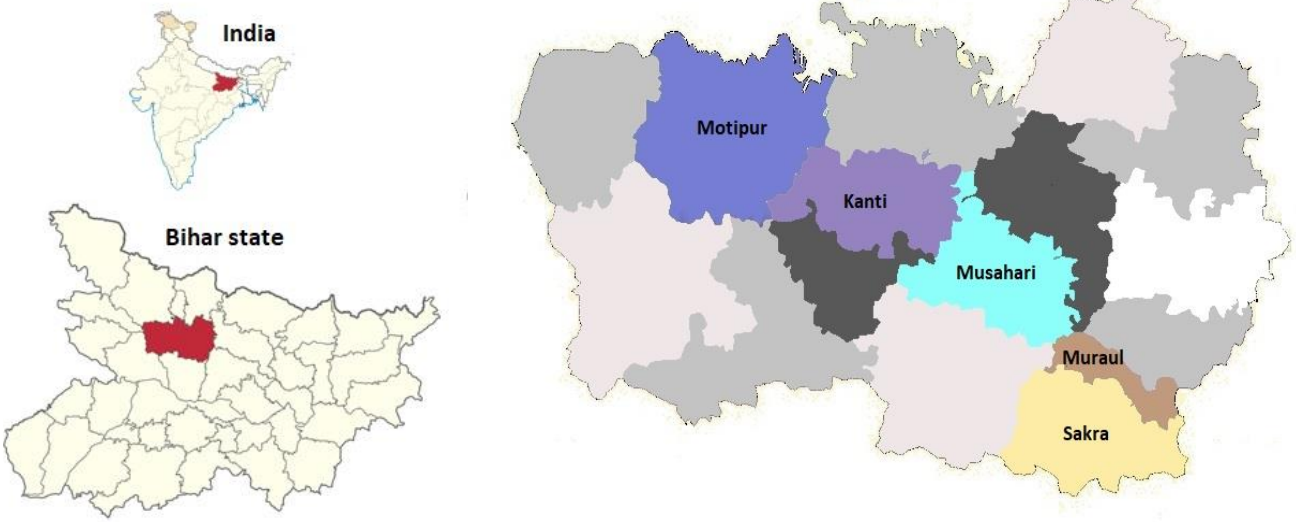
Cancer Incidence and Mortality in Muzaffarpur, Bihar state, India: 2018

First-year report of the Population-Based Cancer Registry (PBCR)



Project of
Tata Memorial Centre (TMC), Mumbai, India
(Autonomous Institute under Department of Atomic Energy, Government of India)
Centre for Cancer Epidemiology (CCE) – ACTREC, Navi Mumbai, India
Mahamana Pandit Madanmohan Malviya Cancer Centre (MPMMCC), Varanasi, UP, India
Homi Bhabha Cancer Hospital & Research Centre (HBCH&RC), Muzaffarpur, Bihar, India
Sri Krishna Medical College and Hospital (SKMCH), Muzaffarpur, Bihar, India
and
Health Department, Government of Bihar, India

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Health Department, Government of Bihar

Name	Role	Designation
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Name	Role	Designation
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Name	Role	Designation
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Mr. Ranjan Kumar Jha	Field Investigator
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Suggested Citation:

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Contents

I. Highlights

- The Muzaffarpur population-based cancer registry (PBCR) is the first cancer registry in the Bihar state of India.
- The registry was started in the year 2018 and is functioning with the help of Sri Krishna Medical College and Hospital (SKMCH), Muzaffarpur and Health Department, Government of Bihar.
- The Muzaffarpur PBCR covers five blocks: Motipur, Kanti, Musahari, Sakra, Muraul and Muzaffarpur Municipal Corporation [Urban areas (83 wards) and 528 villages] with an estimated population for the year 2018 is 2 million. 78% of the population covered by the registry is rural.
- The staff was selected locally and trained in the cancer registration process at different centres of the Tata Memorial Centre (TMC), Mumbai.
- The staff collected the cancer cases data from all the cancer centres/ private hospitals/ laboratories in Muzaffarpur district and around the area. The staff has interacted with more than 3,000 community leaders to gather cancer cases information.
- In the year 2018, the cancer registry recorded 712 incidence cancer cases including 358 males (50.3%) and 354 females (49.7%).
- The age-adjusted incidence rate for males is 40.6 per 100,000 population and for females, it is 45.5 per 100,000 population.
- 1 in 23 males and 1 in 21 females are at risk of developing cancer.
- Moreover, among registered cancer patients, one in every five males is illiterate, whereas one in every two females is illiterate.
- Among males, the top five leading cancer sites are mouth, prostate, tongue, stomach, and urinary bladder. Whereas, in females, it is breast, cervix uteri, gall bladder, ovary, and lung cancer.
- As per the Muzaffarpur cancer registry data, the tobacco-related cancer burden is 36.6% in males, 1 in 3 cases of cancer in men were linked to tobacco, compared to 1 in 11 cases in females.
- In the year 2018, out of 712 registered cancer cases, 452 (63.5%) cases have microscopic verification.
- Out of 4 cases, one case is from death certificate only (DCO) and verbal autopsy.
- Of the total 712 cancer cases, 18 (2.5%) cases are paediatric cancer cases.

- For the year 2018, the cancer registry recorded 423 cancer deaths including 211 (49.9%) deaths among males and 212 (50.1%) deaths among females.
- The age-adjusted mortality rate for males is 24.3 per 100,000 population and for females, it is 27.4 per 100,000 population.
- 1 in 37 males and 1 in 34 females are at risk of death due to cancer.
- The cancer incidence rate in urban and rural areas for males is 53.0 and 37.3 per 100,000 population respectively. For females, the cancer incidence rate in urban and rural areas is 64.7 and 40.2 per 100,000 population respectively.
- The village/ house visit is the major source to register cancer incidence and mortality. About 50% of cancer incidence cases were collected by village/ house visits while it was 65% for cancer death registration.
- This is the first year report of the cancer registry and the registry has noted under reporting of the cancer incidence and mortality cases. We expect an improvement in the cancer registration process in the coming years.
- TMC, Mumbai with the support of the Government of Bihar has started Homi Bhabha Cancer Hospital & Research Centre (HBCH&RC) and the hospital is functioning since 4th February 2020 in Muzaffarpur.
- With the help of HBCH&RC, Muzaffarpur the registry has started early detection services for the commonly prevalent cancers including oral, breast and cervix uteri cancers. Through these services, the registry has raised cancer awareness in the community.
- Along with registry staff, training on cancer registration has been given to the clinicians and healthcare professionals from other hospitals of Bihar state.
- Continuing Medical Education (CME) on the topic of Population Based Cancer Registry (PBCR) was organised on 29th September, 2021 for the stakeholders.
- The registry staff actively participated in conferences. All staff virtually attended the International Association of Cancer Registries (IACR) conference 2021 and 2022 and presented a poster on “Patterns of cancer from Muzaffarpur district, Bihar state, India: An interim report from the population-based cancer registry”.

II. Executive summary

Background

Tata Memorial Centre (TMC), Mumbai an autonomous institute under the Department of Atomic Energy, Government of India, started a population-based cancer registry (PBCR) in Muzaffarpur district, Bihar state in September 2018, with the help of Sri Krishna Medical College and Hospital (SKMCH), and Health Department, Government of Bihar. The objective of the cancer registry is to measure the burden of cancer in terms of incidence and mortality and to know the patterns of cancer in the district. This is the first PBCR in Bihar state. The registry data will be useful in planning cancer control activities and strengthening cancer care services in the Muzaffarpur district. We are presenting here the first report of Muzaffarpur PBCR for the year 2018.

Population covered

The cancer registry covers the five blocks of the district – Kanti, Motipur (Baruraj), Muraul (Dholi), Musahari, Sakra, and Muzaffarpur Municipal Corporation, with an estimated population for the year 2018 is 2 million. The registry covers urban areas (83 wards) as well as 528 villages in the district. As per 2018 estimated population of registry area, 78.4% of population covered by PBCR is rural.

Registration method

Trained field staff of the cancer registry regularly visit the villages as well as different hospitals, pathology laboratories, medical colleges, and the birth and death registrar's office to collect cancer incidence and death cases. The registry staff periodically interacts with the village sarpanch, Auxiliary Nurse Midwife (ANM), Accredited Social Health Activist (ASHA) workers, and primary health centre (PHC) staff to know the diagnosed cancer cases in the area as well as cancer deaths that have occurred in the village. With the help of ASHA workers, the registry staff interacts with the patient's relatives and notes down the information available.

In the urban area, the staff interacts with the local municipal corporators and local leaders to obtain information about the cancer cases diagnosed in the community. The information received from ASHA workers/patients' relatives/local leaders is further confirmed at the patient's treating hospital.

After confirming the patient's residence (resident of the district for at least one year) and duplicate checking by senior staff, the case is registered in the prescribed format. The data entry is carried out in *CanReg5* software.

Patients from this area travel to Patna, Darbhanga, Kolkata, Lucknow, Varanasi, Delhi, Jamshedpur, and Mumbai for cancer treatment and also, receive the treatment at SKMCH, Muzaffarpur and other private hospitals.

TMC, Mumbai started Homi Bhabha Cancer Hospital & Research Centre (HBCH&RC) in Muzaffarpur city from 4th February 2020. The centre is well-functioning in providing cancer care and treatment services. The HBCH&RC is following the TMC treatment and follow-up protocol. In the years 2021 and 2022, more than 5,000 cancer patients have been registered. The hospital provides surgical and medical oncology facilities along with preventive and palliative care. We expect the radiotherapy treatment will also be commenced in the coming year.

Results

This report presents the cancer registry data for the year 2018. In the year 2018, the cancer registry recorded 712 incidence cancer cases including 358 males (50.3%) and 354 females (49.7%). The age-adjusted incidence rate for males is 40.6 per 100,000 population and for females, it is 45.5 per 100,000 population. The cumulative risk for the age group 0-74 in males is 4.3% (1 in 23 males is at risk of developing cancer) and in females, it is 4.8% (1 in 21 females is at risk of developing cancer).

For the year 2018, the cancer registry recorded 423 cancer deaths including 211 (49.9%) deaths among males and 212 (50.1%) deaths among females. The age-adjusted mortality rate for males is 24.3 per 100,000 population and for females, it is 27.4 per 100,000 population. The cumulative risk of death due to cancer in the age group 0-74 in males is 2.7% and for females, it is 2.9% (1 in 37 males and 1 in 34 females is at risk of death due to cancer).

Cancer patterns in urban and rural areas

The Muzaffarpur cancer registry covers 78.4% of rural areas and 21.6% of urban areas. The cancer incidence rate in urban and rural areas for males is 53.0 and 37.3 per 100,000 population respectively. For females, the cancer incidence rate in urban and rural areas is 64.7 and 40.2 per 100,000 population. The rural areas cancer incidence rates are lower compared to urban areas. Mouth cancer is the leading cancer site in both urban and rural males with an age-adjusted incidence rate of 10.3 and 5.7 per 100,000 population respectively. For females, breast, cervix uteri and gall bladder are the top three leading cancer sites, and incidence rates in urban areas are higher than that in rural areas. Due to the COVID-19 pandemic, we have limited access to the urban area hospital. There is an under-reporting of cancer incidence and mortality cases.

Leading cancer sites

Among males; mouth, prostate, tongue, stomach, and urinary bladder are the leading cancer sites. Among females; breast, cervix uteri, gall bladder, ovary and lung are the leading cancer sites. The leading cancer sites are mentioned in Tables I and II.

Table I: Leading cancer sites in males for the period 2018

ICD-10	Sites	Number	%	CR	AAR	TR
C03-C06	Mouth	59	16.6	5.6	6.7	15.5
C61	Prostate	20	5.6	1.9	2.2	3.2
C01-C02	Tongue	21	5.9	2.0	2.1	3.9
C16	Stomach	16	4.5	1.5	2.0	4.1
C67	Urinary bladder	13	3.7	1.2	1.6	3.1

CR: Crude Incidence Rate per 100,000, AAR: Age-Adjusted Rate per 100,000, TR: Truncated Incidence Rate per 100,000 Population

Table II: Leading cancer sites in females for the period 2018

ICD-10	Sites	Number	%	CR	AAR	TR
C50	Breast	94	26.6	9.9	12.5	30.3
C53	Cervix uteri	56	15.9	5.9	7.4	17.9
C23-24	Gall bladder	37	10.5	3.9	4.8	12.5
C56	Ovary	14	4.0	1.5	1.8	4.3
C33-34	Lung	10	2.8	1.1	1.3	3.5

CR: Crude Incidence Rate per 100,000, AAR: Age-Adjusted Rate per 100,000, TR: Truncated Incidence Rate per 100,000 Population

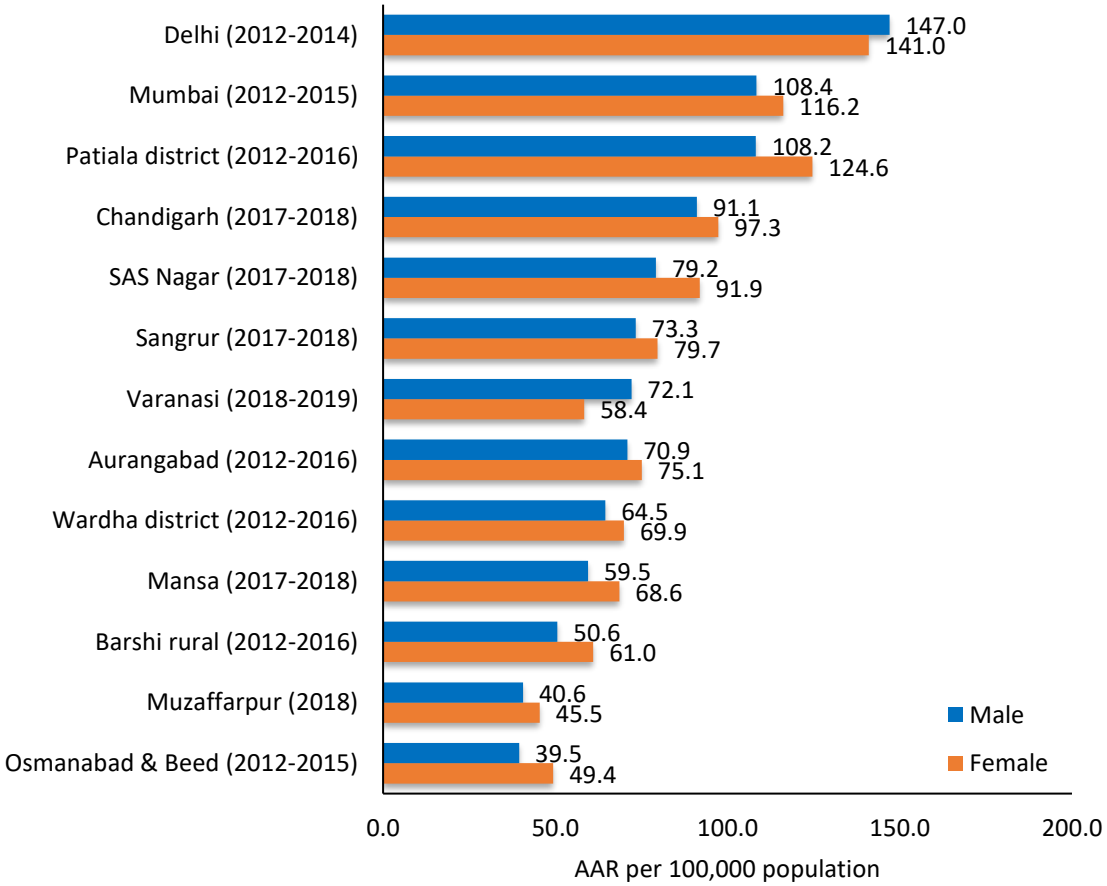
Primary unknown (C80) cases

This is the first-year report of the registry and the registry staff faced several challenges in collecting cancer patients' data. Poor medical documentation and lack of awareness of the disease in the community are the major challenges, as we were not able to trace the primary site of the patients in most of the records. In the year 2018; of the 712 cases, 105 (14.7%) (male 16.5% and female 13.0%) cases of primary unknown were registered. The poor health infrastructure may be responsible for the primary unknown cases.

Comparison of Muzaffarpur PBCR rate with other cancer registries in India

As compared to the other parts of India, cancer incidence rates are lower and comparable with other parts of India (Figure I). [1-6] The incidence rates reported by Muzaffarpur PBCR are low as this is the first year of the cancer registry and there may be under-reporting.

Figure I: All site cancer incidence rate



Paediatric cancer burden

The Muzaffarpur PBCR is monitoring the paediatric cancer burden. The registry has maintained the data of the paediatric cancer cases as per the International Classification of Childhood Cancer (ICCC)-3 standard. Of the total 712 cancer cases, 18 (2.5%) cases are paediatric cancer cases. The paediatric cancer incidence in boys is 26.6 per million and for girls, it is 19.5 per million. The paediatric cancer rates are low compared to other registries in India. The registry may have missed the childhood cases and there may have been under-diagnosis.

Cancer control in the registry area

As oral, breast and cervical cancers are the leading cancer sites, the cancer registry has raised cancer awareness among the community as well as organised early detection services with the help of HBCH&RC, Muzaffarpur. In the registry area, we have organized 99 early detection clinics. 6,550 people have screened. We have detected 54 suspected cases out of these three cases diagnosed with cancer. These cases are under treatment and follow-up.

1. Bihar state profile

Bihar is located in the eastern region of India. Bihar lies mid between the humid West Bengal in the east and the sub-humid Uttar Pradesh in the west which provides it with a transitional position in respect of climate, economy and culture. It is bounded by Nepal in the north and by Jharkhand in the south. Bihar state is divided into two unequal parts (North Bihar and South Bihar) by the river Ganga which flows through the middle from west to east. The average elevation of Bihar land is 173 feet above sea level. Patna, situated on the bank of the river Ganga, is the capital of Bihar. The state is divided into nine divisions comprising 38 districts.[7]

As per the 2011 Census, Bihar is the third most populous state of India with a total population of 104,099,452 [54,278,157 (52.1%) male and 49,821,295 (47.9%) female]. The Census of India 2011 indicates that 89% of Bihar's population lived in rural areas. The population density of Bihar is 1,106 per sq. km. The state is spread across 94,163 sq. km. [8] The literacy rate is 61.8%. The key characteristics are represented in Table 1.

Table 1: Bihar state population, literacy and area

Sr. No.	Characteristic	Unit	Value
	Area		**94,163.00**
1.	a) Urban	Km^2	1,095.49
	b) Rural		92,257.51
	Population		**104,099,452**
2.	a) Urban	Number	11,758,016
	b) Rural		92,341,436
3.	District	Number	38
4.	Density	Km^2	1,106
5.	Female per 1000 male	Number	918
6.	Literacy Rate	%	61.8

2. Muzaffarpur district profile

Muzaffarpur district, 'The Land of Leechi' was created in 1875 for the sake of administrative convenience by splitting up the earlier district of Tirhut. The present district of Muzaffarpur came into its existence in the 18th century and was named after Muzaffar Khan, an Amil (Revenue Officer) under British Dynasty. Muzaffarpur district of Bihar is spread over an area of 3,172 sq. km. The district is bounded on the north by East Champaran and Sitamarhi districts, on the south by the district of Vaishali and Saran, on the east by the districts of Darbhanga and Samastipur (part) and on the west by Saran and part of Gopalganj districts. The district headquarters is located at Muzaffarpur.

The alluvial plain is a tract of great fertility. The soil of the district is largely alluvial. A special feature of the district is that due to continuous deposit of silt, many of its riverbeds are higher than the adjoining areas. This leads to frequent floods during the rainy season, particularly in the northeast and southwest parts of the district. (9)

Muzaffarpur district is divided into 16 blocks which are situated in two sub-divisions namely East and West. As per the census 2011, the total population of the district is 4,801,062 (Male: 2,527,497 [52.6%], Female: 2,273,565 [47.4%]). Out of the total population, 9.9% of the population of Muzaffarpur district lives in urban areas while 90.1% in rural areas. (8) The Muzaffarpur district blocks and the number of villages are mentioned in Table 2 and the location of the Muzaffarpur district is in Figure 1.

Figure 1: Location of Muzaffarpur district, Bihar

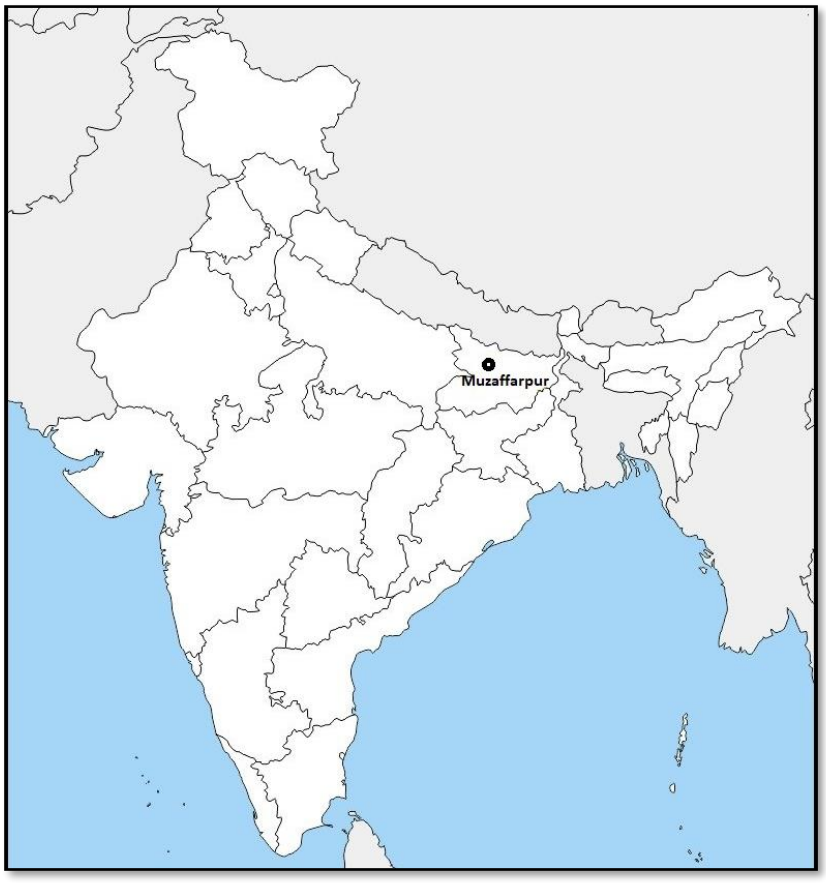


Table 2: Blocks under Muzaffarpur district [9]

Sr. No.	Blocks	Panchayat	Number of Villages
1	Aurai	26	116
2	Bandra	12	32
3	Bochahan	20	134
4	Gaighat	23	114
5	Kanti	21	116
6	Katra	22	80
7	Kurhani	39	166
8	Marwan	14	60
9	Minapur	28	154
10	Motipur (Baruraj)	32	137
11	Muraul (Dholi)	9	37
12	Musahari	26	117
13	Paroo	34	158
14	Sahebganj	21	131
15	Sakra	28	121
16	Saraiya	30	124
Total		**385**	**1,797**

Health Infrastructure of Muzaffarpur district

Muzaffarpur district has two medical college and hospital, and one district hospital with basic medical diagnostic and surgical facilities. The district has 16 blocks PHC, 83 additional primary health centres (APHC) and 500 health sub-centres. Primary health care is offered in these hospitals.Detailed information about the hospitals and PHC is presented in Table 3.

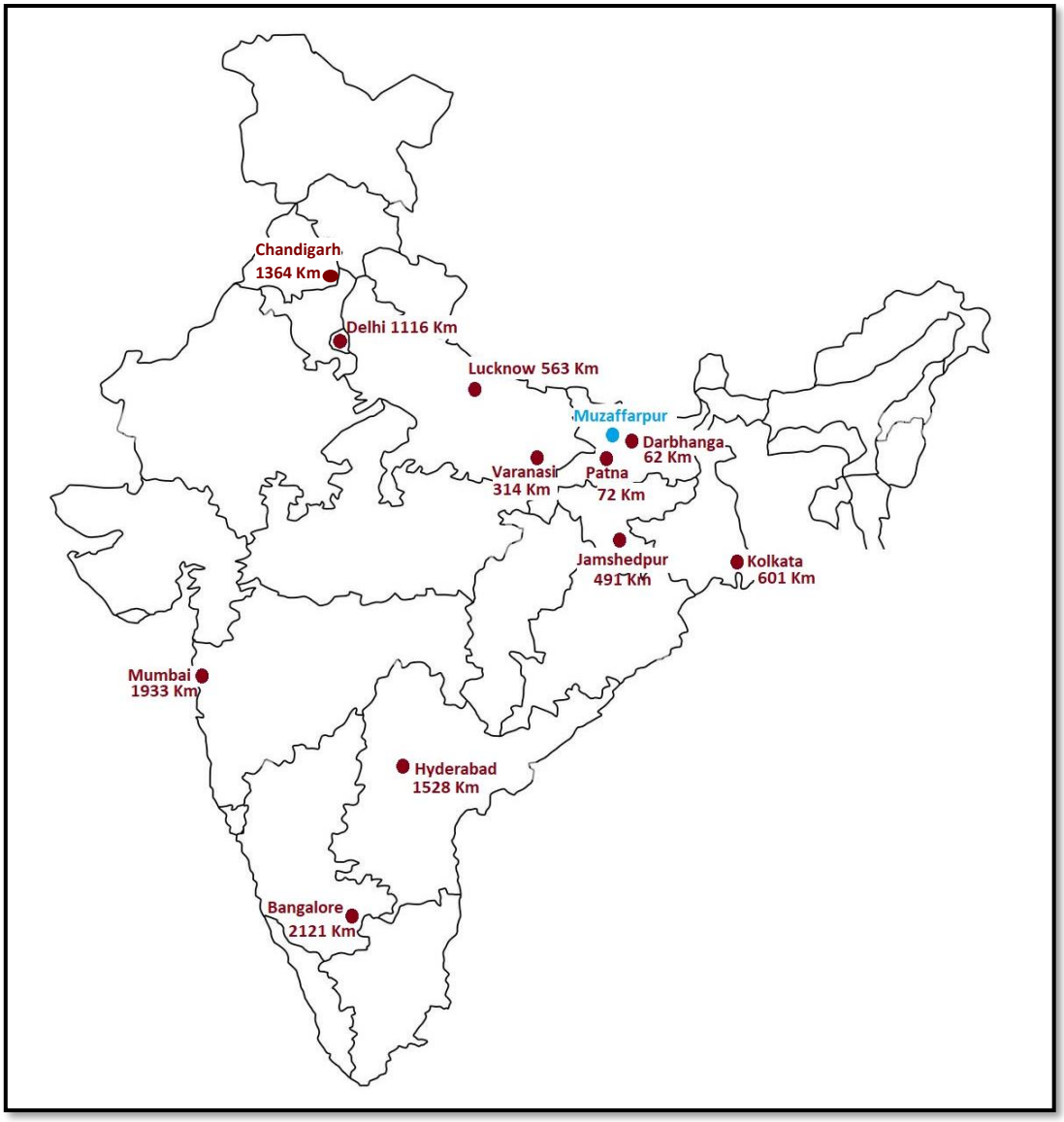
Table 3: Major health facilities in Muzaffarpur district

Sr. No.	Institute	Number
1.	Medical College and Hospital	2
2.	Sadar Hospital	1
3.	Referral Hospital	1
4.	Primary Health Centre (PHC)	16
5.	Additional Primary Health Centre (APHC)	83
6.	Health Sub Centre (HSC)	500
Total		**603**

Cancer treatment facilities are not available in the district. Patients have to travel to many other places such as Darbhanga, Patna, Jamshedpur, Varanasi, Kolkata, New Delhi, Bangalore, Chandigarh, and Mumbai state for treatment. The closest centre is Darbhanga (62 Km) and the farthest is Bangalore (2,121 Km). The distance from Muzaffarpur to different cancer treatment centres is shown in Figure 2.

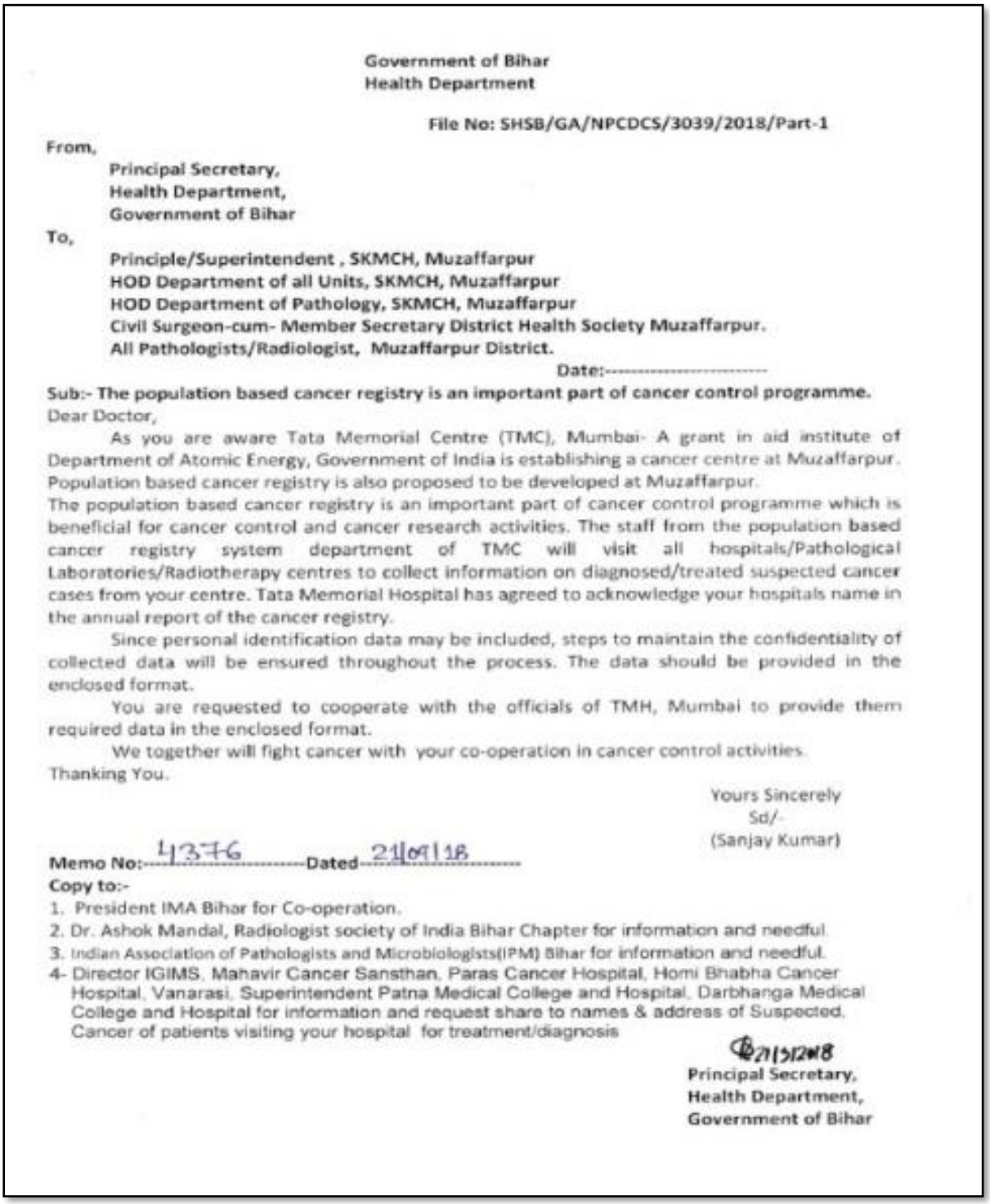
TMC, Mumbai – an autonomous unit of the Department of Atomic Energy, Government of India with the support of the Government of Bihar has started HBCH&RC and the hospital is functioning since 4th February 2020 in Muzaffarpur. At present, the centre has started Day-Care chemotherapy, surgical and other medical oncology facilities. The hospital is listed in the government-sponsored scheme "Chief Minister Medical Relief Fund" and "Pradhan Mantri Jan Arogya Yojana (Ayushman Bharat Scheme)" for cancer treatment.

Figure 2: The distance from Muzaffarpur to different cancer treatment centres



3. Administrative orders

Principal Secretary – Health Department, Government of Bihar has issued an administrative order to all the hospitals in the state, to provide data of all cancer patients to the PBCR of Muzaffarpur. Due to administrative support from the government of Bihar, we have good cooperation from many government and private cancer centres.



Government of Bihar
Health Department

File No: SHSB/GA/NPCDCS/3039/2018/Part-1

From,

Principal Secretary,
Health Department,
Government of Bihar

To,

Principle/Superintendent , SKMCH, Muzaffarpur
HOD Department of all Units, SKMCH, Muzaffarpur
HOD Department of Pathology, SKMCH, Muzaffarpur
Civil Surgeon-cum- Member Secretary District Health Society Muzaffarpur.
All Pathologists/Radiologist, Muzaffarpur District.

Date:----------

Sub:- The population based cancer registry is an important part of cancer control programme.

Dear Doctor,

As you are aware Tata Memorial Centre (TMC), Mumbai- A grant in aid institute of Department of Atomic Energy, Government of India is establishing a cancer centre at Muzaffarpur. Population based cancer registry is also proposed to be developed at Muzaffarpur.

The population based cancer registry is an important part of cancer control programme which is beneficial for cancer control and cancer research activities. The staff from the population based cancer registry system department of TMC will visit all hospitals/Pathological Laboratories/Radiotherapy centres to collect information on diagnosed/treated suspected cancer cases from your centre. Tata Memorial Hospital has agreed to acknowledge your hospitals name in the annual report of the cancer registry.

Since personal identification data may be included, steps to maintain the confidentiality of collected data will be ensured throughout the process. The data should be provided in the enclosed format.

You are requested to cooperate with the officials of TMH, Mumbai to provide them required data in the enclosed format.

We together will fight cancer with your co-operation in cancer control activities.

Thanking You.

Yours Sincerely
Sd/-
(Sanjay Kumar)

Memo No:---43776---**Dated**---21/09/18---

Copy to:-

1. President IMA Bihar for Co-operation.
2. Dr. Ashok Mandal, Radiologist society of India Bihar Chapter for information and needful.
3. Indian Association of Pathologists and Microbiologists(IPM) Bihar for information and needful.
4- Director IGIMS, Mahavir Cancer Sansthan, Paras Cancer Hospital, Homi Bhabha Cancer Hospital, Vanarasi, Superintendent Patna Medical College and Hospital, Darbhanga Medical College and Hospital for information and request share to names & address of Suspected Cancer of patients visiting your hospital for treatment/diagnosis

21/9/2018
Principal Secretary,
Health Department,
Government of Bihar

4. Area and population covered by cancer registry

Muzaffarpur district is divided into 16 blocks – Aurai, Bandra, Bochahan, Gaighat, Kanti, Katra, Kurhani, Marwan, Minapur, Motipur, Muraul, Musahari, Sahebganj, Sakra, Paroo and Saraiya. As per census 2011, the total population of Muzaffarpur district is 4,801,062 [Male: 2,527,497 (52.6%), Female: 2,273,565 (47.4%)].

At present, the Muzaffarpur PBCR covers five blocks: Motipur, Kanti, Musahari, Sakra, Muraul and Muzaffarpur Municipal Corporation. As per the census 2011, the population of these blocks is 1,760,049. Of the total population, 53% are males and 47% are females. The area covered by the PBCR is mentioned in Table 4.

Table 4: Area-wise estimated population for the year 2018 covered by Muzaffarpur cancer registry

Area	Male	Female	Total
Rural	8,26,423	7,41,801	**15,68,224 (78.3%)**
Urban	2,25,962	2,06,093	**4,32,055 (21.7%)**
Total	**10,52,385 (52.6%)**	**9,47,894 (47.4%)**	**20,00,279**

In the Muzaffarpur district, the areas are scattered and have limited transport facilities. This is the initial period of the registry. As covering more area was practically not feasible, the registry did not cover the entire district. However, in the coming years, we will cover the remaining blocks.

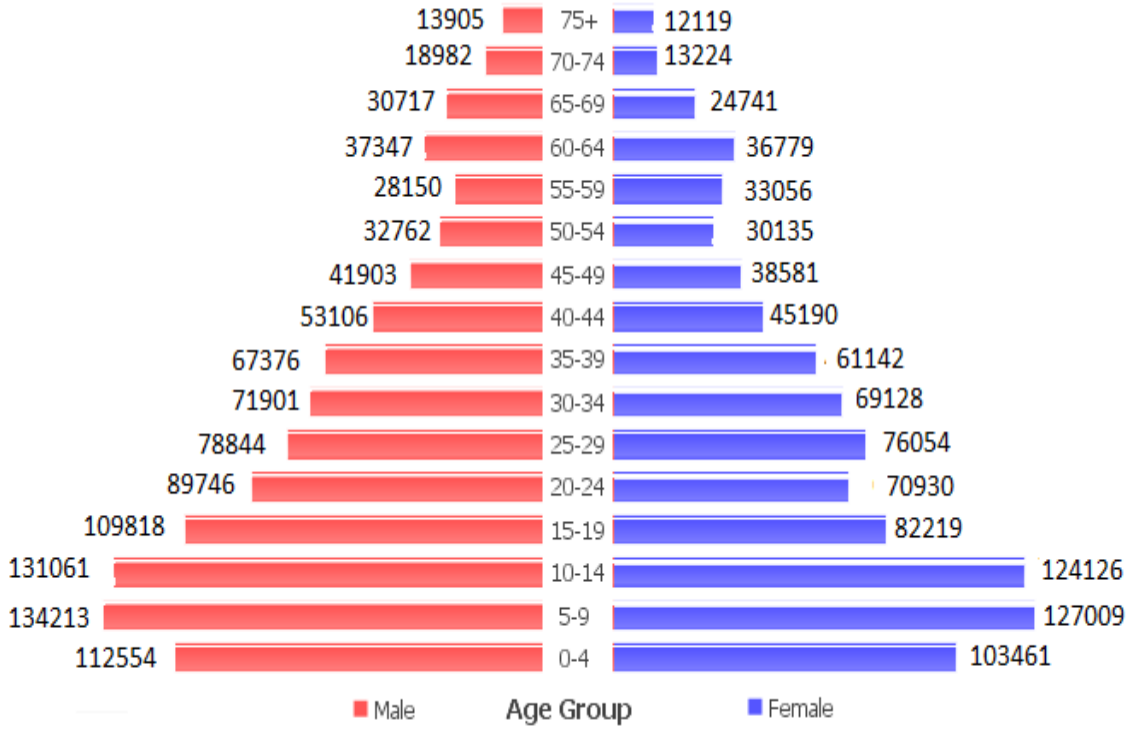
Estimated population of Muzaffarpur cancer registry area for the year 2018

The registry population for the year 2018 was estimated by ratio method by using the 2001 and 2011 census populations. As a result, the population of the year 2018 is 20,00,279 with 1,052,385 males (52.6%) and 947,894 females (47.4%). The estimated population for 2018 is presented in Table 5. The population pyramid of the Muzaffarpur cancer registry is shown in Figure 3.

Table 5: Estimated population of Muzaffarpur cancer registry: Year 2018

Age-Group	Male		Female		Total	
	Number	%	Number	%	Number	%
0-4	112554	10.7	103461	10.9	216015	10.8
5-9	134213	12.8	127009	13.4	261222	13.1
10-14	131061	12.5	124126	13.1	255187	12.8
15-19	109818	10.4	82219	8.7	192037	9.6
20-24	89746	8.5	70930	7.5	160676	8.0
25-29	78844	7.5	76054	8.0	154898	7.7
30-34	71901	6.8	69128	7.3	141029	7.1
35-39	67376	6.4	61142	6.5	128518	6.4
40-44	53106	5.0	45190	4.8	98296	4.9
45-49	41903	4.0	38581	4.1	80484	4.0
50-54	32762	3.1	30135	3.2	62897	3.1
55-59	28150	2.7	33056	3.5	61206	3.1
60-64	37347	3.5	36779	3.9	74126	3.7
65-69	30717	2.9	24741	2.6	55458	2.8
70-74	18982	1.8	13224	1.4	32206	1.6
75+	13905	1.3	12119	1.3	26024	1.3
Total	**10,52,385**	**100**	**9,47,894**	**100**	**20,00,279**	**100**

Figure 3: Population pyramid of Muzaffarpur cancer registry: Year 2018

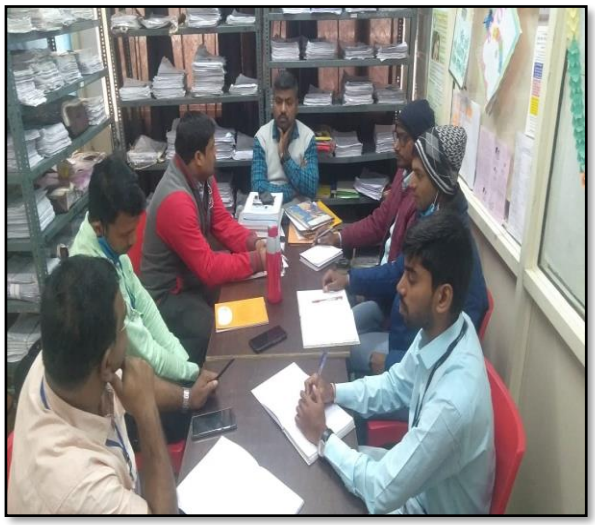


5. Cancer registration method

Staff selection and training

The field supervisor and field staff were selected from the district and they were provided training in cancer registry operation at the Centre for Cancer Epidemiology (CCE)-TMC, Mumbai. To observe the cancer registry working and for field experience, the recruited cancer registry staff members were deputed to several centres including Varanasi as well as Chandigarh and Sangrur PBCRs. Periodically cancer registration training programs were conducted by the CCE-TMC either in person or virtually. The staff were provided training on cancer registry and its role in cancer control, cancer registration, case abstraction, ICD-O3 coding, data entry in CanReg5 software and data analysis.

Training program at PBCR Varanasi, Uttar Pradesh, India



Training program at PBCR Sangrur, Punjab, India

The details of the training given to the Muzaffarpur PBCR staff are presented below.

Sr. No.	Place of training	Number of staff attended training	Date of visit
1	CCE-TMC, Mumbai	4	19.11.2018 to 27.11.2018
2	PBCR Varanasi, Uttar Pradesh	3	04.10.2018 to 10.10.2018
3	PBCR Chandigarh and Sangrur, Punjab	1	21.01.2019 to 30.01.2019
4	PBCR Varanasi, Uttar Pradesh	3	22.08.2019 to 24.08.2019
5	CCE-TMC, Mumbai	3	27.02.2021 to 08.03.2021
6	CCE-TMC, Mumbai	3	29.01.2022 to 08.02.2022
7	PBCR Sangrur, Punjab	3	25.02.2022 to 07.03.2022

Cancer incidence cases

Trained field staff of the registry visits the allotted villages periodically (in a period of 6 to 8 months) to gather information regarding the cancer cases diagnosed in the area and the cancer deaths documented in the village administrative office. The field staff interacts with the village sarpanch, Auxiliary Nurse Midwives (ANMs), Anganwadi workers, Accredited Social Health Activist (ASHA) workers, and the medical officer of the PHC. This helps them collect information regarding cancer cases diagnosed in the village as well as any cancer death that has occurred in the village. The field staff takes detailed information about the cancer case and visits the patient's house, along with the ASHA workers. The field staff interacts with the patient/patient's relative and asks the following questions:

- When was the patient diagnosed with cancer?
- Does the patient have a case file number with the treating hospital?
- Does the patient have any discharge report, biopsy report, or CT scan report?

The field staff notes down the available information. As per the information provided by the patient/patient's relative, the field staff communicates with the treating cancer centre, collects the clinical details of the patient, and registers the cancer case in the prescribed proforma. In case of inaccessibility to the medical records of the patient, staff register the case based on the information provided by the patient/patient's relatives.

During the second visit, the field staff updates the status of the cancer cases. The field worker also identifies any new cancer cases/deaths in the village and repeats the same procedure mentioned above. This is a continuous process of village visits.

Cancer death cases

During the village visit, the field staff inquires about cancer deaths that have occurred in the village. The staff also collects the death case information from the birth and death records in the registrar's office. The field staff interacts with the patient/patient's relative and collects information regarding cancer death. Based on the information provided by the relatives and by matching the information with the medical records available in the cancer registry, the cancer deaths are registered.

Cancer prevalence cases

During the field visit, sometimes field staff may come across cases diagnosed before 2018. In this situation, the field staffs collect detailed information on the cancer case from the patient's relative and maintain the data in the registry office. During the second visit, field staff updates the status of the cancer cases. If there is any death of the prevalent case in that

year, then the cancer death is registered after matching the information with the registry record.

Data checking and quality control

All the cases collected by field staff from the villages as well as from the hospitals are scrutinized by the senior staff member. After residence confirmation, the cancer case information is documented in a prescribed format. The primary site and histology are coded based on the International Classification of Diseases for Oncology – Third Edition, Geneva, 2000 (ICD-O3). [10] TMC-CCE team regularly performs data quality control.

Data entry

The data entry is carried out in CanReg5 software developed by the International Agency for Research on Cancer (IARC), Lyon, France. [11]

After duplicate checking and other quality measures, cancer incidence and death cases are registered. The cancer registration process of the registry is presented in Figure 4.

Cancer cases data collection from different hospitals

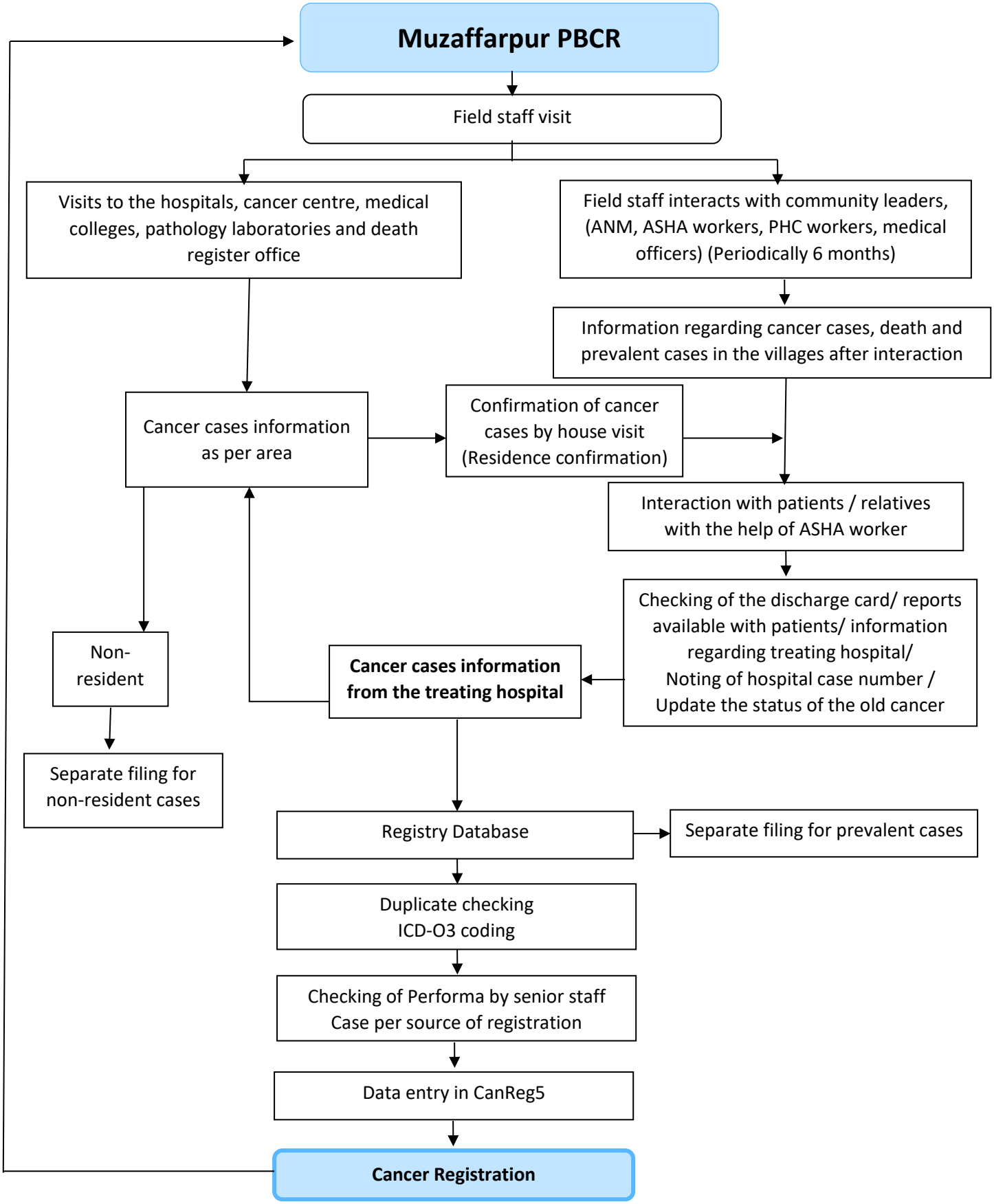
The registry staff regularly visits the following centres to collect information on the cancer cases and death cases in the Muzaffarpur district. The different sources of data collection are mentioned in Table 6.

Table 6: Different sources of data collection

Sr. No.	Institute Name	Place
1	Anupam CT Scan Centre	Muzaffarpur
2	Ashoka Hospital	Muzaffarpur
3	Bathuwa Nursing Home	Muzaffarpur
4	Bhawani Diagnostic Centre	Muzaffarpur
5	Death Registry Office (Municipal Office)	Muzaffarpur
6	Dr. Bhartendu Kumar	Muzaffarpur
7	Dr. Lal path labs (Main Centre)	Muzaffarpur
8	Gautam Diagnostic Centre	Muzaffarpur
9	Goyal CT Scan and MRI Centre	Muzaffarpur
10	Healthcare Diagnostics	Muzaffarpur
11	Homi Bhabha Cancer Hospital and Research Centre	Muzaffarpur
12	Modern Diagnostic Centre	Muzaffarpur
13	Muktidham (Cemetery Area)	Muzaffarpur

Sr. No.	Institute Name	Place
14	Om Diagnostic Centre	Muzaffarpur
15	Prasad Hospital	Muzaffarpur
16	Prashant Memorial Charitable Hospital	Muzaffarpur
17	Roy Nursing Home and Maternity Centre	Muzaffarpur
18	Sailja Janch Ghar	Muzaffarpur
19	Shahi Stone and Urology Clinic	Muzaffarpur
20	Sri Krishna Diagnostic Centre	Muzaffarpur
21	Sri Krishna Medical College and Hospital	Muzaffarpur
22	SRL Diagnostic Centre	Muzaffarpur
23	All India Institute of Medical Science (AIIMS)	Patna
24	Bihar Diagnostics and Radiology Clinic	Patna
25	Buddha Cancer Centre	Patna
26	C. K. Diagnostics	Patna
27	Dr. Prabhat Ranjan Diagnostic and Research Centre	Patna
28	Dr. Shukla Diagnostics and Research Centre	Patna
29	Indira Gandhi Institute of Medical Science (IGIMS)	Patna
30	Magadh Cancer Centre	Patna
31	Mahaveer Cancer Institute and Research Centre	Patna
32	Nalanda Medical College and Hospital	Patna
33	Oncopath Diagnostics	Patna
34	Paras HMRI Hospital	Patna
35	Patna Medical College and Hospital	Patna
36	S. S. Hospital and Research Centre	Patna
37	Saral Pathlab Pvt. Ltd.	Patna
38	Sarita Diagnostic Centre Pvt. Ltd.	Patna
39	Savera Cancer and Multispeciality Hospital	Patna
40	Darbhanga Medical College and Hospital	Darbhanga
41	Swami Vivekanand Cancer Aspatal and Multispecialty Centre	Darbhanga
42	Homi Bhabha Cancer Hospital	Varanasi
43	Mahamana Pandit Madanmohan Malviya Cancer Centre	Varanasi
44	Tata Memorial Hospital	Mumbai

Figure 4: Cancer registration process at Muzaffarpur PBCR



6. Community involvement in the cancer registration process

Cancer patients from the Muzaffarpur district travel to different cities for cancer treatment. On average, patients travel up to 62 km to 2,121 km for cancer treatment. It is practically difficult for the registry staff to visit these entire centres regularly. Few hospitals and private laboratories are reluctant in providing cancer patients data in the district. To overcome this problem, we started regular interaction with the community. The PHC staffs, ANM, ASHA workers and Anganwadi workers cooperate by providing information on newly diagnosed cancer/ cancer deaths that occurred in the village. The trained field staff from the registry continuously interacts with these community members to obtain information regarding cancer cases in the villages. In the urban area, we have interacted with municipal corporates and local leaders.

Due to community interaction, the registry is 100% sure about the residence confirmation of the cancer cases. Interaction with the patient/ patient's relatives provides demographic information such as education, income and religion, etc. Regular village visits and communications with the community have enabled the registry to update the status of cancer patients, which will be utilized for cancer survival analysis. Initially, several centres refused to provide cancer case data. In this situation, due to regular field visits and interactions with community leaders, we were able to obtain information about the cancer cases from the villages after contacting patients/ their relatives through these community leaders. At present, registry staff has interacted with 3,204 community leaders of 83 wards and 528 villages of five blocks (Motipur, Sakra, Kanti, Musahari and Muraul) out of 16 blocks of Muzaffarpur district.

Registry staff interacts with community leaders and primary health workers to collect information about diagnosed cancer cases. The block-wise details of the same are presented in Table 7.

Table 7: Community leaders/ PHC staff involved in the cancer registration process

Block Name	Total No. of Villages/Wards	Gram Pradhan (Mukhiya)/ Ward Parshad	Ward members	CS	MO	BDO	ANM	CDPO	ASHA Worker	Anganwadi Workers	Total
Muzaffarpur (Urban)	83	78	0	1	0	1	0	1	24	123	228
Motipur	137	32	380	0	1	1	12	1	147	240	814
Kanti	116	21	205	0	1	1	10	1	112	162	513
Sakra	121	28	320	0	1	1	19	1	121	200	691
Musahari	117	26	315	0	1	1	16	1	134	202	696
Muraul	37	9	92	0	1	1	17	1	69	72	262
Total	**611**	**194**	**1,312**	**1**	**5**	**6**	**74**	**6**	**607**	**999**	**3,204**

Note- CS: Civil Surgeon, MO: Medical Officer, BDO: Block Development Officer, ANM: Auxiliary Nurse Midwife, CDPO: Child Development Project Officer

7. Cancer cases registered by source of registration: First source of registration

Village/ house visit is the primary source of information; further, these cases are again verified from different diagnostic centres as well as treatment centre. The village/ house visit is the major source to register cancer incidence and mortality. About 50% of cancer incidence cases were collected by village/ house visits while it was 65% for cancer death registration. Along with field visits, the Mahaveer Cancer Institution and Research Centre, Patna and Tata Memorial Hospital, Mumbai are major sources of cancer cases data collection. The cancer incidence and death cases registered by the source of registration are mentioned in Tables 8 and 9.

Table 8: Cancer incidence cases information by the first source of registration

Sr. No.	Source of registration	Male		Female		Total	
		Number	%	Number	%	Number	%
1	Village/ house visit	181	50.6	165	46.6	346	48.2
2	Mahaveer Cancer Institution and Research Centre, Patna	124	34.6	134	37.9	258	36.6
3	Tata Memorial Hospital, Mumbai	22	6.1	28	7.9	50	6.9
4	Municipal Office, Muzaffarpur	4	1.1	6	1.7	10	1.4
5	Indira Gandhi Institute of Medical Sciences, Patna	6	1.7	3	0.8	9	1.1
6	Homi Bhabha Cancer Hospital & Research Centre, Muzaffarpur	7	2.0	1	0.3	8	1.1
7	Paras HMRI Hospital, Patna	3	0.8	3	0.8	6	0.8
8	Buddha Cancer Centre, Patna	3	0.8	3	0.8	6	0.8
9	Financial Aid Scheme	1	0.3	3	0.8	4	0.6
10	Patna Medical College and Hospital, Patna	0	0.0	2	0.6	2	0.3
11	Modern Diagnostic Centre, Muzaffarpur	1	0.3	1	0.3	2	0.3
12	Muktidham Sikandarpur, Muzaffarpur	1	0.3	1	0.3	2	0.3
13	Other	5	1.4	4	1.1	9	1.4
Total		**358**	**100**	**354**	**100**	**712**	**100**

Table 9: Cancer death information by the first source of registration

Sr. No.	Source of registration	Male		Female		Total	
		Number	%	Number	%	Number	%
1	Village/ house visit	140	66.4	134	63.2	274	64.8
2	Mahaveer Cancer Institution & Research Centre, Patna	47	22.3	51	24.1	98	23.2
3	Tata Memorial Hospital, Mumbai	5	2.4	13	6.1	18	4.3
4	Municipal Office, Muzaffarpur	7	3.3	5	2.4	12	2.8
5	Buddha Cancer Centre, Patna	2	0.9	5	2.4	7	1.7
6	Financial Aid Scheme	1	0.5	2	0.9	3	0.7
8	Muktidham Sikandarpur, Muzaffarpur	2	0.9	1	0.5	3	0.7
9	Mahamana Pandit Madan Mohan Malaviya Cancer Centre, Varanasi	0	0.0	1	0.5	1	0.2
10	Sri Krishna Medical College and Hospital, Muzaffarpur	1	0.5	0	0.0	1	0.2
11	Indira Gandhi Institute of Medical Sciences, Patna	3	1.4	0	0.0	3	0.7
12	Other	3	1.4	0	0.0	5	0.7
Total		**211**	**100**	**212**	**100**	**423**	**100**

8. Quality control

Mortality to incidence ratio

The mortality-incidence or MI ratio is an indicator of the completeness and accuracy of cancer registry data. In the year 2018, 712 cancer incident cases [Male: 358 (50.3%); Female: 354 (49.7%)] have been registered by PBCR Muzaffarpur. For the same period, 423 cancer deaths have been registered [Male: 211 (49.9%); Female: 212 (50.1%)]. The overall mortality to incidence ratio is 0.59 [Male: 0.59; Female: 0.60]. The MI ratio is comparable to other established rural PBCRs in India. [1]

Re-abstraction of the cases

A quality control exercise was carried out in order to improve the records and, if required, retrain the staff. All cancer case data was scrutinized by the TMC-CCE team. During the quality control exercise, it was observed that the registry staff needed to be retrained in the abstraction of cases of unknown primary site, metastatic cases, and lymphoma leukaemia cases. TMC-CCE, Mumbai, retrained the staff. The data was updated and re-entered.

Incidence rates of childhood cancers

In the year 2018, PBCR registered 10 cancer cases in boys and 8 in girls. The age-specific rates reported for paediatric cancer are mentioned in table 10.

Table 10: Incidence rate of paediatric cancer cases in Muzaffarpur PBCR area: Year 2018

Age group	Boys		Girls	
	Number of Cases	Age-Specific Rate	Number of Cases	Age-Specific Rate
0 – 4	3	26.7	0	0.0
5 – 9	4	29.8	4	31.5
10 – 14	3	22.9	4	32.2
Age Adjusted Rate per 1,000,000 (AAR per million)	**26.6**		**19.5**	

Of the total 712 cancer cases, 18 (2.5%) cases are paediatric cancer cases. The age-adjusted incidence rate for the paediatric age group (0-14) was 26.6 per million for boys and 19.5 per million for girls. As per the International Incidence of Childhood Cancer volume III, the incidence rate for boys and girls is less than 60 per million. [12] There is an under-reporting/ under-diagnosis of the paediatric cancer cases. We need to undertake studies to find out the reason for the under-reporting of paediatric cancer cases.

Microscopic verification of the cases

In the year 2018, out of 358 male cases, 226 cases (63.1%) were diagnosed with microscopic verification. 5.9% of cases were diagnosed based on radiological findings and 4.2% of cases were diagnosed clinically. In females, out of 354 cases, we have 226 cases (63.8%) diagnosed with microscopic verification. 8.8% of cases were diagnosed on radiological findings and 4.0% of cases were diagnosed clinically.

Most of the other and unspecified cases were based on verbal autopsy i.e., a relative's remark (Eg. primary site unknown cases).

Cases registered based on narrations by the patient's relatives

While interacting with the community both in villages and the urban areas, it was learned that the patient's relatives burnt the medical documents after the patient death. In some cases, individuals did not complete the required treatment despite consultation with an oncologist/ cancer centre due to social/ financial issues. Many of these patients destroyed their pathology reports, CT scans, and discharge summaries. In this situation, we interacted with the patient or their relatives and asked them the following questions to obtain information:

1. Where was the patient diagnosed? Which hospital did the patient visit?
2. What was the opinion of the treating consultants?
3. Whether the patient has taken any chemotherapy/ radiotherapy
4. Where did the patient undergone MRI/ CT scan/ USG?

Once the information was obtained, the registry attempted to identify evidence based on the patient's/ relatives' narration, such as the patient verbally providing the date of biopsy or the patient mentioning the received chemotherapy/ radiotherapy/ surgery or the name of the medical/ surgical/ radiation oncologist from whom the patient was receiving treatment. The registry has recorded the cancer case based on the information gathered through these narrations.

These cases are also traced back to the treating hospital by registry staff. However, the staff do not always retrieve medical records from the treating hospital. The cancer registries in Barshi, Sangrur, Mansa, and Varanasi, as well as Gadchiroli adopted a similar approach to cancer registration.

In the coming years, due to cancer awareness as well awareness of availability of government funded health insurance scheme for cancer treatment, we may improve the cancer registration.

Death Certificate Only (DCO) Cases

We have registered 96 (26.8%) cases in males and 83 (23.4%) cases in females under the DCO/Other categories. The death cases have been registered based on the narration/relative's remarks/discharge summary available with the patient's relative. In principle, they are not registered based on the death certificate only because the death certificate does not have the documentation of cancer death. In the first year of registry, DCO cases are always high. [13] Out of 4 cases one is from DCO and verbal autopsy. Similar results were reported by the first-year report of Varanasi PBCR.

Per source case registration

The number of sources per incidence case registered was noted. The cases were counted as per source notification. In Muzaffarpur, the average number of sources per the case registered is 2.2. Due to field interactions, the coverage is satisfactory.

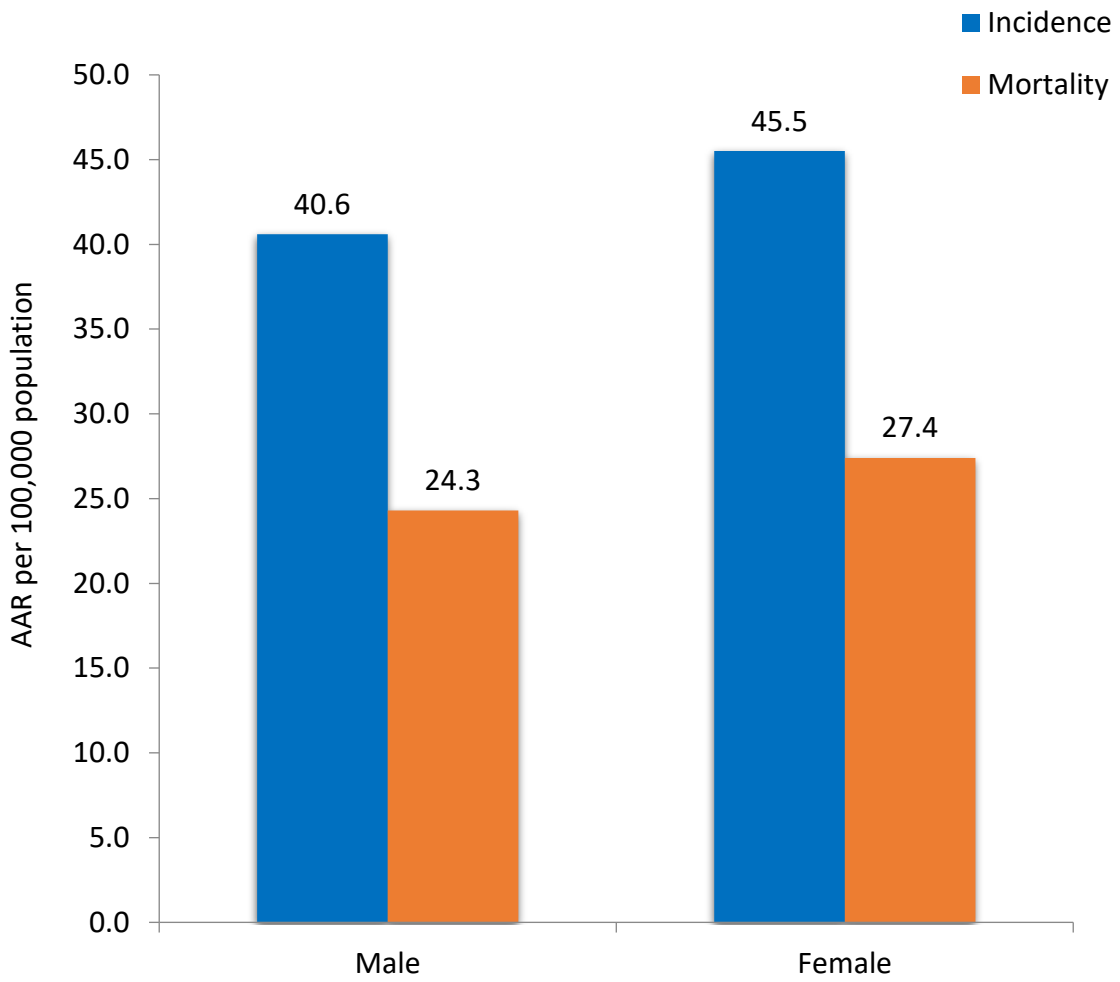
Source	Number of cases confirm
Source 1	712
Source 2	505
Source 3	219
Source 4	76
Source 5	33
Source 6	10
Source 7	2
Total sources	**1,557**
Per source of registration	**2.2 (1,557/712)**

9. Cancer incidence and mortality: all sites

In the year 2018, the cancer registry registered 712 cancer cases. There were 358 male (50.3%) cases and 354 female (49.7%) cases. The age-adjusted incidence rate for males was 40.6 per 100,000 population and for females, it was 45.5 per 100,000 population.

In the year 2018, the cancer registry registered 423 cancer deaths of which 211 were male (49.9%) deaths and 212 were female (50.1%) deaths. The age-adjusted mortality rate for males was 24.3 per 100,000 population and for females, it was 27.4 per 100,000 population. The cancer incidence and mortality rates for all sites for males and females are presented in Figure 5.

Figure 5: All sites cancer incidence and mortality rate by gender: 2018 (Muzaffarpur PBCR area)



10. Gender-wise leading cancer sites

Among males, mouth, prostate, tongue, stomach, urinary bladder, liver, gall bladder, larynx, non-hodgkin lymphoma and lung are the leading cancer sites. The top ten leading cancer sites for males are presented in Figure 6. Among females, breast, cervix uteri, gall bladder, ovary, lung, oesophagus, liver, non-hodgkin lymphoma, brain nervous system and stomach were the leading cancer sites. The top ten leading cancer sites for females are presented in Figure 7.

Figure 6: Leading cancer sites in males: 2018

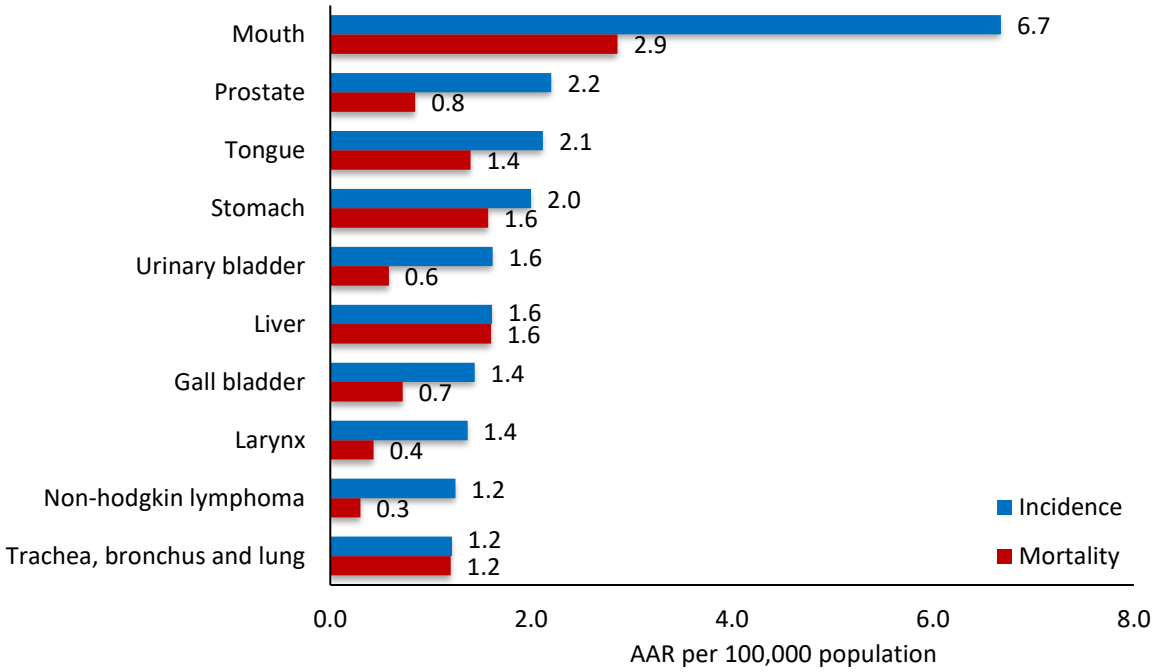
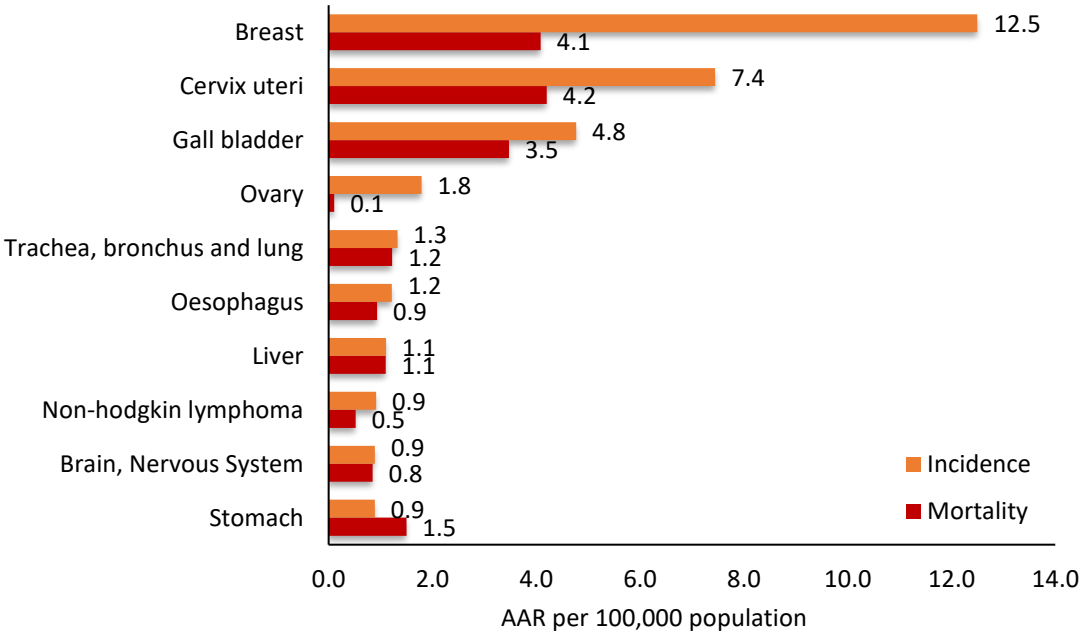


Figure 7: Leading cancer sites in females: 2018



Comparison of leading cancer sites with other Indian registries

The site-wise cancer cases details are shown in respective tables below with crude rate, age-adjusted incidence rate, and truncated rate. The age-specific incidence rate for males and females for each site, as well as comparisons with other Indian registries, are also depicted in the respective figures below.

Cancer of mouth (C03-C06)

	Male	Female
Number of cases	59	3
% of total cases	16.6	0.8
Crude Incidence Rate per 100,000	5.6	0.3
Age-Adjusted Incidence Rate per 100,000	**6.7**	**0.4**
Truncated Rate per 100,000	15.5	1.2

Figure 8: Age-specific incidence rate of cancer of mouth: 2018 (Muzaffarpur PBCR area)

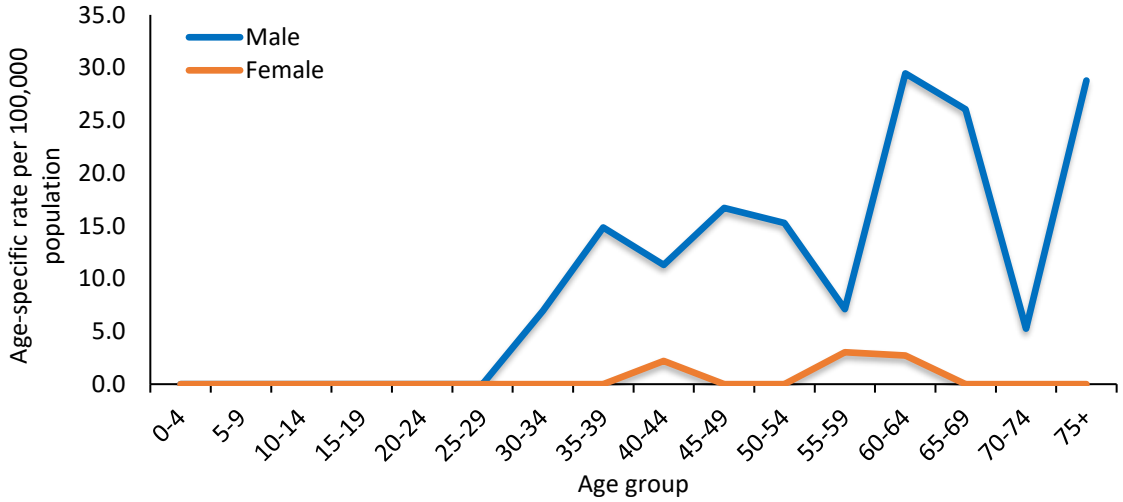
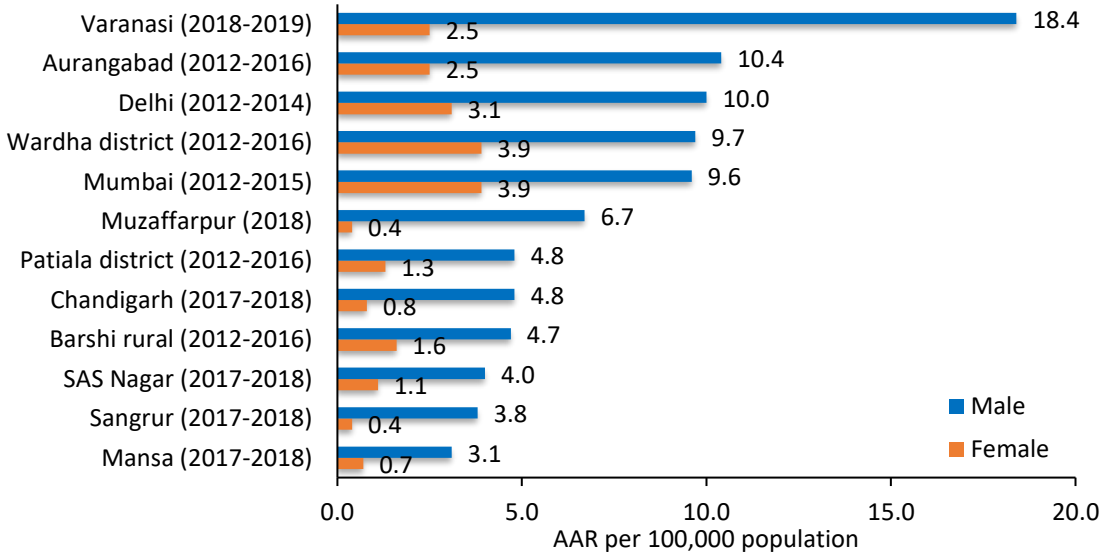


Figure 9: Comparison of mouth cancer incidence rate with other Indian registries



Cancer of tongue (C01-C02)

	Male	Female
Number of cases	21	4
% of total cases	5.9	1.1
Crude Incidence Rate per 100,000	2.0	0.4
Age-Adjusted Incidence Rate per 100,000	**2.1**	**0.6**
Truncated Rate per 100,000	3.9	1.0

Figure 10: Age-specific incidence rate of cancer of tongue: 2018 (Muzaffarpur PBCR area)

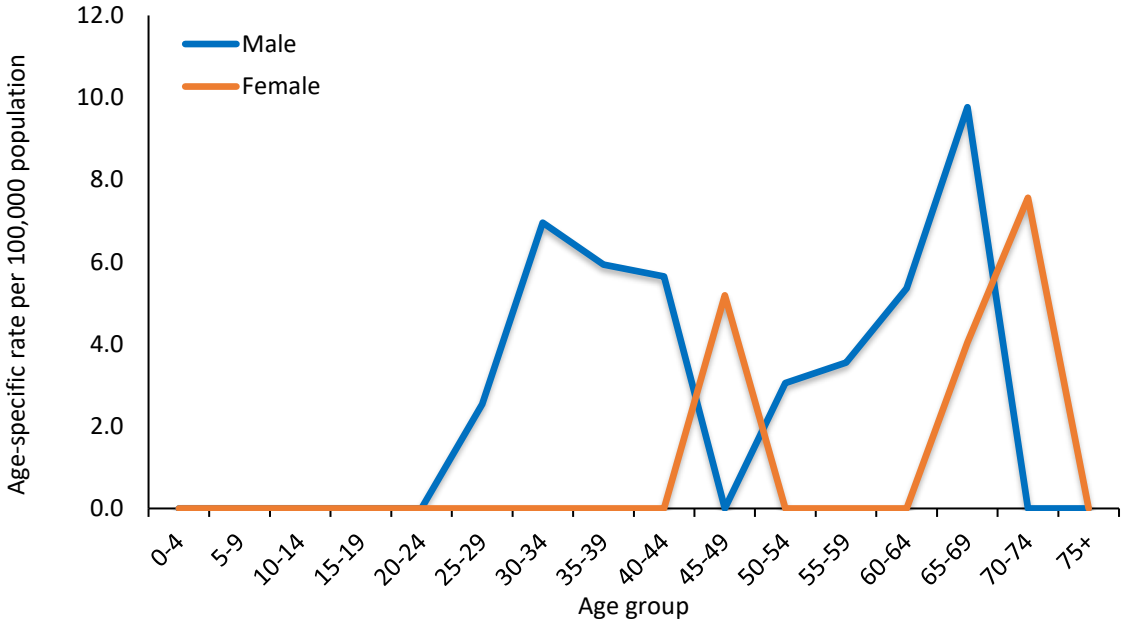
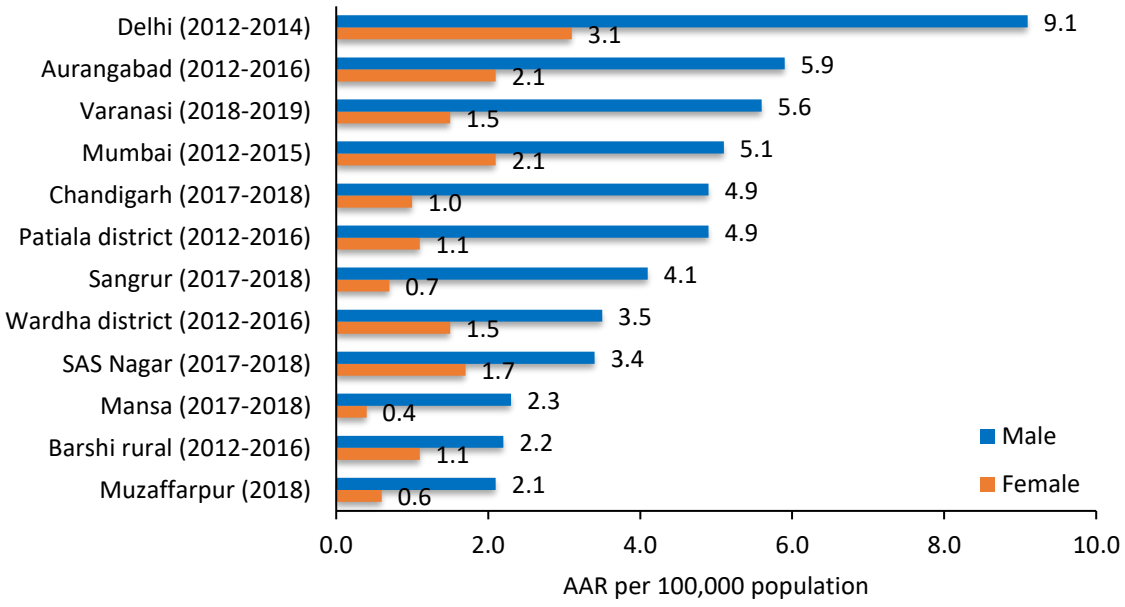


Figure 11: Comparison of tongue cancer incidence rate with other Indian registries



Cancer of stomach (C16)

	Male	Female
Number of cases	16	7
% of total cases	4.5	2.0
Crude Incidence Rate per 100,000	1.5	0.7
Age-Adjusted Incidence Rate per 100,000	**2.0**	**0.9**
Truncated Rate per 100,000	4.1	1.6

Figure 12: Age-specific incidence rate of cancer of stomach: 2018 (Muzaffarpur PBCR area)

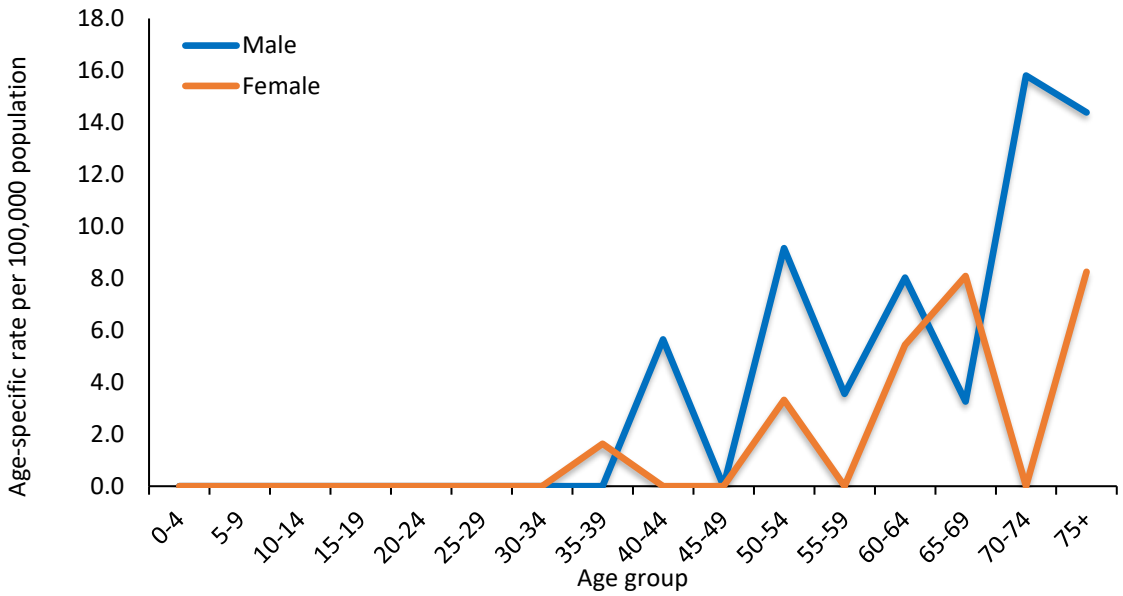
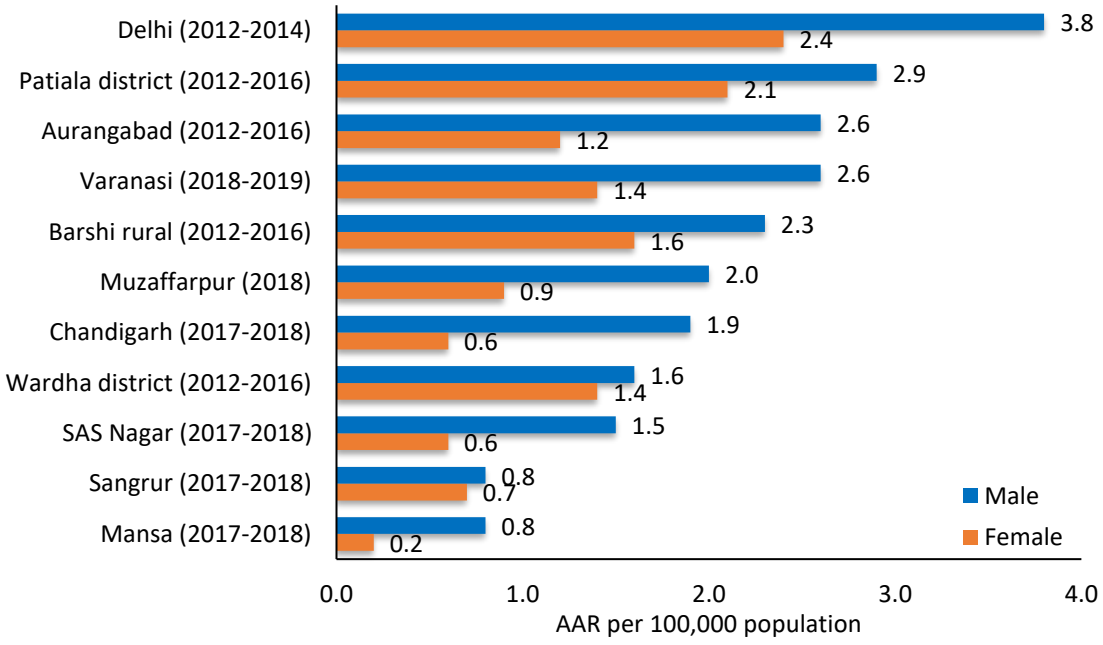


Figure 13: Comparison of stomach cancer incidence rate with other Indian registries



Cancer of urinary bladder (C67)

	Male	Female
Number of cases	13	0
% to total cases	3.7	--
Crude Incidence Rate per 100,000	1.2	--
Age-Adjusted Incidence Rate per 100,000	**1.6**	**--**
Truncated Rate per 100,000	3.1	--

Figure 14: Age-specific incidence rate of cancer of urinary bladder: 2018 (Muzaffarpur PBCR area)

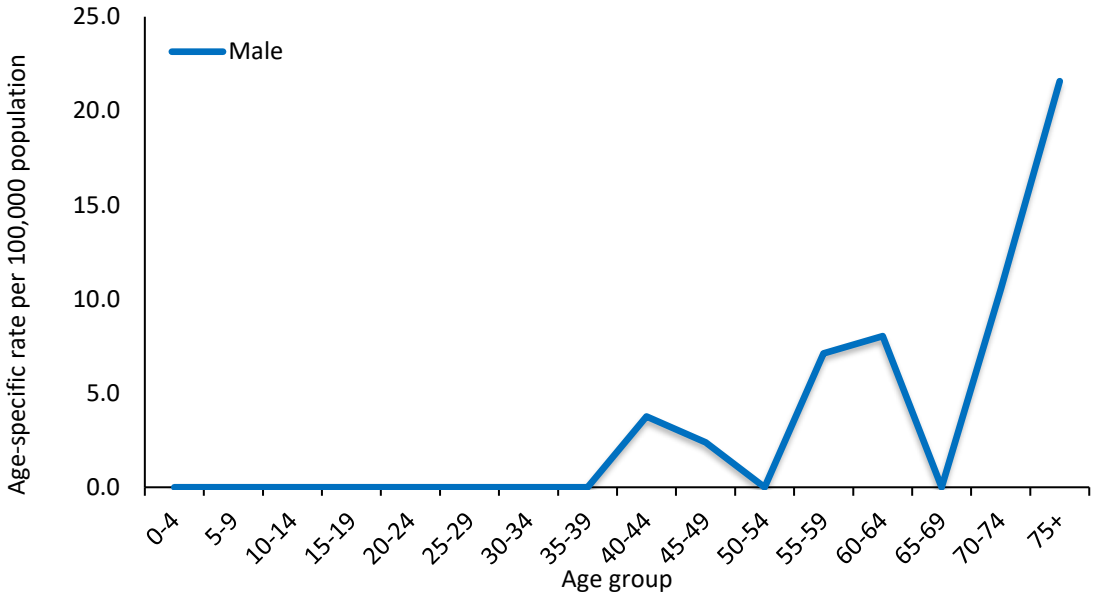
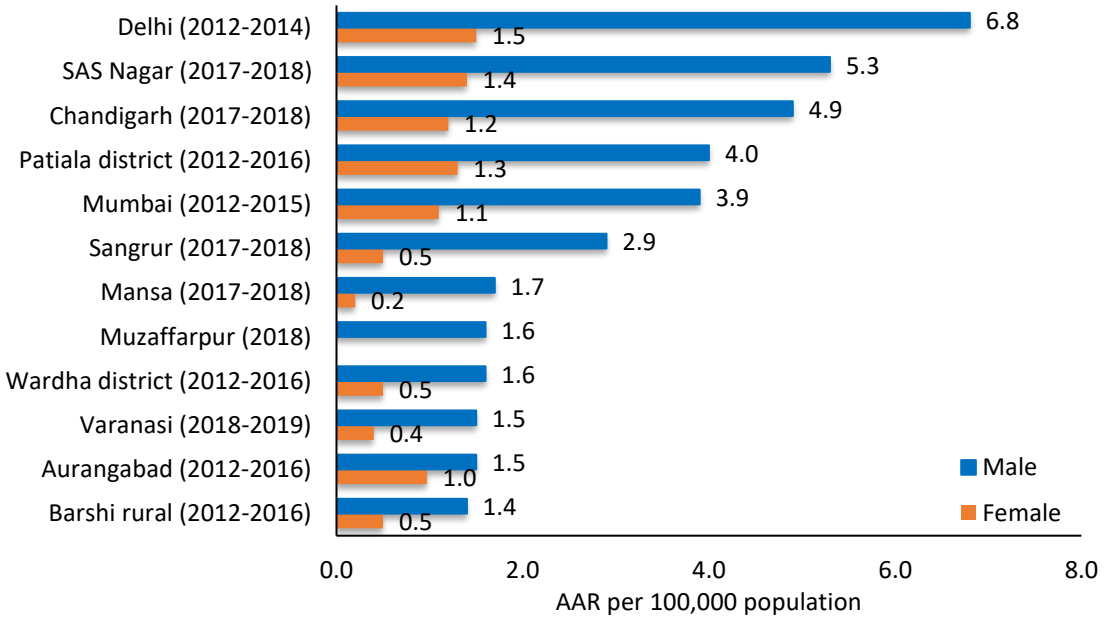


Figure 15: Comparison of urinary bladder cancer incidence rate with other Indian registries



Cancer of gall bladder (C23-C24)

	Male	Female
Number of cases	13	37
% to total cases	3.7	10.5
Crude Incidence Rate per 100,000	1.2	3.9
Age-Adjusted Incidence Rate per 100,000	**1.4**	**4.8**
Truncated Rate per 100,000	3.4	12.5

Figure 16: Age-specific incidence rate of cancer of gall bladder: 2018 (Muzaffarpur PBCR area)

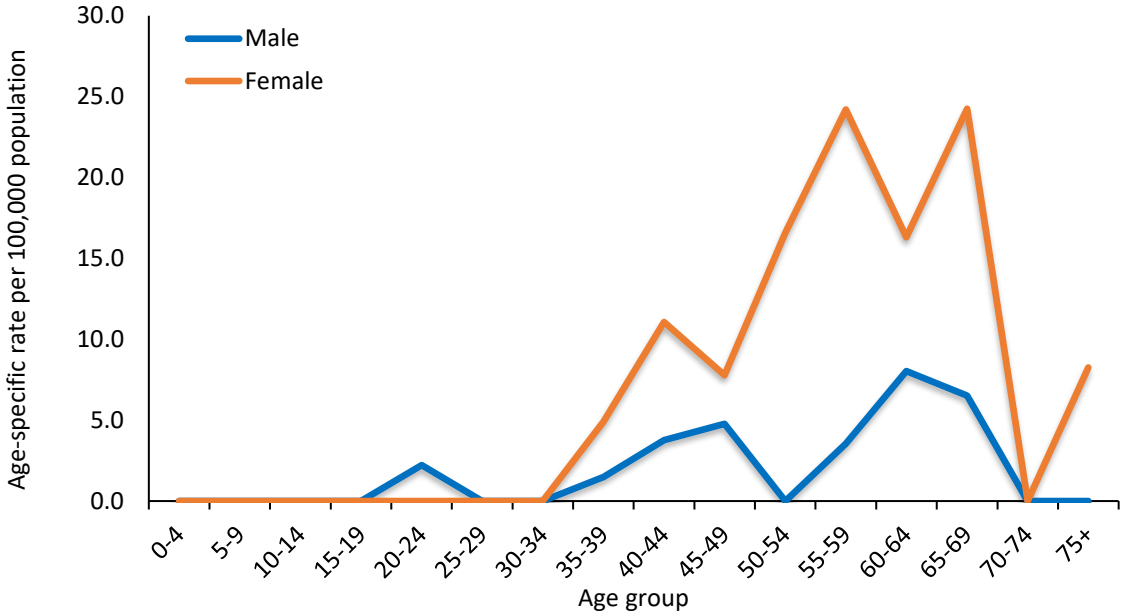
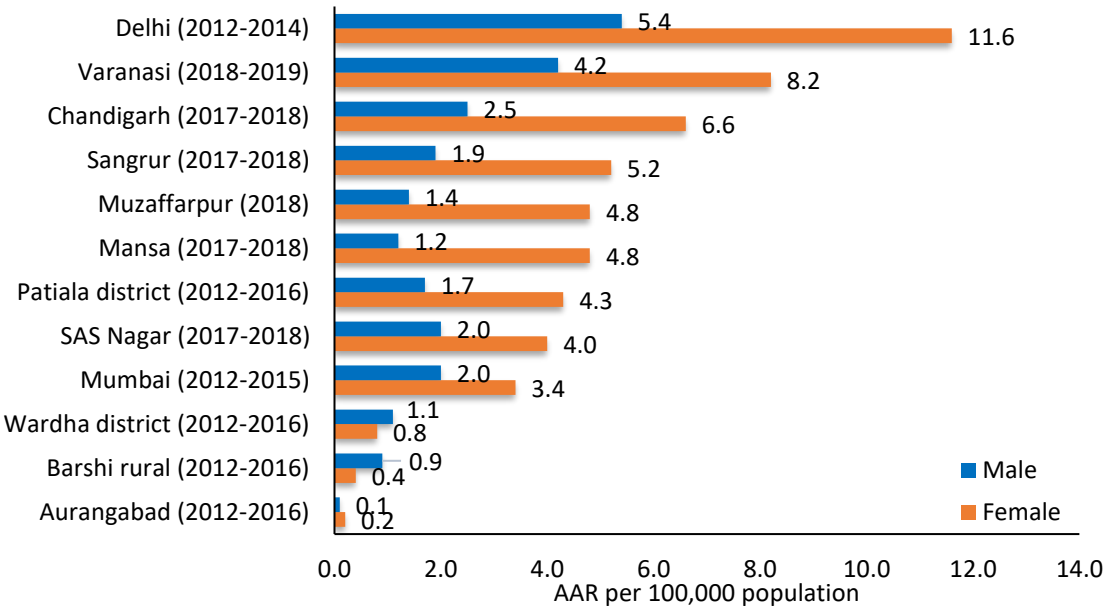


Figure 17: Comparison of gall bladder cancer incidence rate with other Indian registries



Cancer of liver (C22)

	Male	Female
Number of cases	15	8
% of total cases	4.2	2.3
Crude Incidence Rate per 100,000	1.4	0.8
Age-Adjusted Incidence Rate per 100,000	**1.6**	**1.1**
Truncated Rate per 100,000	3.0	1.7

Figure 18: Age-specific incidence rate of cancer of liver: 2018 (Muzaffarpur PBCR area)

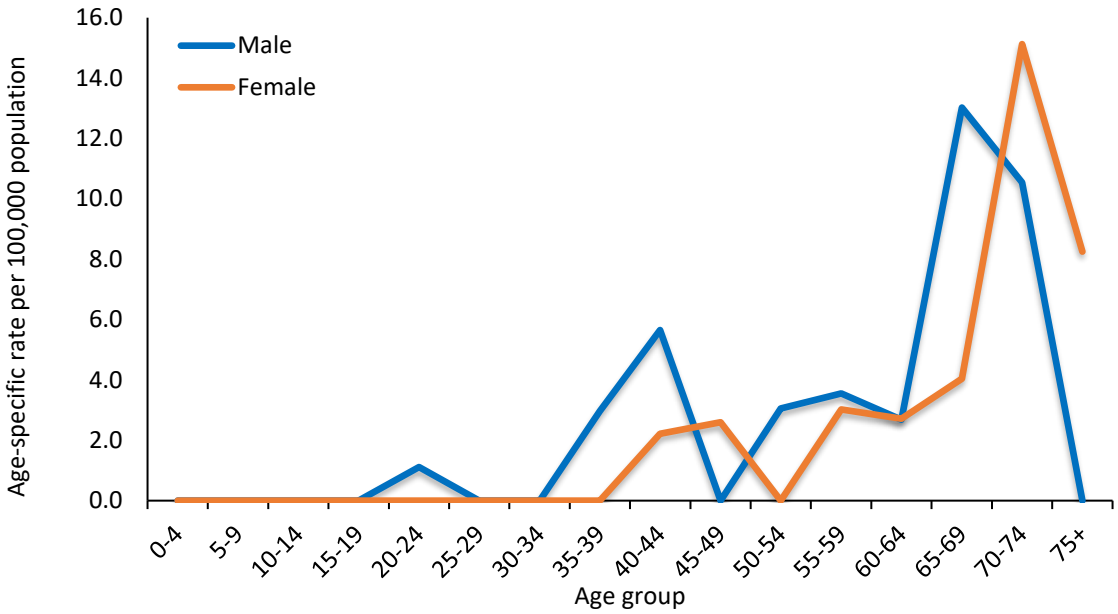
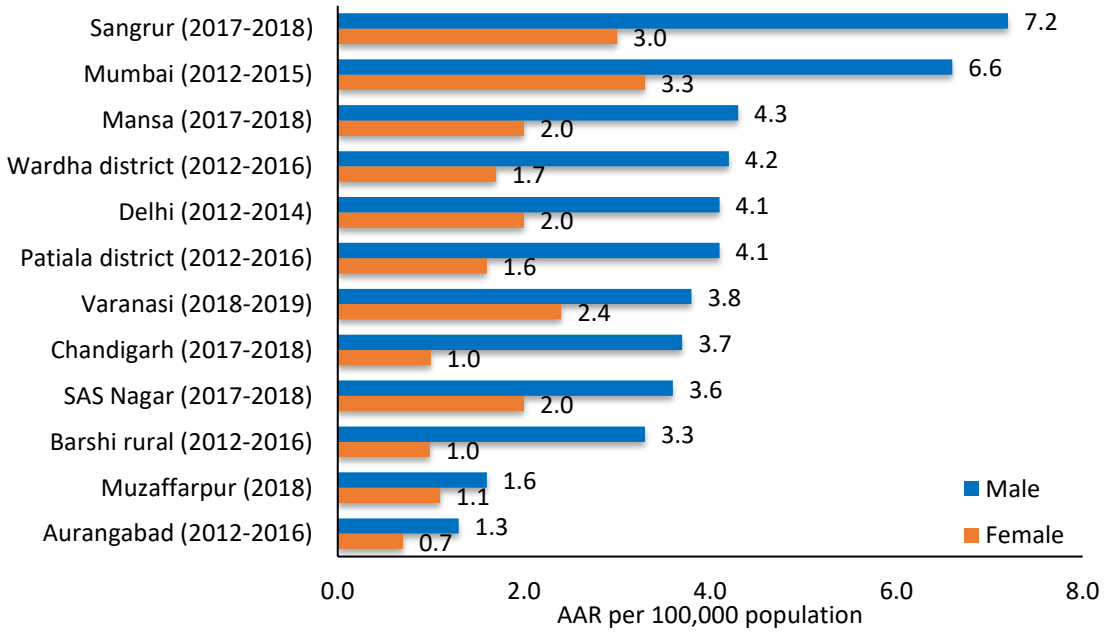


Figure 19: Comparison of liver cancer incidence rate with other Indian registries



Cancer of prostate (C61)

Number of cases	20
% of total cases	5.6
Crude Incidence Rate per 100,000	1.9
Age-Adjusted Incidence Rate per 100,000	**2.2**
Truncated Rate per 100,000	3.2

Figure 20: Age-specific incidence rate of cancer of prostate: 2018 (Muzaffarpur PBCR area)

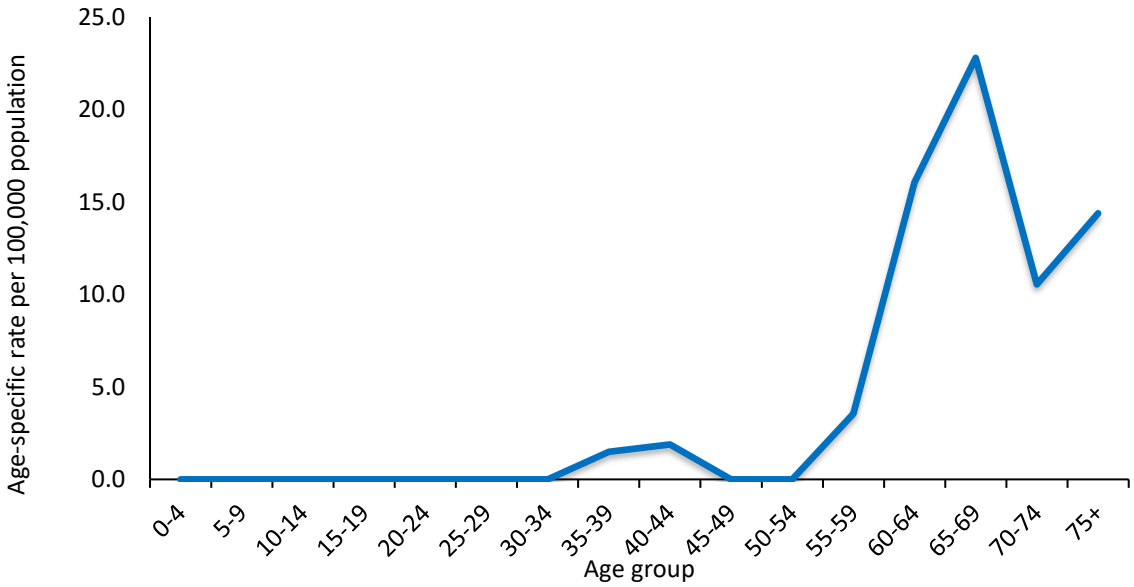
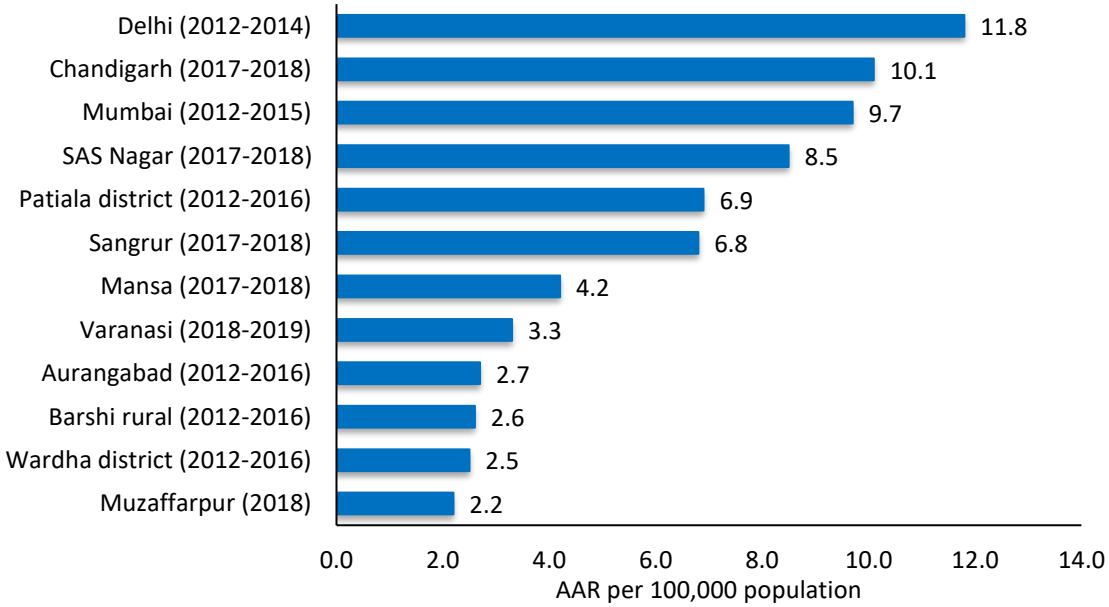


Figure 21: Comparison of prostate cancer incidence rate with other Indian registries



Cancer of breast (C50)

	Female
Number of cases	94
% of total cases	26.6
Crude Incidence Rate per 100,000	9.9
Age-Adjusted Incidence Rate per 100,000	**12.5**
Truncated Rate per 100,000	30.3

Figure 22: Age-specific incidence rate of cancer of breast: 2018 (Muzaffarpur PBCR area)

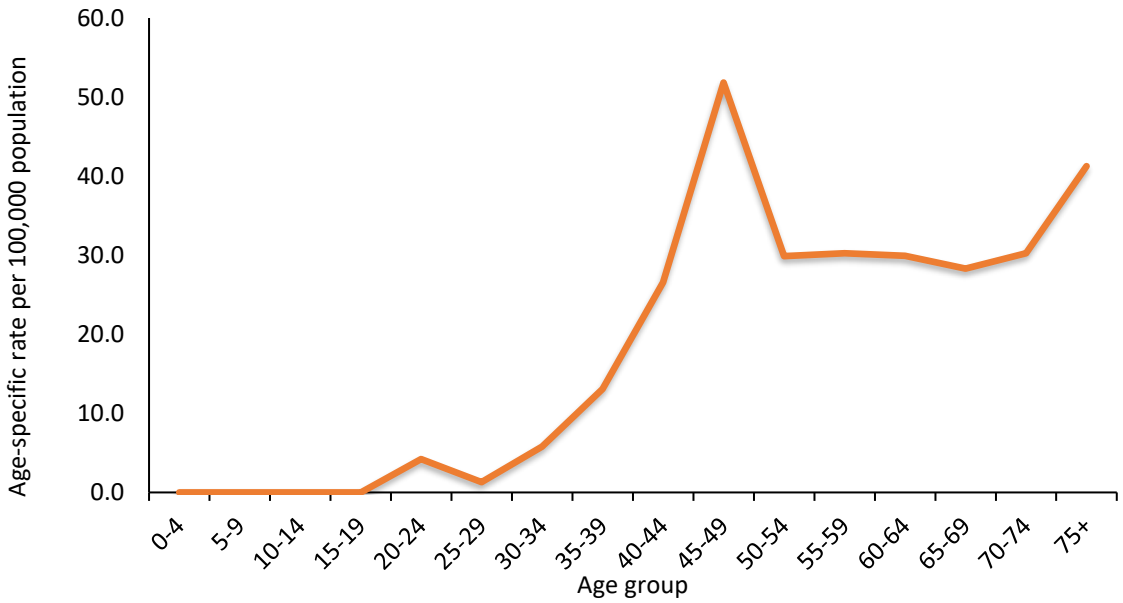
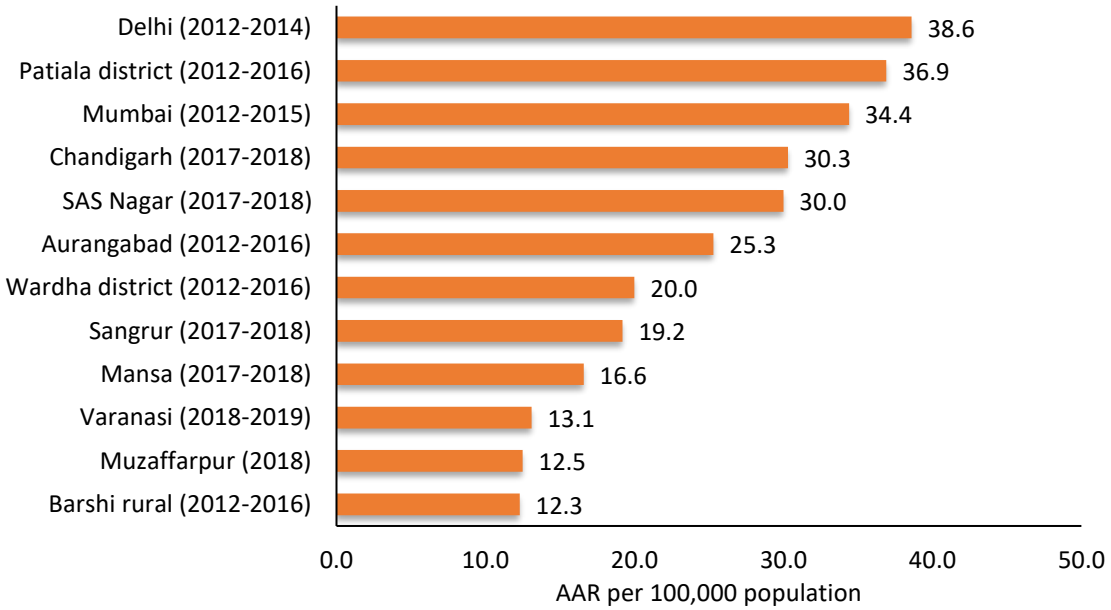


Figure 23: Comparison of breast cancer incidence rate with other Indian registries



Cancer of cervix uteri (C53)

Number of cases	56
% of total cases	15.9
Crude Incidence Rate per 100,000	5.9
Age-Adjusted Incidence Rate per 100,000	**7.4**
Truncated Rate per 100,000	17.9

Figure 24: Age-specific incidence rate of cancer of cervix uteri: 2018 (Muzaffarpur PBCR area)

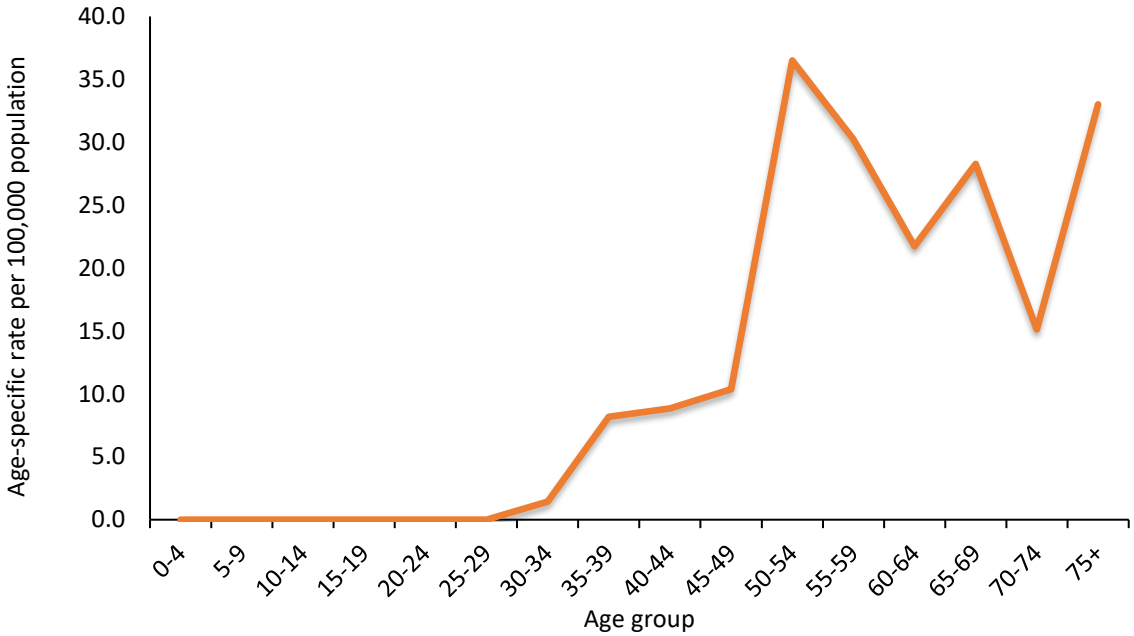
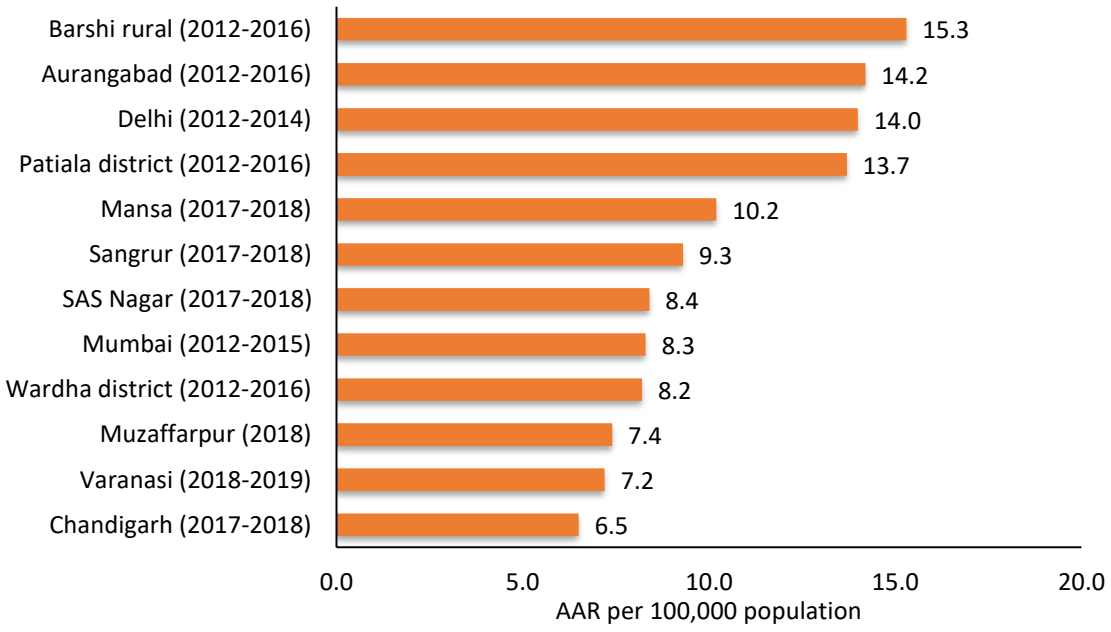


Figure 25: Comparison of cervix uteri cancer incidence rate with other Indian registries



Cancer of ovary (C56)

Number of cases	14
% to total cases	4.0
Crude Incidence Rate per 100,000	1.5
Age-Adjusted Incidence Rate per 100,000	**1.8**
Truncated Rate per 100,000	4.3

Figure 26: Age-specific incidence rate of cancer of ovary: 2018 (Muzaffarpur PBCR area)

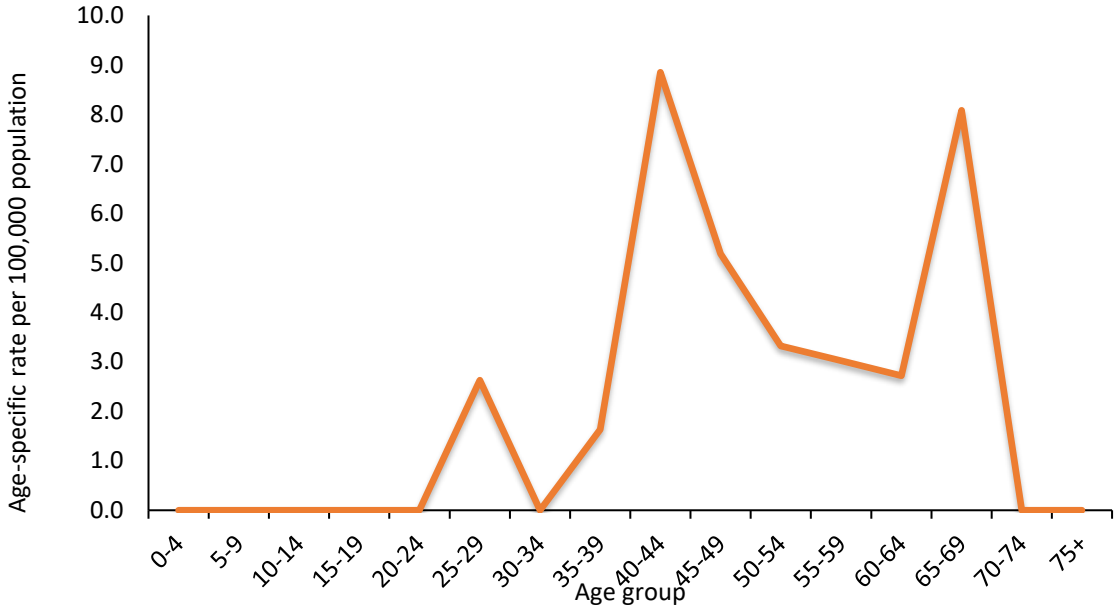
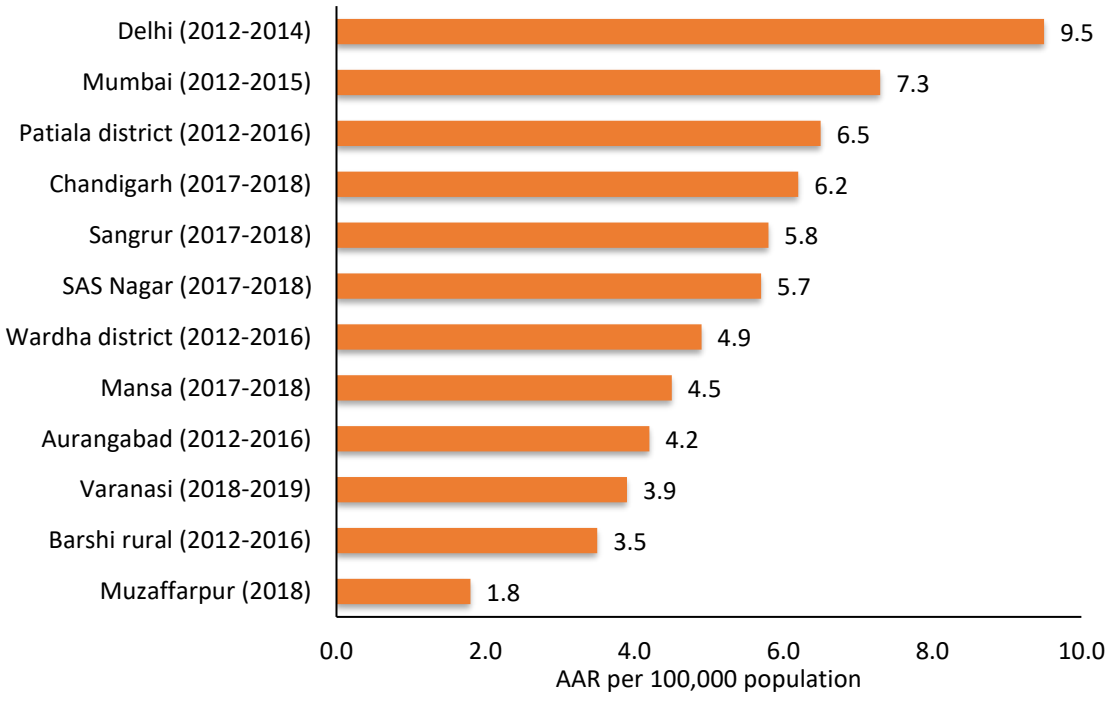


Figure 27: Comparison of ovary cancer incidence rate with other Indian registries



Age-specific incidence and mortality rate for all site

The all-site age-specific incidence and mortality rates for males and females are presented in Figure 28 and 29.

Figure 28: Age-specific incidence and mortality rate – male all sites

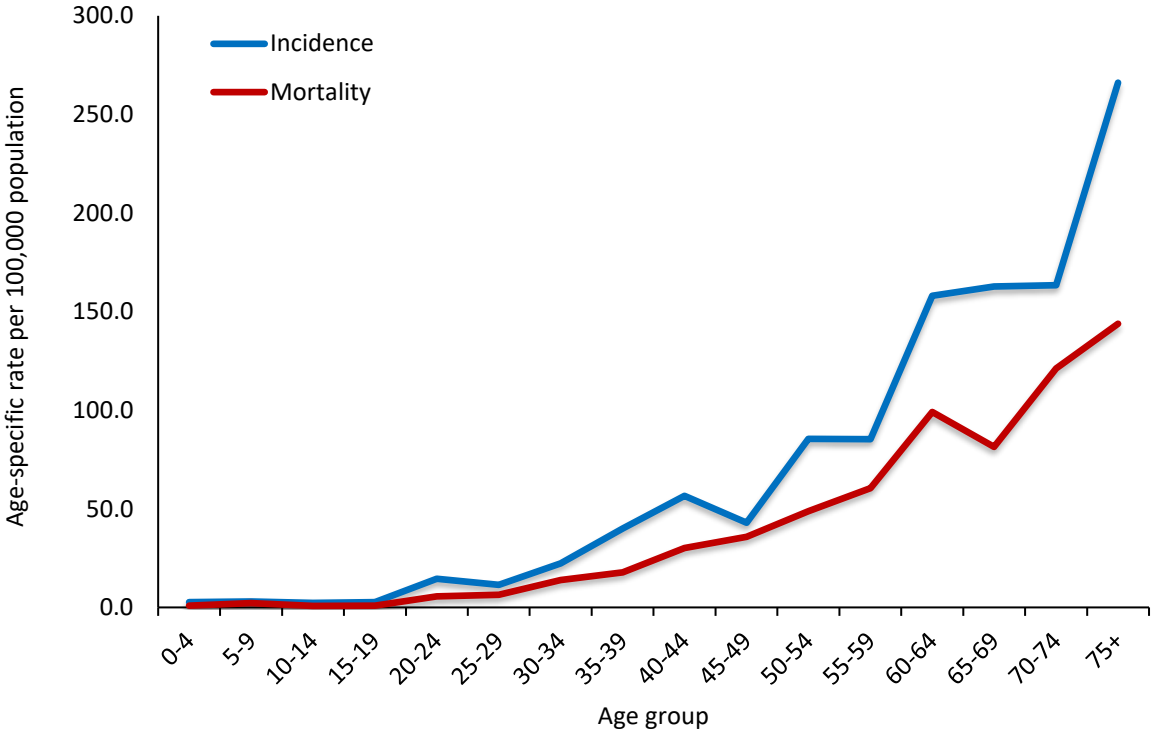
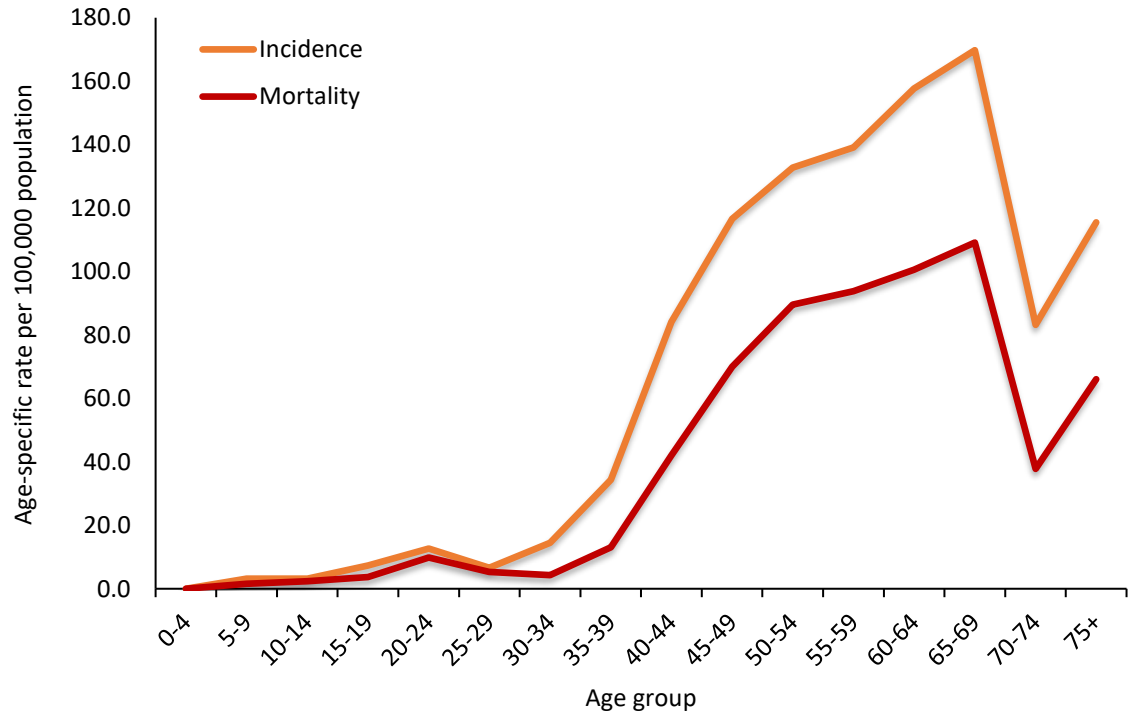


Figure 29: Age-specific incidence and mortality rate – female all sites



Other and unspecified sites

The other and unspecified cancer sites refer to the following cancer types:

C26	Other and Ill-Defined Digestive Organ	C77	Secondary and Unspecified Malignant Neoplasm of Lymph Node
C39	Other and Ill-Defined Sites Within Respiratory Systems and Intra thoracic Organ	C78	Secondary Malignant Neoplasm of Respiratory and Digestive Organs,
C48	Retro Peritoneum and Peritoneum,	C79	Secondary Malignant Neoplasm of Other and Unspecified Sites
C75	Other Endocrine Glands and Related Structures,	C80	Malignant Neoplasm Without Specification of Site
C76	Other and Ill-Defined, Secondary and Unspecified sites	C97	Malignant Neoplasm of Independent (Primary) Multiple sites

In males, out of 358 cases, 65 (18.2%) cases were of other and unspecified sites. The predominant cases were of C80 – primary unknown (16.5%), followed by C77 – secondary and unspecified malignant neoplasm of lymph node (0.8%), and other sites (0.9%). In females, out of 354 cases, 51 (14.4%) cases were of other and unspecified sites. The predominant cases were of C80 – primary unknown (13.0%), followed by C76 – other and ill-defined, secondary and unspecified sites (0.8%), and C78 – secondary malignant neoplasm of respiratory and digestive organs (0.6%). The details are presented in Table 11.

In the coming years, it is anticipated that the percentage of the primary site unknown will decrease due to improvements in the diagnostic and treatment facility.

Table 11: Other and unspecified cases by gender

ICD-10	Male		Female	
	Number	%	Number	%
C26	1	0.3	0	0.0
C48	0	0.0	0	0.0
C75	0	0.0	0	0.0
C76	2	0.6	3	0.8
C77	3	0.8	0	0.0
C78	0	0.0	2	0.6
C79	0	0.0	0	0.0
C80	59	16.5	46	13.0
Total	**65/358**	**18.2/100.0**	**51/354**	**14.4/100.0**

Cancer of other and unspecified (C26, C39, C48, C75, C76, C77, C78, C79, C80, C97)

	Male	Female
Number of cases	65	51
% to total cases	18.2	14.4
Crude Incidence Rate per 100,000	6.2	5.4
Age-Adjusted Incidence Rate per 100,000	**7.4**	**6.0**
Truncated Rate per 100,000	11.2	12.1

Figure 30: Age-specific incidence rate of cancer of other and unspecified:2018 (Muzaffarpur PBCR area)

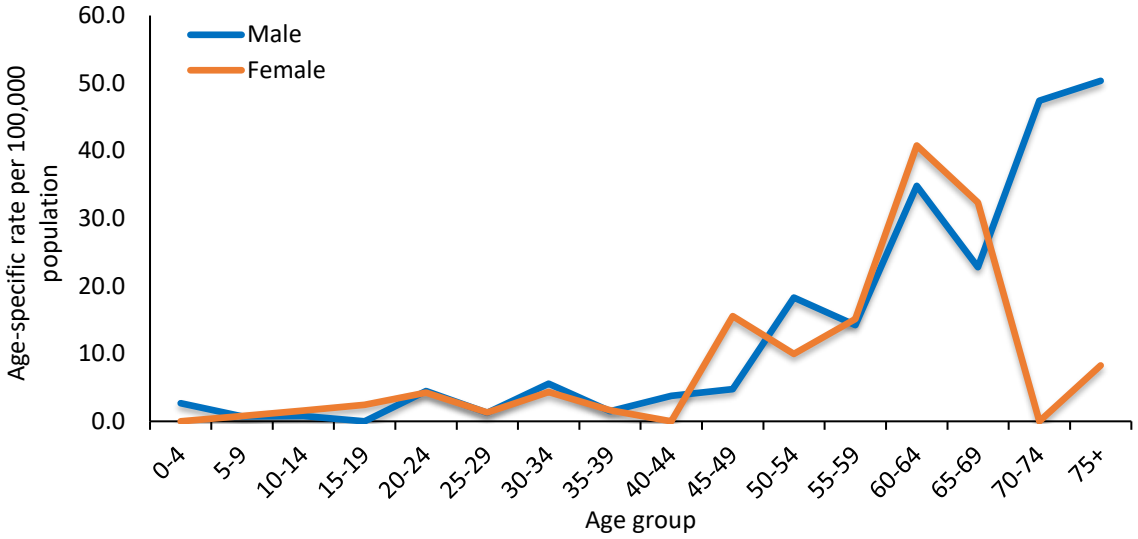
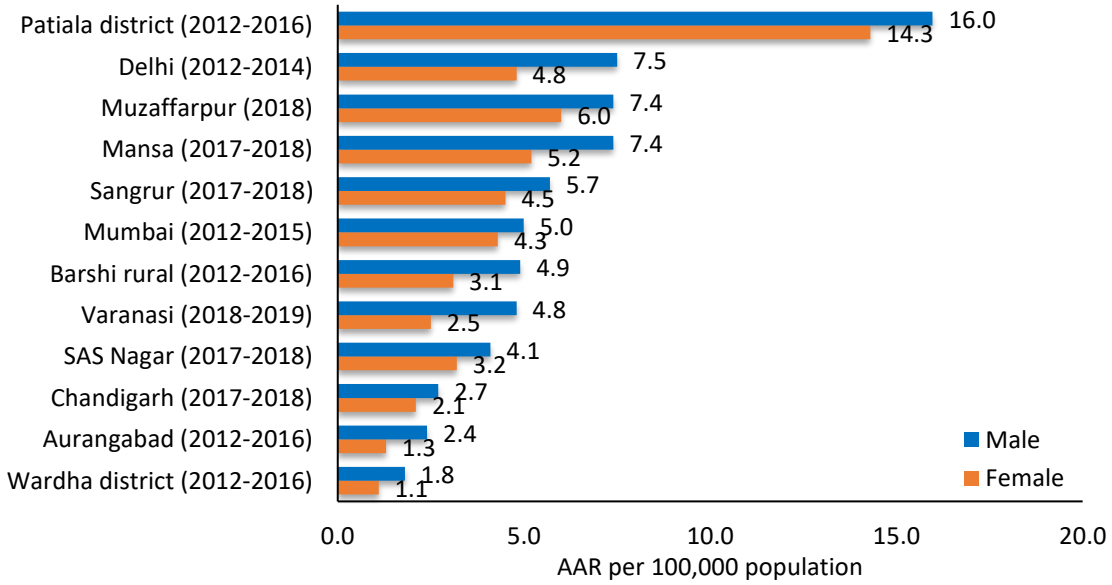


Figure 31: Comparison of other and unspecified cancer incidence rate with other Indian registries



11. Cancer pattern in urban and rural areas

The cancer registry covers 78.4% of rural areas and 21.6% of urban areas. The estimated population for the year 2018 for the urban area is 432,055 [Male: 225,962; Female: 206,093] and rural area is 1,568,224 [Male: 826,423; Female: 741,801]. We have observed the difference in the cancer incidence rate in urban and rural areas. The urban area cancer incidence rate in males was 53.0 per 100,000 population whereas it was 37.3 per 100,000 population in rural areas. In females, the urban area cancer incidence rates are higher as compared to rural areas. The cancer incidence rate by area and gender is mentioned in Figure 32. All site cancer mortality by area and gender is mentioned in Figure 33.

Figure 32: All sites cancer incidence rate by area and gender: 2018 (Muzaffarpur)

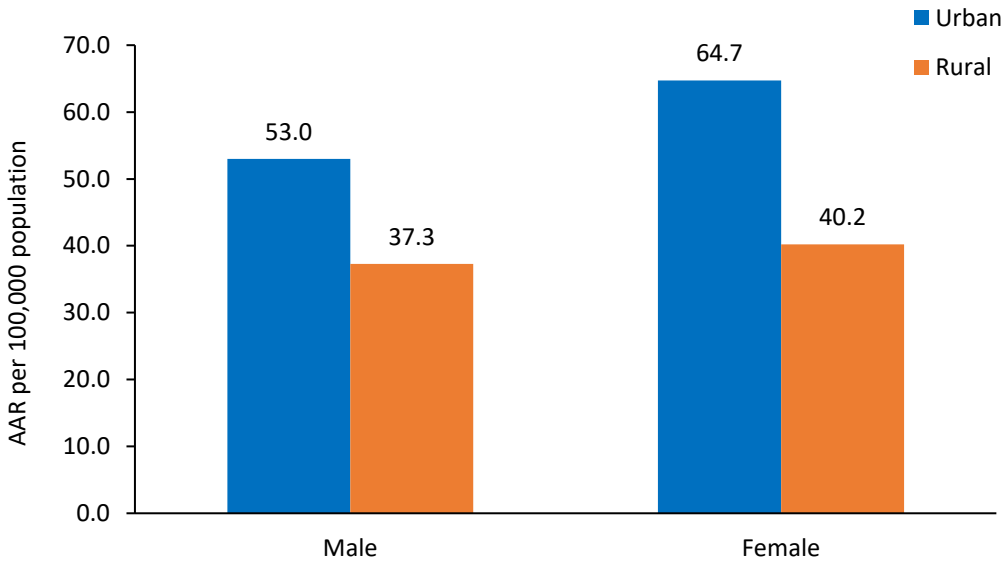
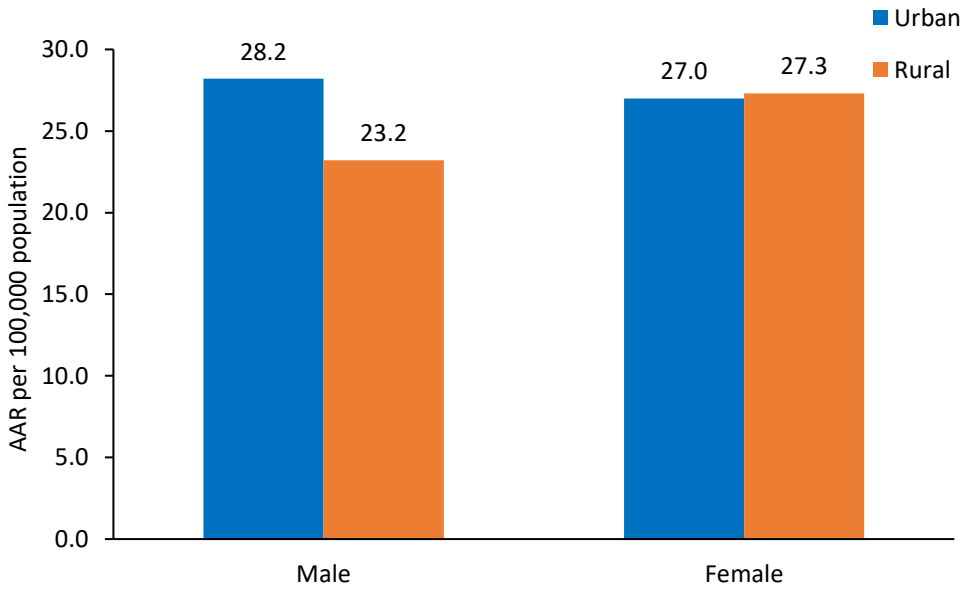


Figure 33: All site cancer mortality rate by area and gender: 2018 (Muzaffarpur)



Leading cancer sites in rural and urban areas

In males, mouth cancer incidence rates are higher in urban (10.3 per 100,000 population) as compared to rural (5.7 per 100,000 population) areas. The breast, cervix uteri, and gall bladder are the top three leading cancer sites among females both in urban and rural areas.

The difference in the cancer burden and patterns in rural and urban areas may be due to different lifestyles, food habits, education levels, and access to diagnostic and treatment facilities. The leading cancer sites by gender and area are presented in Figures 34 to 37.

Figure 34: Leading cancer sites in urban area: male (2018)

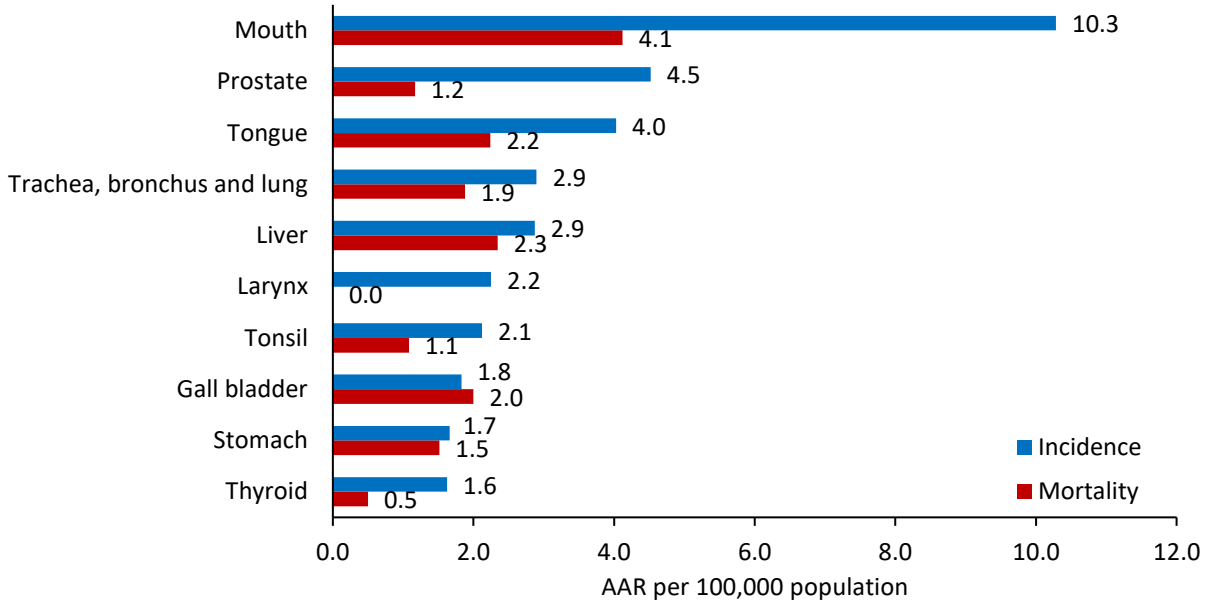


Figure 35: Leading cancer sites in rural area: male (2018)

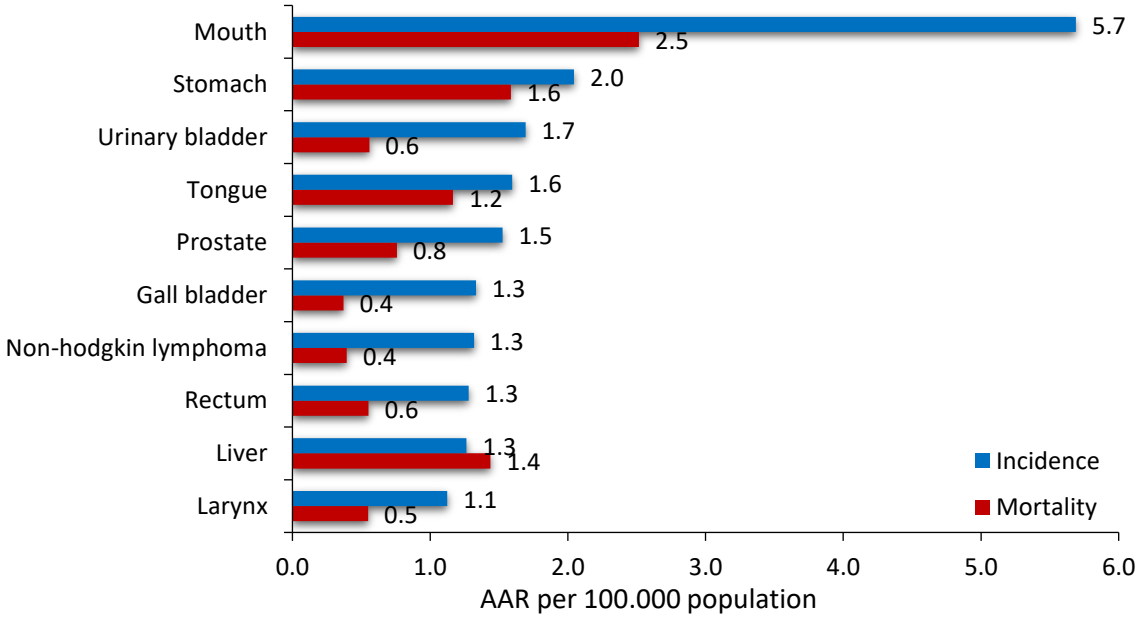


Figure 36: Leading cancer sites in urban area: female (2018)

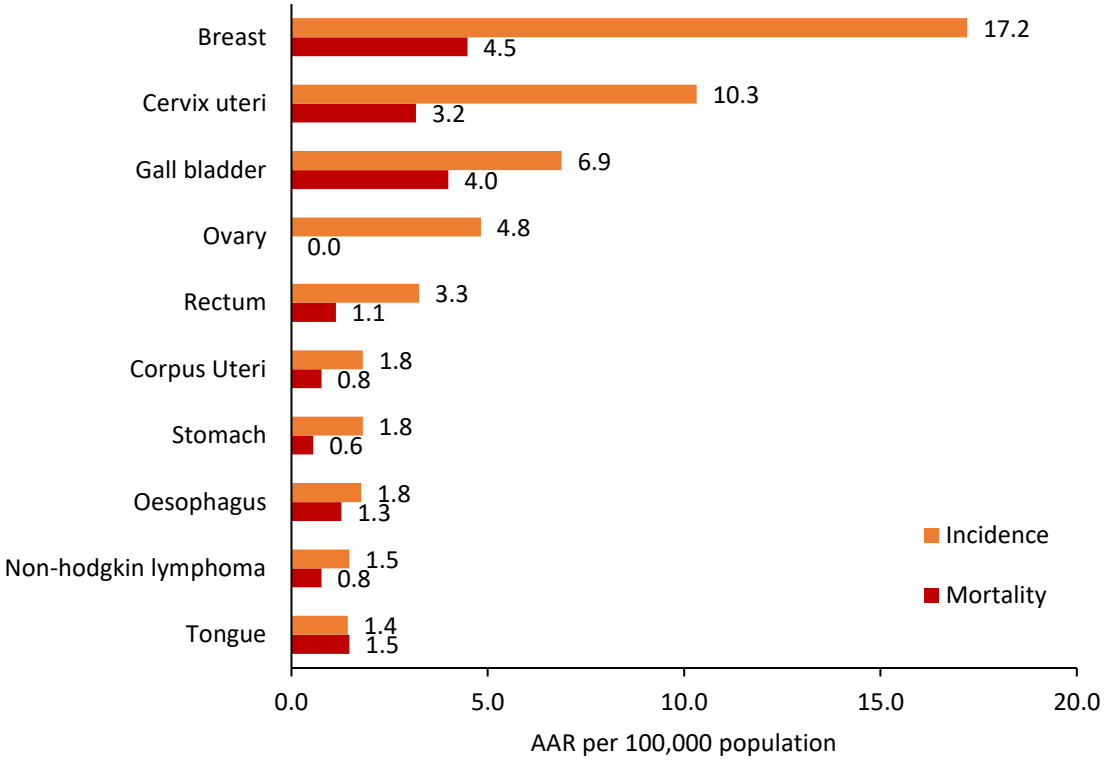
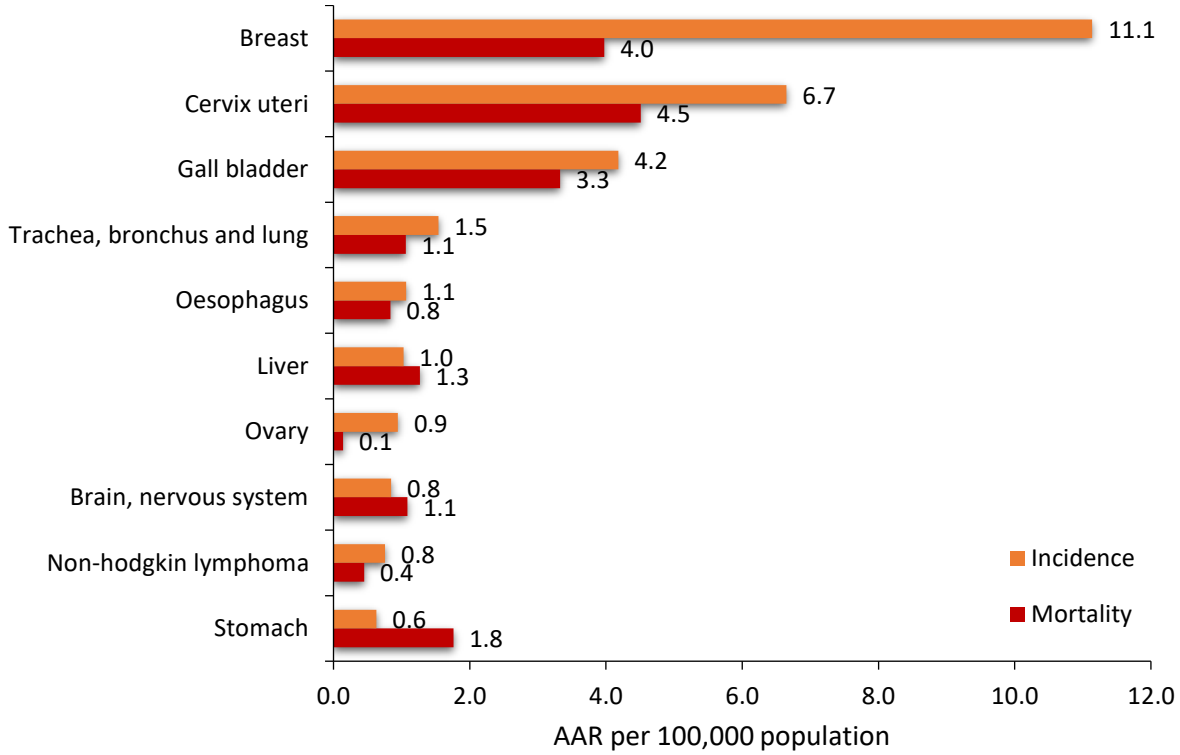


Figure 37: Leading cancer sites in rural area: female (2018)



12. Cancer pattern in paediatric age-group (0-14 years)

In the year 2018, out of 712 registered cancer cases 18 (2.5%) paediatric cases (0-14 age group) were registered. The age-adjusted incidence for boys is 26.6 per million and 19.5 per million for girls. The leading cancer sites among boys are non-hodgkin lymphoma, lymphoid leukaemia, and testis. While among girls, lymphoid leukaemia, connective and soft tissue, and myeloid leukaemia are the leading cancer sites. The leading cancer sites are mentioned in Figures 38 and 39. Of the total 18 registered paediatric cancer cases, 11 (61.1%) cases have microscopic confirmation.

The paediatric cancer rates are very low compared to other Indian registries. This is the first-year report of the cancer registry and in the initial period, cooperation from the treating cancer centre, diagnostic centre and even from the community was the most challenging obstacle faced by registry during data collection. This may be the reason for under-reporting of paediatric cases.

Figure 38: Leading cancer sites in boys: 2018

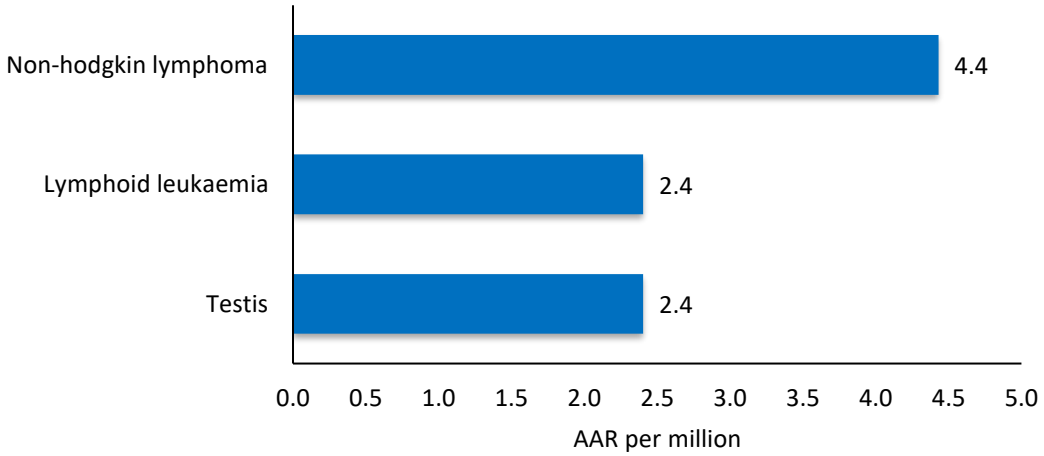
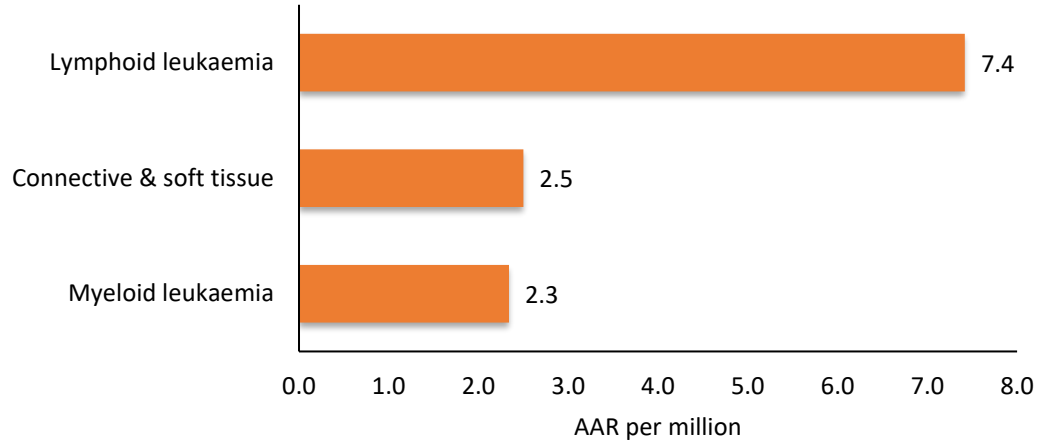


Figure 39: Leading cancer sites in girls: 2018



13. Tobacco-related cancer

The use of tobacco has severe effects on health. Tobacco is one of the major causes of non-communicable diseases. The anatomical sites are included to calculate the tobacco-related cancer burden are based on the guidelines of the IARC, World Health Organisation (WHO), Lyon, France.[14] Lip (C00), tongue (C01-C02), mouth (C03-C06), pharynx (C10, C12-C14), oesophagus (C15), larynx (C32), lung (C33-C34) and urinary bladder (C67) are associated with the use to tobacco.

As per the Muzaffarpur cancer registry data, the tobacco-related cancer burden is 36.6% in males (1 out of 3 cancer case is tobacco-related) while, it is 8.8% in females (1 out of 11 cancer case is tobacco-related). The leading site under tobacco-related cancer are mouth, tongue, urinary bladder, larynx and lung in males; and in females, lung, oesophagus, tongue, mouth, and other oropharynx.

Among 130 male tobacco-related cancer cases, 34 (26.2%) were farmers, 28 (21.5%) were government employees, and 19 (14.6%) were clerical shop-owners. Whereas, out of the total 31 female tobacco-related cancer cases, 28 (90.3%) were housewives. With regards to the educational level of this population, 22.3% males and 64.5% females were illiterate.

Table 12: Tobacco-related cancer in male: 2018

ICD-10	Site	Total	%	CR	AAR	TR
C00	Lip	1	0.3	0.1	0.2	0.5
C01-C02	Tongue	21	5.9	2.0	2.1	3.9
C03-C06	Mouth	59	16.5	5.6	6.7	15.5
C10	Other oropharynx	1	0.3	0.1	0.1	0.3
C12-C13	Hypopharynx	7	2.0	0.7	0.8	0.7
C14	Pharynx unspecified	1	0.3	0.1	0.1	0.5
C15	Oesophagus	6	1.7	0.6	0.8	1.3
C32	Larynx	11	3.1	1.0	1.4	1.8
C33-C34	Trachea, bronchus and lung	10	2.8	1.0	1.2	1.2
C67	Urinary bladder	13	3.6	1.2	1.6	3.1
C00-C06, C10, C12-C15, C32-C34 & C67	**Tobacco-related cancer**	**130**	**36.6**	**12.4**	**15.0**	**28.7**

Table 13: Tobacco-related cancer in female: 2018

ICD-10	Site	Total	%	CR	AAR	TR
C00	Lip	0	0.0	0.0	0.0	0.0
C01-C02	Tongue	4	1.1	0.4	0.6	1.0
C03-C06	Mouth	3	0.8	0.3	0.4	1.2
C10	Other oropharynx	2	0.6	0.2	0.3	0.5
C12-C13	Hypopharynx	0	0.0	0.0	0.0	0.0
C14	Pharynx unspecified	1	0.3	0.1	0.2	0.5
C15	Oesophagus	9	2.5	0.9	1.2	2.1
C32	Larynx	2	0.6	0.2	0.2	0.0
C33-C34	Trachea, bronchus and lung	10	2.8	1.1	1.3	3.5
C67	Urinary bladder	0	0.0	0.0	0.0	0.0
C00-C06, C10, C12-C15, C32-C34 & C67	**Tobacco-related cancer**	**31**	**8.8**	**3.3**	**4.2**	**8.9**

Table 14: Tobacco-related cancer cases by gender and occupation

Occupation	Male		Female		Total	
	Number	%	Number	%	Number	%
Clerical/Shop owner	19	14.6	0	0.0	19	11.8
Farmer	34	26.2	2	6.5	36	22.4
Govt Employee	28	21.5	0	0.0	28	17.4
Housewife	0	0.0	28	90.3	28	17.4
Professional	9	6.9	0	0.0	9	5.6
Pvt Employee	13	10.0	0	0.0	13	8.1
Semi-Professional	1	0.8	0	0.0	1	0.6
Semi-Skilled Worker	6	4.6	1	3.2	7	4.3
Skilled Worker	13	10.0	0	0.0	13	8.1
Unskilled Worker	7	5.4	0	0.0	7	4.3
Total	**130**	**100**	**31**	**100**	**161**	**100**

Table 15: Tobacco-related cancer cases by gender and religion

Religion	Male		Female		Total	
	Number	%	Number	%	Number	%
Christian	1	0.8	0	0.0	1	0.6
Hindu	105	80.8	27	87.1	132	82.0
Jain	1	0.8	0	0.0	1	0.6
Muslim	23	17.7	4	12.9	27	16.8
Total	**130**	**100**	**31**	**100**	**161**	**100**

Table 16: Tobacco-related cancer cases by gender and education

Education	Male		Female		Total	
	Number	%	Number	%	Number	%
Illiterate	29	22.3	20	64.5	49	30.4
Literate	18	13.8	6	19.4	24	14.9
Primary (1-7 std)	9	6.9	3	9.7	12	7.5
Secondary (8-10 std)	24	18.5	2	6.5	26	16.1
Technical after 10th	5	3.8	0	0.0	5	3.1
College	35	26.9	0	0.0	35	21.7
Postgraduate	7	5.4	0	0.0	7	4.3
Other	2	1.5	0	0.0	2	1.2
Unknown/ No Information	1	0.8	0	0.0	1	0.6
Total	**130**	**100**	**31**	**100**	**161**	**100**

Table 17: Tobacco-related cancer cases by gender and income

Income	Male		Female		Total	
	Number	%	Number	%	Number	%
>=30375	13	10.0	3	9.7	16	9.9
15188-30374	32	24.6	2	6.5	34	21.1
11362-15187	43	33.1	14	45.2	57	35.4
7594-11361	25	19.2	6	19.4	31	19.3
4556-7593	11	8.5	4	12.9	15	9.3
1521-4555	5	3.8	2	6.5	7	4.3
Unknown/No Information	1	0.8	0	0.0	1	0.6
Total	**130**	**100**	**31**	**100**	**161**	**100**

14. Cancer burden as per anatomical system

For males, the reported majority of cancer cases involved the sites from head and neck region (31.8%) followed by the digestive tract organs (21.2%) with the highest AAR 12.8 and 8.7 per 100,000 population respectively, and further, lymphoid and haematopoietic tissue and Male Genital Organ (8.1%) and respiratory and intrathoracic organ (6.7%) followed. In head and neck region, the leading sites were of mouth cancers (C03-06) with AAR 6.7 per 100,000 population, in digestive tract organs, stomach was the leading cancer site (C16) with 2.0 AAR per 100,000 population and while among male genitalia cancer cases, the leading site was prostate (C61) with AAR 2.2 per 100,000 population (Table 26).

For females, the reported majority of cancer cases involved the sites from breast (26.6%) followed by the female genital organs (22.0%) and digestive organ (19.8%) with highest AAR 12.5, 10.3, and 9.1 per 100,000 population respectively and further, head and neck regions (5.4%), respiratory and intrathoracic organ (3.7%) and lymphoid and haematopoietic tissue (4.2%) followed. Among the female genitalia organs, the leading site is cervix uteri (C53) with AAR 7.4 per 100,000 population and for digestive organ cancer, the leading site was gall bladder (C23-24) with AAR 4.8 per 100,000 population (Table 27).

The anatomical system-wise cancer burden is presented in Figure 40, Tables 18 and 19.

Figure 40: Cancer rates by different anatomical sites in Muzaffarpur: 2018

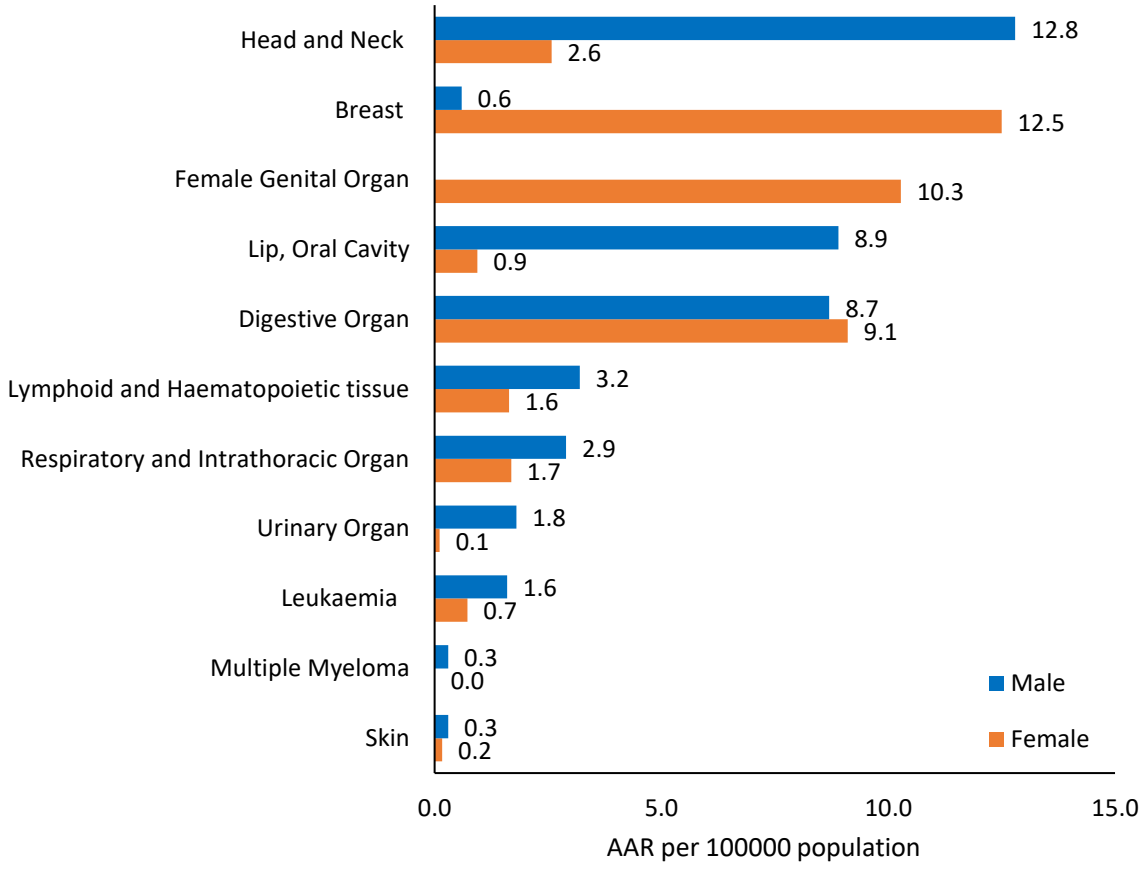


Table 18: Cancer burden as per the various anatomical system in male: 2018

ICD-10	Site	Number	%	CR	AAR	TR
C00-C14, C30-C32 & C73	Head and neck	114	31.8	10.8	12.8	25.6
C00-C06	Lip, oral cavity	81	22.6	7.7	8.9	19.8
C15-C25	Digestive organ	76	21.2	7.2	8.7	17.3
C60-C63	Male genital organ	29	8.1	2.8	3.2	5.5
C81-C96	Lymphoid and haematopoietic tissue	29	8.1	2.8	3.2	4.6
C30-C38	Respiratory and intrathoracic organ	24	6.7	2.3	2.9	3.3
C64-C68	Urinary organ	14	3.9	1.3	1.8	3.6
C91-C95	Leukaemia	15	4.2	1.4	1.6	2.0
C50	Breast	5	1.4	0.5	0.6	0.5
C43-C44	Skin	3	0.8	0.3	0.3	0.7
C88 + C90	Multiple myeloma	2	0.6	0.2	0.3	0.5

Table 19: Cancer burden as per the various anatomical system in female: 2018

ICD-10	Site	Number	%	CR	AAR	TR
C50	Breast	94	26.6	9.9	12.5	30.3
C51-C58	Female genital organ	78	22.0	8.2	10.3	25.2
C15-C25	Digestive organ	70	19.8	7.4	9.1	20.6
C00-C14, C30-C32 & C73	Head and neck	19	5.4	2.0	2.6	5.8
C30-C38	Respiratory and intrathoracic organ	13	3.7	1.4	1.7	3.9
C81-C96	Lymphoid and haematopoietic tissue	15	4.2	1.6	1.6	2.6
C00-C06	Lip, oral cavity	7	2.0	0.7	0.9	2.2
C91-C95	Leukaemia	8	2.3	0.8	0.7	0.4
C43-C44	Skin	1	0.3	0.1	0.2	0.5
C64-C68	Urinary organ	1	0.3	0.1	0.1	0.0
C88 + C90	Multiple myeloma	0	0.0	0.0	0.0	0.0

15. Socio-demographic information

The Muzaffarpur cancer registry staff interacted with cancer patients or their relatives and gathered socio-demographic information. Based on the information collected, cancer cases were highest among the Hindu community (81.3%) in the Muzaffarpur. Moreover, cancer cases were more among the illiterate females population [167/354 (47.2%)] compared to males [73/358 (20.4%)]. Furthermore, in terms of occupation, cancer cases were more commonly found among farmers (29.6%) in males and housewives (89.3%) in females. The number of cancer cases were more among the population with an income range of Rs. 7,500/- to Rs. 15,200/- per month. The socio-demographic information of cancer cases are presented in Table 20 to Table 23.

Table 20: Cancer cases by education and gender

Education	Male		Female		Total	
	Number	%	Number	%	Number	%
Illiterate	73	20.4	167	47.2	240	33.7
Literate	57	15.9	53	15.0	110	15.4
Primary (1 to 7std)	35	9.8	38	10.7	73	10.3
Secondary (8 to 10 std)	68	19.0	49	13.8	117	16.4
Technical after 10th	9	2.5	2	0.6	11	1.5
College	88	24.6	40	11.3	128	18.0
Post Graduate	21	5.9	3	0.8	24	3.4
Other	3	0.8	0	0.0	3	0.4
Not applicable to children	3	0.8	2	0.6	5	0.7
Unknown / No Information	1	0.3	0	0.0	1	0.1
Total	**358**	**100**	**354**	**100**	**712**	**100**

Table 21: Cancer cases by religion and gender

Religion	Male		Female		Total	
	Number	%	Number	%	Number	%
Hindu	296	82.7	283	79.9	579	81.3
Muslim	60	16.8	70	19.8	130	18.3
Christian	1	0.3	0	0.0	1	0.1
Sikh	0	0.0	1	0.3	1	0.1
Jain	1	0.3	0	0.0	1	0.1
Total	**358**	**100**	**354**	**100**	**712**	**100**

Table 22: Cancer cases by income and gender

Income	Male		Female		Total	
	Number	%	Number	%	Number	%
=> 30375	29	8.1	14	4.0	43	6.0
15188-30374	91	25.4	56	15.8	147	20.6
11362-15187	126	35.2	132	37.3	258	36.2
7594-11361	71	19.8	97	27.4	168	23.6
4556-7593	30	8.4	39	11.0	69	9.7
1521-4555	10	2.8	13	3.7	23	3.2
<= 1520	0	0.0	1	0.3	1	0.1
Unknown/No information	1	0.3	2	0.6	3	0.4
Total	**358**	**100**	**354**	**100**	**712**	**100**

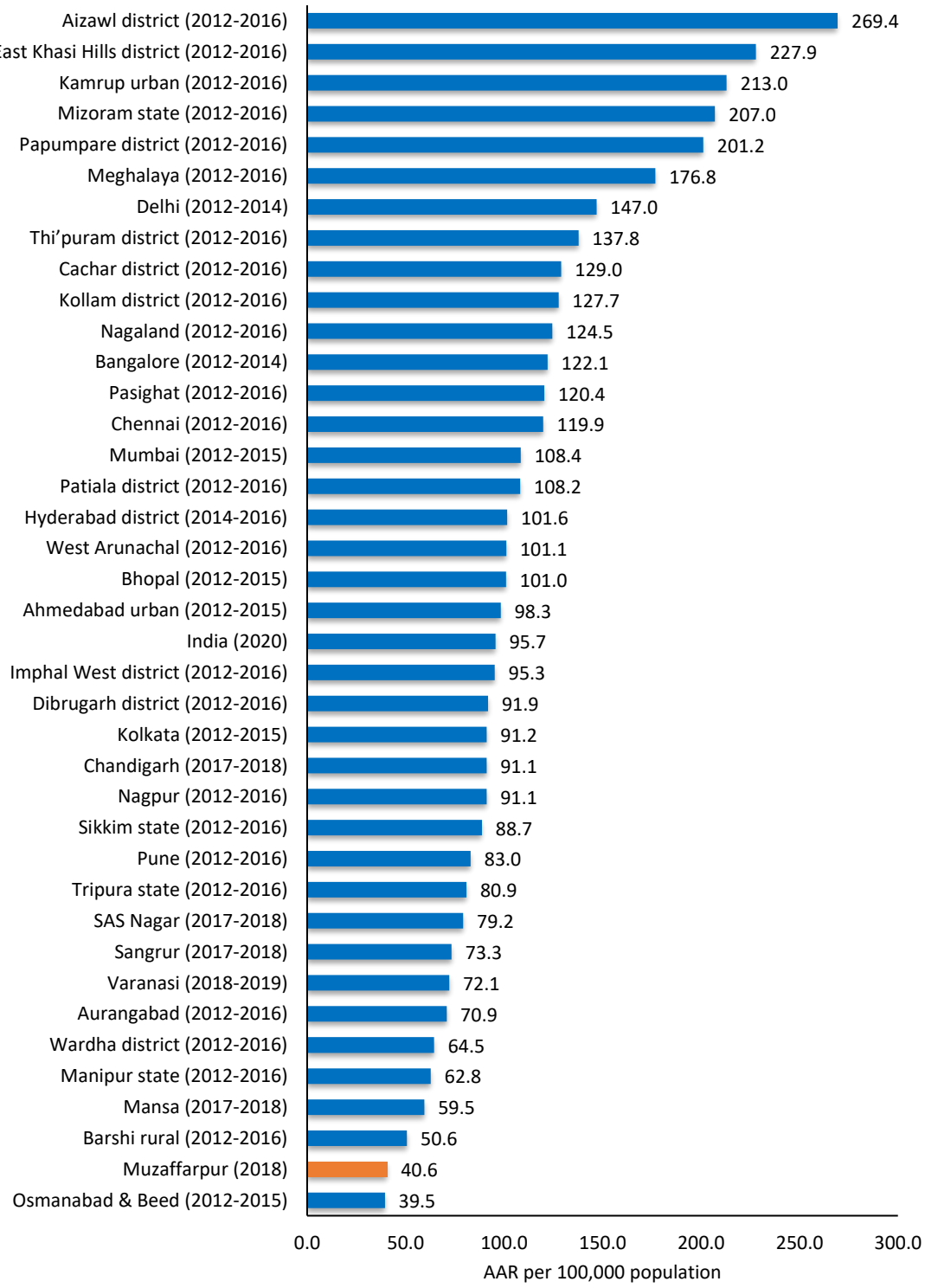
Table 23: Cancer cases by occupation and gender

Occupation	Male		Female		Total	
	Number	%	Number	%	Number	%
Professional	18	5.0	2	0.6	20	2.8
Semi-professional	3	0.8	0	0.0	3	0.4
Clerical, Shop-owner	43	12.0	1	0.3	44	6.2
Farmer	106	29.6	6	1.7	112	15.7
Skilled worker	32	8.9	1	0.3	33	4.6
Semi-skilled worker	13	3.6	2	0.6	15	2.1
Unskilled worker	22	6.1	1	0.3	23	3.2
Unemployed	0	0.0	1	0.3	1	0.1
Student	14	3.9	13	3.7	27	3.8
House-wife	-	-	316	89.3	316	44.4
Govt. Employee	64	17.9	9	2.5	73	10.3
Private Employee	39	10.9	0	0.0	39	5.5
Not applicable for children	4	1.1	2	0.6	6	0.8
Total	**358**	**100**	**354**	**100**	**712**	**100**

16. Comparison of cancer incidence rate with other Indian registries

For males, the all site age-adjusted incidence rate is lower compared to other Indian registries. This could be due to under-reporting of cases. Comparison of all site cancer rate is shown in Figure 41.

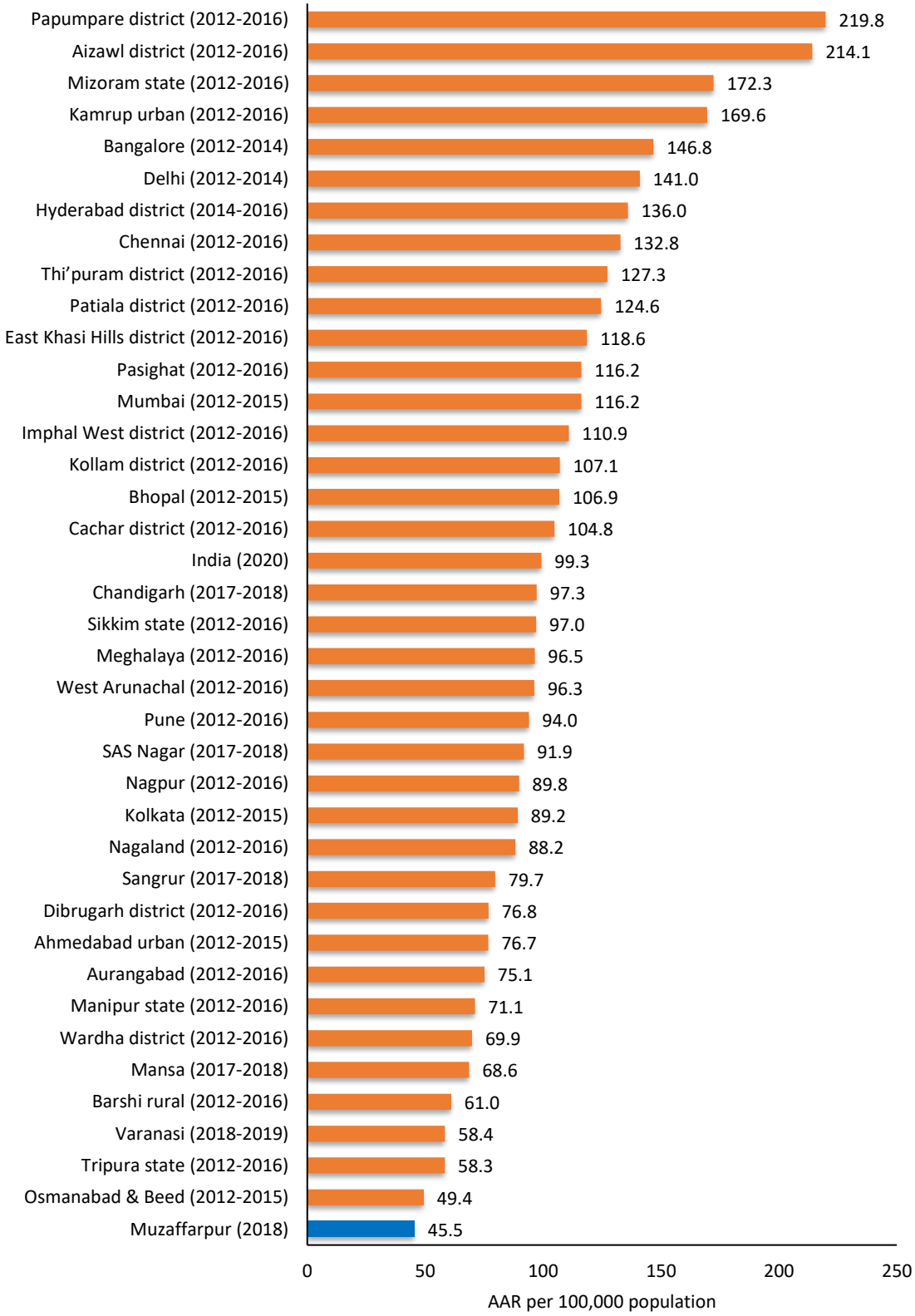
Figure 41: Age-adjusted incidence rate of all cancer sites in male



(References: 1-6, 15)

For females, the all site age-adjusted incidence rate is lower compared to other Indian registries. This could be due to under-reporting of cases. Comparison of all site cancer rate is shown in Figure 42.

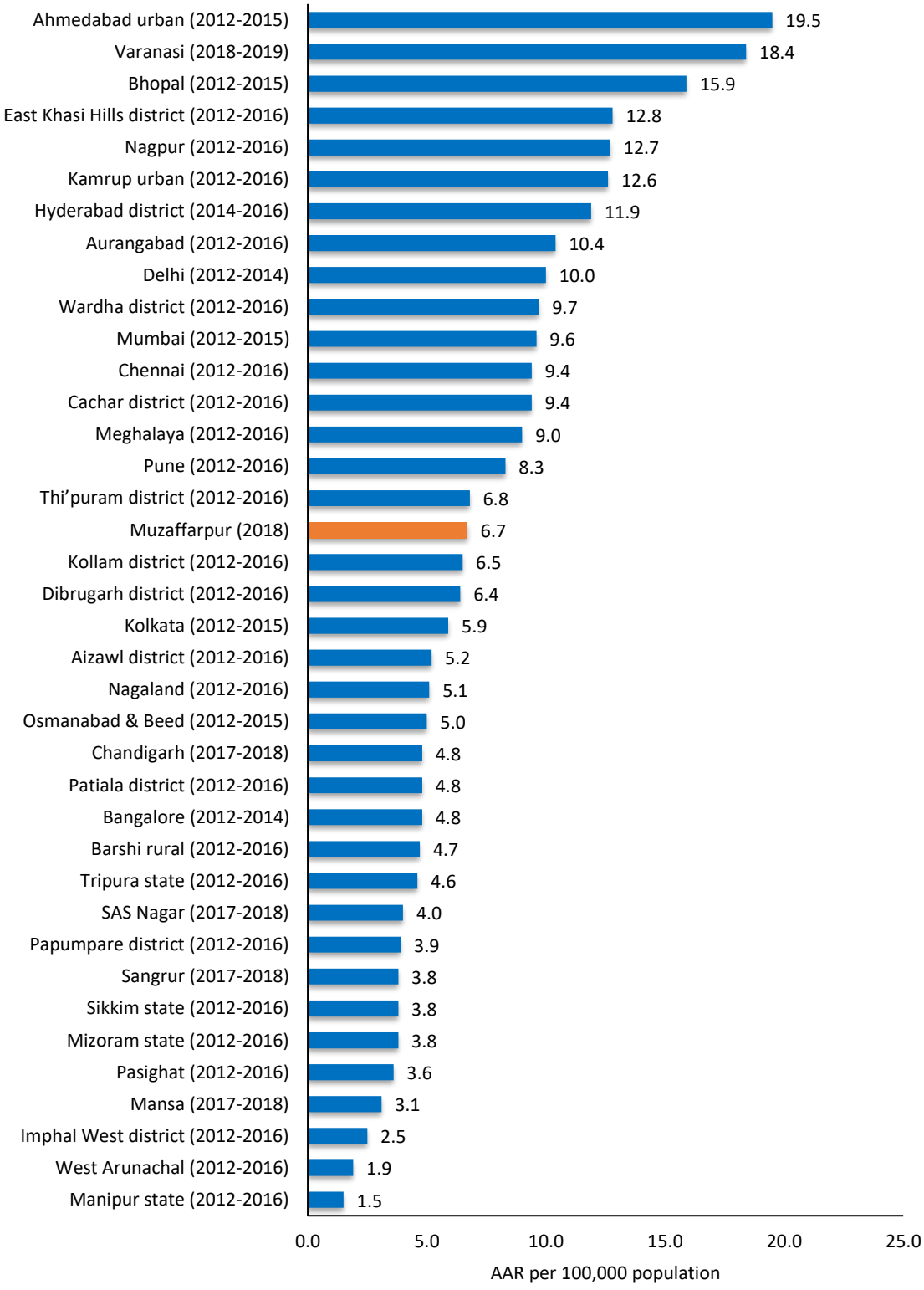
Figure 42: Age-adjusted incidence rate of all cancer sites in females



(References: 1-6, 15)

Among males, out of every 6 cancer cases, 1 case is of mouth cancer registered at Muzaffarpur PBCR. Mouth cancer rate is high in Muzaffarpur. Compared to Barshi registry the age-adjusted incidence rate for mouth cancer is high whereas it is low compared to Varanasi. Comparison of mouth cancer rate is shown in Figure 43.

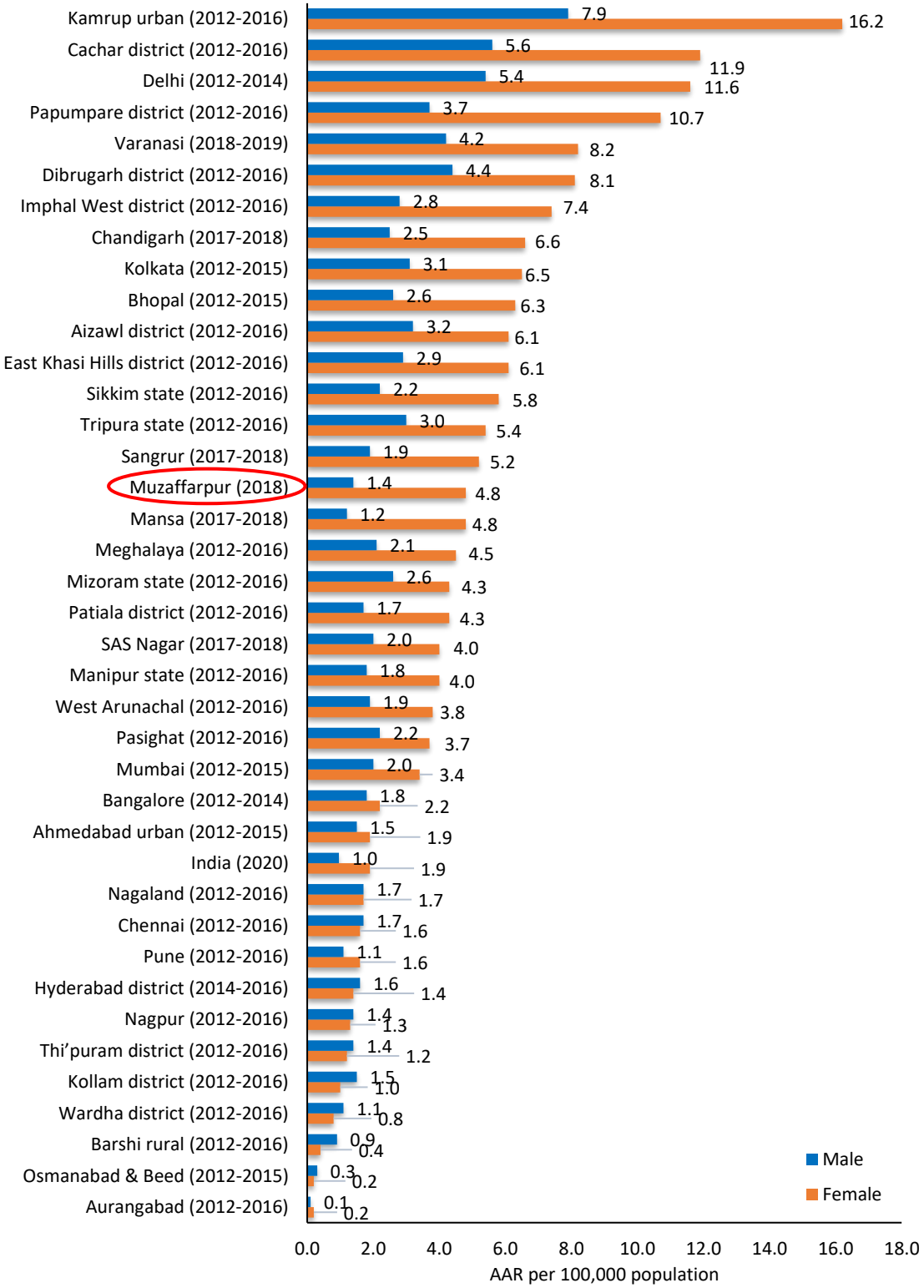
Figure 43: Age-adjusted incidence rate of mouth cancer in males (C03-06)



(References: 1-6, 15)

Gall bladder cancer is the third leading cancer site among females in Muzaffarpur. Compared to other Indian registries the rates are slightly higher; however, it is low as compared to Sangrur, Chandigarh and Varanasi cancer registry. The comparison of gall bladder cancer rate for both male and females is shown in Figure 44.

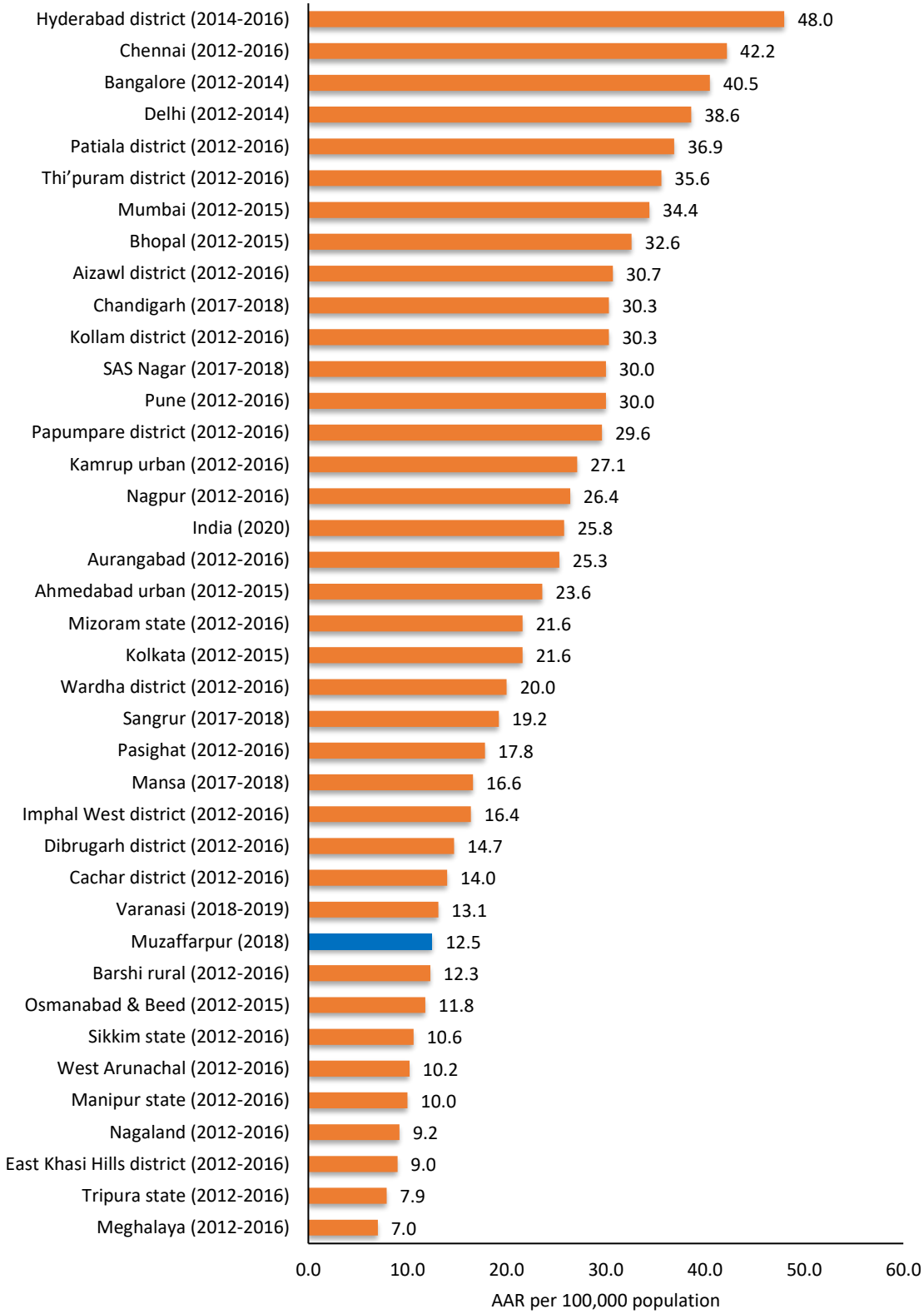
Figure 44: Age-adjusted incidence rate of gall bladder cancer



(References: 1-6, 15)

For females, the breast cancer incidence rate is low in Muzaffarpur as compared to other registries in India. The rate is low as compare to Sangrur, Mansa, and Varanasi. The comparison of breast cancer rate is shown in Figure 45.

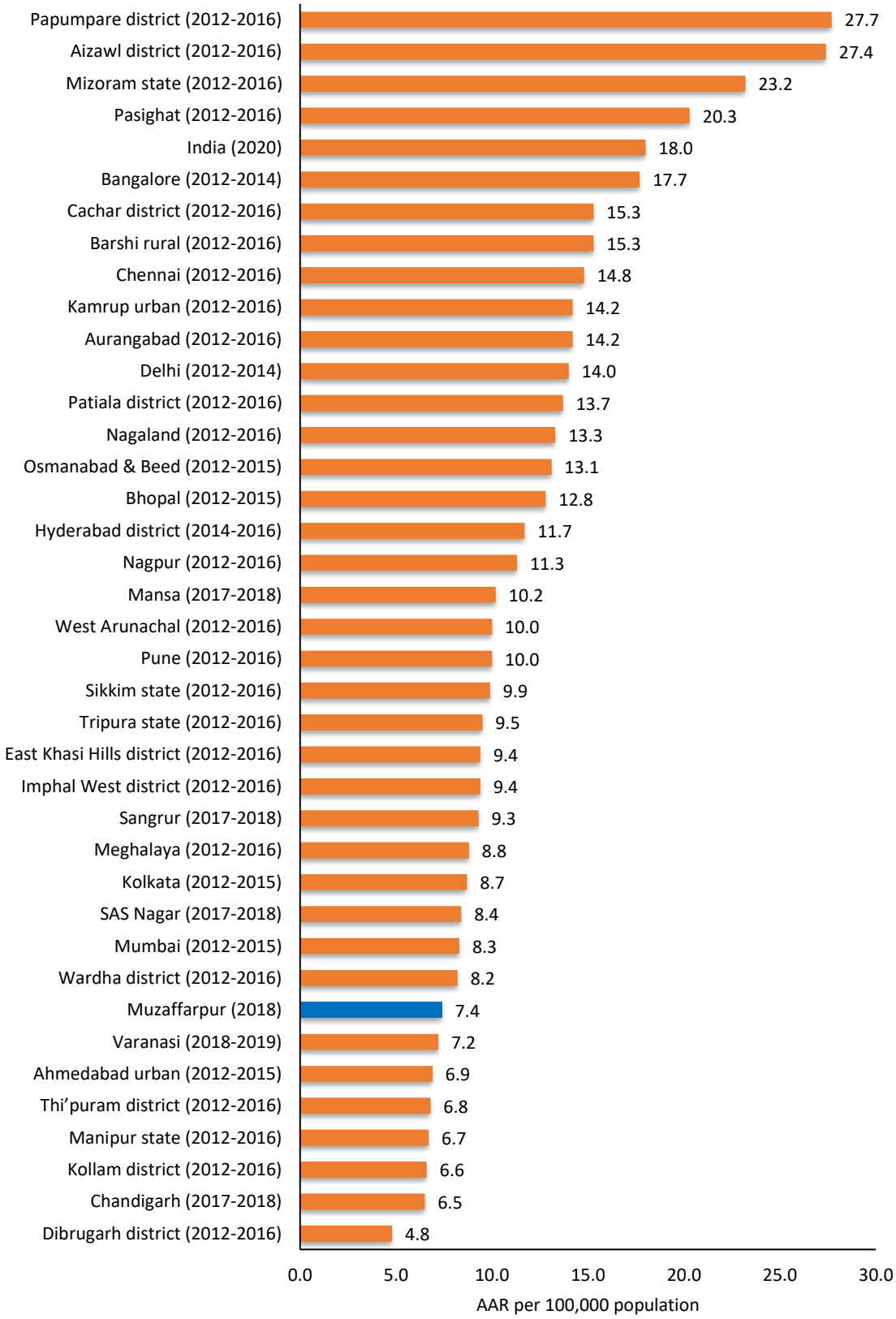
Figure 45: Age-adjusted incidence rate of female breast cancer



(References: 1-6, 15)

The cervical cancer incidence rate is low in Muzaffarpur as compared to other registries in India. The comparison of cervical cancer rate is shown in Figure 46.

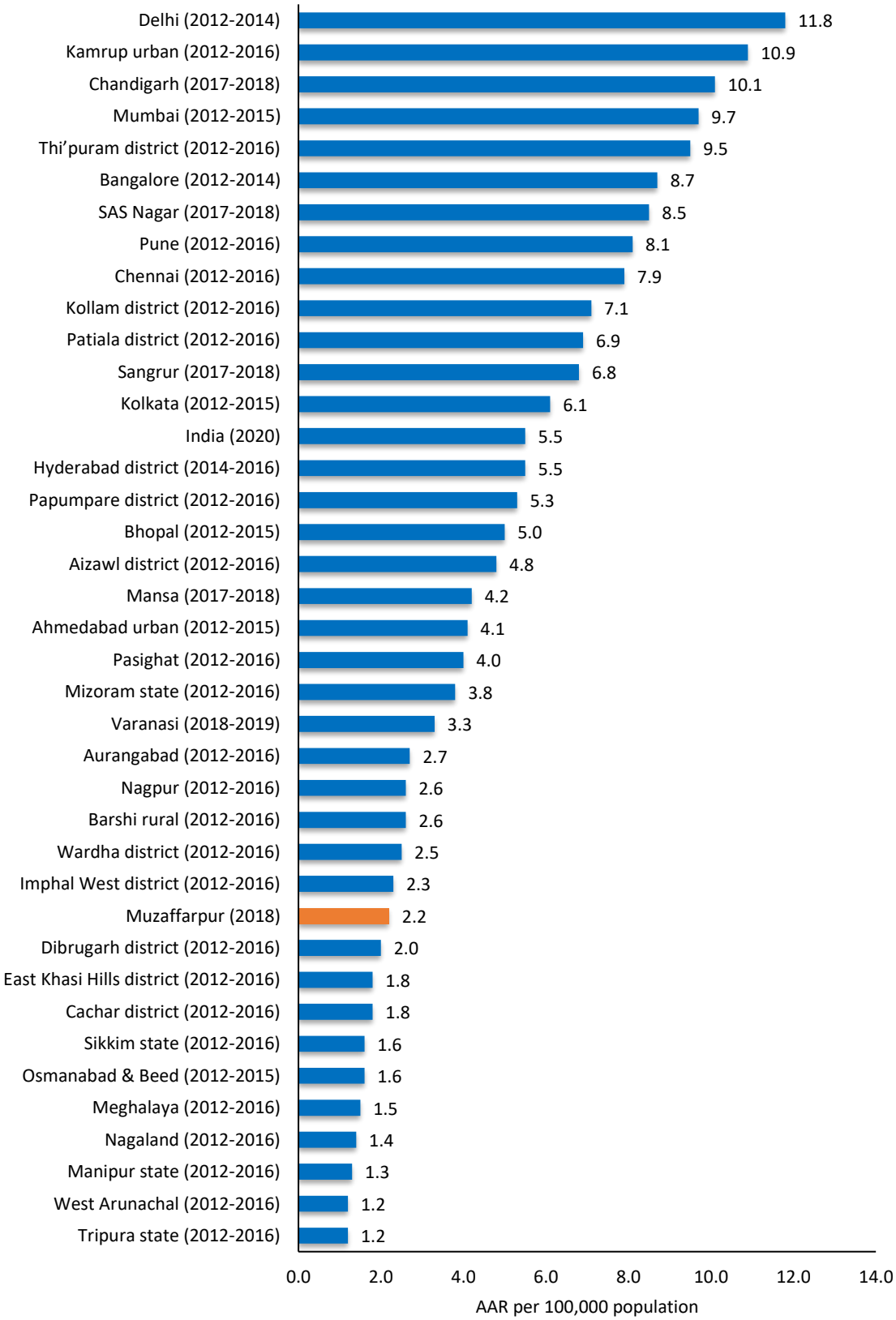
Figure 46: Age-adjusted incidence rate of cervical cancer



(References: 1-6, 15)

The prostate cancer incidence rate is low in Muzaffarpur as compared to other registries in India. The comparison of prostate cancer rate is shown in Figure 47.

Figure 47: Age-adjusted incidence rate of prostate cancer

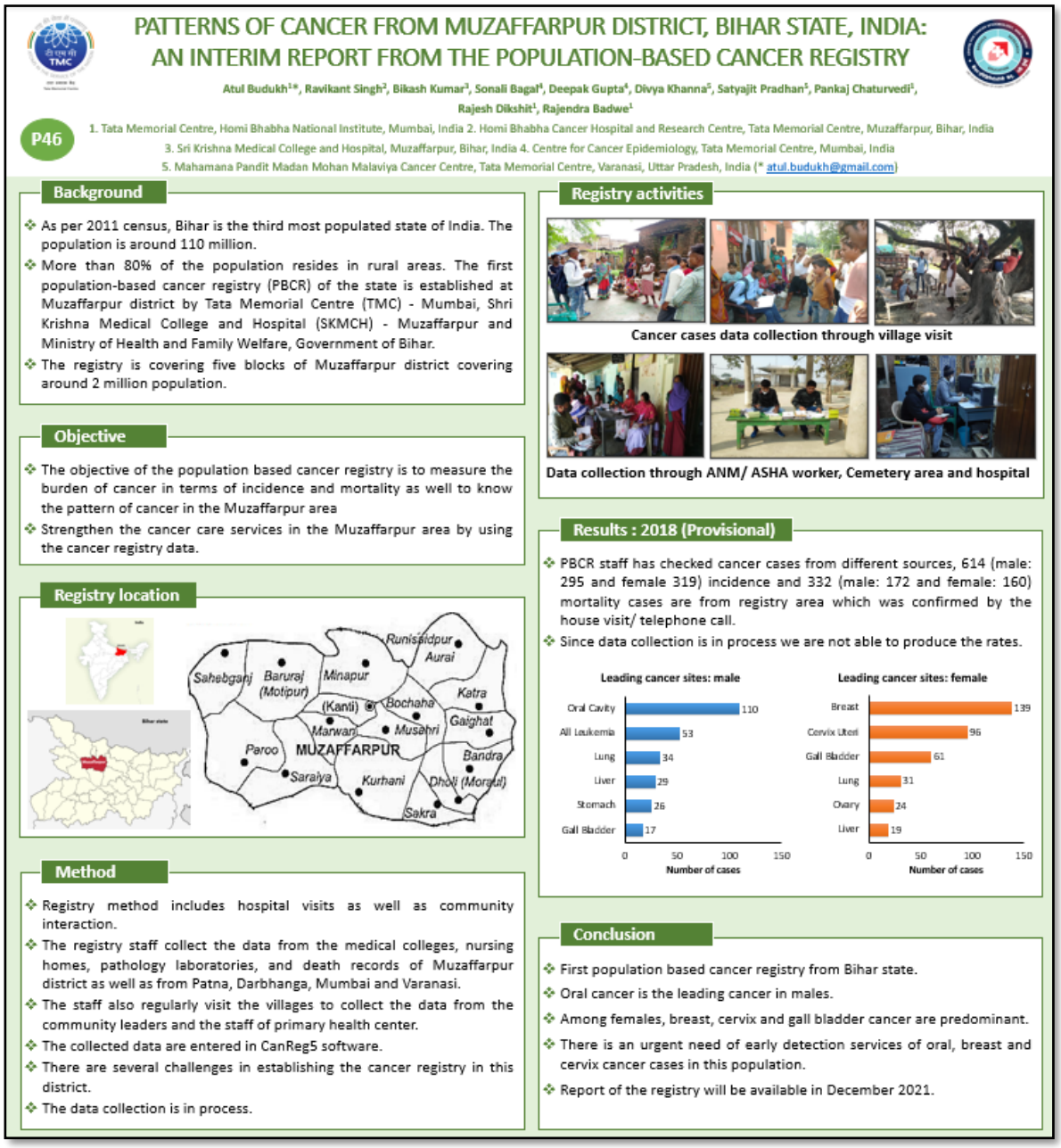


(References: 1-6, 15)

17. International Association of Cancer Registries (IACR) conference

- We have presented a poster on "Patterns of cancer from Muzaffarpur district, Bihar State, India: An interim report from the population-based cancer registry." The International Association of Cancer Registries (IACR) conference was held on 12th to 14th October 2021.

- All the Muzaffarpur PBCR staff virtually attended IACR 2021 and 2022 conferences.



18. Challenges faced by the registry team

The PBCR was established in Muzaffarpur, Bihar state in the year 2018. Several challenges were faced by the registry staff while working and collecting the PBCR data.

1. **Administrative challenges**

Registry office space: The currently allocated space for registry functioning is not permanent. The allocated registry office space was changed four times. The frequent shifting of the functioning place has hampered registry work severely.

Sustainability of registry staff: Four trained staff resigned from their positions. The recruitment of new staff and arranging training activities again is time-consuming and hampers the work also.

2. **Poor quality medical records**

The registry staff observed that the medical and death records from various hospitals and other cancer centers were incomplete which compromised the quality of the data. The respective authorities were requested to maintain the records properly as the completeness of the data is an important factor for the documentation.

3. **Lack of co-operation**

Hospitals and laboratories were reluctant to share information for a number of reasons, including a lack of awareness of the cancer registry's purpose, expectations of financial benefits, and data privacy concerns.

Registry staff also faced difficulty collecting information from patients and their relatives due to a lack of awareness about cancer and terms related to it, poor documentation of reports, superstitious beliefs, prior bad experiences with healthcare staff, and lack of trust among patients and their relatives.

4. **Issues related to transportation**

The registry covers remote areas within the district that are difficult to access due to inadequate local transportation, poor infrastructure, and security concerns. Initially, it was challenging to cover the village and then visit different hospitals for sources and case confirmation. Apart from this, the recent hike in transportation charges has also impacted registry activities.

5. Inadequate infrastructure in Muzaffarpur for cancer treatment

The registry staff have to travel several places to collect cancer case data. Patients from Muzaffarpur district travel to Patna, Delhi, Varanasi, Lucknow, Kolkata, Bangalore, and Mumbai for cancer treatment. To collect the cancer patients' information, the registry staff has to travel to these places. It is difficult for the staff to visit all these places regularly.

6. Lack of cancer-related diagnostic evidence

To cure the disease, some patients use alternative treatments such as homeopathy/ ayurveda/ local treatment. In such circumstances, neither clinical notes nor diagnostic evidence was provided to the patients or their relatives. It was quite difficult to trace medical records for such cases.

Moreover, rural areas of Muzaffarpur district have inadequate cancer diagnostic and treatment services. One of the primary contributors to under-diagnosis was a lack of access to health care and health awareness among people. All of these factors impede cancer case abstraction and data quality.

7. COVID-19 pandemic

Regular interaction with the community is a prerequisite for the PBCR to function. The registry's operation was hampered as a result of the COVID-19 pandemic. The registration operation had to halt entirely for more than 8 months due to the national lockdown. With new guidelines during the lockdown, the registry activities were resumed steadily, but there were numerous challenges including,

- Security concerns among the registry staff
- Residents, not cooperating due to the fear of the virus.
- Due to the burden on nearby hospitals, there was under-reporting of cancer cases.

8. Challenges due to climate

Muzaffarpur district has extreme weather conditions. In summer, the health of registry staff deteriorated due to extremes of temperature during the field visit. Similarly, during winter it was difficult to travel due to fog. Furthermore, as Muzaffarpur district is highly prone to natural calamities such as heavy floods during monsoon seasons, cancer registration work is delayed, limiting registry coverage.

Action Taken:

a. The registry team acknowledges the Health Department of the Government of Bihar and the Civil Surgeon of Muzaffarpur district for supporting the cancer registry activities and issuing orders to government and non-government institutions to share the cancer patients' data for registry activity.

b. Continuing Medical Education (CME) was held on 29th September 2021 by TMC-CCE with the support of the Health Department, Bihar on "Cancer registry and its role in cancer control" which has played a major role in spreading awareness of registry-related activity and its importance. This led to cooperation by most of the centers in Patna and Darbhanga with the registry team.

c. Due to regular interaction, community meetings as well as help from community leaders, ANMs, ASHA and Aganwadi workers, the field staff has started to build trust among the residents.

d. To minimize frequent visits to different cancer centers, we have requested centers to send data electronically; some of the centers are now providing the data via email.

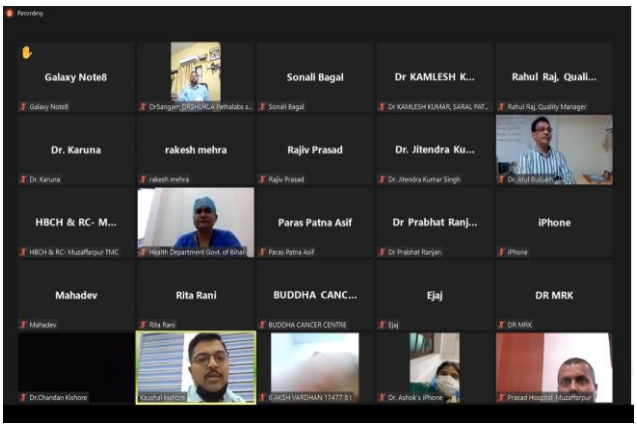
19. Capacity building in Bihar state

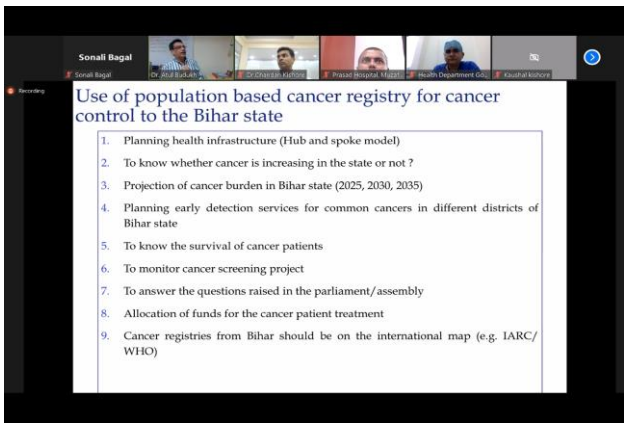
The courses on setting up a cancer registry were organised virtually (COVID-19 pandemic period) by CCE- Tata Memorial Centre, Mumbai to raise awareness about population-based cancer registries and to boost cancer care services among medical staff. Cancer hospitals staff along the with cancer registry staff of Patna participated. The details of are courses mentioned below.

- During this course, Indira Gandhi Institute of Medical Sciences (IGIMS), Patna hospital 14 participants and Paras HMRI hospital Patna 8 participants attended a course on cancer registry held from 14th to 19th September 2020.
- Apart from these, 4 participants from Indira Gandhi Institute of Medical Sciences (IGIMS), Patna hospital also joined and was trained in cancer registration held from 22nd to 27th February 2021.

Team from IGIMS, Patna attended virtual training on cancer registration

Continuing Medical Education (CME) on the topic of "Orientation on Population Based Cancer Registry (PBCR)" was organized by Tata Memorial Centre, Mumbai, State Cancer Institute, IGIMS Patna and Health Department, Government of Bihar, India held on 29th September 2021. Dr. Kaushal Kishore, IAS (Add. Secretory, Department of Health, Government of Bihar) was the honourable chief guest addressed in the CME. Dr Atul Budukh (Professor Epidemiology, CCE-TMC) presented "Population-based cancer registry and its role in cancer control".





20. Description of statistical terms

Incidence: Cancer incidence denotes new cancer cases diagnosed in a defined population in a specified period. For this report, all cancer cases diagnosed from 1st January 2018 to 31st December 2018 in the Muzaffarpur area have been included.

Mortality: Cancer mortality is defined as the number of cancer deaths occurring in a defined population, in a defined geographic area, during a particular year(s) per 100,000 population. All cancer deaths from 1st January 2018 to 31st December 2018 in the Muzaffarpur area have been included.

Rates: Rates for cancer are always expressed per 100,000 population.

Crude Incidence Rate (CIR): The crude incidence is the rate at which new cases occur in a population during a specific period.

$$\text{CIR} = \frac{\text{Number of new cancer cases observed in the period 2018} * 100{,}000}{\text{Estimated population of the same year}}$$

This rate is also called the crude rate because it relates to each population as a whole and is influenced by the age structure of each population.

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

Age-Adjusted or Age-Standardized Rate (AAR): Age adjustment is a statistical method that corrects for the changing age distribution of the population and allows comparisons to be made in the adjusted rates between different population sub-groups over time.

Truncated Rates (TR): This is similar to the age-adjusted rate except that it is calculated to the truncated age group 35-64 years of age.

21. Standard registry tables

Table 24: Number of incidence cancers by five-year age group and site (ICD-10): 2018
Males Muzaffarpur PBCR area
% = Relative proportion of cancers of all sites

ICD 10	Sites	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+	Total	%
C00	Lip	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	**1**	**0.3**
C01-C02	Tongue	-	-	-	-	-	2	5	4	3	-	1	1	2	3	-	-	**21**	**5.9**
C03-C06	Mouth	-	-	-	-	-	-	5	10	6	7	5	2	11	8	1	4	**59**	**16.5**
C07-C08	Salivary Gland	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	**1**	**0.3**
C09	Tonsil	-	-	-	-	-	1	-	-	1	-	-	1	-	1	-	1	**5**	**1.4**
C10	Oth. Oropharynx	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	**1**	**0.3**
C11	Nasopharynx	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	**-**	**-**
C12-C13	Hypopharynx	-	-	-	-	-	-	-	-	-	-	-	-	2	2	1	2	**7**	**2.0**
C14	Pharynx Unspecified	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	**1**	**0.3**
C15	Oesophagus	-	-	-	-	-	-	-	-	-	-	1	1	1	-	1	2	**6**	**1.7**
C16	Stomach	-	-	-	-	-	-	-	-	3	-	3	1	3	1	3	2	**16**	**4.5**
C17	Small Intestine	-	-	-	-	-	1	-	-	-	-	-	-	-	1	-	-	**2**	**0.6**
C18	Colon	-	-	-	-	-	1	-	1	1	1	-	1	1	1	-	1	**8**	**2.2**
C19-C20	Rectum	-	-	-	-	-	-	-	2	1	-	-	-	3	-	1	2	**9**	**2.5**
C21	Anus & Anal Canal	-	-	-	-	2	-	1	-	-	-	1	-	2	-	-	-	**6**	**1.7**
C22	Liver	-	-	-	-	1	-	-	2	3	-	1	1	1	4	2	-	**15**	**4.2**
C23-C24	Gallbladder etc.	-	-	-	-	2	-	-	1	2	2	-	1	3	2	-	-	**13**	**3.6**
C25	Pancreas	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	**1**	**0.3**
C30-C31	Nose, Sinuses etc.	-	-	-	-	-	-	-	-	1	-	-	-	-	1	-	-	**2**	**0.6**
C32	Larynx	-	-	-	-	-	-	-	-	-	-	1	2	1	4	-	3	**11**	**3.1**
C33-C34	Trachea, bronchus and lung	-	-	-	-	-	-	-	-	1	-	1	-	1	2	2	3	**10**	**2.8**
C37-C38	Other Thoracic Organs	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	**1**	**0.3**
C40-C41	Bone	-	-	-	1	-	1	-	1	-	-	-	-	-	1	-	-	**4**	**1.1**
C43	Melanoma of Skin	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	**1**	**0.3**
C44	Other Skin	-	-	-	-	-	-	-	-	-	-	-	-	1	-	1	-	**2**	**0.6**
C45	Mesothelioma	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	**-**	**-**
C46	Kaposi Sarcoma	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	**-**	**-**
C47+C49	Conn. & Soft Tissue	-	-	-	-	-	-	-	2	-	-	2	-	-	-	-	-	**4**	**1.1**
C50	Breast	-	-	-	-	-	-	-	-	-	-	1	-	-	2	2	-	**5**	**1.4**
C60	Penis	-	-	-	-	-	-	-	-	1	-	-	1	2	-	1	1	**6**	**1.7**
C61	Prostate	-	-	-	-	-	-	-	1	1	-	-	1	6	7	2	2	**20**	**5.6**
C62	Testis	-	1	-	-	-	-	-	-	1	1	-	-	-	-	-	-	**3**	**0.8**
C63	Other Male Genital	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	**-**	**-**
C64	Kidney etc.	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	**1**	**0.3**
C65	Renal Pelvis	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	**-**	**-**
C66	Ureter	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	**-**	**-**
C67	Urinary Bladder	-	-	-	-	-	-	-	-	2	1	-	2	3	-	2	3	**13**	**3.6**
C68	Unspecified Urinary Organs	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	**-**	**-**
C69	Eye	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	**1**	**0.3**
C70-C72	Brain, Nervous System	-	-	-	-	-	1	-	-	-	-	-	1	-	-	1	-	**3**	**0.8**
C73	Thyroid	-	-	-	-	1	-	-	-	-	-	1	1	1	1	-	-	**5**	**1.4**
C74	Adrenal Gland	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	**-**	**-**
C81	Hodgkins Disease	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	**1**	**0.3**
C82-C86, C96	Non-Hodgkin lymphoma	-	-	2	1	-	-	-	1	-	2	2	-	-	1	1	1	**11**	**3.1**
C88	Malig Imn.Prol D	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	**-**	**-**
C90	Multiple Myeloma	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	1	**2**	**0.6**
C91	Lymphoid Leukaemia	-	1	-	-	1	-	-	-	-	1	-	-	-	2	1	-	**6**	**1.7**
C92-C94	Myeloid Leukaemia	-	-	-	-	2	-	-	1	1	-	1	-	1	1	-	1	**8**	**2.2**
C95	Leukaemia Unspecified	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	**1**	**0.3**
Other and Unspecified		3	1	1	-	4	1	4	1	2	2	6	4	13	7	9	7	**65**	**18.2**
All sites		**3**	**4**	**3**	**3**	**13**	**9**	**16**	**27**	**30**	**18**	**28**	**24**	**60**	**52**	**31**	**37**	**358**	**100**

* O & U includes the sites (ICD - 10: C26, C39, C48, C75, C76, C77, C78, C79, C80, C97)

Table 25: Number of incidence cancers by five-year age group and site (ICD-10): 2018
Females Muzaffarpur PBCR area

% = Relative proportion of cancers of all sites

ICD 10	Sites	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+	Total	%
C00	Lip	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
C01-C02	Tongue	-	-	-	-	-	-	-	-	-	2	-	-	-	1	1	-	4	1.1
C03-C06	Mouth	-	-	-	-	-	-	-	-	1	-	-	1	1	-	-	-	3	0.8
C07-C08	Salivary Gland	-	-	-	-	-	-	-	-	1	-	1	-	-	-	-	-	2	0.6
C09	Tonsil	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	1	0.3
C10	Oth. Oropharynx	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	1	2	0.6
C11	Nasopharynx	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
C12-C13	Hypopharynx	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
C14	Pharynx Unspecified	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	1	0.3
C15	Oesophagus	-	-	-	-	-	-	-	-	-	1	1	1	2	2	1	1	9	2.5
C16	Stomach	-	-	-	-	-	-	-	1	-	-	1	-	2	2	-	1	7	2.0
C17	Small Intestine	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
C18	Colon	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	1	0.3
C19-C20	Rectum	-	-	-	-	1	-	-	2	3	-	-	-	-	-	-	-	6	1.7
C21	Anus & Anal Canal	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	1	0.3
C22	Liver	-	-	-	-	-	-	-	-	1	1	-	1	1	1	2	1	8	2.3
C23-C24	Gallbladder etc.	-	-	-	-	-	-	-	3	5	3	5	8	6	6	-	1	37	10.5
C25	Pancreas	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	1	0.3
C30-C31	Nose, Sinuses etc.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
C32	Larynx	-	-	-	-	-	-	-	-	-	-	-	-	-	2	-	-	2	0.6
C33-C34	Trachea, bronchus and lung	-	-	-	-	-	-	-	-	2	3	-	2	1	2	-	-	10	2.8
C37-C38	Other Thoracic Organs	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	1	0.3
C40-C41	Bone	-	-	-	1	1	-	-	-	-	-	1	-	2	-	-	-	5	1.4
C43	Melanoma of Skin	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
C44	Other Skin	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	1	0.3
C45	Mesothelioma	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
C46	Kaposi Sarcoma	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
C47+C49	Conn. & Soft Tissue	-	1	-	-	-	-	-	-	-	-	-	-	1	-	-	-	2	0.6
C50	Breast	-	-	-	-	3	1	4	8	12	20	9	10	11	7	4	5	94	26.6
C51	Vulva	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	1	0.3
C52	Vagina	-	-	-	-	-	-	-	-	-	1	-	-	1	-	-	-	2	0.6
C53	Cervix Uteri	-	-	-	-	-	-	1	5	4	4	11	10	8	7	2	4	56	15.8
C54	Corpus Uteri	-	-	-	-	-	-	-	-	-	-	2	-	2	1	-	-	5	1.4
C55	Uterus Unspecified	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
C56	Ovary	-	-	-	-	-	2	-	1	4	2	1	1	1	2	-	-	14	4.0
C57	Other Female Genital	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
C58	Placenta	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
C64	Kidney etc.	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	1	0.3
C65	Renal Pelvis	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
C66	Ureter	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
C67	Urinary Bladder	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
C68	Unspecified Urinary Organs	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
C69	Eye	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
C70-C72	Brain, Nervous System	-	-	-	1	-	-	-	-	2	-	1	2	1	-	-	-	7	2.0
C73	Thyroid	-	-	-	-	-	-	1	-	-	1	-	1	1	-	-	-	4	1.1
C74	Adrenal Gland	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
C81	Hodgkins Disease	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
C82-C86, C96	Non-Hodgkin lymphoma	-	-	-	1	-	-	-	-	1	1	1	1	1	1	-	-	7	2.0
C88	Malig Imn.Prol D	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
C90	Multiple Myeloma	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
C91	Lymphoid Leukaemia	-	2	1	-	-	1	-	-	-	-	-	1	-	-	-	-	5	1.4
C92-C94	Myeloid Leukaemia	-	-	1	1	-	-	1	-	-	-	-	-	-	-	-	-	3	0.8
C95	Leukaemia Unspecified	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Other and Unspecified		-	1	2	2	3	1	3	1	-	6	3	5	15	8	-	1	51	14.4
	All sites	**-**	**4**	**4**	**6**	**9**	**5**	**10**	**21**	**38**	**45**	**40**	**46**	**58**	**42**	**11**	**15**	**354**	**100**

* O & U includes the sites (ICD - 10: C26, C39, C48, C75, C76, C77, C78, C79, C80, C97)

Table 26: Average annual Age-Specific, Crude (CR), Age-Adjusted (AAR) and Truncated (35-64 yrs) (TR) incidence rate per 100,000 population: 2018 – Males Muzaffarpur PBCR area

ICD 10	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+	CR	AAR	TR
C00	-	-	-	-	-	-	-	-	-	-	3.1	-	-	-	-	-	**0.1**	**0.2**	**0.5**
C01-C02	-	-	-	-	-	2.5	7.0	5.9	5.6	-	3.1	3.6	5.4	9.8	-	-	**2.0**	**2.1**	**3.9**
C03-C06	-	-	-	-	-	-	7.0	14.8	11.3	16.7	15.3	7.1	29.5	26.0	5.3	28.8	**5.6**	**6.7**	**15.5**
C07-C08	-	-	-	-	-	-	1.4	-	-	-	-	-	-	-	-	-	**0.1**	**0.1**	**-**
C09	-	-	-	-	-	1.3	-	-	1.9	-	-	3.6	-	3.3	-	7.2	**0.5**	**0.6**	**0.8**
C10	-	-	-	-	-	-	-	-	-	-	-	-	2.7	-	-	-	**0.1**	**0.1**	**0.3**
C11	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	**-**	**-**	**-**
C12-C13	-	-	-	-	-	-	-	-	-	-	-	-	5.4	6.5	5.3	14.4	**0.7**	**0.8**	**0.7**
C14	-	-	-	-	-	-	-	-	-	2.4	-	-	-	-	-	-	**0.1**	**0.1**	**0.5**
C15	-	-	-	-	-	-	-	-	-	-	3.1	3.6	2.7	-	5.3	14.4	**0.6**	**0.8**	**1.3**
C16	-	-	-	-	-	-	-	-	5.6	-	9.2	3.6	8.0	3.3	15.8	14.4	**1.5**	**2.0**	**4.1**
C17	-	-	-	-	-	1.3	-	-	-	-	-	-	-	3.3	-	-	**0.2**	**0.2**	**-**
C18	-	-	-	-	-	1.3	-	1.5	1.9	2.4	-	3.6	2.7	3.3	-	7.2	**0.8**	**0.9**	**1.9**
C19-C20	-	-	-	-	-	-	-	3.0	1.9	-	-	-	8.0	-	5.3	14.4	**0.9**	**1.0**	**2.0**
C21	-	-	-	-	2.2	-	1.4	-	-	-	3.1	-	5.4	-	-	-	**0.6**	**0.6**	**1.2**
C22	-	-	-	-	1.1	-	-	3.0	5.6	-	3.1	3.6	2.7	13.0	10.5	-	**1.4**	**1.6**	**3.0**
C23-C24	-	-	-	-	2.2	-	-	1.5	3.8	4.8	-	3.6	8.0	6.5	-	-	**1.2**	**1.4**	**3.4**
C25	-	-	-	-	-	-	-	-	-	-	-	3.6	-	-	-	-	**0.1**	**0.1**	**0.5**
C30-C31	-	-	-	-	-	-	-	-	1.9	-	-	-	-	3.3	-	-	**0.2**	**0.2**	**0.4**
C32	-	-	-	-	-	-	-	-	-	-	3.1	7.1	2.7	13.0	-	21.6	**1.0**	**1.4**	**1.8**
C33-C34	-	-	-	-	-	-	-	-	1.9	-	3.1	-	2.7	6.5	10.5	21.6	**1.0**	**1.2**	**1.2**
C37-C38	-	-	-	0.9	-	-	-	-	-	-	-	-	-	-	-	-	**0.1**	**0.1**	**-**
C40-C41	-	-	-	0.9	-	1.3	-	1.5	-	-	-	-	-	3.3	-	-	**0.4**	**0.4**	**0.3**
C43	-	-	-	-	-	-	-	-	-	-	-	-	2.7	-	-	-	**0.1**	**0.1**	**0.3**
C44	-	-	-	-	-	-	-	-	-	-	-	-	2.7	-	5.3	-	**0.2**	**0.2**	**0.3**
C45	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	**-**	**-**	**-**
C46	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	**-**	**-**	**-**
C47+C49	-	-	-	-	-	-	-	3.0	-	-	6.1	-	-	-	-	-	**0.4**	**0.5**	**1.6**
C50	-	-	-	-	-	-	-	-	-	-	3.1	-	-	6.5	10.5	-	**0.5**	**0.6**	**0.5**
C60	-	-	-	-	-	-	-	-	1.9	-	-	3.6	5.4	-	5.3	7.2	**0.6**	**0.7**	**1.5**
C61	-	-	-	-	-	-	-	1.5	1.9	-	-	3.6	16.1	22.8	10.5	14.4	**1.9**	**2.2**	**3.2**
C62	-	0.7	-	-	-	-	-	-	1.9	2.4	-	-	-	-	-	-	**0.3**	**0.3**	**0.8**
C63	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	**-**	**-**	**-**
C64	-	-	-	-	-	-	-	-	-	-	-	3.6	-	-	-	-	**0.1**	**0.1**	**0.5**
C65	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	**-**	**-**	**-**
C66	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	**-**	**-**	**-**
C67	-	-	-	-	-	-	-	-	3.8	2.4	-	7.1	8.0	-	10.5	21.6	**1.2**	**1.6**	**3.1**
C68	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	**-**	**-**	**-**
C69	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	7.2	**0.1**	**0.1**	**-**
C70-C72	-	-	-	-	-	1.3	-	-	-	-	-	3.6	-	-	5.3	-	**0.3**	**0.3**	**0.5**
C73	-	-	-	-	1.1	-	-	-	-	-	3.1	3.6	2.7	3.3	-	-	**0.5**	**0.6**	**1.3**
C74	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	**-**	**-**	**-**
C81	-	-	-	-	-	1.3	-	-	-	-	-	-	-	-	-	-	**0.1**	**0.1**	**-**
C82-C86, C96	-	-	1.5	0.9	-	-	-	1.5	-	4.8	6.1	-	-	3.3	5.3	7.2	**1.0**	**1.2**	**2.2**
C88	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	**-**	**-**	**-**
C90	-	-	-	-	-	-	-	-	-	-	-	3.6	-	-	-	7.2	**0.2**	**0.3**	**0.5**
C91	-	0.7	-	-	1.1	-	-	-	-	2.4	-	-	-	6.5	5.3	-	**0.6**	**0.6**	**0.5**
C92-C94	-	-	-	-	2.2	-	-	1.5	1.9	-	3.1	-	2.7	3.3	-	7.2	**0.8**	**0.9**	**1.5**
C95	-	0.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	**0.1**	**0.1**	**-**
O&U*	2.7	0.7	0.8	-	4.5	1.3	5.6	1.5	3.8	4.8	18.3	14.2	34.8	22.8	47.4	50.3	**6.2**	**7.4**	**11.2**
All sites	**2.7**	**3.0**	**2.3**	**2.7**	**14.5**	**11.4**	**22.3**	**40.1**	**56.5**	**43.0**	**85.5**	**85.3**	**160.7**	**169.3**	**163.3**	**266.1**	**34.0**	**40.6**	**72.5**

* O & U includes the sites (ICD - 10: C26, C39, C48, C75, C76, C77, C78, C79, C80, C97)

Table 27: Average annual Age-Specific, Crude (CR), Age-Adjusted (AAR) and Truncated (35-64 yrs) (TR) incidence rate per 100,000 population: 2018 – Females Muzaffarpur PBCR area

ICD 10	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+	CR	AAR	TR
C00	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
C01-C02	-	-	-	-	-	-	-	-	-	5.2	-	-	-	4.0	7.6	-	**0.4**	**0.6**	**1.0**
C03-C06	-	-	-	-	-	-	-	-	2.2	-	-	3.0	2.7	-	-	-	**0.3**	**0.4**	**1.2**
C07-C08	-	-	-	-	-	-	-	-	2.2	-	3.3	-	-	-	-	-	**0.2**	**0.3**	**1.0**
C09	-	-	-	-	-	-	-	-	-	-	-	3.0	-	-	-	-	**0.1**	**0.1**	**0.4**
C10	-	-	-	-	-	-	-	-	-	-	3.3	-	-	-	-	8.3	**0.2**	**0.3**	**0.5**
C11	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
C12-C13	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
C14	-	-	-	-	-	-	-	-	-	-	3.3	-	-	-	-	-	**0.1**	**0.2**	**0.5**
C15	-	-	-	-	-	-	-	-	-	2.6	3.3	3.0	5.4	8.1	7.6	8.3	**0.9**	**1.2**	**2.1**
C16	-	-	-	-	-	-	-	1.6	-	-	3.3	-	5.4	8.1	-	8.3	**0.7**	**0.9**	**1.6**
C17	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
C18	-	-	-	-	-	-	-	-	2.2	-	-	-	-	-	-	-	**0.1**	**0.1**	**0.4**
C19-C20	-	-	-	-	1.4	-	-	3.3	6.6	-	-	-	-	-	-	-	**0.6**	**0.7**	**1.9**
C21	-	-	-	-	-	-	-	-	2.2	-	-	-	-	-	-	-	**0.1**	**0.1**	**0.4**
C22	-	-	-	-	-	-	-	-	2.2	2.6	-	3.0	2.7	4.0	15.1	8.3	**0.8**	**1.1**	**1.7**
C23-C24	-	-	-	-	-	-	-	4.9	11.1	7.8	16.6	24.2	16.3	24.3	-	8.3	**3.9**	**4.8**	**12.5**
C25	-	-	-	-	-	-	-	-	-	-	-	-	-	-	7.6	-	**0.1**	**0.2**	-
C30-C31	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
C32	-	-	-	-	-	-	-	-	-	-	-	-	-	8.1	-	-	**0.2**	**0.2**	-
C33-C34	-	-	-	-	-	-	-	-	4.4	7.8	-	6.1	2.7	8.1	-	-	**1.1**	**1.3**	**3.5**
C37-C38	-	-	-	-	-	-	-	-	-	-	-	3.0	-	-	-	-	**0.1**	**0.1**	**0.4**
C40-C41	-	-	-	1.2	1.4	-	-	-	-	-	3.3	-	5.4	-	-	-	**0.5**	**0.6**	**1.2**
C43	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
C44	-	-	-	-	-	-	-	-	-	-	3.3	-	-	-	-	-	**0.1**	**0.2**	**0.5**
C45	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
C46	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
C47+C49	-	0.8	-	-	-	-	-	-	-	-	-	-	2.7	-	-	-	**0.2**	**0.2**	**0.4**
C50	-	-	-	-	4.2	1.3	5.8	13.1	26.6	51.8	29.9	30.3	29.9	28.3	30.2	41.3	**9.9**	**12.5**	**30.3**
C51	-	-	-	-	-	-	-	-	-	-	-	-	2.7	-	-	-	**0.1**	**0.1**	**0.4**
C52	-	-	-	-	-	-	-	-	-	2.6	-	-	2.7	-	-	-	**0.2**	**0.3**	**0.9**
C53	-	-	-	-	-	-	1.4	8.2	8.9	10.4	36.5	30.3	21.8	28.3	15.1	33.0	**5.9**	**7.4**	**17.9**
C54	-	-	-	-	-	-	-	-	-	-	6.6	-	5.4	4.0	-	-	**0.5**	**0.7**	**1.8**
C55	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
C56	-	-	-	-	-	2.6	-	1.6	8.9	5.2	3.3	3.0	2.7	8.1	-	-	**1.5**	**1.8**	**4.3**
C57	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
C58	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
C64	-	-	-	-	1.4	-	-	-	-	-	-	-	-	-	-	-	**0.1**	**0.1**	-
C65	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
C66	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
C67	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
C68	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
C69	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
C70-C72	-	-	-	1.2	-	-	-	-	4.4	-	3.3	6.1	2.7	-	-	-	**0.7**	**0.9**	**2.5**
C73	-	-	-	-	-	-	1.4	-	-	2.6	-	3.0	2.7	-	-	-	**0.4**	**0.5**	**1.2**
C74	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
C81	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
C82-C86, C96	-	-	-	1.2	-	-	-	-	2.2	2.6	3.3	3.0	2.7	4.0	-	-	**0.7**	**0.9**	**2.2**
C88	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
C90	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
C91	-	1.6	0.8	-	-	1.3	-	-	-	-	-	3.0	-	-	-	-	**0.5**	**0.5**	**0.4**
C92-C94	-	-	0.8	1.2	-	-	1.4	-	-	-	-	-	-	-	-	-	**0.3**	**0.3**	-
C95	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
O&U*	-	0.8	1.6	2.4	4.2	1.3	4.3	1.6	-	15.6	10.0	15.1	40.8	32.3	-	8.3	**5.4**	**6.0**	**12.1**
All sites	**-**	**3.1**	**3.2**	**7.3**	**12.7**	**6.6**	**14.5**	**34.3**	**84.1**	**116.6**	**132.7**	**139.2**	**157.7**	**169.8**	**83.2**	**123.8**	**37.3**	**45.5**	**105.2**

* O & U includes the sites (ICD - 10: C26, C39, C48, C75, C76, C77, C78, C79, C80, C97)

Table 28: Cumulative Rate (Cu. Rate %) & Cumulative Risk (Cu. Risk) of individual sites (ICD-10) based on age-specific rates (from 0-64 Years and 0-74 Years) 2018: Males (Muzaffarpur PBCR area)

ICD 10	Sites	Cum Rate (0-64)	Cum Risk (0-64)	Cum Rate (0-74)	Cum Risk (0-74)
C00	Lip	0.0002	0.0002	0.0002	0.0002
C01-C02	Tongue	0.0017	0.0017	0.0021	0.0021
C03-C06	Mouth	0.0051	0.0051	0.0066	0.0066
C07-C08	Salivary Gland	0.0001	0.0001	0.0001	0.0001
C09	Tonsil	0.0003	0.0003	0.0005	0.0005
C10	Oth. Oropharynx	0.0001	0.0001	0.0001	0.0001
C11	Nasopharynx	-	-	-	-
C12-C13	Hypopharynx	0.0003	0.0003	0.0009	0.0009
C14	Pharynx Unspecified	0.0001	0.0001	0.0001	0.0001
C15	Oesophagus	0.0005	0.0005	0.0007	0.0007
C16	Stomach	0.0013	0.0013	0.0023	0.0023
C17	Small Intestine	0.0001	0.0001	0.0002	0.0002
C18	Colon	0.0007	0.0007	0.0008	0.0008
C19-C20	Rectum	0.0006	0.0006	0.0009	0.0009
C21	Anus & Anal Canal	0.0006	0.0006	0.0006	0.0006
C22	Liver	0.0010	0.0010	0.0021	0.0021
C23-C24	Gallbladder etc.	0.0012	0.0012	0.0015	0.0015
C25	Pancreas	0.0002	0.0002	0.0002	0.0002
C30-C31	Nose, Sinuses etc.	0.0001	0.0001	0.0003	0.0003
C32	Larynx	0.0006	0.0006	0.0013	0.0013
C33-C34	Trachea, bronchus and lung	0.0004	0.0004	0.0012	0.0012
C37-C38	Other Thoracic Organs	-	-	-	-
C40-C41	Bone	0.0002	0.0002	0.0003	0.0003
C43	Melanoma of Skin	0.0001	0.0001	0.0001	0.0001
C44	Other Skin	0.0001	0.0001	0.0004	0.0004
C45	Mesothelioma	-	-	-	-
C46	Kaposi Sarcoma	-	-	-	-
C47+C49	Conn. & Soft Tissue	0.0005	0.0005	0.0005	0.0005
C50	Breast	0.0002	0.0002	0.0010	0.0010
C60	Penis	0.0005	0.0005	0.0008	0.0008
C61	Prostate	0.0011	0.0011	0.0028	0.0028
C62	Testis	0.0003	0.0003	0.0003	0.0003
C63	Other Male Genital	-	-	-	-
C64	Kidney etc.	0.0002	0.0002	0.0002	0.0002
C65	Renal Pelvis	-	-	-	-
C66	Ureter	-	-	-	-
C67	Urinary Bladder	0.0011	0.0011	0.0016	0.0016
C68	Unspecified Urinary Organs	-	-	-	-
C69	Eye	-	-	-	-
C70-C72	Brain, Nervous System	0.0002	0.0002	0.0005	0.0005
C73	Thyroid	0.0005	0.0005	0.0007	0.0007
C74	Adrenal Gland	-	-	-	-
C81	Hodgkins Disease	0.0001	0.0001	0.0001	0.0001
C82-C86, C96	Non-Hodgkin lymphoma	0.0007	0.0007	0.0012	0.0012
C88	Malig Imn.Prol D	-	-	-	-
C90	Multiple Myeloma	0.0002	0.0002	0.0002	0.0002
C91	Lymphoid Leukaemia	0.0002	0.0002	0.0008	0.0008
C92-C94	Myeloid Leukaemia	0.0006	0.0006	0.0007	0.0007
C95	Leukaemia Unspecified	-	-	-	-
Other and Unspecified		0.0046	0.0046	0.0082	0.0082
All sites		**0.0265**	**0.0265**	**0.0431**	**0.0431**

* O & U includes the sites (ICD - 10: C26, C39, C48, C75, C76, C77, C78, C79, C80, C97)

Table 29: Cumulative Rate (Cu. Rate %) & Cumulative Risk (Cu. Risk) of individual sites (ICD-10) based on age specific rates (from 0-64 Years and 0-74 Years) 2018: Females (Muzaffarpur PBCR area)

ICD 10	Sites	Cum Rate (0-64)	Cum Risk (0-64)	Cum Rate (0-74)	Cum Risk (0-74)
C00	Lip	-	-	-	-
C01-C02	Tongue	0.0003	0.0003	0.0008	0.0008
C03-C06	Mouth	0.0004	0.0004	0.0004	0.0004
C07-C08	Salivary Gland	0.0003	0.0003	0.0003	0.0003
C09	Tonsil	0.0002	0.0002	0.0002	0.0002
C10	Oth. Oropharynx	0.0002	0.0002	0.0002	0.0002
C11	Nasopharynx	-	-	-	-
C12-C13	Hypopharynx	-	-	-	-
C14	Pharynx Unspecified	0.0002	0.0002	0.0002	0.0002
C15	Oesophagus	0.0007	0.0007	0.0015	0.0015
C16	Stomach	0.0005	0.0005	0.0009	0.0009
C17	Small Intestine	-	-	-	-
C18	Colon	0.0001	0.0001	0.0001	0.0001
C19-C20	Rectum	0.0006	0.0006	0.0006	0.0006
C21	Anus & Anal Canal	0.0001	0.0001	0.0001	0.0001
C22	Liver	0.0005	0.0005	0.0015	0.0015
C23-C24	Gallbladder etc.	0.0040	0.0040	0.0053	0.0053
C25	Pancreas	0.0000	0.0000	0.0004	0.0004
C30-C31	Nose, Sinuses etc.	-	-	-	-
C32	Larynx	-	-	0.0004	0.0004
C33-C34	Trachea, bronchus and lung	0.0010	0.0010	0.0015	0.0015
C37-C38	Other Thoracic Organs	0.0002	0.0002	0.0002	0.0002
C40-C41	Bone	0.0006	0.0006	0.0006	0.0006
C43	Melanoma of Skin	-	-	-	-
C44	Other Skin	0.0002	0.0002	0.0002	0.0002
C45	Mesothelioma	-	-	-	-
C46	Kaposi Sarcoma	-	-	-	-
C47+C49	Conn. & Soft Tissue	0.0002	0.0002	0.0002	0.0002
C50	Breast	0.0096	0.0096	0.0126	0.0126
C51	Vulva	0.0001	0.0001	0.0001	0.0001
C52	Vagina	0.0003	0.0003	0.0003	0.0003
C53	Cervix Uteri	0.0059	0.0059	0.0080	0.0080
C54	Corpus Uteri	0.0006	0.0006	0.0008	0.0008
C55	Uterus Unspecified	-	-	-	-
C56	Ovary	0.0014	0.0014	0.0018	0.0018
C57	Other Female Genital	-	-	-	-
C58	Placenta	-	-	-	-
C64	Kidney etc.	0.0001	0.0001	0.0001	0.0001
C65	Renal Pelvis	-	-	-	-
C66	Ureter	-	-	-	-
C67	Urinary Bladder	-	-	-	-
C68	Unspecified Urinary Organs	-	-	-	-
C69	Eye	-	-	-	-
C70-C72	Brain, Nervous System	0.0009	0.0009	0.0009	0.0009
C73	Thyroid	0.0005	0.0005	0.0005	0.0005
C74	Adrenal Gland	-	-	-	-
C81	Hodgkins Disease	-	-	-	-
C82-C86, C96	Non-Hodgkin lymphoma	0.0008	0.0008	0.0010	0.0010
C88	Malig Imn.Prol D	-	-	-	-
C90	Multiple Myeloma	-	-	-	-
C91	Lymphoid Leukaemia	0.0003	0.0003	0.0003	0.0003
C92-C94	Myeloid Leukaemia	0.0002	0.0002	0.0002	0.0002
C95	Leukaemia Unspecified	-	-	-	-
Other and Unspecified		0.0049	0.0049	0.0065	0.0065
All sites		**0.0356**	**0.0356**	**0.0483**	**0.0482**

* O & U includes the sites (ICD - 10: C26, C39, C48, C75, C76, C77, C78, C79, C80, C97)

Table 30: Number (#) and Proportion (%) of cancers by site (ICD-10) and method of diagnosis: 2018 – Males Muzaffarpur PBCR area

ICD 10	Sites	Clinical		Radiology		Microscopic		Other (+DCO)**		Total #	
		Number	%	Number	%	Number	%	Number	%	Number	%
C00	Lip	1	100.0	-	-	-	-	-	-	1	100.0
C01-C02	Tongue	1	4.8	1	4.8	18	85.7	1	4.8	21	100.0
C03-C06	Mouth	4	6.8	-	-	41	69.5	14	23.7	59	100.0
C07-C08	Salivary Gland	-	-	-	-	1	100.0	-	-	1	100.0
C09	Tonsil	-	-	-	-	4	80.0	1	20.0	5	100.0
C10	Oth. Oropharynx	-	-	-	-	1	100.0	-	-	1	100.0
C11	Nasopharynx	-	-	-	-	-	-	-	-	-	-
C12-C13	Hypopharynx	1	14.3	-	-	6	85.7	-	-	7	100.0
C14	Pharynx Unspecified	-	-	-	-	1	100.0	-	-	1	100.0
C15	Oesophagus	1	16.7	-	-	4	66.7	1	16.7	6	100.0
C16	Stomach	-	-	6	37.5	10	62.5	-	-	16	100.0
C17	Small Intestine	-	-	-	-	2	100.0	-	-	2	100.0
C18	Colon	-	-	-	-	5	62.5	3	37.5	8	100.0
C19-C20	Rectum	1	11.1	-	-	5	55.6	3	33.3	9	100.0
C21	Anus & Anal Canal	-	-	-	-	5	83.3	1	16.7	6	100.0
C22	Liver	-	-	7	46.7	3	20.0	5	33.3	15	100.0
C23-C24	Gallbladder etc.	-	-	2	15.4	9	69.2	2	15.4	13	100.0
C25	Pancreas	-	-	-	-	1	100.0	-	-	1	100.0
C30-C31	Nose, Sinuses etc.	-	-	-	-	2	100.0	-	-	2	100.0
C32	Larynx	-	-	2	18.2	9	81.8	-	-	11	100.0
C33-C34	Trachea, bronchus and lung	-	-	-	-	8	80.0	2	20.0	10	100.0
C37-C38	Other Thoracic Organs	-	-	-	-	1	100.0	-	-	1	100.0
C40-C41	Bone	-	-	1	25.0	2	50.0	1	25.0	4	100.0
C43	Melanoma of Skin	-	-	-	-	1	100.0	-	-	1	100.0
C44	Other Skin	-	-	-	-	2	100.0	-	-	2	100.0
C45	Mesothelioma	-	-	-	-	-	-	-	-	-	-
C46	Kaposi Sarcoma	-	-	-	-	-	-	-	-	-	-
C47+C49	Conn. & Soft Tissue	-	-	-	-	4	100.0	-	-	4	100.0
C50	Breast	-	-	-	-	5	100.0	-	-	5	100.0
C60	Penis	-	-	-	-	3	50.0	3	50.0	6	100.0
C61	Prostate	1	5.0	-	-	10	50.0	9	45.0	20	100.0
C62	Testis	-	-	-	-	2	66.7	1	33.3	3	100.0
C63	Other Male Genital	-	-	-	-	-	-	-	-	-	-
C64	Kidney etc.	-	-	-	-	1	100.0	-	-	1	100.0
C65	Renal Pelvis	-	-	-	-	-	-	-	-	-	-
C66	Ureter	-	-	-	-	-	-	-	-	-	-
C67	Urinary Bladder	-	-	1	7.7	11	84.6	1	7.7	13	100.0
C68	Unspecified Urinary Organs	-	-	-	-	-	-	-	-	-	-
C69	Eye	-	-	-	-	1	100.0	-	-	1	100.0
C70-C72	Brain, Nervous System	-	-	-	-	3	100.0	-	-	3	100.0
C73	Thyroid	-	-	-	-	5	100.0	-	-	5	100.0
C74	Adrenal Gland	-	-	-	-	-	-	-	-	-	-
C81	Hodgkins Disease	-	-	-	-	1	100.0	-	-	1	100.0
C82-C86, C96	Non-Hodgkin lymphoma	-	-	-	-	11	100.0	-	-	11	100.0
C88	Malig Imn.Prol D	-	-	-	-	-	-	-	-	-	-
C90	Multiple Myeloma	-	-	-	-	2	100.0	-	-	2	100.0
C91	Lymphoid Leukaemia	-	-	-	-	6	100.0	-	-	6	100.0
C92-C94	Myeloid Leukaemia	-	-	-	-	8	100.0	-	-	8	100.0
C95	Leukaemia Unspecified	-	-	-	-	1	100.0	-	-	1	100.0
Other and Unspecified		5	7.7	1	1.5	11	16.9	48	73.8	65	100.0
All sites		**15**	**4.2**	**21**	**5.9**	**226**	**63.1**	**96**	**26.8**	**358**	**100.0**

* O & U includes the sites (ICD - 10: C26, C39, C48, C75, C76, C77, C78, C79, C80, C97)

** Other: Information based on patient's relatives, medical note and DCO

Table 31: Number (#) and Proportion (%) of cancers by site (ICD-10) and method of diagnosis: 2018 – Females Muzaffarpur PBCR area

ICD 10	Sites	Clinical		Radiology		Microscopic		Other (+DCO)**		Total #	
		Number	%	Number	%	Number	%	Number	%	Number	%
C00	Lip	-	-	-	-	-	-	-	-	-	-
C01-C02	Tongue	1	25.0	-	-	3	75.0	-	-	4	100.0
C03-C06	Mouth	-	-	-	-	2	66.7	1	33.3	3	100.0
C07-C08	Salivary Gland	1	50.0	-	-	1	50.0	-	-	2	100.0
C09	Tonsil	-	-	-	-	1	100.0	-	-	1	100.0
C10	Oth. Oropharynx	-	-	-	-	2	100.0	-	-	2	100.0
C11	Nasopharynx	-	-	-	-	-	-	-	-	-	100.0
C12-C13	Hypopharynx	-	-	-	-	-	-	-	-	-	-
C14	Pharynx Unspecified	-	-	-	-	-	-	1	100.0	1	100.0
C15	Oesophagus	-	-	-	-	8	88.9	1	11.1	9	100.0
C16	Stomach	1	14.3	-	-	5	71.4	1	14.3	7	100.0
C17	Small Intestine	-	-	-	-	-	-	-	-	-	-
C18	Colon	-	-	-	-	1	100.0	-	-	1	100.0
C19-C20	Rectum	-	-	1	16.7	5	83.3	-	-	6	100.0
C21	Anus & Anal Canal	-	-	-	-	1	100.0	-	-	1	100.0
C22	Liver	-	-	3	37.5	1	12.5	4	50.0	8	100.0
C23-C24	Gallbladder etc.	-	-	12	32.4	22	59.5	3	8.1	37	100.0
C25	Pancreas	1	100.0	-	-	-	-	-	-	1	100.0
C30-C31	Nose, Sinuses etc.	-	-	-	-	-	-	-	-	-	-
C32	Larynx	-	-	-	-	2	100.0	-	-	2	100.0
C33-C34	Trachea, bronchus and lung	-	-	1	10.0	7	70.0	2	20.0	10	100.0
C37-C38	Other Thoracic Organs	-	-	-	-	1	100.0	-	-	1	100.0
C40-C41	Bone	-	-	1	20.0	1	20.0	3	60.0	5	100.0
C43	Melanoma of Skin	-	-	-	-	-	-	-	-	-	-
C44	Other Skin	-	-	-	-	1	100.0	-	-	1	100.0
C45	Mesothelioma	-	-	-	-	-	-	-	-	-	-
C46	Kaposi Sarcoma	-	-	-	-	-	-	-	-	-	-
C47+C49	Conn. & Soft Tissue	-	-	-	-	2	100.0	-	-	2	100.0
C50	Breast	2	2.1	4	4.3	73	77.7	15	16.0	94	100.0
C51	Vulva	-	-	-	-	1	100.0	-	-	1	100.0
C52	Vagina	-	-	1	50.0	1	50.0	-	-	2	100.0
C53	Cervix Uteri	4	7.1	1	1.8	36	64.3	15	26.8	56	100.0
C54	Corpus Uteri	1	20.0	-	-	4	80.0	-	-	5	100.0
C55	Uterus Unspecified	-	-	-	-	-	-	-	-	-	-
C56	Ovary	1	7.1	1	7.1	10	71.4	2	14.3	14	100.0
C57	Other Female Genital	-	-	-	-	-	-	-	-	-	-
C58	Placenta	-	-	-	-	-	-	-	-	-	-
C64	Kidney etc.	-	-	-	-	1	100.0	-	-	1	100.0
C65	Renal Pelvis	-	-	-	-	-	-	-	-	-	-
C66	Ureter	-	-	-	-	-	-	-	-	-	-
C67	Urinary Bladder	-	-	-	-	-	-	-	-	-	-
C68	Unspecified Urinary Organs	-	-	-	-	-	-	-	-	-	-
C69	Eye	-	-	-	-	-	-	-	-	-	-
C70-C72	Brain, Nervous System	-	-	1	14.3	3	42.9	3	42.9	7	100.0
C73	Thyroid	-	-	-	-	4	100.0	-	-	4	100.0
C74	Adrenal Gland	-	-	-	-	-	-	-	-	-	-
C81	Hodgkins Disease	-	-	-	-	-	-	-	-	-	-
C82-C86, C96	Non-Hodgkin lymphoma	-	-	-	-	7	100.0	-	-	7	100.0
C88	Malig Imn.Prol D	-	-	-	-	-	-	-	-	-	-
C90	Multiple Myeloma	-	-	-	-	-	-	-	-	-	-
C91	Lymphoid Leukaemia	-	-	-	-	5	100.0	-	-	5	100.0
C92-C94	Myeloid Leukaemia	-	-	-	-	3	100.0	-	-	3	100.0
C95	Leukaemia Unspecified	-	-	-	-	-	-	-	-	-	-
Other and Unspecified		2	3.9	5	9.8	12	23.5	32	62.7	51	100.0
All sites		**14**	**4.0**	**31**	**8.8**	**226**	**63.8**	**83**	**23.4**	**354**	**100.0**

* O & U includes the sites (ICD - 10: C26, C39, C48, C75, C76, C77, C78, C79, C80, C97)

** Other: Information based on patient's relatives, medical note and DCO

Table 32: Number of cancer deaths by five year age group and site (ICD-10): 2018 Males Muzaffarpur PBCR area

% = Relative proportion of cancers of all sites

ICD 10	Sites	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+	Total	%
C00	Lip	-	-	-	-	-	1	-	-	-	1	-	-	-	-	-	-	**2**	**0.9**
C01-C02	Tongue	-	-	-	-	-	1	-	1	2	1	1	2	1	3	-	-	**12**	**5.7**
C03-C06	Mouth	-	-	-	-	-	1	1	3	2	4	2	1	5	2	-	3	**24**	**11.4**
C07-C08	Salivary Gland	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	**-**	**-**
C09	Tonsil	-	-	-	-	-	-	-	1	-	1	-	-	-	-	-	-	**2**	**0.9**
C10	Oth. Oropharynx	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	**-**	**-**
C11	Nasopharynx	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	**-**	**-**
C12-C13	Hypopharynx	-	-	-	-	-	-	-	-	-	-	-	-	1	1	1	-	**3**	**1.4**
C14	Pharynx Unspecified	-	-	-	-	-	-	-	-	-	1	-	1	-	-	2	-	**4**	**1.9**
C15	Oesophagus	-	-	-	-	-	-	-	-	-	1	1	-	-	-	2	-	**4**	**1.9**
C16	Stomach	-	-	-	-	-	-	-	-	4	-	1	-	2	3	3	1	**14**	**6.6**
C17	Small Intestine	-	-	-	-	-	-	-	-	-	-	-	-	1	1	-	-	**2**	**0.9**
C18	Colon	-	-	-	-	-	1	-	-	-	-	-	1	-	-	-	-	**2**	**0.9**
C19-C20	Rectum	-	-	-	-	-	-	-	-	1	-	-	-	3	-	-	-	**4**	**1.9**
C21	Anus & Anal Canal	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	**1**	**0.5**
C22	Liver	-	-	-	-	-	-	-	4	2	-	1	1	2	3	1	1	**15**	**7.1**
C23-C24	Gallbladder etc.	-	-	-	-	1	-	-	1	1	1	-	1	-	-	-	1	**6**	**2.8**
C25	Pancreas	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	**-**	**-**
C30-C31	Nose, Sinuses etc.	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	**1**	**0.5**
C32	Larynx	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	2	**3**	**1.4**
C33-C34	Trachea, bronchus and lung	-	-	-	-	-	1	1	-	-	-	1	1	2	1	1	2	**10**	**4.7**
C37-C38	Other Thoracic Organs	-	-	-	-	-	-	1	-	-	-	-	-	1	-	-	-	**2**	**0.9**
C40-C41	Bone	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	**1**	**0.5**
C43	Melanoma of Skin	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	**1**	**0.5**
C44	Other Skin	-	-	-	-	-	-	-	-	-	-	-	-	3	-	1	-	**4**	**1.9**
C45	Mesothelioma	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	**-**	**-**
C46	Kaposi Sarcoma	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	**-**	**-**
C47+C49	Conn. & Soft Tissue	-	-	-	-	-	-	-	-	1	-	1	-	-	-	-	-	**2**	**0.9**
C50	Breast	-	-	-	-	-	-	-	-	1	-	-	-	-	1	-	-	**2**	**0.9**
C60	Penis	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	**1**	**0.5**
C61	Prostate	-	-	-	-	-	-	-	-	-	1	-	1	2	1	1	1	**7**	**3.3**
C62	Testis	-	-	-	-	-	-	-	-	-	1	-	-	-	-	1	-	**2**	**0.9**
C63	Other Male Genital	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	**-**	**-**
C64	Kidney etc.	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	**1**	**0.5**
C65	Renal Pelvis	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	**-**	**-**
C66	Ureter	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	**-**	**-**
C67	Urinary Bladder	-	-	-	-	-	-	-	-	2	-	-	-	1	-	1	1	**5**	**2.4**
C68	Unspecified Urinary Organs	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	**-**	**-**
C69	Eye	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	**1**	**0.5**
C70-C72	Brain, Nervous System	-	-	-	-	-	-	-	-	-	-	1	-	-	-	1	-	**2**	**0.9**
C73	Thyroid	-	-	-	-	-	-	-	-	-	-	-	1	1	-	-	-	**2**	**0.9**
C74	Adrenal Gland	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	**-**	**-**
C81	Hodgkins Disease	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	**1**	**0.5**
C82-C86, C96	Non-Hodgkin lymphoma	-	-	1	-	-	-	-	-	-	-	-	-	-	1	-	1	**3**	**1.4**
C88	Malig Imn.Prol D	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	**-**	**-**
C90	Multiple Myeloma	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	**1**	**0.5**
C91	Lymphoid Leukaemia	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	**1**	**0.5**
C92-C94	Myeloid Leukaemia	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	**-**	**-**
C95	Leukaemia Unspecified	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	**1**	**0.5**
Other and Unspecified		1	2	-	1	2		6	2	1	2	6	6	14	6	8	5	**62**	**29.4**
All sites		**1**	**3**	**1**	**1**	**5**	**5**	**10**	**12**	**17**	**15**	**16**	**17**	**40**	**25**	**23**	**20**	**211**	**100**

* O & U includes the sites (ICD - 10: C26, C39, C48, C75, C76, C77, C78, C79, C80, C97)

Table 33: Number of cancer deaths by five year age group and site (ICD-10): 2018 Females Muzaffarpur PBCR area

% = Relative proportion of cancers of all sites

ICD 10	Sites	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+	Total	%
C00	Lip	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
C01-C02	Tongue	-	-	-	-	-	-	-	-	-	1	1	-	-	-	-	-	**2**	**0.9**
C03-C06	Mouth	-	-	-	-	-	-	-	-	1	1	-	-	-	-	-	-	**2**	**0.9**
C07-C08	Salivary Gland	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
C09	Tonsil	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
C10	Oth. Oropharynx	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
C11	Nasopharynx	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
C12-C13	Hypopharynx	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
C14	Pharynx Unspecified	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
C15	Oesophagus	-	-	-	-	-	-	-	-	-	1	-	1	2	1	1	1	**7**	**3.3**
C16	Stomach	-	-	-	-	1	-	-	2	-	1	2	3	2	1	-	-	**12**	**5.7**
C17	Small Intestine	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
C18	Colon	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	**1**	**0.5**
C19-C20	Rectum	-	-	-	-	1	-	-	-	1	-	-	-	-	-	-	-	**2**	**0.9**
C21	Anus & Anal Canal	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	**1**	**0.5**
C22	Liver	-	-	-	-	-	-	-	-	-	2	1	1	1	1	1	1	**8**	**3.8**
C23-C24	Gallbladder etc.	-	-	-	-	1	-	-	1	4	3	1	5	4	6	-	2	**27**	**12.7**
C25	Pancreas	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
C30-C31	Nose, Sinuses etc.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
C32	Larynx	-	-	-	-	-	-	-	-	-	-	-	-	-	2	-	-	**2**	**0.9**
C33-C34	Trachea, bronchus and lung	-	-	-	-	-	-	-	-	1	3	1	1	2	1	-	-	**9**	**4.2**
C37-C38	Other Thoracic Organs	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
C40-C41	Bone	-	-	-	-	2	-	-	-	-	-	1	-	-	-	-	-	**3**	**1.4**
C43	Melanoma of Skin	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
C44	Other Skin	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
C45	Mesothelioma	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
C46	Kaposi Sarcoma	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
C47+C49	Conn. & Soft Tissue	-	-	-	-	-	-	1	-	1	-	-	-	-	-	-	-	**2**	**0.9**
C50	Breast	-	-	-	-	1	1	-	2	4	6	4	4	5	3	1	-	**31**	**14.6**
C51	Vulva	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
C52	Vagina	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	**1**	**0.5**
C53	Cervix Uteri	-	-	-	-	-	-	1	2	2	1	7	7	4	5	2	1	**32**	**15.1**
C54	Corpus Uteri	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	**1**	**0.5**
C55	Uterus Unspecified	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
C56	Ovary	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	**1**	**0.5**
C57	Other Female Genital	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
C58	Placenta	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
C64	Kidney etc.	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	**1**	**0.5**
C65	Renal Pelvis	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
C66	Ureter	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
C67	Urinary Bladder	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
C68	Unspecified Urinary Organs	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
C69	Eye	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
C70-C72	Brain, Nervous System	-	-	-	-	-	2	-	1	2	-	1	-	1	-	-	-	**7**	**3.3**
C73	Thyroid	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	**1**	**0.5**
C74	Adrenal Gland	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
C81	Hodgkins Disease	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
C82-C86, C96	Non-Hodgkin lymphoma	-	-	-	1	-	-	-	-	-	-	1	1	-	1	-	-	**4**	**1.9**
C88	Malig Imn.Prol D	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
C90	Multiple Myeloma	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
C91	Lymphoid Leukaemia	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	**1**	**0.5**
C92-C94	Myeloid Leukaemia	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	**1**	**0.5**
C95	Leukaemia Unspecified	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Other and Unspecified		-	1	3	2	-	1	1	-	1	6	5	8	15	7	-	3	**53**	**25.0**
	All sites	**-**	**2**	**3**	**3**	**7**	**4**	**3**	**8**	**19**	**27**	**27**	**31**	**37**	**28**	**5**	**8**	**212**	**100**

* O & U includes the sites (ICD - 10: C26, C39, C48, C75, C76, C77, C78, C79, C80, C97)

Table 34: Average annual Age Specific, Crude (CR), Age Adjusted (AAR) and Truncated (35-64 yrs) (TR) mortality rate per 100,000 population: 2018 – Males Muzaffarpur PBCR area

ICD 10	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+	CR	AAR	TR
C00	-	-	-	-	-	1.3	-	-	-	2.4	-	-	-	-	-	-	**0.2**	**0.2**	**0.5**
C01-C02	-	-	-	-	-	1.3	-	1.5	3.8	2.4	3.1	7.1	2.7	9.8	-	-	**1.1**	**1.4**	**3.2**
C03-C06	-	-	-	-	-	1.3	1.4	4.5	3.8	9.5	6.1	3.6	13.4	6.5	-	21.6	**2.3**	**2.9**	**6.6**
C07-C08	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	**-**	**-**	**-**
C09	-	-	-	-	-	-	-	1.5	-	2.4	-	-	-	-	-	-	**0.2**	**0.2**	**0.7**
C10	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	**-**	**-**	**-**
C11	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	**-**	**-**	**-**
C12-C13	-	-	-	-	-	-	-	-	-	-	-	-	2.7	3.3	5.3	-	**0.3**	**0.3**	**0.3**
C14	-	-	-	-	-	-	-	-	-	2.4	-	3.6	-	-	10.5	-	**0.4**	**0.5**	**0.9**
C15	-	-	-	-	-	-	-	-	-	2.4	3.1	-	-	-	10.5	-	**0.4**	**0.5**	**1.0**
C16	-	-	-	-	-	-	-	-	7.5	-	3.1	-	5.4	9.8	15.8	7.2	**1.3**	**1.6**	**2.6**
C17	-	-	-	-	-	-	-	-	-	-	-	-	2.7	3.3	-	-	**0.2**	**0.2**	**0.3**
C18	-	-	-	-	-	1.3	-	-	-	-	-	3.6	-	-	-	-	**0.2**	**0.2**	**0.5**
C19-C20	-	-	-	-	-	-	-	-	1.9	-	-	-	8.0	-	-	-	**0.4**	**0.4**	**1.4**
C21	-	-	-	-	-	-	1.4	-	-	-	-	-	-	-	-	-	**0.1**	**0.1**	**-**
C22	-	-	-	-	-	-	-	5.9	3.8	-	3.1	3.6	5.4	9.8	5.3	7.2	**1.4**	**1.6**	**3.5**
C23-C24	-	-	-	-	1.1	-	-	1.5	1.9	2.4	-	3.6	-	-	-	7.2	**0.6**	**0.7**	**1.6**
C25	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	**-**	**-**	**-**
C30-C31	-	-	-	-	-	-	-	-	-	-	-	-	-	3.3	-	-	**0.1**	**0.1**	**-**
C32	-	-	-	-	-	-	-	-	-	2.4	-	-	-	-	-	14.4	**0.3**	**0.4**	**0.5**
C33-C34	-	-	-	-	-	1.3	1.4	-	-	-	3.1	3.6	5.4	3.3	5.3	14.4	**1.0**	**1.2**	**1.6**
C37-C38	-	-	-	-	-	-	1.4	-	-	-	-	-	2.7	-	-	-	**0.2**	**0.2**	**0.3**
C40-C41	-	-	-	-	1.1	-	-	-	-	-	-	-	-	-	-	-	**0.1**	**0.1**	**-**
C43	-	-	-	-	-	-	-	-	-	-	-	-	2.7	-	-	-	**0.1**	**0.1**	**0.3**
C44	-	-	-	-	-	-	-	-	-	-	-	-	8.0	-	5.3	-	**0.4**	**0.4**	**1.0**
C45	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	**-**	**-**	**-**
C46	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	**-**	**-**	**-**
C47+C49	-	-	-	-	-	-	-	-	1.9	-	3.1	-	-	-	-	-	**0.2**	**0.3**	**0.9**
C50	-	-	-	-	-	-	-	-	1.9	-	-	-	-	3.3	-	-	**0.2**	**0.2**	**0.4**
C60	-	-	-	-	-	-	-	-	-	-	-	3.6	-	-	-	-	**0.1**	**0.1**	**0.5**
C61	-	-	-	-	-	-	-	-	-	2.4	-	3.6	5.4	3.3	5.3	7.2	**0.7**	**0.8**	**1.6**
C62	-	-	-	-	-	-	-	-	-	2.4	-	-	-	-	5.3	-	**0.2**	**0.2**	**0.5**
C63	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	**-**	**-**	**-**
C64	-	-	-	-	-	-	-	-	-	-	3.1	-	-	-	-	-	**0.1**	**0.2**	**0.5**
C65	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	**-**	**-**	**-**
C66	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	**-**	**-**	**-**
C67	-	-	-	-	-	-	-	-	3.8	-	-	-	2.7	-	5.3	7.2	**0.5**	**0.6**	**1.1**
C68	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	**-**	**-**	**-**
C69	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	7.2	**0.1**	**0.1**	**-**
C70-C72	-	-	-	-	-	-	-	-	-	-	3.1	-	-	-	5.3	-	**0.2**	**0.3**	**0.5**
C73	-	-	-	-	-	-	-	-	-	-	-	3.6	2.7	-	-	-	**0.2**	**0.2**	**0.8**
C74	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	**-**	**-**	**-**
C81	-	-	-	-	-	-	-	-	-	-	-	-	-	3.3	-	-	**0.1**	**0.1**	**-**
C82-C86, C96	-	-	0.8	-	-	-	-	-	-	-	-	-	-	3.3	-	7.2	**0.3**	**0.3**	**-**
C88	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	**-**	**-**	**-**
C90	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	7.2	**0.1**	**0.1**	**-**
C91	-	-	-	-	1.1	-	-	-	-	-	-	-	-	-	-	-	**0.1**	**0.1**	**-**
C92-C94	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	**-**	**-**	**-**
C95	-	0.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	**0.1**	**0.1**	**-**
O&U*	0.9	1.5	-	0.9	2.2	-	8.3	3.0	1.9	4.8	18.3	21.3	37.5	19.5	42.1	36.0	**5.9**	**7.0**	**12.4**
All sites	**0.9**	**2.2**	**0.8**	**0.9**	**5.6**	**6.3**	**13.9**	**17.8**	**32.0**	**35.8**	**48.8**	**60.4**	**107.1**	**81.4**	**121.2**	**143.8**	**20.0**	**24.3**	**46.1**

* O & U includes the sites (ICD - 10: C26, C39, C48, C75, C76, C77, C78, C79, C80, C97)

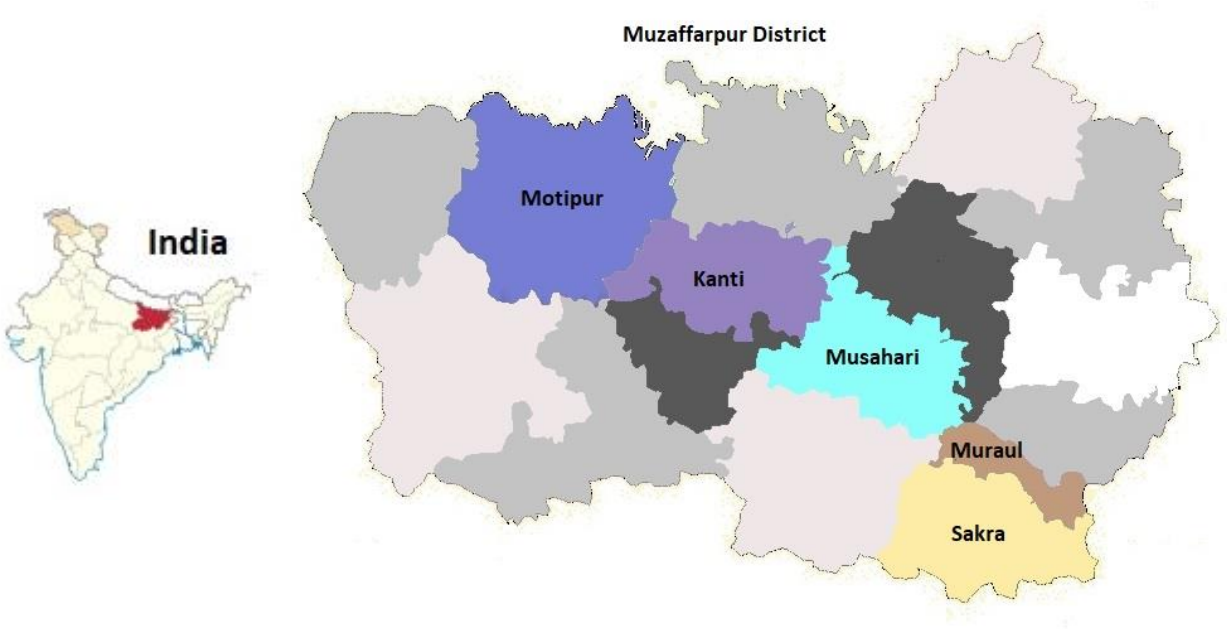
Table 35: Average annual Age Specific, Crude (CR), Age Adjusted (AAR) and Truncated (35-64 yrs) (TR) mortality rate per 100,000 population: 2018 – Females Muzaffarpur PBCR area

ICD 10	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+	CR	AAR	TR
C00	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
C01-C02	-	-	-	-	-	-	-	-	-	2.6	3.3	-	-	-	-	-	**0.2**	**0.3**	**1.0**
C03-C06	-	-	-	-	-	-	-	-	2.2	2.6	-	-	-	-	-	-	**0.2**	**0.3**	**0.9**
C07-C08	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
C09	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
C10	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
C11	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
C12-C13	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
C14	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
C15	-	-	-	-	-	-	-	-	-	2.6	-	3.0	5.4	4.0	7.6	8.3	**0.7**	**0.9**	**1.6**
C16	-	-	-	-	1.4	-	-	3.3	-	2.6	6.6	9.1	5.4	4.0	-	-	**1.3**	**1.5**	**4.1**
C17	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
C18	-	-	-	-	-	-	-	-	2.2	-	-	-	-	-	-	-	**0.1**	**0.1**	**0.4**
C19-C20	-	-	-	-	1.4	-	-	-	2.2	-	-	-	-	-	-	-	**0.2**	**0.2**	**0.4**
C21	-	-	-	-	-	-	-	-	2.2	-	-	-	-	-	-	-	**0.1**	**0.1**	**0.4**
C22	-	-	-	-	-	-	-	-	-	5.2	3.3	3.0	2.7	4.0	7.6	8.3	**0.8**	**1.1**	**2.3**
C23-C24	-	-	-	-	1.4	-	-	1.6	8.9	7.8	3.3	15.1	10.9	24.3	-	16.5	**2.8**	**3.5**	**7.4**
C25	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
C30-C31	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
C32	-	-	-	-	-	-	-	-	-	-	-	-	-	8.1	-	-	**0.2**	**0.2**	-
C33-C34	-	-	-	-	-	-	-	-	2.2	7.8	3.3	3.0	5.4	4.0	-	-	**0.9**	**1.2**	**3.6**
C37-C38	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
C40-C41	-	-	-	-	2.8	-	-	-	-	-	3.3	-	-	-	-	-	**0.3**	**0.4**	**0.5**
C43	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
C44	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
C45	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
C46	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
C47+C49	-	-	-	-	-	-	1.4	-	2.2	-	-	-	-	-	-	-	**0.2**	**0.2**	**0.4**
C50	-	-	-	-	1.4	1.3	-	3.3	8.9	15.6	13.3	12.1	13.6	12.1	7.6	-	**3.3**	**4.1**	**10.8**
C51	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
C52	-	-	-	-	-	-	-	-	-	2.6	-	-	-	-	-	-	**0.1**	**0.2**	**0.5**
C53	-	-	-	-	-	-	1.4	3.3	4.4	2.6	23.2	21.2	10.9	20.2	15.1	8.3	**3.4**	**4.2**	**9.9**
C54	-	-	-	-	-	-	-	-	-	-	3.3	-	-	-	-	-	**0.1**	**0.2**	**0.5**
C55	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
C56	-	-	-	-	-	-	-	-	-	-	-	-	2.7	-	-	-	**0.1**	**0.1**	**0.4**
C57	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
C58	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
C64	-	-	-	-	-	-	-	-	-	-	3.3	-	-	-	-	-	**0.1**	**0.2**	**0.5**
C65	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
C66	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
C67	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
C68	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
C69	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
C70-C72	-	-	-	-	-	2.6	-	1.6	4.4	-	3.3	-	2.7	-	-	-	**0.7**	**0.8**	**2.1**
C73	-	-	-	-	-	-	-	-	-	2.6	-	-	-	-	-	-	**0.1**	**0.2**	**0.5**
C74	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
C81	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
C82-C86, C96	-	-	-	1.2	-	-	-	-	-	-	3.3	3.0	-	4.0	-	-	**0.4**	**0.5**	**0.9**
C88	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
C90	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
C91	-	0.8	-	-	-	-	-	-	-	-	-	-	-	-	-	-	**0.1**	**0.1**	-
C92-C94	-	-	-	-	1.4	-	-	-	-	-	-	-	-	-	-	-	**0.1**	**0.1**	-
C95	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
O&U*	-	0.8	2.4	2.4	-	1.3	1.4	-	2.2	15.6	16.6	24.2	40.8	28.3	-	24.8	**5.6**	**6.5**	**14.5**
All sites	**-**	**1.6**	**2.4**	**3.6**	**9.9**	**5.3**	**4.3**	**13.1**	**42.0**	**70.0**	**89.6**	**93.8**	**100.6**	**113.2**	**37.8**	**66.0**	**22.4**	**27.4**	**63.7**

* O & U includes the sites (ICD - 10: C26, C39, C48, C75, C76, C77, C78, C79, C80, C97)

22. Village-wise incidence and mortality cases: 2018

We are presenting village-wise incidence and mortality cases registered in the year 2018.



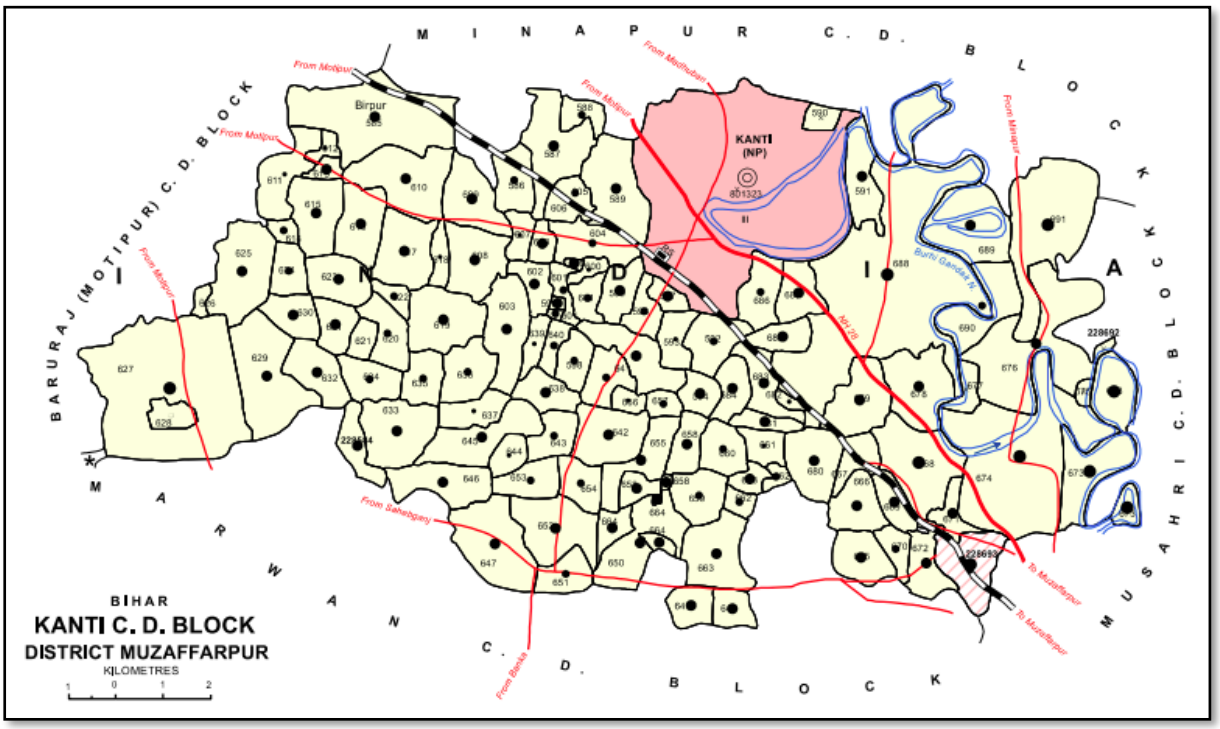
Cancer incidence cases and mortality cases: Muzaffarpur PBCR area (2018)
(Urban and rural area)

Block	Incidence (2018)			Mortality (2018)		
	Male	Female	Total	Male	Female	Total
Muzaffarpur urban	99	108	207	52	46	98
Kanti	51	50	101	35	37	72
Musahari	63	59	122	32	34	66
Muraul (Dholi)	16	22	38	9	14	23
Motipur (Baruraj)	71	53	124	40	40	80
Sakra	58	62	120	43	41	84
Total	**358**	**354**	**712**	**211**	**212**	**423**

Cancer incidence cases and mortality cases: Muzaffarpur urban area (2018)

Block	Incidence (2018)			Mortality (2018)		
	Male	Female	Total	Male	Female	Total
Damodarpur Census Town	4	3	7	2	4	6
Kanti Nagar Panchayat	1	3	4	1	1	2
Motipur Nagar Panchayat	6	3	9	5	1	6
Muzaffarpur Municipal Corporation	88	99	187	44	40	84
Total	**99**	**108**	**207**	**52**	**46**	**98**

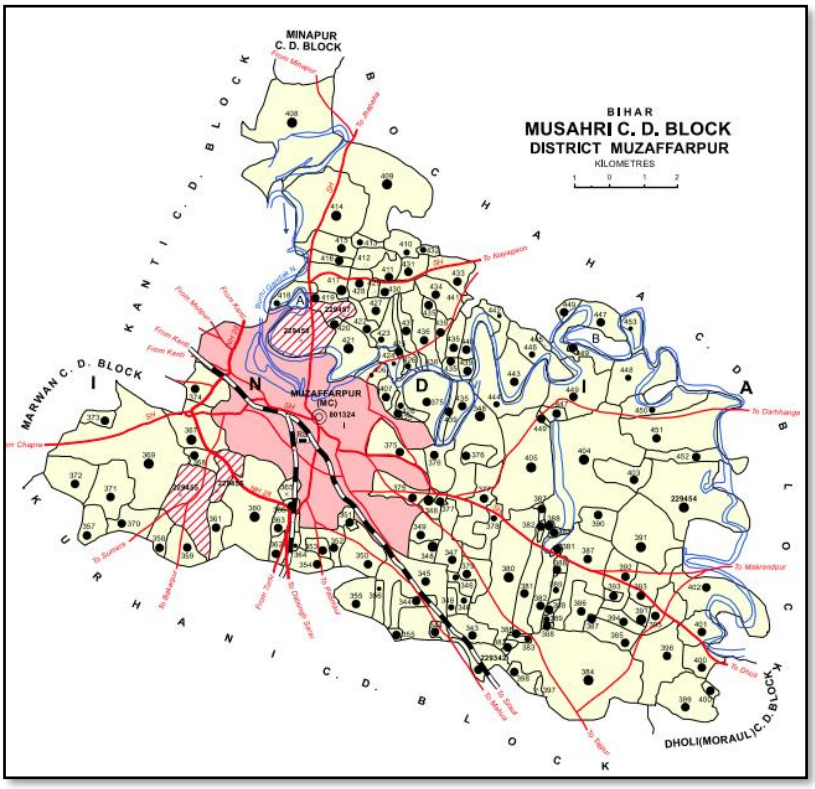
Cancer incidence cases and mortality cases: Kanti, Muzaffarpur PBCR (2018)



Sr. No.	Village	Incidence			Mortality		
		Male	Female	Total	Male	Female	Total
1	Akurahan Khargi	-	-	-	-	1	1
2	Bahuara urf Harpur Hiraman	-	1	1	-	2	2
3	Bairiya	1	2	3	-	1	1
4	Bangra Hardas	-	-	-	-	1	1
5	Bariarpur	-	1	1	-	1	1
6	Bathnaha	-	1	1	-	-	-
7	Bhagwanpur	-	-	-	-	1	1
8	Bheriahi	-	1	1	-	1	1
9	Bheriahi Narayan	1	-	1	1	-	1
10	Birpur	3	-	3	3	-	3
11	Bishunpur Ganga urf Baikatpur	1	1	2	1	2	3
12	Bishunpur Mahanand	1	1	2	-	-	-
13	Bishunpur Tola Pirmia	1	-	1	-	-	-
14	Chhapra Dharampur Jadu	1	2	3	2	2	4
15	Chhapra Madho	-	1	1	2	-	2
16	Dadar Kolhua	-	-	-	2	1	3
17	Dhamauli Ramnath	5	4	9	5	3	8
18	Gopalpur	2	-	2	1	-	1
19	Harchanda	1	-	1	-	-	-
20	Hardaspur	-	-	-	-	1	1
21	Harpur Ganesh	1	-	1	-	-	-
22	Jalgaon urf Phul Kahan Subodh	-	1	1	-	-	-

Sr. No.	Village	Incidence			Mortality		
		Male	Female	Total	Male	Female	Total
23	Jasoda Math urf Rampur Harihar	-	1	1	-	-	-
24	Jhiktahi Madhuban	2	1	3	-	-	-
25	Kabilpur	1	-	1	1	-	1
26	Kusi urf Harpur	1	-	1	1	-	1
27	Lashkaripur	-	2	2	-	-	-
28	Madhopur Dulham urf Dhebahan	-	-	-	1	-	1
29	Madhopur Machhia	1	-	1	-	-	-
30	Madhukar Chhapra	-	1	1	-	1	1
31	Mahartha	1	-	1	-	-	-
32	Manikpur Narotam	1	-	1	-	-	-
33	Manpura Kanti	-	1	1	-	1	1
34	Mirzapur	1	-	1	-	-	-
35	Mithan Sarai	1	2	3	1	3	4
36	Muhammadpur Kanti	1	-	1	-	-	-
37	Mustafapur	3	-	3	1	-	1
38	Narayanpur	1	-	1	1	-	1
39	Narsanda	-	1	1	-	1	1
40	Paighambarpur Kolhua	4	1	5	1	-	1
41	Pakri	-	4	4	-	2	2
42	Panapur Haveli	1	2	3	-	1	1
43	Panapur Kariat	-	3	3	-	1	1
44	Panapur Khurd	-	1	1	-	-	-
45	Patti Mir Saheb	-	-	-	1	-	1
46	Patti Sain Brij Lal	-	1	1	-	2	2
47	Patti Sain Chhapra Darianand	1	1	2	1	-	1
48	Patti Sain Tola Ram Rai	2	-	2	-	-	-
49	Phul Kahan Gobind	2	1	3	2	-	2
50	Phul Kahan Mani	-	1	1	-	1	1
51	Phul Kahan Singar	1	-	1	-	-	-
52	Pokhraira	-	1	1	-	-	-
53	Rasulpur Kariat	-	-	-	1	-	1
54	Ratanpura	-	2	2	1	-	1
55	Roshanpur	-	1	1	-	1	1
56	Sadatpur	3	4	7	1	4	5
57	Serukahi	1	-	1	1	-	1
58	Shahbazpur	-	2	2	-	1	1
59	Shahpur	1	-	1	1	-	1
60	Shampur Bhoj	-	-	-	-	1	1
61	Sirna urf Bheriahi	1	-	1	-	-	-
62	Sonbarsa	1	-	1	-	-	-
63	Tola Chand Pande urf Bherahi	1	-	1	2	-	2
Total		**51**	**50**	**101**	**35**	**37**	**72**

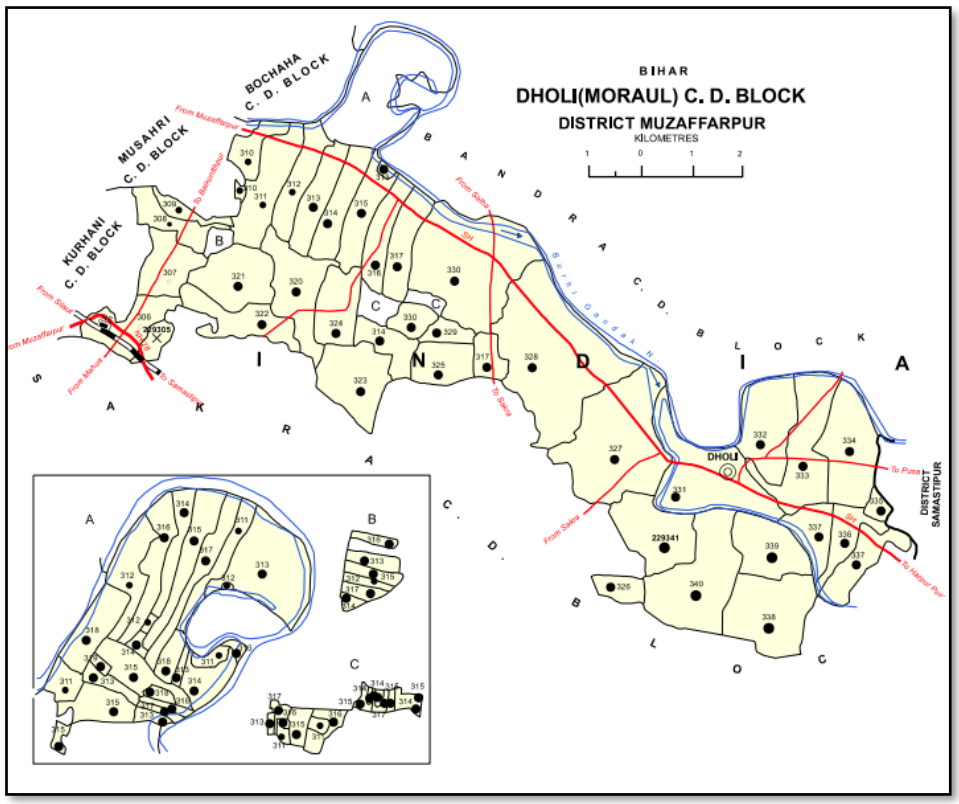
Cancer incidence cases and mortality cases: Musahari, Muzaffarpur PBCR (2018)



Sr. No.	Village	Incidence			Mortality		
		Male	Female	Total	Male	Female	Total
1	Abdulnagar urf Madhopur	-	-	-	-	1	1
2	Akbarpur	-	-	-	-	1	1
3	Bahadurpur	-	1	1	-	1	1
4	Bara Jagarnath	1	-	1	1	-	1
5	Bhagwanpur	7	5	12	2	1	3
6	Bhagwatipur	1	-	1	-	-	-
7	Bhikanpur Dih	-	1	1	-	-	-
8	Bhikhanpura	-	4	4	-	1	1
9	Burhnagra	1	2	3	2	-	2
10	Burhnagra Radha	2	1	3	2	1	3
11	Chak Ahmad	1	-	1	-	-	-
12	Chak Ghazi	-	1	1	1	-	1
13	Chapra Megh Rai	1	1	2	1	1	2
14	Chau Siwan	2	-	2	1	-	1
15	Dhanhara Chhapra	-	1	1	-	-	-
16	Dharampur	1	-	1	1	-	1
17	Dighra Patti	-	1	1	-	1	1
18	Dumri/ Mahammadpur Mobarak	1	1	2	1	1	2
19	Dwarkanagar urf Dwarkanathpur	2	1	3	1	1	2
20	Gobrahi urf Gobardhanpur	1	2	3	2	1	3
21	Hasan Chak	1	-	1	-	-	-
22	Jalalpur Baikat	-	3	3	-	3	3

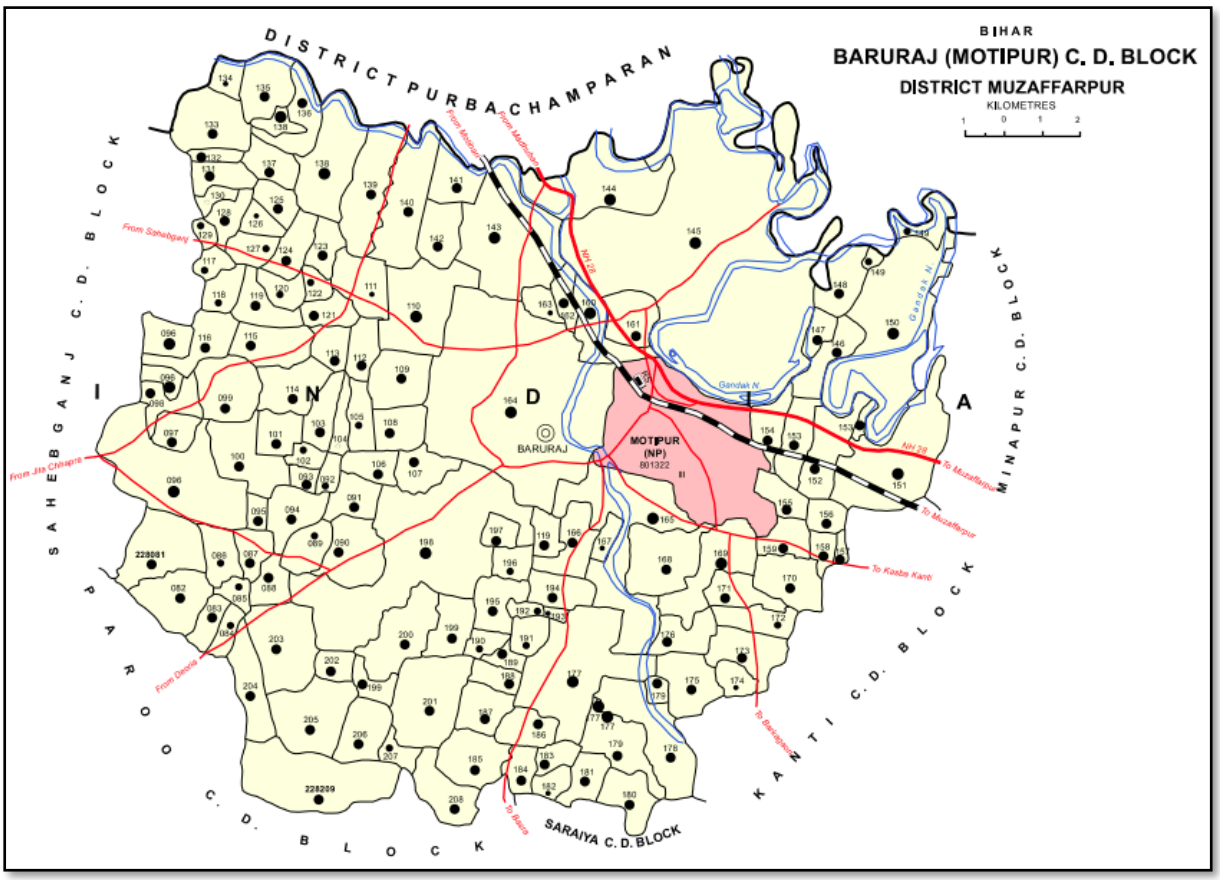
Sr. No.	Village	Incidence			Mortality		
		Male	Female	Total	Male	Female	Total
23	Jamalabad	1	1	2	1	-	1
24	Jhapaha	3	1	4	1	2	3
25	Kanahauli Bishundat	2	1	3	1	-	1
26	Khabra urf Kiratpur Gurdas	5	-	5	2	1	3
27	Madapur Chaube	-	2	2	-	-	-
28	Madhubani	-	1	1	-	-	-
29	Majhauli Dharamdas	2	3	5	1	2	3
30	Manika urf Bishunpur Bhand	1	-	1	1	-	1
31	Musahari urf Radhanagar	2	1	3	-	2	2
32	Narauli	1	2	3	1	-	1
33	Narsinghpur	-	1	1	-	-	-
34	Nayagaon	1	1	2	-	1	1
35	Nazirpur	-	1	1	-	1	1
36	Pahladpur	2	2	4	-	2	2
37	Pakri Ismail	1	-	1	1	-	1
38	Patahi urf Patahi Rup	2	1	3	-	-	-
39	Punas Chaturi	-	1	1	-	1	1
40	Punas Raja	-	2	2	-	1	1
41	Raghopur	1	-	1	-	-	-
42	Rajwara Bhagwan	2	1	3	2	1	3
43	Rakbe Yehiapur urf Ganeshpur	1	2	3	-	-	-
44	Rohua Apuchh	1	1	2	-	-	-
45	Rohua Rajaram	2	-	2	1	-	1
46	Sekhpur	2	-	2	1	-	1
47	Shahbazpur urf Salempur	3	4	7	2	2	4
48	Sherpur	5	1	6	1	-	1
49	Susta	1	2	3	1	3	4
50	Sutihara	-	1	1	-	1	1
51	Tarwara Gopalpur	-	1	1	-	-	-
Total		**63**	**59**	**122**	**32**	**34**	**66**

Cancer incidence cases and mortality cases: Muraul (Dholi), Muzaffarpur PBCR (2018)



Sr. No.	Village	Incidence			Mortality		
		Male	Female	Total	Male	Female	Total
1	Abdulpur Raini	-	1	1	-	-	-
2	Balua	-	1	1	-	-	-
3	Basantpur Bakhari	1	-	1	-	-	-
4	Bishunpur Titra	-	-	-	-	1	1
5	Daraha Chausajh	-	1	1	-	-	-
6	Dharmagatpur	1	-	1	1	-	1
7	Dholi	-	1	1	-	-	-
8	Dwarkapur	1	-	1	-	-	-
9	Gopinathpur	1	1	2	-	-	-
10	Harsinghpur Lautan	2	-	2	1	-	1
11	Itha Rasulnagar	1	-	1	2	-	2
12	Mahamadpur Badal	1	3	4	-	2	2
13	Malpur Agrail	-	3	3	-	1	1
14	Markan	1	1	2	1	1	2
15	Mirapur urf Gopalpur Moraul	3	8	11	1	6	7
16	Mohammadpur Gokhul	-	-	-	1	-	1
17	Pilkhi Gajpatti	2	-	2	1	1	2
18	Sadikpur Moraul	2	2	4	-	2	2
19	Sambaha	-	-	-	1	-	1
	Total	**16**	**22**	**38**	**9**	**14**	**23**

Cancer incidence cases and mortality cases: Motipur (Baruraj), Muzaffarpur PBCR (2018)

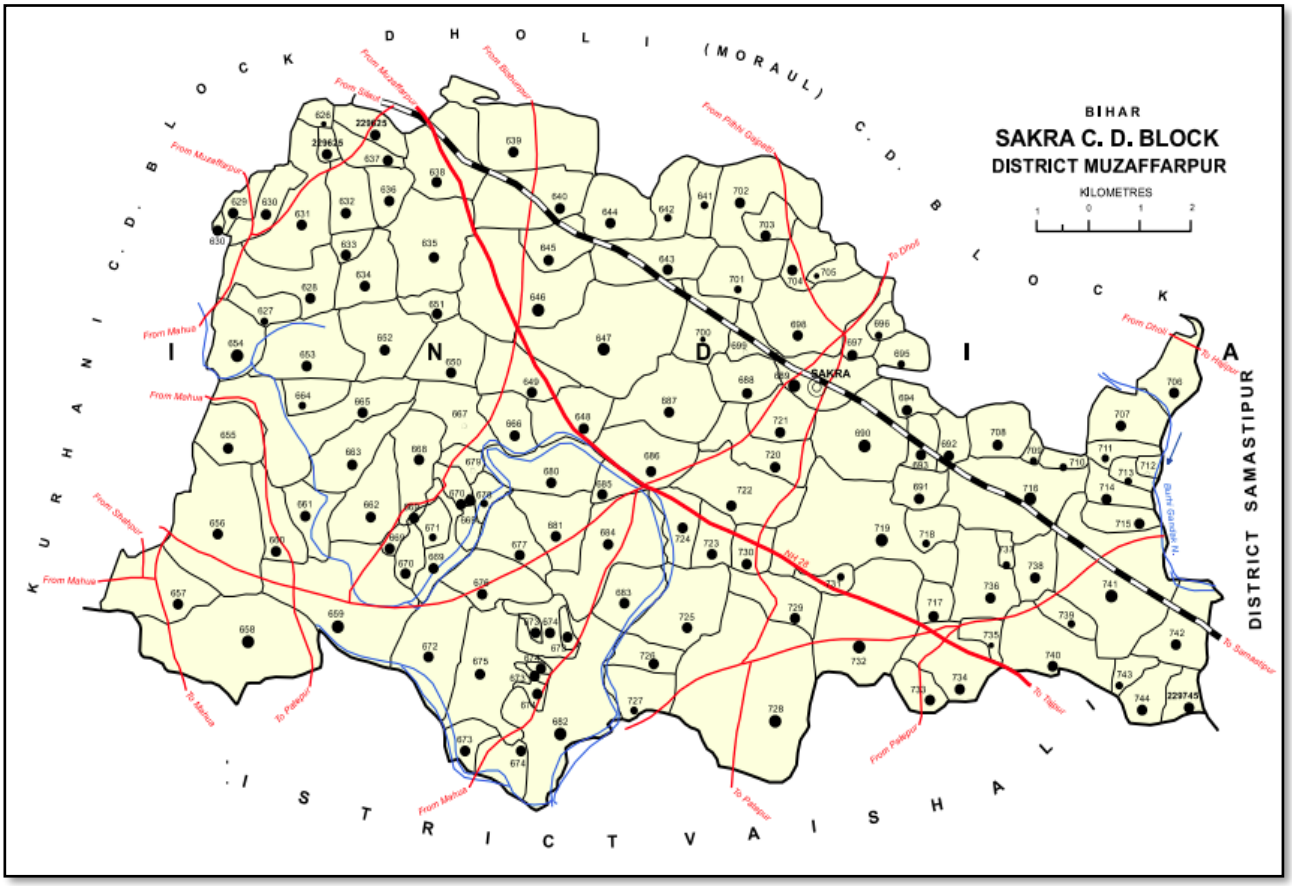


Sr. No.	Village	Incidence			Mortality		
		Male	Female	Total	Male	Female	Total
1	Adalpur urf Abdulpur	1	1	2	-	-	-
2	Andaul urf BishunpurMandal	-	-	-	-	1	1
3	Baburban	-	1	1	-	-	-
4	Bakhri	2	2	4	2	2	4
5	Bangra Firoz	1	2	3	-	1	1
6	Barhampur Karman	-	-	-	-	1	1
7	Bariarpur urf Bazidpur	9	6	15	5	5	1-
8	Baruraj	5	1	6	2	2	4
9	Bhataulia	-	-	-	1	-	1
10	Bhemriahi urf Rampur Bhemriahi	-	-	-	1	-	1
11	Birji	1	2	3	2	2	4
12	Bishunpur Dharam	-	-	-	-	1	1
13	Bishunpur Horil	1	-	1	1	1	2
14	Bishunpur Lakhansen	-	1	1	-	-	-
15	Bishunpur Manohar Urf Manohar	1	1	2	-	1	1
16	Boaria	-	1	1	1	1	2

Sr. No.	Village	Incidence			Mortality		
		Male	Female	Total	Male	Female	Total
17	Chainpur	-	-	-	-	1	1
18	Chhapra Mohan	1	1	2	1	1	2
19	Chhatarpatti	-	1	1	-	-	-
20	Chorghatta	-	1	1	-	1	1
21	Dhanauti	1	-	1	-	-	-
22	Donra Chhapra	1	-	1	1	-	1
23	Dumaria	1	-	1	-	-	-
24	Gokhula	1	1	2	1	1	2
25	Gopalpur Gopil	1	-	1	1	-	1
26	Gopinathpur	1	1	2	-	1	1
27	Hardi	2	2	4	1	2	3
28	Harnahi	1	1	2	-	1	1
29	Harpur	-	1	1	-	1	1
30	Hathilwa urf Chhapra Hathil	-	1	1	-	-	-
31	Ibrahimpur	2	-	2	1	-	1
32	Jagarnathpur	1	-	1	1	-	1
33	Jahangirpur	1	1	2	1	1	2
34	Jasauli	5	4	9	2	2	4
35	Jathwalia	2	-	2	1	-	1
36	Kaithaulia	-	1	1	-	1	1
37	Kalyanpur Haraulia	1	-	1	-	-	-
38	Kamalpur Bithraul	1	1	2	-	-	-
39	Kathaia	2	1	3	1	-	1
40	Khartari Mahanand	3	-	3	2	-	2
41	Khiro Chhapra	-	1	1	-	-	-
42	Kuria	1	-	1	-	-	-
43	Mahamadpur Balmi	2	1	3	2	1	3
44	Mahamadpur Mahamda	-	1	1	-	2	2
45	Mahima Gopinath	-	1	1	-	-	-
46	Mahual	-	2	2	1	-	1
47	Manguraha Tajpur	1	1	2	3	1	4
48	Manikpur	-	-	-	-	1	1
49	Mithanpura Siri Ram	-	1	1	-	-	-
50	Mursandi	2	1	3	1	1	2
51	Nariar	2	1	3	-	2	2
52	Narwara	-	1	1	-	-	-
53	Pachrukhi	1	-	1	-	-	-

Sr. No.	Village	Incidence			Mortality		
		Male	Female	Total	Male	Female	Total
54	Pagahia Raiti	3	-	3	-	-	-
55	Pana Chhapra urf Sanrha Sumar	-	1	1	-	-	-
56	Parsauni Nath	-	1	1	-	-	-
57	Patti Aswari	2	2	4	-	-	-
58	Rampur Ugan	-	-	-	-	1	1
59	Rasulpur	1	1	2	-	-	-
60	Sadhanpura	1	-	1	-	-	-
61	Sasna	1	-	1	1	-	1
62	Semra	1	-	1	-	-	-
63	Senduari Gaj Singh	-	-	-	1	-	1
64	Sirampur	1	-	1	1	-	1
65	Sirsia Jagdishpur	-	1	1	-	-	-
66	Siswan	1	-	1	-	-	-
67	Thikaho urf Aswari	1	-	1	1	-	1
68	Tola Fatuha	1	-	1	-	-	-
Total		**71**	**53**	**124**	**40**	**40**	**80**

Cancer incidence cases and mortality cases: Sakra, Muzaffarpur PBCR (2018)



Sr. No.	Village	Incidence			Mortality		
		Male	Female	Total	Male	Female	Total
1	Adwara urf Chintamanpur	1	-	1	1	-	1
2	Ali Sarai urf Hasanpur Sarai	-	1	1	-	-	-
3	Baghnagri urf Bishunpur Subas	2	2	4	-	1	1
4	Baji Buzurg	1	1	2	2	1	3
5	Baji urf Manoharpatti	1	-	1	1	-	1
6	Bariyarpur Kandh	1	3	4	-	2	2
7	Basantpur Jhiktahi	1	-	1	1	-	1
8	Bazidpur Asog	-	-	-	1	-	1
9	Bedhipur	-	1	1	-	1	1
10	Beruadih	1	1	2	-	-	-
11	Bharthipur	1	2	3	1	3	4
12	Bharwari	1	-	1	-	-	-
13	Bhatandi	1	1	2	-	1	1
14	Chak Rahi urf Maniari	2	-	2	1	-	1
15	Chakdah	-	-	-	-	1	1
16	Chandanpatti	1	-	1	2	-	2

Sr. No.	Village	Incidence			Mortality		
		Male	Female	Total	Male	Female	Total
17	Chhapra Bahar	1	-	1	-	-	-
18	Chhapra Faridpur urf Misraulia	1	2	3	2	1	3
19	Dihri Ishak	1	-	1	1	-	1
20	Dubaha Buzurg	-	1	1	2	2	4
21	Faridpur urf Shakra	1	3	4	1	1	2
22	Firozpur Asli	-	1	1	-	1	1
23	Ganiari	1	2	3	-	1	1
24	Gauri Har Khalik Nagar	3	1	4	2	1	3
25	Ghanipur Bejha	1	1	2	1	-	1
26	Gopalpur Raja Ram	-	1	1	-	1	1
27	Harpur Kishuni	3	-	3	2	-	2
28	Hasanpur Pagahi	1	1	2	-	-	-
29	Jagdishpur Baghnagri	1	3	4	1	1	2
30	Jogni Ganga	-	1	1	-	1	1
31	Jogni Jaga	1	-	1	1	1	2
32	Katesar	1	1	2	1	1	2
33	Keshopur	1	1	2	-	-	-
34	Khaparpura urf Peari	1	-	1	-	-	-
35	Machhia	-	1	1	-	-	-
36	Mahammadpur Bhopat	2	-	2	-	1	1
37	Mahammadpur Buzurg	1	-	1	-	-	-
38	Mahammadpur Dharam	1	-	1	1	-	1
39	Mahammadpur Kanth	-	1	1	-	1	1
40	Majhauli Pachdahi	-	-	-	2	-	2
41	Majhaulia	3	1	4	-	1	1
42	Marari Khurd	1	-	1	-	-	-
43	Marwan urf Arizpur	1	-	1	1	-	1
44	Mathurapur	-	1	1	1	2	3
45	Mehsi	-	1	1	-	1	1
46	Mohanpur Fakirana	-	1	1	-	-	-
47	Mundiari	1	-	1	-	-	-
48	Murna urf Harlochanpur	-	1	1	-	-	-
49	Paharpur	-	1	1	1	-	1
50	Paighambarpur	-	2	2	-	1	1
51	Pupri	2	3	5	1	2	3
52	Rahimpur Jiwan urf Raksa	2	-	2	2	1	3
53	Raja Padar	-	2	2	1	2	3

Sr. No.	Village	Incidence			Mortality		
		Male	Female	Total	Male	Female	Total
54	Rajapur	-	1	1	1	-	1
55	Ramnagar Lachhumannagar	1	1	2	-	-	-
56	Rampur Bhadson	-	1	1	-	1	1
57	Rampur Mani	1	-	1	-	-	-
58	Ratanpur Kewal	1	2	3	-	-	-
59	Rupanpattiwo Mathurapur Jani	-	2	2	-	1	1
60	Sadpur Buzurg	-	1	1	-	1	1
61	Sangopatti	1	-	1	1	-	1
62	Sapha Mahdaiya	1	-	1	1	1	2
63	Saraiya	-	1	1	-	-	-
64	Sarmastpur	3	1	4	2	-	2
65	Shakra Bazid	2	-	2	2	-	2
66	Siho	-	2	2	-	1	1
67	Sujawalpur	1	1	2	1	-	1
68	Sujawalpur Chauriwan	-	2	2	-	1	1
69	Sundarpur	-	1	1	-	1	1
70	Susta	1	-	1	1	-	1
Total		**58**	**62**	**120**	**43**	**41**	**84**

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Mr Abhishek Kumar Singh – Director
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25. Annexure

- In the cancer registration process, the involvement of community leaders/ primary health centre staff plays an important role.
- The community involvement in the cancer registration process is shown in pictures below.

Meeting with Auxiliary Nurse Midwife (ANM) and Accredited Social Health Activist (ASHA)

Meeting with Gram Pradhan

Meeting with Sarpanch and community leaders

Community involvement in the cancer registration process







PBCR staff facing difficulties while travelling to rural areas for the data collection

Cancer registry staff collecting the records from various hospitals, diagnostic centre, death registrar office, and cemetery area of the Muzaffarpur district

PBCR team arranged camp for early detection of oral, breast and cervical cancer with the help of screening team, HBCH&RC, Muzaffarpur, Bihar

Tata Memorial Centre, Mumbai, India

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Homi Bhabha Cancer Hospital and Research Centre, Muzaffarpur, Bihar, India

"CANCER IS CURABLE, IF DETECTED EARLY"