

DESCRIPTIVE STUDY OF MULTI-INSTITUTIONAL CANCER INCIDENCE IN NEPAL – 2017***Krishna Prasad Subedi, Prativa Neupane and Deej Kumar Gautam**

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Abstract

Cancer: An abnormal growth of cells which tend to proliferate in an uncontrolled way and, in some cases, to metastasize (spread) which is a major public health problem in the world. This study aims to determine the multi-institutional cancer incidence in Nepal. In this descriptive analysis, data were collected from different co-action hospitals of National Cancer Registry system from January to December 2017, where diagnostic and treatment facilities are available. Most of the cases were reported by BPKMCH 44.08% followed by BCH 24.99% and BH 8.20%. The most valid basis of diagnosis was biopsy/histology 36.41% followed by cytology/haematology 30.98% and radiology 14.33%. Cancer cases were most prevalent (13.11%) in age group of (60-64) years for both sex (male:13.97% and female: 12.35%). Chemotherapy was the first choice of treatment 27.93% followed by surgery alone 17.75%. The most common cancer in Nepal for 2017 was bronchus & lung 12.81% followed by cervix 8.82% and breast 8.71%. Among males, lung cancer 15.93% was the most frequent followed by stomach 6.56% and bladder 4.88%. Whereas, cervical cancer was a leading cancer site for female 16.64% followed by breast 15.98% and lung 10.04%. Cancer incidence found to be increased yearly in Nepal and thus effective and comprehensive cancer prevention programme should be carried out in national context.

Keywords: Cancer, Incidence, Hospital based, Registry

INTRODUCTION

Cancer is the second leading cause of death globally, accounting for an estimated 9.6 million deaths, or one in six deaths, in 2018. Lung, prostate, colorectal, stomach and liver cancer are the most common types of cancer in men, while breast, colorectal, lung, cervical and thyroid cancer are the most common among women (GLOBO CAN 2018). Globally, about 1 in 6 deaths is due to cancer. Approximately 70% of deaths from cancer occur in low- and middle-income countries. Asia accounts for 60% of the world population and half the global burden of cancer. The incidence of cancer cases is estimated to increase from 6.1 million in 2008 to 10.6 million in 2030. According to WHO, India has a cancer mortality rate of 79 per 100,000 deaths and accounts for over 6 percent of total deaths. These numbers are very close to those of high-income countries. This study includes data from twelve major hospitals of the nation and this study can be used to infer an overall situation of cancer in Nepal for 2017. Various studies showed that cancer disease is increasing day by day and there are different yearly reports about the prevalence of cancer disease. Therefore the aim of this study is to hit up on the current status of hospital based cancer incidence in different institutes i.e. co-action hospitals of cancer registry programme in Nepal for 2017. This was a descriptive study with primary and secondary data of new cancer cases recorded and collected in different co-action hospitals from first January to December last 2017. The data were entry, edit, and coded based on ICD-O3 rd and ICD -10, published by IARC/WHO and the analysis was carried out by using SPSS 19.0.

MATERIALS AND METHODS

This was a descriptive study with primary and secondary data of new cancer cases recorded and collected in different institutes and co-action hospitals from first January to December last 2017. The data were entry, edit, and coded based on ICD-O3 rd and ICD -10, published by IARC/WHO and the analysis was carried out by using SPSS 19.0.

Data Sources

The following hospitals are the main sources of data collection:

1. Bhaktapur Cancer Hospital, Bhaktapur (BCH)
2. Bir Hospital, Mahaboudha, Kathmandu (BH)
3. Manipal Teaching Hospital Pokhara, Kaski (BH)
4. BPKM Cancer Hospital, Bharatpur, Chitwan (BPKMCH)
5. TU Teaching Hospital, Maharajgunj, Kathmandu (TUTH)
6. Kanti Children's Hospital, Maharajgunj, Kathmandu (KCH)
7. BP Koirala Institute of Health Sciences, Dharan, Sunsari (BPKIHS)
8. Shree Birendra Hospital, Kathmandu (SBH)
9. Civil Service Hospital, Kathmandu (CSH)
10. Patan Academy of Health Science, Lalitpur (PAHS)
11. Paropakar Maternity & Women Hospital, Kathmandu (PMWH)
12. Nepalgunj Medical College Teaching hospital Kohalpur Banke (NMCTH)

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RESULTS

Table 1

Distribution of cases by nationality		
Nationality	Number	Percent
Nepali	10516	98.12
Indian	202	1.88
Total	10718	100

Table 2

Distribution of cases by sex		
Sex	Number	Percent
Male	4939	46.97
Female	5577	53.03
Total	10516	100

Table 3

Distribution of cases by reporting institute							
S.N.	Reporting institute	Sex		Total			
		Male #	Female %	Number	Percent		
1	BPKMCH	2125	43.02	2510	45.01	4635	44.08
2	BPKIHS	215	4.35	232	4.16	447	4.25
3	BCH	1111	22.49	1517	27.20	2628	24.99
4	BH	489	9.90	373	6.69	862	8.20
5	TUTH	345	6.99	347	6.22	692	6.58
6	KCH	81	1.64	50	0.90	131	1.25
7	MTH	73	1.48	65	1.17	138	1.31
8	SBH	184	3.73	125	2.24	309	2.94
9	CSH	134	2.71	151	2.71	285	2.71
10	PAHS	151	3.06	139	2.49	290	2.76
11	PMWH	0	0	31	0.56	31	0.29
12	NMC	31	0.63	37	0.66	68	0.65
	Total	4939	100	5577	100	10516	100

Table 4

Distribution of cases by broad age group and sex						
Broad-age group	Sex		Total			
	Male #	Female %	Number	Percent		
0-14 yrs	335	6.78	183	3.28	518	4.93
15-34 yrs	488	9.88	660	11.83	1148	10.92
35-64 yrs	2366	47.90	3508	62.90	5874	55.86
65+ yrs	1750	35.43	1915	34.34	2976	28.30
Total	4939	100	5577	100	10516	100

Table 5

Distribution of cases by age group and sex						
Age group	Sex		Total			
	Male #	Female %	Number	Percent		
0-4 yrs	117	2.37	65	1.17	182	1.73
5-9 yrs	94	1.90	55	0.99	149	1.42
10-14 yrs	124	2.51	63	1.13	187	1.78
15-19 yrs	104	2.11	95	1.70	199	1.89
20-24 yrs	123	2.49	146	2.62	269	2.56
25-29 yrs	119	2.41	172	3.08	291	2.77
30-34 yrs	142	2.88	247	4.43	389	3.70
35-39 yrs	214	4.33	367	6.58	581	5.52
40-44 yrs	253	5.12	502	9.00	755	7.18
45-49 yrs	310	6.28	621	11.14	931	8.85
50-54 yrs	379	7.67	681	12.21	1060	10.08
55-59 yrs	520	10.53	648	11.62	1168	11.11
60-64 yrs	690	13.97	689	12.35	1379	13.11
65-69 yrs	654	13.24	480	8.61	1134	10.78
70-74 yrs	585	11.84	442	7.93	1027	9.77
75-79 yrs	303	6.13	169	3.03	472	4.49
80 + yrs	208	4.21	135	2.42	343	3.26
Total	4939	100	5577	100	10516	100

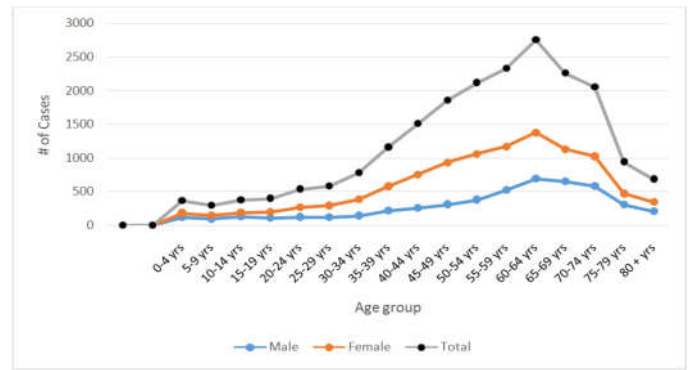


Figure 1. Distribution of cases by age group and sex

Table 6.

Distribution of cases by basis of diagnosis						
Basis of diagnosis	Male		Female%		Total	
	#	%	#	%	#	%
Clinical Examination	15	0.30	8	0.14	23	0.22
Endoscopy	26	0.53	22	0.39	48	0.46
Biopsy/Histology	159	32.27	223	40.08	3829	36.41
Cytology/Hematology	152	30.94	173	31.02	3258	30.98
Biochemical/Immunologi cal test	0	0.00	11	0.20	11	0.10
Radiology	737	14.92	770	13.81	1507	14.33
Not Available	103	21.04	801	14.36	1840	17.50
Total	493	100.0	557	100.0	1051	100.0

Table 7

Distribution of cases by treatment given						
Treatment given/taking	Male		Female		Total	
	#	%	#	%	#	%
Yes	3607	73.03	3791	67.98	7398	70.35
No	43	0.87	34	0.61	77	0.73
Not accepted	12	0.24	11	0.20	23	0.22
Unknown	1277	25.86	1741	31.22	3018	28.70
Total	4939	100.00	5577	100.00	10516	100.00

Table 8

Distribution of cases by treatment type						
Treatment given/taking	Male		Female		Total	
	#	%	#	%	#	%
Curative	1097	30.41	1593	42.02	2672	42.02
Palliative	916	25.40	813	21.45	1729	21.45
Not available	1612	44.69	1385	36.53	2997	36.53
Total	3607	100.00	3791	100.00	7398	100.00

Table 9

Distribution of cases by treatment received						
Basis of diagnosis	Male		Female%		Total	
	#	%	#	%	#	%
Treatment received						
Surgery alone	329	9.12	673	17.75	1002	17.75
Radiotherapy	269	7.46	335	8.84	604	8.84
Chemotherapy	1542	42.75	1059	27.93	2601	27.93
Supportive	360	9.98	266	7.02	626	7.02
Symptomatic	237	6.57	147	3.88	384	3.88
Surgery & Radiotherapy	195	5.41	228	6.01	423	6.01
Surgery & Chemotherapy	329	9.12	444	11.71	773	11.71
Radiotherapy & Chemotherapy	236	6.54	410	10.82	646	10.82
Surgery, Radiotherapy	110	3.05	229	6.04	339	6.04
Chemotherapy						
Total	3607	100.00	3791	100.00	7398	100.00

Table 10

Multi institutional age group and cancer cases for both sex																
Age- group	BPKMCH	BPKIHS	BCH	BH	TUTH	KCH	MTH	SBH	CSH	PAHS	PVMH	NMCTH	Total		Total	
													M	F		
0-4 yrs	74	3	4	33	24	71		2					1	117	65	182
5-9 yrs	68	7	12	3	10	38		2	5	4				94	55	149
10-14 yrs	96	9	16	13	11	22	2	3	11	4				124	63	187
15-19 yrs	95	14	20	15	18		2	1	20	14				104	95	199
20-24 yrs	106	15	48	29	27			1	21	19			3	123	146	269
25-29 yrs	137	17	50	30	24		1	2	14	16				119	172	291
30-34 yrs	172	15	92	7	38		2	8	12	15	1		1	142	247	389
35-39 yrs	266	29	129	62	39		1	8	19	19	4		5	214	367	581
40-44 yrs	357	25	189	53	51		12	8	27	23	5		5	253	502	755
45-49 yrs	436	32	253	74	41		10	17	27	33	4		4	310	621	931
50-54 yrs	490	39	278	93	58		10	27	23	30	5		7	379	681	1060
55-59 yrs	527	55	312	82	73		14	44	27	27	2		5	520	648	1168
60-64 yrs	619	62	347	129	79		21	59	25	25	5		8	690	689	1379
65-69 yrs	503	44	297	100	57		29	53	21	20	1		9	654	480	1134
70-74 yrs	402	39	320	82	70		12	40	26	22	3		11	585	442	1027
75-79 yrs	181	29	138	40	28		13	23	3	11	1		5	303	169	472
80 + yrs	106	15	123	20	44		9	11	4	8			5	208	135	343
Total	4635	447	2628	862	692		138	309	285	290	31		68	4939	5577	10516

Table 11

Multi institutional topography and ICD-10 for both sex																
ICD-10	Topography	BPKMCH	BPKIHS	BCH	BH	TUTH	KCH	MTH	SBH	CSH	PAHS	PVMH	NMCTH	Total		Total
														M	F	
C00	Lip	15	1	9		1			1					18	9	27
C01	Base of tongue		1											1	0	1
C02	Other and unspecified parts of tongue	141	5	49	5	10		3	2	1	2			162	48	210
C03	Gum	46	7	14	1	2								56	14	70
C04	Floor of mouth	1	2	9	2				1					11	4	15
C05	Palate	9	7	12		1								20	9	29
C06	Other and unspecified parts of mouth	1	5	58	3			1						153	61	214
C07	Parotid gland	13	13	11										18	19	37
C08	Other and unspecified major salivary glands	6	4	2					1					9	4	13
C09	Tonsil	16	1	15					2					27	7	34
C10	Oropharynx	10	10	17	1	5			3					29	10	39
C11	Nasopharynx	57		30	1	15	1		2	2	1			72	37	109
C12	Pyrimiform sinus	27	4	32	2	1		1	5	1				62	11	73
C13	Hypopharynx	3	3	5	1	1								11	2	13
C14	Other and ill-defined sites in lip, oral cavity and pharynx	6	5			1								9	3	12
C15	Esophagus	112	12	43	39	1		3	12	2	3			153	74	227
C16	Stomach	182	18	152	89	33	1	11	24	13	10		3	324	212	536
C17	Small intestine	9		7	4	3				1				12	12	24
C18	Colon	85	16	55	38	23		3	7	23	25			158	117	275
C19	Rectosigmoid junction	1	2	3	1									3	4	7
C20	Rectum	109	20	87	19	14		2	13	3	2			161	108	269
C21	Anus and anal canal	27	1	4		3					1			14	22	36
C22	Liver and intrahepatic bile duct	128	12	51	31	55		9	6	2	3		5	183	119	302
C23	Gall bladder	230	37	84	29	47		1	8	1	1		9	139	281	420
C24	Other and unspecified parts of biliary tract	21	9	18	12	11					1			40	32	72

.....Continued

C25	Pancreas	37	3	30	21	22	1	4	12	2	3	2	76	61	137
C26	Other and ill-defined digestive organs	17	6			2			2				19	8	27
C30	Nasal cavity and middle ear	31	1	6	2	14							32	22	54
C31	Accessory sinus	18	19			1		1	1				23	17	40
C32	Larynx	118	19	92	13	21		1	12			2	204	74	278
C33	Trachea	1											0	1	1
C34	Bronchus and lung	558	31	382	190	27		22	79	13	23	22	787	560	1347
C37	Thymus	7	5		2					2			7	7	14
C38	Heart, mediastinum, and pleura	16			4		1						12	11	23
C40	Bones, joints and articular cartilage	84	21	4	1	6	1	2					59	60	119
C41	Bones, joints & articular cartilage of other & unspecified sites	1	2	7	20	7	2	3	3		1		85	65	150
C42.2	Spleen	3											3	0	3
C43	Skin melanoma	2	6	8	3						1		11	9	20
C44	Skin other	26	12	30	2	2		4	2			1	43	36	79
C47	Peripheral nerves and autonomic nervous system	1	2		3	1							4	3	7
C48	Retroperitoneum and peritoneum	21	3		1								10	15	25
C49	Connective, subcutaneous and other soft tissues	59	2	38	17	2	11	2	4	2	1		82	56	138
C50	Breast	468	32	295	40	25			10	16	14	5	25	891	916
C51	Vulva	15		26				11	1				0	42	42
C52	Vagina	22	1	7									0	30	30
C53	Cervix uteri	491		326	16	10		8	11	12	11	31	0	928	928
C54	Endometrium	30		33		4			1	4	2		0	76	76
C55	Uterus	21									1		0	22	22
C56	Ovary	157		104	30	33		5	17	19	24	4	0	393	393
C57	Other and unspecified female genital organs	1		1	3	8			1				0	14	14
C58	Placenta												0	1	1
C60	Penis	49	4	14	6	5						1	79	0	79
C61	Prostate gland	29	5	27	11	1		5	1	2	3	1	85	0	85
C62	Testes	36		6	2	1	1						46	0	46
C63	Other and unspecified male genital organs			2									2	0	2
C64	Kidney	1	6	3	2	5	7	2	4	2			80	36	116
C65	Renal pelvis	5					1						4	2	6
C66	Ureter								1		1		1	1	2
C67	Bladder	110	17	57	47	50		6	11	6	5	3	241	71	312
C68	other and unspecified urinary organs	4	1										5	0	5
C69	Eye and adnexa	9		14	1	7	10		8		1		21	20	41
C70	Meninges			17	3	1							11	11	22
C71	Brain	79	89		11	36	10			5	2		132	108	240
C72	Spinal cord, cranial, nerves, and other parts of CNS	8			2	1							4	7	11
C73	Thyroid gland	82	28	49	13	27			2	8	11	3	49	174	223
C74	Adrenal gland	13			1	4							11	7	18
C75	Other endocrine glands and related structures		1		2	2				1	1		4	3	7
C76	Other and ill-defined sites	19	2	3	19	5	9	4	3		1	5	39	35	91
C77	Lymph nodes (different site)	34	5	6	18	43	3	2		8	9		83	45	128
C80	Unknown primary site	1		45	23	19		3		4	2		59	38	233
C81	Hodgkin's disease	88	2	11	5	5	6	2	1	11	15		106	40	91
C85	NHL	70	13	53	34	38	5	9	11				148	85	233
C90	Multiple myeloma	6	3	14	7	16		3	9	16	17		62	29	91
C91	Leukemia/lymphoid	115	10	3	1	7	55		12	44	40		169	119	288
C92	Leukemia/myeloid	104	6	5	3	5	4	4	3	18	16		96	72	168
C95	Leukemia unspecified	26	4	4	6	8	2	1		40	37		75	53	128
Total													4939	5577	10516

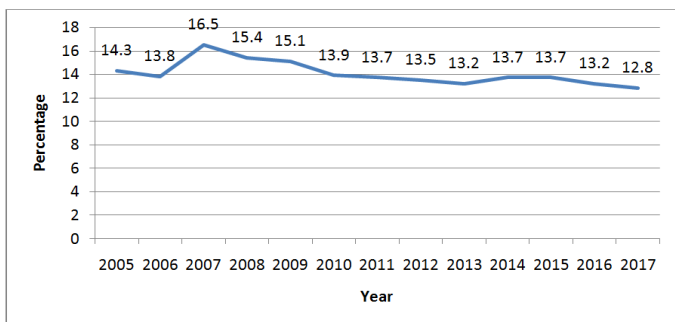


Figure 2. Trend of Lung Cancer (2003-2017)

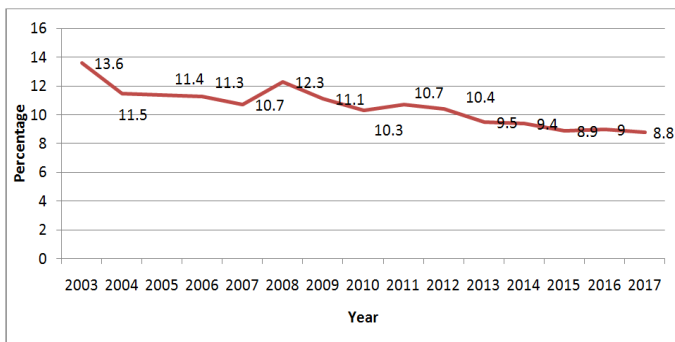


Figure 3. Trend of Cervical Cancer (2013 - 2017)

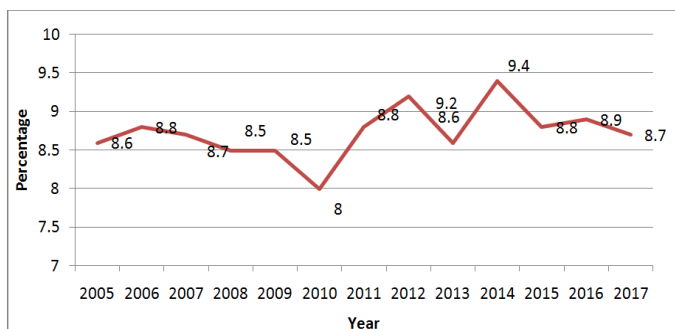


Figure 4. Trend of Breast Cancer (2003-2017)

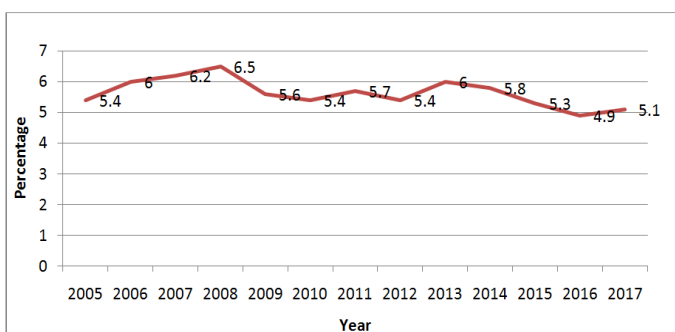


Figure 5. Trend of Stomach Cancer (2003-2017)

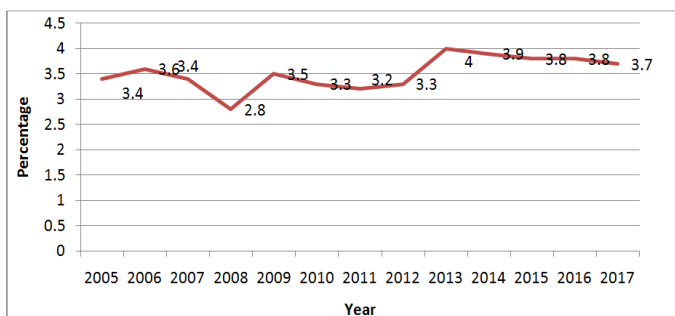


Figure 6. Trend of Ovary Cancer (2003-2017)

DISCUSSION

In this study, twelve major hospitals of the nation, data source institute and i.e. co-action hospitals were included for data collection in 2017 and total 11754 cancer cases were reported for this study. The cases were verified by name, age, sex, address, topography and morphology. Repeated cancer cases (n = 1036) were deleted. Indian cases, (n = 202) were excluded from database and the total of 10516 cases were coded based on ICD-O3rd and ICD -10, published by IARC/WHO and data analysis was carried out by using SPSS 19.0.

Conclusion: Cancer incidence was rising every year, most of the cases reported by BPKMCH in Nepal. Whereas, bronchus & lung was the leading cancer followed by cervix and breast.

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