

ANNUAL CANCER REGISTRY REPORT-2014

CANCER STATISTICS

Distribution of neoplasms

Of a total of 5,447 new neoplasms diagnosed or treated at the Hospital from January 01, 2014 to December 31, 2014, 2,704 were seen in male (49.64%) and 2,743 (50.36%) in female patients. Four thousand, nine hundred and eighteen (4,918 (90.29%)) neoplasms were found in adults, whereas, 529 (9.71%) 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.

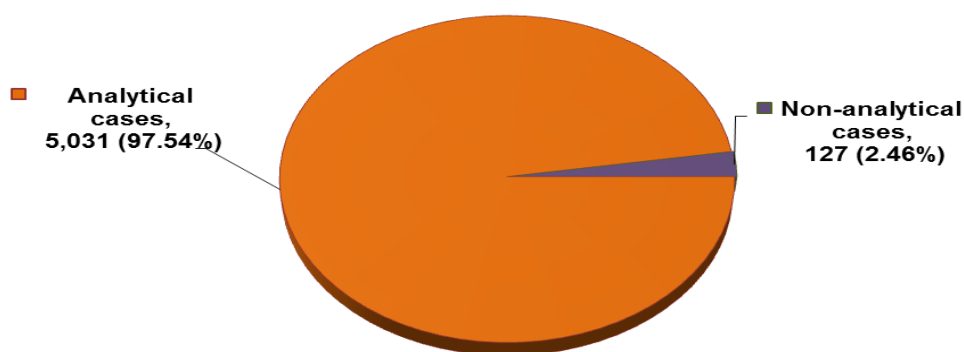
Table 1. Distribution of neoplasms by behavior and age-group.

Behavior	Age-Group	Registered patients (5,364)	Reported neoplasm* (5,447)
Malignant [♦]	Adults	4,587	4,646
	Pediatrics	511	512
	Total	5,098	5,158
Benign [€] & Uncertain Behavior	Adults	250	272
	Pediatrics	16	17
	Total	266	289

Class of Case

Of a total of 5,158 malignant cases registered at the Hospital from January 2014 to December 2014, 5,031 (97.54%) were analytical cases and 127 (2.46%) 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 60 and 23 patients, respectively. Further, 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.

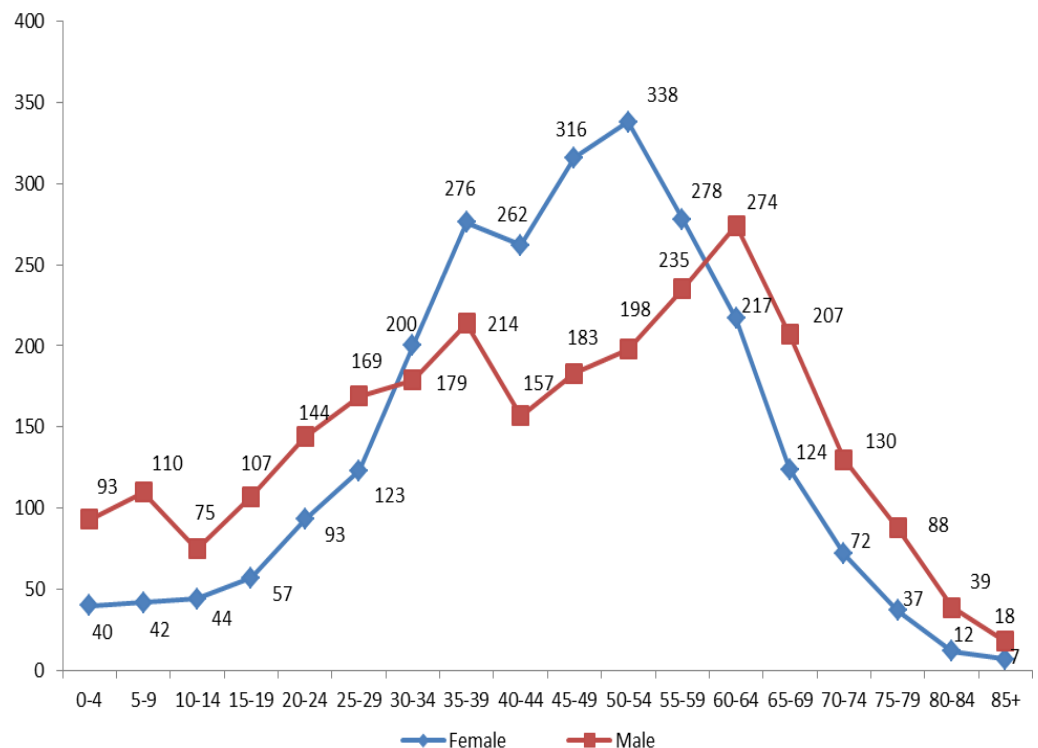
Distribution of malignancies

In the year 2014, 5,158 malignancies were diagnosed at the Hospital with 2,538 seen amongst females and 2,620 amongst males. Table 2 displays the distributions of female and male patients according to gender and age-group.

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

Age-range	Female	Male	Total
0-4	40	93	133
5-9	42	110	152
10-14	44	75	119
15-19	57	107	164
20-24	93	144	237
25-29	123	169	292
30-34	200	179	379
35-39	276	214	490
40-44	262	157	419
45-49	316	183	499
50-54	338	198	536
55-59	278	235	513
60-64	217	274	491
65-69	124	207	331
70-74	72	130	202
75-79	37	88	125
80-84	12	39	51
85+	7	18	25
Total	2538	2620	5158

Figure 2. Distribution of malignancies by sex & age-group



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

Demographics

Of the 5,158 malignant cancers, nearly 58.67% (3,026) belonged to the province of Punjab and approximately 22.35% (1,153) to 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. Distribution of malignancies, according to their geographic areas

Province/Region	Malignancies	Percentage
Punjab	3,026	58.67
Khyber Pakhtoonkhwa ^[1]	1,153	22.35
Sindh	179	3.47
F.A.T.A	150	2.91
Balochistan	120	2.33
Federal Capital	58	1.12
Northern Areas	16	0.31
Azad Jammu & Kashmir	32	0.62
Afghanistan	424	8.22
Total	5,158	100.00

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

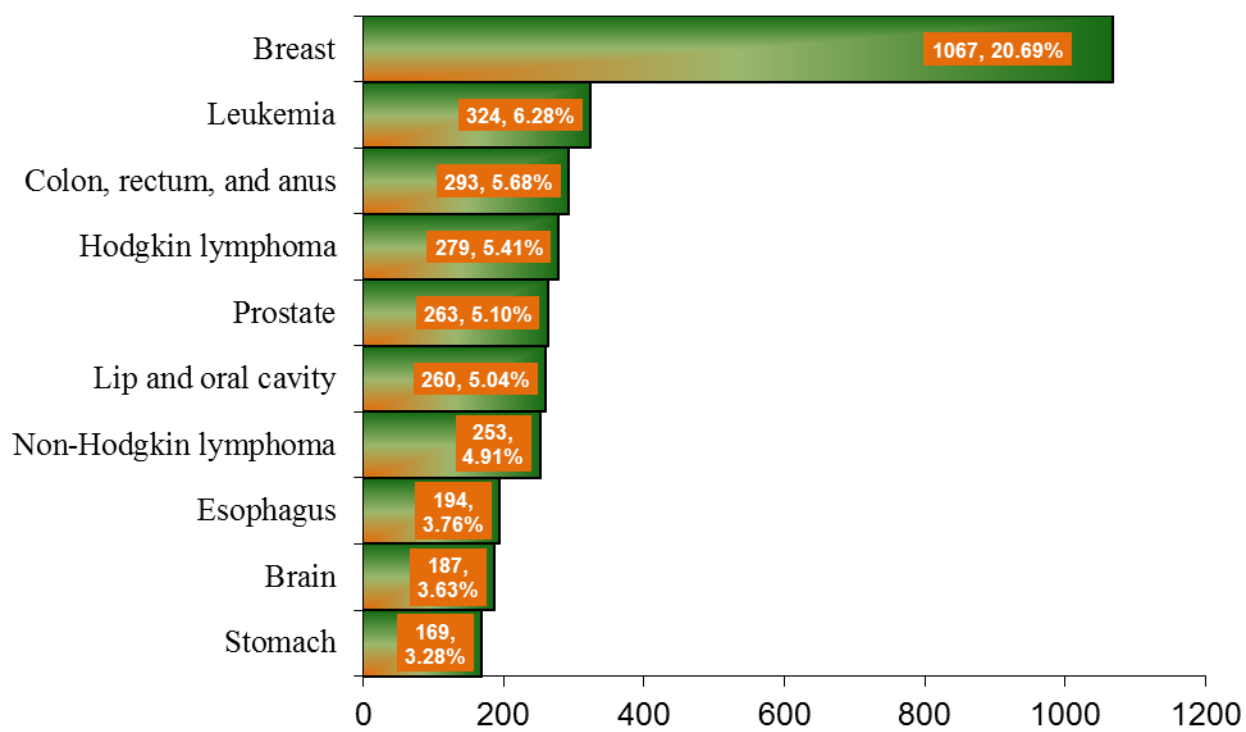
Top Ten Cancers

Tables 4 to 8 show the list of the ten commonest malignancies seen at SKMCH & RC during the year 2014. Of a total of 5,158 malignancies, breast cancer was the leading malignancy with 1,067 cases accessioned into the Registry. Leukemia and cancers of the colon, rectum & anus 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. 2014 to Dec. 2014.

Sr. No.	ICD-O-3 Category	Count	Percentage	ICD-O-3 Code
1	Breast	1,067	20.69	C50.0 - C50.9
2	Leukemia	324	6.28	M9800 - M9948
3	Colon, rectum, and anus	293	5.68	C18.0 - C21.8
4	Hodgkin lymphoma	279	5.41	M9650 - M9667
5	Prostate	263	5.10	C61.9
6	Lip and oral cavity	260	5.04	C00.0 - C08.9
7	Non-Hodgkin lymphoma	253	4.91	M9590-91, M967-972
8	Esophagus	194	3.76	C15
9	Brain	187	3.63	C71.0 – C71.9
10	Stomach	169	3.28	C16

Figure 3. Top 10 malignancies seen amongst all age-groups & both sexes combined, from Jan. 2014 to Dec. 2014.



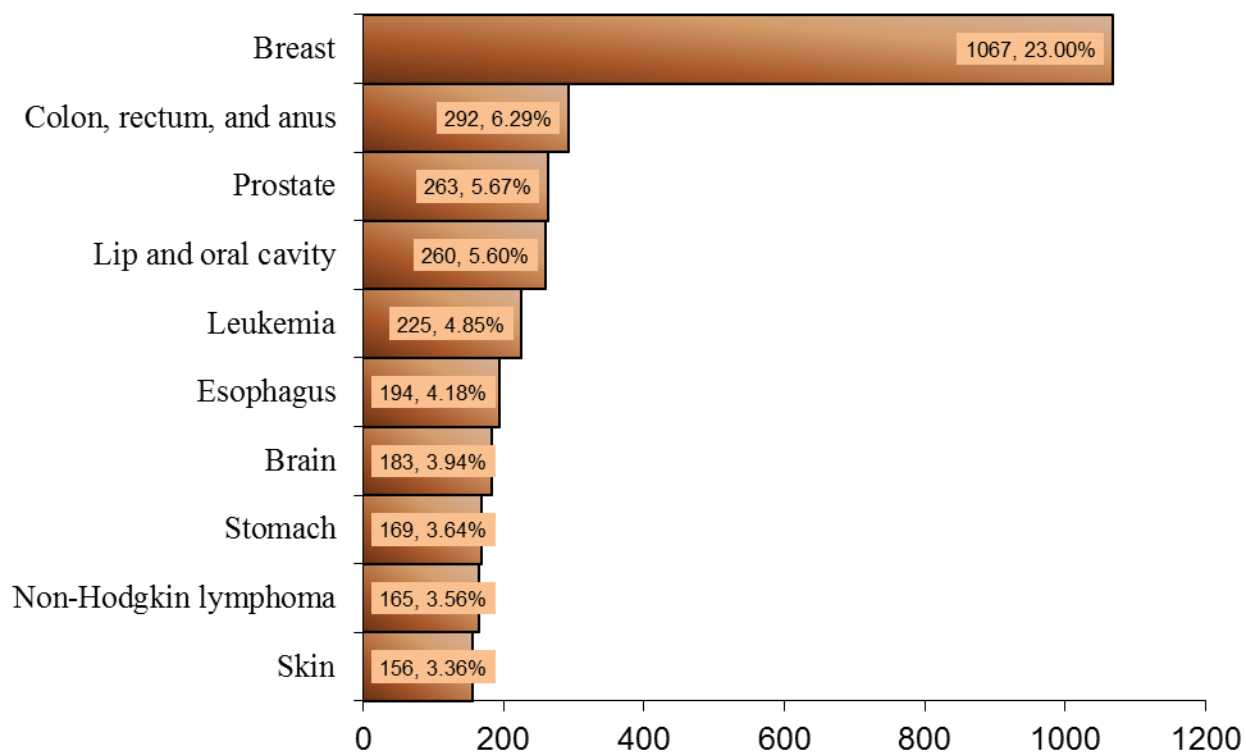
Data Source: Cancer Registry & Clinical Data Management, SKMCH & RC

Amongst adults, during the year 2014, a total of 4,640 malignancies were diagnosed or treated at the Hospital. Cancers of the breast, colon-rectum, and prostate were registered as the most frequently seen cancers.

Table 5. Top 10 malignancies seen amongst adults (> 18 years), from Jan. 2014 to Dec. 2014.

Sr. No.	ICD-O-3 Category	Count	Percentage	ICD-O-3 Code
1	Breast	1,067	23.00	C50 - C50.9
2	Colon, rectum, and anus	292	6.29	C18.0 – C21.8
3	Prostate	263	5.67	C61.9
4	Lip and oral cavity	260	5.60	C00.0 - C08.9
5	Leukemia	225	4.85	M9800 - M9948
6	Esophagus	194	4.18	C15
7	Brain	183	3.94	C71.0 – C71.9
8	Stomach	169	3.64	C16
9	Non-Hodgkin lymphoma	165	3.56	M9590-91, M967-972
10	Skin	156	3.36	C44.0 – C44.9

Figure 4. Top 10 malignancies seen amongst adults (> 18 years), from Jan. 2014 to Dec. 2014.



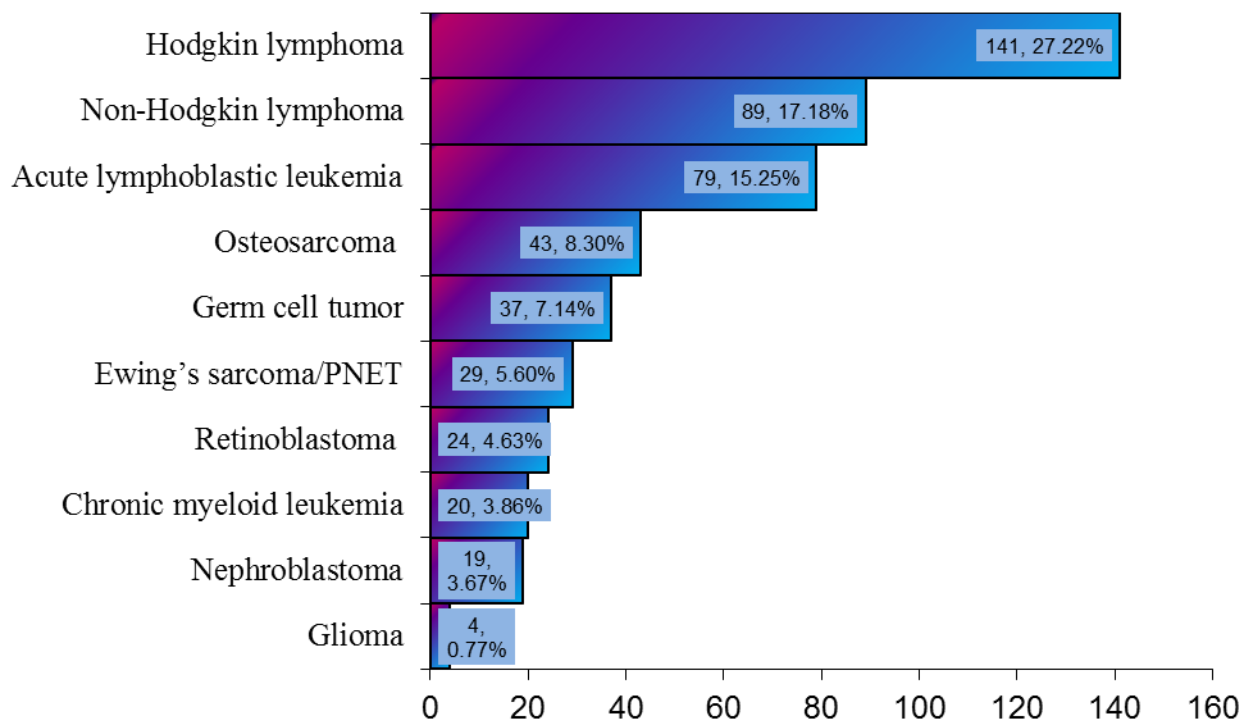
Data Source: Cancer Registry & Clinical Data Management, SKMCH & RC

In 518 childhood malignancies, using the classification based on tumor morphology, Hodgkin lymphoma, non-Hodgkin lymphoma, and acute lymphoblastic leukemia 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. 2014 to Dec. 2014.

Sr. No.	ICD-O-3 Category	Count	Percentage	ICD-O-3 Morphology Code
1	Hodgkin lymphoma	141	27.22	M9650 - M9667
2	Non-Hodgkin lymphoma	89	17.18	M9590, 91- M967-972
3	Acute lymphoblastic leukemia	79	15.25	M982- M983
4	Osteosarcoma	43	8.30	M9180 - M9195
5	Germ cell tumor	37	7.14	M906 - M909
6	Ewing's sarcoma/PNET	29	5.60	M9260
7	Retinoblastoma	24	4.63	M9510-M9512
8	Chronic myeloid leukemia	20	3.86	M9863
9	Nephroblastoma	19	3.67	M8960
10	Glioma	4	0.77	M938 – M948

Figure 5. Top 10 malignancies seen in children (<= 18 years), from Jan. 2014 to Dec. 2014.



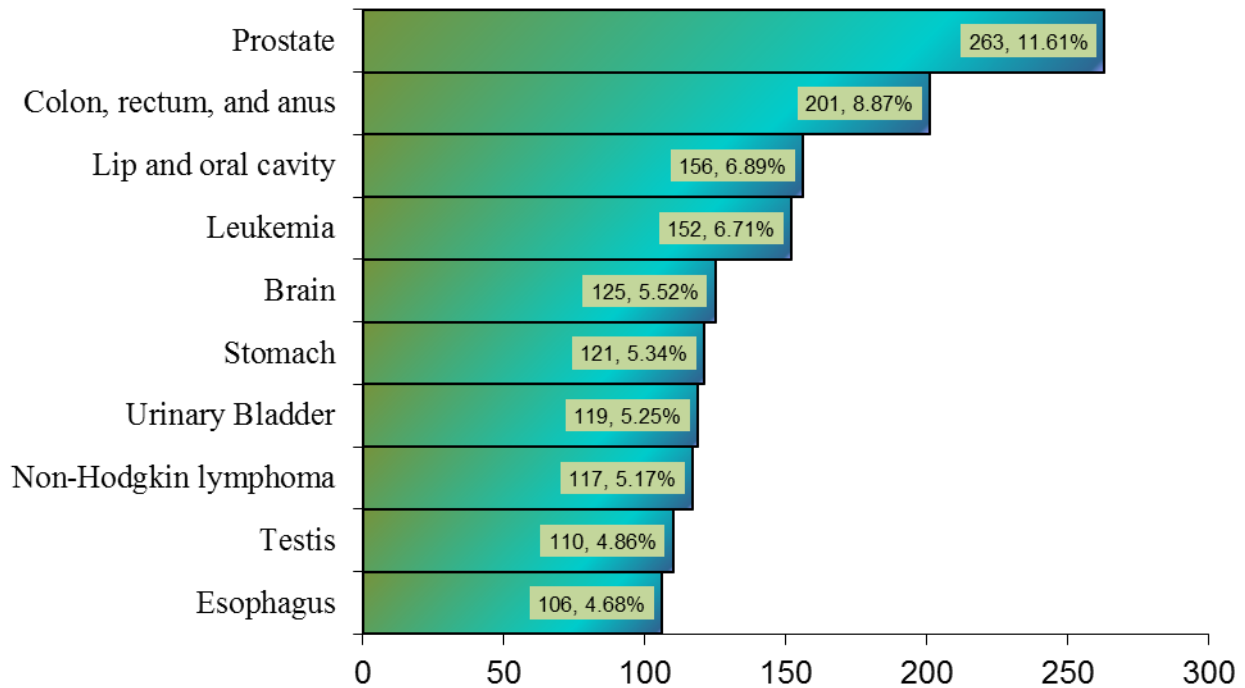
Data Source: Cancer Registry & Clinical Data Management, SKMCH & RC

In adult males (2,265 malignancies), the commonest cancers were those of the prostate, colon, rectum & anus, and lip & oral cavity (Table 7).

Table 7. Top 10 malignancies seen amongst adult males, from Jan. 2014 to Dec. 2014.

Sr.No.	ICD Category	Count	Percentage	ICD-O-3 Code
1	Prostate	263	11.61	C61.9
2	Colon, rectum, and anus	201	8.87	C18 - C21.8
3	Lip and oral cavity	156	6.89	C00.0 – C08.9
4	Leukemia	152	6.71	M9800 - M9948
5	Brain	125	5.52	C71.0-C71.9
6	Stomach	121	5.34	C16.1 – C16.9
7	Urinary Bladder	119	5.25	C67.0-C67.9
8	Non-Hodgkin lymphoma	117	5.17	M9590, 91-M967-972
9	Testis	110	4.86	C62
10	Esophagus	106	4.68	C15

Figure 6. Top 10 malignancies seen amongst adult males, from Jan. 2014 to Dec. 2014.



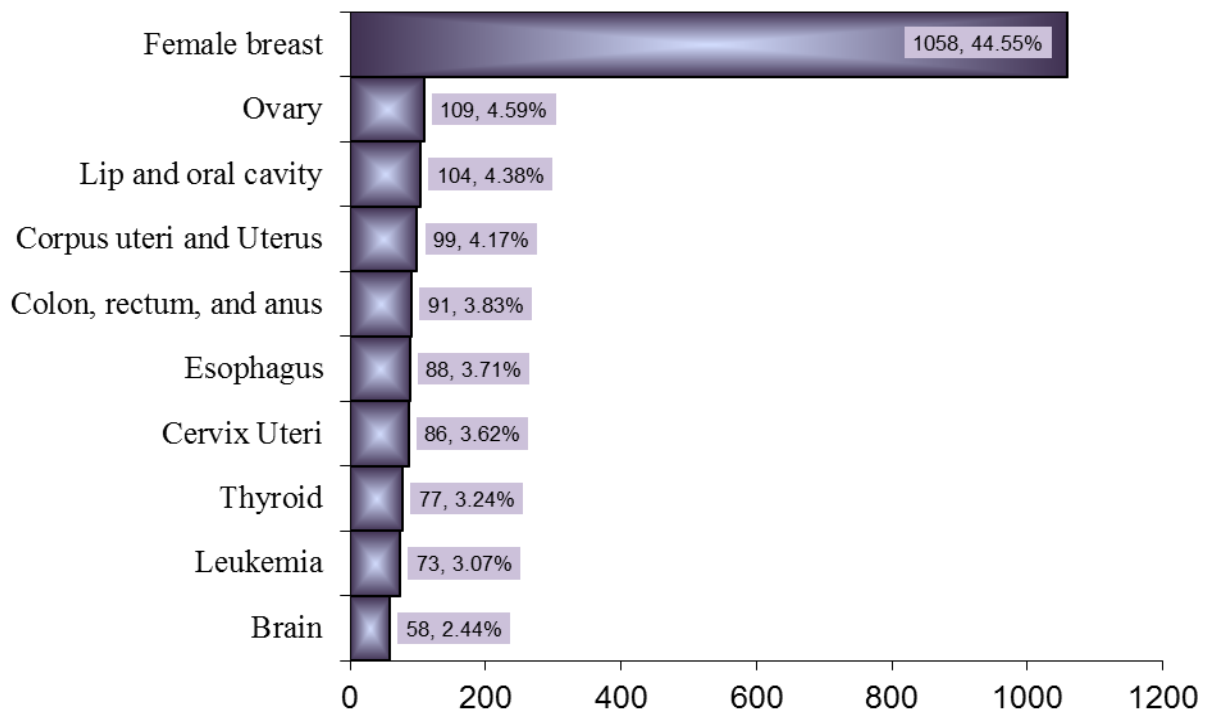
Data Source: Cancer Registry & Clinical Data Management, SKMCH & RC

The most frequent diagnosis in adult women (2,375) was breast cancer accounting for 44.55% of the cancers. Ovary was ranked as the second highest cancer (4.59%) and, lip & oral cavity as the third most common malignancy with 4.38% of the total malignancies in females.

Table 8. Top 10 malignancies seen amongst adult females, from Jan. 2014 to Dec. 2014.

Sr. No.	ICD Category	Count	Percentage	ICD-O 3 Code
1	Female breast	1058	44.55	C50.0 - C50.9
2	Ovary	109	4.59	C56.9
3	Lip and oral cavity	104	4.38	C00.0 – C08.9
4	Corpus uteri and Uterus	99	4.17	C54.0 – C55.9
5	Colon, rectum, and anus	91	3.83	C18 - C21.8
6	Esophagus	88	3.71	C15 – C15.9
7	Cervix Uteri	86	3.62	C53.0 - C53.9
8	Thyroid	77	3.24	C73.9
9	Leukemia	73	3.07	M9800 - M9948
10	Brain	58	2.44	C71.0-C71.9

Figure 7. Top 10 malignancies seen amongst adult females, from Jan. 2014 to Dec. 2014.



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

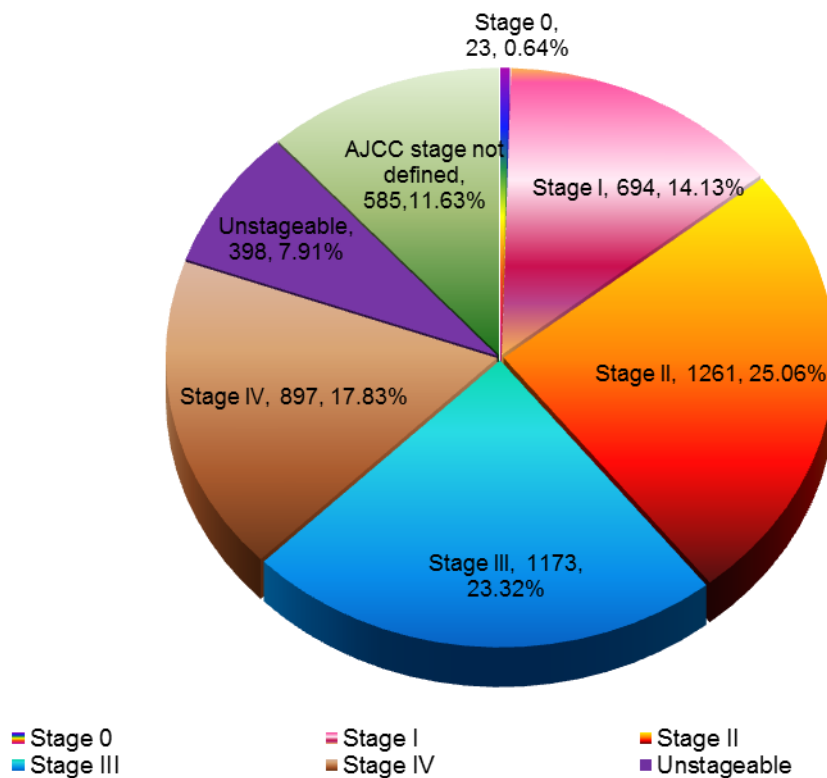
Staging

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 2014, cancer staging for 5,031 analytical cases (class of case 0, 1, 2) showed that 23 (0.46%) cases fell into 0 or in-situ category, 694 (13.79%) in stage I, 1,261 (25.06%) in stage II, 1,173 (23.32%) cases in stage III, and 897 (17.83%) in stage IV, (table 9); 398 (7.91%) cases were unstageable and 585 (11.63%) had no AJCC stage defined for that site.

Table 9. TNM Stage of cancer patients at SKMCH & RC during year 2014.

AJCC Stage	No. of Patients	Percentage
Stage 0	23	0.46
Stage I	694	13.79
Stage II	1261	25.06
Stage III	1173	23.32
Stage IV	897	17.83
Unstageable	398	7.91
AJCC stage not defined	585	11.63
Total	5,031	100

Fig. 8. TNM stage of cancer patients at SKMCH & RC during year 2014.



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

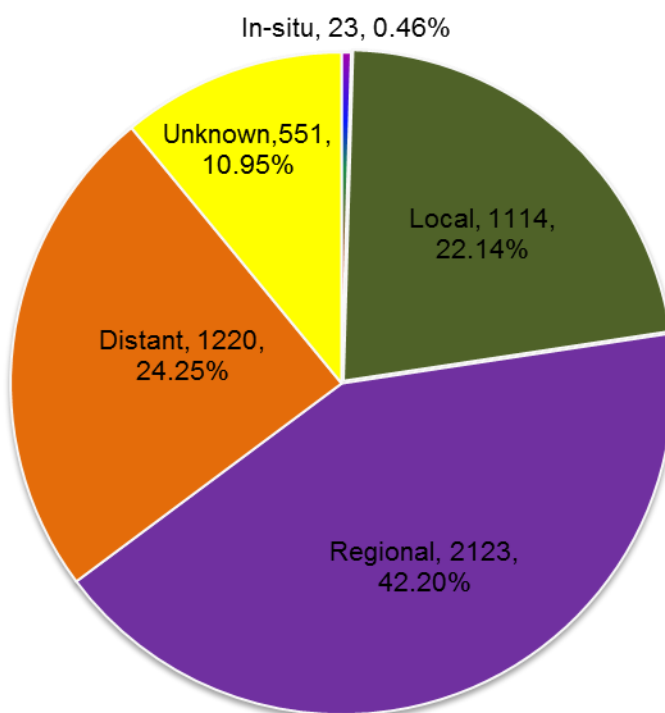
Summary Stage

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 2014 reflects that there were 0.46% in-situ cases, 22.14% localized cancers, 42.20% regional cases, 24.25% distant, and there were 10.95% cases in which the summary stage was unknown.

Table 10. Classification according to the SEER summary stage during the year 2014.

SEER Summary Stage	No. of Patients	Percentage
In-situ	23	0.46
Local	1114	22.14
Regional	2123	42.20
Distant	1220	24.25
Unknown	551	10.95
Total	5,031	100

Fig. 9: Classification according to the SEER summary stage during the year 2014.



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

Grading

International Classification of Diseases for Oncology, Third Edition (ICD-O-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 2014.

Grade / Differentiation	Count	Percentage
Grade I	440	8.75
Grade II	1,302	25.88
Grade III	1,248	24.81
Grade IV	89	1.77
*Grade not determined	1,057	21.01
Not applicable	895	17.79
Total	5,031	100

SUPPLEMENTAL INFORMATION

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