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INDIAN COUNCIL OF MEDICAL RESEARCH
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150 YEARS OF CELEBRATING THE MAHATMA

Report of National Cancer Registry Programme

NATIONAL CANCER REGISTRY PROGRAMME India

2020

ICMR - National Centre for Disease Informatics and Research

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INDIAN COUNCIL OF MEDICAL RESEARCH

NCDIR
NATIONAL CENTRE FOR DISEASE INFORMATICS AND RESEARCH

Report of National Cancer Registry Programme (2012-2016)

Bengaluru, India

2020

NATIONAL CENTRE FOR DISEASE INFORMATICS AND RESEARCH

NATIONAL CANCER REGISTRY PROGRAMME

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Message

National Cancer Registry Programme Report (2012-2016) represents the work carried out by28Population and 58Hospital-based cancer registries under the ICMR-NCDIR, National Cancer Registry Programme (NCRP).It provides insight into the data collected on incidence, mortality and clinical details of cancer.

Cancer registries are key elements of a cancer control programme for data collection, analysis, interpretation and health policy formulation. The changes in incidence rates also provide anopportunity for evaluation of the impact of intervention programs or changes in socio-cultural practices. Treatment practices and challenges posed due to several reasons get systematically documented. The NCRP reports have been pivotal in shaping up the national cancer prevention and control policies and programs.

The consolidated report shall be useful in encoring more research in cancer and in developing strategies for prevention, control and better patient care in cancer.

I take this opportunity to congratulate all the investigators, staff of registries and National Centre for Disease Informatics, Bengaluru and the experts who steered and guided the NCRP.

I look forward to this report being utilized to strengthen cancer registration and enhance cancer prevention and control efforts in India and foster cancer research.

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Foreword

The National Cancer Registry Programme (NCRP) during the last 37 years has proved to be the most reliable repository of data for surveillance on cancer in the country. The NCRP housed at the ICMR- National Centre for Disease Informatics and Research at Bengaluru has expanded its network in leaps and bounds and now has 36 PBCRs and 236 HBCRs. The present report includes 28 PBCRs and 58 HBCRs data which was complete and met the desired quality.

This report is an interesting read as it provides a comprehensive overview of data on the patterns of cancer, leading sites, trends and burden, comparison of cancer incidence with Asian and Non-Asian countries of the world and the treatment and care offered for most common sites of cancer in the country. For the first time it includes newer sections i.e. summary of selected cancer sites, better info graphics and analysis.

I trust that this report will be an important vehicle for dissemination of public health messages, directives and planning for the future of betterment of services in the field of cancer control and prevention programme.

G.K. Rath

(DR. G.K. RATH)

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Preface

Cancer registries provide unique opportunity to systematically collect long-term data that helps in understanding the magnitude, patterns and trends in cancer occurrence. It also provides a framework for assessing and controlling the impact of cancer at the community and hospital levels. National Cancer Registry Program (NCRP) under Indian Council of Medical Research (ICMR) has been there since 38 years. The network of cancer registries has its presence across the country.

National Cancer Registry Programme Report (2012-2016) presents data from 28 Population Based Cancer Registries (PBCRs) and 58 Hospital Based Cancer Registries (HBCRs). While PBCRs record all the new cancer cases occurring in a defined population, the HBCRs record information on cancer patients attending a particular hospital, with focus on clinical care and hospital management. The work of HBCR and PBCR complement each other. This makes this report a comprehensive resource for all the stake holders (clinician, researchers, epidemiologist, policy and program managers, civil society and media) working towards prevention and control of cancer.

The report offers three sections, each providing relevant information from both types of registries. The first section focuses on the population covered, total numbers, incidence rates, leading sites of cancers, cancers associated with the use of tobacco and cancers in childhood. The second section deals with the patterns of cancer incidence, stage at diagnosis, treatment pattern and trends of cancer for the most common cancers, cancer breast, cervix uteri, head& neck, lung and stomach. The last section assesses the trends of cancer in the country and estimates the burden till 2025. Revised method of estimating the future burden has been done by dividing the country in to 6 zones and pooling data from the PBCRs therein for the calculation.

Data from the report can be used further for planning and conducting epidemiological studies to understand the determinants, aetiology and survival in different cancers. And for further translating research into action for improving the health of the population. This will be useful in driving local policy and programmatic action.

This report should encourage other institutions in the country to join NCRP and contribute towards cancer prevention and control.

(Prashant Mathur)

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Executive Summary

The report contains 5 years (2012-2016) data from the network of cancer registries working under the National Cancer Registry Programme (NCRP). Number of data points and network of registries under the programme have expanded greatly since the start of the programme in 1982. The present report has included data from 28 Population Based Cancer Registries (PBCRs) and 58 Hospital Based Cancer registries (HBCRs) in India based on its completion and verification.

The aim of cancer registry is to create evidence on the burden, pattern and distribution of cancer. Incidence rates are one of the best indicators available to measure the burden of cancer. PBCRs measure the incidence rates for a defined population. Along with contributing to PBCRs, HBCRs provide data on the clinical presentation, diagnosis and care of cancer.

Compared to past NCRP reports, for the first time has the data of both PBCRs and HBCRs been provided in a single report. The data of all the HBCRs is pooled and analysed rather than providing hospital wise information.

The data of PBCR and HBCR is presented under North, South, East, West, Central and North East regions so as to characterize regional variations.

Snapshot of cancer registries provides the details of cancer registries region-wise. The location of each registry, establishment year, coverage area, leading site of cancer and sources of registration for each PBCR is illustrated. The names of HBCRs, their established year and top 5 leading sites of cancer in the HBCR is listed.

Section I

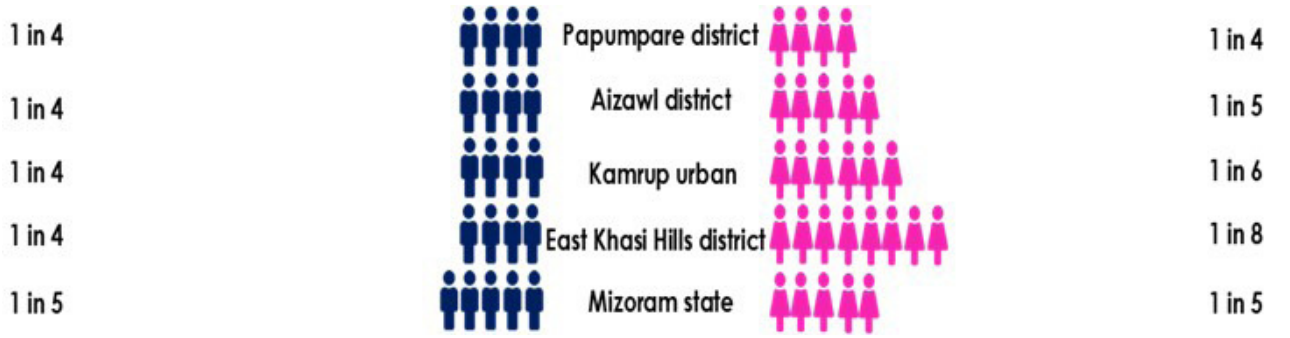
Chapter 1 enumerates the population profile of all 28 PBCRs, number of new cases of cancer, incidence rates (per 100,000 population) for all sites of cancer and cumulative risk of cancer. It lists all the HBCRs by name and enumerates the relative proportion (%) for all sites of cancer.

Delhi PBCR covered the largest population person years of 17.3 million and the lowest was 0.13 million population person years covered by Pasighat PBCR in Arunachal Pradesh. The highest Age Adjusted Rates (AAR) recorded per one lakh population for all sites of cancer combined were in Aizawl district (269.4) among males and in Papumpare district (219.8) among females. The data from PBCR Hyderabad (2014-2016) has been included for the first time in this report.

1 out of every 4 persons in Papumpare district of Arunachal Pradesh had a possibility of developing cancer in a lifetime in the age group 0-74 years.

Total cases registered by 58 HBCRs was 667666. HBCR at Tata Memorial hospital registered the highest (81260) number of cases.

Cumulative Risk of developing Cancer of Any Site in 0-74 years of Age



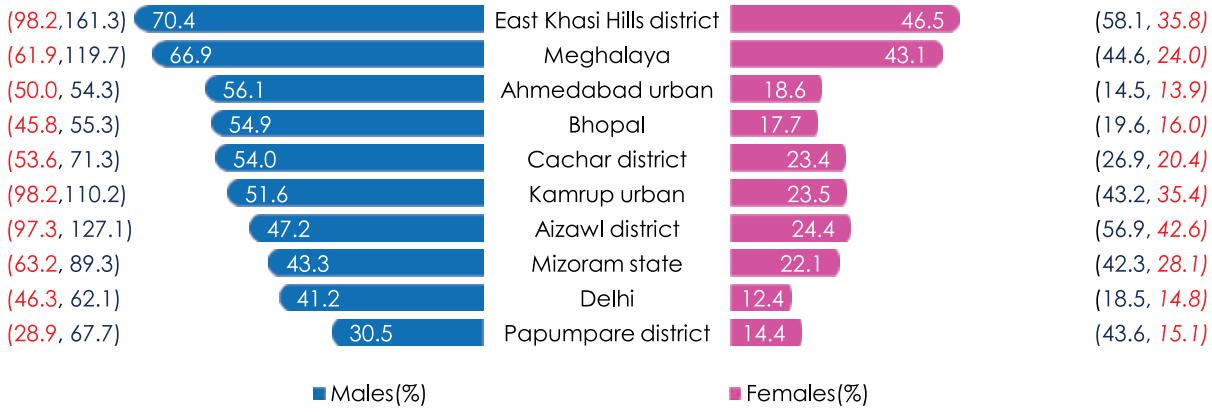
Chapter 2 The leading anatomical sites of cancer for each PBCR is summarised below.

Registry	Males			Females		
	1	2	3	1	2	3
Delhi	Lung	Mouth	Prostate	Breast	Cervix Uteri	Gall Bladder
Patiala District	Oesophagus	Lung	Prostate	Breast	Cervix Uteri	Oesophagus
Hyderabad District	Mouth	Lung	Tongue	Breast	Cervix Uteri	Ovary
Kollam District	Lung	Prostate	Mouth	Breast	Thyroid	Cervix Uteri
Thi'puram District	Lung	Prostate	Mouth	Breast	Thyroid	Ovary
Bangalore	Lung	Stomach	Prostate	Breast	Cervix Uteri	Ovary
Chennai	Lung	Stomach	Mouth	Breast	Cervix Uteri	Ovary
Kolkata	Lung	Prostate	Mouth	Breast	Cervix Uteri	Ovary
Ahmedabad Urban	Mouth	Tongue	Lung	Breast	Cervix Uteri	Ovary
Aurangabad	Mouth	Lung	Tongue	Breast	Cervix Uteri	Ovary
Osmanabad & Beed	Mouth	Tongue	Oesophagus	Cervix Uteri	Breast	Ovary
Barshi Rural	Mouth	Oesophagus	Liver	Cervix Uteri	Breast	Ovary
Mumbai	Lung	Mouth	Prostate	Breast	Cervix Uteri	Ovary
Pune	Mouth	Prostate	Lung	Breast	Cervix Uteri	Ovary
Wardha District	Mouth	Lung	Oesophagus	Breast	Cervix Uteri	Ovary
Bhopal	Mouth	Lung	Tongue	Breast	Cervix Uteri	Ovary
Nagpur	Mouth	Tongue	Lung	Breast	Cervix Uteri	Ovary
Manipur State	Lung	Stomach	Nasopharynx	Breast	Lung	Cervix Uteri
Mizoram State	Stomach	Oesophagus	Lung	Cervix Uteri	Lung	Breast
Sikkim State	Stomach	Oesophagus	Lung	Breast	Cervix Uteri	Stomach
Tripura State	Lung	Oesophagus	Larynx	Cervix Uteri	Breast	Gall Bladder
West Arunachal	Stomach	Liver	Oesophagus	Stomach	Breast	Cervix Uteri
Meghalaya	Oesophagus	Hypopharynx	Stomach	Oesophagus	Cervix Uteri	Mouth
Nagaland	Nasopharynx	Stomach	Oesophagus	Cervix Uteri	Breast	Stomach
Pasighat	Stomach	Lung	Liver	Cervix Uteri	Breast	Stomach
Cachar District	Oesophagus	Hypopharynx	Lung	Cervix Uteri	Breast	Gall Bladder
Dibrugarh District	Oesophagus	Hypopharynx	Stomach	Breast	Gall Bladder	Ovary
Kamrup Urban	Oesophagus	Hypopharynx	Lung	Breast	Oesophagus	Gall Bladder

Cancer of lung, mouth, stomach and oesophagus were the most common cancers among males. Cancer of breast and cervix uteri were the most common cancers among females.

Chapter 3 deals with anatomical sites of cancer which are mainly related to use of tobacco (Smoking and smokeless forms) as per IARC Criteria on evaluation of the carcinogenic risks to humans (IARC Lyon, 1987). The incidence rates of tobacco related cancers in north was high in Delhi (males: 62.1; females: 18.5). Kollam district (males: 52.9) and Bangalore (females: 20.1) had high incidence rates in the south. In the east, Kolkata had an AAR of 42.3 in males and 13.7 in females. In the west, Ahmedabad urban had high AAR of 54.3 in males and Mumbai had high AAR of 18.2 in females. Bhopal had high AAR in both males (55.3) and females (19.6) in the central region. East Khasi Hills district from the north east had the highest AAR of tobacco related cancers (males:161.3; females: 58.1) in India.

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



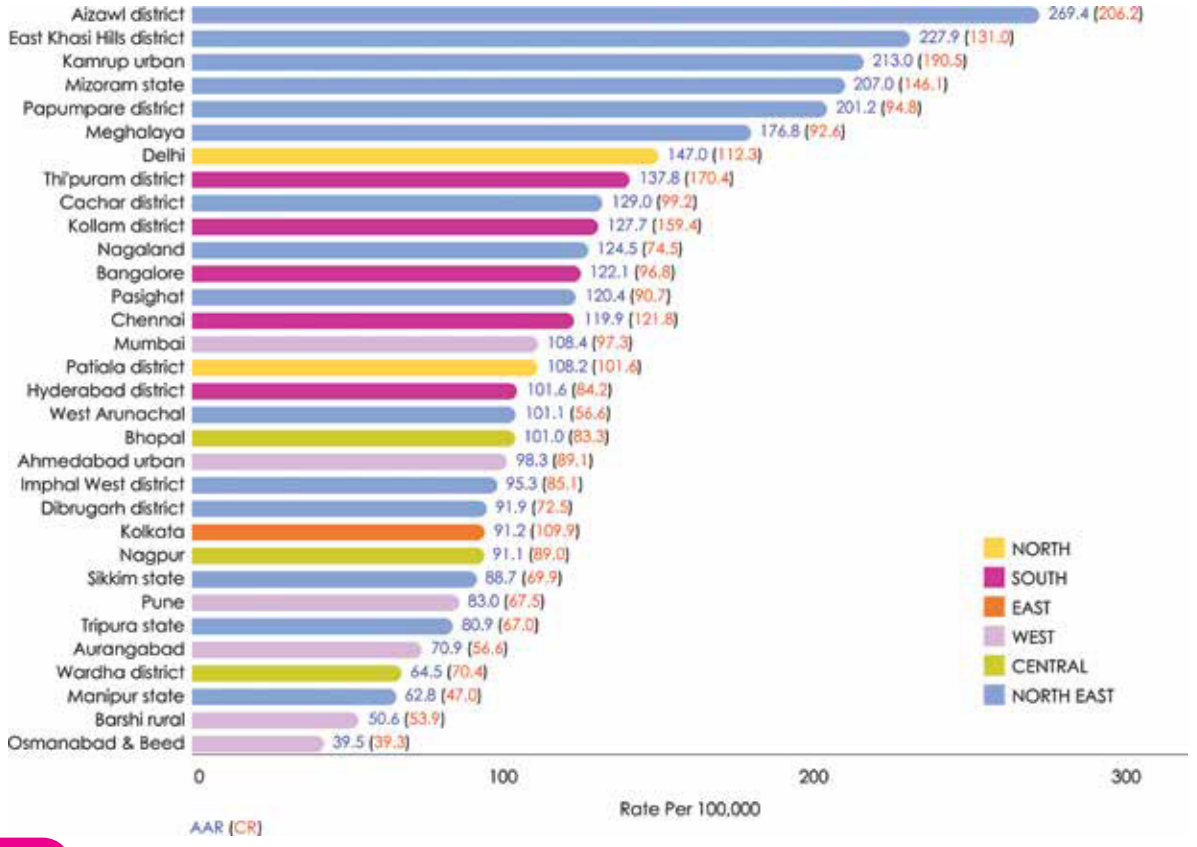
CR and AAR given in parentheses

Chapter 4 deals with the cancers of childhood. The incidence rates (expressed per million AARpm for children) have been analyzed for 0-14 age group (for comparison with previous NCRP publications) group and 0-19 age group (for comparison with international publications). Comparison of AARpm of childhood cancers across the registries within NCRP, with registries in Asian countries and those in Non-Asian countries is presented. Delhi PBCR recorded the highest proportion of childhood cancers in both 0-14 age group (3.7%) and 0-19 age group (4.9%). From the HBCR data, Leukaemia was the most common diagnosis of cancer both in 0-14 years (boys, 46.4%; girls, 44.3%) and in the 0-19 age group (boys, 43.2%; girls, 39.2%). Delhi PBCR had the highest incidence rate (AAR pm) of childhood cancers among boys in both 0-14 age group (203.1) and 0-19 age group (196.3). Among girls, Delhi had high incidence rate (125.4) in the 0-14 age group and Thiruvananthapuram district (123.5) had high incidence in the 0-19 age group.

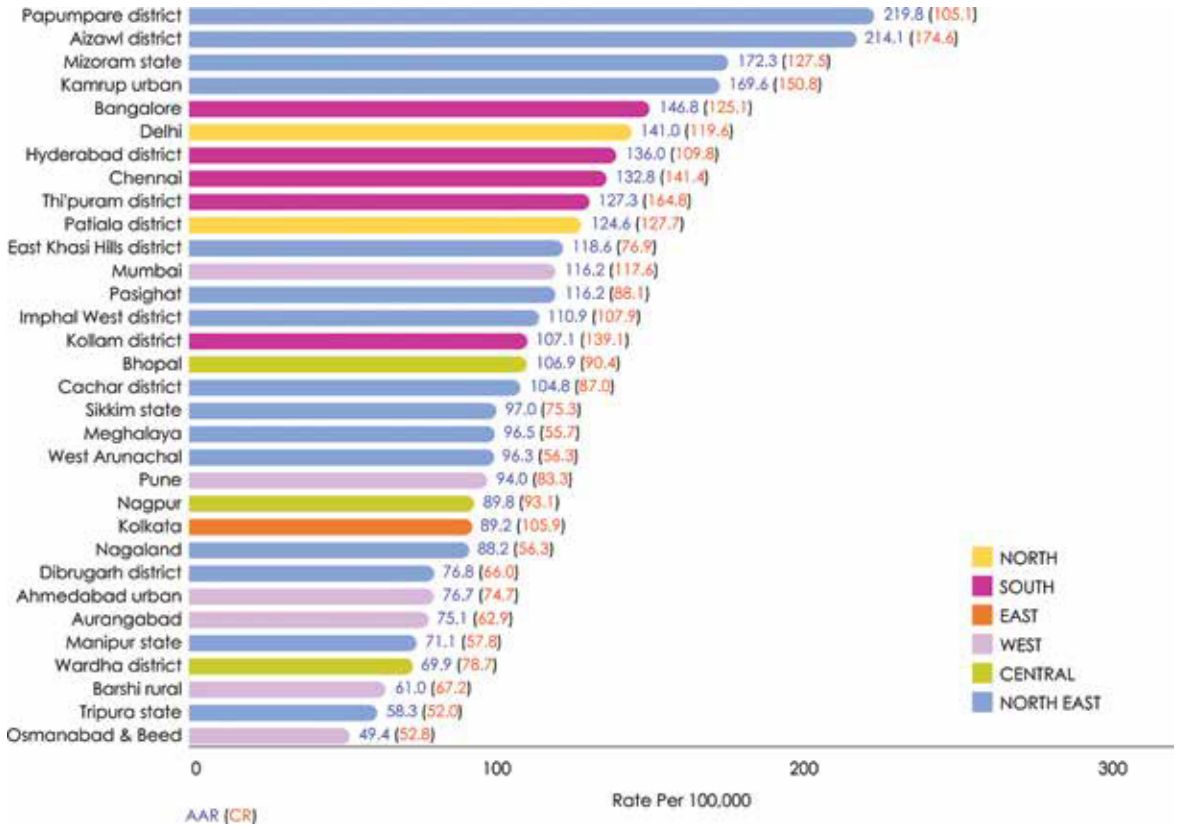
Chapter 5 compares cancer incidence and patterns of all PBCRs for different sites of cancer. Aizawl district had the highest incidence (AAR, 269.4) in males and Papumpare district (AAR, 219.8) had the highest in females for all sites of cancer. North east registries had higher incidence rates than the other registries in cancers of oropharynx, oesophagus, nasopharynx, hypopharynx, stomach, colorectal, liver, gall bladder, larynx, lung, cervix uteri and ovary. Cancer breast incidence was high in Hyderabad district, Chennai, Bangalore and Delhi.

ALL SITES (ICD-10: C00-C97) - Comparison of Age Adjusted Incidence Rates (AARs) of 28 PBCRs under NCRP

Males



Females



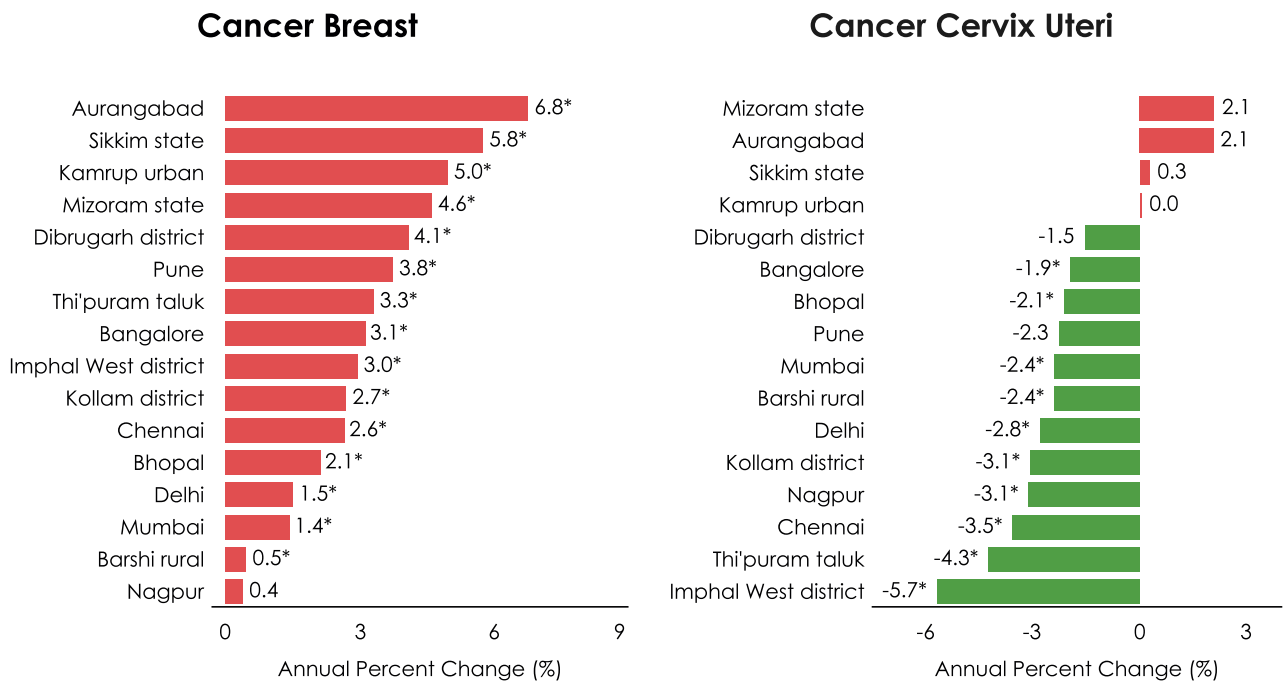
Chapter 6 presents the mortality rates and Mortality-Incidence percent (M/I%) for different cancers. Barshi rural PBCR recorded the highest M/I% (67.2%). Aizawl district recorded the highest Age Adjusted Mortality Rate (AAMR) in males (152.7) and females (89.5).

Section II provides a summary of statistical and scientific details on selected anatomical sites of cancers viz., cancer breast, cervix uteri, head & neck, lung and stomach. This section deals with incidence rates and their comparison with Asian and Non-Asian countries, cancer trends, staging and treatment of each of these sites of cancer.

Chapter 7: Cancer Breast – A significant increase in the incidence rates of breast cancer was observed in 15 PBCRs in females. Majority of patients underwent multi-modality treatment and 97.7% were epithelial tumours. Israel (84.6) had the highest incidence of breast cancer in Asia. In India, Hyderabad district (48.0) had the highest incidence rate.

Chapter 8: Cancer Cervix Uteri – A significant decrease in the incidence rates of cancer cervix uteri was observed in 10 PBCRs. Majority of patients underwent radiotherapy and chemotherapy and majority (99.5%) were epithelial tumours. Papumpare district, India had the highest incidence rate of cervical cancer (27.7) in Asia.

Annual Percent Change (APC) in Age Adjusted Incidence Rates (AAR) over the time period

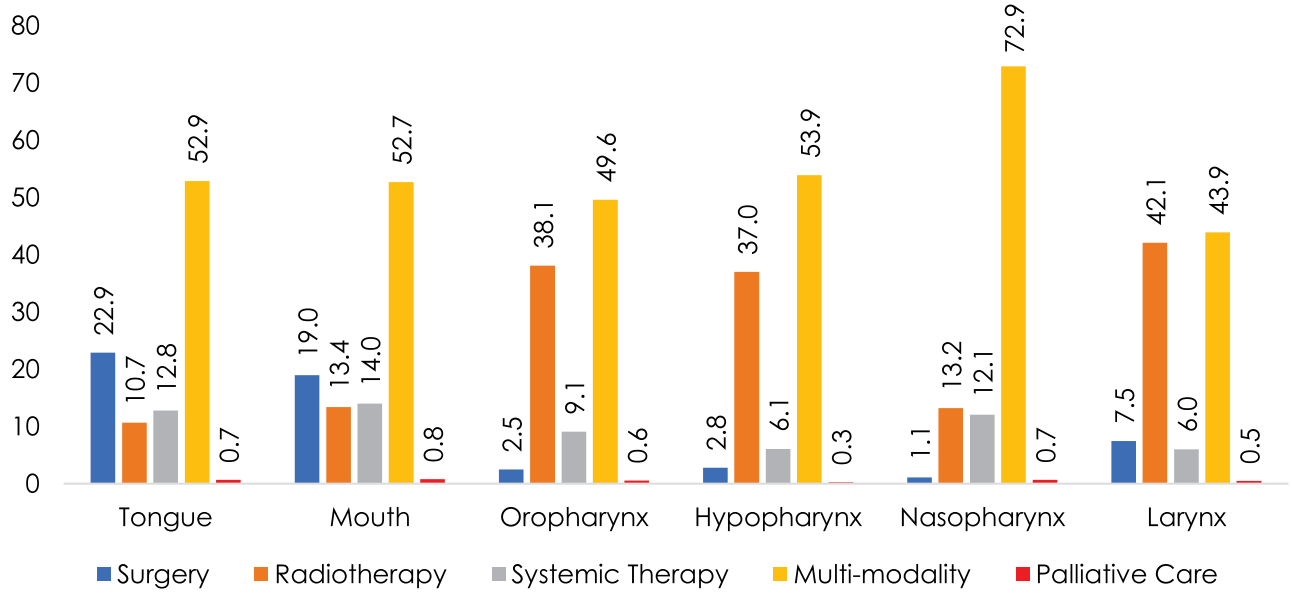


Increase in APC, Decrease in APC ; *Significant increase or decrease in APC at 95% confidence level

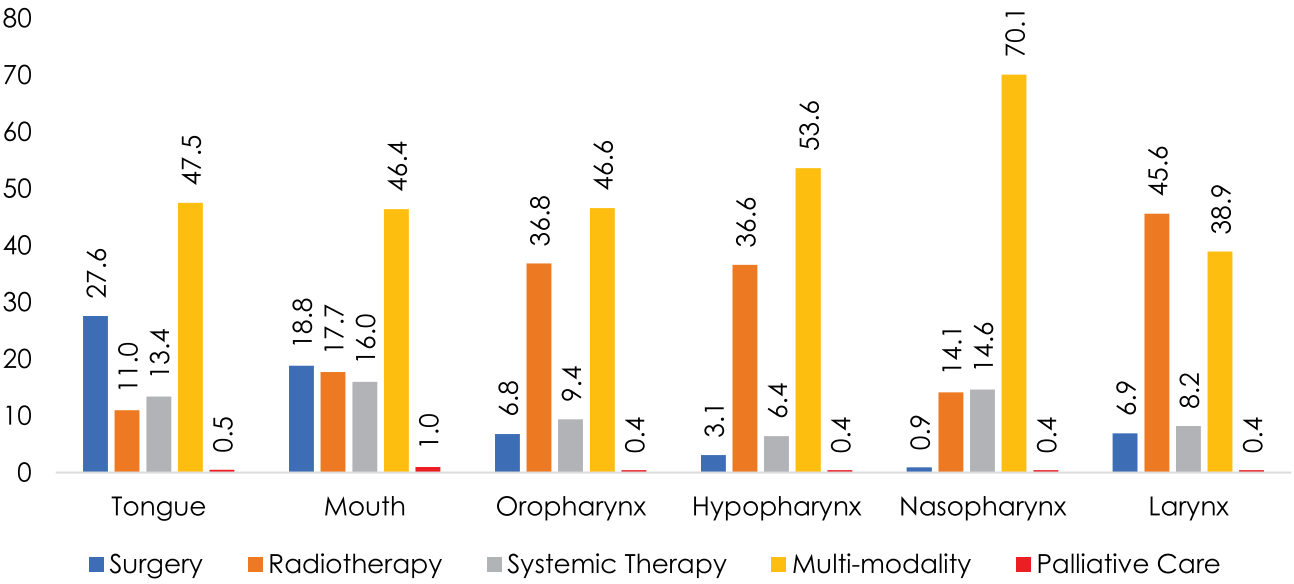
Chapter 9: Head & Neck Cancers – Cancer mouth was the most common of all head and neck cancers in both males and females. Multi-modality treatment was the most common treatment for all head & neck cancers except for cancer larynx in females, where radiotherapy was the most common treatment. In males, APC ranged from (–1.5) in Mumbai to 4.4 in Aurangabad. In females, APC ranged from (–3.1) in Sikkim state to 3.7 in Nagpur. East Khasi Hills district (12.8) followed by Ahmedabad urban (10.5) had the highest incidence rate in the world among males for tongue cancer. Among females, Bhopal (4.0) followed by Cachar district (3.8) had the highest incidence rate in the world.

Relative Proportion (%) of cases registered according to Types of Treatment for Head and Neck Cancers

Males



Females



Chapter 10: Cancer Lung – A significant increase in the incidence rates of cancer lung was observed in 5 PBCRs and 11 PBCRs in males and females respectively. Aizawl district had the highest incidence of cancer lung in Asia among females. Systemic therapy was the most common mode of treatment both in males and females. In Asia, Aizawl district, India (37.9) had the highest AAR per one lakh among females.

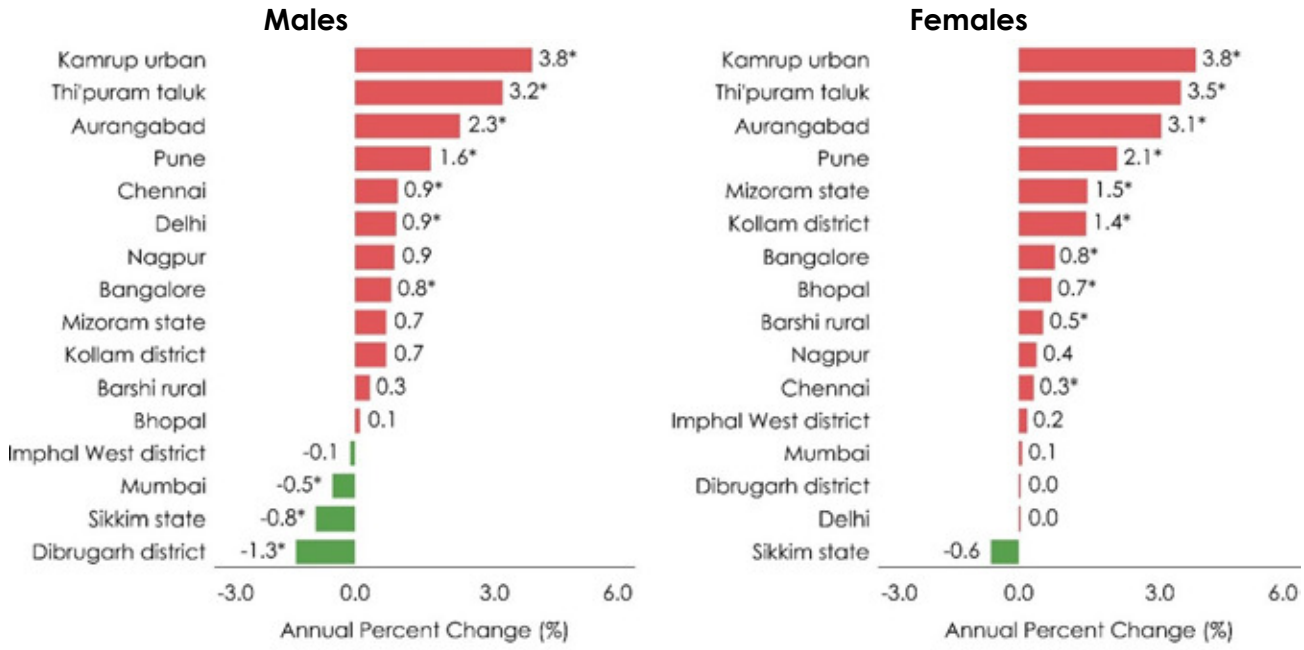
Chapter 11: Cancer Stomach – A significant decrease in the incidence rates of cancer stomach was observed in 7 PBCRs and 4 PBCRs in males and females respectively. On a comparison of incidence rates of cancer stomach with the Non-Asian countries, two districts from the north east were found to have the highest incidence rates in both males (Aizawl district, 44.2) in females (Papumpare district, 27.1). Systemic therapy was the most common mode of treatment given.

Section III

Chapter 12 discusses the quality of the data of the registries. Microscopic Verification (MV) of diagnosis was the highest in Hyderabad district (96.7%) leading to lowest registration of other and unspecified sites of cancer (1.8%). Age unknown was less than 0.6 % across all PBCRs and the highest M/I percent was observed in Barshi rural (67.2%). Out of 58 HBCRs, the MV% ranged between 90 – 100% in majority of the hospitals but the least MV% was observed to be 75.5% in one hospital.

Chapter 13 & 14 provides the cancer incidence rates over time and projected number of incidences of cancer cases for the years 2016 to 2025. A rise in the incidence of all sites of cancer was observed in majority of the PBCRs. In India, the total number of incidence cases in males is estimated to be 679421 in 2020 and 763575 in 2025. Among females, the total number of incidence cases is estimated to be 712758 in 2020 and 806218 in 2025. Cancer breast (238908) is expected to be the most common site of cancer in 2025 followed by cancer lung (111328) and mouth (90060). Tobacco related cancers are estimated to constitute 27% of all cancers in India.

Annual Percent Change (APC) in Age Adjusted Incidence Rates (AAR) over the time period - All Sites of Cancer.



*Increase in APC, Decrease in APC ; *Significant increase or decrease in APC at 95% confidence level*

The projected cancer cases in India is 2020 and 2025 is as below.

Anatomical Sites of Cancer	2020		2025	
	No. of Cases	%	No. of Cases	%
All Sites	**1392179**	**100.0**	**1569793**	**100.0**
Tobacco Related Cancers	377830	27.1	427273	27.2
Gastro Intestinal Tract	273982	19.7	310142	19.8
Cervix Uteri	75209	5.4	85241	5.4
Breast	205424	14.8	232832	14.8
Corpus Uteri and Ovary	70400	5.1	79765	5.1
Lymphoid & Haematopoietic Malignancies	124931	9.0	138592	8.8
Prostate	41532	3.0	47068	3.0
Central Nervous System	32729	2.4	36258	2.3

Network of 36 Population Based Cancer Registries

▲ PBCR data not included in the report (8)

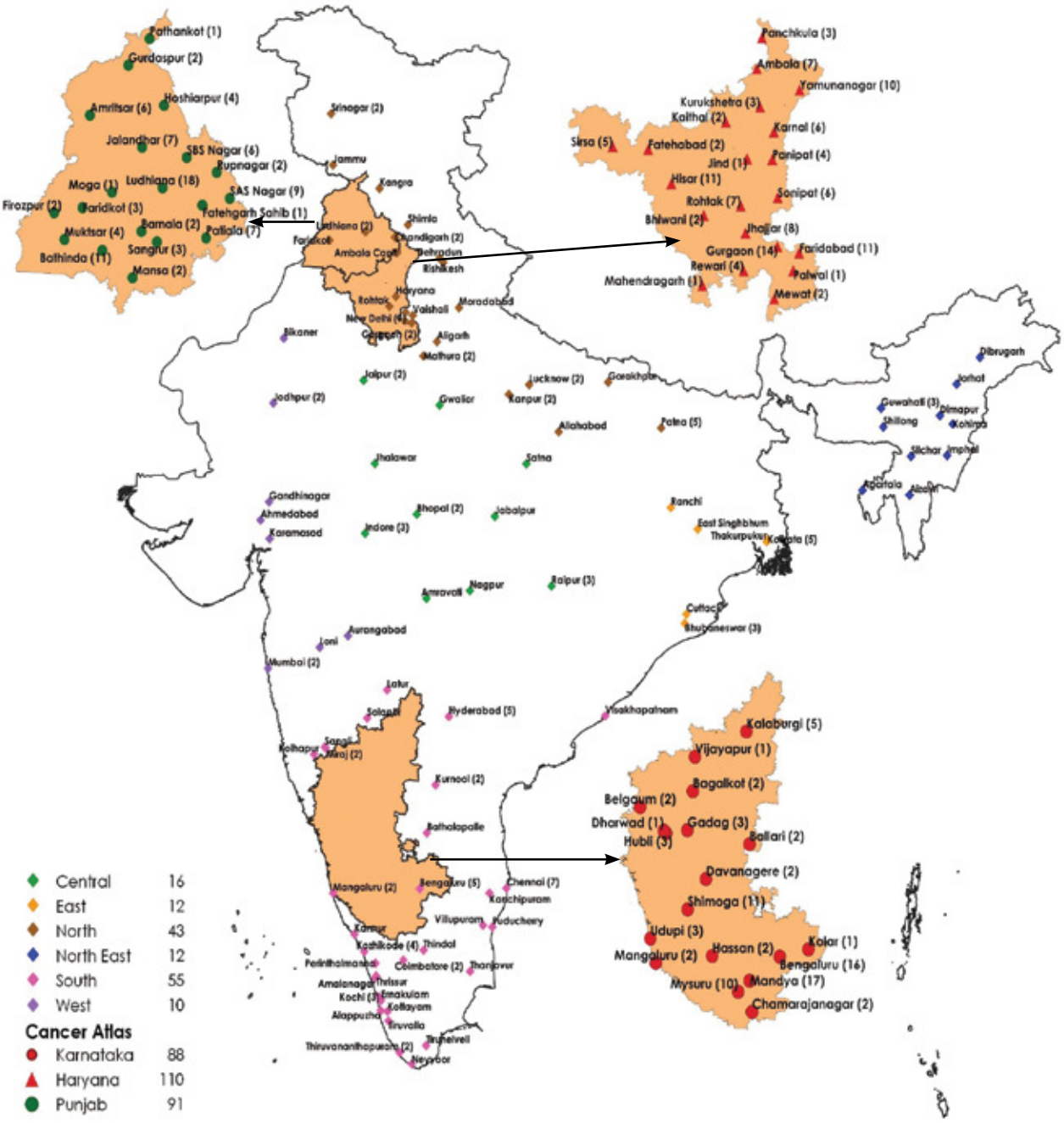
PBCR data included in the report

North	2
East	1
West	6
South	5
Central	3
North East	11

Registries	Year of Inception
Ahmedabad rural	2004
Malabar	2013
Karimganj	2016
Allahabad	2017
Gautam Budh Nagar	2017
Aligarh	2018
Patna	2018
Srinagar	2018

Source : ICMR-NCDIR, 2020

Network of Hospital Based Cancer Registries



Source : ICMR-NCDIR, 2020

Introduction

Cancer is a disease in which there is unregulated cell growth in any organ systems occurring in humans of all age groups, irrespective of age, sex, nationality, ethnicity, economic status, educational strata, geological and geographic distributions. In its presentation, it could be acute (sudden onset), sub-acute (slow onset), or chronic (long period of time). In its symptoms, it is known to present itself in the most insidious non-specific presenting symptoms like fever, diarrhoea or weight loss to the symptoms like bleeding, obstructive symptoms, growths. As a disease it has the potential to restrain a person from achieving full physical, physiological, psychological and economic potential. It's a major concern for the patient, his/her family, the clinician, the healthcare provider and the tax-payer.

The aetiology of cancer is multi-factorial: genetic predisposition, exposure to tobacco, certain chemicals, infections, radiation, inappropriate lifestyle factors (alcohol, Inappropriate diet, physical inactivity, high body mass index, diabetics and metabolic syndrome) have all been implicated in the causation of cancer. Yet, the cause remains undetermined in a large proportion of patients. This is important since much of the preventive strategies are based on some of the known factors. Associations have also been made on the degree of exposure, dose of exposure, duration of exposure, age (vulnerability) of the exposed and the like. All these factors have come from deductive reasoning of epidemiological data and an insight into the possible causative mechanisms. There have been remarkable successes in the evolving treatment modalities which have strengthened the fight against cancer.

The National Cancer Registry Programme - An Overview

Cancer registry is an organization of systematic collection, storage, analysis, interpretation and reporting of data on patients with cancer (IARC). A proper analysis and interpretation of data provides insights with inputs for its prevention, control and management.

Time-trend studies are also possible when data have been accumulated over long periods of time. In addition to incidence figures, population-based cancer registries who conduct follow-up of their patients are able to estimate the prevalence of cancer. Prevalence figures give an indication of the existing burden of the disease in the community.

A cancer registry provides an economical and efficient method of ascertaining cancer occurrence rather than intervention trials and cohort studies.

In India, the National Cancer Registry Programme (NCRP) under the Indian Council of Medical Research (ICMR) with its network of cancer registries was started in December 1981 with the co-ordinating centre at Bengaluru. Presently it is operated by the ICMR-NCDIR, Bengaluru. This provides the data on cancer incidence, mortality, pattern, trend and geo-pathological distribution of cancers. It also helps to formulate and implement policies and programmes, monitor and evaluate the cancer control activities.

There are two types of cancer registries under the programme. Population Based Cancer Registries (PBCRs) record all the new cancer cases occurring in a defined population within a geographic area. The Hospital Based Cancer Registries (HBCRs) record information on cancer patients attending a particular hospital, with focus on clinical care, treatment and outcome. Cancer Atlas approaches have also been used for specific short-term purposes.

The main objectives of the programme are:

1. To generate reliable data on the magnitude and patterns of cancer.
2. Propose further epidemiological studies based on results of registry data.
3. Help in designing, planning, monitoring and evaluation of cancer control activities under the National Programme for Prevention and Control of Cancer, Diabetes, Cardiovascular Diseases and Stroke (NPCDCS).
4. Develop training programmes in cancer registration and epidemiology.

NCRP started with a network of three PBCRs in Bangalore, Chennai and Mumbai and three HBCRs in Chandigarh, Dibrugarh and Thiruvananthapuram. The number of registries working under the programme have expanded greatly from the time of inception and presently there are 36 PBCRs and 236 HBCRs registered under NCRP.

Since cancer is not a notifiable disease, cancer registration in India is active and staff of all registries visit hospitals, pathology laboratories and all other sources of registration of cancer cases on a routine basis. Death certificates are also scrutinized from the local government units like municipal corporation and panchayat raj institutes and information is collected on all cases where cancer is mentioned as a cause of death on the death certificates.

The information that is collected on a core form is entered into a software provided by ICMR - NCDIR. The data is further transmitted to ICMR - NCDIR. Over the years, the registries and the office of the NCRP have used modern advances in electronic information technology to enter the data, checking of the data, verification of duplicates and matching of mortality and incidence records. The software applications developed by NCDIR have further evolved and so has the data submission methodology and overall support. Data quality is assessed at the coordinating unit under different dimensions like comparability, validity, timeliness and completeness. Frequent training and re-training programs are conducted for cancer registry investigators and staff to maintain quality of work. Interaction with local health and other stakeholders is undertaken by the registries to keep them informed and to firm up partnerships.

To improve the mortality data, all-cause mortality data is being collected in electronic form under NCRP. The same is being formatted, coded, checked and imported at NCRP to run the matches with the incidence.

The data from the NCRP has contributed significantly for improving public health and clinical patient care. Data from the NCRP registries is used as a basis for several research studies. Data is also regularly published in successive volumes of Cancer Incidence in Five Continents (CI 5) published by the International Agency for Research on Cancer - the cancer research arm of the World Health Organization (IARC-WHO). The incidence data from 15 PBCRs of India have been published in CI 5 - Vol XI published by IARC-WHO.

India as a country has demographically been known to have large proportions of younger population. If a comparison is drawn with some of the developed countries, the Indian age pyramid has a broader base (among lower age groups). The NCRP has witnessed a steady rise in incidence of cancer over the years and with larger number of populations in higher age groups, one of the reasons of rising incidence is the increasing life expectancy.

The proportion of population of India which has developed cancer would have great interest in knowing the stage-based survival of the type of cancer and also how much the advances in medical sciences could have controlled it.

The policy makers of the healthcare delivery system would like to know about the benefit of the availability of primary, secondary and tertiary health care and its impact in improving the survival and quality of life of cancer patients.

The clinicians treating it would be interested in knowing as to what the general trend of cancer has been, how effective is a particular modality of treatment, what are the average survival rates, any changes in the occurrence as per site and the like.

While all these three issues are directly or indirectly addressed by cancer registries, the possibilities of using the data in conjunction with other ongoing health plans are endless. The integration of survival data, hospitalisation data, morbidity data with preventive strategies, health education, provisioning of basic anti-cancer medications, provisioning of tertiary healthcare facilities to cover untouched areas are all potential areas where data driven knowledge can be of immense help.

Cancer registration in India face several challenges. Cancer is not a notifiable disease, and these poses data collection challenges. A few states have issued administrative notifications for the same. The mortality registration system has several gaps in the way mortality data is recorded affecting the coverage and completion of cause of death information. Cancer registries need to be linked to several other databases at national and local levels for seamless improvement of cancer statistics (Ayushman Bharat, other insurance scheme, mortality databases, Health Management Information System).

Cancer registries form the backbone of cancer prevention and control activities in India. Strengthening it will yield much improved information to track and monitor population and hospital level measures to track cancer.

Definitions, Statistical Terms and Methods

Cancer Registration may be defined as the process of continuing, systematic collection of data on the occurrence and characteristics of reportable neoplasms with the purpose of helping to assess and control the impact of malignancies on the community.

Cancer Case refers to all neoplasms with a behaviour code of '3' as defined by the International Classification of Diseases - Oncology, Third edition (ICD-O-3) are considered reportable and are registered in NCRP.

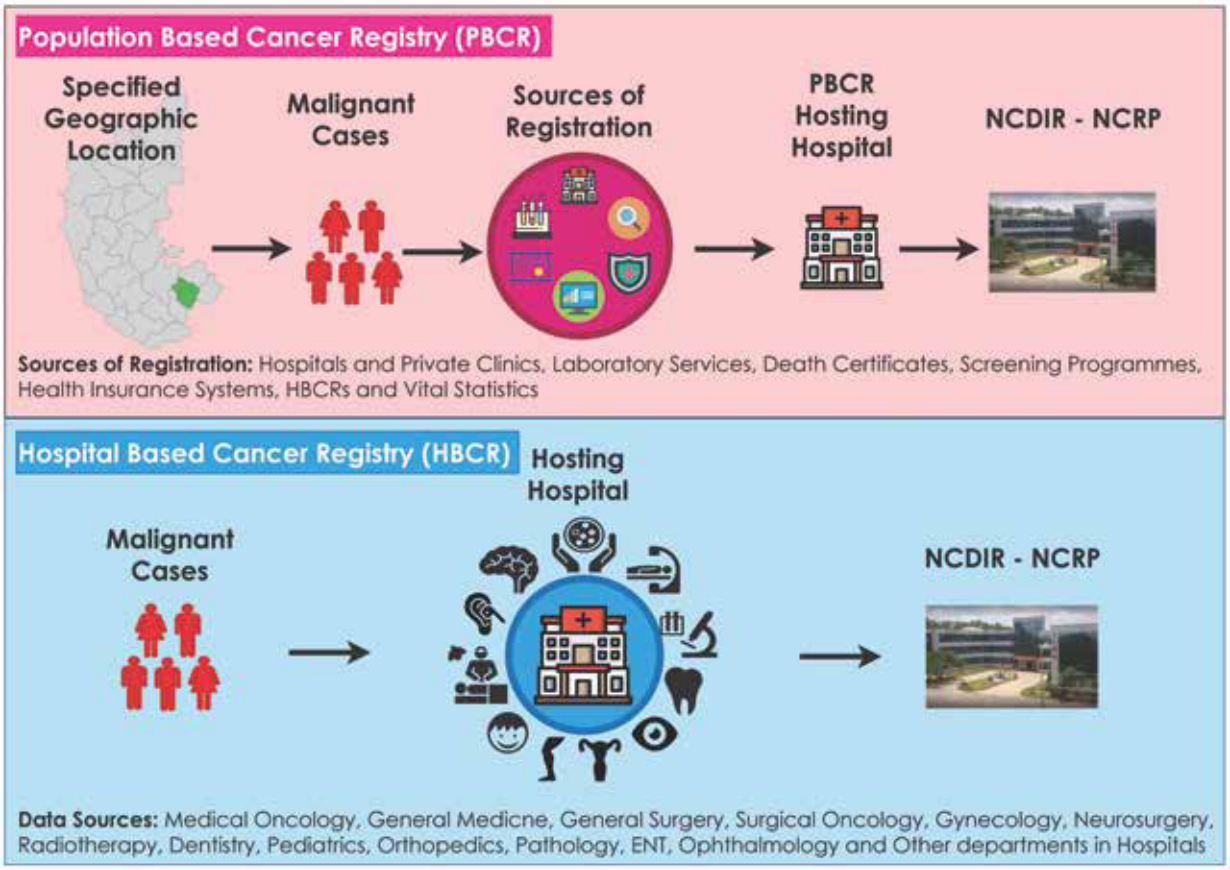
Cancer Registry is the office or institution which attempts to collect, store, analyse and interpret data on persons with cancer.

Population Based Cancer Registries (PBCRs) systematically collect information on an reportable neoplasms from multiple sources in a geographically defined population residing in the area for a period of one year.

Hospital Based Cancer Registries (HBCRs) are concerned with recording of information on the treatment, management and outcome of cancer patients registered in a particular hospital.

Sources of Registration will usually be hospitals or cancer centres but, depending on the local circumstances, a population-based registry will also involve private clinics, general practitioners, laboratories, health insurance systems, HBCRs, screening programmes and Vital statistics Department.

Data Processing Data Processing involves importing or downloading of data from the registries into the local database at ICMR-NCDIR. Quality of the data is checked for errors that may have been committed at data collection, abstraction or entry. Identification and elimination of duplicates is done through deterministic approach and by identifying names that are phonetically the same. Multiple combination of variables are used to generate the probable list. Duplicate deletion is done without any loss of information. Mortality data is linked/matched with incidence and the unmatched mortality cases are identified as either Death Certificate Notification (DCN)/ Death Certification Only (DCO). Clarification at each step is sought from each registry and the data is finalized for further analysis



Age-Group used for estimating populations as well as grouping cancer cases as per the WHO guidelines which is 0-4, 5-9, 10-14….75+.

According to the same definition the age group 0-14, 0-19 constitutes childhood cancer.

Cancer Incidence denotes new cases diagnosed in a defined population in a specified time period.

Cancer Mortality denotes number of cancer deaths occurring in a specified population during a specified time period.

Rates for cancer are always expressed per 100,000 population. For childhood cancer this may be expressed as per one million.

Crude Incidence Rate (CR) refers to the rate obtained by division of the total number of cancer cases by the corresponding estimated population (mid-year) and multiplying by 100,000.

$$CR = \frac{\textit{New Cases of cancer of a particular year}}{\textit{Estimated population of the same year}} \times 100{,}000$$

Age Specific Rate (ASpR) refers to the rate obtained by division of the total number of cancer cases by the corresponding estimated population in that age group and gender/ site/geographic area/time period and multiplying by 100,000.

$$ASpR = \frac{\textit{New Cases of cancer of a particular year in the given age group}}{\textit{Estimated population of the same year for the give age group}} \times 100{,}000$$

Age Adjusted or Age Standardised Rate (AAR) Cancer incidence increases as age increases.

Therefore, higher the proportion of older population, higher is the number of cancers. Most developed and western countries have a higher proportion of older population. So in order to make rates of cancer comparable between countries, a world standard population (given below) that takes this into account is used to arrive at age adjusted or age standardised rates. This is calculated according to the direct method (Boyle and Parkin, 1991) by obtaining the age specific rates and applying these rates to the standard population in that age group. The world standard population approximates the proportional age distribution of the world and is given below:

Age Distribution of World Standard Population (Segi.et.al)

Age Group	World Standard Population
00-04	12,000
05-09	10,000
10-14	9,000
15-19	9,000
20-24	8,000
25-29	8,000
30-34	6,000
35-39	6,000
40-44	6,000
45-49	6,000
50-54	5,000
55-59	4,000
60-64	4,000
65-69	3,000
70-74	2,000
75+	2,000
All Ages	100,000

$$AAR = \frac{\sum_{i=1}^{A}(a_i w_i)}{\sum_{i=1}^{A} w_i}$$

Where, a_i is the age specific rate (AspR) in age class i;

w_i is the standard population in age class i;

A represents the number of age intervals.

Or expressed in simpler terms thus:

$$AAR = \frac{\Sigma(ASpR) \times (No.\ of\ persons\ in\ Std.\ world\ population\ in\ that\ 5\ yr.\ age\ group}{100{,}000}$$

Cumulative Risk refers to the probability that the person will develop a particular cancer during a certain age period in the absence of any other cause of death. The Cumulative Rate (CuR) is an approximation of the cumulative risk. It is obtained by adding the annual age-specific incidence rates for each five-year age interval (up to either 64 or 74 years of age or for whatever age group is to be used to calculate the cumulative risk) multiplied by 5 (representing the five-year age interval) times 100/100,000.

$$CuR = \frac{5 \times \sum(ASpR) \times 100}{100{,}000}$$

And cumulative risk is expressed as

Cumulative Risk = 100 × [1 – exp(–cumulative rate/100)]

Possibility one in number = (1/ Cumulative Risk) × 100

Truncated Age Adjusted Incidence Rate (TR) - This is similar to the age adjusted rate except that it is calculated for the truncated age group 35-64 years of age.

Sex Ratio is used to describe the number of females per 1000 males.

M/I Ratio Percent is obtained by dividing the mortality count by the incidence count in a given year (%).

Trends in Crude Rate or Age Adjusted Incidence Rates - The significance of trend in CR or AAR was assessed based on Joinpoint regression.

About Joinpoint Regression Program - Joinpoint Regression Program, Version 4.7.0, is a statistical software for the analysis of trends using Joinpoint models, i.e, where several different regression lines are connected together at the "Joinpoints". The software takes trend data (e.g. cancer rates) and fits the simplest Joinpoint model that the data allow. The program starts with the minimum number of Joinpoints (e.g. 0 Joinpoint, which is a straight line) and tests whether more Joinpoints are statistically significant and must be added to the model (upto that maximum number). In this report we have seen Annual Percent Change (APC) of straight line for a specified period of time.

For example, if the APC is 1%, and the rate is 50.0 per 100,000 in 2000, the rate is 50 × 1.01 = 50.50 in 2001 and 50.5 × 1.01 = 51.005 in 2002.

Rates that change at a constant percentage every year, change linearly on a log scale. For this reason, to estimate the APC for a series of data, the following regression model is used.

$$\log(Ry) = \beta_0 + \beta_1 y$$

where log(*Ry*) is the natural log of the rate in year y.

The APC from year *y* to year *y*+1 $= \dfrac{\left(R_{y+1} - R_y\right)}{R_y} \times 100$

$$= \frac{\left[e^{\beta_0+\beta_1(y+1)} - e^{\beta_0+\beta_1(y)}\right]}{e^{\beta_0+\beta_1(y)}} \times 100 = \left(e^{\beta_1} - 1\right) \times 100$$

Population Estimation The census populations of 2001 and 2011 were used in this report to calculate the estimates of population for the years 2012 and 2016 (Difference Distribution method for estimation of populations by five yearly age groups)

Section I

Chapter 1

1.1 Population and Cancer Incidence

The major contribution of Population Based Cancer Registries (PBCRs) is to provide cancer incidence rates, compare cancer incidence and patterns across other registries and in different subgroups of population in the respective areas.

PBCRs systematically collect information on all reportable neoplasms occurring in a geographically defined population from multiple sources of cancer registration. The systematic ascertainment of cancer incidence from multiple sources can provide an unbiased profile of the cancer burden in the population and how it is changing over time. The comparison and interpretation of population based cancer incidence data support population-based actions aimed at reducing the cancer burden.

Cancers reported for all anatomical sites of cancer as per International Classification of Diseases (ICD-10:C00-C97) are included in this chapter.

Geographical area and population at risk

The growth rate of the population between the census years 2001 and 2011 has been used (through the Difference Distribution Method of Takiar and Shobana, 2009) to estimate the mid-year populations (five-year age group and total) for the years of the report, viz., 2012 to 2016. The same has been followed for 27 PBCRs. The 2001 census has not been accepted by the Govt. of Nagaland. The population for Nagaland PBCR has therefore been estimated using 1991 and 2011 census to get the mid-year population of 2012-2016. Factors such as net migration, birth rate and death rate have not been considered.

The data from PBCR Hyderabad has been included for the first time in this report. PBCR Hyderabad covers the entire district of Hyderabad.

Table 1.1 shows the number of male and female population covered by 28 PBCRs and provides information from 32 geographical areas. The average population covered per year ranged from 1.39 lakhs in Pasighat PBCR from Arunachal Pradesh to 173.0 lakhs in Delhi registry. The sex ratio showed that Mumbai PBCR has the lowest ratio with 865 females to that of 1000 males. The percentage of rural population reporting in North eastern PBCRs was higher when compared to other PBCRs. There are 12 purely urban PBCRs, 1 purely rural and 15 PBCRs covering both urban and rural populations in differing proportions.

Table 1.1 Population profile of 28 PBCRs under NCRP with Average Annual Person Years and Area of Residence: 2012-2016

Sl No	Registry, *State*	Area (Sq.km.)	Males	Females	Total	Urban (%)	Rural (%)	Sex Ratio (per 1000)
	NORTH							
1	**Delhi,** *Delhi NCT*	1157	9207329	8100344	17307673	100.0	0.0	880
2	**Patiala district,** *Punjab*	3325	1061516	951495	2013011	40.3	59.7	896
	SOUTH							
3	**Hyderabad district,** *Telangana*	217	2035004	1958731	3993735	100.0	0.0	963
4	**Kollam district,** *Kerala*	2491	1246085	1406494	2652579	45.0	55.0	1129
5	**Thi'puram district#,** *Kerala*	2192	1585619	1738609	3324228	53.7	46.3	1096
6	**Bangalore,** *Karnataka*	741	4552663	4216563	8769226	100.0	0.0	926
7	**Chennai,** *Tamil Nadu*	170	2376013	2376899	4752912	100.0	0.0	1000
	EAST							
8	**Kolkata,** *West Bengal*	185	2317736	2159343	4477079	100.0	0.0	932
	WEST							
9	**Ahmedabad urban,** *Gujarat*	364	3270940	2951374	6222314	100.0	0.0	902
10	**Aurangabad,** *Maharashtra*	148	679169	636426	1315595	100.0	0.0	937
11	**Osmanabad & Beed,** *Maharashtra*	18262	2312853	2115972	4428825	18.7	81.3	915
12	**Barshi rural,** *Maharashtra*	3713	269505	242016	511521	0.0	100.0	898
13	**Mumbai,** *Maharashtra*	603	6743382	5835378	12578760	100.0	0.0	865
14	**Pune,** *Maharashtra*	613	2868568	2598211	5466779	100.0	0.0	906
	CENTRAL							
15	**Wardha district,** *Maharashtra*	6309	678494	644397	1322891	32.5	67.5	950
16	**Bhopal,** *Madhya Pradesh*	350	1070229	992484	2062713	100.0	0.0	927
17	**Nagpur,** *Maharashtra*	237	1337922	1298800	2636722	100.0	0.0	971
	NORTH EAST							
18	**Manipur state**	22327	1576453	1557045	3133498	29.2	70.8	988
	Imphal West district	519	267271	278024	545295	62.3	37.7	1040
19	**Mizoram state**	21087	591920	585845	1177765	52.1	47.9	990
	Aizawl district	3576	211475	217604	429079	78.6	21.4	1029
20	**Sikkim state**	7096	335541	300327	635868	25.2	74.8	895
21	**Tripura state**	10492	1959179	1888916	3848095	26.2	73.8	964
22	**West Arunachal*,** *Arunachal Pradesh*	42095	431626	415804	847430	25.8	74.2	963
	Papumpare district	3462	99623	100462	200085	54.9	45.1	1008
23	**Meghalaya*,** *Meghalaya*	14262	1012757	1016291	2029048	24.9	75.1	1003
	East Khasi Hills district	2748	440455	449646	890101	44.4	55.6	1021
24	**Nagaland*,** *Nagaland*	2390	376585	352257	728842	49.3	50.7	935
25	**Pasighat*,** *Arunachal Pradesh*	10193	70769	68765	139534	25.4	74.6	972
26	**Cachar district,** *Assam*	3786	940216	906827	1847043	18.2	81.8	964
27	**Dibrugarh district,** *Assam*	3381	698860	678461	1377321	18.4	81.6	971
28	**Kamrup urban,** *Assam*	336	653267	635246	1288513	100.0	0.0	972

* Meghalaya covers East Khasi Hills, West Khasi Hills, Jaintia Hills and Ri Bhoi districts

* Nagaland covers Kohima and Dimapur districts

* Pasighat covers East Siang and Upper Siang

* West Arunachal covers Tawang, West Kameng, East Kameng, Upper Subansiri, Lower Subansiri, Kurung Kumey, Papumpare and West Siang

Thi'puram district represents Thiruvananthapuram district in all the tables and figures.

Table 1.2 Total Number of Cancer Cases Registered in 28 PBCRs under NCRP

Sl No	Registry	Males		Females		Total
		n	%	n	%	(N)
	NORTH					
1	Delhi (2012-2014)	31032	51.6	29065	48.4	60097
2	Patiala district (2012-2016)	5394	47.0	6077	53.0	11471
	SOUTH					
3	Hyderabad district (2014-2016)	5143	44.4	6453	55.6	11596
4	Kollam district (2012-2016)	9930	50.4	9780	49.6	19710
5	Thi'puram district (2012-2016)	13506	48.5	14327	51.5	27833
6	Bangalore (2012-2014)	13221	45.5	15828	54.5	29049
7	Chennai (2012-2016)	14468	46.3	16803	53.7	31271
	EAST					
8	Kolkata (2012-2015)	10186	52.7	9151	47.3	19337
	WEST					
9	Ahmedabad urban (2012-2016)	14579	56.9	11025	43.1	25604
10	Aurangabad (2012-2016)	1923	49.0	2001	51.0	3924
11	Osmanabad & Beed (2012-2015)	3635	44.9	4467	55.1	8102
12	Barshi rural (2012-2016)	726	47.2	813	52.8	1539
13	Mumbai (2012-2015)	26256	48.9	27458	51.1	53714
14	Pune (2012-2016)	9687	47.2	10818	52.8	20505
	CENTRAL					
15	Wardha district (2012-2016)	2389	48.5	2537	51.5	4926
16	Bhopal (2012-2015)	3567	49.8	3589	50.2	7156
17	Nagpur (2012-2016)	5952	49.6	6047	50.4	11999
	NORTH EAST					
18	Manipur state (2012-2016)	3702	45.1	4500	54.9	8202
	Imphal West district (2012-2016)	1137	43.1	1500	56.9	2637
19	Mizoram state (2012-2016)	4323	53.6	3736	46.4	8059
	Aizawl district (2012-2016)	2180	53.4	1900	46.6	4080
20	Sikkim state (2012-2016)	1172	50.9	1131	49.1	2303
21	Tripura state (2012-2016)	6559	57.2	4914	42.8	11473
22	West Arunachal (2012-2016)	1222	51.1	1171	48.9	2393
	Papumpare district (2012-2016)	472	47.2	528	52.8	1000
23	Meghalaya (2012-2016)	4688	62.3	2832	37.7	7520
	East Khasi Hills district (2012-2016)	2884	62.5	1729	37.5	4613
24	Nagaland (2012-2016)	1403	58.6	992	41.4	2395
25	Pasighat (2012-2016)	321	51.4	303	48.6	624
26	Cachar district (2012-2016)	4663	54.2	3943	45.8	8606
27	Dibrugarh district (2012-2016)	2535	53.1	2238	46.9	4773
28	Kamrup urban (2012-2016)	6223	56.5	4790	43.5	11013

Reporting year data given in parentheses

In Table 1.2, the top five PBCRs to register maximum number of cases were Delhi (60097), Mumbai (53714), Chennai (31271), Bangalore (29049) and Thiruvananthapuram district (27833) PBCRs. Most of the registries in north eastern part of the country registered higher proportion of cancers in males, except at Manipur, Imphal West district, and Papumpare

district in Arunachal Pradesh. Registered females cancers were higher in other regions except in Delhi, Kollam district, Kolkata and Ahmedabad urban.

Table 1.3 Incidence Rates: Crude Rate (CR), Age Adjusted Rate (AAR) and Truncated Rate (TR (35-64yrs)) per 100,000 population for All Sites of Cancer in 28 PBCRs under NCRP

Sl No	Registry	Males			Females		
		CR	AAR	TR	CR	AAR	TR
	NORTH						
1	Delhi (2012-2014)	112.3	147.0	232.2	119.6	141.0	279.0
2	Patiala district (2012-2016)	101.6	108.2	196.4	127.7	124.6	271.4
	SOUTH						
3	Hyderabad district (2014-2016)	84.2	101.6	172.2	109.8	136.0	278.3
4	Kollam district (2012-2016)	159.4	127.7	198.0	139.1	107.1	205.7
5	Thi'puram district (2012-2016)	170.4	137.8	211.5	164.8	127.3	242.8
6	Bangalore (2012-2014)	96.8	122.1	181.7	125.1	146.8	283.6
7	Chennai (2012-2016)	121.8	119.9	185.2	141.4	132.8	260.5
	EAST						
8	Kolkata (2012-2015)	109.9	91.2	145.2	105.9	89.2	175.9
	WEST						
9	Ahmedabad urban (2012-2016)	89.1	98.3	183.2	74.7	76.7	158.0
10	Aurangabad (2012-2016)	56.6	70.9	121.6	62.9	75.1	158.5
11	Osmanabad & Beed (2012-2015)	39.3	39.5	71.5	52.8	49.4	108.2
12	Barshi rural (2012-2016)	53.9	50.6	80.5	67.2	61.0	126.5
13	Mumbai (2012-2015)	97.3	108.4	155.1	117.6	116.2	207.6
14	Pune (2012-2016)	67.5	83.0	120.0	83.3	94.0	177.7
	CENTRAL						
15	Wardha district (2012-2016)	70.4	64.5	109.7	78.7	69.9	148.9
16	Bhopal (2012-2015)	83.3	101.0	180.0	90.4	106.9	223.3
17	Nagpur (2012-2016)	89.0	91.1	158.6	93.1	89.8	188.2
	NORTH EAST						
18	Manipur state (2012-2016)	47.0	62.8	91.0	57.8	71.1	129.6
	Imphal West district (2012-2016)	85.1	95.3	125.5	107.9	110.9	198.2
19	Mizoram state (2012-2016)	146.1	207.0	357.7	127.5	172.3	313.2
	Aizawl district (2012-2016)	206.2	269.4	485.5	174.6	214.1	377.5
20	Sikkim state (2012-2016)	69.9	88.7	131.5	75.3	97.0	175.2
21	Tripura state (2012-2016)	67.0	80.9	145.9	52.0	58.3	127.3
22	West Arunachal (2012-2016)	56.6	101.1	199.9	56.3	96.3	215.7
	Papumpare district (2012-2016)	94.8	201.2	372.7	105.1	219.8	499.0
23	Meghalaya (2012-2016)	92.6	176.8	386.0	55.7	96.5	201.1
	East Khasi Hills district (2012-2016)	131.0	227.9	494.5	76.9	118.6	242.5
24	Nagaland (2012-2016)	74.5	124.5	223.8	56.3	88.2	193.6
25	Pasighat (2012-2016)	90.7	120.4	207.6	88.1	116.2	260.3
26	Cachar district (2012-2016)	99.2	129.0	233.4	87.0	104.8	234.2
27	Dibrugarh district (2012-2016)	72.5	91.9	155.9	66.0	76.8	170.7
28	Kamrup urban (2012-2016)	190.5	213.0	339.7	150.8	169.6	320.8

Reporting year data given in parentheses

Crude Rate (CR)

In Table 1.3, the first five highest CR per 100,000 population among males was observed in Aizawl district (206.2), followed by Kamrup urban (190.5), Thiruvananthapuram district (170.4), Kollam district (159.4) and Mizoram state (146.1).

Similarly, among females, the first five highest CR was observed in Aizawl district (174.6) followed by Thiruvananthapuram district (164.8), Kamrup urban (150.8), Chennai (141.4) and Kollam district (139.1).

The registries covering geographic areas of North eastern parts of the country and South Western coastal areas have showed higher crude incidence rates in both males and females. The finding of higher CRs in north eastern states conforms to higher incidence rates found in earlier NCDIR-NCRP reports. Determined by the population pyramid, registries in South Western coastal areas showed higher proportions of older age groups which gives a pointer towards higher rates of CRs as compared to AARs found in the area.

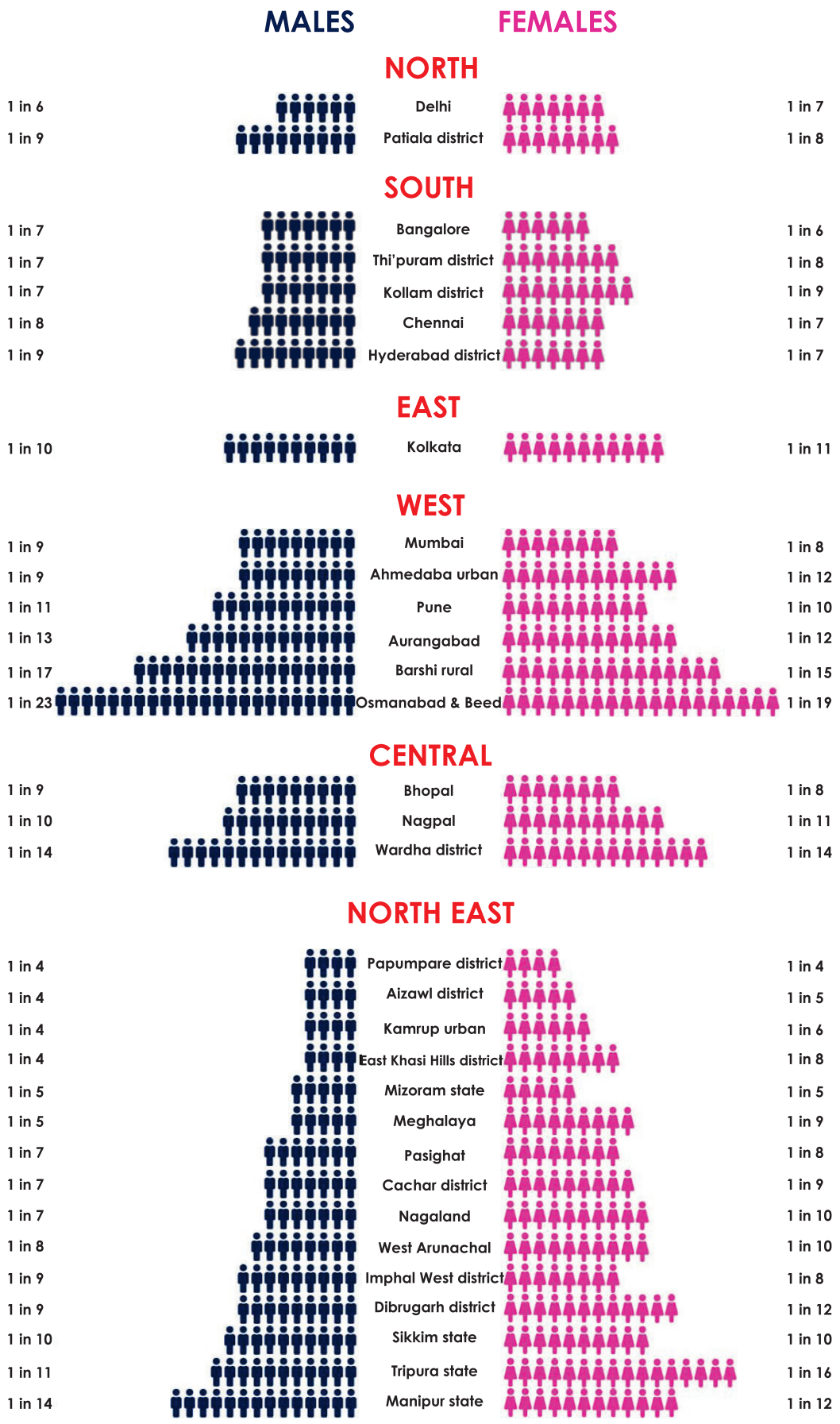
Age Adjusted Rates (AAR)

The AAR per 100,000 population in males ranged from 39.5 in Osmanabad & Beed district in Maharashtra to 269.4 in Aizawl district of Mizoram state followed by East Khasi Hills district (227.9) in Meghalaya. In females, it ranged from 49.4 in Osmanabad & Beed district to 219.8 in Papumpare district under West Arunachal PBCR followed by Aizawl district (214.1).

Truncated Rates (TR)

In males, the TR per 100,000 population ranged from 71.5 in Osmanabad & Beed district to 494.5 in East Khasi Hills district followed by Aizawl district (485.5). Similarly, in females, it ranged from 108.2 in Osmanabad & Beed district to 499.0 in Papumpare district of Arunachal Pradesh.

Figure 1.1 Cumulative Risk of developing Cancer of Any Site in 0-74 years of Age in 28 PBCRs under NCRP



1 out of every 4 males in the Papumpare district, Aizawl district, Kamrup urban and East Khasi Hills district were likely to develop cancer in the age group 0-74 years. In Papumpare district, 1 in 4 females had chances of developing cancer in the age group 0-74 years. Most registries in North Eastern region showed more male preponderance in risk, whereas registries other than North Eastern showed more female preponderance in risk.

In Osmanabad and Beed district, 1 in 23 and 1 in 19 males and females, respectively could develop cancer in the age group 0-74 years. It was observed that the risk of developing cancer among males and females was similar within most of the registries.

1.2 Number and Relative Proportion for all sites of Cancer in Hospital Based Cancer Registries

Hospital Based Cancer Registries (HBCRs) compile information on the cases diagnosed and/or treated in a particular institution. They provide readily accessible information on the subjects with cancer, the treatment they received and its result, thus contributing to patient care. HBCRs register malignant cases irrespective of the residential status of the patient.

Of the 236 HBCR centres registered in NCRP 58 centres were selected which had completed data transmission and quality checks for one or more years during the period-2012-2016 for inclusion in the report. The data of many of these (42 out of 58) hospitals is included for the first time under the NCDIR-NCRP network.

Table 1.4 Number (n) and Relative Proportion (%) of New Cases reported for All Sites of Cancer in 58 HBCRs under NCRP

Sl No	Registry (Year)	Males		Females		Total
		n	%	n	%	N
	NORTH					
1	Postgraduate Institute of Medical Education and Research, Chandigarh (2012-2016)	16786	55.5	13432	44.5	30218
2	Sher-I-Kashmir Institute of Medical Sciences, Srinagar (2012-2016)	9433	57.9	6864	42.1	16297
3	Medanta Cancer Centre, Gurgaon (2012-2016)	4197	54.3	3527	45.7	7724
4	Max Super Speciality Hospital, New Delhi (2013-2016)	4773	49.7	4827	50.3	9600
5	Dr. B.R. Ambedkar Institute Rotary Cancer Hospital, New Delhi (2012, 2014-2015)	14649	55.4	11771	44.6	26420
6	Regional Cancer Centre Kamala Nehru Memorial Hospital, Allahabad (2014-2016)	7011	50.8	6793	49.2	13804
7	Fortis Memorial Research Institute, Gurgaon (2014-2016)	5105	54.8	4214	45.2	9319
8	Indira Gandhi Institute of Medical Sciences, Patna (2014-2016)	4391	51.1	4209	48.9	8600
9	Regional Cancer Centre Indira Gandhi Medical College, Shimla (2014-2016)	3045	53.6	2633	46.4	5678
10	Government Medical College, Jammu (2014-2016)	2846	55.0	2329	45.0	5175

Sl No	Registry (Year)	Males		Females		Total
		n	%	n	%	N
11	Sanjay Gandhi Post Graduate Institute of Medical Sciences, Lucknow (2014-2016)	2889	56.9	2186	43.1	5075
12	Rajiv Gandhi Cancer Institute, New Delhi (2012-2013)	7764	56.3	6020	43.7	13784
13	Max Super Speciality Hospital, PPG, Delhi (2015-2016)	1212	49.3	1244	50.7	2456
14	Mahavir Cancer Sansthan and Research Centre, Patna (2015)	4040	46.2	4707	53.8	8747
15	Asian Institute of Medical Sciences, Faridabad (2016)	568	51.8	528	48.2	1096
16	BPS Government Medical College for Women, Sonepat (2016)	184	71.9	72	28.1	256
	EAST					
17	Apollo Hospital, Bhubaneswar (2012-2016)	653	61.2	414	38.8	1067
18	Tata Medical Center, Kolkata (2015-2016)	4856	52.6	4384	47.4	9240
19	Acharya Harihar Regional Cancer Centre, Cuttack (2015-2016)	3549	45.9	4177	54.1	7726
20	Chittaranjan National Cancer Institute, Kolkata (2016)	2948	51.6	2768	48.4	5716
	WEST					
21	Pravara Rural Hospital & Rural Medical College, Loni (2016)	360	43.2	473	56.8	833
22	Tata Memorial Hospital- Mumbai (2012-2014)	46621	57.4	34639	42.6	81260
23	The Gujarat Cancer & Research Institute, Ahmedabad (2014-2016)	35292	61.3	22266	38.7	57558
	SOUTH					
24	Regional Cancer Centre, Thiruvananthapuram (2012-2016)	30066	49.3	30918	50.7	60984
25	Cancer Institute(WIA),Chennai (2012-2016)	20902	47.2	23358	52.8	44260
26	Amrita Institute of Medical Sciences & Research Centre, Kochi (2012-2016)	10231	55.7	8127	44.3	18358
27	Malabar Cancer Centre, Kannur (2012-2016)	8190	53.8	7038	46.2	15228
28	Vydehi Institute of Medical Sciences, Bengaluru (2012-2016)	4212	52.7	3773	47.3	7985
29	International Cancer Centre, Neyyoor (2012-2016)	1177	46.2	1373	53.8	2550
30	Rural Development Trust, Bathalapalle (2012-2016)	484	25.2	1437	74.8	1921
31	Kidwai Memorial Institute of Oncology, Bengaluru (2012-2015)	15291	44.9	18789	55.1	34080
32	St. Johns Medical Hospital, Bangalore (2013-2016)	1911	51.0	1838	49.0	3749
33	JIPMER, Regional Cancer Centre, Puducherry (2014-2016)	5755	42.2	7878	57.8	13633

Sl No	Registry (Year)	Males		Females		Total
		n	%	n	%	N
34	Govt Arignar Anna Memorial Cancer Hospital & Research Institute, Kanchipuram (2014-2016)	1754	36.0	3123	64.0	4877
35	Shakunatala Memorial Hospital & Research Centre, Hubli (2014-2016)	190	53.5	165	46.5	355
36	HCG Bangalore Institute of Oncology, Bangalore (2012-2013)	2633	46.1	3073	53.9	5706
37	HCG NMR Cancer Centre, Hubli (2015-2016)	705	48.5	749	51.5	1454
38	Mandya Institute of Medical Sciences, Mandya (2015-2016)	216	50.2	214	49.8	430
39	A.J. Hospital & Research Centre, Mangalore (2014-2015)	207	57.2	155	42.8	362
40	SDM College of Dental Sciences and Hospital, Dharwad (2014-2015)	198	78.3	55	21.7	253
41	Indo-American Cancer Institute & Research Centre, Hyderabad (2012)	3137	40.3	4652	59.7	7789
42	Government Medical College, Thrissur (2014)	1724	53.8	1478	46.2	3202
43	Narayana Hrudayalaya Health City, Bangalore (2016)	843	56.5	649	43.5	1492
44	Erode Cancer Centre, Thindal, Erode (2012)	493	43.2	648	56.8	1141
45	Father Muller Medical College Hospital, Mangalore (2016)	426	45.6	508	54.4	934
46	General Hospital, Ernakulum (2012)	344	51.0	330	49.0	674
47	MES Medical College & Hospital, Perinthalmanna (2016)	281	53.2	247	46.8	528
	CENTRAL					
48	Regional Cancer Centre, Raipur (2012-2016)	4797	43.1	6324	56.9	11121
49	Gandhi Medical College, Bhopal (2012-2015)	2776	50.8	2690	49.2	5466
50	Cancer Hospital & Research Institute, Gwalior (2014-2016)	5192	59.5	3534	40.5	8726
51	RST Regional Cancer Hospital, Cancer Relief Society, Nagpur (2012-2016)	6632	50.8	6416	49.2	13048
	NORTH EAST					
52	Dr. B. Borooah Cancer Institute, Guwahati (2012-2016)	23638	57.8	17269	42.2	40907
53	Cachar Cancer Hospital, Silchar (2012-2016)	4806	58.0	3483	42.0	8289
54	Assam Medical College - Dibrugarh (2012-2016)	2803	49.1	2910	50.9	5713
55	Regional Cancer Centre, Agartala (2014-2016)	3111	57.5	2296	42.5	5407

Sl No	Registry (Year)	Males		Females		Total
		n	%	n	%	N
56	North East Cancer Hospital & Research Institute, Guwahati (2014-2016)	2321	62.6	1384	37.4	3705
57	Regional Institute of Medical Sciences, Imphal (2014-2016)	1272	44.6	1583	55.4	2855
58	Mizoram State Cancer Institute (Civil Hospital), Aizawl (2014-2016)	1503	53.0	1332	47.0	2835
TOTAL		**353393**	**52.9**	**314273**	**47.1**	**667666**

Reporting year data given in parentheses

Among the total 667666 cases registered; 52.9% were males and 47.1% were females. The highest number of new cases for all sites of cancer were reported in Tata Memorial Hospital, Mumbai for both males and females. The second highest numbers were reported from The Gujarat Cancer & Research Institute, Ahmedabad for males and Regional Cancer Centre, Thiruvananthapuram for females.

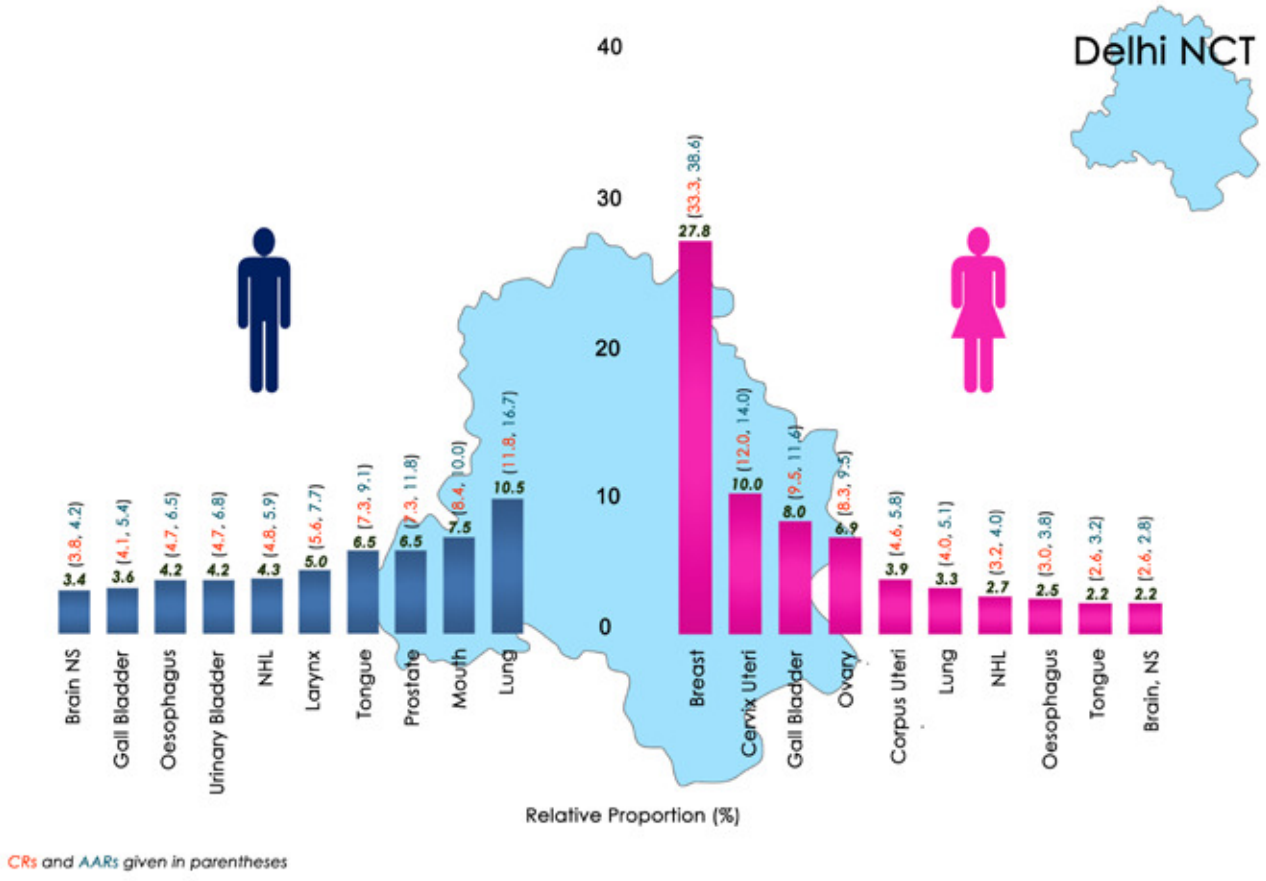
Chapter 2

Leading Anatomical Sites of Cancer

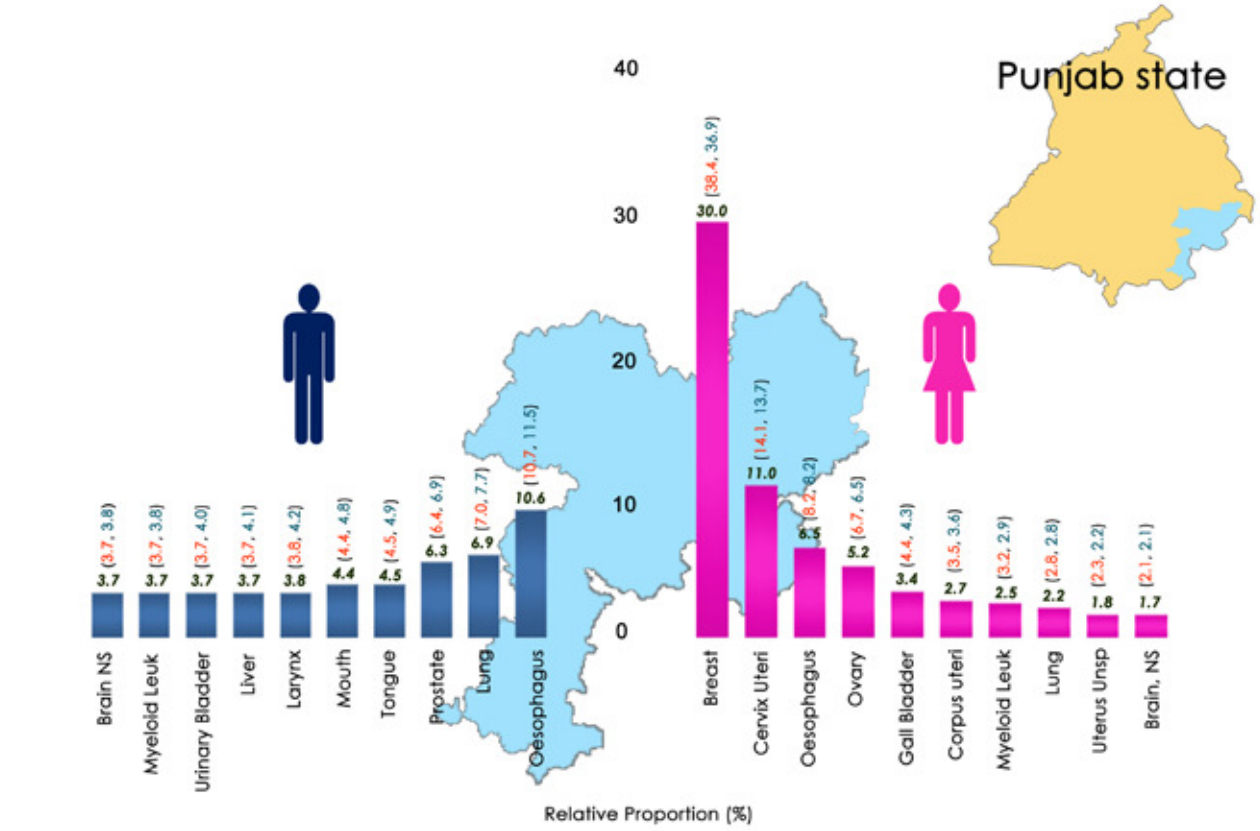
This chapter depicts the leading sites of cancer in the different PBCRs through Figures 2.1 to 2.28. The leading anatomical sites of cancer for each gender were decided on the basis of proportion of specific cancers relative to all sites of cancer for the said PBCR. In the graphs given for each registry, the relative proportions (%) of leading sites are given against the bar and the respective Crude Rate (CR) and Age Adjusted Rate (AAR) per 100,000 population are shown in parentheses.

Delhi

Fig. 2.1 Ten Leading Sites of Cancer (2012-2014)

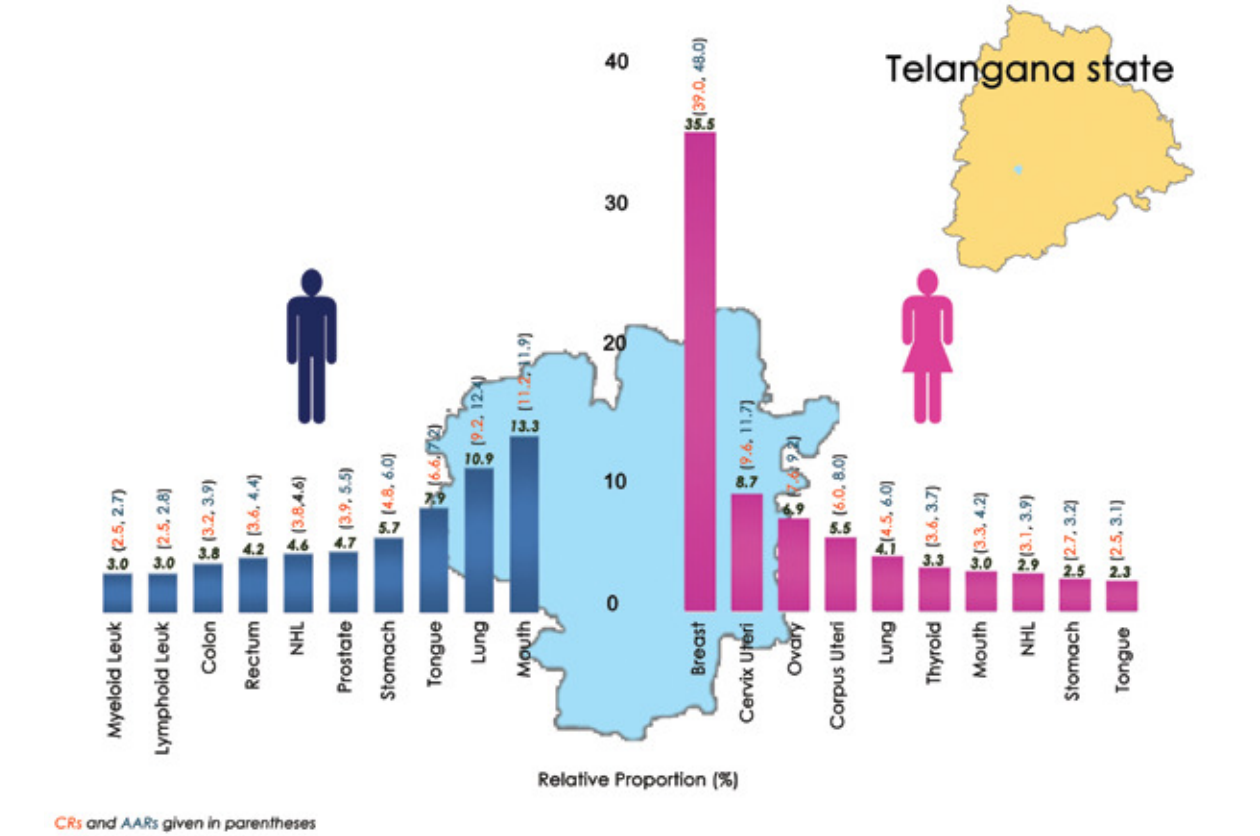


Patiala district
Fig. 2.2 Ten Leading Sites of Cancer (2012-2016)



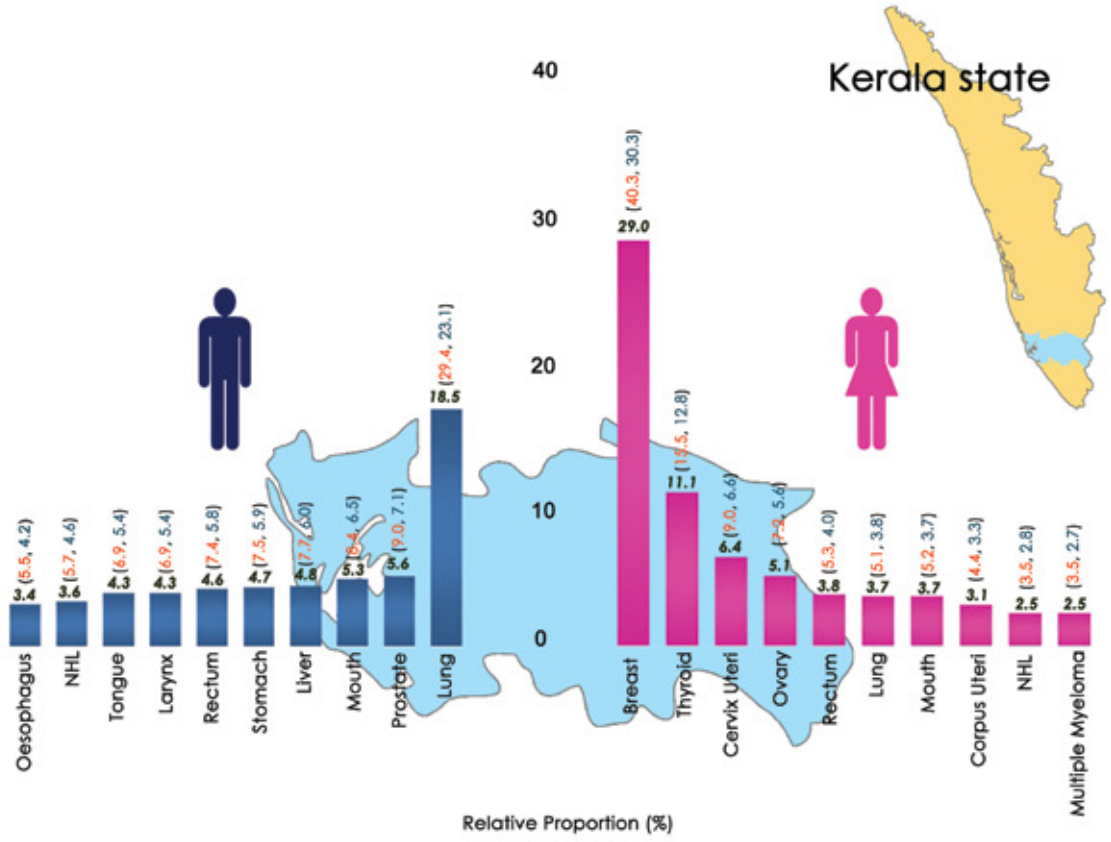
CRs and AARs given in parentheses

Hyderabad district
Fig. 2.3 Ten Leading Sites of Cancer (2014-2016)



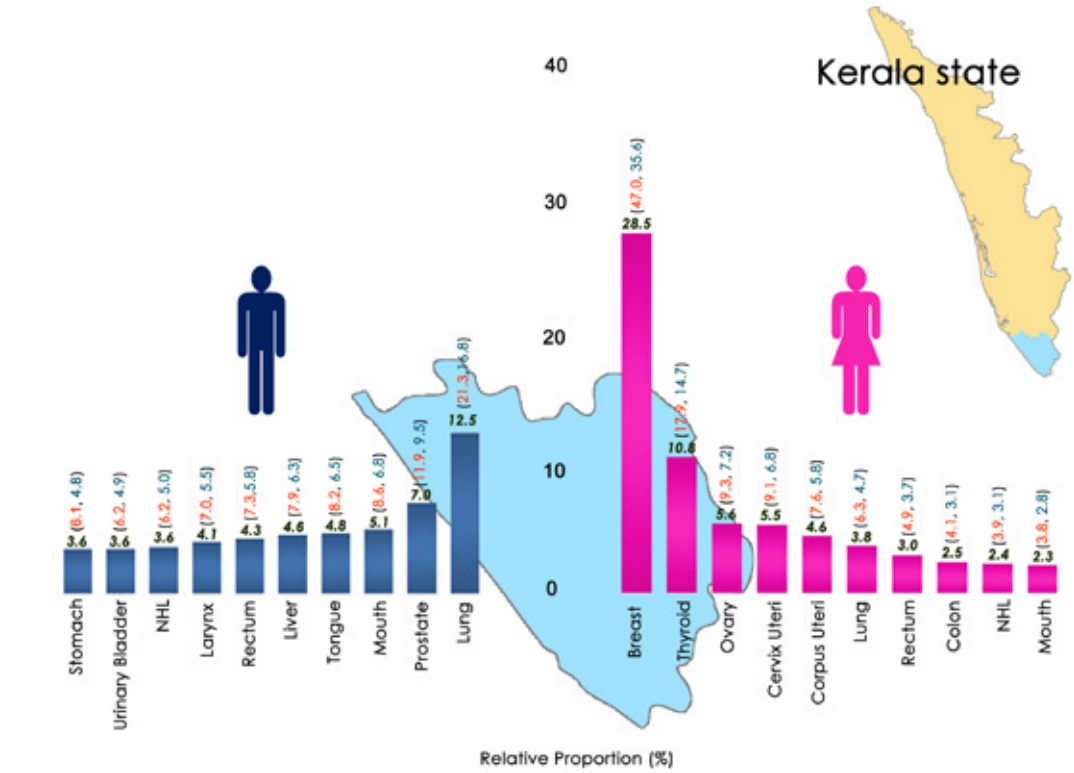
CRs and AARs given in parentheses

Kollam district
Fig. 2.4 Ten Leading Sites of Cancer (2012-2016)



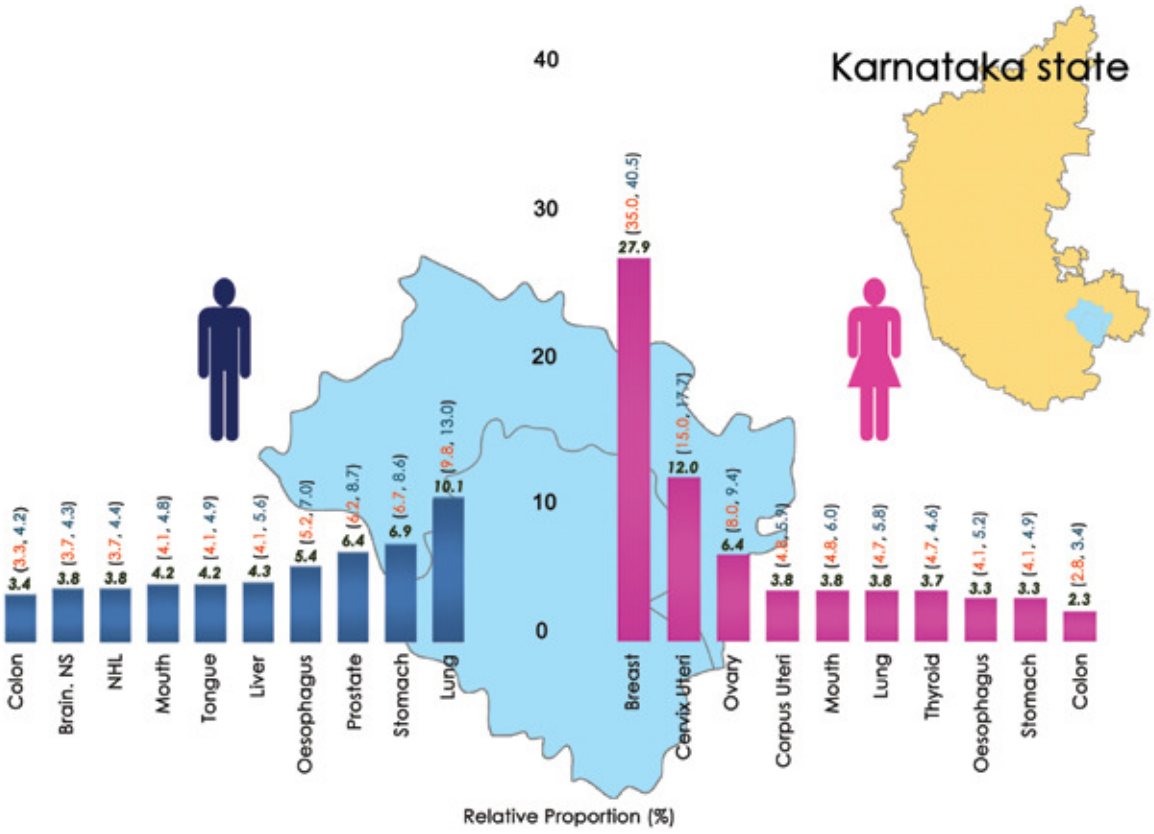
CRs and AARs given in parentheses

Thiruvananthapuram district
Fig. 2.5 Ten Leading Sites of Cancer (2012-2016)



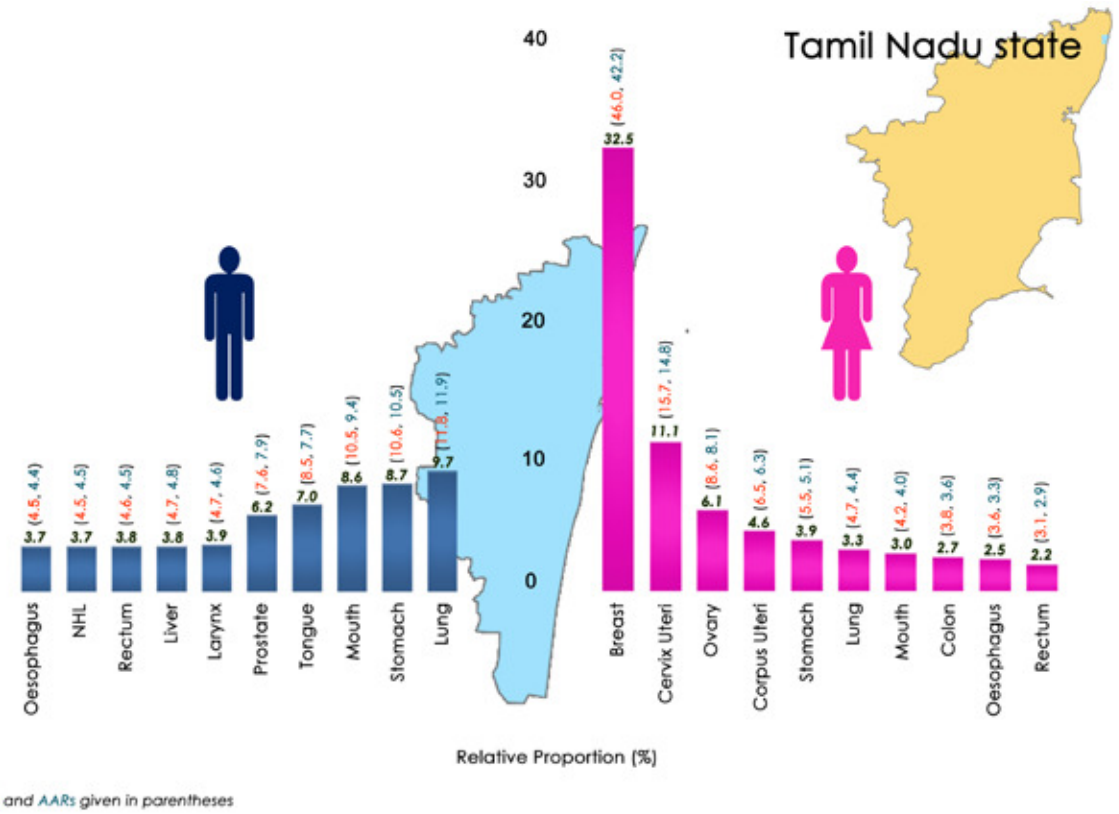
CRs and AARs given in parentheses

Bangalore
Fig. 2.6 Ten Leading Sites of Cancer (2012-2014)



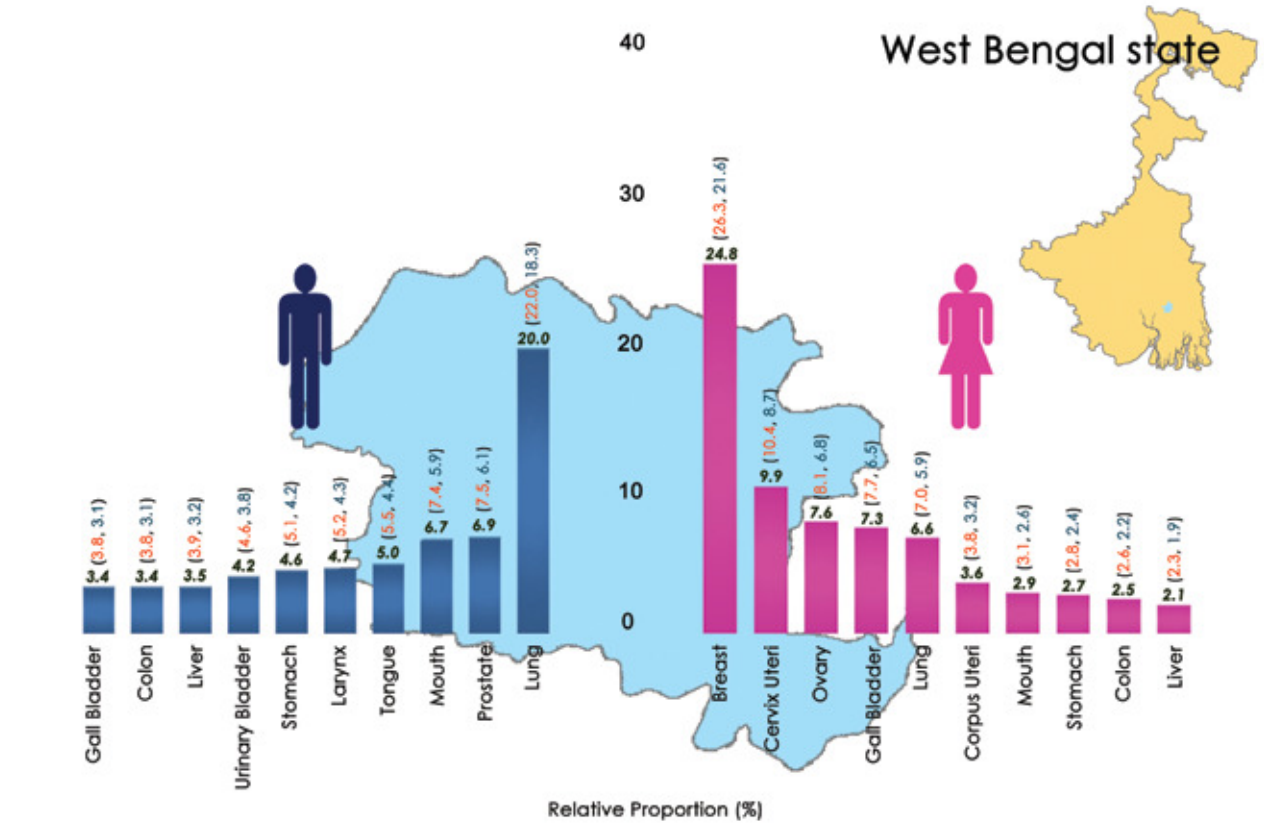
CRs and AARs given in parentheses

Chennai
Fig. 2.7 Ten Leading Sites of Cancer (2012-2016)



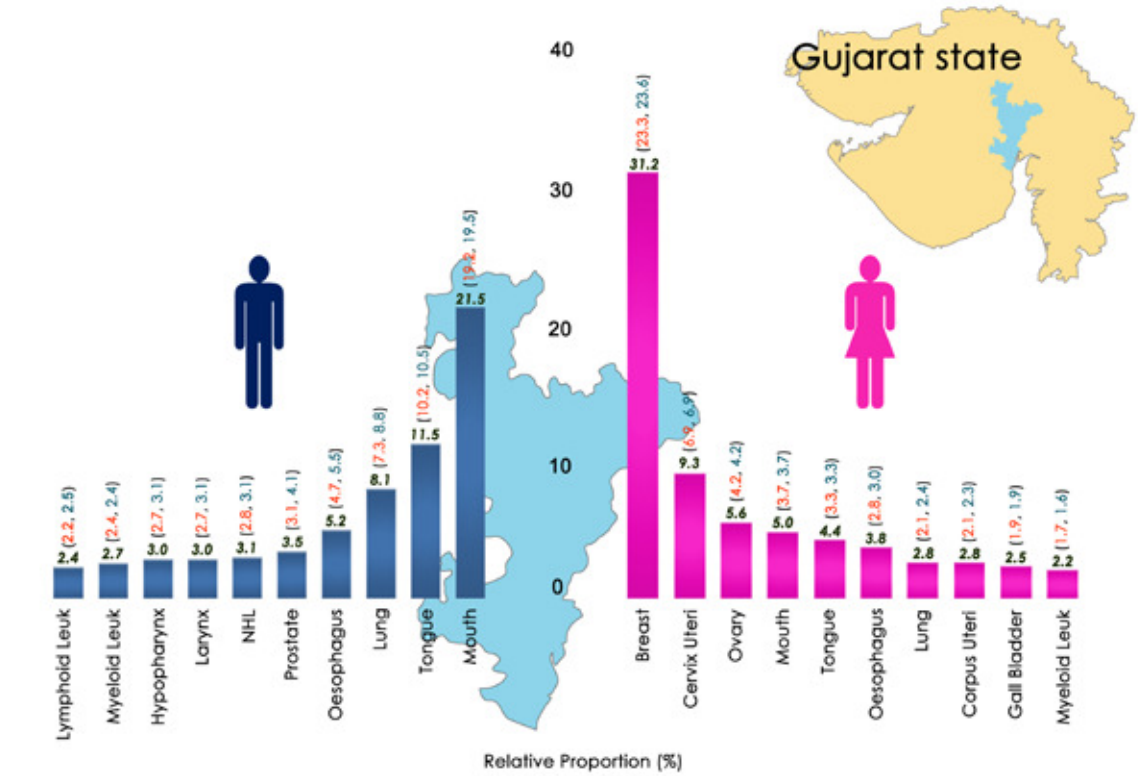
CRs and AARs given in parentheses

Kolkata
Fig. 2.8 Ten Leading Sites of Cancer (2012-2015)



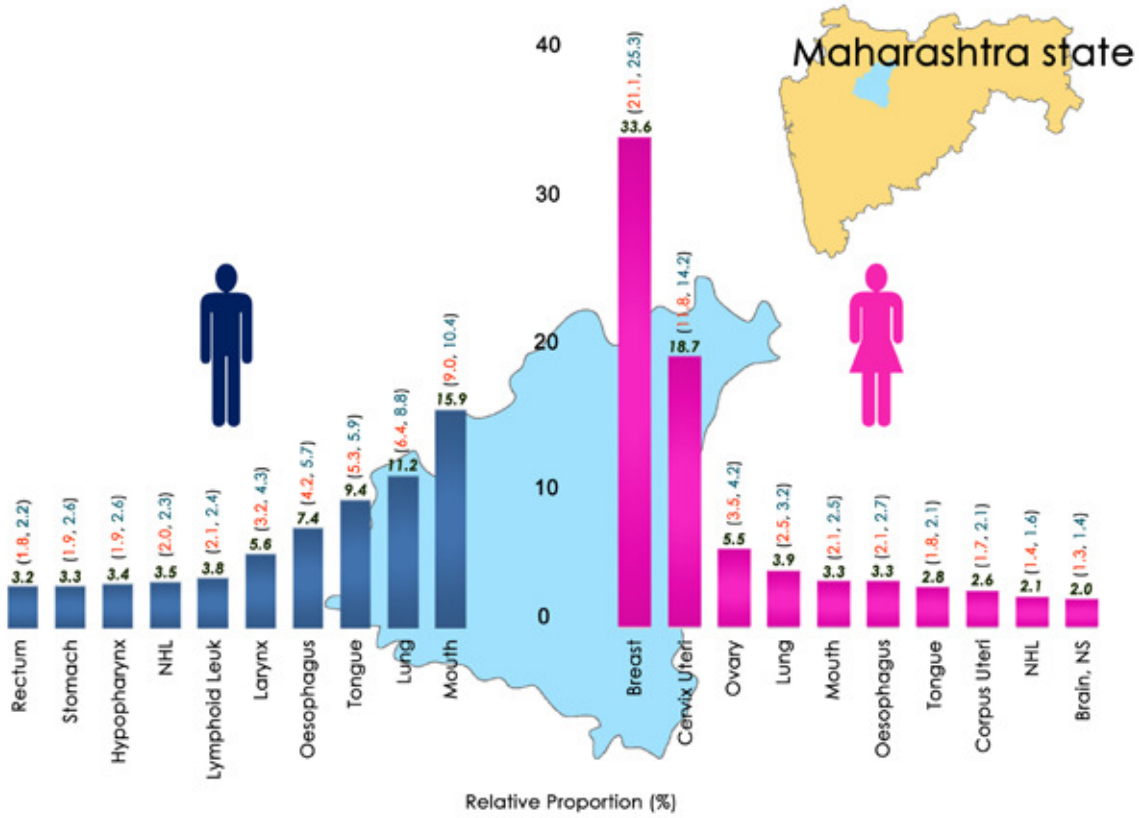
CRs and AARs given in parentheses

Ahmedabad urban
Fig. 2.9 Ten Leading Sites of Cancer (2012-2015)



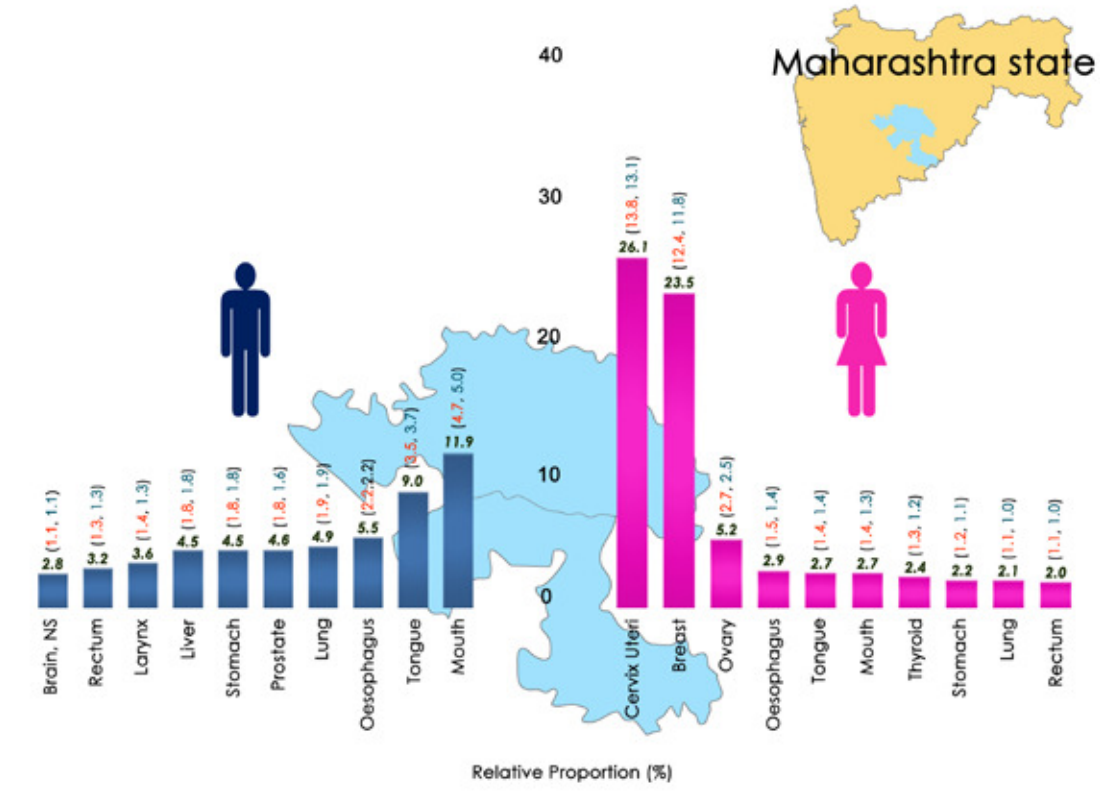
CRs and AARs given in parentheses

Aurangabad
Fig. 2.10 Ten Leading Sites of Cancer (2012-2016)



CRs and AARs given in parentheses

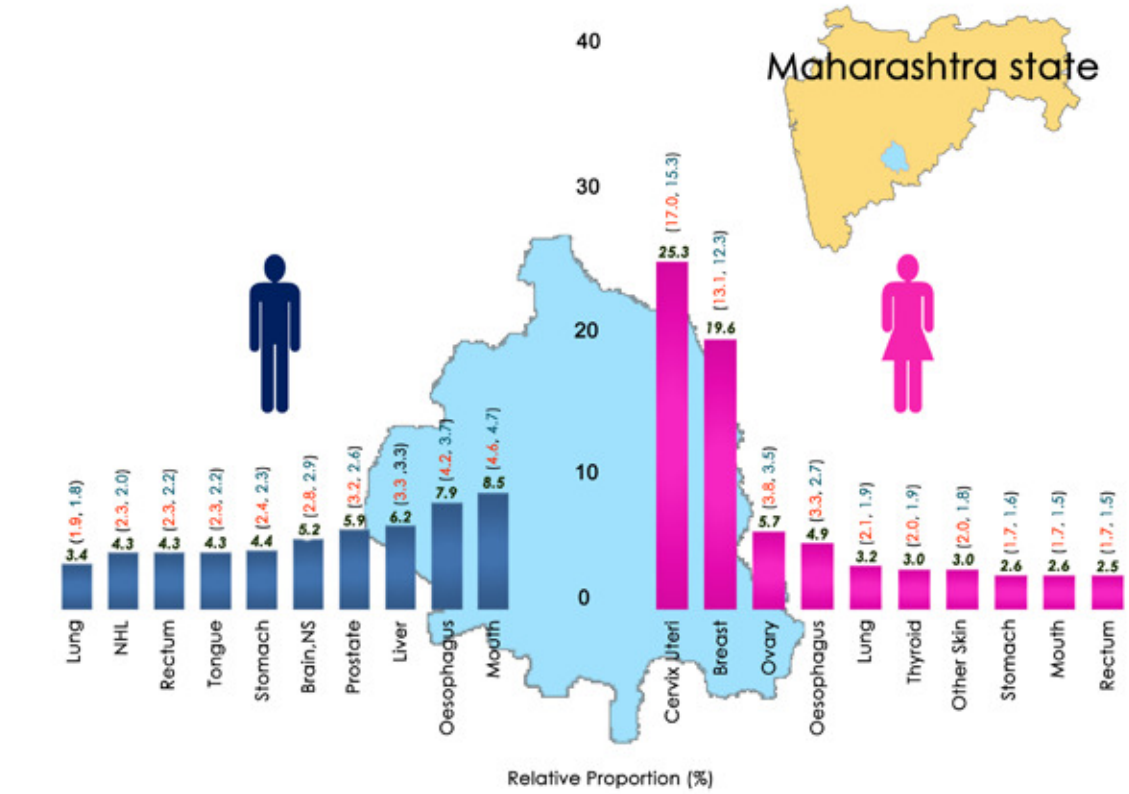
Osmanabad & Beed district
Fig. 2.11 Ten Leading Sites of Cancer (2012-2015)



CRs and AARs given in parentheses

Barshi rural

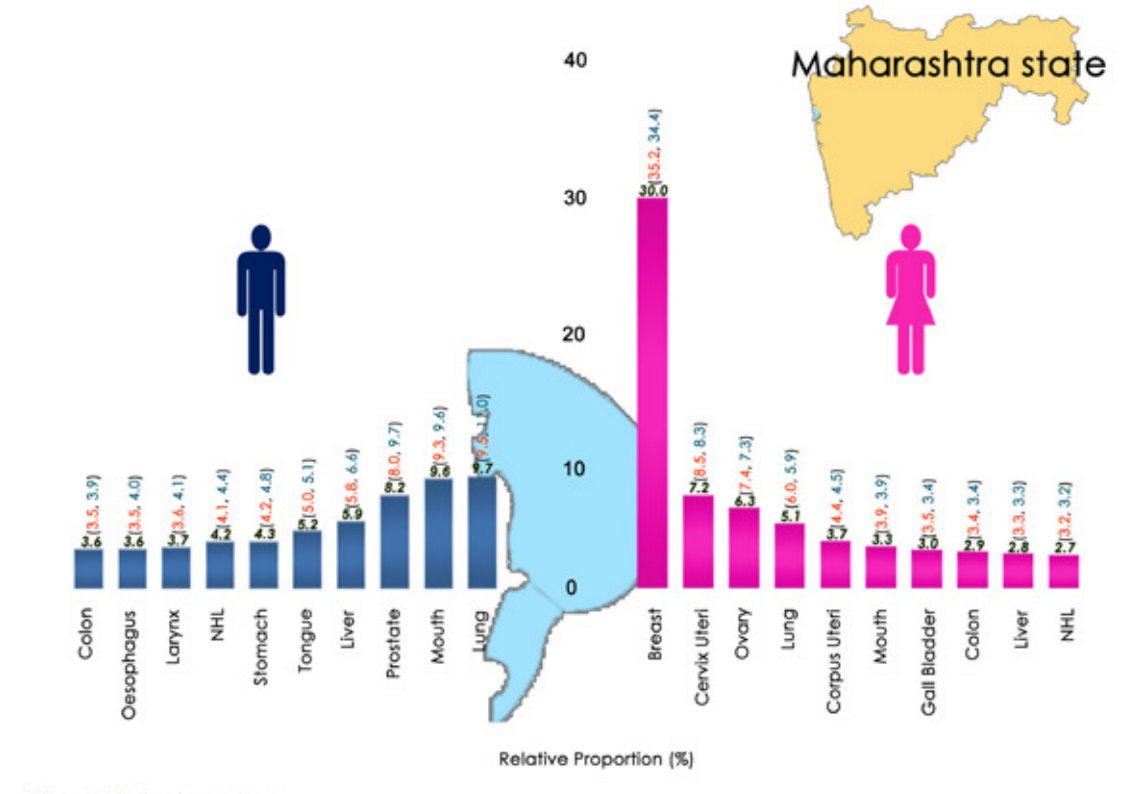
Fig. 2.12 Ten Leading Sites of Cancer (2012-2016)



CRs and AARs given in parentheses

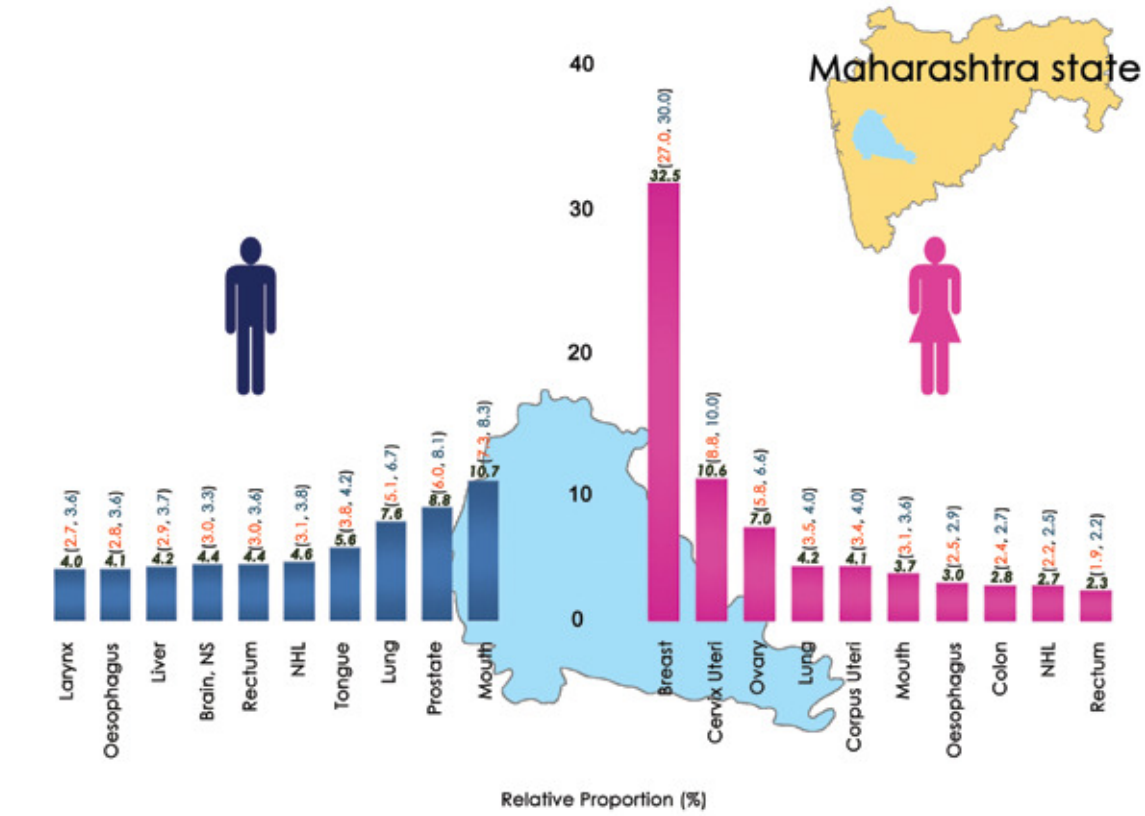
Mumbai

Fig. 2.13 Ten Leading Sites of Cancer (2012-2015)



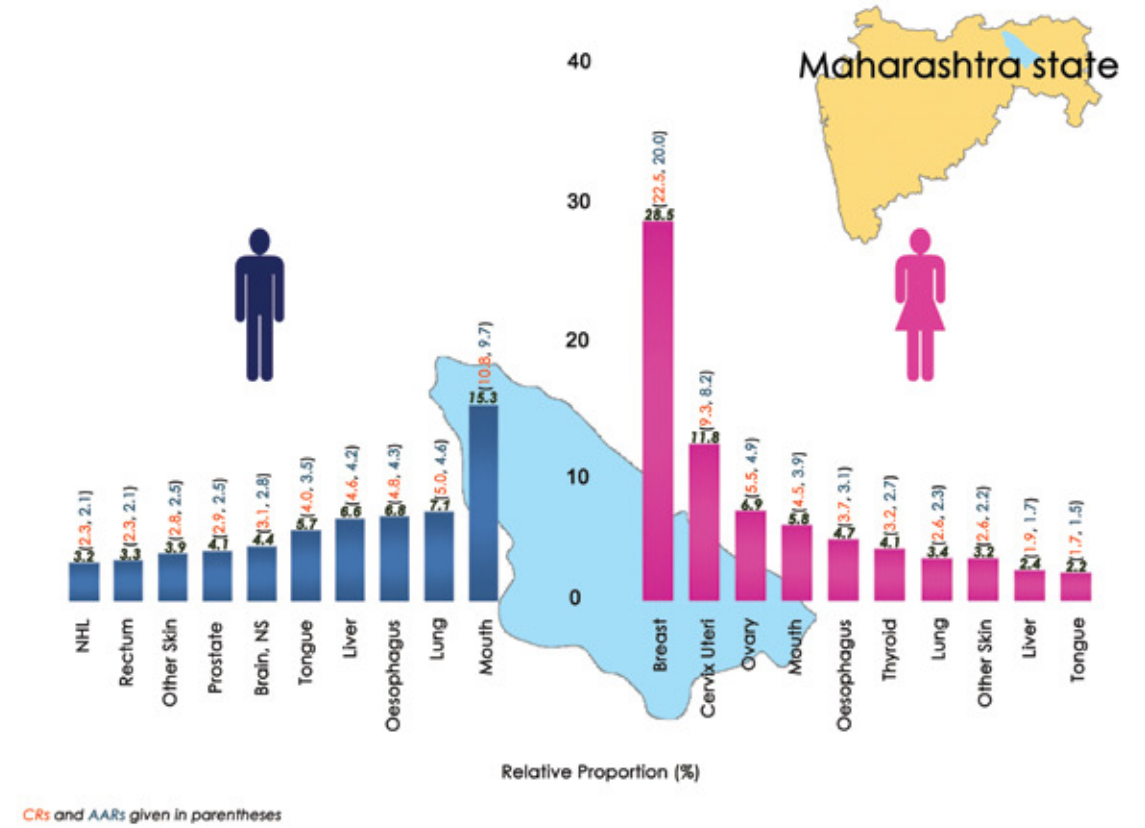
CRs and AARs given in parentheses

Pune
Fig. 2.14 Ten Leading Sites of Cancer (2012-2016)



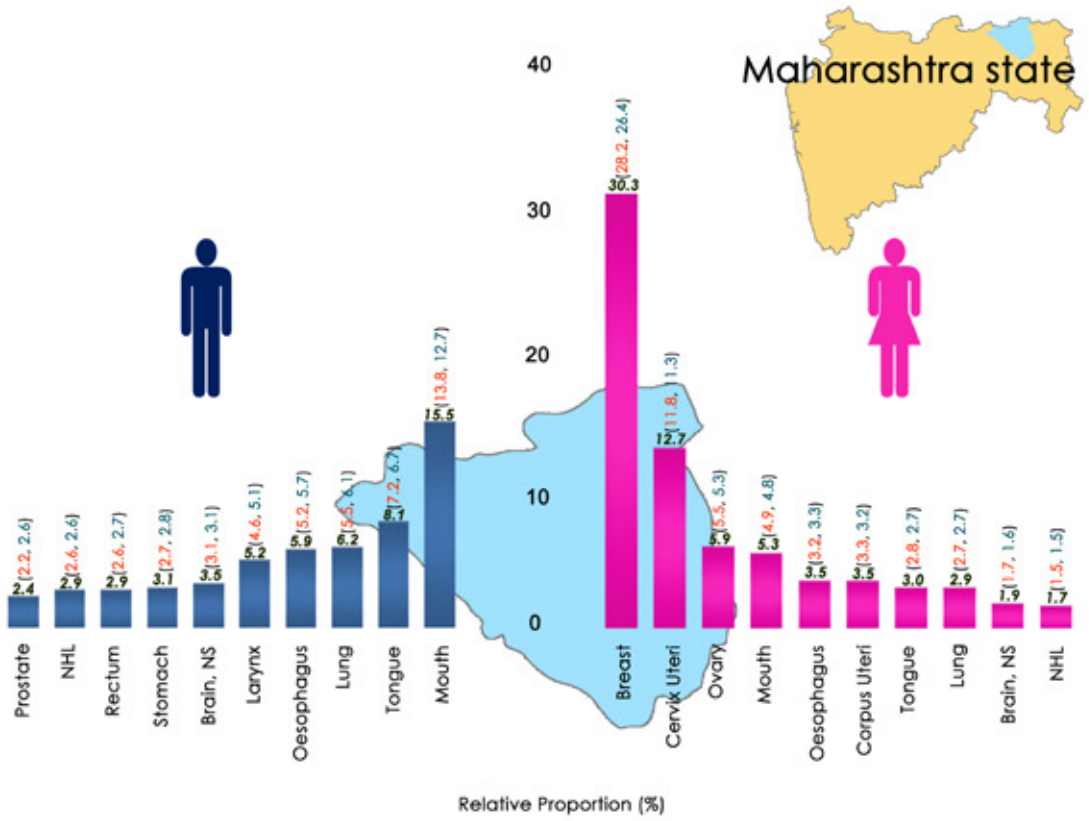
CRs and AARs given in parentheses

Wardha district
Fig. 2.15 Ten Leading Sites of Cancer (2012-2016)



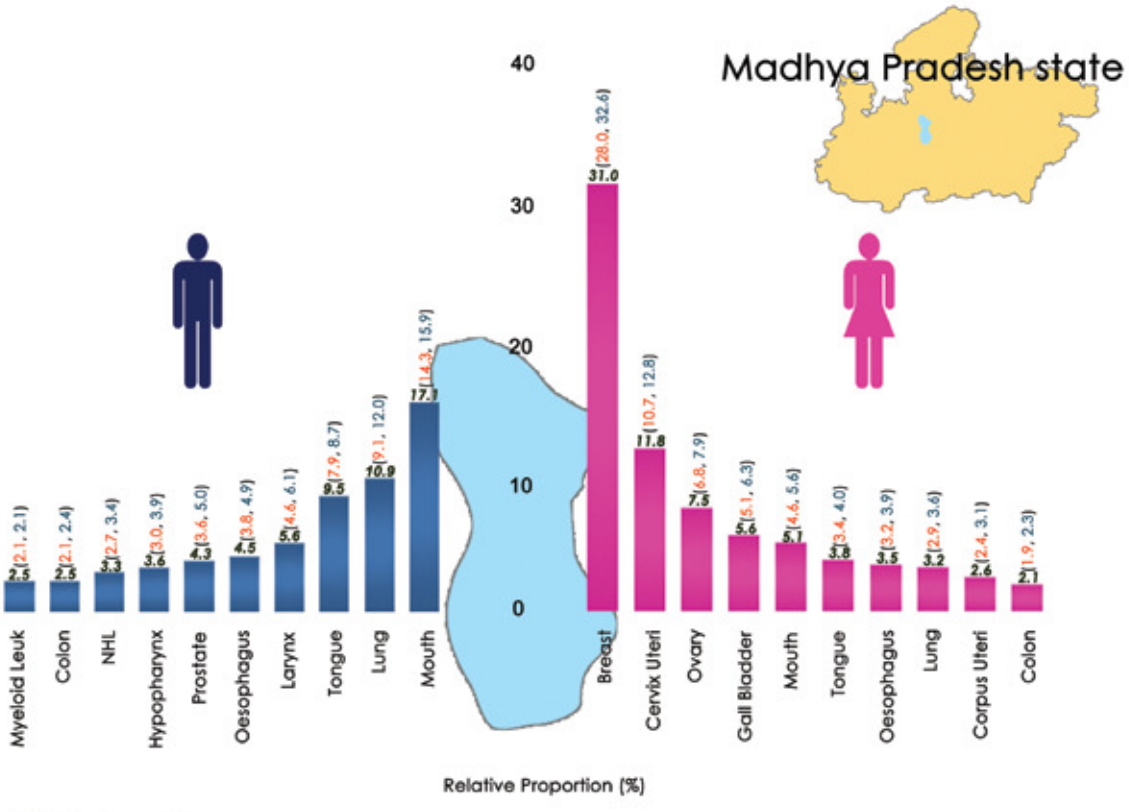
CRs and AARs given in parentheses

Nagpur
Fig. 2.16 Ten Leading Sites of Cancer (2012-2016)



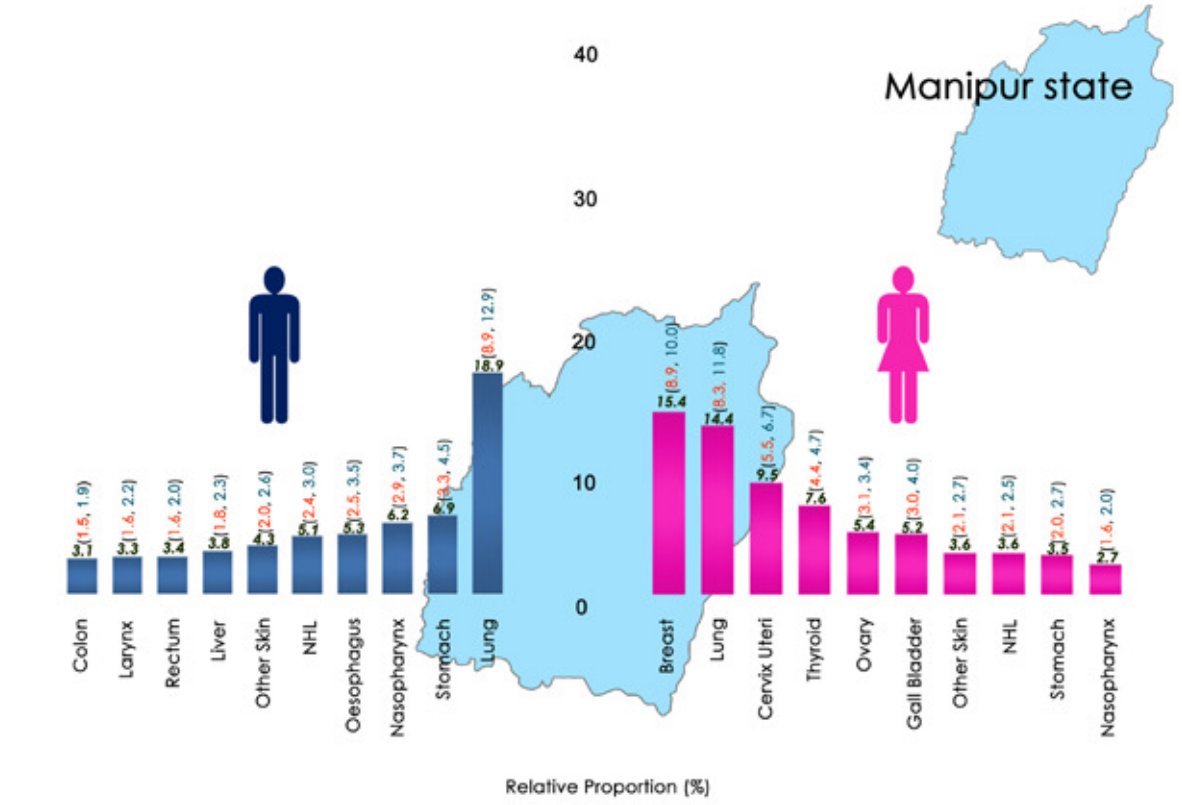
CRs and AARs given in parentheses

Bhopal
Fig. 2.17 Ten Leading Sites of Cancer (2012-2015)



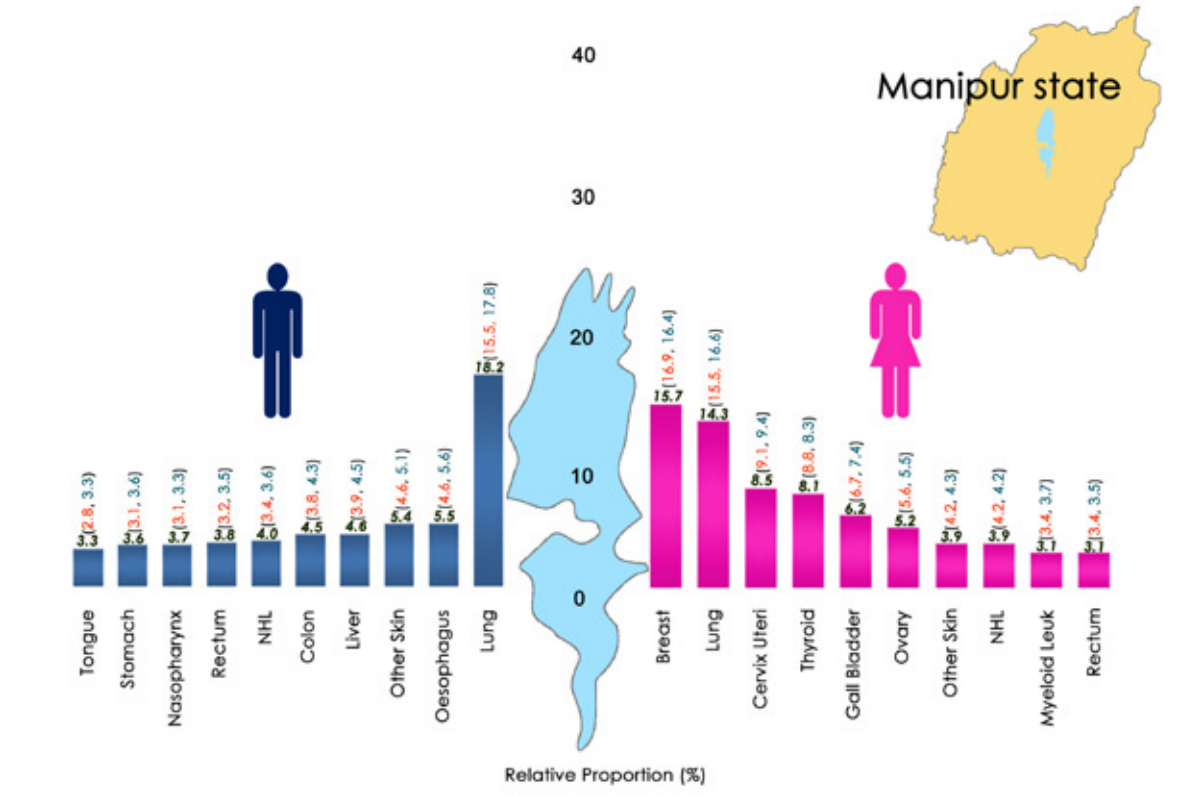
CRs and AARs given in parentheses

Manipur state
Fig. 2.18(a) Ten Leading Sites of Cancer (2012-2016)



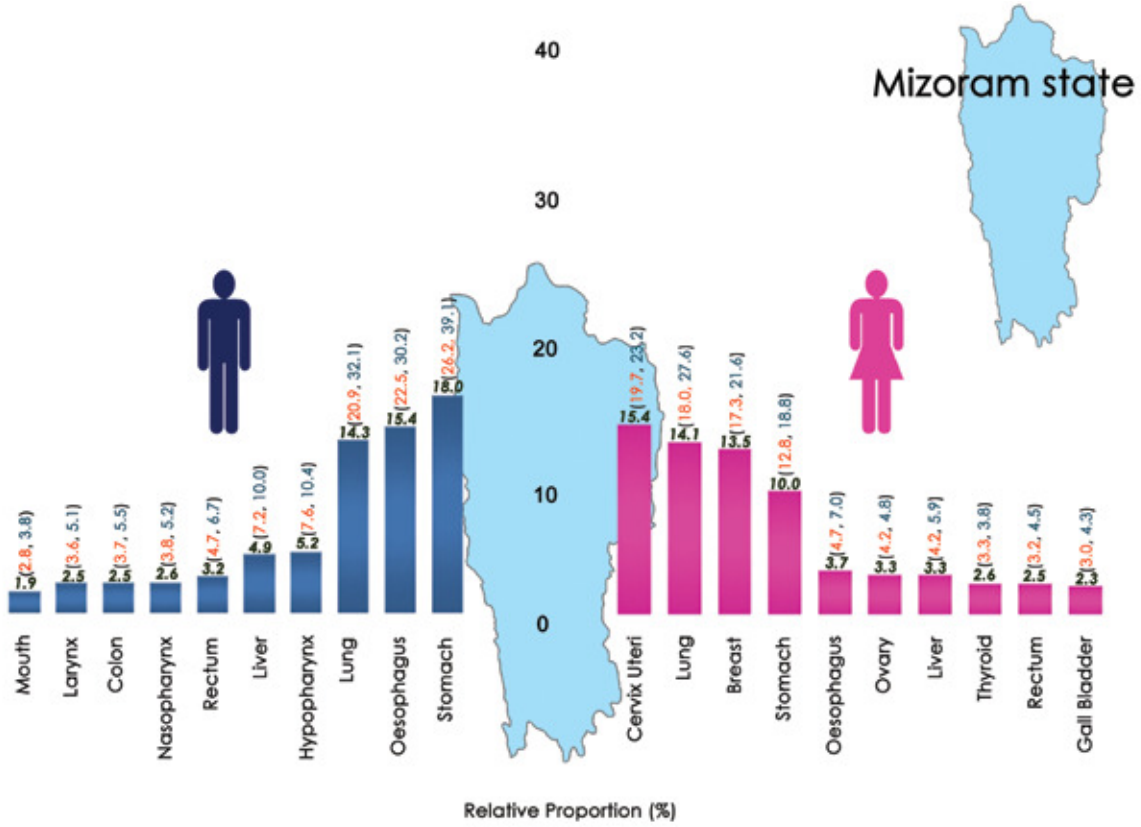
CRs and AARs given in parentheses

Imphal West district
Fig. 2.18(b) Ten Leading Sites of Cancer (2012-2016)



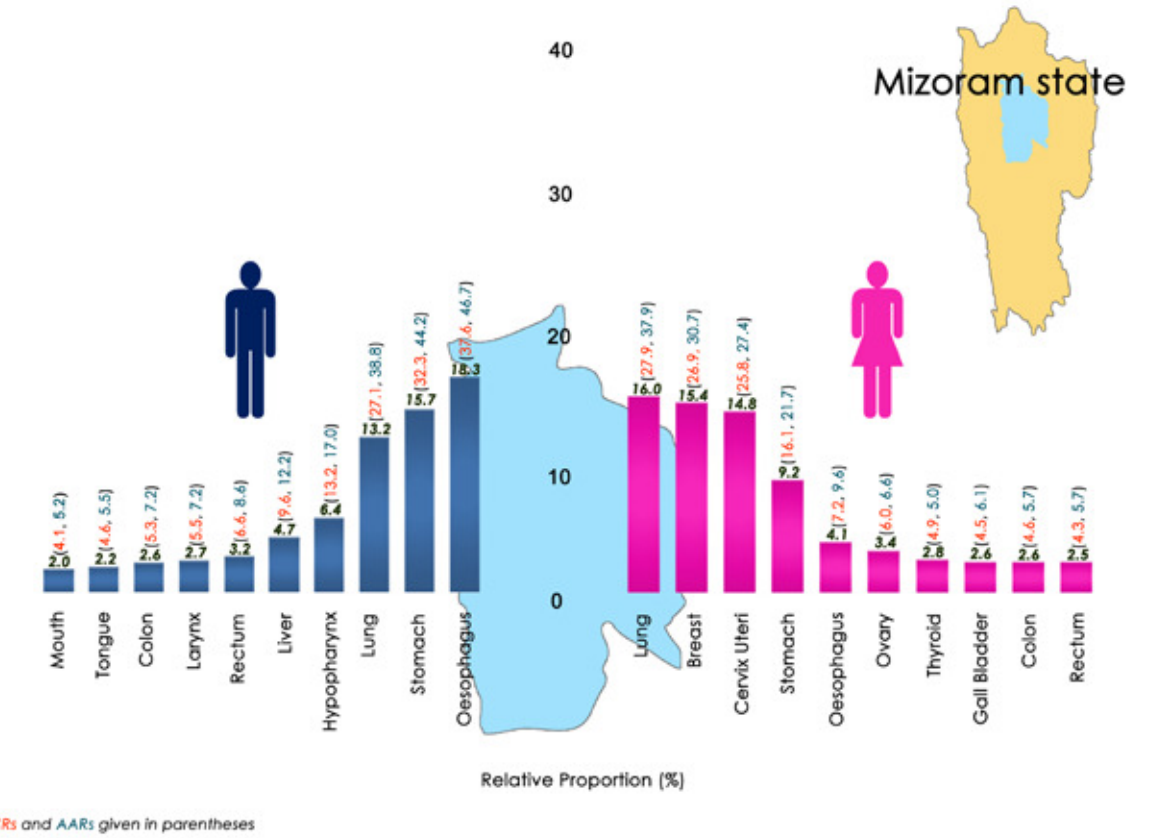
CRs and AARs given in parentheses

Mizoram state
Fig. 2.19(a) Ten Leading Sites of Cancer (2012-2016)



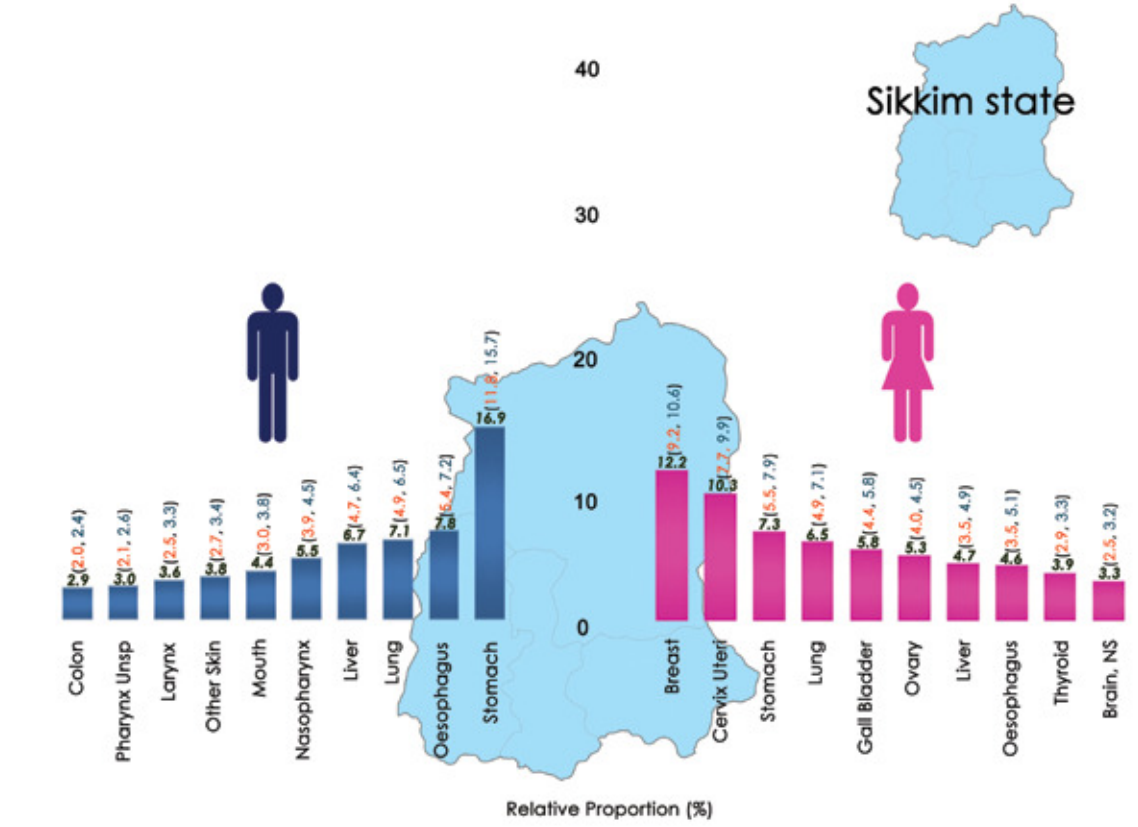
CRs and AARs given in parentheses

Aizawl district
Fig. 2.19(b) Ten Leading Sites of Cancer (2012-2016)



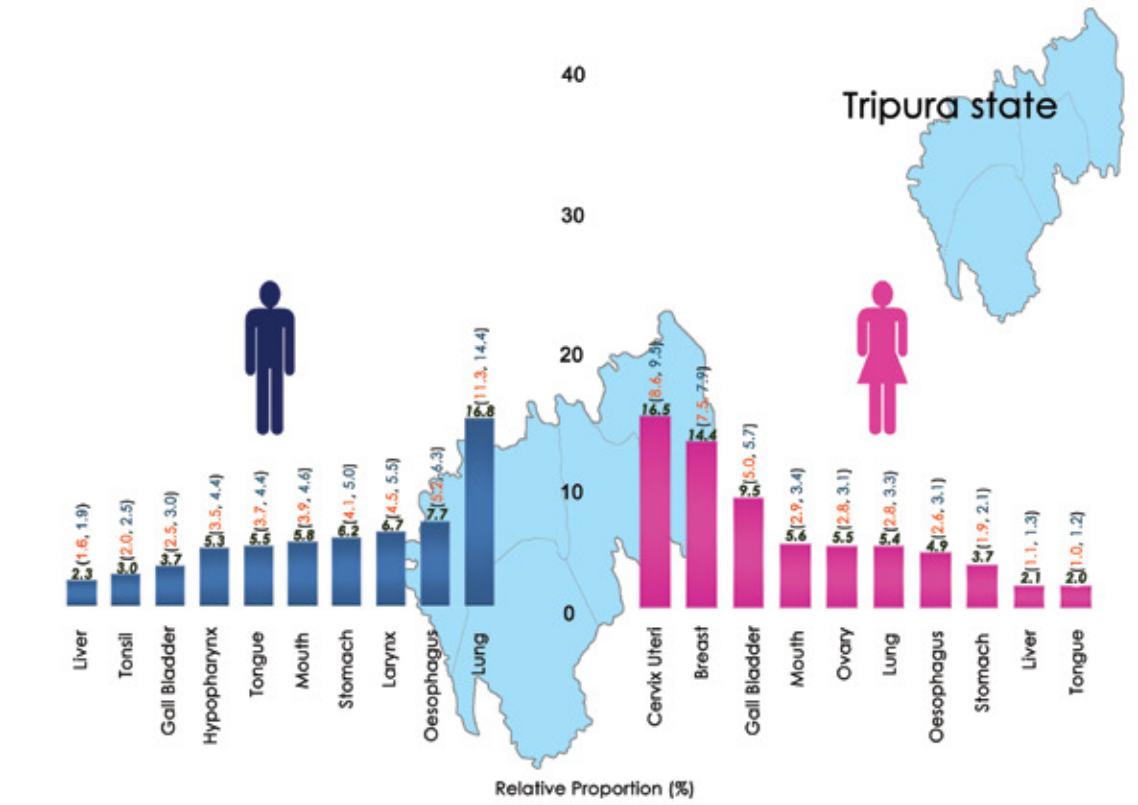
CRs and AARs given in parentheses

Sikkim state
Fig. 2.20 Ten Leading Sites of Cancer (2012-2016)



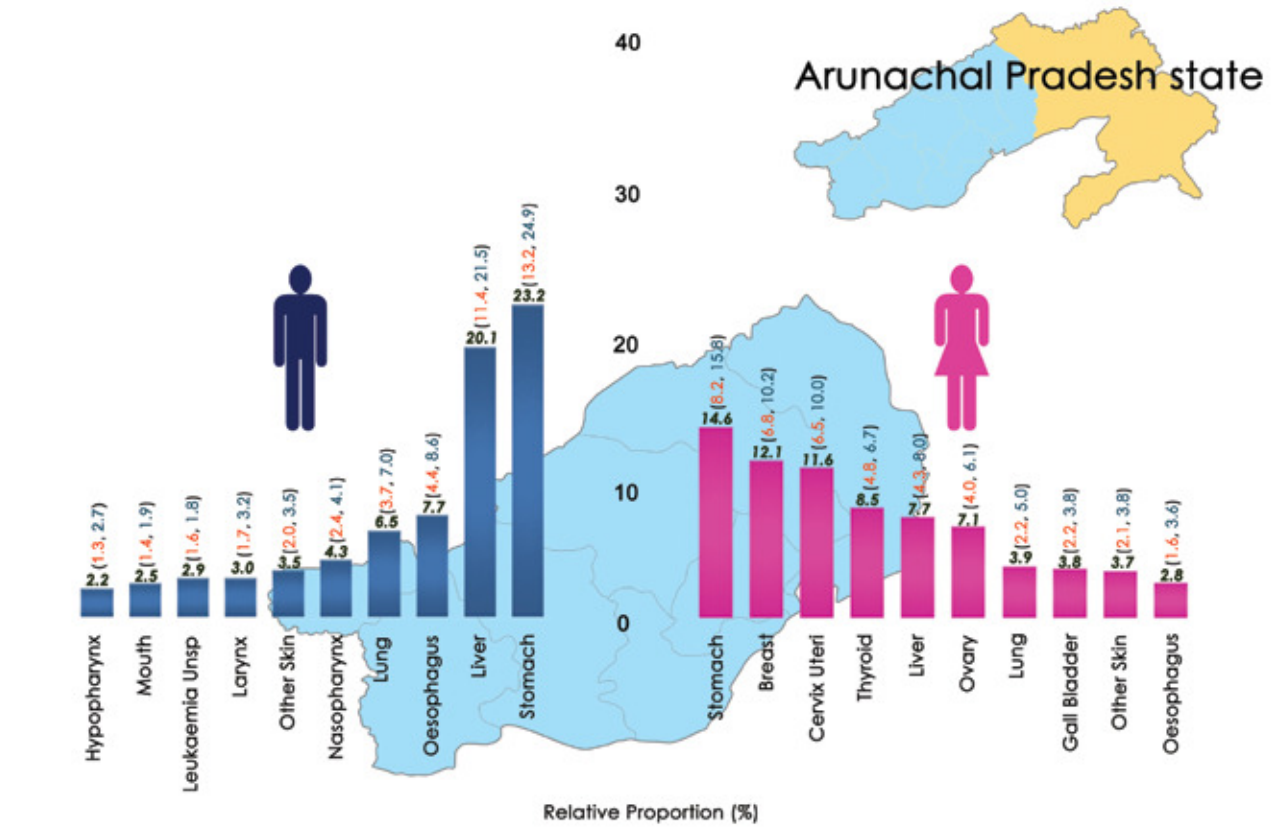
CRs and AARs given in parentheses

Tripura state
Fig. 2.21 Ten Leading Sites of Cancer (2012-2016)



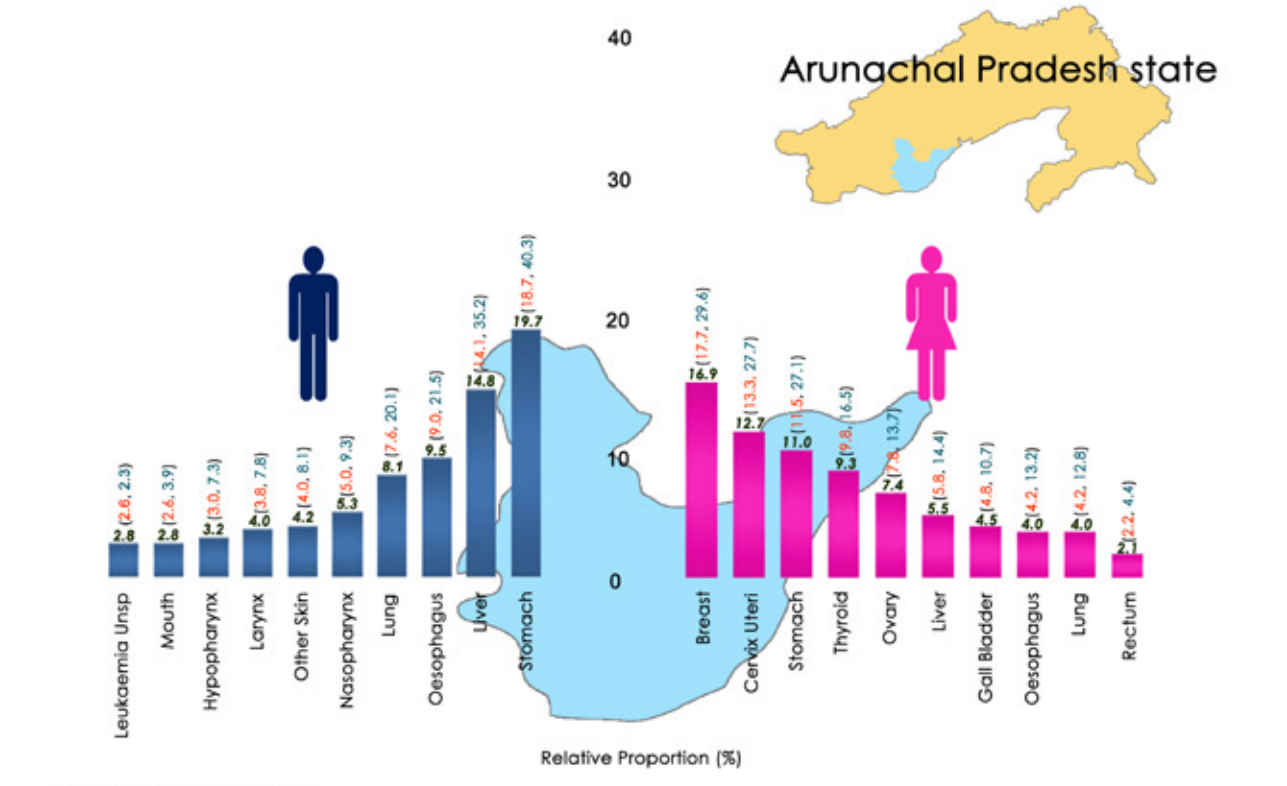
CRs and AARs given in parentheses

West Arunachal
Fig. 2.22(a) Ten Leading Sites of Cancer (2012-2016)



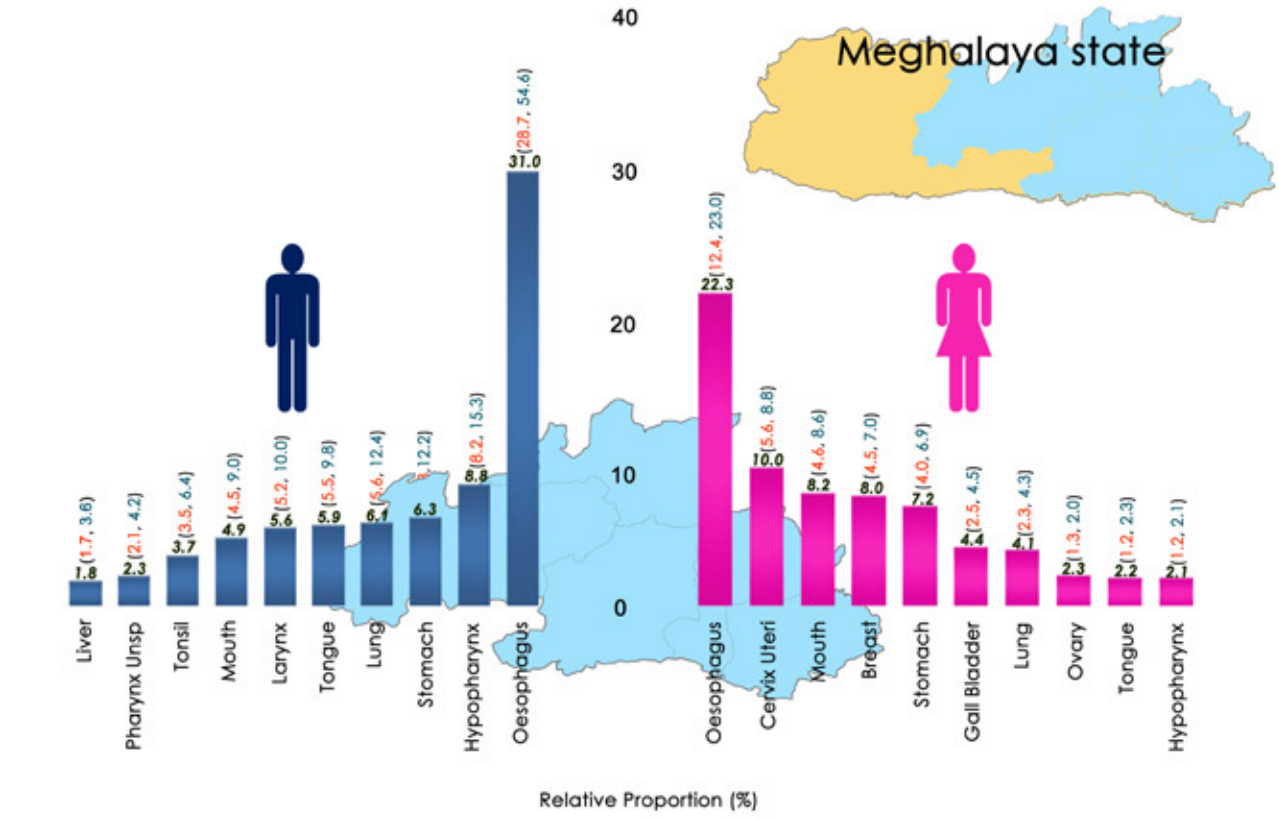
CRs and AARs given in parentheses

Papumpare district
Fig. 2.22(b) Ten Leading Sites of Cancer (2012-2016)



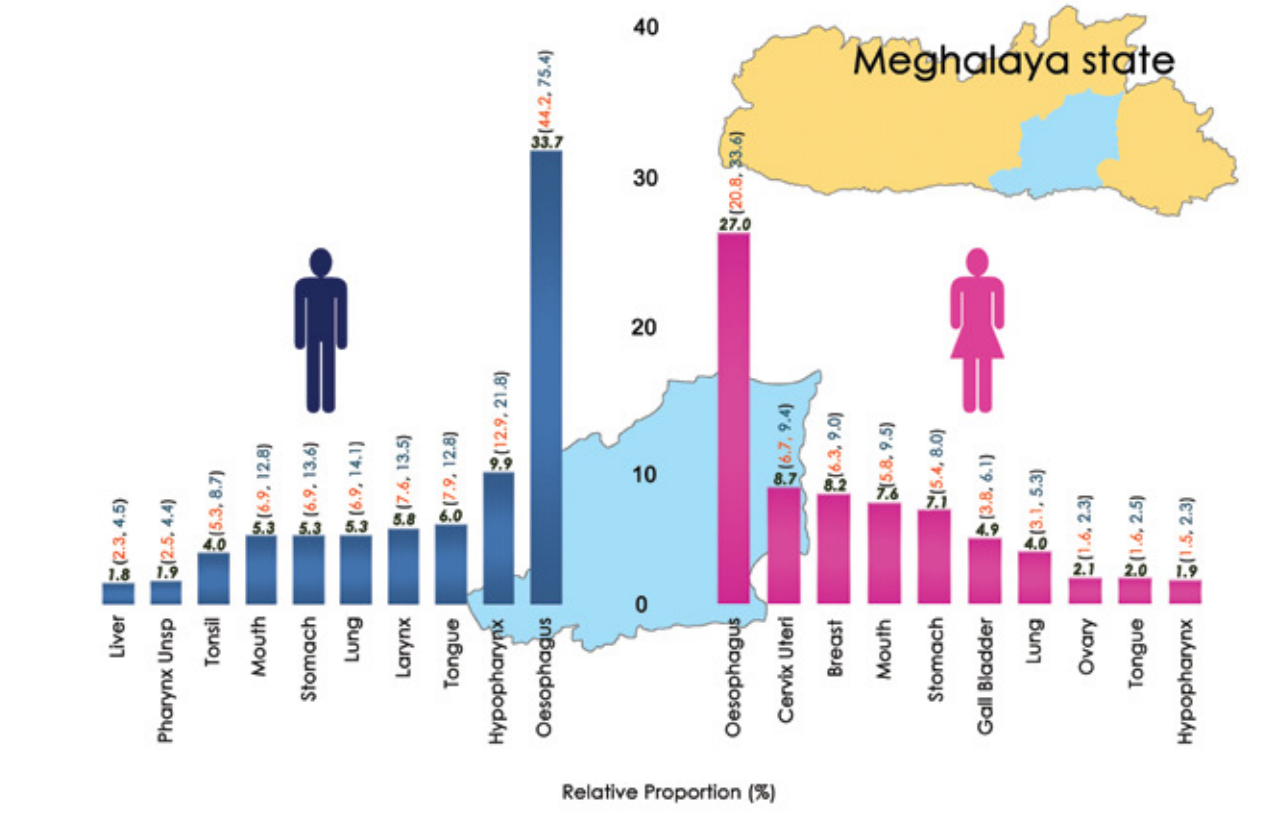
CRs and AARs given in parentheses

Meghalaya
Fig. 2.23(a) Ten Leading Sites of Cancer (2012-2016)



CRs and AARs given in parentheses

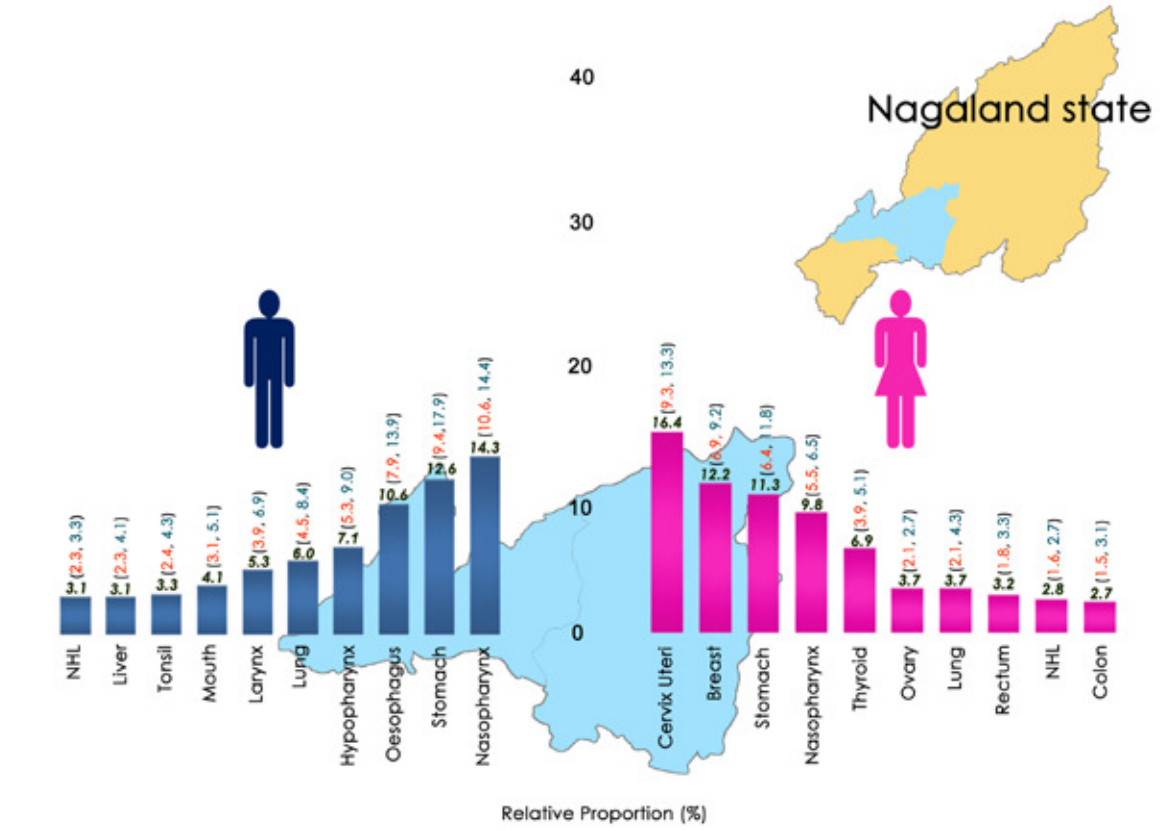
East Khasi Hills district
Fig. 2.23(b) Ten Leading Sites of Cancer (2012-2016)



CRs and AARs given in parentheses

Nagaland

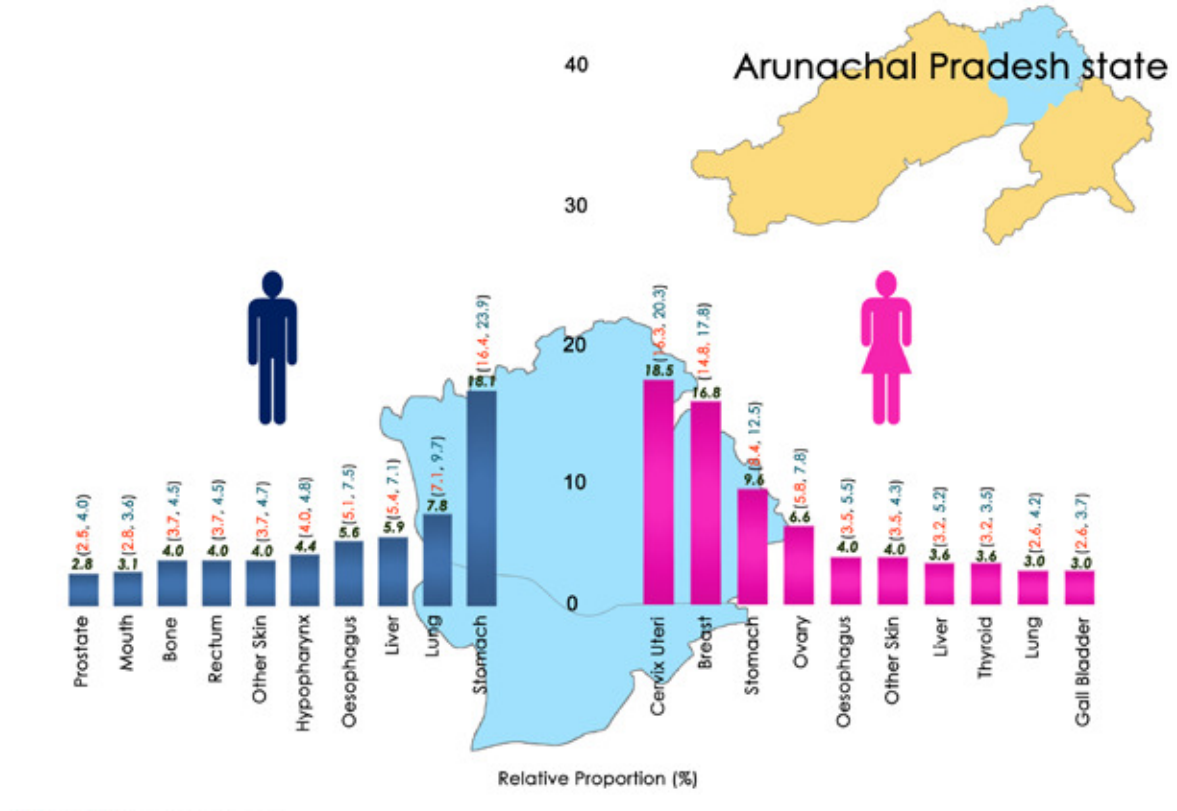
Fig. 2.24 Ten Leading Sites of Cancer (2012-2016)



CRs and AARs given in parentheses

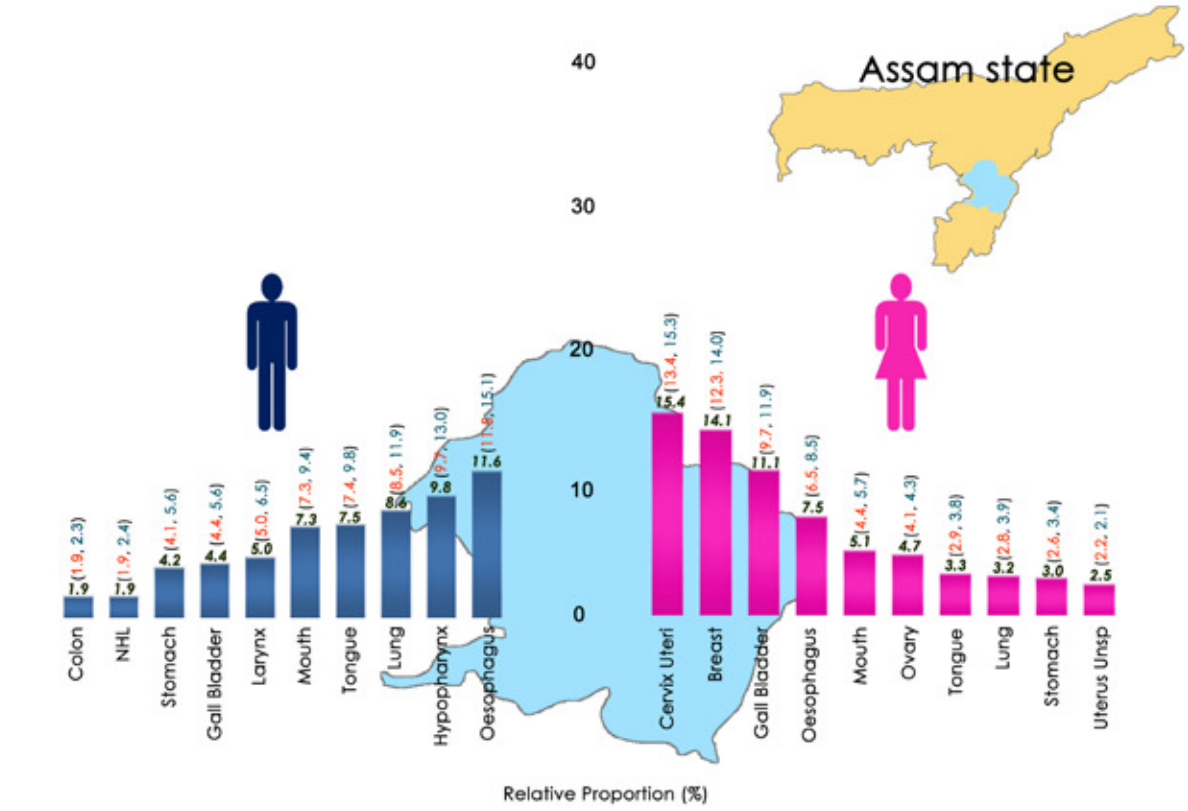
Pasighat

Fig. 2.25 Ten Leading Sites of Cancer (2012-2016)



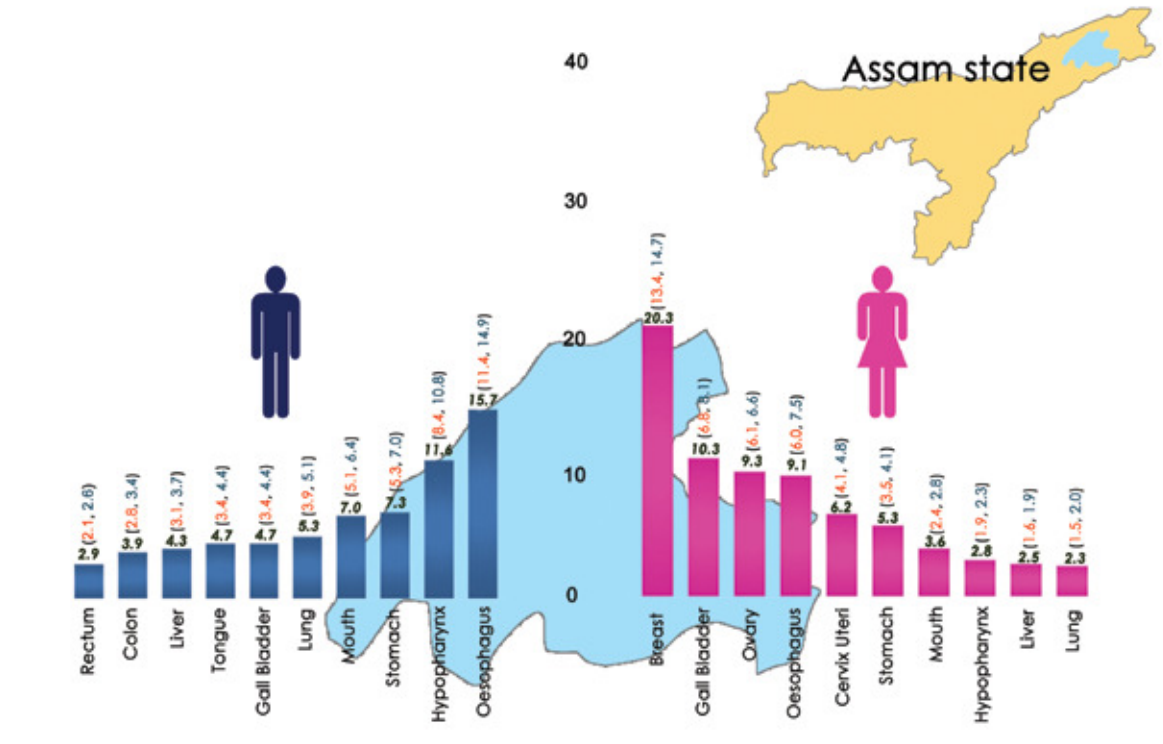
CRs and AARs given in parentheses

Cachar district
Fig. 2.26 Ten Leading Sites of Cancer (2012-2016)



CRs and AARs given in parentheses

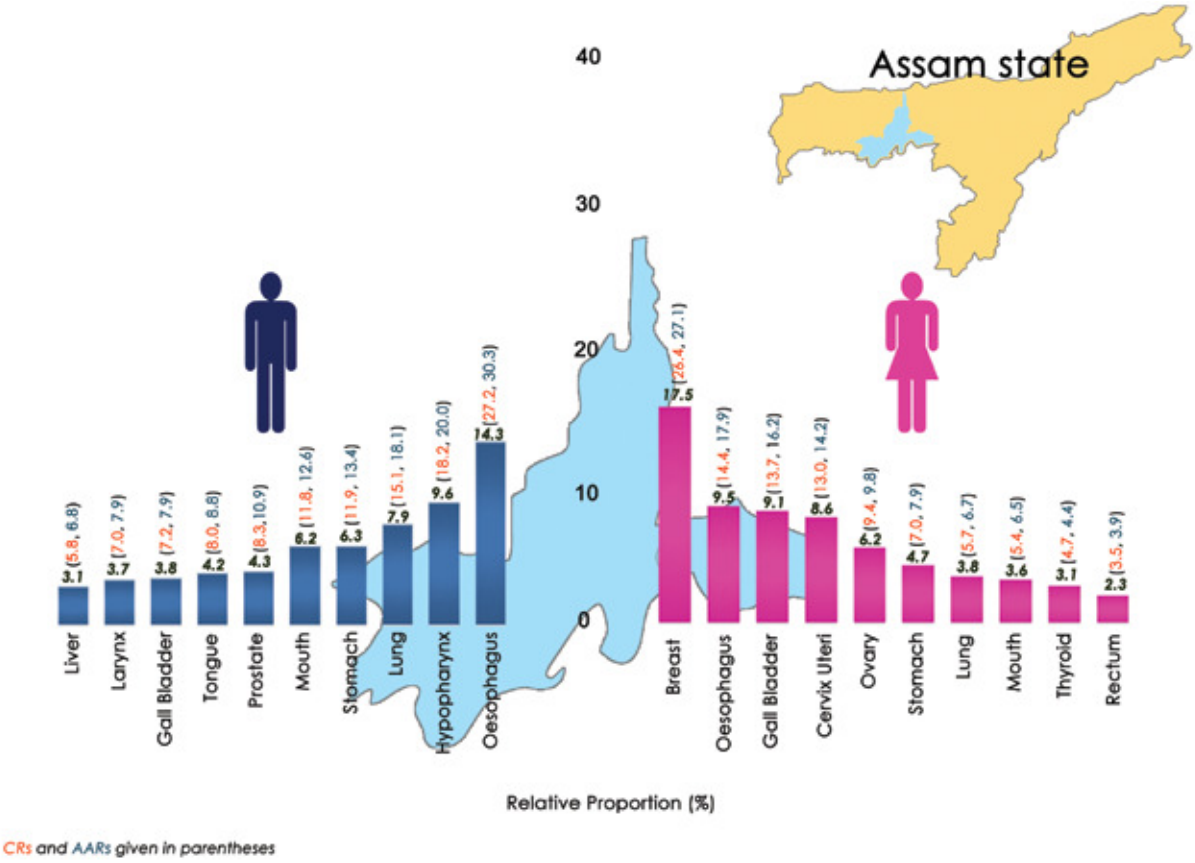
Dibrugarh district
Fig. 2.27 Ten Leading Sites of Cancer (2012-2016)



CRs and AARs given in parentheses

Kamrup urban

Fig. 2.28 Ten Leading Sites of Cancer (2012-2016)



CRs and AARs given in parentheses

Changes in ten leading sites of cancer in six selected PBCRs (1982-2016)

The changes in leading sites of cancer in six old PBCRs, Barshi rural (1988-2016), Bangalore (1982-2014), Bhopal (1988-2015), Chennai (1982-2016), Delhi (1988-2014) and Mumbai (1982-2015) were observed for the first ten and last ten years data.

Barshi rural (1988-2016)

Males

1988-1997	2007-2016
Hypopharynx (10.5)	Mouth (8.6)
Oesophagus (9.1)	Oesophagus (7.7)
Penis (6.3)	Liver (6.0)
Mouth (5.5)	Prostate (5.5)
Tongue (4.5)	Stomach (4.5)
Larynx (4.4)	NHL (4.0)
Liver (4.2)	Brain, NS (3.8)
Rectum (4.0)	Other Skin (3.8)
Myeloid Leukaemia (3.4)	Larynx (3.8)
Lung (3.2)	Lung (3.6)

Females

1988-1997	2007-2016
Cervix Uteri (49.6)	Cervix Uteri (28.2)
Breast (15.1)	Breast (18.7)
Oesophagus (3.8)	Ovary (5.0)
Ovary (2.5)	Oesophagus (4.8)
Other Skin (1.9)	Other Skin (2.9)
Mouth (1.7)	Lung (2.9)
Stomach (1.6)	Stomach (2.5)
Rectum (1.3)	Thyroid (2.2)
NHL (1.2)	Mouth (2.2)
Myeloid Leukaemia (1.2)	Colon (2.0)

Bangalore (1982-2014)

Males

1982-1991	2005-2014
Stomach (9.8)	Lung (9.3)
Lung (8.1)	Stomach (7.5)
Oesophagus (8.0)	Prostate (6.7)
Hypopharynx (5.3)	Oesophagus (6.1)
Larynx (4.0)	NHL (4.3)
NHL (3.9)	Liver (4.2)
Prostate (3.9)	Tongue (4.1)
Mouth (3.5)	Mouth (3.8)
Tongue (3.3)	Brain, NS (3.8)
Brain, NS (3.2)	Colon (3.6)

Females

1982-1991	2005-2014
Cervix Uteri (24.5)	Breast (27.6)
Breast (16.5)	Cervix Uteri (13.4)
Mouth (7.4)	Ovary (5.9)
Oesophagus (6.4)	Mouth (4.1)
Stomach (4.3)	Corpus Uteri (3.9)
Ovary (4.0)	Oesophagus (3.9)
Thyroid (2.7)	Stomach (3.6)
Rectum (1.7)	Thyroid (3.3)
NHL (1.6)	Lung (3.2)
Brain, NS (1.5)	Colon (2.3)

Bhopal (1988-2015)

Males

1988-1997	2006-2015
Lung (11.8)	Mouth (14.1)
Tongue (8.6)	Lung (10.7)
Mouth (7.7)	Tongue (9.5)
Oesophagus (7.0)	Larynx (5.2)
Hypopharynx (6.4)	Oesophagus (4.8)
Prostate (4.1)	Prostate (4.5)
Larynx (3.7)	Hypopharynx (4.3)
Brain, NS (3.6)	NHL (3.6)
Stomach (3.5)	Myeloid Leukaemia (2.6)
Myeloid Leukaemia (2.8)	Brain, NS (2.6)

Females

1988-1997	2006-2015
Cervix Uteri (23.8)	Breast (28.4)
Breast (21.8)	Cervix Uteri (14.1)
Ovary (6.3)	Ovary (7.6)
Mouth (4.9)	Mouth (4.9)
Oesophagus (4.7)	Gall Bladder (4.8)
Gall Bladder (2.7)	Oesophagus (4.1)
Lung (2.3)	Tongue (3.0)
Brain, NS (2.1)	Lung (3.0)
Corpus Uteri (1.9)	Corpus Uteri (2.6)
Myeloid Leukaemia (1.8)	NHL (1.9)

Chennai (1982-2016)

Males

1982-1991	2007-2016
Stomach (13.9)	Lung (10.1)
Lung (9.1)	Stomach (9.4)
Oesophagus (7.9)	Mouth (7.7)
Mouth (6.5)	Tongue (6.3)
Hypopharynx (5.2)	Prostate (5.4)
Tongue (4.8)	Oesophagus (4.6)
Larynx (4.3)	NHL (3.9)
NHL (3.8)	Larynx (3.8)
Brain, NS (2.8)	Liver (3.7)
Penis (2.7)	Rectum (3.7)

Females

1982-1991	2007-2016
Cervix Uteri (34.4)	Breast (30.2)
Breast (16.8)	Cervix Uteri (12.5)
Mouth (6.0)	Ovary (6.1)
Stomach (5.0)	Stomach (4.3)
Oesophagus (4.6)	Corpus Uteri (3.9)
Ovary (4.5)	Lung (3.3)
Hypopharynx (1.7)	Mouth (3.2)
Thyroid (1.4)	Oesophagus (2.8)
NHL (1.4)	Colon (2.6)
Corpus Uteri (1.3)	NHL (2.3)

Delhi (1988-2014)

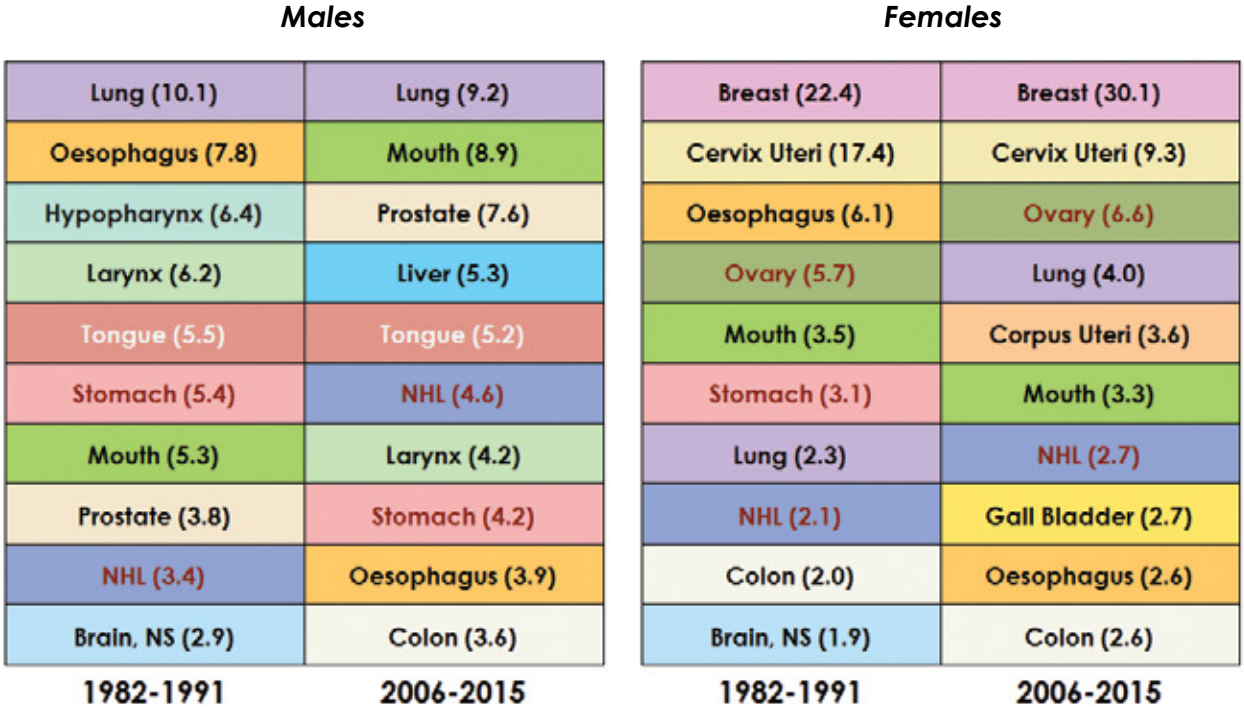
Males

1988-1997	2005-2014
Lung (9.3)	Lung (10.2)
Larynx (6.9)	Prostate (6.6)
Tongue (4.7)	Tongue (6.6)
Brain, NS (4.7)	Mouth (6.3)
NHL (4.7)	Larynx (5.6)
Oesophagus (4.5)	Urinary Bladder (4.6)
Urinary Bladder (4.1)	NHL (4.6)
Prostate (4.0)	Oesophagus (3.9)
Mouth (3.2)	Brain, NS (3.6)
Stomach (3.0)	Gall Bladder (3.4)

Females

1988-1997	2005-2014
Breast (21.3)	Breast (27.3)
Cervix Uteri (19.9)	Cervix Uteri (12.0)
Ovary (6.3)	Gall Bladder (7.5)
Gall Bladder (5.5)	Ovary (7.3)
Oesophagus (2.7)	Corpus Uteri (3.6)
Brain, NS (2.6)	Lung (3.1)
NHL (2.2)	NHL (2.6)
Myeloid Leukaemia (1.9)	Oesophagus (2.3)
Corpus Uteri (1.9)	Brain, NS (2.1)
Lung (1.8)	Thyroid (2.1)

Mumbai (1982-2015)



Males

Barshi rural - Mouth cancer was the leading site in recent period (2007-2016) which was fourth leading site in 1988-1997.

Bangalore - Stomach cancer was the top leading site of cancer followed by lung in the period 1982-1991, whereas the order interchanged in the period 2005-2014.

Bhopal - Mouth cancer was the leading site in the period 2006-2015 and it was the third leading site of cancer in the period 1988-1997.

Chennai - Stomach was the leading site of cancer in the period 1988-1991 and lung cancer was the second leading site. However, both stomach and lung cancer continued to be at the top but exchanged the top two positions in 2007-2016.

Delhi - Lung cancer remained in the same position as the leading site in both the periods. Prostate was the second leading site in the period 2005-2014 which was in the eighth positon previously.

Mumbai – Lung cancer continued to be the top leading site across the years. Oesophagus, which was the second leading site of cancer in 1982-1991 became the ninth leading site in 2006-2015, whereas mouth cancer occupied the second position in 2006-2015.

Females

Cancer of breast followed by cervix uteri was the leading site of cancer in Delhi and Mumbai over the years. In Barshi rural, cervix uteri followed by breast cancer was the leading site all along. Bangalore, Chennai and Bhopal had cervix uteri followed by breast as the leading site in the earlier years which interchanged in the recent period.

Chapter 3

Sites of cancer associated with the use of Tobacco

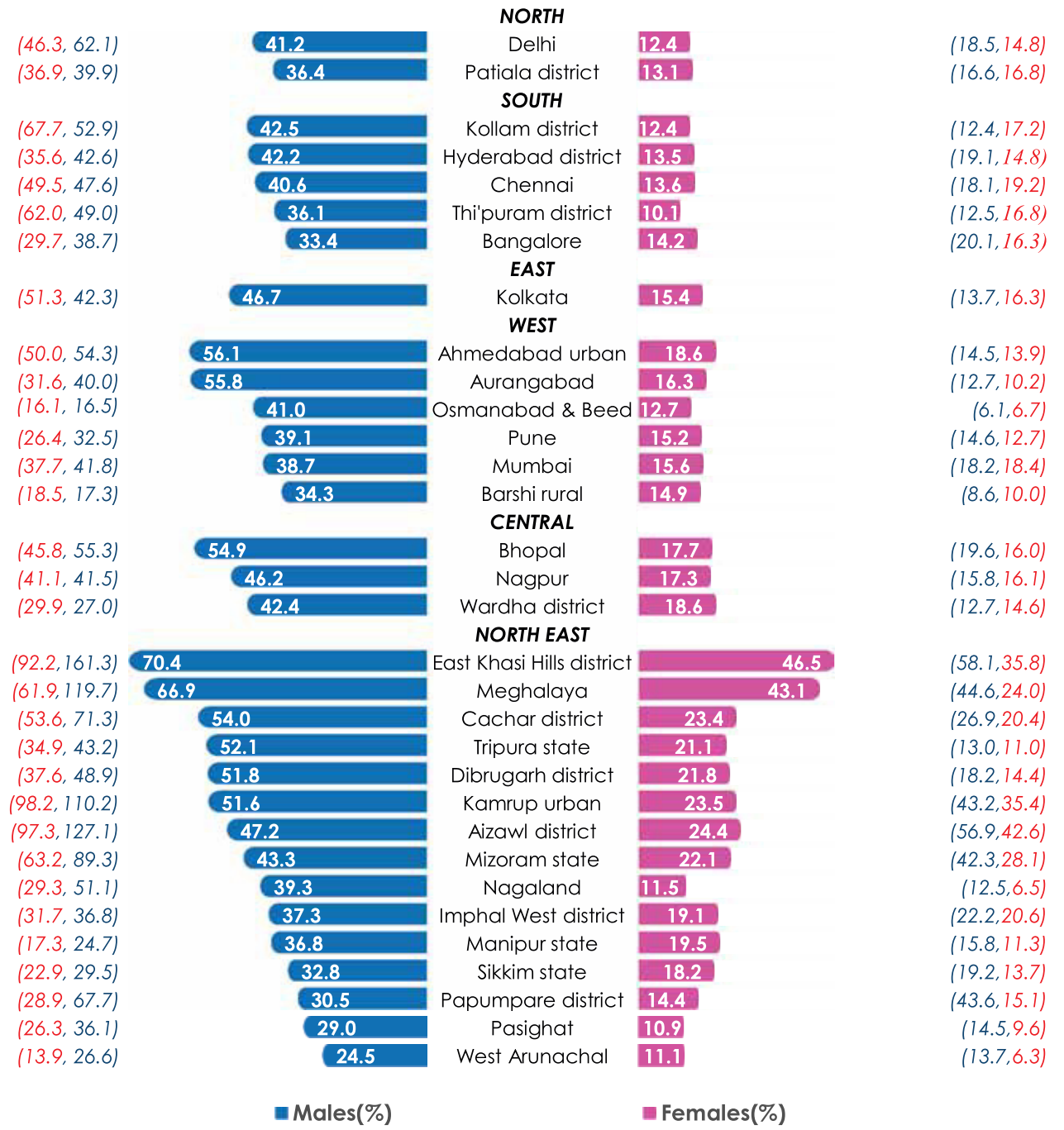
There are cancers of several anatomical sites known to be associated with the use of tobacco. The NCRP has been using the classification provided by the International Agency for Research on Cancer (IARC), World Health Organization monographs on overall evaluations of carcinogenicity (IARC, 1987). The 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.

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

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

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



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 Cancers Associated with the Use of Tobacco by Region (Patients treated only at 58 Reporting HBCRs under NCRP)

NORTH

Anatomical Sites of Cancer	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	
	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

Anatomical Sites of Cancer	Males		Females	
	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**

SOUTH

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	
	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 EAST

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

Chapter 4

Cancers in Childhood

Cancer incidence rates for childhood cancers are generally expressed per million (pm) children and not as per hundred thousand that is followed for cancers in all ages or in adults (IARC - 1996).

The relative proportion of all types of childhood cancers, comparison of Age Adjusted Rates per million (AARpm) across all the Population Based Cancer Registries (PBCRs) under NCRP and across international registries have been provided.

The results have been presented in two age groups: 0-14 years and 0-19 years for national and international comparison.

For international comparison of all types of childhood cancers, AARpm of Indian registries (2012-2016) have been compared with registries of Asian and Non-Asian countries. The reference manual is Volume XI (2008-2012) of Cancer Incidence in Five Continents (Bray F et al, 2017) which has published the data of cancer registries from all over the world. For Asian comparison, the highest AARpm observed from five Asian countries was compared with the top five AARpm from India. For Non-Asian comparison, the highest AARpm from two different countries within each non-Asian continent have been compared with top two AARpm in India.

AARpm drawn for races (White, Black, Hispanic etc) in CI5 VOL XI and small numbers (< 5 cases) in both Indian and CI5 datasets have been excluded from comparison in all the graphs.

The childhood cancers for the 0-14 years age group have been reported for the period 2012-2016. The proportion of childhood cancers relative to cancers in all age groups varied between 0.7%-3.7%. The relative proportion was highest in Delhi PBCR (boys-4.7% and girls-2.6%) in north, Hyderabad district (boys-3.2% and girls-1.8%) in south, Aurangabad (4.2%) for boys and Barshi rural (2.3%) for girls in west. The registries in north east showed lower proportions compared to other regions. These proportions were lowest in East Khasi Hills district (boys - 0.8% and girls - 0.5%).

Childhood cancers for the 0-19 age group have also been reported for the period 2012-2016. The proportion of childhood cancers relative to all cancers in all age groups varied between 1.0%-4.9%. The relative proportion was highest in Delhi PBCR (boys-6.2% and girls-3.5%) in North, Hyderabad district (boys-4.4% and girls-2.7%) in south, Aurangabad (boys-5.7% and girls- 3.1%) and Barshi rural (3.1%) for girls in west. The proportion was lowest in East Khasi Hills district (boys-1.1% and girls-0.9%) in the north east states compared to other regions.

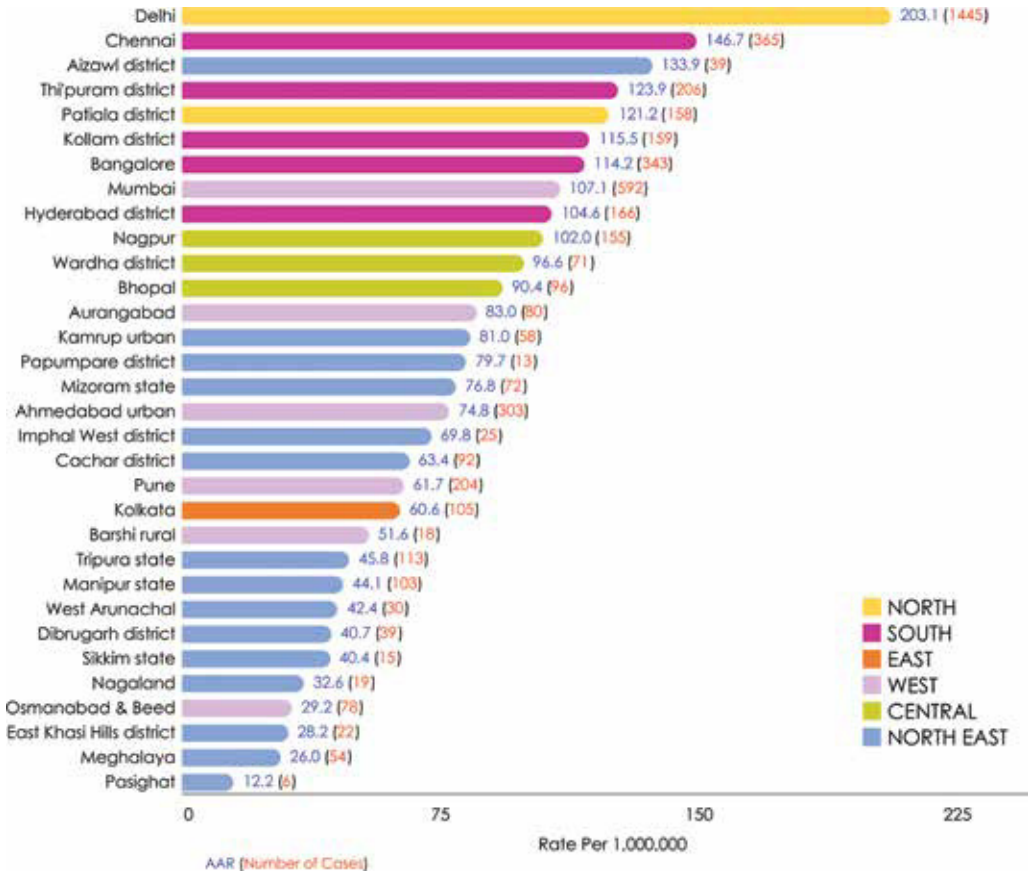
Table 4.1 Number (n) and Relative Proportion (%) of Cancers in Childhood Relative to All Cancers (N) in 28 PBCRs (0-14 Age Group) under NCRP

Sl No	Registry	Boys			Girls			Both Sexes		
		N	n	%	N	n	%	N	n	%
	NORTH									
1	Delhi	31032	1445	4.7	29065	766	2.6	60097	2211	3.7
2	Patiala district	5394	158	2.9	6077	78	1.3	11471	236	2.1
	SOUTH									
3	Hyderabad district	5143	166	3.2	6453	117	1.8	11596	283	2.4
4	Kollam district	9930	159	1.6	9780	129	1.3	19710	288	1.5
5	Thi'puram district	13506	206	1.5	14327	177	1.2	27833	383	1.4
6	Bangalore	13221	343	2.6	15828	234	1.5	29049	577	2.0
7	Chennai	14468	365	2.5	16803	234	1.4	31271	599	1.9
	EAST									
8	Kolkata	10186	105	1.0	9151	80	0.9	19337	185	1.0
	WEST									
9	Ahmedabad urban	14579	303	2.1	11025	165	1.5	25604	468	1.8
10	Aurangabad	1923	80	4.2	2001	43	2.1	3924	123	3.1
11	Osmanabad & Beed	3635	78	2.1	4467	64	1.4	8102	142	1.8
12	Barshi rural	726	18	2.5	813	19	2.3	1539	37	2.4
13	Mumbai	26256	592	2.3	27458	371	1.4	53714	963	1.8
14	Pune	9687	204	2.1	10818	128	1.2	20505	332	1.6
	CENTRAL									
15	Wardha district	2389	71	3.0	2537	40	1.6	4926	111	2.3
16	Bhopal	3567	96	2.7	3589	59	1.6	7156	155	2.2
17	Nagpur	5952	155	2.6	6047	99	1.6	11999	254	2.1
	NORTH EAST									
18	Manipur state	3702	103	2.8	4500	90	2.0	8202	193	2.4
	Imphal West district	1137	25	2.2	1500	30	2.0	2637s	55	2.1
19	Mizoram state	4323	72	1.7	3736	58	1.6	8059	130	1.6
	Aizawl district	2180	39	1.8	1900	27	1.4	4080	66	1.6
20	Sikkim state	1172	15	1.3	1131	21	1.9	2303	36	1.6
21	Tripura state	6559	113	1.7	4914	77	1.6	11473	190	1.7
22	West Arunachal	1222	30	2.5	1171	23	2.0	2393	53	2.2
	Papumpare district	472	13	2.8	528	5	0.9	1000	18	1.8
23	Meghalaya	4688	54	1.2	2832	25	0.9	7520	79	1.1
	East Khasi Hills district	2884	22	0.8	1729	9	0.5	4613	31	0.7
24	Nagaland	1403	19	1.4	992	12	1.2	2395	31	1.3
25	Pasighat	321	6	1.9	303	2	0.7	624	8	1.3
26	Cachar district	4663	92	2.0	3943	42	1.1	8606	134	1.6
27	Dibrugarh district	2535	39	1.5	2238	17	0.8	4773	56	1.2
28	Kamrup urban	6223	58	0.9	4790	42	0.9	11013	100	0.9

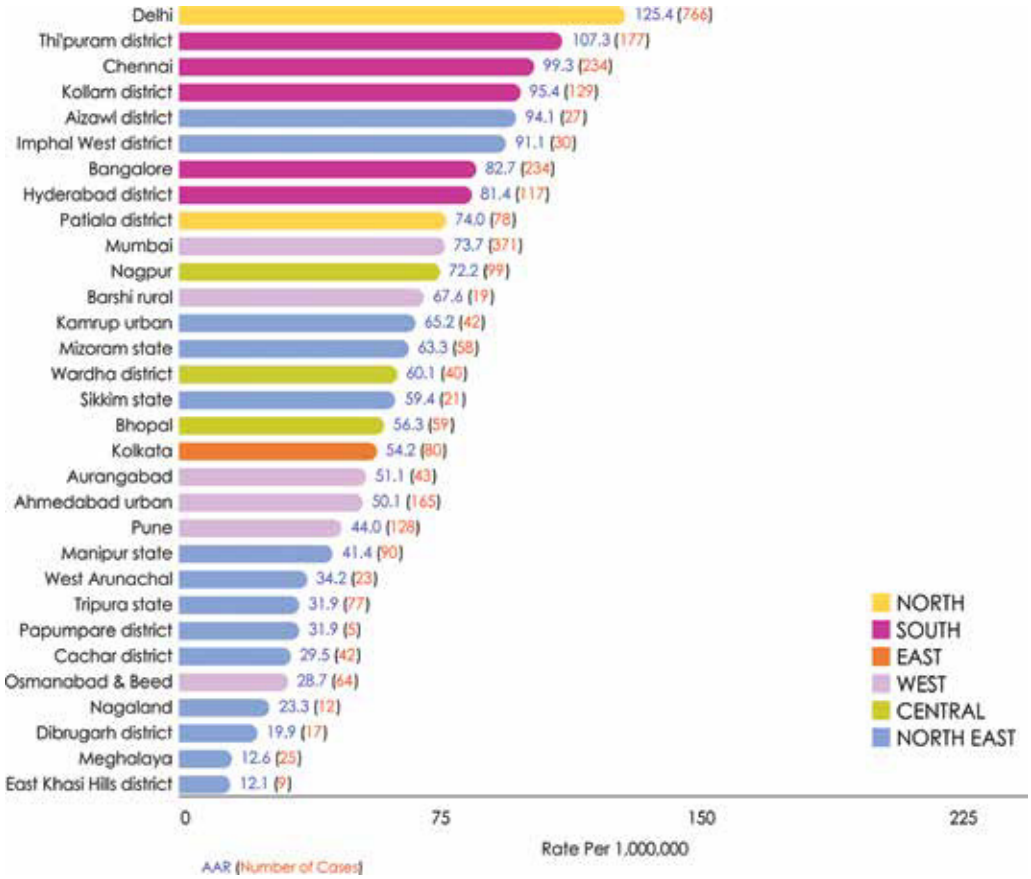
Reporting year of data for all registries is mentioned in Table 1.2

Fig. 4.1 All Types - Age Adjusted Incidence Rates (AAR Per Million) of Broad Types of Cancers in Childhood (0-14 Age Group)

Boys



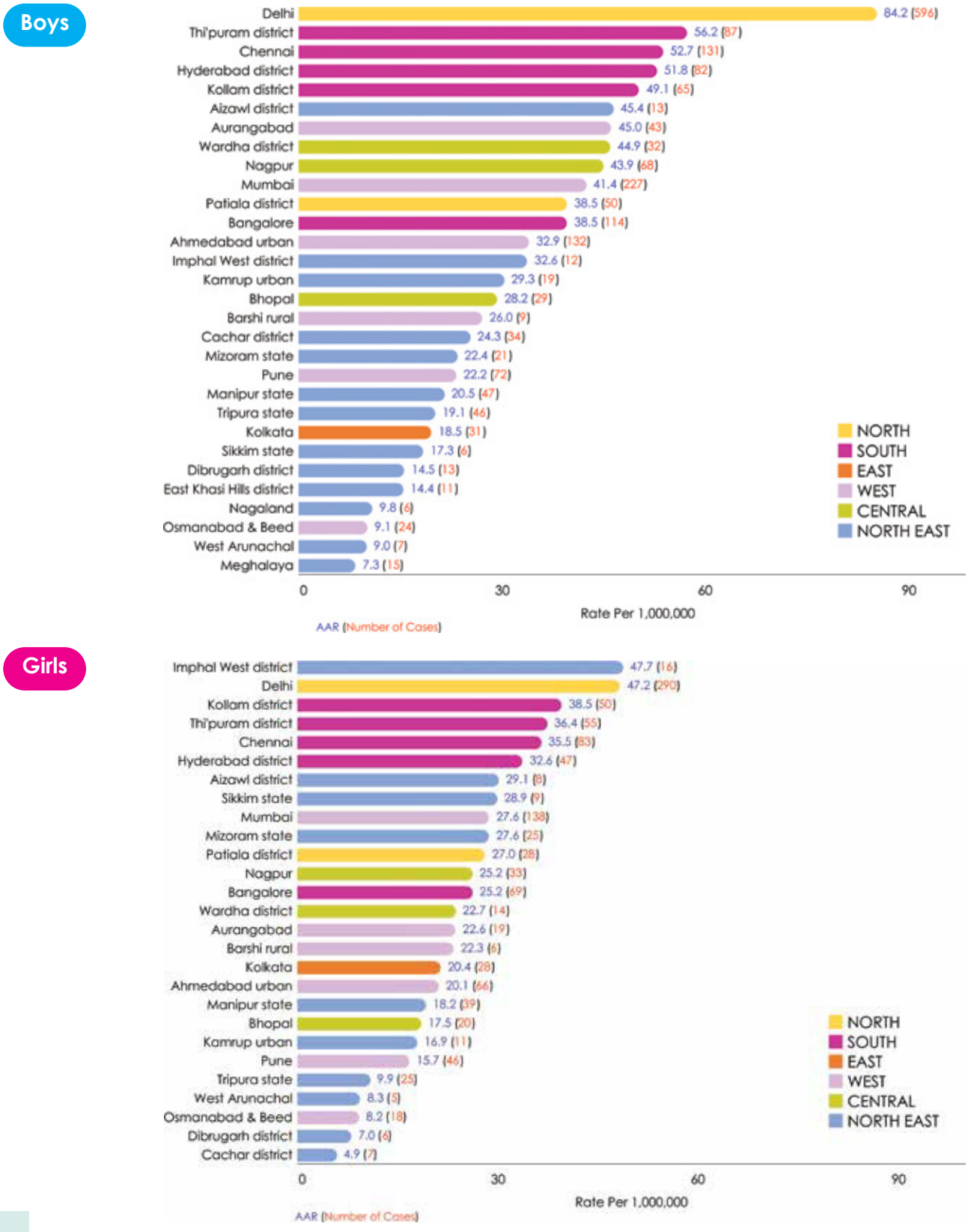
Girls



Delhi had the highest AARpm for all types of childhood cancers among both boys and girls in the age group 0-14 years (203.1 and 125.4, respectively).

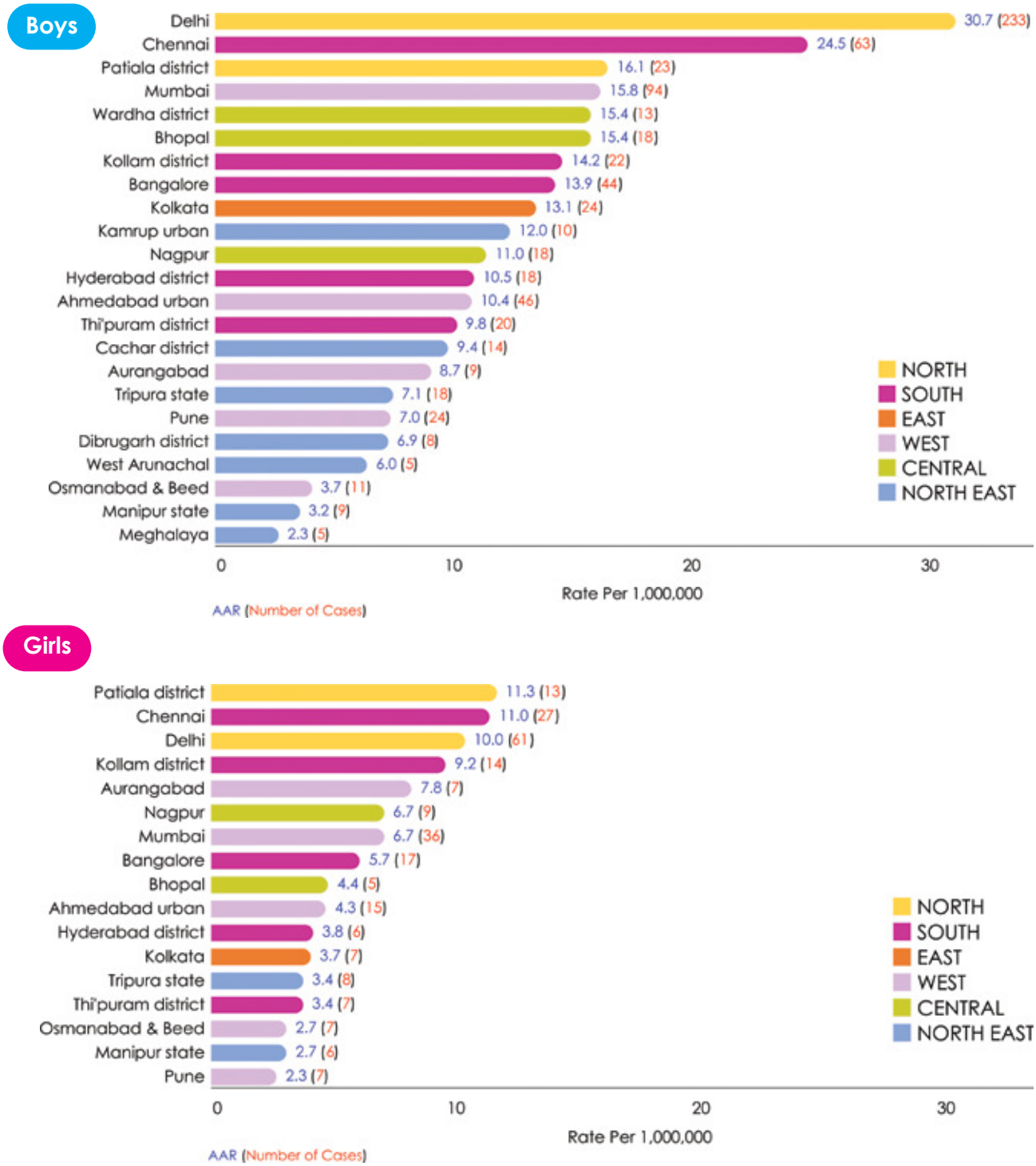
Among boys, Chennai had the highest AARpm (146.7) from south and Aizawl district (133.9) from the north east. Among girls, Thiruvananthapuram district (107.3), Chennai (99.3) and Kollam district (95.4) had higher AARpm from the south.

Fig. 4.2 Leukaemias - Age Adjusted Incidence Rates (AAR Per Million) of Broad Types of Cancers in Childhood (0-14 Age Group)



Among boys aged 0-14 years, Delhi (84.2) had the highest AARpm for leukaemia (Fig 4.2) followed by registries from the south, Thiruvananthapuram district (56.2), Chennai (52.7), Hyderabad district (51.8) and Kollam district (49.1). Among girls, Imphal West district (47.7) had highest AARpm followed by Delhi (47.2) and Kollam district (38.5).

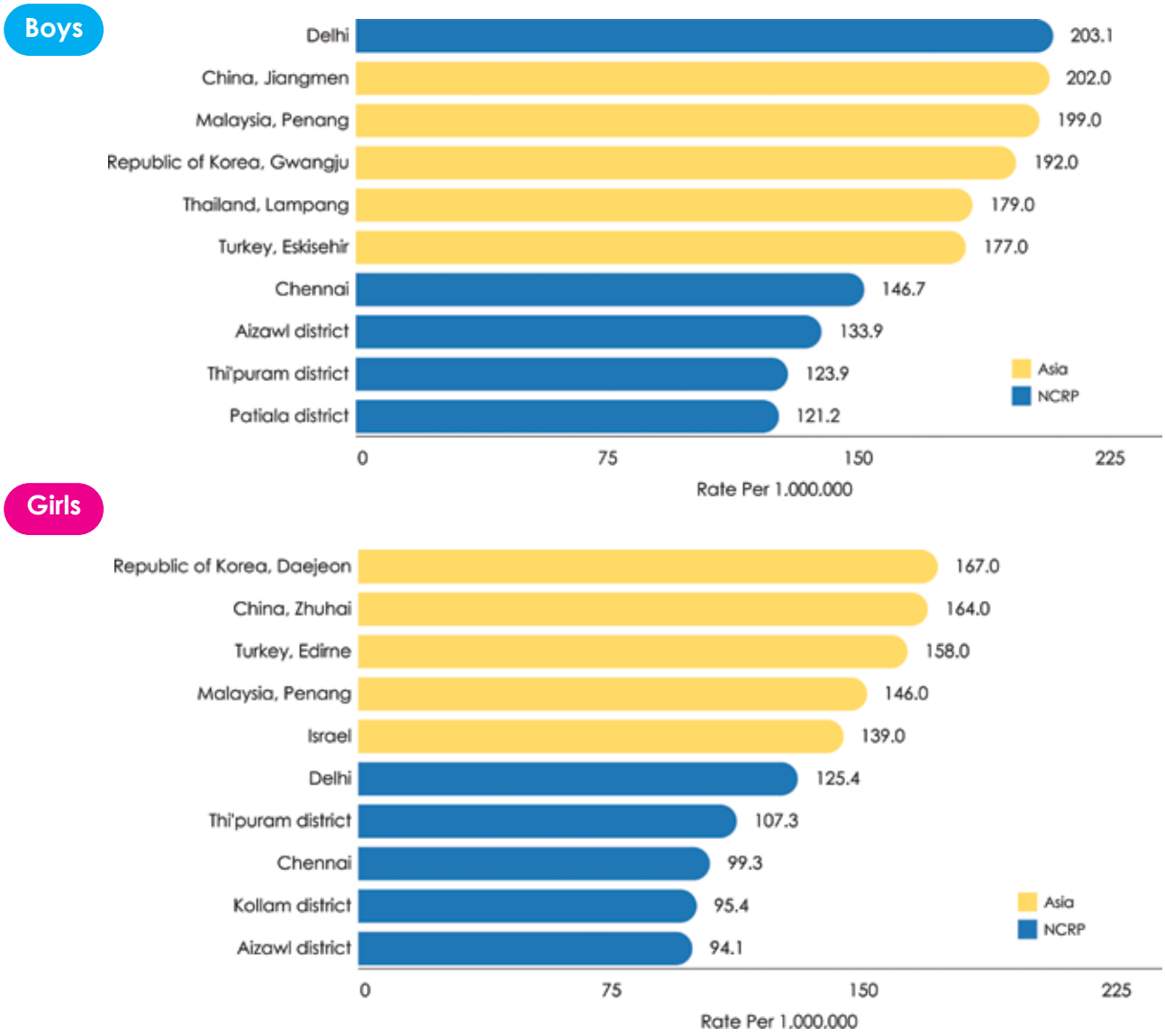
Fig. 4.3 Lymphomas - Age Adjusted Incidence Rates (AAR per Million) of Broad Types of Cancers in Childhood (0-14 Age Group)



Among boys aged 0-14 years, Delhi (30.7) had the highest AARpm for lymphoma (Fig 4.3) followed by registries from Chennai (24.5), Patiala district (16.1) and Mumbai (15.8).

Among girls, Patiala district (11.3) had highest AARpm followed by Chennai (11.0) and Delhi (10.0).

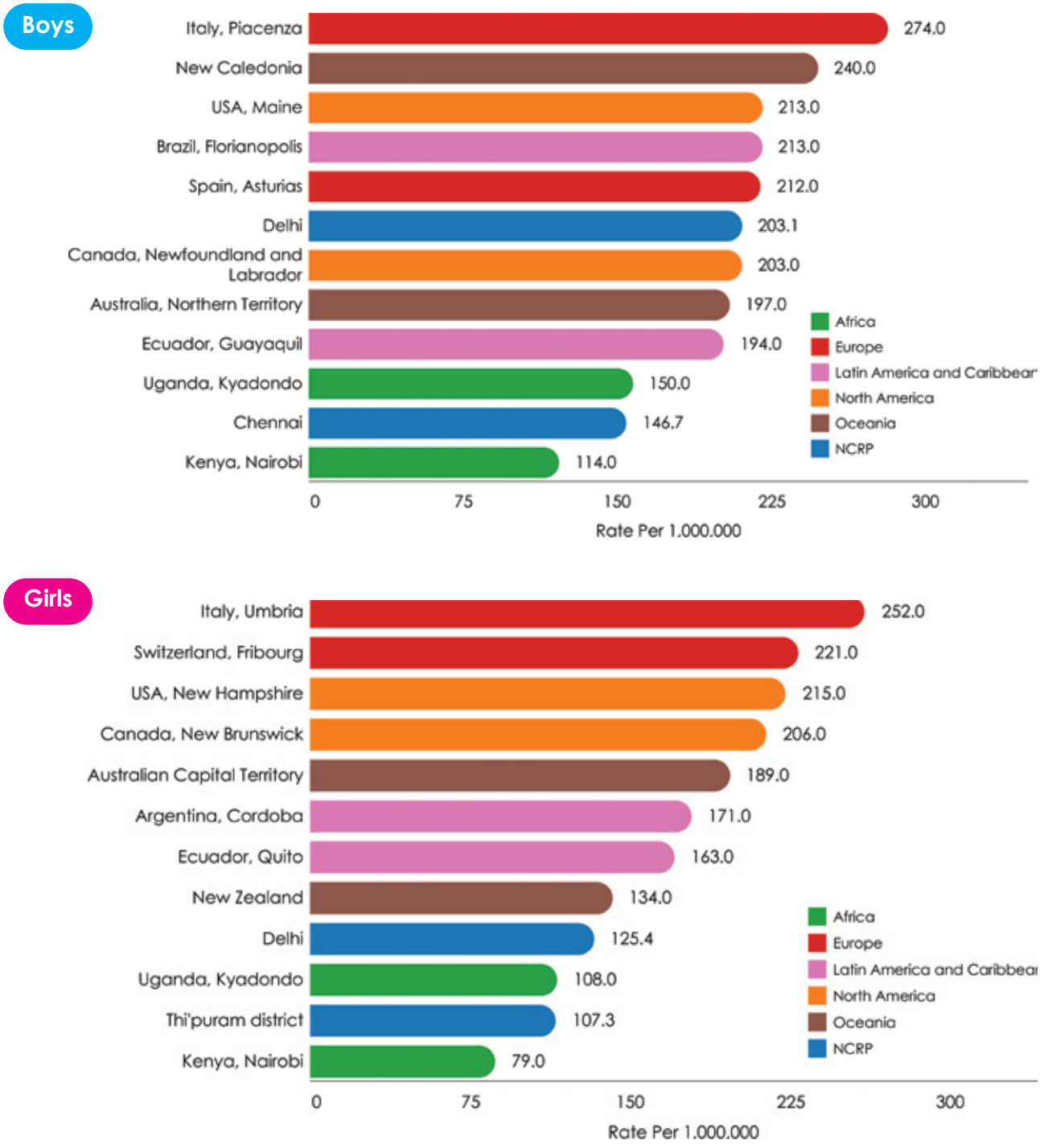
Fig. 4.4 Comparison of Age Adjusted Incidence Rate of Childhood Cancers between Asian Countries (AAR per Million) and PBCRs under NCRP (0-14 Age Group)



Among boys, Delhi (203.1) PBCR had the highest AARpm in Asia trailed by Jiangmen in China (202.0).

Among girls, Daejeon in Republic of Korea (167.0) had the highest AARpm in Asia.

Fig. 4.5 Comparison of Age Adjusted Incidence Rate of Childhood Cancers between Non-Asian Countries (AAR per Million) and PBCRs under NCRP (0-14 Age Group)



Among the boys, Placenza in Italy (274.0), New Caledonia (240.0) showed highest AARpm of cancer in childhood. For girls, Umbria in Italy (252.0), Fribourg in Switzerland (221.0), New Hampshire in USA (215.0) and New Brunswick in Canada (206.0) showed highest AARpm of cancers in childhood among the Non-Asian countries. Delhi (125.4) among Indian PBCRs showed had higher AARpm of cancers in childhood.

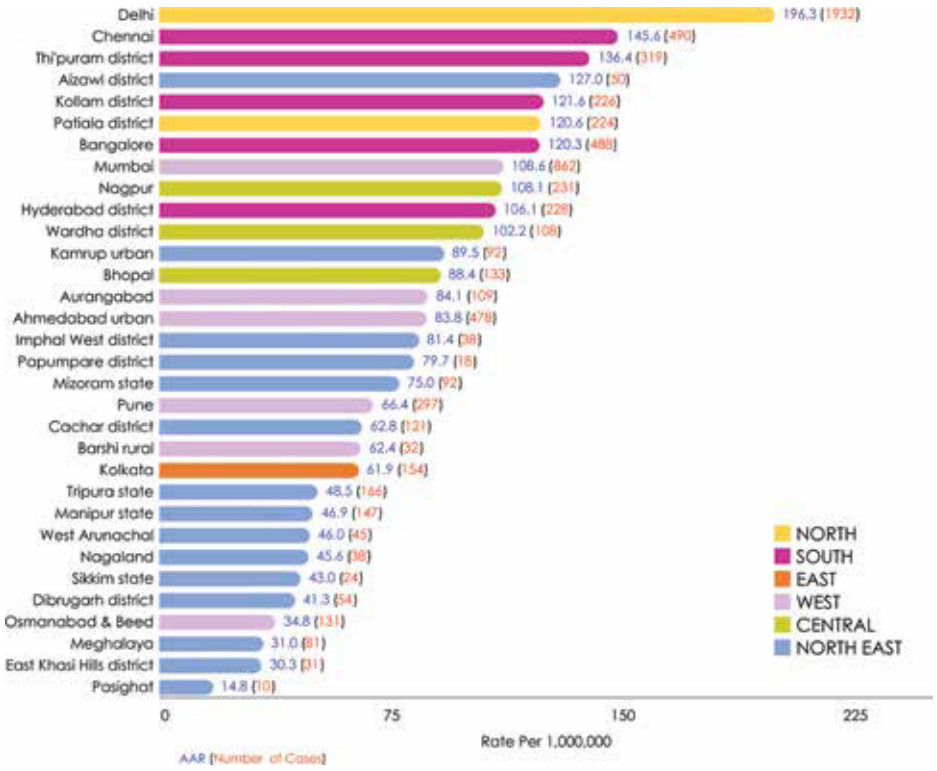
Table 4.2 Number (n) and Relative Proportion (%) of Cancers in Childhood Relative to All Cancers (N) in 28 PBCRs (0-19 Age Group) under NCRP

Sl No	Registry	Boys			Girls			Both Sexes		
		N	n	%	N	n	%	N	n	%
	NORTH									
1	Delhi	31032	1932	6.2	29065	1018	3.5	60097	2950	4.9
2	Patiala district	5394	224	4.2	6077	107	1.8	11471	331	2.9
	SOUTH									
3	Hyderabad district	5143	228	4.4	6453	173	2.7	11596	401	3.5
4	Kollam district	9930	226	2.3	9780	214	2.2	19710	440	2.2
5	Thi'puram district	13506	319	2.4	14327	287	2.0	27833	606	2.2
6	Bangalore	13221	488	3.7	15828	328	2.1	29049	816	2.8
7	Chennai	14468	490	3.4	16803	333	2.0	31271	823	2.6
	EAST									
8	Kolkata	10186	154	1.5	9151	126	1.4	19337	280	1.4
	WEST									
9	Ahmedabad urban	14579	478	3.3	11025	243	2.2	25604	721	2.8
10	Aurangabad	1923	109	5.7	2001	63	3.1	3924	172	4.4
11	Osmanabad & Beed	3635	131	3.6	4467	99	2.2	8102	230	2.8
12	Barshi rural	726	32	4.4	813	25	3.1	1539	57	3.7
13	Mumbai	26256	862	3.3	27458	540	2.0	53714	1402	2.6
14	Pune	9687	297	3.1	10818	187	1.7	20505	484	2.4
	CENTRAL									
15	Wardha district	2389	108	4.5	2537	68	2.7	4926	176	3.6
16	Bhopal	3567	133	3.7	3589	86	2.4	7156	219	3.1
17	Nagpur	5952	231	3.9	6047	170	2.8	11999	401	3.3
	NORTH EAST									
18	Manipur state	3702	147	4.0	4500	136	3.0	8202	283	3.5
	Imphal West district	1137	38	3.3	1500	46	3.1	2637	84	3.2
19	Mizoram state	4323	92	2.1	3736	80	2.1	8059	172	2.1
	Aizawl district	2180	50	2.3	1900	34	1.8	4080	84	2.1
20	Sikkim state	1172	24	2.0	1131	30	2.7	2303	54	2.3
21	Tripura state	6559	166	2.5	4914	118	2.4	11473	284	2.5
22	West Arunachal	1222	45	3.7	1171	36	3.1	2393	81	3.4
	Papumpare district	472	18	3.8	528	9	1.7	1000	27	2.7
23	Meghalaya	4688	81	1.7	2832	40	1.4	7520	121	1.6
	East Khasi Hills district	2884	31	1.1	1729	16	0.9	4613	47	1.0
24	Nagaland	1403	38	2.7	992	21	2.1	2395	59	2.5
25	Pasighat	321	10	3.1	303	4	1.3	624	14	2.2
26	Cachar district	4663	121	2.6	3943	60	1.5	8606	181	2.1
27	Dibrugarh district	2535	54	2.1	2238	26	1.2	4773	80	1.7
28	Kamrup urban	6223	92	1.5	4790	84	1.8	11013	176	1.6

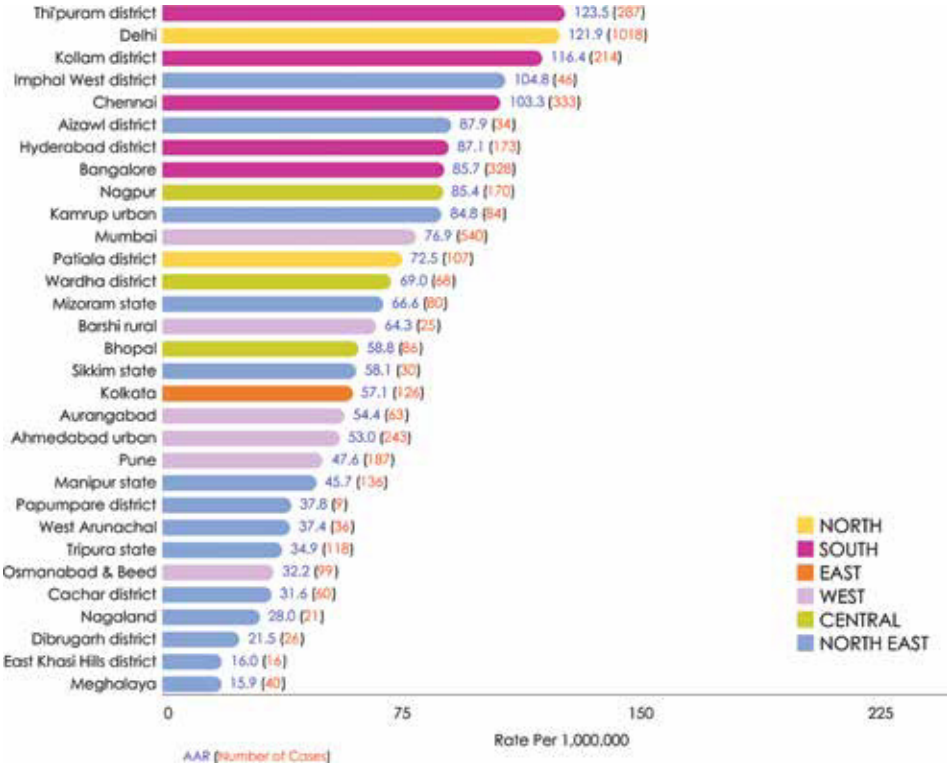
Reporting year of data for all registries is mentioned in Table 1.2

Fig. 4.6 All Types - Age Adjusted Incidence Rates (AAR Per Million) of Broad Types of Cancers in Childhood (0-19 Age Group)

Boys

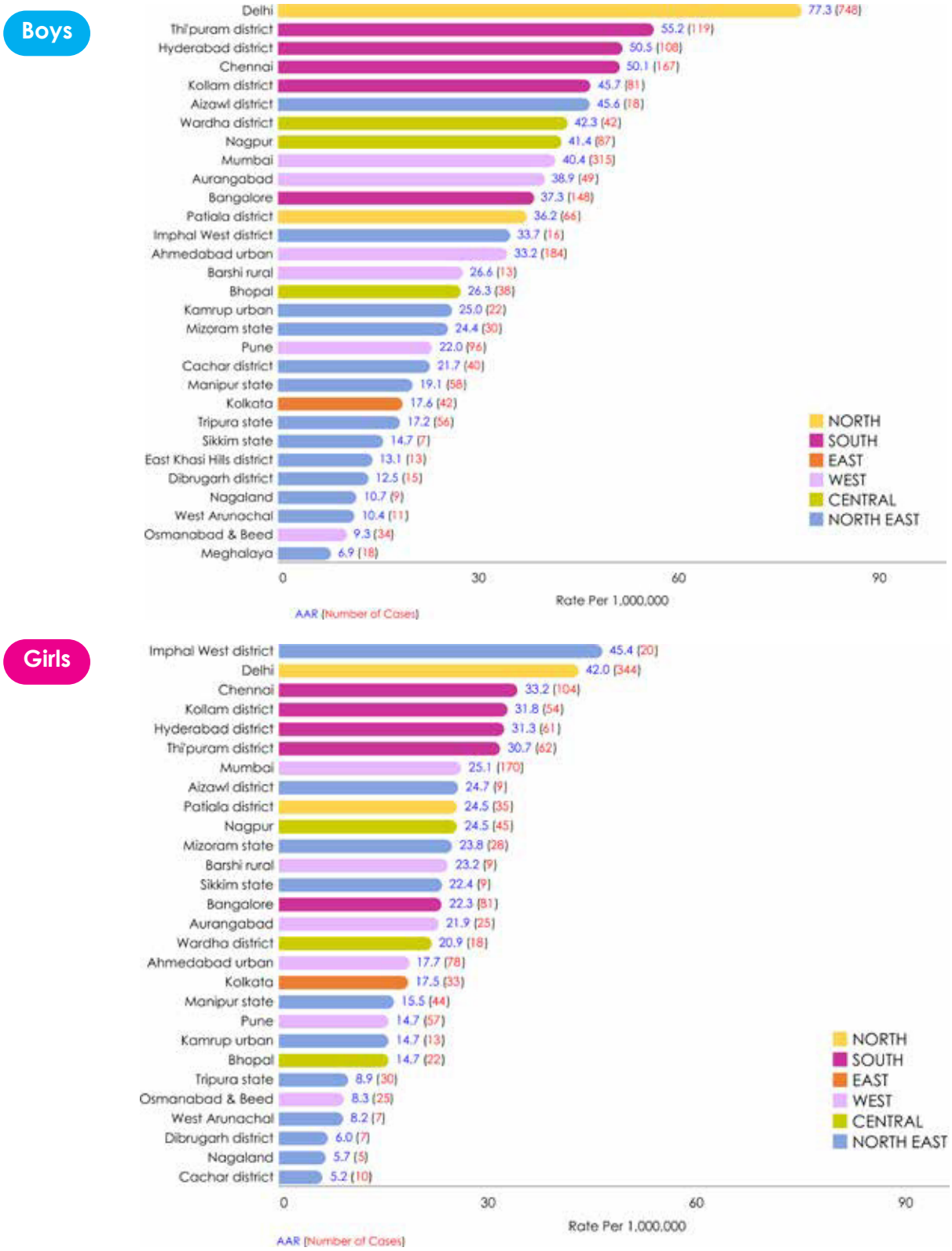


Girls



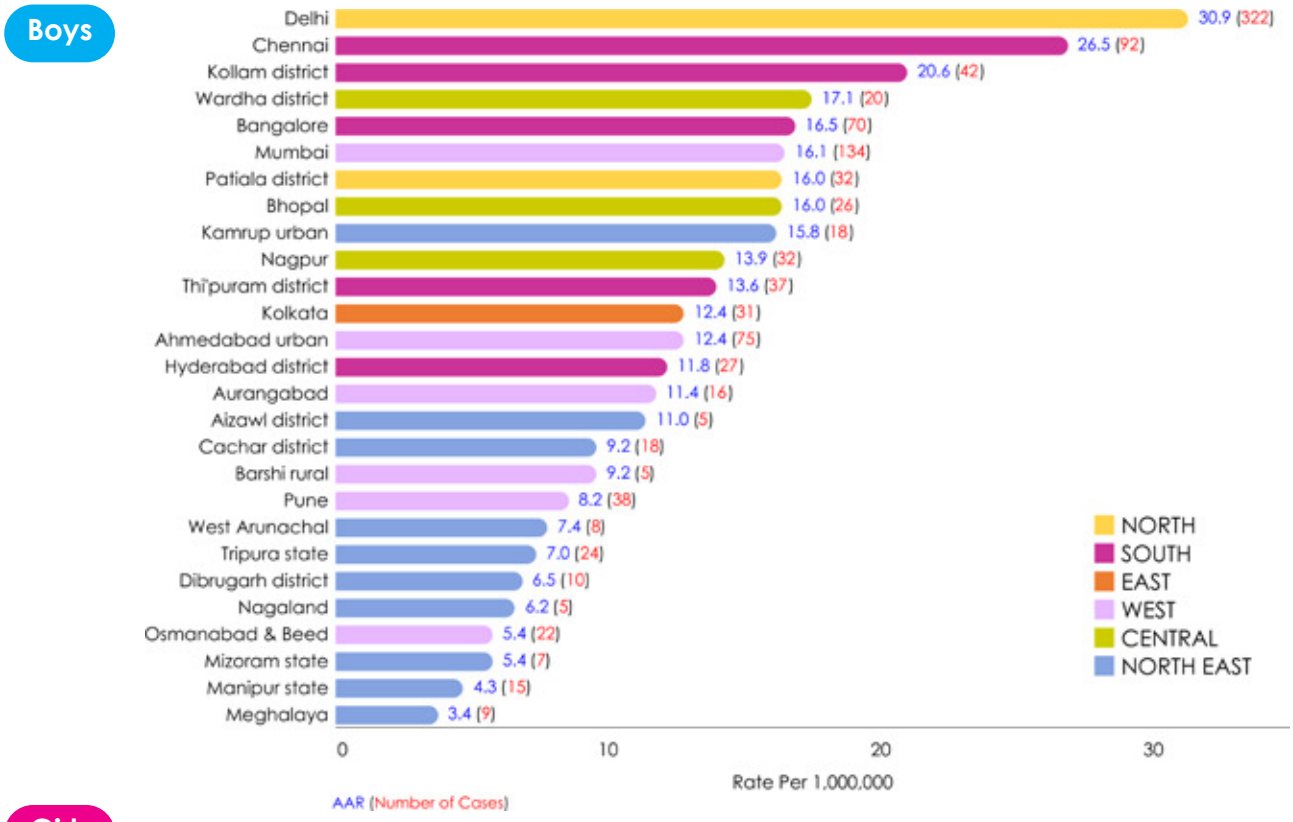
Registries contributing greater than or equal to 5 cases under each type were considered for representation in the graph. Fig. 4.6 depicts that a registry from the northern region i.e. Delhi (196.3) had the highest AARpm for all types of childhood cancers among boys aged 0-19 years followed by registries from the southern region i.e. Chennai (145.6) and Thiruvananthapuram district (136.4). Among girls, Thiruvananthapuram district (123.5) had highest AARpm followed by Delhi (121.9) and Kollam district (116.4).

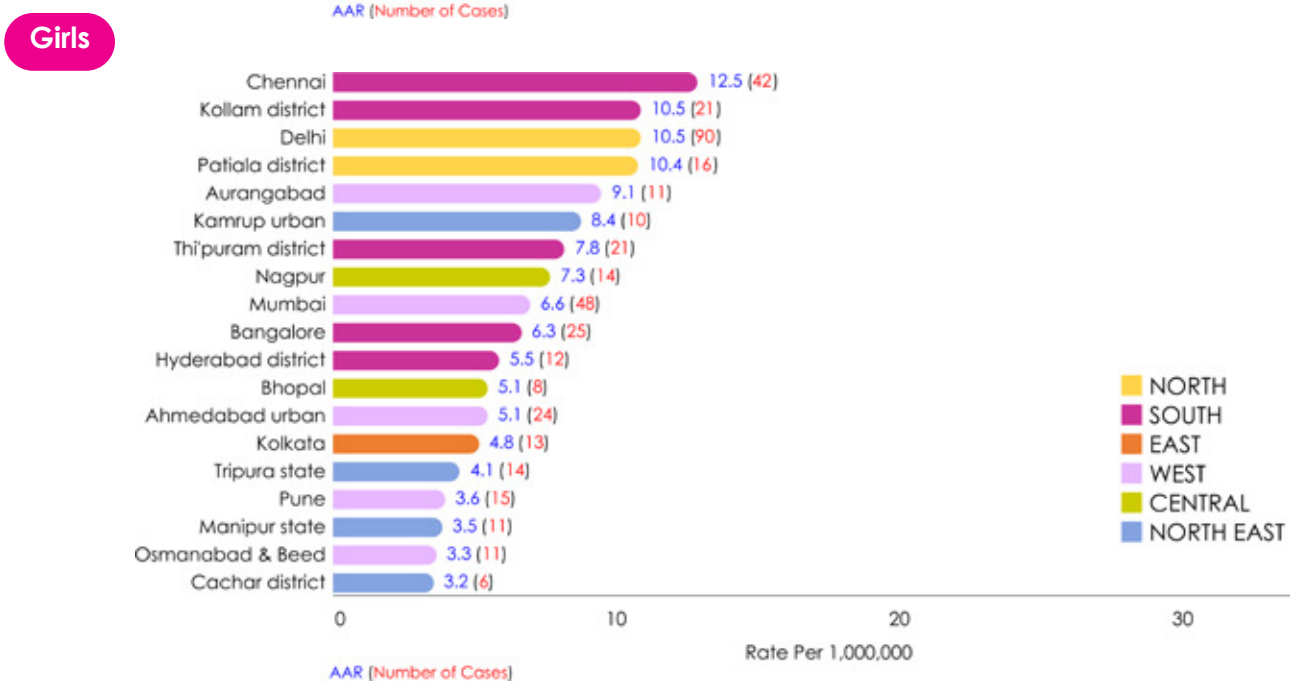
Fig. 4.7 Leukaemias - Age Adjusted Incidence Rates (AAR Per Million) of Broad Types of Cancers in Childhood (0-19 Age Group)



Among boys aged 0-19 years, registry from the northern region i.e. Delhi (77.3) had the highest AARpm for leukaemias in cancers of childhood (Fig 4.7) followed by south (Thiruvananthapuram district (55.2), Hyderabad district (50.5), Chennai (50.1) and Kollam district (45.7)). Among girls, registry from the north east region i.e. Imphal West district (45.4) had highest AARpm followed by Delhi (42.0) and (Chennai (33.2), Kollam district (31.8), Hyderabad district (31.3) and Thiruvananthapuram district (30.7)).

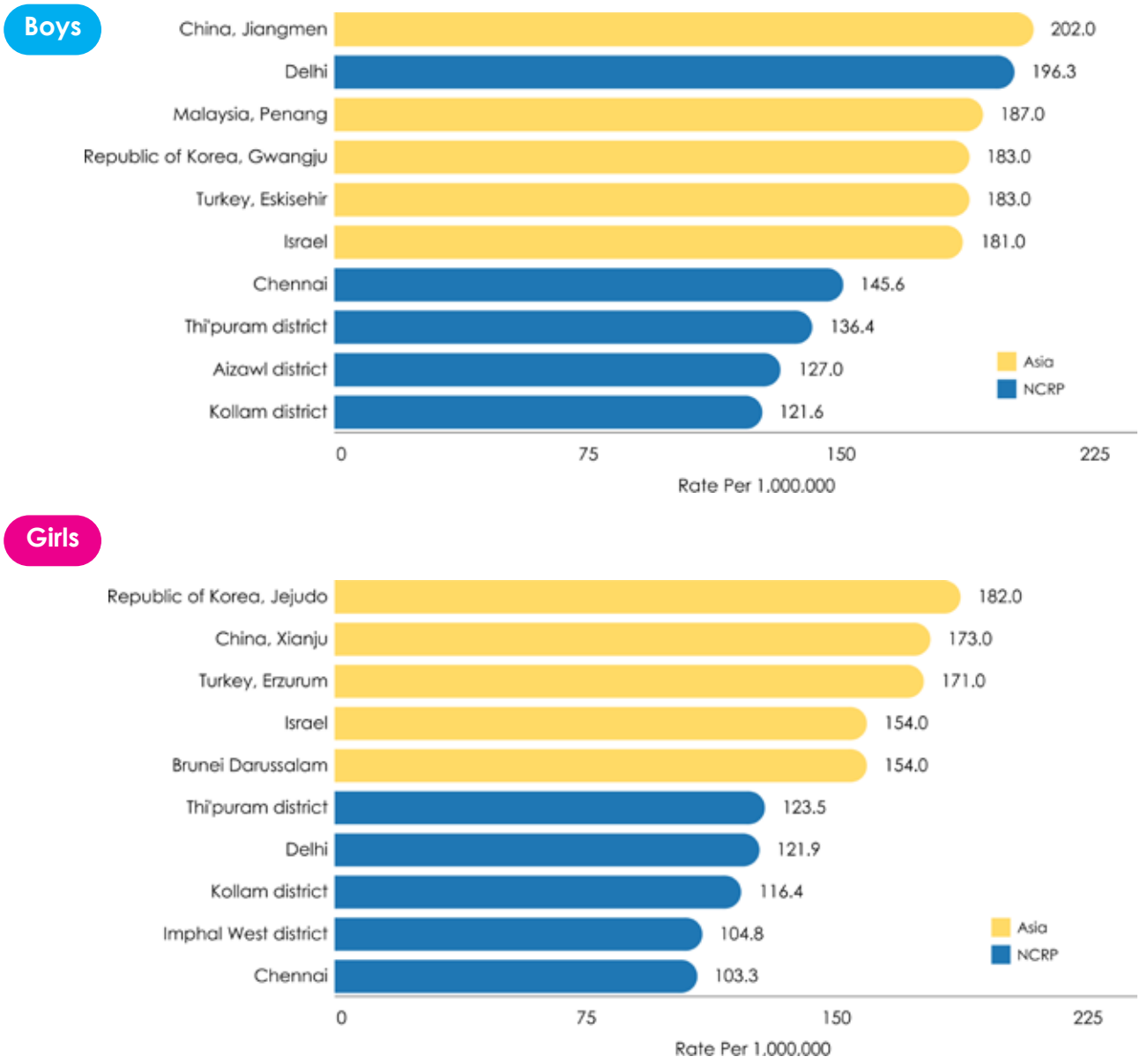
Fig. 4.8 Lymphomas - Age Adjusted Incidence Rates (AAR per Million) of Broad Types of Cancers in Childhood (0-19 Age Group)





Among boys aged 0-19 years, registry from the northern region i.e. Delhi (30.9) had the highest AARpm for lymphomas in cancers of childhood (Fig 4.8) followed by registries from south - Chennai (26.5) and Kollam district (20.6). Among girls, registry from south i.e. Chennai (12.5) had highest AARpm followed by Delhi (10.5) and Kollam district (10.5).

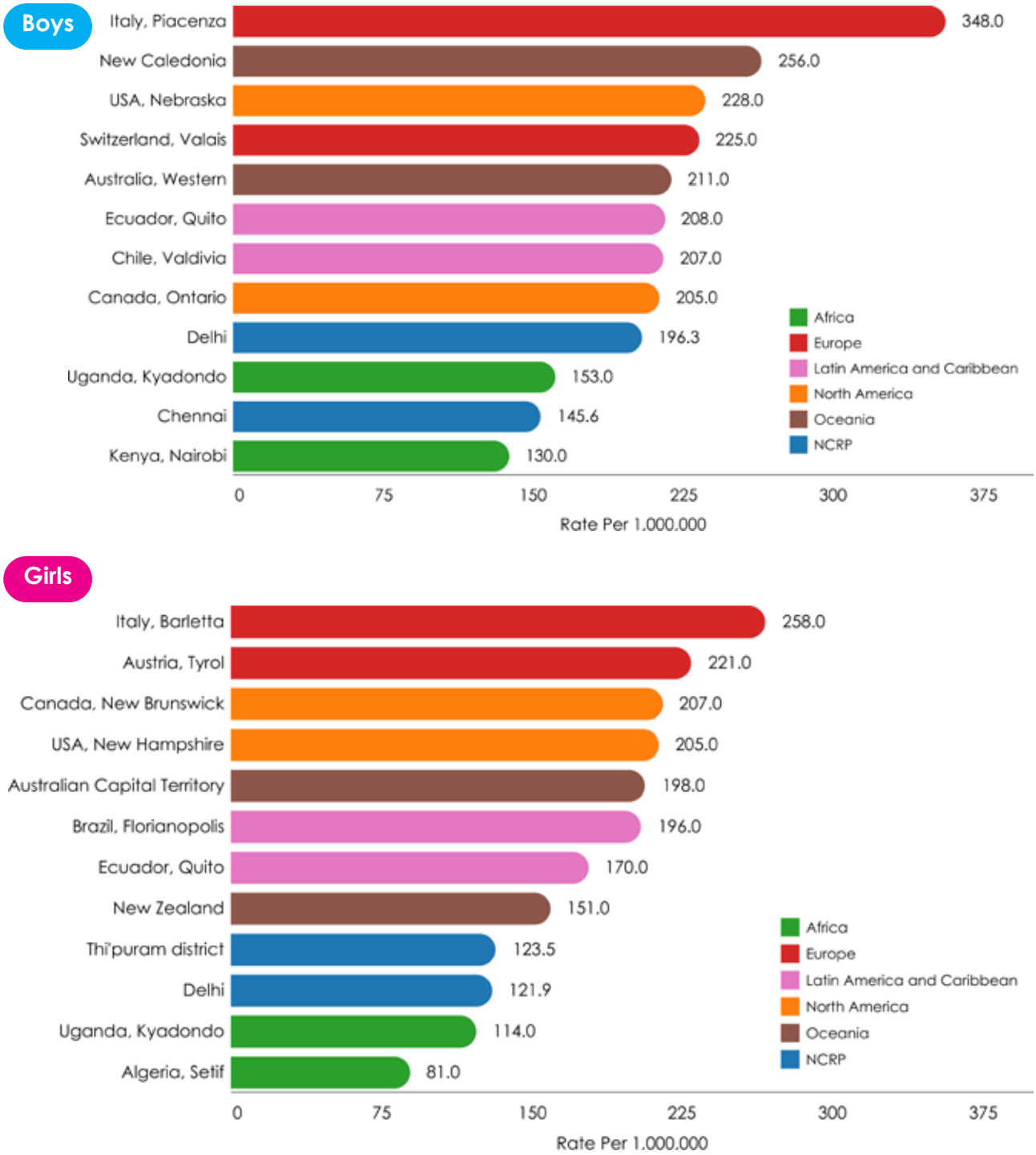
Fig. 4.9 Comparison of Age Adjusted Incidence Rate of Childhood Cancers between Asian Countries (AAR per Million) and PBCRs under NCRP (0-19 Age Group)



Among boys aged 0-19 years, Jiangmen in China (202.0) PBCR had the highest AARpm followed by Delhi in India (196.3), Penang in Malaysia (187.0) and Gwangju, Republic of Korea (183.0).

For girls, Jejudo, Republic of Korea (182.0), Xianju in China (173.0), Erzurum in Turkey (171.0), Brunei Darussalam (154.0) and Israel (154.0) showed highest AARpm of cancers of childhood. Among Indian PBCRs, Thiruvananthapuram district (123.5), Delhi (121.9), Kollam district (116.4) and Imphal West district (104.8) showed highest AARpm of cancers in childhood.

Fig. 4.10 Comparison of Age Adjusted Incidence Rate of Childhood Cancers between Non-Asian Countries (AAR per Million) and PBCRs under NCRP (0-19 Age Group)



Among the boys aged 0-19 years, Placenza in Italy (348.0), New Caledonia (256.0), Nebraska in USA (228.0), Valais in Switzerland (225.0), Australia (211.0), Ecuador (208.0), Chile (207.0) and Delhi in India (196.3) showed highest AARpm of cancers in childhood.

For girls, Barletta in Italy (258.0), Tyrol in Austria (221.0), New Brunswick in Canada (207.0) and New Hampshire in USA (205.0) were the top four registries that showed highest AARpm of cancers in childhood. Among the Indian PBCRs, Thiruvananthapuram district (123.5) and Delhi (121.9) had higher AARpm of cancers in childhood.

Table 4.3 (a) Number (n) and Relative Proportion (%) of Specific Types of Cancer in Childhood (0-14 years) (Treated only at 58 Reporting HBCRs under NCRP)

Specific Types of Cancers in Childhood	Boys		Girls	
	n	%	n	%
LEUKAEMIAS	**3877**	**46.4**	**2070**	**44.3**
Lymphoid Leukaemias	3038	36.3	1576	33.7
Acute Non-Lymphocytic Leukaemias	540	6.5	334	7.2
Chronic Myeloid Leukaemias	97	1.2	60	1.3
Other Specified Leukaemias	11	0.1	2	0.0
Unsp. Leukaemias	191	2.3	98	2.1
LYMPHOMAS & RETICULOENDOTHELIAL NEOP.	**1367**	**16.4**	**353**	**7.6**
Hodgkins Disease	676	8.1	163	3.5
Non-Hodgkins Disease	445	5.3	126	2.7
Burkitts Lymphoma	181	2.2	29	0.6
Misc. LymphoreticularNeop.	31	0.4	24	0.5
Unsp. Lymphomas	34	0.4	11	0.2
C.N.S. & MISC. INTRACRANIAL & INTRASPINAL NEOP.	**532**	**6.4**	**330**	**7.1**
Ependymoma	72	0.9	44	0.9
Astrocytoma	104	1.2	72	1.5
Primitive Neuroectodermal Tumours	216	2.6	103	2.2
Other Gliomas	102	1.2	71	1.5
Other Specified Intracranial and Intraspinal Neop.	12	0.1	11	0.2
Unsp. Intracranial and Intraspinal Neop.	26	0.3	29	0.6
SYMPATHETIC NERVOUS SYSTEM TUMOURS	**273**	**3.3**	**190**	**4.1**
Neuroblastoma and Ganglioneuroblastoma	262	3.1	190	4.1
Other S.N.S. Tumours	11	0.1	-	-
RETINOBLASTOMA	**257**	**3.1**	**190**	**4.1**
RENAL TUMOURS	**302**	**3.6**	**226**	**4.8**
Wilms Tumour, Rhabdoid and Clear Cell Sarcoma	298	3.6	216	4.6
Renal Carcinoma	4	0.0	10	0.2
HEPATIC TUMOURS	**104**	**1.2**	**77**	**1.6**
Hepatoblastoma	89	1.1	68	1.5
Hepatic Carcinoma	13	0.2	4	0.1
Unsp. Malignant Hepatic Tumours	2	0.0	5	0.1
MALIGNANT BONE TUMOURS	**537**	**6.4**	**414**	**8.9**
Osteosarcoma	283	3.4	209	4.5
Chondrosarcoma	10	0.1	5	0.1
Ewings Sarcoma	223	2.7	182	3.9
Other Specified Malignant Bone Tumours	4	0.0	3	0.1
Unsp. Malignant Bone Tumours	17	0.2	15	0.3
SOFT-TISSUE(S-T) SARCOMAS(S)	**467**	**5.6**	**312**	**6.7**
Rhabdomyosarcoma and Embryonal Sarcoma	223	2.7	144	3.1
Fibros. Neurofibros. and Other Fibromatous Neop.	19	0.2	24	0.5
Kaposis Sarcoma	-	-	1	0.0
Other Specified Soft Tissue Sarcoma	177	2.1	112	2.4
Unsp. Soft Tissue Sarcoma	48	0.6	31	0.7
GERM-CELL TROPHOBLASTIC & OTH. GONADAL NEOP.	**109**	**1.3**	**58**	**1.2**
Intracranial and Intraspinal GC Tumours	11	0.1	9	0.2
Other and Unsp. Non-Gonadal GC Tumours	33	0.4	41	0.9
Gonadal Germ Cell Tumours	61	0.7	-	-
Gonadal Carcinomas	2	0.0	4	0.1
Other and Unsp. Gonadal Tumours	2	0.0	4	0.1

Specific Types of Cancers in Childhood	Boys		Girls	
	n	%	n	%
CARCINOMA & OTH. MALIGNANT EPITHELIAL NEOP.	**176**	**2.1**	**97**	**2.1**
Adrenocortical Carcinoma	8	0.1	4	0.1
Thyroid Carcinoma	5	0.1	8	0.2
Nasopharyngeal Carcinoma	67	0.8	15	0.3
Malignant Melanoma	4	0.0	2	0.0
Skin Carcinoma	11	0.1	5	0.1
Other and Unsp. Carcinoma	81	1.0	63	1.3
OTHER & UNSP. MALIGNANT NEOPLASMS	**118**	**1.4**	**66**	**1.4**
Other Specified Malignant Tumours	9	0.1	3	0.1
Other Unsp. Malignant Tumours	109	1.3	63	1.3
OTHERS (Not Classified)	**239**	**2.9**	**288**	**6.2**
All Types	**8358**	**100.0**	**4671**	**100.0**

Leukaemia was the most common diagnosis among both boys and girls aged 0-14 years with a percentage of 46.4% and 44.3%, respectively. In boys, lymphoma was the second most common type of cancer (16.4%). The prominent types of cancer in girls were malignant bone tumors (8.9%), lymphomas and reticuloendothelial neoplasm (7.6%) and intracranial and intraspinal neoplasms (7.1%).

Table 4.3 (b) Number (n) and Relative Proportion (%) of Specific Types of Cancer in Childhood (0-19 years) (Treated only at 58 reporting HBCRs under NCRP)

Specific Types of Cancers in Childhood	Boys		Girls	
	n	%	n	%
LEUKAEMIAS	**5069**	**43.2**	**2508**	**39.2**
Lymphoid Leukaemias	3781	32.2	1795	28.0
Acute Non-Lymphocytic Leukaemias	782	6.7	473	7.4
Chronic Myeloid Leukaemias	230	2.0	112	1.7
Other Specified Leukaemias	17	0.1	5	0.1
Unsp. Leukaemias	259	2.2	123	1.9
LYMPHOMAS & RETICULOENDOTHELIAL NEOP.	**1944**	**16.6**	**584**	**9.1**
Hodgkins Disease	978	8.3	289	4.5
Non-Hodgkins Disease	681	5.8	216	3.4
Burkitts Lymphoma	197	1.7	33	0.5
Misc. Lymphoreticular Neop.	39	0.3	27	0.4
Unsp. Lymphomas	49	0.4	19	0.3
C.N.S. & MISC. INTRACRANIAL & INTRASPINAL NEOP.	**691**	**5.9**	**404**	**6.3**
Ependymoma	83	0.7	58	0.9
Astrocytoma	157	1.3	105	1.6
Primitive Neuroectodermal Tumours	263	2.2	119	1.9
Other Gliomas	138	1.2	77	1.2
Other Specified Intracranial and Intraspinal Neop.	17	0.1	13	0.2
Unsp. Intracranial and Intraspinal Neop.	33	0.3	32	0.5
SYMPATHETIC NERVOUS SYSTEM TUMOURS	**281**	**2.4**	**195**	**3.0**
Neuroblastoma and Ganglioneuroblastoma	268	2.3	192	3.0
Other S.N.S. Tumours	13	0.1	3	0.0
RETINOBLASTOMA	**257**	**2.2**	**190**	**3.0**
RENAL TUMOURS	**313**	**2.7**	**236**	**3.7**
Wilms Tumour, Rhabdoid and Clear Cell Sarcoma	303	2.6	219	3.4
Renal Carcinoma	10	0.1	17	0.3

Specific Types of Cancers in Childhood	Boys		Girls	
	n	%	n	%
HEPATIC TUMOURS	**119**	**1.0**	**84**	**1.3**
Hepatoblastoma	89	0.8	68	1.1
Hepatic Carcinoma	27	0.2	9	0.1
Unsp. Malignant Hepatic Tumours	3	0.0	7	0.1
MALIGNANT BONE TUMOURS	**1193**	**10.2**	**701**	**10.9**
Osteosarcoma	746	6.4	385	6.0
Chondrosarcoma	22	0.2	10	0.2
Ewings Sarcoma	374	3.2	266	4.2
Other Specified Malignant Bone Tumours	22	0.2	14	0.2
Unsp. Malignant Bone Tumours	29	0.2	26	0.4
SOFT-TISSUE(S-T) SARCOMAS(S)	**694**	**5.9**	**451**	**7.0**
Rhabdomyosarcoma and Embryonal Sarcoma	261	2.2	172	2.7
Fibros. Neurofibros. and Other Fibromatous Neop.	38	0.3	38	0.6
Kaposis Sarcoma	-	-	1	0.0
Other Specified Soft Tissue Sarcoma	305	2.6	188	2.9
Unsp. Soft Tissue Sarcoma	90	0.8	52	0.8
GERM-CELL TROPHOBLASTIC & OTH. GONADAL NEOP.	**206**	**1.8**	**90**	**1.4**
Intracranial and Intraspinal GC Tumours	19	0.2	12	0.2
Other and Unsp. Non-Gonadal GC Tumours	61	0.5	52	0.8
Gonadal Germ Cell Tumours	118	1.0	-	-
Gonadal Carcinomas	4	0.0	17	0.3
Other and Unsp. Gonadal Tumours	4	0.0	9	0.1
CARCINOMA & OTH. MALIGNANT EPITHELIAL NEOP.	**453**	**3.9**	**286**	**4.5**
Adrenocortical Carcinoma	9	0.1	5	0.1
Thyroid Carcinoma	13	0.1	23	0.4
Nasopharyngeal Carcinoma	157	1.3	44	0.7
Malignant Melanoma	6	0.1	3	0.0
Skin Carcinoma	28	0.2	17	0.3
Other and Unsp. Carcinoma	240	2.0	194	3.0
OTHER & UNSP. MALIGNANT NEOPLASMS	**165**	**1.4**	**91**	**1.4**
Other Specified Malignant Tumours	10	0.1	11	0.2
Other Unsp. Malignant Tumours	155	1.3	80	1.2
OTHERS (Not Classified)	**360**	**3.1**	**582**	**9.1**
All Types	**11745**	**100.0**	**6402**	**100.0**

Leukaemia was the most common diagnosis among both boys and girls aged 0-19 years with a higher percentage among boys (43.2%) compared to girls (39.2%). In boys, lymphoma was the second most type of cancer (16.6%). The prominent types in girls were malignant bone tumours (10.9%) and lymphomas and reticuloendothelial neoplasm (9.1%).

Summary comparisons between 0-14 years and 0-19 years

Similar ranking of cancers for childhood was observed in 0-14 years and 0-19 years. For all types of childhood cancers among girls, the highest AARpm was in Delhi (125.4) for age group 0-14 years while it was highest in Thiruvananthapuram district (123.5) for age group 0-19 years. On comparison of AARpm for lymphoma in childhood cancers among girls it was observed that Patiala district (11.3) had highest AARpm for age group 0-14 while it was Chennai (12.5) for age group 0-19 years.

On comparing the malignancies between the two age groups, a similar pattern of histology was observed in pooled data of HBCRs.

Chapter 5

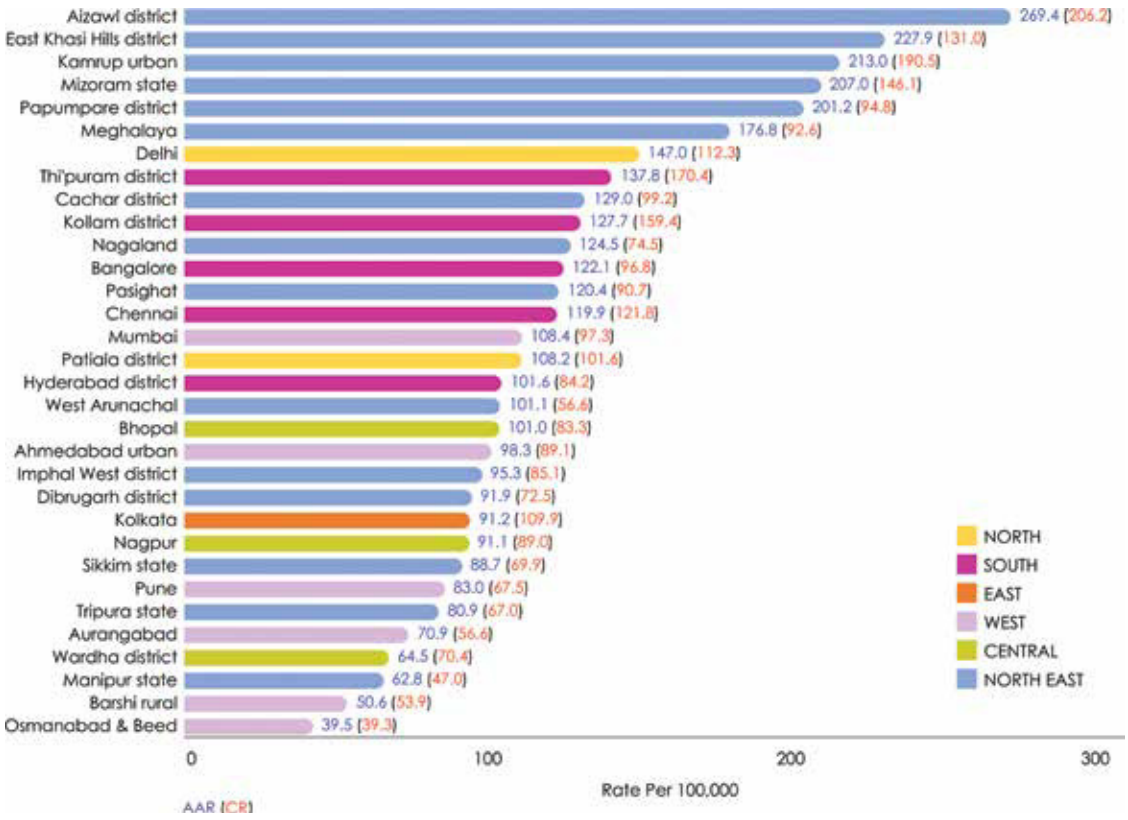
Comparison of cancer incidence and patterns of all Population Based Cancer Registries

This chapter compares the cancer incidence and its pattern among all the PBCRs. Figure 5.1 depicts the AARs for all sites of cancer (ICD-10: C00-C97) across 28 PBCRs. Figures 5.2 to 5.25 gives the comparison of AARs of selected leading sites of cancer.

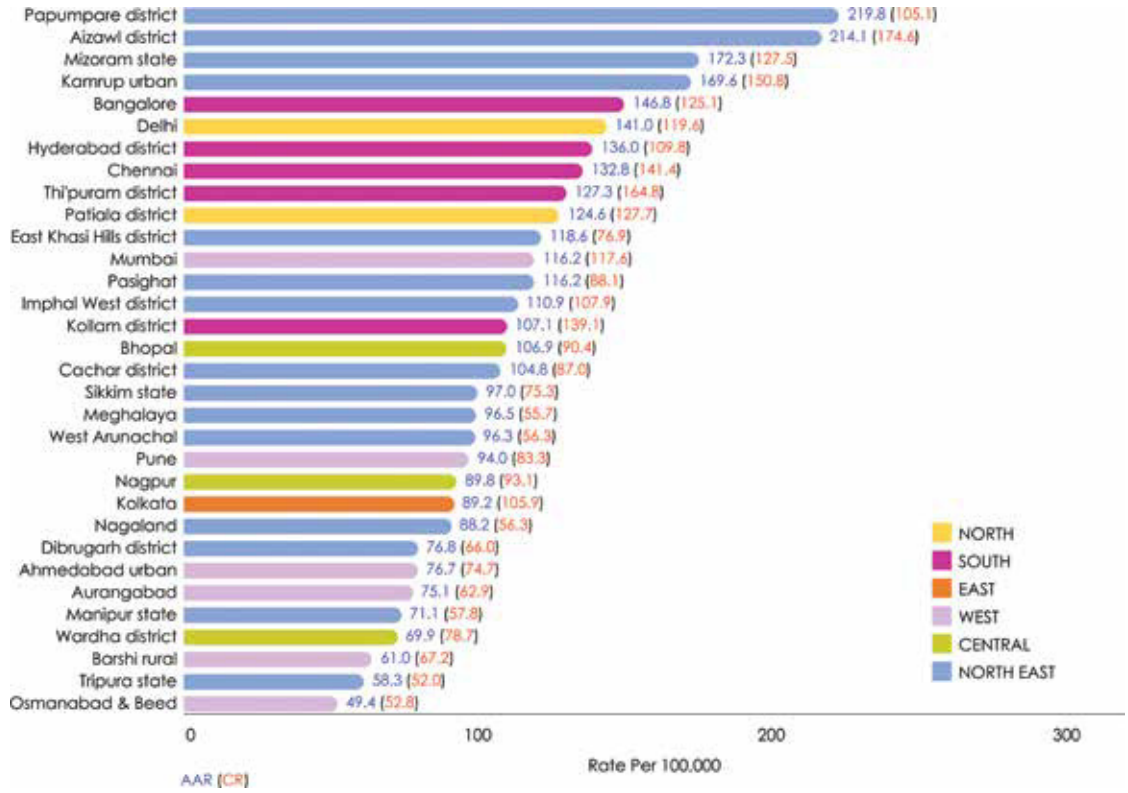
Registries with small numbers (Less than ten cases) for individual sites of cancer have been excluded from this analysis.

Fig. 5.1 ALL SITES (ICD-10: C00-C97) - Comparison of Age Adjusted Incidence Rates (AARs) of 28 PBCRs under NCRP

Males



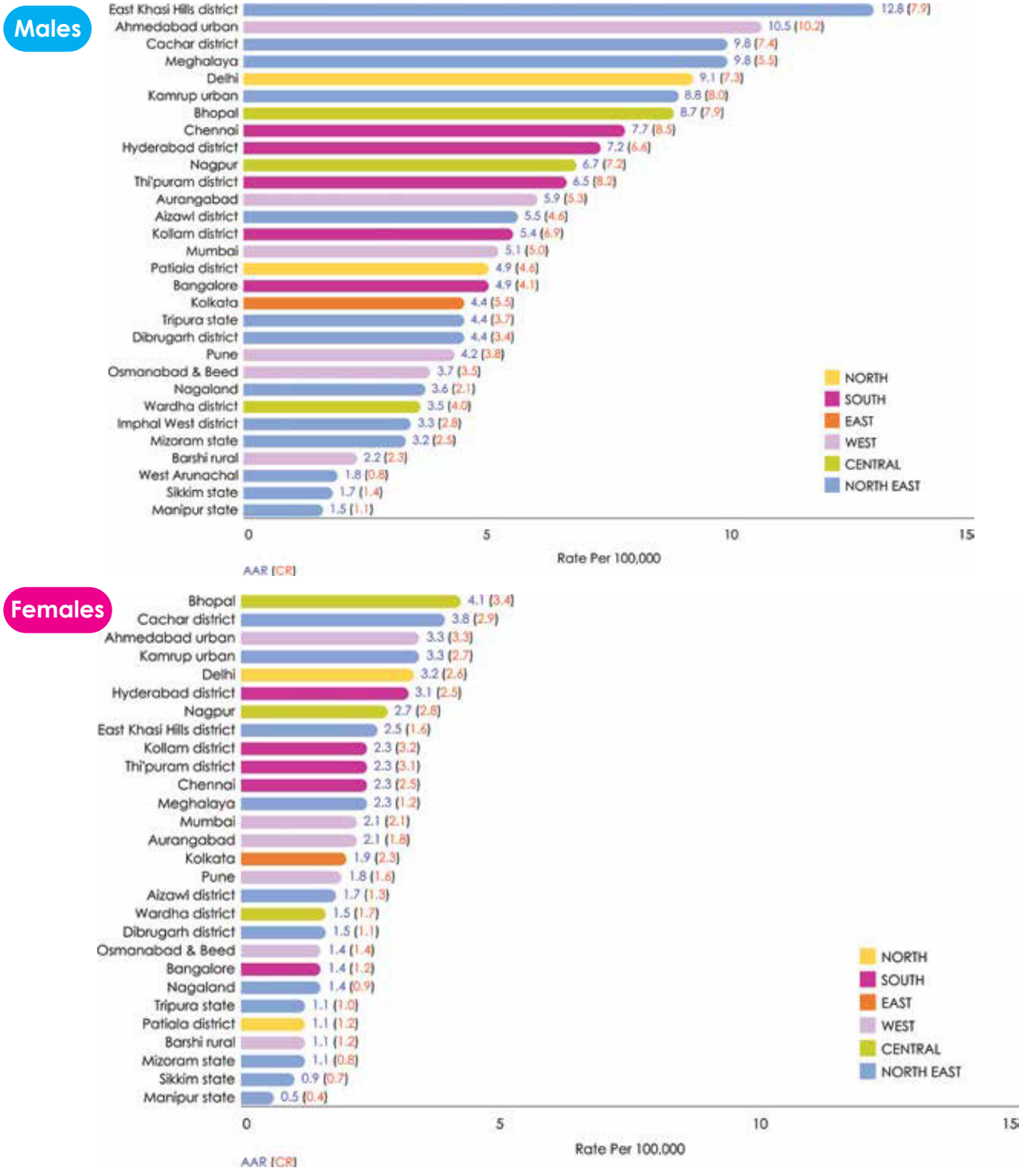
Females



Males: Six north east registry areas occupied top six positions. Delhi PBCR had the highest AAR (147.0) among the other PBCRs. Thus, Aizawl district (269.4) had the highest AAR and was approximately twice the AAR of Delhi PBCR. East Khasi Hills district of Meghalaya (227.9) had the second highest AAR followed by Kamrup urban (213.0) and Mizoram PBCR (207.0).

Females: Four registry areas from the north east remained at the top (Papumpare district: 219.8, Aizawl district: 214.1, Mizoram state: 172.3 and Kamrup urban (169.6) followed by Bangalore PBCR (146.8).

Fig. 5.2 TONGUE (ICD-10: C01-C02) - Comparison of Age Adjusted Incidence Rates (AARs) of 28 PBCRs under NCRP

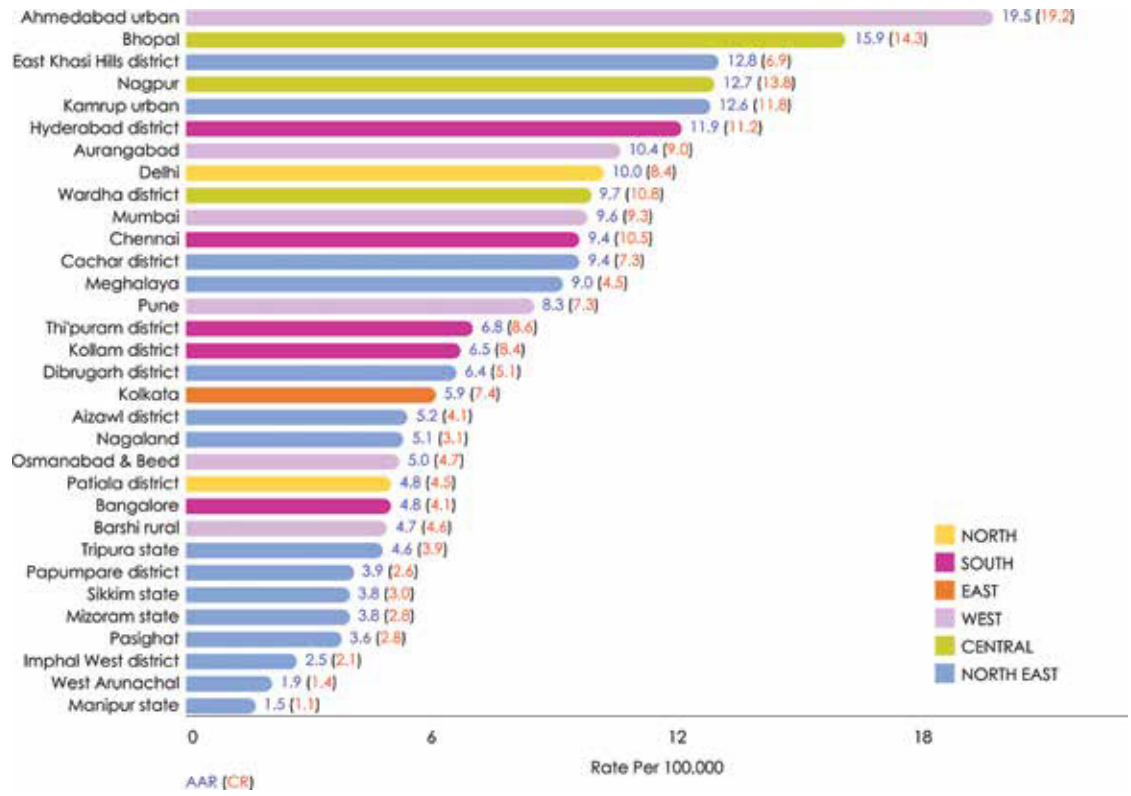


Males: East Khasi Hills district from Meghalaya had the highest AAR (12.8) followed by Ahmedabad urban PBCR (10.5).

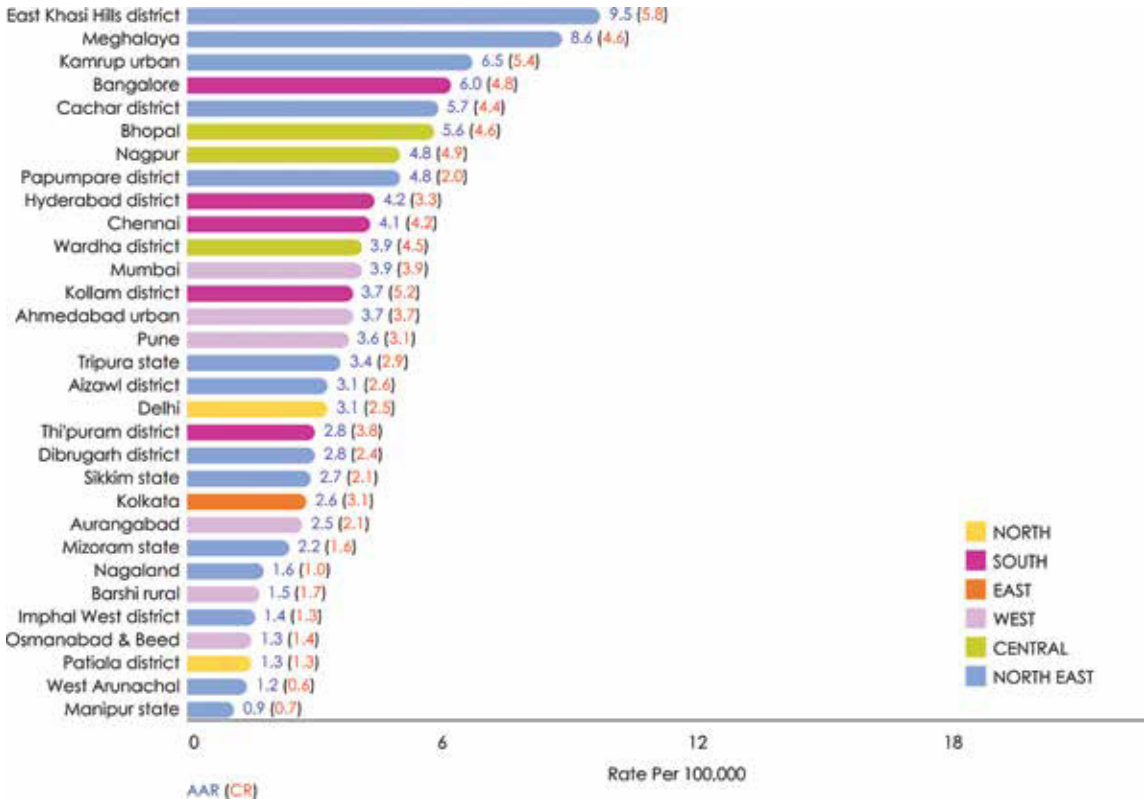
Females: Bhopal PBCR had the highest AAR (4.1) followed by Cachar district PBCR (3.8). The registries of Kamrup urban and Ahmedabad urban shared the third place with an AAR of 3.3.

Fig. 5.3 MOUTH (ICD-10: C03-C06) - Comparison of Age Adjusted Incidence Rates (AARs) of 28 PBCRs under NCRP

Males



Females

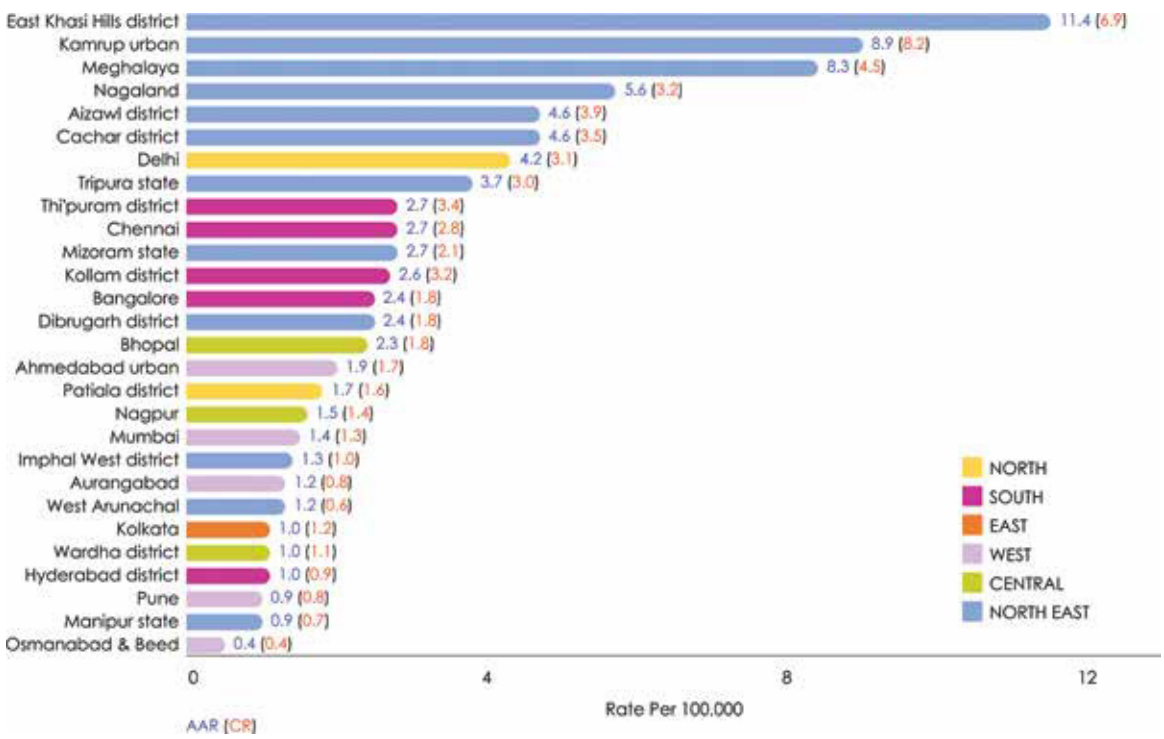


Males: Ahmedabad urban PBCR showed the highest AAR (19.5) followed by Bhopal PBCR (15.9).

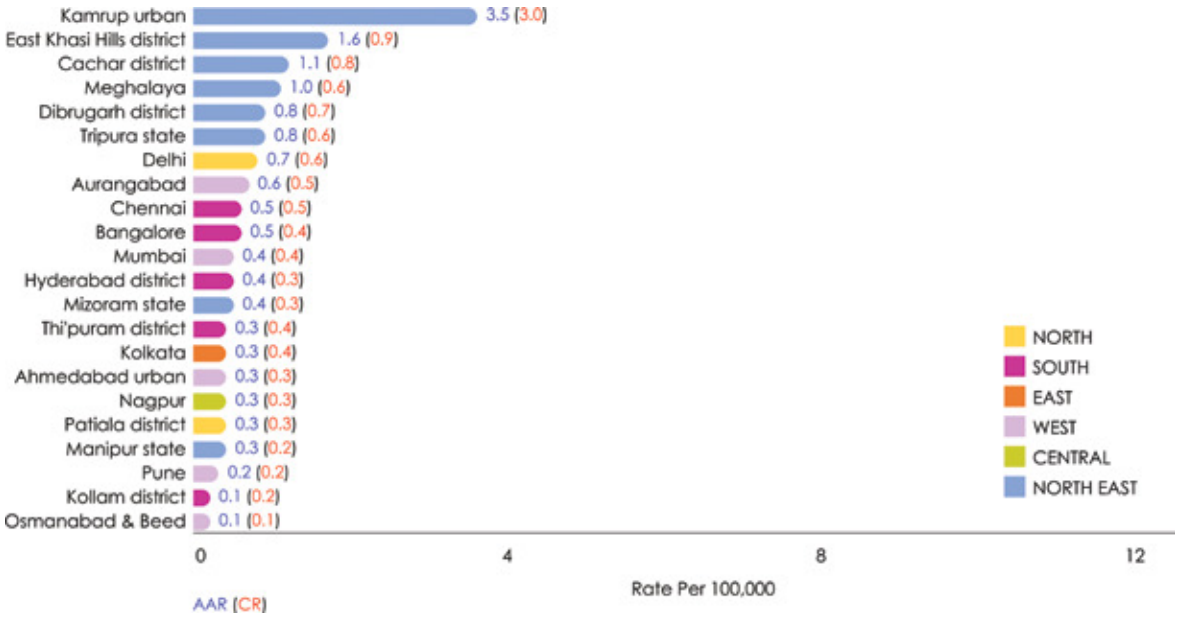
Females: East Khasi Hills district of Meghalaya had the highest AAR (9.5).

Fig. 5.4 OROPHARYNX (ICD-10: C09-C10) - Comparison of Age Adjusted Incidence Rates (AARs) of 28 PBCRs under NCRP

Males



Females

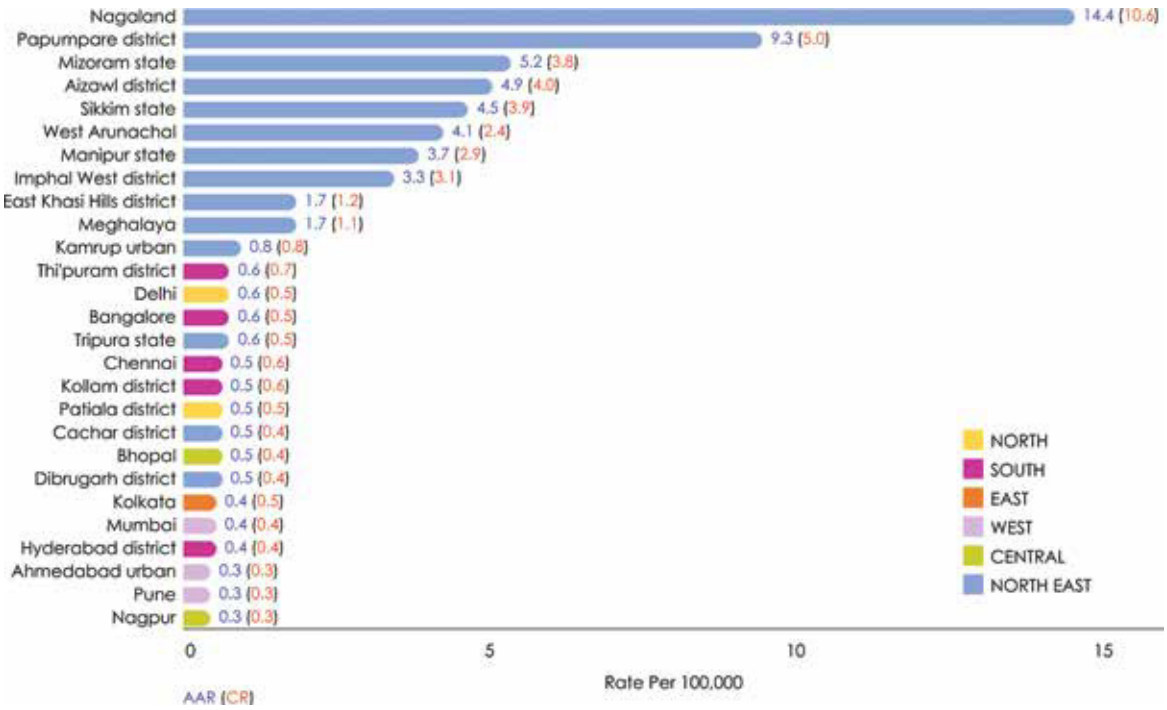


Males: Six north east registries had higher AARs, East Khasi Hills district PBCR being the highest (11.4) followed Delhi registry with an AAR of 4.2.

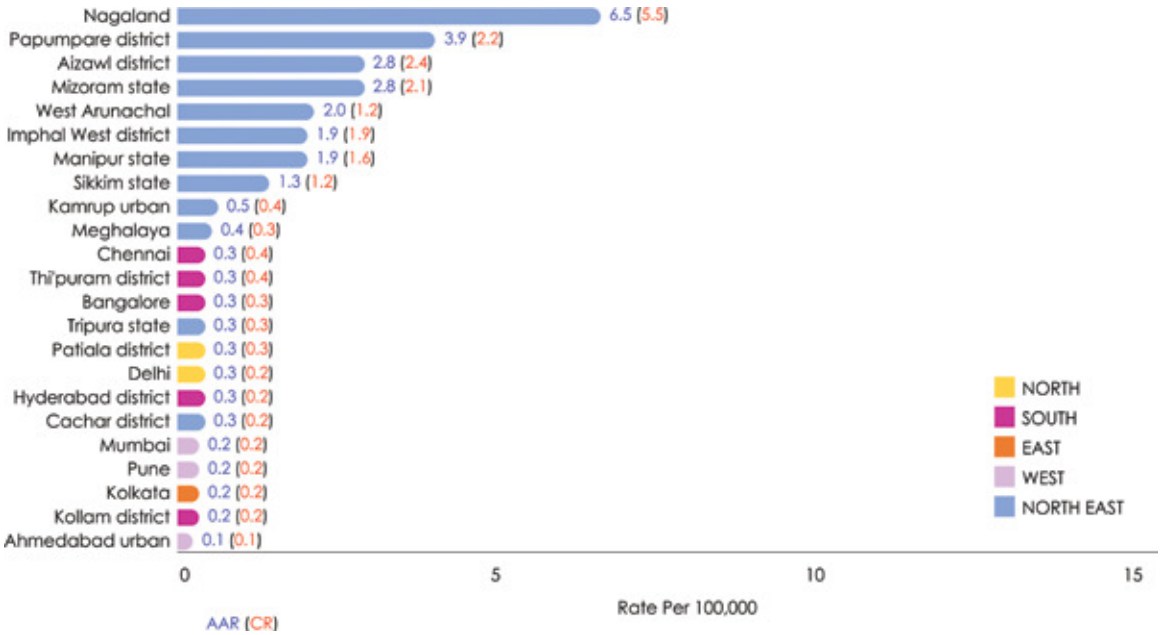
Females: Kamrup urban PBCR showed the highest AAR (3.5).

Fig. 5.5 NASOPHARYNX (ICD-10: C11) - Comparison of Age Adjusted Incidence Rates (AARs) of 28 PBCRs under NCRP

Males



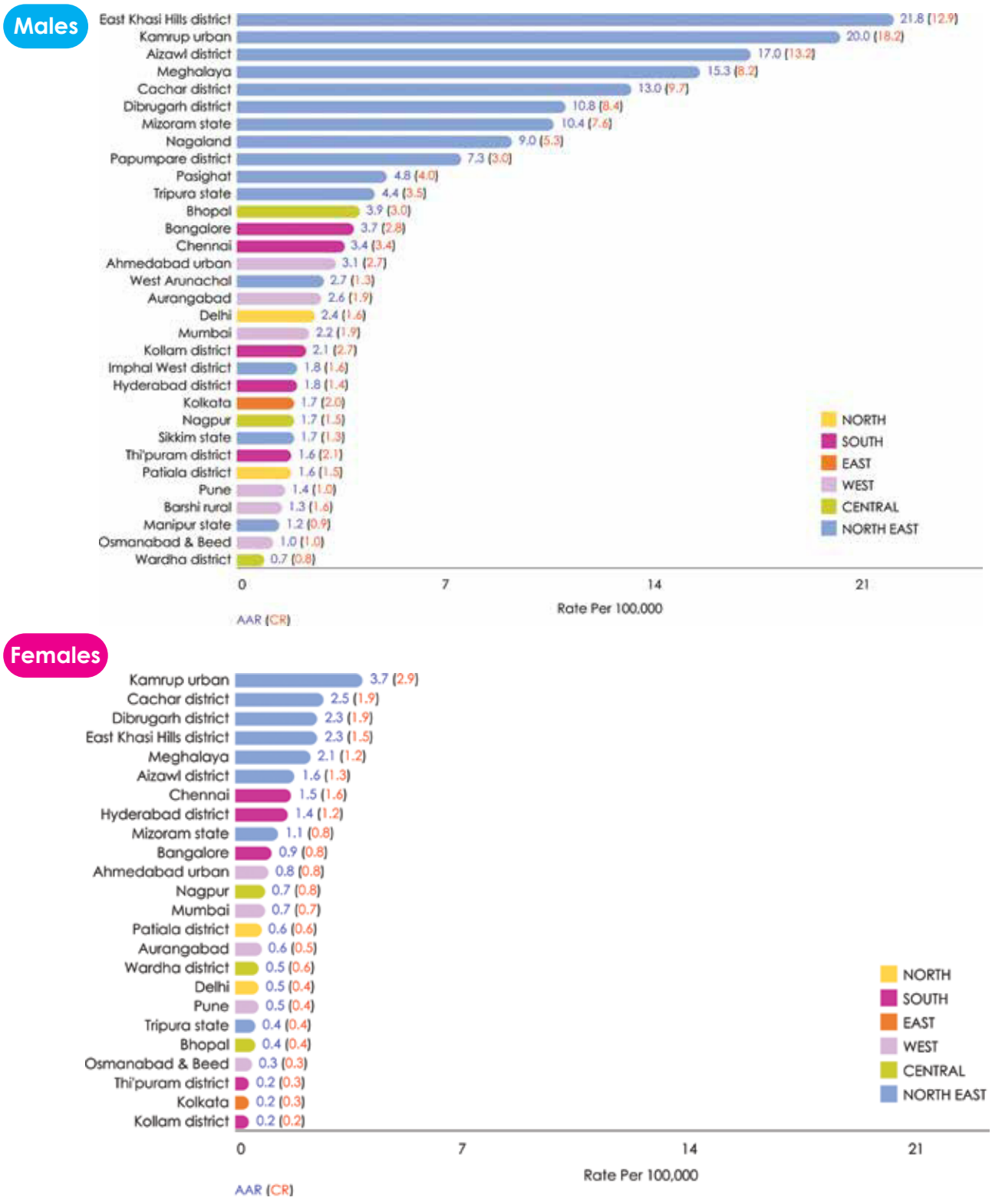
Females



Males: Eleven north east registries had higher AARs, Nagaland PBCR being the highest (14.4).

Females: Ten north east registries had higher AARs and Nagaland PBCR led the list (6.5).

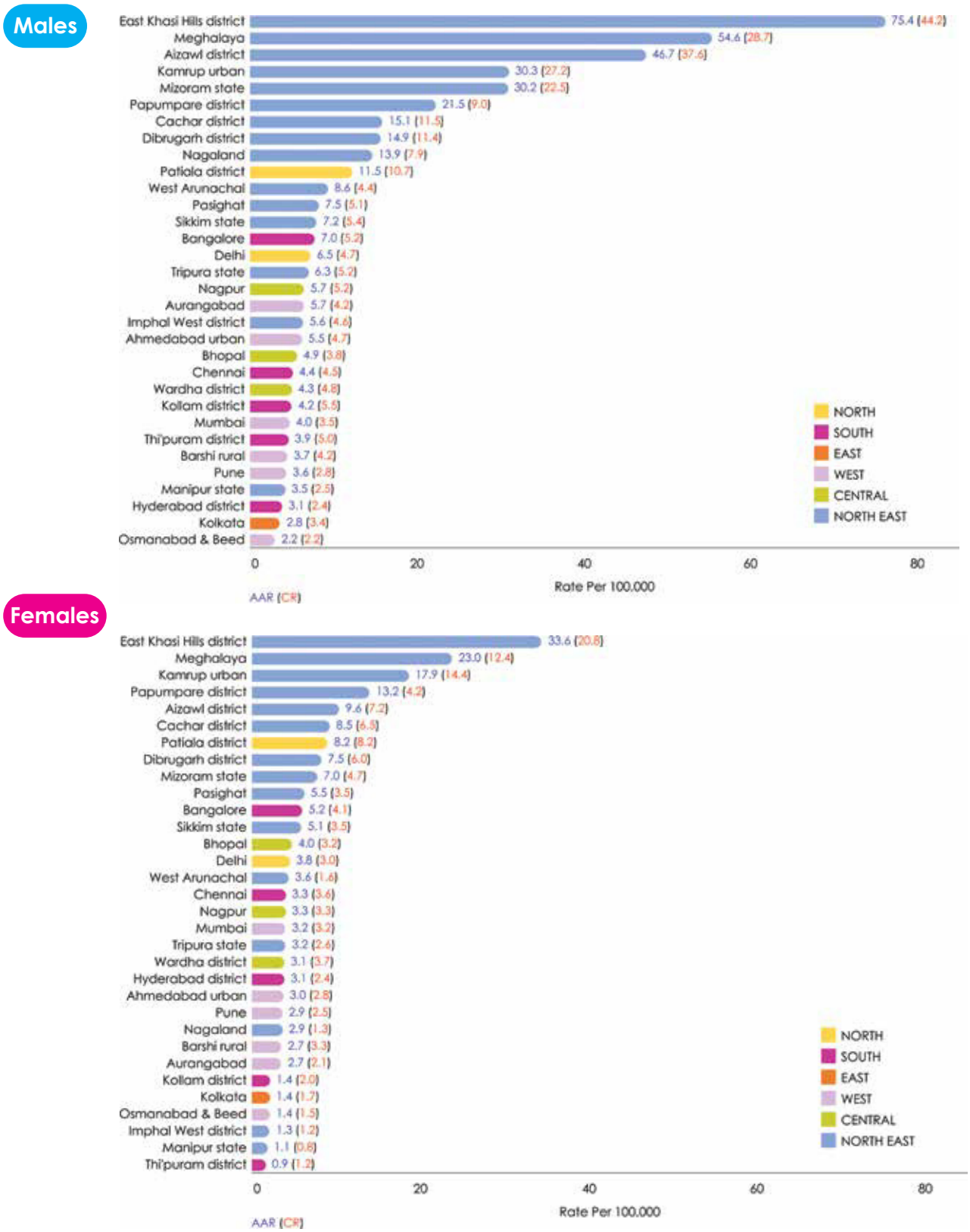
Fig. 5.6 HYPOPHARYNX (ICD-10: C12-C13) - Comparison of Age Adjusted Incidence Rates (AARs) of 28 PBCRs under NCRP



Males: East Khasi Hills district of Meghalaya (21.8) had the highest AAR followed by Kamrup urban (20.0) and Aizawl district (17.0).

Females: Kamrup urban showed the highest AAR (3.7).

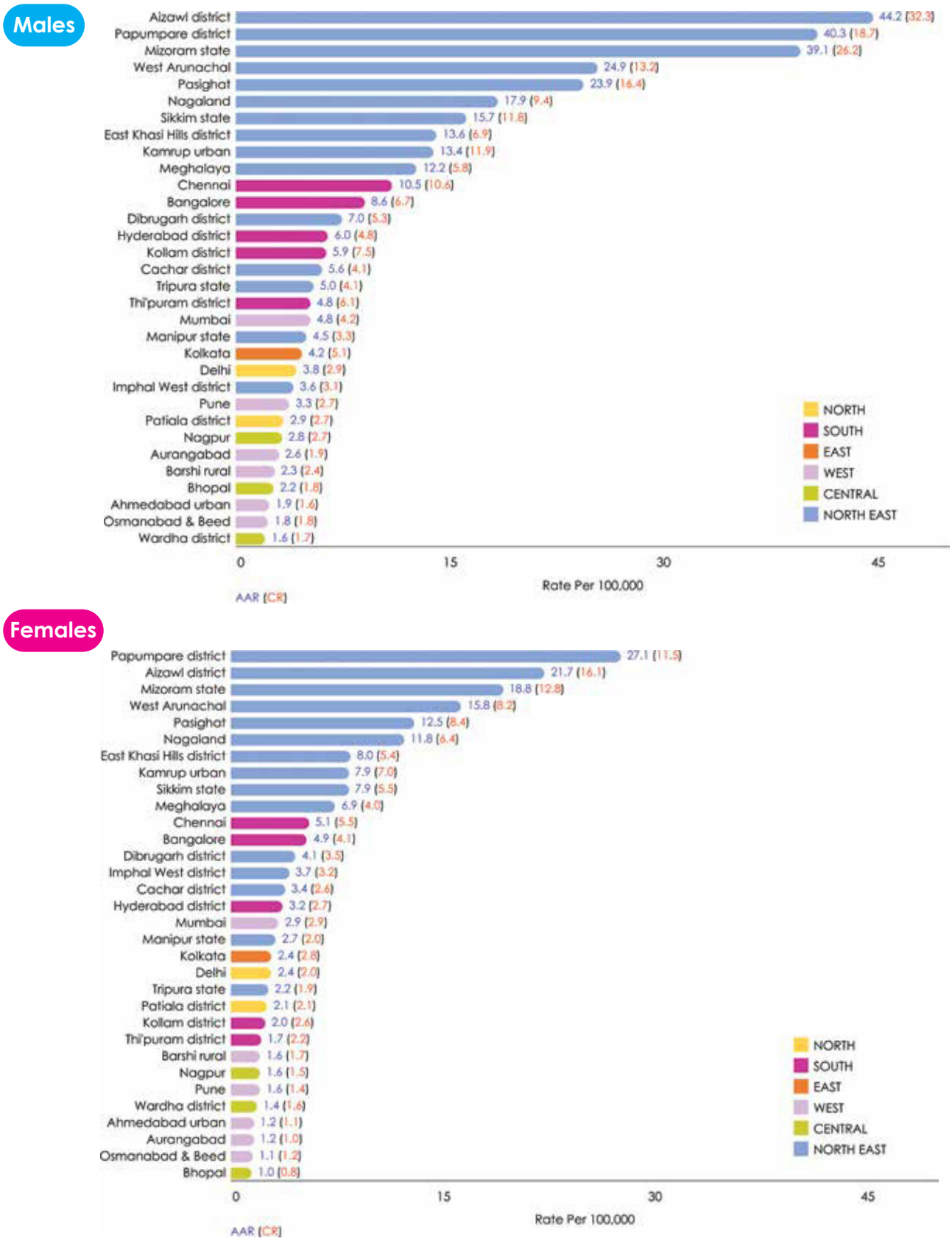
Fig. 5.7 OESOPHAGUS (ICD-10: C15) - Comparison of Age Adjusted Incidence Rates (AARs) of 28 PBCRs under NCRP



Males: East Khasi Hills district showed the highest AAR (75.4) followed by Meghalaya PBCR (54.6) and Aizawl district (46.7).

Females: East Khasi Hills district showed the highest AAR (33.6) followed by Meghalaya PBCR (23.0).

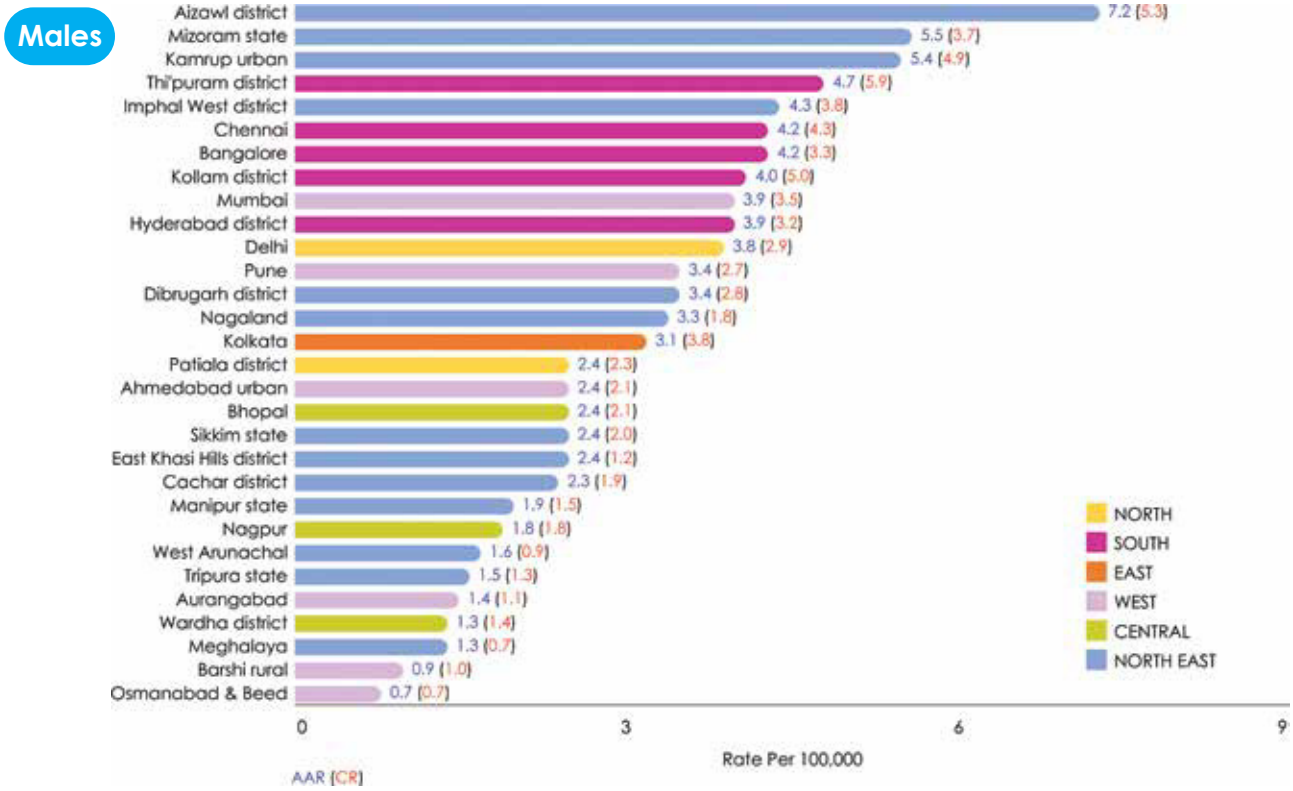
Fig. 5.8 STOMACH (ICD-10: C16) - Comparison of Age Adjusted Incidence Rates (AARs) of 28 PBCRs under NCRP

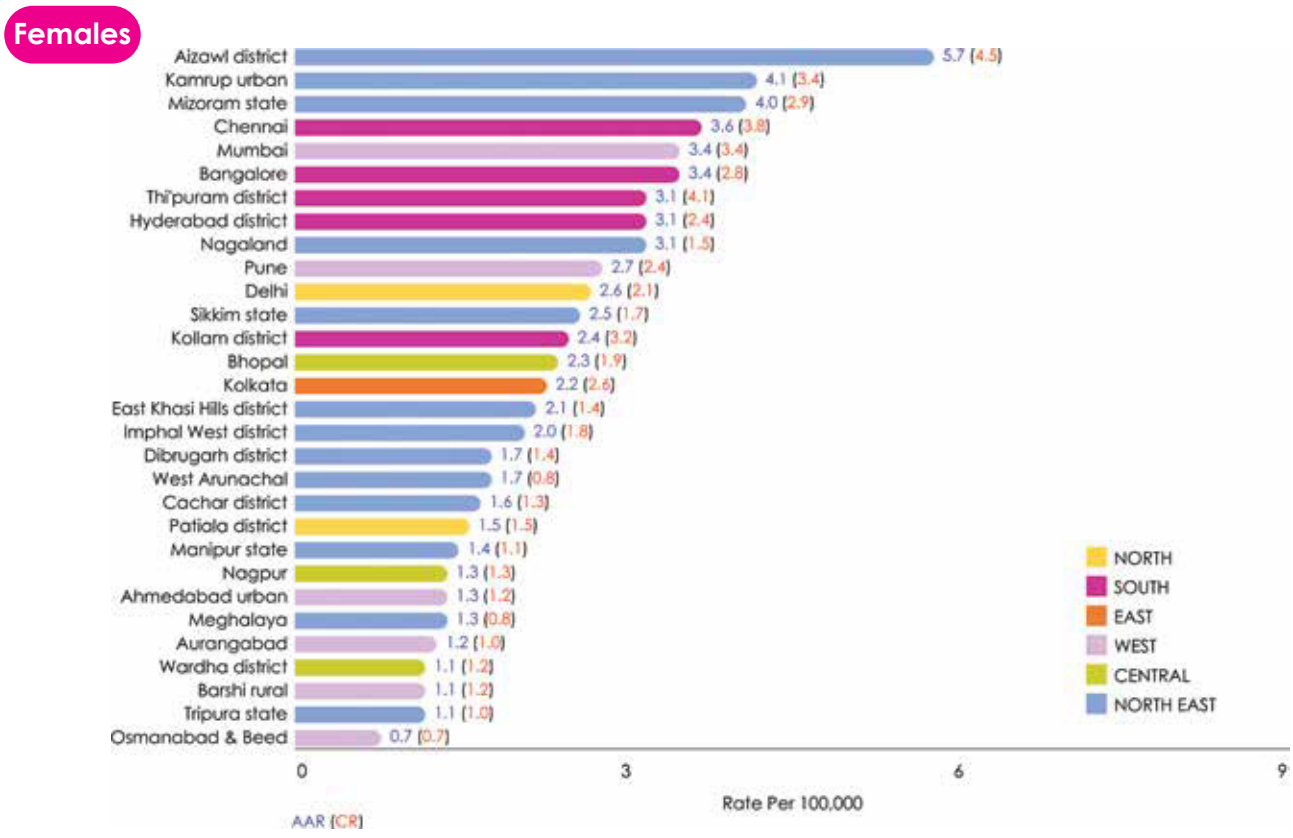


Males: Ten north eastern registry areas occupied the top positions. Aizawl district (44.2), Papumpare district (40.3), Mizoram state (39.1) and West Arunachal (24.9) were in the lead among all the PBCRs.

Females: Ten north eastern registry areas occupied the top positions. Papumpare district (27.1), Aizawl district (21.7), Mizoram state (18.8) and West Arunachal (15.8) were in the lead among all the PBCRs.

Fig. 5.9 COLON (ICD-10: C18) - Comparison of Age Adjusted Incidence Rates (AARs) of 28 PBCRs under NCRP

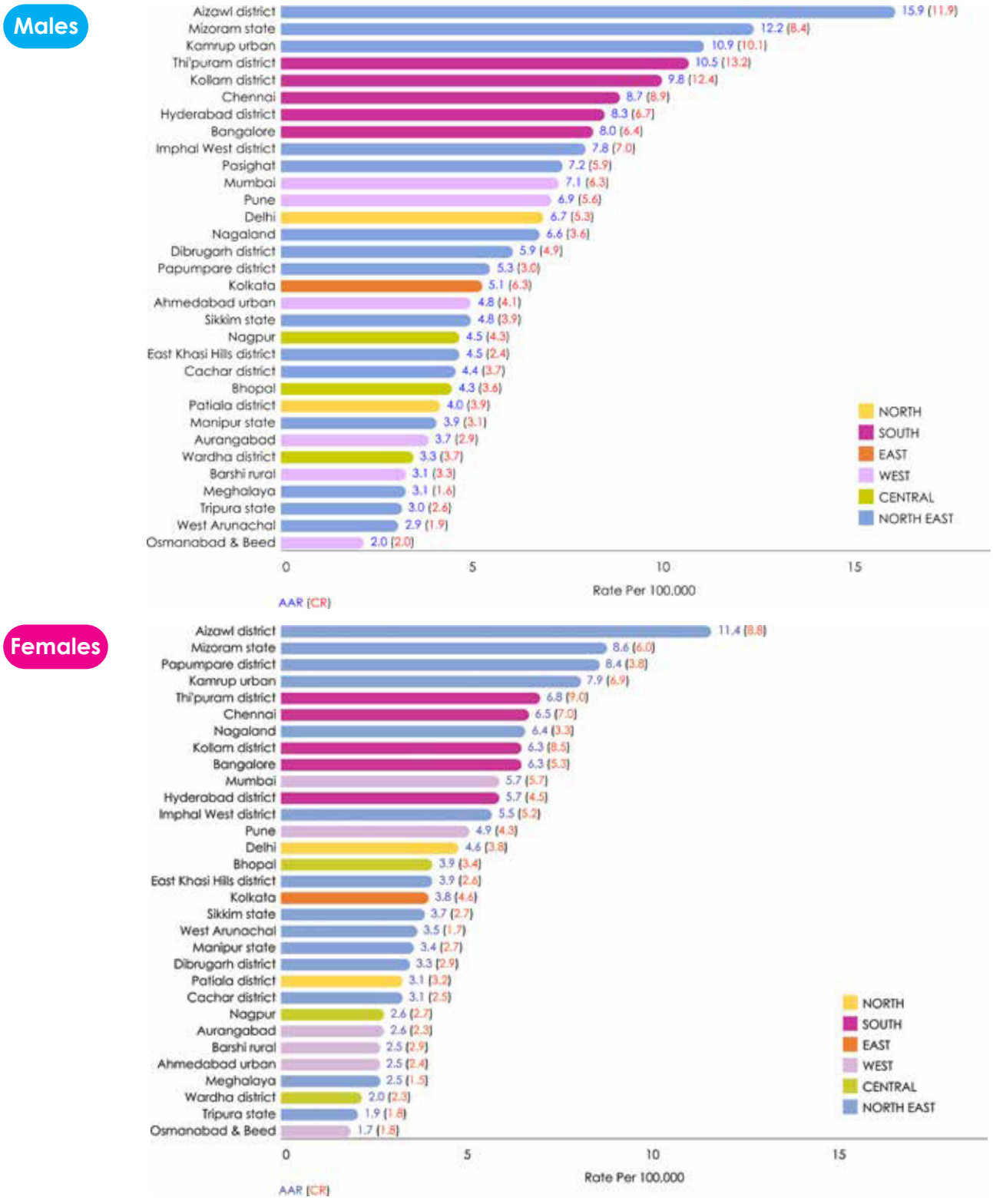




Males: Aizawl district had the highest AAR (7.2), followed by Mizoram state (5.5) and Kamrup urban (5.4).

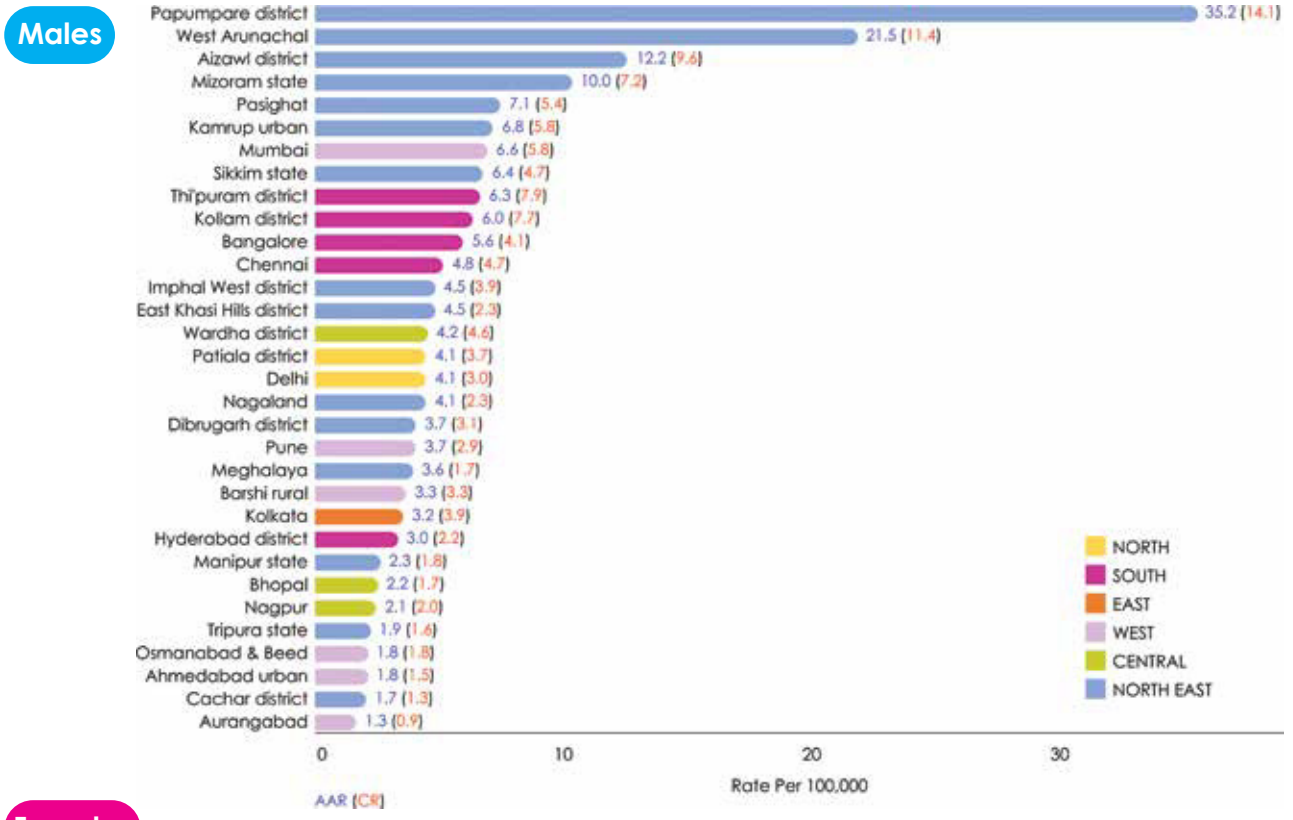
Females: Aizawl district had the highest AAR (5.7), followed by Kamrup urban (4.1) and Mizoram state (4.0).

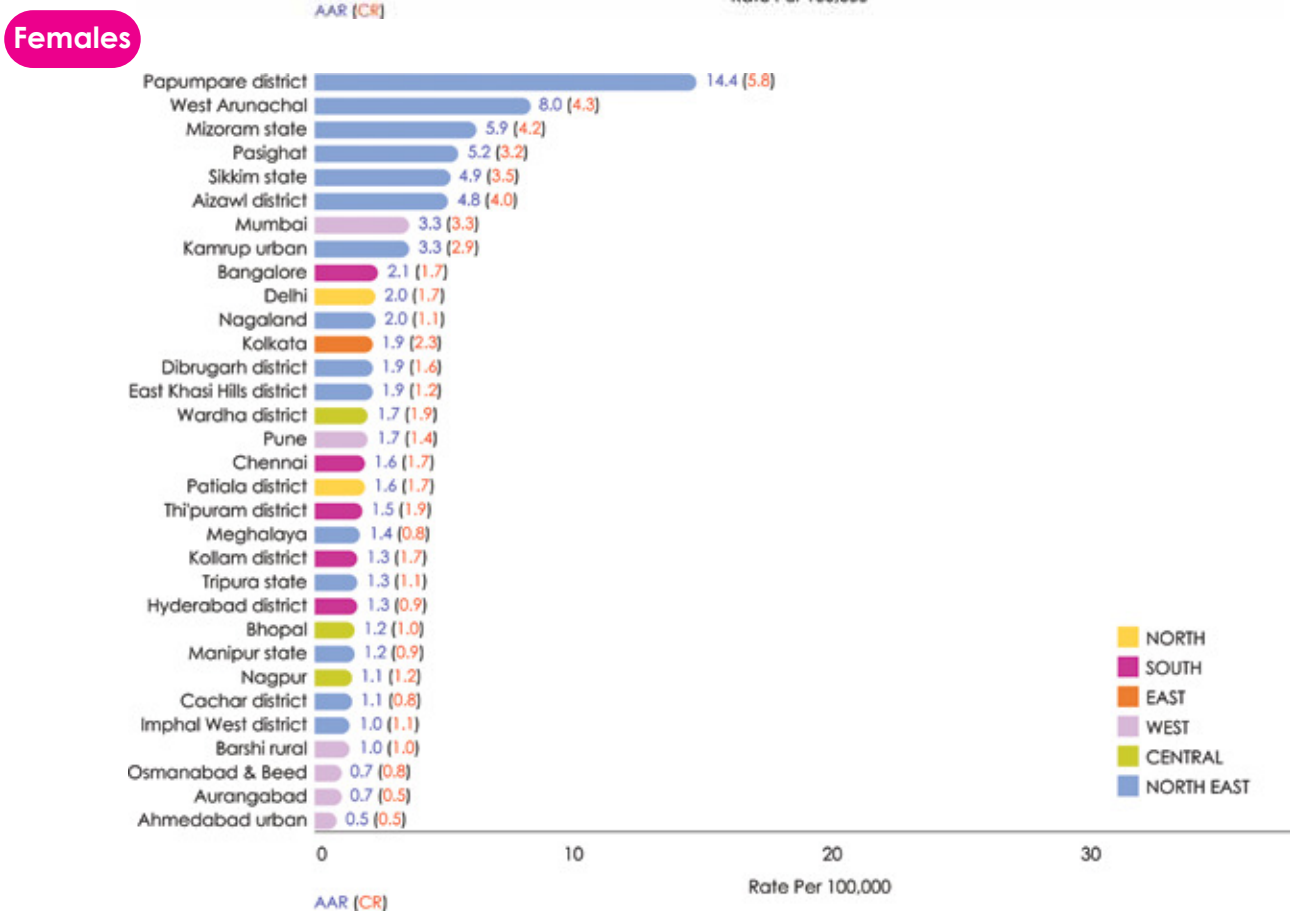
Fig. 5.10 COLORECTAL (ICD-10: C18-C20) - Comparison of Age Adjusted Incidence Rates (AARs) of 28 PBCRs under NCRP



Males and Females: Aizawl district led the list of PBCRs with an AAR of (Males: 15.9 and Females: 11.4). Mizoram state had the second highest AAR (Males: 12.2 and Females: 8.6).

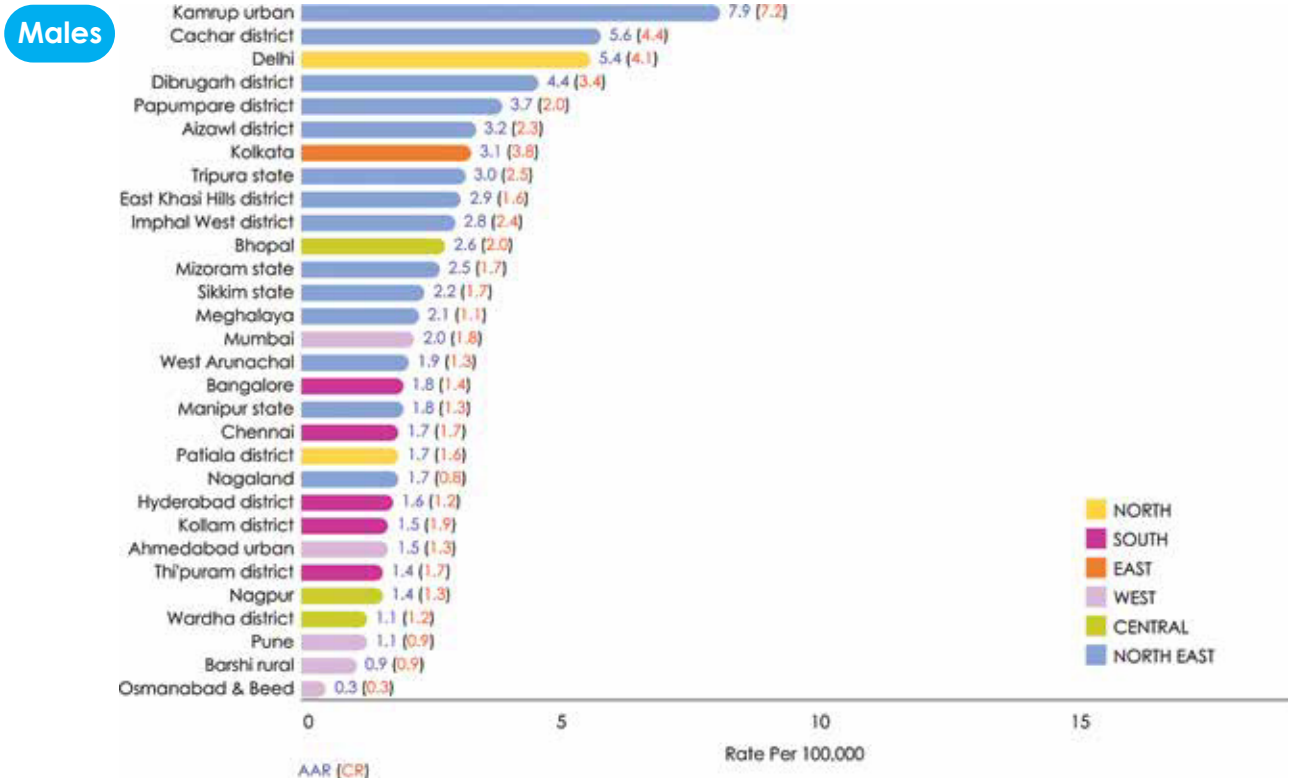
Fig. 5.11 LIVER (ICD-10: C22) - Comparison of Age Adjusted Incidence Rates (AARs) of 28 PBCRs under NCRP

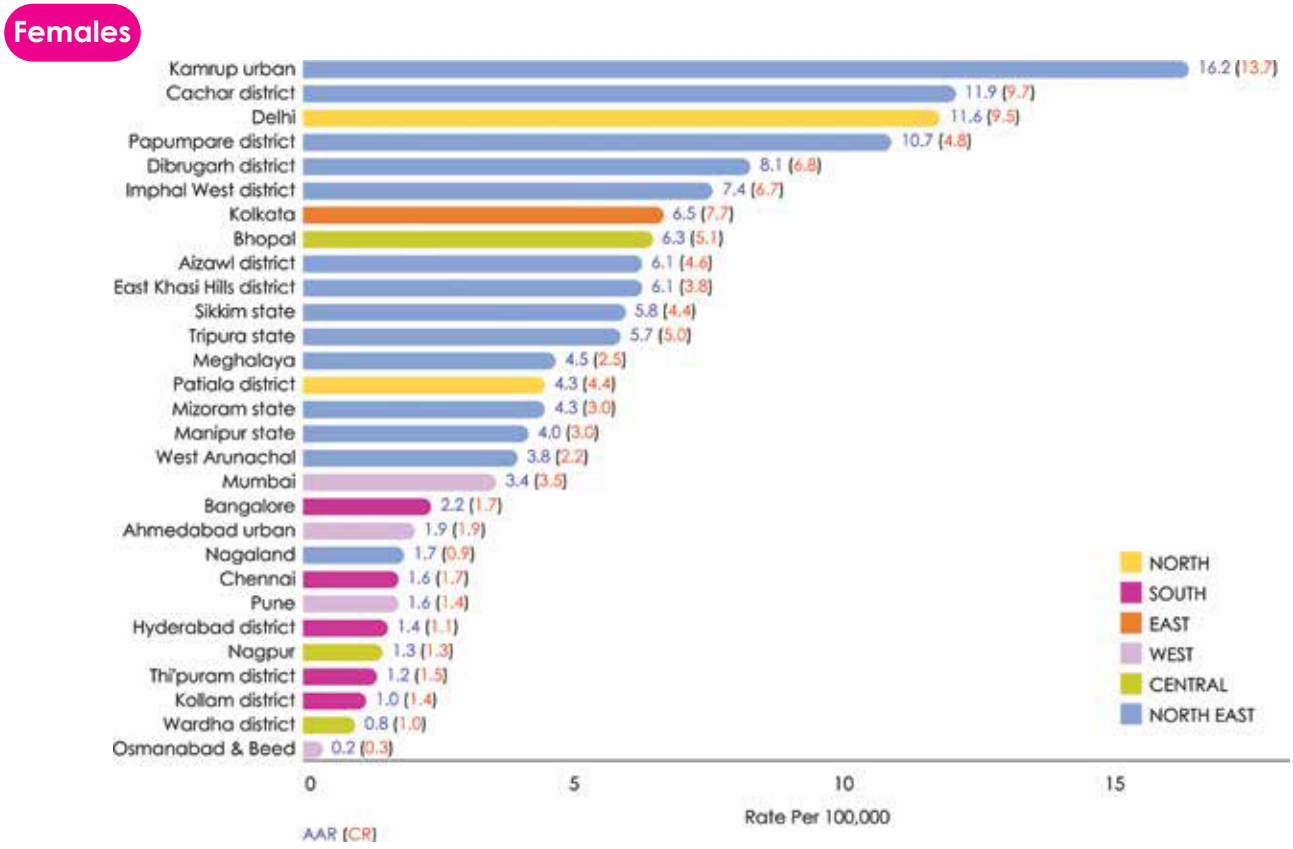




Males and Females: All the areas covered by West Arunachal PBCR recorded higher AARs than any other PBCR. Papumpare district had the highest AAR both among males (35.2) and females (14.4) within West Arunachal PBCR.

Fig. 5.12 GALL BLADDER (ICD-10: C23-C24) - Comparison of Age Adjusted Incidence Rates (AARs) of 28 PBCRs under NCRP

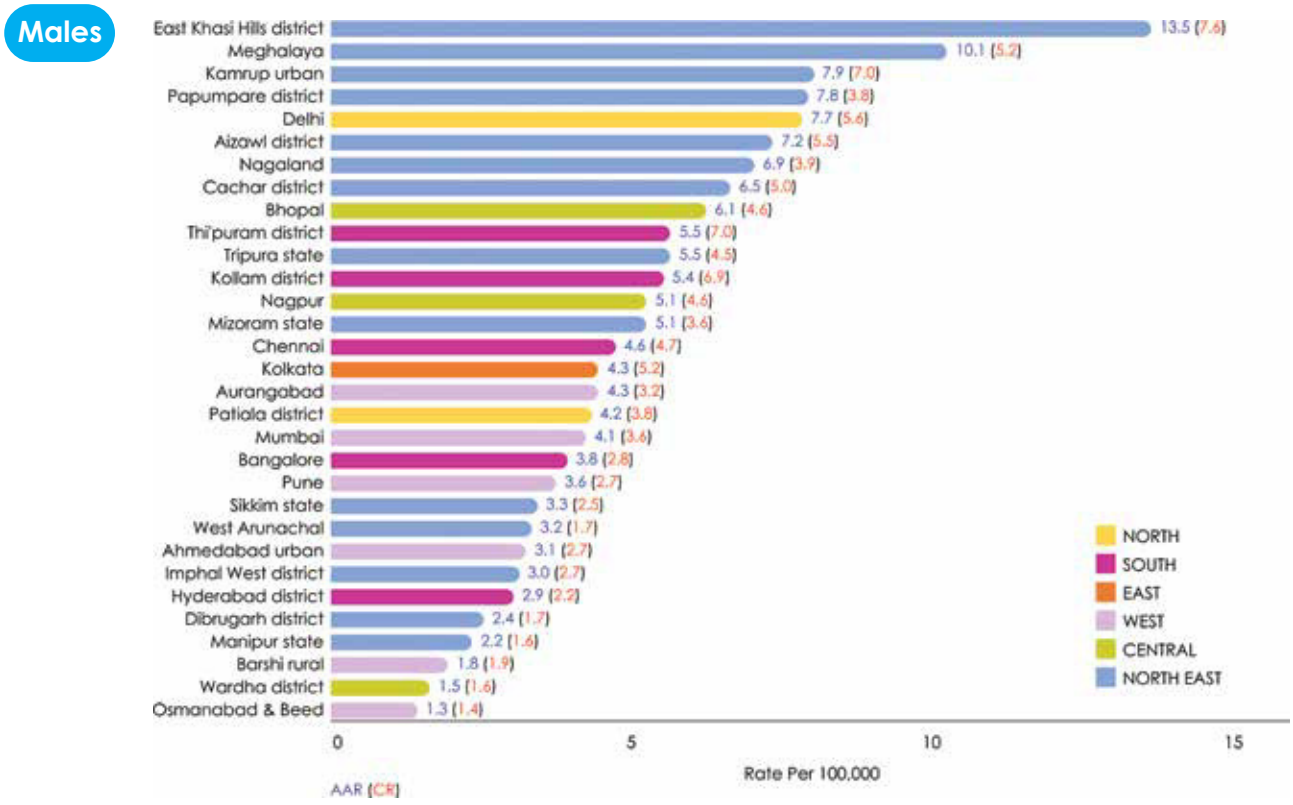


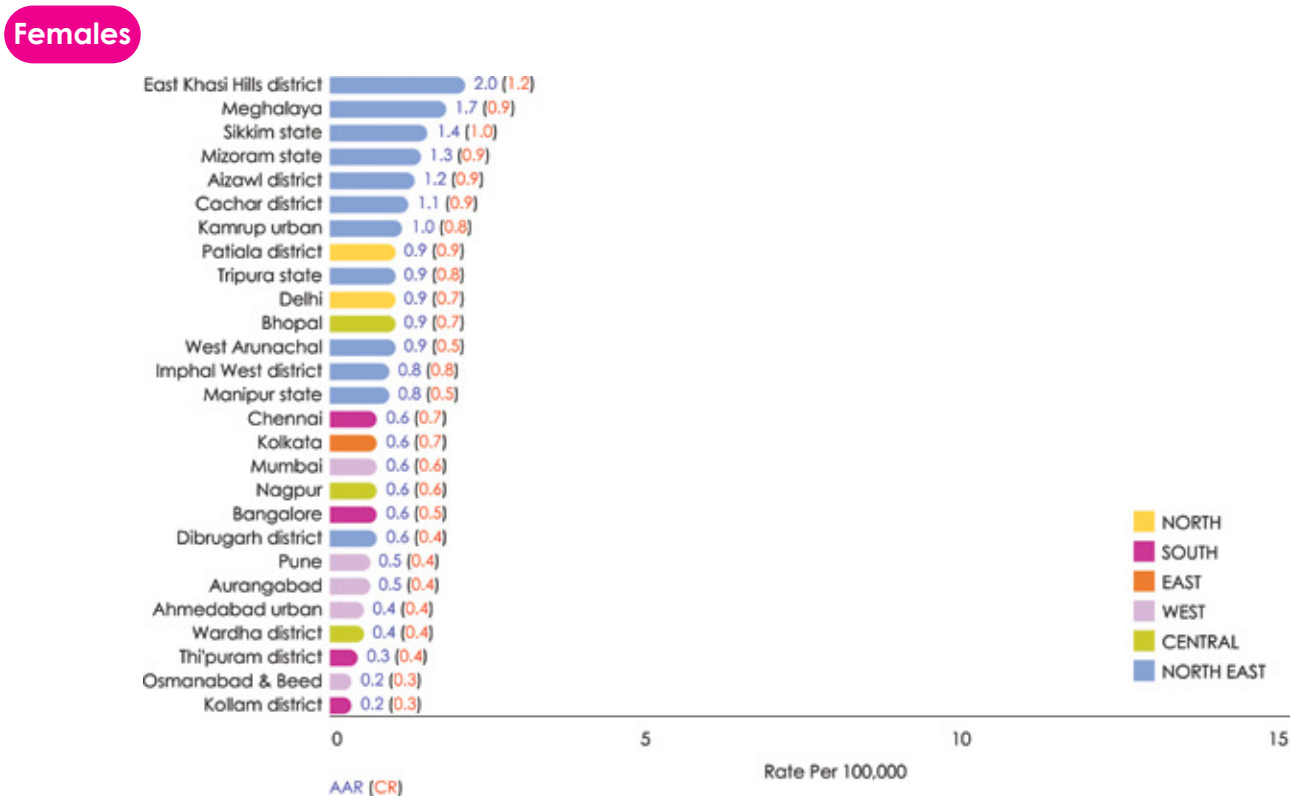


Males: Kamrup urban showed the highest AAR (7.9) followed by and Cachar district (5.6) and Delhi (5.4).

Females: Kamrup urban showed the highest AAR (16.2) followed by Cachar district (11.9), Delhi (11.6) and Papumpare district (10.7).

Fig. 5.13 LARYNX (ICD-10: C32) - Comparison of Age Adjusted Incidence Rates (AARs) of 28 PBCRs under NCRP

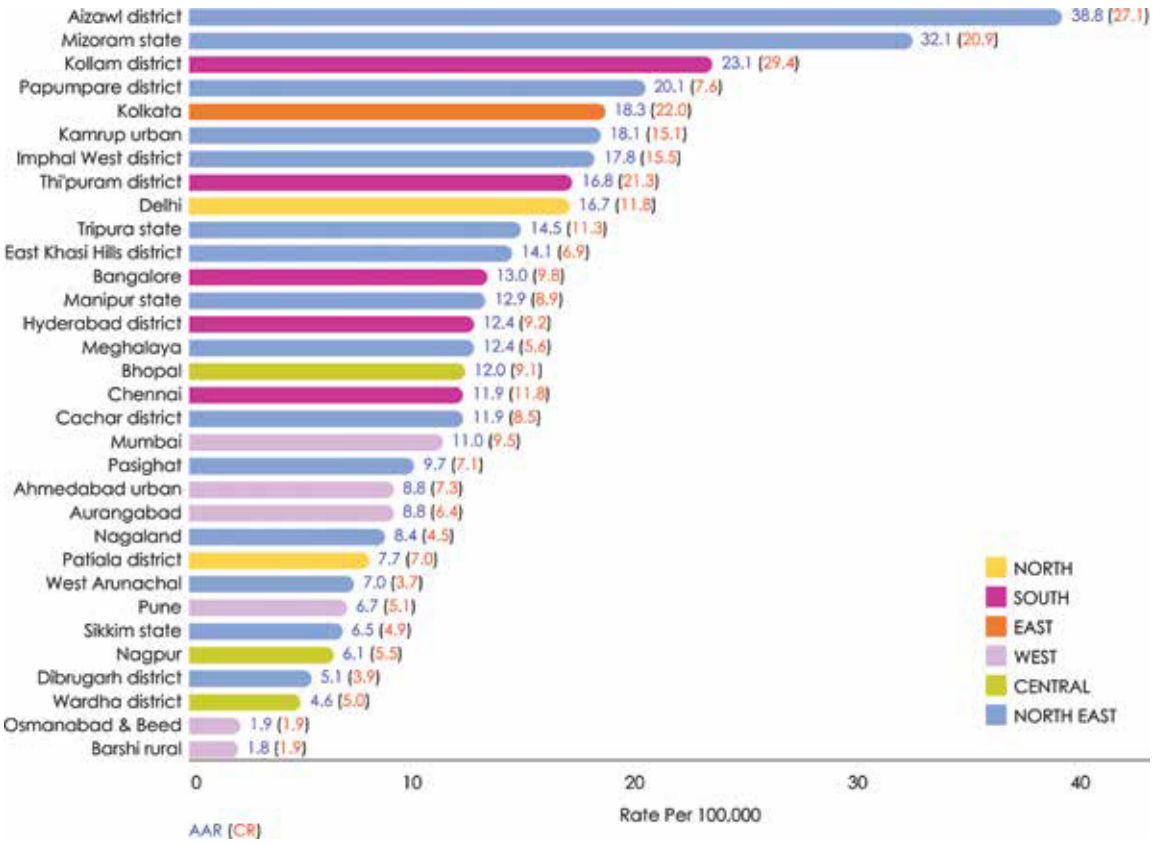




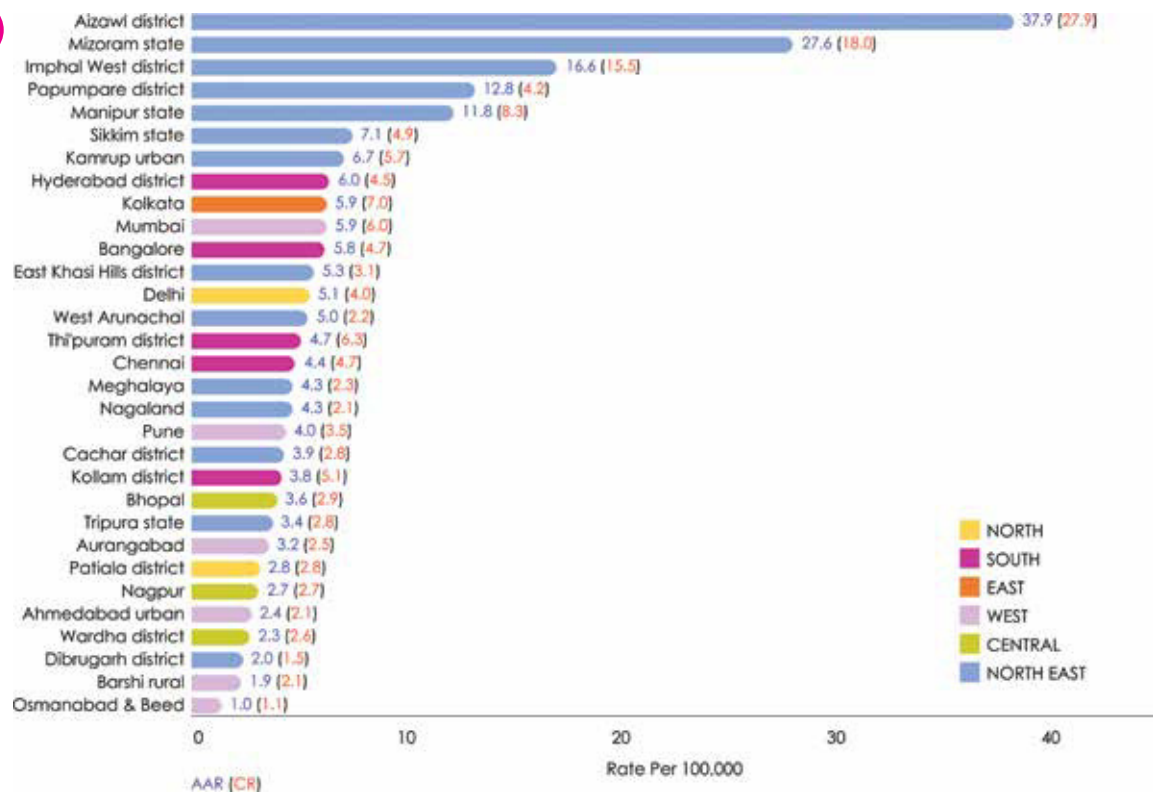
Males: East Khasi Hills district (13.5) had the highest AAR followed by Meghalaya (10.1).

Fig. 5.14 LUNG (ICD-10: C33-C34) - Comparison of Age Adjusted Incidence Rates (AARs) of 28 PBCRs under NCRP

Males



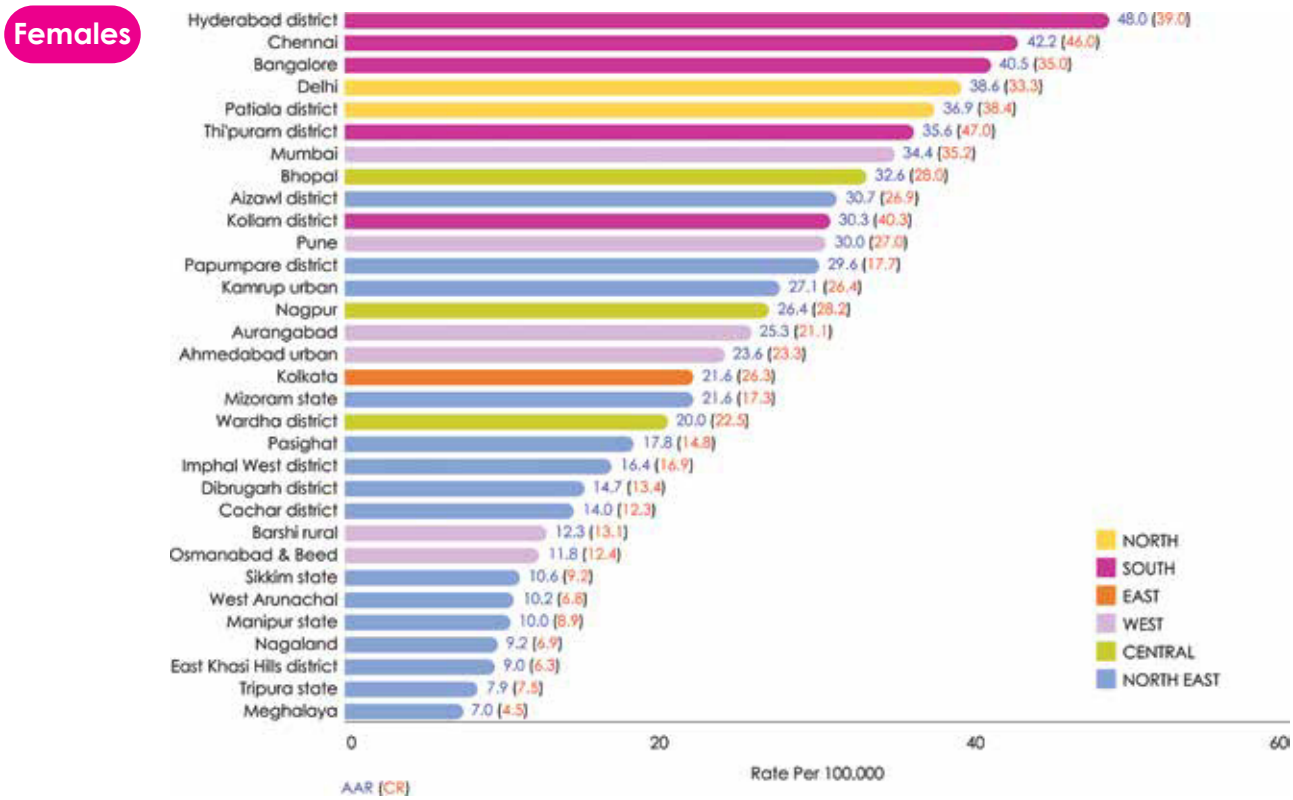
Females



Males: Aizawl district (38.8), Mizoram state (32.1) and Kollam district (23.1) had higher AARs than any other PBCR.

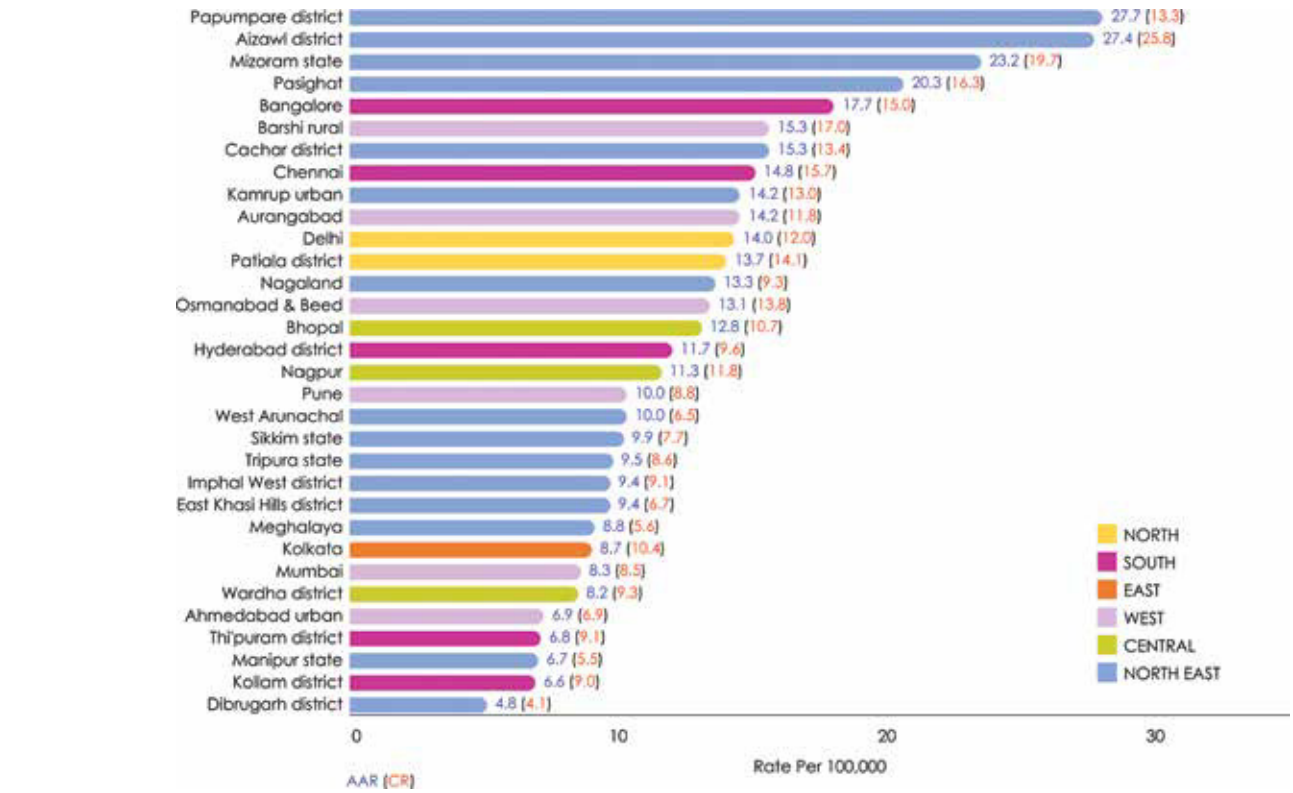
Females: The three areas of Aizawl district (37.9), Mizoram state (27.6) and Imphal West district (16.6) were at the top followed by Papumpare district (12.8).

Fig. 5.15 BREAST (ICD-10: C50) - Comparison of Age Adjusted Incidence Rates (AARs) of 28 PBCRs under NCRP



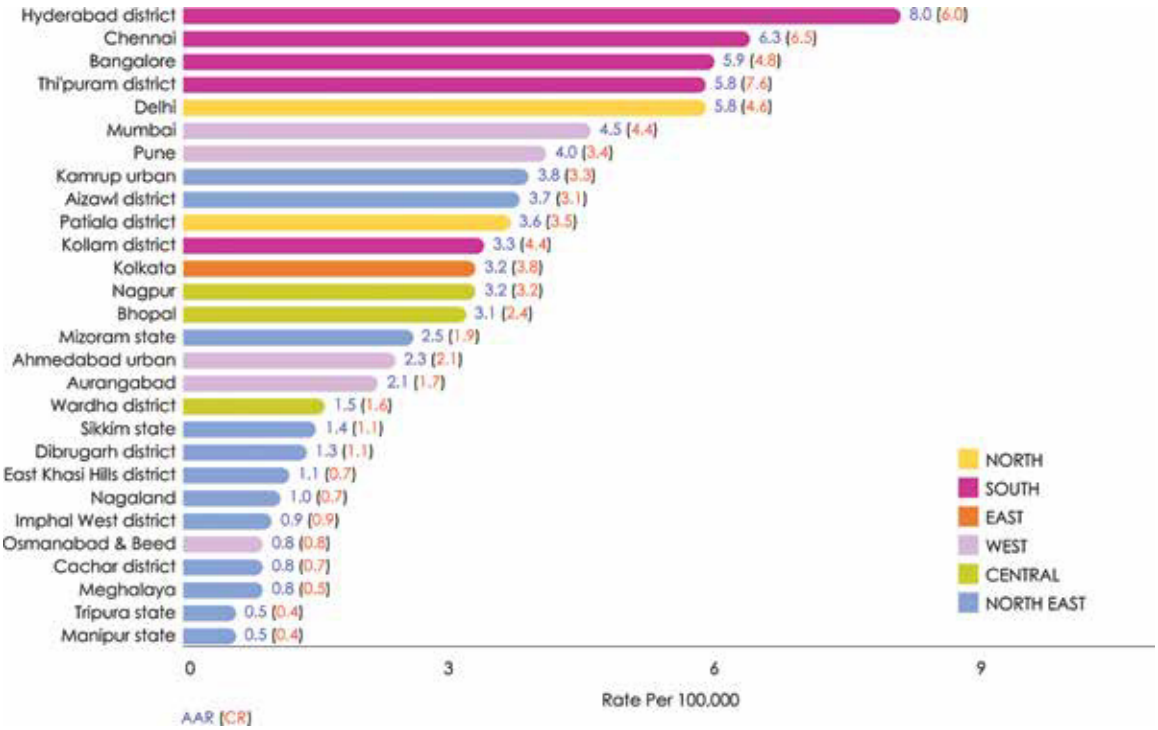
Hyderabad district (48.0), Chennai (42.2), Bangalore (40.5) and Delhi (38.6) occupied the top four places for cancer breast among all the PBCRs.

Fig. 5.16 CERVIX UTERI (ICD-10: C53) - Comparison of Age Adjusted Incidence Rates (AARs) of 28 PBCRs under NCRP



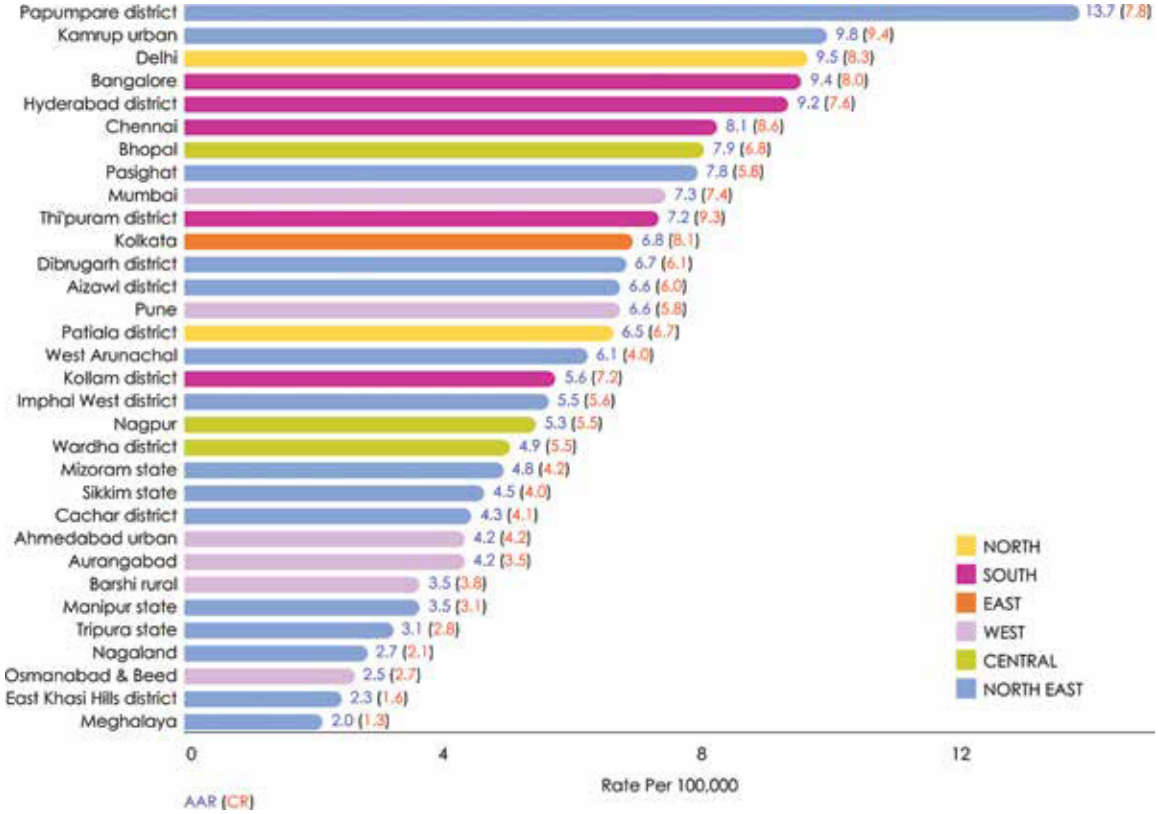
Papumpare district (27.7), Aizawl district (27.4), Mizoram state (23.2) and Pasighat PBCR (20.3) occupied the top four places for cancer cervix among all the PBCRs.

Fig. 5.17 CORPUS UTERI (ICD-10: C54) - Comparison of Age Adjusted Incidence Rates (AARs) of 28 PBCRs under NCRP



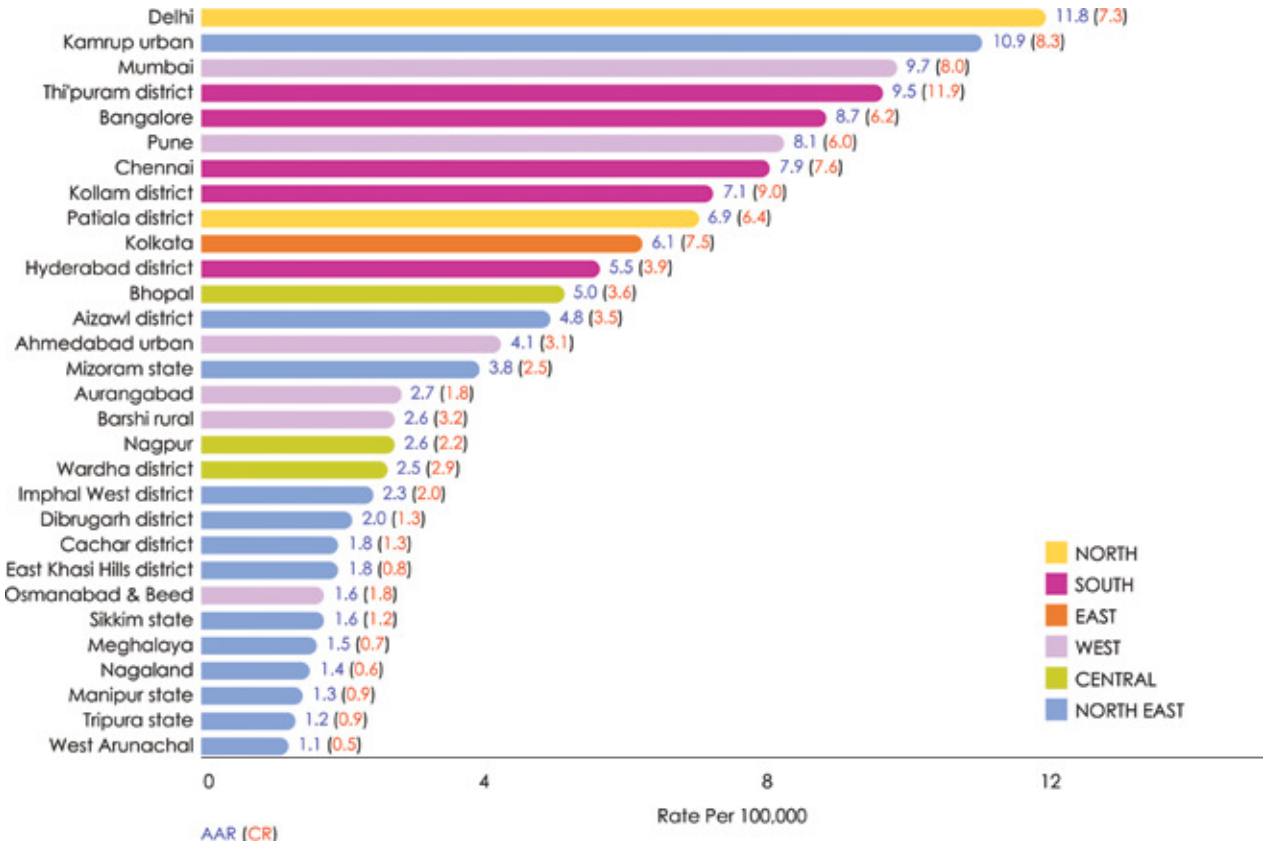
Hyderabad district (8.0), Chennai (6.3), Bangalore (5.9) and Thiruvananthapuram district (5.8) and Delhi (5.8) occupied the top five places for cancer corpus uteri among all the PBCRs.

Fig. 5.18 OVARY (ICD-10: C56) - Comparison of Age Adjusted Incidence Rates (AARs) of 28 PBCRs under NCRP



Papumpare district (13.7) had the highest AAR, followed by Kamrup urban (9.8) and Delhi PBCR (9.5) for cancer ovary.

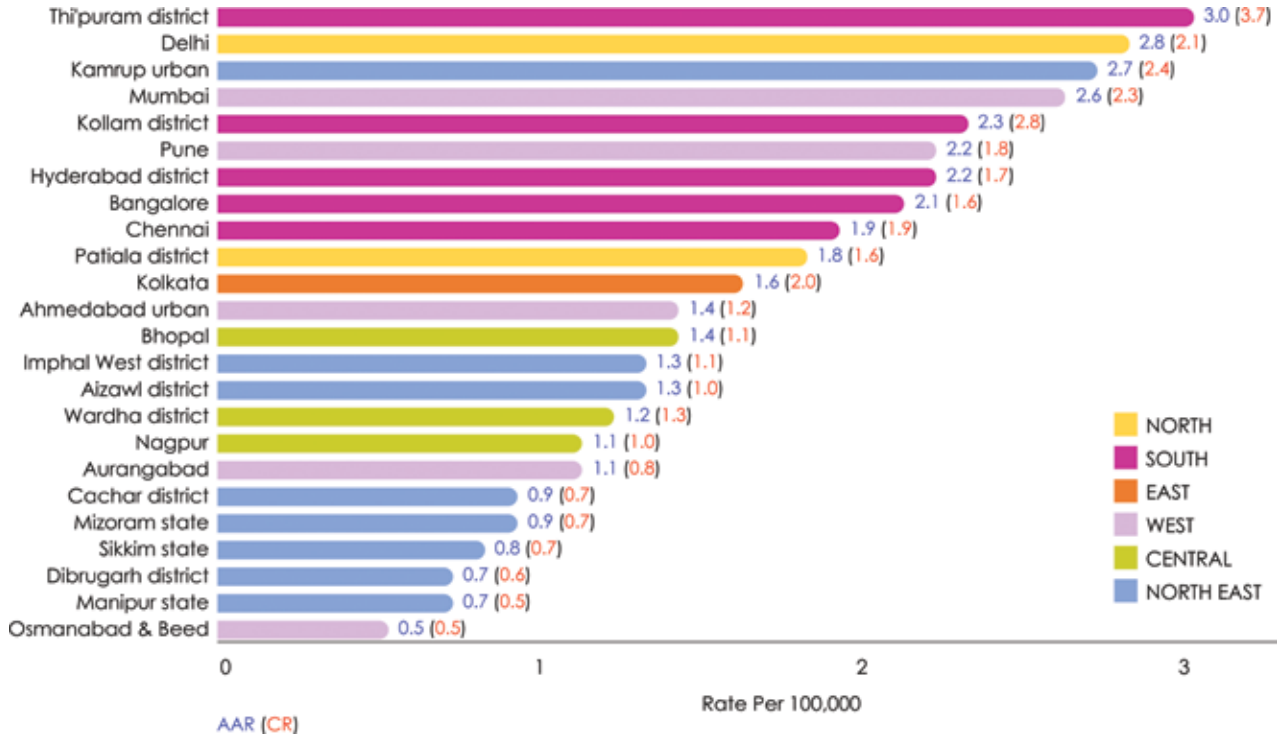
Fig. 5.19 PROSTATE (ICD-10: C61) - Comparison of Age Adjusted Incidence Rates (AARs) of 28 PBCRs under NCRP



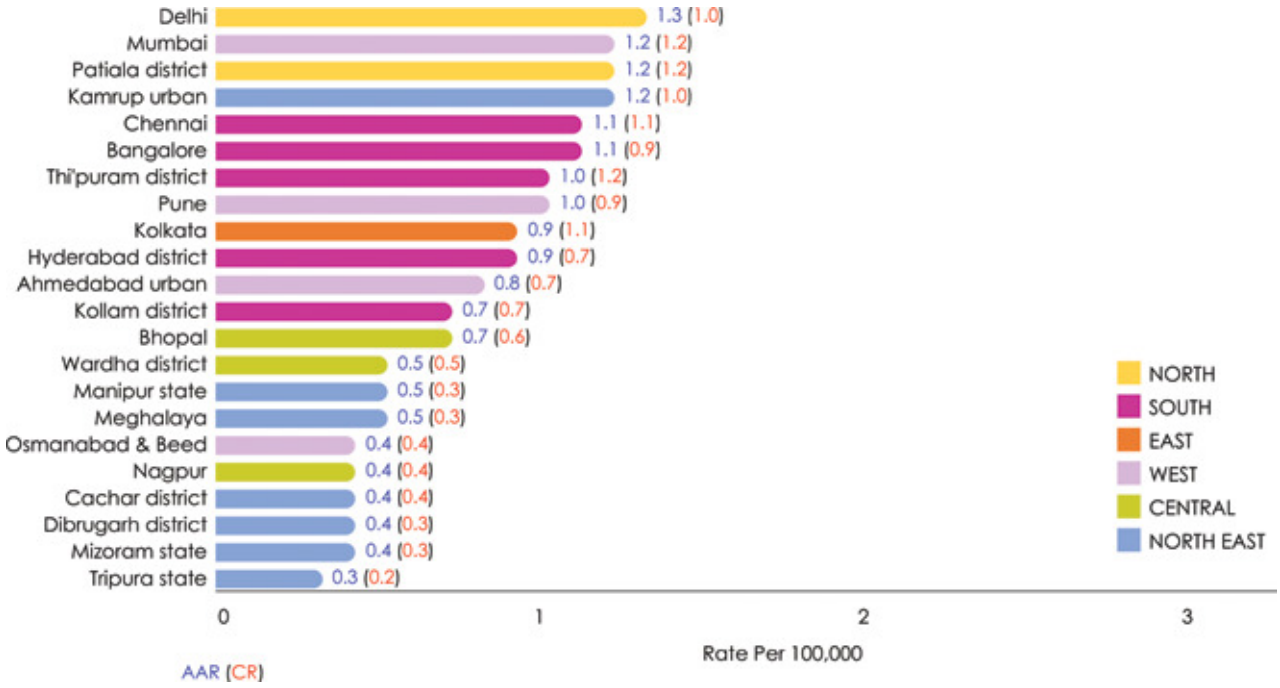
Delhi (11.8) recorded the highest AAR, followed by Kamrup urban (10.9) and Mumbai (9.7) for cancer prostate.

Fig. 5.20 KIDNEY (ICD-10: C64) Comparison of Age Adjusted Incidence Rates (AARs) of 28 PBCRs under NCRP

Males

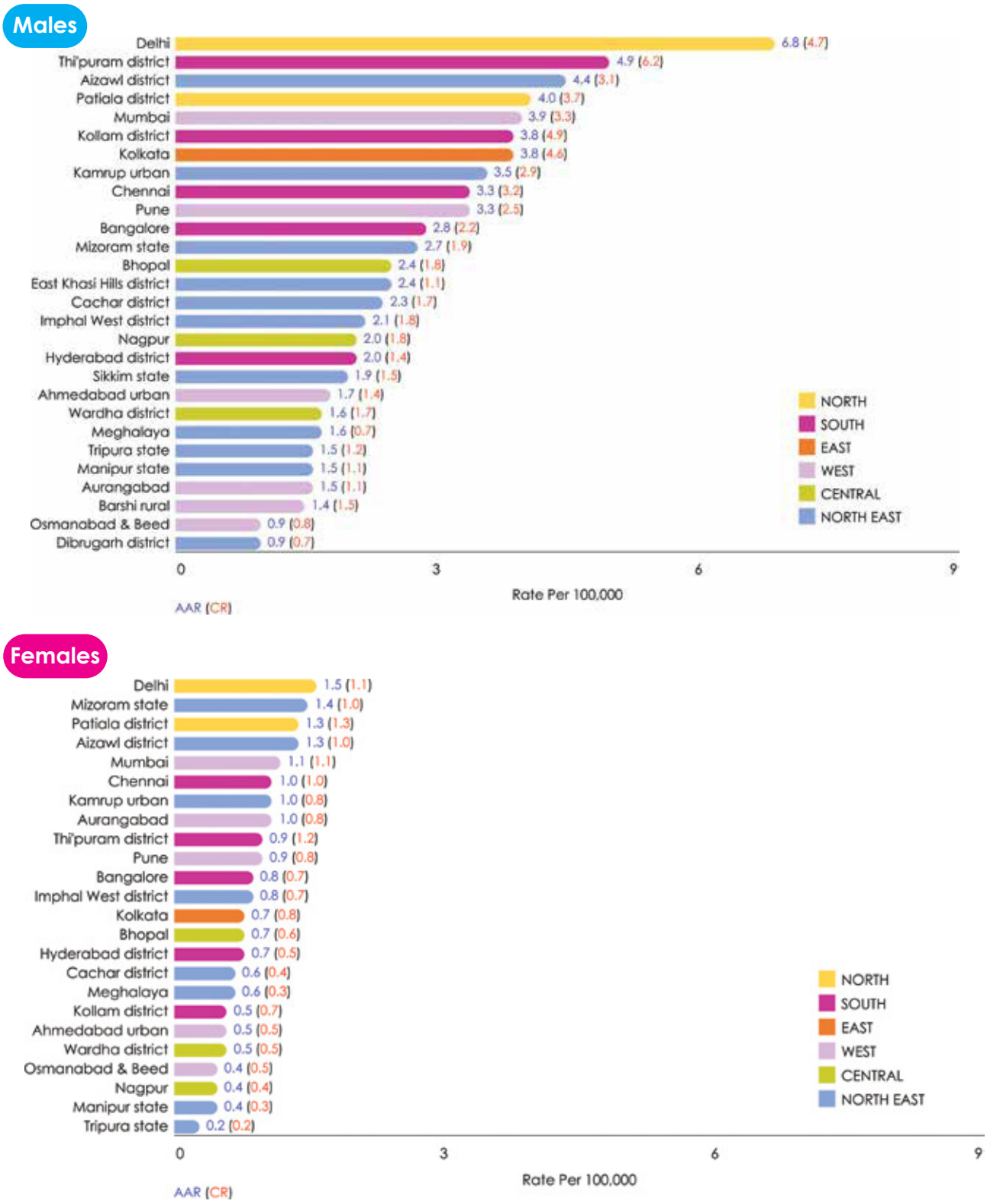


Females



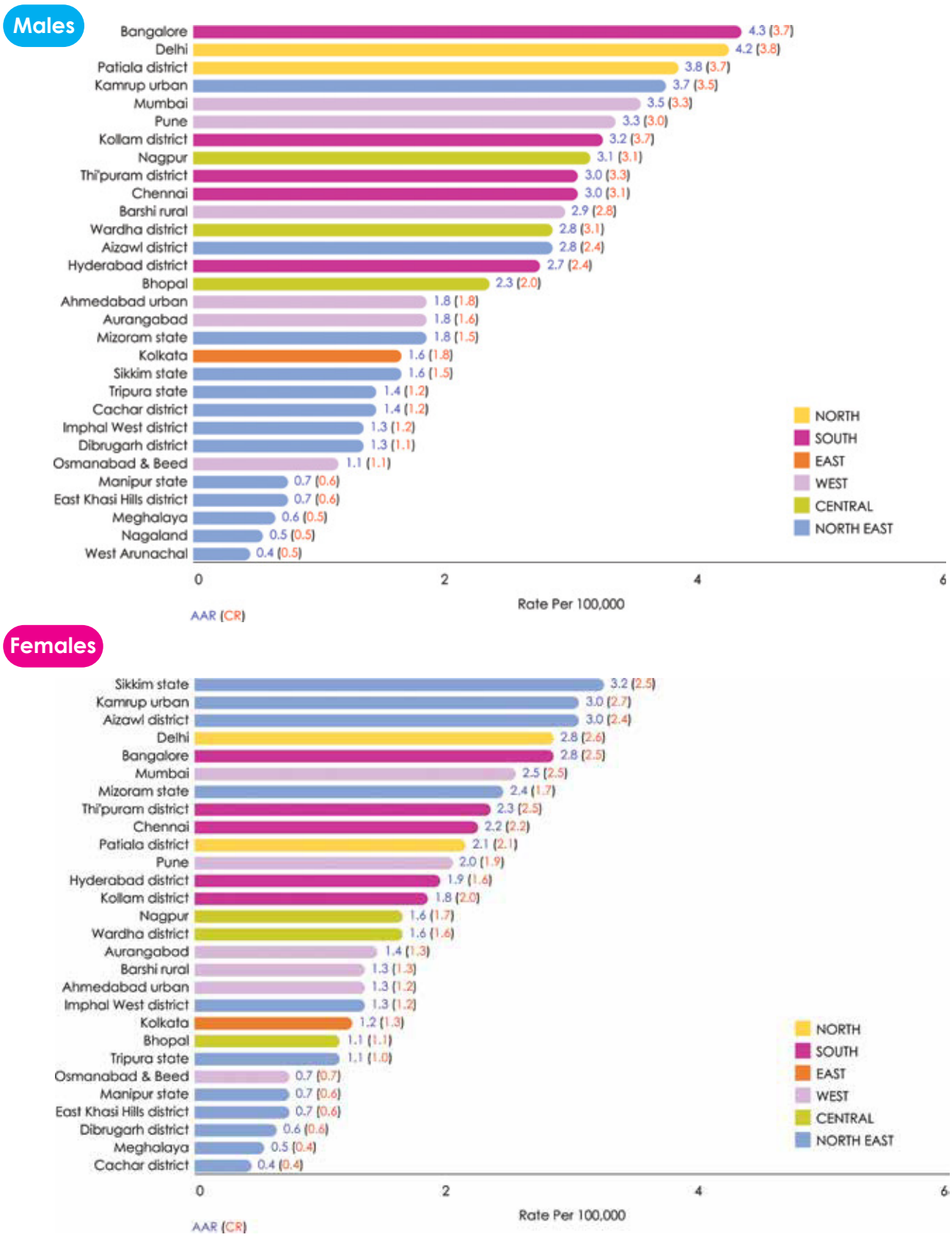
Males: Thiruvananthapuram district (3.0) recorded the highest AAR, followed by Delhi PBCR (2.8) and Kamrup urban PBCR (2.7).

Fig. 5.21 URINARY BLADDER (ICD-10: C67) - Comparison of Age Adjusted Incidence Rates (AARs) of 28 PBCRs under NCRP



Males: Delhi had the highest AAR (6.8), followed by Thiruvananthapuram district (4.9).

Fig. 5.22 BRAIN, NS (ICD-10: C70-C72) - Comparison of Age Adjusted Incidence Rates (AARs) of 28 PBCRs under NCRP

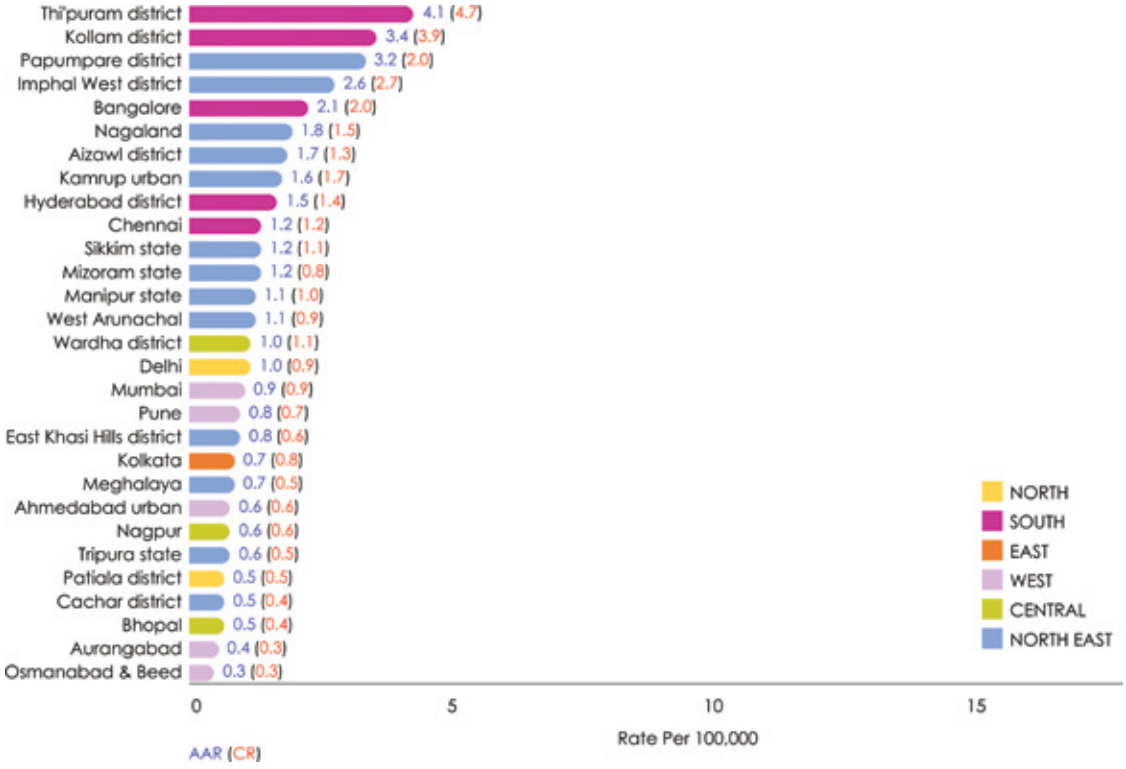


Males: Bangalore led the list of PBCRs with an AAR of 4.3 followed by Delhi (4.2).

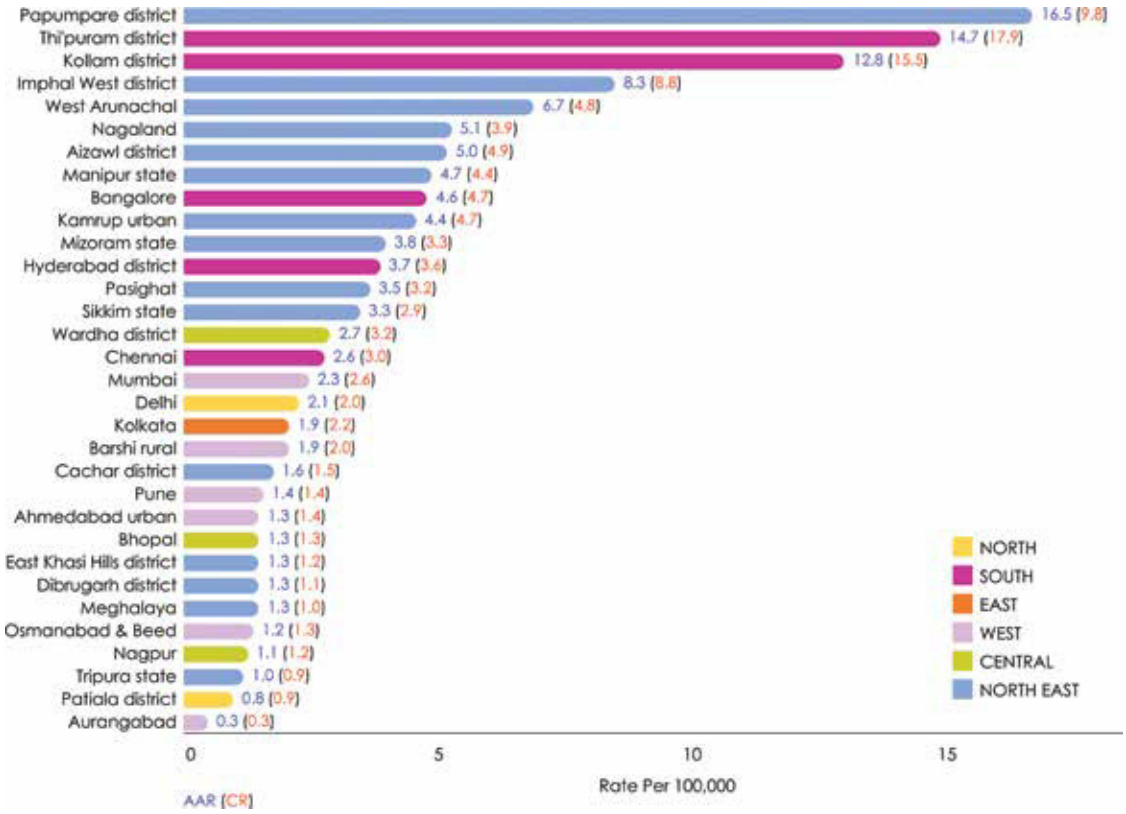
Females: Sikkim state (3.2) had the highest AAR followed by Kamrup urban (3.0).

Fig. 5.23 THYROID (ICD-10: C73) - Comparison of Age Adjusted Incidence Rates (AARs) of 28 PBCRs under NCRP

Males

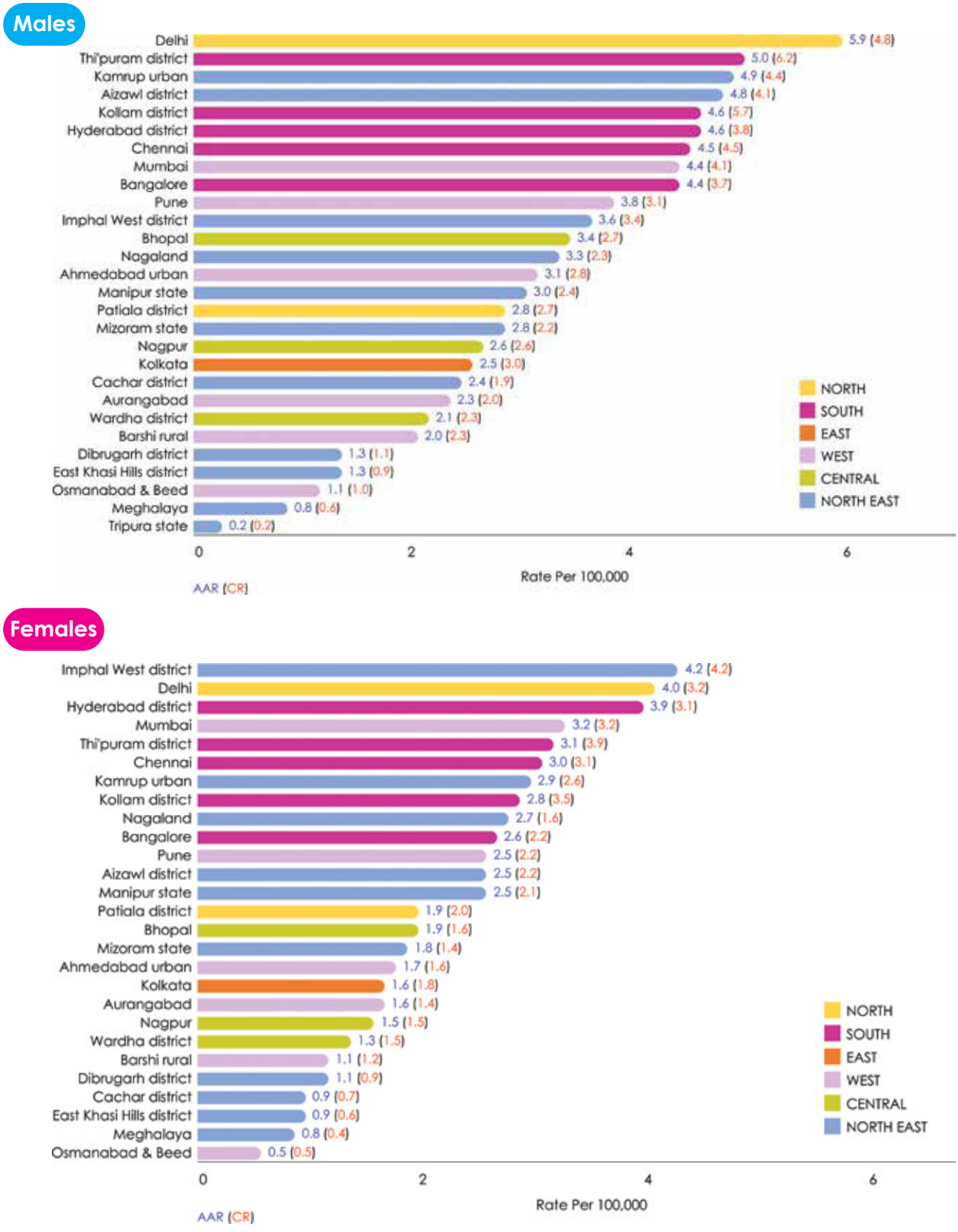


Females



Females: Papumpare district (16.5) topped the list of PBCRs. The two registries in Kerala namely, Thiruvananthapuram district (14.7) and Kollam district (12.8) followed next.

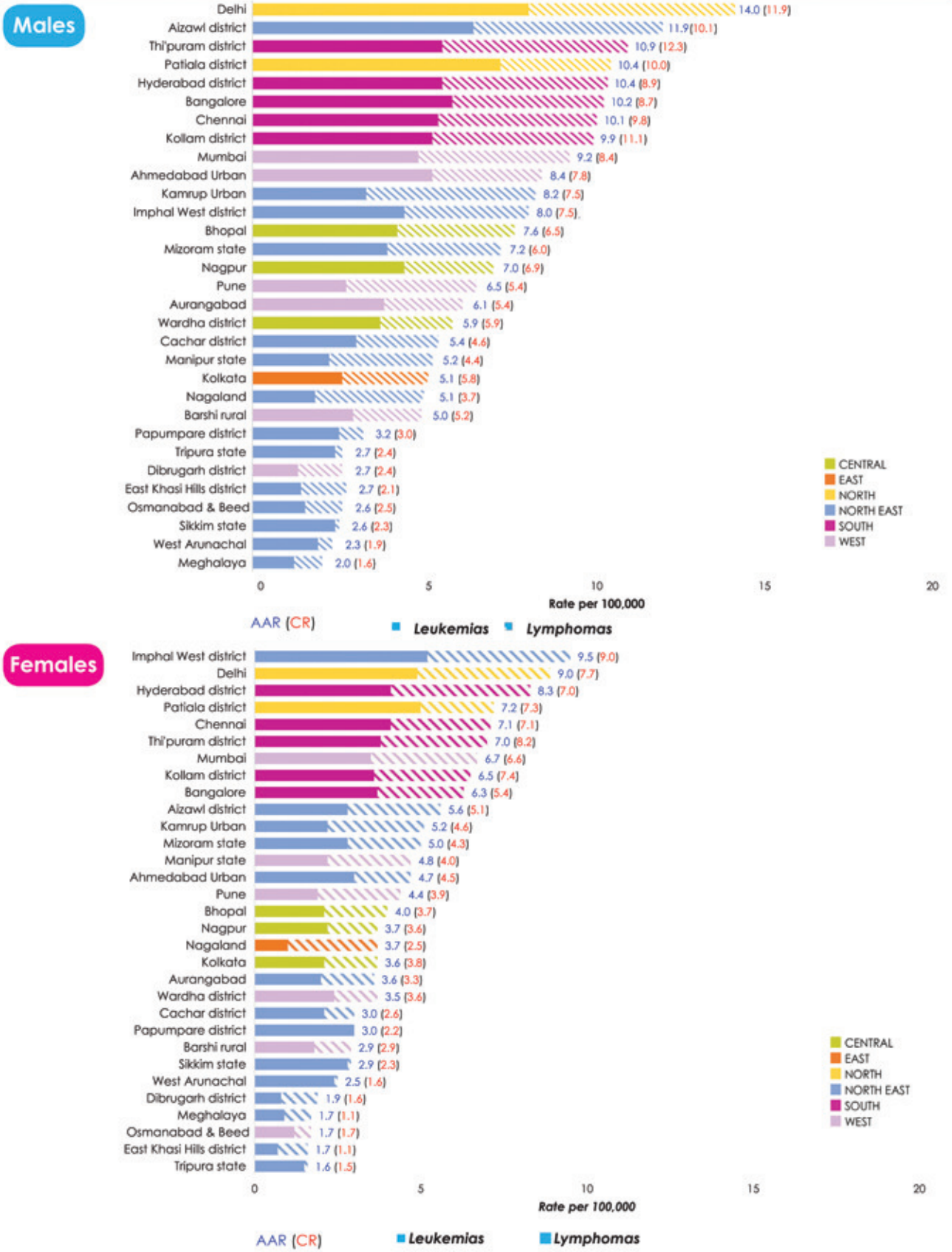
Fig. 5.24 NHL (ICD-10: C82-C85) - Comparison of Age Adjusted Incidence Rates (AARs) of 28 PBCRs under NCRP



Males: Delhi PBCR showed the highest AAR (5.9) followed by Thiruvananthapuram district (5.0) and Kamrup urban (4.9).

Females: Imphal West district PBCR showed the highest AAR (4.2).

Fig. 5.25 Leukaemias (ICD-10: C91-C95, C96) and Lymphomas (ICD-10: C82-C85, C96) - Comparison of Age Adjusted Incidence Rates (AARs) of 28 PBCRs under NCRP



Males: Delhi (14.0), Aizawl district (11.9) and Thiruvananthapuram district (10.9) had higher AARs than any other PBCR.

Females: Imphal West district (9.5), Delhi (9.0) and Hyderabad district (8.3) were at the top followed by Patiala district (7.2).

Chapter 6

Cancer Mortality

Part of the data collection of the PBCRs involve visits to the municipal corporation units to collect information on reported cancer deaths, besides hospital records.

All death certificates with cancer mentioned as cause of death were matched with the incident/morbidity data. This matching was done with all cases registered as incident during that calendar year as well as during previous years. Only 19% of deaths in the country are medically certified as per The Report on Medical Certification of Cause of Death 2016 by ORGI, India (Office of The Registrar General of India). Hence the number of cancer deaths collected by registries from hospitals are far from complete. The mode of dying may be written as the cause of death in death certificate but the underlying cause of death such as cancer may not be recorded.

Some registries have provided the all cause death data in electronic form to improve mortality registration. All-cause mortality registration, records all deaths whether cancerous or non-cancerous and further improves the mortality incidence matching in a cancer registry as more number of deaths mentioning cancer as a cause are matched. Registries tried to trace back the cases with the date of diagnosis for cancer deaths. In the absence of such date of diagnosis, these cases were included as Death Certificates Only (DCO) in the calculation of incidence rates. Unmatched non-cancerous deaths were not included in registry database.

There are certain limitations in the collection of cancer mortality data. This mainly refers to incompleteness of the number of cancer deaths due to incomplete or incorrect certification of cause of death. In the urban areas all deaths are generally registered, but many times the required information of specific cause of death is not completely available. This pertains to cause of death and when cancer is mentioned as a cause, the anatomical site of cancer is not mentioned and when that is mentioned the morphologic type is not stated. Because of this, it is difficult to have a complete site-specific cause of death picture as opposed to cancer morbidity. Accordingly, no reliable projection of cancer mortality can be made based on this incomplete data. Mumbai has developed a relatively better system of cause of death reporting because of the earlier Coroner's Act.

This chapter gives the number of incident and mortality cases contributed by each registry, their Mortality with Incidence percent (M/I%) by gender during the calendar years specified.

Table 6.1 Number of Incident and Mortality Cases and Mortality-Incidence Percent (M/I%) in 28 PBCRs under NCRP

Sl No	Registry	Males			Females			Both Sexes
		Incidence	Mortality	M/I %	Incidence	Mortality	M/I %	M/I %
	NORTH							
1	Delhi* (2012-2014)	31032	4691	15.1	29065	3613	12.4	13.8
2	Patiala district* (2012-2016)	5394	1635	30.3	6077	1451	23.9	26.9
	SOUTH							
3	Hyderabad district* (2014-2016)	5143	758	14.7	6453	582	9.0	11.6
4	Kollam district* (2012-2016)	9930	5253	52.9	9780	3629	37.1	45.1
5	Thi'puram district (2012-2016)	13506	5724	42.4	14327	4567	31.9	37.0
6	Bangalore* (2012-2014)	13221	4529	34.3	15828	4335	27.4	30.5
7	Chennai (2012-2016)	14468	4312	29.8	16803	3626	21.6	25.4
	EAST							
8	Kolkata (2012-2015)	10186	4270	41.9	9151	3309	36.2	39.2
	WEST							
9	Ahmedabad urban (2012-2016)	14579	3997	27.4	11025	2421	22.0	25.1
10	Aurangabad (2012-2016)	1923	331	17.2	2001	226	11.3	14.2
11	Osmanabad & Beed district (2012-2015)	3635	967	26.6	4467	969	21.7	23.9
12	Barshi rural (2012-2016)	726	522	71.9	813	512	63.0	67.2
13	Mumbai* (2012-2015)	26256	15696	59.8	27458	14388	52.4	56.0
14	Pune (2012-2016)	9687	4039	41.7	10818	4006	37.0	39.2
	CENTRAL							
15	Wardha district* (2012-2016)	2389	1574	65.9	2537	1344	53.0	59.2
16	Bhopal (2012-2015)	3567	1318	36.9	3589	1014	28.3	32.6
17	Nagpur (2012-2016)	5952	1390	23.4	6047	1176	19.4	21.4
	NORTH EAST							
18	Manipur state (2012-2016)	3702	1155	31.2	4500	1008	22.4	26.4
	Imphal West district (2012-2016)	1137	349	30.7	1500	322	21.5	25.4
19	Mizoram state (2012-2016)	4323	2492	57.6	3736	1566	41.9	50.4
	Aizawl district (2012-2016)	2180	1216	55.8	1900	757	39.8	48.4
20	Sikkim state* (2012-2016)	1172	603	51.5	1131	513	45.4	48.5
21	Tripura state (2012-2016)	6559	3682	56.1	4914	2395	48.7	53.0
22	West Arunachal (2012-2016)	1222	321	26.3	1171	202	17.3	21.9
	Papumpare district (2012-2016)	472	118	25.0	528	79	15.0	19.7
23	Meghalaya (2012-2016)	4688	1848	39.4	2832	1098	38.8	39.2
	East Khasi Hills district (2012-2016)	2884	1169	40.5	1729	744	43.0	41.5
24	Nagaland (2012-2016)	1403	298	21.2	992	119	12.0	17.4
25	Pasighat (2012-2016)	321	74	23.1	303	52	17.2	20.2
26	Cachar district* (2012-2016)	4663	895	19.2	3943	617	15.6	17.6
27	Dibrugarh district (2012-2016)	2535	669	26.4	2238	396	17.7	22.3
28	Kamrup urban* (2012-2016)	6223	1913	30.7	4790	1002	20.9	26.5

Reporting year data given in parentheses

** Represents the Registry which provided All-Cause Mortality Data*

Table 6.1 illustrates the number of incidence and mortality cases and the Mortality-Incidence percent (M/I%). The M/I% ranged from 14.7% to 71.9% in males and 9.0% to 63.0% in females. The highest M/I% was in western region i.e. Barshi rural (males: 71.9% and females: 63.0%) followed by central - Wardha district (males: 65.9% and females: 53.0%) and western - Mumbai (males: 59.8% and females: 52.4%). Among PBCRs from the South, Hyderabad district had the lowest M/I% in both males (14.7%) and females (9.0%).

Table 6.2 Crude (CMR), Age Adjusted (AAMR) and Truncated Mortality Rate (TMR) per 100,000 in 28 PBCRs under NCRP

Sl No	Registry	Males			Females		
		CMR	AAMR	TMR	CMR	AAMR	TMR
	NORTH						
1	Delhi (2012-2014)	17.0	22.2	34.1	14.9	17.8	32.0
2	Patiala district (2012-2016)	30.8	32.7	56.0	30.5	30.1	55.5
	SOUTH						
3	Hyderabad district (2014-2016)	12.4	15.5	25.9	9.9	12.5	23.6
4	Kollam district (2012-2016)	84.3	66.5	98.9	51.6	38.3	67.1
5	Thi'puram district (2012-2016)	72.2	57.7	86.5	52.5	39.5	67.4
6	Bangalore (2012-2014)	33.2	42.6	59.9	34.3	41.5	69.0
7	Chennai (2012-2016)	36.3	35.7	52.6	30.5	28.8	47.7
	EAST						
8	Kolkata (2012-2015)	46.1	37.9	51.9	38.3	32.1	54.3
	WEST						
9	Ahmedabad urban (2012-2016)	24.4	27.0	50.4	16.4	16.9	33.7
10	Aurangabad (2012-2016)	9.7	13.5	15.3	7.1	8.5	11.1
11	Osmanabad & Beed (2012-2015)	10.5	10.3	17.0	11.4	10.4	20.8
12	Barshi rural (2012-2016)	38.7	35.0	49.1	42.3	36.1	60.8
13	Mumbai (2012-2015)	58.2	66.0	84.8	61.6	61.4	93.7
14	Pune (2012-2016)	28.2	35.3	46.2	30.8	35.3	58.5
	CENTRAL						
15	Wardha district (2012-2016)	46.4	42.3	71.3	41.7	37.1	75.2
16	Bhopal (2012-2015)	30.8	38.3	70.1	25.5	30.9	62.5
17	Nagpur (2012-2016)	20.8	21.3	36.6	18.1	17.7	33.6
	NORTH EAST						
18	Manipur state (2012-2016)	14.7	20.5	24.9	12.9	17.3	24.1
	Imphal West district (2012-2016)	26.1	29.6	30.1	23.2	24.3	33.1
19	Mizoram state (2012-2016)	84.2	121.4	190.4	53.5	76.4	114.2
	Aizawl district (2012-2016)	115.0	152.7	253.8	69.6	89.5	126.9
20	Sikkim state (2012-2016)	35.9	46.4	64.8	34.2	46.2	74.3
21	Tripura state (2012-2016)	37.6	46.0	78.4	25.4	28.9	60.7
22	West Arunachal (2012-2016)	14.9	27.3	53.2	9.7	18.9	37.1
	Papumpare district (2012-2016)	23.7	56.5	98.0	15.7	37.9	80.1
23	Meghalaya (2012-2016)	36.5	71.7	152.5	21.6	38.1	78.3
	East Khasi Hills district (2012-2016)	53.1	95.0	202.9	33.1	51.5	103.2
24	Nagaland (2012-2016)	15.8	27.8	47.2	6.8	11.1	22.2
25	Pasighat (2012-2016)	20.9	30.9	40.2	15.1	22.0	34.5
26	Cachar district (2012-2016)	19.0	25.2	42.3	13.6	17.5	35.7
27	Dibrugarh district (2012-2016)	19.1	24.0	41.1	11.7	14.1	30.7
28	Kamrup urban (2012-2016)	58.6	66.7	101.3	31.5	37.3	65.7

Reporting year data given in parenthesis

Table 6.2 showed a variation in the crude mortality rate of all sites of cancer across the registry areas. In males it varied from 9.7 per 100,000 in Aurangabad to 115.0 per 100,000 in Aizawl district of Mizoram state. Among females it varied from 6.8 per 100,000 in Nagaland PBCR to 69.6 per 100,000 in Aizawl district.

Section II

SUMMARY OF SELECTED ANATOMICAL SITES OF CANCER

This section provides a summary of details on selected anatomical sites of cancer (breast, cervix uteri, head & neck, lung and stomach). The sites are classified as per the International Classification of Diseases (ICD-10), because of easy comparability of data with registries across the world. The above mentioned anatomical sites selected have featured as leading sites in most of the cancer registries under the NCRP.

The details provided, pertains to the actual number (No.) of cancers registered in the 28 PBCRs in the period (2012-2016) and their proportion or percent (%) relative to all sites of cancer for that gender. It includes the order or rank of the site of cancer and is based on the Age Adjusted Rates (AARs). The Crude rate per 100,000 population and Truncated Rates (TRs) are also provided. The pooled analysis of 58 HBCRs is also presented for cases treated only at the reporting HBCR institution.

The age distribution table is based on age specific incidence rates according to five-year age groups and regions in India. The Annual Percentage Change (APC) in AARs over the time period for registries that have contributed to more than 10 years data since inception of the registry have been depicted.

The number and relative proportion of patients according to clinical extent of disease at the time of diagnosis, types of treatment and educational status as seen in pooled data of 58 HBCRs is indicated for selected sites. The analysis of cases treated only at Reporting Institute (RI) have been carried out and not for those which have received prior treatment outside RI. The predominant histologic type (WHO classification of tumours) of cancer and its relative proportion (relative to all microscopically diagnosed cases) encountered in the 58 HBCRs have been reported in this section. 'Others' as the clinical extent of disease and 'others or unknown' as the treatment given were excluded from analyses.

For international comparison of selected sites of cancer, AARs of NCRP registries (2012-2016) have been compared with registries in Asian and Non-Asian countries. The reference manual is Volume XI (2008-2012) of Cancer Incidence in Five Continents (Bray F et al, 2017) which has published the data of cancer registries from all over the world. For Asian comparison, the highest AAR observed from five Asian countries is compared with the top five AARs from India. For Non-Asian comparison, the highest AAR from two different countries within each non-Asian continent have been compared with top two AARs in India.

AARs drawn for races in CI5 VOL XI and small numbers (< 10 cases) in both Indian and CI5 datasets have been excluded from comparison in all the graphs.

7

Cancer
Breast

Cancer Breast (ICD-10: C50) - Females

Table 7.1 Number of cases (n) registered for Cancer Breast and its Relative Proportion to All Sites of Cancer (%), Crude (CR), Age Adjusted (AAR) and Truncated (TR) Incidence Rates per 100,000 population and its Rank in 28 PBCRs under NCRP

Females

Sl No	Registry	n	%	CR	AAR	TR	Rank
	NORTH						
1	Delhi	8085	27.8	33.3	38.6	86.3	4
2	Patiala district	1825	30.0	38.4	36.9	90.3	5
	SOUTH						
3	Hyderabad district	2291	35.5	39.0	48.0	108.5	1
4	Kollam district	2833	29.0	40.3	30.3	74.6	10
5	Thi'puram district	4089	28.5	47.0	35.6	85.9	6
6	Bangalore	4423	27.9	35.0	40.5	89.0	3
7	Chennai	5464	32.5	46.0	42.2	95.3	2
	EAST						
8	Kolkata	2271	24.8	26.3	21.6	49.1	17
	WEST						
9	Ahmedabad urban	3437	31.2	23.3	23.6	53.3	16
10	Aurangabad	673	33.6	21.1	25.3	60.6	15
11	Osmanabad & Beed	1049	23.5	12.4	11.8	28.4	25
12	Barshi rural	159	19.6	13.1	12.3	29.9	24
13	Mumbai	8226	30.0	35.2	34.4	70.6	7
14	Pune	3513	32.5	27.0	30.0	63.0	11
	CENTRAL						
15	Wardha district	724	28.5	22.5	20.0	51.2	19
16	Bhopal	1111	31.0	28.0	32.6	76.4	8
17	Nagpur	1832	30.3	28.2	26.4	63.3	14
	NORTH EAST						
18	Manipur state	695	15.4	8.9	10.0	24.4	28
	Imphal West district	235	15.7	16.9	16.4	38.7	21
19	Mizoram state	506	13.5	17.3	21.6	53.0	18
	Aizawl district	293	15.4	26.9	30.7	72.3	9
20	Sikkim state	138	12.2	9.2	10.6	25.3	26
21	Tripura state	707	14.4	7.5	7.9	20.5	31
22	West Arunachal	142	12.1	6.8	10.2	24.8	27
	Papumpare district	89	16.9	17.7	29.6	73.8	12
23	Meghalaya	227	8.0	4.5	7.0	17.6	32
	East Khasi Hills district	142	8.2	6.3	9.0	21.8	30
24	Nagaland	121	12.2	6.9	9.2	24.7	29
25	Pasighat	51	16.8	14.8	17.8	41.6	20
26	Cachar district	556	14.1	12.3	14.0	33.8	23
27	Dibrugarh district	454	20.3	13.4	14.7	34.8	22
28	Kamrup urban	840	17.5	26.4	27.1	59.8	13

Total number of cases (N) registered and reporting year of data for all sites is mentioned in Table 1.2

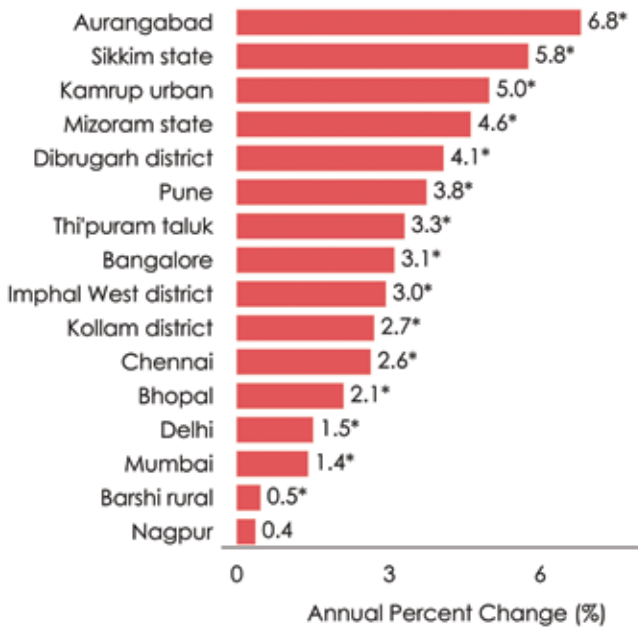
Cancer breast is the leading site of cancer in females. Hyderabad district ranked first in breast cancer (48.0 per 100,000) among all PBCRs.

Fig. 7.1 Age Specific Incidence Rates per 100,000 in 28 PBCRs under NCRP - Cancer Breast (Females)

Region	Registry	Five Year Age Group															
		0-4	5-9	10-14	15-19	20-24	25-29	30-34	35-39	40-44	45-49	50-54	55-59	60-64	65-69	70-74	75+
NORTH	Delhi	0.0	0.0	0.0	0.0	2.5	6.1	16.0	32.8	56.5	83.4	115.0	131.0	135.0	155.2	155.4	122.2
	Patiala district	0.0	0.0	0.3	0.9	2.5	4.3	20.6	36.2	69.8	96.5	118.0	123.4	125.4	123.7	95.9	69.0
SOUTH	Hyderabad district	0.0	0.0	0.0	0.2	1.2	5.2	13.1	37.7	61.8	113.5	128.8	166.2	194.5	216.0	198.3	131.7
	Kollam district	0.0	0.0	0.0	0.4	1.7	3.8	16.5	32.2	53.1	86.5	98.0	91.5	106.6	108.0	65.7	59.0
	Thi'puram district	0.0	0.0	0.0	0.5	1.6	6.1	15.5	30.4	59.4	90.5	111.4	117.5	138.6	121.7	115.0	71.4
	Bangalore	0.0	0.0	0.0	0.3	1.7	4.7	12.9	28.5	54.5	77.8	116.3	151.6	151.4	175.0	177.7	140.5
	Chennai	0.0	0.0	0.0	0.4	0.6	4.4	15.0	31.3	62.6	88.2	130.5	142.2	160.1	176.0	144.6	158.8
EAST	Kolkata	0.0	0.0	0.0	0.0	1.4	4.3	12.1	21.4	37.5	50.4	60.5	74.9	66.2	80.9	65.0	75.1
WEST	Ahmedabad urban	0.0	0.0	0.1	0.6	1.3	3.7	10.9	22.7	35.3	48.6	70.5	70.5	94.4	100.1	83.8	63.2
	Aurangabad	0.0	0.0	0.0	0.3	1.4	4.0	13.5	19.7	43.7	58.4	72.2	92.3	104.8	92.1	80.5	43.7
	Osamanabad & Beed	0.1	0.0	0.0	0.4	0.9	2.0	5.7	14.0	25.5	31.5	35.3	30.6	39.0	43.4	33.6	20.4
	Barshi rural	0.0	0.0	0.0	0.0	0.9	0.0	3.6	8.3	22.4	41.5	36.0	35.9	42.5	59.9	37.0	10.6
	Mumbai	0.0	0.0	0.3	0.4	1.3	4.2	11.5	25.3	44.4	67.7	87.6	104.4	127.5	163.2	151.3	167.7
	Pune	0.0	0.0	0.0	0.0	1.0	3.2	9.2	22.4	39.6	65.4	74.8	90.4	113.7	150.1	126.7	124.4
CENTRAL	Wardha district	0.0	0.0	0.0	0.4	0.6	5.4	11.8	26.7	48.4	56.7	61.3	62.5	60.1	49.7	38.8	30.2
	Bhopal	0.0	0.0	0.0	0.2	1.4	4.9	18.4	28.6	57.0	66.8	101.6	115.9	120.8	123.2	119.3	59.7
	Nagpur	0.2	0.0	1.0	1.5	3.8	6.3	16.2	37.6	52.5	66.0	70.0	78.8	90.5	79.4	60.0	55.8
NORTH EAST	Manipur state	0.0	0.0	0.0	0.0	0.5	2.9	7.8	15.6	23.8	26.2	30.2	27.7	24.9	23.3	27.6	20.6
	Imphal West district	0.0	0.0	0.0	0.0	0.8	4.3	13.0	24.5	38.4	53.8	38.3	37.6	39.1	55.7	47.5	28.5
	Mizoram state	0.0	0.0	0.0	0.4	1.0	4.3	12.3	31.0	54.4	50.4	64.2	60.1	67.0	78.9	49.5	28.2
	Aizawl district	0.0	0.0	0.0	0.0	2.6	6.4	12.8	44.2	78.7	68.8	101.6	68.4	77.4	129.2	103.8	40.7
	Sikkim state	0.0	0.0	0.0	0.0	0.0	2.5	14.7	11.0	23.3	37.7	27.9	32.4	21.0	21.8	38.3	12.9
	Tripura state	0.0	0.0	0.0	0.1	0.4	1.9	6.6	11.5	18.3	22.7	21.8	28.2	24.8	19.8	7.2	9.0
	West Arunachal	0.0	0.0	0.0	0.0	1.8	4.7	6.5	16.3	14.4	35.8	28.9	40.8	15.3	22.1	32.7	13.9
	Papumpare district	0.0	0.0	0.0	0.0	4.8	7.9	20.5	56.1	40.9	70.6	87.7	156.2	54.6	36.8	102.9	65.6
	Meghalaya	0.0	0.0	0.0	0.0	0.0	1.2	3.0	8.5	18.1	20.9	20.4	13.0	26.4	19.0	10.6	25.6
	East Khasi Hills district	0.0	0.0	0.0	0.0	0.0	0.5	3.6	9.4	18.9	24.2	30.6	15.4	36.7	31.7	16.7	36.5
	Nagaland	0.0	0.0	0.0	0.0	0.5	2.7	6.5	19.4	19.6	28.0	40.0	29.5	11.7	10.7	16.0	10.5
	Pasighat	0.0	0.0	0.0	0.0	5.7	6.4	14.9	35.0	48.5	35.2	63.7	42.0	22.8	67.5	25.5	25.0
	Cachar district	0.0	0.0	0.2	0.0	3.5	7.1	8.2	25.0	34.2	35.7	43.8	36.2	28.2	34.6	20.9	37.5
	Dibrugarh district	0.0	0.0	0.0	0.0	2.0	3.2	12.1	23.2	21.1	42.8	53.2	43.4	29.1	49.3	43.3	20.4
	Kamrup urban	0.0	0.0	0.0	0.0	1.5	8.5	17.3	30.6	41.3	60.1	79.2	82.8	83.9	106.0	114.7	63.9

The age specific cancer incidence rate in females started increasing with increase in age and peaked in the age group 50-69.

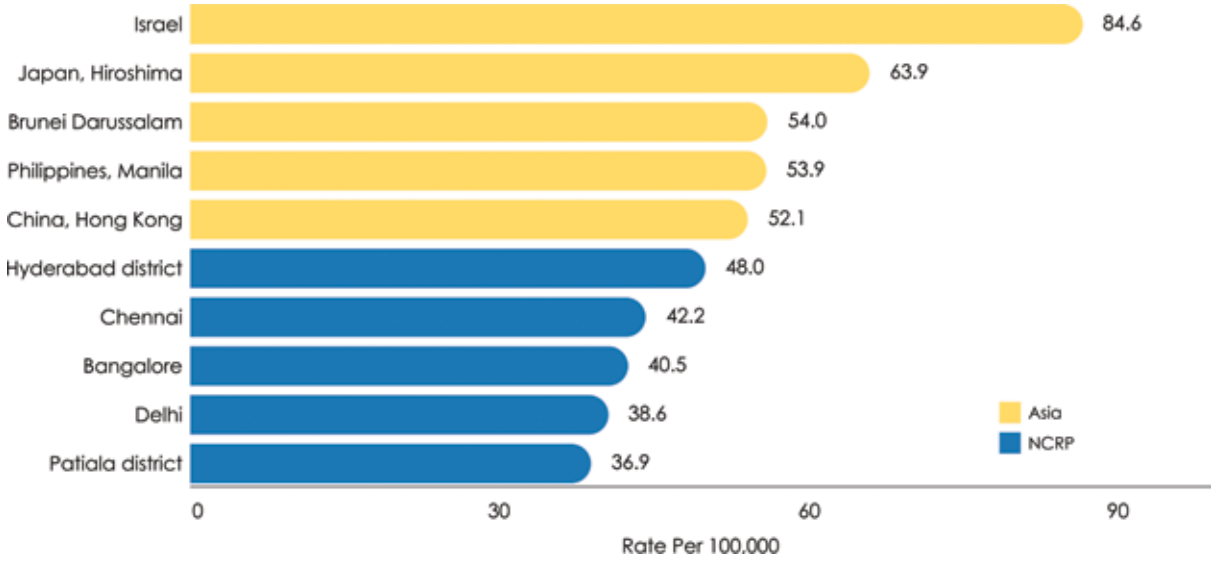
Fig. 7.2 Annual Percent Change (APC) in Age Adjusted Incidence Rates (AAR) over the time period - Cancer Breast (Females)



*Increase in APC, Decrease in APC ; *Significant increase or decrease in APC at 95% confidence level*

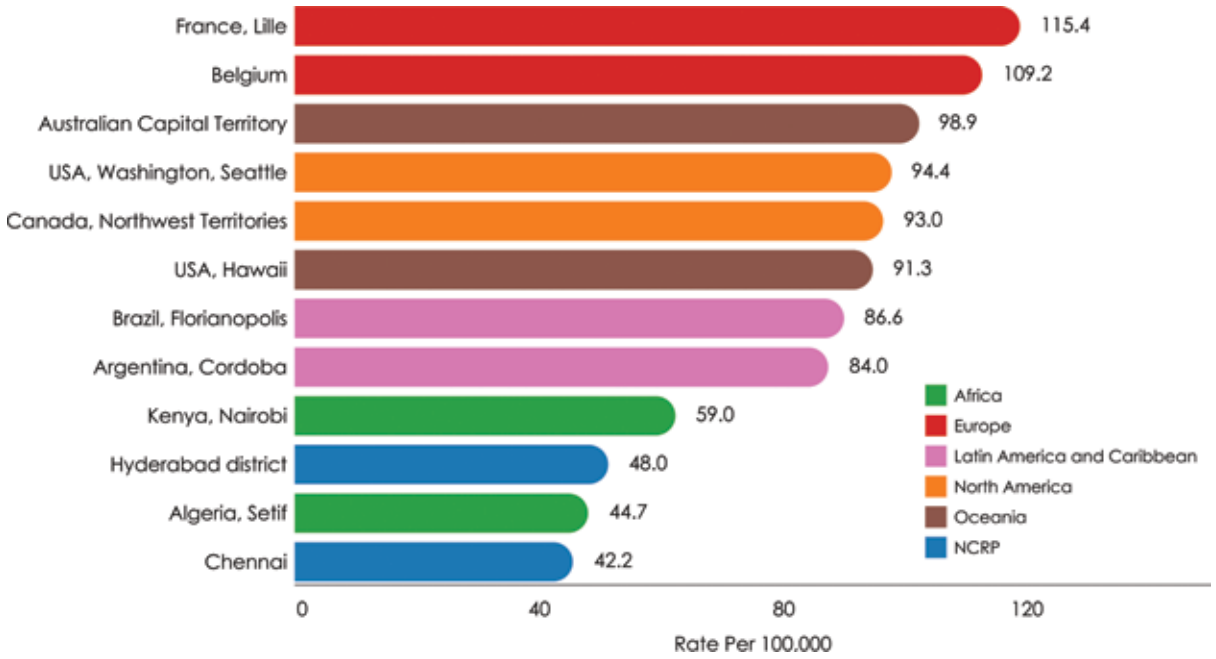
There was a significant increase in incidence rates of breast cancer across all PBCRs over the years, except in Nagpur PBCR.

Fig. 7.3 Comparison of Age Adjusted Incidence Rates (AAR) of Asian countries with PBCRs under NCRP - Cancer Breast (Females)



Israel (84.6 per 100,000) had the highest incidence of breast cancer in Asia. In India, Hyderabad district (48.0 per 100,000) had the highest incidence rate.

Fig. 7.4 Comparison of Age Adjusted Incidence Rates (AAR) of Non-Asian countries with PBCRs under NCRP - Cancer Breast (Females)



Lille in France (115.4 per 100,000) had the highest breast cancer incidence rate in the world.

Table 7.2 Number of cases (n) registered for Cancer Breast and its Relative Proportion to All Sites of Cancer (%), Crude (CR), Age Adjusted (AAR) and Truncated (TR) Incidence Rates per 100,000 population and its Rank in 28 PBCRs under NCRP

Males

Sl No	Registry	n	%	CR	AAR	TR	Rank
	NORTH						
1	Delhi	315	1.0	1.1	1.5	2.6	2
2	Patiala district	78	1.4	1.5	1.6	3.2	1
	SOUTH						
3	Hyderabad district	42	0.8	0.7	0.8	1.8	8
4	Kollam district	31	0.3	0.5	0.4	0.9	16
5	Thi'puram district	105	0.8	1.3	1.1	2.1	4
6	Bangalore	107	0.8	0.8	1.0	1.7	7
7	Chennai	77	0.5	0.6	0.6	1.1	13
	EAST						
8	Kolkata	91	0.9	1.0	0.8	1.4	9
	WEST						
9	Ahmedabad urban	108	0.7	0.7	0.7	1.4	11
10	Aurangabad	20	1.0	0.6	0.7	1.2	12
11	Osmanabad & Beed	49	1.3	0.5	0.6	1.3	14
12	Barshi rural	2	0.3	0.1	0.1	0.0	29
13	Mumbai	205	0.8	0.8	0.8	1.4	10
14	Pune	135	1.4	0.9	1.1	2.3	5
	CENTRAL						
15	Wardha district	15	0.6	0.4	0.4	0.9	17
16	Bhopal	38	1.1	0.9	1.1	2.1	6
17	Nagpur	94	1.6	1.4	1.4	2.9	3
	NORTH EAST						
18	Manipur state	10	0.3	0.1	0.2	0.3	24
	Imphal West district	4	0.4	0.3	0.4	0.6	18
19	Mizoram state	5	0.1	0.2	0.2	0.4	25
	Aizawl district	1	0.0	0.1	0.1	0.0	30
20	Sikkim state	4	0.3	0.2	0.3	0.6	20
21	Tripura state	24	0.4	0.2	0.3	0.4	21
22	West Arunachal	3	0.2	0.1	0.2	0.7	26
	Papumpare district	1	0.2	0.2	0.2	0.8	27
23	Meghalaya	9	0.2	0.2	0.3	0.7	22
	East Khasi Hills district	5	0.2	0.2	0.4	0.8	19
24	Nagaland	1	0.1	0.1	0.1	0.0	31
25	Pasighat	1	0.3	0.3	0.3	1.0	23
26	Cachar district	7	0.2	0.1	0.2	0.6	28
27	Dibrugarh district	3	0.1	0.1	0.1	0.3	32
28	Kamrup urban	20	0.3	0.6	0.6	1.5	15

Total number of cases (N) registered and calendar year of data for all sites is mentioned in Table 1.2

Table 7.3 Number (n) and Relative Proportion (%) according to Clinical Extent of Disease - Cancer Breast

Clinical Extent of Disease	Females		Males	
	n	%	n	%
Localised only	10629	29.0	221	32.6
Locoregional	20898	57.0	333	49.2
Distant Metastasis	3790	10.3	75	11.1
Unknown	1345	3.7	48	7.1
Total	**36662**	**100.0**	**677**	**100.0**

Among the data reported by the HBCRs, the majority of cases diagnosed with cancer breast in females, showed locoregional 57.0% spread, followed by 29.0% and 10.3% of cases with localized disease and distant metastasis, respectively.

Table 7.4 Number (n) and Relative Proportion (%) of Types of Treatment according to Clinical Extent of Disease - Cancer Breast (Females)

Treatment	Clinical Extent of Disease							
	Localised only		Locoregional		Distant Metastasis		Unknown	
	n	%	n	%	n	%	n	%
Surgery	1368	12.9	1283	6.1	52	1.4	221	16.5
Radiotherapy	264	2.5	404	1.9	170	4.5	145	10.8
Systemic Therapy	1077	10.2	2576	12.3	1747	46.3	307	22.9
Multi-modality*	7880	74.3	16519	79.1	1788	47.4	664	49.6
Palliative Care	21	0.2	94	0.5	19	0.5	3	0.2
Total	**10610**	**100.0**	**20876**	**100.0**	**3776**	**100.0**	**1340**	**100.0**

*Multi-modality includes the combination of Surgery and/or Radiotherapy and/or Systemic Therapy

Depending on the clinical extent of cancer breast, most typically multi-modality was the choice of treatment (locoregional: 79.1%, localized: 74.3% and distant metastasis: 47.4%). For the patients with localized disease (12.9%), surgery was the second choice of treatment. 46.3% of the patients with distant metastasis underwent systemic therapy.

Table 7.5 Number (n) and Relative Proportion (%) by Educational Status - Cancer Breast (Females)

Overall, 26.2% and 12.3% of women with cancer breast had secondary and primary level of education, respectively. Only 9.9% of the patients were literate whereas 16.7% of them were illiterate.

Educational Status	n	%
Illiterate	6141	16.7
Literate	3646	9.9
Primary	4521	12.3
Secondary	9666	26.2
Higher Education	4300	11.7
Unknown	8591	23.3
Total	**36865**	**100.0**

Table 7.6 Number (n) and Relative Proportion (%) by Broad Histological Classification - Cancer Breast (Females)

Broad Histological Classification	n	%
Epithelial Tumours	35961	97.7
Epithelial-myoepithelial tumours	14	2.3
Papillary lesions	198	
Mesenchymal tumours	57	
Fibroepithelial tumours	218	
Tumours of the Nipple	39	
Malignant Lymphoma	40	
Clinical Patterns	4	
Others	261	
All Microscopic	**36792**	**100.0**

97.7% of cases of breast cancers were diagnosed as epithelial tumours, with very few other histological types.

8

Cancer

Cervix Uteri

Cancer Cervix Uteri (ICD-10: C53)

Table 8.1 Number of cases (n) registered for Cancer Cervix Uteri and its Relative Proportion to All Sites of Cancer (%), Crude (CR), Age Adjusted (AAR) and Truncated (TR) Incidence Rates per 100,000 population and its Rank in 28 PBCRs under NCRP

Sl No	Registry	n	%	CR	AAR	TR	Rank
	NORTH						
1	Delhi	2913	10.0	12.0	14.0	32.8	11
2	Patiala district	670	11.0	14.1	13.7	33.4	12
	SOUTH						
3	Hyderabad district	563	8.7	9.6	11.7	27.2	16
4	Kollam district	630	6.4	9.0	6.6	13.8	31
5	Thi'puram district	793	5.5	9.1	6.8	14.2	29
6	Bangalore	1903	12.0	15.0	17.7	39.5	5
7	Chennai	1865	11.1	15.7	14.8	32.4	8
	EAST						
8	Kolkata	902	9.9	10.4	8.7	20.6	25
	WEST						
9	Ahmedabad urban	1023	9.3	6.9	6.9	16.7	28
10	Aurangabad	375	18.7	11.8	14.2	31.3	9
11	Osmanabad & Beed	1167	26.1	13.8	13.1	31.1	14
12	Barshi rural	206	25.3	17.0	15.3	34.7	6
13	Mumbai	1985	7.2	8.5	8.3	18.3	26
14	Pune	1146	10.6	8.8	10.0	22.3	18
	CENTRAL						
15	Wardha district	299	11.8	9.3	8.2	18.8	27
16	Bhopal	424	11.8	10.7	12.8	29.1	15
17	Nagpur	765	12.7	11.8	11.3	27.0	17
	NORTH EAST						
18	Manipur state	427	9.5	5.5	6.7	15.0	30
	Imphal West district	127	8.5	9.1	9.4	20.7	22
19	Mizoram state	577	15.4	19.7	23.2	62.8	3
	Aizawl district	281	14.8	25.8	27.4	78.5	2
20	Sikkim state	116	10.3	7.7	9.9	25.3	20
21	Tripura state	809	16.5	8.6	9.5	23.7	21
22	West Arunachal	136	11.6	6.5	10.0	26.2	19
	Papumpare district	67	12.7	13.3	27.7	66.0	1
23	Meghalaya	283	10.0	5.6	8.8	21.8	24
	East Khasi Hills district	150	8.7	6.7	9.4	22.4	23
24	Nagaland	163	16.4	9.3	13.3	35.2	13
25	Pasighat	56	18.5	16.3	20.3	56.2	4
26	Cachar district	607	15.4	13.4	15.3	41.0	7
27	Dibrugarh district	139	6.2	4.1	4.8	12.1	32
28	Kamrup urban	412	8.6	13.0	14.2	32.2	10

Total number of cases (N) registered and reporting year of data for all sites is mentioned in Table 1.2

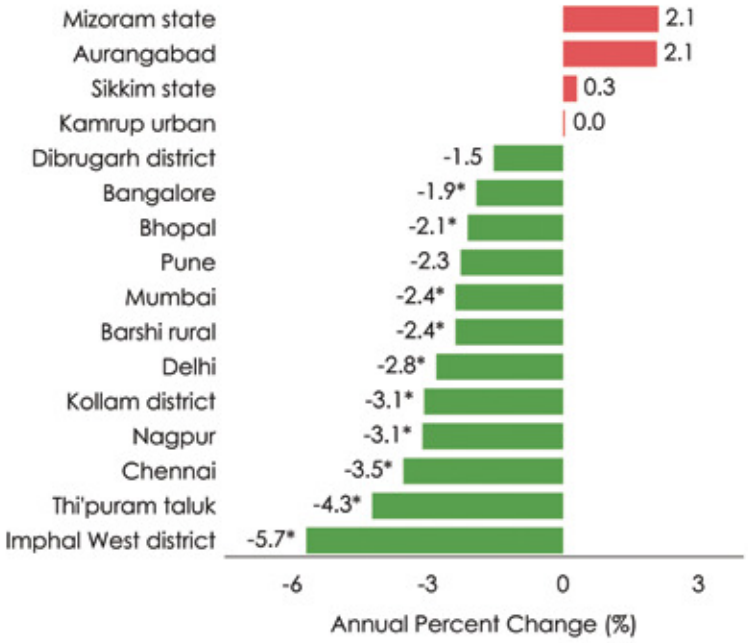
Cancer cervix uteri is one of the leading sites of cancer. Papumpare district (27.7 per 100,000) in West Arunachal had the highest incidence of cervical cancer.

Fig. 8.1 Age Specific Incidence Rates per 100,000 in 28 PBCRs under NCRP - Cancer Cervix Uteri

Region	Registry	Five Year Age Group															
		0-4	5-9	10-14	15-19	20-24	25-29	30-34	35-39	40-44	45-49	50-54	55-59	60-64	65-69	70-74	75+
NORTH	Delhi	0.0	0.0	0.0	0.0	0.5	1.2	4.4	11.3	21.9	32.4	38.6	45.4	62.3	57.1	51.5	32.0
	Patiala district	0.0	0.0	0.0	0.0	0.2	2.2	2.9	13.0	23.8	32.2	47.3	47.8	48.8	53.0	35.1	33.1
SOUTH	Hyderabad district	0.0	0.0	0.0	0.0	0.1	1.5	3.7	11.2	15.8	20.3	35.2	44.7	51.1	43.8	55.8	25.6
	Kollam district	0.0	0.0	0.0	0.0	0.2	0.0	0.4	3.0	6.3	12.0	18.1	24.1	28.4	37.0	30.1	30.0
	Thi'puram district	0.0	0.0	0.0	0.0	0.0	0.1	0.8	1.3	7.0	12.6	17.3	24.4	32.7	31.9	33.2	34.3
	Bangalore	0.0	0.0	0.1	0.0	0.6	0.9	4.2	9.3	25.0	39.5	54.2	60.8	66.6	76.8	77.3	62.4
	Chennai	0.0	0.0	0.0	0.0	0.0	0.4	2.3	8.4	16.7	31.5	39.2	54.6	62.4	76.7	67.8	46.9
EAST	Kolkata	0.0	0.0	0.0	0.0	0.3	0.5	3.4	6.3	16.0	23.8	27.5	26.8	29.0	35.0	31.7	21.3
WEST	Ahmedabad urban	0.0	0.0	0.0	0.0	0.1	0.6	2.5	7.0	15.1	16.2	20.5	20.6	25.4	25.2	25.2	16.0
	Aurangabad	0.0	0.0	0.0	0.0	0.8	1.9	4.1	13.3	24.5	33.6	28.9	47.3	51.8	77.2	51.4	34.9
	Osamanabad & Beed	0.0	0.0	0.0	0.0	0.4	1.8	4.5	11.5	19.7	29.1	42.7	41.1	56.4	52.2	41.4	28.7
	Barshi rural	0.0	0.0	0.0	0.0	0.0	0.0	2.4	7.1	21.0	38.3	37.9	51.6	70.2	73.9	54.1	55.8
	Mumbai	0.0	0.0	0.0	0.0	0.2	0.4	2.4	5.0	12.8	18.5	24.9	27.5	28.8	38.0	37.3	28.1
	Pune	0.0	0.0	0.0	0.0	0.1	0.6	1.0	4.8	13.5	23.9	27.3	29.4	46.1	49.1	39.0	35.7
CENTRAL	Wardha district	0.0	0.0	0.0	0.0	0.3	0.7	1.6	5.0	13.0	24.2	24.2	24.3	27.8	36.9	23.3	31.3
	Bhopal	0.0	0.0	0.0	0.0	0.5	1.2	3.3	7.2	21.4	25.3	47.0	39.8	45.7	39.8	80.1	32.7
	Nagpur	0.0	0.0	0.4	0.0	0.9	1.6	4.3	11.8	20.5	26.8	30.7	34.9	47.5	44.2	32.1	24.8
NORTH EAST	Manipur state	0.0	0.0	0.0	0.0	0.3	0.3	3.4	6.8	10.0	13.0	17.7	23.1	26.4	27.2	31.9	17.7
	Imphal West district	0.0	0.0	0.0	0.0	0.8	0.0	4.9	7.9	14.5	16.7	24.6	26.9	43.7	38.3	47.5	28.5
	Mizoram state	0.0	0.0	0.0	0.0	1.7	3.2	17.5	44.4	82.5	58.5	74.0	64.8	51.0	38.3	34.0	21.7
	Aizawl district	0.0	0.0	0.0	0.0	0.9	2.7	18.6	48.0	102.3	73.5	101.6	68.4	77.4	22.5	29.7	20.4
	Sikkim state	0.0	0.0	0.0	0.0	0.0	1.2	1.5	11.9	13.3	31.0	32.8	23.1	47.9	36.4	27.4	12.9
	Tripura state	0.0	0.0	0.0	0.0	0.1	1.9	4.4	9.2	15.2	27.3	27.4	33.1	39.2	31.7	25.0	14.0
	West Arunachal	0.0	0.0	0.0	0.0	0.5	2.1	8.5	13.5	21.2	21.9	39.1	32.6	36.8	11.1	40.9	0.0
	Papumpare district	0.0	0.0	0.0	0.0	1.6	2.0	10.2	22.4	44.3	55.5	87.7	109.4	109.2	73.5	205.9	0.0
	Meghalaya	0.0	0.0	0.0	0.0	0.4	1.8	6.7	8.5	18.5	28.4	26.5	30.9	21.8	28.5	12.7	16.6
	East Khasi Hills district	0.0	0.0	0.0	0.0	0.8	1.0	6.1	6.0	18.0	29.2	35.9	30.9	18.3	34.8	16.7	28.1
	Nagaland	0.0	0.0	0.0	0.0	1.0	3.3	7.2	17.1	30.9	47.9	43.9	35.4	39.1	37.3	16.0	10.5
	Pasighat	0.0	0.0	0.0	0.0	2.8	0.0	11.2	19.4	67.9	88.0	45.5	70.1	45.6	16.9	25.5	50.0
	Cachar district	0.0	0.0	0.0	0.0	0.7	1.5	9.1	33.5	41.6	49.1	45.5	43.9	30.7	33.3	33.1	12.5
	Dibrugarh district	0.0	0.0	0.0	0.0	0.0	0.3	2.9	1.1	9.9	14.3	16.8	13.8	20.8	13.6	12.0	9.1
	Kamrup urban	0.0	0.0	0.0	0.0	0.6	1.5	3.6	7.2	21.8	26.8	47.6	49.9	56.7	65.4	48.4	46.9

The incidence rate of cervical cancer increased with age and the rate was high in the 50-75+ age group

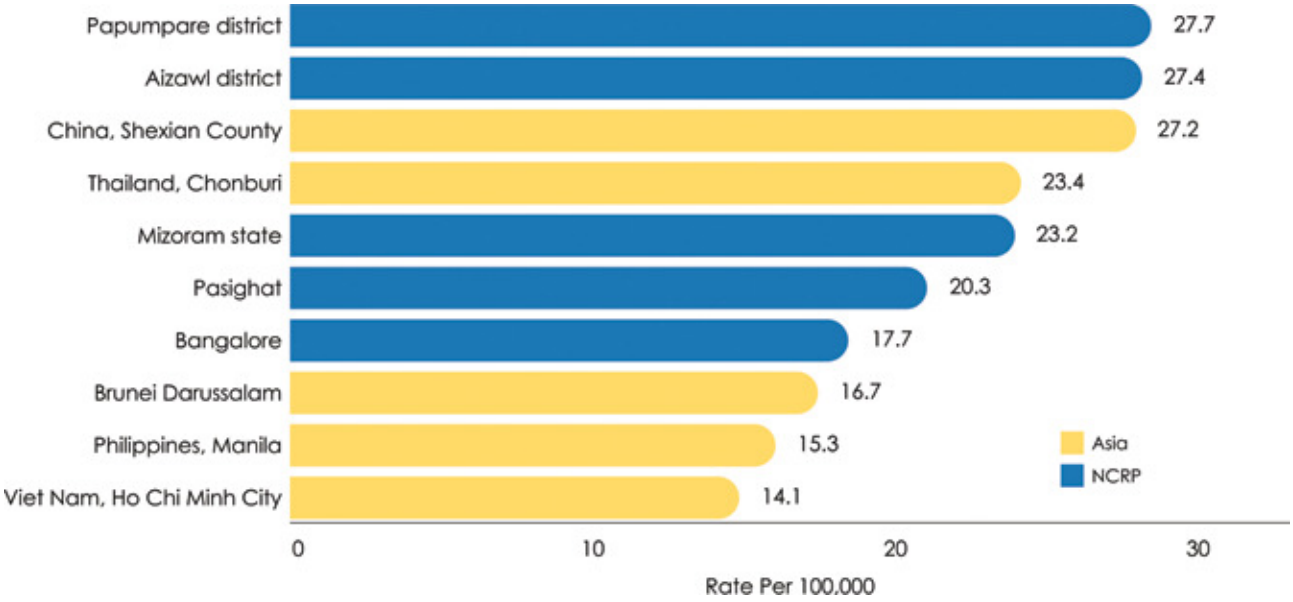
Fig. 8.2 Annual Percent Change (APC) in Age Adjusted Incidence Rates (AAR) over the Time Period - Cancer Cervix Uteri



*Increase in APC, Decrease in APC ; *Significant increase or decrease in APC at 95% confidence level*

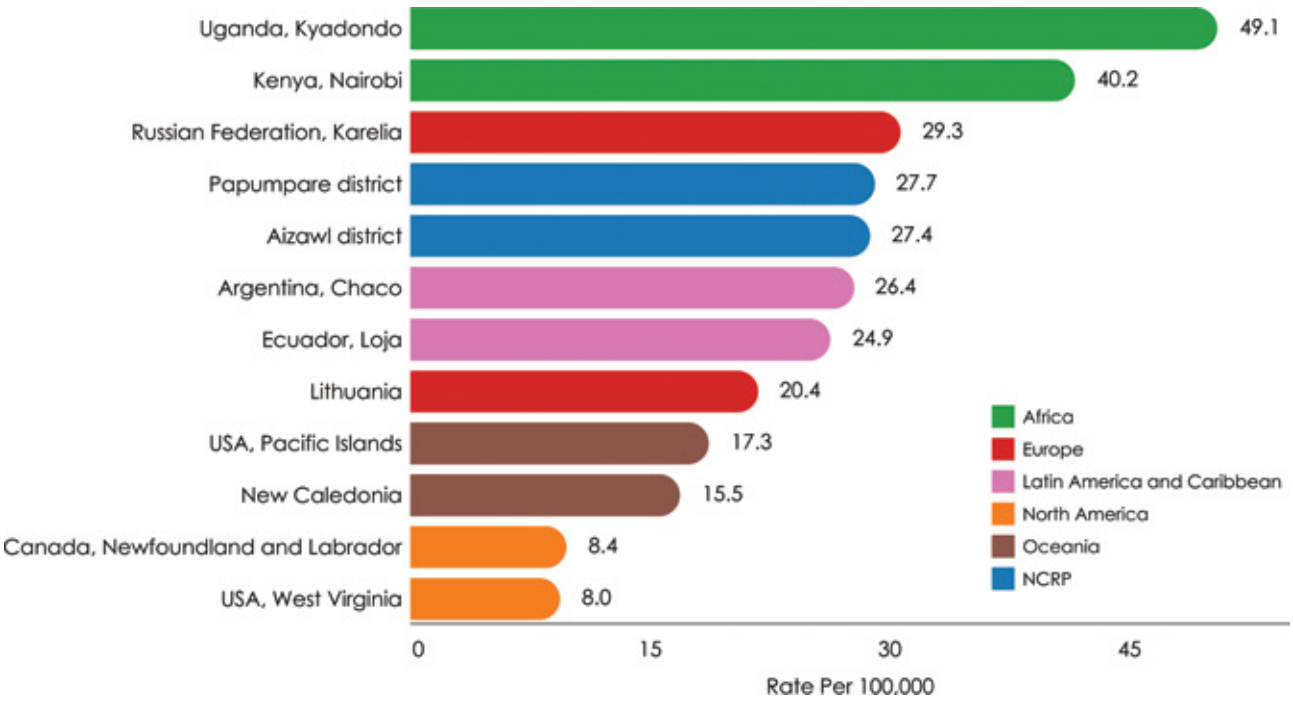
There was a significant decrease in the incidence rate of cervical cancer in 10 PBCRs except in Dibrugarh district and Pune where there was a decline but not significant.

Fig. 8.3 Comparison of Age Adjusted Incidence Rates (AAR) of Asian countries with PBCRs under NCRP - Cancer Cervix Uteri



Papumpare district, India has the highest incidence rate of cervical cancer (27.7 per 100,000) in Asia.

Fig. 8.4 Comparison of Age Adjusted Incidence Rates (AAR) of Non-Asian countries with PBCRs under NCRP - Cancer Cervix Uteri



Kyadondo in Uganda had the highest incidence rate of cervical cancer (49.1 per 100,000) in the world.

Table 8.2 Number (n) and Relative Proportion (%) according to Clinical Extent of Disease - Cancer Cervix Uteri

Clinical Extent of Disease	n	%
Localised only	7738	32.8
Locoregional	14162	60.0
Distant Metastasis	1196	5.1
Unknown	523	2.2
Total	**23619**	**100.0**

In 60.0% of the cancer cervix uteri patients, the clinical extent of disease was locoregional. It was localized in 32.8% of the cases. The distant metastasis of cancer cervix uteri was observed only in 5.1% of the patients.

Table 8.3 Number (n) and Relative Proportion (%) of Types of Treatment according to Clinical Extent of Disease - Cancer Cervix Uteri

Treatment	Clinical Extent of Disease							
	Localised only		Locoregional		Distant Metastasis		Unknown	
	n	%	n	%	n	%	n	%
Surgery	592	7.7	318	2.3	10	0.8	41	7.9
Radiotherapy	1935	25.1	4356	30.8	442	37.1	172	33.1
Radiotherapy + Chemotherapy	3842	49.8	8005	56.6	556	46.7	199	38.3
Systemic Therapy	340	4.4	689	4.9	133	11.2	57	11.0
Multi-modality*	995	12.9	682	4.8	42	3.5	46	8.9
Palliative Care	18	0.2	83	0.6	7	0.6	4	0.8
Total	**7722**	**100.0**	**14133**	**100.0**	**1190**	**100.0**	**519**	**100.0**

**Multi-modality includes the combination of Surgery and/or Radiotherapy and/or Systemic Therapy*

Higher proportion of patients with cancer cervix uteri underwent Radiotherapy plus Chemotherapy. Radiotherapy was the second most preferred treatment for cervical cancer (localized: 25.1%, locoregional: 30.8%, distant metastasis: 37.1% and unknown: 33.1%). Around 7.7% patients with clinically localized cancer cervix uteri were treated with surgery.

Table 8.4 Number (n) and Relative Proportion (%) by Educational Status - Cancer Cervix Uteri

Educational Status	n	%
Illiterate	9207	38.8
Literate	2337	9.8
Primary	3012	12.7
Secondary	3549	15.0
Higher Education	479	2.0
Unknown	5153	21.7
Total	**23737**	**100.0**

Educational status of Cancer cervix uteri patients indicated that 38.8% of the women were illiterate and only 9.8% were literate. 12.7% and 15.0% had primary and secondary school level of education, respectively.

Table 8.5 Number (n) and Relative Proportion (%) by Broad Histological Classification - Cancer Cervix Uteri

Broad Histological Classification	n	%
Epithelial Tumours	23373	99.5
Melanocytic tumours	16	0.5
Mesenchymal tumours and tumour-like lesions	8	
Mixed epithelial and mesenchymal tumours	22	
Malignant Lymphoma	3	
Others	71	
All Microscopic	**23493**	**100.0**

99.5% of cancer cervix uteri were histologically diagnosed as epithelial tumours.

9

Head & Neck Cancers

Head & Neck Cancers

Chapter 9 analyses the sites that are classified under Head and Neck Cancers as per the International Classification of Diseases (ICD-10).

The data of the PBCR has been analysed for cancers of the tongue (C01-C02), mouth (C03-C06), tonsil (C09), other oropharynx (C10), nasopharynx (C11), hypopharynx (C12-C13), pharynx unspecified (C14) and larynx (C32) and all of these sites of cancer together as head & neck cancers.

In case of HBCRs, the ICD10s have been regrouped to accommodate complete data on head and neck cancers into six sub-groups (tongue (C02), mouth (C03-C04, C06), oropharynx (C01, C05, C09, C10, C14), nasopharynx (C11), hypopharynx (C12-C13) and larynx (C32)). For the following reasons;

1. Oropharynx has been regrouped for analysis of HBCR data as this data focusses more on the treatment patterns followed in hospitals.
2. Also, the regrouping follows embryological development pattern where cancers of anterior two thirds of tongue (2/3) are grouped as tongue(C02). Cancers of posterior one third (1/3) of tongue (C01) while anatomically being part of tongue, histologically resemble cancers of oropharynx and hence are grouped along with them.

Each chapter has figures on the Annual Percent Change (APC) in Age Adjusted Rates (AAR), Comparison of AAR among PBCRs under NCRP with Asian countries, comparison of AAR among PBCRs under NCRP with Non-Asian countries, tables on distribution of cases according to clinical extent of disease and cross tables of the clinical extent of disease and the type of treatment received.

In case, the number of cases or rates are very small for an anatomical site of cancer, analysis of such sites have not been included in figures and tables in this chapter.

Table 9.1 Number of cases (n) registered for Head & Neck Cancers and its Relative Proportion to All Sites of Cancer (%), Crude (CR), Age Adjusted (AAR) and Truncated (TR) Incidence Rates per 100,000 population and its Rank in 28 PBCRs under NCRP

Males

Sl No	Registry	n	%	CR	AAR	TR	RANK
	NORTH						
1	Delhi	7416	23.9	26.8	34.4	67.3	10
2	Patiala district	897	16.6	16.9	18.1	40.7	24
	SOUTH						
3	Hyderabad district	1389	27.0	22.8	25.3	55.8	15
4	Kollam district	1801	18.1	28.9	22.6	41.8	20
5	Thi'puram district	2397	17.8	30.2	23.9	43.4	17
6	Bangalore	2248	17.0	16.5	20.6	37.6	21
7	Chennai	3701	25.6	31.2	29.1	58.9	12
	EAST						
8	Kolkata	2060	20.2	22.2	18.1	34.9	25
	WEST						
9	Ahmedabad urban	6129	42.0	37.5	39.2	89.1	7
10	Aurangabad	702	36.5	20.7	25.0	51.3	16
11	Osmanabad & Beed	1050	28.9	11.3	11.6	24.3	30
12	Barshi rural	149	20.5	11.1	10.6	20.2	32
13	Mumbai	5952	22.7	21.9	23.5	45.9	19
14	Pune	2312	23.9	16.1	19.0	37.1	22
	CENTRAL						
15	Wardha district	633	26.5	18.7	16.8	34.9	27
16	Bhopal	1380	38.7	32.2	37.4	79.9	8
17	Nagpur	1959	32.9	29.3	28.4	59.1	14
	NORTH EAST						
18	Manipur state	650	17.6	8.2	11.1	19.7	31
	Imphal West district	179	15.7	13.4	15.2	24.6	29
19	Mizoram state	686	15.9	23.2	31.4	75.2	11
	Aizawl district	384	17.6	36.3	45.6	107.2	5
20	Sikkim state	247	21.1	14.7	18.2	32.0	23
21	Tripura state	1920	29.3	19.6	23.8	45.9	18
22	West Arunachal	183	15.0	8.5	15.4	33.1	28
	Papumpare district	89	18.9	17.9	36.0	92.1	9
23	Meghalaya	1574	33.6	31.1	58.4	134.8	3
	East Khasi Hills district	1011	35.1	45.9	78.5	178.7	1
24	Nagaland	553	39.4	29.3	46.3	103.0	4
25	Pasighat	50	15.6	14.1	17.9	35.7	26
26	Cachar district	1595	34.2	33.9	44.8	87.2	6
27	Dibrugarh district	785	31.0	22.5	29.1	50.2	13
28	Kamrup urban	1857	29.8	56.9	62.4	112.0	2

Total number of cases (N) registered and reporting year of data for all sites is mentioned in Table 1.2

Females

Sl No	Registry	n	%	CR	AAR	TR	RANK
	NORTH						
1	Delhi	1724	5.9	7.1	8.7	16.4	15
2	Patiala district	229	3.8	4.8	4.7	9.9	29
	SOUTH						
3	Hyderabad district	455	7.1	7.7	9.6	20.4	11
4	Kollam district	656	6.7	9.3	6.7	10.6	21
5	Thi'puram district	723	5.1	8.5	6.2	9.4	25
6	Bangalore	1032	6.5	8.2	9.9	17.9	9
7	Chennai	1226	7.3	10.3	9.7	19.1	10
	EAST						
8	Kolkata	621	6.8	7.2	6.0	11.4	26
	WEST						
9	Ahmedabad urban	1279	11.6	8.7	8.8	19.5	14
10	Aurangabad	168	8.4	5.3	6.3	13.0	24
11	Osmanabad & Beed	309	6.9	3.7	3.4	7.4	31
12	Barshi rural	45	5.5	3.7	3.3	7.4	32
13	Mumbai	1921	7.0	8.1	8.1	15.3	18
14	Pune	790	7.3	6.1	6.9	13.0	20
	CENTRAL						
15	Wardha district	249	9.8	7.7	6.7	13.4	22
16	Bhopal	369	10.3	9.3	11.2	23.6	6
17	Nagpur	627	10.4	9.7	9.4	19.7	12
	NORTH EAST						
18	Manipur state	282	6.3	3.6	4.5	8.8	30
	Imphal West district	80	5.3	5.8	5.9	12.7	27
19	Mizoram state	192	5.1	6.5	9.0	17.2	13
	Aizawl district	98	5.2	9.0	11.1	22.7	8
20	Sikkim state	96	8.5	6.4	8.2	13.7	17
21	Tripura state	575	11.7	6.1	7.1	15.9	19
22	West Arunachal	71	6.1	3.4	6.4	15.2	23
	Papumpare district	47	8.9	9.4	21.7	50.7	1
23	Meghalaya	462	16.3	9.1	16.6	31.7	4
	East Khasi Hills district	263	15.2	11.7	18.7	35.4	3
24	Nagaland	146	14.7	8.2	11.3	28.9	7
25	Pasighat	13	4.3	3.8	4.8	14.1	28
26	Cachar district	515	13.1	11.3	14.8	33.1	5
27	Dibrugarh district	235	10.5	6.9	8.6	19.7	16
28	Kamrup urban	505	10.5	15.9	19.2	32.0	2

Total number of cases (N) registered and reporting year of data for all sites is mentioned in Table 1.2

East Khasi Hills district (78.5 per 100,000) in males had the highest incidence rate of head and neck cancers followed by Kamrup urban (62.4 per 100,000).

Papumpare district (21.7 per 100,000) in females had the highest incidence rate of head and neck cancers followed by Kamrup urban (19.2 per 100,000).

Fig. 9.1 Age Specific Incidence Rates per 100,000 in 28 PBCRs under NCRP
Head & Neck Cancers

Males

Region	Registry	Five Year Age Group															
		0-4	5-9	10-14	15-19	20-24	25-29	30-34	35-39	40-44	45-49	50-54	55-59	60-64	65-69	70-74	75+
NORTH	Delhi	0.0	0.3	0.1	0.2	1.9	4.7	12.1	21.4	36.0	47.0	75.9	113.9	156.0	184.4	183.9	151.5
	Patiala district	0.0	0.2	0.0	0.2	0.7	1.8	6.3	9.3	15.9	32.9	52.3	74.2	89.1	74.2	64.5	68.4
SOUTH	Hyderabad district	0.2	0.0	0.0	0.5	2.1	6.7	20.3	29.7	44.8	60.7	55.7	73.2	86.7	87.8	106.3	62.9
	Kollam district	0.0	0.0	0.2	0.4	0.0	1.0	3.8	8.8	18.0	31.4	52.4	67.3	103.5	141.0	128.5	122.1
	Thi'puram district	0.0	0.0	0.5	0.6	1.3	1.7	3.6	9.4	17.8	29.4	54.6	67.3	116.1	143.5	135.2	142.7
	Bangalore	0.1	0.4	0.3	0.7	1.0	1.8	3.9	7.4	15.4	23.2	47.4	72.9	90.3	128.7	111.6	111.8
	Chennai	0.1	0.2	0.4	0.9	1.1	4.2	10.9	24.0	37.6	50.3	71.6	85.8	113.4	138.3	129.5	144.0
EAST	Kolkata	0.0	0.0	0.1	0.3	1.3	3.9	9.5	12.1	21.3	29.1	47.1	53.1	64.5	89.9	86.9	91.7
WEST	Ahmedabad urban	0.1	0.1	0.1	0.6	2.7	6.3	24.2	52.1	64.5	87.1	102.2	110.0	147.2	145.4	141.3	105.3
	Aurangabad	0.0	0.3	0.6	0.6	0.9	4.4	18.7	23.9	38.0	51.1	62.8	63.7	85.9	124.4	105.3	76.9
	Osamanabad & Beed	0.0	0.1	0.0	0.0	0.8	3.4	9.5	15.4	24.2	21.1	21.9	32.0	37.9	51.0	34.6	48.0
	Barshi rural	0.0	0.0	0.0	0.0	0.0	0.9	5.7	9.5	13.6	12.0	20.8	34.1	43.6	59.6	63.9	41.0
	Mumbai	0.2	0.2	0.4	0.5	0.9	2.3	7.1	16.9	27.0	35.5	53.5	73.9	95.3	115.0	123.7	129.4
	Pune	0.0	0.0	0.1	0.4	0.6	1.5	4.8	14.1	22.9	35.1	39.0	58.9	72.1	95.2	108.0	100.5
CENTRAL	Wardha district	0.0	0.0	0.0	0.3	0.9	3.0	14.4	15.9	26.9	34.7	33.0	50.3	62.5	65.7	88.8	49.6
	Bhopal	0.0	0.0	0.0	0.2	3.8	9.0	26.8	44.4	45.3	60.6	100.0	121.1	147.5	134.4	175.9	123.8
	Nagpur	0.4	0.4	0.4	0.5	1.8	8.7	26.4	32.2	48.5	49.3	64.3	81.1	101.2	122.1	110.3	83.2
NORTH EAST	Manipur state	0.0	0.0	0.2	0.3	0.4	0.9	2.0	4.3	9.1	12.9	24.5	35.6	47.1	71.7	70.0	57.5
	Imphal West district	0.0	0.0	0.0	0.9	0.0	0.8	1.8	6.7	11.0	18.5	25.7	35.6	68.2	105.2	99.2	107.3
	Mizoram state	0.0	0.0	0.3	0.7	1.0	2.5	4.9	10.3	43.1	50.0	124.0	129.8	144.4	115.7	105.7	88.7
	Aizawl district	0.0	0.0	1.0	0.9	2.7	4.8	8.6	13.3	57.6	62.6	198.4	179.2	203.4	151.8	185.2	139.7
	Sikkim state	0.0	0.0	0.0	0.0	1.6	1.6	4.5	12.2	12.0	20.8	39.9	49.2	81.7	81.6	97.0	169.0
	Tripura state	0.1	0.2	0.2	0.5	0.3	0.8	3.6	7.2	13.3	33.0	56.1	87.1	118.0	131.6	134.5	127.1
	West Arunachal	0.0	0.0	0.7	0.8	2.3	1.0	3.1	7.0	13.3	20.6	42.5	64.9	76.8	100.2	55.0	21.0
	Papumpare district	0.0	0.0	0.0	3.2	3.4	0.0	2.7	21.3	28.0	35.4	127.0	177.7	250.4	146.1	119.0	0.0
	Meghalaya	0.0	0.0	0.5	0.7	0.8	4.6	14.8	40.4	74.5	136.4	177.6	206.1	239.5	229.3	232.3	182.9
	East Khasi Hills district	0.0	0.0	0.0	0.0	0.9	4.8	21.7	55.8	91.5	180.2	248.2	265.9	317.6	329.2	356.2	215.2
	Nagaland	0.0	0.0	0.0	0.0	0.5	8.2	17.4	24.0	50.3	106.4	139.8	175.3	176.6	210.1	230.5	88.1
	Pasighat	0.0	0.0	0.0	0.0	0.0	0.0	22.6	12.5	0.0	60.1	38.3	35.4	84.6	64.3	112.0	66.8
	Cachar district	0.0	0.0	0.0	0.0	1.6	2.5	6.3	17.5	30.4	75.2	101.5	162.0	202.3	255.2	243.7	226.0
	Dibrugarh district	0.0	0.0	0.0	0.0	0.6	0.9	2.1	12.9	15.5	42.0	66.5	74.3	126.0	176.1	207.1	192.1
	Kamrup urban	0.0	0.0	0.4	0.7	1.6	3.6	9.5	20.9	46.9	82.8	127.6	222.9	260.0	327.7	408.0	427.7

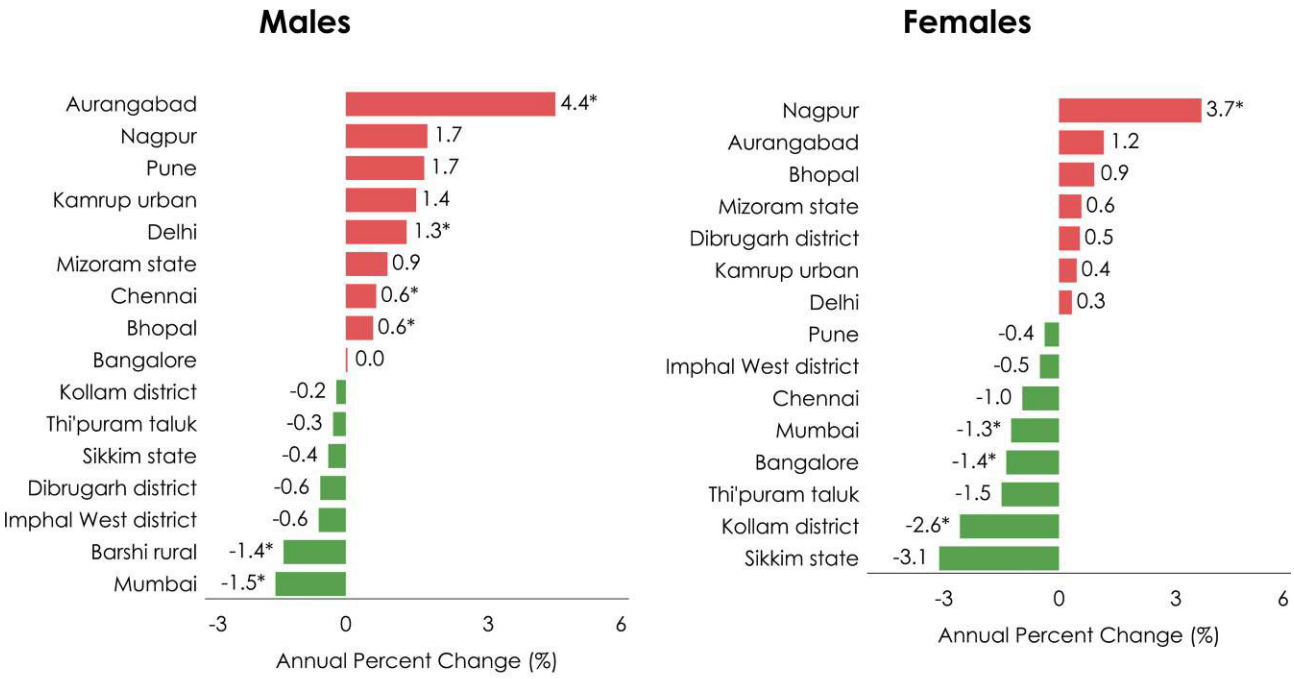
0.0 427.7

Females

Region	Registry	Five Year Age Group															
		0-4	5-9	10-14	15-19	20-24	25-29	30-34	35-39	40-44	45-49	50-54	55-59	60-64	65-69	70-74	75+
NORTH	Delhi	0.1	0.0	0.1	0.2	0.8	1.4	2.5	5.0	6.5	10.4	21.5	28.2	39.2	37.0	42.6	62.6
	Patiala district	0.0	0.0	0.0	0.0	0.0	0.4	1.3	3.1	4.2	12.9	12.4	8.9	22.4	22.5	19.9	22.1
SOUTH	Hyderabad district	0.0	0.2	0.0	0.4	0.6	1.5	2.8	5.8	12.0	20.3	20.9	35.2	39.9	44.8	48.5	29.3
	Kollam district	0.0	0.0	0.2	0.2	0.8	0.8	0.4	2.0	4.4	6.5	11.5	18.3	30.0	38.3	41.6	62.2
	Thi'puram district	0.0	0.0	0.3	0.2	0.1	0.9	0.9	1.9	3.3	6.8	9.4	19.4	23.8	43.9	43.5	44.7
	Bangalore	0.0	0.3	0.2	0.3	0.6	0.8	2.3	3.6	6.8	15.7	23.0	28.2	42.7	49.1	69.2	59.2
	Chennai	0.5	0.0	0.5	0.0	0.3	0.9	1.9	4.7	12.1	17.0	21.2	29.7	40.9	44.6	50.3	54.9
EAST	Kolkata	0.0	0.0	0.2	0.1	0.6	2.1	1.3	3.8	5.1	10.1	17.0	19.9	18.8	30.5	28.7	32.1
WEST	Ahmedabad urban	0.0	0.1	0.1	0.2	0.5	2.0	3.6	8.5	13.3	18.9	24.5	25.4	33.9	37.1	30.4	27.6
	Aurangabad	0.0	0.0	0.0	0.3	0.8	0.3	3.8	6.4	4.9	16.5	19.2	16.5	18.4	35.6	26.8	15.7
	Osamanabad & Beed	0.0	0.0	0.0	0.1	0.1	0.0	1.5	2.7	5.5	7.1	9.1	8.5	14.8	14.6	17.9	7.5
	Barshi rural	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.2	5.3	6.4	9.5	11.2	14.8	20.0	11.4	10.6
	Mumbai	0.3	0.1	0.1	0.3	0.4	1.1	2.1	4.5	9.1	14.7	16.8	22.4	32.3	40.6	43.9	49.4
	Pune	0.0	0.0	0.2	0.0	0.3	0.8	1.7	2.6	6.2	10.7	17.8	21.6	27.3	38.6	41.1	36.1
CENTRAL	Wardha district	0.0	0.0	0.0	1.1	1.0	1.1	3.5	6.2	8.8	9.9	17.3	18.7	26.2	37.7	27.7	19.7
	Bhopal	0.0	0.0	0.0	0.2	0.2	1.5	5.1	6.2	13.0	24.9	32.4	33.0	43.1	50.1	62.3	32.7
	Nagpur	0.0	0.2	0.0	0.7	1.2	1.7	3.7	6.6	16.0	19.5	26.2	26.8	30.0	41.0	37.2	36.5
NORTH EAST	Manipur state	0.0	0.0	0.0	0.4	0.3	0.5	2.4	2.9	3.5	6.7	14.2	12.9	18.0	20.2	25.5	21.3
	Imphal West district	0.0	0.0	0.0	1.9	0.8	0.7	1.6	1.7	8.3	9.6	16.4	16.1	32.2	17.4	23.7	31.4
	Mizoram state	0.0	0.0	0.0	0.0	1.3	1.1	0.4	6.7	9.8	12.8	24.4	27.8	30.6	58.6	30.9	56.4
	Aizawl district	0.0	0.0	0.0	0.0	0.0	0.9	0.0	10.1	14.2	21.9	25.9	22.8	51.6	50.6	29.7	91.6
	Sikkim state	0.0	0.0	0.0	0.6	1.7	1.2	3.1	7.3	5.5	10.8	19.7	27.8	18.0	29.1	60.2	68.5
	Tripura state	0.0	0.1	0.1	0.3	0.2	0.8	1.9	5.6	6.1	10.4	17.9	29.5	38.0	25.0	34.3	24.0
	West Arunachal	0.0	0.0	0.0	0.0	0.9	1.1	1.3	5.4	3.4	15.0	13.6	21.7	43.0	11.1	24.5	34.7
	Papumpare district	0.0	0.0	0.0	0.0	3.2	0.0	5.1	16.8	13.6	35.3	43.8	93.7	145.6	36.8	51.5	164.0
	Meghalaya	0.0	0.0	0.2	0.0	0.4	1.2	0.9	6.4	15.2	25.4	50.9	45.9	65.3	85.6	112.2	88.9
	East Khasi Hills district	0.0	0.0	0.0	0.0	0.4	0.5	1.2	6.7	18.9	25.2	54.5	50.1	80.3	101.3	117.0	109.5
	Nagaland	0.0	0.0	0.0	0.5	1.9	6.0	9.1	18.6	21.6	32.0	38.1	32.4	35.2	21.3	16.0	5.3
	Pasighat	0.0	0.0	0.0	0.0	2.8	0.0	3.7	3.9	9.7	17.6	0.0	28.0	34.2	0.0	0.0	0.0
	Cachar district	0.0	0.0	0.0	0.2	0.7	1.2	7.0	9.6	17.7	27.1	43.8	54.7	66.3	62.8	62.8	37.5
	Dibrugarh district	0.0	0.0	0.3	0.3	0.3	0.0	1.1	6.3	9.0	16.7	23.8	30.5	44.7	40.8	33.7	22.7
	Kamrup urban	0.0	0.5	0.0	0.7	0.6	3.5	3.3	6.9	11.3	26.4	40.6	58.8	71.9	106.0	150.4	123.5

In males, the cancer incidence rates for head and neck cancer increased from the age of 30 to 75+ whereas in females it started to increase from the age of 35.

Fig. 9.2 Annual Percent Change (APC) in Age Adjusted Incidence Rates (AAR) over the Time Period - Head & Neck Cancers



*Increase in APC, Decrease in APC ; *Significant increase or decrease in APC at 95% confidence level*

Among males significant increase in incidence rates for head & neck cancers was observed in Aurangabad, Delhi, Chennai and Bhopal PBCRs, and among females it was observed in Nagpur PBCR.

Among males, there was a significant decrease in incidence rates in Barshi rural and Mumbai. Among females, the significant decrease was observed in Bangalore, Mumbai and Kollam district PBCRs.

Table 9.2 Number (n) and Relative Proportion (%) of Cases Registered by Five Year Age Group - Head & Neck Cancers

Males

Age Group	Tongue (C02)		Mouth (C03-C04,C06)		Oropharynx (C01, C05, C09, C10, C14)		Nasopharynx (C11)		Hypopharynx (C12-C13)		Larynx (C32)		Total
	n	%	n	%	n	%	n	%	n	%	n	%	n
00-04	2	<0.1	4	<0.1	2	<0.1	3	0.2	1	<0.1	1	<0.1	13
05-09	4	<0.1	4	<0.1	1	<0.1	19	1.4	1	<0.1	3	<0.1	32
10-14	1	<0.1	2	<0.1	2	<0.1	75	5.6	-	-	2	<0.1	82
15-19	11	0.1	15	0.1	10	0.1	108	8.0	2	<0.1	2	<0.1	148
20-24	70	0.8	90	0.5	26	0.2	79	5.9	10	0.1	11	0.1	286
25-29	320	3.7	406	2.5	48	0.4	53	3.9	27	0.4	18	0.2	872
30-34	686	7.9	1071	6.5	138	1.3	58	4.3	60	0.9	49	0.6	2062
35-39	1042	11.9	1714	10.4	362	3.3	71	5.3	180	2.6	122	1.6	3491
40-44	1087	12.5	2078	12.7	667	6.1	131	9.7	340	4.9	332	4.3	4635
45-49	1163	13.3	2235	13.6	1145	10.5	133	9.9	613	8.9	624	8.1	5913
50-54	1107	12.7	2244	13.7	1644	15.1	167	12.4	959	13.9	1058	13.8	7179
55-59	989	11.3	1997	12.2	1839	16.9	135	10.0	1171	17.0	1361	17.7	7492
60-64	909	10.4	1870	11.4	1961	18.0	124	9.2	1223	17.7	1511	19.7	7598
65-69	646	7.4	1269	7.7	1424	13.1	82	6.1	990	14.3	1152	15.0	5563
70-74	364	4.2	754	4.6	918	8.4	65	4.8	724	10.5	789	10.3	3614
75+	325	3.7	665	4.0	676	6.2	43	3.2	602	8.7	645	8.4	2956
Unknown	-	-	2	<0.1	3	<0.1	-	-	1	<0.1	-	-	6
Total	**8726**	**100.0**	**16420**	**100.0**	**10866**	**100.0**	**1346**	**100.0**	**6904**	**100.0**	**7680**	**100.0**	**51942**

Females

Age Group	Tongue (C02)		Mouth (C03-C04, C06)		Oropharynx (C01, C05, C09, C10, C14)		Nasopharynx (C11)		Hypopharynx (C12-C13)		Larynx (C32)		Total
	n	%	n	%	n	%	n	%	n	%	n	%	n
00-04	-	-	2	<0.1	-	-	3	0.5	-	-	-	-	5
05-09	2	0.1	2	<0.1	-	-	3	0.5	-	-	1	0.1	8
10-14	-	-	1	<0.1	1	0.1	16	2.8	-	-	1	0.1	19
15-19	8	0.3	12	0.2	5	0.3	34	6.0	4	0.3	1	0.1	64
20-24	20	0.7	28	0.4	11	0.6	49	8.7	13	0.8	12	1.5	133
25-29	63	2.1	70	1.1	23	1.3	28	5.0	35	2.2	12	1.5	231
30-34	113	3.7	170	2.7	43	2.4	32	5.7	67	4.3	20	2.4	445
35-39	215	7.1	373	5.9	92	5.2	45	8.0	113	7.2	36	4.4	874
40-44	273	9.1	516	8.2	136	7.6	54	9.6	173	11.1	53	6.5	1205
45-49	428	14.2	799	12.7	213	12.0	68	12.1	231	14.8	76	9.3	1815
50-54	443	14.7	803	12.7	223	12.5	77	13.7	243	15.6	105	12.9	1894
55-59	390	12.9	816	13.0	248	13.9	50	8.9	207	13.3	127	15.5	1838
60-64	404	13.4	942	15.0	311	17.5	45	8.0	192	12.3	148	18.1	2042
65-69	314	10.4	734	11.6	204	11.4	28	5.0	137	8.8	106	13.0	1523
70-74	166	5.5	498	7.9	150	8.4	11	2.0	74	4.7	61	7.5	960
75+	176	5.8	533	8.5	122	6.8	20	3.6	73	4.7	58	7.1	982
Unknown	-	-	2	<0.1	-	-	-	-	-	-	-	-	2
Total	**3015**	**100.0**	**6301**	**100.0**	**1782**	**100.0**	**563**	**100.0**	**1562**	**100.0**	**817**	**100.0**	**14040**

Among the cancers of head and neck reported, the highest numbers were that of mouth cancer followed by oropharynx in males. Mouth contributed 1/3rd of the total head and neck cancers.

Among females, cancer of the mouth was the highest contributor followed by tongue.

Table 9.3 Number (n) and Relative Proportion (%) of Cases registered According to Types of Treatment for Head and Neck Cancers

Males

Treatment	Tongue (C02)		Mouth (C03-C04,C06)		Oropharynx (C01, C05, C09, C10, C14)		Nasopharynx (C11)		Hypopharynx (C12-C13)		Larynx (C32)	
	n	%	n	%	n	%	n	%	n	%	n	%
Surgery	1999	22.9	3119	19.0	273	2.5	15	1.1	193	2.8	574	7.5
Radiotherapy	929	10.7	2194	13.4	4138	38.1	177	13.2	2547	37.0	3232	42.1
Systemic Therapy	1116	12.8	2301	14.0	988	9.1	162	12.1	423	6.1	464	6.0
Multi-modality*	4613	52.9	8641	52.7	5385	49.6	980	72.9	3712	53.9	3370	43.9
Palliative Care	59	0.7	138	0.8	63	0.6	10	0.7	18	0.3	35	0.5
Total	**8716**	**100.0**	**16393**	**100.0**	**10847**	**100.0**	**1344**	**100.0**	**6893**	**100.0**	**7675**	**100.0**

Females

Treatment	Tongue (C02)		Mouth (C03-C04, C06)		Oropharynx (C01, C05, C09, C10, C14)		Nasopharynx (C11)		Hypopharynx (C12-C13)		Larynx (C32)	
	n	%	n	%	n	%	n	%	n	%	n	%
Surgery	831	27.6	1185	18.8	121	6.8	5	0.9	48	3.1	56	6.9
Radiotherapy	332	11.0	1115	17.7	654	36.8	79	14.1	571	36.6	372	45.6
Systemic Therapy	403	13.4	1008	16.0	167	9.4	82	14.6	100	6.4	67	8.2
Multi-modality*	1432	47.5	2918	46.4	829	46.6	394	70.1	836	53.6	317	38.9
Palliative Care	14	0.5	66	1.0	8	0.4	2	0.4	6	0.4	3	0.4
Total	**3012**	**100.0**	**6292**	**100.0**	**1779**	**100.0**	**562**	**100.0**	**1561**	**100.0**	**815**	**100.0**

*Multi-modality includes the combination of Surgery and/or Radiotherapy and/or Systemic Therapy

Multi-modality was the commonest type of treatment for all the cancers in both genders except for cancer larynx in females.

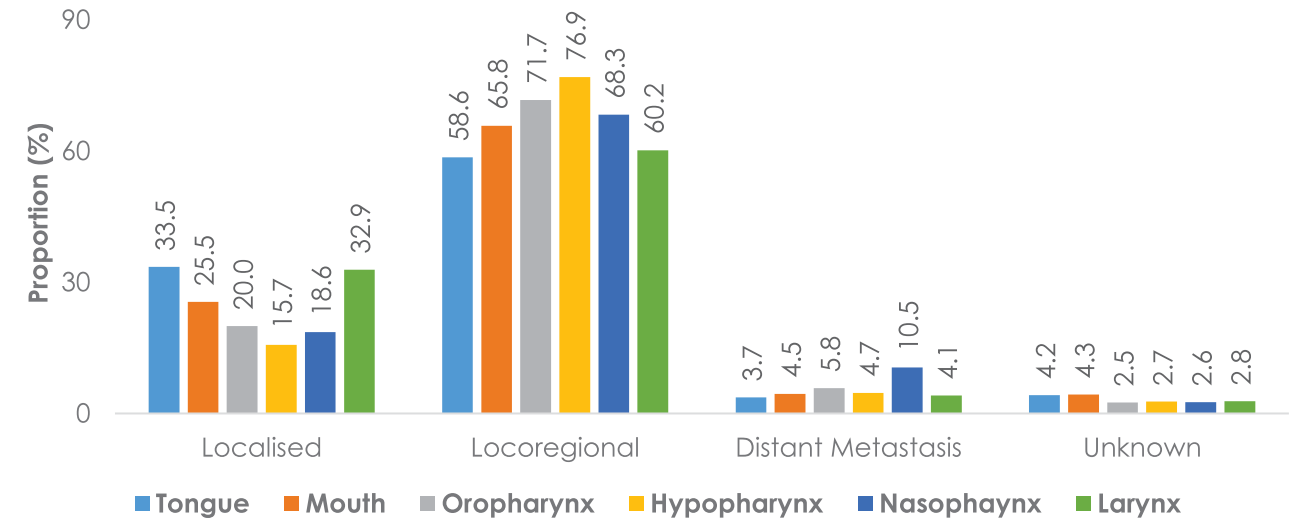
Table 9.4 Number (n) and Relative Proportion (%) by Educational Status - Head & Neck Cancers

Educational Status	Males		Females	
	n	%	n	%
Illiterate	9739	18.7	5367	38.2
Literate	4538	8.7	1366	9.7
Primary	8245	15.9	1948	13.9
Secondary	14752	28.4	2087	14.9
Higher Education	3538	6.8	527	3.8
Unknown	11122	21.4	2743	19.5
Not Applicable (for children below 5 Years)	8	<0.1	2	<0.1
Total	**51942**	**100.0**	**14040**	**100.0**

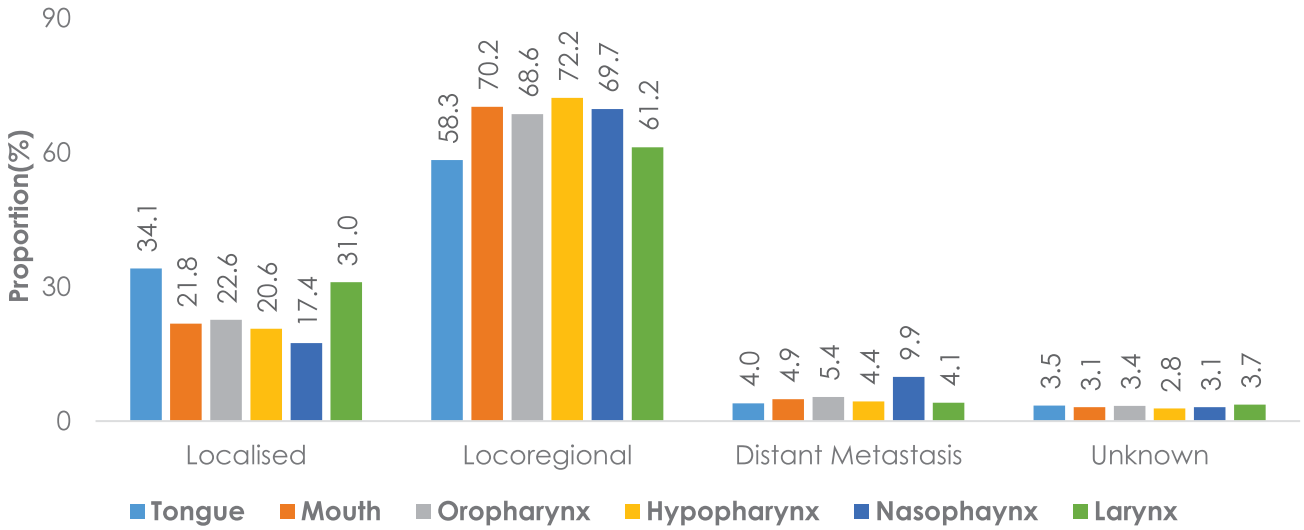
Educational status indicated that higher proportion of females (38.2%) were illiterate compared to males (18.7%). 28.4% and 14.9% of males and females got secondary level of education, respectively.

Fig. 9.3 Relative Proportion (%) of Clinical Extent of Disease - Head & Neck Cancers

Males



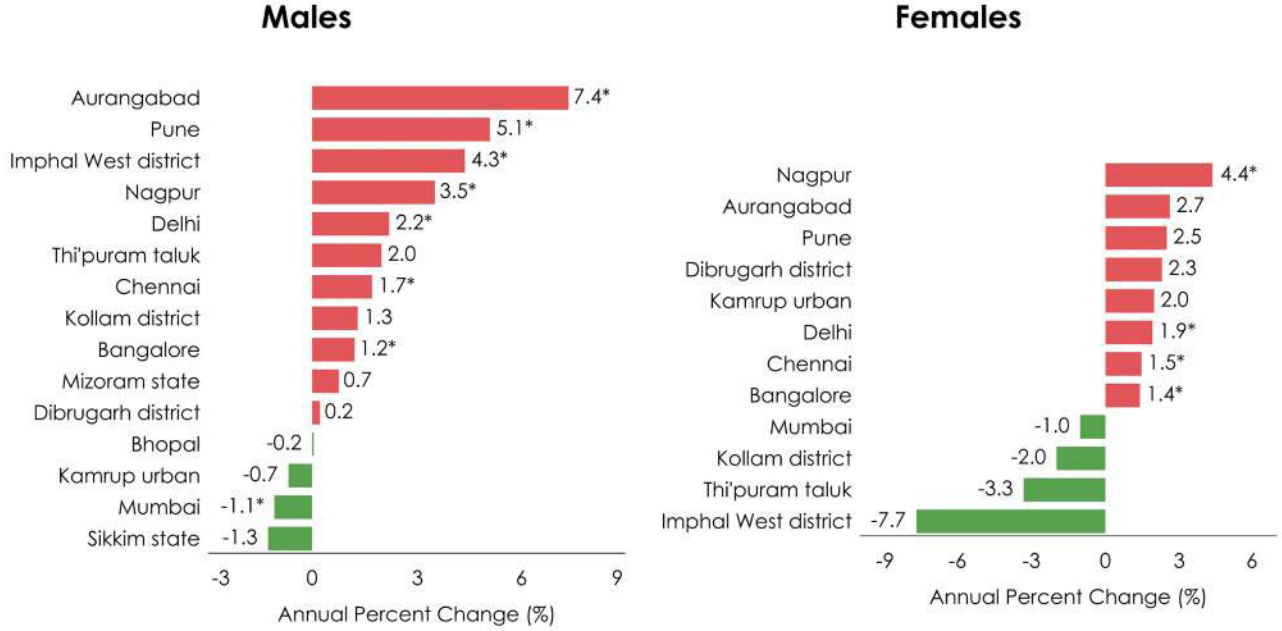
Females



Among the cancers of head and neck reported, "locoregional" was the commonest presentation of clinical extent of disease for all the cancer sites. The highest proportion was for hypopharynx cancer (males 76.9% and females 72.2%).

9.1 Cancer Tongue (ICD-10: C01-C02)

Fig. 9.1.1 Annual Percent Change (APC) in Age Adjusted Incidence Rates (AAR) over the Time Period - Cancer Tongue

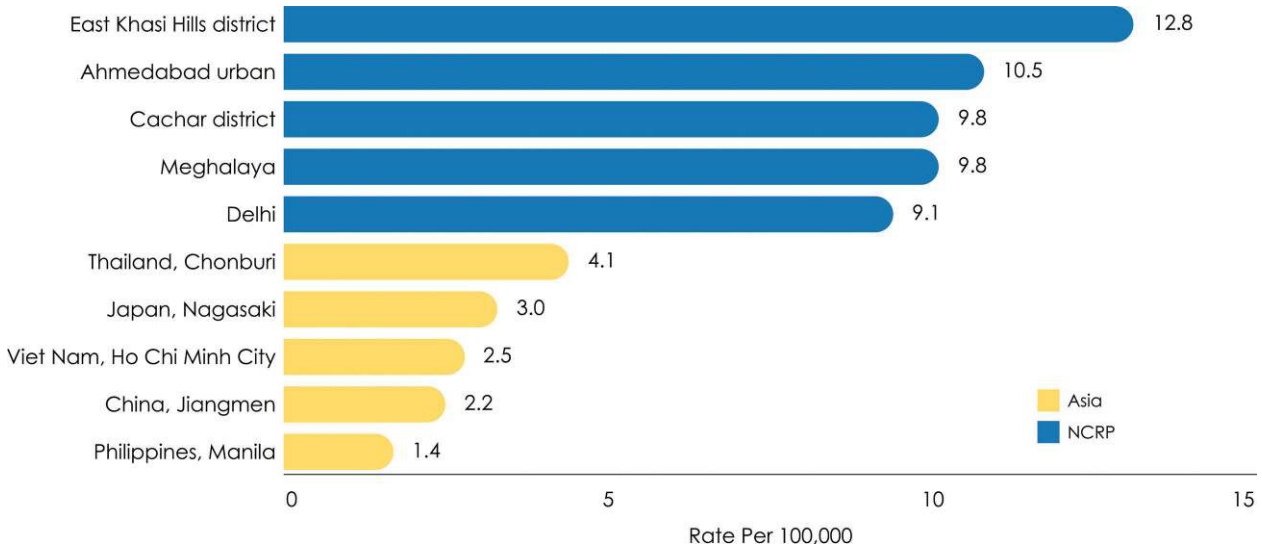


*Increase in APC, Decrease in APC ; *Significant increase or decrease in APC at 95% confidence level*

There was a significant increase in cancer incidence of tongue in Nagpur, Delhi, Chennai and Bangalore both in males and females.

Fig. 9.1.2 Comparison of Age Adjusted Incidence Rates (AAR) of Asian Countries with PBCRs under NCRP- Cancer Tongue

Males



Females

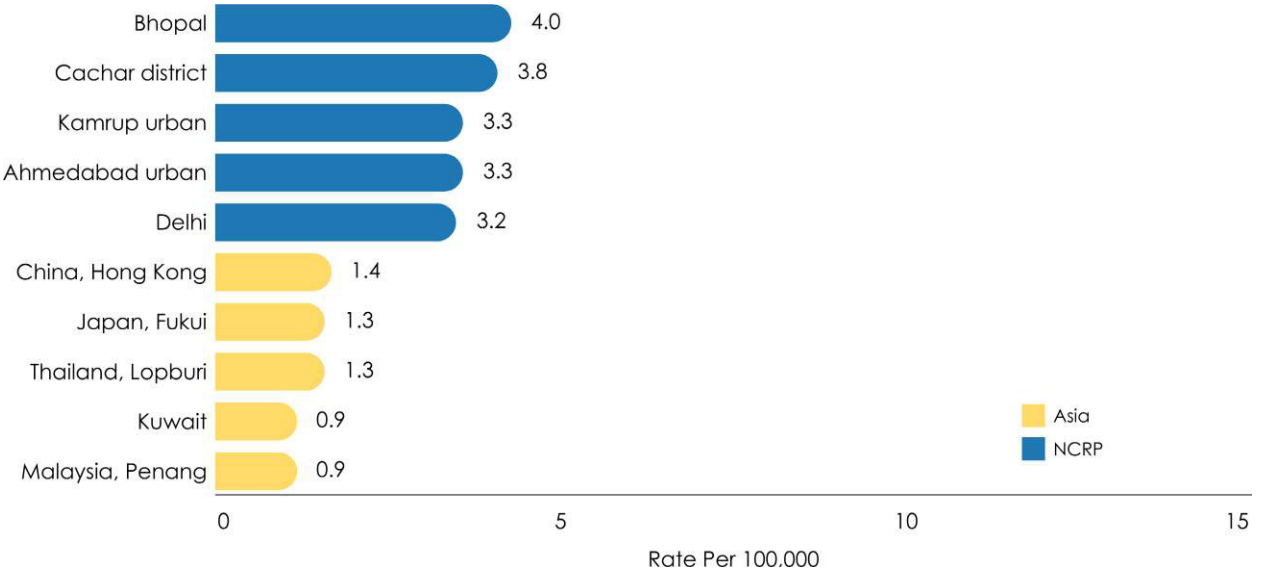
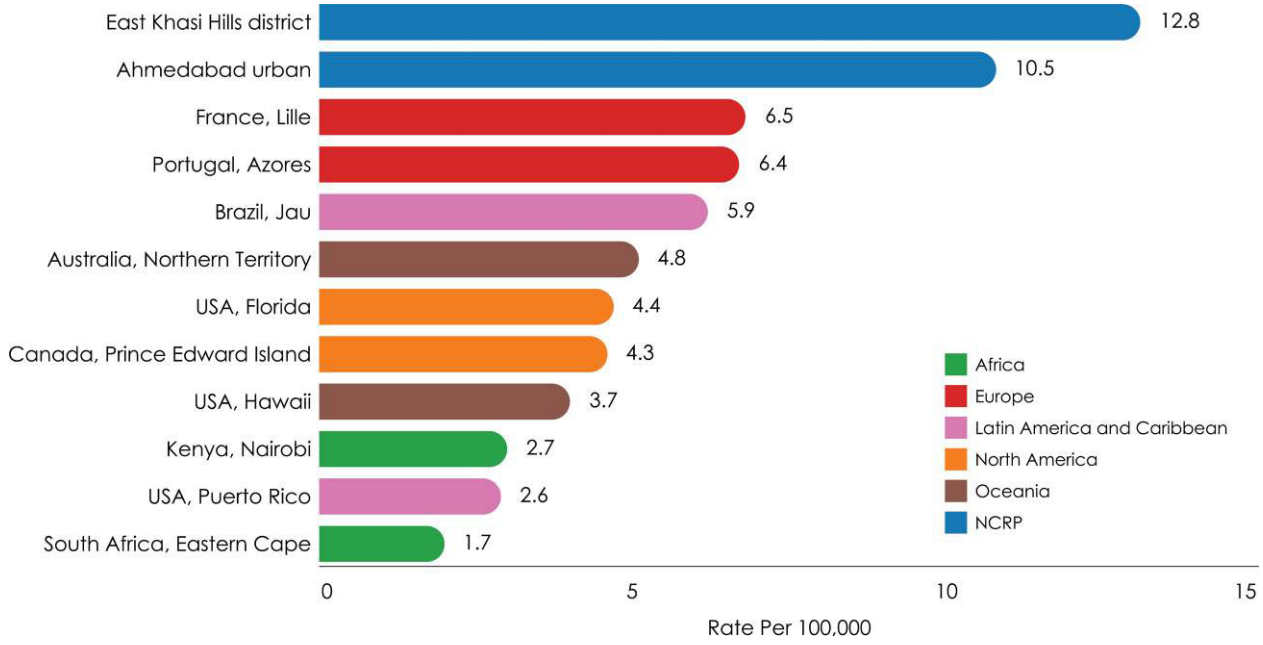
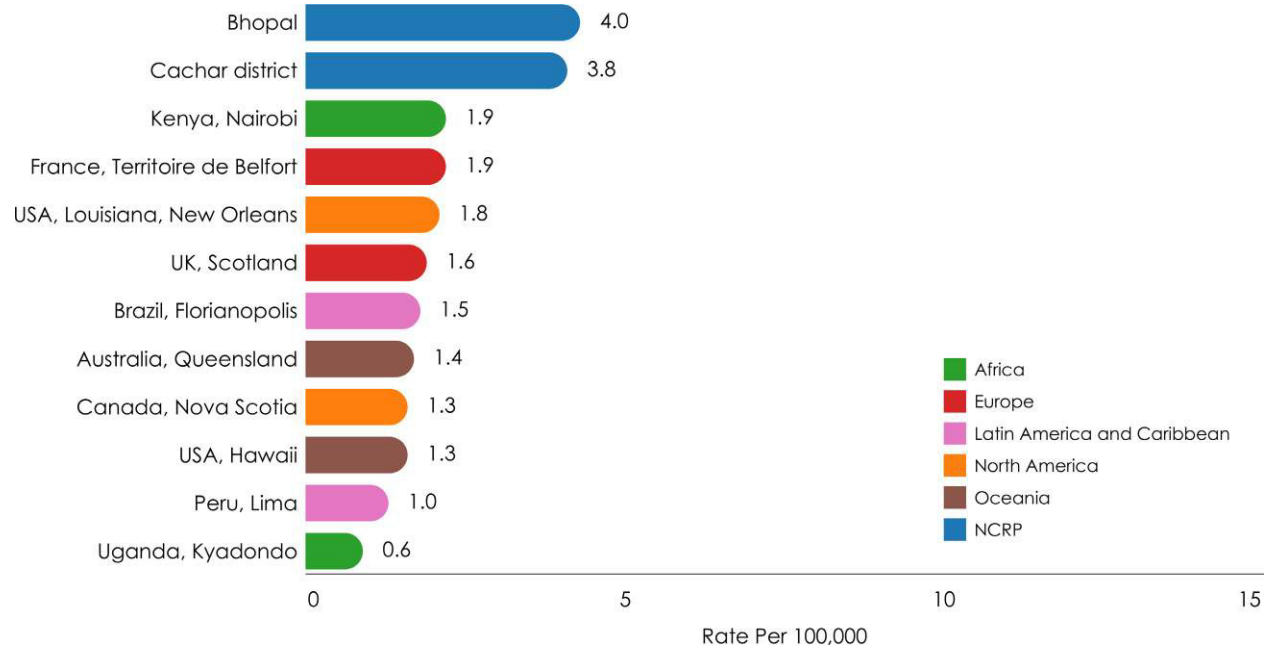


Fig. 9.1.3 Comparison of Age Adjusted Incidence Rates (AAR) of Non-Asian Countries with PBCRs under NCRP- Cancer Tongue

Males



Females



East Khasi Hills district (12.8 per 100,000) followed by Ahmedabad urban (10.5 per 100,000) had the highest incidence rate in the world among males for tongue cancer. Among females, Bhopal (4.0 per 100,000) followed by Cachar district (3.8 per 100,000) had the highest incidence rate in the world.

Table 9.1.1 Number (n) and Relative Proportion (%) according to Clinical Extent of Disease - Cancer Tongue

Clinical Extent of Disease	Males		Females		Both Sexes	
	n	%	n	%	n	%
Localised only	2910	33.5	1024	34.1	3934	33.7
Locoregional	5088	58.6	1750	58.3	6838	58.5
Distant Metastasis	325	3.7	120	4.0	445	3.8
Unknown	366	4.2	106	3.5	472	4.0
Total	**8689**	**100.0**	**3000**	**100.0**	**11689**	**100.0**

Locoregional was the commonest presentation for cancer tongue (males 58.6% and females 58.3%). Males and females showed similar clinical extent of disease for cancer tongue.

Table 9.1.2 Number (n) and Relative Proportion (%) of Types of Treatment according to Clinical Extent of Disease - Cancer Tongue

Males

Treatment	Clinical Extent of Disease							
	Localised only		Locoregional		Distant Metastasis		Unknown	
	n	%	n	%	n	%	n	%
Surgery	1165	40.1	718	14.1	13	4.0	95	26.0
Radiotherapy	201	6.9	614	12.1	59	18.2	51	13.9
Systemic Therapy	245	8.4	721	14.2	84	25.8	60	16.4
Multi-modality*	1287	44.3	2985	58.8	166	51.1	157	42.9
Palliative Care	10	0.3	42	0.8	3	0.9	3	0.8
Total	**2908**	**100.0**	**5080**	**100.0**	**325**	**100.0**	**366**	**100.0**

Females

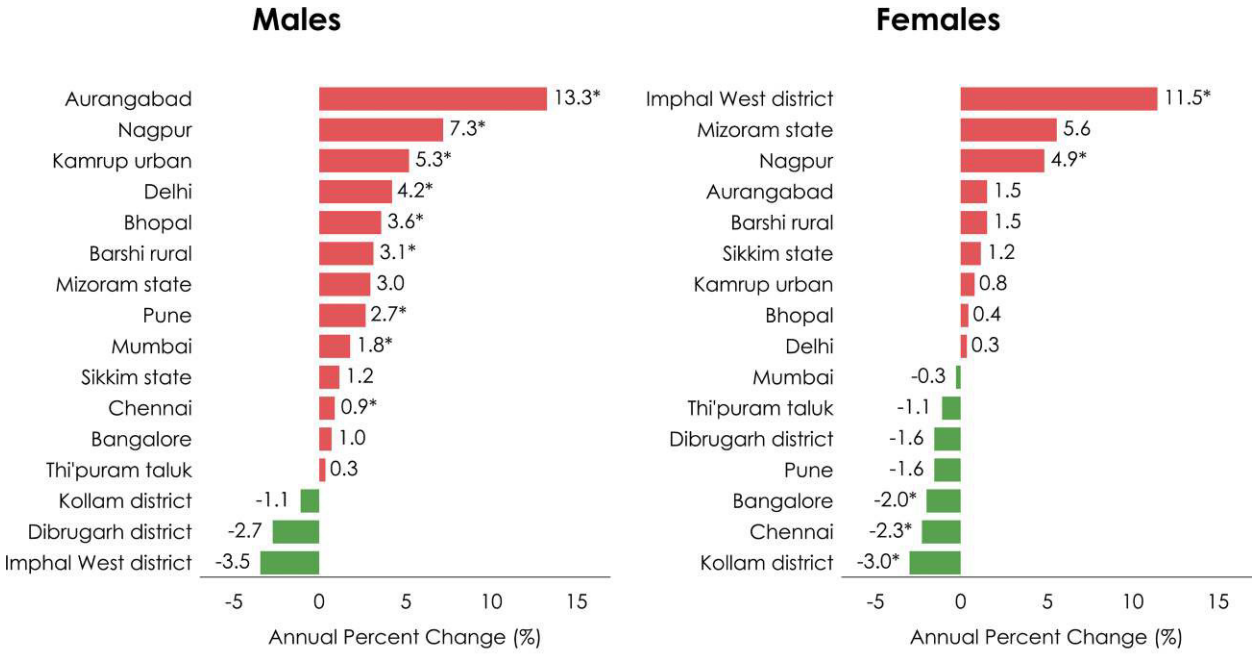
Treatment	Clinical Extent of Disease							
	Localised only		Locoregional		Distant Metastasis		Unknown	
	n	%	n	%	n	%	n	%
Surgery	497	48.6	286	16.4	8	6.7	39	36.8
Radiotherapy	62	6.1	233	13.3	22	18.3	12	11.3
Systemic Therapy	70	6.8	280	16.0	33	27.5	18	17.0
Multi-modality*	388	37.9	942	53.9	57	47.5	37	34.9
Palliative Care	6	0.6	7	0.4	-	-	-	-
Total	**1023**	**100.0**	**1748**	**100.0**	**120**	**100.0**	**106**	**100.0**

**Multi-modality includes the combination of Surgery and/or Radiotherapy and/or Systemic Therapy*

On the basis of extent of disease, multi-modality was the treatment of choice for cancer tongue among both males and females for locoregional and distant metastatic spread. Surgery was the preferred among females where the clinical extent of cancer was localised.

9.2 Cancer Mouth (ICD-10: C03-C06)

Fig. 9.2.1 Annual Percent Change (APC) in Age Adjusted Incidence Rates (AAR) over the Time Period - Cancer Mouth

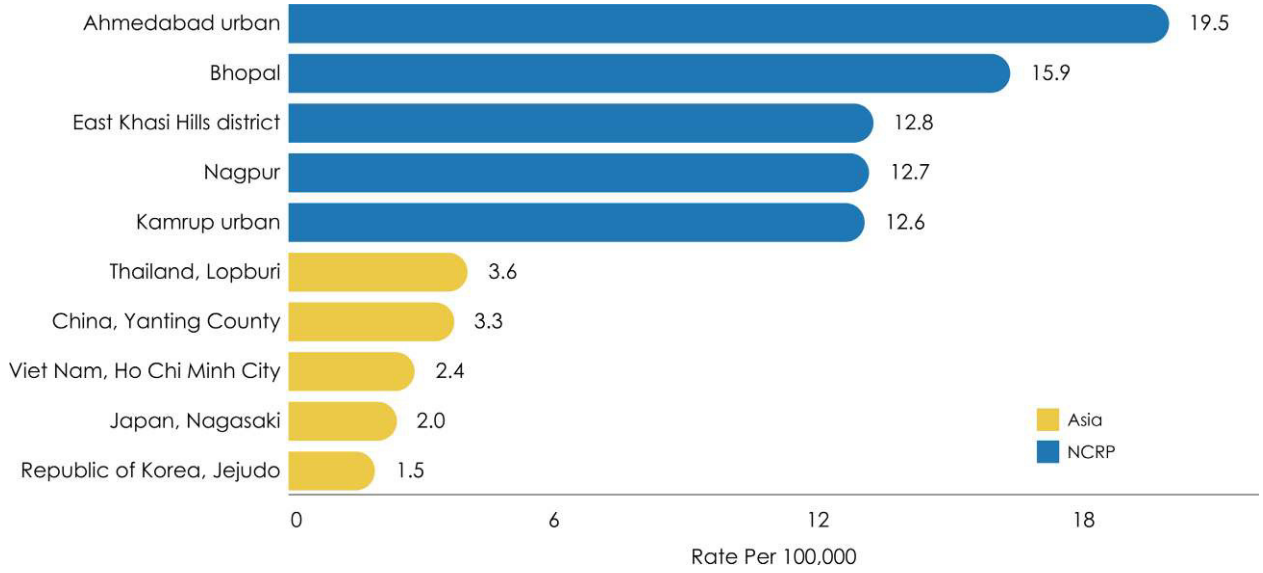


*Increase in APC, Decrease in APC ; *Significant increase or decrease in APC at 95% confidence level*

There was a significant increase in the incidence rates for mouth cancer in 9 PBCRs in males and in 2 PBCRs in females. There was a significant decrease in rates in Bangalore, Chennai and Kollam district among females.

Fig. 9.2.2 Comparison of Age Adjusted Incidence Rates (AAR) of Asian countries with PBCRs under NCRP- Cancer Mouth

Males



Females

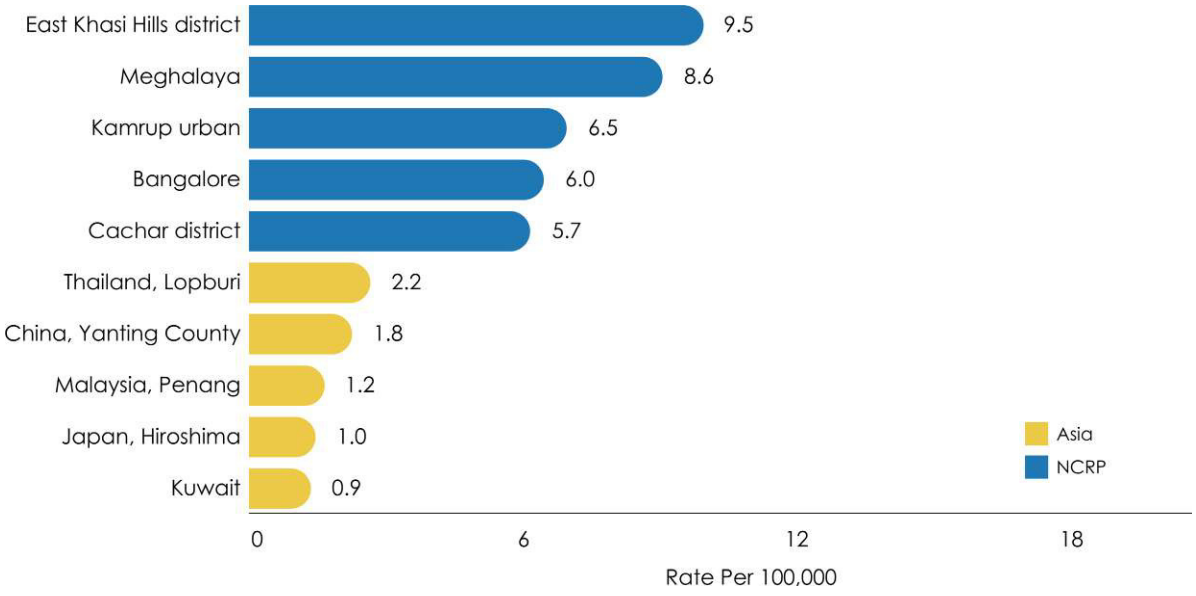
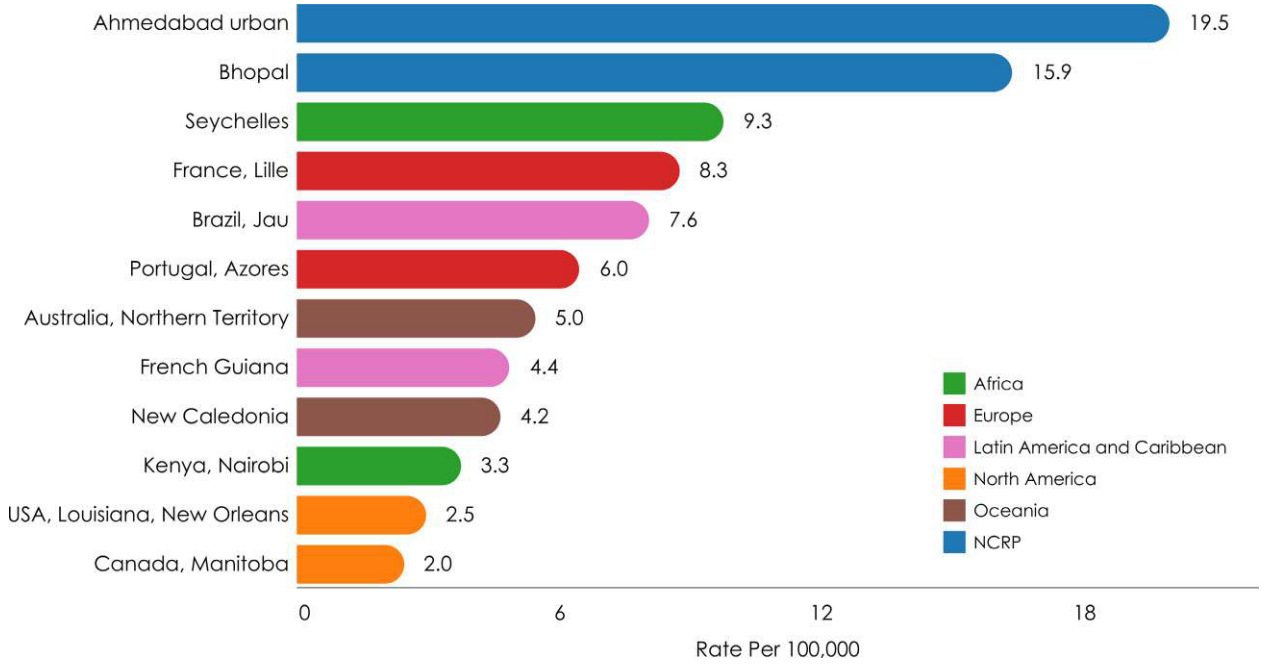
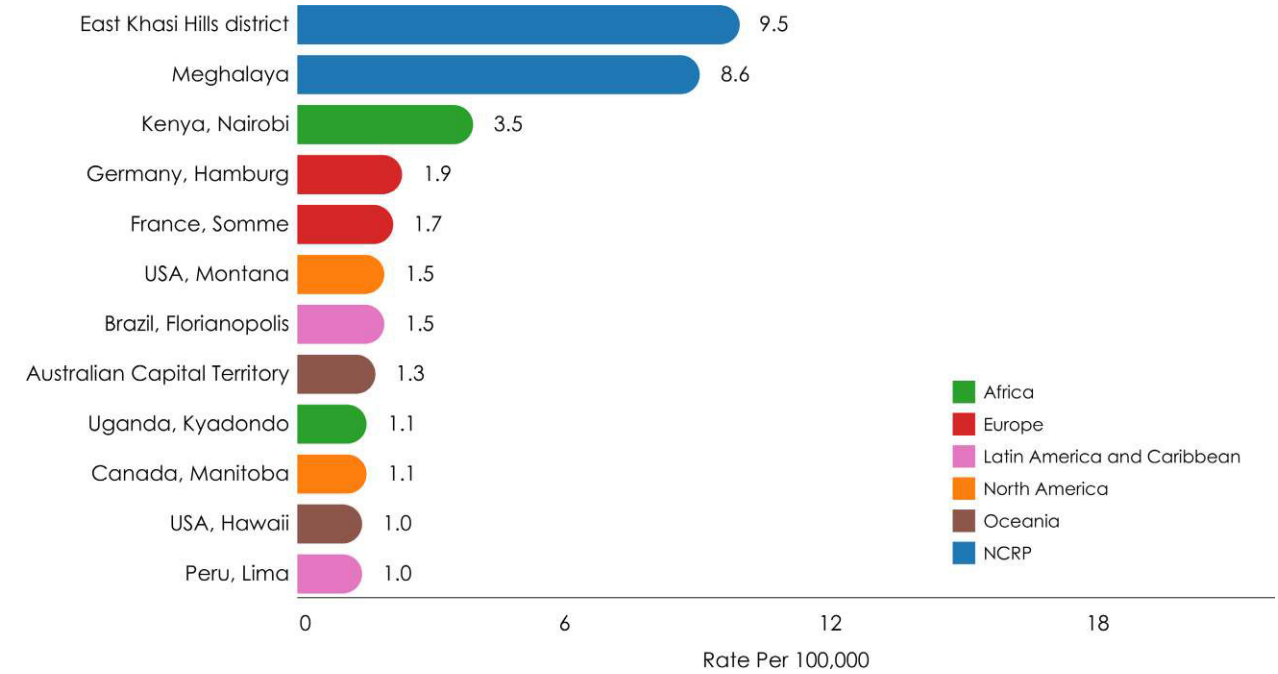


Fig. 9.2.3 Comparison of Age Adjusted Incidence Rates (AAR) of Non-Asian countries with PBCRs under NCRP - Cancer Mouth

Males



Females



Ahmedabad urban (19.5 per 100,000) followed by Bhopal (15.9 per 100,000) had the highest incidence rate in the world among males for mouth cancer. Among females, East Khasi Hills district (9.5 per 100,000) had the highest incidence rate of mouth cancer in the world.

Table 9.2.1 Number (n) and Relative Proportion (%) according to Clinical Extent of Disease - Cancer Mouth

Clinical Extent of Disease	Males		Females		Both Sexes	
	n	%	n	%	n	%
Localised only	4169	25.5	1366	21.8	5535	24.5
Locoregional	10750	65.8	4396	70.2	15146	67.0
Distant Metastasis	734	4.5	309	4.9	1043	4.6
Unknown	695	4.3	193	3.1	888	3.9
Total	**16348**	**100.0**	**6264**	**100.0**	**22612**	**100.0**

Locoregional was the commonest presentation for cancer mouth (males 65.8% and females 70.2%). Males and females showed similar clinical extent of disease for cancer mouth.

Table 9.2.2 Number (n) and Relative Proportion (%) of Types of Treatment according to Clinical Extent of Disease - Cancer Mouth

Males

Treatment	Clinical Extent of Disease							
	Localised only		Locoregional		Distant Metastasis		Unknown	
	n	%	n	%	n	%	n	%
Surgery	1340	32.2	1485	13.8	68	9.3	218	31.6
Radiotherapy	424	10.2	1552	14.5	127	17.3	79	11.4
Systemic Therapy	411	9.9	1594	14.9	175	23.9	108	15.7
Multi-modality*	1965	47.2	5997	55.9	360	49.1	281	40.7
Palliative Care	26	0.6	104	1.0	3	0.4	4	0.6
Total	**4166**	**100.0**	**10732**	**100.0**	**733**	**100.0**	**690**	**100.0**

Females

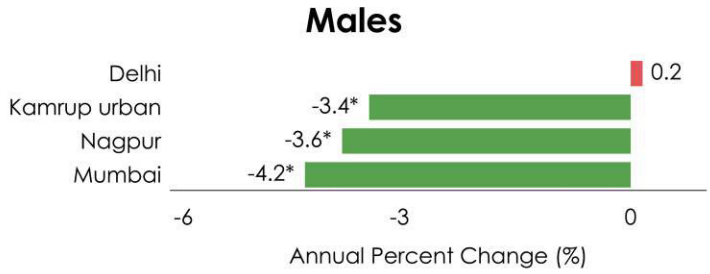
Treatment	Clinical Extent of Disease							
	Localised only		Locoregional		Distant Metastasis		Unknown	
	n	%	n	%	n	%	n	%
Surgery	399	29.3	666	15.2	19	6.2	93	48.4
Radiotherapy	199	14.6	818	18.6	74	24.0	23	12.0
Systemic Therapy	142	10.4	759	17.3	75	24.4	21	10.9
Multi-modality*	611	44.9	2104	47.9	137	44.5	49	25.5
Palliative Care	10	0.7	47	1.1	3	1.0	6	3.1
Total	**1361**	**100.0**	**4394**	**100.0**	**308**	**100.0**	**192**	**100.0**

**Multi-modality includes the combination of Surgery and/or Radiotherapy and/or Systemic Therapy*

On the basis of extent of disease, multi-modality was the treatment of choice for cancer mouth among both males (locoregional: 55.9%, distant metastasis: 49.1% and localized: 47.2%) and females (locoregional: 47.9%, localized: 44.9% and distant metastasis: 44.5%). Surgery and radiotherapy were the second choice of treatment depending upon the clinical extent of disease.

9.3 Cancer Tonsil, Other Oropharynx and Pharynx Unspecified (ICD: C09, C10, C14)

Fig. 9.3.1 Annual Percent Change (APC) in Age Adjusted Incidence Rates (AAR) over the Time Period - Cancer Tonsil

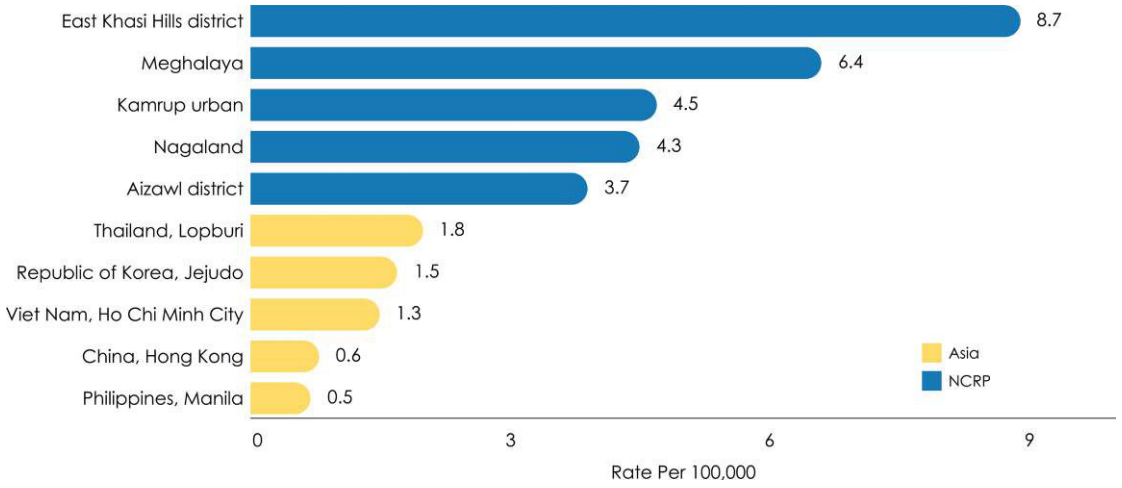


*Increase in APC, Decrease in APC ; *Significant increase or decrease in APC at 95% confidence level*

There was a significant decrease in the incidence rates for cancer tonsil in Kamrup urban, Nagpur and Mumbai in males.

Fig. 9.3.2 Comparison of Age Adjusted Incidence Rates (AAR) of Asian countries with PBCRs under NCRP- Cancer Tonsil

Males



Females

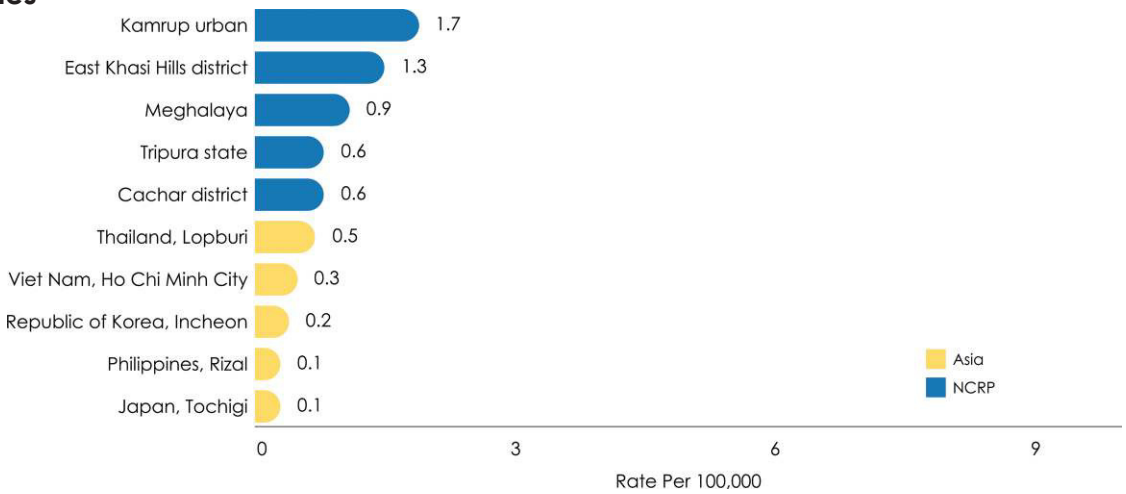
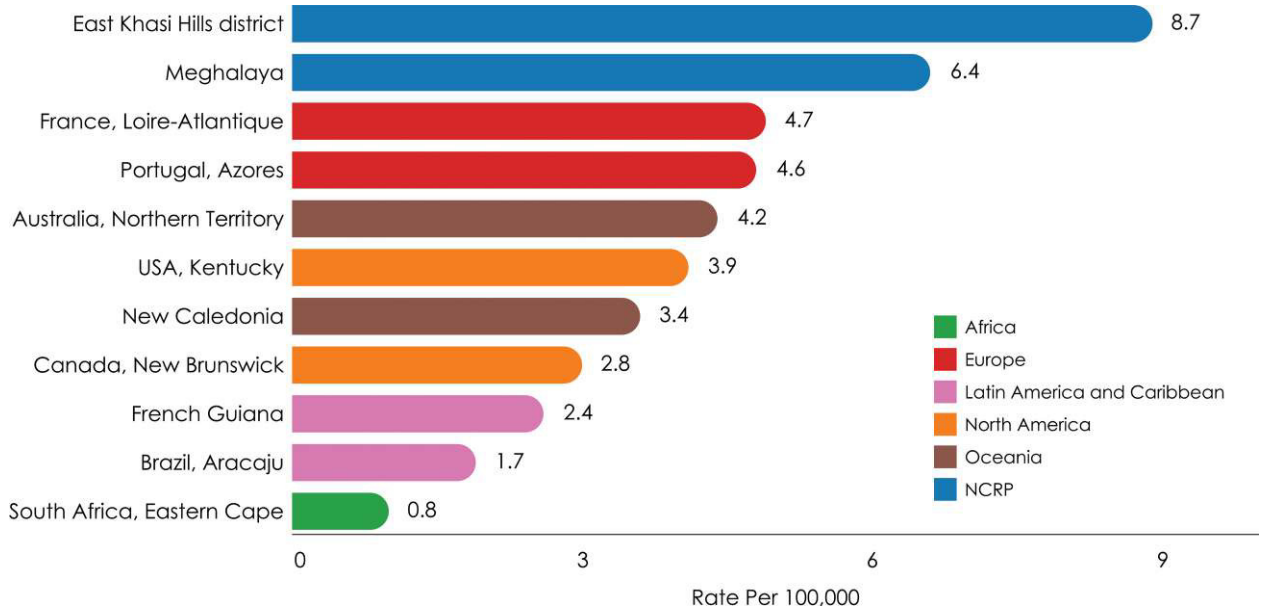
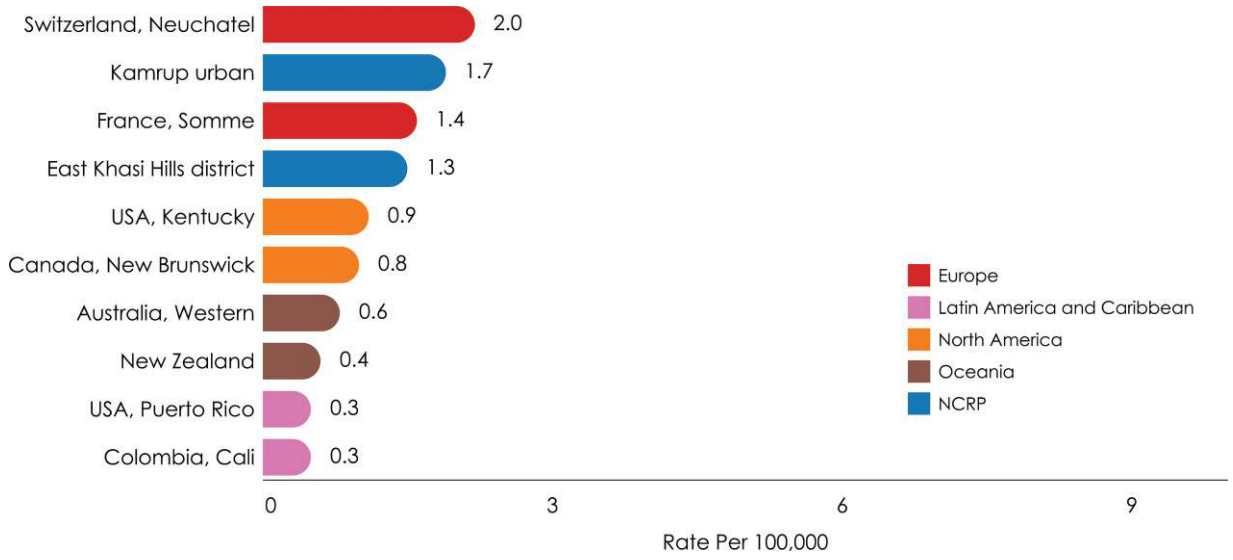


Fig. 9.3.3 Comparison of Age Adjusted Incidence Rates (AAR) of Non-Asian countries with PBCRs under NCRP - Cancer Tonsil

Males



Females



East Khasi Hills district (8.7 per 100,000) and Meghalaya (6.4 per 100,000) had the highest incidence rate of cancer tonsil among males in the world and Kamrup urban (1.7 per 100,000) had the highest incidence rate among females in Asia.

Fig. 9.3.4 Comparison of Age Adjusted Incidence Rates (AAR) of Asian countries with PBCRs under NCRP- Cancer Other Oropharynx

Males

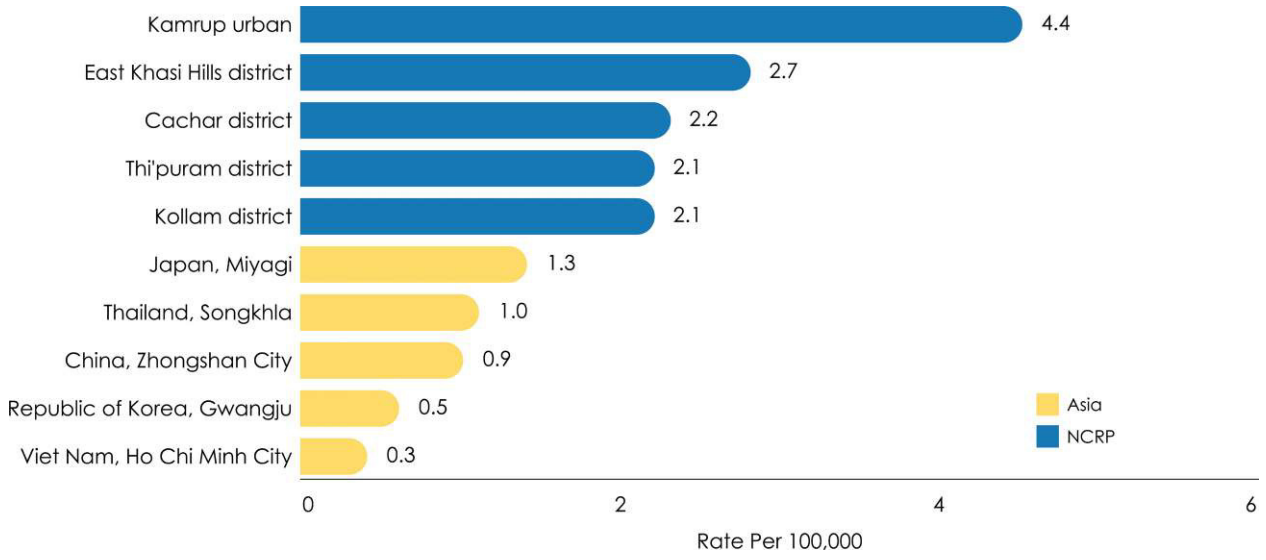
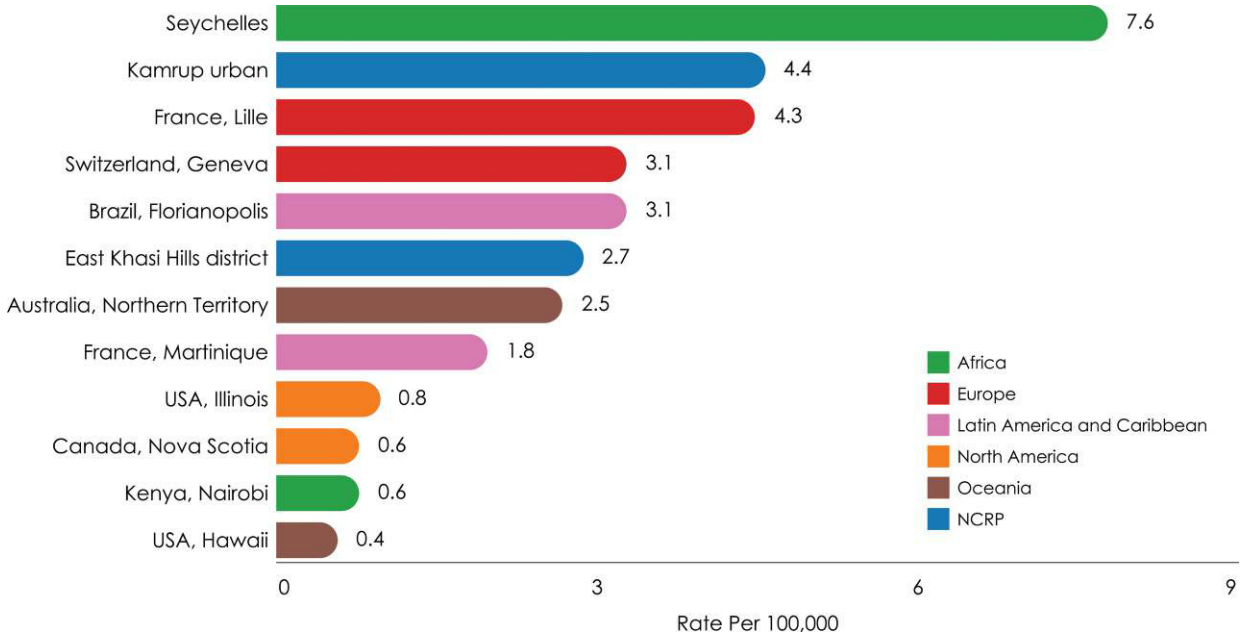
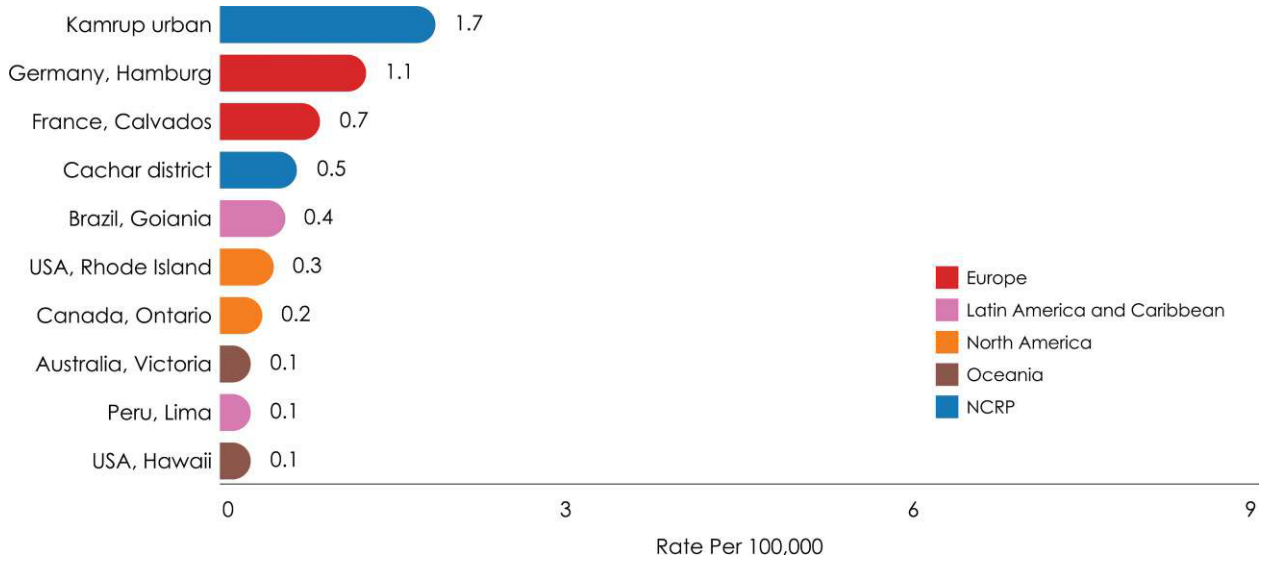


Fig. 9.3.5 Comparison of Age Adjusted Incidence Rates (AAR) of Non-Asian countries with PBCRs under NCRP - Cancer Other Oropharynx

Males



Females



Kamrup urban had the highest incidence rate of cancer other oropharynx in Asia among males (4.4 per 100,000) as well as females (1.7 per 100,000).

Fig. 9.3.6 Comparison of Age Adjusted Incidence Rates (AAR) of Asian countries with PBCRs under NCRP - Cancer Pharynx Unspecified

Males

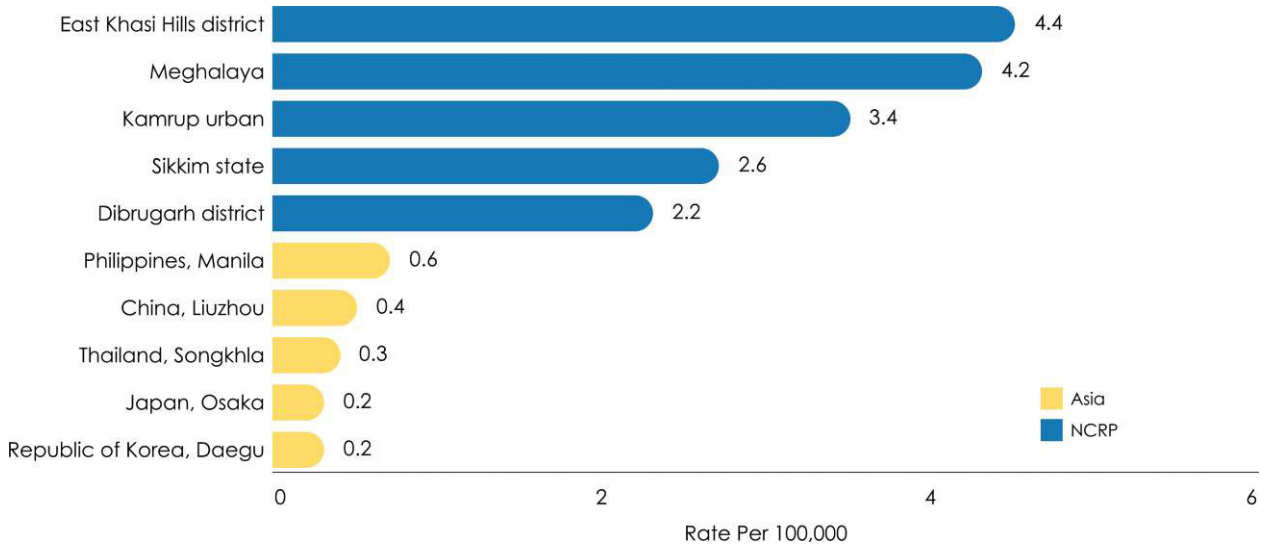
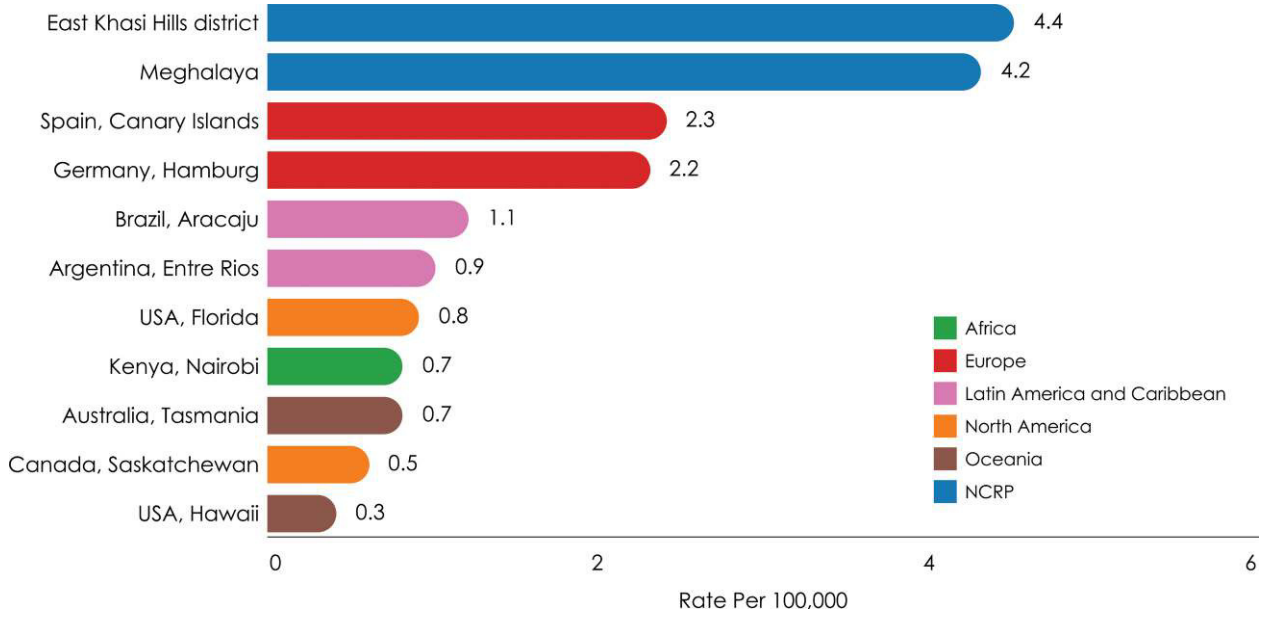
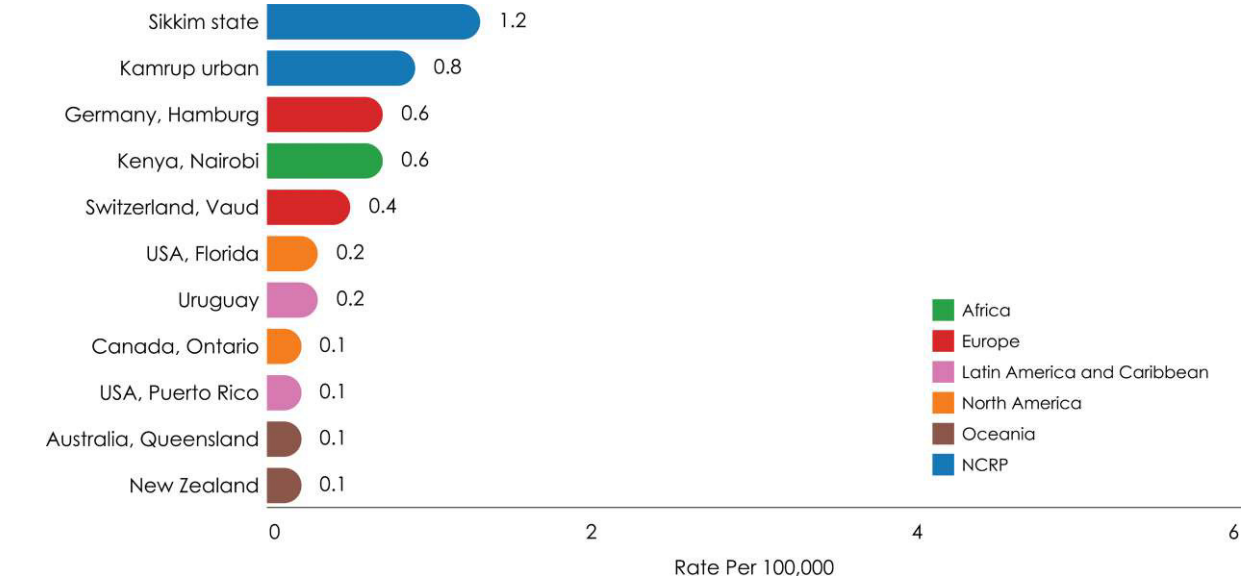


Fig. 9.3.7 Comparison of Age Adjusted Incidence Rates (AAR) of Non-Asian countries with PBCRs under NCRP - Cancer Pharynx Unspecified

Males



Females



East Khasi Hills district (4.4 per 100,000) had the highest incidence rate of cancer pharynx unspecified in the world among males and Sikkim state (1.2 per 100,000) had the highest incidence rate in the world among females.

Table 9.3.1 Number (n) and Relative Proportion (%) according to Clinical Extent of Disease - Cancer Oropharynx

Clinical Extent of Disease	Males		Females		Both Sexes	
	n	%	n	%	n	%
Localised only	2161	20.0	399	22.6	2560	20.3
Locoregional	7757	71.7	1212	68.6	8969	71.2
Distant metastasis	633	5.8	95	5.4	728	5.8
Unknown	273	2.5	60	3.4	333	2.6
Total	**10824**	**100.0**	**1766**	**100.0**	**12590**	**100.0**

Locoregional was the commonest presentation for cancer of oropharynx (males 71.7% and females 68.6%). The relative proportion of clinical extent of disease for cancer oropharynx was similar among males and females.

Table 9.3.2 Number (n) and Relative Proportion (%) of Types of Treatment according to Clinical Extent of Disease for Cancer Oropharynx

Males

Treatment	Clinical Extent of Disease							
	Localised only		Locoregional		Distant metastasis		Unknown	
	n	%	n	%	n	%	n	%
Surgery	141	6.5	112	1.4	3	0.5	12	4.5
Radiotherapy	731	33.9	3140	40.5	206	32.5	51	19.0
Systemic Therapy	242	11.2	561	7.2	114	18.0	62	23.0
Multi-modality	1037	48.1	3879	50.1	309	48.8	144	53.5
Palliative Care	7	0.3	55	0.7	1	0.2	-	-
Total	**2158**	**100.0**	**7747**	**100.0**	**633**	**100.0**	**269**	**100.0**

Females

Treatment	Clinical Extent of Disease							
	Localised only		Locoregional		Distant metastasis		Unknown	
	n	%	n	%	n	%	n	%
Surgery	61	15.3	45	3.7	5	5.3	9	15.3
Radiotherapy	122	30.7	494	40.8	23	24.2	11	18.6
Systemic Therapy	26	6.5	114	9.4	14	14.7	10	16.9
Multi-modality	188	47.2	551	45.5	53	55.8	29	49.2
Palliative Care	1	0.3	7	0.6	-	-	-	-
Total	**398**	**100.0**	**1211**	**100.0**	**95**	**100.0**	**59**	**100.0**

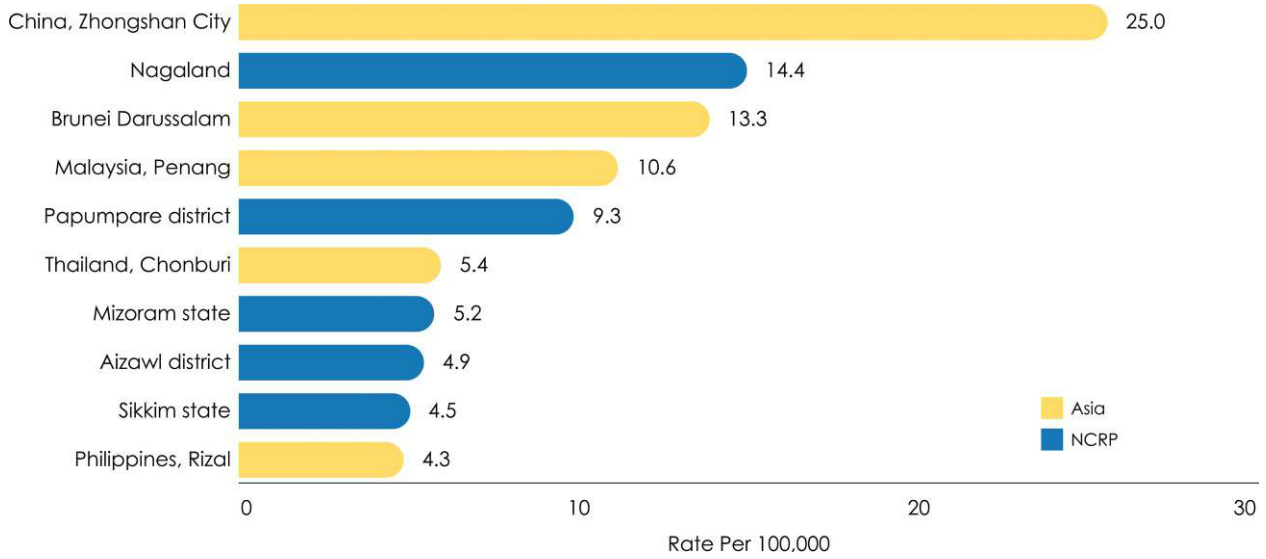
**Multi-modality includes the combination of Surgery and/or Radiotherapy and/or Systemic Therapy*

On the basis of extent disease, multi-modality was the treatment of choice for cancer oropharynx among both males (locoregional: 50.1%, localized: 48.1% and distant metastasis: 48.8%) and females (distant metastasis: 55.8%, localized: 47.2%, and locoregional: 45.5%). Radiotherapy was the second choice of treatment in both genders.

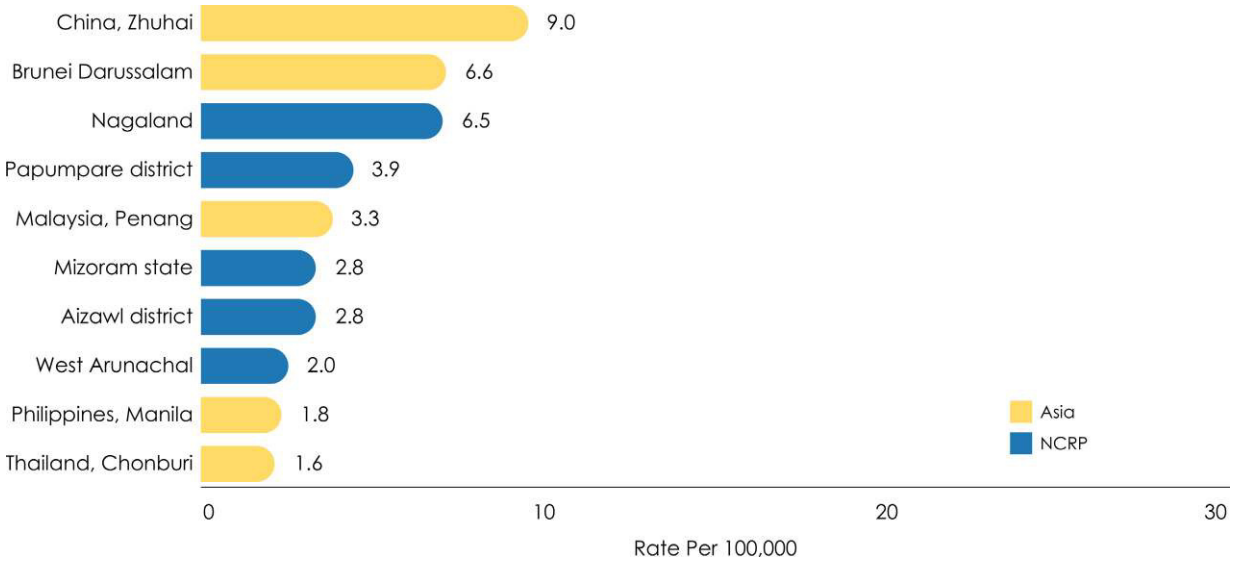
9.4 Cancer Nasopharynx (ICD-10: C11)

Fig. 9.4.1 Comparison of Age Adjusted Incidence Rates (AAR) of Asian countries with PBCRs under NCRP - Cancer Nasopharynx

Males



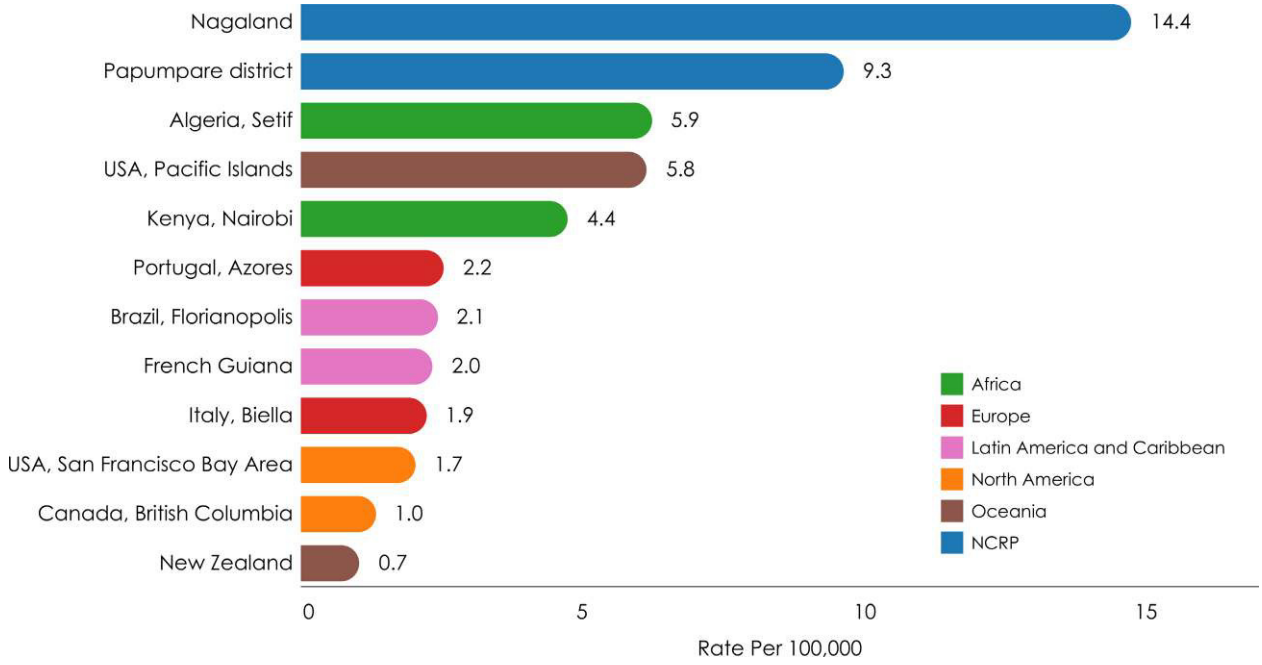
Females



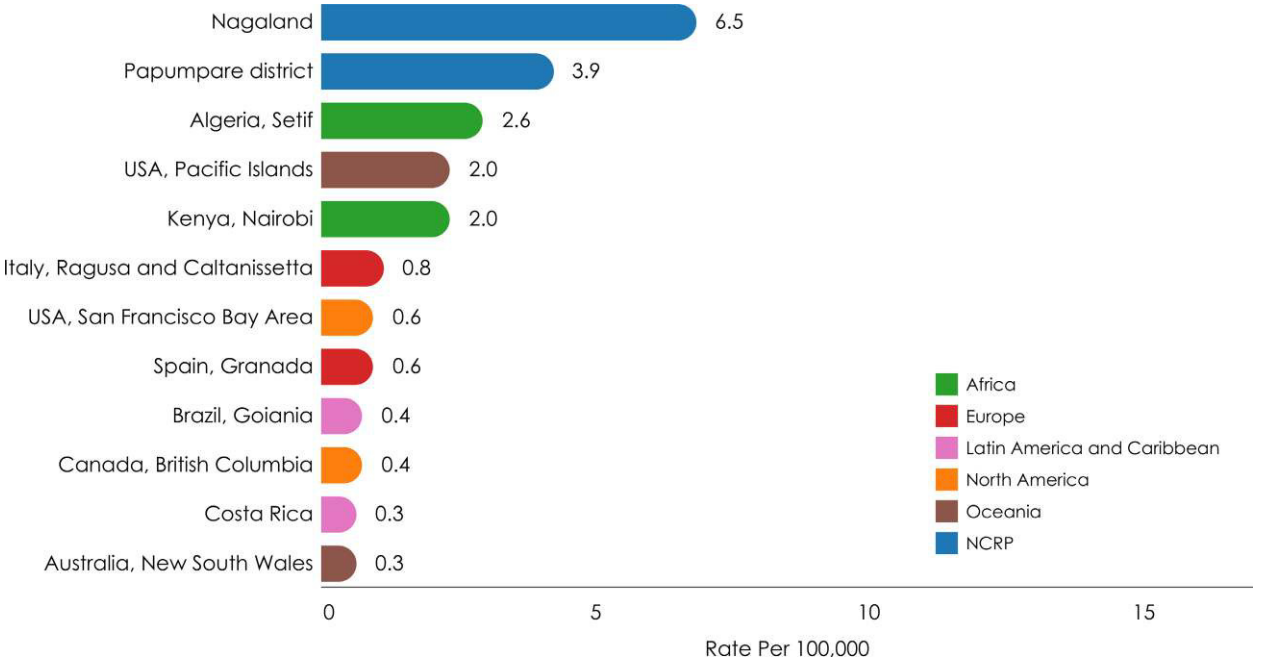
In Asia, Zhongshan City (25.0 per 100,000) in China had the highest incidence of cancer nasopharynx among males and Zhuhai in China (9.0 per 100,000) had the highest AAR in females.

Fig. 9.4.2 Comparison of Age Adjusted Incidence Rates (AAR) of Non-Asian countries with PBCRs under NCRP - Cancer Nasopharynx

Males



Females



Nagaland had the highest AAR of cancer nasopharynx when compared with Non-Asian countries both in males (14.4 per 100,000) and females (6.5 per 100,000).

Table 9.4.1 Number (n) and Relative Proportion (%) according to Clinical Extent of Disease - Cancer Nasopharynx

Clinical Extent of Disease	Males		Females		Both sexes	
	n	%	n	%	n	%
Localised only	248	18.6	97	17.4	345	18.2
Locoregional	911	68.3	388	69.7	1299	68.7
Distant Metastasis	140	10.5	55	9.9	195	10.3
Unknown	35	2.6	17	3.1	52	2.7
Total	**1334**	**100.0**	**557**	**100.0**	**1891**	**100.0**

Locoregional was the commonest presentation for Cancer nasopharynx (males 68.3% and females 69.7%). The relative proportions of clinical extent of disease for cancer nasopharynx were similar among males and females.

Table 9.4.2 Number (n) and Relative Proportion (%) of Types of Treatment according to Clinical Extent of Disease - Cancer Nasopharynx

Males

Treatment	Clinical Extent of Disease							
	Localised only		Locoregional		Distant Metastasis		Unknown	
	n	%	n	%	n	%	n	%
Surgery	4	1.6	9	1.0	1	0.7	1	2.9
Radiotherapy	33	13.4	108	11.9	30	21.4	5	14.3
Systemic Therapy	48	19.4	77	8.5	27	19.3	7	20.0
Multi-modality*	161	65.2	707	77.7	82	58.6	22	62.9
Palliative Care	1	0.4	9	1.0	-	-	-	-
Total	**247**	**100.0**	**910**	**100.0**	**140**	**100.0**	**35**	**100.0**

Females

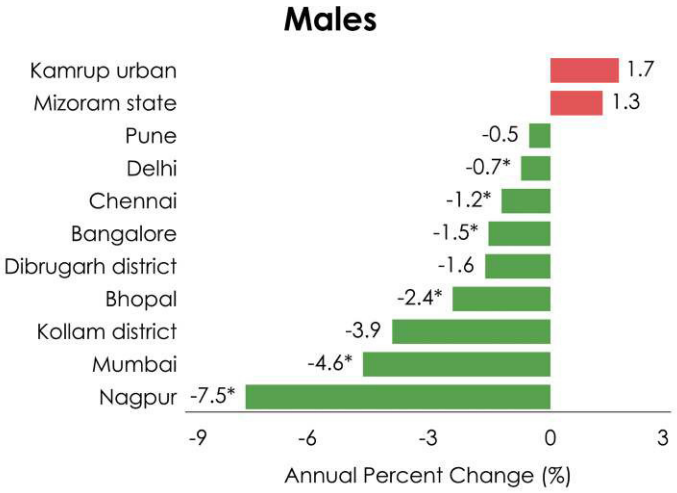
Treatment	Clinical Extent of Disease							
	Localised only		Locoregional		Distant Metastasis		Unknown	
	n	%	n	%	n	%	n	%
Surgery	2	2.1	1	0.3	1	1.8	1	5.9
Radiotherapy	5	5.2	59	15.2	9	16.4	4	23.5
Systemic Therapy	17	17.5	52	13.4	9	16.4	2	11.8
Multi-modality*	73	75.3	273	70.5	36	65.5	10	58.8
Palliative Care	-	-	2	0.5	-	-	-	-
Total	**97**	**100.0**	**387**	**100.0**	**55**	**100.0**	**17**	**100.0**

**Multi-modality includes the combination of Surgery and/or Radiotherapy and/or Systemic Therapy*

On the basis of clinical extent of disease, multi-modality was the treatment of choice for cancer nasopharynx among both males (localized: 65.2%, locoregional: 77.7%, and distant metastasis: 58.6%) and females (localized: 75.3%, locoregional: 70.5% and distant metastasis: 65.5%). Systemic therapy was the second choice of treatment among both genders for localised extent of cancer.

9.5 Cancer Hypopharynx (ICD-10: C12-C13)

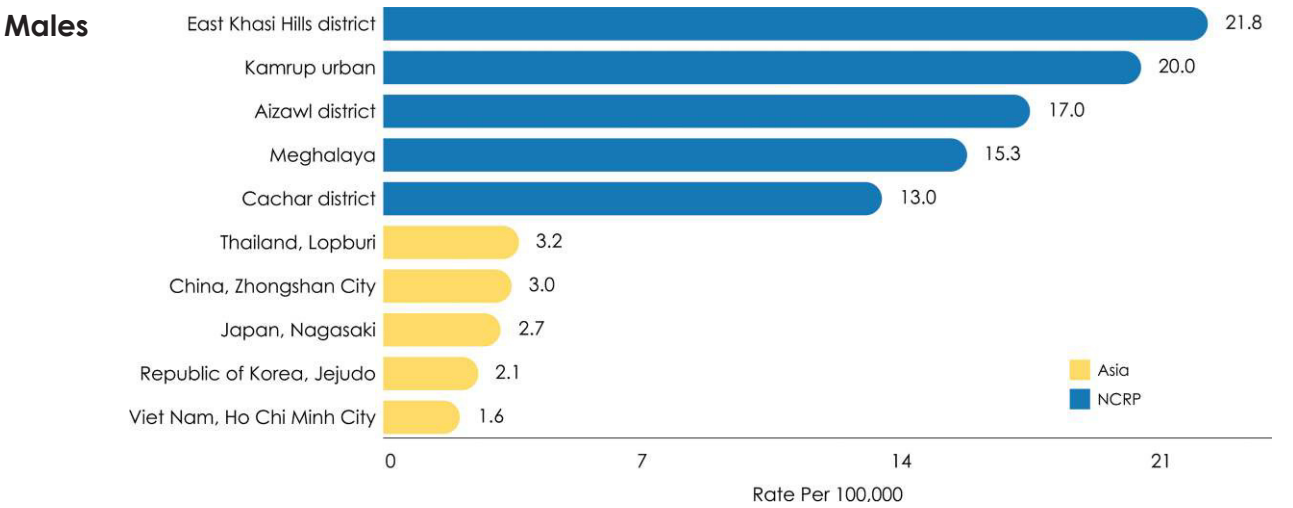
Fig. 9.5.1 Annual Percent Change (APC) in Age Adjusted Incidence Rates (AAR) over the Time Period - Cancer Hypopharynx



Increase in APC, *Decrease in APC* ; **Significant increase or decrease in APC at 95% confidence level*

There was a significant decrease in the incidence rate of cancer hypopharynx in Delhi, Chennai, Bangalore, Bhopal, Mumbai and Nagpur in males.

Fig. 9.5.2 Comparison of Age Adjusted Incidence Rates (AAR) of Asian countries with PBCRs under NCRP - Cancer Hypopharynx



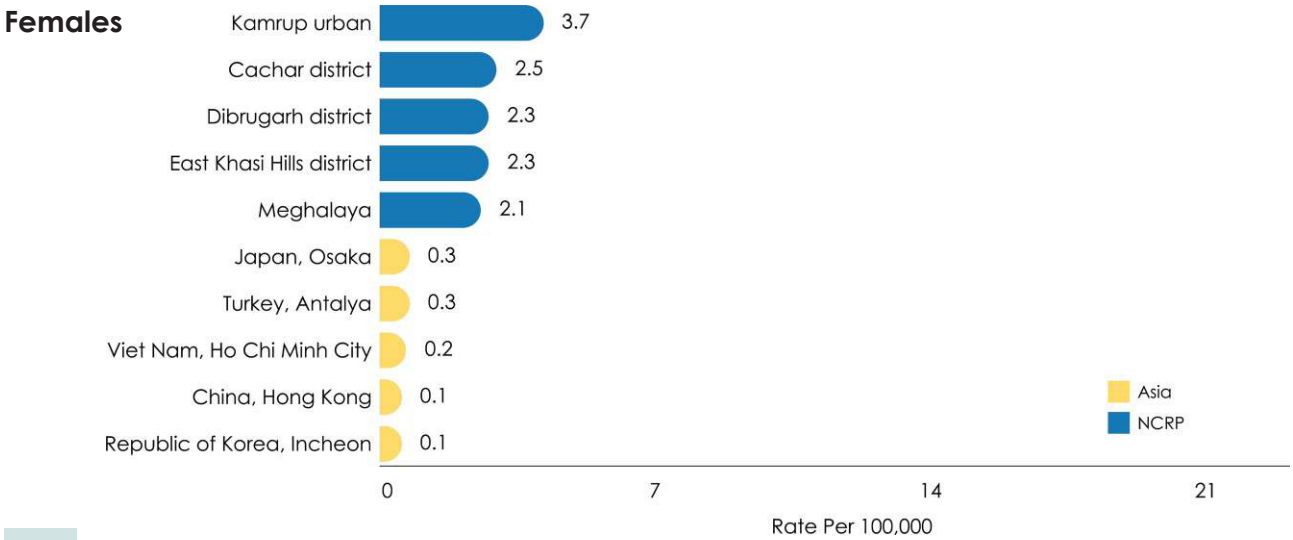
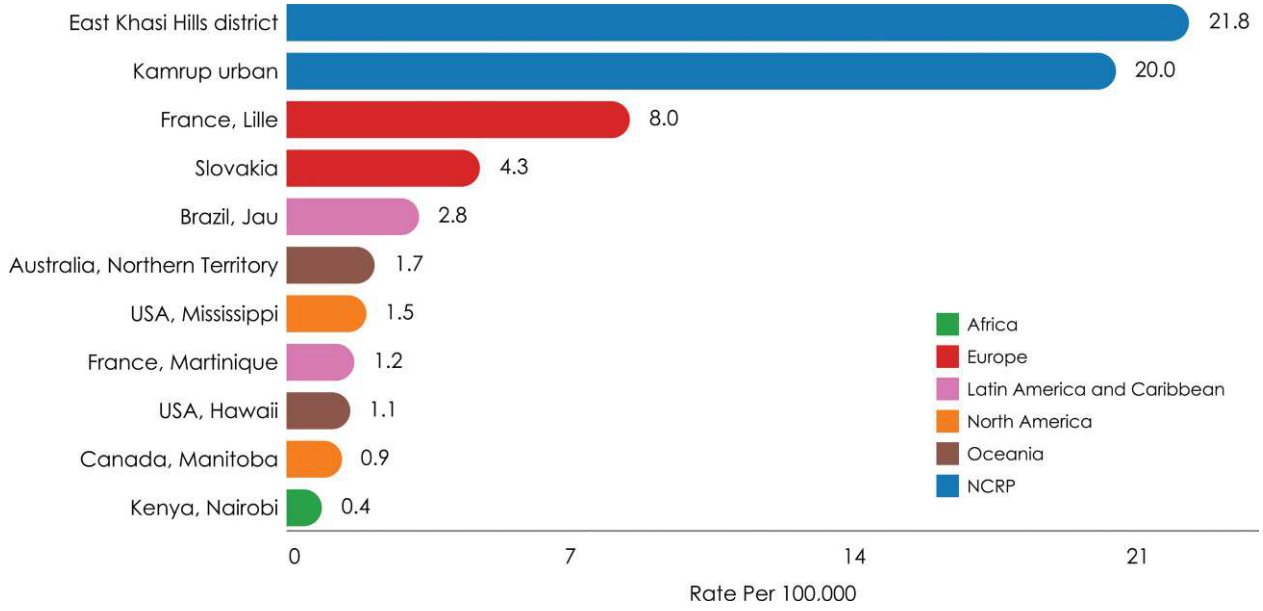
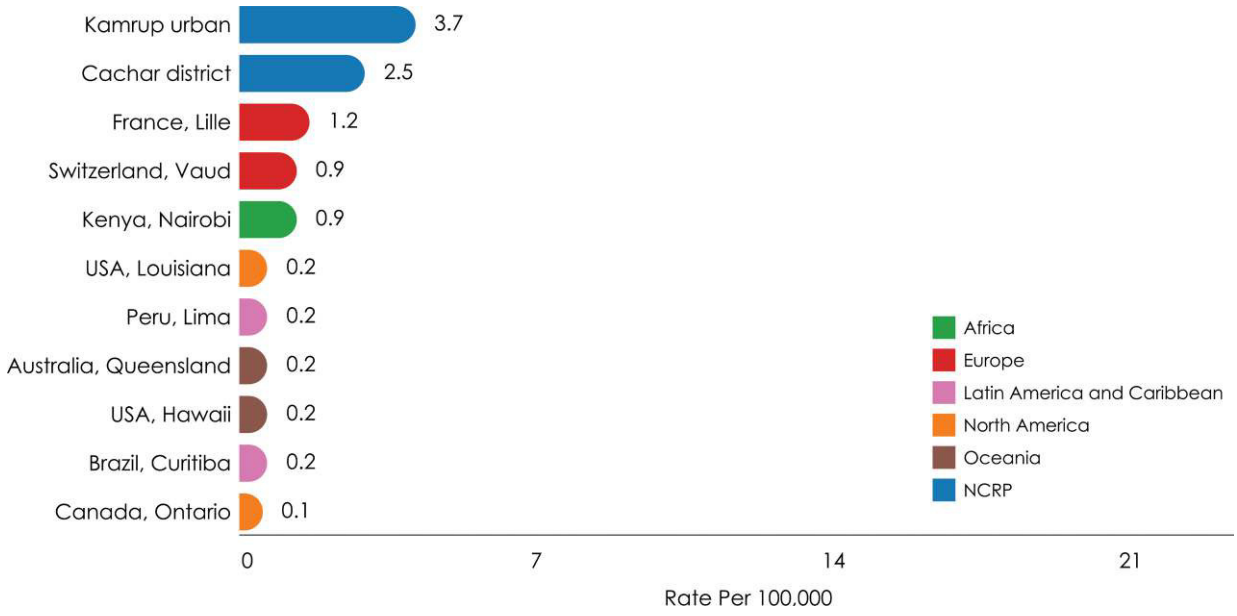


Fig. 9.5.3 Comparison of Age Adjusted Incidence Rates (AAR) of Non-Asian countries with PBCRs under NCRP - Cancer Hypopharynx

Males



Females



East Khasi Hills district (21.8 per 100,000) and Kamrup urban (3.7 per 100,000) had the highest incidence of cancer hypopharynx in the world among males and females, respectively.

Table 9.5.1 Number (n) and Relative Proportion (%) according to Clinical Extent of Disease - Cancer Hypopharynx

Clinical Extent of Disease	Males		Females		Both sexes	
	n	%	n	%	n	%
Localised only	1081	15.7	320	20.6	1401	16.6
Locoregional	5295	76.9	1120	72.2	6415	76.0
Distant Metastasis	325	4.7	68	4.4	393	4.7
Unknown	184	2.7	43	2.8	227	2.7
Total	**6885**	**100.0**	**1551**	**100.0**	**8436**	**100.0**

Locoregional was the commonest presentation for cancer hypopharynx (males 76.9% and females 72.2%). The relative proportion of localised cancers of hypopharynx was 15.7% in males and 20.6 % for females.

Table 9.5.2 Number (n) and Relative Proportion (%) of Types of Treatment according to Clinical Extent of Disease - Cancer Hypopharynx

Males

Treatment	Clinical Extent of Disease							
	Localised only		Locoregional		Distant Metastasis		Unknown	
	n	%	n	%	n	%	n	%
Surgery	48	4.4	110	2.1	9	2.8	24	13.3
Radiotherapy	351	32.5	2042	38.6	109	33.7	41	22.7
Systemic Therapy	69	6.4	269	5.1	52	16.1	31	17.1
Multi-modality*	610	56.5	2855	54.0	153	47.4	83	45.9
Palliative Care	2	0.2	14	0.3	-	-	2	1.1
Total	**1080**	**100.0**	**5290**	**100.0**	**323**	**100.0**	**181**	**100.0**

Females

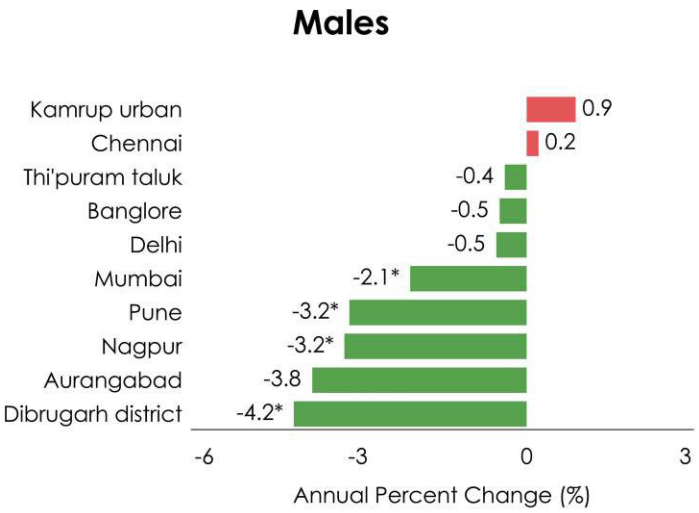
Treatment	Clinical Extent of Disease							
	Localised only		Locoregional		Distant Metastasis		Unknown	
	n	%	n	%	n	%	n	%
Surgery	12	3.8	23	2.1	4	5.9	9	20.9
Radiotherapy	105	32.8	434	38.8	22	32.4	8	18.6
Systemic Therapy	25	7.8	57	5.1	10	14.7	5	11.6
Multi-modality*	178	55.6	599	53.5	32	47.1	21	48.8
Palliative Care	-	-	6	0.5	-	-	-	-
Total	**320**	**100.0**	**1119**	**100.0**	**68**	**100.0**	**43**	**100.0**

**Multi-modality includes the combination of Surgery and/or Radiotherapy and/or Systemic Therapy*

On the basis of extent disease, multi-modality was the treatment of choice for cancer hypopharynx among both males (localized: 56.5%, locoregional: 54.0% and distant metastasis: 47.4%) and females (localized: 55.6%, locoregional: 53.5% and distant metastasis: 47.1%). Radiotherapy was the second choice of treatment in both genders.

9.6 Cancer Larynx (ICD-10: C32)

Fig. 9.6.1 Annual Percent Change (APC) in Age Adjusted Incidence Rates (AAR) over the Time Period - Cancer Larynx

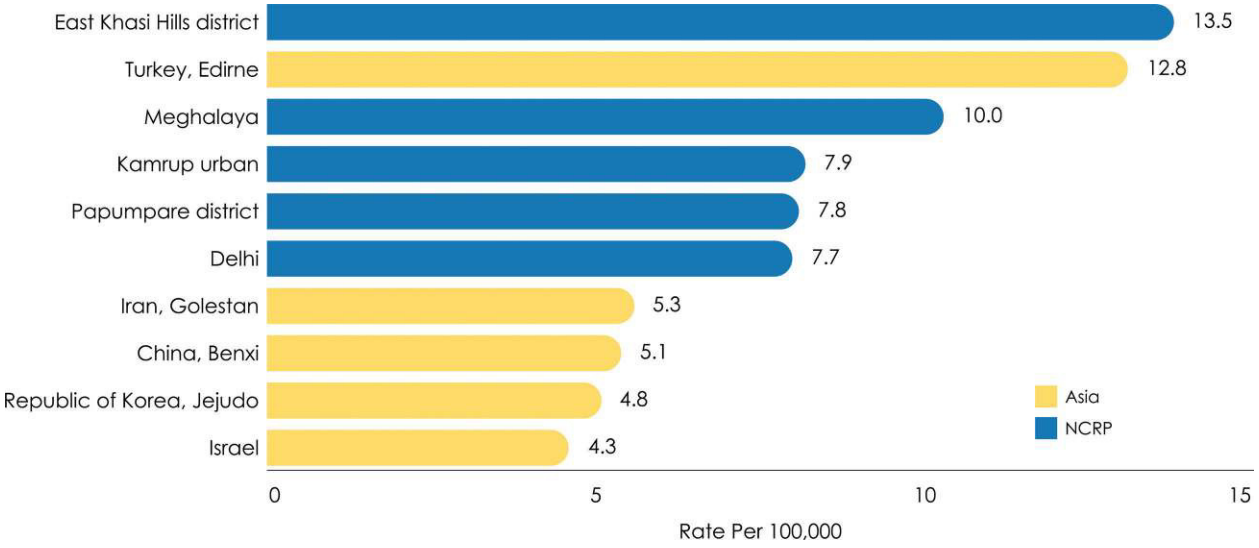


*Increase in APC, Decrease in APC ; *Significant increase or decrease in APC at 95% confidence level*

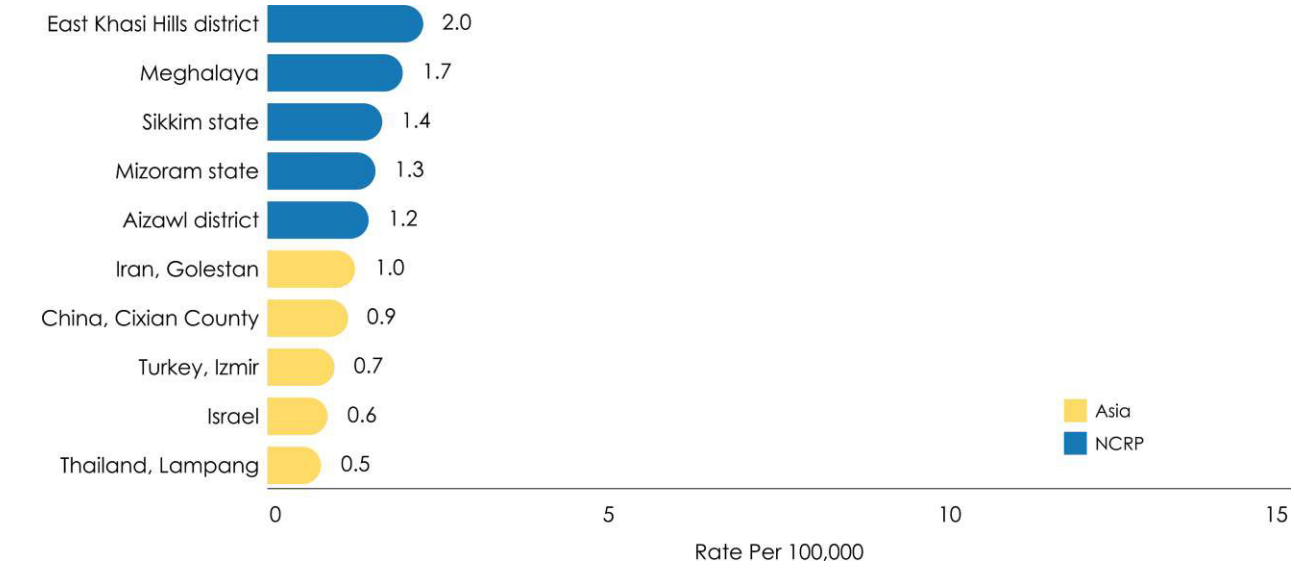
There was a significant decrease in the incidence of cancer larynx in Mumbai, Pune, Nagpur and Dibrugarh district in males.

Fig. 9.6.2 Comparison of Age Adjusted Incidence Rates (AAR) of Asian countries with PBCRs under NCRP - Cancer Larynx

Males



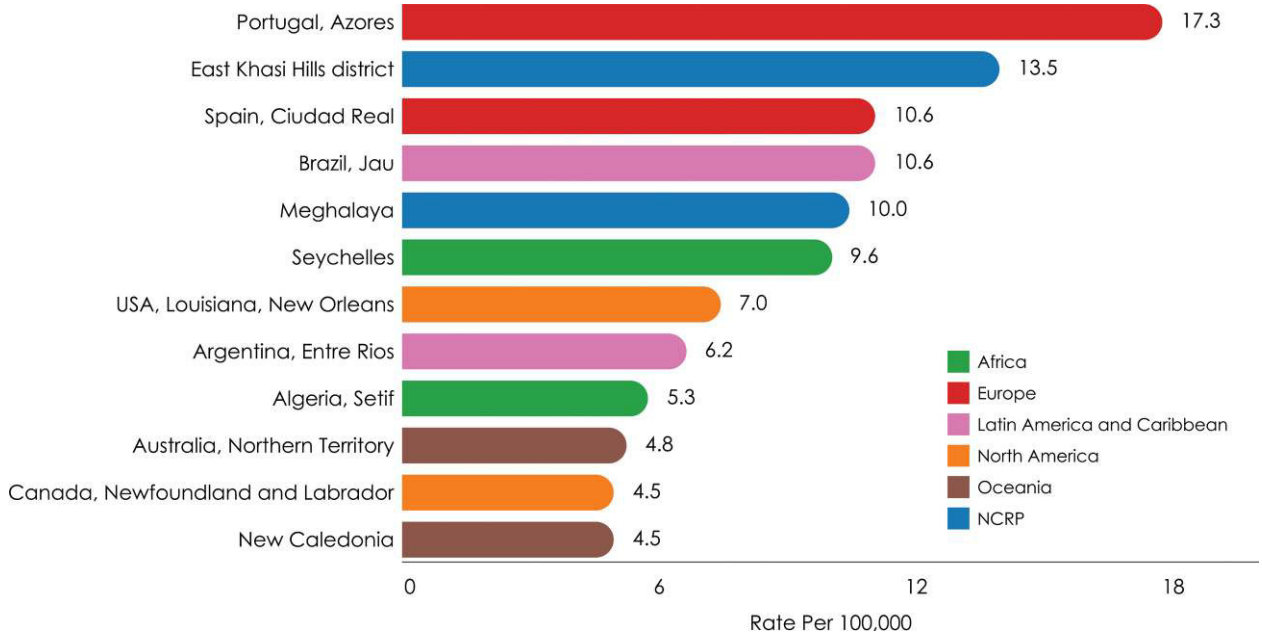
Females



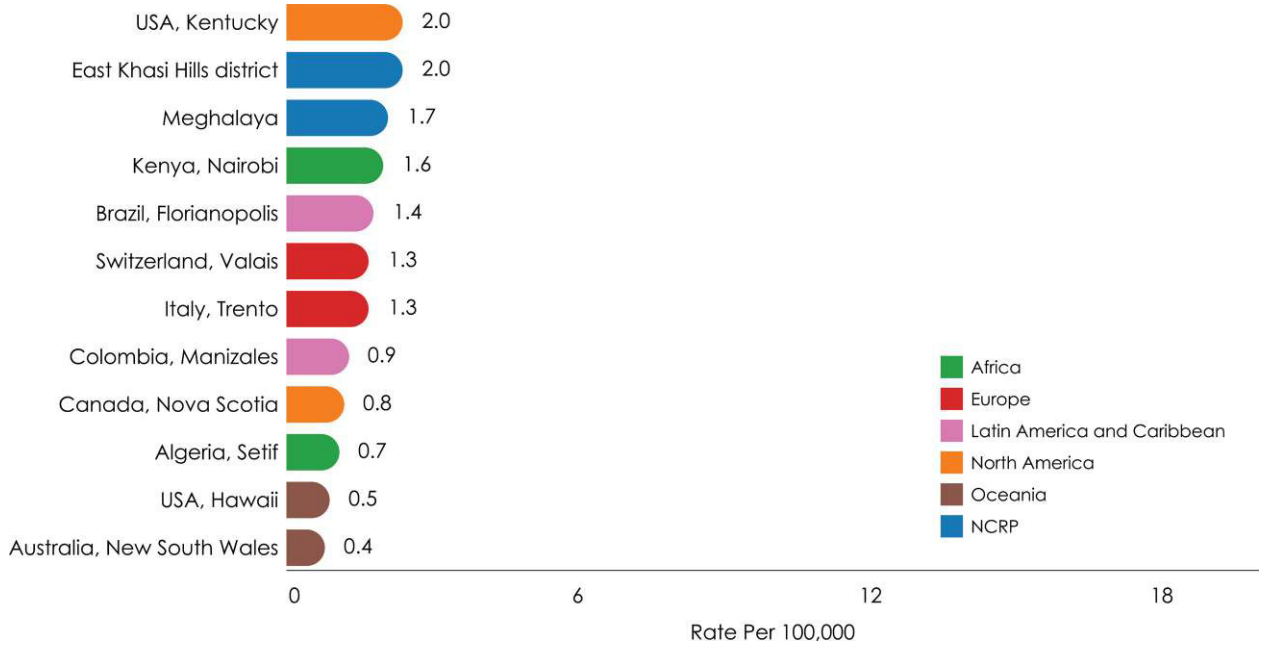
East Khasi Hills district had the highest incidence rate of cancer larynx in Asia in both males (13.5 per 100,000) and females (2.0 per 100,000).

Fig. 9.6.3 Comparison of Age Adjusted Incidence Rates (AAR) of Non-Asian countries with PBCRs under NCRP – Cancer Larynx

Males



Females



Azores in Portugal (17.3 per 100,000) and Kentucky in USA (2.0 per 100,000) had the highest incidence rate of cancer larynx among Non-Asian countries in males and females, respectively.

Table 9.6.1 Number (n) and Relative Proportion (%) according to Clinical Extent of Disease - Cancer Larynx

Clinical Extent of Disease	Males		Females		Both Sexes	
	n	%	n	%	n	%
Localised only	2517	32.9	252	31.0	2769	32.7
Locoregional	4612	60.2	497	61.2	5109	60.3
Distant Metastasis	313	4.1	33	4.1	346	4.1
Unknown	217	2.8	30	3.7	247	2.9
Total	**7659**	**100.0**	**812**	**100.0**	**8471**	**100.0**

Locoregional was the commonest presentation for cancer larynx (males 60.2% and females 61.2%). The relative proportions of clinical extent of disease for cancer larynx were similar in males and females.

Table 9.6.2 Number (n) and Relative Proportion (%) of Types of Treatment according to Clinical Extent of Disease - Cancer Larynx

Males

Treatment	Clinical Extent of Disease							
	Localised only		Locoregional		Distant Metastasis		Unknown	
	n	%	n	%	n	%	n	%
Surgery	242	9.6	259	5.6	13	4.2	57	26.3
Radiotherapy	1287	51.1	1783	38.7	99	31.8	59	27.2
Systemic Therapy	128	5.1	277	6.0	39	12.5	20	9.2
Multi-modality*	846	33.6	2271	49.3	159	51.1	81	37.3
Palliative Care	14	0.6	20	0.4	1	0.3	-	-
Total	**2517**	**100.0**	**4610**	**100.0**	**311**	**100.0**	**217**	**100.0**

Females

Treatment	Clinical Extent of Disease							
	Localised only		Locoregional		Distant Metastasis		Unknown	
	n	%	n	%	n	%	n	%
Surgery	23	9.2	26	5.2	1	3.0	6	20.0
Radiotherapy	118	47.0	240	48.4	4	12.1	8	26.7
Systemic Therapy	23	9.2	34	6.9	7	21.2	3	10.0
Multi-modality*	85	33.9	196	39.5	20	60.6	13	43.3
Palliative Care	2	0.8	-	-	1	3.0	-	-
Total	**251**	**100.0**	**496**	**100.0**	**33**	**100.0**	**30**	**100.0**

**Multi-modality includes the combination of Surgery and/or Radiotherapy and/or Systemic Therapy*

On the basis of extent of disease, radiotherapy was the treatment of choice for cancer larynx among both males (51.1%) and females (47.0%) in localised cancer. Multi-modality was the preferred treatment among both genders in distant metastasis cases (males: 51.1% and females: 60.6%).

10

Cancer
Lung

Cancer Lung (ICD-10: C33-C34)

Table 10.1 Number of cases (n) registered for Cancer Lung and its Relative Proportion to All Sites of Cancer (%), Crude (CR), Age Adjusted (AAR) and Truncated (TR) Incidence Rates per 100,000 population and its Rank in 28 PBCRs under NCRP

Males

Sl No	Registry	n	%	CR	AAR	TR	RANK
			NORTH				
1	Delhi	3249	10.5	11.8	16.7	27.9	9
2	Patiala district	374	6.9	7.0	7.7	15.8	24
			SOUTH				
3	Hyderabad district	561	10.9	9.2	12.4	18.0	14
4	Kollam district	1833	18.5	29.4	23.1	34.7	3
5	Thi'puram district	1685	12.5	21.3	16.8	27.3	8
6	Bangalore	1335	10.1	9.8	13.0	19.1	12
7	Chennai	1397	9.7	11.8	11.9	18.1	17
			EAST				
8	Kolkata	2040	20.0	22.0	18.3	28.1	5
			WEST				
9	Ahmedabad urban	1188	8.1	7.3	8.8	13.9	21
10	Aurangabad	216	11.2	6.4	8.8	14.3	22
11	Osmanabad & Beed	177	4.9	1.9	1.9	3.5	31
12	Barshi rural	25	3.4	1.9	1.8	3.6	32
13	Mumbai	2554	9.7	9.5	11.0	14.5	19
14	Pune	735	7.6	5.1	6.7	9.3	26
			CENTRAL				
15	Wardha district	170	7.1	5.0	4.6	8.5	30
16	Bhopal	390	10.9	9.1	12.0	20.2	16
17	Nagpur	368	6.2	5.5	6.1	9.8	28
			NORTH EAST				
18	Manipur state	698	18.9	8.9	12.9	12.5	13
	Imphal West district	207	18.2	15.5	17.8	17.2	7
19	Mizoram state	618	14.3	20.9	32.1	41.1	2
	Aizawl district	287	13.2	27.1	38.8	50.3	1
20	Sikkim state	83	7.1	4.9	6.5	8.1	27
21	Tripura state	1103	16.8	11.3	14.5	23.1	10
22	West Arunachal	79	6.5	3.7	7.0	14.3	25
	Papumpare district	38	8.1	7.6	20.1	38.0	4
23	Meghalaya	286	6.1	5.6	12.4	21.7	15
	East Khasi Hills district	153	5.3	6.9	14.1	22.4	11
24	Nagaland	84	6.0	4.5	8.4	12.2	23
25	Pasighat	25	7.8	7.1	9.7	19.8	20
26	Cachar district	400	8.6	8.5	11.9	18.4	18
27	Dibrugarh district	135	5.3	3.9	5.1	7.6	29
28	Kamrup urban	494	7.9	15.1	18.1	23.9	6

Total number of cases (N) registered and reporting year of data for all sites is mentioned in Table 1.2

Females

Sl No	Registry	n	%	CR	AAR	TR	RANK
			NORTH				
1	Delhi	962	3.3	4.0	5.1	9.2	13
2	Patiala district	134	2.2	2.8	2.8	5.4	26
			SOUTH				
3	Hyderabad district	262	4.1	4.5	6.0	11.6	8
4	Kollam district	359	3.7	5.1	3.8	6.8	22
5	Thi'puram district	545	3.8	6.3	4.7	8.1	15
6	Bangalore	596	3.8	4.7	5.8	10.5	11
7	Chennai	555	3.3	4.7	4.4	7.7	16
			EAST				
8	Kolkata	602	6.6	7.0	5.9	10.6	9
			WEST				
9	Ahmedabad urban	311	2.8	2.1	2.4	3.9	28
10	Aurangabad	79	3.9	2.5	3.2	5.7	25
11	Osmanabad & Beed	93	2.1	1.1	1.0	2.1	32
12	Barshi rural	26	3.2	2.1	1.9	3.8	31
13	Mumbai	1390	5.1	6.0	5.9	8.0	10
14	Pune	449	4.2	3.5	4.0	7.0	20
			CENTRAL				
15	Wardha district	85	3.4	2.6	2.3	4.6	29
16	Bhopal	114	3.2	2.9	3.6	7.4	23
17	Nagpur	177	2.9	2.7	2.7	5.1	27
			NORTH EAST				
18	Manipur state	649	14.4	8.3	11.8	14.1	5
	Imphal West district	215	14.3	15.5	16.6	21.5	3
19	Mizoram state	528	14.1	18.0	27.6	30.7	2
	Aizawl district	304	16.0	27.9	37.9	34.1	1
20	Sikkim state	73	6.5	4.9	7.1	9.1	6
21	Tripura state	263	5.4	2.8	3.3	5.6	24
22	West Arunachal	46	3.9	2.2	5.0	9.7	14
	Papumpare district	21	4.0	4.2	12.8	21.8	4
23	Meghalaya	116	4.1	2.3	4.3	7.9	17
	East Khasi Hills district	70	4.0	3.1	5.3	8.7	12
24	Nagaland	37	3.7	2.1	4.3	8.2	18
25	Pasighat	9	3.0	2.6	4.2	7.2	19
26	Cachar district	125	3.2	2.8	3.9	6.9	21
27	Dibrugarh district	52	2.3	1.5	2.0	3.6	30
28	Kamrup urban	181	3.8	5.7	6.7	13.1	7

Total number of cases (N) registered and calendar year of data for all sites is mentioned in Table 1.2

Aizawl district had the highest rank in incidence rates in both males (38.8 per 100,000) and females (37.9 per 100,000).

Fig. 10.1 Age Specific Incidence Rates per 100,000 in 28 PBCRs under NCRP - Cancer Lung

Males

Region	Registry	Five Year Age Group															
		0-4	5-9	10-14	15-19	20-24	25-29	30-34	35-39	40-44	45-49	50-54	55-59	60-64	65-69	70-74	75+
NORTH	Delhi	0.0	0.0	0.0	0.0	0.4	0.5	1.1	2.9	6.9	13.6	33.1	54.1	85.2	109.5	126.7	104.6
	Patiala district	0.0	0.2	0.0	0.0	0.4	0.4	0.5	1.9	2.4	9.5	23.5	27.7	44.8	32.9	53.9	32.3
SOUTH	Hyderabad district	0.0	0.0	0.0	0.0	0.2	0.7	1.8	1.9	6.7	10.0	18.6	28.7	59.2	90.5	121.5	76.1
	Kollam district	0.0	0.0	0.0	0.0	0.0	1.0	1.2	3.0	6.9	18.9	41.4	58.9	115.4	179.4	193.8	147.8
	Thi'puram district	0.0	0.0	0.0	0.0	0.3	0.9	1.1	4.0	6.1	15.8	29.5	44.7	91.3	116.0	122.2	113.8
	Bangalore	0.1	0.1	0.1	0.3	0.2	0.5	1.0	2.4	3.6	8.3	22.5	40.2	58.0	100.8	104.6	92.3
	Chennai	0.0	0.1	0.0	0.2	0.4	0.3	1.6	0.7	4.5	10.0	20.4	38.4	53.3	85.0	89.7	86.8
EAST	Kolkata	0.0	0.0	0.0	0.0	0.6	0.9	1.0	2.1	5.7	12.7	36.0	56.5	85.4	118.4	158.9	136.2
WEST	Ahmedabad urban	0.0	0.0	0.0	0.1	0.1	0.3	0.6	1.6	3.0	8.5	16.1	25.1	43.0	60.7	73.8	56.9
	Aurangabad	0.0	0.0	0.0	0.0	0.3	0.3	2.9	2.7	3.9	6.0	21.4	24.9	40.0	62.2	76.6	37.4
	Osamanabad & Beed	0.0	0.0	0.0	0.0	0.1	0.0	0.8	0.7	0.4	2.7	5.1	6.0	9.0	12.8	10.0	10.5
	Barshi rural	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.5	3.0	5.2	9.1	4.4	12.8	7.7	7.7
	Mumbai	0.1	0.1	0.0	0.1	0.3	0.6	0.7	1.6	3.4	7.4	16.0	25.7	47.8	72.5	97.9	112.4
	Pune	0.0	0.0	0.0	0.0	0.1	0.1	0.5	0.8	1.8	4.6	10.3	17.8	31.0	51.3	59.0	50.7
CENTRAL	Wardha district	0.0	0.0	0.0	0.0	0.0	1.7	0.4	0.4	2.0	5.0	10.1	12.2	29.6	17.8	32.7	32.0
	Bhopal	0.0	0.3	0.0	0.2	0.2	0.2	0.9	2.9	5.3	12.1	26.8	44.5	48.6	76.1	97.7	67.1
	Nagpur	0.0	0.0	0.2	0.0	0.2	0.5	0.9	1.5	1.7	5.8	10.9	18.7	30.1	42.7	53.3	30.4
NORTH EAST	Manipur state	0.0	0.0	0.0	0.0	0.3	0.3	1.0	0.7	2.5	4.5	13.7	26.1	41.8	96.9	159.1	143.4
	Imphal West district	0.0	0.0	0.0	0.0	0.0	0.0	1.8	1.9	2.2	4.9	13.6	41.2	61.2	124.0	192.8	241.3
	Mizoram state	0.3	0.0	0.0	0.0	0.0	0.4	2.4	3.1	7.5	16.7	44.3	78.1	144.4	224.6	274.8	343.3
	Aizawl district	1.0	0.0	0.0	0.0	0.0	0.0	2.1	2.7	12.8	23.7	50.7	79.6	187.7	309.7	277.8	408.0
	Sikkim state	0.0	0.0	0.0	0.0	0.0	0.0	0.6	1.6	2.8	6.9	5.3	7.3	32.2	29.4	71.7	81.1
	Tripura state	0.0	0.0	0.0	0.0	0.2	0.4	0.1	1.5	3.7	8.5	23.4	45.1	83.9	90.5	117.2	109.0
	West Arunachal	0.0	0.0	0.0	0.0	0.5	2.0	1.8	2.1	4.4	5.6	22.6	21.6	42.7	55.7	23.6	7.0
	Papumpare district	0.0	0.0	0.0	0.0	0.0	6.2	2.7	0.0	6.2	7.9	66.5	29.6	160.9	255.7	0.0	0.0
	Meghalaya	0.0	0.0	0.0	0.0	0.2	0.0	0.6	3.1	6.6	15.0	31.9	35.4	55.5	73.2	110.6	61.8
	East Khasi Hills district	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.1	10.2	16.2	32.8	41.9	47.6	68.4	181.1	76.9
	Nagaland	0.0	0.0	0.0	0.0	0.5	0.5	0.0	3.0	5.2	6.4	16.7	33.7	18.3	81.2	44.6	60.6
	Pasighat	0.0	0.0	0.0	0.0	0.0	0.0	0.0	4.2	0.0	25.0	25.5	35.4	42.3	16.1	112.0	44.5
	Cachar district	0.2	0.0	0.0	0.0	0.5	0.0	0.0	1.8	3.7	9.4	19.4	33.7	62.5	63.2	112.9	100.5
	Dibrugarh district	0.0	0.0	0.0	0.0	0.0	1.2	0.0	1.1	2.1	5.9	12.7	9.2	20.3	37.9	38.7	38.4
	Kamrup urban	0.0	0.0	0.0	0.0	0.3	0.3	1.1	2.7	6.1	11.5	25.9	55.7	67.0	108.7	181.1	182.7

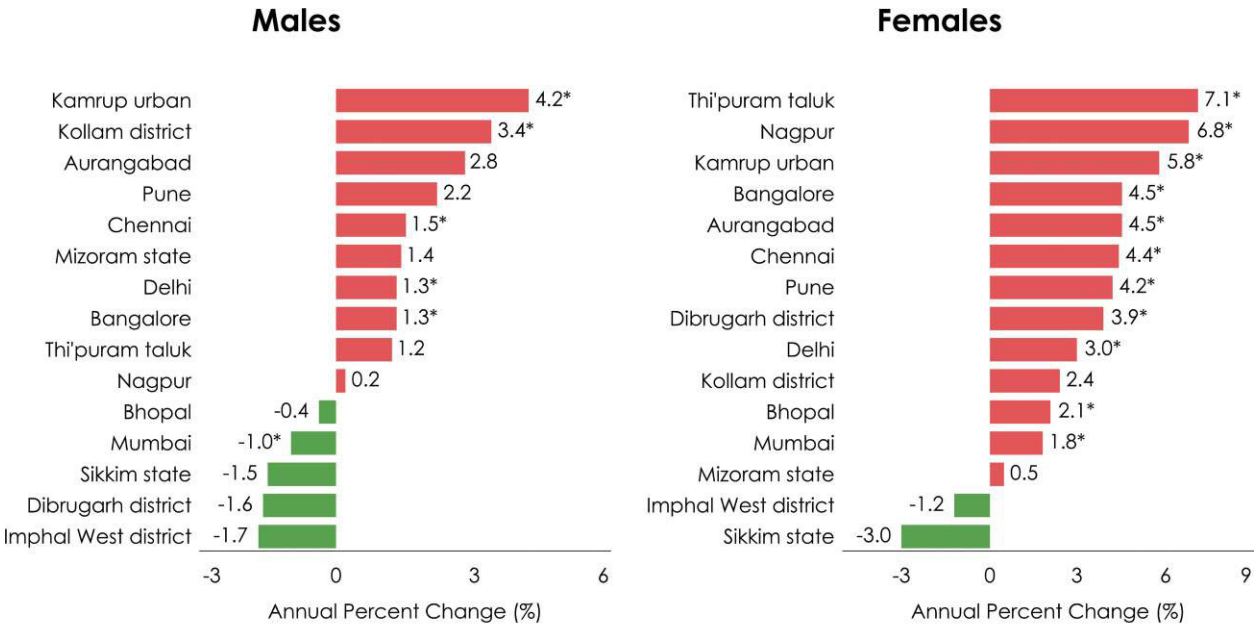
Females

Region	Registry	Five Year Age Group															
		0-4	5-9	10-14	15-19	20-24	25-29	30-34	35-39	40-44	45-49	50-54	55-59	60-64	65-69	70-74	75+
NORTH	Delhi	0.0	0.0	0.0	0.0	0.1	0.4	0.9	1.8	2.8	6.3	12.6	16.7	22.5	31.6	28.8	28.4
	Patiala district	0.0	0.0	0.0	0.0	0.0	0.2	0.8	1.7	2.7	2.0	7.5	16.1	6.8	15.3	12.9	17.5
SOUTH	Hyderabad district	0.0	0.0	0.0	0.0	0.1	0.0	1.8	1.3	3.6	6.5	12.3	23.1	34.1	39.7	35.3	20.1
	Kollam district	0.0	0.0	0.0	0.0	0.0	0.6	0.4	1.3	1.6	6.6	9.6	9.5	16.7	25.5	21.9	21.5
	Thi'puram district	0.0	0.0	0.0	0.0	0.1	0.4	1.4	1.0	3.3	6.1	12.1	13.4	18.8	28.9	29.4	28.3
	Bangalore	0.0	0.0	0.1	0.0	0.1	0.4	0.8	1.8	3.9	8.3	13.9	19.5	23.7	29.4	38.7	37.7
	Chennai	0.0	0.0	0.0	0.0	0.0	0.3	1.2	2.2	2.2	5.2	10.0	14.1	19.0	25.7	30.3	28.0
EAST	Kolkata	0.0	0.0	0.0	0.0	0.0	0.6	0.9	3.5	3.3	9.3	12.4	17.3	24.8	33.7	35.3	37.7
WEST	Ahmedabad urban	0.1	0.0	0.1	0.0	0.1	0.3	0.6	0.7	0.9	2.3	5.1	6.2	11.9	18.6	13.5	11.6
	Aurangabad	0.0	0.0	0.0	0.0	0.3	0.3	1.1	1.6	1.5	5.1	4.0	11.0	16.1	14.8	26.8	14.0
	Osamanabad & Beed	0.3	0.0	0.0	0.0	0.1	0.1	0.2	0.9	1.6	1.9	2.4	4.8	2.2	5.2	3.9	3.5
	Barshi rural	0.0	0.0	0.0	0.0	0.0	1.1	1.2	1.2	3.9	1.6	5.7	6.7	5.5	14.0	2.8	5.3
	Mumbai	0.1	0.1	0.1	0.2	0.2	0.5	1.3	2.0	2.9	6.3	9.3	14.7	19.1	35.8	47.6	62.6
	Pune	0.0	0.1	0.1	0.1	0.1	0.3	0.6	1.9	3.0	5.8	7.5	8.2	20.9	29.1	20.8	23.3
CENTRAL	Wardha district	0.5	0.0	0.0	0.4	0.0	0.0	1.6	1.5	2.1	3.0	5.6	10.5	8.5	8.8	12.2	10.4
	Bhopal	0.0	0.0	0.0	0.0	0.0	0.2	1.2	1.3	2.7	7.4	9.5	13.5	14.7	19.3	21.4	10.0
	Nagpur	0.0	0.0	0.0	0.0	0.6	0.8	1.2	1.3	3.9	4.0	6.4	7.3	10.8	14.7	16.0	8.3
NORTH EAST	Manipur state	0.0	0.0	0.1	0.0	0.1	0.4	1.1	0.7	2.5	4.6	16.0	27.7	49.9	90.2	127.4	103.1
	Imphal West district	0.0	0.0	0.0	0.0	0.8	0.0	0.8	0.9	5.2	9.6	31.5	39.4	64.5	104.4	156.7	179.7
	Mizoram state	0.0	0.0	0.0	0.4	0.3	0.0	2.0	2.1	5.2	8.1	30.1	69.4	107.8	191.7	290.8	318.6
	Aizawl district	0.0	0.0	0.0	1.0	0.0	0.0	3.9	3.8	4.7	7.8	27.9	94.1	110.6	252.9	400.6	569.8
	Sikkim state	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.8	0.0	8.1	9.9	16.2	26.9	47.3	60.2	81.4
	Tripura state	0.0	0.0	0.0	0.1	0.0	0.3	0.6	0.8	1.4	4.0	8.1	10.1	14.0	17.7	31.5	19.0
	West Arunachal	0.0	0.0	0.0	0.0	0.0	0.5	0.0	0.7	4.2	8.1	5.1	21.7	27.6	27.6	40.9	13.9
	Papumpare district	0.0	0.0	0.0	0.0	0.0	2.0	0.0	0.0	13.6	10.1	8.8	31.2	91.0	36.8	205.9	32.8
	Meghalaya	0.0	0.0	0.0	0.0	0.0	0.2	0.0	2.4	1.6	5.0	8.8	13.0	24.1	25.4	27.5	25.6
	East Khasi Hills district	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.7	0.8	6.0	4.0	13.5	34.4	41.2	37.6	33.7
	Nagaland	0.0	0.0	0.0	0.0	0.5	0.0	0.7	2.3	4.1	2.7	5.7	11.8	31.2	32.0	24.1	10.5
	Pasighat	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	4.8	0.0	9.1	14.0	22.8	50.7	25.5	0.0
	Cachar district	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.5	2.2	5.2	7.8	13.9	16.6	20.5	24.4	31.2
	Dibrugarh district	0.0	0.0	0.0	0.0	0.3	0.0	0.4	0.7	1.3	3.0	2.8	6.5	10.4	13.6	12.0	11.3
	Kamrup urban	0.0	0.0	0.0	0.4	0.3	0.6	2.6	2.3	4.5	8.3	10.3	30.3	36.0	28.3	33.1	44.7

0.0 569.8

Among males, the age specific incidence rate increased between 45-75+ age group and among females, it was between 50-75+.

Fig. 10.2 Annual Percent Change (APC) in Age Adjusted Incidence Rates (AAR) over the Time Period - Cancer Lung

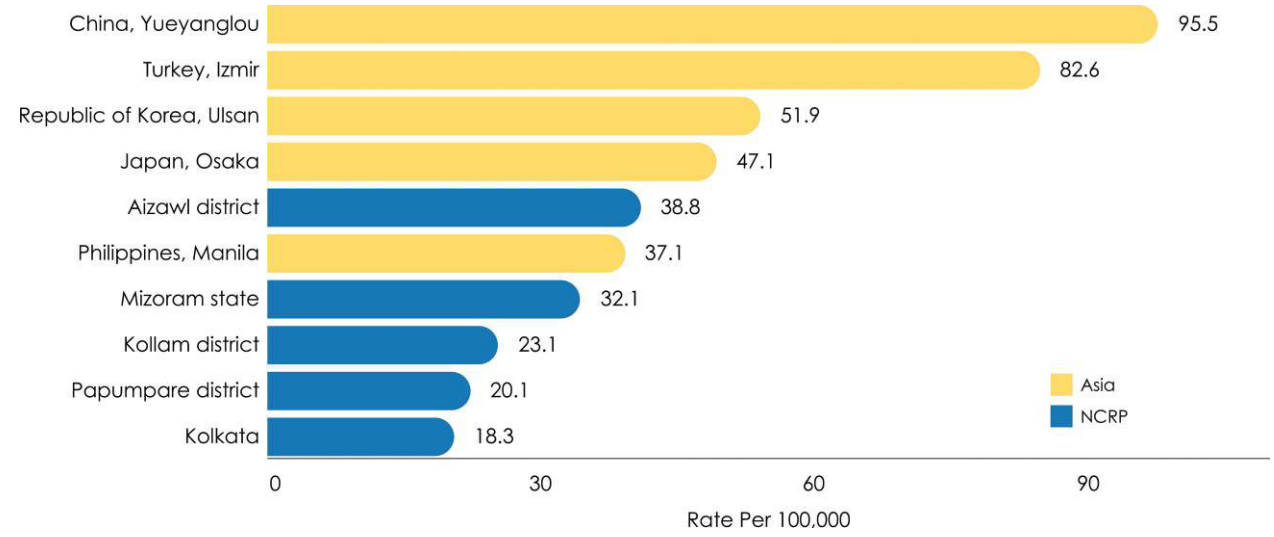


*Increase in APC, Decrease in APC ; *Significant increase or decrease in APC at 95% confidence level*

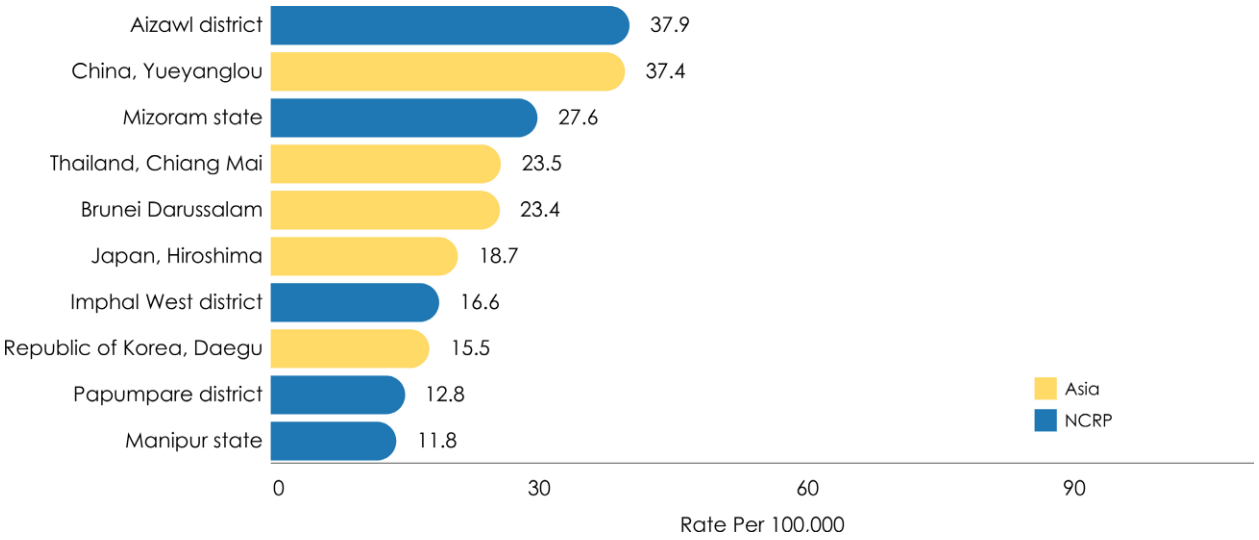
There was a significant increase in the incidence rates of cancer lung in Kamrup urban, Chennai, Delhi and Bangalore PBCRs in both males and females. 5 PBCRs showed a significant increase in incidence rates among males whereas it was seen in 11 PBCRs among females.

Fig. 10.3 Comparison of Age Adjusted Incidence Rates (AAR) of Asian countries with PBCRs under NCRP - Cancer Lung

Males



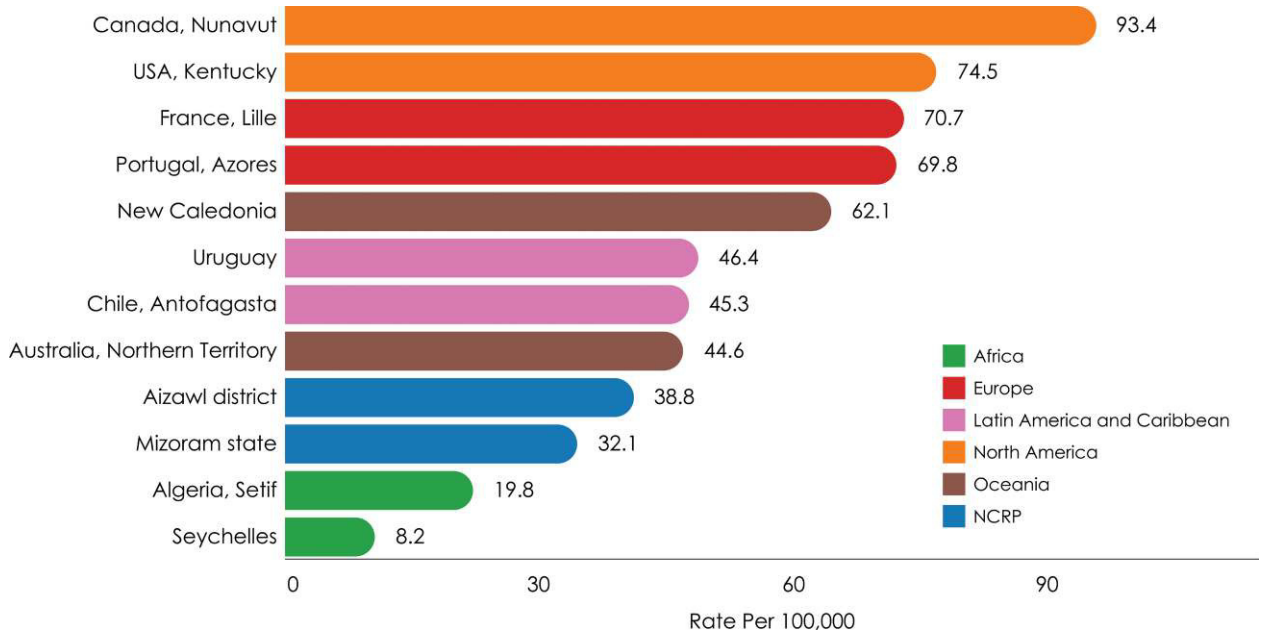
Females



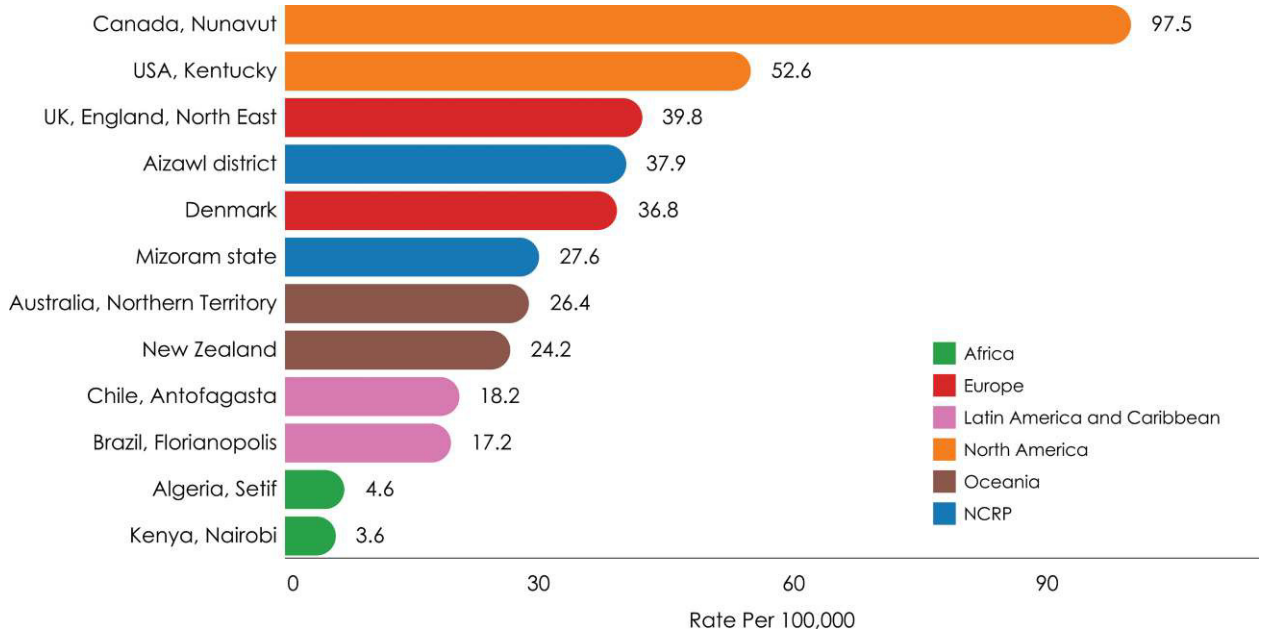
In Asia, among males, Yueyanglou (95.5 per 100,000) in China had the highest incidence rate of lung cancer whereas Aizawl district (37.9 per 100,000), India had the highest AAR in females.

Fig. 10.4 Comparison of Age Adjusted Incidence Rates (AAR) of Non-Asian countries with PBCRs under NCRP - Cancer Lung

Males



Females



Among non-Asian countries, Nunavut in Canada (93.4 per 100,000) had the highest incidence rate of cancer lung in males and females alike.

Table 10.2 Number (n) and Relative Proportion (%) according to Clinical Extent of Disease - Cancer Lung

Clinical Extent of Disease	Males		Females		Both Sexes	
	n	%	n	%	n	%
Localised only	2456	13.9	904	17.0	3360	14.6
Locoregional	6552	37.0	1590	29.8	8142	35.3
Distant Metastasis	7793	44.0	2356	47.6	10329	44.8
Unknown	923	5.2	301	5.6	1224	5.3
Total	**17724**	**100.0**	**5331**	**100.0**	**23055**	**100.0**

Distant metastasis was the commonest presentation for cancer lung. Cancer lung showed locoregional spread among 37.0% and 29.8% of males and females, respectively.

Table 10.3 Number (n) and Relative Proportion (%) of Types of Treatment according to Clinical Extent of Disease - Cancer Lung

Males

Treatment	Clinical Extent of Disease							
	Localised only		Locoregional		Distant Metastasis		Unknown	
	n	%	n	%	n	%	n	%
Surgery	141	5.8	134	2.1	49	0.6	42	4.6
Radiotherapy	304	12.4	931	14.3	1874	24.2	157	17.0
Systemic Therapy	1198	49.0	3103	47.6	3277	42.3	449	48.8
Multi-modality*	765	31.3	2217	34.0	2408	31.1	259	28.1
Palliative Care	39	1.6	131	2.0	144	1.9	14	1.5
Total	**2447**	**100.0**	**6516**	**100.0**	**7752**	**100.0**	**921**	**100.0**

Females

Treatment	Clinical Extent of Disease							
	Localised only		Locoregional		Distant Metastasis		Unknown	
	n	%	n	%	n	%	n	%
Surgery	62	6.9	37	2.3	14	0.6	26	8.6
Radiotherapy	86	9.6	147	9.3	439	17.4	40	13.3
Systemic Therapy	479	53.3	915	58.0	1282	50.9	167	55.5
Multi-modality*	249	27.7	442	28.0	721	28.6	62	20.6
Palliative Care	22	2.4	37	2.3	63	2.5	6	2.0
Total	**898**	**100.0**	**1578**	**100.0**	**2519**	**100.0**	**301**	**100.0**

**Multi-modality includes the combination of Surgery and/or Radiotherapy and/or Systemic Therapy*

On the basis of clinical extent of disease, systemic therapy was the treatment of choice for Cancer lung among both males (localized: 49.0%, locoregional: 47.6% and distant metastasis: 42.3%) and females (localized: 53.3%, locoregional: 58.0% and distant metastasis: 50.9%). Multi-modality was the second choice of treatment for cancer lung for males and females.

Table 10.4 Number (n) and Relative Proportion (%) by Educational Status - Cancer Lung

Educational Status	Males		Females	
	n	%	n	%
Illiterate	3198	17.9	1403	26.1
Literate	1484	8.3	509	9.5
Primary	3001	16.8	644	12.0
Secondary	4293	24.1	1066	19.8
Higher Education	1347	7.6	329	6.1
Unknown	4505	25.3	1427	26.5
Not Applicable (for children below 5 Years)	5	<0.1	-	-
Total	**17833**	**100.0**	**5378**	**100.0**

Among the patients of cancer lung, illiteracy was more in female patients (26.1%) as compared to male patients (17.9%). The proportion of patients' levels of education were 8.3% and 9.5% literate, 16.8% and 12.0% primary, 24.1% and 19.8% secondary and 7.6% and 6.1% higher education in males and females, respectively.

Table 10.5 Number (n) and Relative Proportion (%) of Broad Histological Classification - Cancer Lung

Broad Histological Classification	Males		Females	
	n	%	n	%
Epithelial Tumours				
Adenocarcinomas	5979	34.4	2773	52.8
Squamous cell carcinomas	4083	23.5	604	11.5
Small cell carcinoma	1755	10.1	317	6.0
Non-small cell carcinoma	2727	15.7	619	11.8
Others	970	5.6	329	6.3
Lymph histiocytic Tumours	28	10.8	17	11.6
Mesenchymal Tumours	46		22	
Tumour of ectopic origin	2		-	
Others	1801		573	
All Microscopic	**17391**	**100.0**	**5254**	**100.0**

34.4% and 52.8% of cancer lung patients were histologically classified as adeno-carcinomas of epithelial tumours among males and females, respectively. 23.5% males and 11.5% females had squamous cell carcinomas of cancer lung.

11

Cancer
Stomach

Cancer Stomach (ICD-10: C16)

Table 11.1 Number of cases (n) registered for Cancer Stomach and its Relative Proportion to All Sites of Cancer (%), Crude (CR), Age Adjusted (AAR) and Truncated (TR) Incidence Rates per 100,000 population and its Rank in 28 PBCRs under NCRP

Males

Sl No	Registry	n	%	CR	AAR	TR	RANK
	NORTH						
1	Delhi	806	2.6	2.9	3.8	6.9	22
2	Patiala district	143	2.7	2.7	2.9	5.9	25
	SOUTH						
3	Hyderabad district	291	5.7	4.8	6.0	10.5	14
4	Kollam district	470	4.7	7.5	5.9	8.9	15
5	Thi'puram district	482	3.6	6.1	4.8	7.1	18
6	Bangalore	914	6.9	6.7	8.6	13.7	12
7	Chennai	1265	8.7	10.6	10.5	17.7	11
	EAST						
8	Kolkata	469	4.6	5.1	4.2	7.7	21
	WEST						
9	Ahmedabad urban	266	1.8	1.6	1.9	3.4	30
10	Aurangabad	64	3.3	1.9	2.6	4.4	27
11	Osmanabad & Beed	162	4.5	1.8	1.8	3.3	31
12	Barshi rural	32	4.4	2.4	2.3	4.6	28
13	Mumbai	1138	4.3	4.2	4.8	6.9	19
14	Pune	384	4.0	2.7	3.3	4.9	24
	CENTRAL						
15	Wardha district	58	2.4	1.7	1.6	2.7	32
16	Bhopal	75	2.1	1.8	2.2	4.5	29
17	Nagpur	183	3.1	2.7	2.8	5.9	26
	NORTH EAST						
18	Manipur state	257	6.9	3.3	4.5	7.5	20
	Imphal West district	41	3.6	3.1	3.6	4.4	23
19	Mizoram state	776	18.0	26.2	39.1	58.9	3
	Aizawl district	342	15.7	32.3	44.2	70.0	1
20	Sikkim state	198	16.9	11.8	15.7	22.9	7
21	Tripura state	404	6.2	4.1	5.0	9.6	17
22	West Arunachal	284	23.2	13.2	24.9	50.9	4
	Papumpare district	93	19.7	18.7	40.3	83.8	2
23	Meghalaya	296	6.3	5.8	12.2	20.7	10
	East Khasi Hills district	152	5.3	6.9	13.6	22.5	8
24	Nagaland	177	12.6	9.4	17.9	23.5	6
25	Pasighat	58	18.1	16.4	23.9	36.9	5
26	Cachar district	195	4.2	4.1	5.6	9.7	16
27	Dibrugarh district	185	7.3	5.3	7.0	11.3	13
28	Kamrup urban	389	6.3	11.9	13.4	21.2	9

Total number of cases (N) registered and reporting year of data for all sites is mentioned in Table 1.2

Females

Sl No	Registry	n	%	CR	AAR	TR	RANK
			NORTH				
1	Delhi	482	1.7	2.0	2.4	4.5	19
2	Patiala district	100	1.7	2.1	2.1	3.9	21
			SOUTH				
3	Hyderabad district	160	2.5	2.7	3.2	7.0	16
4	Kollam district	186	1.9	2.6	2.0	3.6	23
5	Thi'puram district	191	1.3	2.2	1.7	3.0	24
6	Bangalore	519	3.3	4.1	4.9	8.3	12
7	Chennai	654	3.9	5.5	5.1	9.0	11
			EAST				
8	Kolkata	246	2.7	2.8	2.4	3.9	20
			WEST				
9	Ahmedabad urban	169	1.5	1.1	1.2	2.3	29
10	Aurangabad	32	1.6	1.0	1.2	3.1	30
11	Osmanabad & Beed	100	2.2	1.2	1.1	2.2	31
12	Barshi rural	21	2.6	1.7	1.5	3.5	25
13	Mumbai	673	2.5	2.9	2.9	4.6	17
14	Pune	179	1.7	1.4	1.6	2.6	26
			CENTRAL				
15	Wardha district	51	2.0	1.6	1.4	3.1	28
16	Bhopal	31	0.9	0.8	1.0	1.5	32
17	Nagpur	98	1.6	1.5	1.6	3.1	27
			NORTH EAST				
18	Manipur state	158	3.5	2.0	2.7	4.6	18
	Imphal West district	45	3.0	3.2	3.7	6.3	14
19	Mizoram state	374	10.0	12.8	18.8	30.9	3
	Aizawl district	175	9.2	16.1	21.7	33.4	2
20	Sikkim state	83	7.3	5.5	7.9	10.6	8
21	Tripura state	183	3.7	1.9	2.1	4.6	22
22	West Arunachal	171	14.6	8.2	15.8	38.5	4
	Papumpare district	58	11.0	11.5	27.1	73.1	1
23	Meghalaya	205	7.2	4.0	6.9	13.0	10
	East Khasi Hills district	122	7.1	5.4	8.0	14.2	7
24	Nagaland	112	11.3	6.4	11.8	18.7	6
25	Pasighat	29	9.6	8.4	12.5	27.4	5
26	Cachar district	120	3.0	2.6	3.4	7.3	15
27	Dibrugarh district	118	5.3	3.5	4.1	8.3	13
28	Kamrup urban	223	4.7	7.0	7.9	14.3	9

Total number of cases (N) registered and reporting year of data for all sites is mentioned in Table 1.2

Among males, Aizawl district (44.2 per 100,000) had the highest rank in incidence rates of stomach cancer across all PBCRs and Papumpare district (27.1 per 100,000) had the highest rate among females.

Fig. 11.1 Age Specific Incidence Rates per 100,000 in 28 PBCRs under NCRP - Cancer Stomach

Males

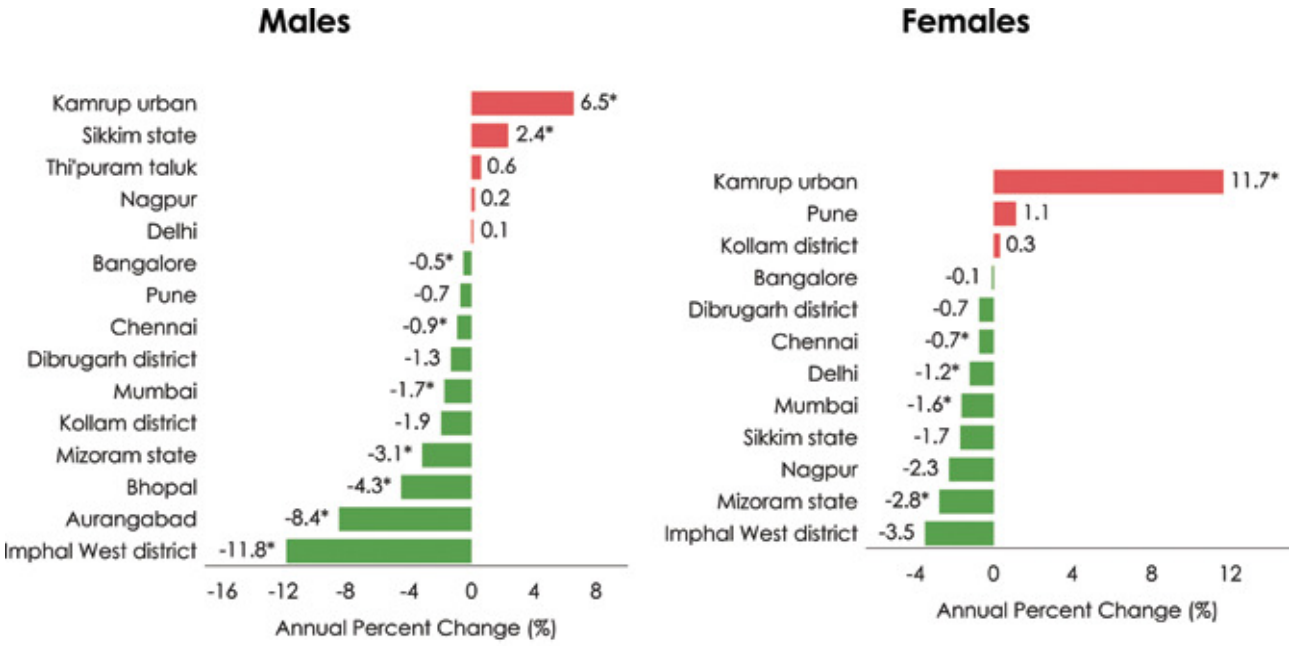
Region	Registry	Five Year Age Group															
		0-4	5-9	10-14	15-19	20-24	25-29	30-34	35-39	40-44	45-49	50-54	55-59	60-64	65-69	70-74	75+
NORTH	Delhi	0.0	0.0	0.0	0.1	0.2	0.6	1.0	2.0	3.6	5.8	7.6	11.6	14.9	19.0	22.2	25.9
	Patiala district	0.0	0.0	0.0	0.7	0.2	0.4	0.7	1.9	3.0	7.0	4.9	13.3	8.7	12.6	14.8	9.5
SOUTH	Hyderabad district	0.0	0.0	0.0	0.0	0.3	0.8	1.1	2.1	4.1	11.8	15.6	18.1	17.0	35.3	48.3	28.4
	Kollam district	0.0	0.0	0.0	0.0	0.0	0.2	0.5	2.6	2.0	5.2	10.5	13.9	26.9	43.2	41.0	48.5
	Thi'puram district	0.0	0.0	0.0	0.2	0.5	0.5	1.6	1.9	3.2	4.8	8.5	12.1	17.5	29.7	35.7	41.0
	Bangalore	0.0	0.0	0.2	0.1	0.5	0.7	1.4	1.8	4.7	9.9	16.0	25.8	35.6	57.4	65.7	56.6
	Chennai	0.0	0.1	0.1	0.5	0.6	0.8	1.8	2.8	7.1	12.7	24.2	29.2	43.8	66.6	62.0	73.6
EAST	Kolkata	0.0	0.0	0.0	0.0	0.6	0.5	1.3	1.4	3.6	5.2	7.8	15.6	19.2	19.6	33.6	17.9
WEST	Ahmedabad urban	0.0	0.0	0.0	0.1	0.1	0.3	0.4	1.0	1.8	2.2	3.8	5.3	8.6	12.3	10.9	8.5
	Aurangabad	0.0	0.0	0.0	0.3	0.3	0.0	1.1	1.6	1.3	1.6	3.6	7.4	15.3	12.8	23.9	11.0
	Osamanabad & Beed	0.0	0.0	0.0	0.0	0.1	0.1	0.2	0.2	2.0	3.2	3.2	5.7	8.0	7.9	10.0	13.5
	Barshi rural	0.0	0.0	0.0	0.0	0.0	1.8	0.0	0.0	1.2	4.5	0.0	15.9	10.9	8.5	17.9	7.7
	Mumbai	0.0	0.1	0.0	0.0	0.2	0.3	0.9	1.6	3.0	4.9	7.0	12.4	18.0	28.8	38.0	44.5
	Pune	0.0	0.1	0.2	0.1	0.1	0.3	0.5	0.8	1.5	3.1	6.3	9.4	12.9	20.6	23.7	31.3
CENTRAL	Wardha district	0.0	0.4	0.0	0.0	0.0	0.0	0.0	1.1	1.2	2.7	3.2	2.9	6.8	14.1	5.8	7.7
	Bhopal	0.0	0.0	0.0	0.0	0.0	0.2	0.6	1.9	2.1	2.4	6.6	9.2	7.7	11.4	14.7	4.5
	Nagpur	0.0	0.0	0.0	0.0	0.0	0.2	0.5	1.3	3.3	3.8	9.5	9.3	12.1	15.3	16.2	8.8
NORTH EAST	Manipur state	0.0	0.0	0.0	0.0	0.0	0.3	0.3	1.9	2.5	4.8	8.2	14.2	20.2	28.3	32.7	29.9
	Imphal West district	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.1	2.5	4.5	11.2	11.8	30.1	38.6	30.2
	Mizoram state	0.0	0.0	0.0	0.0	0.3	1.4	1.2	5.1	18.8	32.7	84.5	108.9	157.4	235.9	329.1	345.6
	Aizawl district	0.0	0.0	0.0	0.0	0.0	1.0	1.1	10.6	24.0	37.2	90.8	133.7	187.7	279.3	301.0	396.8
	Sikkim state	0.0	0.0	0.0	0.0	0.0	0.5	1.9	1.6	8.3	9.2	23.9	41.9	76.8	107.7	130.8	128.5
	Tripura state	0.0	0.0	0.0	0.0	0.1	0.3	1.0	1.8	3.7	5.7	11.8	18.1	24.6	30.2	30.0	21.1
	West Arunachal	0.0	0.0	0.0	0.4	0.9	2.9	1.2	10.5	20.0	46.0	69.1	62.8	130.8	122.4	173.0	77.1
	Papumpare district	0.0	0.0	0.0	1.6	1.7	8.2	2.7	24.4	24.9	58.9	108.9	118.5	232.5	146.1	356.9	85.9
	Meghalaya	0.0	0.0	0.0	0.0	0.6	0.7	1.5	5.6	8.7	18.5	31.9	27.1	44.1	73.2	102.3	68.9
	East Khasi Hills district	0.0	0.0	0.0	0.0	0.4	0.0	1.9	5.0	10.2	14.2	39.9	25.1	55.6	98.3	108.7	66.6
	Nagaland	0.0	0.0	0.0	0.0	1.0	2.1	2.5	2.2	9.5	12.9	38.0	33.7	64.0	109.8	126.4	220.3
	Pasighat	0.0	0.0	0.0	0.0	0.0	0.0	0.0	4.2	17.0	25.0	31.9	70.7	105.7	176.7	179.2	178.1
	Cachar district	0.0	0.0	0.0	0.0	0.0	0.2	0.9	2.7	3.4	7.9	9.5	17.2	25.0	32.2	37.6	39.2
	Dibrugarh district	0.0	0.0	0.0	0.0	0.0	0.9	1.1	2.2	1.7	8.2	12.1	21.7	32.5	39.5	56.9	51.2
	Kamrup urban	0.0	0.0	0.0	0.0	0.3	3.2	1.8	3.4	4.5	13.7	26.4	53.5	45.3	75.5	100.4	109.6

Females

Region	Registry	Five Year Age Group															
		0-4	5-9	10-14	15-19	20-24	25-29	30-34	35-39	40-44	45-49	50-54	55-59	60-64	65-69	70-74	75+
NORTH	Delhi	0.0	0.0	0.0	0.0	0.3	0.4	0.9	1.6	2.6	3.8	4.8	6.7	10.3	11.8	13.4	11.4
	Patiala district	0.0	0.0	0.0	0.0	0.2	1.5	0.5	1.4	1.5	3.7	4.4	6.1	8.3	9.6	15.2	5.5
SOUTH	Hyderabad district	0.0	0.2	0.0	0.0	0.4	0.8	1.8	2.5	4.1	6.2	8.2	11.0	13.8	7.1	14.7	14.6
	Kollam district	0.0	0.0	0.0	0.0	0.0	0.8	0.6	1.0	1.9	3.9	3.7	5.8	7.4	10.2	12.6	9.5
	Thi'puram district	0.0	0.0	0.0	0.0	0.3	0.4	0.6	1.0	2.5	2.6	3.3	4.8	5.5	10.0	7.5	8.2
	Bangalore	0.0	0.0	0.0	0.0	0.6	0.6	0.9	3.0	4.3	6.1	9.5	17.2	15.3	28.2	34.3	32.8
	Chennai	0.0	0.0	0.0	0.0	0.4	1.5	1.8	3.0	4.2	8.9	11.1	12.9	18.6	28.4	28.6	32.4
EAST	Kolkata	0.0	0.0	0.0	0.3	0.3	0.5	1.3	1.3	2.2	2.4	4.6	6.6	8.8	13.0	15.4	15.3
WEST	Ahmedabad urban	0.0	0.0	0.0	0.0	0.1	0.3	0.7	1.0	1.3	2.0	3.2	2.9	4.9	6.0	5.2	4.7
	Aurangabad	0.0	0.0	0.0	0.0	0.0	0.3	0.4	0.4	1.5	3.2	5.6	2.2	6.9	5.9	0.0	3.5
	Osamanabad & Beed	0.0	0.0	0.0	0.0	0.1	0.6	0.2	0.7	2.6	1.4	1.5	1.4	7.0	3.6	4.8	4.7
	Barshi rural	0.0	0.0	0.0	0.0	0.9	0.0	0.0	1.2	2.6	6.4	1.9	2.2	7.4	6.0	2.8	8.0
	Mumbai	0.0	0.0	0.1	0.1	0.3	0.2	0.6	1.3	2.6	3.8	5.0	7.7	10.2	15.8	19.5	23.8
	Pune	0.0	0.0	0.0	0.2	0.1	0.3	0.4	0.7	1.2	2.3	3.1	3.9	6.2	9.5	8.0	12.4
CENTRAL	Wardha district	0.0	0.0	0.0	0.0	0.0	0.0	1.2	0.4	2.1	2.5	3.1	5.7	6.9	6.4	5.5	3.5
	Bhopal	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.7	0.8	0.0	0.0	4.2	5.2	9.0	10.7	2.8
	Nagpur	0.0	0.0	0.0	0.4	0.2	0.2	0.3	0.4	1.0	2.8	3.7	4.5	8.5	10.2	6.8	4.8
NORTH EAST	Manipur state	0.0	0.0	0.0	0.3	0.0	0.1	1.0	1.3	0.8	6.0	3.8	6.3	12.5	22.5	14.9	11.8
	Imphal West district	0.0	0.0	0.0	0.0	0.0	0.7	0.8	2.6	1.0	4.8	4.1	3.6	27.6	34.8	14.2	14.3
	Mizoram state	0.0	0.0	0.0	0.0	0.3	2.1	2.0	6.2	10.5	17.5	38.2	48.6	91.7	121.8	136.1	125.7
	Aizawl district	0.0	0.0	0.0	0.0	0.0	2.7	2.9	3.8	7.9	10.9	41.9	65.6	107.0	134.9	170.6	173.0
	Sikkim state	0.0	0.0	0.0	0.0	0.6	0.0	1.5	3.7	1.1	4.0	13.1	13.9	38.9	32.7	98.5	77.1
	Tripura state	0.0	0.0	0.0	0.0	0.2	0.7	1.2	1.9	2.6	4.0	5.3	9.1	7.4	10.9	2.9	9.0
	West Arunachal	0.0	0.0	0.4	0.0	0.9	1.6	2.6	7.5	15.2	23.1	69.7	38.0	104.4	44.2	16.4	90.3
	Papumpare district	0.0	0.0	0.0	0.0	3.2	3.9	2.6	14.0	23.8	25.2	96.4	78.1	273.0	36.8	0.0	131.2
	Meghalaya	0.0	0.0	0.0	0.2	0.4	1.4	3.6	5.1	7.8	7.5	17.0	17.9	31.0	30.1	38.1	42.2
	East Khasi Hills district	0.0	0.0	0.0	0.4	0.4	1.9	6.7	6.7	4.1	4.0	25.3	17.4	39.0	31.7	50.2	53.3
	Nagaland	0.0	0.0	0.0	0.0	0.5	2.7	2.6	10.9	8.2	8.0	28.6	17.7	50.8	74.6	96.3	73.7
	Pasighat	0.0	0.0	0.0	0.0	0.0	3.2	11.2	0.0	4.8	23.5	54.6	56.1	45.6	50.7	25.5	50.0
	Cachar district	0.0	0.0	0.0	0.0	0.0	0.5	1.5	2.7	4.8	5.6	10.0	9.2	14.9	12.8	20.9	12.5
	Dibrugarh district	0.0	0.0	0.0	0.3	0.8	1.5	2.6	4.5	5.8	4.4	7.0	9.2	23.9	15.3	31.3	6.8
	Kamrup urban	0.0	0.0	0.0	0.0	0.6	0.9	2.6	5.6	7.3	14.3	21.2	21.4	21.8	37.1	40.8	63.9

As age increased, the incidence rate increased in cancer stomach. North eastern registries like Mizoram, West Arunachal, Pasighat and Nagaland had higher incidence rate in the older age group compared to other PBCRs

Fig. 11.2 Annual Percent Change (APC) in Age Adjusted Incidence Rates (AAR) over the Time Period - Cancer Stomach

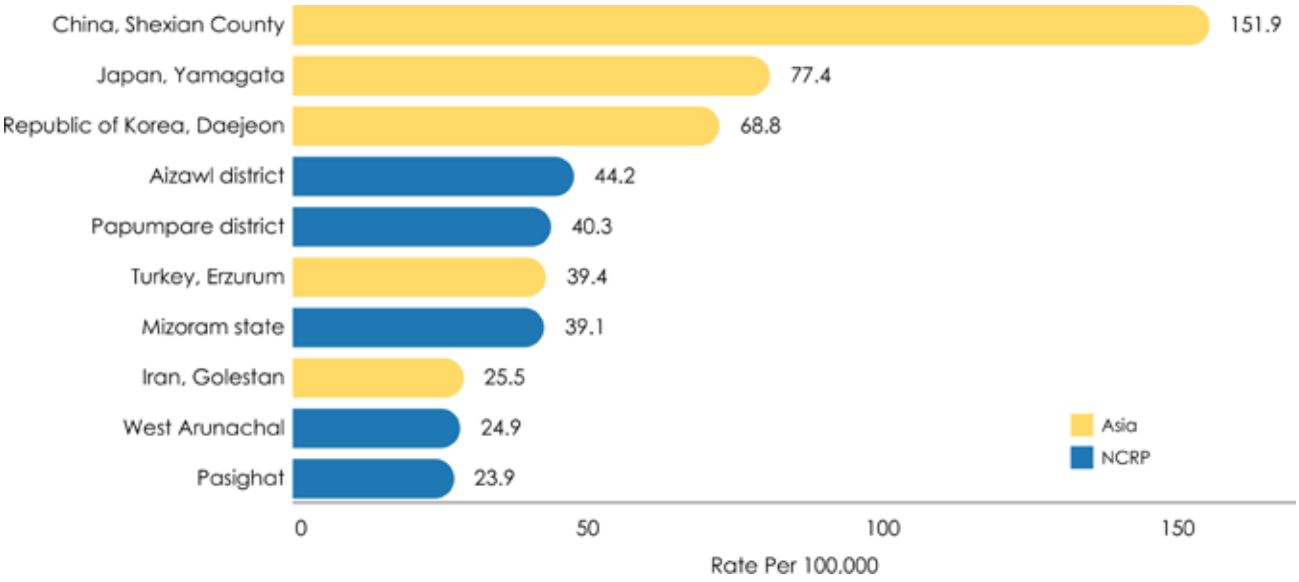


*Increase in APC, Decrease in APC ; *Significant increase or decrease in APC at 95% confidence level*

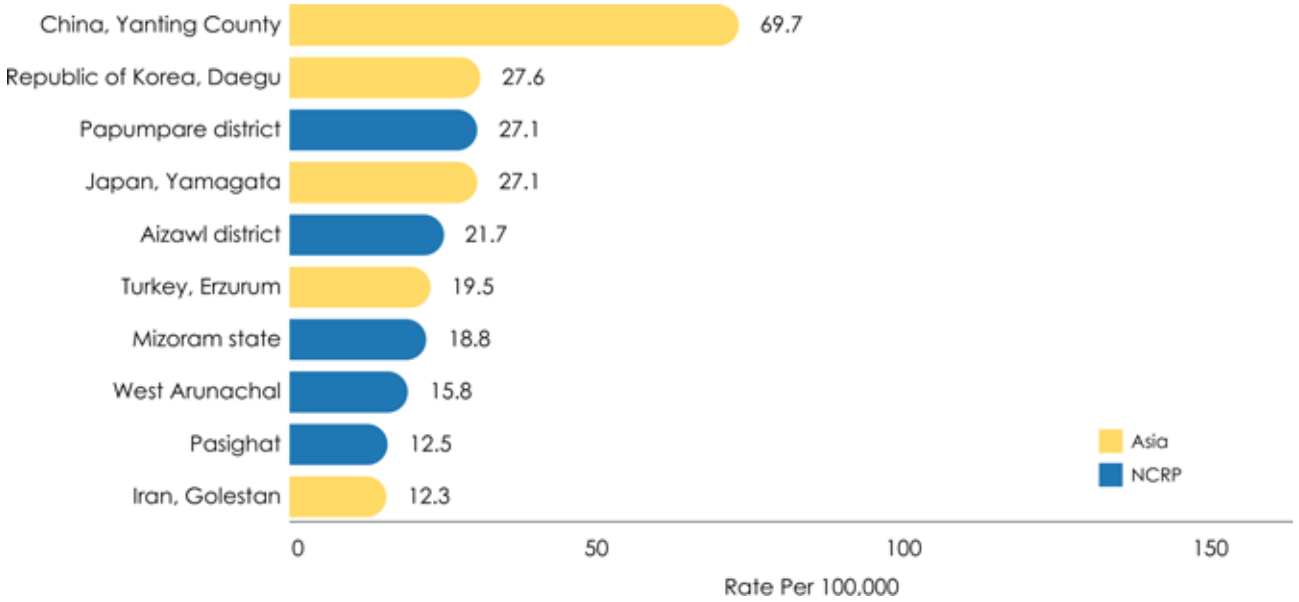
There was a significant increase in the incidence rates of stomach cancer in Kamrup urban in both genders. In the state of Sikkim stomach cancer increased significantly among males. Mizoram, Mumbai and Chennai PBCR had a significant decrease in the incidence rates of stomach cancer both in males and females.

Fig. 11.3 Comparison of Age Adjusted Incidence Rates (AAR) of Asian countries with PBCRs under NCRP - Cancer Stomach

Males



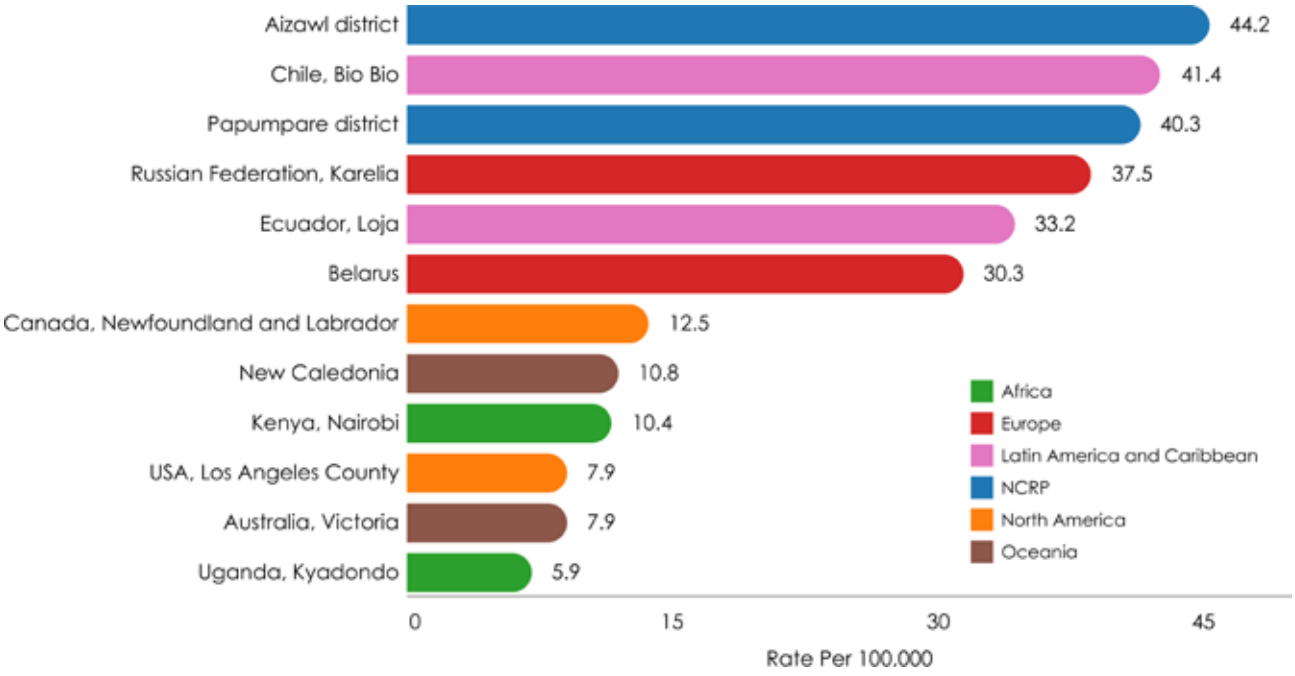
Females



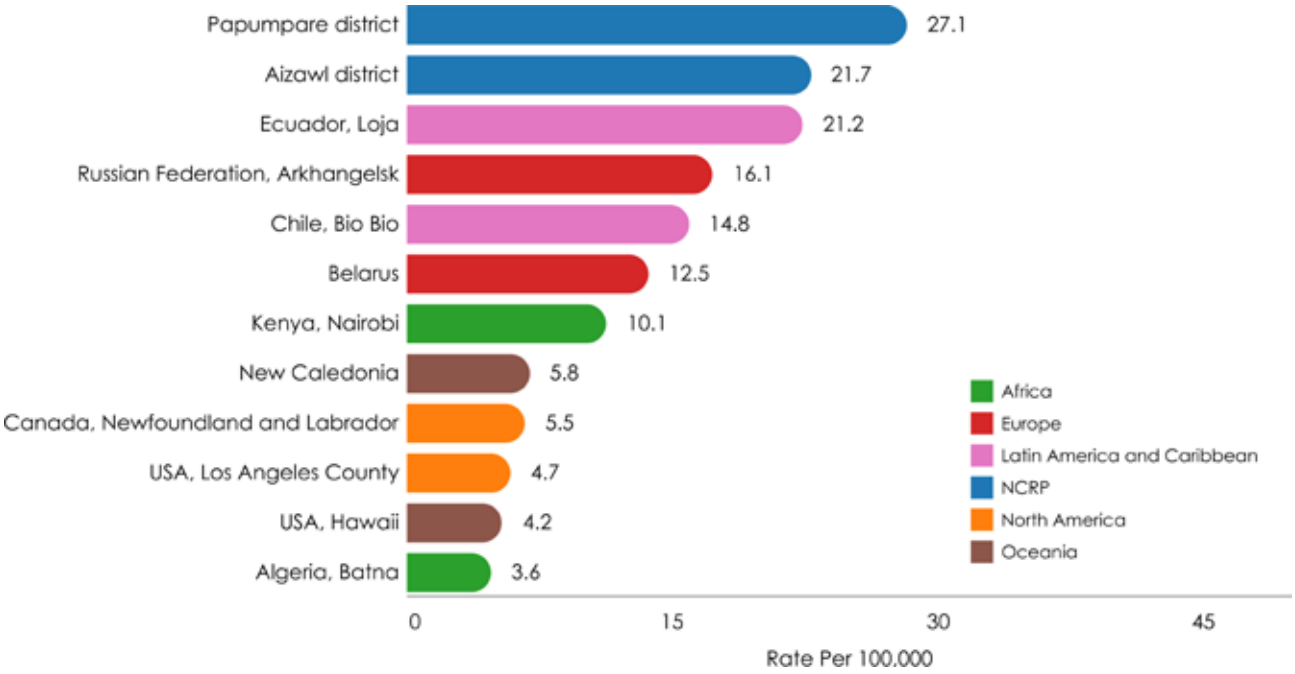
Shexian County (151.9 per 100,000) and Yanting County (69.7 per 100,000) in China had the highest incidence rate of stomach cancer among males and females , respectively in Asia and the world.

Fig. 11.4 Comparison of Age Adjusted Incidence Rates (AAR) of Non-Asian countries with PBCRs under NCRP - Cancer Stomach

Males



Females



Aizawl district (44.2 per 100,000) and Papumpare district (27.1 per 100,000) in India had the highest incidence rate of stomach cancer among males and females, respectively when compared to Non-Asian countries.

Table 11.2 Number (n) and Relative Proportion (%) according to Clinical Extent of Disease - Cancer Stomach

Clinical Extent of Disease	Males		Females		Both Sexes	
	n	%	n	%	n	%
Localised only	1266	18.4	605	19.3	1871	18.7
Locoregional	3502	51.0	1581	50.3	5083	50.8
Distant Metastasis	1690	24.6	778	24.8	2468	24.7
Unknown	406	5.9	178	5.7	584	5.8
Total	**6864**	**100.0**	**3142**	**100.0**	**10006**	**100.0**

Locoregional spread was most common among patients with cancer of the stomach (males 51.0% and females 50.3%). Around 24% of stomach cancers cases had distant metastasis in both males and females.

Table 11.3 Number (n) and Relative Proportion (%) of Types of Treatment according to Clinical Extent of Disease - Cancer Stomach

Males

Treatment	Clinical Extent of Disease							
	Localised only		Locoregional		Distant Metastasis		Unknown	
	n	%	n	%	n	%	n	%
Surgery	265	21.0	526	15.1	99	5.9	76	18.8
Radiotherapy	29	2.3	168	4.8	162	9.7	15	3.7
Systemic Therapy	491	38.9	1296	37.3	1058	63.3	167	41.3
Multi-modality*	444	35.2	1413	40.7	290	17.3	112	27.7
Palliative Care	34	2.7	71	2.0	63	3.8	34	8.4
Total	**1263**	**100.0**	**3474**	**100.0**	**1672**	**100.0**	**404**	**100.0**

Females

Treatment	Clinical Extent of Disease							
	Localised only		Locoregional		Distant Metastasis		Unknown	
	n	%	n	%	n	%	n	%
Surgery	114	19.0	293	18.7	63	8.2	40	22.5
Radiotherapy	15	2.5	63	4.0	53	6.9	11	6.2
Systemic Therapy	281	46.8	604	38.6	493	64.4	64	36.0
Multi-modality*	176	29.3	575	36.8	129	16.8	55	30.9
Palliative Care	15	2.5	28	1.8	28	3.7	8	4.5
Total	**601**	**100.0**	**1563**	**100.0**	**766**	**100.0**	**178**	**100.0**

**Multi-modality includes the combination of Surgery and/or Radiotherapy and/or Systemic Therapy*

On the basis of clinical extent of disease, systemic therapy was the treatment of choice in distant metastasis (males 63.3%, females 64.4%) and localised disease (males 38.9%, females 46.8%) for stomach cancer patients.

Table 11.4 Number (n) and Relative Proportion (%) by Educational Status - Cancer Stomach

Educational Status	Males		Females	
	n	%	n	%
Illiterate	1233	17.9	833	26.4
Literate	745	10.8	409	13.0
Primary	933	13.5	377	11.9
Secondary	1697	24.6	592	18.7
Higher Education	562	8.1	151	4.8
Unknown	1727	25.0	795	25.2
Not Applicable (for children below 5 Years)	1	<0.1	1	<0.1
Total	**6898**	**100.0**	**3158**	**100.0**

Among the cancer stomach patients, illiteracy was more in females (26.4%) than in males (17.9%). The proportion of levels of education were 10.8% and 13.0% literate, 13.5% and 11.9% primary, 24.6% and 18.7% secondary and 8.1% and 4.8% higher education in males and females, respectively.

Table 11.5 Number (n) and Relative Proportion (%) by Broad Histological Classification - Cancer Stomach

Broad Histological Classification	Males		Females	
	n	%	n	%
Epithelial Tumours	6700	95.6	3038	94.3
Mesenchymal Tumours	105		73	
Malignant Lymphoma	186	4.5	98	5.7
Others	20		13	
All Microscopic	**7011**	**100.0**	**3222**	**100.0**

Among the different histologic types of stomach cancer, the most common type reported were epithelial tumours (males 95.6% and females 94.3%).

Section III

Chapter 12

Data Quality and Indices of Reliability

This chapter describes procedures for assessment of the quality of the data and the completeness of coverage of cases in a given registry area.

Checks on Quality of Data

The registry data undergoes several quality checks, both, at the time of data entry and subsequently. These include: Range, Consistency, Unlikely and Family checks as per the International Association of Cancer Registries (IARC) norms. All the checks are built into the PBCRDM 2.1 and the online PBCR data entry application. The list of cases with possible errors is sent back to the respective registries for verification with the original medical records and the corrections received are updated in the registry database. Cancer Incidence in Five Continents (CI5 Vol-XI) published by IARC, has accepted and incorporated the data of 15 Indian registries out of the 22 registries that submitted the data (2008-2012).

Internal consistency

Innovation of different software application at NCDIR-NCRP supports cancer registration in a big way. PBCR softwares (desktop and web based) run the quality checks (consistency, range, unlikely, family), matching and duplicate check to make the data clean and valid. Additionally, a Phonetics software is used to weed duplicate names that sound similar but are spelt differently. Fluctuation in the number of cancer cases over the years from each source of registration is identified using the software for appropriate action.

Some of the specific checks that appear important in this context are:

- % Age Unknown <10%
- % Death Certificates Only <10%
- % Other & Unspecified Sites <10%
- % Microscopic verification (MV) >80% (99-100% is unacceptable).
- Mortality to Incidence Ratio (M:I)%
- Stability of incidence rates (the number of new cases) over time thereby disallowing any abrupt trend.

Age Unknown

Most of the PBCRs do not have any cases with age unknown. The highest proportion of cancer cases with age being unknown was from Delhi PBCR (0.6%).

In HBCRs, out of 58 hospitals, 36 hospitals collected the actual age of the patient. However, only in 154 cases, age was unknown from 22 hospitals.

Microscopic Verification (MV)

Higher the proportion of microscopically verified cases, more accurate is the confirmation as microscopic verification is the most valid basis of diagnosis of cancer. Still, a very high proportion (above 90-95%) of microscopic diagnosis suggests the likelihood that some cancers with a diagnosis based on imaging techniques and solely clinical diagnoses may be missed by the registry. The highest proportion of microscopically verified cases were from Hyderabad district (96.7%) and the lowest was reported from Patiala district (77.1%).

The MV percentage ranged between 90 – 100% in majority of the hospitals. Among microscopically confirmed cases, about 82% were found to be that of histology of primary followed by cytology of primary (6.9%) and bone marrow (5.2%). There were about 5.6% of cases diagnosed from metastatic site of cancer.

Death Certificate 'Only' (DCO) cases

There is a need to follow-back Death Certificate Notifications (DCN), a case notified by death from a death certificate. These DCNs are followed to the last hospital attended to obtain the details of diagnosis to register an incidence. To successfully achieve this, scrutiny of cancer deaths as per death registers/certificates which have not matched with any incidence record is undertaken. This way the exact primary site of tumour and the date of diagnosis is obtained. If no information is obtained it is registered as DCO.

The relative proportion of DCOs should ideally be less than 10% which was found in 26 of the 28 PBCRs. DCO <1% was observed in 9 PBCRs.

Other and Unspecified Site (O&U)

The sites of cancer that were categorised as "Other and Unspecified Sites (O&U)" were as per ICD-10: C26, C39, C48, C75, C76, C77, C78, C79, C80, C97 (WHO 1994). The relative proportion of cancers that fell into this group was more than 10% in the PBCRs at Patiala district, Thiruvananthapuram district, Nagpur and Cachar district. It was less than 5% in 13 PBCRs.

Among 58 hospitals, O&U percentage ranged between 0.1 – 6.8%. In three hospitals, the relative proportion of O&U was more than 10%.

Mortality-Incidence Ratio (MI Ratio)

The mortality-incidence or MI ratio is an indicator of the completeness and accuracy of cancer mortality data. The system of registration of death and certification of cause of death are of major concern. In order to overcome this deficit in cancer mortality data, some PBCRs have used the all-cause mortality data collected from municipal/corporation units of their registry area to match with the incident cases and arrive at the figure of cancer mortality. Barshi rural, Wardha district and Mumbai have M/I% ratios of 67.2%, 59.2% and 56.0, respectively.

Clinical Extent of the Disease before Treatment (CEDBT)

The clinical extent of the disease provides an idea of the degree of the spread of cancer when the patient presents himself/herself to the reporting hospital without receiving any cancer directed treatment earlier. 13 hospitals had the details of CEDBT, 33 hospitals could not ascertain the extent of the disease which was less than 10% of the cases. However, the relative proportion of unknown CEDBT varied from 12.0% to 64.1% in remaining 12 hospitals.

Unspecified sub-site

Anatomical sites of cancer are generally considered as one complete entity for overall expression of number of cases. Registry wise analyses were done for the sites of cancer provided in the section II of this report such as cancer breast, cervix, head & neck, lung and stomach. The percentage variation of unspecified sub-site for each site is given below.

Anatomical Sites of Cancer	Percentage of unspecified sub-site
Cancer Breast	32.4% - 100%
Cancer Cervix	51.0% - 100%
Head & Neck Cancers	10.0% - 77.8%
Cancer Lung	25.0% - 100%
Cancer Stomach	23.2% - 100%

Unspecified Histology

While cancers of different anatomical sites have certain distinctions due to their location, the histological type of cancer in the same site has its own identity in terms of aetiology, prognosis and treatment thereof. Hence, it is important to get information in at least cases where a microscopic diagnosis of cancer is available. The relative proportion of the cases that had unspecified histology is provided below.

Anatomical Sites of Cancer	Percentage of unspecified Histology
Cancer Breast	0.1% - 57.5%
Cancer Cervix	0.1% - 56.1%
Head & Neck Cancers	0.1% - 94.9%
Cancer Lung	0.2% - 36.6%
Cancer Stomach	0.9% - 87.5%

Method of Diagnosis

The proportion of microscopic verification in males varied from 74.3% in Patiala PBCR to 96.2% in Nagaland PBCR.

Among males, clinical diagnosis was the highest in Nagpur at 8.0% and X-ray and Imaging as a form of diagnosis was the highest in Kollam district (14.4%).

Among females, the microscopic proportion varied from 79.5% in Patiala district to 97.3% in Hyderabad district. Among females, clinical diagnosis was highest in Nagpur at 8.2% and X-ray and Imaging as a form of diagnosis was the highest in Cachar district with a relative proportion of 9.2%.

Detailed Microscopic Diagnosis

The proportion of primary histology in males varied from 44.3% in West Arunachal to 84.1% in Aurangabad PBCR.

Among males, cytology was the highest in West Arunachal at 45.8% and bone marrow was the highest in Delhi PBCR (7.2%).

Among females, the primary histology varied from 50.2% in Cachar district to 90.6% in Aurangabad PBCR. Among females, cytology was highest in Papumpare district at 47.3% and bone marrow was the highest in Ahmedabad urban with a relative proportion of 4.7%.

Chapter 13

Trends in Cancer Incidence

Introduction

Trend analysis aims to identify a pattern of change in a series of observations over a defined period of time. Trends in cancer incidence rate is important for measuring how things are progressing (increasing or decreasing) by specific types of cancer, gender and place over the years.

The cancer burden assessment for future is useful for a country to prioritize health care services, plan resource intensive efforts like formulation of government policies or/and budget allocation.

The objective of this chapter is to provide trends in cancer incidence rates over time (Annual Percent Change: 1982-2016) by different registries and project number of incidence of cancer cases in India by anatomical sites and gender for the years 2016 to 2020 and 2025. The crude incidence rates for selected cancers are also listed. This includes 16 PBCRs where number of years of regular data availability was at least 10 years. However, any abrupt or fluctuating trend in cancer incidence rate by registry or site of cancer was not considered for trend analysis. Also, sites with fewer than 10 cases for any given year have been excluded.

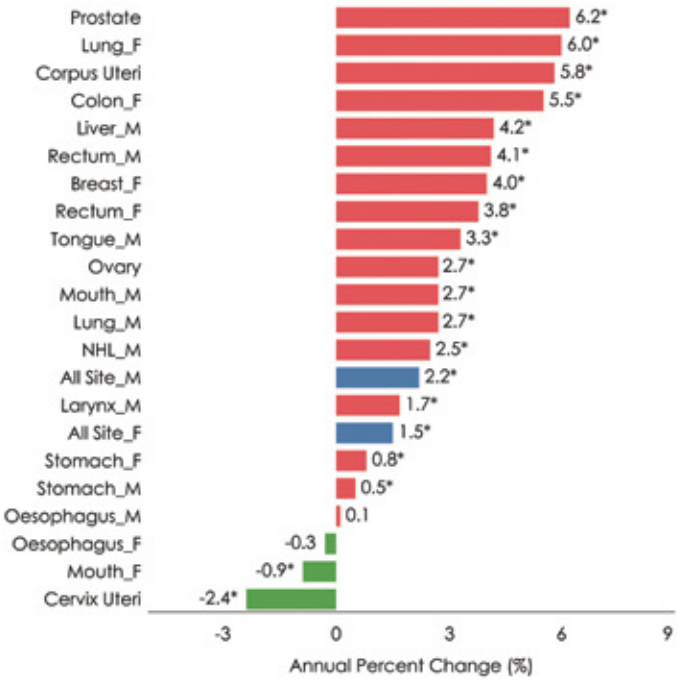
Annual Percent Change

Joinpoint regression analysis of cancer incidence rate was used to estimate the annual percent change (APC). The APC is the average rate of change in a cancer rate per year in a given time frame (how quickly or slowly a cancer rate has increased or decreased each year over a period of years). The APC was calculated using crude incidence by different sites of cancer using joinpoint regression software. A negative APC describes a decreasing trend, and a positive APC describes an increasing trend.

The actual crude rate for all sites of cancer and for few selected ones have been provided against each graph to illustrate the change in crude rate between the first year of registry and the last year.

In few sites of cancer, there may be contradiction in the direction of trend (APC) value in graph and the Crude Rate (CR) (start and end of the year) table. This is because the APC was calculated based on regression based estimated CR, whereas the table values of CR are actual, rather than estimated.

Fig 13.1 Annual Percent Change for selected Sites of Cancer – Chennai



Crude Rate (CR) Per 100,000

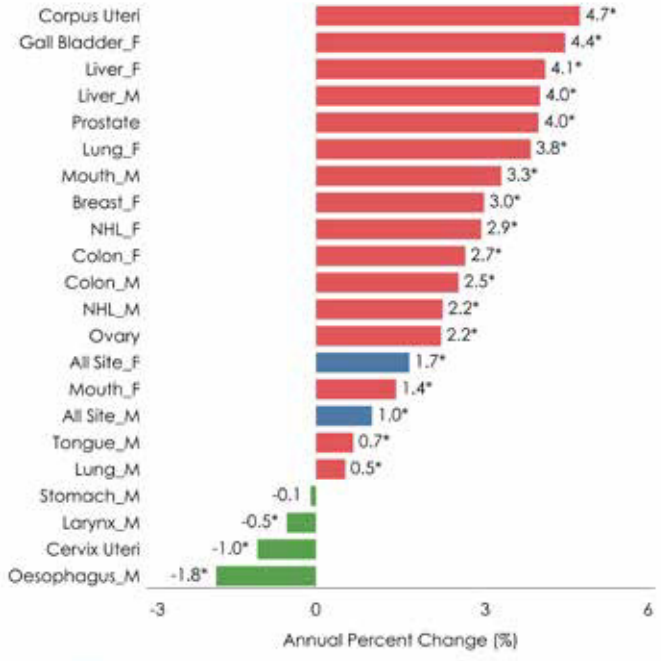
Cancer Site	1982	2016
Prostate	1.5	9.7
Lung_F	0.7	5.4
Corpus Uteri	0.8	7.0
Colon_F	0.4	5.2
Liver_M	1.2	5.2
Rectum_M	1.4	5.1
Breast_F	13.8	51.1
Rectum_F	0.7	3.6
Tongue_M	2.7	9.0
Ovary	3.0	7.7
Mouth_M	4.1	10.5
Lung_M	3.6	12.0
NHL_M	2.5	5.1
All Site_M	57.0	126.6
Larynx_M	2.6	4.9
All Site_F	78.8	150.0
Stomach_F	4.0	5.4
Stomach_M	7.9	10.1
Oesophagus_M	4.1	4.5
Oesophagus_F	2.2	3.5
Mouth_F	5.6	4.1
Cervix Uteri	30.9	15.1

Increase in APC, Decrease in APC, Increase or Decrease in APC for All Sites; * Significant Increase or Decrease at 95% Confidence Level

M - Males; F - Females

The incidence rate of prostate cancer, corpus uteri and lung in females increased significantly by 6% annually between 1982 to 2016. Among females, there was significant decrease in cancers of the mouth and cervix uteri.

Fig 13.2 Annual Percent Change for selected Sites of Cancer – Mumbai



Crude Rate (CR) Per 100,000

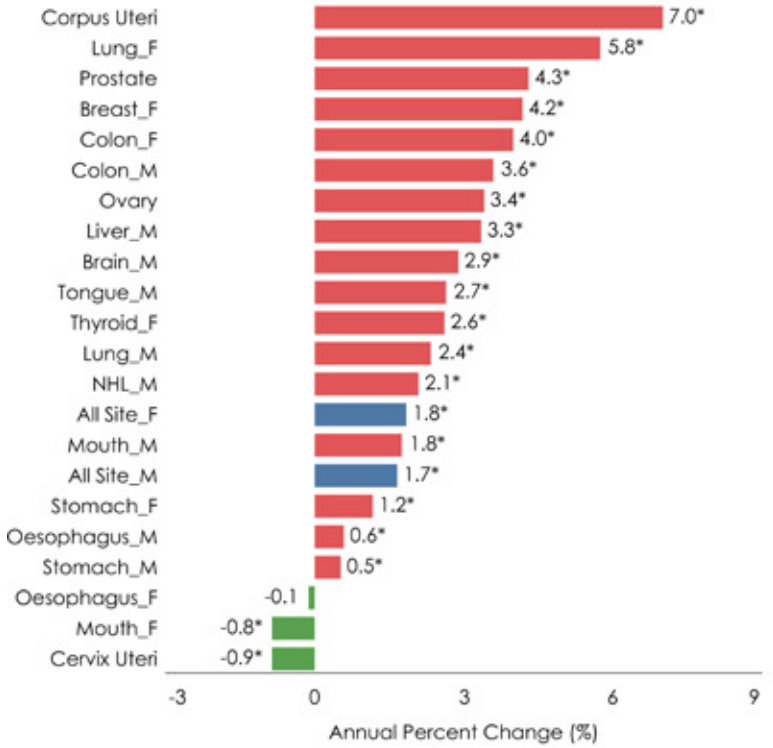
Cancer Site	1982	2015
Corpus Uteri	1.2	4.2
Gall Bladder_F	0.5	2.9
Liver_F	1.4	3.2
Liver_M	2.1	4.8
Prostate	2.0	8.2
Lung_F	1.7	5.2
Mouth_M	3.3	9.1
Breast_F	13.7	33.7
NHL_F	1.1	2.4
Colon_F	1.2	3.3
Colon_M	1.3	3.2
NHL_M	1.8	4.0
Ovary	3.6	7.1
All Site_F	68.3	111.2
Mouth_F	2.7	3.8
All Site_M	65.8	91.6
Tongue_M	4.0	5.1
Lung_M	7.0	8.2
Stomach_M	3.8	3.8
Larynx_M	3.7	3.0
Cervix Uteri	12.4	7.9
Oesophagus_M	5.7	3.4

Increase in APC, Decrease in APC, Increase or Decrease in APC for All Sites; * Significant Increase or Decrease at 95% Confidence Level

M - Males; F - Females

In Mumbai PBCR, the APC for cancer of corpus uteri was 4.7%. The APC for cancer of the liver in males was 4.0% between 1982 and 2015. Liver cancer showed significant increase in annual incidence rate in both genders by 4% between 1982 to 2015. There was a significant decrease in cancer incidence rate for oesophagus (-1.8%), larynx (-0.5%) among males and cervical cancer (-1.0%).

Fig 13.3 Annual Percent Change for selected Sites of Cancer – Bangalore



Crude Rate(CR) Per 100,000

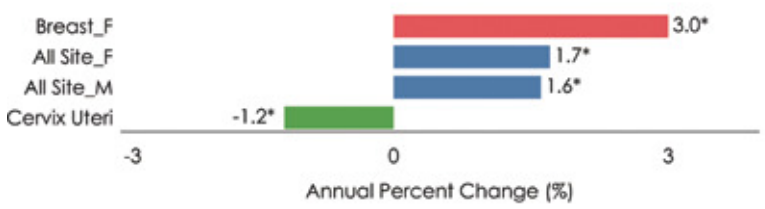
Cancer Site	1982	2014
Corpus Uteri	0.9	6.4
Lung_F	0.7	4.1
Prostate	1.7	6.5
Breast_F	10.2	39.0
Colon_F	0.8	3.0
Colon_M	1.2	3.2
Ovary	3.2	10.7
Liver_M	2.0	4.1
Brain_M	1.3	2.7
Tongue_M	2.2	4.2
Thyroid_F	1.5	5.0
Lung_M	2.6	9.0
NHL_M	2.2	2.2
All Site_F	73.5	136.3
Mouth_M	2.2	4.8
All Site_M	54.9	101.7
Stomach_F	3.3	4.0
Oesophagus_M	4.1	5.6
Stomach_M	5.7	6.6
Oesophagus_F	3.7	4.5
Mouth_F	6.8	5.0
Cervix Uteri	20.4	15.2

*Increase in APC, Decrease in APC, Increase or Decrease in APC for All Sites; * Significant Increase or Decrease at 95% Confidence Level*

M - Males; F - Females

In Bangalore PBCR the APC for cancer corpus uteri in females was 7.0% between 1982 and 2014. The crude rate for the same in 2014 was 6.4 in females compared to 0.9 in 1982. The significant decrease in APC for cancers of oesophagus, mouth and cervix uteri were seen in females (by <1% annually). APC for prostate cancer was 4.3% and the crude rate increased from 1.7 in 1982 to 6.5 in 2014.

Fig 13.4 Annual Percent Change for selected Sites of Cancer – Barshi rural



Crude Rate (CR) Per 100,000

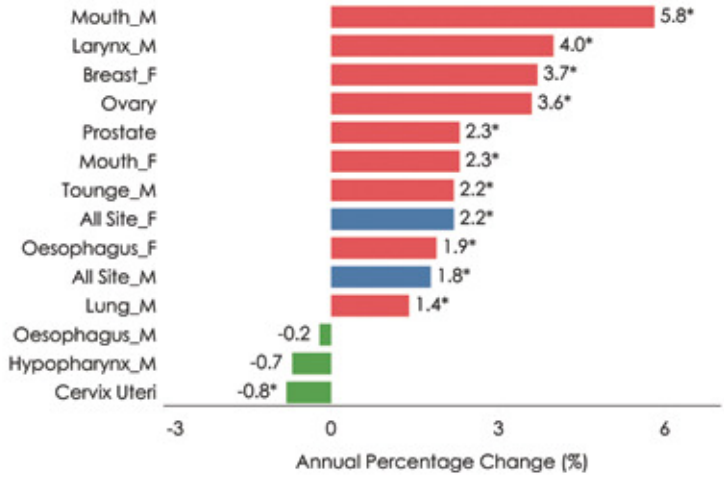
Cancer Site	1988	2016
Breast_F	5.7	14.6
All Site_F	39.6	64.5
All Site_M	40.4	54.0
Cervix Uteri	18.1	13.4

*Increase in APC, Decrease in APC, Increase or Decrease in APC for All Sites ; * Significant Increase or Decrease at 95% Confidence Level*

M - Males; F – Females

The incidence rate of breast cancer increased significantly by 3% annually while there was a significant decrease in cervical cancer by -1.2% annually over the time period (1988-2016).

Fig 13.5 Annual Percent Change for selected Sites of Cancer – Bhopal



Crude Rate (CR) Per 100,000

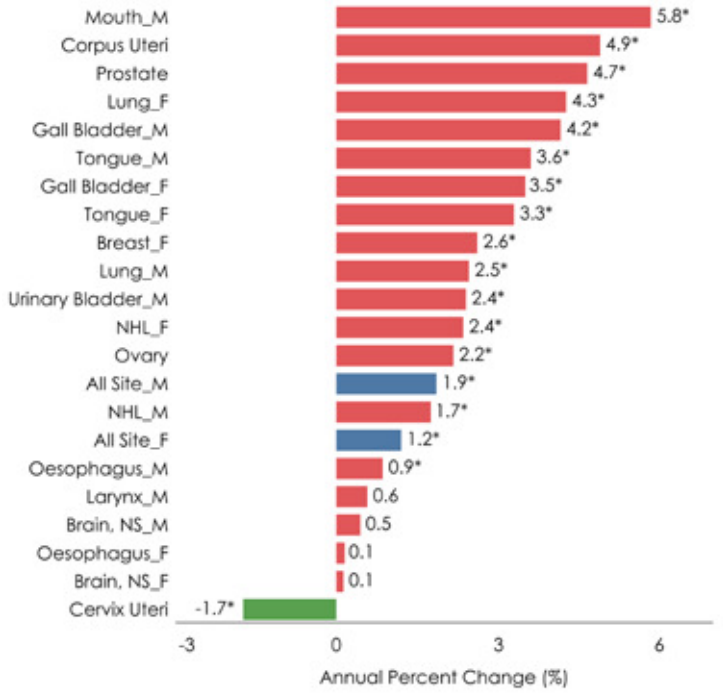
Cancer Site	1988	2015
Mouth_M	4.3	17.6
Larynx_M	3.0	4.0
Breast_F	10.9	28.4
Ovary	2.2	6.0
Prostate	0.8	3.4
Mouth_F	2.2	4.6
Tounge_M	4.3	9.0
All Site_F	51.9	88.0
Oesophagus_F	4.0	2.9
All Site_M	49.8	84.9
Lung_M	5.1	7.8
Oesophagus_M	3.0	4.0
Hypopharynx_M	2.6	2.3
Cervix Uteri	12.9	9.2

*Increase in APC, Decrease in APC, Increase or Decrease in APC for All Sites; * Significant Increase or Decrease at 95% Confidence Level*

M - Males; F – Females

In Bhopal PBCR the APC for cancer mouth in males was 5.8% between 1988 and 2015. The crude rate for cancer mouth in males was 17.6 in 2015 compared to 4.3 in 1988. The APC decreased for cancer oesophagus and cancer hypopharynx in males and cancer cervix in females. For females the APC for cancer breast was 3.7% and the crude rate increased from 10.9 in 1988 to 28.4 in 2015.

Fig 13.6 Annual Percent Change for selected Sites of Cancer – Delhi



Crude Rate (CR) Per 100,000

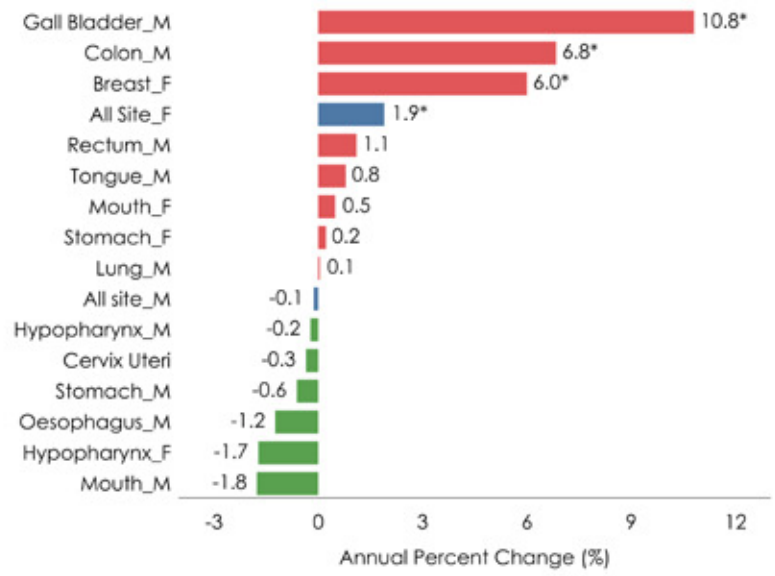
Cancer Site	1988	2014
Mouth_M	1.8	8.7
Corpus Uteri	1.5	4.7
Prostate	2.7	7.4
Lung_F	1.6	4.0
Gall Bladder_M	0.9	4.3
Tongue_M	2.9	6.7
Gall Bladder_F	2.4	9.5
Tongue_F	1.6	2.2
Breast_F	16.6	32.9
Lung_M	5.7	11.8
Urinary Bladder_M	2.7	4.7
NHL_F	1.7	3.0
Ovary	4.9	8.1
All Site_M	68.8	111.8
NHL_M	3.3	4.7
All Site_F	83.0	117.9
Oesophagus_M	3.1	4.3
Larynx_M	4.4	4.9
Brain, NS_M	2.9	3.8
Oesophagus_F	2.4	2.9
Brain, NS_F	1.7	2.5
Cervix Uteri	17.0	11.3

*Increase in APC, Decrease in APC, Increase or Decrease in APC for All Sites; * Significant Increase or Decrease at 95% Confidence Level*

M - Males; F – Females

Among males, significant increase in cancer incidence rate was seen for mouth (5.8%), prostate (4.7%) and gall bladder (4.2%) annually, while there was significant decrease in rates of cervical cancer. All sites of cancer showed significant increase in males (1.9%) and females (1.2%).

Fig 13.7 Annual Percent Change for selected Sites of Cancer – Dibrugarh district



Crude Rate (CR) Per 100,000

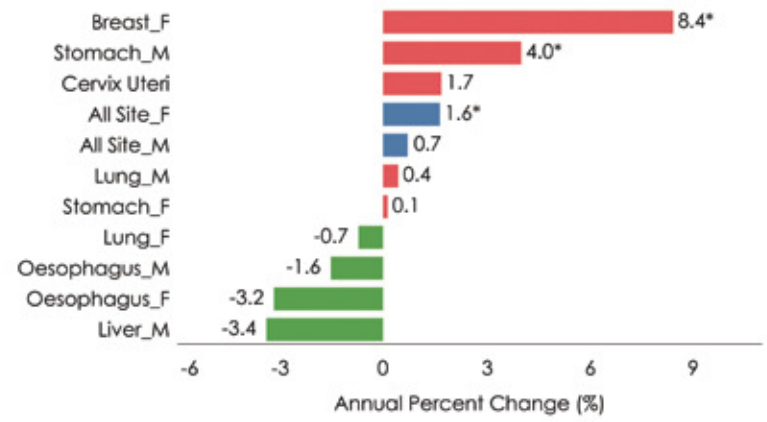
Cancer Site	2005	2016
Gall Bladder_M	1.7	3.1
Colon_M	1.6	2.4
Breast_F	8.1	15.5
All Site_F	58.3	66.8
Rectum_M	1.6	2.5
Tongue_M	2.5	3.2
Mouth_F	2.2	1.0
Stomach_F	2.6	3.7
Lung_M	4.2	5.1
All site_M	70.6	73.0
Hypopharynx_M	8.4	8.4
Cervix Uteri	3.8	4.6
Stomach_M	3.9	4.5
Oesophagus_M	13.1	11.8
Hypopharynx_F	4.0	7.0
Mouth_M	4.8	4.4

*Increase in APC, Decrease in APC, Increase or Decrease in APC for All Sites; * Significant Increase or Decrease at 95% Confidence Level*

M - Males; F – Females

Among males, significant increase in cancer incidence rate was seen for gall bladder (10.8%) and colon (6.8%). Among males, the APC for cancer of all sites, cancer hypopharynx, cancer stomach, cancer oesophagus and cancer mouth decreased and among females, the decrease in APC was observed for cancer hypopharynx and cancer cervix uteri.

Fig 13.8 Annual Percent Change for selected Sites of Cancer – Sikkim state



Crude Rate (CR) Per 100,000

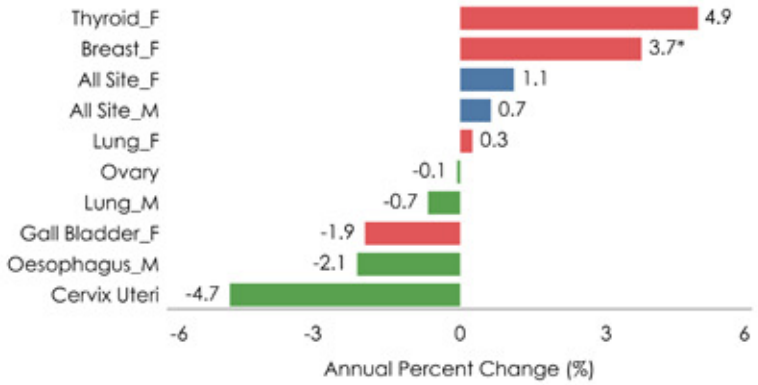
Cancer Site	2005	2016
Breast_F	3.4	8.8
Stomach_M	9.6	13.1
Cervix Uteri	5.6	6.8
All Site_F	62.9	73.7
All Site_M	64.4	67.3
Lung_M	3.6	4.4
Stomach_F	4.5	6.2
Lung_F	6.0	6.2
Oesophagus_M	5.0	7.6
Oesophagus_F	4.1	1.9
Liver_M	5.9	4.7

*Increase in APC, Decrease in APC, Increase or Decrease in APC for All Sites; * Significant Increase or Decrease at 95% Confidence Level*

M - Males; F - Females

The incidence rate of breast cancer increased significantly by 8.4% annually from 2005 to 2016. Stomach cancer incidence rate in males showed significant increase of 4.0% annually.

Fig 13.9 Annual Percent Change for selected Sites of Cancer – Imphal West district



Crude Rate (CR) Per 100,000

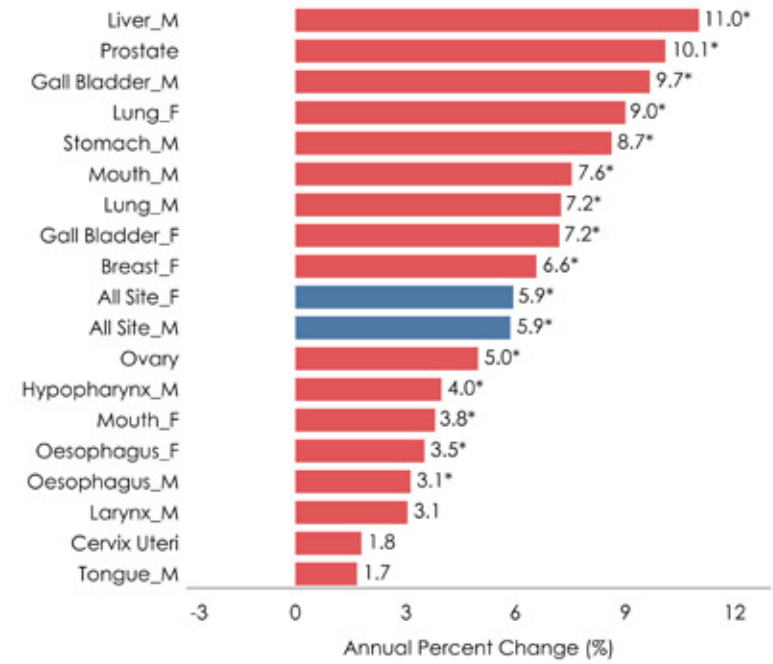
Cancer Site	2005	2016
Thyroid_F	5.0	8.7
Breast_F	14.6	18.8
All Site_F	108.7	122.8
All Site_M	80.2	93.2
Lung_F	16.7	15.3
Ovary	6.3	3.8
Lung_M	15.3	20.4
Gall Bladder_F	10.9	8.4
Oesophagus_M	5.1	3.6
Cervix Uteri	14.6	12.2

*Increase in APC, Decrease in APC, Increase or Decrease in APC for All Sites; * Significant Increase or Decrease at 95% Confidence Level*

M - Males; F – Females

There was no significant change in the annual incidence rate of thyroid cancer in males, but the rate in females increased by 4.9%. There was significant increase in the incidence rate of breast cancer (3.7%) among females.

Fig 13.10 Annual Percent Change for selected Sites of Cancer – Kamrup urban



Crude Rate (CR) Per 100,000

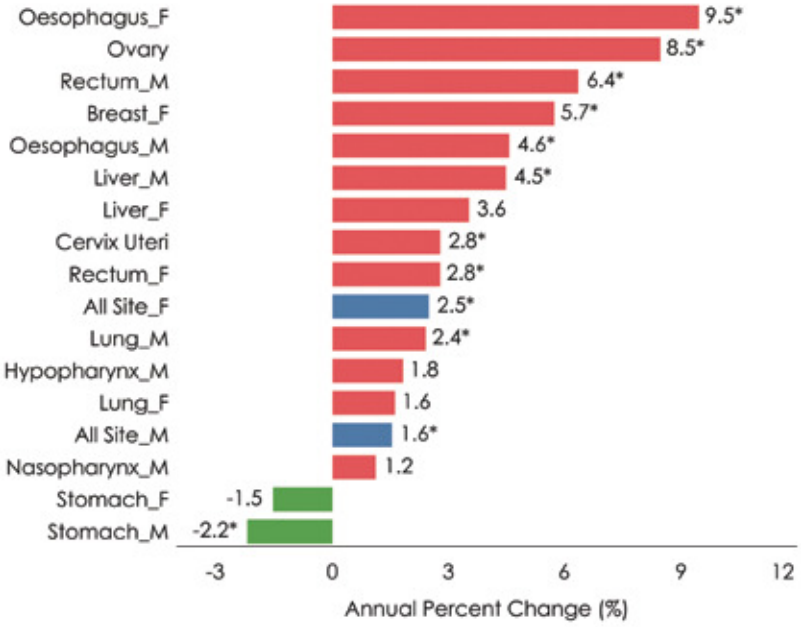
Cancer Site	2003	2016
Liver_M	2.5	6.2
Prostate	2.1	7.3
Gall Bladder_M	1.4	8.4
Lung_F	2.5	4.9
Stomach_M	5.4	14.4
Mouth_M	6.4	13.8
Lung_M	7.1	16.2
Gall Bladder_F	8.3	17.3
Breast_F	16.6	30.2
All Site_F	94.9	170.2
All Site_M	108.8	220.6
Ovary	6.3	11.8
Hypopharynx_M	12.5	24.5
Mouth_F	4.0	6.4
Oesophagus_F	12.1	15.4
Oesophagus_M	22.4	32.6
Larynx_M	5.8	8.4
Cervix Uteri	11.4	14.2
Tongue_M	8.3	10.3

*Increase in APC, Decrease in APC, Increase or Decrease in APC for All Sites; * Significant Increase or Decrease at 95% Confidence Level*

M - Males; F – Females

All sites of cancer showed significant increase in annual incidence rates in males as well as females by 5.9% for the period between 2003 and 2016. Lung cancer showed significant increase in males and females by 7.2% and 9.0%, respectively.

Fig 13.11 Annual Percent Change for selected Sites of Cancer – Mizoram state



Crude Rate (CR) Per 100,000

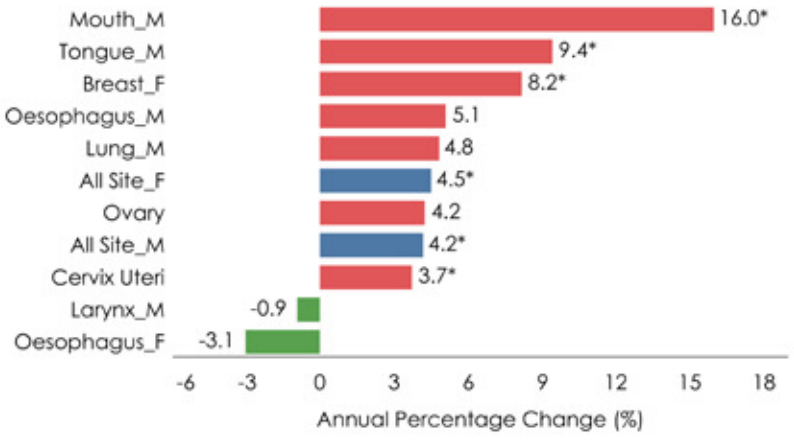
Cancer Site	2004	2016
Oesophagus_F	2.2	4.9
Ovary	2.2	5.5
Rectum_M	2.5	4.2
Breast_F	12.3	19.4
Oesophagus_M	15.3	21.0
Liver_M	4.7	5.4
Liver_F	2.6	3.3
Cervix Uteri	17.9	20.1
Rectum_F	2.6	3.3
All Site_F	102.4	138.4
Lung_M	18.0	18.7
Hypopharynx_M	7.4	8.5
Lung_F	13.4	16.5
All Site_M	134.7	144.1
Nasopharynx_M	2.5	3.6
Stomach_F	11.2	11.9
Stomach_M	35.2	25.2

*Increase in APC, Decrease in APC, Increase or Decrease in APC for All Sites; * Significant Increase or Decrease at 95% Confidence Level*

M - Males; F – Females

In Mizoram state PBCR, the APC for cancer oesophagus in males and females was 4.6% and 9.5%, respectively between 2004 and 2016. The APC for cancer stomach decreased for both males and females.

Fig 13.12 Annual Percent Change for selected Sites of Cancer - Aurangabad



Crude Rate(CR) Per 100,000

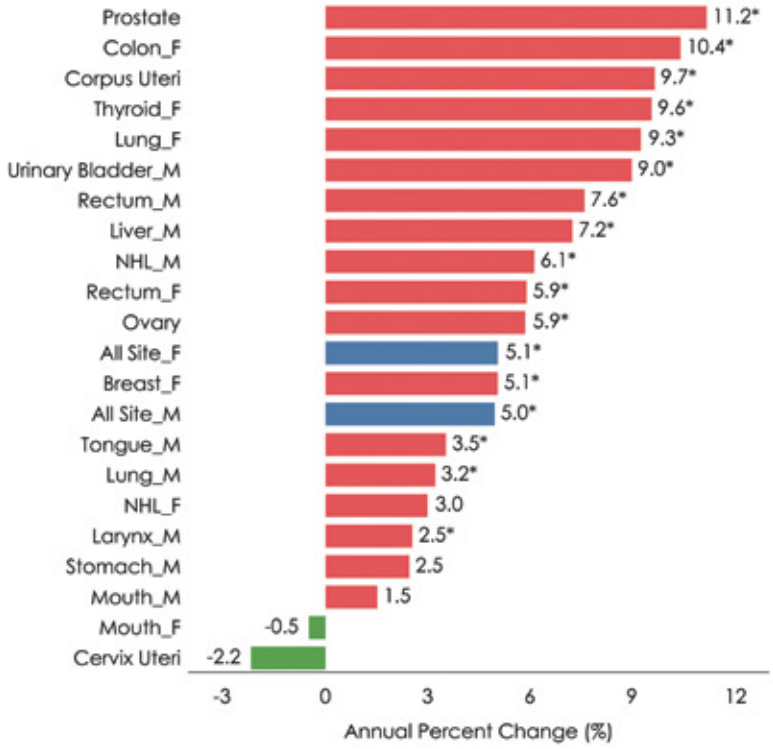
Cancer Site	2005	2016
Mouth_M	2.5	13.9
Tongue_M	2.3	5.4
Breast_F	10.3	24.1
Oesophagus_M	2.8	2.9
Lung_M	4.3	6.3
All Site_F	40.6	63.9
Ovary	1.7	3.1
All Site_M	40.6	57.3
Cervix Uteri	8.5	11.1
Larynx_M	2.3	2.4
Oesophagus_F	1.7	2.1

*Increase in APC, Decrease in APC, Increase or Decrease in APC for All Sites; * Significant Increase or Decrease at 95% Confidence Level*

M - Males; F – Females

The incidence rate of mouth cancer in males increased significantly by 16% annually between 2005 to 2016. The crude rate for cancer mouth in males was 13.9 in 2016 compared to 2.5 in 2005. The APC decreased for cancer larynx in males and cancer oesophagus in females. For females the APC for cancer breast was 8.2% and the crude rate increased from 10.3 in 2005 to 24.1 in 2016. All sites of cancer showed significant increase in cancer incidence rate over the period of time in both genders.

Fig 13.13 Annual Percent Change for selected Sites of Cancer – Thiruvananthapuram taluk



Crude Rate (CR) Per 100,000

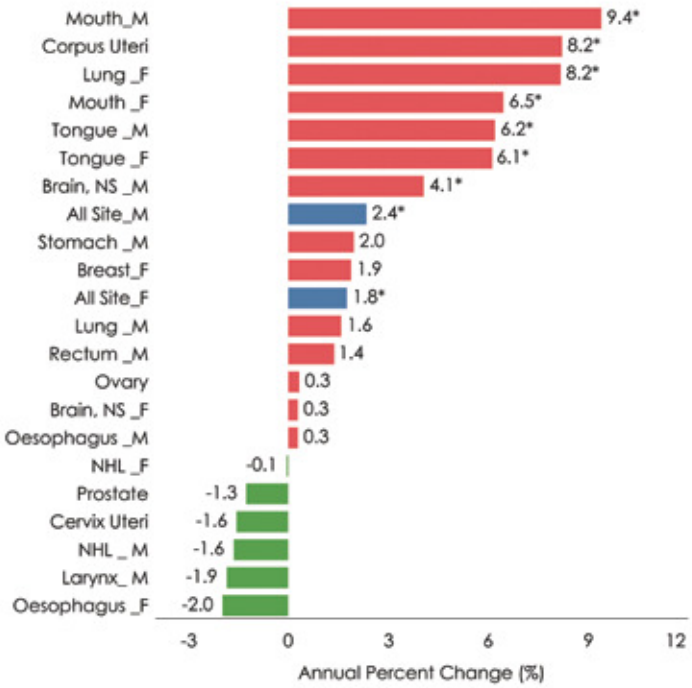
Cancer Site	2005	2016
Prostate	6.9	19.5
Colon_F	3.0	5.2
Corpus Uteri	4.0	11.9
Thyroid_F	6.9	22.6
Lung_F	2.6	9.7
Urinary Bladder_M	2.9	6.3
Rectum_M	3.3	6.6
Liver_M	4.5	9.3
NHL_M	4.0	7.7
Rectum_F	2.8	5.5
Ovary	5.2	12.4
All Site_F	117.4	198.5
Breast_F	39.6	57.5
All Site_M	114.5	195.8
Tongue_M	6.9	7.7
Lung_M	13.3	19.2
NHL_F	3.0	3.2
Larynx_M	5.8	8.6
Stomach_M	4.4	4.5
Mouth_M	7.8	8.2
Mouth_F	4.0	2.7
Cervix Uteri	11.1	9.1

*Increase in APC, Decrease in APC, Increase or Decrease in APC for All Sites; * Significant Increase or Decrease at 95% Confidence Level*

M - Males; F - Females

All sites of cancer showed significant increase in males and females by 5% annually in the period between 2005 and 2016. Prostate cancer showed a significant increase of 11.2%. Among females, significant increase in incidence rates were observed in cancers of the colon (10.4%), corpus uteri (9.7%) and thyroid (9.6%) during the period.

Fig 13.14 Annual Percent Change for selected Sites of Cancer – Nagpur



Crude Rate (CR) Per 100,000

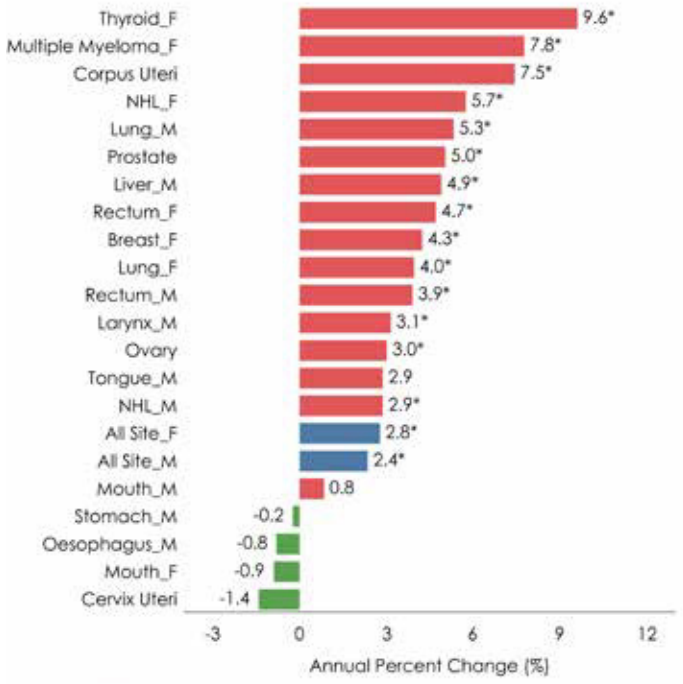
Cancer Site	2005	2016
Mouth_M	5.9	14.4
Corpus Uteri	1.9	4.4
Lung _F	1.2	2.9
Mouth _F	2.2	5.7
Tongue _M	4.5	7.8
Tongue _F	1.7	2.8
Brain, NS _M	2.5	3.2
All Site_M	71.2	83.9
Stomach _M	1.9	2.3
Breast_F	19.6	26.5
All Site_F	72.6	89.9
Lung _M	4.7	5.3
Rectum _M	2.5	2.1
Ovary	5.6	5.0
Brain, NS _F	1.1	1.5
Oesophagus _M	4.7	3.8
NHL _F	1.2	1.5
Prostate	2.0	1.5
Cervix Uteri	12.4	8.9
NHL _ M	3.5	1.5
Larynx_ M	4.3	3.9
Oesophagus _F	3.2	2.5

Increase in APC, Decrease in APC, Increase or Decrease in APC for All Sites; * Significant Increase or Decrease at 95% Confidence Level

M - Males; F - Females

Mouth cancer showed significant increase of 9.4% and 6.5% annually in males and females, respectively. Tongue cancer also showed significant increase at 6% annually for the period 2005 to 2016.

Fig 13.15 Annual Percent Change for selected Sites of Cancer – Kollam district



Crude Rate (CR) Per 100,000

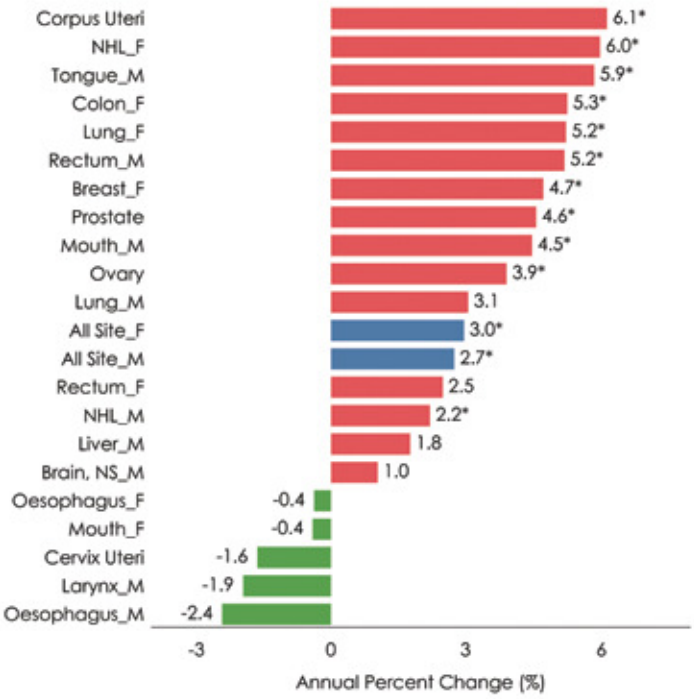
Cancer Site	2006	2016
Thyroid_F	7.5	16.1
Multiple Myeloma_F	2.5	4.0
Corpus Uteri	2.3	5.6
NHL_F	2.7	3.5
Lung_M	19.5	33.4
Prostate	5.5	8.9
Liver_M	5.0	6.8
Rectum_F	4.2	5.4
Breast_F	28.9	45.2
Lung_F	3.2	4.4
Rectum_M	5.7	8.6
Larynx_M	6.0	7.6
Ovary	5.5	7.1
Tongue_M	6.0	8.5
NHL_M	4.3	5.8
All Site_F	114.0	142.8
All Site_M	135.4	165.7
Mouth_M	8.3	8.5
Stomach_M	7.0	7.6
Oesophagus_M	6.6	6.3
Mouth_F	5.4	4.8
Cervix Uteri	10.6	8.4

Increase in APC, Decrease in APC, Increase or Decrease in APC for All Sites; * Significant Increase or Decrease at 95% Confidence Level

M - Males; F - Females

The incidence rate of thyroid cancer has increased by 9.6% annually for females from 2006 to 2016. All sites of cancer showed significant increase in males and females by 2 to 3% annually in the period between 2006 and 2016. There was decrease in cancer incidence rate for cancer oesophagus in males, cancer cervix uteri and cancer mouth in females.

Fig 13.16 Annual Percent Change for selected Sites of Cancer – Pune



Crude Rate (CR) Per 100,000

Cancer Site	2006	2016
Corpus Uteri	2.2	3.9
NHL_F	0.9	1.9
Tongue_M	2.3	3.8
Colon_F	1.9	2.7
Lung_F	2.3	3.4
Rectum_M	1.9	3.6
Breast_F	18.0	29.9
Prostate	4.2	6.9
Mouth_M	5.0	7.5
Ovary	4.1	5.6
Lung_M	4.1	5.1
All Site_F	67.1	87.6
All Site_M	56.6	71.7
Rectum_F	1.8	2.0
NHL_M	2.4	3.1
Liver_M	2.8	3.2
Brain, NS_M	3.1	2.8
Oesophagus_F	2.6	2.4
Mouth_F	2.7	2.8
Cervix Uteri	10.7	8.0
Larynx_M	2.9	3.0
Oesophagus_M	3.1	2.8

*Increase in APC, Decrease in APC, Increase or Decrease in APC for All Sites; * Significant Increase or Decrease at 95% Confidence Level*

M - Males; F - Females

All sites of cancer showed significant increase in males and females by 2.7% and 3.0% annually for the period between 2006 and 2016. Breast cancer among females showed a significant increase in incidence rate (4.7%) over the years.

Chapter 14

Projection of Cancer Cases in India

Methodology

Incidence data derived from the recent report of NCDIR-NCRP (2012-2016) has been taken as reference. PBCRs in India cover some pure urban, semi-urban and rural populations of the country. PBCR describes the extent and nature of the cancer burden in the community and assist in the establishment of public health priorities. Cancer registration is a complex process and in India cancer registration is active wherein staff has to go to different sources for collection of data followed by quality control checks, duplicate checks, matching with mortality cases, follow up of death certificate notifications and creation of death certificate only. The projections thus given would be till 2025 keeping the data of 2012- 2016 as baseline.

1) Estimated number of cancer incidence for the year 2018, 2020 and 2025 by gender and for 16 age groups were estimated using Age Specific Incidence rate (ASpR) of 28 PBCRs of the year 2012-2016.

2) Region wise collation/representation of PBCRs data for projecting number of incidences of cancer cases in India (Annexure II).

3) India - state/UT wise population was estimated till 2025 using (2001-2011) census growth rate by different distribution method for estimating five-year age group.

4) Constant incidence rate (region wise) of PBCR (2012-2016) was used to project number of cancer cases in India till 2025. ASpR by anatomical sites and gender was applied to the corresponding state/UTs estimated population to derive the projected number of cancer cases for each state/UT.

5) The total number of cancer cases in India were derived by summing the estimated number of each anatomical site of cancer.

The strengths of the approach used here are,

i) Region wise representation of cancer registries

ii) Use of other available data (Eg: Dindigal PBCR for rural data)

iii) Use of age specific incidence rate rather than crude incidence rate.

The limitation of the methodology is that it assumes constant incidence rate (remain unchanged) for future as a conservative approach. PBCRs cover close to 10% of the population in India and many parts of the countries are not covered. The influencing factors such as risk factors/behaviour, case finding procedure, screening programme, improved technique for detecting cancer patients are likely to influence the projection of cancer cases.

Table 14.1 Projected Number of Incidence Cases by Anatomical Sites of Cancer in India

Site Name	Males						Females						Both Sexes					
	2016	2017	2018	2019	2020	2025	2016	2017	2018	2019	2020	2025	2016	2017	2018	2019	2020	2025
All Sites	**616757**	**632042**	**647605**	**663343**	**679421**	**763575**	**643670**	**660492**	**677627**	**695072**	**712758**	**806218**	**1260427**	**1292534**	**1325232**	**1358415**	**1392179**	**1569793**
Tongue	36218	37120	38029	38961	39902	44861	12475	12817	13164	13520	13870	15747	48693	49937	51193	52481	53772	60608
Mouth	52054	53358	54673	56015	57380	64519	20217	20763	21325	21898	22483	25541	72271	74121	75998	77913	79863	90060
Hypopharynx	14230	14609	14989	15378	15765	17840	4195	4311	4422	4521	4649	5284	18425	18920	19411	19899	20414	23124
Oesophagus	29458	30220	31006	31799	32622	36850	18148	18643	19157	19685	20206	22996	47606	48863	50163	51484	52828	59846
Stomach	29570	30337	31123	31902	32713	36938	15680	16109	16545	16985	17430	19795	45250	46446	47668	48887	50143	56733
Colon	18603	19078	19576	20064	20572	23214	14112	14488	14886	15282	15685	17830	32715	33566	34462	35346	36257	41044
Rectum	19839	20340	20849	21380	21915	24690	13506	13877	14241	14610	14985	16982	33345	34217	35090	35990	36900	41672
Liver	24119	24750	25379	26023	26678	30115	9674	9938	10198	10460	10732	12188	33793	34688	35577	36483	37410	42303
Gall Bladder	11189	11481	11776	12073	12385	13980	17503	17986	18485	18989	19510	22233	28692	29467	30261	31062	31895	36213
Pancreas	10765	11040	11329	11615	11908	13454	7303	7494	7699	7906	8110	9235	18068	18534	19028	19521	20018	22689
Larynx	24485	25141	25806	26478	27146	30725	2978	3058	3144	3227	3316	3781	27463	28199	28950	29705	30462	34506
Lung	64778	66498	68236	69994	71788	81219	23800	24457	25124	25808	26490	30109	88578	90955	93360	95802	98278	111328
Breast	4868	4989	5117	5243	5377	6076	185116	190061	195105	200218	205424	232832	189984	195050	200222	205461	210801	238908
Cervix Uteri	-	-	-	-	-	-	67756	69567	71415	73289	75209	85241	67756	69567	71415	73289	75209	85241
Corpus Uteri	-	-	-	-	-	-	23816	24470	25124	25813	26514	30121	23816	24470	25124	25813	26514	30121
Ovary	-	-	-	-	-	-	39628	40665	41720	42788	43886	49644	39628	40665	41720	42788	43886	49644
Prostate	37416	38424	39442	40481	41532	47068	-	-	-	-	-	-	37416	38424	39442	40481	41532	47068
Kidney	11188	11451	11732	12005	12283	13773	5095	5217	5337	5462	5601	6276	16283	16668	17069	17467	17884	20049
Urinary Bladder	18472	18968	19455	19969	20470	23148	4853	4989	5121	5263	5403	6160	23325	23957	24576	25232	25873	29308
Brain, NS	18395	18785	19175	19570	19979	22115	11715	11974	12232	12480	12750	14143	30110	30759	31407	32050	32729	36258
Thyroid	7859	8025	8203	8389	8570	9537	23937	24471	25002	25558	26095	29037	31796	32496	33205	33947	34665	38574
NHL	23136	23679	24220	24783	25344	28319	14733	15121	15491	15877	16263	18354	37869	38800	39711	40660	41607	46673
Lymphoid Leukemia	13398	13576	13762	13945	14159	15183	7009	7093	7211	7308	7419	7977	20407	20669	20973	21253	21578	23160
Myeloid Leukemia	13732	14020	14310	14611	14913	16510	10319	10555	10789	11030	11275	12565	24051	24575	25099	25641	26188	29075

Table 14.2 Cancer Burden by Broad Anatomical Sites of Cancer - 2020 and 2025

Broad Anatomical Sites of Cancer	2020		2025	
	No. of Cases	(%)	No. of Cases	(%)
All Sites	**1392179**	**100.0**	**1569793**	**100.0**
Tobacco Related Cancers	377830	27.1	427273	27.2
Gastro Intestinal Tract	273982	19.7	310142	19.8
Cervix Uteri	75209	5.4	85241	5.4
Breast	205424	14.8	232832	14.8
Corpus Uteri and Ovary	70400	5.1	79765	5.1
Lymphoid & Haematopoietic Malignancies	124931	9.0	138592	8.8
Prostate	41532	3.0	47068	3.0
Central Nervous System	32729	2.4	36258	2.3

Chapter 15

Summary

- The highest incidence of cancer in India was observed in the north eastern region.
- Cancer of lung, mouth, stomach and oesophagus were the most common cancers in men.
- Cancer of breast and cervix uteri were the most common cancers in women.
- The highest burden of cancer breast was observed in metro cities.
- The highest burden of cancer in the north east were seen in the cancers of the oropharynx, nasopharynx, hypopharynx, oesophagus, stomach, liver, gall bladder, larynx, lung and cervix uteri.
- Cancer thyroid incidence rate is on the rise and it was most common in the districts of Thiruvananthapuram and Kollam in Kerala.
- The highest incidence rate of childhood cancer was seen in Delhi.
- Leukaemias and Lymphomas were the most common types of childhood cancers.
- Mouth cancer incidence rate was high in the PBCRs in western and central India.
- There is a rise in the trend of incidence of cancer breast, while cancer cervix uteri is on the decline.
- Majority of cancer breast and cervix uteri were diagnosed at locoregional stage.
- Chemo radiation was the most common type of treatment for cancer cervix uteri.
- Multimodality was the most common treatment given for cancer breast and head & neck cancers.
- Less than 1/5th of lung and stomach cancers were diagnosed as localised only.
- Systemic therapy was the most common type of treatment given for cancer lung and stomach.

- Aizawl district in males and Papumpare district in females had the highest incidence rate of cancer stomach when compared with Non-Asian countries.
- In Asia, Aizawl district had the highest incidence rate of cancer lung in females.
- Cancer burden is estimated to increase to 1.57 million by 2025 in India from 1.39 in 2020.
- Tobacco related cancers are estimated to constitute 27% of all cancers in India.

Annexures

Annexure I – Data used for Trend Analysis

This section is based on the data of the following PBCRs:

1. Six older PBCRs, viz., Bangalore, Barshi rural, Bhopal, Chennai, Delhi, Mumbai.

2. Ten new PBCRs, viz., Dibrugarh district, Kamrup urban, Imphal West district, Mizoram state, Sikkim state, Thiruvananthapuram taluk, Kollam district, Aurangabad, Nagpur and Pune

Calendar years of incidence data for each PBCRs used in Trend Analysis

Registry	Calendar Year
Chennai	1982-2016
Mumbai	1982-2015
Bangalore	1982-2014
Barshi rural	1988-2016
Bhopal	1988-2015
Delhi	1988-2014
Kamrup urban	2003-2016
Mizoram state	2004-2016
Dibrugarh district	2005-2016
Sikkim state	2005-2016
Imphal West district	2005-2016
Aurangabad	2005-2016
Thiruvananthapuram taluk*	2005-2016
Nagpur	2005-2016
Kollam district	2006-2016
Pune	2006-2016

** Thiruvananthapuram taluk's data is available from 2005 -2016. Only 2012 onwards the district data is available. Hence trend analysis has been done for taluk coverage.*

Annexure II: Region wise collation of PBCRs data for projecting Number of Incidence of Cancer Cases in India

Regions	State/UT	PBCR Representation
North	Chandigarh	Pooled rest of India
	Delhi	Delhi
	Haryana	Pooled rest of India
	Himachal Pradesh	Pooled rest of India
	Jammu & Kashmir	Pooled rest of India
	Punjab	Patiala
	Uttarakand	Pooled rest of India
North East	Arunachal Pradesh	Pooled (West Arunachal, Pasighat)
	Assam	Pooled (Cachar district, Kamrup urban, Dibrugarh district)
	Manipur	Manipur state
	Meghalaya	Meghalaya
	Mizoram	Mizoram state
	Nagaland	Kohima, Dimapur
	Sikkim	Sikkim state
	Tripura	Tripura state
East	Bihar	Pooled rest of India
	Jharkand	Pooled rest of India
	Odisha	Pooled rest of India
	West Bengal	Pooled rest of India
Central	Chattisgarh	Pooled rest of India
	Madhya Pradesh	Pooled rest of India
	Rajasthan	Pooled rest of India
	Uttar Pradesh	Pooled rest of India
West	Dadra & Nagar Haveli	Pooled rest of India
	Daman & Diu	Pooled rest of India
	Goa	Pooled Maharashtra
	Gujarat	Pooled rest of India
	Maharashatra	Pooled Maharashtra
South	Andhra Pradesh	Pooled south
	Telangana	Pooled south
	Andaman & Nicobar Islands	Pooled south
	Karnataka	Pooled south
	Kerala	Pooled Thiruvanathapuram district, Kollam district
	Lakshadweep	Pooled south
	Puducherry	Chennai-U, Dindigal-R
	Tamil Nadu	Chennai-U, Dindigal-R

Note:

Pooled south = PBCRs of Chennai, Bangalore, Thiruvanathapuram district, Kollam district, Hyderabad district, Dindigal, Pooled Maharashtra = All PBCRs from Maharashtra (Mumbai, Aurangabad, Nagpur, Pune, Wardha district, Barshi rural, Osmanabad & Beed); Pooled rest of India = All PBCRs from other than north east region; U-urban; R-rural

Snapshot of Registries

NCT of Delhi

Delhi - PBCR

Host Institution **Dr B.R. Ambedkar Institute Rotary Cancer Hospital, All India Institute of Medical Sciences, New Delhi**

State	PBCR Establishment Year	Coverage Area	No. of Sources of data	Leading site of cancer*	
				Males	Females
Delhi	1988	Delhi urban	104	Lung CR: 11.8	Breast CR: 33.3

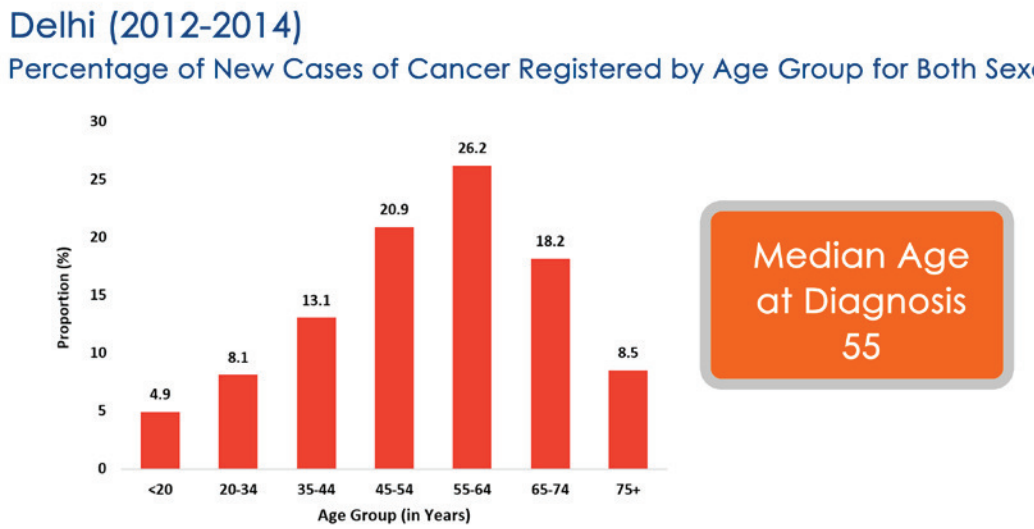
*** Per 100,000 Population**

Number and Proportion of new Cancer Cases Contributed to PBCR by the Main Sources of Registration: Delhi (2012-2014)

Name of the Institute	Number	%
All India Institute of Medical Science and Institute-Rotary Cancer Hospital, Delhi	11017	18.3
Rajiv Gandhi Cancer Hospital, Delhi	7267	12.1
Safdarjung Hospital, Delhi	6364	10.6
Delhi State Cancer Institute, Delhi	4918	8.2
Lok Nayak Jai Prakash Narayan Hospital, Delhi	3630	6.0
Max Devki Devi Hospital, Saket, Delhi	3349	5.6
Balaji Hospital, Delhi	2314	3.9
Dharamshila Hospital, Delhi	2121	3.5
Apollo Hospital, Delhi	2037	3.4
Ram Manohar Lohia Hospital, Delhi	1911	3.2
Batra Hospital, Delhi	1899	3.2

Name of the Institute	Number	%
Sri Ganga Ram Hospital, Delhi	1775	3.0
Max Balaji Hospital, Patparganj, Delhi	1561	2.6
Govind Ballabh Pant Hospital, Delhi	1223	2.0
Employee's State Insurance Hospital, Delhi	1094	1.8
Shanthi Mukund Hospital, Delhi	863	1.4
Medanta Cancer Centre, Gurgaon	843	1.4
Municipal Corporation of Delhi, Delhi	796	1.3
Lady Hardinge Medical College and Kalawati Saran Children's Hospital, Delhi	752	1.3
Others	4363	7.3
Total	**60097**	**100.0**

1. Institutions listed have registered at least one percent of all cases in the registry for selected year(s).
2. Institutions could have registered / reported more cases, since duplicate registrations and non-resident / registry cases are not included.



Hospital Based Cancer Registries in Delhi

Sl No	Name of the Institute	HBCR Establishment Year	Top 5 Leading Sites of Cancer	
			Males	Females
1.	Max Super Speciality Hospital, New Delhi (2013-2016)	2013	Lung (C33-C34) Prostate (C61) Mouth (C03-C06) Tongue (C01-C02) Brain, NS (C70-C72)	Breast (C50) Ovary(C56) Corpus Uteri (C54) Cervix Uteri (C53) Gall Bladder (C23-C24)
2.	Dr. B.R. Ambedkar Institute Rotary Cancer Hospital, New Delhi (2012, 2014-2015)	2012	Lung (C33-C34) Mouth (C03-C06) Tongue (C01-C02) NHL (C82-C85) Lymphoid Leuk. (C91)	Breast (C50) Cervix Uteri (C53) Ovary (C56) Gall Bladder (C23-C24) Lung (C33-C34)
3.	Max Super Speciality Hospital, Patparganj, Delhi (2015-2016)	2015	Mouth (C03-C06) Lung (C33-C34) Tongue (C01-C02) Prostate (C61) Oesophagus (C15)	Breast (C50) Cervix Uteri (C53) Ovary (C56) Gall Bladder (C23-C24) Corpus Uteri (C54) Lung (C33-C34)
4.	Rajiv Gandhi Cancer Institute, New Delhi (2012-2013)	2012	Lung (C33-C34) Mouth (C03-C06) Tongue (C01-C02) Prostate (C61) Urinary Bladder (C67)	Breast (C50) Gall Bladder (C23-C24) Cervix Uteri (C53) Ovary (C56) Lung (C33-C34)

Punjab state

Patiala district - PBCR

Host Institution **Government Medical College, Rajindra Hospital, Patiala**

State	PBCR Establishment Year	Coverage Area	No. of Sources of data	Leading site of cancer*	
				Males	Females
Punjab	2011	Patiala district	54	Oesophagus CR: 10.7	Breast CR: 38.4

*** Per 100,000 Population**

Number and Proportion of new Cancer Cases Contributed to PBCR by the Main Sources of Registration: Patiala district (2012-2016)

Name of the Institute	Number	%
Rajindra Hospital, Patiala	4068	35.5
Cancer Atlas under NCRP	889	7.7
Civil Surgeon Office, Patiala	746	6.5
Municipal Corporation, Patiala	213	1.9
Amar Hospital, Patiala	156	1.4
Ashok Clinical Laboratory, Patiala	130	1.1
Advance Cancer Diagnostic Treatment & Research Center Bathinda, Patiala	129	1.1
Sources of Registration outside the registry area		
Postgraduate Institute of Medical Education and Research, Chandigarh	1645	14.3
DHS Office Cancer Control Cell, Chandigarh	418	3.6
Guru Gobind Singh Medical College, Faridkot	182	1.6
Rajiv Gandhi Cancer Institute, Delhi	113	1.0
Acharya Tulsi Regional Cancer Institute and research Center, Rajasthan	216	1.9
Others	2566	22.4
Total	**11471**	**100.0**

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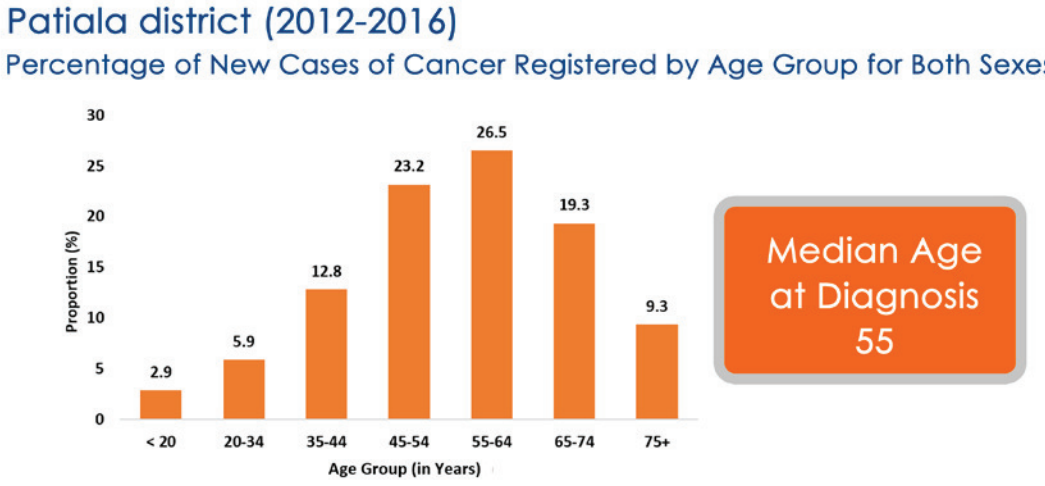

Telangana state

Hyderabad district - PBCR

Host Institution **Nizam's Institute of Medical Sciences, Hyderabad**

State	PBCR Establisment Year	Coverage Area	No. of Sources of data	Leading site of cancer*	
				Males	Females
Telangana	2014	Hyderabad district	24	Mouth CR: 11.2	Breast CR: 39.0

*** Per 100,000 Population**

Number and Proportion of new Cancer Cases Contributed to PBCR by the Main Sources of Registration: Hyderabad district (2014-2016)

Name of the Institute	Number	%
Indo American Chamber of Commerce, Punjagutta, Hyderabad	3244	28.0
Mehdi Nawaj Jung Institute of Oncology, Hyderabad	2870	24.7
Yashoda Hospitals, Hyderabad	1330	11.5
Omega Hospital, Hyderabad	1139	9.8
Apollo Cancer Hospital, Hyderabad	761	6.6
Krishna Institute of Medical Sciences, Hyderabad	662	5.7
Kerala Institute of Medical Sciences BiBi Cancer Hospital, Hyderabad	437	3.8
Citizens Speciality Hospital, Hyderabad	343	3.0
Sowmya Multispeciality Hospital, Hyderabad	218	1.9
Nizams Institute of Medical Sciences, Hyderabad	150	1.3
Others	442	3.8
Total	**11596**	**100.0**

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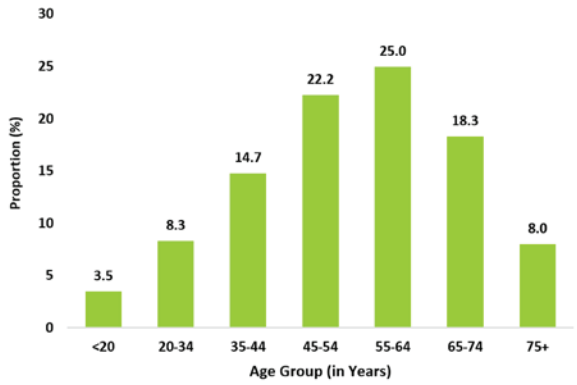
Hyderabad district (2014-2016)

Percentage of New Cases of Cancer Registered by Age Group for Both Sexes



Median Age at Diagnosis 55

Hospital Based Cancer Registries in Hyderabad

Sl No	Name of the Institute	HBCR Establishment Year	Top 5 Leading Sites of Cancer	
			Males	Females
1	Indo-American Cancer Institute & Research Centre, Hyderabad (2012)	2011	Lung (C33-C34) Stomach (C16) Mouth (C03-C06) Tongue (C01-C02) Rectum (C19-C20)	Breast (C50) Cervix Uteri (C53) Ovary (C56) Thyroid (C73) Stomach (C16)

Kerala state

Kollam district - PBCR

Host Institution **Regional Cancer Centre, Thiruvananthapuram**

State	PBCR Establishment Year	Coverage Area	No. of Sources of data	Leading site of cancer*	
				Males	Females
Kerala	2006	Kollam district	160	Lung CR: 29.4	Breast CR: 40.3

*** Per 100,000 Population**

Number and Proportion of new Cancer Cases Contributed to PBCR by the Main Sources of Registration: Kollam district (2012-2016)

Name of the Institute	Number	%
Employee's State Insurance Hospital, Asramam	694	3.5
Vital Statistics Division Of 71 Panchayats in Kollam District	686	3.5
Holy Cross Hospital, Kottiyam	672	3.4
District Hospital, Kollam	536	2.7
Travancore Medical College, Kollam	446	2.3
Benziger Hospital, Kollam	425	2.2
Natural Background Radiation Cancer Clinics, Kollam	242	1.2
Assissy Dental Hospital, Nedumpana	258	1.3
Sankers Hospital, Kollam	197	1.0
Sources of Registration outside the registry area		
Regional Cancer Centre, Thiruvananthapuram	5567	28.2
Medical College, Thiruvananthapuram	5242	26.6
Amrita Institute of Medical Science, Ernakulam	997	5.1
Medical College, Alappuzha	464	2.4
Sanatorium for Chest Disease, Pulayanarkotta, Thiruvananthapuram	222	1.1
Others	3062	15.5
Total	**19710**	**100.0**

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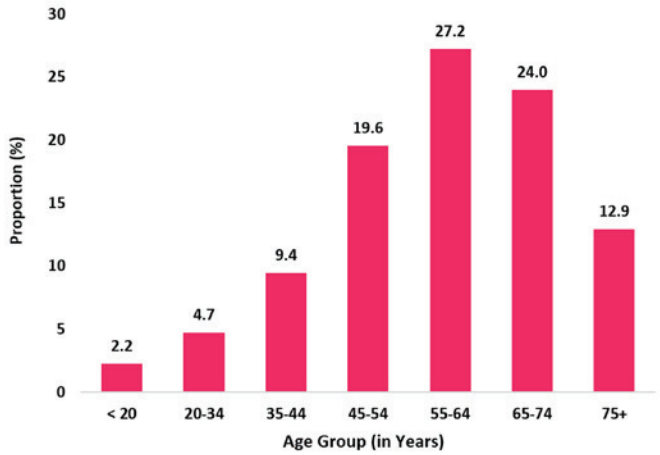
Kollam district (2012-2016)

Percentage of New Cases of Cancer Registered by Age Group for Both Sexes



Median Age at Diagnosis 60

Kerala state

Thiruvananthapuram district - PBCR

Host Institution **Regional Cancer Centre, Thiruvananthapuram**

State	PBCR Establishment Year	Coverage Area	No. of Sources of data	Leading site of cancer*	
				Males	Females
Kerala	2005	Thiruvananthapuram taluk up to 2011; district Coverage from 2012	57	Lung CR: 21.3	Breast CR: 47.0

*** Per 100,000 Population**

Number and Proportion of new Cancer Cases Contributed to PBCR by the Main Sources of Registration: Thiruvananthapuram district (2012-2016)

Name of the Institute	Number	%
Medical College Hospital, Thiruvananthapuram	9221	33.1
Regional Cancer Centre, Thiruvananthapuram	6313	22.7
Kerala Institute of Medical Sciences Hospital, Thiruvananthapuram	1040	3.7
Sree Uthradom Thirunal Hospital, Thiruvananthapuram	736	2.6
Cosmopolitan Hospital, Thiruvananthapuram	719	2.6
P. Ratnasami Hospital, Thiruvananthapuram	603	2.2
Death Certificate Only	592	2.1
Thiruvananthapuram Corporation, Thiruvananthapuram	554	2.0
General Hospital, Thiruvananthapuram	484	1.7
Ananthapuri Hospital, Thiruvananthapuram	329	1.2
Others	7242	26.0
Total	**27833**	**100.0**

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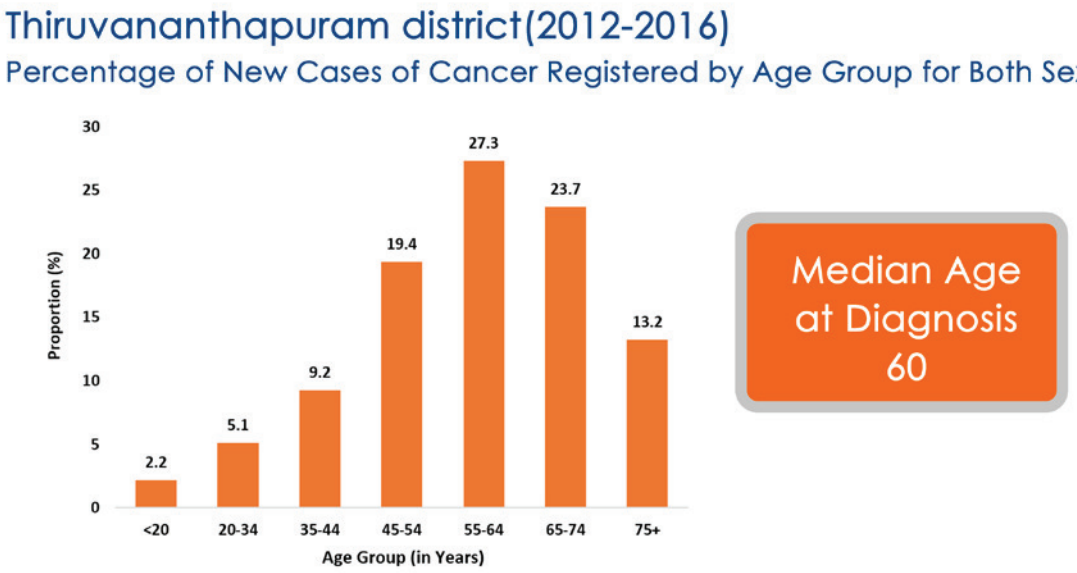

Hospital Based Cancer Registries in Thiruvananthapuram

Sl No	Name of the Institute	HBCR Establishment Year	Top 5 Leading Sites of Cancer	
			Males	Females
1	Regional Cancer Centre, Thiruvananthapuram (2012-2016)	1984	Lung (C33-C34) Mouth (C03-C06) Tongue (C01-C02) Stomach (C16) NHL (C82-C85)	Breast (C50) Thyroid (C73) Cervix Uteri (C53) Ovary (C56) Corpus Uteri (C54)

Hospital Based Cancer registries in Kerala state

Sl No	Name of the Institute	HBCR Establishment Year	Top 5 Leading Sites of Cancer	
			Males	Females
1	Amrita Institute of Medical Sciences & Research Centre, Kochi (2012-2016)	2011	Liver (C22) Lung (C33-C34) Prostate (C61) Thyroid (C73) Stomach (C16) NHL (C82-C85)	Breast (C50) Thyroid (C73) Ovary (C56) Lung (C33-C34) Corpus Uteri (C54)
2	Malabar Cancer Centre, Kannur (2012-2016)	2011	Lung (C33-C34) Mouth (C03-C06) Stomach (C16) Tongue (C01-C02) Larynx (C32)	Breast (C50) Cervix Uteri (C53) Ovary (C56) Mouth (C03-C06) Lung (C33-C34)
3	General Hospital, Ernakulum (2012)	2011	Lung (C33-C34) Stomach (C16) Mouth (C03-C06) Larynx (C32) Tongue (C01-C02)	Breast (C50) Cervix Uteri (C53) Ovary (C56) Corpus Uteri (C54) Mouth (C03-C06)
4	Government Medical College, Thrissur (2014)	2015	Lung (C33-C34) Stomach (C16) Oesophagus(C15) Larynx (C32) Tongue (C01-C02)	Breast (C50) Cervix Uteri (C53) Ovary (C56) Mouth (C03-C06) Corpus Uteri (C54) Stomach (C16) Lung (C33-C34)
5	MES Medical College & Hospital, Perinthalmanna (2016)	2013	Lung (C33-C34) Stomach (C16) Rectum (C19-C20) Prostate (C61) Urinary Bladder (C67) NHL (C82-C85)	Breast (C50) Ovary (C56) Uterus Unsp. (C55) Multiple Myeloma (C90) Corpus Uteri (C54) Cervix Uteri (C53)

Karnataka state

Bangalore - PBCR

Host Institution **Kidwai Memorial Institute of Oncology (KMIO), Bengaluru**

State	PBCR Establishment Year	Coverage Area	No. of Sources of data	Leading site of cancer*	
				Males	Females
Karnataka	1981	Bangalore Urban Agglomeration	194	Lung CR: 9.8	Breast CR: 35.0

*** Per 100,000 Population**

Number and Proportion of new Cancer Cases Contributed to PBCR by the Main Sources of Registration: Bengaluru (2012-2014)

Name of the Institute	Number	%
Bangalore Institute of Oncology, Bengaluru	8766	30.2
Kidwai Memorial Institute of Oncology, Bengaluru	5631	19.4
Karunashraya Bangalore Hospice Trust, Bengaluru	1506	5.2
Manipal Hospital, Bengaluru	1423	4.9
M S Ramaiah Medical College, Bengaluru	1279	4.4
Curie Institute of Oncology, Bengaluru	1178	4.1
Apollo Hospital, Bengaluru	934	3.2
St. John Medical College & Hospital, Bengaluru	811	2.8
Vydehi Institute of medical science and research center, Bengaluru	692	2.4
Narayana Hrudalaya Health City, Bengaluru	544	1.9
Employee's State Insurance Hospital, Rajaji Nagar, Bengaluru	409	1.4
Popular Polyclinic, Bengaluru	380	1.3
Others	5496	18.9
Total	**29049**	**100.0**

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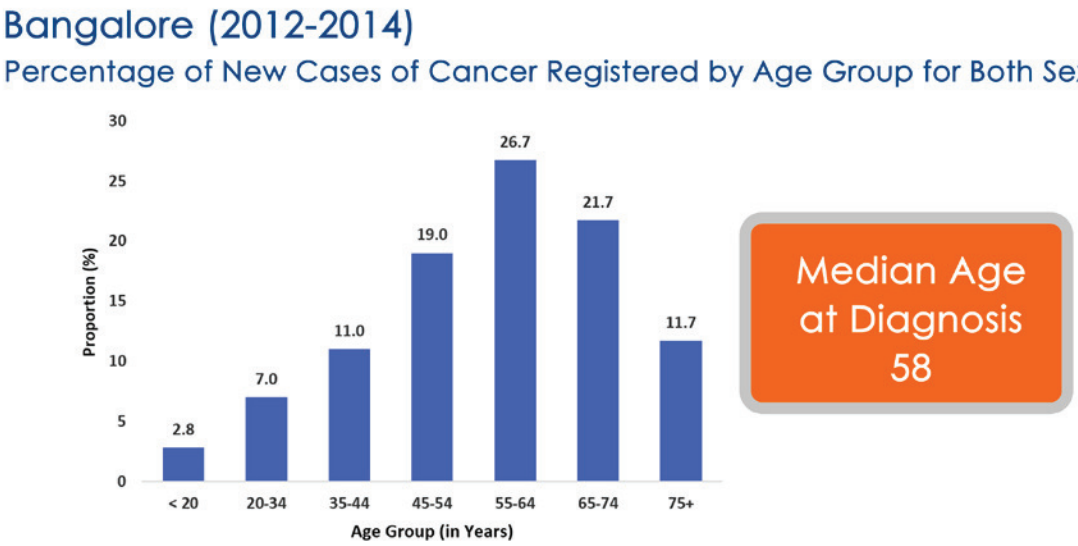

Hospital Based Cancer Registries in Bengaluru

Sl No	Name of the Institute	HBCR Establishment Year	Top 5 Leading Sites of Cancer	
			Males	Females
1	Vydehi Institute of Medical Sciences, Bengaluru (2012-2016)	2012	Lung (C33-C34) Stomach (C16) Mouth (C03-06) Oesophagus (C15) Tongue (C01-C02)	Cervix Uteri (C53) Breast (C50) Mouth (C03-C06) Ovary (C56) Oesophagus (C15)
2	Kidwai Memorial Institute of Oncology, Bengaluru (2012-2015)	1984	Lung (C33-C34) Hypopharynx (C12-13) Oesophagus (C15) Mouth (C03-06) Tongue (C01-C02)	Cervix Uteri (C53) Breast (C50) Mouth (C03-C06) Ovary (C56) Thyroid (C73)
3	St. Johns Medical Hospital, Bengaluru (2013-2016)	2012	Lung (C33-C34) Lymphoid Leuk. (C91) Stomach (C16) Prostate (C61) NHL (C82-C85)	Breast (C50) Cervix Uteri (C53) Lymphoid Leuk. (C91) Ovary (C56) Lung (C33-C34)
4	HCG Bangalore Institute of Oncology, Bengaluru (2012-13)	2011	Lung (C33-C34) Prostate (C61) Stomach (C16) Thyroid (C73) Brain, NS (C70-C72)	Breast (C50) Cervix Uteri (C53) Thyroid (C73) Ovary (C56) Lung (C33-C34)
5	Narayana Hrudayalaya Health City, Bengaluru (2016)	2011	Mouth (C03-C06) Lung (C33-C34) Tongue (C01-C02) Brain, NS (C70-C72) NHL (C82-C85)	Breast (C50) Cervix Uteri (C53) Mouth (C03-C06) Brain, NS (C70-C72) Ovary (C56)

Hospital Based Cancer Registries in Karnataka state

Sl No	Name of the Institute	HBCR Establishment Year	Top 5 Leading Sites of Cancer	
			Males	Females
1	Shakunatala Memorial Hospital & Research Centre, Hubli (2014-2016)	2015	Mouth (C03-C06) Oesophagus (C15) Tongue (C01-C02) Larynx (C32) Rectum (C19-C20)	Breast (C50) Ovary (C56) Oesophagus (C15) Thyroid (C73) Tongue (C01-C02) Mouth (C03-C06)
2	HCG NMR Cancer Centre, Hubli (2015-2016)	2014	Mouth (C03-C06) Oesophagus (C15) Lung (C33-C34) Tongue (C01-C02) Larynx (C32)	Breast (C50) Cervix Uteri (C53) Oesophagus (C15) Ovary (C56) Corpus Uteri (C54)
3	Mandya Institute of Medical Sciences, Mandya (2015-2016)	2015	Hypopharynx(C12-C13) Larynx (C32) Oth. Oropharynx (C10) Oesophagus (C 15) Tongue (C01-C02)	Breast (C50) Cervix Uteri (C53) Oesophagus (C15) Ovary (C56) Pancreas (C25) Stomach (C16) Mouth (C03-C06) Oth. Oropharynx (C10) Larynx (C32)

Sl No	Name of the Institute	HBCR Establishment Year	Top 5 Leading Sites of Cancer	
			Males	Females
4	A.J. Hospital & Research Centre, Mangaluru (2014-2015)	2013	Mouth (C03-06) Lung (C33-C34) Oth. Oropharynx (C10) Larynx (C32) Oesophagus (C15)	Breast (C50) Cervix Uteri (C53) Mouth (C03-C06) Hypopharynx (C12-C13) Rectum (C19-C20)
5	SDM College of Dental Sciences and Hospital, Dharwad (2014-2015)	2014	Mouth (C03-06) Tongue (C01-C02) Lip (C00) NHL (C82-C85)	Mouth (C03-C06) Tongue (C01-C02) Nose, Sinuses(C30-C31) Multiple Myeloma (C90) Bone (C40-C41) Lip (C00)
6	Father Muller Medical College Hospital, Mangaluru (2016)	2013	Mouth (C03-C06) Lung (C33-C34) Stomach (C16) Tongue (C01-C02) Larynx (C32) Oesophagus (C15)	Cervix Uteri (C53) Breast (C50) Ovary (C56) Mouth (C03-C06) Stomach (C16)

Tamil Nadu state

Chennai - PBCR

Host Institution **Cancer Institute (WIA), Adyar, Chennai**

State	PBCR Establishment Year	Coverage Area	No. of Sources of data	Leading site of cancer*	
				Males	Females
Tamil Nadu	1982	Chennai Municipal Corporation	191	Lung CR: 11.8	Breast CR: 46.0

*** Per 100,000 Population**

Number and Proportion of new Cancer Cases Contributed to PBCR by the Main Sources of Registration: Chennai (2012-2016)

Name of the Institute	Number	%
Cancer Institute (WIA), Chennai	5284	16.9
Government General Hospital, Chennai	3614	11.6
Apollo Hospital, Chennai	2023	6.5
Government Royapettah Hospital, Chennai	2003	6.4
Government Stanley Hospital, Chennai	1924	6.2
Corporation of Chennai, Chennai	1770	5.7
VS Hospitals, Chennai	1229	3.9
Dr Rai Memorial Cancer Centre, Chennai	1129	3.6
Billroth Hospital, Chennai	856	2.7
Sri Ramachandara Medical and Research Centre, Chennai	751	2.4
Kumaran Nursing Home, Chennai	746	2.4

Name of the Institute	Number	%
Tamil Nadu Government Multi Super Speciality Hospital, Chennai	676	2.2
Government Women's and Children's Hospital, Chennai	526	1.7
St. Issabels Hospital, Chennai	469	1.5
Vijaya Hospital, Chennai	368	1.2
Chennai Breast Cancer Care Centre, Chennai	344	1.1
Southern Railway Hospital, Chennai	316	1.0
Government Employees State Insurance Hospital, K.K. Nagar, Chennai	305	1.0
Cauvery Hcg Hospital, Chennai	303	1.0
Others	6635	21.2
Total	**31271**	**100.0**

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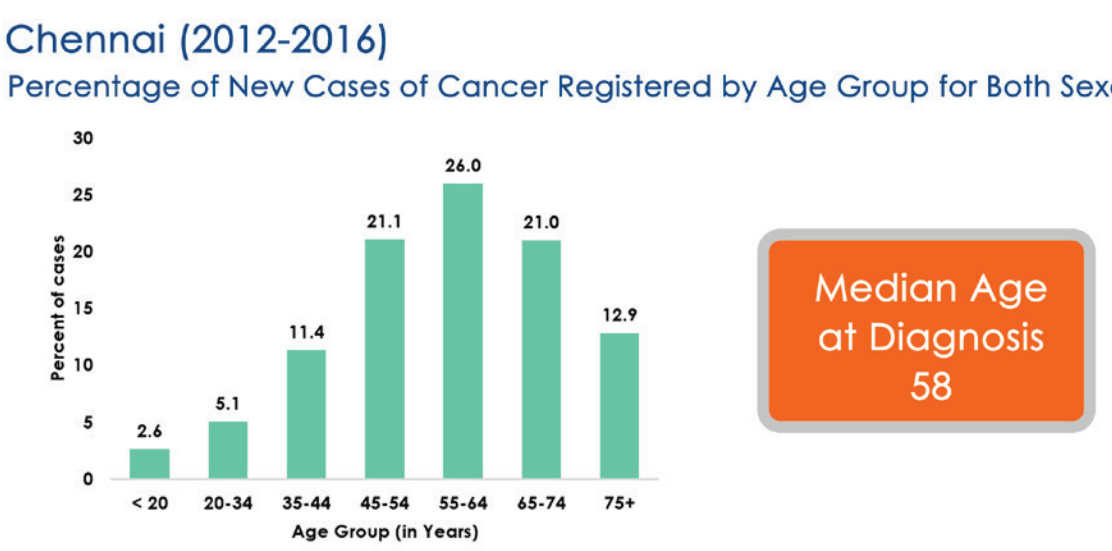

Hospital Based Cancer Registries in Chennai

Sl No	Name of the Institute	HBCR Establishment Year	Top 5 Leading Sites of Cancer	
			Males	Females
1	Cancer Institute (WIA), Chennai (2012-2016)	1984	Mouth (C03-C06) Stomach (C16) Lung (C33-C34) Tongue (C01-C02) Oesophagus (C15)	Breast (C50) Cervix Uteri (C53) Ovary (C56) Mouth (C03-C06) Stomach (C16)

Hospital Based Cancer Registries in Tamil Nadu state

Sl No	Name of the Institute	HBCR Establishment Year	Top 5 Leading Sites of Cancer	
			Males	Females
1	International Cancer Centre, Neyyoor (2012-2016)	2012	Tongue (C01-C02) Mouth (C03-C06) Lung (C33-C34) Stomach (C16) Larynx (C32)	Breast (C50) Cervix Uteri (C53) Ovary (C56) Corpus Uteri (C54) Tongue (C01-C02)
2	Govt Arignar Anna Memorial Cancer Hospital & Research Institute, Kanchipuram (2014-2016)	2012	Stomach (C16) Mouth (C03-C06) Tongue (C01-C02) Lung (C33-C34) Oth. Oropharynx(C10)	Cervix Uteri (C53) Breast (C50) Mouth (C03-C06) Ovary (C56) Stomach (C16)
3	Erode Cancer Centre, Thindal, Erode (2012)	2013	Oesophagus (C15) Tongue (C01-C02) Lung (C33-C34) Hypopharynx(C12-C13) Larynx (C32)	Cervix Uteri (C53) Breast (C50) Ovary (C56) Oesophagus (C15) Hypopharynx(C12-C13) Lung (C33-C34) Corpus Uteri (C54)

West Bengal state

Kolkata - PBCR

Host Institution **Chittaranjan National Cancer Institute (CNCI) and Saroj Gupta Cancer Centre & Research Institute (SGCCRI)**

State	PBCR Establishment Year	Coverage Area	No. of Sources of data	Leading site of cancer*	
				Males	Females
West Bengal	2005	Kolkata Municipal Corporation	59	Lung CR: 22.0	Breast CR: 26.3

*** Per 100,000 Population**

Number and Proportion of new Cancer Cases Contributed to PBCR by the Main Sources of Registration: Kolkata (2012-2015)

Name of the Institute	Number	%
Calcutta Corporation, Kolkata	4455	23.0
Chittaranjan National Cancer Institute, Kolkata	2637	13.6
Cancer Centre and Welfare Home & Research Institute, Kolkata	2215	11.5
Nil Ratan Sircar Medical College and Hospital, Kolkata	1573	8.1
Calcutta Medical College & Hospital, Kolkata	1150	5.9
Seth Sukhlal Karnani Memorial Hospital, Kolkata	1073	5.5
Radha Gobinda Kar Medical College and Hospital, Kolkata	833	4.3
Netaji Subhas Chandra Bose Cancer Research Center, Kolkata	805	4.2
Quadra Medical Centre, Kolkata	560	2.9
Apollo Hospital, Kolkata	523	2.7
Ruby General Hospital, Kolkata	452	2.3

Name of the Institute	Number	%
Woodlands Multispeciality Hospital, Kolkata	416	2.2
Badri Prasad Poddar Hospital & Medical Research, Kolkata	264	1.4
Employee's State Insurance Hospital, Kolkata	247	1.3
N G Medicare & Calcutta Hope Infertility Clinic, Kolkata	244	1.3
EKO -X -RAY Imaging Institute, Kolkata	223	1.2
Ramakrishna Mission Seva Pratishthan, Kolkata	217	1.1
Calcutta Medical Research Institute, Kolkata	216	1.1
Subodh Mita Cancer Hospital & Research Centre, Kolkata	196	1.0
Others	1038	5.4
Total	**19337**	**100.0**

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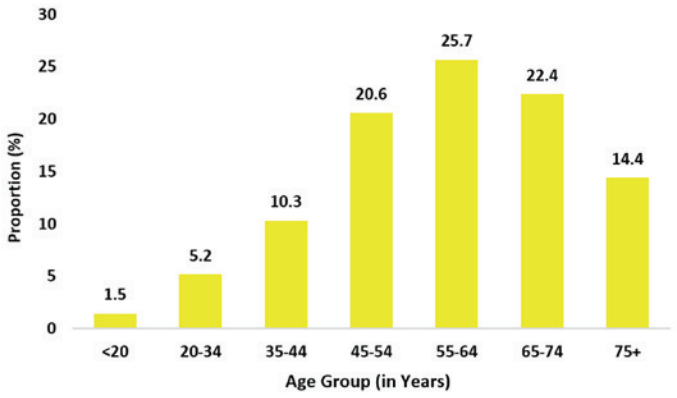
Kolkata (2012-2015)

Percentage of New Cases of Cancer Registered by Age Group for Both Sexes



Median Age at Diagnosis 59

Hospital Based Cancer Registries in Kolkata

Sl No	Name of the Institute	HBCR Establishment Year	Top 5 Leading Sites of Cancer	
			Males	Females
1	Tata Medical Center, Kolkata (2015-2016)	2014	Lung (C33-C34) Prostate (C61) NHL (C82-C85) Mouth (C03-C06) Urinary Bladder (C67)	Breast (C50) Ovary (C56) Cervix Uteri (C53) Gall Bladder (C23-C24) Corpus Uteri (C54)
2	Chittaranjan National Cancer Institute, Kolkata (2016)	2015	Lung (C33-C34) Mouth (C03-C06) Gall Bladder(C23-C24) Tongue (C01-C02) Stomach (C16)	Breast (C50) Cervix Uteri (C53) Gall Bladder (C23-C24) Mouth (C03-C06) Ovary (C56)

Gujarat state

Ahmedabad urban - PBCR

Host Institution **The Gujarat Cancer & Research Institute, Ahmedabad**

State	PBCR Establishment Year	Coverage Area	No. of Sources of data	Leading site of cancer*	
				Males	Females
Gujarat	2007	Ahmedabad urban Agglomeration	75	Mouth CR: 19.2	Breast CR: 23.3

*** Per 100,000 Population**

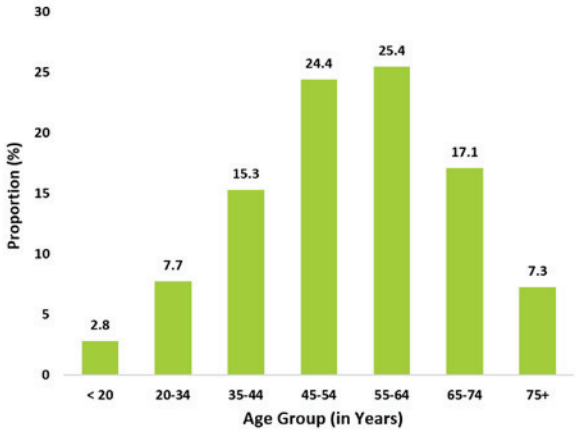
Number and Proportion of new Cancer Cases Contributed to PBCR by the Main Sources of Registration: Ahmedabad urban (2012-2016)

Name of the Institute	Number	%
The Gujarat Cancer & Research Institute, Ahmedabad	16314	63.7
Vedant Hospital, Ahmedabad	1590	6.2
Apollo Hospital, Ahmedabad	770	3.0
Dr. Dilip Shrinivasan (Saviour Hospital), Ahmedabad	747	2.9
Dr.S.V.Shah, S.P.Surgical Nursing Home (Neurology Center) , Ahmedabad	576	2.2
Gujarat Cancer Society, Ahmedabad	536	2.1
Care Institute of Medical Sciences, Ahmedabad	528	2.1
Dr.Jayeshbhai Patel & Dr.Natubhai Patel,Onco Surgical Hospital & Endoscopy, Ahmedabad	503	2.0
Byramjee Jeejeebhoy Medical College & Civil Hospital, Ahmedabad	469	1.8
Dr. Chirag Shah (Shyam Hem Oncology Clinic) , Ahmedabad	351	1.4
Sanket Diagnostic Pvt. Ltd, Ahmedabad	297	1.2
Sterling Hospital, Ahmedabad	281	1.1
Others	2642	10.3
Total	**25604**	**100.0**

1. Institutions listed have registered at least one percent of all cases in the registry for selected year(s).
2. Institutions could have registered / reported more cases, since duplicate registrations and non-resident / registry cases are not included.

Ahmedabad urban (2012-2016)

Percentage of New Cases of Cancer Registered by Age Group for Both Sexes



Median Age at Diagnosis 54

Hospital Based Cancer Registries in Ahmedabad

Sl No	Name of the Institute	HBCR Establishment Year	Top 5 Leading Sites of Cancer	
			Males	Females
1	The Gujarat Cancer & Research Institute, Ahmedabad (2014-2016)	2013	Mouth (C03-C06) Tongue (C01-C02) Lung (C33-C34) Oesophagus (C15) Hypopharynx (C12-C13)	Breast (C50) Cervix Uteri (C53) Mouth (C03-C06) Ovary (C56) Tongue (C01-C02)

Maharashtra state

Aurangabad - PBCR

Host Institution **Indian Cancer Society, Mumbai**

State	PBCR Establishment Year	Coverage Area	No. of Sources of data	Leading site of cancer*	
				Males	Females
Maharashtra	2005	Aurangabad city Agglomeration	7	Mouth CR: 9.0	Breast CR: 21.1

*** Per 100,000 Population**

Number and Proportion of new Cancer Cases Contributed to PBCR by the Main Sources of Registration: Aurangabad (2012-2016)

Name of the Institute	Number	%
Government Hospital, Aurangabad	2245	57.2
Kamalnayan Bajaj Hospital, Aurangabad	805	20.5
Seth Nandal Dhoot Radiotherapy Hospital, Aurangabad	416	10.6
Other Small Hospitals, Aurangabad	158	4.0
Tata Memorial Hospital, Mumbai	187	4.8
Others	113	2.9
Total	**3924**	**100.0**

1. Institutions listed have registered at least one percent of all cases in the registry for selected year(s).
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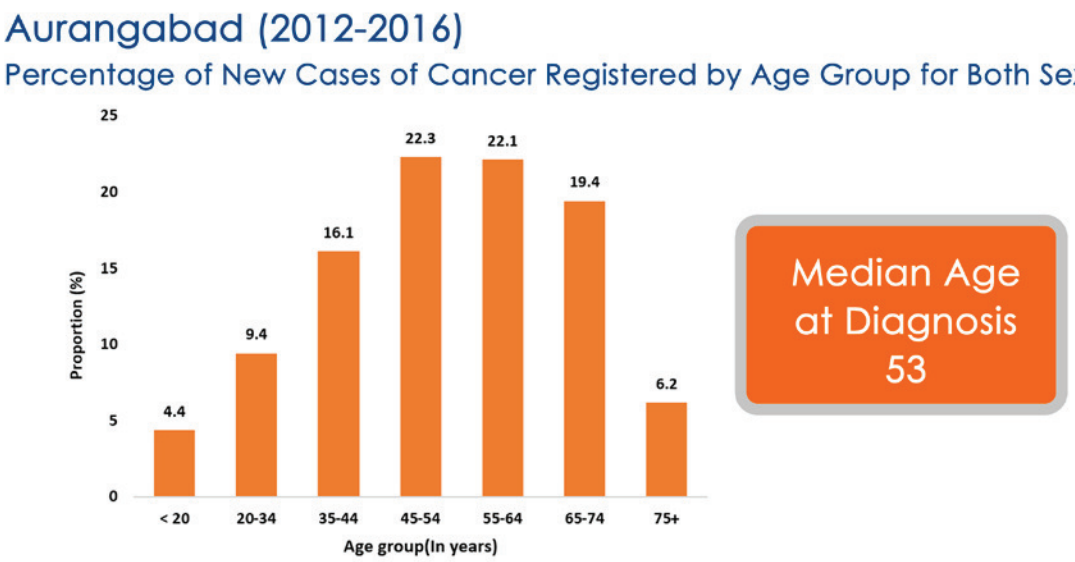

Maharashtra state

Osmanabad & Beed - PBCR

Host Institution **Nargis Dutt Memorial Cancer Hospital, Barshi**

State	PBCR Establishment Year	Coverage Area	No. of Sources of data	Leading site of cancer*	
				Males	Females
Maharashtra	2007	2 districts - Osmanabad & Beed	72	Mouth CR: 4.7	Cervix Uteri CR: 13.8

*** Per 100,000 Population**

Number and Proportion of new Cancer Cases Contributed to PBCR by the Main Sources of Registration: Osmanabad & Beed (2012-2015)

Name of the Institute	Number	%
Barshi Cancer Hospital, Solapur	2339	28.9
Swami Ramanand Tirth Rural Medical College, Ambejogai	1410	17.4
Shri. Pathology Laboratory (Dr. Jadhav)/Civil Hospital, Beed	456	5.6
Dekhane Pathology Laboratory, Solapur	244	3.0
Sidheshwar Cancer Hospital, Solapur	164	2.0
Dr. Kelkar Pathology Laboratory, Solapur	112	1.4
Dr. A.S. Kothari Hospital, Barshi	89	1.1
Hiremath Hospital, Barshi	82	1.0
Kahate Pathology Laboratory, Solapur	78	1.0
Sources of Registration outside the registry area		
Civil Hospital (Ghati Hospital), Aurangabad	484	6.0
Krishna Pathology Laboratory, Latur	241	3.0
Pravara Hospital Loni, Ahemadnagar	139	1.7
Poona Registry Non / Resi-Bombay Indian Cancer Society	129	1.6
Kamal Nayan Bajaj Hospital, Aurangabad	122	1.5
Tata Memorial Centre-Bombay	89	1.1
Dr. Shinde Pathology Laboratory, Ahemadnagar	79	1.0
Others	1845	22.8
Total	**8102**	**100.0**

1. Institutions listed have registered at least one percent of all cases in the registry for selected year(s).
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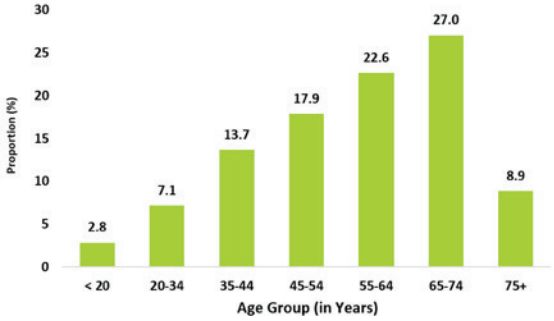
Osmanabad & Beed (2012-2015)

Percentage of New Cases of Cancer Registered by Age Group for Both Sexes



Median Age at Diagnosis 60

Maharashtra state

Barshi rural - PBCR

Host Institution **Tata Memorial Hospital, Mumbai and Nargis Dutt Memorial Cancer Hospital, Barshi**

State	PBCR Establishment Year	Coverage Area	No. of Sources of data	Leading site of cancer*	
				Males	Females
Maharashtra	1988	Rural area of 3 taluks namely Barshi from Solapur district and Bhum & Paranda from Osmanabad district	48	Mouth CR: 4.6	Cervix Uteri CR: 17.0

*** Per 100,000 Population**

Number and Proportion of new Cancer Cases Contributed to PBCR by the Main Sources of Registration: Barshi Rural (2012-2016)

Name of the Institute	Number	%
Barshi Cancer Hospital, Solapur	637	41.4
Dr. A.S. Kothari Pathology Laboratory	196	12.7
Dekhane Pathology Laboratory, Solapur	103	6.7
Camp Detection	69	4.5
Home Visits Live Cases	64	4.2
Other Hospital, Pune	62	4.0
Jadgale Mama Hospital, Solapur	57	3.7
Dr. Patil Pathology Laboratory, Barshi	37	2.4

Name of the Institute	Number	%
Ruby Hall & Other Hospital, Pune	36	2.3
Potdar Laboratory, Solapur	35	2.3
Ashwini Sahakari Rugnalya & Research Center, Solapur	29	1.9
Pushpan Ultrasonography Clinic, Barshi	28	1.8
Hiremath Hospital, Barshi	21	1.4
Other Hospital Bombay	18	1.2
Dr. Kelkar Pathology Laboratory, Barshi	16	1.0
Others	131	8.5
Total	**1539**	**100.0**

1. Institutions listed have registered at least one percent of all cases in the registry for selected year(s).
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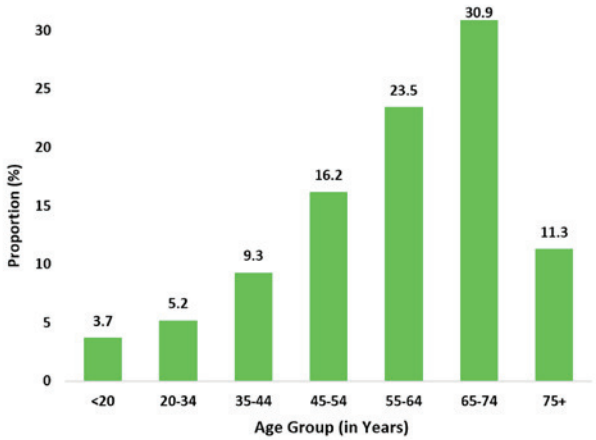
Barshi rural (2012-2016)

Percentage of New Cases of Cancer Registered by Age Group for Both Sexes



Median Age at Diagnosis 60

Maharashtra state

Mumbai - PBCR

Host Institution **Indian Cancer Society, Mumbai**

State	PBCR Establishment Year	Coverage Area	No. of Sources of data	Leading site of cancer*	
				Males	Females
Maharashtra	1982	Mumbai City & Mumbai Suburban district	81	Lung CR: 9.5	Breast CR: 35.2

*** Per 100,000 Population**

Number and Proportion of new Cancer Cases Contributed to PBCR by the Main Sources of Registration: Mumbai (2012-2015)

Name of the Institute	Number	%
Tata Memorial hospital, Mumbai	14053	26.2
Other Small Hospital, Mumbai	7070	13.2
Brihanmumbai Municipal Corporation, Mumbai	2959	5.5
PD Hinduja National Hospital, Mumbai	2862	5.3
Kokilaben Dhirubhai Ambani Hospital & Medical Research Institute, Mumbai	2501	4.7
BYL Nair Hospital, Mumbai	1742	3.2
Prince Aly Khan Hospital, Mumbai	1681	3.1
Nanavati Super Speciality Hospital, Mumbai	1543	2.9
King Edward Memorial Hospital, Mumbai	1516	2.8
Lokmanya Tilak Municipal General Hospital, Sion	1434	2.7

Name of the Institute	Number	%
Jaslok Hospital & Research Centre, Mumbai	1416	2.6
S.L. Raheja Hospital, Mumbai	1287	2.4
Bombay Hospital & Medical Research Center, Mumbai	1179	2.2
Private Doctors, Mumbai	1142	2.1
Breach Candy Hospital, Mumbai	1084	2.0
Hol Spirit Hospital, Mumbai	1007	1.9
Lilavati Hospital & Research Center, Mumbai	934	1.7
Saifee Hospital, Mumbai	871	1.6
Shanti Avedna Sadan Cancer Hospice, Mumbai	761	1.4
Seven Hills Hospital, Mumbai	751	1.4
Cama And Albless Hospital, Mumbai	582	1.1
Others	5339	9.9
Total	**53714**	**100.0**

1. Institutions listed have registered at least one percent of all cases in the registry for selected year(s).
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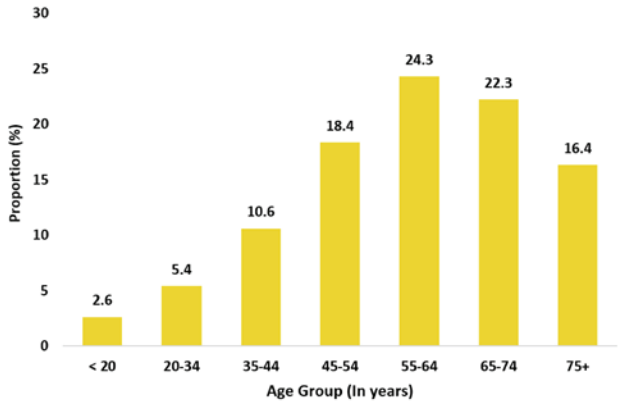
Mumbai (2012-2015)

Percentage of New Cases of Cancer Registered by Age Group for Both Sexes



Median Age at Diagnosis 60

Hospital Based Cancer Registries in Mumbai

Sl No	Name of the Institute	HBCR Establishment Year	Top 5 Leading Sites of Cancer	
			Males	Females
1	Tata Memorial Hospital, Mumbai (2012-2014)	1984	Mouth (C03-C06) Lung (C33-C34) Tongue (C01-C02) NHL (C82-C85) Myeloid Leuk.(C92-C94)	Breast (C50) Cervix Uteri (C53) Gall Bladder(C23-C24) Ovary (C56) Mouth (C03-06)

Hospital Based Cancer Registries in Maharashtra state

Sl No	Name of the Institute	HBCR Establishment Year	Top 5 Leading Sites of Cancer	
			Males	Females
1	Pravara Rural Hospital & Rural Medical College, Loni (2016)	2014	Mouth (C03-C06) Tongue (C01-C02) Brain, NS (C70-C72) Hypopharynx(C12-C13) Larynx (C32) Lung (C33-C34) Oesophagus (C15)	Breast (C50) Cervix Uteri (C53) Ovary (C56) Mouth (C03-C06) Tongue (C01-C02)

Maharashtra state

Pune - PBCR

Host Institution **Indian Cancer Society, Mumbai**

State	PBCR Establishment Year	Coverage Area	No. of Sources of data	Leading site of cancer*	
				Males	Females
Maharashtra	2006	Pune City Corporation	32	Mouth CR: 7.3	Breast CR: 27.0

*** Per 100,000 Population**

Number and Proportion of new Cancer Cases Contributed to PBCR by the Main Sources of Registration: Pune (2012-2016)

Name of the Institute	Number	%
Deenanath Mangeshkar Hospital and Research Centre, Pune	2735	13.3
Ruby Hall Clinic-Radiation, Pune	2468	12.0
Ruby Hall Clinic, Pune	2145	10.5
Sassoon General Hospital, Pune	2083	10.2
Poona Small Hospitals, Pune	1721	8.4
CIPLA cancer hospital, Pune	1540	7.5
Inlaks & Budhrani Hospital-Radiation, Pune	1365	6.7
Jehangir Hospital, Pune	1014	4.9
Inlaks & Budhrani Hospital, Pune	878	4.3
Pune Municipal Corporation, Pune	771	3.8
King Edward Memorial Hospital, Pune	704	3.4
Yashwantrao Chavan Memorial Hospital, Pune	674	3.3
Joshi Hospital, Pune	475	2.3
Poona Hospital & Research Centre, Pune	458	2.2
Galaxy Care Hospital, Pune	404	2.0
Sources of Registration outside the registry area		
Tata Memorial Hospital, Mumbai	389	1.9
Ratna Memorial Hospital, Mumbai	264	1.3
Others	417	2.0
Total	**20505**	**100.0**

1. Institutions listed have registered at least one percent of all cases in the registry for selected year(s).
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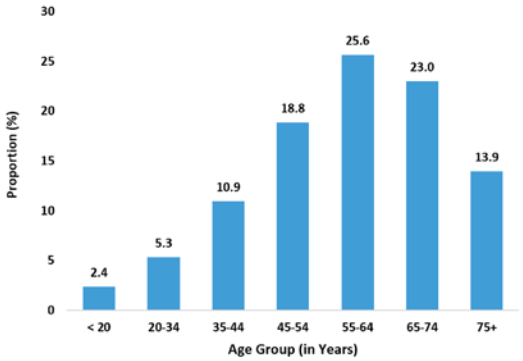
Pune (2012-2016)

Percentage of New Cases of Cancer Registered by Age Group for Both Sexes



Median Age at Diagnosis 60

Maharashtra state

Nagpur - PBCR

Host Institution **Indian Cancer Society, Mumbai**

State	PBCR Establishment Year	Coverage Area	No. of Sources of data	Leading site of cancer*	
				Males	Females
Maharashtra	2005	Nagpur City Agglomeration	26	Mouth CR: 13.8	Breast CR: 28.2

*** Per 100,000 Population**

Number and Proportion of new Cancer Cases Contributed to PBCR by the Main Sources of Registration: Nagpur (2012-2016)

Name of the Institute	Number	%
Multicare Hospital, Nagpur	4466	37.2
Rashtra Sant Tukdoji Regional Cancer Hospital & Research Centre, Nagpur	3968	33.1
Nagpur Small Hospitals, Nagpur	904	7.5
Mayo Indira Gandhi Govt medical and hospital, Nagpur	786	6.6
Death Certificate Only	451	3.8
Lata Mangeshkar Hospital, Nagpur	427	3.6
Tata Memorial Hospital, Nagpur	355	3.0
Orange City Hospital, Nagpur	166	1.4
Central India Institute of Medical Science, Nagpur	127	1.1
Cancer Care Clinic, Nagpur	123	1.0
Mure memorial Hospital, Nagpur	116	1.0
Others	110	0.9
Total	**11999**	**100.0**

1. Institutions listed have registered at least one percent of all cases in the registry for selected year(s).
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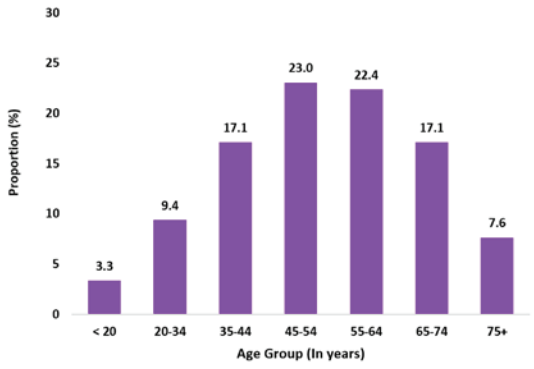
Nagpur (2012-2016)

Percentage of New Cases of Cancer Registered by Age Group for Both Sexes



Median Age at Diagnosis 53

Hospital Based Cancer Registries in Nagpur

Sl No	Name of the Institute	HBCR Establishment Year	Top 5 Leading Sites of Cancer	
			Males	Females
1	RST Regional Cancer Hospital, Cancer Relief Society, Nagpur (2012-2016)	2012	Mouth (C03-C06) Tongue (C01-C02) Lung (C33-C34) Oesophagus (C15) Larynx (C32)	Breast (C50) Cervix Uteri (C53) Mouth (C03-C06) Oesophagus (C15) Ovary (C56)

Maharashtra state

Wardha district - PBCR

Host Institution **Mahatma Gandhi Institute of Medical Sciences, Sevagram**

State	PBCR Establishment Year	Coverage Area	No. of Sources of data	Leading site of cancer*	
				Males	Females
Maharashtra	2010	Wardha district	28	Mouth CR: 10.8	Breast CR: 22.5

*** Per 100,000 Population**

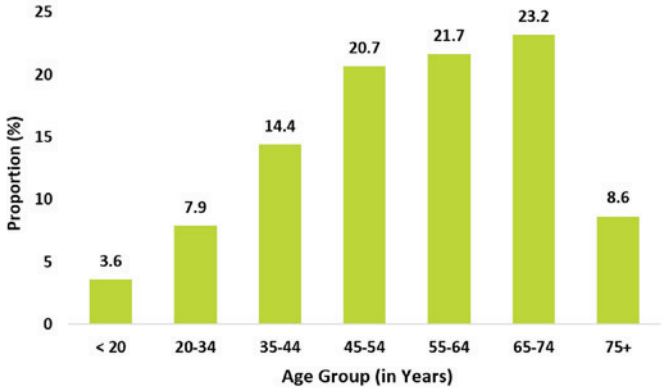
Number and Proportion of new Cancer Cases Contributed to PBCR by the Main Sources of Registration: Wardha district (2012-2016)

Name of the Institute	Number	%
Mahatma Gandhi Institute of Medical Sciences, Sevagram	2342	47.5
Jawaharlal Nehru Medical College, Sawangi	745	15.1
Dental College, Sawangi	205	4.2
Jajoo Hospital, Wardha	148	3.0
Amay Pathology Laboratory, Wardha	96	1.9
Panchayat Samitee, Wardha	64	1.3
Panchayat Samitee, Ashti	50	1.0
Aastha S & Cancer Hospital	49	1.0
Sources of Registration outside the registry area		
Rashtra Sant Tukdoji Cancer Hospital, Nagpur	233	4.7
Government Medical College, Nagpur	180	3.7
Others	814	16.5
Total	**4926**	**100.0**

1. Institutions listed have registered at least one percent of all cases in the registry for selected year(s).
2. Institutions could have registered / reported more cases, since duplicate registrations and non-resident / registry cases are not included.

Wardha district(2012-2016)

Percentage of New Cases of Cancer Registered by Age Group for Both Sexes



Median Age at Diagnosis 55

Madhya Pradesh state

Bhopal - PBCR

Host Institution **Gandhi Medical College, Bhopal**

State	PBCR Establishment Year	Coverage Area	No. of Sources of data	Leading site of cancer*	
				Males	Females
Madhya Pradesh	1986	Bhopal urban district	20	Mouth CR: 14.3	Breast CR: 28.0

*** Per 100,000 Population**

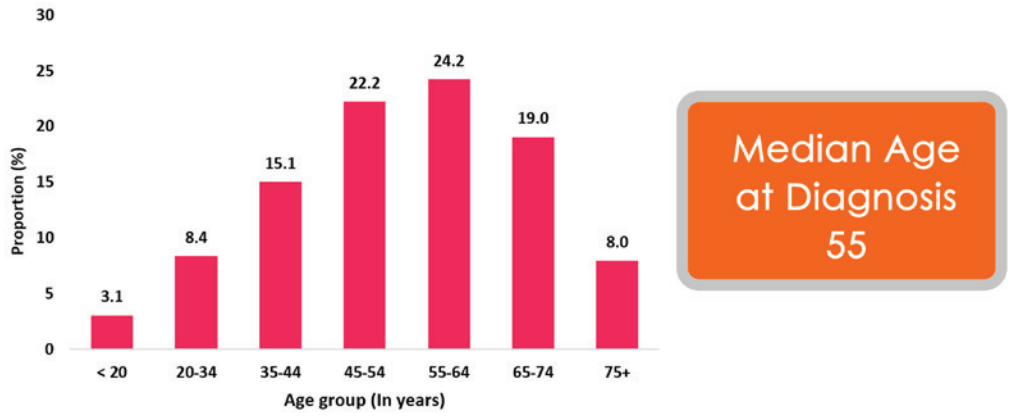
Number and Proportion of new Cancer Cases Contributed to PBCR by the Main Sources of Registration: Bhopal (2012-2015)

Name of the Institute	Number	%
Jawaharlal Nehru Cancer Hospital, Bhopal	3745	52.3
Hamidia Hospital, Bhopal	1398	19.5
Navoday Cancer Hospital, Bhopal	895	12.5
Kasturba Hospital, Bhopal	309	4.3
Sultania Zanana Hospital, Bhopal	237	3.3
Lake City Hospital, Bhopal	207	2.9
Chirayu Hospital, Bhopal	152	2.1
Others	213	3.0
Total	**7156**	**100.0**

1. Institutions listed have registered at least one percent of all cases in the registry for selected year(s).
2. Institutions could have registered / reported more cases, since duplicate registrations and non-resident / registry cases are not included.

Bhopal (2012-2015)

Percentage of New Cases of Cancer Registered by Age Group for Both Sexes



Hospital Based Cancer Registries in Bhopal

Sl No	Name of the Institute	HBCR Establishment Year	Top 5 Leading Sites of Cancer	
			Males	Females
1	Gandhi Medical College, Bhopal (2012-2015)	2012	Mouth (C03-C06) Tongue (C01-C02) Larynx (C32) Lung (C33-C34) Oesophagus (C15)	Cervix Uteri (C53) Breast (C50) Mouth (C03-C06) Ovary (C56) Gall Bladder(C23-C24)

Hospital Based Cancer Registries in Madhya Pradesh state

Sl No	Name of the Institute	HBCR Establishment Year	Top 5 Leading Sites of Cancer	
			Males	Females
1	Cancer Hospital & Research Institute, Gwalior (2014-2016)	2014	Mouth (C03-C06) Tongue (C01-C02) Lung (C33-C34) Larynx (C32) Gall Bladder(C23-C24) Tonsil (C09)	Cervix Uteri (C53) Breast (C50) Gall Bladder(C23-C24) Mouth (C03-C06) Ovary (C56)

Manipur state - PBCR

Host Institution **Regional Institute of Medical Sciences, Imphal**

State	PBCR Establishment Year	Coverage Area	No. of Sources of data	Leading site of cancer*	
				Males	Females
Manipur	2003	Manipur state	17	Lung CR: 8.9	Breast CR: 8.9

*** Per 100,000 Population**

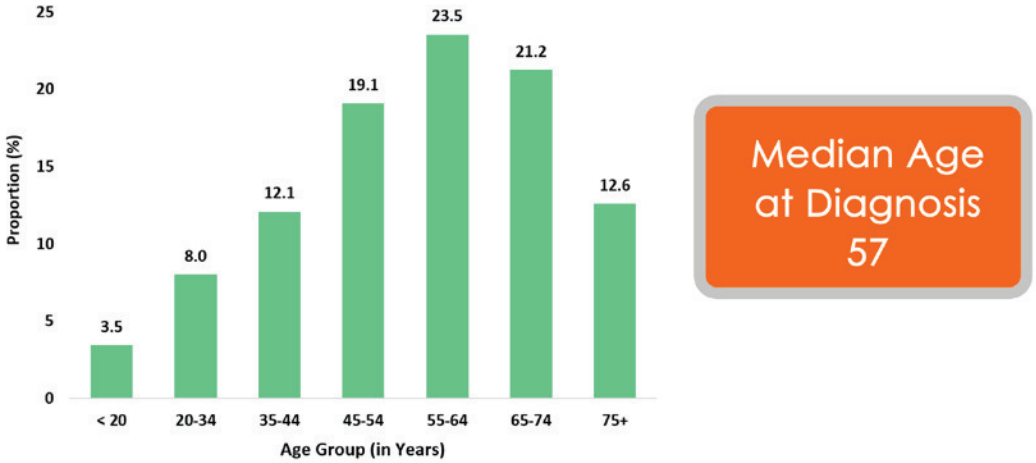
Number and Proportion of new Cancer Cases Contributed to PBCR by the Main Sources of Registration: Manipur state (2012-2016)

Name of the Institute	Number	%
Regional Institute of Medical Sciences, Imphal	5242	63.9
Babina Diagnostic Centre, Imphal	2011	24.5
Shija Hospitals and Research Institute, Imphal	193	2.4
Cancer Atlas under NCRP	167	2.0
Imphal Hospital and Research Centre, Imphal	114	1.4
Sources of Registration outside the registry area		
Dr. B. Borooah Cancer Institute, Guwahati	243	3.0
Others	233	2.8
Total	**8202**	**100.0**

1. Institutions listed have registered at least one percent of all cases in the registry for selected year(s).
2. Institutions could have registered / reported more cases, since duplicate registrations and non-resident / registry cases are not included.

Manipur state(2012-2016)

Percentage of New Cases of Cancer Registered by Age Group for Both Sexes



Hospital Based Cancer Registries in Manipur

Sl No	Name of the Institute	HBCR Establishment Year	Top 5 Leading Sites of Cancer	
			Males	Females
1	Regional Institute of Medical Sciences, Imphal (2014-2016)	2014	Lung (C33-C34) Nasopharynx (C11) Oesophagus (C15) NHL (C82-C85) Larynx (C32)	Breast (C50) Lung (C33-C34) Cervix Uteri (C53) Ovary (C56) Gall Bladder (C23-C24)

Mizoram state - PBCR

Host Institution **Civil Hospital, Aizawl**

State	PBCR Establishment Year	Coverage Area	No. of Sources of data	Leading site of cancer*	
				Males	Females
Mizoram	2003	Mizoram state	37	Stomach CR: 26.2	Cervix Uteri CR: 19.7

*** Per 100,000 Population**

Number and Proportion of new Cancer Cases Contributed to PBCR by the Main Sources of Registration: Mizoram state (2012-2016)

Name of the Institute	Number	%
Civil Hospital, Aizawl	2319	28.8
Genesis Laboratory, Aizawl	1384	17.2
Mizoram State Cancer Institute, Zemabawk, Aizawl	1356	16.8
Life Line Laboratory, Aizawl	878	10.9
Death Certificate Only	512	6.4
Trinity Diagnostic Centre, Aizawl	323	4.0

Name of the Institute	Number	%
Presbyterian Hospital, Aizawl	308	3.8
Grace Nursing Home, Aizawl	142	1.8
HBCRs under NCRP	106	1.3
Nazareth Hospital, Aizawl	92	1.1
Registry of Births & Deaths, Aizawl	79	1.0
Others	560	6.9
Total	**8059**	**100.0**

1. Institutions listed have registered at least one percent of all cases in the registry for selected year(s).
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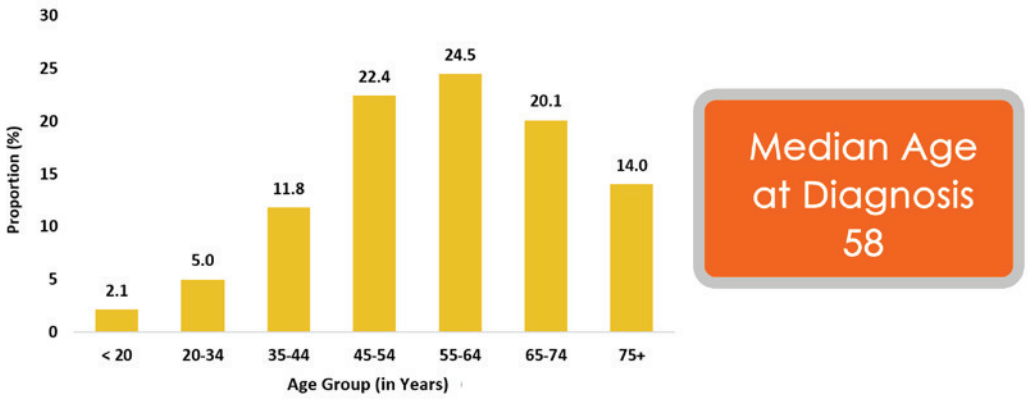
Mizoram state(2012-2016)

Percentage of New Cases of Cancer Registered by Age Group for Both Sexes



Hospital Based Cancer Registries in Mizoram

Sl No	Name of the Institute	HBCR Establishment Year	Top 5 Leading Sites of Cancer	
			Males	Females
1	Mizoram State Cancer Institute (Civil Hospital), Aizawl (2014-2016)	2012	Oesophagus (C15) Lung (C33-C34) Stomach (C16) Hypopharynx(C12-C13) Liver (C22)	Cervix Uteri (C53) Breast (C50) Lung (C33-C34) Stomach (C16) Ovary (C56)

Sikkim state - PBCR

Host Institution **New STNM Multispecialty Hospital, Gangtok**

State	PBCR Establishment Year	Coverage Area	No. of Sources of data	Leading site of cancer*	
				Males	Females
Sikkim	2003	Sikkim state	36	Stomach CR: 11.8	Breast CR: 9.2

*** Per 100,000 Population**

Number and Proportion of new Cancer Cases Contributed to PBCR by the Main Sources of Registration: Sikkim State (2012-2016)

Name of the Institute	Number	%
Sir Thutob Namgyal Memorial (STNM) Hospital, Gangtok	1470	63.8
Central Referral Hospital, Tadong	338	14.7
District Hospital, Namchi	70	3.0
Private Clinics (Ruchi Diagnostic center and Sukhim Diagnostic center), Sikkim	62	2.7
District Hospital, Gyalshing	46	2.0
Births and Deaths, Kazi Road, Gangtok	37	1.6
Soreng Primary Health centre, Soreng	23	1.0
Others	257	11.2
Total	**2303**	**100.0**

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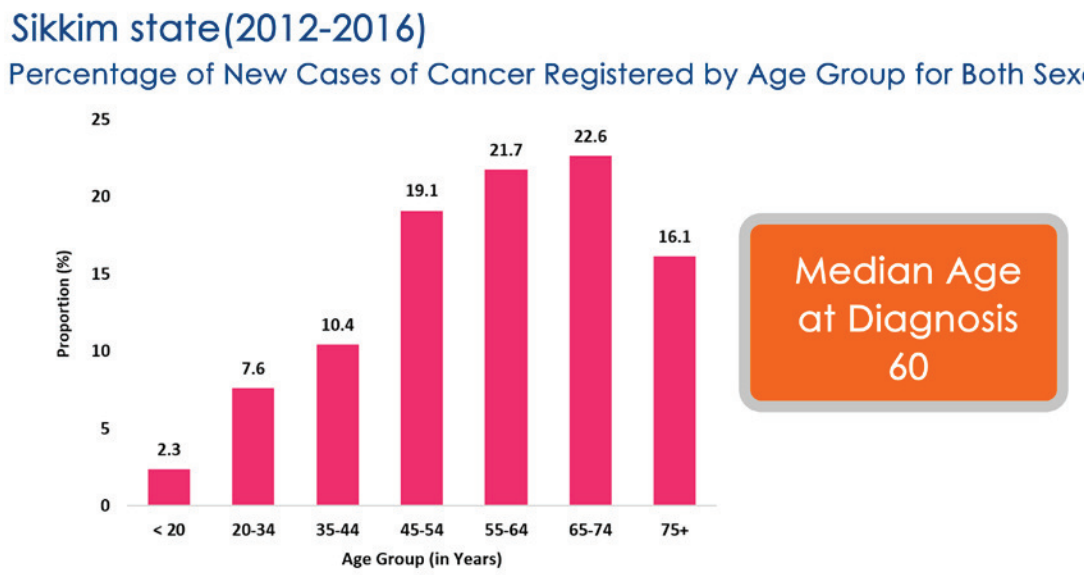

Tripura state - PBCR

Host Institution **Regional Cancer Centre, Agartala**

State	PBCR Establishment Year	Coverage Area	No. of Sources of data	Leading site of cancer*	
				Males	Females
Tripura	2010	Tripura state	30	Lung CR: 11.3	Cervix Uteri CR: 8.6

*** Per 100,000 Population**

Number and Proportion of new Cancer Cases Contributed to PBCR by the Main Sources of Registration: Tripura State (2012-2016)

Name of the Institute	Number	%
Regional Cancer Centre, Agartala	10462	91.2
Agartala Government Medical College & G B Pant Hospital, Agartala	194	1.7
Sources of Registration outside the registry area		
Cachar Cancer Hospital, Silchar	349	3.0
Others	468	4.1
Total	**11473**	**100.0**

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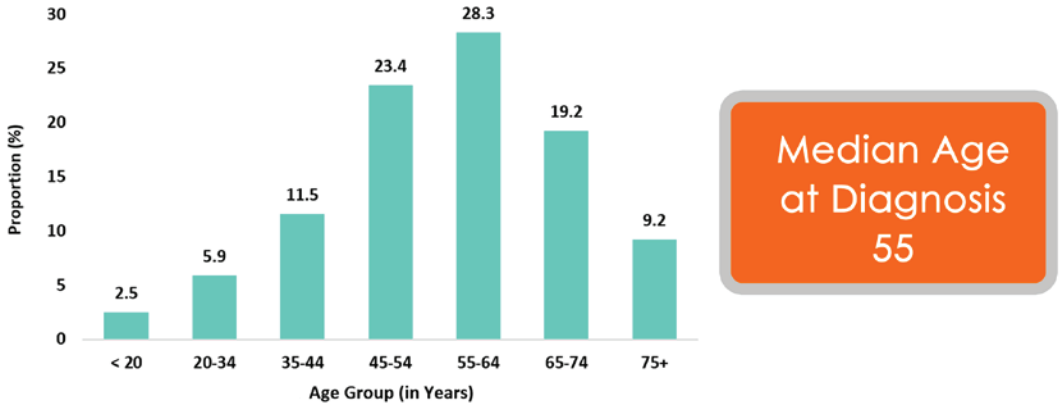
Tripura state(2012-2016)

Percentage of New Cases of Cancer Registered by Age Group for Both Sexes



Hospital Based Cancer Registries in Tripura state

Sl No	Name of the Institute	HBCR Establishment Year	Top 5 Leading Sites of Cancer	
			Males	Females
1	Regional Cancer Centre, Agartala (2014-2016)	2012	Lung (C33-C34) Oesophagus (C15) Larynx (C32) Mouth (C03-C06) Tongue (C01-C02)	Breast (C50) Cervix Uteri (C53) Gall Bladder (C23-C24) Mouth (C03-C06) Ovary (C56)

Arunachal Pradesh state

West Arunachal - PBCR

Host Institution **Tomo Riba Institute of Health & Medical Sciences, Naharlagun**

State	PBCR Establishment Year	Coverage Area	No. of Sources of data	Leading site of cancer*	
				Males	Females
Arunachal Pradesh	2011	Tawang, West Kameng, East Kameng, Upper Subansiri, Lower Subansiri, Kurng Kumey, Papumpare & West Siang	23	Stomach CR: 13.2	Stomach CR: 8.2

*** Per 100,000 Population**

Number and Proportion of new Cancer Cases Contributed to PBCR by the Main Sources of Registration: West Arunachal (2012-2016)

Name of the Institute	Number	%
General Hospital, Naharlagun	942	39.4
Ambee diagnostic Laboratary, Itanagar	848	35.4
Ramakrishna Mission Hospital, Itanagar	101	4.2
Cancer Atlas under NCRP	29	1.2
Sources of Registration outside the registry area		
Dr. B. Borooah Cancer Institute, Guwahati	309	12.9
Others	164	6.9
Total	**2393**	**100.0**

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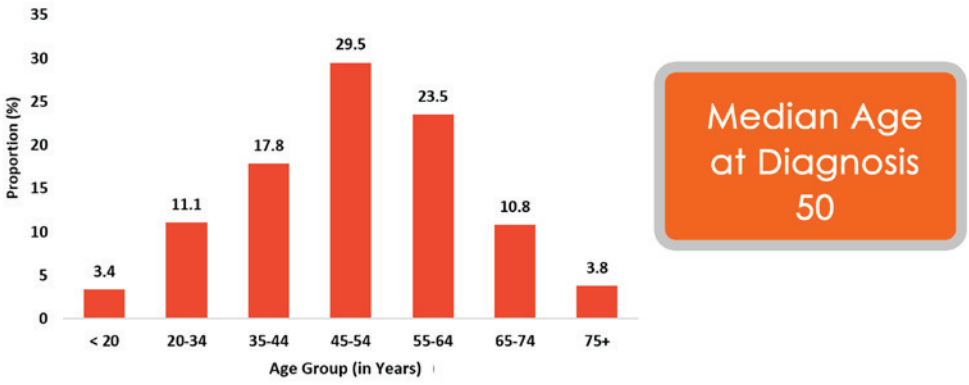
West Arunachal (2012-2016)

Percentage of New Cases of Cancer Registered by Age Group for Both Sexes



Meghalaya state

Meghalaya - PBCR

Host Institution **Civil Hospital, Shillong**

State	PBCR Establishment Year	Coverage Area	No. of Sources of data	Leading site of cancer*	
				Males	Females
Meghalaya	2010	East Khasi Hills, West Khasi Hills, Ri Bhoi & Janitia Hills	22	Oesophagus CR: 28.7	Oesophagus CR: 12.4

*** Per 100,000 Population**

Number and Proportion of new Cancer Cases Contributed to PBCR by the Main Sources of Registration: Meghalaya (2012-2016)

Name of the Institute	Number	%
Woodland Hospital, Shillong	1959	26.1
North Eastern Indira Gandhi Regional Institute of Health & Medical Sciences, Shillong	1392	18.5
North Eastern Diagnostic Centre, Shillong	648	8.6
Nazareth Hospital, Shillong	617	8.2
Bethany Hospital, Shillong	549	7.3
Civil Hospital, Shillong	547	7.3
Khasi Jaintia Presbyterian Hospital, Shillong	340	4.5
Melari Diagnostic Laboratory, Shillong	126	1.7
Sources of Registration outside the registry area		
Dr. B. Borooah Cancer Institute, Guwahati	88	1.2
Others	1254	16.7
Total	**7520**	**100.0**

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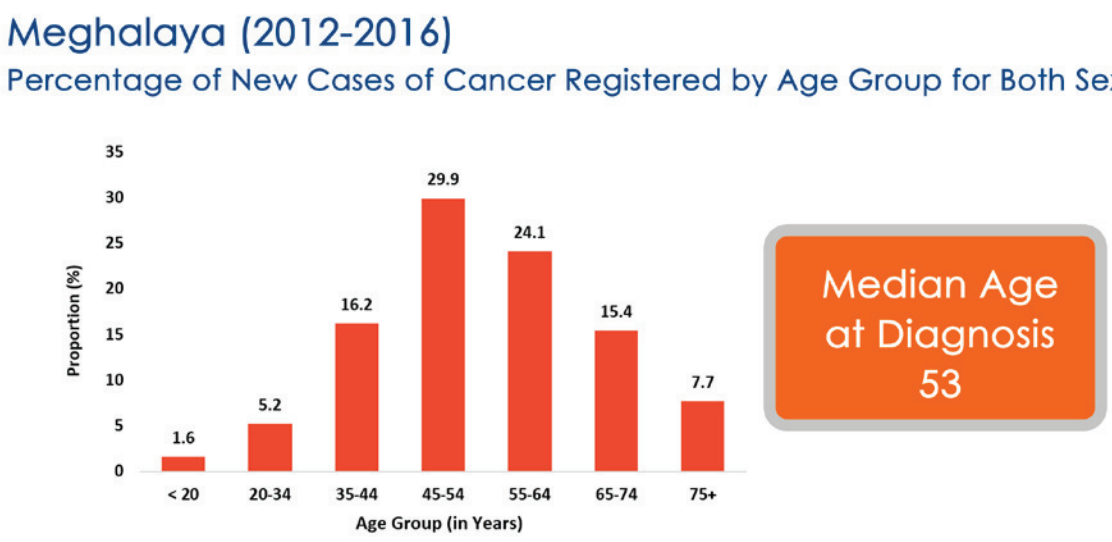

Nagaland state

Nagaland - PBCR

Host Institution **Naga Hospital Authority, Kohima**

State	PBCR Establishment Year	Coverage Area	No. of Sources of data	Leading site of cancer*	
				Males	Females
Nagaland	2010	Kohima & Dimapur	30	Nasopharynx CR: 10.6	Cervix Uteri CR: 9.3

*** Per 100,000 Population**

Number and Proportion of new Cancer Cases Contributed to PBCR by the Main Sources of Registration: Nagaland (2012-2016)

Name of the Institute	Number	%
Naga Hospital Authority, Kohima	619	25.8
District Hospital, Kohima	617	25.8
Zion Hospital & Research Centre, Kohima	369	15.4
Referral Hospital, Nagaland	163	6.8
Nikos hospital and Research Centre, Dimapur, Nagaland	112	4.7
Cancer Atlas under NCRP	111	4.6
Eden Medical Centre, Dimapur	103	4.3
Oking Hospital and Research Clinic Private Limited, Kohima	86	3.6
Bethel medical centre, Kohima	68	2.8
Sources of Registration outside the registry area		
GNRC (Guwahati neurological research centre), GUWAHATI	43	1.8
Others	104	4.3
Total	**2395**	**100.0**

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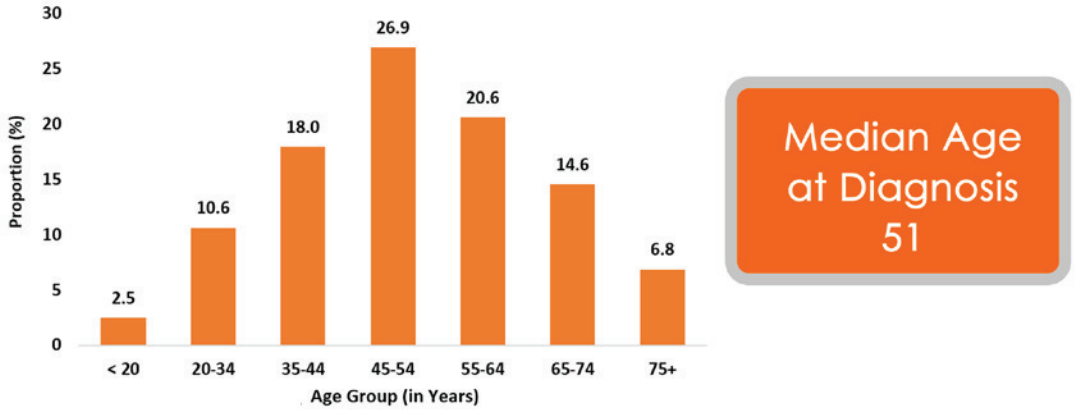
Nagaland (2012-2016)

Percentage of New Cases of Cancer Registered by Age Group for Both Sexes



Arunachal Pradesh state

Pasighat - PBCR

Host Institution **General Hospital, Pasighat**

State	PBCR Establishment Year	Coverage Area	No. of Sources of data	Leading site of cancer*	
				Males	Females
Arunachal Pradesh	2011	East Siang and Upper Siang	31	Stomach CR: 16.4	Cervix Uteri CR: 16.3

*** Per 100,000 Population**

Number and Proportion of new Cancer Cases Contributed to PBCR by the Main Sources of Registration: Pasighat (2012-2016)

Name of the Institute	Number	%
General Hospitals, Pasighat	212	34.0
ASSA Nursing home, Pasighat	97	15.5
Other Clinic in Pasighat	28	4.5
Doctors Diagnostic centre, Pasighat	27	4.3
District Hospital, yingkiong	24	3.8
Cancer Atlas under NCRP	13	2.1
Sille Primary health centre, Sille	7	1.1
Ruskin primary health centre, Ruskin	6	1.0
Sources of Registration outside the registry area		
Other referring centres From Assam	178	28.5
Others	32	5.1
Total	**624**	**100.0**

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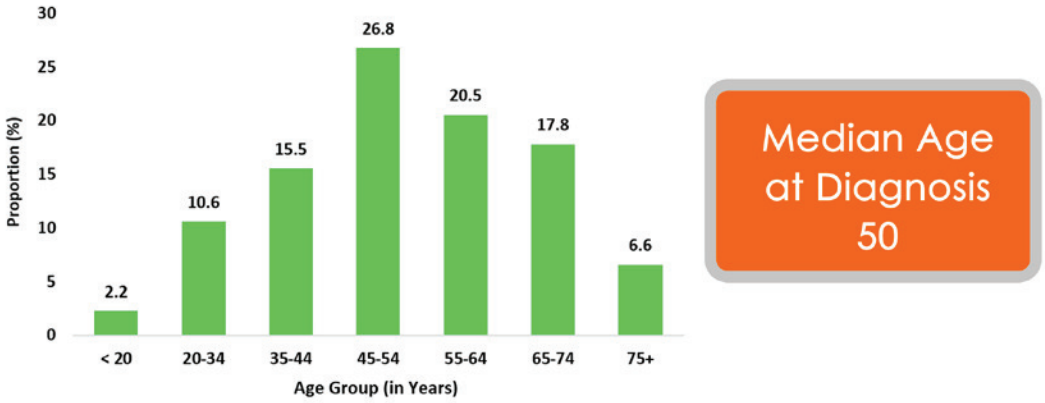
Pasighat (2012-2016)

Percentage of New Cases of Cancer Registered by Age Group for Both Sexes



Assam state

Cachar district - PBCR

Host Institution **Silchar Medical College, Silchar**

State	PBCR Establishment Year	Coverage Area	No. of Sources of data	Leading site of cancer*	
				Males	Females
Assam	2003	Silchar Town Up to 2006 & Cachar district from 2007	33	Oesophagus CR: 11.5	Cervix Uteri CR: 13.4

*** Per 100,000 Population**

Number and Proportion of new Cancer Cases Contributed to PBCR by the Main Sources of Registration: Cachar district (2012-2016)

Name of the Institute	Number	%
Cachar Cancer Hospital, Silchar	3463	40.2
Silchar Medical College & Hospital, Silchar	1125	13.1
Micro-Diagnostic Laboratory, Silchar	946	11.0
Astha Laboratory, Silchar	428	5.0
Aar Gees Medicare, Silchar	397	4.6
Impulse Diagnostic Center, Silchar	283	3.3
Ultrapath Laboratory, Silchar	274	3.2
Super Religare Ranbaxy Laboratory, Silchar	271	3.1
Office of The Joint Director of Health Services, Silchar	256	3.0
Central Laboratory, Silchar	238	2.8
The Department of Pathology, Silchar medical college	227	2.6
Shiv Sundari Nari Shikshasram And Anti-Natal Clinic, Silchar	140	1.6
Cancer Atlas under NCRP	135	1.6
Silchar Polyclinic Laboratory, Silchar	107	1.2
Sources of Registration outside the registry area		
Dr. B. Borooah Cancer Institute, Guwahati	130	1.5
Others	186	2.2
Total	**8606**	**100.0**

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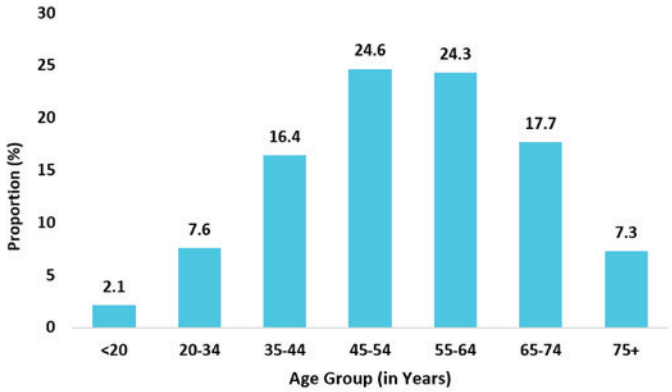
Cachar district(2012-2016)

Percentage of New Cases of Cancer Registered by Age Group for Both Sexes



Median Age at Diagnosis 54

Hospital Based Cancer Registries in Cachar district

Sl No	Name of the Institute	HBCR Establishment Year	Top 5 Leading Sites of Cancer	
			Males	Females
1	Cachar Cancer Hospital, Silchar (2012-2016)	2011	Lung (C33-C34) Oesophagus (C15) Hypopharynx (C12-C13) Mouth (C03-C06) Gall Bladder (C23-C24)	Gall Bladder(C23-C24) Breast (C50) Cervix Uteri (C53) Oesophagus (C15) Mouth (C03-C06)

Assam state

Dibrugarh district - PBCR

Host Institution **Assam Medical College & Hospital, Dibrugarh**

State	PBCR Establishment Year	Coverage Area	No. of Sources of data	Leading site of cancer*	
				Males	Females
Assam	2003	Dibrugarh district	42	Oesophagus CR: 11.4	Breast CR: 13.4

*** Per 100,000 Population**

Number and Proportion of new Cancer Cases Contributed to PBCR by the Main Sources of Registration: Dibrugarh district (2012-2016)

Name of the Institute	Number	%
Assam Medical College Hospital, Dibrugarh	2634	55.2
Madona Laboratory	247	5.2
Aditya Diagnostic Laboratory, Dibrugarh	239	5.0
Municipality Board, Dibrugarh	164	3.4
Marwari Arogya Bhawan Hospital, Jyoti Nagar	111	2.3
Brahmaputra Diagnostic & Hospital, Dibrugarh	110	2.3
Sankardev Hospital & Research Centre, Dibrugarh	97	2.0
Oil Hospital, Duliajan	95	2.0
Tata Referral Hospital & Research Centre, Chabua	66	1.4
Naharani Community Health Centers, Dibrugarh	61	1.3
Tengakhat Primary Health Centers, Tengakhat	60	1.3
Cancer Atlas under NCRP	54	1.1
V.G. Hospital (Mercy Home), Dibrugarh	50	1.0
Sources of Registration outside the registry area		
Dr. B. Borooah Cancer Institute, Guwahati	458	9.6
Others	327	6.9
Total	**4773**	**100.0**

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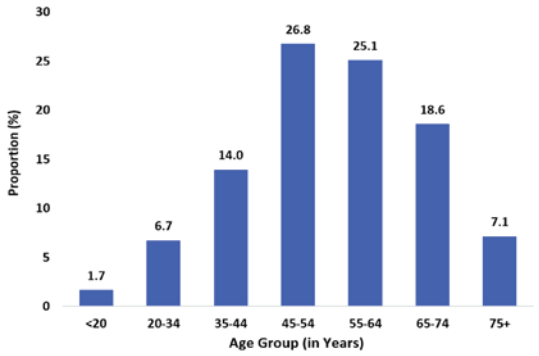
Dibrugarh district(2012-2016)

Percentage of New Cases of Cancer Registered by Age Group for Both Sexes



Median Age at Diagnosis 55

Hospital Based Cancer Registries in Dibrugarh

Sl No	Name of the Institute	HBCR Establishment Year	Top 5 Leading Sites of Cancer	
			Males	Females
1	Assam Medical College, Dibrugarh (2012-2016)	1984	Hypopharynx (C12-C13) Oesophagus (C15) Mouth (C03-C06) Stomach (C16) Tongue (C01-C02)	Breast (C50) Gall Bladder (C23-C24) Cervix Uteri (C53) Oesophagus (C15) Ovary (C56)

Assam state

Kamrup urban - PBCR

Host Institution **Dr. B. Borooah Cancer Institute, Guwahati**

State	PBCR Establishment Year	Coverage Area	No. of Sources of data	Leading site of cancer*	
				Males	Females
Assam	2003	Urban Areas of Kamrup district & Kamrup Metropolitan district	81	Oesophagus CR: 27.2	Breast CR: 26.4

*** Per 100,000 Population**

Number and Proportion of new Cancer Cases Contributed to PBCR by the Main Sources of Registration: Kamrup urban (2012-2016)

Name of the Institute	Number	%
Dr. B. Borooah Cancer Institute, Gopinath Nagar, Guwahati	4782	43.4
Ayur Sundra Diagnostic Centre, Guwahati	684	6.2
North East Cancer Hospital, Guwahati	632	5.7
Guwahati Medical College Hospital, Bhangagarh	406	3.7
Saharias Path Laboratory, Guwahati	354	3.2
Nemcare Hospital, G S Road, Guwahati	332	3.0
Ekopath Metropolis, G S Road, Guwahati	321	2.9
Joint Director Office Birth and death record centre, Guwahati	228	2.1
Pain and Palliative Clinic, Guwahati	210	1.9
International Hospital, G S Road, Guwahati	199	1.8
Central Hospital, Nf Railway Maligaon	178	1.6
Saint Jones Hospital, Guwahati	156	1.4
Dispur Hospital, Dispur, Guwahati	154	1.4
Downtown Hospital G S Road, Guwahati	123	1.1
Matrix Diagnostic, Guwahati	116	1.1
Nightingle Hospital, Guwahati	114	1.0
Sources of Registration outside the registry area		
Tata Memorial Hospital, Mumbai	418	3.8
Others	1606	14.6
Total	**11013**	**100.0**

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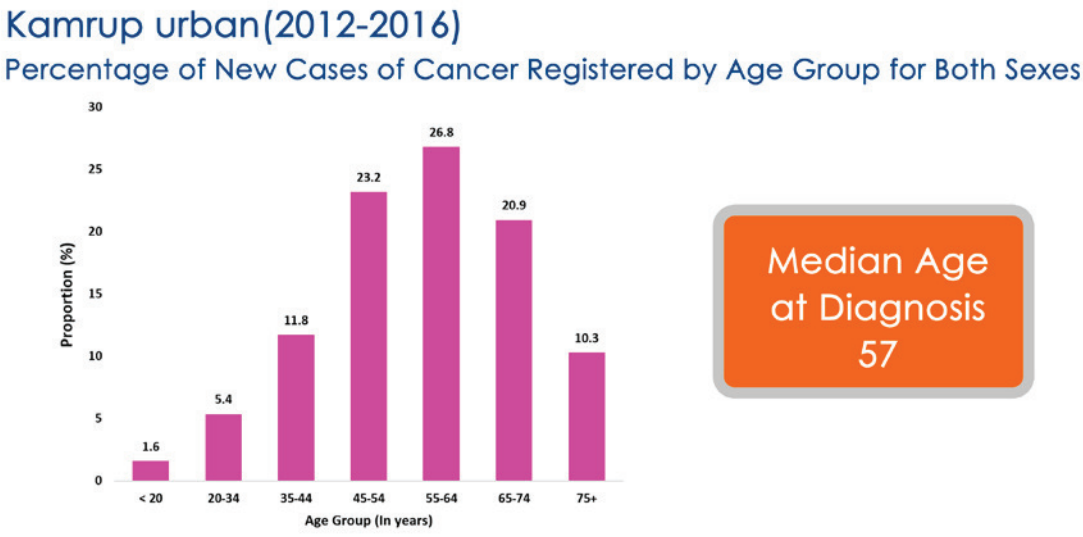

Hospital Based Cancer Registries in Kamrup urban

Sl No	Name of the Institute	HBCR Establishment Year	Top 5 Leading Sites of Cancer	
			Males	Females
1	Dr. B. Borooah Cancer Institute, Guwahati (2012-2016)	2010	Oesophagus (C15) Hypopharynx(C12-C13) Lung (C33-C34) Mouth (C03-C06) Tongue (C01-C02)	Breast (C50) Gall Bladder (C23-C24) Cervix Uteri (C53) Oesophagus(C15) Ovary (C56)
2	North East Cancer Hospital & Research Institute, Guwahati (2014-2016)	2015	Oesophagus (C15) Hypopharynx(C12-C13) Lung (C33-C34) Mouth (C03-C06) Stomach (C16)	Breast (C50) Oesophagus (C15) Gall Bladder (C23-C24) Cervix Uteri (C53) Lung (C33-C34)

Other HBCRs Located in India under NCRP

Chandigarh UT

Sl No	Name of the Institute	HBCR Establishment Year	Top 5 Leading Sites of Cancer	
			Males	Females
1	Postgraduate Institute of Medical Education and Research, Chandigarh (2012-2016)	2011	Lung (C33-C34) Brain, NS (C70-C72) Oesophagus (C15) Tongue (C01-C02) Larynx (C32)	Breast (C50) Cervix Uteri (C53) Ovary (C56) Oesophagus (C15) Gall Bladder(C23-C24)

Jammu & Kashmir UT

Sl No	Name of the Institute	HBCR Establishment Year	Top 5 Leading Sites of Cancer	
			Males	Females
1	Sher-I-Kashmir Institute of Medical Sciences, Srinagar (2012-2016)	2012	Stomach (C16) Lung (C33-C34) Oesophagus (C15) NHL (C82-C85) Colon (C18)	Breast (C50) Oesophagus (C15) Ovary (C56) Stomach (C16) Lung (C33-C34)
2	Government Medical College, Jammu (2014-2016)	2014	Lung (C33-C34) Larynx (C32) Stomach (C16) Oesophagus (C15) Urinary Bladder (C67)	Breast (C50) Cervix Uteri (C53) Ovary (C56) Gall Bladder (C23-C24) Lung (C33-C34)

Haryana state

Sl No	Name of the Institute	HBCR Establishment Year	Top 5 Leading Sites of Cancer	
			Males	Females
1	Medanta Cancer Centre, Gurgaon (2012-2016)	2013	Brain, NS (C70-C72) Mouth (C03-C06) Lung (C33-C34) Prostate (C61) Tongue (C01-C02)	Breast (C50) Brain, NS (C70-C72) Thyroid (C73) Cervix Uteri (C53) Lung (C33-C34)
2	Fortis Memorial Research Institute, Gurgaon (2014-2016)	2015	Prostate (C61) Brain, NS (C70-C72) Lung (C33-C34) NHL (C82-C85) Urinary Bladder (C67)	Breast (C50) Ovary (C56) Corpus Uteri (C54) Brain, NS (C70-C72) Cervix Uteri (C53)
3	Asian Institute of Medical Sciences, Faridabad (2016)	2015	Lung (C33-C34) Tongue (C01-C02) Mouth (C03-C06) Prostate (C61) Oesophagus (C15)	Breast (C50) Cervix Uteri (C53) Ovary (C56) Gall Bladder(C23-C24) Lung (C33-C34)
4	BPS Government Medical College for Women, Sonepat (2016)	2015	Tongue (C01-C02) Oth. Oropharynx (C10) Lung (C33-C34) Tonsil (C09) Mouth (C03-C06)	Breast (C50) Cervix Uteri (C53) Oth. Oropharynx (C10) Thyroid (C73) Ovary (C56)

Bihar state

Sl No	Name of the Institute	HBCR Establishment Year	Top 5 Leading Sites of Cancer	
			Males	Females
1	Indira Gandhi Institute of Medical Sciences, Patna (2014-2016)	2013	Gall Bladder(C23-C24) Mouth (C03-C06) Lung (C33-C34) NHL (C82-C85) Liver (C22)	Gall Bladder(C23-C24) Breast (C50) Cervix Uteri (C53) Lung (C33-C34) Ovary (C56)
2	Mahavir Cancer Sansthan and Research Centre, Patna (2015)	2015	Mouth (C03-C06) Gall Bladder(C23-C24) Lung(C33-C34) Liver (C22) Tongue (C01-C02)	Cervix Uteri (C53) Breast (C50) Gall Bladder(C23-C24) Ovary (C56) Lung (C33-C34)

Himachal Pradesh state

Sl No	Name of the Institute	HBCR Establishment Year	Top 5 Leading Sites of Cancer	
			Males	Females
1	Regional Cancer Centre Indira Gandhi Medical College, Shimla (2014-2016)	2014	Lung (C33-C34) Larynx (C32) Stomach (C16) Oesophagus (C15) NHL (C82-C85)	Cervix Uteri (C53) Breast (C50) Lung (C33-C34) Ovary (C56) Gall Bladder(C23-C24)

Uttar Pradesh state

Sl No	Name of the Institute	HBCR Establishment Year	Top 5 Leading Sites of Cancer	
			Males	Females
1	Sanjay Gandhi Post Graduate Institute of Medical Sciences, Lucknow (2014-2016)	2014	Brain, NS (C70-C72) Mouth (C03-C06) Lung (C33-C34) Tongue (C01-C02) Gall Bladder(C23-C24)	Breast (C50) Gall Bladder(C23-C24) Cervix Uteri (C53) Brain, NS (C70-C72) Ovary (C56)
2	Regional Cancer Centre Kamala Nehru Memorial Hospital, Allahabad (2014-2016)	2014	Mouth (C03-C06) Tongue (C01-C02) Gall Bladder(C23-C24) Lung (C33-C34) Larynx (C32)	Cervix Uteri (C53) Gall Bladder(C23-C24) Breast (C50) Mouth (C03-C06) Ovary (C56)

Odisha state

Sl No	Name of the Institute	HBCR Establishment Year	Top 5 Leading Sites of Cancer	
			Males	Females
1	Apollo Hospital, Bhubaneswar (2012-2016)	2012	Stomach (C16) Lung (C33-C34) Mouth (C03-C06) Brain, NS (C70-C72) Prostate (C61) Colon (C18)	Breast (C50) Brain, NS(C70-C72) Stomach (C16) Gall Bladder(C23-C24) Colon (C18)
2	Acharya Harihar Regional Cancer Centre, Cuttack (2015-2016)	2014	Stomach (C16) Mouth (C03-C06) Tongue (C01-C02) NHL (C82-C85) Lung (C33-C34)	Breast (C50) Cervix Uteri (C53) Ovary (C56) Stomach (C16) Gall Bladder(C23-C24)

Puducherry UT

Sl No	Hospital	Establishment Year of HBCR	Top 5 Leading Sites of Cancer	
			Males	Females
1	JIPMER, Regional Cancer Centre, Puducherry (2014-2016)	2013	Mouth (C03-C06) Stomach (C16) Lung (C33-C34) Tongue (C01-C02) Oesophagus (C15)	Cervix Uteri (C53) Breast (C50) Mouth (C03-C06) Ovary (C56) Stomach (C16)

Andhra Pradesh state

Sl No	Hospital	Establishment Year of HBCR	Top 5 Leading Sites of Cancer	
			Males	Females
1	Rural Development Trust, Bathalapalle (2012-2016)	2013	Stomach (C16) Penis (C60) NHL (C82-C85) Myeloid Leuk.(C92-C94) Oesophagus (C15)	Cervix Uteri (C53) Breast (C50) Thyroid (C73) Stomach (C16) Rectum (C19-C20) Corpus Uteri (C54)

Chhattisgarh state

Sl No	Hospital	Establishment Year of HBCR	Top 5 Leading Sites of Cancer	
			Males	Females
1	Regional Cancer Centre, Raipur (2012-2016)	2013	Mouth (C03-C06) Tongue (C01-C02) Stomach (C16) Lung (C33-C34) Oesophagus (C15)	Cervix Uteri (C53) Breast (C50) Mouth (C03-C06) Ovary (C56) Stomach (C16)

Principal Investigators, Co-Principal Investigators and Staff

POPULATION BASED CANCER REGISTRIES

North

1. **PBCR Name:** Delhi, NCT of Delhi

   Centre Name: Dr. B.R. Ambedkar Institute Rotary Cancer Hospital, All India Institute of Medical Sciences, New Delhi, NCT of Delhi

Principal Investigator & Co-Principal Investigator	Staff Details
Principal Investigators 1. Dr. S.V. Suryanarayana Deo, Prof & Head, Dept. of Surgical Oncology, Delhi Cancer Registry 2. Dr. N.K. Shukla, Prof & Head, Dept. of Surgical Oncology, (till November 2017) **Co-Principal Investigator** 1. Mr. N. Manoharan , Scientist-IV, Delhi Cancer Registry,	1. Dr. Rajeev Kumar Malhotra 2. Mr. Ashok Kumar Singh 3. Mr. Shambhu Prasad Bhadola 4. Ms. Gayatri Sharma (till September 2014) 5. Ms. Indu Gaur 6. Mr. S.K. Rai 7. Ms. Sudha Saxena 8. Mr. Anand Kumar Sharma 9. Ms. Rose Mary Gangte 10. Mr. Manoj Kumar Shrivastava 11. Mr. Aditya Kumar 12. Mr. Sanjiv Pandey 13. Ms. Garima Bhandari 14. Dr. Sunil K. Varma (till August 2014) 15. Mr. Chandr Pal Singh Yadav (till July 2018)

2. **PBCR Name:** Patiala district, Punjab state

   Centre Name: Government Medical College and Rajindra Hospital, Patiala, Punjab state

Principal Investigator & Co-Principal Investigator	Staff Details
Principal Investigators 1. Dr. Vijay Kumar Bodal, Associate Professor, Dept. of Pathology (from March 2015) 2. Dr. Manji Singh Bal, Prof & Head, Dept. of Pathology (till March 2015) **Co-Principal Investigators** 1. Dr. Mohanvir Kaur, Assistant Professor, Pathology 2. Dr. Manjit Singh Bal, Professor of Pathology (from March 2015), 3. Dr. Vijay Kumar Dangwal, Associate Professor, Dept. of Pathology (till March 2015)	1. Ms. Monika 2. Ms. Parvinder Kaur 3. Mr. Dalvir Singh 4. Ms. Gulshan 5. Mr. Vicky Harinderpal

South

3. PBCR Name: Hyderabad district, Telangana state

Centre Name: Nizam's Institute of Medical Sciences, Hyderabad, Telangana state

Principal Investigator & Co-Principal Investigator	Staff Details
Principal Investigators 1. Dr. G. Sadashivudu, Additional Professor & Head Dept. of Medical Oncology, (from December 2013) 2. Dr. D. Raghunadharao, Professor of Medical Oncology, (till December 2013)	1. Dr. U Srihari 2. Mr. T. Dhanunjaya 3. Mr. K. Balakrishna 4. Mr. L. Ramesh 5. Mr. K. Venkat Rao 6. Mr. N. Koteshwara Rao 7. Mr. T. Vijay Kumar 8. Mr. Ch. Ramulu 9. Ms. Ch. T S S Pavani

4. PBCR Name: Kollam district, Kerala state

Centre Name: Regional Cancer Centre, Thiruvananthapuram, Kerala state

Principal Investigator & Co-Principal Investigator	Staff Details
Principal Investigators 1. Dr. Rekha G Nair, Director 2. Dr. Paul Sebastian, Director (till August 2018) **Co-Principal Investigator** 1. Dr. P. Jayalekshmi, Associate Professor (from 2006 to 2016)	1. Ms. Geetha M L 2. Ms. Kanchana R 3. Mr. Sivan Pillai N 4. Mr. P Sreekandan 5. Ms. Salila M 6. Mr. Harikrishnan k 7. Ms. Sandhya R 8. Ms. Beena K

5. PBCR Name: Thiruvananthapuram district, Kerala state

Centre Name: Regional Cancer Centre, Thiruvananthapuram, Kerala state

Principal Investigator & Co-Principal Investigator	Staff Details
Principal Investigator 1. Dr. Aleyamma Mathew, Prof & Head, Division of Cancer Epidemiology & Biostatistics **Co-Principal Investigators** 1. Dr. Paul Sebastian, Director (till August 2018) 2. Dr. Preethi Sara George, Associate Professor in Biostatistics	1. Dr. Kalavathy M.C 2. Dr. Jagathnath Krishna KM (from June 2015)

6. PBCR Name: Bangalore, Karnataka state

Centre Name: Kidwai Memorial Institute of Oncology, Bengaluru, Karnataka state

Principal Investigator & Co-Principal Investigator	Staff Details
Principal Investigators 1. Dr. Ramachandra, Director 2. Dr. K. B. Linge Gowda, Director (till July 2018) 3. Dr. M. Vijayakumar, Director (till December 2014) **Co-Principal Investigator** 1. Dr. C. Ramesh, Professor & Head, Dept. of Epidemiology & Biostatistics	1. Mr. Vijay C R 2. Dr. Gopalakrishnappa B R 3. Mr. C.S Dayananda 4. Mr. P. Manjunath 5. Ms. H.N Shobha 6. Mr. N.M Sreerama reddy 7. Mr. T.C Venugopal

7. PBCR Name: Chennai, Tamil Nadu state

Centre Name: Cancer Institute (WIA), Chennai, Tamil Nadu state

Principal Investigator & Co-Principal Investigator	Staff Details
Principal Investigators 1. Dr. R. Swaminathan, Assistant Director, Prof & Head, Dept. of Epidemiology, Biostatistics and Cancer Registry (from April 2013) 2. Dr. V. Shanta, Chairman (till March 2013) **Co-Principal Investigators** 1. Dr. R. Rama Ranganathan, Assistant Professor & Senior Bio-Statistician, (from April 2013) 2. Dr. R. Swaminathan, Prof & Head, Dept. of Epidemiology, Biostatistics and Cancer Registry (till March 2013)	1. Mr. Sampath P 2. Mr. Selvakumaran R 3. Mr. Murugaiyan J 4. Mr. Sambandam T.S 5. Mr. Jayachander S 6. Mr. Dharmadurai V 7. Ms. Parimala A 8. Mr. Ramesh N 9. Mr. Sridhar N 10. Mr. Murugesh R 11. Mr. Gandeeban D 12. Mr. Veeramani K 13. Ms. Chandrakala T 14. Ms. Mahalakshmi N 15. Ms. Valarmathi K 16. Ms. Bagyalakshmi P 17. Ms. Ananthi T 18. Mr. Balasubramanian S (till January 2018) 19. Mr. Sivakumar M (till May 2017)

East

8. PBCR Name: Kolkata, West Bengal state

Centre Name: Chittaranjan National Cancer Institute (CNCI) and Saroj Gupta Cancer Centre & Research Institute (SGCCRI), Kolkata, West Bengal state

Principal Investigator & Co-Principal Investigator	Staff Details
Principal Investigators 1. Dr. Syamsundar Mandal, Head, Epidemiology & Biostatistics (from September 2018) 2. Dr. Ranjit Kumar Mandal, Head, Epidemiology & Biostatistics (from February 2018 to September 2018) 3. Dr. Tapas Maji, Director-in-charge, (from January 2017 to February 2018) 4. Prof.(Dr.) Jaydip Biswas, Director (from January 2012 to January 2017) **Co-Principal Investigators** 1. Dr. Durgaprasad Nanda, SMO, Surgical Oncology (From September 2018) 2. Dr. Syamsundar Mandal, Statistical Officer (from February 2018 to September 2018) 3. Dr. Samir Bhattacharya, Head, Division of Research; Saroj Gupta Cancer Centre & Research Institute (SGCC&RI), Thakurpukur (from February 2018) 4. Dr. Ranajit Kumar Mandal, Head, Dept. of Epidemiology & Biostatistics (from October 2017 to February 2018) 5. Dr. Karabi Datta, Head, Dept. of Epidemiology & Biostatistics (from January 2012 to September 2016) 6. Dr. Manas Nath Bandyopadhyay, Head, Division of Research; Saroj Gupta Cancer Centre & Research Institute (SGCC&RI), Thakurpukur (from January 2012 to September 2017)	1. Dr. Arpita Chandra (from September 2019) 2. Ms. Indrani Nandi (from January 2012) 3. Ms. Soumya Roy (from January 2012) 4. Mr. Biswajit Bhattacharya (from January 2012) 5. Ms. Pranati Sarkar (from January 2012) 6. Mr. Biswanath Ghosh (from January 2012) 7. Ms. Soma Das (from January 2012) 8. Dr. Partha Sarathi Basu (from January 2012 to March 2015) 9. Dr. Syamsundar Mandal (from January 2012 to February 2018)

West

9. PBCR Name: Ahmedabad urban, Gujarat state

Centre Name: Gujarat Cancer & Research Institute, Ahmedabad, Gujarat state

Principal Investigator & Co-Principal Investigator	Staff Details
Principal Investigators 1. Dr. Shashank Pandya, Director, GCRI (from May 2018) 2. Dr. Rakesh Vyas Director, GCRI (till February 2018) 3. Dr. Shilin Shukla Director, GCRI (till September 2013) **Co-Principal Investigators** 1. Dr. Janmesh Shah, Assistant Professor (from August 2016 to November 2019) 2. Dr. Anand Shah, Assistant Professor (from October 2017) 3. Dr. Geeta Joshi, Dy. Director, GCRI (till July 2017) 4. Dr. Parimal Jivarajani, Associate Professor (till August 2014)	1. Mr. Himanshu Patel 2. Mr. Jayesh Solanki 3. Ms. Vishruti Pandya 4. Ms. Neha Jadav 5. Mr. Himanshu Patel 6. Mr. Rohit Cholavia 7. Mr. Ashish Batham 8. Mr. Ketan Dobariya 9. Mr. Amit Rohit 10. Mr. Pratik Mahida 11. Mr. Kirit Vasaiya 12. Mr. Sebastian Farmer

10. PBCR Name: Aurangabad, Maharashtra state

Centre Name: Indian Cancer Society, Parel, Mumbai, Maharashtra state

Principal Investigator & Co-Principal Investigator	Staff Details
Principal Investigator 1. Dr. Vinay Deshmane, Jt. Hon. Secretary and Medical Director **Co-Principal Investigator** 1. Ms. S.S. Koyande, Deputy Director of Cancer Registry	1. Mr. Ashok Waghmare

11. PBCR Name: Osmanabad & Beed, Maharashtra state

Centre Name: Nargis Dutt Memorial Cancer Hospital, Barshi, Maharashtra state

Principal Investigator & Co-Principal Investigator	Staff Details
Principal Investigator 1. (Late) Dr. Bhagwan M. Nane, Chairman, Ashwini Rural Cancer Research & Relief Society, Medical Director Nargis Dutt Memorial Cancer Hospital Barshi. **Co-Principal Investigator** 1. Mr. N.S. Panse , Registry Manager	1. Mr. B. S. Shukla 2. Mr. Subhash Chopade

12. PBCR Name: Barshi rural, Maharashtra state

Centre Name: Tata Memorial Hospital, Mumbai and Nargis Dutt Memorial Cancer Hospital, Barshi, Maharashtra state

Principal Investigator & Co-Principal Investigator	Staff Details
Principal Investigator 1. Dr. R A Badwe, Director, Tata Memorial Centre **Co-Principal Investigators** 1. (Late) Dr. Bhagwan M. Nane, Chairman, Ashwini Rural Cancer Research & Relief Society, Medical Director Nargis Dutt Memorial Cancer Hospital. 2. Dr. Rajesh Dikshit, Director CCE	1. Mr. N.S. Panse 2. Mr. S.R. Mathapati 3. Mr. N.P. Gaikwad 4. Mr. T.S. Dudhankar 5. Mr. N.D. Padwal 6. Mr. S.R. Korale 7. Ms. V.J. Dulange 8. Dr. F.Y. Khan

13. PBCR Name: Mumbai, Maharashtra state

Centre Name: Indian Cancer Society, Parel, Mumbai, Maharashtra state

Principal Investigator & Co-Principal Investigator	Staff Details
Principal Investigator 1. Dr. Vinay Deshmane , Hon. Secretary and Medical Director **Co-Principal Investigator** 1. Ms. S.S. Koyande, Deputy Director of Cancer Registry	1. Ms. Rashmi Vagal 2. Ms. Swanandi Kambli 3. Ms. Mayuri Nevrekar 4. Ms. Pooja Manchekar 5. Mr. Prathmesh Gurav 6. Ms. Shweta Bansode 7. Ms. Mandakini Pagare 8. Ms. Prachi Bandekar 9. Mr. Nagendra Shastri 10. Ms. Preeti Gamare 11. Mr. Kalpesh Malhari 12. Ms. Jaymala Malusare 13. Mr. Milind Kirtane 14. Ms. Pooja Pathak 15. Ms. Asavari Gurav 16. Mr. Vicky Naik

14. PBCR Name: Pune, Maharashtra state

Centre Name: Indian Cancer Society, Parel, Mumbai, Maharashtra state

Principal Investigator & Co-Principal Investigator	Staff Details
Principal Investigator 1. Dr. Vinay Deshmane, Hon. Secretary and Medical Director **Co-Principal Investigator** 1. Ms. S.S. Koyande, Deputy Director of Cancer Registry	1. Ms. Nasrin Shaikh 2. Ms. Surekha Kochure 3. Ms. Bharti Thaokar

Central

15. PBCR Name: Wardha district, Maharashtra state

Centre Name: Mahatma Gandhi Institute of Medical Sciences, Sevagram, Wardha Maharashtra state

Principal Investigator & Co-Principal Investigator	Staff Details
Principal Investigator 1. Dr. Nitin Gangane, Dean, Director Professor of Dept. of Pathology **Co-Principal Investigator** 1. Dr. S. Chhabra, Director Professor of Dept. of Gynaecology	1. Dr. Swapna Maliye (from July 2015) 2. Ms. Rupali Raut 3. Ms. Usha Jamlekar 4. Ms. Mamta Dhawane 5. Mr. Naredra Deotale 6. Ms. Kalyani Waghmare (from February 2010 to October 2014) 7. Ms. Seema Khelkar (from November 2014) 8. Mr. Maroti Zade 9. Dr. Priti Shende (from January 2012 to January 2014) 10. Dr. Vibha B. Khajone (from February 2014 to April 2014) 11. Dr. Mrunal G. Meshram (from May 2014 to June 2015)

16. PBCR Name: Bhopal, Madhya Pradesh state

Centre Name: Gandhi Medical College, Bhopal, Madhya Pradesh state

Principal Investigator & Co-Principal Investigator	Staff Details
Principal Investigators 1. Dr. Reeni Malik, Professor and Head, Dept. of Pathology 2. Dr. Neelkamal Kapoor, Professor and Head, Dept. of Pathology (Till July 2013) **Co-Principal Investigator** 1. Mr. Atul Shrivastava, Research Officer, Dept. of Pathology	1. Dr. Sunil Surange 2. Ms. Alka Goley 3. Ms. Sushma Shrivastava 4. Ms. Shubhra Trivedi 5. Ms. Ragini Nair 6. Mr. Rohit Tripathi

17. PBCR Name: Nagpur, Maharashtra state

Centre Name: Indian Cancer Society, Parel, Mumbai, Maharashtra state

Principal Investigator & Co-Principal Investigator	Staff Details
Principal Investigator 1. Dr. Vinay Deshmane, Hon. Secretary and Medical Director **Co-Principal Investigator** 1. Ms. S.S. Koyande, Deputy Director of Cancer Registry	1. Ms. Rekha Patil 2. Ms. Kalyani Ghumade

North East

18. PBCR Name: Manipur state

Centre Name: Regional Institute of Medical Sciences, Imphal, Manipur state

Principal Investigator & Co-Principal Investigator	Staff Details
Principal Investigators 1. Prof. Ph. Madhubala Devi, Prof & Head, Dept. of Pathology, (from April 2017) 2. Dr Kaushik Debnath, Prof & Head, Dept. of Pathology (from March 2012 to April 2017) 3. Dr.Y. Mohen Singh, Prof & Head, Dept. of Pathology (till March 2012) **Co-Principal Investigators** 1. Dr. Punyabati Devi, Prof. of Pathology 2. Dr. Rajesh Singh Laishram, Associate Prof. of Pathology 3. Dr.SushmaKhuraijam,Assoc.Prof.Pathology	1. Dr. H. Satyajyoti Singh 2. Mr. R. K Budhibanta 3. Dr. O. Bijaya Devi 4. Mr. Kh. Nabachandra Singh 5. Mr. L. Bhopendro Mangang 6. Mr. M. Surjit Meitei 7. Mr. Reemo Yurembam

19. PBCR Name: Mizoram state

Centre Name: Civil Hospital, Aizwal, Mizoram state

Principal Investigator & Co-Principal Investigator	Staff Details
Principal Investigator 1. Dr. Eric Zomawia, Pathologist **Co-Principal Investigators** 1. Dr. John Zohmingthanga, Pathologist 2. Dr. Lalchhanhimi, Pathologist 3. Dr. Lily Chhakchhuak, Pathologist 4. Dr. Saia Chenkual, Surgical Oncologist 5. Dr. Jerry Lalrinsanga, Medical Oncologist 6. Dr. B. Zothankima, Radiation Oncologist	1. Dr. Evelyn VL Hmangaihzuali (from 2018) 2. Ms. Annie Hmingthanmawii 3. Mr. Ngursangzuala Sailo 4. Mr. Lalngaihawma Khiangte (from 2012) 5. Ms. Zothanpuii (from 2011) 6. Ms. C. Zothantluangi (from 2014) 7. Ms. K. Lalruatfeli (from 2015) 8. Dr. Freddie Lalhmangaiha Sailo (from 2012 to 2018)

20. PBCR Name: Sikkim state

Centre Name: New STNM Multispecialty Hospital, Sochakgang, Gangtok, Sikkim state

Principal Investigator & Co-Principal Investigator	Staff Details
Principal Investigators 1. Dr. T.W Bhutia (from January 2018) 2. Dr. Prakash Kumar Pradhan, Chief Consultant & Head, Dept. of Pathology (from April 2015 to December 2017 3. Dr. Yogesh Verma (till March 2015) **Co-Principal Investigators** 1. Dr. Priya Darshini Pradhan, Pathologist (from April 2018) 2. Dr. Sangita Bhandari (from April 2015) 3. Dr. P.K Pradhan (from July 2003 to March 2015)	1. Mr. Saroj Deep Sapkota 2. Dr. Tsewang Donka Bhutia 3. Mr. Prakash Sundas 4. Mr. Pranay Giri 5. Mr. B.N Bhattarai 6. Mr. Deepak Sapkota 7. Dr. Supriya Pradhan (till March 2012) 8. Dr. Anubhav Verma (till May 2014) 9. Dr. Supriya Pradhan (till December 2017)

21. PBCR Name: Tripura state

Centre Name: Cancer Hospital, Regional Cancer Centre, Agartala, Tripura state

Principal Investigator & Co-Principal Investigator	Staff Details
Principal Investigator 1. Dr. Gautam Majumdar, Medical Superintendent **Co-Principal Investigators** 1. Dr. Arup Bhowmik, Asst. Professor, AGMC 2. Dr. Rituparna Das, Asst. Professor, AGMC 3. Dr. Shiromani Debbarma, Deputy. Medial Superintendent 4. Dr. Aroop Roy Burman, Medical Officer (till 2016)	1. Dr. Santi Ranjan 2. Dr. Mihir Dasgupta (till February 2012) 3. Mr. Parantap Nag 4. Mr. Priyatosh Dhar (till November 2017) 5. Mr. Tamal Pal 6. Mr. Sunil Ch. Das 7. Mr. Abhishek Sinha 8. Mr. Dipankar Sen 9. Mr. Abhijit Deb 10. Mr. Rupan Nama 11. Mr. Bikash Debnamth 12. Mr. Hrishikesh Kar 13. Mr. Biswajit Debnath 14. Mr. Bikash Gon Choudhury 15. Mr. Anath Bhusan Debnath 16. Ms. Sumita Saha 17. Mr. Jiban Das 18. Mr. Bapi Das 19. Mr. Subhankar Saha 20. Mr. Sanjib Kumar Pal

22. PBCR Name: West Arunachal*, Arunachal Pradesh state

Centre Name: Tomo Riba Institute of Health & Medical Sciences, Naharlagun, Arunachal Pradesh state

Principal Investigator & Co-Principal Investigator	Staff Details
Principal Investigator 1. Dr. Sopai Tawsik, Selection Grade Specialist (Pathology) **Co-Principal Investigators** 1. Dr. Shyam Tsering, Radio-oncologist 2. Dr. Adishi Kri, Radio-oncologist 3. Dr. Gamba Padu, Sr. Pathologist	1. Ms. Ngilyang Otung 2. Mr. Bablin Awailang 3. Ms. Hage Ampa 4. Ms. Habung Pampi 5. Mr. Munin Borgohain

* West Arunachal covers Tawang, West Kameng, Upper Subansiri , Lower Subansiri, Kurung Kumey, Papumpare and West Siang districts

23. PBCR Name: Meghalaya*, Meghalaya state

Centre Name: Civil Hospital, Shillong, Meghalaya state

Principal Investigator & Co-Principal Investigator	Staff Details
Principal Investigators 1. Dr. W.B. Langstieh, Pathologist (from July 2014) 2. Dr. R.S. Dympep, Sr. Pathologist, Pasteur Institute, Shillong (till February 2014) **Co-Principal Investigators** 1. Dr. H Dkhar, Pathologist, Nazareth Hospital, Shillong 2. Dr. Badarisha R. Sohliya, Pathologist, Ganesh Das Hospital Shillong 3. Dr. Laishram Purnima Devi, Radiation Oncologist NEIGRIHMS, Shillong	1. Dr. R.S. Dympep 2. Mr. Bantehsong L.Langstieh 3. Ms. Meghdalina A. Shabong 4. Mr. Mardonald J. Marbaniang 5. Ms. Metalyne Nongrum 6. Ms. Lucina Wanniang 7. Mr. Dienroimiar Mylliempdah

* Meghalaya covers East Khasi Hills, West Khasi Hills, Jaintia Hills and Ri Bhoi districts

24. PBCR Name: Nagaland*, Nagaland state

Centre Name: Naga Hospital Authority, Kohima, Nagaland state

Principal Investigator & Co-Principal Investigator	Staff Details
Principal Investigator 1. Dr. V Khamo, Head, Dept. of Pathology **Co-Principal Investigator** 1. Dr. Kedozeto Punyu, Head, Dept. of ENT	1. Dr. Loso Chalai 2. Mr. Nothutso Khamo 3. Ms. Melevolu Hiese 4. Ms. Bendangnaro Waling 5. Ms. Katonili Zhimomi 6. Mr. Neithovilie Keyho 7. Mr. Rukuvo Sakhamo 8. Mr. Khrowepe Sarah 9. Ms. Kewenyilou Kapfo

* Nagaland covers Kohima and Dimapur districts

25. PBCR Name: Pasighat*, Arunachal Pradesh state

Centre Name: General Hospital, Pasighat, Arunachal Pradesh state

Principal Investigator & Co-Principal Investigator	Staff Details
Principal Investigators 1. Dr. Kaling Jerang, Senior Pathologist (from January 2015) 2. Dr. Tapi Ering, Sr. Pathologist (till January 2015) **Co-Principal Investigator** 1. Dr. G. Jongkey, Jr.Pathologist (till date)	1. Dr. Kapang Yirang 2. Ms. Moti Megu 3. Ms. T. Miti Boko 4. Ms. Bayanlu Tausit 5. Ms Chanyam Lowang (till January 2018) 6. Mr. Tayi Mize 7. Mr. Kabom Perme 8. Mr. Ogom Lego (till October 2016)

* Pasighat covers East Siang and Upper Siang districts

26. PBCR Name: Cachar district, Assam state

Centre Name: Silchar Medical College, Silchar, Assam state

Principal Investigator & Co-Principal Investigator	Staff Details
Principal Investigators 1. Dr. Shah Alam Sheikh, Associate Professor, Dept. of Pathology (from July 2019) 2. Dr. Sekhar Chakravarty, Vice Principal (till July 2019) **Co-Principal Investigators** 1. Dr. Shah Alam Sheikh, Associate Professor, Dept. of Pathology, (till July 2019) 2. Dr. Debashis Datta , Professor, Dept. of Pathology (till June 2016)	1. Dr. Raja Prasanta Banik 2. Ms. Madhuchhanda Goswami 3. Mr. Biswajyoti Choudhury 4. Ms. Srabani Mitra 5. Ms. Rini Bhattacharjya 6. Mr. Smit Paul 7. Mr. Bidhan Kr. Sarkar

27. PBCR Name: Dibrugarh district, Assam state

Centre Name: Assam Medical College and Hospital, Dibrugarh, Assam state

Principal Investigator & Co-Principal Investigator	Staff Details
Principal Investigators 1. Dr. Projnan Saikia, Professor, Dept. of Pathology (fom June 2016) 2. Dr. M.S. Ali, Sr. Statistician & Principal Investigator (till May 2016) **Co-Principal Investigator** 1. Dr. Zarika Ahmed, Asst. Professor, Dept. of Pathology (from January 2017)	1. Mr. Chakrapani Hazarika 2. Mr. Chinmoy Chetia 3. Mr. Saronga Boruah 4. Ms. Rashmi Mahanta 5. Mr. Saurav Kumar Bhuyan 6. Ms. Rima Devi Singh

28. PBCR Name: Kamrup urban, Assam state

Centre Name: Dr. Bhubaneswar Borooah Cancer Institute, Guwahati, Assam state

Principal Investigator & Co-Principal Investigator	Staff Details
Principal Investigator 1. Dr. Jagannath Dev Sharma, Prof & Head, Dept. of pathology **Co-Principal Investigators** 1. Dr. Anupam Sarma, Professor, Dept. of Pathology 2. Dr. Debabrata Barmon, Prof & Head, Dept. of Gynac-oncology 3. Dr. Shiraj Ahmed, Associate Professor, Dept. of Pathology	1. Dr. Debanjana Barman 2. Ms. Arpita Sharma 3. Mr. Manoj Kalita 4. Mr. Ranjan Lahon 5. Ms. Barsha Roy Deka 6. Mr. Chinmoy Misra 7. Mr. Kamal Kr. Deka

HOSPITAL BASED CANCER REGISTRIES

North

1. **HBCR Name:** Postgraduate Institute of Medical Education and Research, Chandigarh UT

Principal Investigator & Co-Principal Investigator	Staff Details
Principal Investigators 1. Dr. Sushmita Ghosal, Prof & Head, Dept. of Radiotherapy 2. Dr. S.C. Sharma (from January 2011 to August 2014) **Co-Principal Investigators** 1. Dr. R. Kapoor, Professor 2. Dr. Narender Kumar, Professor	1. Ms. Tanvi Jindia 2. Mr. Vikas Kapoor 3. Ms. Neeru Moudgil 4. Ms. Anita Rani 5. Ms. Pooja Rawat 6. Mr. Amit Kumar 7. Mr. Anup Verma

2. **HBCR Name:** Dr. B.R. Ambedkar Institute Rotary Cancer Hospital, New Delhi

Principal Investigator & Co-Principal Investigator	Staff Details
Principal Investigator 1. Dr. S.V. Suryanarayana Deo, Prof & Head, Dept. of Surgical Oncology **Co-Principal Investigators** 1. Mr. N. Manoharan, Scientist – IV 2. Dr. G.K. Rath, Professor of Radiation Oncology & Chief, Dr.BRAIRCH & Head, NCI, Jhajjar 3. Dr. Sunil Kumar, Associate Professor, Dept. of Surgical Oncology 4. Dr. Ajay Gogia, Assistant Professor, Dept. of Medical Oncology	1. Dr. Sunil K. Varma (From December 2014 to September 2016) 2. Dr. Yogesh (From July 2017 to May 2018) 3. Ms. Ananya Bora 4. Mr. Ankit 5. Mr. Raman Jee (From July 2018) 6. Ms. Anshika Pandey (from August 2018) 7. Ms. Sarita (from March 2015 to March 2017) 8. Mr. Pradeep 9. Ms. Kanika Behl 10. Ms. Shikha

3. **HBCR Name:** Indira Gandhi Institute of Medical Sciences, Patna, Bihar state

Principal Investigator & Co-Principal Investigator	Staff Details
Principal Investigator 1. Dr. Rajesh Kumar Singh, Additional Prof & Head, Dept. of Cancer & Palliative Care **Co-Principal Investigator** 1. Dr. Sangeeta Pankaj, Assistant Prof. Gynae Oncology	1. Dr. Laloo Kumar 2. Mr. Aman Prakash 3. Mr. Yaswant Kumar Singh 4. Mr. Swapnil Vidyarthi 5. Mr. Ajay Kumar Akela 6. Mr. Shahab Hussain 7. Mr. Arvind Kumar 8. Mr. Suman Kumar 9. Ms. Shabnam Kumari

4. **HBCR Name:** Sher-I-Kashmir Institute of Medical Sciences, Srinagar, Jammu and Kashmir UT

Principal Investigator & Co-Principal Investigator	Staff Details
Principal Investigator 1. Dr. Lone Mohammad Maqbool, Prof & Head, Dept. of Radiation Oncology **Co-Principal Investigator** 1. Dr. Nazir Ahmad Khan, Professor, Dept. of Radiation Oncology	1. Dr. Shandana Farooq 2. Ms. Foziya Zargar 3. Ms. Shaista Sidiq Pandit 4. Ms. Muneera Akhter 5. Ms. Bisma Showkat 6. Ms. Nahida Rashid 7. Ms. Aliya Amir 8. Mr. Mohd Asif Sheikh 9. Mr. Naveed Ahmad Bhat

5. **HBCR Name:** Regional Cancer Centre, Indira Gandhi Medial College, Shimla, Himachal Pradesh state

Principal Investigator & Co-Principal Investigator	Staff Details
Principal Investigators 1. Dr. Manish Gupta, Prof &Head, Dept. of Radiotherapy and Oncology (from July 2018) 2. Dr. Rajeev Kumar Seam, Prof & Head, Dept. of Radiotherapy and Oncology (till June 2018) **Co-Principal Investigators** 1. Dr. Sudarshan Sharma, Prof & Head, Dept. of Pathology 2. Dr. Manish Gupta, Associate Professor, Dept. of Radiotherapy(till June 2018)	1. Dr. Vikas Fotedar 2. Ms. Neha Sharma 3. Ms. Anamika Chandel 4. Mr. Pawan Kumar 5. Ms. Neha Gautam 6. Mr. Suman Verma 7. Ms. Surekha Kumar (till March 2018) 8. Ms. Kumari Lucky (till July 2015) 9. Mr. Sandeep Sharma (till October 2017) 10. Mr. Raman Kumar (till November 2015)

6. **HBCR Name:** Sanjay Gandhi Post Graduate Institute of Medical Sciences, Lucknow, Uttar Pradesh state

Principal Investigator & Co-Principal Investigator	Staff Details
Principal Investigators 1. Prof. Punitalal, Professor, Dept. of Radiotherapy (from August 2014) 2. Dr. Neeraj Rastogi, Professor (till April 2013) **Co-Principal Investigators** 1. Dr. Rajesh Harsvardhan, Head of the Dept. (from August 2014) 2. Dr. Rakesh Pandey, Professor (from November 2012) 3. Dr. C.M. Pandey, Head of the Dept. (till April 2013)	1. Dr. Rajan Yadav (from July 2017 to April 2018) 2. Dr. Ramesh Kumar 3. Mr. Rahul Srivastava 4. Ms. Shamama Abidi (from December 2016 to March 2017) 5. Ms. Jagriti Singh (from December 2016 to June 2017) 6. Mr. Ashish Kumar (from January 2017 to September 2018) 7. Mr. Amit Kumr Verma 8. Ms. Jyoti Verma 9. Mr. Pankaj Tiwari 10. Mr. Kuldeep Gupta

7. HBCR Name: Max Super Speciality Hospital, New Delhi

Principal Investigator & Co-Principal Investigator	Staff Details
Principal Investigator 1. Dr. Anil Kumar Anand, Director, Radiation oncology **Co-Principal Investigator** 1. Dr. Ramandeep Arora, Senior Consultant, Medical Oncology	1. Ms. Kamlesh Kumari 2. Mr. Ankit Kumar

8. HBCR Name: Medanta Cancer Centre, Gurgaon, Haryana state

Principal Investigator & Co-Principal Investigator	Staff Details
Principal Investigator 1. Dr. Tejinder Kataria, Radiation Oncologist **Co-Principal Investigator** 1. Dr. Ashok Kumar Vaid, Medical and Haemato Oncologist	1. Ms. Kamlesh Kumari 2. Mr. Ankit Kumar

9. HBCR Name: Fortis memorial Research Institute, Gurgaon, Haryana state

Principal Investigator & Co-Principal Investigator	Staff Details
Principal Investigator 1. Dr. Vinod Raina, Executive Director & Head, Medical Oncology & Head Cancer Registry **Co-Principal Investigator** 1. Dr. B. B. Tyagi, Manager- Cancer Registry	1. Mr. Sujeet Kumar Singh 2. Ms. Manisha

10. HBCR Name: Mahavir Cancer Sansthan and Research Centre, Patna, Bihar state

Principal Investigator & Co-Principal Investigator	Staff Details
Principal Investigators 1. Dr. Rita Rani, Senior Consultant, Radiation oncologist 2. Dr. Anita Kumari, Consultant Radiation Oncologist (from July 2013 to June 2015) 3. Dr. Preeti Jain, Consultant Onco-surgeon, (from January 2012 to June 2013) **Co-Principal Investigators** 1. Dr. Richa Chauhan, Consultant Radiation Oncologist 2. Dr.UshaSingh,ConsultantRadiationOncology 3. Dr. Ravi Shankar Rajendra, Consultant Radiation Oncologist 4. Dr. P.K. Verma ,Consultant Pathologist (from May 2013 to June 2016) 5. Dr. S.K. Sinha, Consultant Pathologist (from January 2012 to April 2013)	1. Ms. Sweta Kumari 2. Mr. Tahir Zafar Ali Khan 3. Ms. Navnita Medha 4. Mr. Arun Kumar 5. Mr. Sazid Iqwal

11. HBCR Name: Max Super Speciality Hospital, Patparganj, New Delhi

Principal Investigator & Co-Principal Investigator	Staff Details
Principal Investigators 1. Dr. Geeta Kadayaprath, Director, Breast Services (Surgical Oncology) (from January 2018) 2. Dr Harit Chaturvedi, Chairman (till January 2018) **Co-Principal Investigators** 1. Dr.Meenu Walia, Director Medical Oncology & Hemaetology 2. Dr. Geeta Kadayaprath, Associate Director & Head, Breast Services (Surgical Oncology) (till January 2018)	1. Ms. Preeti Wadhwa 2. Ms. Neethi Joseph 3. Mr. Suryadev

12. HBCR Name: Asian Institute of Medical Sciences, Faridabad, Haryana state

Principal Investigator & Co-Principal Investigator	Staff Details
Principal Investigator 1. Dr. Neetu Singhal , Sr. Consultant & Head of the Dept. of Radiation Oncology	1. Mr. Daya Chand Kaushik

13. HBCR Name: BPS Government Medical College for Women, Khanpur Kalan, Sonipat, Haryana state

Principal Investigator & Co-Principal Investigator	Staff Details
Principal Investigator 1. Dr. Uma Garg, Prof & Head, Dept. of ENT & HNS **Co-Principal Investigator** 1. Dr. Swarn Kaur, Prof & Head, Dept. of Pathology	1. Mr. Sukhbir Malik

14. HBCR Name: Government Medical College, Jammu, Jammu and Kashmir UT

Principal Investigator & Co-Principal Investigator	Staff Details
Principal Investigator 1. Dr. Dinesh Kumar, Prof & Head, Dept. of Community Medicine **Co-Principal Investigator** 1. Dr. Ashutosh Gupta, Prof & Head, Dept. of Radiotherapy	1. Dr. Rahul Sharma 2. Dr. Sandeep Kour 3. Dr. Shabab Lalit Angurana 4. Dr. Swarn Singh Katoch 5. Dr. Kiran Bala 6. Dr. Deepika Dewan 7. Dr. Deepak Abrol 8. Ms. Isha Narang 9. Ms. Roopanjali Devi 10. Ms. Pooja Devi 11. Mr. Shiv Dutt Sharma 12. Ms. Mamta Devi 13. Mr. Raman Kumar 14. Mr. Gagan Singh 15. Ms. Kavita Sharma 16. Ms. Shivani Bhagat 17. Mr. Purshotam Kumar

15. HBCR Name: Rajiv Gandhi Cancer Institute and Research Centre, New Delhi

Principal Investigator & Co-Principal Investigator	Staff Details
Principal Investigators 1. Dr. Sudhir Rawal, Medical Director, Dept. of Surgery 2. Dr. A.K Dewan, Director, Surgical Oncology (till September 2016) **Co-Principal Investigator** 1. Ms. Swarima Jaitley, Principal Research Officer	1. Ms. Khushboo Sharma 2. Ms. Julie Pratibha Singh 3. Mr. Hasan Malik 4. Mr. Deepak Negi 5. Mr. Janit Giri

16. HBCR Name: Regional Cancer Centre Kamala Nehru Memorial Hospital, Allahabad, Uttar Pradesh state

Principal Investigator & Co-Principal Investigator	Staff Details
Principal Investigator 1. Dr. B.Paul Thaliath, Addl. Director Medical & Head, Dept. of Radiation Oncology **Co-Principal Investigator** 1. Dr. Radha Ghosh, Sr. Consultant, Radiation Oncology	1. Dr Sadhana Dwivedi 2. Mr. Alok Kumar Mishra 3. Ms. Seema Chaurasia 4. Mr. Vinod Kumar 5. Ms. Helen Dass 6. Ms. Ruchi Rai 7. Ms. Nabia Kausar 8. Ms. Bushra Firdous 9. Mr. Janardan Shukla

South

17. HBCR Name: Amrita Institute of Medical Sciences and Research, Kochi, Kerala state

Principal Investigator & Co-Principal Investigator	Staff Details
Principal Investigator 1. Dr. Prem Nair, Medical Director **Co-Principal Investigators** 1. Dr. K. Pavithran, Head, Dept. of Medical oncology 2. Dr. K.Vijayakumar, Head, Breast & Gynaec Cancer 3. Dr. Debanarayan Dutta , Head, Radiation Oncology	1. Mr. P. Gangadharan 2. Ms. Thanuja Gopakumar 3. Ms. Suma M S 4. Ms. Mini A P 5. Mr. Ajil Shaji 6. Ms. Sreeshma M S

18. HBCR Name: Vydehi Institute of Medical Sciences, Bengaluru, Karnataka state

Principal Investigator & Co-Principal Investigator	Staff Details
Principal Investigator 1. Dr. M.S. Ganesh, Prof & Head, Dept. of Medical Oncology **Co-Principal Investigator** 1. Dr. Aruna E Prasad, Consultant & Incharge, Preventive Oncology	1. Mr. N.M. Sreerama Reddy 2. Ms. Jahnavi Hatti 3. Ms. Shilpa 4. Ms. Vani 5. Ms. Prema 6. Ms. Shiva Shree 7. Ms. Amuda 8. Mr. Muniraju

19. HBCR Name: Regional Cancer Centre, Thiruvananthapuram, Kerala state

Principal Investigator & Co-Principal Investigator	Staff Details
Principal Investigators 1. Dr. Paul Sebastian, Director (till August 2018) 2. Dr. Aleyamma Mathew, Prof & Head, Division of Cancer Epidemiology and Biostatistics (from October 2018) **Co-Principal Investigators** 1. Dr. Aleyamma Mathew, Prof & Head, Division of Cancer Epidemiology and Biostatistics 2. Dr. Preethi Sara George, Associate Professor in Biostatistics, Division of Cancer Epidemiology & Biostatistics	1. Ms. Padmakumari Amma G 2. Dr. Kalavathy M.C

20. HBCR Name: Cancer Institute (WIA), Chennai, Tamil Nadu state

Principal Investigator & Co-Principal Investigator	Staff Details
Principal Investigators 1. Dr. R. Swaminathan (from April 2013) Asst. Director & Head, Dept. of Biostatistics and Cancer Registry 2. Dr. V. Shanta (till March 2013) **Co-Principal Investigator** 1. Dr. Rama, Asst. Professor & senior Bio-Statistician, Dept. of Biostatistics and Cancer Registry (from April 2013)	1. Ms. Shanthi P 2. Ms. Kalyani M.S 3. Ms. Joan of Arc A 4. Ms. Vidhya J 5. Mr. Sivakumar P 6. Ms. Bhuvaneswari S 7. Ms. Sahaya Delma C 8. Ms. Anu R 9. Ms. Devi N 10. Ms. Divya S 11. Ms. Jayabharathi J 12. Ms. Vijayalakshmi P 13. Mr. Thiyagarajan K 14. Ms. Deepa E 15. Ms. Manonmani 16. Ms. Deepa C

21. HBCR Name: Malabar Cancer Centre, Kannur, Kerala state

Principal Investigator & Co-Principal Investigator	Staff Details
Principal Investigators 1. Dr. Saina Sunilkumar, Lecturer & Head of the Dept. (I/C) (from March 2017) 2. Dr. Satheesan B, Professor & Director (from 2010 to March 2017) **Co-Principal Investigators** 1. Dr. Saina Sunilkumar, Lecturer & Head of the Dept. i/c (till February 2017) 2. Ms. Bindhu.T, Lecturer in Biostatistics 3. Ms. Ratheesan.K , Lecturer in Biostatistics	1. Mr. Prachith KS 2. Mr. Nijin P 3. Ms. Subina K

22. HBCR Name: International Cancer Centre, Neyyoor, Tamil Nadu state

Principal Investigator & Co-Principal Investigator	Staff Details
Principal Investigator 1. Dr. V.G. Sudhakaran MD, Head, Dept. of Oncology **Co-Principal Investigator** 1. Dr. Prarthana Roselil , Consultant Radiation Oncology	1. Mr. T. Robert Nickelson 2. Mr. C. Jaya Raj

23. HBCR Name: Kidwai Memorial Institue of Oncology, Bengaluru, Karnataka state

Principal Investigator & Co-Principal Investigator	Staff Details
Principal Investigators 1. Dr. Ramachandra 2. Dr. K.B. Linge Gowda, Director (till July 2018) 3. Dr. M. Vijayakumar, Director (till December 2014) **Co-Principal Investigator** 1. Dr. C. Ramesh, Prof & Head, Dept. of Epidemiology Biostatistics	1. Dr. D.J Jayaram 2. Mr. T Venkatesh 3. Mr. V Bhadraiah 4. Mr. M.K.M Gowda 5. Ms. B.J Kumudhini 6. Mr. M.R Balakrishnojirao 7. Mr. K. Venkatesh 8. Mr. C. Kumar

24. HBCR Name: Govt Arignar Anna Memorial Cancer Hospital & Research Institute, Kanchipuram, Tamil Nadu state

Principal Investigator & Co-Principal Investigator	Staff Details
Principal Investigator 1. Dr. P. Anandhi, MD (RT), Associate Professor of Radiotherapy **Co-Principal Investigator** 1. Dr. C.T. Muthukumaran , Assistant Surgeon	1. Ms. R Nalini 2. Mr. U. Mohan 3. Mr. L. Rajasekar 4. Mr. C. Shantha Kumar 5. Ms. C. Jemina 6. Ms. M. Carolin 7. Ms. G. Jayashri 8. Ms. K.S. Surya 9. Mr. L. Dinesh Kumar 10. Ms. S. Pavithra 11. Ms. S. Aishwarya

25. HBCR Name: JIPMER, Regional Cancer Centre, Puducherry UT

Principal Investigator & Co-Principal Investigator	Staff Details
Principal Investigator 1. Dr. Gunaseelan K, Additional Professor, Dept. of Radiation Oncology **Co-Principal Investigators** 1. Dr. Biswajit Dubashi, Addl Professor, Dept. of Medical Oncology 2. Dr. D Kadambari, Professor, Dept of General Surgery 3. Dr. Latha Chaturvedua, Professor, Dept. of Obstetrics and Gynaecology 4. Dr. Sunil Kumar Saxena, Professor, Dept. of ENT 5. Dr. G S Sreenath, Associate Professor, Dept. of General Surgery 6. Dr. Pampa Ch. Toi, Associate Professor, Dept. of Pathology 7. Dr. Prasanth Penumade, Asst. Professor, Dept. of Surgical Oncology 8. Dr. Pooja Sethi, Asst. Professor, Dept. of Radiation Oncology 9. Dr. Srinivas B H, Asst. Professor, Dept. of Pathology 10. Dr. Debasis Gochhait, Asst. Professor, Dept. of Pathology 11. Mr. Harichandrakumar K T, Asst. Professor, Dept. of Medical Biometrics & Informatics 12. Dr. S. Vivekanandam, Professor, Dept. of Radiation Oncology (till November 2018) 13. Dr. Sunu Lazor Cyriac, Asst. Professor, Dept. of Medical Oncology(till August 2016)	1. Ms. S. Ramapriya 2. Ms. A Anchala Mary 3. Mr. R Boominathan 4. Dr. Stalin A 5. Mr. G Saranraj 6. Ms. T Akila 7. Mr. K Nagaraj 8. Ms. A Anbarasi

26. HBCR Name: Shakuntala Memorial Hospital &Research Centre, Hubli, Karnataka state

Principal Investigator & Co-Principal Investigator	Staff Details
Principal Investigator 1. Dr. Vinay Gadigi, Onco Surgeon **Co-Principal Investigator** 1. Dr. Vijay Gadagi, Physician	1. Mr. Iranna P 2. Mr. Mallanagouda P 3. Ms. Vanita M

27. HBCR Name: Rural Development Trust, Bathalapalle, Andhra Pradesh state

Principal Investigator & Co-Principal Investigator	Staff Details
Principal Investigator 1. Dr. N. Hariharanadha Sarma, Senior Consultant Pathologist and Medical Superintendent **Co-Principal Investigators** 1. Dr. Sudheeer Kumar, Medical Director & Consultant Surgeon (from 2012 to 2016) 2. Dr. K.M. Kannan, Medical Director & Consultant Anaesthetist (from 2012 to 2014)	1. Ms. Imam Bee (from 2012 to 2016)

28. HBCR Name: SDM College of Dental Sciences and Hospital, Dharwad, Karnataka state

Principal Investigator & Co-Principal Investigator
Principal Investigator 1. Dr. Kaveri Hallikeri , Prof. of Oral Pathology **Co-Principal Investigator** 1. Dr. Swetha Acharya , Associate Professor

29. HBCR Name: Government Medical College, Thrissur, Kerala state

Principal Investigator & Co-Principal Investigator	Staff Details
Principal Investigators 1. Dr. K.L. Jayakumar, Prof & Head, Dept. of Radiotherapy, 2. Dr. Mahadevan R, Prof & Head, Dept. of Radiotherapy (till July 2018) **Co-Principal Investigators** 1. Dr. Ajith Kumar. V.R, Professor, Dept. of Radiotherapy, 2. Dr. Jayaraman M.B, Asst. Professor 3. Dr. Shehna A Khader , Asst. Professor	1. Ms. Shijeena Mathew 2. Mr. Lijo Lazar V

30. HBCR Name: Father Muller Medical College Hospital, Mangaluru, Karnataka state

Principal Investigator & Co-Principal Investigator	Staff Details
Principal Investigator 1. Dr. Dinesh Shet, Associate Professor of Medical Oncology	1. Ms. Poornima

31. HBCR Name: MES Medical College & Hospital, Perinthalmanna, Kerala state

Principal Investigator & Co-Principal Investigator	Staff Details
Principal Investigator 1. Dr. Mujeeb Rahman, Medical Superintendent **Co-Principal Investigator** 1. Dr. K.V. Gangadharan, Oncologist	1. Dr. Vanaja 2. Ms. Sobhana 3. Ms. Rajani

32. HBCR Name: St. Johns Medical Hospital, Bengaluru, Karnataka state

Principal Investigator & Co-Principal Investigator	Staff Details
Principal Investigators 1. Dr. Rakesh S Ramesh, Associate Professor and I/C Dept. of Surgical Oncology (from April 2018) 2. Dr. Elizabeth Vallikad, Prof & Head, Dept. of Gynaecologic Oncology. (till March 2018) **Co-Principal Investigator** 1. Ms. Kalpana V, Cancer Registrar (from April 2018)	1. Dr. Geeta Acharya 2. Ms. Kalpana V 3. Ms. Mallikadevi R

33. HBCR Name: Mandya Institute of Medical Sciences, Mandya, Karnataka state

Principal Investigator & Co-Principal Investigator	Staff Details
Principal Investigator 1. Dr. S. Shiva Kumar, Prof & Head, Dept. of Pathology **Co-Principal Investigator** 1. Dr. Venkatesh N , Surgical Oncologist	1. Ms. Sadhana H S

34. HBCR Name: HCG NMR Cancer Centre, Hubli, Karnataka state

Principal Investigator & Co-Principal Investigator	Staff Details
Principal Investigator 1. Dr. Prasad Gunari, Medical Oncologist (till March 2019) **Co-Principal Investigators** 1. Dr. Chanabasappa Kori, Surgical oncologist (till 2017) 2. Dr. Sanjay Mishra, Radiation Oncologist	1. Ms. Shaheen Dambal

35. HBCR Name: Narayana Hrudayalaya Health City, Bengaluru, Karnataka state

Principal Investigator & Co-Principal Investigator	Staff Details
Principal Investigators 1. Dr. Alben Sigamani, Head, Clinical Research (from November 2015) 2. Dr. Bhavana Sirohi, Head, Medical Oncology (till November 2015) 3. Dr. Sandeep Jain Head, Radiation Oncology (till August 2014) **Co-Principal Investigators** 1. Dr. Sandeep Jain, Head, Radiation Oncology (from November 2015) 2. Dr. Moni Kuriakose , Head, Head & Neck Oncology, (till August 2014)	1. Ms. Lavanya R 2. Ms. Bharathi 3. Ms. Mamatha H (till January 2018)

36. HBCR Name: Erode Cancer Centre, Thindal, Erode, Tamil Nadu state

Principal Investigator & Co-Principal Investigator	Staff Details
Principal Investigator 1. Dr. K. Velavan, Director, Consultant Oncologist	1. Ms. Shanthi

37. HBCR Name: General Hospital, Ernakulam, Kerala state

Principal Investigator & Co-Principal Investigator	Staff Details
Principal Investigator 1. Dr. Balamuralikrishna K S, Consultant in Oncology **Co-Principal Investigators** 1. Dr. Seios J 2. Dr. Sunithra Nair	1. Ms. Veena K J 2. Ms. Veena Vinod 3. Mr. Krishna P S

38. HBCR Name: Indo-American Cancer Institute & Research Centre, Hyderabad, Telangana state

Principal Investigator & Co-Principal Investigator	Staff Details
Principal Investigator 1. Dr. K. Kalpana Raghunath, Associate Director & Medical Superintendent **Co-Principal Investigators** 1. Dr. G. Dilip Kumar, Consultant Radiation Oncology 2. Dr. A. Santa, Consultant Medical Oncology 3. Dr. Sujith Chayu Patanaik, Consultant Surgical Oncology	1. Dr. Md.Zakir Hussain 2. Ms. K. Nirmala 3. Mr. Y. Krishnaiah

39. HBCR Name: HCG Bangalore Institute of Oncology, Bengaluru, Karnataka state

Principal Investigator & Co-Principal Investigator	Staff Details
Principal Investigator 1. Dr. B S Ajaikumar, Chairman & CEO **Co-Principal Investigator** 1. Dr. B S Ramesh, Medical Director	1. Dr. Raghavendra Rao M 2. Dr. Mahesh Bendemegal 3. Dr. Jagannath Dixit 4. Dr. Nalini Rao 5. Dr. Vishal Rao 6. Dr. Sridhar PS 7. Dr. Gopinath KS 8. Dr. Shekar Patil S 9. Dr. Radheshyam N 10. Dr. Shashidhara HP 11. Dr. Sateesh CT 12. Dr. Ravi B Diwakar 13. Dr. Somorat Bhattacharjee 14. Dr. Krithika Murugan 15. Dr. Amritanshuram

40. HBCR Name: A.J. Hospital & Research Centre, Mangaluru, Karnataka state

Principal Investigator & Co-Principal Investigator
Principal Investigator 1. Dr. Prashanth Marla K, Medical Director **Co-Principal Investigator** 1. Dr. Kamalaksh Shenoy, Prof & Head, Radiation Oncology, Oncologist

East

41. HBCR Name: Acharya Harihar Regional Cancer Centre, Cuttack, Odisha state

Principal Investigator & Co-Principal Investigator	Staff Details
Principal Investigator 1. Dr. Dillip Kumar Agarwalla, Asst. Professor **Co-Principal Investigators** 1. Dr. P C Pathy, Professor of ENT 2. Dr. Janmejay Mohapatra, Asst. Professor, Gynaecological Oncology 3. Dr. S K Samantara, Asst. Professor, Surgical Oncology	1. Dr. Narayan Sahoo 2. Ms. Sarmista Sahoo 3. Ms. Surekha Nayak 4. Ms. Gayatri Choudhury 5. Ms. Swagatika Mishra 6. Ms. Liparani Patra

42. HBCR Name: Chittaranjan National Cancer Institute, Kolkata, West Bengal state

Principal Investigator & Co-Principal Investigator	Staff Details
Principal Investigator 1. Dr. Syamsundar Mandal, Head of the Dept. Epidemiology & Biostatistics **Co-Principal Investigator** 1. Dr. Partha Nath, SMO, Medical Oncology	1. Mr. Ganesh Garai 2. Dr. Sushmita Roy 3. Dr. Biplab Misra (from August 2017 to July 2018) 4. Ms. Soumi Sinha 5. Ms. Sudeshna Ghosh 6. Ms. Kaberi Biswas 7. Ms. Julekha Mondal (from March 2017 to August 2017) 8. Ms. Julekha Mondal 9. Ms. Rinki Chitrakar 10. Ms. Susmita Patra 11. Ms. Priya Kumari Singh 12. Mr. Dipanjan Mazumdar

43. HBCR Name: Tata Medical Centre, Kolkata, West Bengal state

Principal Investigator & Co-Principal Investigator	Staff Details
Principal Investigator 1. Dr. Indranil Mallick, Senior Consultant, Radiation Oncology	1. Ms. Antara Dey 2. Ms. Sarita Kumari 3. Ms. Sreyashi Samanta 4. Mr. Mayukh Biswas

44. HBCR Name: Apollo Hospital, Bhubaneswar, Odisha state

Principal Investigator & Co-Principal Investigator	Staff Details
Principal Investigator 1. Dr. Sarala Das, Senior Consultant - Pathologist and Neuropathologist (till September 2018) **Co-Principal Investigator** 1. Dr. Manas Ranjan Baisakh, Senior Consultant - Pathology	1. Mr. Premkumar Lazar 2. Mr. Praswanta Kumar Moharana 3. Mr. Suresh Kumar Samal (till October 2018)

West

45. HBCR Name: Pravara Rural Hospital & Rural Medical College, Loni, Maharastra state

Principal Investigator & Co-Principal Investigator	Staff Details
Principal Investigators 1. Dr. Vandana Jain, Prof & Head, Dept. of Radiotherapy & Oncology (from July 2015) 2. Dr. K.K. Singh, Prof & Head (till April 2015) **Co-Principal Investigators** 1. Dr.Chaitali Wagmere , Associate Professor 2. Dr. Nayana Jagtap, Record Maintenance (till July 2017)	1. Ms. Sangita Pandit 2. Mr. Vijay G. Pawar 3. Mr. Bhaskar L. Datir 4. Mr. Sachin R. Jadhav (till July 2016) 5. Mr. Sunil Kakade (till December 2017)

46. HBCR Name: Tata Memorial Hospital, Mumbai, Maharastra state

Principal Investigator & Co-Principal Investigator	Staff Details
Principal Investigator 1. Dr. R A Badwe, Director **Co-Principal Investigator** 1. Dr. B. Ganesh, Head,Dept. of Medical Records, Bio-statistics and Epidemiology	1. Dr. Rajashree Gaidhani 2. Dr. Deepa Paul 3. Ms. Sapna H. Kothare 4. Ms. Sushama L. Saoba 5. Ms. Sandhya A. Cheulkar 6. Ms. Ashwini A. Patil 7. Ms. Amruta A. Mhatre 8. Ms. Deepali Lokhande 9. Ms. Monika Sarade 10. Ms. Suvarna Kolekar 11. Ms. Esha Dashmukhe 12. Ms. Prachi Joshi 13. Mr. Narpat Padvi 14. Mr. Mahadeo Bhise 15. Ms. Keerti Paradhi 16. Ms. Mitali Sakpal

47. HBCR Name: The Gujarat Cancer & Research Institute, Ahmedabad, Gujarat state

Principal Investigator & Co-Principal Investigator	Staff Details
Principal Investigators 1. Dr. Shashank Pandya, Director (from May 2018) 2. Dr. Rakesh Vyas, Director (till February 2018) 3. Dr. Shilin Shukla, Director (till September 2013) **Co-Principal Investigators** 1. Dr. Janmesh Shah, Asst. Professor (from August 2016 to November 2019) 2. Dr. Anand Shah, Asst. Professor (from August 2016) 3. Dr. Geeta Joshi, Deputy Director (till July 2017) 4. Dr. Parimal Jivarajani, Associate Professor (till August 2014)	1. Dr. Rohini Patel 2. Mr. Himanshu Patel 3. Mr. Jayesh Solanki 4. Ms. Vishruti Pandya 5. Ms. Neha Jadav 6. Mr. Himanshu Patel 7. Mr. Rohit Cholavia 8. Dr. Pooja Dholakia 9. Ms. Vaishali Ravani 10. Mr. Vishal N Patel 11. Mr. Viral Parmar 12. Mr. Vahidhusain Mathakiya 13. Mr. Ravikant Parmar 14. Ms. Vaishakhi Soni 15. Ms. Geeta Parmar 16. Ms. Hiral Chauhan

Central

48. HBCR Name: Gandhi Medical College. Bhopal, Madhya Pradesh state

Principal Investigator & Co-Principal Investigator	Staff Details
Principal Investigator 1. Mr. Atul Shrivastava, Research Officer, Dept. of Pathology **Co-Principal Investigator** 1. Dr. Sushma Shrivastava, Social Investigator	1. Ms. Sabeena Khan

49. HBCR Name: Regional Cancer Centre, Raipur, Chattisgarh state

Principal Investigator & Co-Principal Investigator	Staff Details
Principal Investigator 1. Dr. Vivek Choudhary, Director **Co-Principal Investigator** 1. Dr. Pradeep Chandrakar, Associate Professor, Radiation Oncology	1. Ms. Madhuri Shukla 2. Mr. Chandrabhan Marawi 3. Ms. Megha Tamrakar 4. Ms. Sudha Shrivastava 5. Mr. Yogesh Sahu 6. Mr. Dharmaraju

50. HBCR Name: RST Regional Cancer Hospital, Cancer Relief Society, Nagpur, Maharastra state

Principal Investigator & Co-Principal Investigator	Staff Details
Principal Investigator 1. Dr. B.K. Sharma, Joint Director **Co-Principal Investigator** 1. Dr. Anjali Kolhe, Sr. Consultant, Dept. of Anaesthesiology & Pain	1. Dr. Saraswati Vrudhulla 2. Ms. Dipti Yadav 3. Ms. Nanda Kolhe 4. Ms. Nirjala Kadwe 5. Ms. Snehal Chouhan 6. Mr. Visnudas Sarnagat 7. Ms. Mamta Rewatkar 8. Ms. Raushan Aara Ansari 9. Ms. Sarika Dhote

51. HBCR Name: Cancer Hospital & Research Institute, Gwalior, Madhya Pradesh state

Principal Investigator & Co-Principal Investigator	Staff Details
Principal Investigator 1. Dr. B.R. Shrivastava, Director	1. Ms. Archana Shrivastav 2. Ms. Pinkey Sharma 3. Ms. Manjulata Gupta 4. Ms. Manjesh Rathore 5. Mr. Gaurav Saxena 6. Mr. Sachin Nibalkar 7. Mr. N.B.Bhargava 8. Mr. Sushil Bhatnagar 9. Mr. Arpita Shrivastava

North East

52. HBCR Name: Assam Medical College, Dibrugarh, Assam state

Principal Investigator & Co-Principal Investigator	Staff Details
Principal Investigators 1. Dr. H.K. Goswami, Prinicpal-cum-Chief Superintendent (from September 2017) 2. Dr. Kotokey (from February 2016 to June 2017) 3. Dr. A.K. Adhikari, Principal and Project Chief (from December 2012 to January 2016) 4. Dr. Pranab Baruah, Principal and Project Chief (from January 2012 to November 2012)	1. Dr. R. Akhtar 2. Ms. P. Dutta 3. Ms. S. Ahmed 4. Ms. S. Neog 5. Mr. K. Saikia 6. Ms. I. Baruah 7. Mr. S.R. Nath 8. Ms. Regina Begum 9. Ms. J. Sonowal 10. Mr. B. Mech

53. HBCR Name: Dr. B Borooah Cancer Institute, Guwahati, Assam state

Principal Investigator & Co-Principal Investigator	Staff Details
Principal Investigator 1. Dr. Jagannath D. Sharma, Prof. & Head, Dept. of pathology **Co-Principal Investigators** 1. Dr. Ashok Kumar Das, Assoc. Professor, Dept. of Head & Neck Oncology 2. Dr. B J. Saikia, Professor, Dept. of Medical Oncology 3. Dr. M Bhattacharyya Professor, Dept. of Radiation Oncology 4. Dr. A Talukdar, Professor, Dept. of Surgical Oncology	1. Dr. Nizara Baishya 2. Dr. Manigreeva Krishnatreya (from October 2010 to January 2015) 3. Mr. Kaberi Lahkar (from March 2011 to December 2013) 4. Ms. Pintu Nandy (from May 2014 to February 2016) 5. Ms. Nijara Rajbongshi (from May 2016 to December 2016) 6. Dr. Chandi Ram Kalita 7. Mr. Md. Nazmul Hoque 8. Ms. Gayatri Gogoi 9. Ms. Binita Das 10. Ms. Tapti Kumari 11. Mr. Manjit Sarma (from October 2010 to July 2016) 12. Mr. Bhrigu Kumar Mishra (from November 2016 to August 2018)

54. HBCR Name: Cachar Cancer Hospital, Silchar, Assam state

Principal Investigator & Co-Principal Investigator	Staff Details
Principal Investigator 1. Dr. Ravi Kannan, Director **Co-Principal Investigator** 1. Dr. Ritesh Tapkire, Head, Dept. of Surgical Oncology	1. Ms. Gayatree Roy 2. Mr. Sagardeep Chakraborty 3. Mr. Premjit Kurmi 4. Mr. Sanjib Sutradhar 5. Mr. Kirangtuing Nkuame 6. Mr. Saribul Hassan 7. Mr. Biplob Nath 8. Mr. Debojit Nath 9. Mr. Bikash Chakraborty

55. HBCR Name: Mizoram State Cancer Institute (Civil Hospital), Aizwal, Mizoram state

Principal Investigator & Co-Principal Investigator	Staff Details
Principal Investigator 1. Dr. B. Zothankima, Head, Radiation Oncology **Co-Principal Investigators** 1. Dr. Jeremy L. Pautu, Head, Medical Oncology 2. Dr. Lalhlupuii, Radiation Oncologist 3. Dr. K. Lalfakzuala, Radiation Oncologist 4. Dr. Cindy Lalthanpuii, Radiation Oncologist 5. Dr. Doris Lallawmzuali, Pathologist	1. Dr. Lalremruati Chhakchhuak 2. Mr. Robert Rokhamliana 3. Ms. Rebecca L Renthlel 4. Ms. Lalmalsawmi Hnamte 5. Mr. PC Lalbiakkimi 6. Ms. Gospel Laldinpull 7. Mr. K. Lalhruaitluanga 8. Mr. Lalrindika Hmar 9. Ms. C.Lalhmingsangi

56. HBCR Name: Regional Cancer Centre, Agartala, Tripura state

Principal Investigator & Co-Principal Investigator	Staff Details
Principal Investigator 1. Dr. Gautam Majumdar, Medical Superintendent **Co-Principal Investigators** 1. Dr. Partha Sarathi Sutradhar, Medical Officer 2. Dr. Biswajit Debbamma, Medical Officer 3. Dr. Dhritiman Datta, Medical Officer	1. Dr. Jayanta Kr. Das(till January 2015) 2. Dr. Ramkrishna Banika 3. Mr. Litan Banik 4. Mr. Sandipan Paul (till January 2017) 5. Mr. Gopal Sarkar 6. Ms. Lakhi Roy Dhar 7. Ms. Rupa Deb 8. Ms. Moutushi Roy Biswas (till November 2017) 9. Mr. Tanmoy Chakraborty 10. Mr. Mithan Datta 11. Mr. Dhima Debbarma 12. Ms. Sudeshma Bhattacharjee 13. Mr. Nirmal Dey

57. HBCR Name: Regional Institute of Medical Sciences, Imphal, Manipur state

Principal Investigator & Co-Principal Investigator	Staff Details
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58. HBCR Name: North East Cancer Hospital & Research Institute, Guwahati, Assam state

Principal Investigator & Co-Principal Investigator	Staff Details
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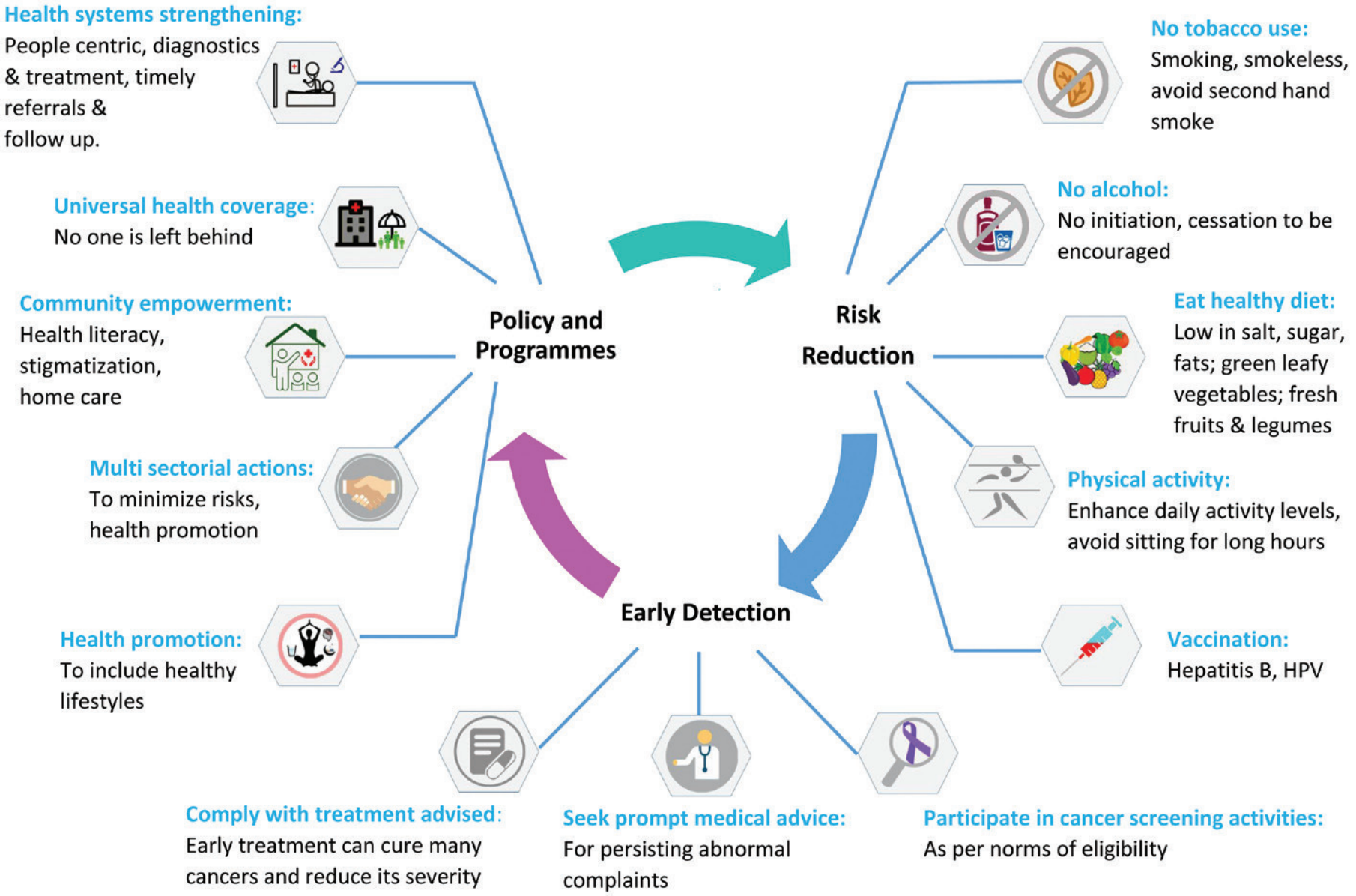
Ways for Cancer Prevention and Control



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