amongst adults (> 18 years), from Jan. 2013 to Dec. 2013.

Sr. No.	ICD-O-3 Category	Count	Percentage	ICD-O-3 Code
1	Breast	1005	23.91	C50 - C50.9
2	Colon, rectum, and anus	263	6.26	C18.0 – C21.8
3	Lip and oral cavity	233	5.54	C00.0 - C08.9
4	Esophagus	177	4.21	C15
5	Prostate	176	4.19	C61.9
6	Brain	174	4.14	C71.0 – C71.9
7	Leukemia	174	4.14	M9800 - M9948
8	Stomach	171	4.07	C16
9	Non-Hodgkin's Lymphoma	159	3.78	M9590-91, M967-972
10	Skin	138	3.28	C44.0 – C44.9

Fig. 4. Top 10 malignancies seen amongst adults (> 18 years), from Jan. 2013 to Dec. 2013.



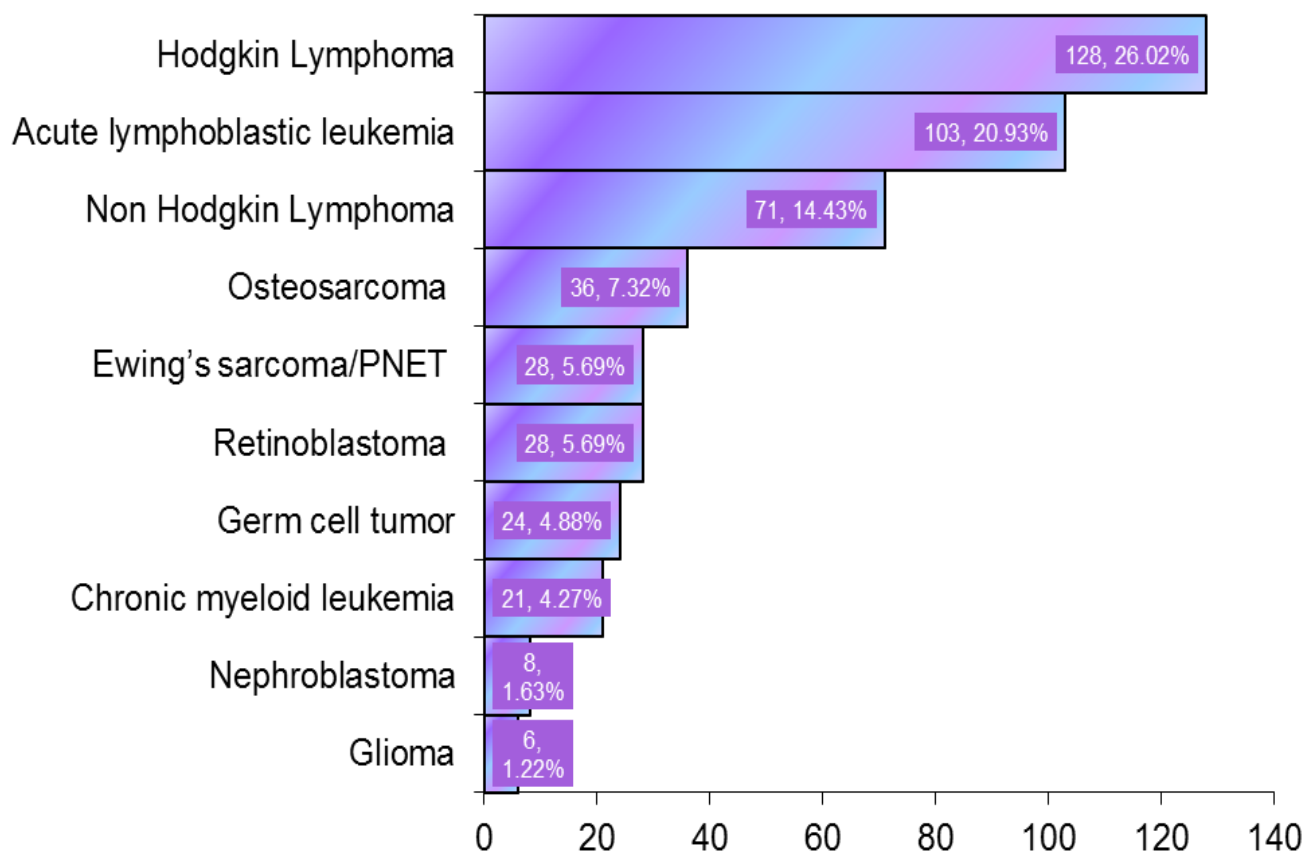
Data Source: Cancer Registry & Clinical Data Management, SKMCH & RC

In children, using the classification based on tumor morphology, Hodgkin lymphoma, Acute lymphoblastic leukemia, and Non-Hodgkin Lymphoma were identified as the three most common malignancies diagnosed or treated at SKMCH & RC. Table 6 shows the distributions of the top ten malignancies seen in children at SKMCH & RC.

Table 6. Top 10 malignancies seen in children (<= 18 years), from Jan. 2013 to Dec. 2013.

Sr. No.	ICD-O-3 Category	Count	Percentage	ICD-O-3 Morphology Code
1	Hodgkin Lymphoma	128	26.02	M9650 - M9667
2	Acute lymphoblastic leukemia	103	20.93	M982- M983
3	Non Hodgkin Lymphoma	71	14.43	M9590, 91- M967-972
4	Osteosarcoma	36	7.32	M9180 - M9195
5	Ewing's sarcoma/PNET	28	5.69	M9260
6	Retinoblastoma	28	5.69	M9510-M9512
7	Germ cell tumor	24	4.88	M906 - M909
8	Chronic myeloid leukemia	21	4.27	M9863
9	Nephroblastoma	8	1.63	M8960
10	Glioma	6	1.22	M938 – M948

Fig. 5. Top 10 malignancies seen in children (<= 18 years), from Jan. 2013 to Dec. 2013.



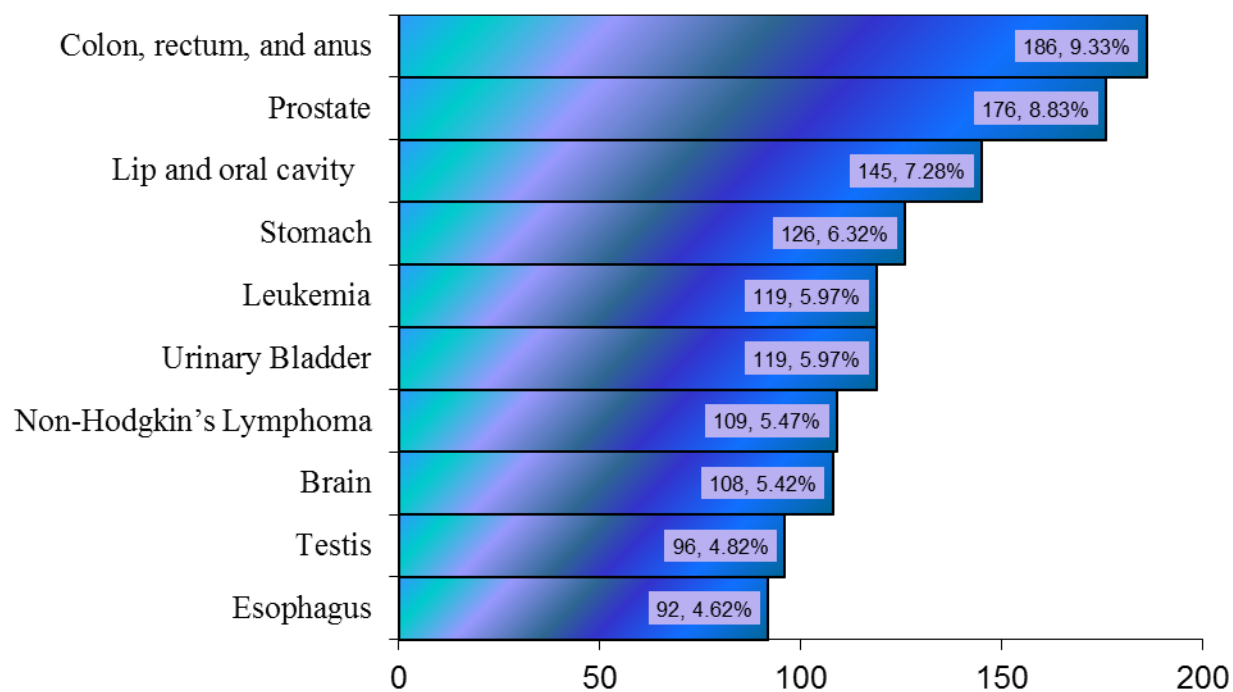
Data Source: Cancer Registry & Clinical Data Management, SKMCH & RC

In adult males, the commonest malignancies were Prostate cancer, Colorectal and Non-Hodgkin's Lymphoma (Table 7).

Table 7. Top 10 malignancies seen amongst adult males, from Jan. 2013 to Dec. 2013.

Sr.No.	ICD Category	Count	Percentage	ICD-O-3 Code
1	Colon, rectum, and anus	186	9.33	C18 - C21.8
2	Prostate	176	8.83	C61.9
3	Lip and oral cavity	145	7.28	C00.0 – C08.9
4	Stomach	126	6.32	C16.1 – C16.9
5	Leukemia	119	5.97	M9800 - M9948
6	Urinary Bladder	119	5.97	C67.0-C67.9
7	Non-Hodgkin's Lymphoma	109	5.47	M9590, 91-M967-972
8	Brain	108	5.42	C71.0-C71.9
9	Testis	96	4.82	C62
10	Esophagus	92	4.62	C15

Fig. 6. Top 10 malignancies seen amongst adult males, from Jan. 2013 to Dec. 2013.



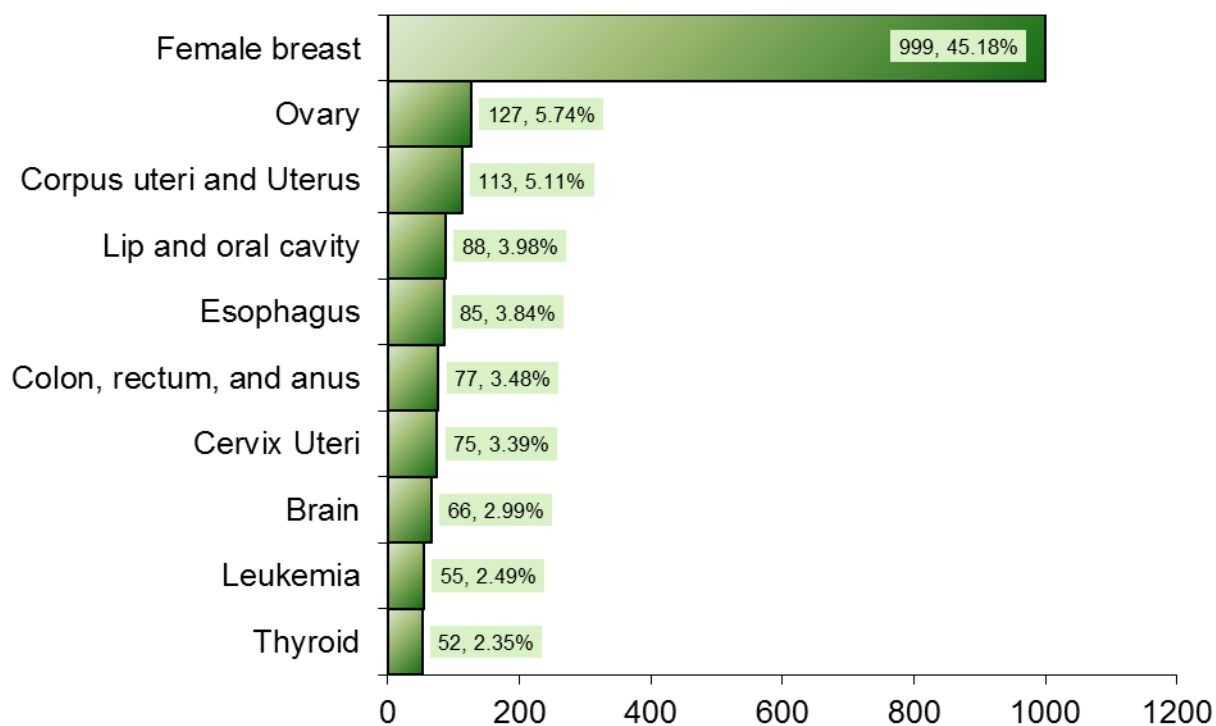
Data Source: Cancer Registry & Clinical Data Management, SKMCH & RC

The most frequent diagnosis in adult women was breast cancer accounting for 44.60% of the total cancers in females. Ovary was ranked as the second highest cancer accounting for 5.88% and, Lip and oral cavity as the third most common malignancy with 4.50% of the total malignancies in females.

Table 8. Top 10 malignancies seen amongst adult females, from Jan. 2013 to Dec. 2013.

Sr. No.	ICD Category	Count	Percentage	ICD-O 3 Code
1	Female breast	999	45.18	C50.0 - C50.9
2	Ovary	127	5.74	C56.9
3	Corpus uteri and Uterus	113	5.11	C54.0 – C55.9
4	Lip and oral cavity	88	3.98	C00.0 – C08.9
5	Esophagus	85	3.84	C15 – C15.9
6	Colon, rectum, and anus	77	3.48	C18 - C21.8
7	Cervix Uteri	75	3.39	C53.0 - C53.9
8	Brain	66	2.99	C71.0-C71.9
9	Leukemia	55	2.49	M9800 - M9948
10	Thyroid	52	2.35	C73.9

Fig. 7. Top 10 malignancies seen amongst adult females, from Jan. 2013 to Dec. 2013.



Data Source: Cancer Registry & Clinical Data Management, SKMCH & RC

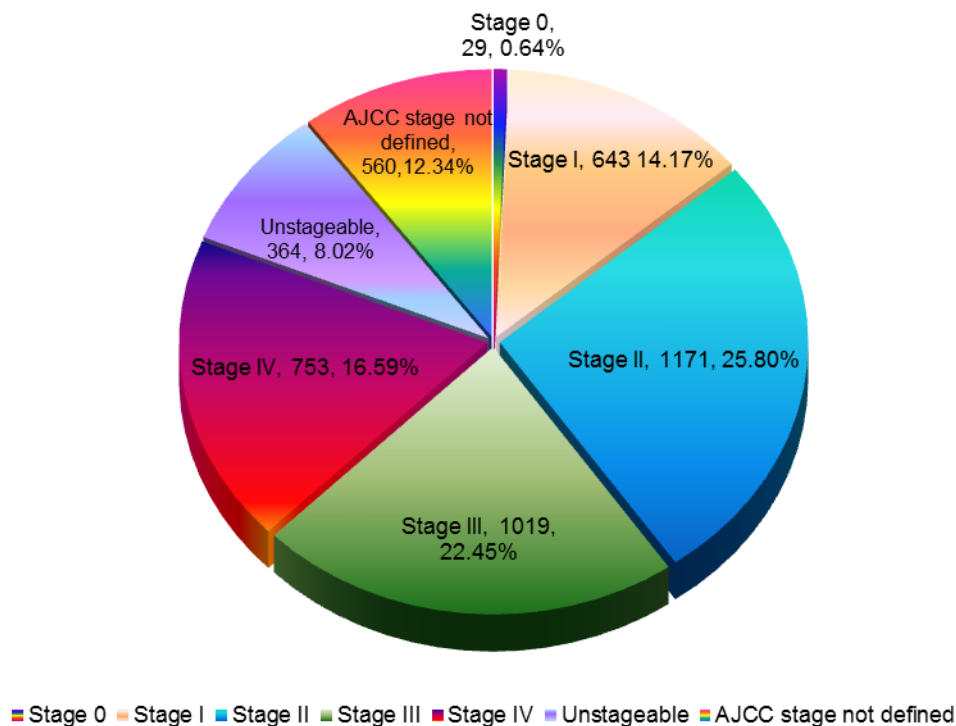
Staging

The Registry uses the American Joint Commission on Cancer TNM staging system for all analytical cancer cases. TNM categorizes cancers in stages 0, 1, 2, 3, 4, unstageable, and not applicable on all analytical cases (Class of case 0, 1, 2). Cancers are classified as being unstageable as the patients may choose not to receive any treatment or undergo further tests at the Hospital needed to establish an appropriate stage. “Not applicable” means non-availability of AJCC staging for that site. During the year 2013, cancer staging for 4,539 analytical cases (class of case 0, 1, 2) showed that 29 (0.64%) cases fell into 0 or in-situ category, 643 (14.17%) in stage I, 1,171 (25.80%) in stage II, 1,019 (22.45%) cases in stage III, and 753 (16.59%) in stage IV, (table 9); 364 (8.02%) cases were Unstageable and 560 (12.34%) had no AJCC stage defined for that site.

Table 9. TNM Stage of cancer patients at SKMCH & RC during year 2013.

AJCC Stage	No. of Patients	Percentage
Stage 0	29	0.64
Stage I	643	14.17
Stage II	1171	25.80
Stage III	1019	22.45
Stage IV	753	16.59
Unstageable	364	8.02
AJCC stage not defined	560	12.34
Total	4539	100

Fig. 8. TNM stage of cancer patients at SKMCH & RC during year 2013.



Data Source: Cancer Registry & Clinical Data Management, SKMCH & RC

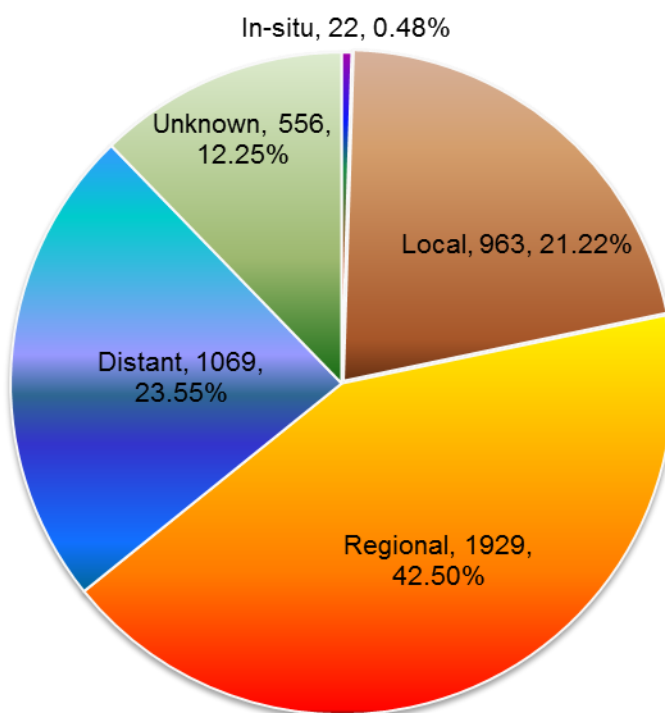
Summary Stage

The SEER Summary Staging Manual-2000 Codes and Coding Instructions were used to describe how far the tumor had spread from the organ or the site of origin. This manual consists of a one digit hierarchical code for each and every site. All analytical cases (Class of case 0, 1, 2) were included to generate results. The cancer data for the year 2013 reflects that there were 0.48% in situ cases, 21.22% localized cancers, 42.50% regional cases, 23.55% distant, and there were 12.25% cases in which the summary stage was unknown.

Table 10. Classification according to the SEER summary stage during the year 2013.

SEER Summary Stage	No. of Patients	Percentage
In-situ	22	0.48
Local	963	21.22
Regional	1929	42.50
Distant	1069	23.55
Unknown	556	12.25
Total	4539	100

Fig. 9: Classification according to the SEER summary stage during the year 2013.



Data Source: Cancer Registry & Clinical Data Management, SKMCH & RC

Grading

International Classification of Diseases for Oncology, Third Edition (ICDO-3) codes and guidelines being used to categorize grades for solid malignancies. All analytical cases (Class of case 0, 1, 2) were included to generate results.

Table 11. Grade of patients during year 2013.

Grade / Differentiation	Count	Percentage
Grade I	365	8.04
Grade II	1270	27.98
Grade III	1051	23.16
Grade IV	81	1.78
*Grade not determined	1513	33.33
Not applicable	259	5.71
Total	4539	100

SUPPLEMENTAL INFORMATION

Table 12 depicts the result stratified by primary sites, age-groups, and gender. According to this, cancers of the breast, colorectal and oral cavity, are the commonest systems/site(s) for malignancies seen at the Hospital.