

POPULATION BASED CANCER REGISTRY, THIRUVANANTHAPURAM

Regional Cancer Centre, Thiruvananthapuram

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PBCR, Thiruvananthapuram district has been included under the network of NCRP (ICMR) since 2012. This is the southernmost district of the coastal state of Kerala, in south India. The district headquarter is located in Thiruvananthapuram city, which is the capital of Kerala. The district has an area of 2,192 sq km. and a population of 3,307,284 (as per the 2011 census) [1.5 million (54%) urban & 1.78 (46%) million rural population], the second-most populous district in Kerala. Its population growth rate during 2001–2011 was 2.3%. It is the densest district in Kerala with 1,506 people per sq km. The city (area: 141.74 sq km.) has an average density of about 5000 persons/sq km. The district has four Taluks [Thiruvananthapuram, Chirayinkeezhu, Neyyattinkara & Nedumangadu]. The urban bodies in the district are the Thiruvananthapuram Corporation, Varkala, Neyyattinkara, Attingal and Nedumangad municipalities. Its gender ratio is 1087 females/1000 males and literacy rate is 92.7%. Majority of the population are Hindus (67.8%) followed by Christians (18.7%) and Muslims (13.3%).

The major sources for the cancer incidence data were the Regional Cancer Centre and the Government Medical College Hospital, Thiruvananthapuram. Data were collected from more than 60 hospitals and 7 pathology laboratories. Owing to an administrative letter provided by the Principal Secretary, Govt. of Kerala to all health authorities in the district, co-operation from all the hospitals have been ensured. Address linkage of cancer patient data obtained from pathology laboratories were made. Duplicate registrations were eliminated and care was taken to see that multiple entries of the same patient were not made in the records after computerising the data.

The major sources for the cancer mortality data were the Corporation, 76 panchayats and 4 municipalities in the registry area. Computerised data were obtained from all the sources except 4 panchayats where data were obtained from the death registers. All deaths except those of accidents/natural calamity were collected from the vital statistics offices. Mortality data were matched with the incidence cases and it was verified in three different manners as specific site of cancer was not obtained from the vital statistics offices. Firstly, all cancer deaths were compared with the 'cancer incidence database'. Any death, which was matched with the incidence database, the corresponding site of cancer was added to the 'cancer mortality database'. Secondly, unmatched cancer deaths obtained from the mortality database were added to the incidence database as 'Death Certificate Only' (DCO). Their date of deaths were considered as date of diagnosis. Thirdly, 'non-cancer specific-mortality database' was compared with the 'cancer incidence database'. If all details except cause of death were matched with this database, such deaths were also added to the 'cancer mortality database' and their cause of deaths were corrected as due to the respective cancer obtained from the 'cancer incidence database'.

A total of **48,254** cancer patient details were collected from the various hospitals (75.3% from government), who were diagnosed during 2012-2014 from Thiruvananthapuram. 35.1% of cases were registered from the Regional Cancer Centre, Thiruvananthapuram, 40.2 % from the government medical

college hospital, 5.7% from the other government hospitals and 11.8% from the private hospitals. After eliminating duplicates, a total of **15,640** cancer patients were included in the registry during the three-year period, of which 51.2% were females. Microscopic diagnosis were observed in 81.4% and 86.8% cases, cases registered from 'DCO' were 8.8% and 6.9% and 'ill-defined sites' (after excluding DCO) were 1.7% and 1.1% in males and females respectively. Year-wise break-up is given in Table 1. The estimated missing proportion using capture-re-capture method was 20% in 2012, 15% in 2013 and 12% in 2014.

Table 1: Quality Indices of PBCR, Thiruvananthapuram[#]

Quality Indicators	Male			Female		
	2012	2013	2014	2012	2013	2014
Number	2376	2532	2730	2471	2637	2894
Source of Registration: RCC(%)	43.9	42.1	39.8	54.1	52.8	37.5
Source of Registration: MCH (%)	29.3	33.0	30.0	24.7	24.8	33.4
Source others (%)	15.3	14.3	21.2	20.8	17.0	21.9
Microscopic Verification (%)	83.0	82.5	79.0	88.1	87.5	85.0
Death Certificate Only (%)	8.0	9.5	9.0	5.4	7.9	7.2
Fatality Ratio (%)	41.5	38.8	37.4	30.1	31.1	28.1
Ill-defined sites (%) (C76-C80)	9.7	10.9	11.0	6.0	9.0	8.7
Incidence Rate (Crude)*	150.1	159.8	172.2	143.1	152.2	166.5
Incidence Rate (Age-adjusted)*	125.7	131.2	138.9	113.8	118.7	128.4
Mortality Rate (Age-adjusted)*	51.5	50.5	51.4	33.7	36.0	35.1

RCC: Regional Cancer Centre, MCH: Medical College, Thiruvananthapuram, *rate per 10⁵ population, # updated by Thiruvananthapuram, RCC

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Main Sources of Registration of Incident Cases of Cancer: 2012-2014 Thiruvananthapuram District

Name of the Institution	Number	%
Medical College Hospital, Thiruvananthapuram	5080	32.5
Regional Cancer Centre, Thiruvananthapuram	5026	32.1
KIMS, Hospital, Thiruvananthapuram	538	3.4
Cosmopolitan Hospital, Thiruvananthapuram	353	2.3
S.U.T. Hospital, Thiruvananthapuram	342	2.2
P.R.S. Hospital, Thiruvananthapuram	306	1.9
General Hospital, Thiruvananthapuram	187	1.2
Ananthapuri Hospital, Thiruvananthapuram	169	1.1
Others	3639	23.3
Total	15640	100.0

1. Institutions listed have registered at least one percent of all cases in the registry for Selected Year.
2. The numbers and proportion listed are the minimum number of cases. Institutions could have registered/ reported more cases, since duplicate registrations and non-resident/registry cases are not included.