

Chapter 1 – CANCER PROFILE OF NORTH EAST INDIA

1.1 The North East



The North Eastern region of India comprise of eight state namely, Arunachal Pradesh, Assam, Manipur, Meghalaya, Mizoram, Nagaland, Sikkim and Tripura,

1.2 Number of reported cancers (Reporting years: 2012-14)

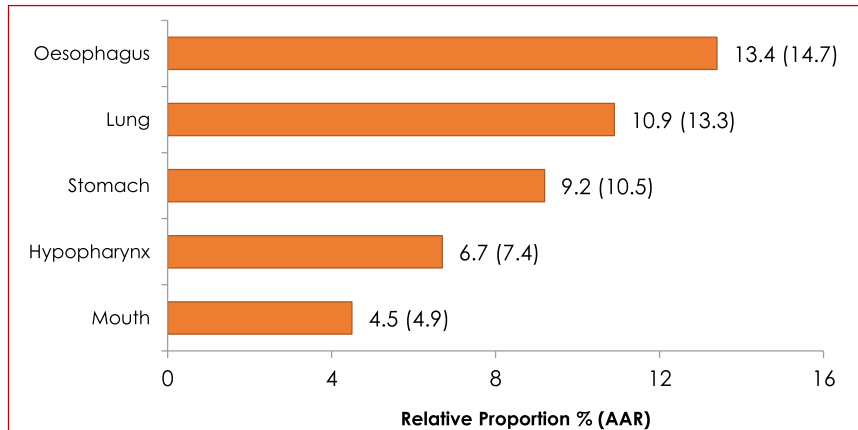
Population Based Cancer Registry	Males	Females	Total
	Number	Number	Number
Assam			
Cachar District	2666	2100	4766
Dibrugarh District	1498	1345	2843
Kamrup Urban District	3071	2392	5463
Manipur State	2081	2542	4623
Mizoram State	2567	2089	4656
Sikkim State	707	678	1385
Meghalaya	2632	1616	4248
Tripura State	3628	2702	6330
Nagaland	815	546	1361
Arunachal Pradesh			
Naharlagun	735	704	1439
Pasighat	175	159	334
Pooled North East	20575	16873	37448

A total of 37448 cancer cases are reported from 11 PBCRs of 8 states during 2012 to 2014. More number of male cases are reported compared to females except in Manipur state. The number of cases ranges from 334 in Pasighat, Arunachal Pradesh to 6330 in Tripura State.

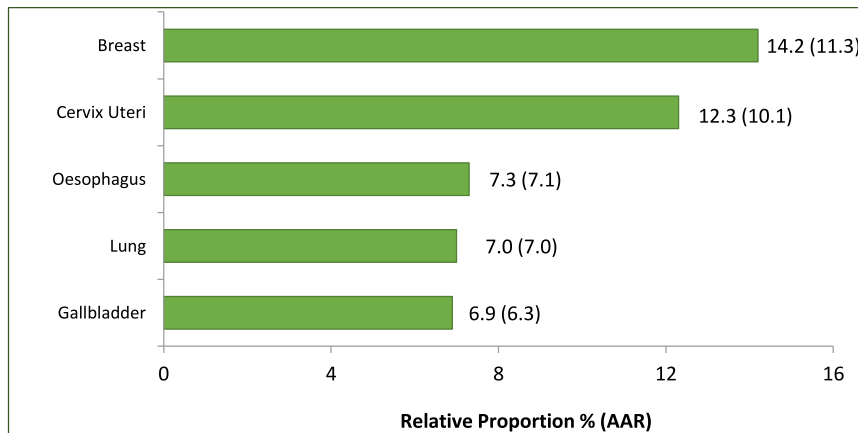
Meghalaya PBCR covers four district of East Khasi Hills, West Khasi Hills, Jaintia Hills and Ri Bhoi. Nagaland PBCR covers two districts of Kohima and Dimapur. In Arunachal Pradesh Naharlagun PBCR covers eight districts while Pasighat PBCR covers two districts.

1.3 Leading Sites of Cancer

Males



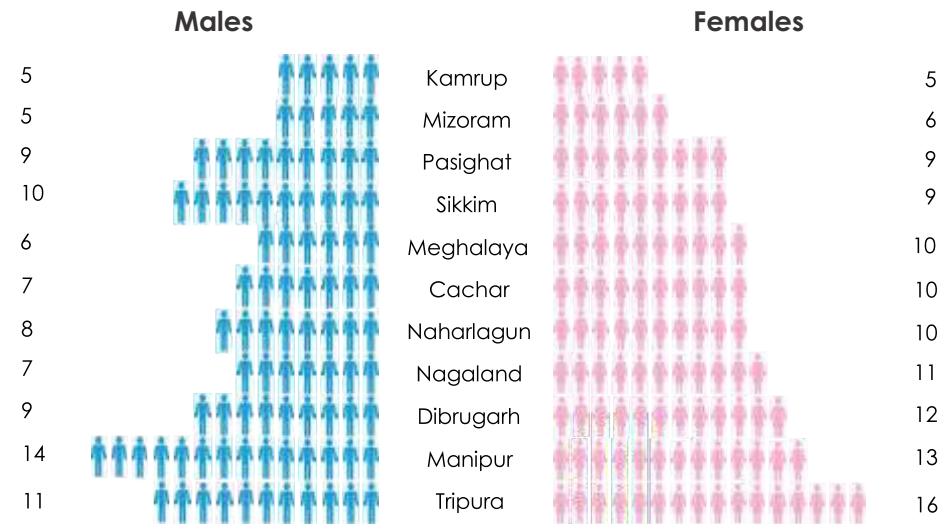
Females



AAR: Age Adjusted Rate

In males, cancer of Oesophagus is the highest followed by cancer of Lung and Stomach. These three cancers contribute one third (33.5%) of all cancers. In females, cancer of Breast is the highest followed by Cervix and Oesophagus. These three cancers contribute one third (33.8%) of all cancers.

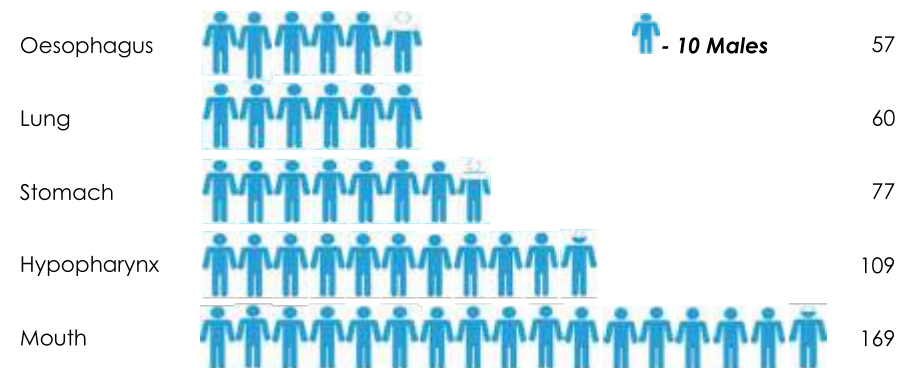
1.4 (i) Possibility of one in number of person developing Cancer in (0-74) years of age– All Sites of Cancer



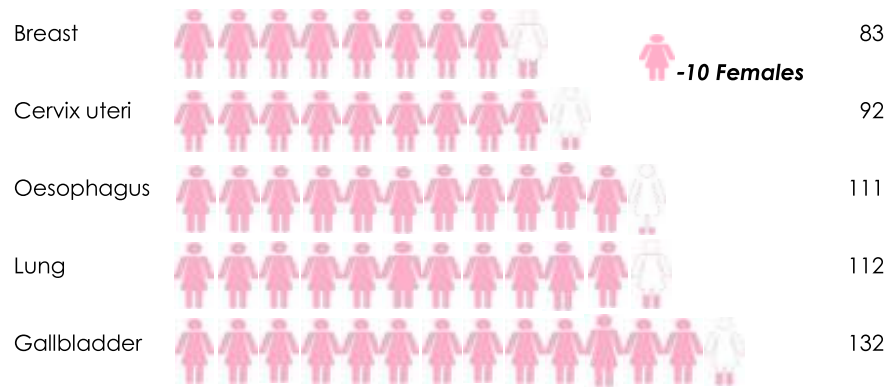
The average risk that a person will develop any cancer in their lifetime (0-74 years) is about 1 in 5 for both sex in Kamrup urban district.

1.4 (ii) Possibility of one in number of persons developing cancer in (0-74) years of age–Pooled North East PBCRs

Males



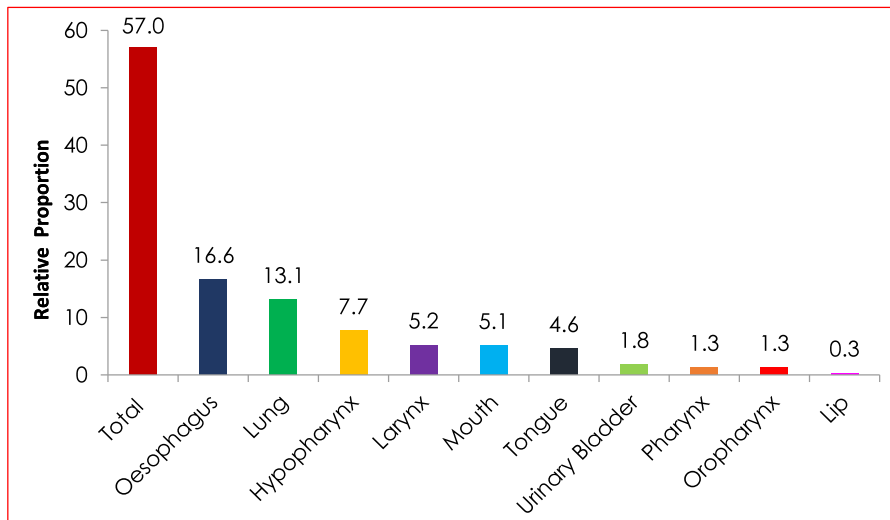
Females



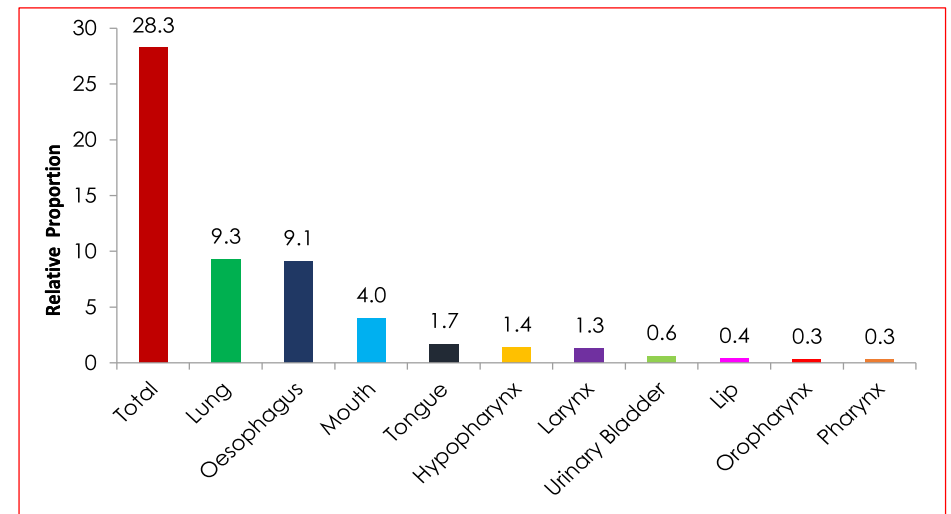
The average risk that a person will develop Oesophagus cancer in their lifetime (0-74 years) is about 1 in 57 for males. Similarly, 1 in 83 females will possibly develop Breast cancer in their lifetime (0-74 years).

1.5 Sites of Cancer known to be associated with use of tobacco

Males

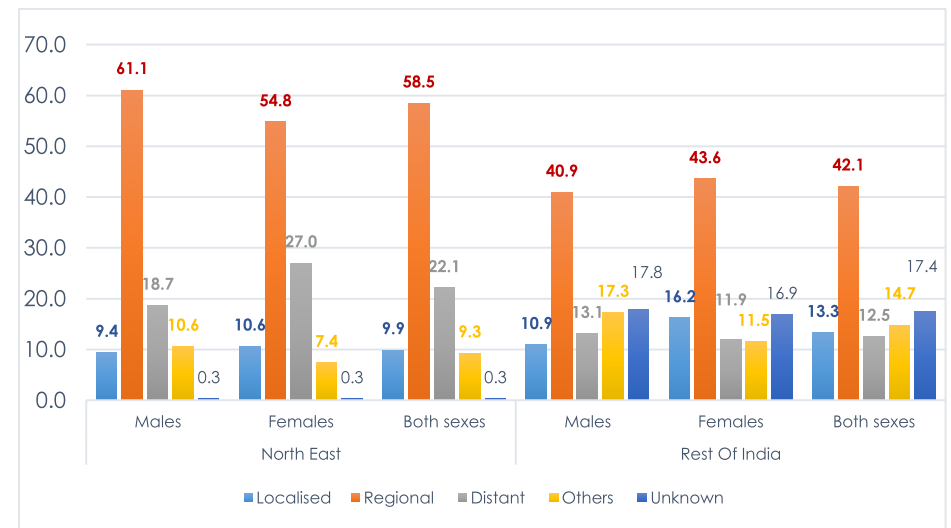


Females



57% of all cancers in males and 28% of all cancers in females are known to be associated with tobacco consumption. Among these Lung and Oesophagus comprised maximum in both the sexes.

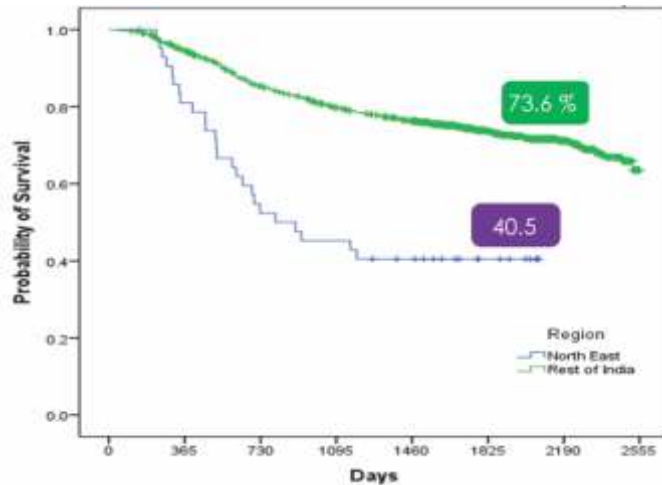
1.6 Proportion (%) of Cancer patients according to Clinical Extent of disease at diagnosis in comparison to rest of India (HBCR:2012-2014)



Proportion of cases with distant metastasis at diagnosis is much higher in North Eastern state compared to Rest of India. This is an important predictor of low survival of Cancer in North East.

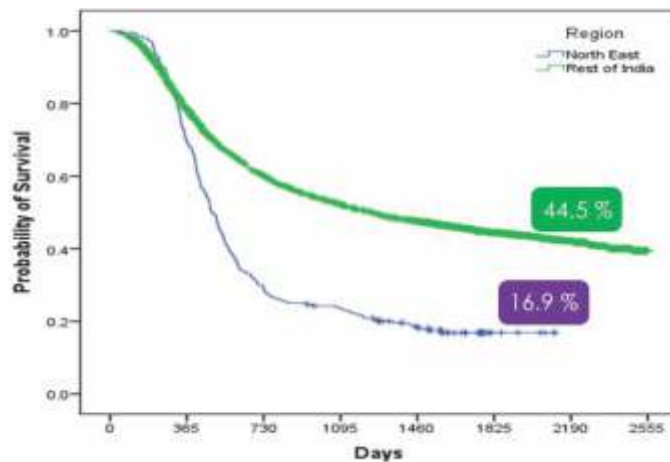
1.7 Survival Analysis (Hospital Based Cancer Registry)

Five Year Cumulative Survival of Head & Neck cancers (Early Stage) by Region



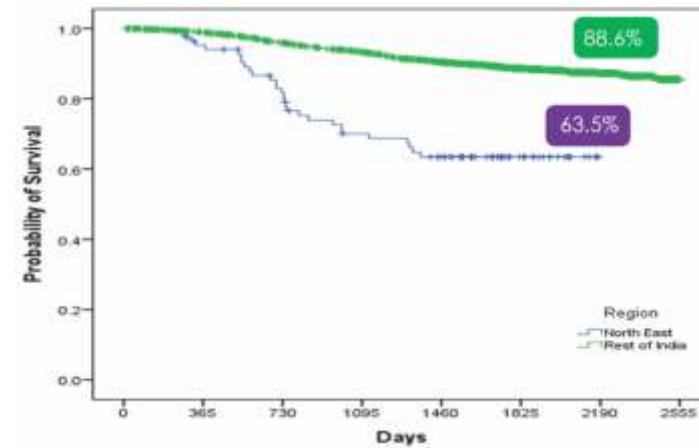
Survival of early stage Head and Neck cancer is lower in North East compared to rest of India. The 5-year Survival is 40.5 % in North East.

Five Year Cumulative Survival of Head & Neck cancers (Locally advanced stage) by Region



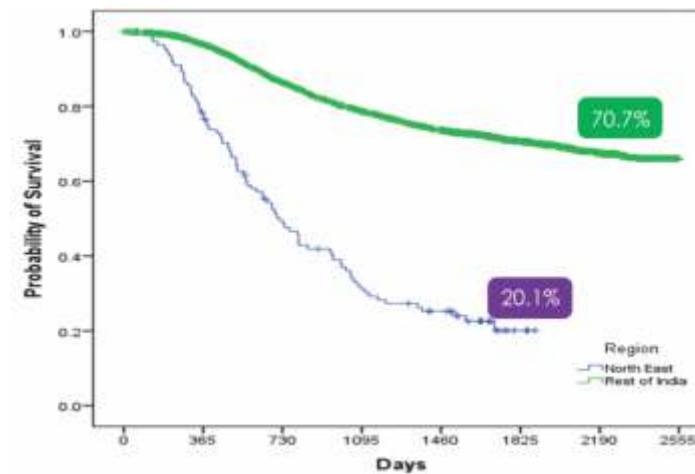
Survival of locally advanced stage Head and Neck cancer is lower in North East compared to rest of India. The 5-year Survival is 16.9% in North East.

Five Year Cumulative Survival of Breast Cancer (Stage II) by Region



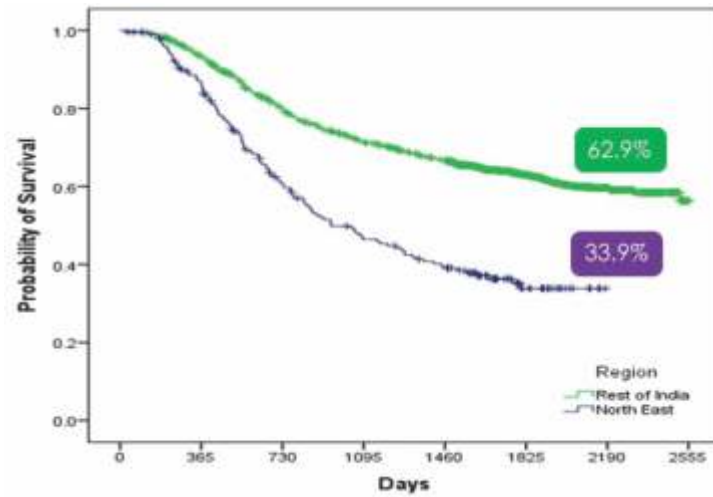
Survival of stage II Breast cancer is lower in North East compared to rest of India. The 5-year Survival is 63.5% in North East.

Five Year Cumulative Survival of Breast Cancer (Stage III) by Region



Survival of stage III Breast cancer is lower in North East compared to rest of India. The 5-year Survival is 20.1% in North East.

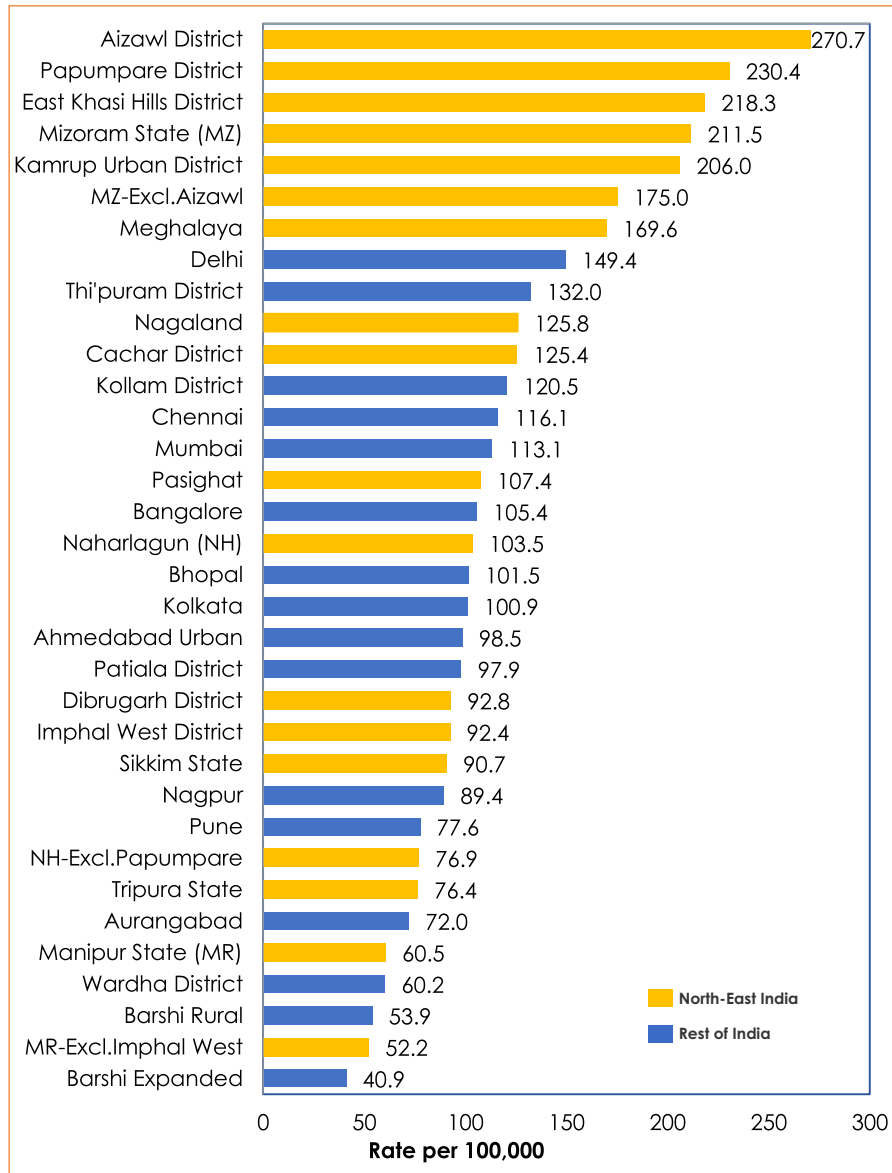
Five Year Cumulative Survival of Cervical cancer with Locally Advanced Stage (IIB - IVA) by Region



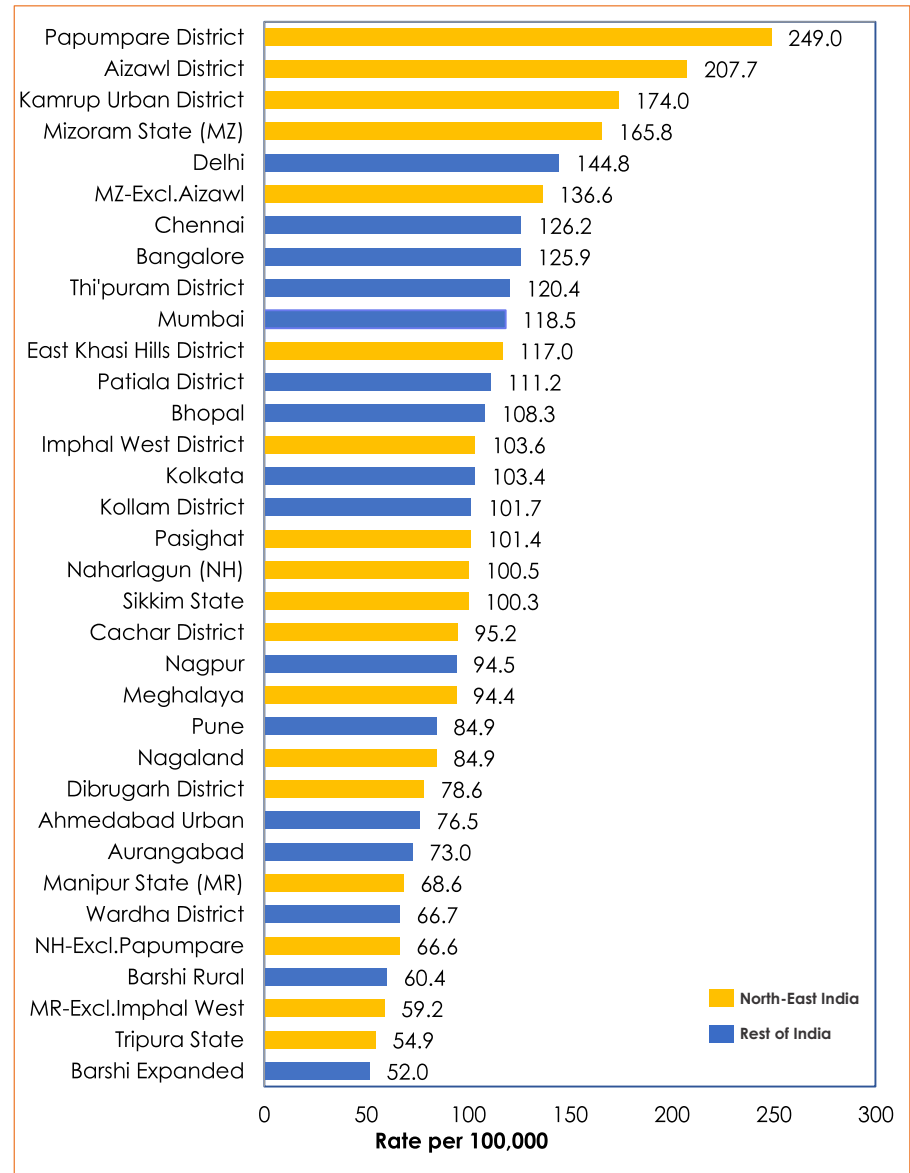
Survival of Locally advanced stage IIB-IVA Cervical cancer is lower in North East compared to rest of India. The 5-year Survival is 33.9% in North East.

1.8 Comparison of Age Adjusted Incidence Rates (AARs) of all PBCRs In North East and Rest of India

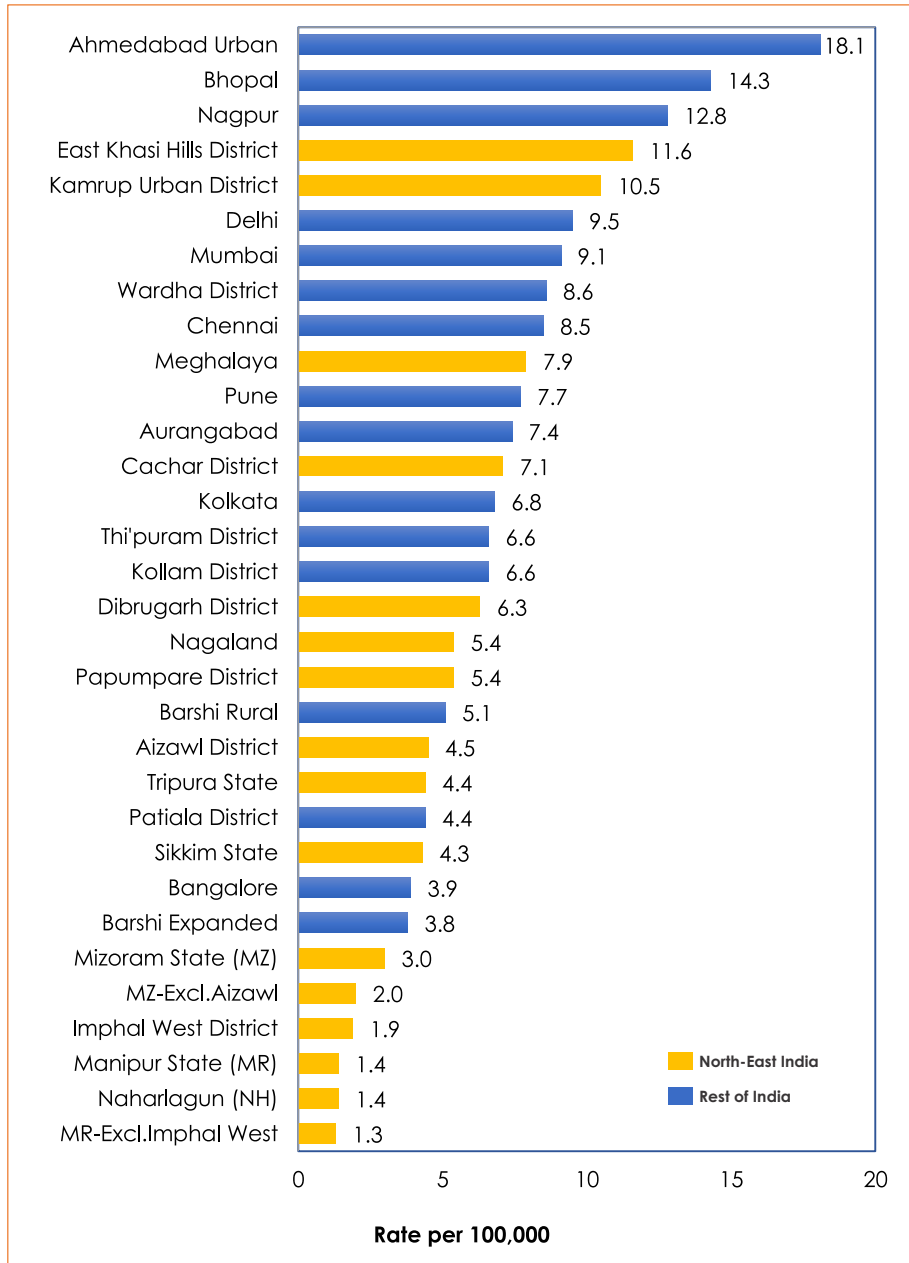
All Sites- Males



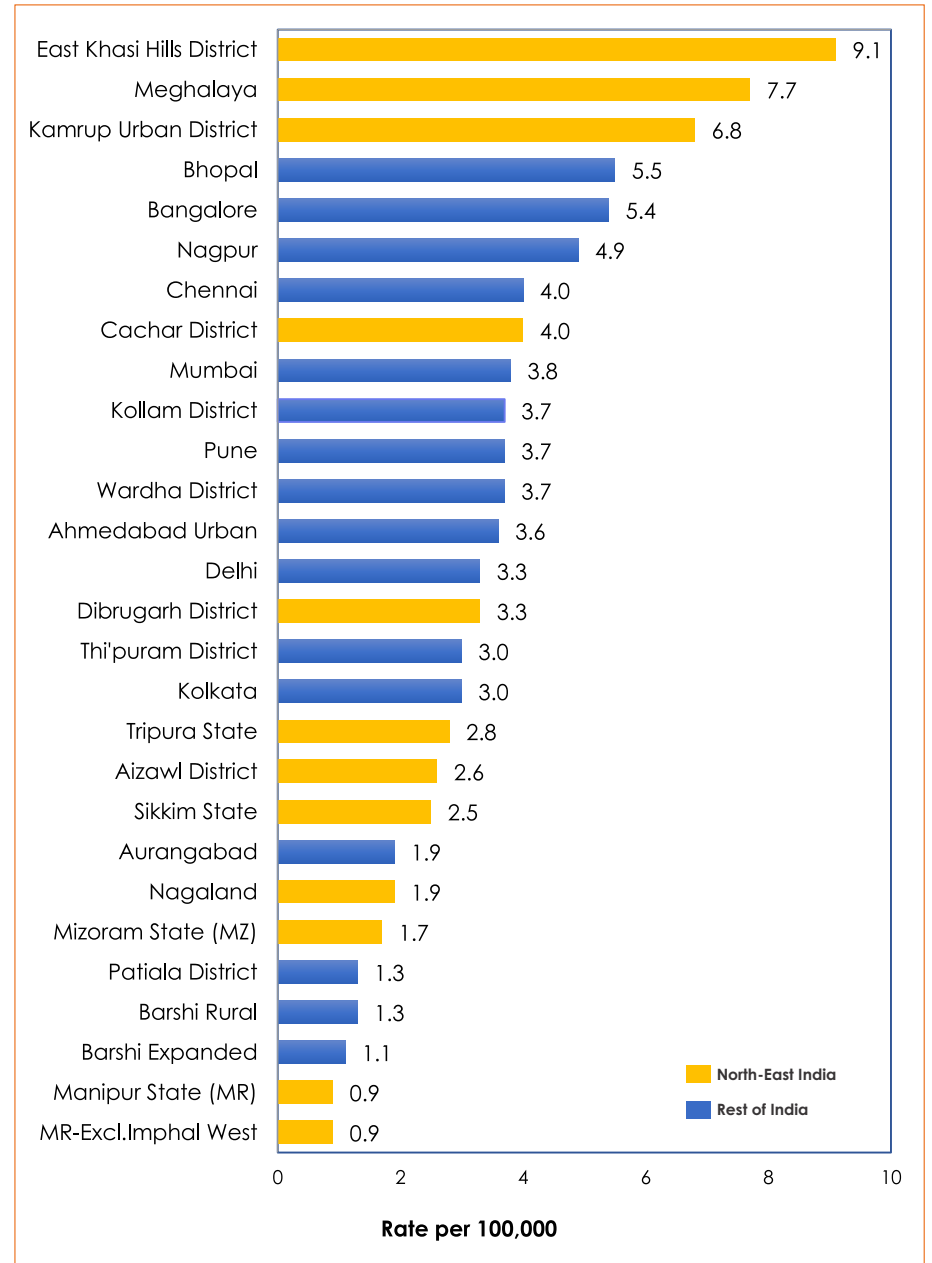
All Sites- Females



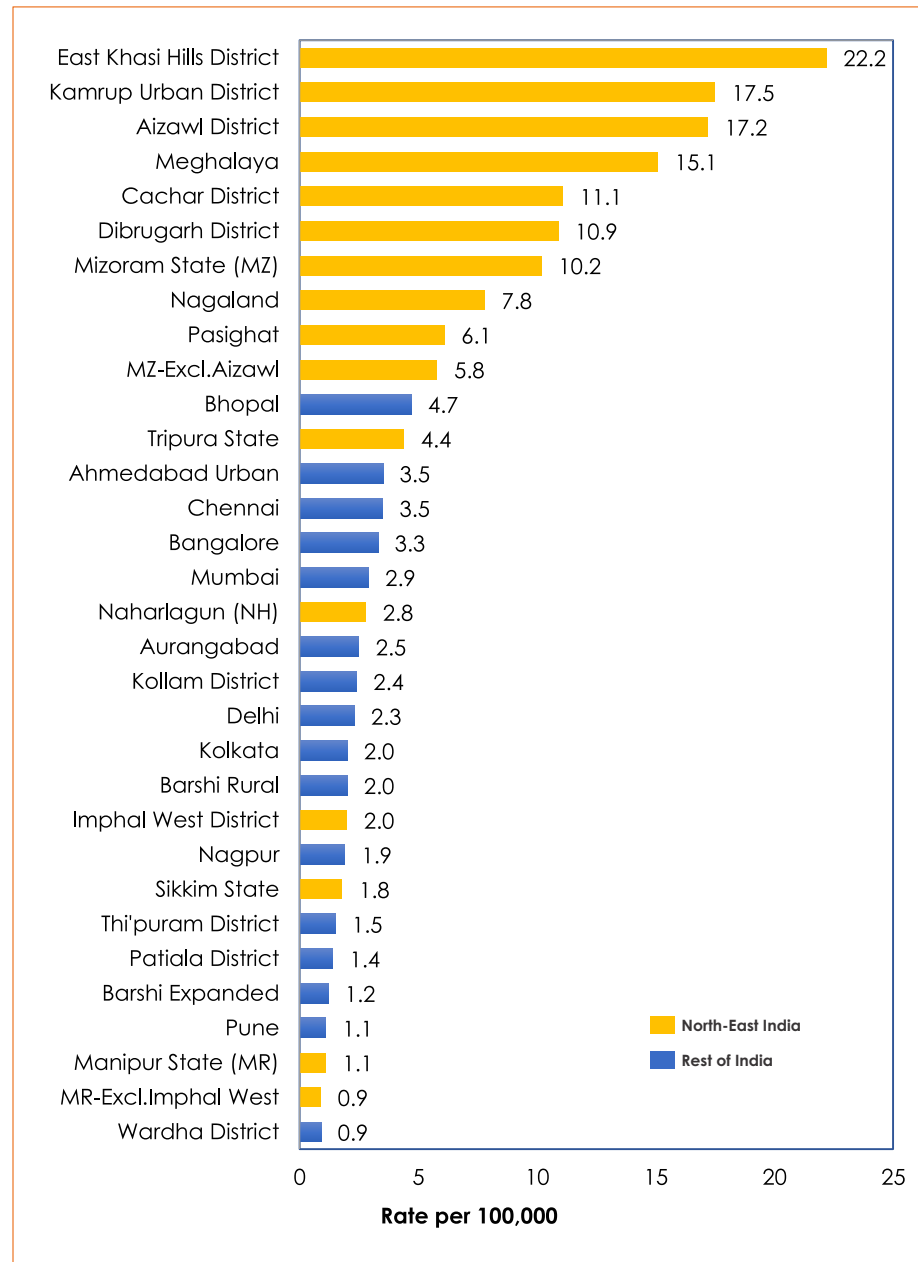
Mouth - Males



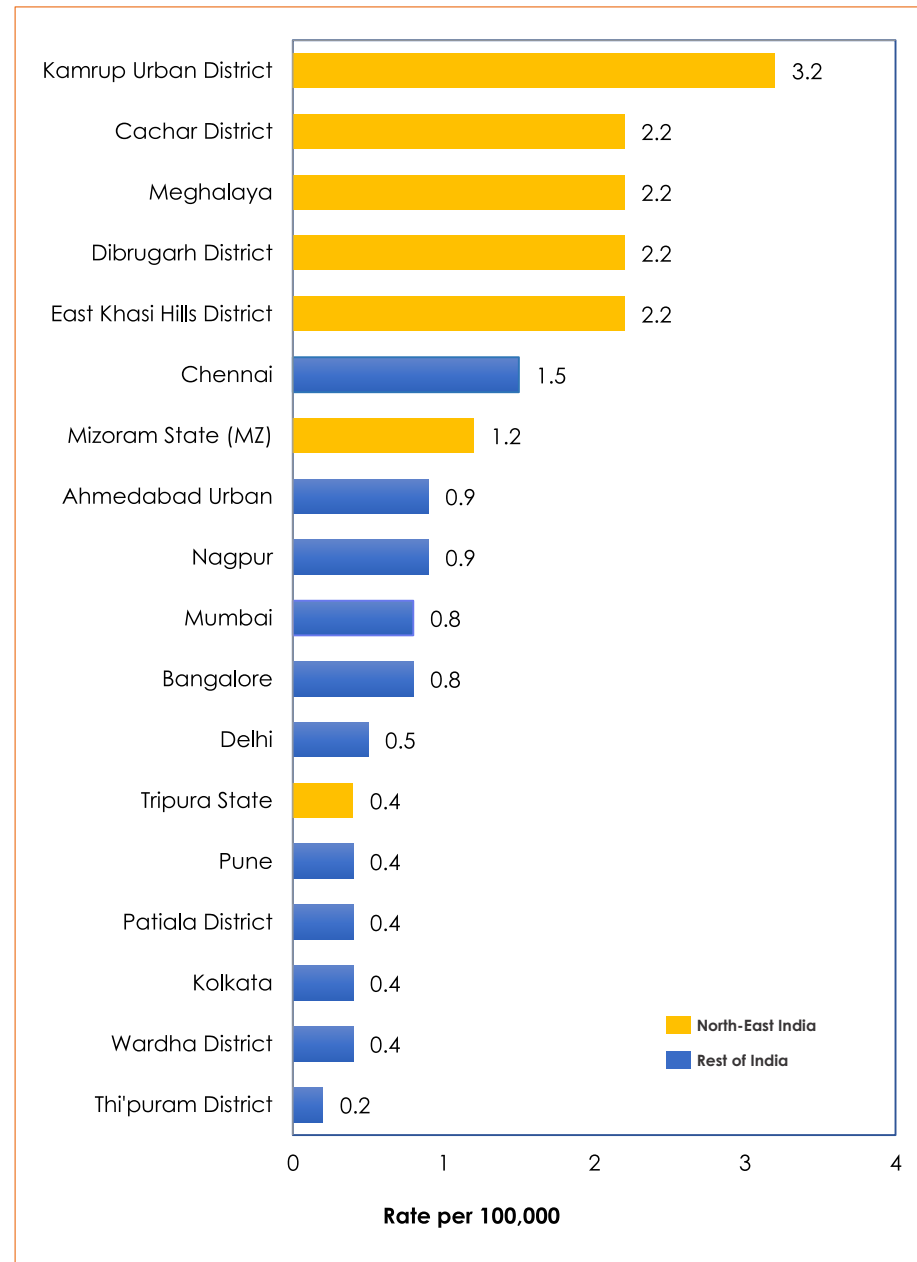
Mouth - Females



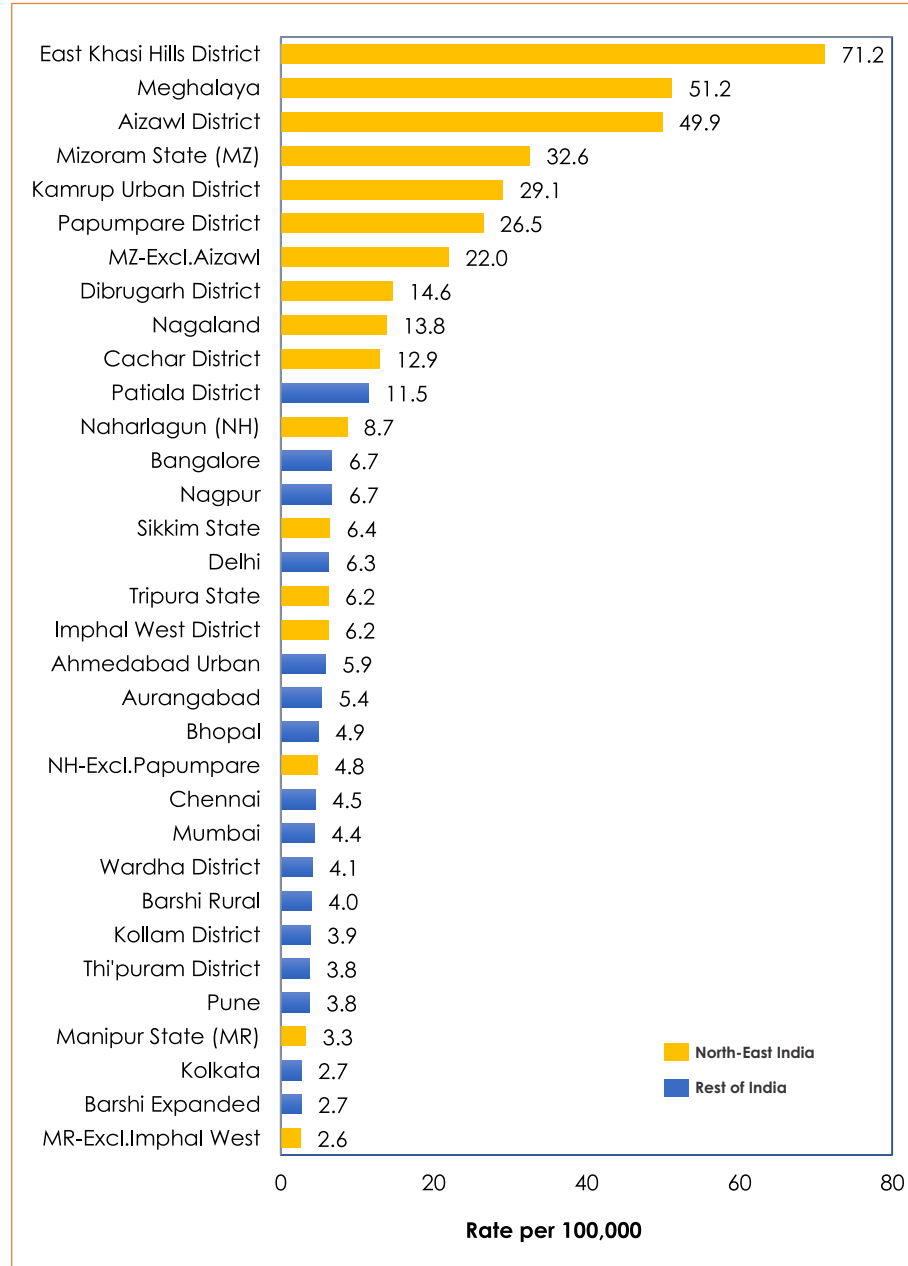
Hypopharynx – Males



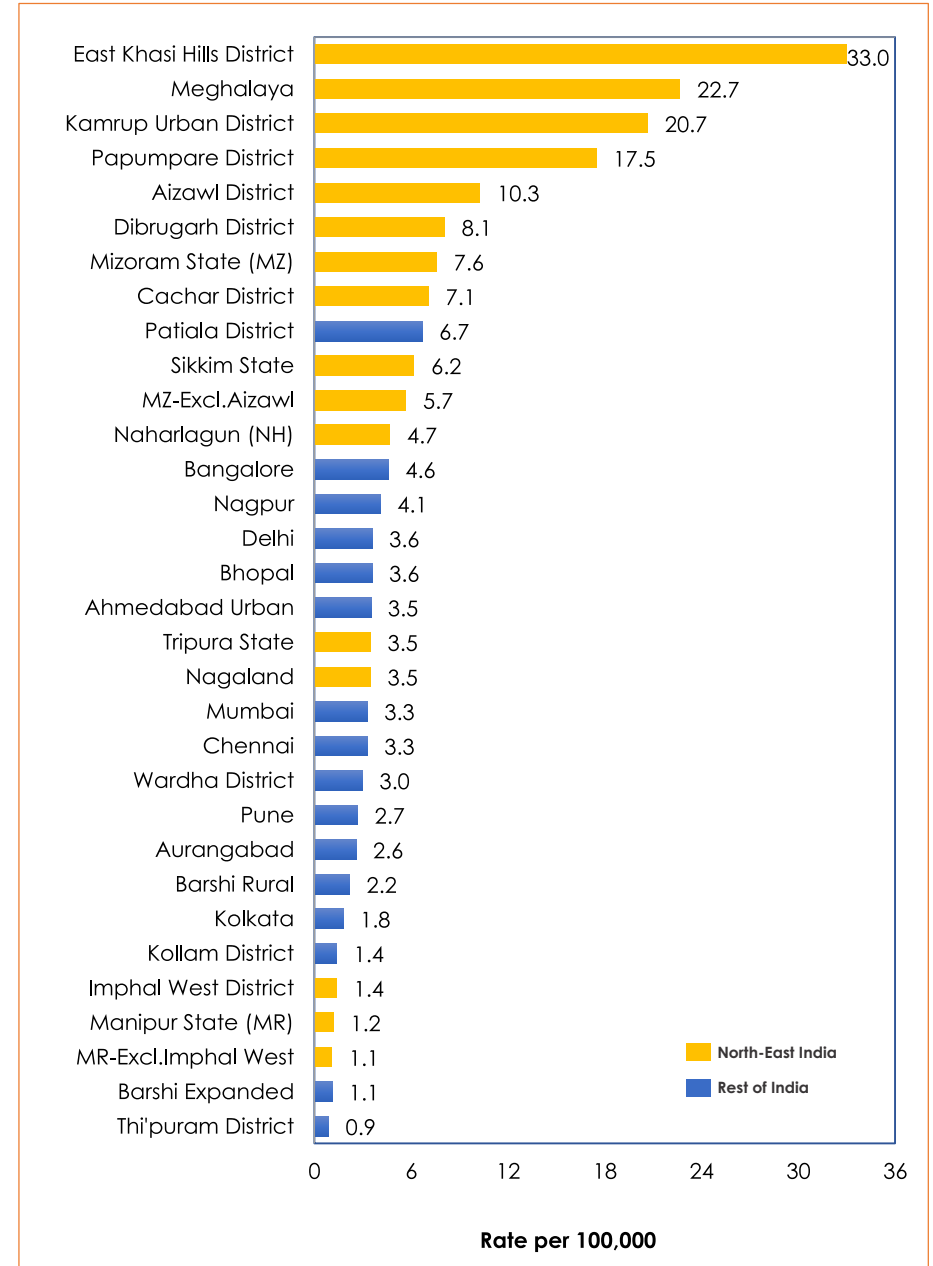
Hypopharynx – Female



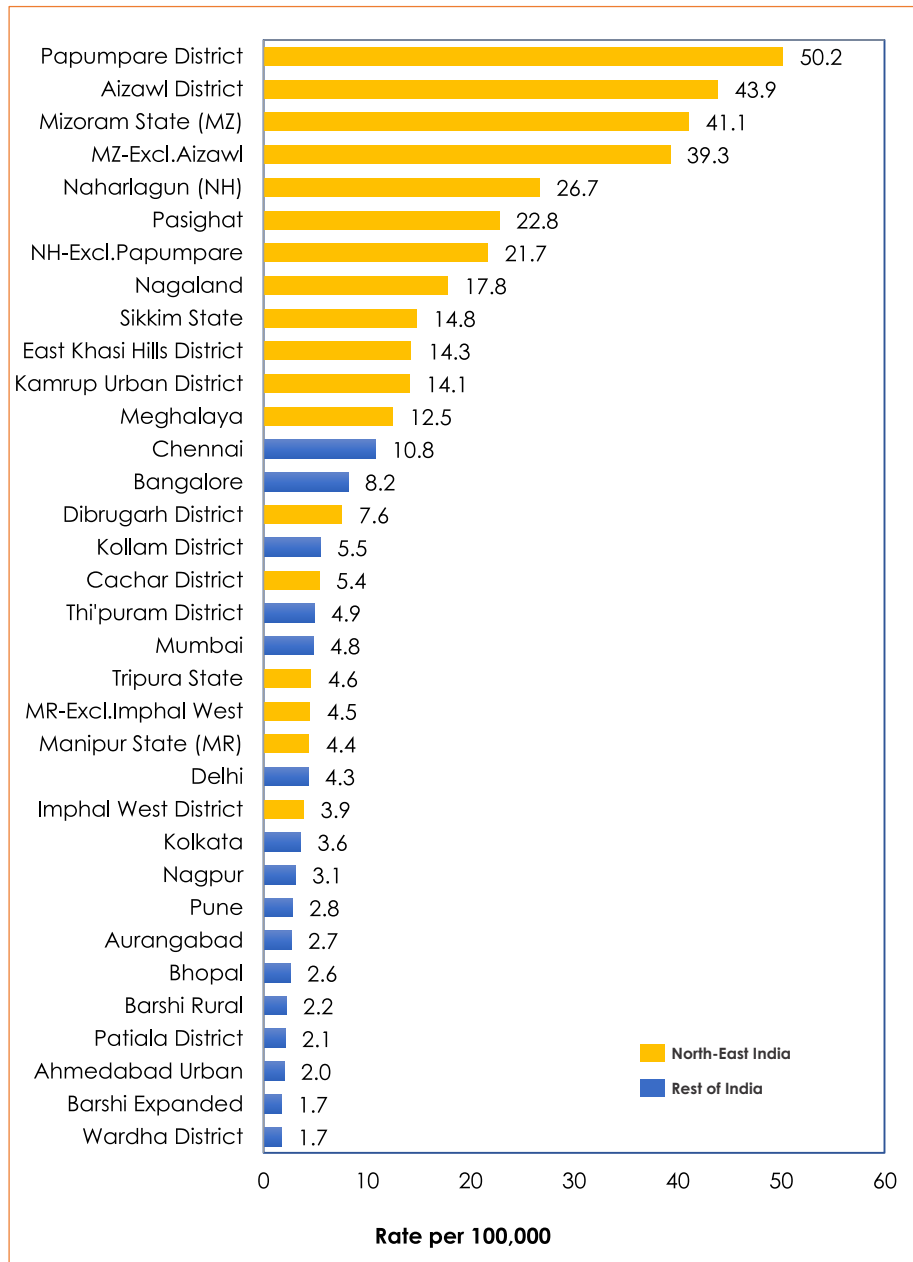
Oesophagus – Males



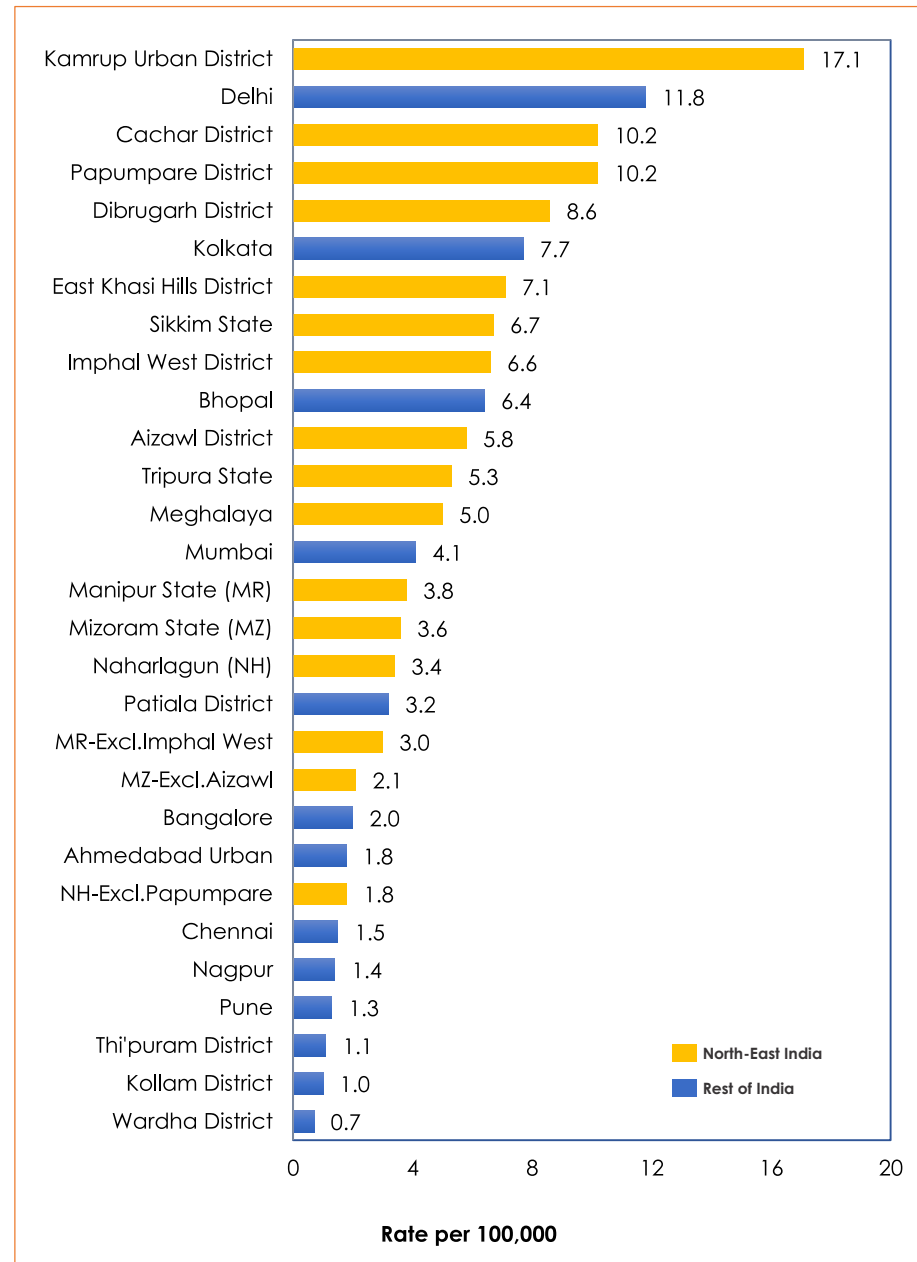
Oesophagus – Females



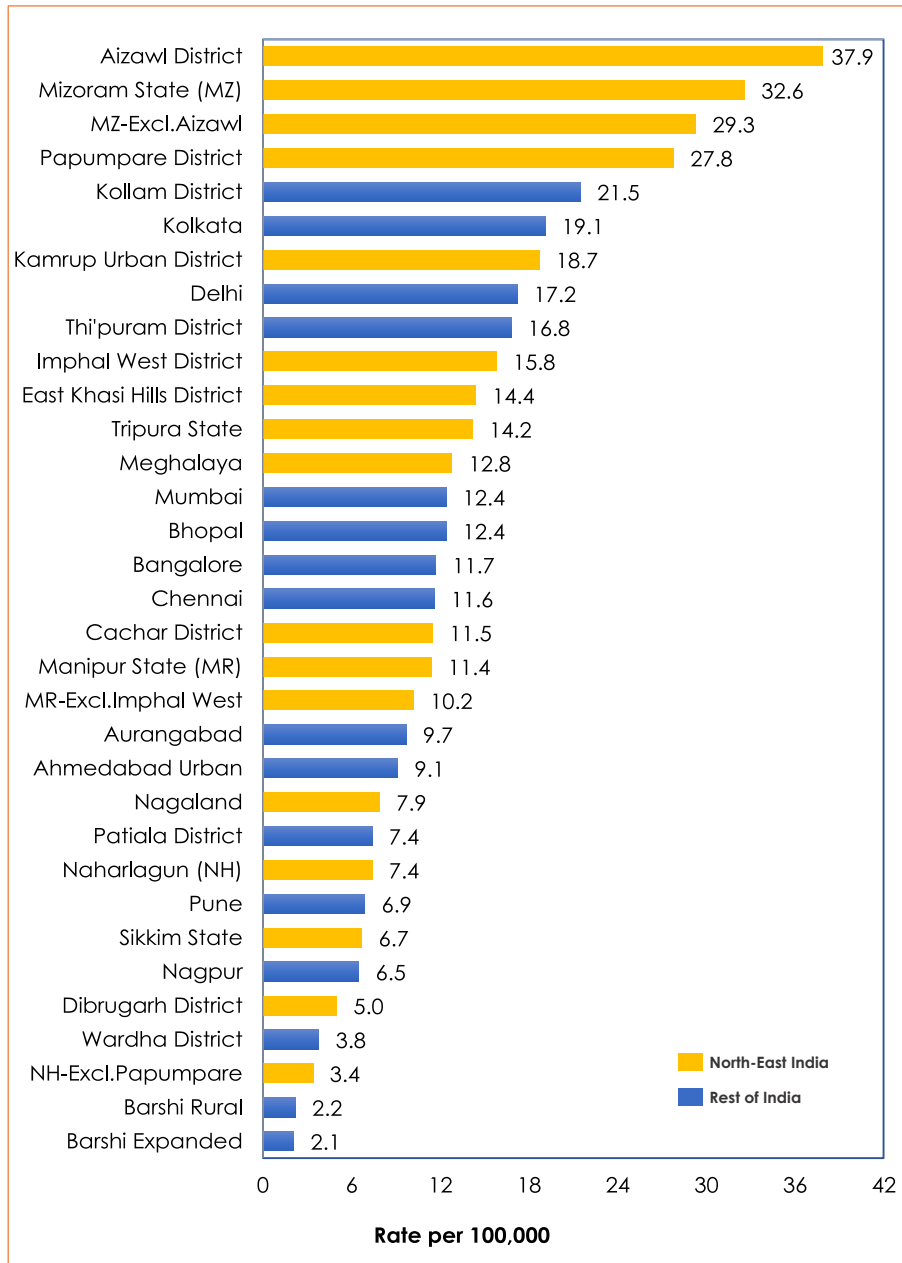
Stomach – Males



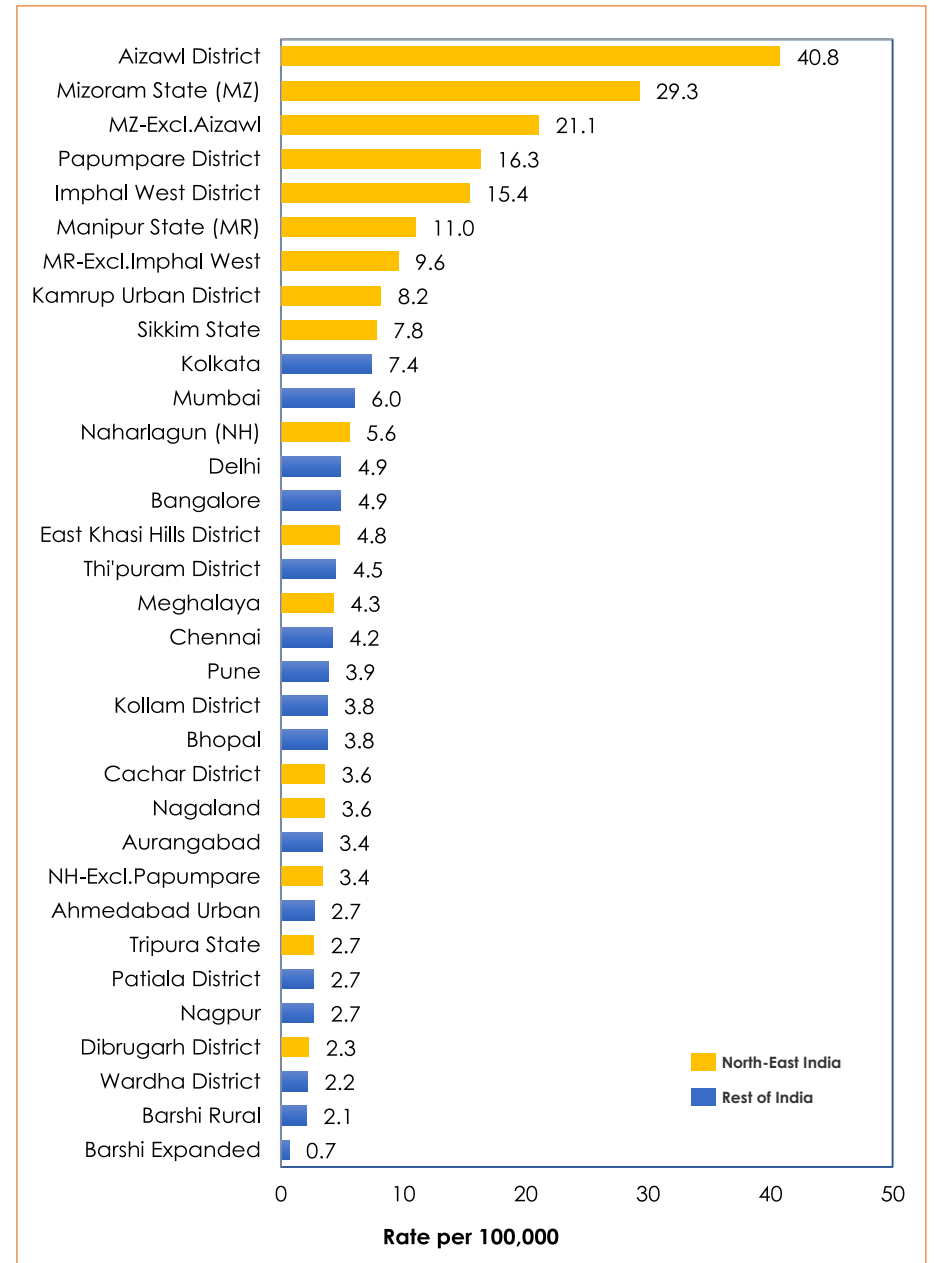
Gall Bladder – Females



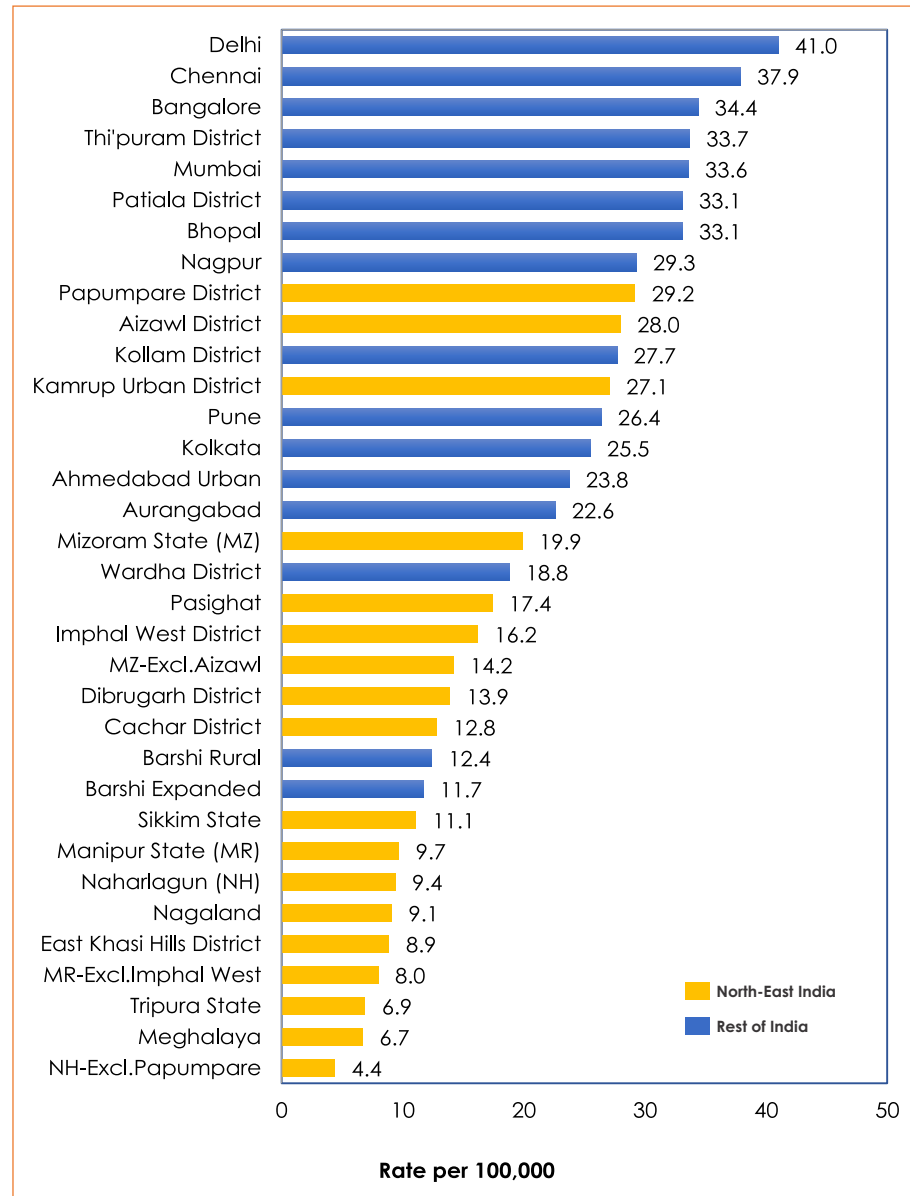
Lung – Males



Lung – Females

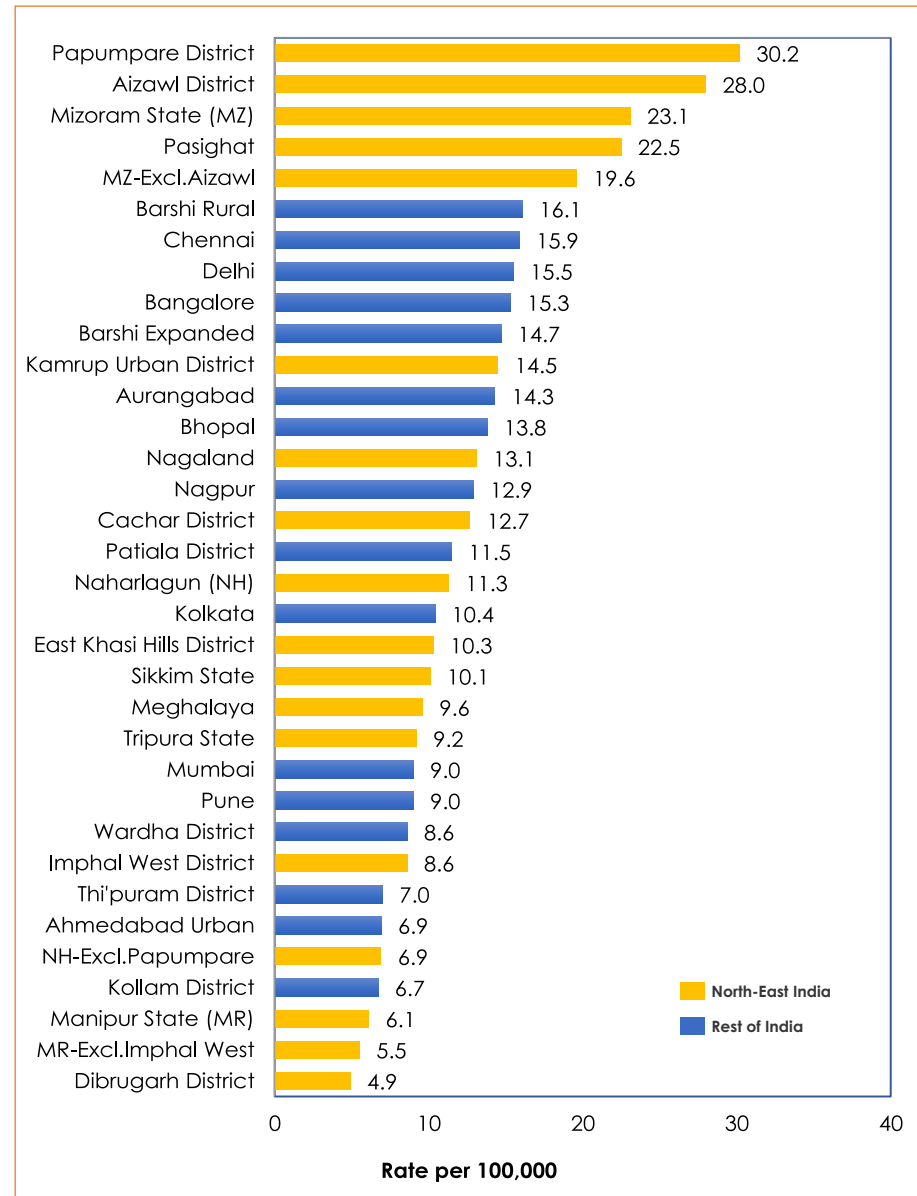


Breast – Females



MR-Excl: Manipur Excluding; MZ-Excl: Mizoram Excluding; NH-Excl: Naharlagun Excluding; Thi'puram: Thiruvananthapuram

Cervix Uteri



Eight registries of North East are among the top ten PBCRs as per Age Adjusted Incidence Rate of all Cancers in male. Aizawl district from

Mizoram shows the highest incidence rate of all Cancers in male which is nearly double of Delhi (highest incidence among rest of India).

Ten registries of North East are in the top ten PBCRs in India for leading incidences of Oesophagus, Hypopharynx, Stomach in males.

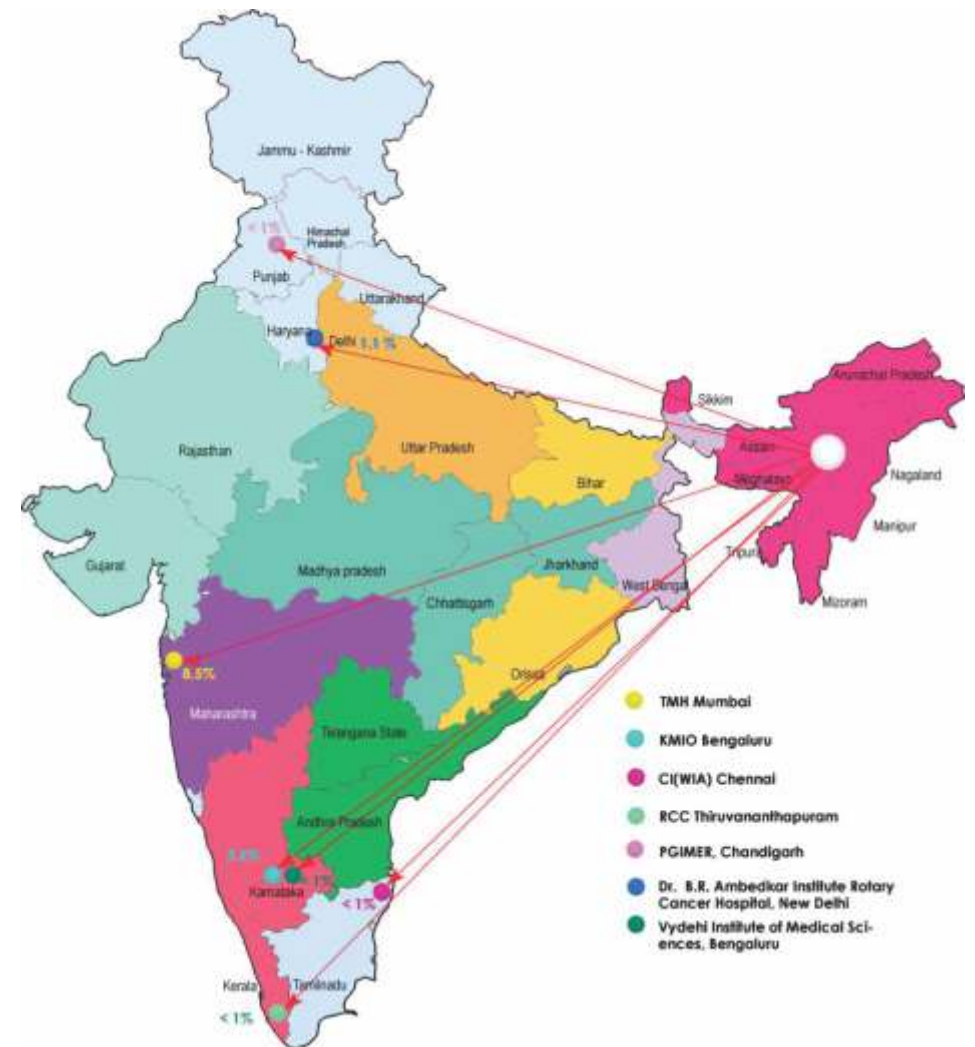
1.9 Number and Proportion of Cancer Patients taking treatment in the institute within and outside North East (HBCR 2012-2014)

State of Residence	Within NE		Outside NE		Total
	Number	%	Number	%	
Arunachal Pradesh	149	84.2	28	15.8	177
Assam	8305	93.4	590	6.6	8895
Manipur	103	37.6	171	62.4	274
Meghalaya	157	80.9	37	19.1	194
Mizoram	51	41.8	71	58.2	122
Nagaland	111	21.3	411	78.7	522
Sikkim	1	1.7	59	98.3	60
Tripura	224	63.5	129	36.5	353

NE - North East

Majority of Cancer patients from Sikkim, Nagaland, Manipur, Mizoram are getting treatment in institutes outside North East. The map shows referral flow of Cancer patients from North East to the institutes in different regions of the country.

1.10 Patterns of seeking cancer treatment outside North East



Cancer Notification

North East

1. Tripura 24th September 2008
2. Assam on 9th December 2013 (Kamrup district)
3. Arunachal Pradesh on 29th July 2015
4. Manipur on 22nd February 2017

Rest of India

5. West Bengal in 20th December 2010
6. Punjab 18th October 2011
7. Haryana on 29th October 2014
8. Karnataka on 25th July 2015
9. Gujarat on 20th May 2016

- **Legislative order require initiative from states and cancer registries.**
- **Challenges are there in implementation and monitoring cancer registration even after notifiability.**

Advocacy Points

- Incidence of all cancer is higher in North East compared to rest of India.
- Cancer of Oesophagus, Lung, Stomach, Hypopharynx etc., are common in males of North East. In females, cancer Breast, Cervix, Oesophagus and Gall Bladder lead the list.
- 5-year survival rate for Head & Neck, Breast and Cervix cancer is lower in North East compared to Rest of India.
- Cases diagnosed at localized stage are lower compared to rest of India. Screening Programme needs to be strengthened to diagnose more cases at early stages which will improve survival.
- A substantial Proportion of cancer patients from North East are travelling outside North East State for taking treatment and Cancer care. Hence Cancer treatment facilities need to be established and strengthened in all North East state to prevent migration of Cancer patient to outside North East for treatment.
- Possibility developing of cancer is very high ranging from 1 in 5 persons to 1 in 16 persons.
- More than half of the cancer in males and more than 1/4th in females are associated with use of tobacco. Effective tobacco control is likely to reduce a significant burden of cancer.
- Four out of eight states have made cancer a notifiable disease by administrative order. Implementation of legislative order require initiatives from state health authority and cancer registry. Rest four states also need to implement cancer notifiability.