

Cancer in the NorthEast India: Where We are and What Needs to Be Done?

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Summary

North East Region in India is showing a peculiar type of cancer incidence pattern. This is an attempt to get a clear picture of cancer in NE India, the gaps in providing cancer care, and a way forward for a healthier NE. For this purpose, a desk review was undertaken along with secondary data analysis in 2018. In NE, the survival rate is comparatively very low, with higher proportion of distant metastasis cases at diagnosis. Even worse, the NE region lacks required infrastructure with respect to specialized treatment facilities, human resources, etc., In view of high burden of the disease with very limited resources, a multidisciplinary, multidimensional, and multilevel approach are needed to protect this vibrant region from becoming the cancer hub.

Key words: Cancer, health-care infrastructure, human resources for health, Northeast India, specialized cancer facilities

Cancer is the second leading cause of death globally; about one in six deaths is due to cancer^[1] and 70% of them occur in low- and middle-income countries. In India, the age-standardized mortality rate due to cancer for women and men is 90 and 65.8, respectively, per lakh population.^[2] Sharma *et al.* stated that in 2008, 635,000 deaths were recorded in India due to cancer which was 8% of total cancer deaths worldwide.^[3] The absolute number of cancer deaths in India is projected to increase because of population growth and increasing life expectancy.^[4] India is a culturally diverse country, with huge urban to rural variation in lifestyle and age-specific adult death rates. Thus, it is important to understand the geographical and social distribution of cancers and their causes if region specific and to target cancer control programs accordingly.

In India, cancer incidence and mortality data were collected by Population-Based Cancer Registries and were estimated and reported in terms of crude rate, age-adjusted rates (AARs), and age-adjusted mortality rate (AAMR) by the National Cancer Registry Programme (NCRP), Indian Council of Medical Research. Recently, the NCRP has published a 3-year report of Population-Based Cancer Registries 2012–2014.^[5] The highest AAR and AAMR for all cancer sites per 100,000 inhabitant of the Indian region were observed in Northeast (NE) states. Of 10 high incidence regions,

seven in male and four in female were observed from NE states compared to mainland India. As compared to other parts of the world as per cancer incidence in five continents, in males, Aizawl district (270.7/100,000), Papum Pare district (230.4/100,000), East Khasi Hills (218.3/100,000), Mizoram state (211.5/100,000), Kamrup Urban districts, and Meghalaya (206.0/100,000) were mentioned for having higher AAR (NCRP 2016), and in females, Papum Pare district (249.0/100,000) – this is a newer registry and data have to mature as yet, Aizawl, Kamrup Urban, Mizoram state, and Delhi were high incidence states.^[5]

It is, therefore, clear that NE states of India have the highest number of cancer incidence as compared to other parts of the country.

This paper is an attempt to get a clear picture of cancer status in NE India, the gaps in providing cancer care, and a way forward for a healthier and cancer-free NE.

A desk review was undertaken along with secondary data review and analysis in 2018. Data showing cancer

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incidence and prevalence in the country's NE region were analyzed from various sources such as NCRP, state Health Management Information System, and National Health Mission Reports. The desk review was undertaken using key words in different combinations such as cancer, cancer in NE India, and cancer prevalence. Search engines such as Google Scholar and PubMed were used. Various online open-access journals, Regional Resource Centre for NE States, etc., were also searched, and India-specific recent studies (the past 10 years – 2008 onward) focusing on NE region were selected. Data and studies available in open source were referred, for example, websites like NHSRC. It is found that NE region is showing a peculiar type of cancer incidence pattern compared to other parts of India. The desk review shows that NE India is at a higher risk of developing tobacco-related cancers (TRCs). Ten registries from NE are in top 10 Population-Based Cancer Registries for leading incidences of cancers of esophagus, hypopharynx, and stomach in males, while in females, breast cancer is highest followed by cervix and esophagus. According to NCRP, 57% of all cancers in males and 28% in females in NE India are known to be associated with tobacco consumption.^[6] Whereas, the survival rate is comparatively very low, with higher proportion of distant metastasis cases at diagnosis.^[6]

Esophagus (AAR 14.7), stomach (AAR 10.5), lung (AAR 13.3), and hypopharynx (AAR 7.4) in males and breast (AAR 11.3), cervix uteri (AAR 10.1), esophagus (AAR 7.1), and lung (AAR 7.0) in females were some of the topmost leading cancer sites. It may be due to genetic factors, lifestyle factors, food habits, or other factors associated with it.^[3] A study from Sikkim indicated that gastric cancer incidence was highest in Bhutia ethnic group because of the higher intake of smoked meats, fermented vegetables, salt tea, and *Helicobacter pylori* positivity.^[7]

Six NE states, namely, Mizoram, Meghalaya, Manipur, Nagaland, Tripura, and Assam, are among the top states for the consumption of tobacco in any form in India. According to the National Family Health Survey,^[8] 70% of people in NE consume tobacco which is 26% higher than national average. The highest tobacco-consuming state is Mizoram. Global Adult Tobacco Survey 2017 also shows a rise in tobacco use in Assam, Tripura, and Manipur.

A study shows that among all important TRC sites, esophageal cancer was highest for both men and women.^[9]

Table 1 shows that there is not enough number of hospitals that are treating cancer in the NE. The patients are not getting enough facilities and are compelled to seek the treatment outside their home state.^[6] The NCRP, 2017 report also indicates that cases diagnosed at localized stage of cancer are lower.

Table 2 shows the proportion of cancer patients taking treatment in the institutes within and outside NE.

There are no concrete and reliable data available on oncologists. Hence, we are unable to comment on the situation of specialized workforce in the region.

Based on our study findings, NE India is emerging as the cancer hub. It is of utmost importance that special attention should be given with multidisciplinary and multidimensional approach, for addressing and mitigating cancer problem which may be accomplished by region-specific and state-specific endeavors.

In view of the lack of specialized infrastructure and Human Resources (HR), “a multilevel (primary, secondary, and tertiary) approach” to tackle the problem is needed. There is an urgent need of trained personnel at the primary- and secondary-level health-care facilities who could identify risk factors, screen the patients, and guide them to the relevant facilities. This will also help in decreasing the burden at the tertiary-level and specialized facilities. Cancer treatment facilities for palliative care, radiotherapy, etc., need to be established and strengthened. The data on specialized workforce should be collected and collated for the entire NE. This will help in research and developing policies for equitable distribution of available HR.

From Tables 1 and 2, it is observed that the proportion of patients taking treatment outside does not entirely depend on the availability of cancer-treating facilities, for example, despite having 11 cancer treating hospitals in Nagaland, 78.7% of patients are seeking treatment outside the region.^[10] There is only one radiotherapy facility, one palliative care center, but no cancer patient welfare scheme is found to be there. However,

Table 1: Source: Rural Health Statistics, 2014-2015

State	District hospitals	Cancer treating hospitals	Radiotherapy facilities	Cancer patient welfare schemes	Palliative care centers
Assam	25	6	6	9	8
Arunachal Pradesh	14	1*	1*	0*	0*
Meghalaya	12	7*	1*	0*	1*
Mizoram	8	5*	1*	3*	2*
Manipur	7	1*	0*	0*	1*
Sikkim	4	1*	0*	0*	1*
Tripura	6	1*	1*	0*	1*
Nagaland	11	11*	1*	0*	1*

*Population-based cancer registry. RHS: Rural Health Statistics

Table 2: Source: Hospital-Based Cancer Registry (2012-2014)

State	Within NE (%)	Outside NE (%)
Assam	93.4	6.6
Arunachal Pradesh	82.4	17.6
Meghalaya	80.9	19.1
Mizoram	41.8	58.2
Manipur	37.6	62.4
Sikkim	1.7	98.3
Tripura	63.5	36.5
Nagaland	21.3	78.7

NE: Northeast

if we look at Assam it has six cancer treating hospitals, six radiotherapy facilities, nine cancer patient welfare schemes, and eight palliative care centers and hence providing better “set of services” to the patients with “multidimensional approach” and that may be the reason why 93.4% of cancer patients are undergoing treatment within the state itself. There could be other possible reasons that compel patients to seek treatment outside their home state such as quality of services, availability of specialized HR, and private treatment centers. Therefore, further research will help in providing clearer picture.

It may be also noted that since the cases diagnosed at the localized stage are lower, screening program needs to be strengthened and extensively carried out at the community level. More awareness generation program should be taken up. Women attending health facilities, adolescent girls in schools, etc., should be targeted and informed about self-examination of breast cancer and preventive measures.

It is erstwhile to note that while NE is leading in India as the cancer-affected region, the childhood cancer incidence rate is at the lowest side in this region.^[11] This gives rise to one of the striking questions that as the person grows in NE, does he get exposed to different risk factors or addicted to carcinogenic substances or other attributable causes? Further research is needed in this area.

Tobacco is widely and openly used in the entire NE to an extent that in some cases, it is the part of cultural practices like tobacco water. Sinha *et al.* found that 36.7% of the users in Aizawl and 92.1% in Churachandpur were using tobacco water more than five times a day.^[12] Since the problem is so deeply rooted in the NE region, tobacco control programs need to be more aggressive. There is also a lack of infrastructure and specialized workforce besides difficult and hilly terrain that is acting as a hindrance for providing the much-needed cancer care. A “multidisciplinary approach” by introducing appropriate cancer prevention and control programs which include upgrading existing infrastructure and providing specialized HR should be adopted.

Cancer is prevalent and seems to be engulfing this vibrant region. Tobacco usage is emerging as the leading cause of cancer in the NE area, and it is known that tobacco use is

responsible for 22% of cancer deaths worldwide.^[13] Despite the heavy burden of cancer in the region, the available infrastructure is inadequate; hence, people are compelled to seek treatment outside NE. There is an urgent need to develop comprehensive cancer control program. In view of the above, multilevel, multidisciplinary, and multidimensional approach as deliberated in the discussion section might prove to be helpful to control the situation to some extent. Extensive research is needed that is focused on NE to highlight the different aspects for reducing the incidence of cancer.

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