

Chapter 1

LEADING SITES OF CANCER

Table 1.1(a) gives the total number of new cancers registered at the seven Hospital Based Cancer Registries (HBCRs) during the period of five years from 1st January 2007 to 31st December 2011: Mumbai HBCR's data is for the years 2006-2007, Bangalore for 2007-2009, Chennai and Thiruvananthapuram for the years 2007-2010 whereas Dibrugarh for the complete five years of duration. Guwahati and Chandigarh started from the year 2010 and 2011 and hence contributed for the years 2010-2011 and 2011 respectively. Accordingly, there were 1,58,152 new cancers (81,144 males and 77,008 females) registered at the seven HBCRs. In Bangalore and Chennai, more females than males were registered and in all other registries more males than females were registered. Table 1.1(b) gives, in addition to that given in Table 1.1(a), the number of new patients registered with a diagnosis of cancer made in other calendar years. Table 1.1(c) gives a summary of all new registrations.

**Table 1.1(a): Number (#) and Proportion (%) according to Sex, Sex Ratio Percent
- New Cases (2007-2011)**

(Calendar years of data shown in parentheses for each registry)

Registry	Males		Females		Sex Ratio%*	Total Cases
	#	%	#	%		
Mumbai (2006-2007)	22580	54.9	18528	45.1	122	41108
Bangalore (2007-2009)	11273	46.2	13125	53.8	86	24398
Chennai (2007-2010)	15731	47.3	17499	52.7	90	33230
Thi'puram (2007-2010)	19219	50.5	18809	49.5	102	38028
Dibrugarh (2007-2011)	2895	56.0	2276	44.0	127	5171
Guwahati (2010-2011)	6803	59.2	4679	40.8	145	11482
Chandigarh (2011)	2643	55.8	2092	44.2	126	4735
Total	81144	51.3	77008	48.7	105	158152

* Number of male patients per 100 female patients.

Table 1.1(b): Distribution of Cancer Cases according to Registration Year and Date of Diagnosis (2007-2011) - Both Sexes

Registry	New registrations with date of diagnosis in same calendar year	Percentage of New registrations	New registrations with date of diagnosis in other calendar years	Percentage of Old registrations
Mumbai	41108	94.8	2241	5.2
Bangalore	24398	92.6	1961	7.4
Chennai	33230	86.1	5360	13.9
Thi'puram	38028	87.6	5374	12.4
Dibrugarh	5171	100.0	1	0.0
Guwahati	11482	92.2	966	7.8
Chandigarh	4735	86.3	750	13.7
Total	158152	90.5	16653	9.5

Table 1.1(c): Number (#) and Proportion (%) according to Sex, Sex Ratio Percent and Relative Proportion (Rel. Prop.) of All New Registrations (2007-2011)

Registry	Males		Females		Sex Ratio%*	Total Cases
	#	%	#	%		
Mumbai	23705	54.7	19644	45.3	121	43349
Bangalore	12090	45.9	14269	54.1	85	26359
Chennai	18105	46.9	20485	53.1	88	38590
Thi'puram	21919	50.5	21483	49.5	102	43402
Dibrugarh	2895	56.0	2277	44.0	127	5172
Guwahati	7349	59.0	5099	41.0	144	12448
Chandigarh	3010	54.9	2475	45.1	122	5485
Total	89073	51.0	85732	49.0	104	174805

* Number of male patients per 100 female patients.

The number, relative proportion and rank of the ten leading sites (ICD-10) in males and females for the year 2007-2011 are given in Table 1.2 and represented in Figures 1.1(a) and 1.1(b).

Males: (The proportion (%) of cases in a given site, relative to all sites of cancer, in that sex is given in parentheses).

In Mumbai, mouth (12.3%) was the leading site of cancer, followed by lung (8.0%), tongue (7.1%), non-Hodgkin's lymphoma (NHL) (6.1%) and oesophagus (4.6%).

In Bangalore, hypopharynx (8.4%), oesophagus (7.9%), lung (7.0%), tongue (6.7%) and mouth (6.5%) were the five leading sites in that order.

In Chennai, stomach (9.2%) and lung (8.9%) were the leading sites. These two sites were followed by mouth (8.6%), tongue (6.7%) and oesophagus (5.7%).

In Thiruvananthapuram, lung (14.8%) was the leading site followed by mouth (8.3%), tongue (6.3%), non-Hodgkin's lymphoma (NHL) (5.0%) and myeloid leukaemia (4.9%).

In Dibrugarh, hypopharynx (15.2%) and oesophagus (13.1%) were the leading sites followed by mouth (8.9%), stomach (6.8%) and tongue (5.7%).

In Guwahati, cancer of oesophagus was the leading site, accounting for about 15.0% of cancers in males, followed by hypopharynx (11.9%), mouth (8.0%), lung (7.4%) and tongue (6.9%).

In Chandigarh, lung (9.2%) and brain, NS (7.6%) were the leading sites. These two sites were followed by tongue (7.3%), oesophagus (6.2) and lymphoid leukaemia (5.9%).

Fig. 1.1(a): Ten Leading Sites of Cancer - Males

Mumbai

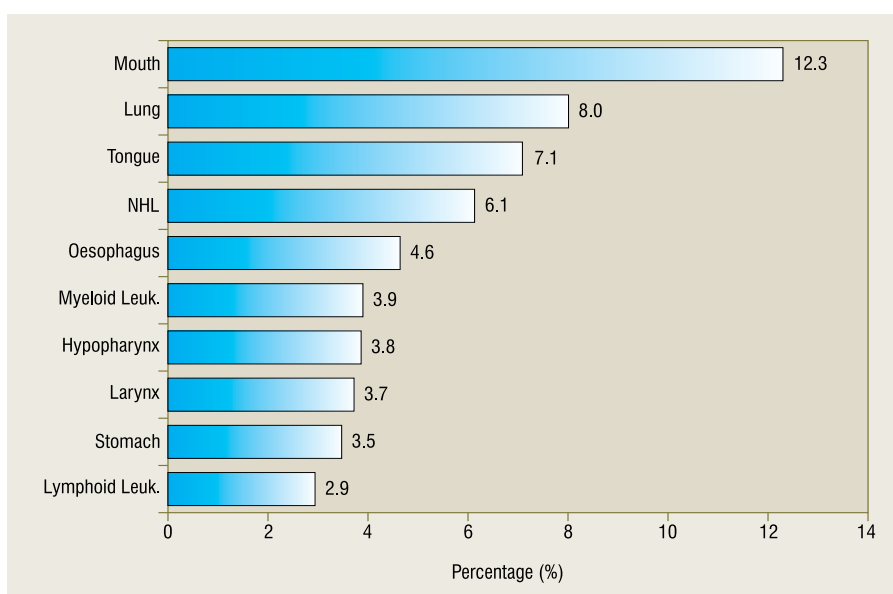
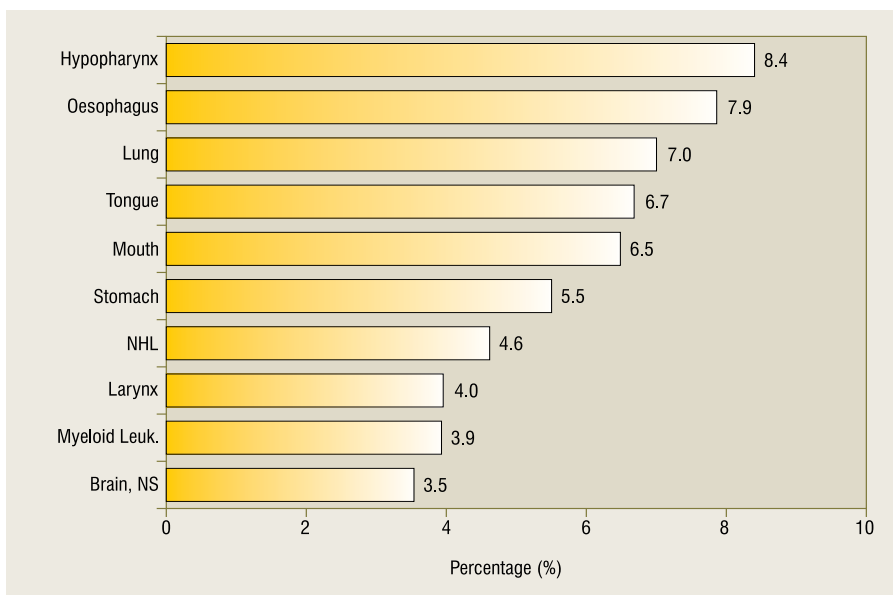
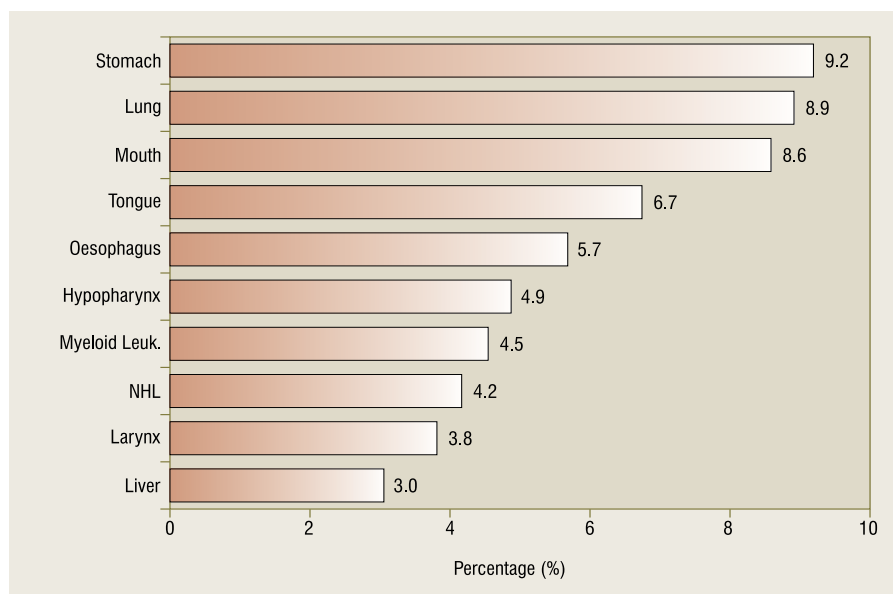


Fig. 1.1 (a): Ten Leading Sites of Cancer - Males (contd...)

Bangalore



Chennai



Thiruvananthapuram

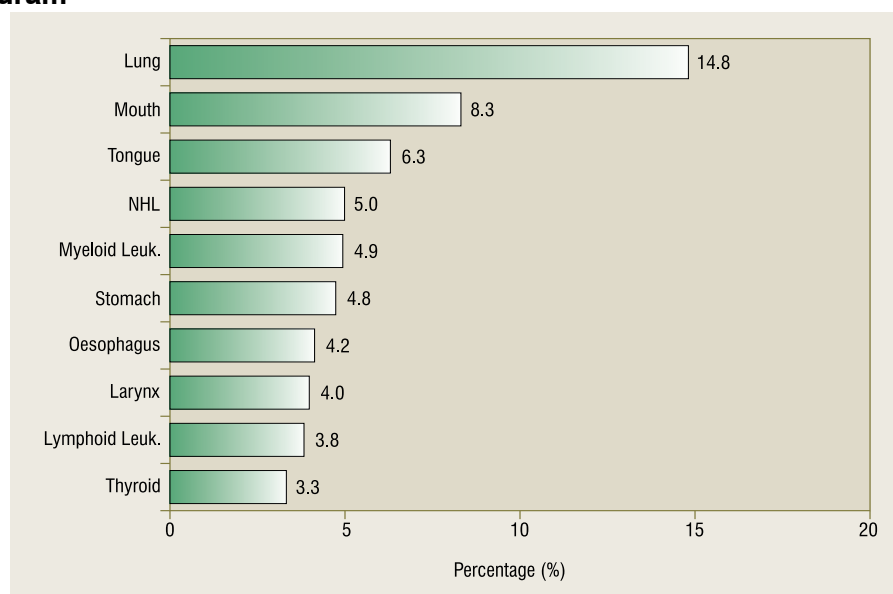
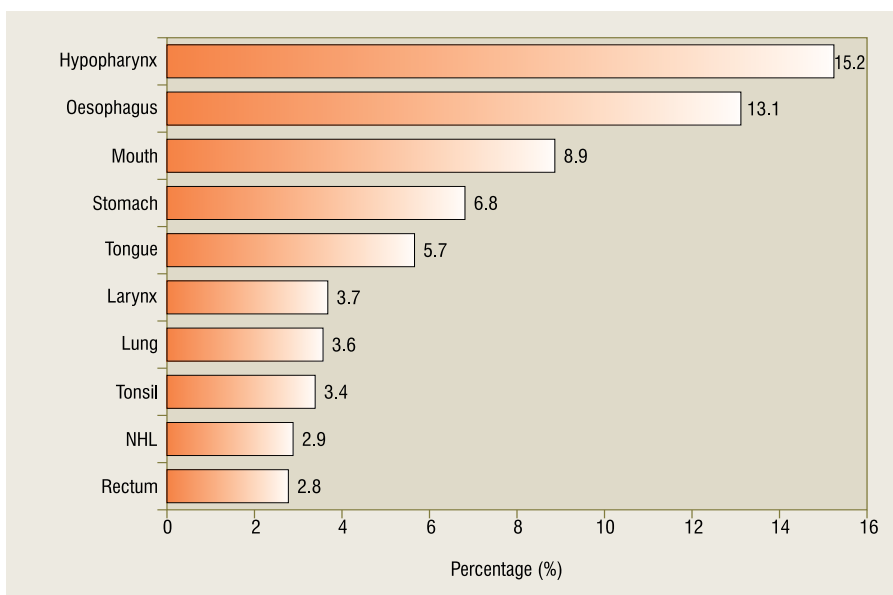
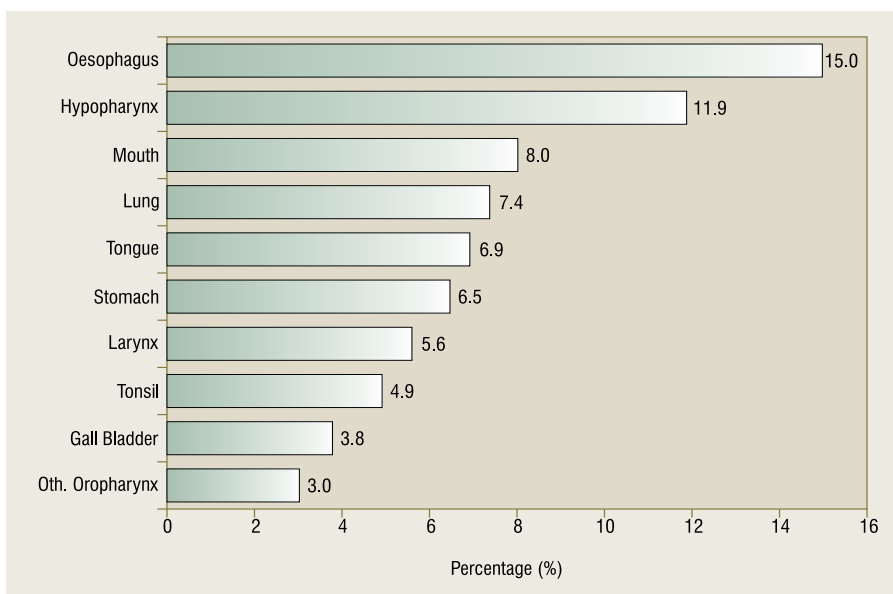


Fig. 1.1(a): Ten Leading Sites of Cancer - Males (contd...)

Dibrugarh



Guwahati



Chandigarh

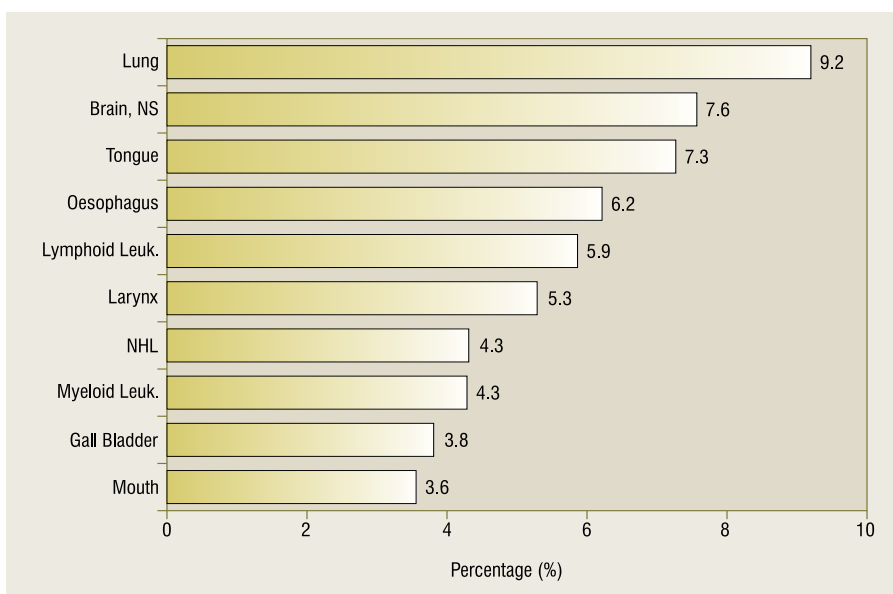


Table 1.2: Number (#), Relative Proportion (%) and Rank (R) of Leading Sites of Cancer (2007-2011)**Males**

Sites	Mumbai			Bangalore			Chennai			Thi'puram			Dibrugarh			Guwahati			Chandigarh		
	#	%	R	#	%	R	#	%	R	#	%	R	#	%	R	#	%	R	#	%	R
Mouth	2776	12.3	1	731	6.5	5	1351	8.6	3	1593	8.3	2	257	8.9	3	545	8.0	3	94	3.6	10
Lung	1808	8.0	2	790	7.0	3	1404	8.9	2	2847	14.8	1	103	3.6	7	503	7.4	4	243	9.2	1
Tongue	1603	7.1	3	754	6.7	4	1061	6.7	4	1214	6.3	3	164	5.7	5	472	6.9	5	192	7.3	3
NHL	1381	6.1	4	520	4.6	7	655	4.2	8	954	5.0	4	83	2.9	9	127	1.9	+	114	4.3	7
Oesophagus	1045	4.6	5	887	7.9	2	892	5.7	5	798	4.2	7	380	13.1	2	1020	15.0	1	164	6.2	4
Myeloid Leukaemia	880	3.9	6	442	3.9	9	715	4.5	7	948	4.9	5	47	1.6	+	36	0.5	+	113	4.3	8
Hypopharynx	869	3.8	7	946	8.4	1	765	4.9	6	490	2.5	+	441	15.2	1	807	11.9	2	52	2.0	+
Larynx	841	3.7	8	447	4.0	8	599	3.8	9	766	4.0	8	106	3.7	6	382	5.6	7	140	5.3	6
Stomach	783	3.5	9	620	5.5	6	1446	9.2	1	914	4.8	6	197	6.8	4	439	6.5	6	61	2.3	+
Lymphoid Leukaemia	662	2.9	10	390	3.5	+	450	2.9	+	739	3.8	9	27	0.9	+	26	0.4	+	155	5.9	5
Brain, NS	540	2.4	+	398	3.5	10	142	0.9	+	573	3.0	+	44	1.5	+	106	1.6	+	200	7.6	2
Liver	318	1.4	+	281	2.5	+	479	3.0	10	452	2.4	+	28	1.0	+	85	1.2	+	69	2.6	+
Thyroid	329	1.5	+	172	1.5	+	180	1.1	+	635	3.3	10	17	0.6	+	36	0.5	+	2	0.1	+
Tonsil	251	1.1	+	228	2.0	+	210	1.3	+	130	0.7	+	98	3.4	8	334	4.9	8	58	2.2	+
Rectum	605	2.7	+	265	2.4	+	462	2.9	+	595	3.1	+	80	2.8	10	141	2.1	+	41	1.6	+
Gall Bladder	530	2.3	+	63	0.6	+	155	1.0	+	95	0.5	+	62	2.1	+	258	3.8	9	101	3.8	9
Oth. Oropharynx	271	1.2	+	213	1.9	+	273	1.7	+	451	2.3	+	54	1.9	+	205	3.0	10	30	1.1	+
Total	15492	68.6		8147	72.4		11239	71.3		14194	73.9		2188	76.0		5522	81.0		1829	69.3	
All Sites	22580	100.0		11273	100.0		15731	100.0		19219	100.0		2895	100.0		6803	100.0		2643	100.0	

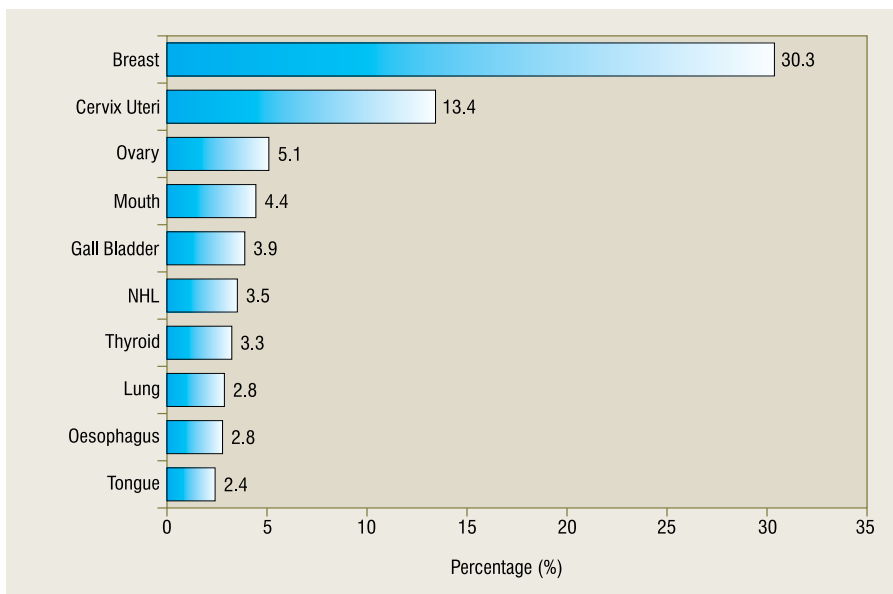
Females

Sites	Mumbai			Bangalore			Chennai			Thi'puram			Dibrugarh			Guwahati			Chandigarh		
	#	%	R	#	%	R	#	%	R	#	%	R	#	%	R	#	%	R	#	%	R
Breast	5620	30.3	1	2052	15.6	2	3921	22.4	2	5354	28.5	1	336	14.8	1	674	14.4	2	341	16.3	2
Cervix Uteri	2480	13.4	2	3585	27.3	1	4462	25.5	1	1743	9.3	3	266	11.7	2	764	16.3	1	385	18.4	1
Ovary	936	5.1	3	778	5.9	4	921	5.3	3	950	5.1	4	200	8.8	4	228	4.9	6	166	7.9	3
Mouth	815	4.4	4	1354	10.3	3	914	5.2	4	889	4.7	5	116	5.1	7	251	5.4	5	18	0.9	+
Gall Bladder	723	3.9	5	67	0.5	+	114	0.7	+	76	0.4	+	175	7.7	5	544	11.6	3	138	6.6	4
NHL	647	3.5	6	254	1.9	10	301	1.7	+	516	2.7	10	33	1.4	+	60	1.3	+	45	2.2	10
Thyroid	607	3.3	7	449	3.4	6	467	2.7	8	2095	11.1	2	23	1.0	+	60	1.3	+	14	0.7	+
Lung	524	2.8	8	224	1.7	+	409	2.3	9	521	2.8	9	36	1.6	+	140	3.0	8	47	2.2	9
Oesophagus	510	2.8	9	666	5.1	5	559	3.2	6	293	1.6	+	237	10.4	3	487	10.4	4	106	5.1	5
Tongue	452	2.4	10	163	1.2	+	305	1.7	+	548	2.9	8	51	2.2	10	135	2.9	9	38	1.8	+
Myeloid Leukaemia	405	2.2	+	337	2.6	7	478	2.7	7	721	3.8	6	18	0.8	+	25	0.5	+	55	2.6	8
Stomach	333	1.8	+	280	2.1	8	646	3.7	5	287	1.5	+	133	5.8	6	201	4.3	7	18	0.9	+
Brain, NS	253	1.4	+	254	1.9	9	103	0.6	+	391	2.1	+	27	1.2	+	46	1.0	+	94	4.5	6
Hypopharynx	192	1.0	+	169	1.3	+	406	2.3	10	123	0.7	+	75	3.3	8	127	2.7	10	11	0.5	+
Rectum	311	1.7	+	192	1.5	+	302	1.7	+	393	2.1	+	60	2.6	9	86	1.8	+	23	1.1	+
Corpus Uteri	343	1.9	+	215	1.6	+	342	2.0	+	624	3.3	7	32	1.4	+	71	1.5	+	80	3.8	7
Total	15151	81.9	+	11039	84.1		14650	83.7		15524	82.6		1818	79.9		3899	83.3		1579	75.5	
All Sites	18528	100.0		13125	100.0		17499	100.0		18809	100.0		2276	100.0		4679	100.0		2092	100.0	

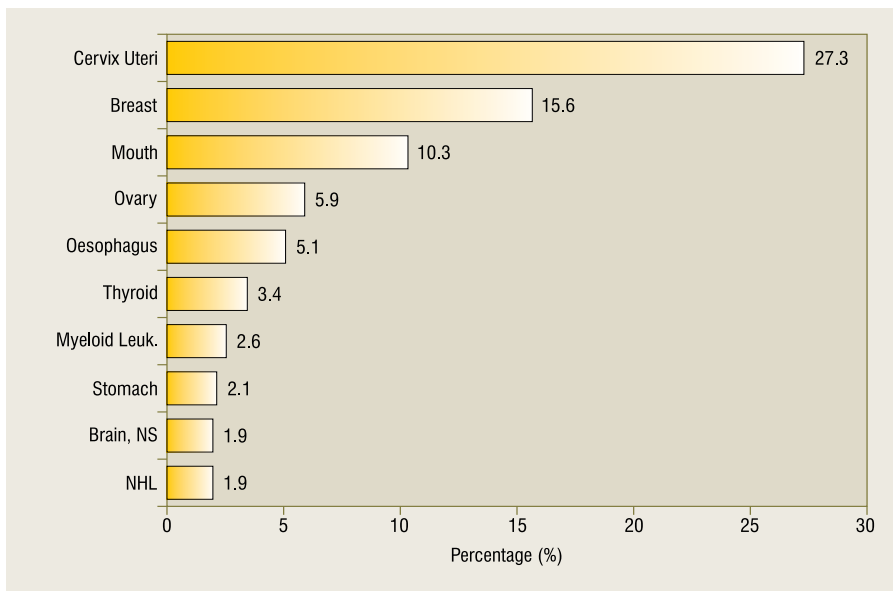
+ Rank not within first ten.

Fig. 1.1(b): Ten Leading Sites of Cancer - Females

Mumbai



Bangalore



Chennai

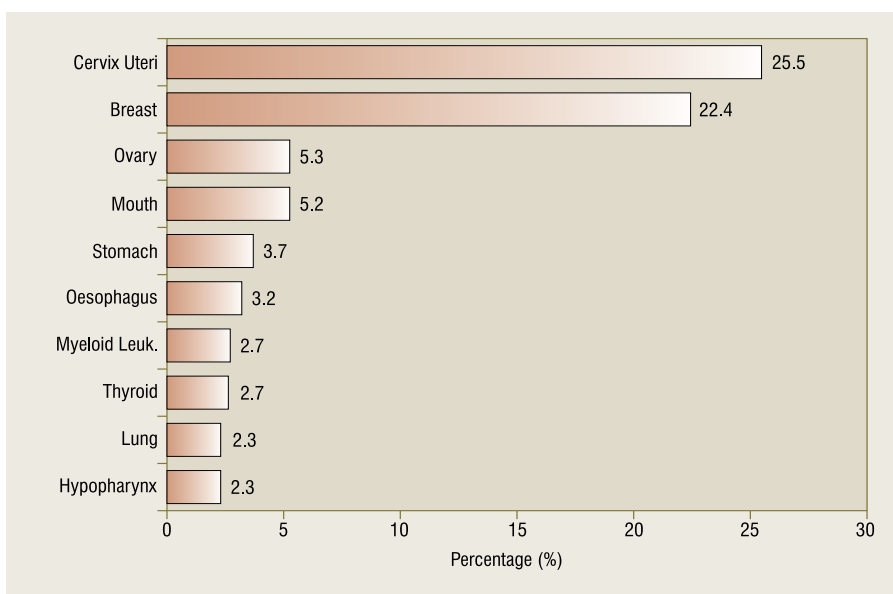
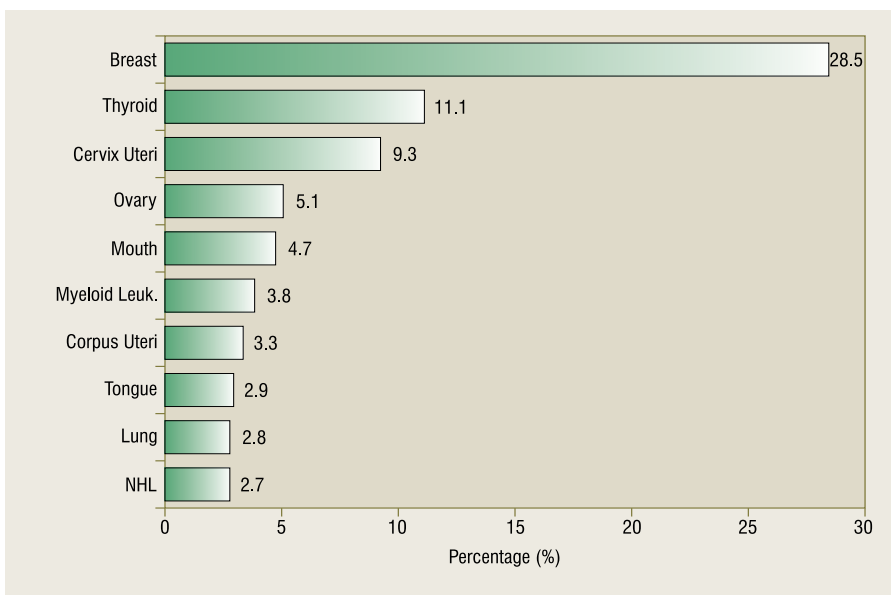
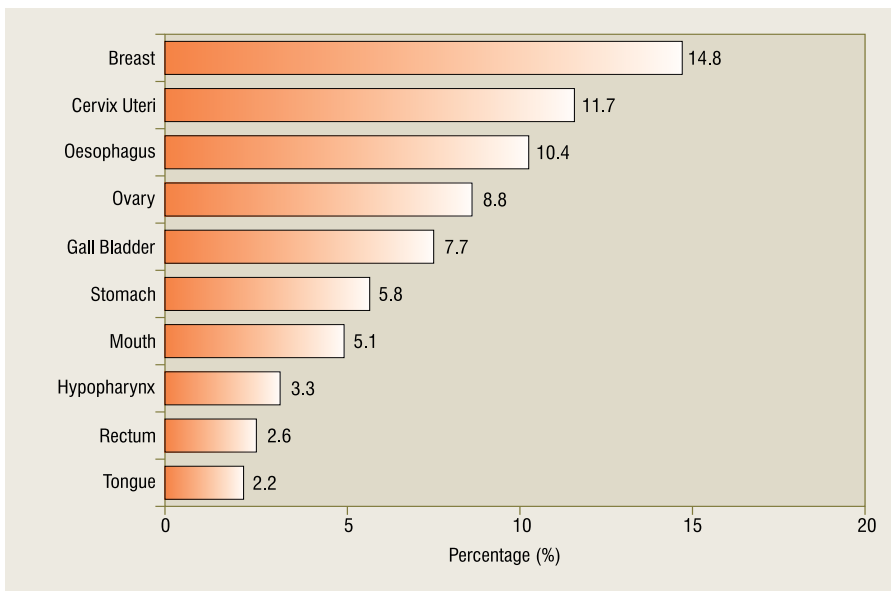


Fig. 1.1 (b): Ten Leading Sites of Cancer - Females (contd...)

Thiruvananthapuram



Dibrugarh



Guwahati

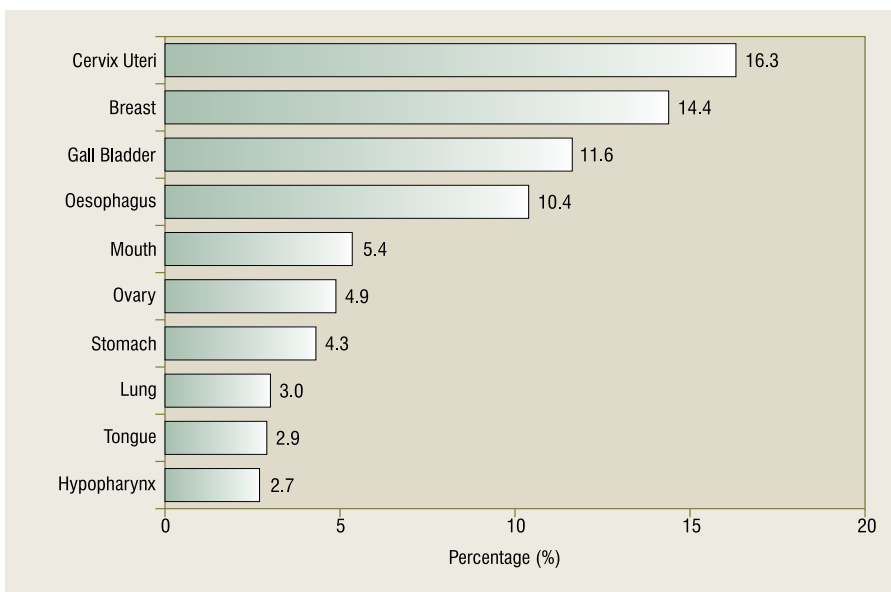
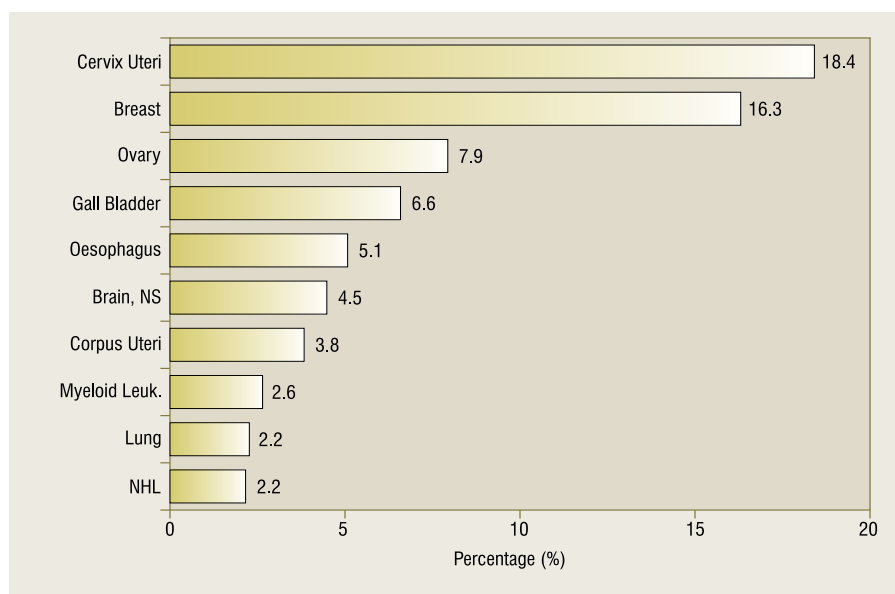


Fig. 1.1 (b): Ten Leading Sites of Cancer - Females (contd...)**Chandigarh****Females:**

In Mumbai, breast (30.3%) was the leading site of cancer followed by cervix (13.4%), ovary (5.1%), mouth (4.4%) and gall bladder (3.9%).

In Bangalore, cancer of the cervix was the leading site, accounting for about 27.3% of cancers in females, followed by breast (15.6%), mouth (10.3%), ovary (5.9%) and oesophagus (5.1%).

In Chennai, the first two leading sites were same as Bangalore and the details were as follows. Cancer cervix (25.5%) was followed by breast (22.4%), ovary (5.3%), mouth (5.2%) and stomach (3.7%).

In Thiruvananthapuram, thyroid gland (11.1%) was the second leading site after breast (28.5%). Thyroid gland was followed by the cancers of cervix (9.3%), ovary (5.1%) and mouth (4.7%).

In Dibrugarh, breast cancer was the leading site, accounting for 14.8% of cancers in females, followed by cervix (11.7%), oesophagus (10.4%), ovary (8.8%) and gall bladder (7.7%).

In Guwahati, cancer of the cervix was the leading site, accounting for about 16.3% of cancers in females, followed by breast (14.4%), gall bladder (11.6%), oesophagus (10.4%) and mouth (5.4%).

In Chandigarh, cervix (18.4%) and breast (16.3%) were the leading sites. These two sites were followed by ovary (7.9%), gall bladder (6.6%) and oesophagus (5.1%).

LEADING SITES IN BROAD AGE GROUPS

The numbers and relative proportions of cancers according to broad age groups (0-14, 15-34, 35-64 and 65 and above years of age), for both sexes across the seven registries are shown in Table 1.3 and diagrammatically represented in Fig. 1.2. Figures 1.3 to 1.5 give the bar diagrams of the leading sites with their relative proportions in each of these broad age groups, except, childhood cancers (which is given separately in Chapter 2).

Table 1.3: Number (#) and Proportion (%) of Cancers by Broad Age Groups (2007-2011)

Registry	0-14		15-34		35-64		65+		All Ages
	#	%	#	%	#	%	#	%	#
MALES									
Mumbai	1331	5.9	3001	13.3	13904	61.6	4344	19.2	22580
Bangalore	762	6.8	1178	10.4	6510	57.7	2823	25.0	11273
Chennai	475	3.0	1717	10.9	9716	61.8	3823	24.3	15731
Thi'puram	1098	5.7	1627	8.5	10982	57.1	5512	28.7	19219
Dibrugarh	67	2.3	194	6.7	1807	62.4	827	28.6	2895
Guwahati	114	1.7	378	5.6	4266	62.7	2045	30.1	6803
Chandigarh	289	10.9	286	10.8	1459	55.2	609	23.0	2643
FEMALES									
Mumbai	622	3.4	2121	11.4	13163	71.0	2622	14.2	18528
Bangalore	477	3.6	1262	9.6	9175	69.9	2211	16.8	13125
Chennai	313	1.8	1665	9.5	12692	72.5	2829	16.2	17499
Thi'puram	776	4.1	2232	11.9	12046	64.0	3755	20.0	18809
Dibrugarh	46	2.0	227	10.0	1690	74.3	313	13.8	2276
Guwahati	87	1.9	406	8.7	3414	73.0	772	16.5	4679
Chandigarh	133	6.4	214	10.2	1398	66.8	347	16.6	2092
BOTH SEXES									
Mumbai	1953	4.8	5122	12.5	27067	65.8	6966	16.9	41108
Bangalore	1239	5.1	2440	10.0	15685	64.3	5034	20.6	24398
Chennai	788	2.4	3382	10.2	22408	67.4	6652	20.0	33230
Thi'puram	1874	4.9	3859	10.1	23028	60.6	9267	24.4	38028
Dibrugarh	113	2.2	421	8.1	3497	67.6	1140	22.0	5171
Guwahati	201	1.8	784	6.8	7680	66.9	2817	24.5	11482
Chandigarh	422	8.9	500	10.6	2857	60.3	956	20.2	4735

The relative proportion of young adults (15-34 years) with cancer varied from 5.6% in males in Guwahati to 13.3% in Mumbai and in females from 8.7% in Guwahati to 11.9% in Thiruvananthapuram. The relative proportion of cancers in the age group 35-64 years varied from 55.2% in males in Chandigarh to 62.7% in Guwahati, while in females it varied from 64.0% in Thiruvananthapuram to 74.3% in Dibrugarh.

Age Group (15-34 Years)

Males:

Myeloid leukaemia was the leading site in Mumbai, Bangalore, Chennai, Thiruvananthapuram and Dibrugarh and the second leading site in Chandigarh. NHL was the second leading site in Mumbai and Guwahati and third leading site in Chennai and Dibrugarh, fourth leading site in Bangalore while it is the

fifth leading site in Thiruvananthapuram and seventh in Chandigarh. Lymphoid leukaemia was among the first three leading sites in Chennai, Thiruvananthapuram and Chandigarh whereas bone in Mumbai and Bangalore and rectum in Dibrugarh and Guwahati.

Females:

Breast was the leading site in Mumbai, Chennai, Dibrugarh, Guwahati and Chandigarh. Cancer of the cervix was the leading site in Bangalore and cancer of the thyroid in Thiruvananthapuram.

Age Group (35-64 Years)**Males:**

Mouth was the leading site in Mumbai, second leading site in Chennai, Thiruvananthapuram and third in Dibrugarh and Guwahati, fourth in Bangalore and sixth in Chandigarh. Lung was the first leading site in Thiruvananthapuram and Chandigarh, second in Mumbai and third in Chennai whereas hypopharynx was the leading site in Dibrugarh, second in Bangalore and Guwahati. Oesophagus was the leading site in Bangalore and Guwahati, second in Dibrugarh and third in Chandigarh while stomach was the leading site in Chennai, fourth in Thiruvananthapuram and Dibrugarh and fifth in Guwahati.

Females:

Breast and cervix were the leading sites in all the registries. Ovary and mouth were other important sites within seven leading sites in all registries except in Chandigarh. Thyroid gland was the third leading site only in Thiruvananthapuram and within first ten in Mumbai, Bangalore and Chennai. Gall bladder was among the first five leading sites in Mumbai, Dibrugarh, Guwahati and Chandigarh.

Age Group (65 Years and above)**Males:**

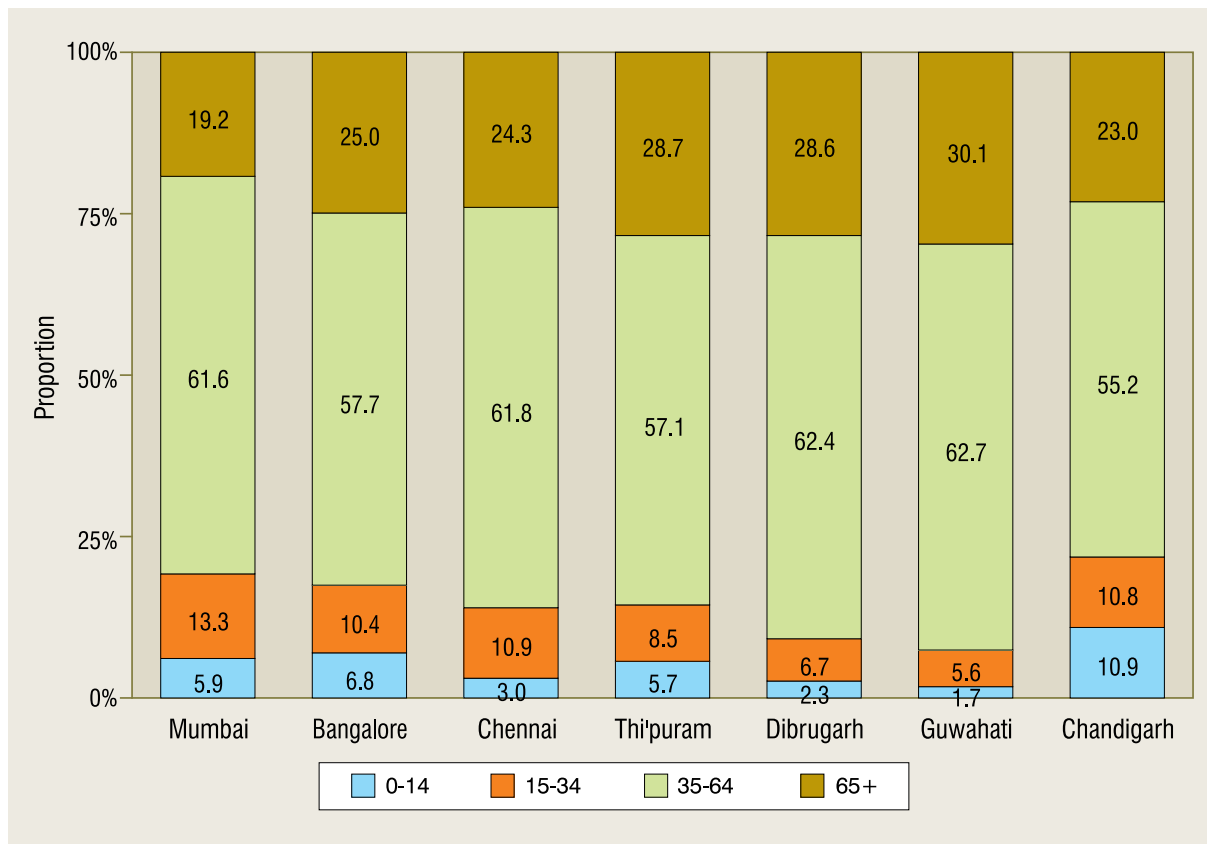
In this age group, lung was the first leading site in Mumbai, Chennai, Thiruvananthapuram, and Chandigarh, second in Bangalore, third in Guwahati and seventh in Dibrugarh. Hypopharynx was the first leading site in Bangalore and Dibrugarh, oesophagus in Guwahati. Mouth and stomach were among the leading sites in all registries except in Chandigarh.

Females:

Cervix was the leading site in this age group in Bangalore, Chennai and Chandigarh while it was the second leading site in Mumbai and Guwahati and the third position in Thiruvananthapuram and Dibrugarh. Breast was the leading site in Mumbai and Thiruvananthapuram, second in Chennai and third in Bangalore and Chandigarh. Mouth, oesophagus, lung and ovary were other important leading sites.

Fig. 1.2: Stack (100%) Diagram Showing Proportion of Cancer by Broad Age Groups - 2007-2011

Males



Females

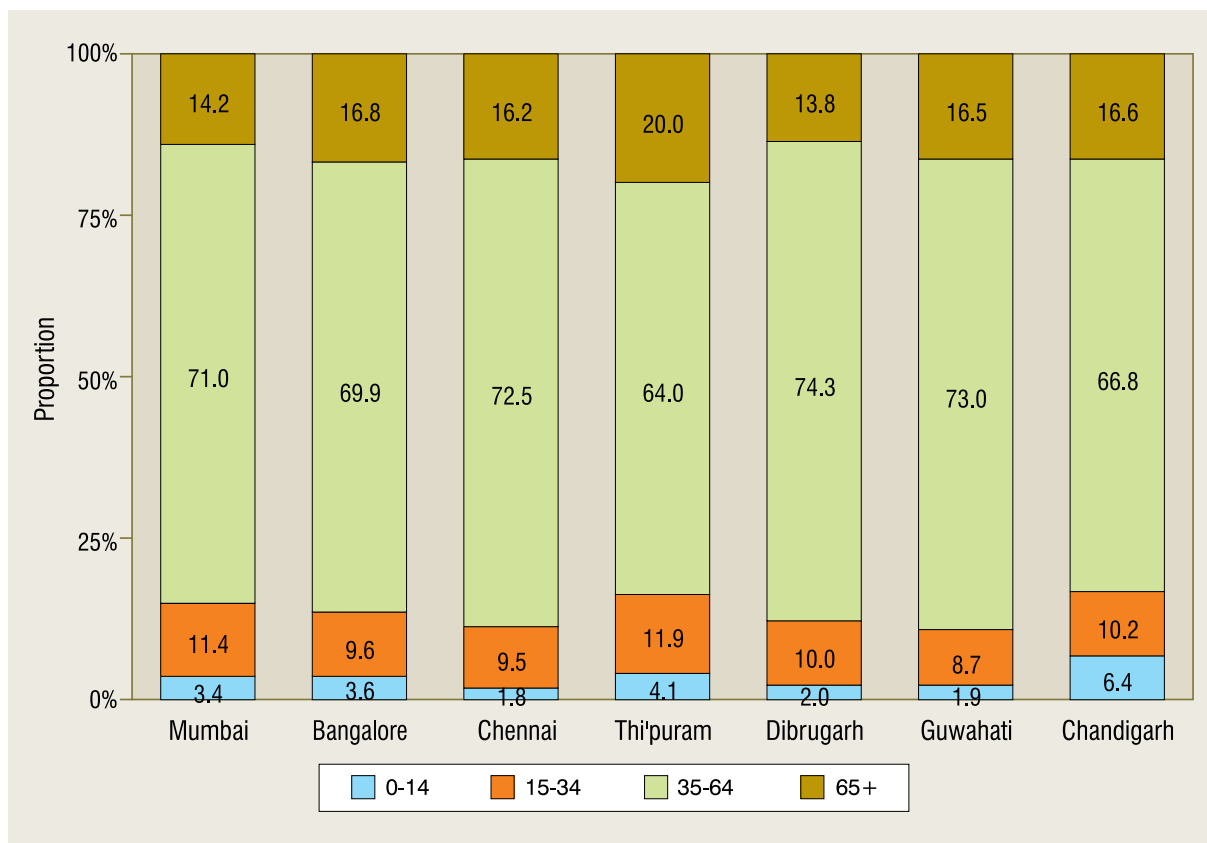
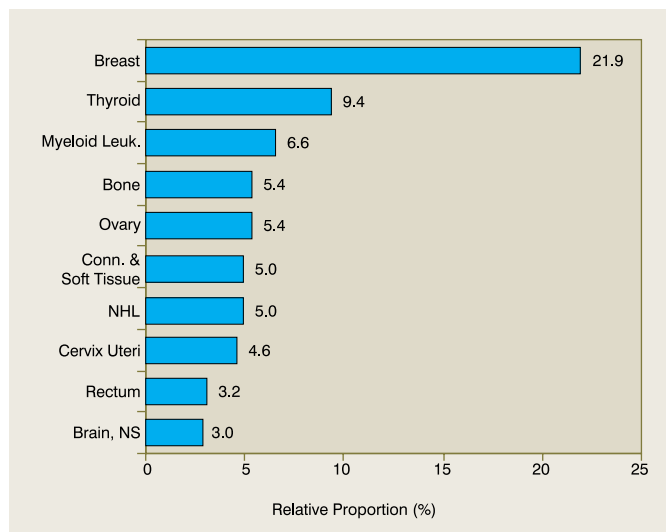
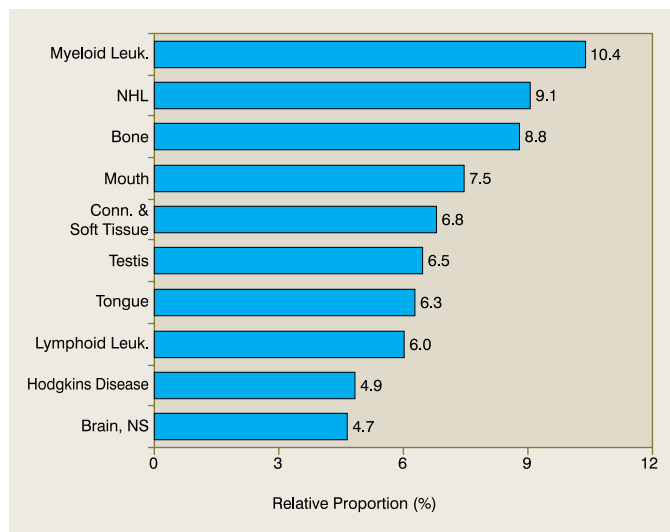


Fig. 1.3: Leading Sites in Broad Age Groups (15-34 years) - 2007-2011

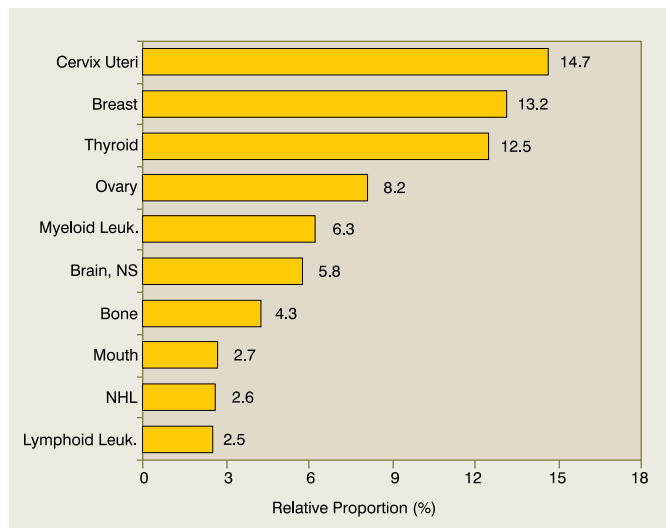
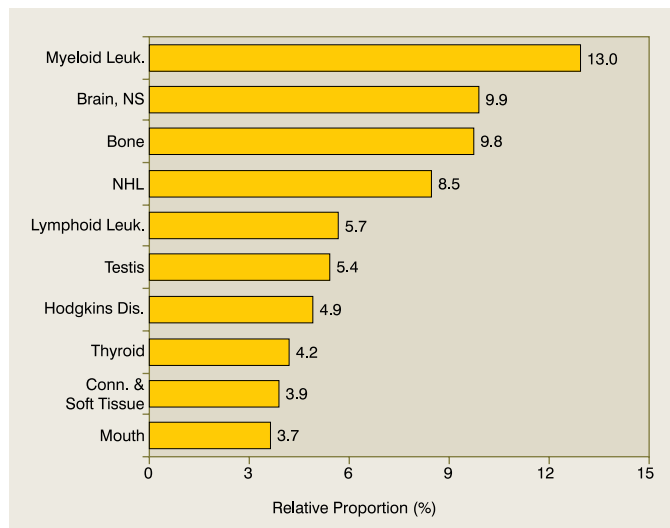
Males

Females

Mumbai



Bangalore



Chennai

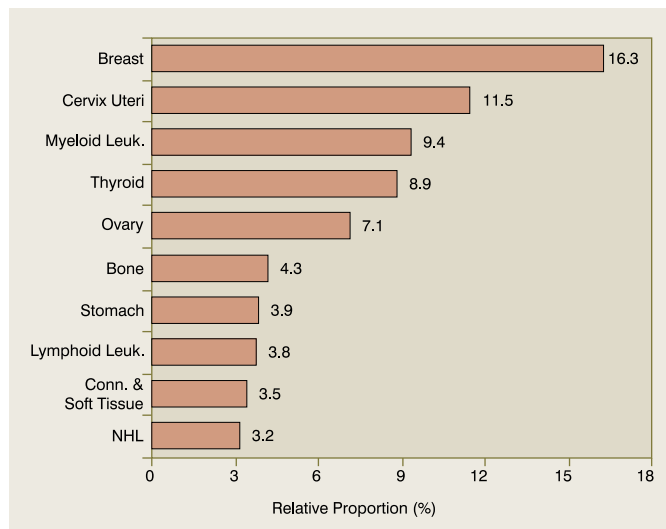
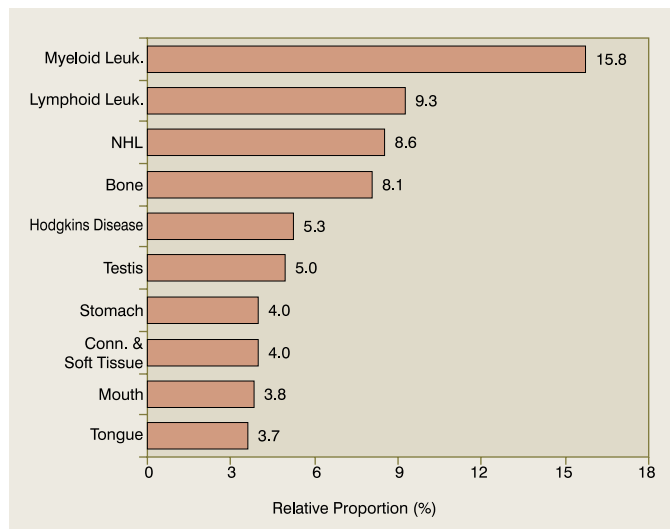


Fig. 1.3: Leading Sites in Broad Age Groups (15-34 years) - 2007-2011 (contd...)

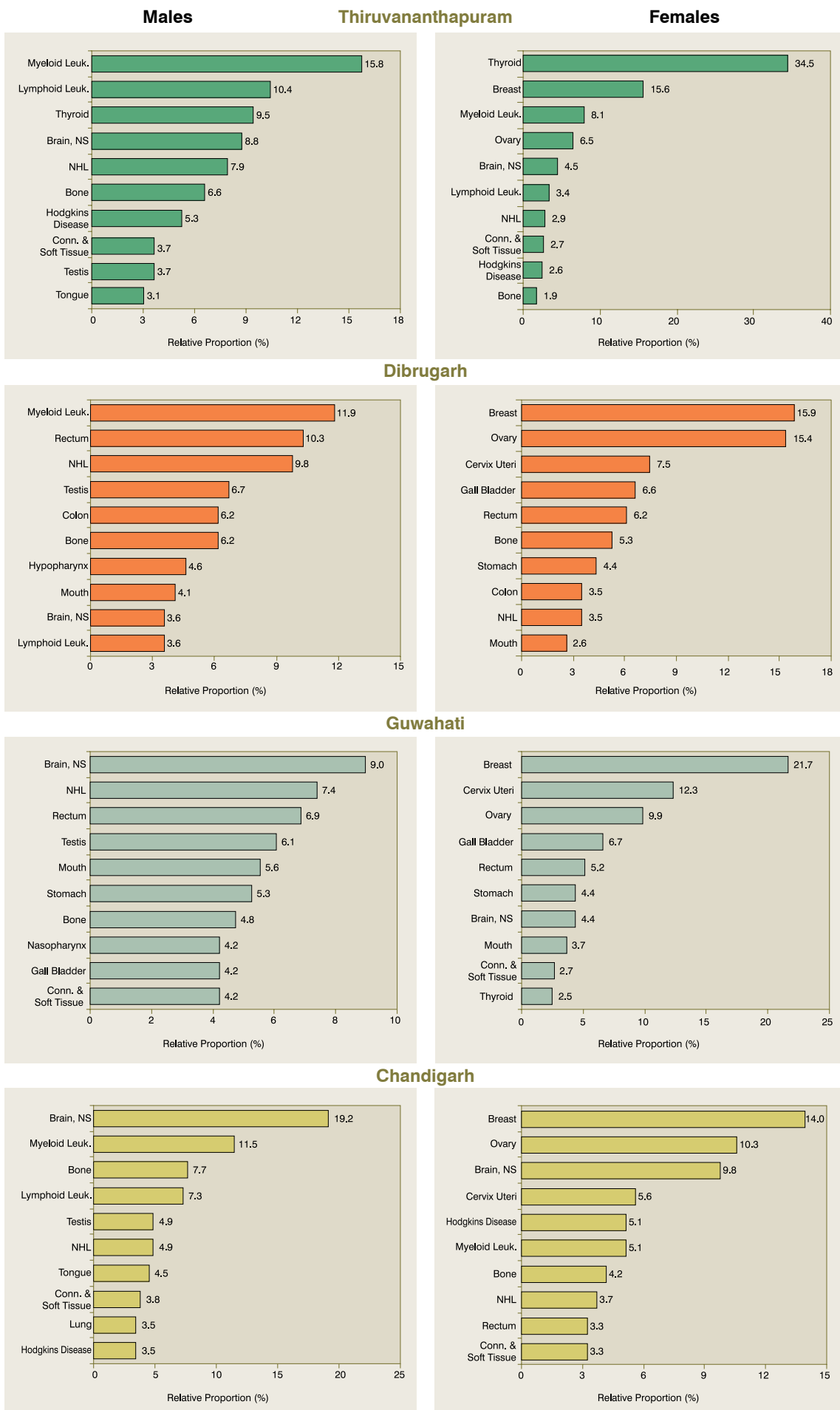
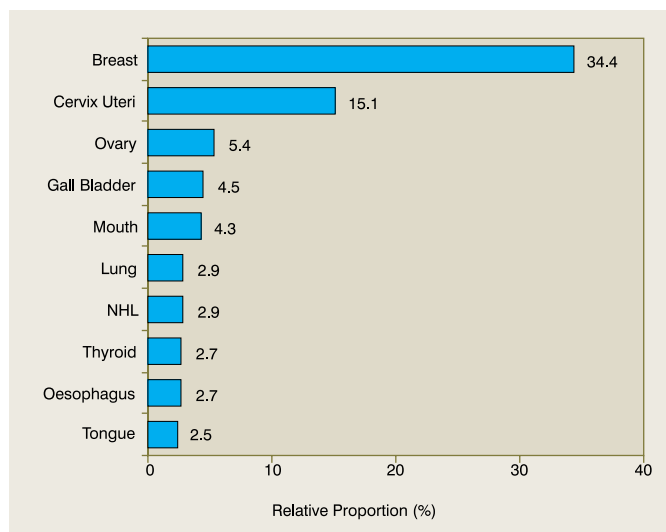
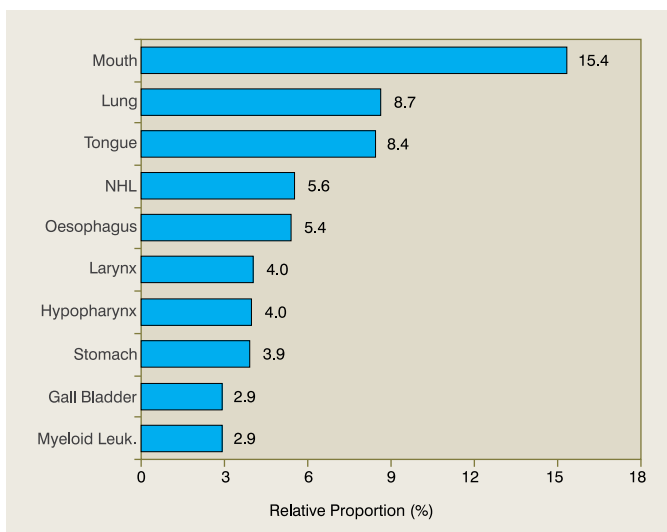


Fig. 1.4: Leading Sites in Broad Age Groups (35-64 years) - 2007-2011

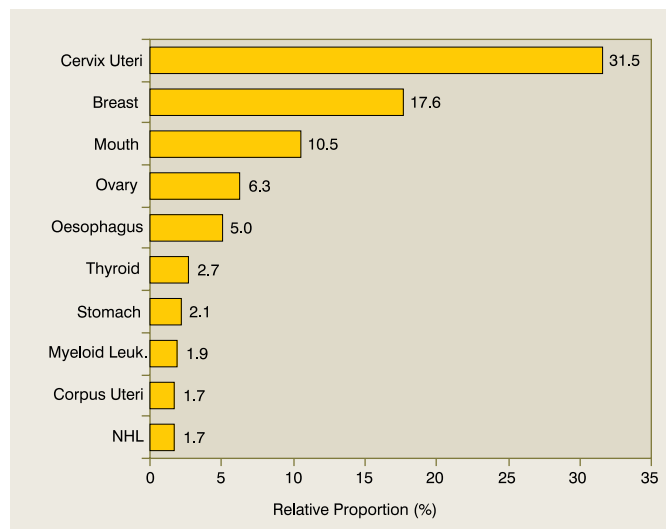
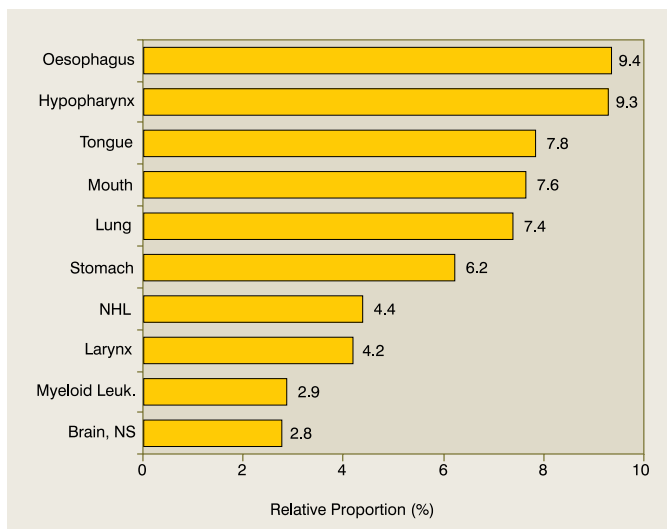
Males

Females

Mumbai



Bangalore



Chennai

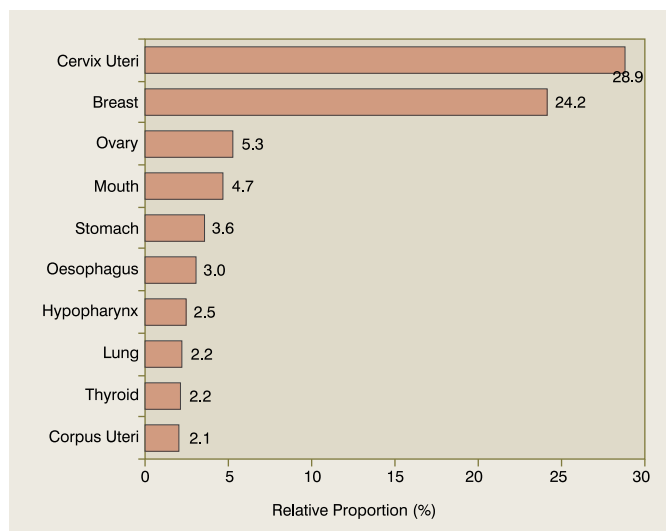
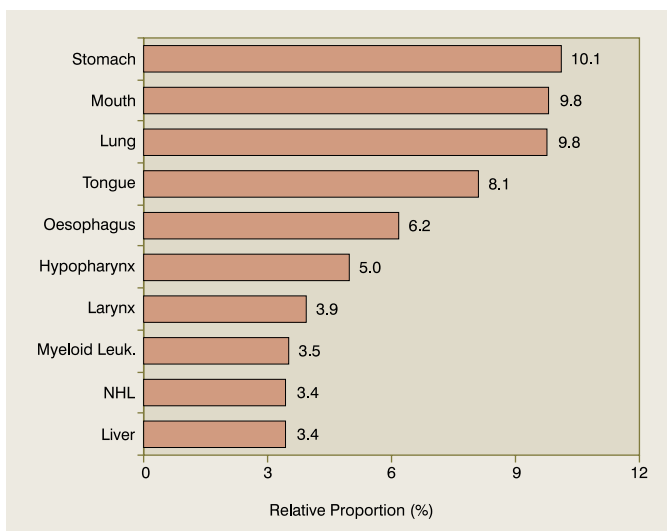


Fig. 1.4: Leading Sites in Broad Age Groups (35-64 years) - 2007-2011 (contd...)

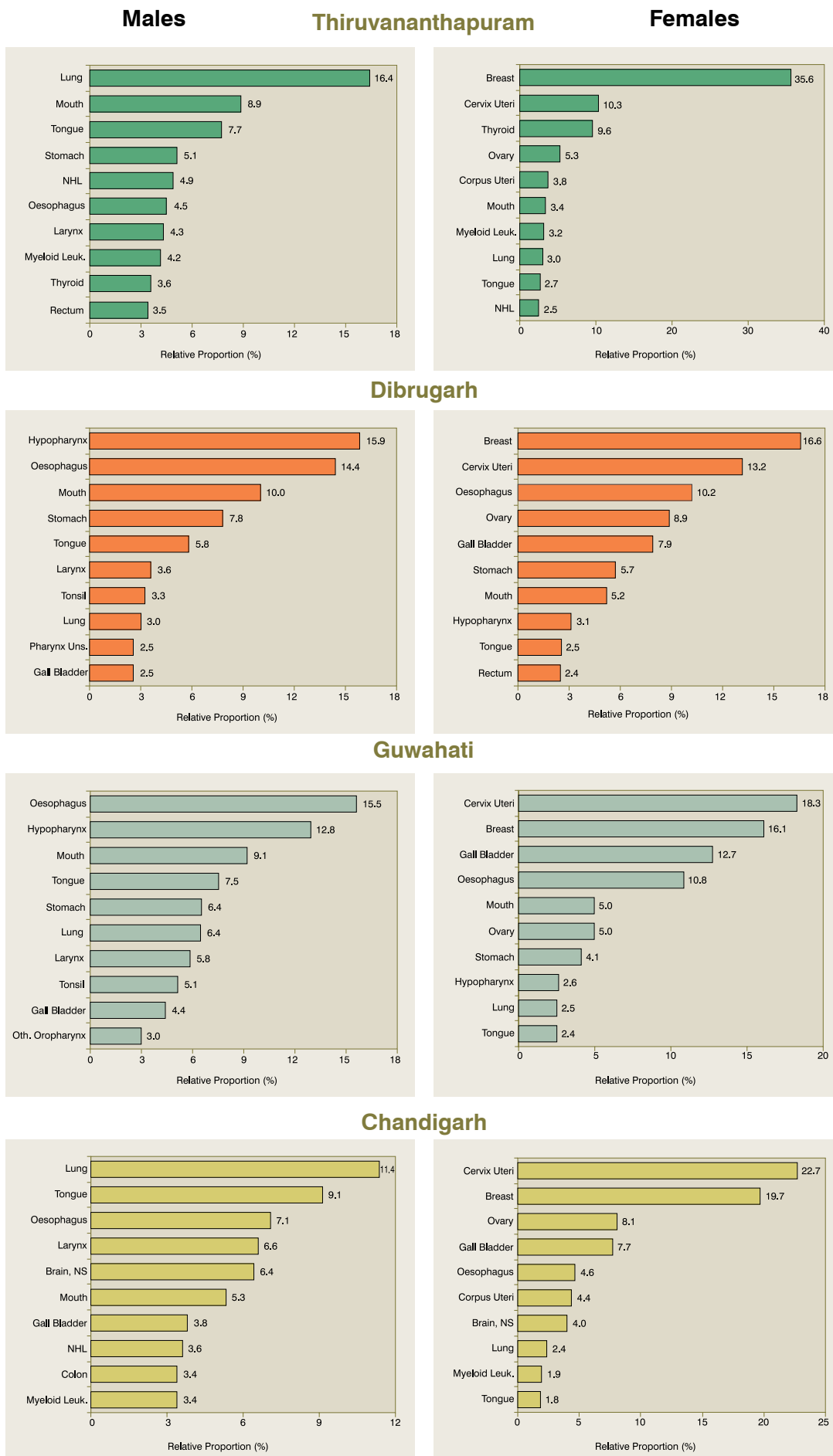
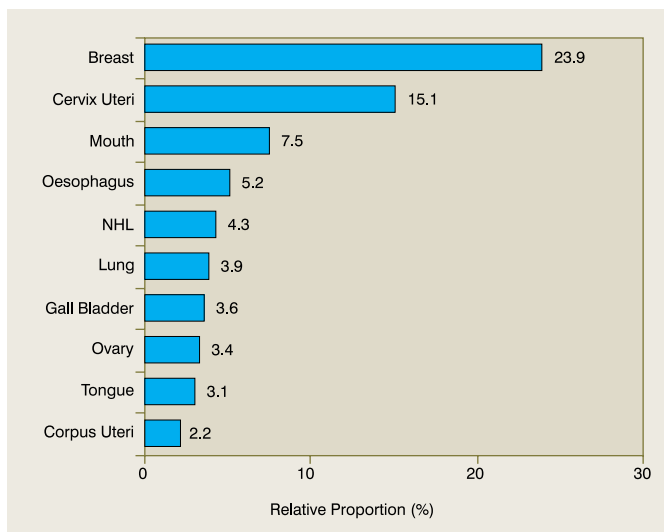
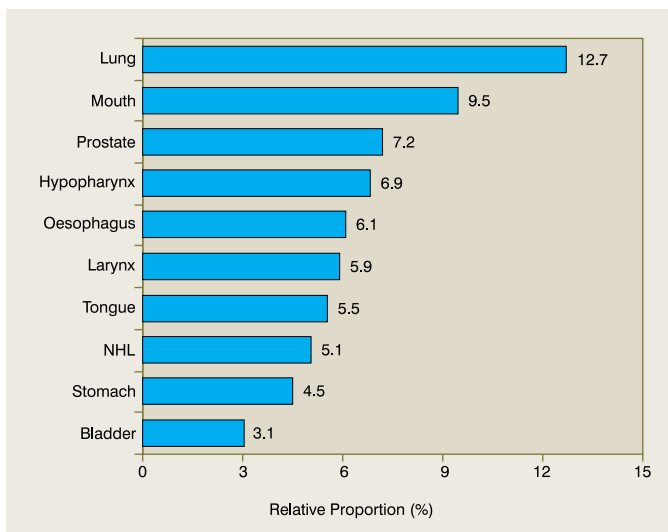


Fig. 1.5: Leading Sites in Broad Age Groups (65 years and above) - 2007-2011

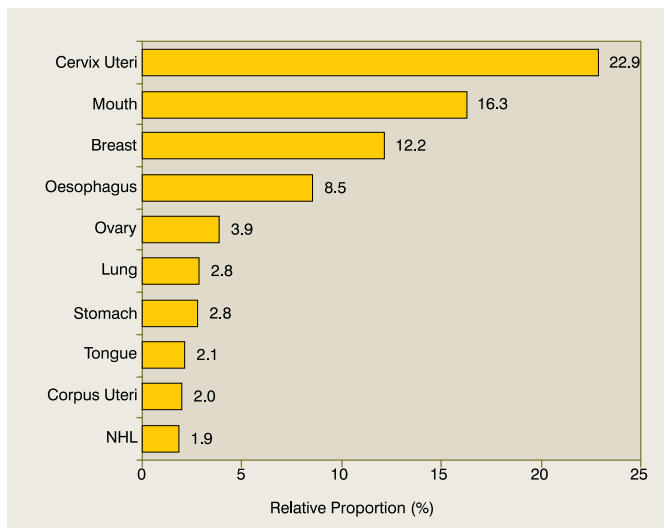
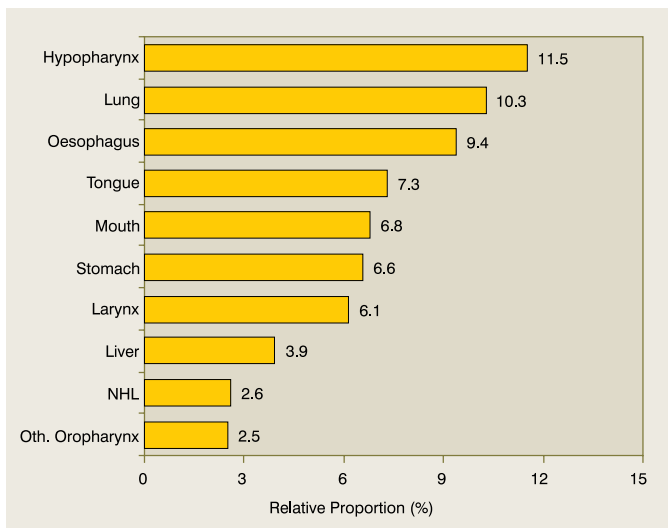
Males

Females

Mumbai



Bangalore



Chennai

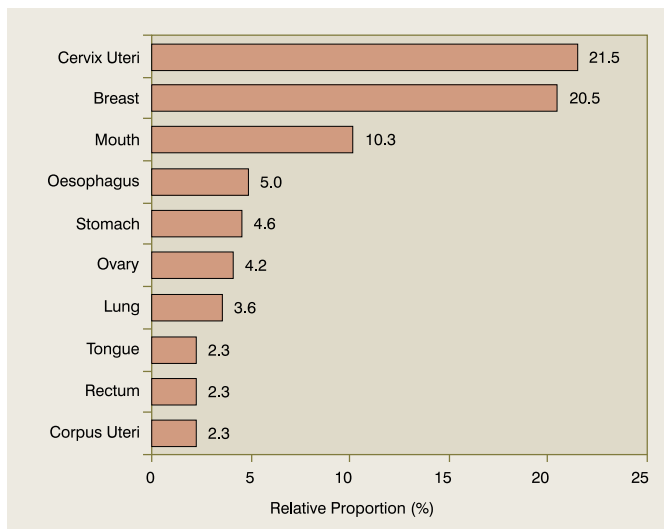
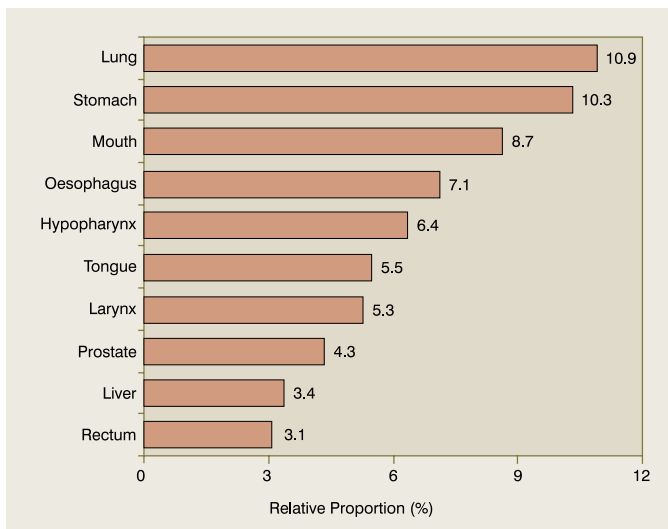


Fig. 1.5: Leading Sites in Broad Age Groups (65 years and above) - 2007-2011 (contd...)

