

Cancer Mortality

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

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

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

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

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

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

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

Reporting year data given in parentheses

* Represents the Registry which provided All-Cause Mortality Data

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

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

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

Reporting year data given in parenthesis

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

Section II

SUMMARY OF SELECTED ANATOMICAL SITES OF CANCER

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

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

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

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

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

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