

## EDITORIAL

**Cancer in Punjab: evidence from cancer atlas**Satyanarayana Labani<sup>1</sup>, Smita Asthana<sup>2</sup>, Ahmad Sultan<sup>3</sup><sup>1,2</sup>Scientist G, Division of Epidemiology and Biostatistics, Institute of Cytology and Preventive Oncology, Indian Council of Medical Research, Noida, Uttar Pradesh, India

|                          |                              |                             |                         |                            |                            |                          |                                  |
|--------------------------|------------------------------|-----------------------------|-------------------------|----------------------------|----------------------------|--------------------------|----------------------------------|
| <a href="#">Abstract</a> | <a href="#">Introduction</a> | <a href="#">Methodology</a> | <a href="#">Results</a> | <a href="#">Conclusion</a> | <a href="#">References</a> | <a href="#">Citation</a> | <a href="#">Tables / Figures</a> |
|--------------------------|------------------------------|-----------------------------|-------------------------|----------------------------|----------------------------|--------------------------|----------------------------------|

**Corresponding Author**

Address for Correspondence: Dr Satyanarayana Labani, Scientist G, Division of Epidemiology and Biostatistics, Institute of Cytology and Preventive Oncology, Indian Council of Medical Research I-7, Sector-39, Noida, Uttar Pradesh, India

E Mail ID: [satyanarayanalabani@yahoo.com](mailto:satyanarayanalabani@yahoo.com)

**Citation**

Labani S, Asthana S, Sultan A. Cancer in Punjab: evidence from cancer atlas. Indian J Comm Health. 2015; 27, 3: 295-297.

**Source of Funding :** Nil **Conflict of Interest:** None declared

**Article Cycle**

**Submission:** 23/05/2015; **Revision:** 25/06/2015; **Acceptance:** 12/07/2015; **Publication:** 30/09/2015

Cancer in Punjab has been a news item in the recent past. It was thought that cases in Punjab exceeded the national average and felt that “Punjab the country’s food bowl was in throes of cancer” (1). This presumption was perhaps incorrect. In order to have clarity on the issue, we aimed to review the report of Cancer Atlas in Punjab state for the year 2012-13, recently released by Indian Council of Medical Research (ICMR). The main idea of generating data through Cancer Atlas approach is to assess patterns of cancer in various parts of Punjab state and to estimate cancer incidence at various districts in Punjab. The sources of data collection in the state are all medical colleges, pathology labs, civil hospitals and individual oncologist throughout the state. These data collection sources are considered important as over 80-85% of registered cases of cancer are generally with a microscopic diagnosis (2). Patient data details in the Atlas approach included are Cancer site and morphology of the cancer as per guidelines for collecting information on all malignant cases. The similar approach that adopted in Cancer Atlas in India such as internet approach is used in entering core patient data for Punjab Atlas by standardized procedures.

For this review we collected data from Cancer Atlas Punjab published for a two year period from 1<sup>st</sup> Jan 2012 to 31<sup>st</sup> Dec 2014 in 19 districts of Punjab (3). In order to compare Punjab cancer incidence with that of other parts, data available from the various

national Population Based Cancer Registries (PBCR) were also collected. The data were on Age Adjusted Rates (AAR) in different PBCRs and summarized for various regions of the country. The regions were North, South, East/North East, West, Rural West and Central regions. Data were clubbed into ranges of AAR measures and presented as minimum and maximum for various regions of the country as per the location of the cancer registry (4). The regions were formed and presented by the authors and not by the National Cancer Registry Program (NCRP) report. Accepted measures as per cancer registries for tabulation and estimation of incidence rates are followed for Punjab Cancer Atlas study for every district as a source for calculation of incidence rates of cancer. The incidence data nature of NCRP from PBCRs is rated as high quality by Globocan 2012.

Age adjusted rates of incidence /100,000 populations available for different districts were collected. The cancer atlas data, where incidence rates available for Punjab state were on 14 districts out of 19 viz., Bathinda, Mohali, Ludhiana, Jalandhar, Faridkot, Mansa, Rupnagar, Sangrur, Hoshiarpur, Muktsar, Kapurthala, Fatehgarh Sahib, Moga Amritsar. Age adjusted rates from the Punjab districts and various PBCRs represented in five regions of the country were used for this review. The data for Punjab versus rest of the country for all cancers incidences and for 5 specific major sites of cancers were for both males and females presented

in [Table 1](#) and [Table 2](#). The sites for males were lung, oesophagus, mouth, tongue, prostate and for females were breast, cervix, ovary, oesophagus and gall bladder.

Punjab cancer magnitude was comparable with rest of India ([Table 1](#) & [Table 2](#)) in all cancers and five major cancers site specific data. The report that of Punjab Cancer Atlas (1), however mentioned that oesophageal cancer in both male and female of Punjab was among five major sites and observed to be important. In some districts of Punjab, higher incidences of multiple myeloma and haematopoietic malignancies as compare to rest of the country was observed. For rest of the cancers, Prostate cancer among male have elevated rates in Punjab as compared to the rest of the country. For some specific cancers mentioned above for which National Cancer Registry Programme suggested some risk factors studies of case control nature and pilot level for early detection projects in few districts. Overall in all cancer sites as such Punjab cancer incidence was not different from occurrence of cancer in rest of India.

**References**

1. Report of the year 2012-2013, Development of an Atlas of Cancer in Punjab State. Published on 2015 Available from: [http://www.canceratlaspunjab.org/RPT\\_2013\\_13/Report\\_1213\\_Home.htm](http://www.canceratlaspunjab.org/RPT_2013_13/Report_1213_Home.htm). (Last accessed on 2015 May 7)
2. Atlas of Cancer in India. Available from: <http://www.canceratlasindia.org/index.aspx>. (Last accessed on 2015 May 7)
3. NCRP Reports 2013, three – year report of population based cancer registries 2009-2011. Published on September 2013. Available from: [http://www.ncrpindia.org/ALL\\_NCRP\\_REPORTS/PBCR\\_REPORT\\_2009\\_2011/index.htm](http://www.ncrpindia.org/ALL_NCRP_REPORTS/PBCR_REPORT_2009_2011/index.htm). (Last accessed on 2015 May 7)

The magnitude assessment through Atlas approach adapted by NCRP of ICMR in the case of Punjab requires to be extended for different states of the country. So far there are only 29 Population Based Cancer Registries (PBCR) functioning and reporting cancer incidences and mortality that covered only less than 10% of the total country’s population. Recently, Greater Noida in Western Uttar Pradesh in India also become a news for disproportionate cancer occurrence due to lack of knowledge on cancer incidence in that area (5). The knowledge of magnitude of cancers is much useful for the effective cancer control activities so that there would be no incorrect impression that in a particular state cancer exceeded the national average and requires an immediate intervention. When a particular region is thought of a cancer cluster that reported disproportionate number of cancers and in order to confirm such suspected cancer epidemic, special investigations of an epidemiological nature are need to be adopted (6).

4. Satyanarayana L, Asthana S. Cancer statistics in India: An overview of incidence on the basis of first report on 20 population-based cancer registries G R J 2014;3:188-192.
5. Cancer lords over 5 Greater Noida Villages. Published on October 27, 2014|updated 19:20 IST. Available from: <http://indiatoday.intoday.in/story/big-c-hepatitis-c-cancer-greater-noida/1/397649.html>. (Last accessed on 2015 May 7)
6. Cancer cluster methodology. Investigating Suspected Cancer Clusters and Responding to Community Concerns: Guidelines from CDC and the Council of State and Territorial Epidemiologists. Published on September 27, 2013. Available from: <http://www.cdc.gov/mmwr/preview/mmwrhtml/rr6208a1.htm>. (Last accessed on 2013 May 7).

**Tables**

**TABLE 1 CANCER INCIDENCE (AAR) IN PUNJAB COMPARED TO OTHER REGIONS OF INDIA FROM 25 PBCRS AMONG MALES**

| CANCER SITES       | PUNJAB      | NORTH (DELHI) | SOUTH         | CENTRAL (BHOPAL) | EAST / NORTH EAST | WEST         | RURAL WEST  | ALL REGIONS (Other than Punjab) |
|--------------------|-------------|---------------|---------------|------------------|-------------------|--------------|-------------|---------------------------------|
| <b>ALL CANCERS</b> | 41.5 – 91.5 | 125.2         | 113.7 – 132.7 | 105.9            | 69.5 – 273.5      | 43.7 – 117.5 | 51.8 – 74.2 | 43.7 - 273.4                    |
| <b>MAJOR SITES</b> |             |               |               |                  |                   |              |             |                                 |
| <b>LUNG</b>        | 2.5 – 9.2   | 13.9          | 108.2 – 19.5  | 12.4             | 3.2 – 28.3        | 2.2 – 10.8   | 2.4 – 8.3   | 2.2 - 28.3                      |
| <b>OESOPHAGUS</b>  | 2.1 – 6.6   | 5             | 4.2 – 7.5     | 5.1              | 2.9 – 46.2        | 3.1 – 7.2    | 4.5 – 3.8   | 2.9 - 46.2                      |
| <b>MOUTH</b>       | 2.6 – 4.3   | 6.8           | 4.3 – 7.0     | 12.5             | 1.7 – 9.2         | 3.5 – 17.1   | 6.5 – 9.5   | 1.62 - 12.91                    |
| <b>TONGUE</b>      | 2.2 – 3.2   | 8             | 4.7 – 7.2     | 9                | 1.8 – 9.4         | 2.7 – 12.2   | 2.0 – 9.3   | 1.8 - 12.2                      |
| <b>PROSTATE</b>    | 2.5 – 9.2   | 11.2          | 5.7 – 8.9     | 6.6              | 0.5 – 11.2        | 1.5 – 7.7    | 1.9 – 2.6   | 0.5 - 11.2                      |

*Punjab: Bathinda, Mohali, Ludhiana, Jalandhar, Faridkot, Mansa, Rupnagar, Sangrur, Hoshiarpur, Muktsar, Kapurthala, Fatehgarh Sahib, Moga and Amritsar*  
*North: Delhi, South: Bangalore, Chennai, Kollam, Tiruvananthapuram, Central: Bhopal, East: Kolkata*  
*North East: Cachar, Dibrugarh, Kamrup, Manipur, Mizoram, Sikkim, Meghalaya, Tripura, Nagaland*  
*West: Mumbai, Nagapur, Pune, Ahmadabad (U), Barshi extended, Aurangabad, Wardha, Rural West: Barshi rural, Ahmadabad (R)*  
*AAR: Age Adjusted Rates of Cancer Incidence / 100,000 Population*  
*PBCR: Population Based Cancer Registries*  
*Data Sources: National Cancer Registry Programme (NCRP) Report 2013, Cancer Atlas in Punjab 2013*

**TABLE 2 CANCER INCIDENCE (AAR) IN PUNJAB COMPARED TO OTHER REGIONS OF INDIA FROM 25 PBCRS AMONG FEMALES**

| CANCER SITES        | PUNJAB       | NORTH (DELHI) | SOUTH         | CENTRAL (BHOPAL) | EAST / NORTH EAST | WEST         | RURAL WEST   | ALL REGIONS (Other than Punjab) |
|---------------------|--------------|---------------|---------------|------------------|-------------------|--------------|--------------|---------------------------------|
| <b>ALL CANCERS</b>  | 59.3 - 128.8 | 120.6         | 91.6 - 137.2  | 105.6            | 56.1 - 227.8      | 56.6 - 103.0 | 51.6 - 62.6  | 51.6 - 227.8                    |
| <b>MAJOR SITES</b>  |              |               |               |                  |                   |              |              |                                 |
| <b>BREAST</b>       | 17.3 - 37.3  | 32.25         | 23.15 - 36.07 | 25.36            | 7.17 - 25.2       | 13.32 - 32.3 | 8.76 - 10.46 | 7.17 - 36.06                    |
| <b>CERVIX</b>       | 7.3 - 17.5   | 17.87         | 8.34 - 21.13  | 18.94            | 6.09 - 17.65      | 9.05 - 18.93 | 8.45 - 18.59 | 6.09 - 21.13                    |
| <b>OVARY</b>        | 3.7 - 8.4    | 8.88          | 4.21 - 7.41   | 7.7              | 3.0 - 7.81        | 3.23 - 7.11  | 1.94 - 2.41  | 1.94 - 8.88                     |
| <b>OESOPHAGUS</b>   | 3.2 - 8.9    | 2.78          | 0.94 - 6.44   | 5.41             | 1.7 - 14.81       | 1.31 - 4.19  | 2.06 - 2.17  | 0.94 - 14.81                    |
| <b>GALL BLADDER</b> | 2.4 - 6.5    | 8.78          | 0.58 - 1.44   | 4.01             | 0.8 - 8.24        | 0.18 - 8.78  | 0.66 - 0.8   | 0.3 - 8.78                      |

*Punjab: Bathinda, Mohali, Ludhiana, Jalandhar, Faridkot, Mansa, Rupnagar, Sangrur, Hoshiarpur, Muktsar, Kapurthala, Fatehgarh Sahib, Moga and Amritsar*  
*North: Delhi, South: Bangalore, Chennai, Kollam, Tiruvananthapuram, Central: Bhopal, East: Kolkata*  
*North East: Cachar, Dibrugarh, Kamrup, Manipur, Mizoram, Sikkim, Meghalaya, Tripura, Nagaland*  
*West: Mumbai, Nagapur, Pune, Ahmadabad (U), Barshi extended, Aurangabad, Wardha, Rural West: Barshi rural, Ahmadabad (R)*  
*AAR: Age Adjusted Rates of Cancer Incidence / 100,000 Poulation*  
*PBCR: Population Based Cancer Registries*  
*Data Sources: National Cancer Registry Programme (NCRP) Report 2013, Cancer Atlas in Punjab 2013*