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Descriptive Analysis of MuIti-Institutional Cancer Incidence in Nepal - 2016

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ABSTRACT

Cancer (KAN-ser) A term for diseases in which abnormal cells divide without control and can invade nearby tissues. which is a major public health problem in the world. This study aims to determined 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 2016, where diagnostic and treatment facilities are available. Most of the cases were reported by BPKMCH 45.27% Followed by BCH 16.17% and TUTH 9.33%. The most valid basis of diagnosis was biopsy/histology 39.25% followed by cytology/haematology 30.86% and radiology 14.92%. Cancer cases were most prevalent (13.57%) in age group of (60-64) years for both sex (male:14.51% and female: 12.74%.).The most common cancer in Nepal for 2016 was bronchus & lung 13.26 % followed by cervix 9.01% and breast 8.93%. Among males, lung cancer 16.98% was the most frequent followed by stomach 6.04% and larynx 4.74%. Whereas, cervical cancer was a leading cancer site for female 16.02% followed by breast 16.12% and lung 10.03%. 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

I. 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

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high-income countries. This study includes data from twelve major hospital 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 institute i.e. co-action hospitals of cancer registry programme in Nepal for 2016.

This was a descriptive study with primary and secondary data of new cancer are recorded and collected in different co-action hospital 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.

II. Materials and Methods

This was a descriptive study with primary and secondary data of new cancer were recorded and collected in different institute and co-action hospital from first January to December last 2016. 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.

III. 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 Medical College, Pokhara, Kaski
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)

IV. Result

Table 1

Distribution of cases by nationality		
Nationality	**Number**	**Percent**
Nepali	10117	98.26
Indian	179	1.74
Total	10296	100.00

Table 2

Distribution of cases by sex		
Sex	**Number**	**Percent**
Male	4697	46.4
Female	5420	53.6
Total	10117	100.00

Figure 1

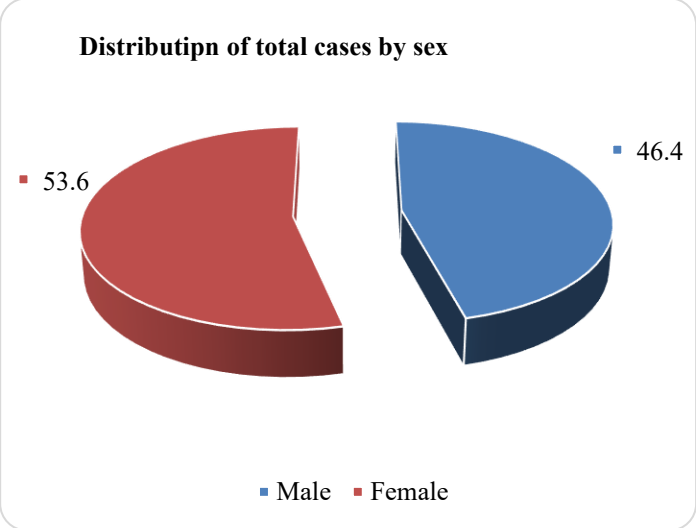


Table 3

Distribution of cases by reporting institute							
S.N.	**Reporting institute**	**Sex**				**Total**	
		Male		**Female**			
		#	**%**	**#**	**%**	**Number**	**Percent**
1	BPKMCH	2077	44.21	2403	46.18	4580	45.27
2	BPKIHS	302	6.42	312	5.75	614	6.06
3	BCH	695	12.66	941	17.36	1636	16.17
4	BH	450	9.68	426	7.85	876	8.65
5	TUTH	441	9.38	503	9.28	944	9.33
6	KCH	128	2.72	59	1.08	187	1.84
7	MTH	93	1.97	126	2.32	219	2.16
8	SBH	141	3.00	130	2.39	271	2.67
9	CSH	230	4.89	243	4.48	473	4.67
10	PAHS	109	2.32	90	1.66	199	1.96
11	PMWH	0	0	40	0.73	40	0.39
12	NMC	31	0.65	47	0.86	78	0.77
Total		4697	100.0	5420	100.0	10117	100.00

Table 4

Distribution of cases by broad age group and sex						
	Sex				**Total**	
	Male		**Female**			
Broad-age group	**#**	**%**	**#**	**%**	**#**	**%**
0-14 yrs	325	6.91	193	3.56	518	5.12
15-34 yrs	498	10.6	638	11.77	1136	11.22
35-64 yrs	2297	48.90	3453	63.70	5750	56.83
65+ yrs	1577	33.57	1136	20.95	2713	26.81
Total	4697	100.0	5420	100.0	10117	100.00

Table 5

Distribution of cases by age group and sex						
	Sex				Total	
	Male		Female			
Age group	#	%	#	%	#	%
0-4 yrs	120	2.55	47	0.86	167	1.65
5-9 yrs	106	2.25	63	1.16	169	1.67
10-14 yrs	99	2.10	83	1.53	182	1.79
15-19 yrs	125	2.66	115	2.12	240	2.37
20-24 yrs	110	2.34	120	2.21	230	2.27
25-29 yrs	111	2.36	142	2.61	253	2.50
30-34 yrs	152	3.23	261	4.81	413	6.73
35-39 yrs	165	3.51	366	6.75	531	5.24
40-44 yrs	266	5.66	455	8.39	681	6.73
45-49 yrs	315	6.70	631	11.64	946	9.35
50-54 yrs	432	9.19	670	12.36	1102	10.89
55-59 yrs	477	10.15	640	11.80	1117	11.04
60-64 yrs	682	14.51	691	12.74	1373	13.57
65-69 yrs	561	11.94	459	8.46	1020	10.08
70-74 yrs	508	10.81	374	6.90	882	8.71
75-79 yrs	290	6.17	171	3.15	461	4.55
80 + yrs	218	4.64	132	2.43	350	3.45
Total	4697	100.0	5420	100.0	10117	100.00

Figure 2. Distribution of cases by age group and sex

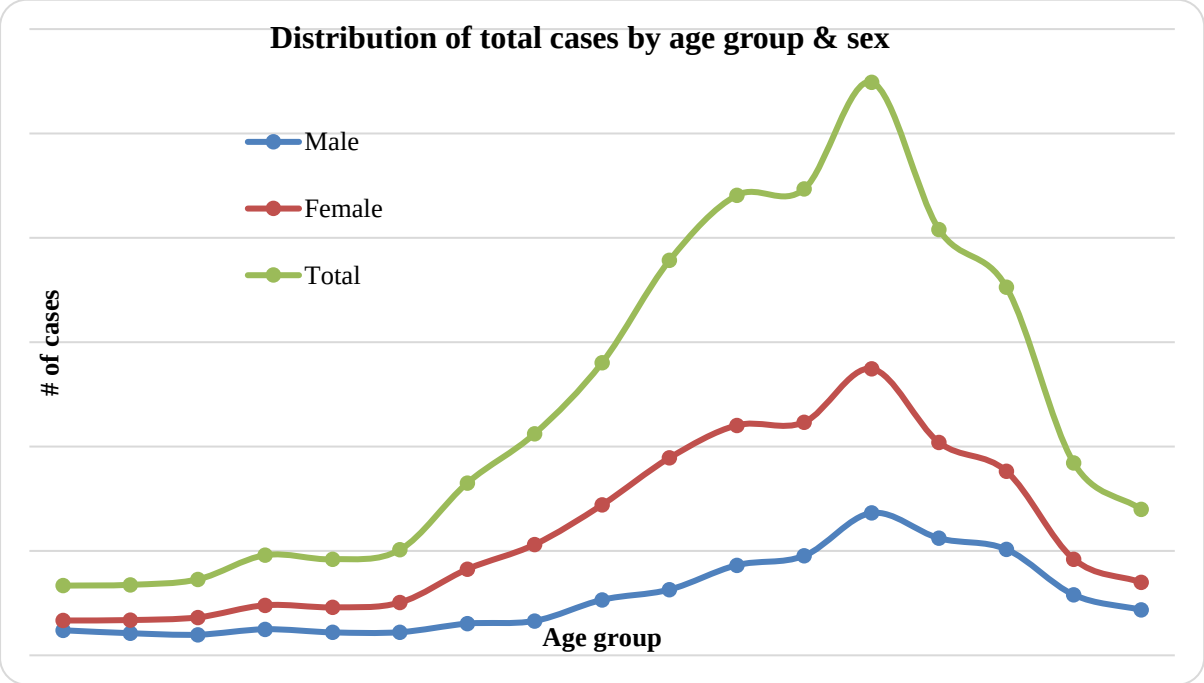


Table 6

Distribution of cases by basis of diagnosis		
Basis of diagnosis	**#**	**%**
Clinical Examination	3	0.02
Endoscopy	38	0.37
Biopsy/Histology	3968	39.25
Cytology/Haematology	3121	30.86
Biochemical/Immunological test	2	0.01
Radiology	1510	14.92
Death Certificate	3	0.02
Not Available	1472	14.55
Total	10117	100.00

Table 7

Distribution of cases by treatment given		
Treatment given/taking	**Number**	**Percent**
Yes	6617	65.40
No	335	3.31
Not accepted	31	0.30
Unknown	3134	30.97
Total	10117	100.00

Table 8

Distribution of cases by treatment type		
Treatment given/taking	**Number**	**Percent**
Curative	2508	37.90
Palliative	1259	19.02
Not available	2850	43.07
Total	6617	100.00

Table 9

Result by multi-institution age group for both sex															
Age-group	BPKMCH	BPKIHS	BCH	BH	TUTH	KCH	MTH	SBH	CSH	PAHS	PWMH	NMCTH	Total		Total
													M	F	
0-4 yrs	51	8	3	0	28	74	0	1	0	1	0	1	120	47	167
5-9 yrs	53	4	15	0	20	70	2	1	2	2	0	0	106	63	169
10-14 yrs	92	9	10	1	14	43	0	1	10	1	0	1	99	83	182
15-19 yrs	107	6	24	19	42	0	2	o	37	3	0	0	125	115	240
20-24 yrs	98	15	23	14	33	0	5	1	35	5	0	1	110	120	230
25-29 yrs	124	13	35	20	29	0	1	1	22	6	1	1	111	142	253
30-34 yrs	200	21	61	29	50	0	4	13	23	2	1	2	152	261	413
35-39 yrs	264	34	78	36	70	0	9	3	28	5	2	2	165	366	531
40-44 yrs	354	36	113	51	51	0	8	8	31	12	9	8	266	455	681
45-49 yrs	472	49	159	95	60	0	17	15	50	16	8	5	315	631	946
50-54 yrs	521	59	187	101	78	0	30	37	50	23	9	7	432	670	1102
55-59 yrs	552	56	179	94	91	0	23	39	49	20	4	10	477	640	1117
60-64 yrs	599	103	241	154	113	0	34	45	47	27	1	9	682	691	1373
65-69 yrs	454	57	188	100	90	0	27	43	32	16	1	12	561	459	1020
70-74 yrs	369	63	158	80	89	0	27	24	39	20	3	10	508	374	882
75-79 yrs	175	40	93	45	41	0	21	17	8	18	0	3	290	171	461
80 + yrs	95	41	69	37	45	0	0	22	10	15	1	6	218	132	350
Total	4580	614	1636	876	944	187	219	271	473	199	40	78	4697	5420	10117

Table 10

Result by multi-institution and ICD-10 for both sex																	
ICD-10	Topography	BPKMCH	BPKIHS	BCH	BH	TUTH	KCH	MTH	SBH	CSH	PAHS	PWMH	NMCTH	Total		Total	%
														M	F		
C 00	Lip	18	7	3	0	1	0	1	0	0	1	0	1	23	9	32	0.31
C 01	Base of tongue	1	0	0	0	0	0	0	0	0	3	0	0	4	0	4	0.03
C 02	Other & unspecified parts of tongue	135	23	27	3	11	0	2	3	3	1	0	1	139	70	209	2.06

C 03	Gum	42	2	2	11	2	0	0	1	0	0	0	0	42	18	60	0.59
C 04	Floor of mouth	9	0	10	0	0	0	0	0	0	1	0	0	14	6	20	0.19
C 05	Palate	19	0	3	0	0	0	0	0	0	1	0	0	17	6	23	0.22
C 06	Other & unspecified parts of mouth	140	25	4	2	0	0	0	0	0	0	0	1	129	43	172	1.7
C 07	Parotid gland	16	9	9	0	1	0	0	2	0	2	0	1	21	19	40	0.39
C 08	Other & unspecified major salivary glands	11	10	1	0	7	0	0	1	0	1	0	1	17	15	32	0.31
C 09	Tonsil	17	4	5	1	0	0	0	2	0	0	0	0	20	9	29	0.28
C 10	Oropharynx	9	6	4	0	11	0	1	0	0	0	0	0	21	10	31	0.3
C 11	Nasopharynx	43	6	15	2	14	0	2	1	1	0	0	12	58	28	86	0.85
C 12	Pyriform sinus	44	9	12	5	1	0	1	4	0	2	0	0	63	15	78	0.77
C 13	Hypopharynx	5	2	1	0	1	0	0	0	0	0	0	0	5	4	9	0.08
C 14	Other & ill defined sites in lip, oral cavity & mouth	6	0	2	0	0	0	0	0	0	0	0	0	6	2	8	0.07
C 15	Esophagus	69	11	23	16	1	0	9	4	3	4	0	0	89	51	140	1.38
C 16	Stomach	204	24	69	82	57	0	9	22	18	11	0	3	284	215	499	1.38
C 17	Small intestine	5	4	3	4	5	0	0	0	2	1	0	0	10	13	23	4.93
C 18	Colon	66	20	3	45	14	0	11	5	38	9	0	5	123	103	226	0.22
C 19	Rectosigmoid jucnction	5	1	0	5	2	0	0	0	0	0	0	0	8	5	13	2.23
C 20	Rectum	100	16	56	43	14	0	11	7	3	5	0	4	150	109	259	0.12
C 21	Anus & anal canal	18	2	0	0	10	0	0	0	0	0	0	0	21	9	30	2.56
C 22	Liver	125	10	20	11	54	1	2	9	8	7	0	7	136	118	254	0.29
C 23	Gall bladder	214	26	43	24	57	0	0	5	5	6	0	7	118	269	387	2.51
C 24	Other & unspecified biliary tract	19	5	4	7	33	0	1	1	2	2	0	4	26	52	78	3.82
C 25	Pancreas	34	1	20	13	8	0	1	7	10	2	0	0	51	45	96	0.77
C 26	Ill defined digestive organs	27	1	2	0	5	0	0	3	0	0	0	0	18	20	38	0.94
C 30	Nasal cavity & middle ear	48	14	3	1	8	0	0	0	0	4	0	0	47	36	83	0.37
C 31	Accessory sinus	17	0	14	0	5	0	0	1	0	0	0	0	18	17	35	0.82
C 32	Larynx	110	12	69	17	51	0	15	6	0	7	0	2	223	66	289	0.34
C33	Trachea	0	0	0	0	1	0	0	0	0	0	0	0	1	0	1	2.85
C 34	Bronchus & lung	581	38	286	230	65	0	36	66	18	8	0	14	798	544	1342	0
C 37	Thymus	6	0	2	3	0	0	0	0	0	0	0	0	7	4	11	13.26
C 38	Heart , Mediastinum & pleura	14	2	0	0	1	0	0	0	2	0	0	0	9	10	19	0.1
C 40	Bones joints & articular cartilage of limbs	78	8	3	1	1	0	1	1	0	1	0	0	53	40	93	0.18
C 41	Other & unspecified bones joints & articular cartilage	118	6	0	2	16	0	2	1	0	1	0	0	84	62	146	0.39
C 42.2	Spleen	5	0	0	0	0	0	0	0	0	0	0	0	4	1	5	1.44
C43	Skin melanoma	2	0	0	3	3	0	1	5	0	0	0	0	7	7	14	0.04
C 44	Skin other	14	17	34	0	12	0	0	1	0	5	0	0	48	35	83	0.13

C 47	Peripheral nerves & autonomic nervous system	2	0	0	0	2	0	0	0	0	0	0	0	4	0	4	0.82
C 48	Peritoneum & retroPeritoneum	12	2	3	0	0	0	0	0	0	0	0	0	6	11	17	0.03
C 49	Connective subcutaneous & other soft tissue	42	10	34	5	5	21	0	3	0	5	0	0	71	54	125	0.16
C 50	Breast	450	62	155	116	44	0	13	20	26	7	0	11	30	874	904	1.23
C 51	Vulva	16	0	12	1	0	0	0	0	0	0	0	0	0	29	29	8.93
C 52	Vagina	15	0	2	3	0	0	1	0	0	0	0	0	0	21	21	0.28
C 53	Cervix uteri	516	25	230	15	11	0	46	16	9	2	39	3	0	912	912	0.2.0
C 54	Endometrium	21	0	22	2	2	0	0	0	6	2	0	0	0	55	55	9.01
C 55	Uterus	10	3	1	1	1	0	0	0	4	2	0	0	0	22	22	0.05
C 56	Ovary	181	15	43	29	51	0	9	16	43	3	1	1	0	392	392	0.21
C 57	Other & unspecified female genital organs	0	0	3	1	7	1	0	0	1	0	0	0	0	13	13	3.87
C58	placenta	0	0	0	0	0	0	0	0	0	0	1	0	0	1	1	0.12
C 60	Penis	32	5	8	2	2	0	0	2	0	3	0	0	54	0	54	0.12
C 61	Prostate gland	35	9	17	14	6	0	6	0	2	5	0	0	94	0	94	0.53
C 62	Testis	30	2	5	2	1	1	0	0	0	1	0	1	43	0	43	0.92
C 63	Other & unspecified male genital organs	1	0	0	1	0	0	0	0	0	1	0	0	3	0	3	0.42
C 64	Kidney	57	3	17	5	7	11	1	2	1	6	0	0	76	34	110	0.02
C 65	Renal pelvis																0.08
C66	Ureter	0	0	0	0	0	0	0	0	0	2	0	0	1	1	2	0.01
C 67	Bladder	73	14	40	33	49	0	10	14	4	20	0	2	198	61	259	2.56
C 68	Other & unspecified urinary organs	0	0	0	0	3	0	0	0	0	0	0	0	3	0	3	0.029
C 69	Eye & adnexa	6	8	11	0	13	20	0	1	0	0	0	0	42	17	59	0.58
C 70	Meninges	0	0	12	2	5	0	0	0	0	0	0	1	8	12	20	0.19
C 71	Brain	146	4	45	7	37	18	17	2	3	0	0	0	174	105	279	2.75
C 72	Spinal cord & other parts of CNS	13	0	0	0	3	0	0	0	0	0	0	0	13	3	16	0.01
C 73	Thyroid	58	41	45	9	51	0	0	4	20	6	0	2	62	174	73	2.33
C 74	Adrenal gland	5	0	0	0	5	0	0	0	0	1	0	0	5	6	11	0.1
C 75	Other endocrine glands & related structure	0	0	0	0	3	0	0	0	1	0	0	0	1	3	4	0.03
C 76	Other & ill defined sites	16	55	8	3	21	4	4	3	0	14	0	2	73	57	130	0.91
C77	Lymph nodes (different site)	4	0	0	15	13	4	1	1	16	3	0	2	37	22	59	0.58
C 80	Unknown primary site	2	0	63	3	43	0	3	1	1	1	0	0	78	39	117	0.15
C 81	Hodgkin's disease	108	0	9	6	1	2	0	4	21	0	0	0	94	57	151	1.49
C 85	NHL	88	1	37	49	48	3	0	7	6	0	0	0	141	98	239	2.36

C 90	Multiple myeloma	4	5	10	8	13	0	0	5	40	0	0	0	52	33	85	0.84
C 91	Leukemia/ lymphoid	104	9	19	2	3	91	1	5	77	2	0	0	213	100	313	3.09
C 92	Leukemia/myeloid	71	12	18	8	12	5	1	8	34	23	0	0	114	78	192	1.89
C 95	Leukemia unspecified	68	8	3	4	12	5	0	0	45	1	0	0	97	49	146	1.44
	Total	4580	614	1636	876	944	187	219	271	473	199	40	78	4697	5420	10117	100

Figure : 3

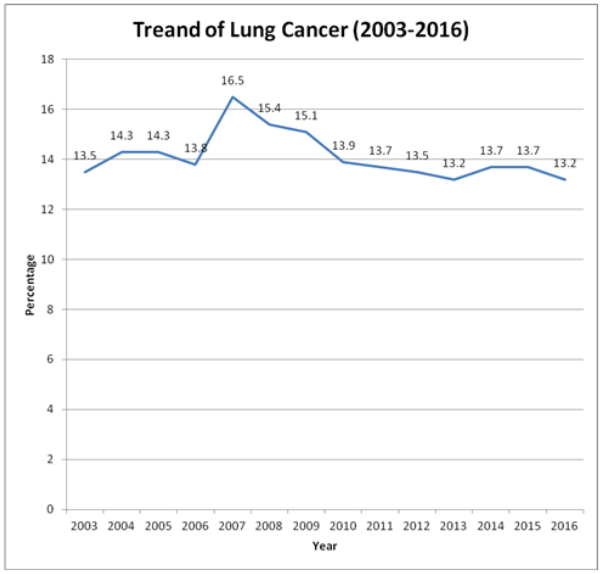
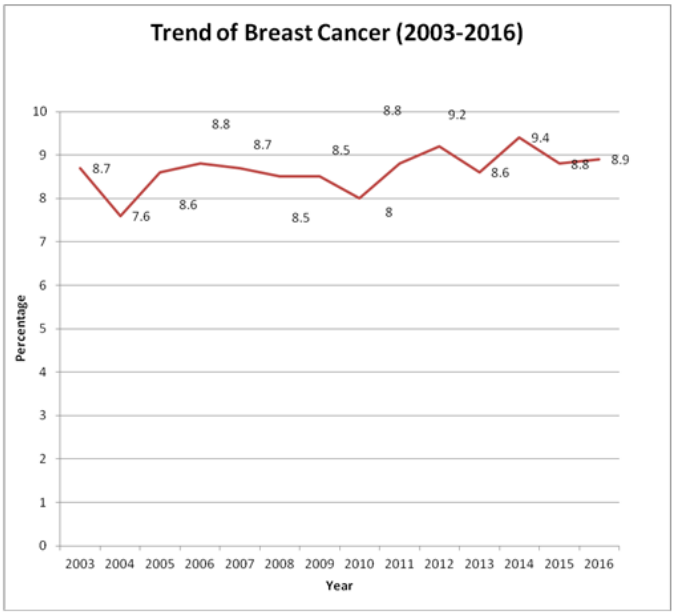


Figure 4



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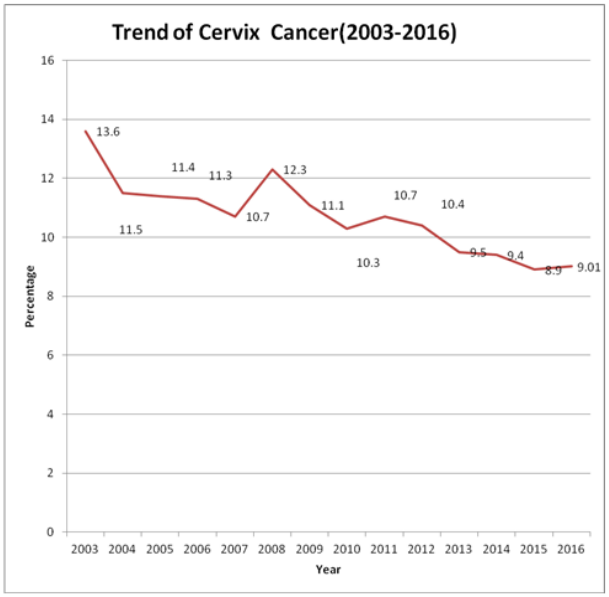

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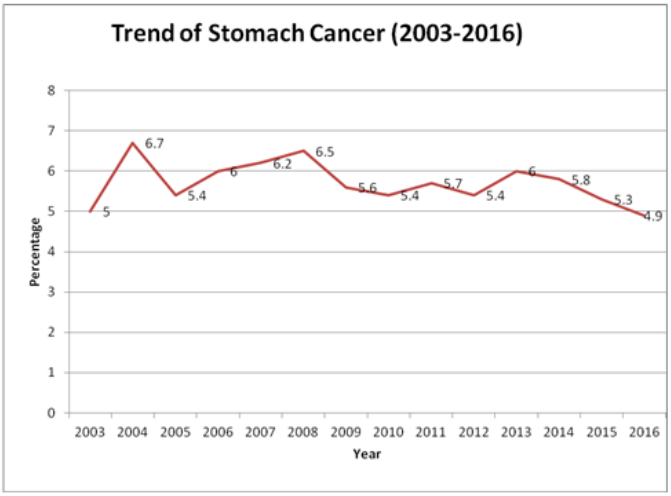

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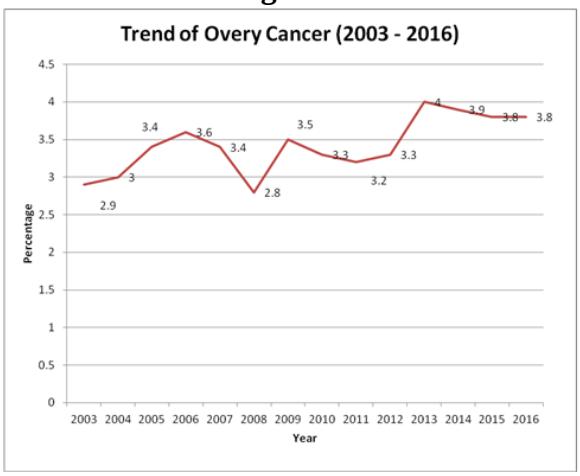

V. DISCUSSION

In this study, twelve major hospitals of the nation, data source institute and i.e. co-action hospitals were included for data collection in 2016 and total 1153 cancer cases were reported for this study. The cases were verified by name, age, sex, address, topography and morphology. Repeated cancer cases (n = 857) were deleted. Indian cases, (n = 179) were excluded from database and the total of 10117 cases were coded based on ICD-O3 rd and ICD -10, published by IARC/WHO and data analysis was carried out by using SPSS 19.0.

VI. 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.

VII. ACKNOWLEDGEMENTS

The author would like to thanks all the data source institutions and their staffs for providing valuable information towards this research.

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