

## Projection of Cancer Cases in India

### Methodology

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

- 1) Estimated number of cancer incidence for the year 2018, 2020 and 2025 by gender and for 16 age groups were estimated using Age Specific Incidence rate (ASpR) of 28 PBCRs of the year 2012-2016.
- 2) Region wise collation/representation of PBCRs data for projecting number of incidences of cancer cases in India (Annexure II).
- 3) India - state/UT wise population was estimated till 2025 using (2001-2011) census growth rate by different distribution method for estimating five-year age group.
- 4) Constant incidence rate (region wise) of PBCR (2012-2016) was used to project number of cancer cases in India till 2025. ASpR by anatomical sites and gender was applied to the corresponding state/UTs estimated population to derive the projected number of cancer cases for each state/UT.
- 5) The total number of cancer cases in India were derived by summing the estimated number of each anatomical site of cancer.

The strengths of the approach used here are,

- i) Region wise representation of cancer registries
- ii) Use of other available data (Eg: Dindigal PBCR for rural data)
- iii) Use of age specific incidence rate rather than crude incidence rate.

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

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

Site Name	Males						Females						Both Sexes					
	2016	2017	2018	2019	2020	2025	2016	2017	2018	2019	2020	2025	2016	2017	2018	2019	2020	2025
	<b>All Sites</b>	<b>616757</b>	<b>632042</b>	<b>647605</b>	<b>663343</b>	<b>679421</b>	<b>763575</b>	<b>643670</b>	<b>660492</b>	<b>677627</b>	<b>695072</b>	<b>712758</b>	<b>806218</b>	<b>1260427</b>	<b>1292534</b>	<b>1325232</b>	<b>1358415</b>	<b>1392179</b>
Tongue	36218	37120	38029	38961	39902	44861	12475	12817	13164	13520	13870	15747	48693	49737	51193	52481	53772	60608
Mouth	52054	53358	54673	56015	57380	64519	20217	20763	21325	21898	22483	25541	72271	74121	75998	77913	79863	90060
Hypopharynx	14230	14609	14989	15378	15765	17840	4195	4311	4422	4521	4649	5284	18425	18920	19411	19899	20414	23124
Oesophagus	29458	30220	31006	31799	32622	36850	18148	18643	19157	19685	20206	22996	47606	48863	50163	51484	52828	59846
Stomach	29570	30337	31123	31902	32713	36938	15680	16109	16545	16985	17430	19795	45250	46446	47668	48887	50143	56733
Colon	18603	19078	19576	20064	20572	23214	14112	14488	14886	15282	15685	17830	32715	33566	34462	35346	36257	41044
Rectum	19839	20340	20849	21380	21915	24690	13506	13877	14241	14610	14985	16982	33345	34217	35090	35990	36900	41672
Liver	24119	24750	25379	26023	26678	30115	9674	9938	10198	10460	10732	12188	33793	34688	35577	36483	37410	42303
Gall Bladder	11189	11481	11776	12073	12385	13980	17503	17986	18485	18989	19510	22233	28692	29467	30261	31062	31895	36213
Pancreas	10765	11040	11329	11615	11908	13454	7303	7494	7699	7906	8110	9235	18068	18534	19028	19521	20018	22689
Larynx	24485	25141	25806	26478	27146	30725	2978	3058	3144	3227	3316	3781	27463	28199	28950	29705	30462	34506
Lung	64778	66498	68236	69994	71788	81219	23800	24457	25124	25808	26490	30109	88578	90955	93360	95802	98278	111328
Breast	4868	4989	5117	5243	5377	6076	185116	190061	195105	200218	205424	232832	189984	195050	200222	205461	210801	238908
Cervix Uteri	-	-	-	-	-	-	67756	69567	71415	73289	75209	85241	67756	69567	71415	73289	75209	85241
Corpus Uteri	-	-	-	-	-	-	23816	24470	25124	25813	26514	30121	23816	24470	25124	25813	26514	30121
Ovary	-	-	-	-	-	-	39628	40665	41720	42788	43886	49644	39628	40665	41720	42788	43886	49644
Prostate	37416	38424	39442	40481	41532	47068	-	-	-	-	-	-	37416	38424	39442	40481	41532	47068
Kidney	11188	11451	11732	12005	12283	13773	5095	5217	5337	5462	5601	6276	16283	16668	17069	17467	17884	20049
Urinary Bladder	18472	18968	19455	19969	20470	23148	4853	4989	5121	5263	5403	6160	23325	23957	24576	25232	25873	29308
Brain, NS	18395	18785	19175	19570	19979	22115	11715	11974	12232	12480	12750	14143	30110	30759	31407	32050	32729	36258
Thyroid	7859	8025	8203	8389	8570	9537	23937	24471	25002	25558	26095	29037	31796	32496	33205	33947	34665	38574
NHL	23136	23679	24220	24783	25344	28319	14733	15121	15491	15877	16263	18354	37869	38800	39711	40660	41607	46673
Lymphoid Leukemia	13398	13576	13762	13945	14159	15183	7009	7093	7211	7308	7419	7977	20407	20669	20973	21253	21578	23160
Myeloid Leukemia	13732	14020	14310	14611	14913	16510	10319	10555	10789	11030	11275	12565	24051	24575	25099	25641	26188	29075

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

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