

## Chapter 3

### SITES OF CANCER ASSOCIATED WITH USE OF TOBACCO

The number and relative proportion of cancers associated with the use of tobacco has been worked out according to the monograph of the International Agency for Research on Cancer (IARC 1987). The anatomical sites of cancer that have been associated with the use of tobacco (TRC) as per that monograph include lip, tongue, mouth, pharynx including oropharynx and hypopharynx, oesophagus, larynx, lung and urinary bladder.

Table 3.1 illustrates the number and relative proportion of Tobacco Related Cancers (TRCs) in different PBCRs in the North East. This is diagrammatically given in Figure 3.1. In entire Mizoram state 37.3% (21.6%) of all sites were TRCs. In males (females), in Aizawl district, the proportion of TRCs was 41.6% (20.7%) as compared to 33.0% (22.6%) in areas of Mizoram state other than Aizawl district. In Assam, in Kamrup Urban District, males (59.7%) had the highest proportion of TRCs followed by Dibrugarh (56.3%) and Silchar town (54.1%). While in females, Silchar town (28.4%) had the highest proportion of TRCs followed by Kamrup Urban District (26.8%) and Dibrugarh District (26.4%). In Imphal West district, the proportion of TRCs was 40.9% in males and 21.1% in females.

#### Major contributors to total TRC cases - Males

In Dibrugarh and Kamrup Urban District, the leading sites of TRCs were oesophagus (31.8%, 32.5%) followed by hypopharynx (21.9%, 17.8%), lung (9.8%, 11.9%) and mouth (12.4%, 8.3%). In Silchar town, the major sites of TRCs were: lung (35.3%), larynx (12.9%), oesophagus (11.8%) and hypopharynx (11.8%) as 3rd leading site.

In Imphal West district of Manipur state, the three major contributors to TRCs remained the same as in Mizoram and were: lung (50.9%), oesophagus (15.8%) and larynx (9.7%).

In Mizoram state, the three major contributors to total TRC cases were: lung (33.8%), oesophagus (29.8%) and hypopharynx (13.2%). The same three sites remained the major contributors for Aizawl district as well as those areas excluding Aizawl district in Mizoram state.

In Sikkim state, oesophagus (27.2%), lung (19.7%), larynx (13.6%), hypopharynx (12.9%) were sites which emerged as the major contributors to the TRCs.

#### Major contributors to total TRC cases - Females

In Dibrugarh district the major contributors to total TRCs were oesophagus (52.7%), hypopharynx (16.3%), mouth (13.6%), lung (8.2%) and tongue (3.3%).

In Kamrup Urban District, the leading contributors to TRC sites were oesophagus (43.4%) followed by mouth (17.5%), hypopharynx (10.6%), lung (9.4%) and tongue (7.7%).

In Silchar town, the major contributors to total TRCs were: oesophagus (55.2%), tongue (13.8%), lung (13.8%), hypopharynx (10.3%), mouth (3.4%) and larynx (3.4%).

Hypopharynx is among the three leading sites in all three registries of Assam.

In Imphal West district of Manipur state, the three major contributors to TRCs were: lung (64.6%), oesophagus (14.6%), tongue (7.3%) and larynx (7.3%).

In Mizoram state, the three major contributors to TRC cancers were: lung (69.8%), oesophagus (9.3%) and mouth (6.1%). The same three sites remained the major contributors for Aizawl district and contributed for areas excluding Aizawl district in Mizoram state.

In Sikkim state, lung (33.7%), oesophagus (27.0%), larynx (12.4%) were sites, which emerged as the major contributors to TRC cancers.

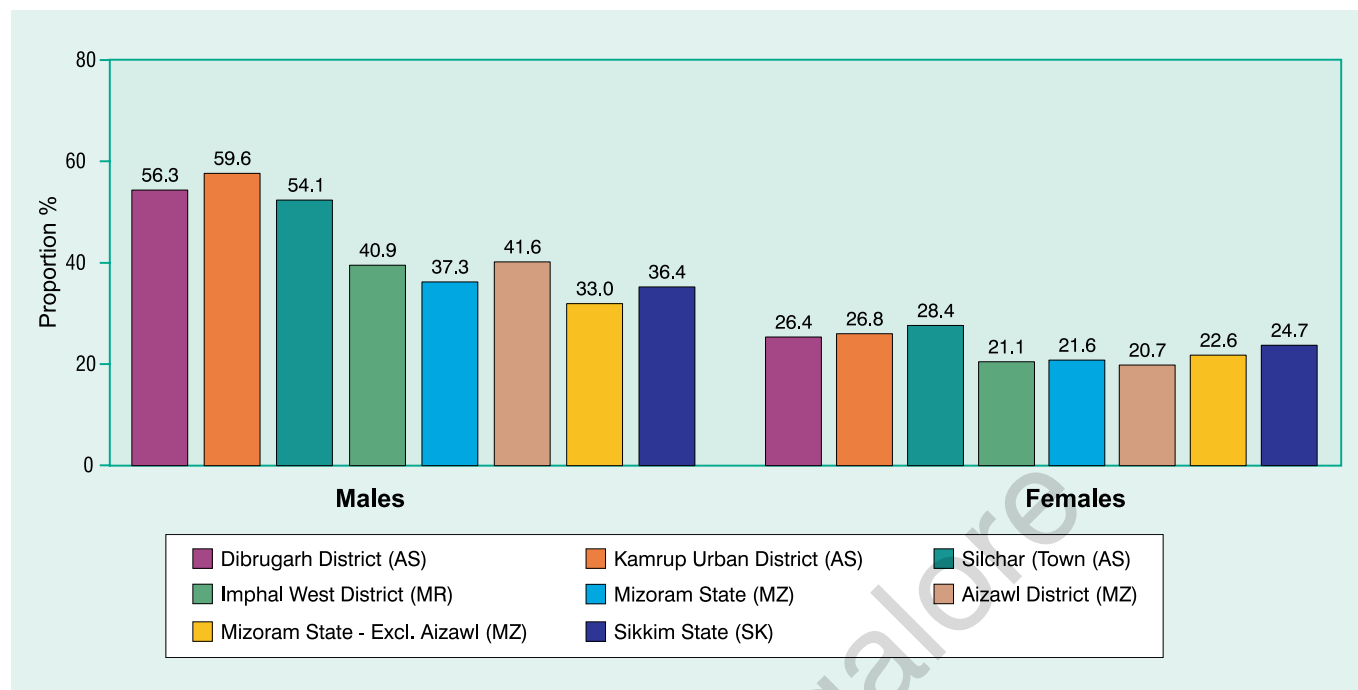
Figure 3.2 diagrammatically illustrates the proportion of specific tobacco related sites relative to all TRCs.

**Table 3.1 : Number(#) & Relative Proportion(%) of TRCs\* (2005-2006)**

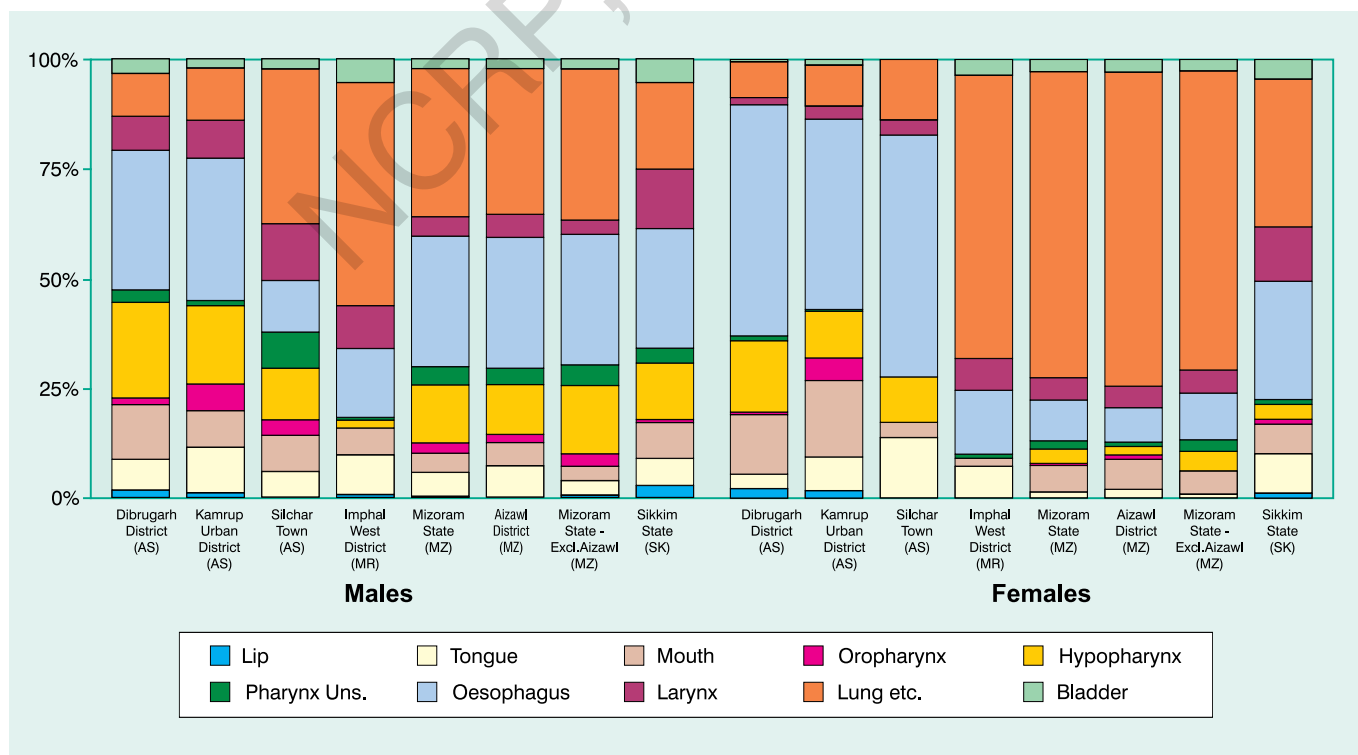
Registries	Males		Females	
	#	%	#	%
Dibrugarh District	531	56.3	184	26.4
Kamrup Urban District	841	59.7	235	26.8
Silchar Town	85	54.1	29	28.4
Imphal West District	165	40.9	110	21.1
Mizoram State	477	37.3	215	21.6
Aizawl District	265	41.6	102	20.7
Mizoram State - Excl. Aizawl	212	33.0	113	22.6
Sikkim State	147	36.4	89	24.7

\*As per the sites included in IARC 1987 monograph.

**Fig.3.1 : Proportion (%) of Tobacco Related Cancers Relative to All sites (2005-2006)**



**Fig.3.2 : Proportion (%) of Specific Tobacco Related Sites Relative to all Tobacco Related Cancers (2005-2006)**



**TABLE 3.2: Number (#) & Relative Proportion (%) of specific sites of cancer related to use of tobacco to all sites of cancer****Males**

Site of Cancer	Dibrugarh District		Kamrup Urban Dist.		Silchar Town		Imphal West District		Mizoram State		Aizawl District		Mizoram St. Excl. Aizawl.		Sikkim State	
	#	%	#	%	#	%	#	%	#	%	#	%	#	%	#	%
Lip	9	0.95	9	0.64	0	0.00	1	0.25	1	0.08	0	0.00	1	0.16	4	0.99
Tongue	37	3.92	87	6.17	5	3.18	15	3.72	26	2.03	19	2.98	7	1.09	9	2.23
Mouth	66	6.99	70	4.96	7	4.46	10	2.48	21	1.64	14	2.20	7	1.09	12	2.97
Oropharynx	8	0.85	51	3.62	3	1.91	0	0.00	11	0.86	5	0.78	6	0.93	1	0.25
Hypopharynx	116	12.29	150	10.64	10	6.37	3	0.74	63	4.93	30	4.71	33	5.14	19	4.70
Pharynx Unsp.	15	1.59	10	0.71	7	4.46	1	0.25	20	1.56	10	1.57	10	1.56	5	1.24
Oesophagus	169	17.90	273	19.36	10	6.37	26	6.45	142	11.10	79	12.40	63	9.81	40	9.90
Larynx	41	4.34	73	5.18	11	7.01	16	3.97	21	1.64	14	2.20	7	1.09	20	4.95
Lung etc.	52	5.51	100	7.09	30	19.11	84	20.84	161	12.59	88	13.81	73	11.37	29	7.18
Bladder	18	1.91	18	1.28	2	1.27	9	2.23	11	0.86	6	0.94	5	0.78	8	1.98
<b>TRC</b>	<b>531</b>	<b>56.25</b>	<b>841</b>	<b>59.65</b>	<b>85</b>	<b>54.14</b>	<b>165</b>	<b>40.94</b>	<b>477</b>	<b>37.29</b>	<b>265</b>	<b>41.60</b>	<b>212</b>	<b>33.02</b>	<b>147</b>	<b>36.39</b>
<b>All Sites</b>	<b>944</b>	<b>100.00</b>	<b>1410</b>	<b>100.00</b>	<b>157</b>	<b>100.00</b>	<b>403</b>	<b>100.00</b>	<b>1279</b>	<b>100.00</b>	<b>637</b>	<b>100.00</b>	<b>642</b>	<b>100.00</b>	<b>404</b>	<b>100.00</b>

**Females**

Site of Cancer	Dibrugarh District		Kamrup Urban Dist.		Silchar Town		Imphal West District		Mizoram State		Aizawl District		Mizoram St. Excl. Aizawl.		Sikkim State	
	#	%	#	%	#	%	#	%	#	%	#	%	#	%	#	%
Lip	4	0.57	4	0.46	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	1	0.28
Tongue	6	0.86	18	2.05	4	3.92	8	1.53	3	0.30	2	0.40	1	0.20	8	2.22
Mouth	25	3.58	41	4.67	1	0.98	2	0.38	13	1.31	7	1.42	6	1.20	6	1.66
Oropharynx	1	0.14	12	1.37	0	0.00	0	0.00	1	0.10	1	0.20	0	0.00	1	0.28
Hypopharynx	30	4.30	25	2.85	3	2.94	0	0.00	7	0.70	2	0.40	5	1.00	3	0.83
Pharynx Unsp.	2	0.29	1	0.11	0	0.00	1	0.19	4	0.40	1	0.20	3	0.60	1	0.28
Oesophagus	97	13.90	102	11.62	16	15.69	16	3.07	20	2.01	8	1.62	12	2.40	24	6.65
Larynx	3	0.43	7	0.80	1	0.98	8	1.53	11	1.11	5	1.01	6	1.20	11	3.05
Lung etc.	15	2.15	22	2.51	4	3.92	71	13.60	150	15.09	73	14.78	77	15.40	30	8.31
Bladder	1	0.14	3	0.34	0	0.00	4	0.77	6	0.60	3	0.61	3	0.60	4	1.11
<b>TRC</b>	<b>184</b>	<b>26.36</b>	<b>235</b>	<b>26.77</b>	<b>29</b>	<b>28.43</b>	<b>110</b>	<b>21.07</b>	<b>215</b>	<b>21.63</b>	<b>102</b>	<b>20.65</b>	<b>113</b>	<b>22.6</b>	<b>89</b>	<b>24.65</b>
<b>All Sites</b>	<b>698</b>	<b>100.00</b>	<b>878</b>	<b>100.00</b>	<b>102</b>	<b>100.00</b>	<b>522</b>	<b>100.00</b>	<b>994</b>	<b>100.00</b>	<b>494</b>	<b>100.00</b>	<b>500</b>	<b>100</b>	<b>361</b>	<b>100.00</b>

**TABLE 3.3 : Number(#) & Relative Proportion(%) of specific sites of cancer related to use of tobacco relative to all Tobacco Related Cancers (TRC) (2005-2006)****Males**

Site of Cancer	Dibrugarh District		Kamrup Urban Dist.		Silchar Town		Imphal West District		Mizoram State		Aizawl District		Mizoram St. Excl. Aizawl.		Sikkim State	
	#	%	#	%	#	%	#	%	#	%	#	%	#	%	#	%
Lip	9	1.69	9	1.07	0	0.00	1	0.61	1	0.21	0	0.00	1	0.47	4	2.72
Tongue	37	6.97	87	10.34	5	5.88	15	9.09	26	5.45	19	7.17	7	3.30	9	6.12
Mouth	66	12.43	70	8.32	7	8.24	10	6.06	21	4.40	14	5.28	7	3.30	12	8.16
Oropharynx	8	1.51	51	6.06	3	3.53	0	0.00	11	2.31	5	1.89	6	2.83	1	0.68
Hypopharynx	116	21.85	150	17.84	10	11.76	3	1.82	63	13.21	30	11.32	33	15.57	19	12.93
Pharynx Unsp.	15	2.82	10	1.19	7	8.24	1	0.61	20	4.19	10	3.77	10	4.72	5	3.40
Oesophagus	169	31.83	273	32.46	10	11.76	26	15.76	142	29.77	79	29.81	63	29.72	40	27.21
Larynx	41	7.72	73	8.68	11	12.94	16	9.70	21	4.40	14	5.28	7	3.30	20	13.61
Lung etc.	52	9.79	100	11.89	30	35.29	84	50.91	161	33.75	88	33.21	73	34.43	29	19.73
Bladder	18	3.39	18	2.14	2	2.35	9	5.45	11	2.31	6	2.26	5	2.36	8	5.44
<b>TRC</b>	<b>531</b>	<b>100.00</b>	<b>841</b>	<b>100.00</b>	<b>85</b>	<b>100.00</b>	<b>165</b>	<b>100.00</b>	<b>477</b>	<b>100.00</b>	<b>265</b>	<b>100.00</b>	<b>212</b>	<b>100.00</b>	<b>147</b>	<b>100.00</b>

**Females**

Site of Cancer	Dibrugarh District		Kamrup Urban Dist.		Silchar Town		Imphal West District		Mizoram State		Aizawl District		Mizoram St. Excl. Aizawl.		Sikkim State	
	#	%	#	%	#	%	#	%	#	%	#	%	#	%	#	%
Lip	4	2.17	4	1.70	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	1	1.12
Tongue	6	3.26	18	7.66	4	13.79	8	7.27	3	1.40	2	1.96	1	0.88	8	8.99
Mouth	25	13.59	41	17.45	1	3.45	2	1.82	13	6.05	7	6.86	6	5.31	6	6.74
Oropharynx	1	0.54	12	5.11	0	0.00	0	0.00	1	0.47	1	0.98	0	0.00	1	1.12
Hypopharynx	30	16.30	25	10.64	3	10.34	0	0.00	7	3.26	2	1.96	5	4.42	3	3.37
Pharynx Unsp.	2	1.09	1	0.43	0	0.00	1	0.91	4	1.86	1	0.98	3	2.65	1	1.12
Oesophagus	97	52.72	102	43.40	16	55.17	16	14.55	20	9.30	8	7.84	12	10.62	24	26.97
Larynx	3	1.63	7	2.98	1	3.45	8	7.27	11	5.12	5	4.90	6	5.31	11	12.36
Lung etc.	15	8.15	22	9.36	4	13.79	71	64.55	150	69.77	73	71.57	77	68.14	30	33.71
Bladder	1	0.54	3	1.28	0	0.00	4	3.64	6	2.79	3	2.94	3	2.65	4	4.49
<b>TRC</b>	<b>184</b>	<b>100.00</b>	<b>235</b>	<b>100.00</b>	<b>29</b>	<b>100.00</b>	<b>110</b>	<b>100.00</b>	<b>215</b>	<b>100.00</b>	<b>102</b>	<b>100.00</b>	<b>113</b>	<b>100.00</b>	<b>89</b>	<b>100.00</b>