

Sites of cancer associated with the use of Tobacco

There are cancers of several anatomical sites known to be associated with the use of tobacco. The NCRP has been using the classification provided by the International Agency for Research on Cancer (IARC), World Health Organization monographs on overall evaluations of carcinogenicity (IARC, 1987). The recent Monographs of IARC have added more anatomical sites addressing their relationship between tobacco usage and cancer. However, In this report the earlier listing has been retained for comparison purposes. The list of anatomical sites of cancer (along with corresponding ICD-10 codes) considered known to be associated with the use of tobacco is given in Table 3.1.

Regional demarcation (North, South, East, West, Central and North East) of data from the 58 HBCRs indicate the pooled data of all HBCRs present in the region irrespective of the residential status of the patient.

| Anatomical Sites of Cancer | ICD-10 Codes |
|----------------------------|-----------------|
| Lip | C00 |
| Tongue | C01-C02 |
| Mouth | C03-C06 |
| Pharynx | C10 and C12-C14 |
| Oesophagus | C15 |
| Larynx | C32 |
| Lung | C33-C34 |
| Urinary Bladder | C67 |

Table 3.1 Sites of Cancer Associated with Use of Tobacco with ICD-codes

Figure 3.1 Relative Proportion (%) of Cancer sites Associated with the Use of Tobacco Relative to All Sites of Cancer in 28 PBCRs under NCRP

| | NORTH | |
|----------------------------|----------------------------------|---------------------------|
| <mark>(46.3</mark> , 62.1) | 41.2 Delhi 12.4 | (18.5,1 <mark>4.8)</mark> |
| <mark>(36.9</mark> , 39.9) | 36.4 Patiala district 13.1 | (16.6,1 <mark>6.8)</mark> |
| | SOUTH | |
| <mark>(67.7</mark> , 52.9) | 42.5 Kollam district 12.4 | (12.4,17.2) |
| <mark>(35.6</mark> , 42.6) | 42.2 Hyderabad district 13.5 | (19.1, <u>14.8)</u> |
| <mark>(49.5</mark> , 47.6) | 40.6 Chennai 13.6 | (18.1,19 <mark>.2)</mark> |
| <mark>(62.0</mark> , 49.0) | 36.1 Thi'puram district 10.1 | (12.5, <mark>16.8)</mark> |
| <mark>(29.7</mark> , 38.7) | 33.4 Bangalore 14.2 | (20.1, <u>16.3)</u> |
| | EAST | |
| <mark>(51.3</mark> , 42.3) | 46.7 Kolkata 15.4 | (13.7,16. <mark>3)</mark> |
| | WEST | |
| <mark>(50.0</mark> , 54.3) | 56.1 Ahmedabad urban 18.6 | (14.5,13.9) |
| <mark>(31.6</mark> , 40.0) | 55.8 Aurangabad 16.3 | (12.7,10.2) |
| <mark>(16.1</mark> , 16.5) | 41.0 Osmanabad & Beed 12.7 | (6.1,6.7) |
| <mark>(26.4</mark> , 32.5) | 39.1 Pune 15.2 | (14.6,12.7) |
| <mark>(37.7</mark> , 41.8) | 38.7 Mumbai 15.6 | (18.2,1 <mark>8.4)</mark> |
| <mark>(18.5</mark> , 17.3) | 34.3 Barshi rural 14.9 | (8.6,10.0) |
| | CENTRAL | |
| <mark>(45.8</mark> , 55.3) | 54.9 Bhopal 17.7 | (19.6,1 <mark>6.0)</mark> |
| <mark>(41.1</mark> , 41.5) | 46.2 Nagpur 17.3 | (15.8,16.1) |
| <mark>(29.9</mark> , 27.0) | 42.4 Wardha district 18.6 | (12.7,14.6) |
| | NORTH EAST | |
| <mark>(92.2</mark> ,161.3) | 70.4 East Khasi Hills district 4 | 6.5 (58.1,35.8) |
| <mark>(61.9</mark> ,119.7) | 66.9Meghalaya43. | 1 (44.6,24.0) |
| <mark>(53.6</mark> , 71.3) | 54.0 Cachar district 23.4 | (26.9, <mark>20.4)</mark> |
| <mark>(34.9</mark> , 43.2) | 52.1 Tripura state 21.1 | (13.0,11. <mark>0)</mark> |
| <mark>(37.6</mark> , 48.9) | 51.8 Dibrugarh district 21.8 | (18.2,14.4) |
| <mark>(98.2</mark> ,110.2) | 51.6 Kamrup urban 23.5 | (43.2, <mark>35.4)</mark> |
| <mark>(97.3</mark> ,127.1) | 47.2 Aizawl district 24.4 | (56.9, <mark>42.6)</mark> |
| <mark>(63.2</mark> , 89.3) | 43.3 Mizoram state 22.1 | (42.3, <mark>28.1)</mark> |
| <mark>(29.3</mark> , 51.1) | 39.3 Nagaland 11.5 | (12.5,6. <mark>5)</mark> |
| <mark>(31.7</mark> , 36.8) | 37.3 Imphal West district 19.1 | (22.2,20.6) |
| <mark>(17.3</mark> , 24.7) | 36.8 Manipur state 19.5 | (15.8, <mark>11.3)</mark> |
| <mark>(22.9</mark> , 29.5) | 32.8 Sikkim state 18.2 | (19.2, <mark>13.7)</mark> |
| <mark>(28.9</mark> , 67.7) | 30.5 Papumpare district 14.4 | (43.6, 15.1) |
| <mark>(26.3</mark> , 36.1) | 29.0 Pasighat 10.9 | (14.5, <mark>9.6)</mark> |
| <mark>(13.9</mark> , 26.6) | 24.5 West Arunachal 11.1 | (13.7,6. <mark>3)</mark> |
| | ■ Males(%) ■ Females(%) | |

CR and **AAR** given in parentheses

East Khasi Hills district of Meghalaya had the highest relative proportion of cancers associated with the use of tobacco with 70.4% and 46.5% of males and females, respectively. Among males, the lowest proportion of sites of cancers associated with use of tobacco was in West Arunachal (24.5%) whereas in females the lowest proportion was observed in Thiruvananthapuram district (10.1%). Higher proportion of females had cancers associated with use of tobacco in the north eastern states, followed by registries in the central and western regions in India.

Table 3.2 Number (n) and Relative Proportion (%) of Specific Sites of CancersAssociated with the Use of Tobacco by Region (Patients treated only at58 Reporting HBCRs under NCRP)

| NORTH | | | | | |
|----------------------------|-------|-------|------|---------|--|
| Anatomical Sites of Cancer | M | Males | | Females | |
| | n | % | n | % | |
| Lip (C00) | 207 | 1.1 | 60 | 1.1 | |
| Tongue (C01-C02) | 2735 | 14.3 | 588 | 10.7 | |
| Mouth (C03-C06) | 3072 | 16.0 | 614 | 11.2 | |
| Oth. Oropharynx (C10) | 706 | 3.7 | 114 | 2.1 | |
| Hypopharynx (C12-C13) | 857 | 4.5 | 160 | 2.9 | |
| Pharynx Unspecified (C14) | 67 | 0.3 | 17 | 0.3 | |
| Oesophagus (C15) | 2551 | 13.3 | 1766 | 32.3 | |
| Larynx (C32) | 2224 | 11.6 | 240 | 4.4 | |
| Lung (C33-C34) | 5945 | 31.0 | 1769 | 32.3 | |
| Urinary Bladder (C67) | 817 | 4.3 | 145 | 2.6 | |
| Total | 19181 | 100.0 | 5473 | 100.0 | |
| EAST | | | | | |

| Anatomical Sites of Cancer | Males | | Females | |
|------------------------------|-------|-------|---------|-------|
| And officer siles of Calleer | n | % | n | % |
| Lip (C00) | 25 | 1.1 | 17 | 2.3 |
| Tongue (C01-C02) | 303 | 13.3 | 97 | 13.1 |
| Mouth (C03-C06) | 584 | 25.6 | 273 | 37.0 |
| Oth. Oropharynx (C10) | 46 | 2.0 | 9 | 1.2 |
| Hypopharynx (C12-C13) | 93 | 4.1 | 22 | 3.0 |
| Pharynx Unspecified (C14) | 7 | 0.3 | 2 | 0.3 |
| Oesophagus (C15) | 165 | 7.2 | 62 | 8.4 |
| Larynx (C32) | 156 | 6.8 | 14 | 1.9 |
| Lung (C33-C34) | 772 | 33.8 | 218 | 29.5 |
| Urinary Bladder (C67) | 131 | 5.7 | 24 | 3.3 |
| Total | 2282 | 100.0 | 738 | 100.0 |

WEST

| 11201 | | | | |
|----------------------------|-------|-------|---------|-------|
| Anatomical Sites of Cancer | Males | | Females | |
| Andiomical siles of Cancer | n | % | n | % |
| Lip (C00) | 229 | 1.4 | 67 | 1.6 |
| Tongue (C01-C02) | 3076 | 19.1 | 791 | 18.5 |
| Mouth (C03-C06) | 5578 | 34.6 | 1258 | 29.5 |
| Oth. Oropharynx (C10) | 305 | 1.9 | 33 | 0.8 |
| Hypopharynx (C12-C13) | 982 | 6.1 | 251 | 5.9 |
| Pharynx Unspecified (C14) | 179 | 1.1 | 31 | 0.7 |
| Oesophagus (C15) | 1301 | 8.1 | 748 | 17.5 |
| Larynx (C32) | 1051 | 6.5 | 98 | 2.3 |
| Lung (C33-C34) | 2975 | 18.5 | 910 | 21.3 |
| Urinary Bladder (C67) | 436 | 2.7 | 83 | 1.9 |
| Total | 16112 | 100.0 | 4270 | 100.0 |

| Anatomical Sites of Cancer | Males | | Females | |
|----------------------------|-------|-------|---------|-------|
| | n | % | n | % |
| Lip (C00) | 149 | 0.6 | 131 | 1.4 |
| Tongue (C01-C02) | 3897 | 16.0 | 1417 | 15.5 |
| Mouth (C03-C06) | 4747 | 19.5 | 3106 | 33.9 |
| Oth. Oropharynx (C10) | 1088 | 4.5 | 103 | 1.1 |
| Hypopharynx (C12-C13) | 1906 | 7.8 | 667 | 7.3 |
| Pharynx Unspecified (C14) | 94 | 0.4 | 35 | 0.4 |
| Oesophagus (C15) | 2453 | 10.1 | 1538 | 16.8 |
| Larynx (C32) | 2914 | 12.0 | 248 | 2.7 |
| Lung (C33-C34) | 6352 | 26.1 | 1763 | 19.2 |
| Urinary Bladder (C67) | 717 | 2.9 | 155 | 1.7 |
| Total | 24317 | 100.0 | 9163 | 100.0 |

CENTRAL

| Anatomical Sites of Cancer | Males | | Females | |
|----------------------------|-----------|-------|---------|-------|
| Andiomical siles of Cancer | n | % | n | % |
| Lip (C00) | 90 | 1.6 | 41 | 2.5 |
| Tongue (C01-C02) | 1243 | 21.6 | 309 | 18.8 |
| Mouth (C03-C06) | 2593 | 45.0 | 735 | 44.8 |
| Oth. Oropharynx (C10) | 75 | 1.3 | 6 | 0.4 |
| Hypopharynx (C12-C13) | 231 | 4.0 | 61 | 3.7 |
| Pharynx Unspecified (C14) | 42 | 0.7 | 15 | 0.9 |
| Oesophagus (C15) | 388 | 6.7 | 197 | 12.0 |
| Larynx (C32) | 471 | 8.2 | 57 | 3.5 |
| Lung (C33-C34) | 527 | 9.2 | 193 | 11.8 |
| Urinary Bladder (C67) | 97 | 1.7 | 27 | 1.6 |
| Total | 5757 | 100.0 | 1641 | 100.0 |
| | NORTH EAS | ST | | |

Males Females Anatomical Sites of Cancer % % n n 1.2 Lip (C00) 105 1.0 43 Tongue (C01-C02) 1290 12.1 334 9.7 Mouth (C03-C06) 12.7 20.7 717 1360 Oth. Oropharynx (C10) 351 3.3 58 1.7 Hypopharynx (C12-C13) 2835 26.5 401 11.6 0.8 Pharynx Unspecified (C14) 133 1.2 26 2397 22.4 1179 34.1 Oesophagus (C15) Larynx (C32) 8.1 4.6 864 160 Lung (C33-C34) 1262 11.8 525 15.2 103 1.0 18 0.5 Urinary Bladder (C67) Total 10700 100.0 3461 100.0

Males: Lung was the most common site of cancer associated with use of tobacco in the east (33.8%), north (31.0%), and south (26.1%) regions. Cancer mouth had the highest proportion among the cancers associated with use of tobacco in central (45.0%) and western (34.6%) regions whereas cancer hypopharynx was common in the north eastern region (26.5%).

Females: Mouth was the most common site of cancer associated with use of tobacco in the central (44.8%), eastern (37.0%), southern (33.9%) and western (29.5%) regions. Cancer oesophagus and cancer lung had the highest proportion among the cancers associated with use of tobacco in north (32.3%) whereas cancer oesophagus was common in the north eastern region (34.1%).