

10

Cancer
Lung

Cancer Lung (ICD-10: C33-C34)

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

Males

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

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

Females

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

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

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

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

Males

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

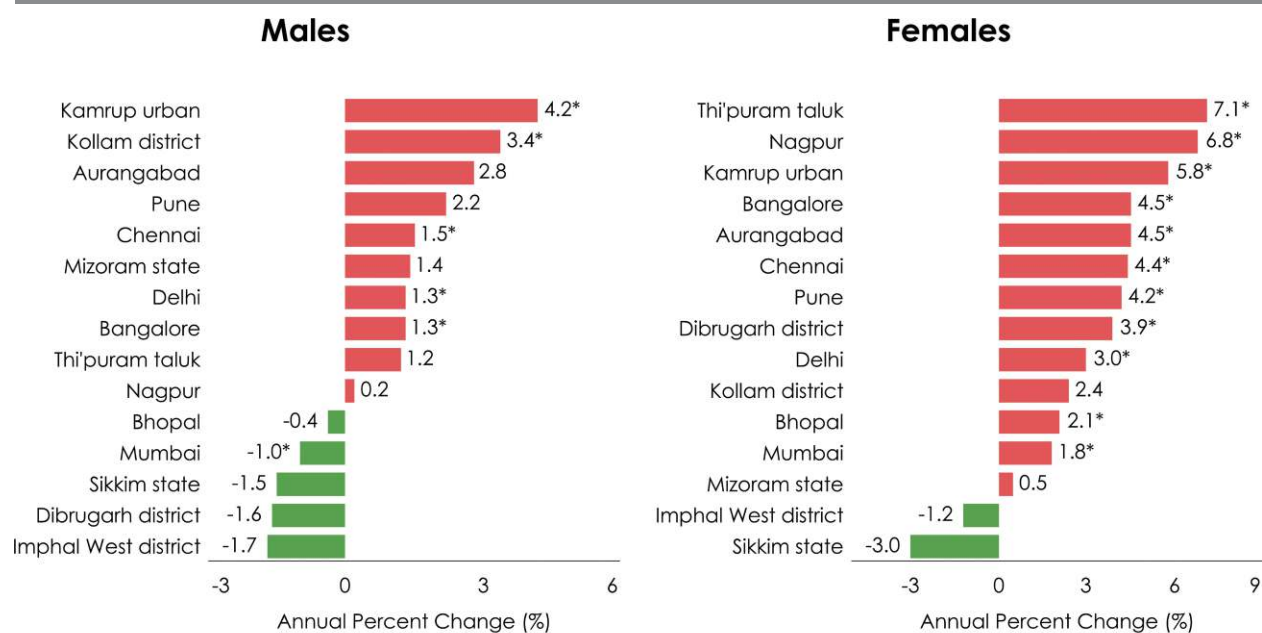
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Females

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

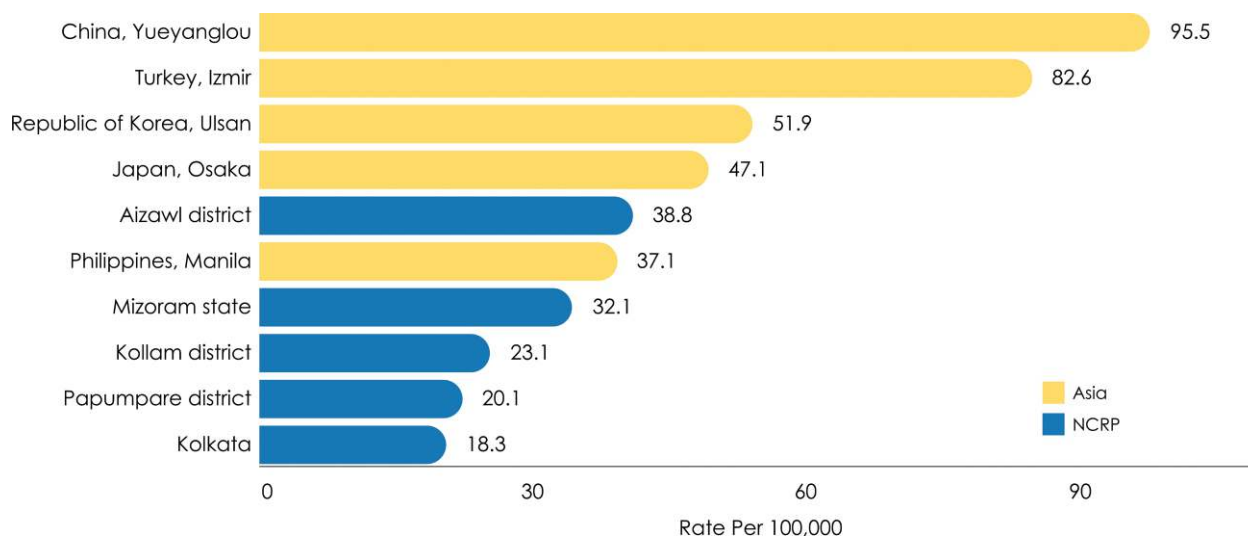
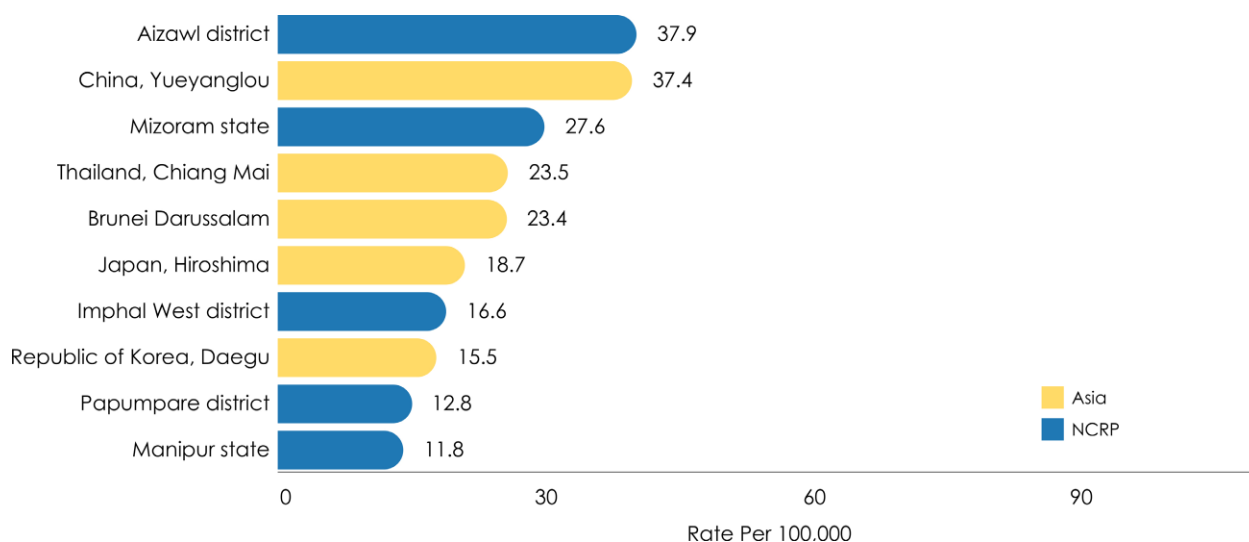
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Among males, the age specific incidence rate increased between 45-75+ age group and among females, it was between 50-75+.

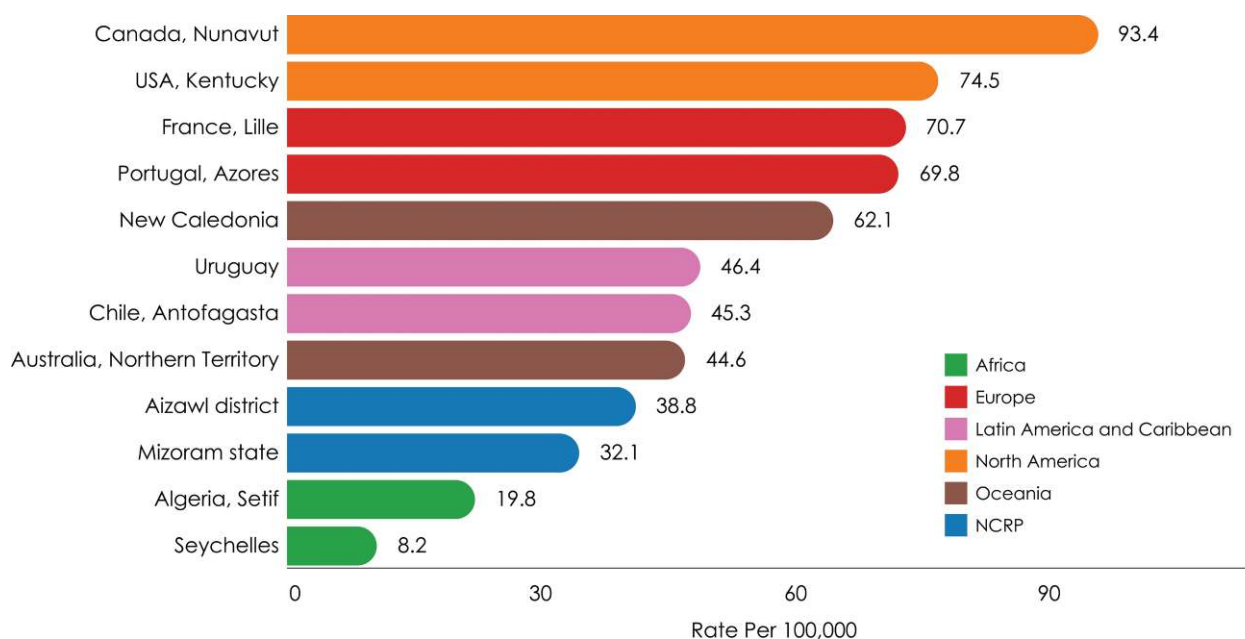
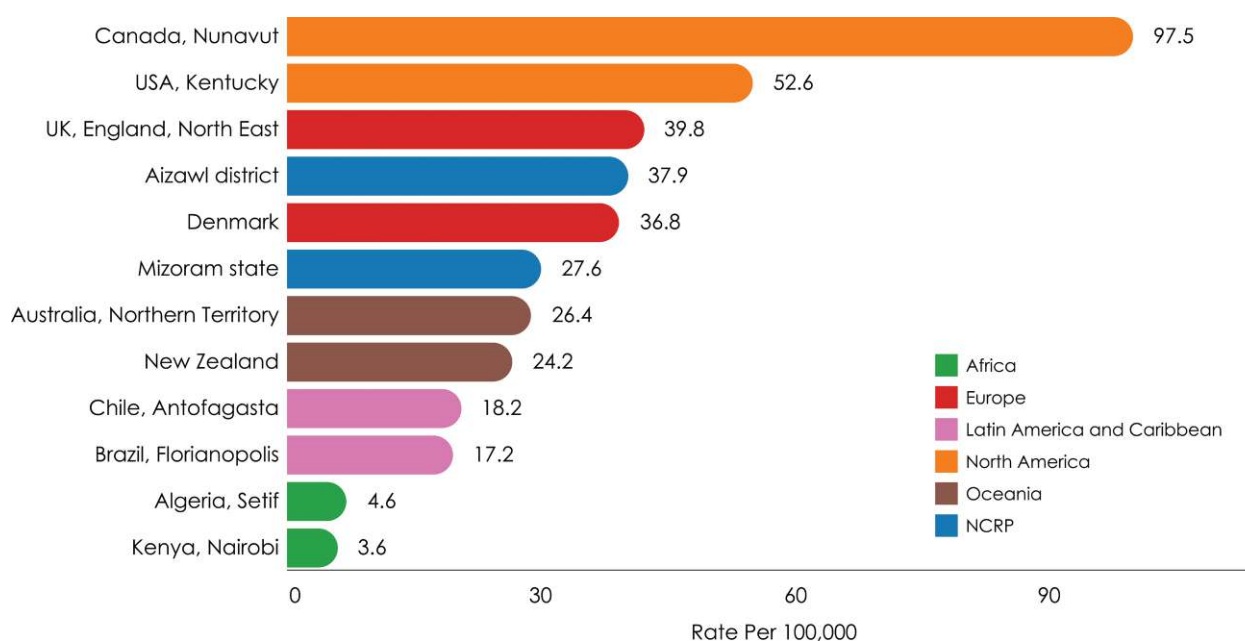
Fig. 10.2 Annual Percent Change (APC) in Age Adjusted Incidence Rates (AAR) over the Time Period - Cancer Lung

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

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

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

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

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

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

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

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

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

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

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

Females

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

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

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

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

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

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

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

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

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