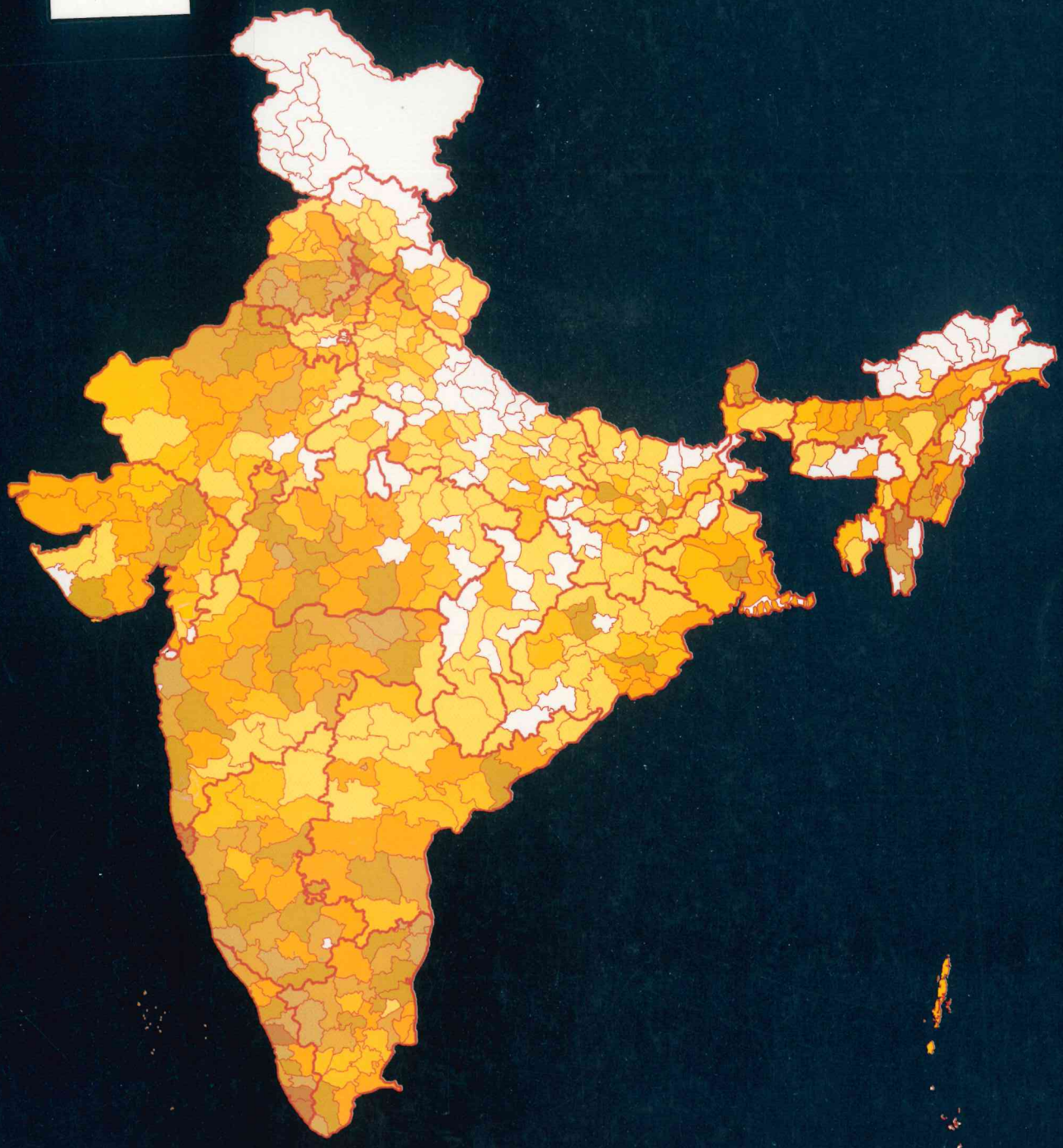
DEVELOPMENT OF AN ATLAS OF CANCER IN INDIA

A Project of the National Cancer Registry Programme
(Indian Council of Medical Research)
Supported by the World Health Organisation



First All India Report — 2001-2002

Mapping Patterns of Cancer

Volume II

DEVELOPMENT OF AN ATLAS OF CANCER IN INDIA

First All India Report: 2001-2002

Information Technology in Medicine – Measuring Burden of Disease

Volume II

DEVELOPMENT OF AN ATLAS OF CANCER IN INDIA

A Project of the National Cancer Registry Programme
(Indian Council of Medical Research)
Supported by the World Health Organization

First All India Report: 2001-2002

A. Nandakumar
Chief Principal Investigator & Officer-in-Charge, NCRP, Bangalore

P.C. Gupta
Senior Research Scientist, Tata Institute of Fundamental Research, Mumbai

P. Gangadharan
Emeritus Medical Scientist, Ernakulam

R.N. Visweswara
Professor of Pathology, Vydehi Institute of Medical Sciences, Bangalore

With Contribution from the
Principal/Co-Principal Investigator/ Faculty In-charge
at the Collaborating Centres mentioned overleaf and
Support of the Staff at Coordinating Unit of NCRP

National Cancer Registry Programme (ICMR)
Bangalore, India
April 2004

List of Collaborating Centres and Contributors

The names of institutions and contributors to this report are listed below. Their names are given as communicated. Without their enthusiastic co-operation and contribution there would have been no material for preparing this report.*

Name of the Collaborating Centre	City / Town	Principal/Co-Principal Investigators/Faculty-in-charge
Tata Memorial Centre (HBCR)	Mumbai	**Dr. K.A. Dinshaw, Mr. D.N. Rao**
Regional Cancer Centre (HBCR)	Thiruvananthapuram	**Dr. B. Rajan, Dr. M. Krishnan Nair, Dr. Aleyamma Mathew**
Cancer Institute (WIA), (HBCR & PBCR)	Chennai	**Dr. V. Shanta, Dr. R. Swaminathan**
Kidwai Memorial Institute of Oncology (HBCR)	Bangalore	**Dr. P.S. Prabhakaran, Dr. K. Ramachandra Reddy, Dr. C. Ramesh**
Assam Medical College (HBCR)	Dibrugarh	**Dr. (Mrs) Nandita Choudhury, Dr. M.S. Ali**
The Gujarat Cancer & Research Institute	Ahmedabad	**Dr. Pankaj M Shah, Dr. S.N. Shukla, Dr. Shanthibhai Patel**
Chittaranjan National Cancer Institute	Kolkata	**Dr. I. Chakrabarty, Dr. Sukta Das, Dr. Chinmoyee Roy Dr. Soma Roy Chowdhury, Dr. S.S. Mandal**
Indian Cancer Society (Mumbai PBCR)	Mumbai	**Dr. A.P. Kurkure, Dr. B.B. Yeole**
Institute Rotary Cancer Hospital ((Delhi PBCR)	Delhi	**Dr. Kusum Verma, Dr. B.B.Tyagi**
PBCR - Gandhi Medical College	Bhopal	**Dr. V.K. Bharadwaj, Dr. S. Surange, Dr. A. Shrivastava, Dr. R Dikshit**
PBCR - Nargis Dutt Memorial Cancer Hospital	Barshi	**Dr. (Ms) K.A.Dinshaw, Dr. B.M. Nene**
PBCR - Indian Cancer Society	Nagpur	**Dr. B.B.Yeole, Dr. Varsha Sagdeo**
PBCR - Indian Cancer Society	Aurangabad	**Dr. B.B. Yeole, Dr. B.K. Shewalkar**
PBCR - Indian Cancer Society	Pune	**Dr. B.B. Yeole, Dr. J.K. Joshi**
PBCR - CFCHC	Ambillikai	**Dr. Jacob Cherian, Dr. R. Rajkumar**
Natural Background Radiation Registry	Karunagappally	**Dr. M. K. Nair, Mr. P. Gangadharan, Dr. Jayalekshmi**
Cancer Centre Welfare Home & Research Institute	Kolkata	**Dr. Saroj Gupta, Dr. Manas Nath Bandyopadhyay**
JIPMER	Pondicherry	**Dr. Jayanthi Soundara Raghavan, Dr. R. Krishnan**
Dr. B. Borooah Cancer Institute	Guwahati	**Dr. J.D. Sharma, Dr. S.B. Medhi, Dr. P.K. Choudhury**
The Karnatak Cancer Therapy & Research Institute	Hubli	**Dr. A.C. Deka, Dr. Umesh R Hallikeri**
SDM Hospital cum Medical Research Institute	Jaipur	**Dr. B.C. Sangal, Dr. Shubha Gupta, Dr. G.N. Gupta**
Acharya Tulsi Reg. Cancer Treatment Centre	Bikaner	**Dr. D.P. Punia**
MGM Medical College	Indore	**Dr. (Mrs.) M. Gujral, Dr. Sanjeev Narang**
G. Kuppuswamy Naidu Memorial Hospital	Coimbatore	**Dr. M.L. Raman**
Government Medical College	Nagpur	**Dr. S.K. Bobhate, Dr. Meena A Pangarkar, Dr. Rasika U Gadkari**
Amala Cancer Hospital & Research Centre	Thrissur	**Dr. Agnesamma Jacob, Dr. M.C. Savithri**
AH Regional Cancer Centre	Cuttack	**Dr. Gadadhar Parida, Dr. Niranjan Rout**
Kasturba Medical College	Manipal	**Dr. Sudha S Bhat**
Mahavir Cancer Sansthan	Patna	**Dr. J.K. Singh, Dr. Varsha Singh**
PGIMER (Histopathology)	Chandigarh	**Dr. Kusum Joshi, Dr. R.K. Vasishta**
Kasturba Medical College	Mangalore	**Dr. Ramadas Nayak, Dr. Muktha R Pai**
PGIMER (Cytology)	Chandigarh	**Dr. A. Rajwanshi, Dr. Radhika Srinivasan**
Sai Subramanian Pathology Laboratory	Coimbatore	**Dr. S.S. Sai Subramaniam**
Jawaharlal Nehru Medical College	Aligarh	**Dr. Syed Shamshad Ahmad, Dr. Mahboob Hassan**

**Arranged in descending order of number of cancers on which information was provided.*

Name of the Collaborating Centre	City / Town	Principal/Co-Principal Investigators/Faculty-in-charge
Government Medical College	Thrissur	**Dr. C.S. Sakunthala Bhai, Dr. P.H. Prasad**
MNJ Institute of Oncology & RCC	Hyderabad	**Dr. B.N. Rao, Dr. V. Anjaneyulu**
Goa Medical College	Goa	**Dr. R.G.W. Pinto, Dr. M.V. Mallya**
SMS Medical College	Jaipur	**Dr. Haresh Saxena, Dr. (Mrs) Rachna Narain**
Regional Institute of Medical Sciences	Imphal	**Dr. Y. Mohen Singh, Dr. Th. Tomcha Singh, Dr. K. Debnath**
Rangaraya Medical College	Kakinada	**Dr. A.V. Krishnam Raju**
JLN Medical College	Ajmer	**Dr. Rajendra Lal Solanki, Dr. Paras Nuwal, Dr. Sudha Patani**
Apollo Hospitals	Hyderabad	**Dr. G. Swarnalata, Dr. Meenakshi Swain**
Mahatma Gandhi Institute of Medical Sciences	Sevagram	**Dr. S.M. Sharma, Dr. N. Gangane, Dr. Pratibha Narang**
Bharath Hospital and Institute of Oncology	Mysore	**Dr. B.S. Ajai Kumar, Dr. Anil Thomas, Dr. M.S. Vishveshwara**
Himalayan Institute of Medical Sciences	Dehradun	**Dr. Ved Parkash Pathak**
Civil Hospital	Aizawl	**Dr. D. Baruah, Dr. Eric Zomawia**
Tirunelveli Medical College	Tirunelveli	**Dr. V. Paramasivan, Dr. J. Suresh Durai**
Bhagwan Mahaveer Cancer Hospital & Research Centre	Jaipur	**Dr. Rameshwar Sharma, Dr. Archana N Parikh**
Jawaharlal Nehru Cancer Hospital & Research Centre	Bhopal	**Dr. B. Sanyal, Dr. Ritu Singhal, Dr. Pakiza Naqvi, Dr. Rachna Jain**
Indian Railway Cancer Institute & Research Centre	Varanasi	**Dr. Gyanendra Mohan, Dr. Sunanda Chaturvedi**
Government Medical College	Patiala	**Dr. Manjit Singh Bal, Dr. Kanwal Surinder, Dr. J. Singh**
Dr. SN Medical College	Jodhpur	**Dr. D.R. Mathur, Dr. Deepa Mathur**
VSS Medical College	Burla	**Dr. (Mrs) Janet Khalkho, Dr. Chitta Ranjan Prasad**
GSVM Medical College	Kanpur	**Dr. S.N. Singh, Dr. Asha Agarwal**
Andhra Medical College	Visakhapatnam	**Dr. B. Sundareshwar**
Sudharma Laboratory	Thrissur	**Dr. V.P. Gopinathan, Dr. Devadas T.N.**
BJ Medical College	Pune	**Dr. Sanjay Deshmukh, Dr. (Mrs) M.V. Jadhav**
BRD Medical College	Gorakhpur	**Dr. Surendra Pal Sharma, Dr. Rajiv Kumar Mishra**
Topiwala National Medical College	Mumbai	**Dr. (Mrs) Jaya R Deshpande**
PSG Institute of Medical Sciences & Research	Coimbatore	**Dr. K.R.Bagyalakshmi, Dr. S. Shanthakumari, Dr. T.M. Subbarao**
Mohan Dai Oswal Cancer Treatment & Research Foundation	Ludhiana	**Dr. (Mrs) Veena Jain**
Silchar Medical College & Hospital	Silchar	**Dr. Sekhar Chakravarty, Dr. D. Dutta**
Government Medical College	Nanded	**Dr. S.B. Rathod, Dr. (Mrs) S.A. Deshpande, Dr. B.H. Namdhari**
King George's Medical College	Lucknow	**Dr. M.R.S. Kushwaha, Dr. Raj Mehrotra**
Gandhi Medical College	Hyderabad	**Prof. (Dr) M. Sikinder Hayath, Dr. Vani Padmaja**
Burdwan Medical College	Burdwan	**Dr. Sulekha Ghosh, Dr. Tapan Kumar Ghosh**
Anand Institute of Laboratory Medicine	Bangalore	**Dr. A.V. Ramprasad, Dr. N. Jayaram**
National Pathology Laboratory	Hyderabad	**Dr. A. Rajasekhar**
Rural Medical College	Loni	**Dr. (Col) A.G. Bhopte, Dr. R.R. Karle, Dr. S.D. Dongre**
Dr. Ravi's Pathology Laboratory	Nagpur	**Dr. R. Ravi**

Name of the Collaborating Centre	City / Town	Principal/Co-Principal Investigators/Faculty-in-charge
SCB Medical College	Cuttack	**Dr. Atul Krushna Mohanty, Dr. Lity Mohanty**
Kurnool Medical College	Kurnool	**Dr. K. Sivanagamani, Dr. K. Bharathi**
Cancer Hospital & Research Institute	Gwalior	**Dr. B.R. Shrivastava, Dr.Harsh Vardhan, Dr. S. Gupta**
Sri Venkateswara Institute of Medical Sciences	Tirupati	**Dr. K. Sambasivaiah, Dr. M. Kumaraswamy Reddy**
Pramukhswami Medical College	Karamsad	**Dr. Girish Mishra, Dr. Monica Gupta, Dr. S. Chaudhari**
Sri Ramachandra Medical College & Research Institute	Chennai	**Dr. Sandhya Sundaram, Dr. Prathiba**
Babina Diagnostic Centre	Imphal	**Dr. Th. Dhabali Singh, Dr. K. Gojen Singh**
Sir Thutob Namgyal Memorial Hospital	Gangtok	**Dr. Yogesh Verma, Dr. Prakash Pradhan**
National Institute of Nutrition	Hyderabad	**Dr. B. Sesikeran**
Mahatma Gandhi Missions Medical College	Aurangabad	**Dr. Dinesh Kulkarni**
Dr. Purohit's Pathology and Bacteriology Laboratory	Kolhapur	**Dr. P.V. Purohit, Dr. J. Limaye, Dr. Shrikrishna Kamat**
Jawaharlal Nehru Medical College	Wardha	**Dr. Narendra Samal, Dr.Sunita J Vagha**
BS Medical College	Bankura	**Dr. Manoj Chaudhuri**
Elite Mission Hospital	Thrissur	**Dr. K.V. Praveen**
LLRM Medical College	Meerut	**Dr. Dipti Bisht, Dr. Veena Sharma**
Christian Medical College	Ludhiana	**Dr. Sheila Das, Dr. Nalini Calton**
City Pathology Laboratory	Nagpur	**Dr. Lalit Jain**
Vinayaka Missions Medical College	Karaikal	**Dr. N. Saradambal, Dr. M. Balamurugan**
Dr. D.Y. Patil Medical College	Kolhapur	**Dr (Mrs) V.R. Pawar, Dr. (Mrs) R.A. Dighe, Dr. S.S. Mole**
Sri Guru Ramdas Institute of Medical Sciences	Amritsar	**Dr. Sanjay Bedi, Dr. Swarn Kaur, Dr. R. Devan**
Dr. Panjabrao Deshmukh Memorial Medical College	Amravati	**Dr. A.T. Deshmukh, Dr. R.R. Soni**
Getwell Polyclinic & Diagnostic Centre	Jaipur	**Dr. G.D. Mody, Dr. Devendra Laddha, Dr. Seema Bhutia**
NRS Medical College	Kolkata	**Dr. Sudhipta Bhattacharya, Dr. Jayashri Chakroborty**
The Polyclinic Pvt. Ltd.	Thrissur	**Dr. K.V. Praveen**
Indira Gandhi Medical College	Nagpur	**Dr. A.V. Shrikhande**
Bharati Vidyapeeth Medical College	Pune	**Dr. Y.V. Machave**
Indo American Cancer Institute & Research Centre	Hyderabad	**Dr. S. Sudha**
Sri Venkateswara Medical College	Tirupati	**Dr. B. Anuradha**
RNT Medical College	Udaipur	**Dr. S. Surana, Dr. Mogra**
Sri Siddartha Medical College	Tumkur	**Dr. C.R. Kondandaswamy, Dr. K.V. Santosh**
NIMHANS	Bangalore	**Dr. Vani Santosh**
Shri Ganapati Netralaya	Jalna	**Dr. Alka Thool**
Medwin Hospitals	Hyderabad	**Dr. Sudha, Dr. A. Fathima**
Medical College	Kottayam	**Dr. N. Sundareshan**
MKCG Medical College	Behrampur	**Dr. M.M. Mishra**

Supporting Staff of Co-ordinating Unit of NCRP, Bangalore

F.S. Roselind, B.S. Sreevalli, B. Shobana, K.T. Thimma Setty

IT Consultants - **M. Suresh Kumar,** *Intech Solutions,*

B.S. Girish, *Akshara Technologies*

NATIONAL CANCER REGISTRY PROGRAMME

Indian Council of Medical Research

Dr N.K. Ganguly
Director General

Dr Padam Singh
Addl. Director General

Dr Usha K. Luthra
Senior Adviser, Cancer Research

Division of Non-Communicable Diseases

Dr Bela Shah
Chief & Sr Deputy Director General

Dr Kishor Chaudhry
Dy Director General (Sr Gr)

Dr A. Nandakumar
Officer-in-Charge, NCRP &
Dy Director General (Sr Gr)

Steering/Monitoring Committee

Dr P. S. S. Sundar Rao, *Bangalore*
Dr N.C. Misra, *Lucknow*
Dr B.D. Gupta, *Chandigarh*
Mr P. Gangadharan, *Ernakulam*
Dr P. C. Gupta, *Mumbai*
Dr S. Radhakrishna, *Hyderabad*
Dr R.N. Visweswara, *Bangalore*
Dr Kusum Joshi, *Chandigarh*

Cancer Registries (With Names of Principal Investigators)

Population Based

Ahmedabad : **Dr. Pankaj Shah**
Barshi : **Dr K.A. Dinshaw**
Chennai : **Dr V. Shanta**
Bangalore : **Dr P.S. Prabhakaran**
Bhopal : **Dr. V.K. Bharadwaj**
Delhi : **Dr Kusum Verma**
Mumbai : **Dr A.P. Kurkure**

Hospital Based

Bangalore : **Dr P.S. Prabhakaran**
Dibrugarh : **Dr N. Choudhury**
Chennai : **Dr V. Shanta**
Mumbai : **Dr K.A. Dinshaw**
Thi'puram :* **Dr B. Rajan**
*(*Thiruvananthapuram)*

Northeastern Regional Cancer Registry (Population Based) with names of Principal Investigators

Monitoring Unit : **Dr. J. Mahanta,** *Director, Regional Medical Research Centre(ICMR), Dibrugarh*

Aizawl : **Dr Eric Zomawia**
Gangtok : **Dr Yogesh Verma**
Imphal : **Dr Y. Mohen Singh**
Dibrugarh : **Dr N. Choudhury**
Guwahati : **Dr Jagannath D. Sharma**
Silchar : **Dr Sekhar Chakravarty**

Other Staff at Co-ordinating Unit of NCRP, Bangalore

Mr. G.C. Shivayogi, Mr. Murali Dhar, Mrs. F.S. Roselind, Mrs. B.S. Sreevalli, Ms. B. Shobana, Mr. John J. Manavalan, Mr. N.M. Ramesha, Mr. Kiran Prabhu, Mr. M.B. Sabarish, Mr. A. Hassan Mohammed, Mr. M. Rajendra

(Indian Council of Medical Research)
No. 557, 'Srinivasa Nilaya',
New BEL Road, Dollars Colony,
Bangalore - 560 094, INDIA.
Telephone/Fax: 080 23512186
E-mail: ank@blr.vsnl.net.in
Website: www.canceratlasindia.org
www.cancermapindia.org

April 2004

Cover: Districtwise Map of the Distribution of Breast Cancer in Females.

PRINTED IN INDIA

Published by the Coordinating Unit, National Cancer Registry Programme (ICMR), Bangalore 560 094;
and Printed at the National Printing Press, Bangalore 560 095.

CONTENTS

FOREWORD

Measuring accurate estimates of the burden of disease in a developing country is challenging. There are several reasons for this. Some of them have to do with the documentation of medical records and discharge summaries, methods of referral and follow-up and the system of registration and certification of cause of death. Specific disease registers are perhaps the answer.

The Indian Council of Medical Research initiated a network of cancer registries across the country under the National Cancer Registry Programme (NCRP) in 1981. The objective was essentially to generate reliable data on the magnitude and patterns of cancer and undertake epidemiological and cancer control research. The registries mainly cover selected urban centres and one rural pocket. Under the auspices of the World Health Organization a project on "Development of an Atlas of Cancer in India" was commenced in January 2001.

The main emphasis of this report is on patterns and minimum incidence rates of cancer over several districts. The incidence rates on important selected sites of cancer are compared with that of the established population based cancer registries under the NCRP. Summary report on individual centres is also given. Overall, the presentation provides a glimpse of similarities and variation in types of cancer in different regions of India. This comprehensive account is a big step forward in covering more areas not covered by the registries under the NCRP. Continued and sustained active participation by existing and additional newer centres will augment this process.

This report covers data accrued over a two-year period (1 January 2001 to 31 December 2002) and over 100 centres (including the functioning cancer registries) have contributed and collaborated in the project. The unique feature of this exercise has been the practical application of electronic information technology in medicine. Centres have transmitted core information on cancers, through the internet on to a web-site to the Coordinating Unit of NCRP. The report is therefore a singular example of utilising advances in Information Technology for creating a ready database for research. The potential for using the data and the Information Technology system as a tool for research is enormous.

It is hoped that this first nationwide report will serve as a ready reference manual to describe incidence rates and patterns of cancer. The information provided is exhaustive, nonetheless made simple and clear to the average reader and scientist alike. To collate data, make checks on the same, generate tabulations and prepare a timely report, so as to meet international standards is no easy task. The collaborating centres and the Coordinating Unit of NCRP and their staff deserve all the appreciation for the stupendous effort.

The monetary support provided by the WHO - Government of India is gratefully acknowledged.

Nirmal Kumar Ganguly

Prof. N. K. Ganguly,
Director General, ICMR

5 April 2004

There is nothing more difficult to take in hand or more perilous to conduct or more uncertain in its success than to take the lead in the introduction of a new order of things.

Machiavelli (1469-1527)
Italian Author & Statesman

PREFACE

This report on the project on "Development of An Atlas of Cancer in India" is unique in many ways. The internet as a medium of communication has been used to capture data on cancer. Several centers throughout the country have participated in this project and made use of electronic information technology in an extremely effective way. The successful working of this project as evidenced by this report marks an important milestone in gathering disease related information in a coordinated way and gives scope for similar application for other diseases. The concept and design are extremely meaningful as information has been received in a very cost effective way and the results achieved in a remarkably short time. The National Cancer Registry Programme of the Indian Council of Medical Research and its team of collaborators deserve all the praise for the tremendous effort.

Apart from creating a system, the results itself have brought a whole set of new findings which hitherto was unknown. To mention a few-some of the districts in the country have the highest incidence rate in the world of sites of cancer associated with use of tobacco. These include cancer of the mouth in Wardha district of Maharashtra, Kanniyakumari district of Tamil Nadu, in Kollam and Thiruvananthapuram districts of Kerala and in Pondicherry. Aizawl district in Mizoram State has highest incidence rate of Tongue, Hypopharyngeal and Oesophageal cancer in males. Cancer of the Gall Bladder in females has the highest incidence in Chandigarh and in Manipur (Imphal East and West districts). There seems to be a belt of very high incidence penile cancer in North East Tamil Nadu and Pondicherry. Similarly a belt of oral cavity cancer is seen across Gujarat. There are many such fresh findings that have come to light in this exciting scientific report.

This comprehensive document in two volumes opens the door for cancer research in all its dimensions be it administrative and control, basic and laboratory or field and clinic.

30/4/04

30 April 2004

J.V.R Prasada Rao
Health Secretary
Government of India

ABOUT THE PROJECT

Cancer is responsible for about 20% of all deaths in the industrialized countries and 10% in the developing ones. The epidemiological and demographic transition is likely to increase the cancer burden in developing countries, including India. Information about the frequency and patterns of cancer is an essential pre-requisite for undertaking cancer control programmes.

The National Cancer Registry Programme of the Indian Council of Medical Research has a network of population-based cancer registry programmes in India and has been providing information on cancer incidence in India. However, this information has been limited to urban areas. The Government of India and WHO collaborative programme for the biennium 2001-2002 has supported the National Cancer Registry Programme of the ICMR to develop an 'Atlas of Cancer in India'.

This technical report provides an analysis of over 2,00,000 cancer cases in India collected during a two-year period from 105 centres. The district has been taken as a unit to obtain incidence rates of cancer. The minimum age-adjusted incidence rates based on microscopically diagnosed cases have been calculated for the districts. The same has also been calculated for the Population Based Cancer Registries under the National Cancer Registry Programme of India. Besides describing the pattern of cancer in the 82 districts that have minimum rates above the lowest seen in population based registries, the incidence rates of individual specific sites are compared with the incidence rates of the population registries.

Several districts have been found to have very high rates of cancer, which are above that of the highest incidence rates reported elsewhere from the world. These include sites of cancer associated with the use of tobacco, cancer of the stomach, gall bladder and penile cancer, to name a few.

This information that has been generated needs to be used for developing a comprehensive cancer control programme at the district level. The majority of cancers are tobacco related and hence are amenable for primary prevention. We hope that this information will be made available to various categories of personnel who are involved in cancer control activities.

We would like to place on record our appreciation for the National Cancer Registry Programme of the ICMR and all the participating centers for the good work and the successful completion of the project.

Dr. Cherian Varghese
National Professional Officer (NMH)

Dr. S.J. Habayeb
WHO Representative to India

ACKNOWLEDGEMENTS

The Director General of the Indian Council of Medical Research has been a constant source of encouragement for this project. Dr Bela Shah, Chief of the Division of Non-Communicable Diseases has been very supportive and so have all the members of the Steering and Monitoring Committee of the NCRP including the Additional Director General, ICMR - Dr Padam Singh and Senior Advisor, Cancer Research - Dr Usha K. Luthra. The authors extend their heartfelt thanks to all of them.

The prime person responsible for the sanction of this project was Dr Ravi Rangachari, then Chief of the Indo-Foreign Cell of ICMR. He was instrumental in making the crucial efforts at the Ministry of Health and the WHO to get the project cleared. Dr Nandakumar expresses his profound gratitude to him. This helpfulness has been sustained, by the present Chief of the Indo-Foreign Cell - Prof S.C. Sehgal and his deputies - Dr Mukesh Kumar and Dr Harpreet Sandhu.

The project and report was made possible because of the funds provided by the WHO through the Ministry of Health, Government of India. Funds were provided for the main project and also for the regional and All India Workshops which were essential to the success of the project. The authors extend hearty thanks to Dr Jerzy Leowski, Regional Advisor, Noncommunicable Disease Surveillance at the South East Asia Regional Office of WHO and Dr Cherian Varghese, National Professional Officer, WR-India Office of WHO for their active participation in the workshops and giving the impetus to the participants for active collaboration.

Dr D.M. Parkin, Chief, Unit of Descriptive Epidemiology, International Agency for Research on Cancer, has given extensive guidance and scientific inputs for the study. He participated in the All India Workshop and reviewed the draft of the report. The authors acknowledge his support.

Gratitude is also expressed to Dr J.K. Banthia, the Registrar General and Census Commissioner of India for providing the numbers of populations of the districts and the district-wise and state wise maps.

The Heads of Collaborating Centres, the Principal Investigators, Co-Principal Investigators and other concerned faculty have contributed overwhelmingly towards the success of the project. Their active participation in the workshops and their motivation and tireless efforts in sending data promptly has been of great help in bringing out a timely report. The authors record their appreciation.

The help provided by the Director, Indian Institute of Science, Bangalore, the President, Jawaharlal Nehru Centre for Advanced Scientific Research and concerned officials in the two institutions for giving the auditorium and hall at concessional rates and accomodation for the participants during the various workshops is greatly appreciated.

The staff of the Coordinating Unit of NCRP has worked as a team in bringing out this report and the Chief Principal Investigator expresses his gratitude to them. Dr Ramachandra Reddy and Dr Kumaraswamy have taken keen interest in doing the proof reading yet again and we thank them profusely.

This short report tries to tell how much and what type of cancer is occurring where in at least some parts of the country so as to attempt and seek answers to the more complex questions of the how and why of cancer and what needs to be done.

DEVELOPMENT OF AN ATLAS OF CANCER IN INDIA

First All India Report: 2001 - 2002

Executive Summary

The present account on the project on "Development of an Atlas of Cancer in India" is the First All India Report covering the calendar years 2001 and 2002. Under this project, a cost-effective design and plan using advances in modern electronic information technology, was conceived, to collate and process relevant data on cancer. This was mainly to have an idea of patterns of cancer in several other parts of the country not covered by the registries under the National Cancer Registry Programme (NCRP) of the Indian Council of Medical Research (ICMR). Wherever possible, it was also envisaged to calculate estimates of cancer incidence.

Knowledge of patterns of cancer is important to know what type of cancer is occurring where and if possible how much and to what extent. Only this will provide a background to search answers to questions related to causation of cancer, a baseline for undertaking, monitoring and evaluation of cancer control measures, and an environment for administering optimum care and measuring outcome.

The data that has been collated by the NCRP over the years has shown that over 80-85% of registered cases of cancer has a microscopic diagnosis. Making a microscopic diagnosis of cancer is the domain of the pathologist. Accordingly, the basic principle of working in this study, was to have the department of pathology (in medical colleges and hospitals) as the focal point of capture of information on cancer cases. However, several clinicians working in oncology have actively collaborated.

Accordingly, all medical colleges (both the Principals and Heads of the Departments of Pathology) throughout the country were contacted for their interest to collaborate in the two-year project. Those who responded were supplied with core forms for collecting basic information (mainly patient identification details including area of living, and site and morphology of tumour) and provided guidelines for collecting this information on all malignant cases reported in the department of pathology from 1 January 2001. Visits were made to these potential collaborating centres and on the spot instructions given. During the visits their need for support was assessed and depending on the infrastructure and average number of malignancies reported per annum, facilities for computer and internet connectivity and data collation provided. Intense training workshops in the four regions of the country were held. Principles of cancer registration, data collation, transmission and fundamentals of epidemiology constituted the thrust areas of training at the workshops. The workshops and visits contributed a great deal to the success of the project.

The Internet was identified as the primary communication medium for collecting the data. Internet as a service for data collection on patient information was a unique concept being tried for the first time (in

India and to the best of our knowledge anywhere else in the world) under the project. Collaborating centres were given an individual login-ID and password with detailed instructions on entering the core patient information and steps for onward transmission. The data so transmitted was downloaded periodically at the Coordinating Unit of the NCRP. Data was also received through floppy disks and photocopies of completed forms. Several detailed checks were done on the data so as to meet international standards. Where needed, clarification was sought from individual centres. A variety of duplicate checks to ensure that no case was counted twice were also carried out. Strict inclusion criteria were adopted.

The regular accepted measures by cancer registries for analysis, tabulation and estimation of incidence rates were followed. In all there were a total of 2,17,174 cases for the two-year period (1 January 2001 to 31 December 2002) from 105 centres including the cancer registries under the NCRP and other functioning cancer registries. The district was taken as a unit for calculation of incidence rates. The advantage of using the district as a unit, was that these are reasonably well demarcated geographic areas where the five year age group population is available from the Census of India Publications. Thus the age adjusted incidence rates (that is normally used for calculation and comparison of incidence rates) per 100,000 population were calculated for each district. The district wise incidence rates were compared with the incidence rates of the regular Population Based Cancer Registries (PBCRs) under the NCRP. Since the registry at Barshi is the only rural registry and most of the 593 districts in the country are predominantly rural, the incidence rate at Barshi (36.2 /100,000 in males) was taken as the cut-off level to look at patterns of cancer in different districts. There were 82 districts that had incidence rates above this level. The incidence rates and patterns of the leading sites of cancer in many of these districts revealed several new features.

For all sites of cancer put together, in males, there were ten districts that had incidence rates higher than that of Delhi, which had the highest rate among the PBCRs under NCRP. The corresponding number of districts in females was four. Similarly, in most of the individual anatomical sites of cancer there were several districts for each site that showed higher incidence rates than that of the urban PBCRs for that specific site.

The relatively higher incidence of several sites of cancer especially cancer of the stomach and cancers associated with the use of tobacco in both men and women, in many districts of the North Eastern states were important new features in this report. The high incidence of cancer of the cervix in women and penile cancer in men in the northern districts of Tamil Nadu were remarkable. The cancer registry in Delhi has been recording a high incidence of gall bladder cancer in women. That there could be several other areas with equally or even higher incidence of this cancer in women is notable. The other finding of interest includes the relatively higher incidence of cancer of the thyroid in women from the southern tip of India along the Kerala and Karnataka coasts to Goa. This study has revealed some more though less specific observations for further investigations.

A massive exercise such as this project on developing an atlas for cancer in a vast country like India with varied types of populations, differing literary and socio-economic status has its limitations. First, the coverage of information on cancer cases was far from complete. There were several almost entirely uncovered states like Bihar, U.P., Jharkhand and Chattisgarh and only partial coverage of other states. Even within the specific local area of the collaborating centres, no active effort was made by all centres to

collect information on microscopically diagnosed cancers reported in the neighbourhood hospitals/ laboratories that are not part of the study. The second major limitation was in using minimal age adjusted incidence rates as a surrogate measure of calculating incidence rates. Normally, for a population based cancer registry, cancers diagnosed by means other than microscopic, viz., clinical, radiological, endoscopy, etc are included as a cancer case. In addition, death records are scrutinised for cancer as an underlying or antecedent cause of death. Such cases are matched with incident cases and the unmatched cases are considered as 'Death Certificate Only'. A PBCR includes such cases and all cases together provide numbers for calculation of incidence rates. This study was designed only to collect information on microscopically diagnosed cancers. Despite these limitations, the incidence rates used in this study was found to be a fairly dependable cost effective measure of incidence and patterns of cancer in diverse districts of the country.

Apart from the observance of several new patterns of cancer in many areas, the major outcome of this project has been the successful application of electronic information technology in the field of medicine in an extremely cost-effective way (at approximately Rs 24 per case). If well augmented, it could pave the way for extensive usage and opening the field of health informatics.

Sustained support on a long-term basis with scope for considerable expansion would be required for setting up a composite database through what may be called a National Electronic Surveillance System for Cancer. That then would constitute a sound platform for quality research in cancer in all its dimensions. This could be for observing incidence and patterns across a wide spectrum of populations, evolving analytic studies in molecular epidemiology to seek clues in cancer aetiology, looking at patterns of cancer patient care and survival so as to regulate management and, last but by no means the least for monitoring and evaluation of cancer control measures.

Chapter 7

PROFILE OF CANCERS IN COLLABORATING CENTRES

This chapter gives a summarized account of each of the centres that have collaborated and contributed ıformation on cancer cases.

In all, 105 centres contributed information on 2,17,174 cases for the two year period 2001-2002 (1,03,081 for 001 and 1,14,093 cases for 2002). The checks on data, inclusion and exclusion criteria, and the basis for grouping to ›ok at leading sites etc, are all given in Chapter 2 on 'Overall Plan and Methods'.

ormat of Presentation

Overall, the following order of sequence has been followed in arranging the write-up and tabulations of each ɜntre. Broadly the centres consist of the following:

1. Centres with Hospital Based Cancer Registries (HBCRs) under the National Cancer Registry Programme (NCRP);
2. Centres with functioning HBCRs, other than those in the NCRP network;
3. Population Based Cancer Registries (PBCRs) under the NCRP;
4. Functioning PBCRs other than those in the NCRP network;
5. All other centres - mainly, these consist of Regional Cancer Centres other than those covered in 1 - 4 above, private cancer centres, government and private medical college hospitals, non-teaching government and private hospitals and private pathology laboratories.

Under these five broad groups, the profile and summary tables and figure of each centre is arranged in the descending order of the number of cancers (for the combined years 2001 and 2002) on which information was provided towards the project.

Generally, each centre's description consists of a brief write-up of the centre, two statistical tables and a figure. ›le 7._(a) gives the summary of number of cancers on which information was provided according to calendar year ł gender. Table 7._(b) gives the district-wise distribution (number and relative proportion) of cancers from that ıtre. This latter table presents a picture of the distribution of cancers in different geographic areas. It is also an cator of sources of referral to that particular centre. The figure depicts the bar charts of ten leading sites of cancer)-10) separately, in males and females. Calculation of leading sites is based, on the proportion of that site of cer relative to the total numbers of all cancer sites in that gender.

Since this chapter deals with the pattern of cancer in individual centres, the bar charts and figure of leading sites ɜncer is not depicted for the PBCRs. They are reflected in earlier chapters (3 and 5). Moreover, the contribution of ·mation on cancers by the PBCRs is that of persons other than those residing in the respective PBCR area.

Further, no such charts or district-wise distribution of tables are given for centres where the numbers of cancers are relatively small (by and large less than two hundred cases or where counts for leading sites got into single digits).

Summary of Cancer Patterns

There are several limitations in describing patterns of cancer in individual centres especially in the context of geographical distribution. The leading sites of cancer in a given institution are dependent on a number of factors, such as, the popularity of a particular department and/or treating physician, the availability of a particular diagnostic or treatment facility, the affordability of the patients and so on. In some centres one could be dealing with small numbers of cancers. Thus, either the order of leading sites or fluctuation of the same between the years provides little meaning. Still, the patterns observed in most of the cancer centres that function as referral institutions for care of cancer patients do reflect the predominant cancers in the region. Further they give an indication of the magnitude and burden of cancer in the specific institution.

The foregoing points have to be kept in mind while interpreting the description (given below) of the patterns of cancer based on the leading anatomical sites of cancer, by individual institution.

Leading Sites of Cancer in Males (relative proportion (%) of all cancers given in parentheses)

Among males cancers of sites associated with use of tobacco were the most important. These cancers were generally referred as Tobacco Related Cancers (TRCs). Among the TRCs the prominent ones seen in the collaborating centres are mouth, lung, tongue, oesophagus and hypopharynx. They were seen uniformly in all centres regardless of geographical location and were among the five leading sites of cancer in many of the centres. Cancer of the mouth was the leading site of cancer in several centres and constituted nearly 27% of cancers of all sites at the A.H. Regional Cancer Centre in Cuttack, Orissa State. Cancer of the lung was also the leading site of cancer in many centres and in the two major institutions in Kolkata - Chittaranjan National Cancer Institute and Cancer Centre and Welfare Home it forms 13.8 and 13.6% of cancers respectively. Cancer of the tongue was the leading site of cancer in the two collaborating institutions from Gujarat State (Gujarat Cancer and Research Institute and Pramukhswami Medical College - 11.1 and 19.0% of cancers) and in Kuppuswamy Naidu Memorial Hospital (9.1%) in Coimbatore, Tamil Nadu State. Cancer of the oesophagus was the leading site in the Karnatak Cancer Therapy Institute (15.7%) in Hubli, Bharat Hospital (12.7%), Mysore and in Kidwai Memorial Institute of Oncology (9.7%), Bangalore - all in Karnataka State. It was also the leading site at Government Medical College (11.4%), Patiala, Punjab State. Cancer of the hypopharynx was the leading site of cancer in Dr B.B. Barooah Cancer Institute constituting 18.2% of all cancers. Cancer of the larynx, which is also a TRC site was the leading cancer in several centres. Some of these centres included PGIMR (Histology) (13.7%), Chandigarh, Jawaharlal Nehru Medical College (13.5%), Aligarh, Uttar Pradesh State and Government Medical College (11.0%), Nagpur, Maharashtra State.

Cancer of the stomach was prominent among the leading sites in the centres at Civil Hospital (29.1%), Aizawl, Mizoram State, Regional Institute of Medical Sciences (15.2%), Imphal, Manipur State. It was also the first or second leading site of cancer in three collaborating institutions (Sudharma Laboratory - 19.7%; Government Medical College - 14.5%; Amala Cancer Hospital and Research Centre - 10.4%) in Thrissur, Kerala State.

Cancer of the penis, was observed as a leading site of cancer at Rangaraya Medical College (second leading site - 11.0% of all cancers), Kakinada, Andhra Pradesh State; JIPMER (fourth leading site - 7.6% of all cancers), Pondicherry and in the Sai Subramaniam Pathology Laboratory (sixth leading site - 5.2% of all cancers) in Coimbatore, Tamil Nadu State.

The anatomical site - termed as 'Other Skin' that excludes melanoma of the skin was seen to be a major site of cancer in some centres. This was not observed in the hospital cancer registries under the NCRP. It was the second

leading site of cancer at S.N. Medical College (7.6%) Jodhpur in Rajasthan State; at Mahatma Gandhi Institute of Medical Sciences (6.2%), Wardha, Maharashtra State, Tirunelveli Medical College (6.1%), Tirunelveli, Tamil Nadu State, and at JIPMER (5.1%), Pondicherry.

The leukaemias and Non-Hodgkin's lymphomas constituted a major leading site of cancer in most centres. Cancer of the prostate was also one of ten leading sites in several centres. Apart from these, other sites that appeared as the first or second leading site of cancer were more likely due to the biases indicated above including the small numbers of cases reported from that institution than due to any reflection of geographic patterns.

Leading Sites of Cancer in Females (relative proportion (%) of all cancers given in parentheses)

Cancer of the cervix was the leading site of cancer in many institutions. The relative proportion was highest (77.6%) at the MNJ Institute of Oncology, Hyderabad, Andhra Pradesh State. The relative proportion was also high at JIPMER (55.1%), Pondicherry and at Karnatak Cancer Therapy Institute (43.2%) in Hubli, Karnataka State.

Cancer of the breast was also the leading site of cancer in various institutions. At Apollo Hospital, Hyderabad, Andhra Pradesh State it formed 36% of all cancers in females. The relative proportion of cancer of the breast was higher than 30% in many centres, notably, Government Medical College (32.7%), Patiala, Punjab State; Bhagwan Mahaveer Cancer and Research Centre (32.2%), Jaipur, Rajasthan State; Goa Medical College (31.9%), Goa State.

Cancer of the ovary was an important site of cancer constituting 9% of cancers in Government Medical College, Thrissur, Kerala State, 7.2% at PGIMER (Cytology), Chandigarh and 6.8% at Government Medical College, Nagpur, Maharashtra State.

Nine percent of cancers in females reported at the Regional Cancer Centre, Thiruvananthapuram, Kerala State, were cancers of the thyroid. The relative proportion of this site of cancer was 5.0% at Kasturba Medical College, Manipal and 4.9% at Kasturba Medical College, Mangalore, both in Karnataka State.

Cancer of the gall bladder accounted for 9.6% of all cancers in females at the Mahaveer Cancer Sansthan in Patna, Bihar State and was the third leading site of cancer. Both the major institutions in Kolkata - Cancer Centre Welfare Home and Chittaranjan National Cancer Institute recorded this site of cancer to be 6.0% and 5.8% of all cancers, being the third and fourth leading sites respectively.

In females also, cancer of the stomach was an important leading site in the institutions in the states of Mizoram and Manipur. In the Civil Hospital in Aizawl, Mizoram State, it formed 14.4% of all cancers and was the second leading site of cancer. Similarly, in the Regional Institute of Medical Sciences, Imphal, Manipur State, stomach cancer constituted 13% of all malignancies in females and was the fourth leading site of cancer. Cancer of the stomach was also one of the leading sites in the centres at Thrissur, Kerala State (Sudharma Laboratory - second leading site and 9.9% of all cancers; Government Medical College - fifth leading site and 5.0% of all cancers; Amala Cancer Hospital and Research Centre - fifth leading site and 4.5% of all cancers).

Cancers of the mouth and oesophagus were among the important and leading TRCs in females. Cancer of the mouth was the second leading site at A.H. Regional Cancer Centre (15.5%), Cuttack, Orissa State. In JIPMER (8.1%) and in Dr B.B. Barooah Cancer Institute (8.2%) it was the second and fourth leading site of cancer respectively. In the other institution, cancer of the oesophagus was the third leading site forming 12.6% of all cancers. Cancer of the oesophagus was also the third leading site in the Karnatak Cancer Therapy Centre (9.7%), in Hubli, Karnataka State, the Acharya Tulsi Regional Cancer Treatment Centre (7.6%) in Bikaner, and at Santokba Durlabhji Memorial Hospital (4%) at Jaipur in Rajasthan State. Two institutions in the North Eastern states - Regional Institute of Medical Sciences (9%), Imphal, Manipur State and Civil Hospital (10.3%), Aizawl, Mizoram State had cancer of lung as the third and fourth leading site of cancer respectively.

7.1. Tata Memorial Centre, Mumbai

(HBCR - Mumbai, Centre Code : 1008)

Profile
Service Research Education

Dr.(Ms.) K.A. Dinshaw, Director, Tata Memorial Centre

Mr. T. Anbumani, Chief Admin. Officer, Tata Memorial Centre

Dr. H.K.V. Narayan, Medical Superintendent, Tata Memorial Centre

Dr. R.F. Chinoy, Head, Dept. of Pathology

Dr. N.H. Merchant, Head, Dept. of Radio diagnosis

Dr. R.A. Badwe, Head, Dept. of Surgical Oncology

Dr. S.K. Shrivastava, Head, Dept. of Radiation Oncology

Dr. Raman Sareen, Head, Dept. of Anaesthesiology & Pain Clinic

Dr. P.M. Parikh, Head, Dept. of Medical Oncology

Dr. S.S. Shastri, Head, Dept. of Preventive Oncology

Dr. S.B. Rajadhyaksha, Head, Dept. of Transfusion Medicine

Dr. K.M. Mohandas, Head, Dept. of Digestive Disease & Clinical Nutrition.

Mr. D. N. Rao, Head, Division of Epidemiology and Biostatistics

The Tata Memorial Centre is the national comprehensive cancer centre for the prevention, treatment, and education and recognized as one of the leading cancer centres in this part of the world. This achievement has been possible due to the far-sighted and total support of the Department of Atomic Energy, responsible for managing this Institution since 1962.

History

The Tata Memorial Hospital (TMH) was initially commissioned by the Sir Dorabji Tata Trust as a centre with enduring value and a mission for concern for the Indian people on 28 February 1941. In 1952 the Indian Cancer Research Centre was established as a pioneer research institute for basic research – later called the Cancer Research Institute (CRI). In 1957 the Ministry of Health took over the Tata Memorial Hospital. The transfer of the administrative control of the Tata Memorial Centre (Tata Memorial Hospital and Cancer Research Institute) to the Department of Atomic Energy in 1962 was the next major milestone. The Tata Memorial Hospital and Cancer Research Institute merged as the two arms of the Tata Memorial Centre (TMC) in 1966 as a classic example of private philanthropy augmented by Government support with a mandate for Service, Education and Research in Cancer.

Patient Care

The current activities and level of expertise in all spheres are worth recording. Every year nearly 30,000 new patients visit the clinics from all over India and neighbouring countries. Nearly 60% of these cancer patients receive primary care at the Hospital of which over 70% are treated almost free of any charges. Over 1000 patients attend the OPD daily for medical advice, comprehensive care or for follow-up treatment. During the year 2002, over 20,000 new cases were registered in addition to over 11000 Referral Cards issued for only special investigations.

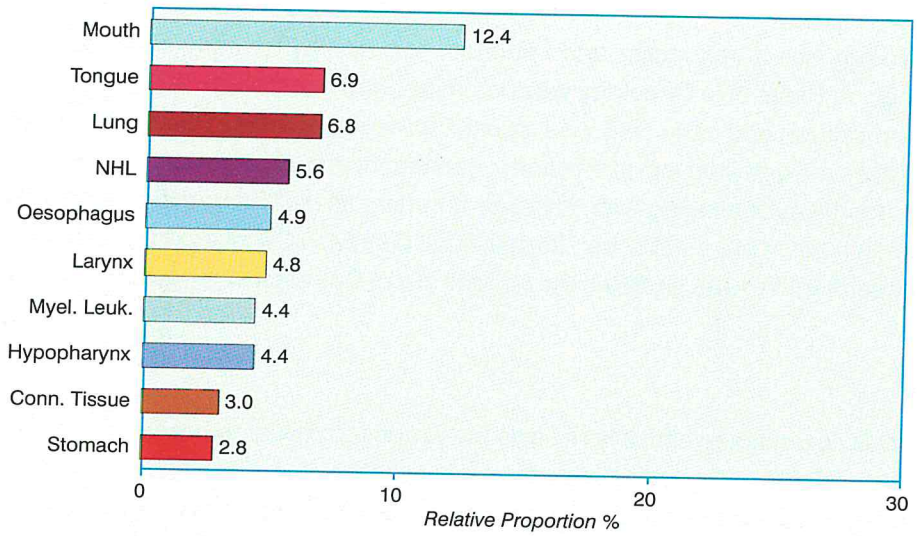
Nearly 8500 major operations are performed annually and 5000 patients treated with Radiotherapy and Chemotherapy annually in multi-disciplinary programmes delivering established treatments. At the TMH, Evidence Based Medicine is the keystone of our endeavour. Apart from the patient care and service, clinical research programmes

TABLE 7.1(a) : Summary of Number of Cancers

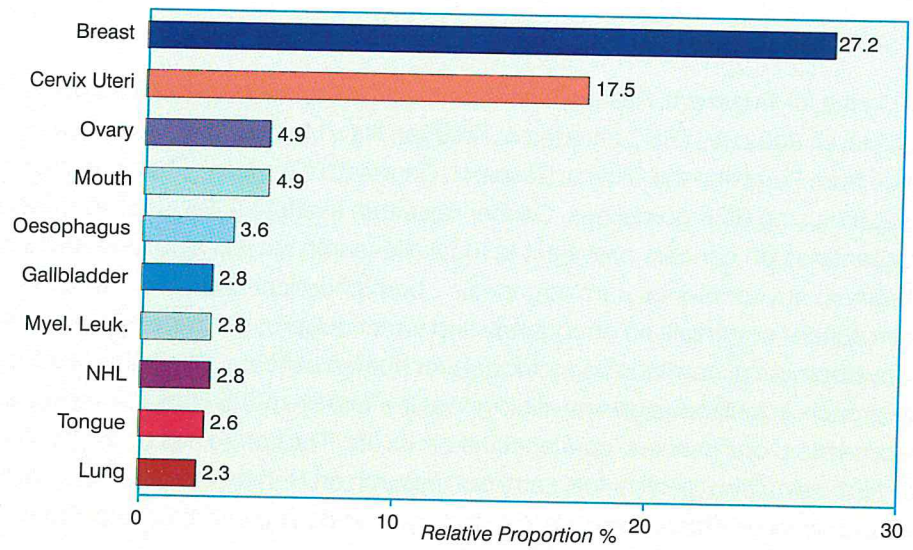
Year	Males	Females	Total
2001	8507	6617	15124
2002	8523	6710	15233
2001 - 2002	**17030**	**13327**	**30357**

FIGURE 7.1 : Ten Leading Sites of Cancer (2001 - 2002)

Males



Females



and randomized trials contribute increasingly to improved delivery of care and highest standards of work ethics. Surgery remains the vital form of treatment along with radiation therapy and chemotherapy. The strategies for early diagnosis, treatment management, rehabilitation, pain relief and terminal care have been established in a comprehensive and multidisciplinary approach for a total cancer care programme.

Many advances have taken place in every speciality. In surgery, the changing concepts have taken into account the biology of cancer. Radical surgeries have yielded place to more conservative surgery with the very important objective of quality of life, conserving function and organ without compromising the overall survival outcomes. Radiation therapy has also made rapid advances with high technology, precision, computerization and newer isotopes for therapy. Chemotherapy has played a very major role, with new drugs and clinical protocols investigated in clinical trials. The TMH was the first centre in the country to initiate Bone Marrow Transplant in 1983. This has been possible due to better total supportive care using newer antibiotics, nutritional, blood transfusion support and nursing. Another important area of progress over the last few years has been radiological imaging techniques using ultrasound, CT Scanners, MRI and more dynamic real time nuclear medicine scanning and the PET Scan. Pathology has progressed from basic histopathology to molecular pathology with emphasis on predictive assays for identifying the high risk prognostic factors. Supportive care in the form of total rehabilitation and counselling of patients is widely recognized to be very important aspects of therapy. Excellent work has been carried out in areas of patient rehabilitation, physiotherapy, occupational therapy, speech therapy, psychology and medical social work.

Cancer prevention:

Preventive oncology has a very major and important role to play for early diagnosis, screening and down staging of cancer. Dept . of Preventive Oncology was commissioned in the year 1993, which gives special focus on education in cancer prevention and early detection, cancer screening. Of the 2 to 2.5 million cases of cancer in the country over 70% of cases are detected late and report for treatment in very advanced stages. The emphasis on early detection would go a long way to dealing with the large numbers as well as to mitigate avoidable suffering and a financial burden. With this aim, TMC established its first Rural Outreach Cancer Centre at Barshi, Sholapur Dist. for early diagnosis and treatment in 1983. In 2003, the second Rural Outreach Centre was setup in Chiplun, Ratnagiri District.

Clinical Research:

A Scientific Review Committee critically reviews the proposed research programs and projects in detail and ensures that the research effort is at the cutting edge of an international effort. The Hospital Ethics Committee consisting of doctors and scientific officers of the centre and outside expert members in the field of medicine, law and social science critically evaluate the research and medical practices followed in the hospital. A separate Data Monitoring and Safety Committee, in addition, strictly evaluates and monitors all officially sanctioned intramural research programmes.

Advanced Centre for Treatment, Research and Education in Cancer:

The Advanced Centre for Treatment, Research and Education in Cancer (ACTREC) has recently been established and commissioned in March 2002. ACTREC situated at Khargar, Navi Mumbai has two wings - the Cancer Research Institute (CRI) relocated from Parel and the Clinical Research Centre (CRC) which, when commissioned will undertake basic and clinical research using GCP guidelines. Cancer Research Institute (CRI) since its inception has committed itself to research programmes on cancers prevalent in India. Research activities include areas such as lifestyles in relation to cancer patterns, environmental carcinogenesis - both chemical and viral, cancer immunology, cell and molecular biology with special emphasis on oncogenes and tumor suppressor genes and chemotherapy. There are groups working on development of new laboratory models for human cancers. Clinical research is conducted, using a multi-disciplinary approach, in collaboration with clinicians at the Tata Memorial Hospital, mainly on cancers prevalent in India such as tobacco-linked oral cancers, cancer of the cervix etc. The centre has achieved the distinction of being the first in the country to develop transgenic mice, carry out research on Human Gene Therapy, cultivate HIV virus from Indian AIDS patients and develop a diagnostic kit. With the commissioning of the Clinical Research Centre (CRC) in ACTREC shortly clinical research programmes will be initiated.

Education:

The Tata Memorial Centre is a recognized training centre for cancer education and research by national and international organizations such as WHO, IAEA and UICC. Tata Memorial Hospital is a postgraduate teaching centre and is affiliated to the University of Mumbai, National Board of Examinations and Maharashtra University of Health Sciences. Every year about 80 post-graduate students register with the centre for doing their Masters or Doctorate courses. There are about 400 students undergoing training every year in medical and non-medical fields in long and short term courses.

Hospital Information System:

In line with recent advances in Information Technology, the Tata Memorial Centre has established a comprehensive computerization of Medical Records and also improved communication by widening of the Electronic Mail and internet facilities. With the escalation and pressure on our entire infrastructure, introduction of modern techniques of hospital management are required to ensure the least delay and discomfort to patients. We have therefore introduced professionals to review all our methods and systems for Total Quality Management in all areas to make our own work force and environment more amenable for optimum performance.

New Facilities

A 12-storey block "The Tata Clinic and Faculty Block" is planned on the premises vacated by the CRI. This facility will house site specialty clinics. 70 additional beds, day care, academic offices, post graduate education, seminar rooms and Telemedicine Centre. In the final analysis, an Institution is judged by the quality of the staff. Our eminence is entirely due to their unquestioned and total dedication in the cause of fighting cancer. The Tata Memorial Centre will not rest on past achievements, splendid as they are, but will continue to give succor to our patients, offer them the best chance of cure, of life and relief from pain in continuing a tribute to the vision and dedication of those who have guided the destiny of this Institution.

TABLE 7.1(b) : District-wise Distribution of Cancers (2001 - 2002)

Number (#) and Relative Proportion (%)

Name of District (With Code)	2001		2002		2001 - 2002	
	#	%	#	%	#	%
Mumbai *(2723)*	2893	19.1	2860	18.8	5753	19.0
Thane *(2721)*	1367	9.0	1341	8.8	2708	8.9
Raigarh *(2724)*	307	2.0	338	2.2	645	2.1
Jalgaon *(2703)*	292	1.9	257	1.7	549	1.8
Ratnagiri *(2732)*	255	1.7	261	1.7	516	1.7
Pune *(2725)*	265	1.8	242	1.6	507	1.7
Kolkata *(1917)*	208	1.4	232	1.5	440	1.4
Satara *(2731)*	217	1.4	217	1.4	434	1.4
N. 24-Parganas *(1911)*	233	1.5	190	1.2	423	1.4
Nashik *(2720)*	231	1.5	186	1.2	417	1.4
Patna *(1028)*	189	1.2	192	1.3	381	1.3
Jaunpur *(964)*	185	1.2	195	1.3	380	1.3
Sindhudurg *(2733)*	168	1.1	180	1.2	348	1.1
Kolhapur *(2734)*	180	1.2	149	1.0	329	1.1
Barddhaman *(1909)*	150	1.0	157	1.0	307	1.0
All Other Districts	7984	52.8	8236	54.1	16220	53.4
Total Cases	**15124**	**100.0**	**15233**	**100.0**	**30357**	**100.0**

7.2. Regional Cancer Centre, Thiruvananthapuram

(HBCR - Thiruvananthapuram, Centre Code : 1006)

Dr. B. Rajan, Director

Dr. M. Krishnan Nair, Former Director

Dr. Aleyamma Mathew, Associate Professor in Statistics and Epidemiology, and Co-Principal Investigator

The Regional Cancer Centre, (RCC) Thiruvananthapuram is an autonomous institution sponsored jointly by the Govt. of Kerala and the Govt. of India and was established in 1981 as one among the 6 such centres (currently 22) in India with the objective of providing comprehensive cancer treatment, community health services and to conduct advanced research in oncological sciences as well as basic sciences. The centre has been designated as a Science and Technology Centre in the health sector by the Kerala government in 1985.

The vision, which the RCC had, envisaged from the beginning, was the setting up of a comprehensive cancer care facility to establish all major disciplines, related to oncology. From the core units of radiation oncology and cytopathology, new divisions, such as surgical oncology, medical oncology, paediatric oncology, imageology, nuclear medicine, radiation physics, community oncology, epidemiology, pain and palliative care, clinical and basic research were set up in record time. Emphasis was also given for early cancer detection centres through the outreach programmes of the division of community oncology. Both clinical and basic research activities are co-ordinated addressing the cancer problems of the State of Kerala. Hospital and population-based cancer registry activities are undertaken seriously. For the first time in the state oral morphine was made available to terminally ill cancer patients and the same is manufactured by the RCC with the help of the College of Pharmaceutical Sciences, Thiruvananthapuram.

RCC carried out a number of anti tobacco activities, early cancer detection and palliative care programmes extensively in the State of Kerala. Seven early cancer detection centres and one district cancer control programme were set up in Ernakulam, Kollam, Pathanamthitta, Palakkad, Kannur, Kozhikode, Wynad and Kasargod districts, the last 3 with UNFPA support. These early cancer detection centres have facilities for physical examination and cytology screening including fine needle aspiration cytology (FNAC) and services of a trained doctor, paramedical staff and laboratory staff. A number of epidemiologic and cancer control programmes are being carried out in collaboration with the International Agency for Research on Cancer (IARC), Lyon, France. RCC was designated as a WHO collaborating centre in 1996 for a period of 4 years for cancer control in developing countries. RCC is collaborating with the WHO collaborating centre for pain relief and palliative care, Oxford.

RCC undertakes undergraduate and postgraduate training in some branches of oncology in collaboration with other acknowledged centres of academic and clinical excellence. Human resource development for all cancer control activities – medical, scientific and paramedical are undertaken by the centre. RCC helps the training of a number of WHO fellows from South East countries in national cancer control programme, cytology, cancer registration, palliative care and early cancer detection. The Government of India has designated RCC as Centre of Excellence in the field of cancer treatment, research and education.

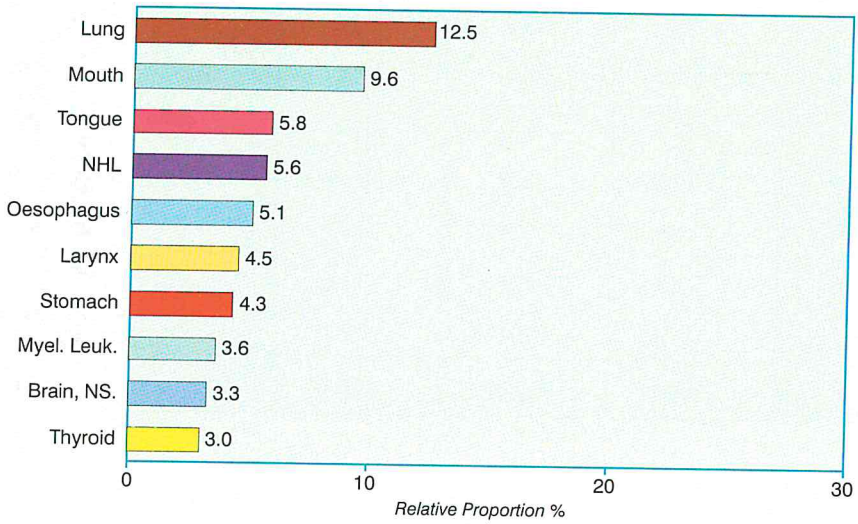
Annually around 10,000 new cancer patients, more than 95,000 follow-up visits of old patients and more than 200,000 non-cancer patients for various investigations report to the centre. During the last five years, there has been 25% increase in the registration of both cancer and patients.

TABLE 7.2(a) : Summary of Number of Cancers

Year	Males	Females	Total
2001	3773	3336	7109
2002	4665	4243	8908
2001 - 2002	8438	7579	16017

FIGURE 7.2 : Ten Leading Sites of Cancer (2001 - 2002)

Males



Females

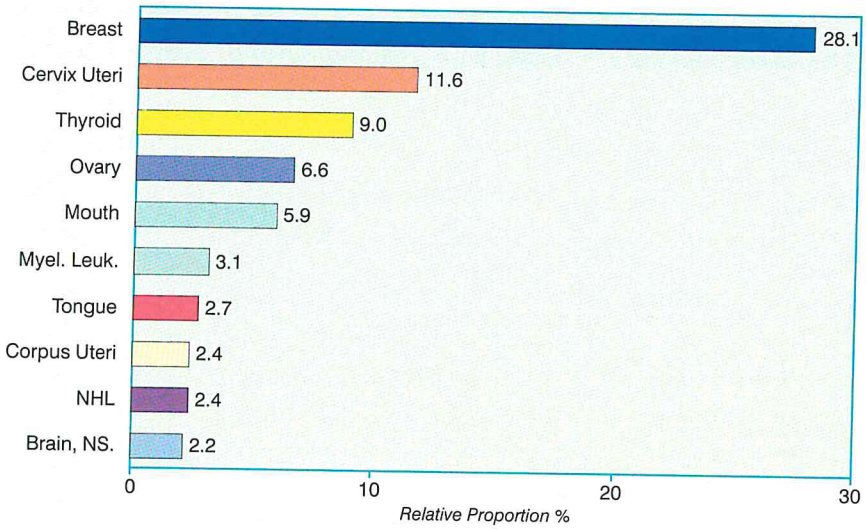


TABLE 7.2 (b) : District-wise Distribution of Cancers (2001 - 2002)

Number (#) and Relative Proportion (%)

Name of District (With Code)	2001		2002		2001 - 2002	
	#	%	#	%	#	%
Thi'puram *(3214)*	1805	25.4	2333	26.2	4138	25.8
Kollam *(3213)*	1494	21.0	1823	20.5	3317	20.7
Ernakulam *(3208)*	560	7.9	689	7.7	1249	7.8
Pathanamthitta *(3212)*	537	7.6	635	7.1	1172	7.3
Kanniyakumari *(3330)*	409	5.8	528	5.9	937	5.9
Alappuzha *(3211)*	365	5.1	475	5.3	840	5.2
Thrissur *(3207)*	371	5.2	442	5.0	813	5.1
Malappuram *(3205)*	298	4.2	346	3.9	644	4.0
Palakkad *(3206)*	268	3.8	328	3.7	596	3.7
Kottayam *(3210)*	217	3.1	281	3.2	498	3.1
Kannur *(3202)*	215	3.0	248	2.8	463	2.9
Kozhikode *(3204)*	170	2.4	226	2.5	396	2.5
Tirunelveli *(3329)*	168	2.4	199	2.2	367	2.3
Idukki *(3209)*	83	1.2	122	1.4	205	1.3
All Other Districts	149	2.1	233	2.6	382	2.4
Total Cases	**7109**	**100.0**	**8908**	**100.0**	**16017**	**100.0**

The Regional Cancer Centre, (RCC) Thiruvananthapuram also has a population based cancer registry covering part of Thiruvananthapuram District. The Figure with bar charts of leading sites of cancer of Thiruvananthapuram District are depicted in Chapter 5 on "Distribution and Pattern of Cancer in Selected Districts."

7.3. Cancer Institute (WIA), Chennai

(HBCR (Centre Code : 1009) & PBCR (Centre Code : 1004) - Chennai)

Dr. V. Shanta, Chairman, Cancer Institute (W.I.A) & Principal Investigator, HBCR & PBCR (ICMR)

Dr. R. Swaminathan, Senior Bio-Statistician, Division of Epidemiology & Cancer Registry and Co-Investigator

Dr. S. Nalini, Tutor, Division of Epidemiology & Cancer Registry

Ms. R. Rama, Statistical Asst., Division of Epidemiology & Cancer Registry

Ms. M. Kavitha, Statistical Asst., Division of Epidemiology & Cancer Registry

;ancer Institute (WIA) - Salient Features

The Cancer Institute (WIA), is a non-profit charitable institution, founded in 1954 by a team of dedicated women ;ith a social commitment under the leadership of Dr. (Mrs) Muthulakshmi Reddy, the first woman in India to graduate in ıedicine. Presently, it comprises four components: (i) the Post-graduate Teaching Hospital with a bed strength of 428 ɔnsisting of the departments of surgical, radiation and medical oncology, (ii) the Research Centre including laboratories : Molecular Oncology, Microbiology, Bio-chemistry, Bio-physics, Immunology, Cytogenetics and Electron Microscopy i) the Division of Preventive Oncology comprising two components (a) Cancer prevention and early detection – ;sentially educational at the public and professional levels. Over 750 VHNs and 250 rural medical practitioners have ;en trained (b) Registries: Demographic and Hospital – carrying out cancer registration activities and (iv) the College Oncological Sciences offering super specialty degree courses in oncology. The Cancer Institute (WIA), Chennai, is a ;gional Cancer Centre for treatment of cancer in the Ministry of Health and Family Welfare, Government of India, since 75. It enters the Golden Jubilee year in 2004 after 50 years of committed service in cancer care and research.

ɔspital Cancer Registry (HCR)

The HCR at the institute has 40 staff members serving in different capacities, besides a principal investigator and o-investigator. The HCR has been responsible for descriptive statistics on the total number of patients seen, diagnosed and/or treated for cancer annually, categorized by the site, socio-demographic factors, extent of disease at presentation, ɔviding information to PBCRs and other research activities and basic data for epidemiological studies and different es of case studies including survival analysis. In 2002, a total of 12,021 patients were registered; 7,306 (61%) of them re diagnosed to have cancer with the gender ratio of 116 females to 100 males. Cancers of the cervix (35%), breast %) and oral cavity (7%) in that order remained the most common cancers in women. The rank order among men was ıcer of the oral cavity (13%) followed by stomach (9%) and oropharynx (7%). The localized cancers comprised 6%, ally advanced 50% and distant metastasis 9% among all cancers together.

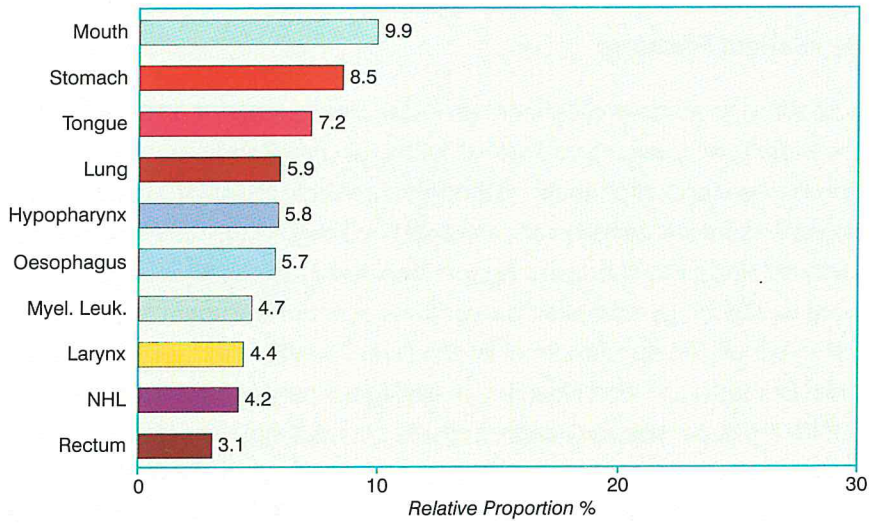
The HCR from its inception has focused on the continued well-being and care of the patient and therefore places at emphasis on "follow-up". Follow up is an integral activity of the HCR at the Cancer Institute. A lifetime follow up ;ancer cases is pursued until the death of the patient. With the follow-up of cases being an arduous task in any eloping environment, our HCR has evolved an efficient system of active follow up methods to augment the passive ɔw-up. Staff is dedicated exclusively to communicate with patients and relatives through letters, telephone and

TABLE 7.3(a) : Summary of Number of Cancers

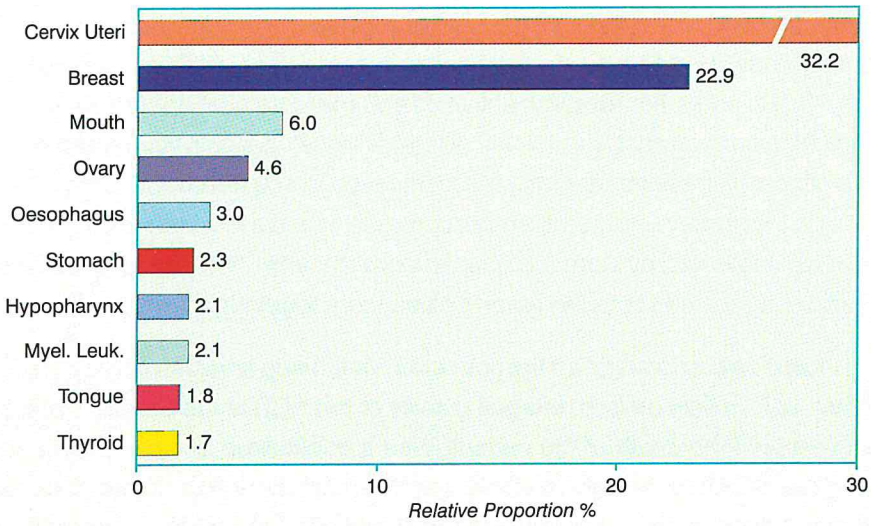
Year	Males	Females	Total
2001	1694	2303	3997
2002	2984	3298	6282
2001-2002	**4678**	**5601**	**10279**

FIGURE 7.3: Ten Leading Sites of Cancer (2001 - 2002)

Males



Females



E-mail for follow-up. The availability of a complete follow-up at five years from diagnosis, for any given site at any given time, is in the range of 70-90%. This rate is higher for specialized studies like clinical trials/protocol and survival. This has facilitated conduct of survival studies on common and selected cancers and publishing of the overall and disease free estimates in a routine manner.

The high resolution data collection in the HCR has facilitated the conduct of many analytical epidemiological studies on cervix, female breast, stomach, oral cavity, occupational related cancers to name a few. Many inter-department co-operative projects focusing on molecular and basic sciences research, are also being carried out. With the gradual increase in the level of computerization of hospital registration system, recent data on all aspects of cancer is readily available.

Population Based Cancer Registry (PBCR)

The PBCR that is based at the institute is called the Madras Metropolitan Tumour Registry (MMTR). It is in existence since 1981 as part of the National Cancer Registry Program (NCRP) of the Indian Council of Medical Research (ICMR), New Delhi. MMTR has completed 21 years of data collection on incident cancer cases among the residents of Chennai city.

For a PBCR, the emphasis is on public health and epidemiology. MMTR records data on incident cancer patients within the metropolitan limits of Chennai irrespective of the hospitals attended by them. It caters to a total urban population of 4.2 millions as on date registering an average of 4,000 cases annually. Since cancer is still not a notifiable disease in India, registration of cases is predominantly active. The average annual crude incidence rate (CIR) of cancer in the year 2000 is estimated to be 91.0 per 100,000 {cumulative risk (0-74 years): one in 8} among males and 103.2 per 100,000 among females (one in 8). The ranking of common cancers in males is stomach (CIR:10.9), lung (8.5), oesophagus (7.3) and oral cavity (6.3); among females, the order is cervix (25.4), breast (23.5), oral cavity (5.1) and stomach (4.7). The high quality of data from MMTR has been recognized by its acceptance by the IARC for publication in its quinquennial monograph, "Cancer Incidence in Five Continents", volumes VII and VIII, without any reservation. The completeness of coverage of reportable cancers in MMTR is estimated as 96%.

The MMTR is following a unique form of data collection whereby data on all deaths, irrespective of the stated cause on the death certificate, occurring in the city of Chennai is abstracted from the Vital Statistics Division of Corporation of Chennai and computerized in the registry. This has resulted in a two-fold increase in the availability of mortality information of registered cancer cases: from a mortality to incidence ratio of 23-25% in 1982-83 to 50-55% in 1992-2000. This method has been recommended for adoption by other registries too.

Besides these, MMTR has been in the forefront by being the first in many spheres of cancer registration: tracer back activities for unmatched death certificate notifications since 1984, active follow up in the form of house visits/ postal enquiries since 1985, linkage of data from different departments of the same hospital to enhance the quality of data since 1991, making available the survival statistics on top ten cancers in 1998. MMTR has been instrumental in the launching of the first population based Hereditary Cancer Registry in 2002. MMTR has been the resource centre for imparting training to participants of IARC course on cancer registration and epidemiology. Personnel from Regional Cancer Centres elsewhere in India have also undergone training here. MMTR has been regularly conducting workshops on cancer registration for the personnel of medical records departments of government and private hospitals in Tamil Nadu and personnel from the Vital Statistics Division of Corporation of Chennai. MMTR has extended its expertise in starting HCRs in government and private hospitals which form the source of data collection and in the installation of the software for cancer registration with minimum needed information in the medical records departments of several hospitals depending on the level of computerization existing there.

In summary, both the registries were part of the WHO-ICMR Project of Development of an Atlas on Cancer in India sending the needed data for the years 2001-02. The hospital registry is unique and the only one of its kind for the excellent quality of medical documentation and nearly 70-90% follow-up of patients treated. MMTR has the distinction

of formulating a unique method of mortality data collection to improve the mortality and many other statistics on incident cancers. This should dispel the often quoted remark that data collection and survival data is not possible in a developing environment. All it needs is the commitment.

TABLE 7.3(b) : District-wise Distribution of Cancers (2001 - 2002)
Number (#) and Relative Proportion (%)

Name of District (With Code)	2001		2002		2001 - 2002	
	#	%	#	%	#	%
Chennai *(3302)*	513	12.8	987	15.7	1500	14.6
Nellore *(2819)*	401	10.0	496	7.9	897	8.7
Kancheepuram *(3303)*	102	2.6	448	7.1	550	5.4
Prakasam *(2818)*	255	6.4	285	4.5	540	5.3
Cuddapah *(2820)*	217	5.4	259	4.1	476	4.6
Thiruvallur *(3301)*	83	2.1	332	5.3	415	4.0
Cuddalore *(3318)*	152	3.8	248	3.9	400	3.9
Villupuram *(3307)*	119	3.0	279	4.4	398	3.9
Salem *(3308)*	188	4.7	183	2.9	371	3.6
Guntur *(2817)*	145	3.6	181	2.9	326	3.2
Thanjavur *(3321)*	178	4.5	123	2.0	301	2.9
Chittoor *(2823)*	131	3.3	159	2.5	290	2.8
Tiruchirappalli *(3315)*	120	3.0	146	2.3	266	2.6
All Other Districts	1393	34.9	2156	34.3	3549	34.5
Total Cases	**3997**	**100.0**	**6282**	**100.0**	**10279**	**100.0**

TABLE 7.3(c) : Summary of Number of Cancers, Chennai PBCR *(Centre code : 1004)*
(other than residents of Chennai PBCR area)

Year	Males	Females	Total
2002	2999	3123	6122

7.4. Kidwai Memorial Institute of Oncology, Bangalore

(HBCR - Bangalore, Centre Code : 1007)

Dr. P. S. Prabhakaran, Director & Principal Investigator (HBCR & PBCR)

Dr. K. Ramachandra Reddy, Prof. & Head of the Dept. of Biostatistics & Cancer Registry & Co-Principal Investigator (HBCR & PBCR)

Dr. C. Ramesh, Associate Professor

Mr. K. Mani, Lecturer

Kidwai Memorial Institute of Oncology (KMIO) is a comprehensive and regional centre for cancer research and eatment in Karnataka with the state of art facilities for the diagnosis, treatment and research. It is an autonomous, non-rofit institution and has an in-patient bed strength of 429. In addition to these inpatient beds, the Dharmashala, a nique project of its kind in the country provides accommodation to about 250 ambulatory patients along with 250 atient's attendants. These patients and attendants at Dharmashala are provided with free food through perpetual free eding endowment donation scheme.

As community outreach programme, the mobile cancer education and detection Unit (Dept. of Community ncology) organizes cancer detection and education camps in rural, semi urban and urban areas of Karnataka and in e neighbouring areas of other states with support from voluntary organizations. KMIO as an apex body for the overall ıncer control in the state has initiated several cancer control programmes/activities at different places. The institute ıs been recognized as a National Centre of Excellence. Medical and paramedical personnel from all over the country ıme for training in various specialties/branches of oncology. The Institute has its sub-centres (Peripheral Cancer ntres) at Mandya and Gulbarga. KMIO is running super speciality courses in M.Ch (Surgical Oncology) and DM edical Oncology), post-graduate courses in MD Radiotherapy, Nuclear Medicine and Radiation Physics apart from c Medical Technology (Laboratory/ Radiotherapy/Radio diagnosis). These courses are affiliated to Rajiv Gandhi ıiversity of Health Sciences.

In order to provide anti cancer drugs at reasonably reduced prices, the Kidwai Cancer Drug Foundation Trust has en established where, the cost of Anti Cancer Drugs are available at nearly 30% cheaper compared to market prices.

Free drugs are provided to poor and needy patients through Karnataka Chief Minister's Medical Relief Fund.

Cancer registration system has been in existence at KMIO. The HCR is functioning at the Institute since 1973 and PBCR is functioning since 1982. These registries are working under the network programme of the NCRP of the MR from years 1984 and 1982 respectively.

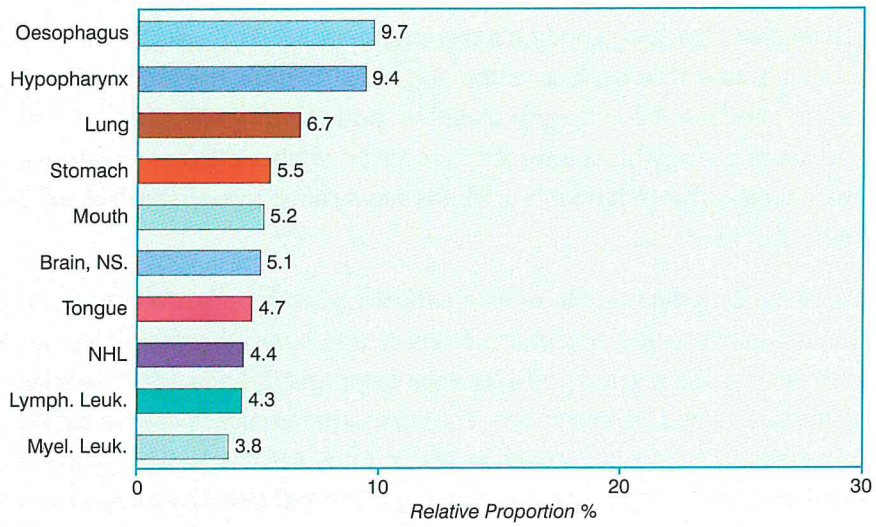
The Hospital Cancer Registry has been collaborating with the Project on Development of An Atlas of Cancer in ia – project of the WHO-ICMR, undertaken by the NCRP. The registry has provided information on all the non-dent cancers registered at Kidwai Memorial Institute of Oncology for the year 2001.

TABLE 7.4(a) : Summary of Number of Cancers

Year	Males	Females	Total
2001	2743	3264	6007

FIGURE 7.4 : Ten Leading Sites of Cancer (2001)

Males



Females

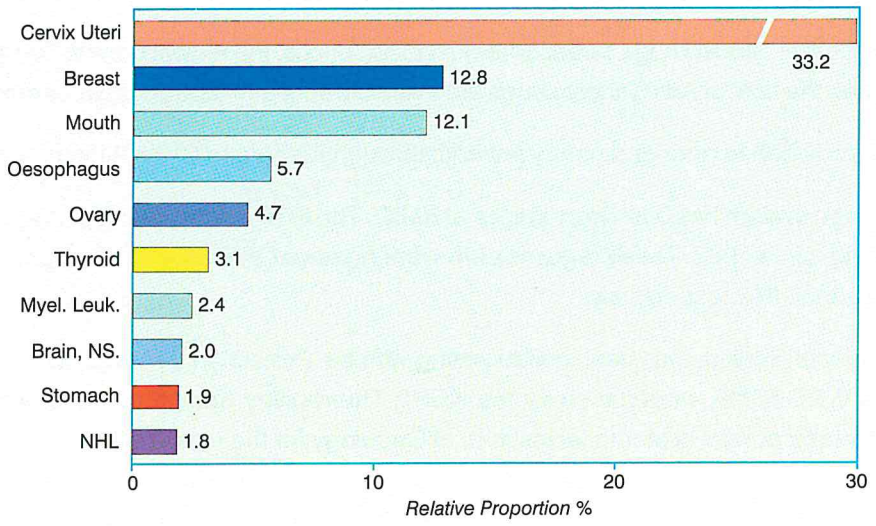


TABLE 7.4(b) : District-wise Distribution of Cancers (2001)

Number (#) and Relative Proportion (%)

Name of District *(With Code)*	#	%
Bangalore Rural *(2921)*	669	11.1
Kolar *(2919)*	631	10.5
Tumkur *(2918)*	604	10.1
Anantapur *(2822)*	438	7.3
Mandya *(2922)*	413	6.9
Mysore *(2926)*	317	5.3
Hassan *(2923)*	316	5.3
Dharmapuri *(3305)*	298	5.0
Chitradurga *(2913)*	240	4.0
Shimoga *(2915)*	224	3.7
Chittoor *(2823)*	214	3.6
Bellary *(2912)*	181	3.0
Chikmagalur *(2917)*	173	2.9
Davangere *(2914)*	167	2.8
Bangalore *(2920)*	139	2.3
Chamrajnagar *(2927)*	120	2.0
All Other Districts	863	14.4
Total Cases	**6007**	**100.0**

Other Staff of Hospital Based Cancer Registry, KMIO

Mr. D.J. Jayaram, Senior Investigator

Mr. V. Bhadraiah, Assistant Social Scientist

Mr. A.V. Srinivasa Gowda, Assistant Social Scientist

Mr. R. Lingaraju, Assistant Social Scientist

Mr. M.K.M. Gowda, Assistant Social Scientist

Mr. B.J. Kumudhini, Assistant Social Scientist

Mr. Balakrishnoji Rao, Field/Medico Social Worker

Mr. A. Subramani, Coding Clerk

Mrs. Jyothi, Stenographer

Mr. B.M. Gangaiah, Data Entry Operator

7.5. Assam Medical College, Dibrugarh

(HBCR - Dibrugarh, Centre Code : 1003)

Dr. (Mrs) Nandita Choudhury, Principal-cum-Chief Superintendent, Assam Medical College & Hospital, Principal Investigator, Hospital Based Cancer Registry, Dibrugarh

Dr. M.S. Ali, Co-Principal Investigator, Senior Bio-Statistician and Officer-in-Charge

Dr. D.J. Barua, Head, Department of Pathology

Dr. (Ms.) R. Akhtar, R.O, HBCR

Mrs. S. Ahmed, Social Investigator, HBCR

Mrs. S. Neog, Social Investigator, HBCR.

Assam Medical College was established in Dibrugarh, Assam in the year of the independence of India on 3rd November 1947. It was the only teaching hospital in the entire N.E. Region till the year 1960. The college is supported by a large 1300 bedded general hospital having almost all the specialties. It has super specialties in Cardiology, Nephrology, Neurology, Urology, Cardio-thoracic surgery and Plastic surgery. The hospital caters to the needs of the eastern districts of Assam as well as part of the needs of the neighboring states of Arunachal Pradesh and Nagaland. It has also adequate facilities for diagnosis and treatment of cancer and about 1500 new and recurrent cancer cases are treated in the hospital each year.

TABLE 7.5(a) : Summary of Number of Cancers

Year	Males	Females	Total
2001	469	219	688

TABLE 7.5 (b) : District-wise Distribution of Cancers (2001)

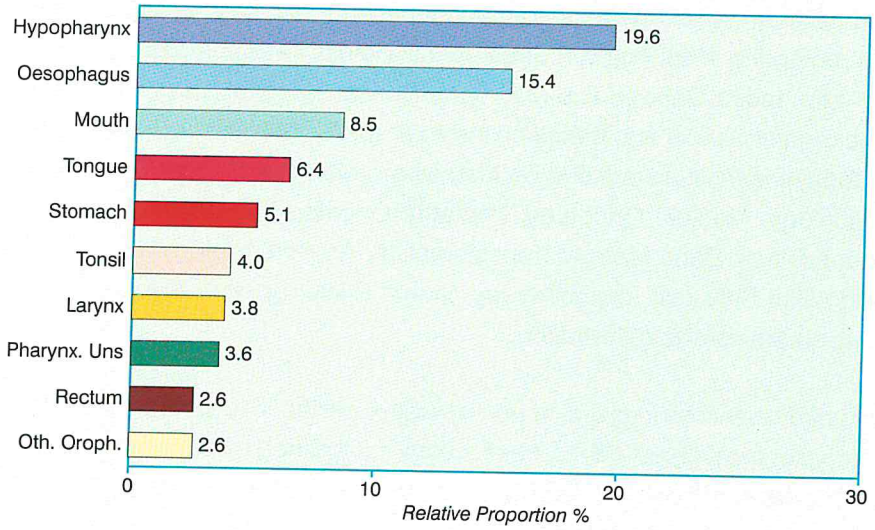
Number (#) and Relative Proportion (%)

Name of District *(With Code)*	#	%
Dibrugarh *(1815)*	222	32.3
Sibsagar *(1816)*	137	19.9
Jorhat *(1817)*	97	14.1
Tinsukia *(1814)*	89	12.9
Golaghat *(1818)*	57	8.3
Dhemaji *(1813)*	19	2.8
Lakhmipur *(1812)*	16	2.3
All Other Districts	51	7.4
Total Cases	**688**	**100.0**

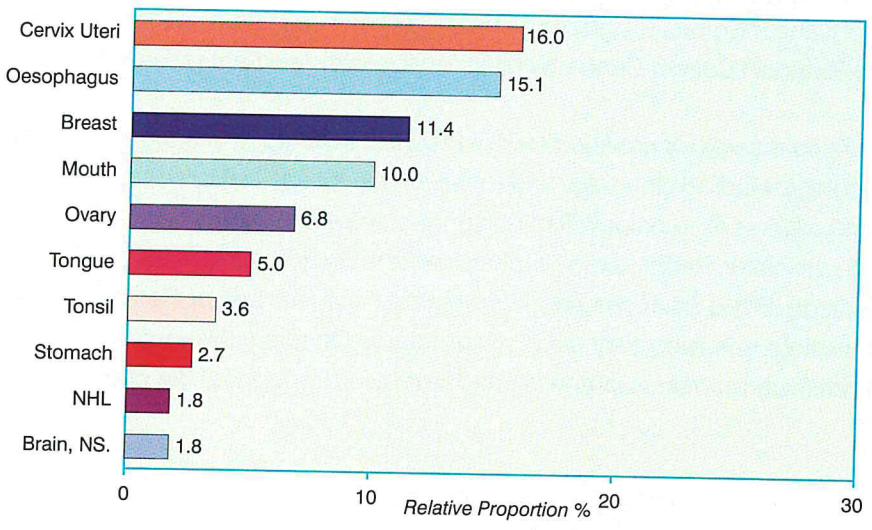
Hospital Cancer Registry based at Assam Medical College, Dibrugarh, which was initially established by the ICMR in collaboration with the Govt. of Assam, has been functioning since the inception of the NCRP. HBCR, Dibrugarh s one of the collaborating Centres for the project on "Development of an Atlas of Cancer in India". The incident cancer data for the year 2001 based on microscopic verification has already been sent within the stipulated time and the work on 2002 data is in progress and would be sent shortly. Apart from the HBCR the Department of Pathology is also actively involved with the above project.

FIGURE 7.5 : Ten Leading Sites of Cancer (2001)

lales



nales



7.6. The Gujarat Cancer and Research Institute, Ahmedabad

(Centre Code : 0063)

Dr. Pankaj M. Shah, Hon. Director

Dr. Shilin N. Shukla, Dy. Director (Research & Education)

Dr. Shanthibhai Patel, Head, Dept. of Pathology and In-charge - Cancer Registries

Conceived as a dream by the ladies of Inner Wheel Club of Ahmedabad and nurtured by the then Governor of Gujarat, the efforts to ameliorate suffering and the agony of patients with cancer, crystallized into formation of "The Gujarat Cancer Society" on April 2, 1961. The M.P. Shah Cancer Hospital was commissioned on December 14, 1966 by the late Prime Minister Mrs. Indira Gandhi. The M.P. Shah Cancer Hospital grew, developed and then underwent metamorphosis as "The Gujarat Cancer and Research Institute" (M. P. Shah Cancer Hospital) as an autonomous body on February 1, 1972. Today the Institute is a 600 bedded Comprehensive Cancer Centre with various departments including Surgical Oncology, Medical Oncology, Pediatric Oncology, Gynaec Oncology, Radiation Oncology, Radiodiagnosis, Neurooncology, Bone Marrow Transplantation, Anaesthesiology, Laboratory Medicine, Preventive Oncology, Nursing and Allied Services, Physiotherapy, Stoma Clinic, Speech Therapy, Prosthesis, Social Service, Cancer Health Check-up and general administration.

The Institute also offers services in pre- and peri-operative period in respiratory physiotherapy and runs a very active palliative care and after care department. It has recently established Oncopsychiatric Department. The Institute is equipped with ultramodern sophisticated facilities like CT Scan, Ultrasonography, Cobalt, Linear Accelerators, Mammography, High Dose Selectron, Microselectron, Flexible Fiber Optic G. I. and bronchoscopy with Video Endoscope, Colposcope, Laser Therapy Unit, H.P.L.C. system, Electron Microscope, Confocal Imaging system and Flow-cytometer etc.

The Institute has established a modern 50 bedded Paediatric Oncology Centre and undertakes treatment for leukaemia through a National Cancer Institute, USA Protocol programme. The institute has also established 35-bedded Neurooncology department. GCRI is already running hospital based and population based cancer registries since last 10 years. The Institute has also successfully undertaken district cancer control programme at Banaskantha, Kheda and Bharuch under National Cancer Control Programme (NCCP) of Govt. of India. The Institute is recognized by UICC and is also recognized as a Regional Cancer Centre by Ministry of Health and Family Welfare, Government of India.

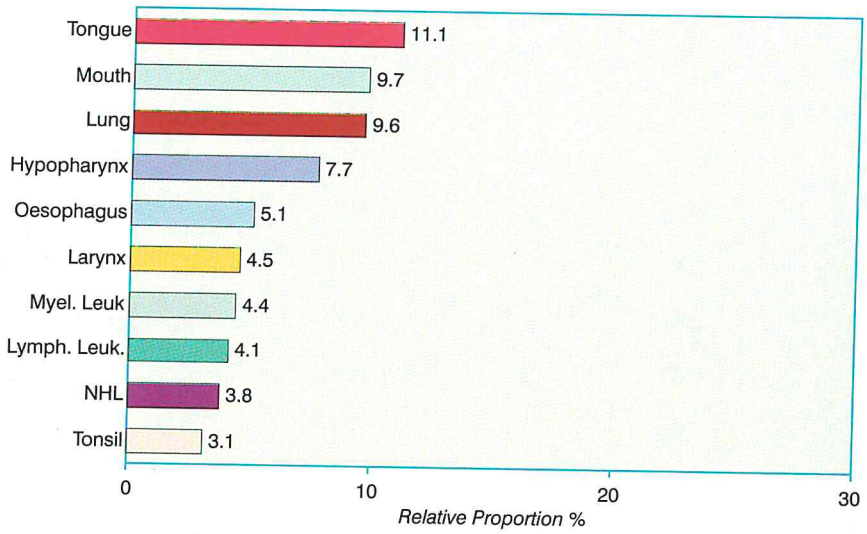
Apart from patient care services provided by our Institute, Institute is offering Post-Graduate Super Speciality degree in Surgical Oncology, Medical Oncology and Radiation Oncology. Institute is attached to B.J. Medical College, Ahmedabad and general courses of Pathology, Radiodiagnosis, Anaesthesiology and Gynec Oncology are also offered. We also train Medical Technicians, Radiotherapy Technicians and Radiodiagnosis Technicians. Our Institute is offering PhD course in Cell Biology, Basic Sciences and Microbiology and our Senior Research Scientists are recognized guides for PhD. The Institute is having very strong Community Oncology Wing and is actively involved in cancer epidemiology programmes and cancer awareness programmes all throughout the year.

TABLE 7.6(a) : Summary of Number of Cancers

Year	Males	Females	Total
2001	4659	3304	7963
2002	5307	3585	8892
2001 - 2002	9966	6889	16855

FIGURE 7.6 : Ten Leading Sites of Cancer (2001 - 2002)

ales



nales

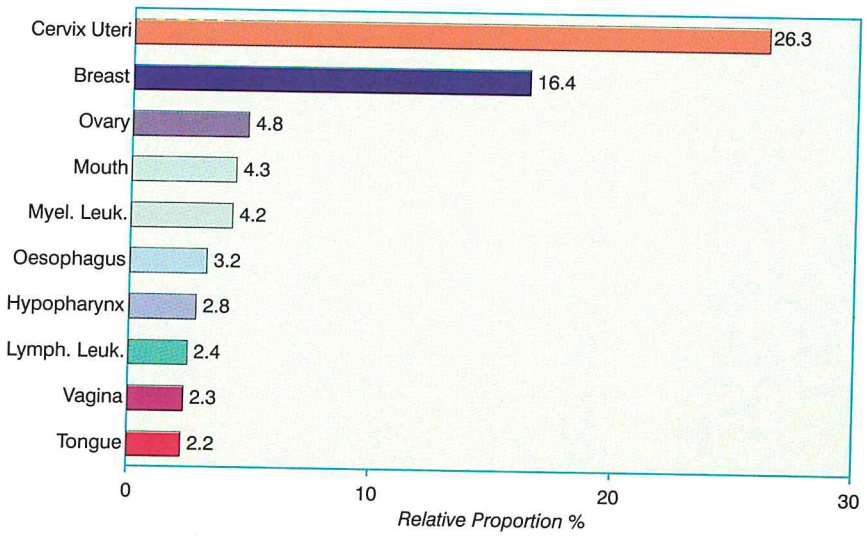


TABLE 7.6(b) : District-wise Distribution of Cancers (2001 - 2002)

Number (#) and Relative Proportion (%)

Name of District (With Code)	2001		2002		2001 - 2002	
	#	%	#	%	#	%
Ahmedabad *(2407)*	1774	22.3	2121	23.9	3895	23.1
Mahesana *(2404)*	434	5.5	505	5.7	939	5.6
Sabarkantha *(2405)*	421	5.3	499	5.6	920	5.5
Kheda *(2416)*	433	5.4	481	5.4	914	5.4
Junagadh *(2412)*	396	5.0	478	5.4	874	5.2
Bhavnagar *(2414)*	378	4.7	458	5.2	836	5.0
Vadodara *(2419)*	396	5.0	348	3.9	744	4.4
Gandhinagar *(2406)*	309	3.9	374	4.2	683	4.1
Banaskantha *(2024)*	253	3.2	337	3.8	590	3.5
Panchmahals *(2417)*	269	3.4	286	3.2	555	3.3
Anand *(2415)*	273	3.4	270	3.0	543	3.2
Amreli *(2413)*	215	2.7	240	2.7	455	2.7
Surendranagar *(2408)*	212	2.7	216	2.4	428	2.5
Rajkot *(2409)*	184	2.3	222	2.5	406	2.4
Bharuch *(2421)*	183	2.3	156	1.8	339	2.0
Kachchh *(2401)*	160	2.0	172	1.9	332	2.0
All Other Districts*	1673	21.0	1729	19.4	3402	20.2
Total Cases	**7963**	**100.0**	**8892**	**100.0**	**16855**	**100.0**

** Of Gujarat and other states.*

7.7. Chittaranjan National Cancer Institute, Kolkata

(Centre Code : 0065)

Dr. Indira Chakrabarty, Director
Dr. Sukta Das, Asst. Director & Principal Investigator
Dr. Chinmoyee Roy, Pathologist and Co-Principal Investigator
Dr. Soma Roy Chowdhury, Senior Investigator and Co-Principal Investigator
Dr. S. S. Mandal, Statistician, HCR, Co-Principal Investigator
Dr. Susanka Kumar Das, Faculty In-Charge
Dr. Joydip Biswas, Co-Investigator
Dr. Utpala Chattopadhyaya, Former Director

Chittaranjan National Cancer Institute (CNCI), in its present form is an autonomous institution (registered under est Bengal Societies Registration Act, 1860) under the Ministry of Health and Family Welfare, Government of India. e Institute came into being in its present form in 1987 after the merger of the Chittaranjan Cancer Hospital (CCH), a ovt. of West Bengal Hospital and Chittaranjan National Cancer Research Centre (CNCRC), an autonomous centre for search under the Ministry of Health and Family Welfare, Govt. of India. The CNCI is a comprehensive cancer centre h a Hospital, the Preventive Oncology wing and the Research Centre.

The CNCI Hospital (established in 1950) with a 200-bed indoor facility attends to an average of 6500 new cancer ients and about 35,000 cases for investigation, treatment and follow up every year. It renders modern multidisciplinary gnostic and therapeutic services to the patients. It has a state-of-art Radio diagnosis and Radiotherapy Department, gical Oncology Departments with well equipped five OT's. It has a Pathology Department with Histopathology, ology and Clinical Biochemistry labs. The Hospital has 12 bed I.C.U. and a modern blood bank.

The Hospital conducts Special Clinics such as Rehabilitation Clinic for Mastectomies, Speech Therapy Clinic, n-Relief Clinic, and Ostomee Clinic.

The Preventive Oncology division conducts various out-reach programmes in cancer awareness, education and y detection and cancer screening. The projects of this division are supported by IARC (Lyon), WHO, and Ministry of alth and Family Welfare, Govt. of India.

The Research Centre was established in 1957 and is the second major Institute in the country to undertake anized basic and applied research in the field of cancer. It has attained an international reputation for its contributions veral areas in cancer research.

Program based research activities have been undertaken by 15 Research Departments/Groups as follows:-

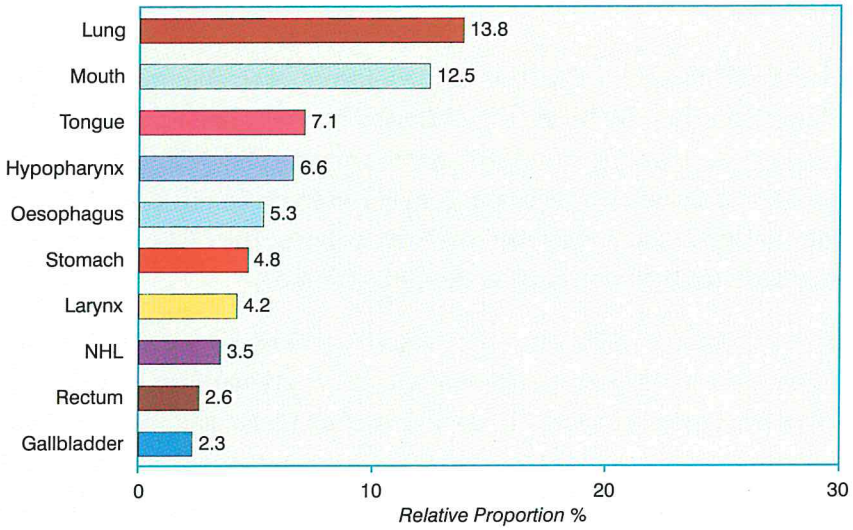
- Programme on Cancer Diagnostics and Experimental Therapy
- Programme on Molecular Mechanism of Cancer
- Programme on Tumour Growth Regulation
- Programme on Cancer Risk Factors and Prevention

TABLE 7.7(a) : Summary of Number of Cancers

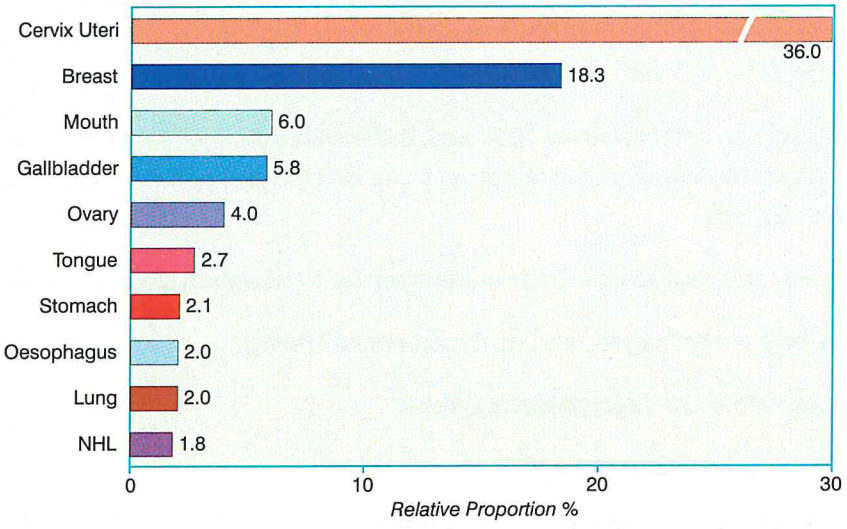
Year	Males	Females	Total
2001	1387	1528	2915
2002	1623	1961	3584
2001 - 2002	**3010**	**3489**	**6499**

FIGURE 7.7 : Ten Leading Sites of Cancer (2001 - 2002)

Males



Females



Under this programme Department of Epidemiology and Biostatistics is working along with other Departments. The department has taken a leading role in establishing Cancer Registry and working on Case Control Study of various Cancers. The current projects are as follows:-

Cancer Registries

Population-based cancer registry (PBCR) for Kolkata: The Population-based cancer registry (PBCR) for Kolkata has been started from January 1997 by the Department of Epidemiology and Biostatistics in collaboration with CCWH, Thakurpukur, partially supported by the Unit of Descriptive Epidemiology, IARC, Lyon. This is the first PBCR in eastern India. At present it collects around 6000 cancer cases annually from about 50 centres. It covers a population of 6.3 million. The Department has so far published the data of the registry from 1997-2000.

Development of Cancer Atlas of India: This project has been started from March 2002 in collaboration with NCRP, ICMR, India. It involves collection of cancer cases from the pathology department and hospital records of CNCI, from 2001 to 2003.

ther Allied Projects

Case Control Study of Environmental Risk Factors of Lung and Laryngeal Cancers

Study of Breast Cancers in females in South Asia. (Both the projects are in collaboration with the Unit of Environmental Cancer Epidemiology, IARC, Lyon)

Retrospective Case Control Study of Smoking and Chewing in Adult Male Death in Calcutta. (in collaboration with CTSU, Oxford)

TABLE 7.7(b) : District-wise Distribution of Cancers (2001 - 2002)

Number (#) and Relative Proportion (%)

Name of District (With Code)	2001		2002		2001 - 2002	
	#	%	#	%	#	%
Kolkata *(1917)*	749	25.7	987	27.5	1736	26.7
S. 24-Parganas *(1918)*	345	11.8	428	11.9	773	11.9
N. 24-Parganas *(1911)*	330	11.3	370	10.3	700	10.8
Haora *(1916)*	274	9.4	284	7.9	558	8.6
Hugli *(1912)*	243	8.3	289	8.1	532	8.2
Medinipur *(1915)*	224	7.7	296	8.3	520	8.0
Nadia *(1910)*	168	5.8	180	5.0	348	5.4
Barddhaman *(1909)*	153	5.2	167	4.7	320	4.9
Murshidabad *(1907)*	104	3.6	135	3.8	239	3.7
Birbhum *(1908)*	52	1.8	73	2.0	125	1.9
Bankura *(1913)*	30	1.0	42	1.2	72	1.1
All Other Districts	243	8.3	333	9.3	576	8.9
Total Cases	**2915**	**100.0**	**3584**	**100.0**	**6499**	**100.0**

7.8. Population Based Cancer Registry, Mumbai

(Centre Code : 1002)

Indian Cancer Society, Cancer Registry Division,
Bombay Cancer Registry

Dr. A.P. Kurkure, Principal Investigator
Dr. B.B. Yeole, Deputy Director

The Bombay Cancer Registry was established in June 1963, as a unit of Indian Cancer Society at Mumbai with the aim of obtaining reliable morbidity and mortality data on cancer from a precisely defined urban population. The actual compilation of the data began in 1964. Since 1981-82 the registry became part of the National Cancer Registry Programme under the Indian Council of Medical Research.

Information is obtained on all cancer patients diagnosed in 150 government hospitals / institutions and private hospitals / nursing homes in Bombay, which are under the care of specialists, surgeons, physicians, pathologists, radiologists and gynecologists.

Staff of the registry visit the wards of all collaborating hospitals, at least once in a week to interview each cancer patient as well as those suspected of having cancer. Supplimentary information is gleaned from the death records maintained by the Municipal Corporation.

The registry covers the resident population of Greater Bombay. The population in 2001 census was 11,914,398. Approximately 68% being Hindus, 16.8% Muslims, 4.5% Christians and 5.6% Neo-Buddhists and 3.6% Jains and 0.8% Parsis.

Registry publishes yearly reports regularly. Registry has published more than 100 articles in indexed monographs and in journals. Registry records follow up information on all the major sites.

In order to identify the etiological factors that might be implicated in a segment of a selected population, it is essential to determine the behavioral patterns, habits, customs and environmental background of the group under study. With this aim in mind Indian Cancer Society established satellite cancer registries in population zones of different parts in Maharashtra, so that cancer problem throughout the State could be investigated in depth in light of experience gained at the Bombay Cancer Registry. Thus the first satellite registry was established at Pune City in 1972 and the second at Aurangabad in 1978 and third in Nagpur at 1980.

The Figure with Bar Charts of the Ten Leading Sites of Cancer is given in Chapter 3.

TABLE 7.8(a) : Summary of Number of Cancers

(Other than residents of Mumbai PBCR area)

Year	Males	Females	Total
2001	1970	1584	3554
2002	1435	958	2393
2001 - 2002	**3405**	**2542**	**5947**

TABLE 7.8(b) : District-wise Distribution of Cancers (2001 - 2002)

Number (#) and Relative Proportion (%)

Name of District (With Code)	2001		2002		2001 - 2002	
	#	%	#	%	#	%
Thane *(2721)*	1110	31.2	859	35.9	1969	33.1
Raigarh *(2724)*	162	4.6	120	5.0	282	4.7
Kolkata *(1917)*	118	3.3	61	2.5	179	3.0
Nashik *(2720)*	106	3.0	58	2.4	164	2.8
Jalgaon *(2703)*	67	1.9	48	2.0	115	1.9
Surat *(2422)*	60	1.7	53	2.2	113	1.9
Ratnagiri *(2732)*	67	1.9	41	1.7	108	1.8
Pune *(2725)*	69	1.9	33	1.4	102	1.7
Satara *(2731)*	45	1.3	24	1.0	69	1.2
Jaipur *(812)*	32	0.9	33	1.4	65	1.1
Valsad *(2425)*	41	1.2	19	0.8	60	1.0
All Other Districts	1677	47.2	1044	43.6	2721	45.8
Total Cases	**3554**	**100.0**	**2393**	**100.0**	**5947**	**100.0**

7.9. Population Based Cancer Registry, Institute Rotary Cancer Hospital, New Delhi

(Centre Code : 1011)

Dr. Kusum Verma, Prof. and Head, Dept. of Pathology and Principal Investigator

Dr. B.B. Tyagi, Scientist IV and Co-Principal Investigator

Dr. N. Manoharan, Scientist I and Co-Investigator

The Institute Rotary Cancer Hospital (IRCH) at AIIMS, New Delhi founded in 1975, started functioning in 1983-84 on 2 floors with 35 beds. It is now 20 years old and has expanded up to seven floors with the bed strength of 200. It has 3 major departments: Radiation, Surgical and Medical Oncology. It has supportive units of Anesthesiology Radiodiagnosis, Lab Oncology, Medical Physics and Delhi Population Based Cancer Registry. On an average more than 60,000 cancer patients attend as out patients annually and among them approximately 10,000 are new cases. The indoor admissions are 9000 per year including day care. This is a Regional Cancer Centre. The centre has an ongoing MD course in Radiotherapy and super specialized DM course in Medical Oncology. Ph.D training is provided in medical physics, medical oncology and radiation oncology. Both clinical and lab based research are conducted regularly and large number of papers published at national and international level.

The Figure with Bar Charts of the Ten Leading Sites of Cancer is given in Chapter 3.

TABLE 7.9(a) : Summary of Number of Cancers *(Other than residents of Delhi PBCR area)*

Year	Males	Females	Total
2002	1036	590	1626

TABLE 7.9(b) : District-wise Distribution of Cancers (2002)

Number (#) and Relative Proportion (%)

Name of District *(With Code)*	#	%
Cuttack *(2112)*	93	5.7
Ghaziabad *(909)*	92	5.7
Faridabad *(619)*	90	5.5
Gurgaon *(618)*	52	3.2
Meerut *(907)*	47	2.9
Puri *(2118)*	41	2.5
Jagatsinghpur *(2111)*	41	2.5
Jajapur *(2113)*	39	2.4
Gautam Budha Nagar *(910)*	38	2.3
Kendrapara *(2110)*	35	2.2
Khordha *(2117)*	32	2.0
Bulandshahr *(911)*	32	2.0
All Other Districts	994	61.1
Total Cases	**1626**	**100.0**

7.10. Population Based Cancer Registry, Gandhi Medical College, Bhopal

(Centre Code : 1010)

Dr. V. K. Bharadwaj, Prof. and Head, Dept. of Pathology and Principal Investigator
Dr. S. Surange, Research Officer and Co-Investigator
Dr. R. Dikshit, Research Officer and Co-Investigator
Dr. A. Shrivastava, Research Officer and Co-Investigator

The Population Based Cancer Registry in Bhopal was established by the Indian Council of Medical Research in the Department of Pathology, Gandhi Medical College, Bhopal in the aftermath of the gas tragedy in December 1984. The registry started functioning from January, 1986. The main objectives of the registry are to evaluate the load of cancer in Bhopal and to study the Methyl Iso-cyanate gas exposed population for possible carcinogenic effect.

Situated on the Arera Hills, the city is in the centre of India at an altitude of 505 metres above the sea level. It is situated 23.07 North and 77.12 East with a total area of 284.90 Sq.km. The density of population as per 2001 Census is 4755.46/Sq.km.

The city has a moderate climate with temperature varying from a minimum of 5°C in month of January to a maximum of 46°C in the month of May. The average annual rainfall recorded in the city is 1200 mm.

The registry collects information from 63 medical centres, primary health centres and pathological laboratories. During the year 1997-98 the crude incidence rate for all sites of cancers among males was 62.5/100,000 and females was 62.2/100,000. The most common sites of cancer in males are lung, oral cavity, tongue and oeosphagus whereas in females cancer of the breast, cervix, oral cavity, ovary and oesophagus are the leading sites of cancer.

Since the year 2002, registry is collaborating in the project on "Development of an Atlas of Cancer in India".

The other ongoing projects in the registry are:

1. Estimation of Survival rates for major sites of cancer.
2. Case control study on lung/larynx and hypopharynx cancer.
3. Prevalence of tobacco habits among school children.

The Figure with Bar Charts of the Ten Leading Sites of Cancer is given in Chapter 3.

Other staff of the Bhopal PBCR

Social Investigators:

Mrs. Alka Goley

Mrs. Sushma Shrivastava

Mrs. Shubra Trivedi

Mrs. Ragini Nair (Typist)

Mr. Jagannathan Nair (Messenger)

TABLE 7.10(a) : Summary of Number of Cancers *(Other than residents of Bhopal PBCR area)*

Year	Males	Females	Total
2002	405	310	715

TABLE 7.10(b) : District-wise Distribution of Cancers (2002)

Number (#) and Relative Proportion (%)

Name of District *(With Code)*	#	%
Vidisha *(2331)*	114	15.9
Raisen *(2334)*	103	14.4
Rajgarh *(2330)*	86	12.0
Sehore *(2333)*	73	10.2
Guna *(2307)*	56	7.8
Hoshangabad *(2337)*	55	7.7
Sagar *(2311)*	54	7.6
Rewa *(2314)*	27	3.8
Shajapur *(2322)*	24	3.4
All Other Districts	123	17.2
Total Cases	**715**	**100.0**

7.11. Population Based Cancer Registry, Nargis Dutt Memorial Cancer Hospital, Barshi

(Centre Code : 1012)

Dr. K.A. Dinshaw, Principal Investigator
Dr. B.M. Nene, Co-Principal Investigator
Mr. M.K. Chauhan, Co-Investigator
Mr. D.N. Rao, Co-Investigator
Dr. V.R. Keskar, Co-Investigator
Dr. R. Rajeshwarkar, Co-Investigator

Ashwini Rural Cancer Research and Relief Society (ARCRRS), a registered non-governmental organization has set up a full comprehensive Cancer Care Centre named as, "Nargis Dutt Memorial Cancer Hospital" in a rural setting at Barshi, a taluk place in Sholapur district of Maharashtra State since 1980.

"Tata Memorial Centre Rural Cancer Project" was also commissioned a little earlier for early detection of cancer cases in the community. The "Population Based Rural Cancer Registry" was commenced under the auspices of ICMR under the NCRP in 1987. Mrs. K. Jayant was the Principal Investigator then. Now the Director Tata Memorial Centre Mumbai, Dr. K.A. Dinshaw is the Principal Investigator and Chairman ARCRRS- Dr. B.M. Nene is the Co-principal Investigator.

ARCRRS has undertaken few other Cancer Control Programme, Health Education Programme, Cervical Cancer Prevention Project with the help of Ministry of Health, ICMR, WHO/ IARC Lyon - France, ACCP with sponsorship from Bill & Melinda Gates Foundation USA. The hospital has quite a few research papers published in international reputed medical journals and the centre provides free treatment to almost 30% of registered patients. The centre runs in-house training programme as a part of continuing medical education and presently also runs a university affiliated course for qualifying as nursing assistant. The common cancers in males are cancer hypopharynx, oesophagus, rectum, liver and in females cancer of the cervix and breast.

TABLE 7.11(a) : Summary of Number of Cancers *(Other than residents of Barshi PBCR area)*

Year	Males	Females	Total
2002	40	40	80

TABLE 7.11(b) : District-wise Distribution of Cancers (2002)

Number (#) and Relative Proportion (%)

Name of District *(With Code)*	#	%
Solapur *(2730)*	65	81.3
Gulbarga *(2904)*	6	7.5
Osmanabad *(2729)*	5	6.3
Bijapur *(2903)*	3	3.8
Ahmadnagar *(2726)*	1	1.3
Total Cases	**80**	**100.0**

The Figure with Bar Charts of the Ten Leading Sites of Cancer is given in Chapter 3.

7.12. Population Based Cancer Registry, Indian Cancer Society, Nagpur

(Centre Code : 0203)

Cancer Registry Division, Nagpur Cancer Registry

Dr. B.B. Yeole, Deputy Director

Dr. Varsha Sagdeo, Hon. Secretary

The Nagpur Cancer Registry is part of the Indian Cancer Society. It commenced operation on 1st January, 1980 as a collaborative effort with the Government Medical College - Department of Surgery, with the aim of obtaining reliable morbidity and mortality data on cancer in a precisely defined urban population. Information is obtained on all cancer patients at major hospitals and nursing homes in Nagpur and from the Tata Memorial Hospital and other leading hospitals in Mumbai. The death record maintained by the Nagpur Municipal Corporation provides the way of checking the missed cases. Staff members of the registry visit the wards of all collaborating hospitals at least once in a week, to personally interview each cancer patient. As per the 2001 census the population was 2.4 million of which 71.4% are Hindus, 9.8% are Muslims, 1.2% are Christians, 16.1% are Neo-Buddhists and 0.8% are Jains. Editing, coding and analysis of the data is carried out at Bombay Cancer Registry. Data are maintained on computer files. A five-yearly report based on the cancer morbidity and mortality has been published to date. No patient is followed up directly by the registry staff.

The Figure with the Bar Charts of the Ten Leading Sites of Cancer is given in Chapter 5 under Nagpur District.

TABLE 7.12(a) : Summary of Number of Cancers *(Other than residents of Nagpur PBCR area)*

Year	Males	Females	Total
2001	1266	1331	2597

TABLE 7.12(b) : District-wise Distribution of Cancers (2001)

Number (#) and Relative Proportion (%)

Name of District *(With Code)*	#	%
Nagpur *(2709)*	361	13.9
Amravati *(2707)*	297	11.4
Yavatmal *(2714)*	236	9.1
Chandrapur *(2713)*	201	7.7
Bhandara *(2710)*	193	7.4
Chhindwara *(2343)*	165	6.4
Gondiya *(2711)*	130	5.0
Akola *(2705)*	110	4.2
Balaghat *(2345)*	107	4.1
Wardha *(2708)*	100	3.9
Seoni *(2344)*	89	3.4
Betul *(2335)*	77	3.0
Raipur *(2211)*	77	3.0
All Other Districts	454	17.5
Total Cases	**2597**	**100.0**

7.13. Population Based Cancer Registry, Indian Cancer Society, Aurangabad

(Centre Code : 0202)

Cancer Registry Division, Aurangabad Cancer Registry

Dr. B.B. Yeole, Deputy Director
Dr. B. K. Shewalkar, Hon. Secretary

The Aurangabad Cancer Registry is part of the Indian Cancer Society. It commenced operation on 1st January, 1978 as a collaborative effort with the Government Medical College - Department of Radiology, with the aim of obtaining reliable morbidity and mortality data on cancer in a precisely defined urban population. Information is obtained on all cancer patients at major hospitals and nursing homes in Aurangabad and from the Tata Memorial Hospital and other leading hospitals in Mumbai. The death record maintained by the Aurangabad Municipal Corporation provides the way of checking the missed cases.

Staff members of the registry visit the wards of all collaborating hospitals at least once in a week, to personally interview each cancer patient. As per the 2001 census the population was 0.8 million. Editing, coding and analysis of the data is carried out at Bombay Cancer Registry. Data are maintained on computer files. A ten-yearly report based on the cancer morbidity and mortality has been published. No patient is followed up directly by the registry staff.

TABLE 7.13(a) : Summary of Number of Cancers *(Other than residents of Aurangabad PBCR area)*

Year	Males	Females	Total
2001	883	982	1865

TABLE 7.13(b) : District-wise Distribution of Cancers (2001)
Number (#) and Relative Proportion (%)

Name of District *(With Code)*	#	%
Aurangabad *(2719)*	503	27.0
Nanded *(2715)*	282	15.1
Parbhani *(2717)*	199	10.7
Jalna *(2718)*	197	10.6
Jalgaon *(2703)*	141	7.6
Buldhana *(2704)*	139	7.5
Bid *(2727)*	106	5.7
Hingoli *(2716)*	63	3.4
Ahmadnagar *(2726)*	54	2.9
Nashik *(2720)*	40	2.1
All Other Districts	141	7.6
Total Cases	**1865**	**100.0**

7.14. Population Based Cancer Registry, Indian Cancer Society, Pune

(Centre Code : 0204)

Cancer Registry Division, Pune Cancer Registry

Dr. B.B. Yeole, Deputy Director

Dr. J.K. Joshi, Hon. Secretary

The Pune Cancer Registry is part of the Indian Cancer Society. It commenced operation on 1st March 1972 as a collaborative effort with BJ Medical College and the Sassoon Hospital in Pune with the aim of obtaining reliable morbidity and mortality data on cancer in a precisely defined urban population.

Information is obtained on all cancer patients at major hospitals and nursing homes in Pune and from the Tata Memorial Hospital and other leading hospitals in Mumbai. The death record maintained by the Pune Municipal Corporation provides the way of checking the missed cases.

Staff members of the registry visit the wards of all collaborating hospitals at least once in a week, to personally interview each cancer patient. As per the 2001 census, the population was 3.5 million of which 78.4% are Hindus, 8.8% are Muslims, 3.3% are Christians, 6.8% are Neo-Buddhists and 1.9% are Jains.

Editing, coding and analysis of the data is carried out at Bombay Cancer Registry. Data are maintained on computer files. A five-yearly report based on the cancer morbidity and mortality has been published to date. No patient is followed up directly by the registry staff.

TABLE 7.14(a) : Summary of Number of Cancers *(Other than residents of Pune PBCR area)*

Year	Males	Females	Total
2001	947	735	1682

TABLE 7.14(b) : District-wise Distribution of Cancers (2001)

Number (#) and Relative Proportion (%)

Name of District *(With Code)*	#	%
Pune *(2725)*	789	46.9
Ahmadnagar *(2726)*	325	19.3
Satara *(2731)*	165	9.8
Solapur *(2730)*	59	3.5
Bid *(2727)*	46	2.7
Jalgaon *(2703)*	45	2.7
All Other Districts	253	15.0
Total Cases	**1682**	**100.0**

7.15. Population Based Cancer Registry, Christian Fellowship Community Health Centre, Ambilikai

(Centre Code : 0205)

Dr. Jacob Cherian, Director
Dr. R. Rajkumar, Principal Investigator

The Ambilikai Rural Population Based Cancer Registry was started in 1996. From 1996 to 2000, the population covered was 1.5 lakhs. The registry showed a high incidence of Cancer of Uterine Cervix (AAR 65.4/100,000) in this region. Therefore, with the support of IARC / WHO, a Cervical Cancer Control Programme was started in 2000.

From the year 2000, the registry has expanded and it covers a population of 4 lakhs. The number of sources of data is 18. The AAR for all cancers together is 56.8 among males and 88.5 among females. The AAR for Uterine Cervix is 65.4/100,000 which is second highest rate in the world.

Other staff of Registry include the following Social Investigators: Mrs. Susheela, Mr. Palanisamy, Mr. Ponnusamy, Mr. Sakthiven and Computer Operator - Ms. Latha.

TABLE 7.15(a) : Summary of Number of Cancers

Year	Males	Females	Total
2001	179	262	441
2002	152	258	410
2001 - 2002	**331**	**520**	**851**

TABLE 7.15(b) : District-wise Distribution of Cancers (2001 - 2002)

Number (#) and Relative Proportion (%)

Name of District *(With Code)*	2001		2002		2001 - 2002	
	#	%	#	%	#	%
Dindigul *(3313)*	413	93.7	402	98.0	815	95.8
Others - Tamilnadu	20	4.5	0	0.0	20	2.4
All Other Districts	8	1.8	8	2.0	16	1.9
Total Cases	**441**	**100.0**	**410**	**100.0**	**851**	**100.0**

7.16. Natural Background Radiation Registry, Karunagappally

(Centre Code : 0201)

Dr. M. Krishnan Nair, Principal Investigator

Mr. P. Gangadharan, Emeritus Medical Scientist and Co-Principal Investigator

Dr. P. Jayalekshmi, Officer In-Charge and Co-Principal Investigator

Karunagappally is a coastal taluk in Kollam district. 100 Kms north of Thiruvananthapuram, the capital city of Kerala.

The cancer registry was started in 1990 to investigate whether the population exposed to high levels of radiation emitted by thorium bearing sands causes cancer in the population. Karunagappally taluk population was 400,000 in 2001 census. The area covered was 193 Sq. Km. 76% classified as rural. Fishing, fish processing, coir making, agriculture, cashew nut industry are major occupations of the people. Literacy rate is >85%. Male Female ratio was 0.95:1.

The study received support from the Department of Atomic Energy during 1990-1998.

Unique characteristics of the Registry

a. The Registry is a Rural Population Based Cancer Registry, the 1st Registry in Kerala.

b. The Registry provides source data for the study of cancer in humans vis-à-vis chronic exposure to high natural radiation. It is known that exposure to radiation causes cancer but it is not known whether chronic exposure to high natural radiation has a similar effect.

   The study is unique because nowhere else in the world has such high radiation produced naturally and where such a large population resides. Density of population is 2000+ per sq. km. This is thus a natural laboratory study and only we in India can conduct the study and further, it is our problem which presents an opportunity to make original scientific contributions. Whereas other population based registries in India contribute mainly to the magnitude of the problem and its variations, the Karunagappally registry utilizes the Registry Techniques to study an issue vital to the ever eluding problem of cancer causation.

   The population based registry in Bhopal organized by ICMR-NCRP is also a special purpose registry investigating the cancer causing potential of exposure to MIC gas. These are the only two population based special purpose registries in the country and both have evolved special innovative techniques to study such issues. Thus these are model cancer registries of the country.

c. The registry has accumulated population-based data on socio-demographic life style factors by interviewing every resident of the taluk, which at the time of survey was 3,59,000. Follow up of the events and periodic analysis would give very valuable information on cancer epidemiology in rural Kerala.

d. This is the only cancer registry in India in a rural area where there are no cancer diagnostic treatment centres. No other registry in India functions in such a situation. We developed innovative methods to collect cancer patient data. The registry collects data on cancer in the study population visiting more than 60 sources including all deaths traced back to the address.

e. Information on radiation levels inside and outside of houses have been obtained for more than 70,000 houses.

Almost 50% of cancer in males are tobacco related. Cancer of certain sites like cervix, lung in men show increase in incidence according to radiation levels. Investigations and analysis are proceeding with a partial study-specific assistance from Japan (Terminating in 2004).

Along with the study, several cancer control activities are ongoing for which there is a heavy demand as there are no cancer hospitals in the area. Further as there is a high literacy rate, cancer awareness classes are regularly conducted with the cooperation of NGOs. Cancer screening camps are conducted in all wards of the 12 panchayats. Bi-monthly follow-up check up clinics are organized for treated cancer patients in the taluk by oncologists from RCC. As there are no cancer detection facility, the registry has a free cytology service for the residents of the taluk.

Regular cancer detection facility (especially FNAC, sputum and pap smear) are conducted in the taluk head quarter hospital (2 days/week) and in two community health centres (1 per week) and in Govt. hospital. These are widely used by the clinicians and public in the area. A cancer Pain and Palliative Care service is conducted on 2 days by a trained doctor and home care service for advanced cancer patients is conducted on 3 days every week.

TABLE 7.16(a) : Summary of Number of Cancers

Year	Males	Females	Total
2001	239	214	453
2002	169	167	336
2001 - 2002	**408**	**381**	**789**

TABLE 7.16(b) : District-wise Distribution of Cancers (2001 - 2002)

Number (#) and Relative Proportion (%)

Name of District (With Code)	2001		2002		2001 - 2002	
	#	%	#	%	#	%
Kollam *(3213)*	443	97.8	333	99.1	776	98.4
Alappuzha *(3211)*	8	1.8	1	0.3	9	1.1
All Other Districts	2	0.4	2	0.6	4	0.5
Total Cases	**453**	**100.0**	**336**	**100.0**	**789**	**100.0**

The Figure with the Bar Charts of the Ten Leading Sites of Cancer is reflected in Chapter 5 on 'Distribution d Patterns of Cancer in Selected Districts', under Kollam District.

7.17. Cancer Centre Welfare Home and Research Institute, Kolkata

(Centre Code : 0105)

Dr. Saroj Gupta, Director

Dr. Manas Nath Bandyopadhyay, Consultant Clinical Oncologist, In-charge Division of Research and Principal Investigator

This is a charitable Institute (registered in 1973) which started as a humble welfare home for the cancer patients in 1976 with just 25 beds. Presently, it is one of the most important Cancer Hospitals of Eastern India with the largest annual turnover of patients.

The Centre caters to the whole of West Bengal and neighbouring States and Countries. All the necessary diagnostic and therapeutic facilities are available. The Division of Research is a relatively new addition. It presently carries out clinical studies and registry based work. This Centre is recognised for DNB training and Ph.D studies.

TABLE 7.17(a) : Summary of Number of Cancers

Year	Males	Females	Total
2001	2181	1819	4000
2002	2148	1672	3820
2001 - 2002	**4329**	**3491**	**7820**

TABLE 7.17(b) : District-wise Distribution of Cancers (2001 - 2002)

Number (#) and Relative Proportion (%)

Name of District (With Code)	2001		2002		2001 - 2002	
	#	%	#	%	#	%
Kolkata *(1917)*	810	20.3	650	17.0	1460	18.7
Medinipur *(1915)*	413	10.3	423	11.1	836	10.7
S. 24-Parganas *(1918)*	351	8.8	320	8.4	671	8.6
Barddhaman *(1909)*	344	8.6	323	8.5	667	8.5
N. 24-Parganas *(1911)*	290	7.3	281	7.4	571	7.3
Haora *(1916)*	239	6.0	245	6.4	484	6.2
Hugli *(1912)*	198	5.0	210	5.5	408	5.2
Nadia *(1910)*	150	3.8	146	3.8	296	3.8
Murshidabad *(1907)*	113	2.8	122	3.2	235	3.0
All Other Districts	1092	27.3	1100	28.8	2192	28.0
Total Cases	**4000**	**100.0**	**3820**	**100.0**	**7820**	**100.0**

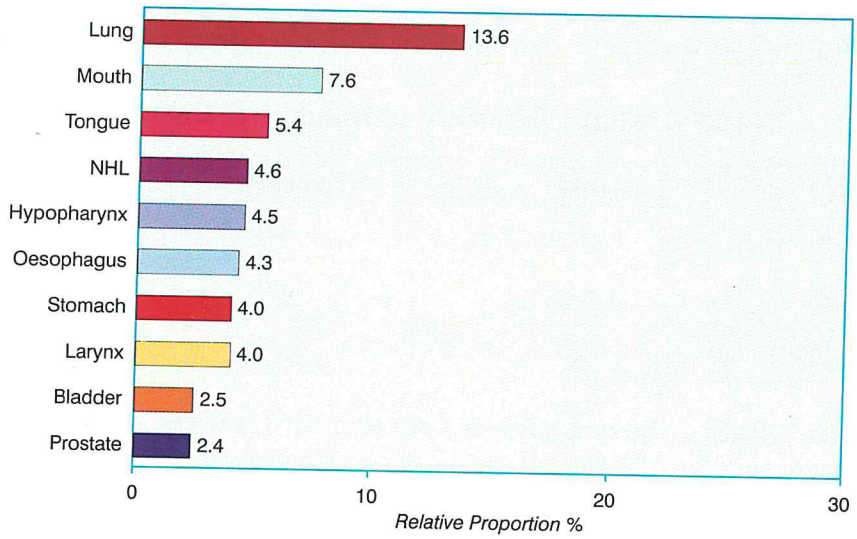
The Insititute is headed by Dr. Saroj Gupta MBBS, DMRT, DMRD, DMRE, FRCR, DSc. Director and Secretary of the Institute. He is also the Head of the Department of Radiation Oncology.

The Principal Investigator - Dr. Manas Nath Bandyopadhyay, MBBS, DMRT, MD, Consultant Clinical Oncologist, and In-Charge & S.R.O., Division of Research in the project

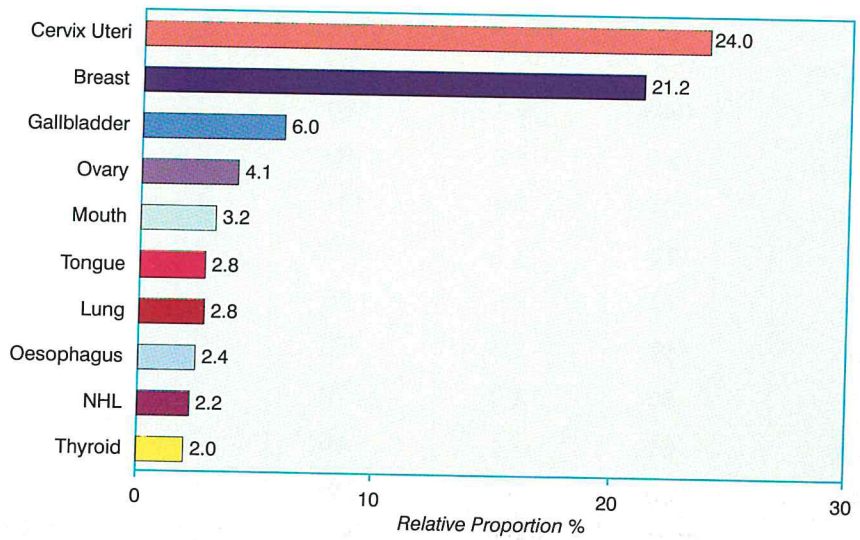
Miss Maumita Sen BSc. & Miss Kaberi Mukherjee, BSc. are the Research Assistants in the project.

FIGURE 7.17 : Ten Leading Sites of Cancer (2001 - 2002)

/ales



males



7.18. Jawaharlal Institute of Postgraduate Medical Education and Research, Pondicherry

(Centre Code : 0104)

Dr. K.S.V.K. Subba Rao, Director
Dr. Sambasiva Rao, Former Director
Dr. Jayanthi Soundara Raghavan, Prof. & Head, Dept. of Pathology & Principal Investigator
Dr. R. Krishnan, Associate Prof., Dept. of Pathology & Co-Principal Investigator
Dr. R. Narasimhan, Former Principal Investigator

Jawaharlal Institute of Postgraduate Medical Education and Research (JIPMER), Pondicherry is a tertiary care referral hospital under the direct administrative control of Directorate General of Health Services (DGHS), Ministry of Health and Family Welfare, Government of India. The staff strength of the institute is about 3,000. The teaching faculty consists of 154 experienced teachers and 361 resident doctors. The institute is affiliated to Pondicherry University.

TABLE 7.18(a) : Summary of Number of Cancers

Year	Males	Females	Total
2001	1084	1865	2949
2002	1262	1884	3146
2001 - 2002	**2346**	**3749**	**6095**

TABLE 7.18(b) : District-wise Distribution of Cancers (2001 - 2002)

Number (#) and Relative Proportion (%)

Name of District (With Code)	2001		2002		2001 - 2002	
	#	%	#	%	#	%
Villupuram *(3307)*	685	23.2	739	23.5	1424	23.4
Cuddalore *(3318)*	499	16.9	524	16.7	1023	16.8
Pondicherry *(3402)*	353	12.0	324	10.3	677	11.1
Thanjavur *(3321)*	202	6.8	241	7.7	443	7.3
Tiruvannamalai *(3306)*	167	5.7	183	5.8	350	5.7
Salem *(3308)*	152	5.2	188	6.0	340	5.6
Nagapattinam *(3319)*	137	4.6	169	5.4	306	5.0
Tiruchirappalli *(3315)*	123	4.2	132	4.2	255	4.2
Thiruvarur *(3320)*	121	4.1	102	3.2	223	3.7
Perambalur *(3316)*	70	2.4	75	2.4	145	2.4
Dharmapuri *(3305)*	69	2.3	66	2.1	135	2.2
Namakkal *(3309)*	60	2.0	72	2.3	132	2.2
Pudukkottai *(3322)*	61	2.1	66	2.1	127	2.1
All Other Districts	250	8.5	265	8.4	515	8.4
Total Cases	**2949**	**100.0**	**3146**	**100.0**	**6095**	**100.0**

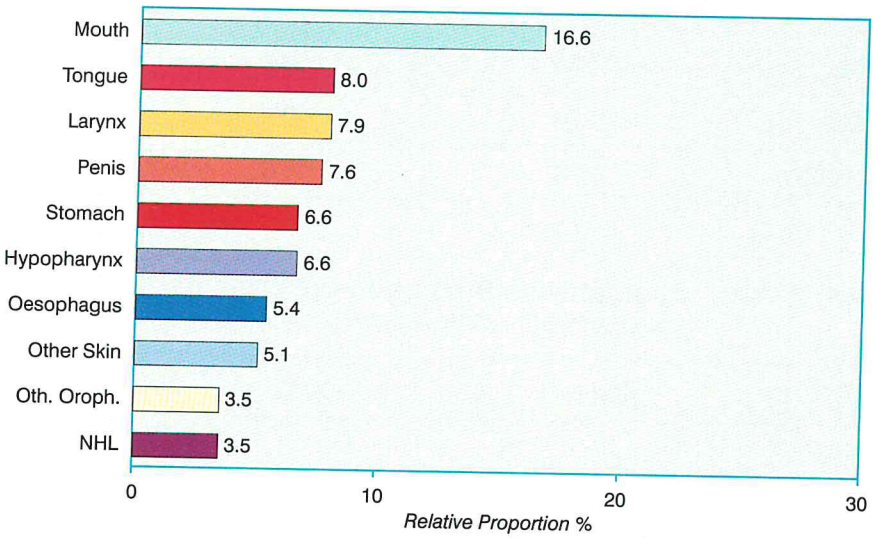
The JIPMER Hospital caters to patients from all over South India, with apporximately 20-22 thousand new cases registered every month. The vast majority of the patients are from Tamil Nadu (80%) and Pondicherry (19%). More than 50% of the patients hail from Villupuram District in Tamil Nadu while all the other districts are also represented in smaller numbers. Patients from Andhra, Karnataka and Kerala account for about 1% of the new cases registered in the Outpatient Department.

The Department of Pathology in JIPMER has staff strength of nearly 100 which includes seven Faculty and thirteen Senior and Junior Resident Doctors. The laboratory has a turnover of 16,000 biopsies annually, apart from an equal number of Cytopathology specimens and over 50,000 Haematology specimens, including more than 500 bone marrow biopsies. Specimens of cancer account for nearly 25% of all biopsies received in the laboratory.

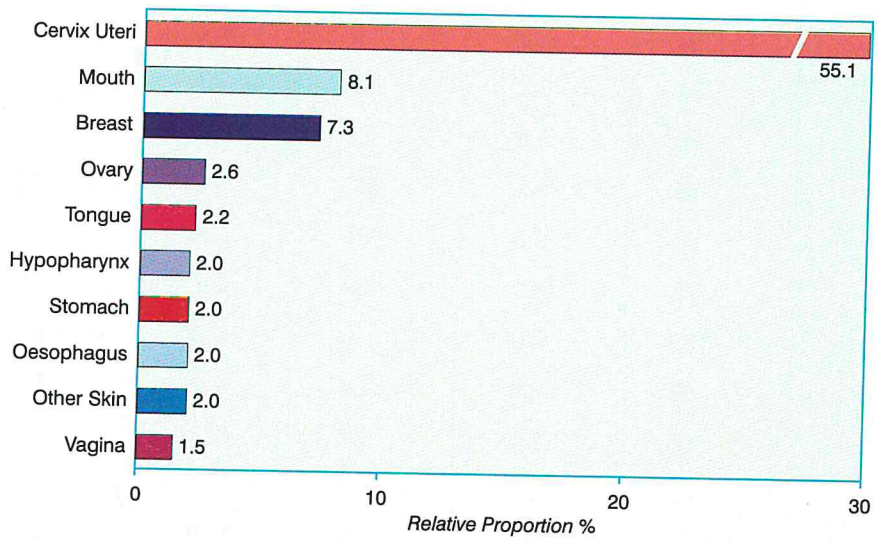
Special Techniques such as frozen sections, routine Histochemistry and Immunohistochemistry etc. are also performed regularly for all types of specimens. A well equipped, licensed Blood Bank with facility for blood component therapy caters to the needs of patients undergoing Surgery and Chemotherapy.

FIGURE 7.18 : Ten Leading Sites of Cancer (2001 - 2002)

Males



Females



7.19. Dr. B. Borooah Cancer Institute, Guwahati

(Centre Code : 0049)

Dr. A.C. Kataki, Director

Dr. Jagannath Dev Sharma, Chief-Consultant, Pathology & Principal Investigator

Dr. S.B. Medhi, Superintendent (Medical), Co-Principal Investigator

Dr. P.K. Choudhury, Superintendent (Administration), Co-Principal Investigator

Dr. B. Borooah Cancer Institute (BBCI) was set up in 1973 as a private hospital by a society of philanthropists with the hope of helping cancer patients. It was the first and the only Institute of this type in the entire North East Region.

It was recognized by Government of India as a Regional Cancer Centre (RCC) in 1980 and taken over by Government of Assam in 1986 and in the same year development of this Institute was included in the Assam Accord

TABLE 7.19(a) : Summary of Number of Cancers

Year	Males	Females	Total
2001	1532	806	2338
2002	1676	1011	2887
2001 - 2002	**3408**	**1817**	**5225**

TABLE 7.19(b) : District-wise Distribution of Cancers (2001 - 2002)

Number (#) and Relative Proportion (%)

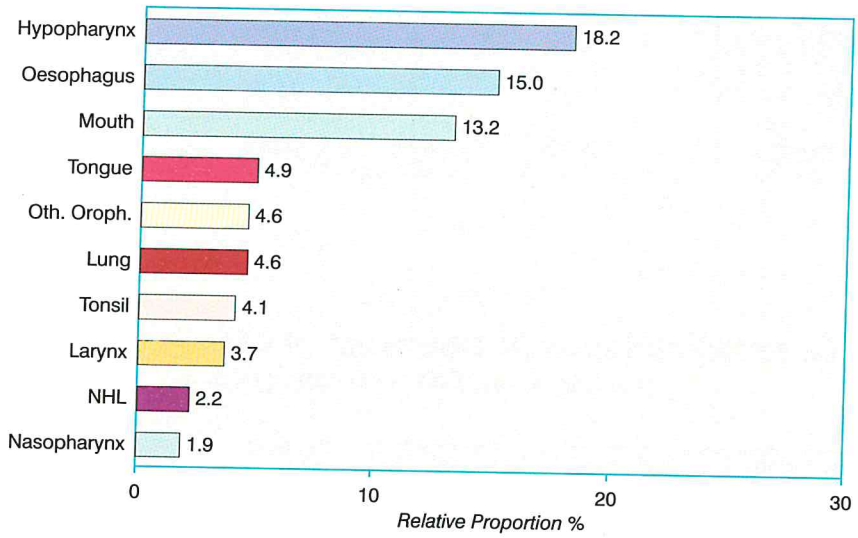
Name of District *(With Code)*	2001		2002		2001 - 2002	
	#	%	#	%	#	%
Kamrup *(1806)*	468	20.0	591	20.5	1059	20.3
Nagaon *(1810)*	223	9.5	270	9.4	493	9.4
Darrang *(1808)*	197	8.4	253	8.8	450	8.6
Barpeta *(1805)*	159	6.8	226	7.8	385	7.4
Nalbari *(1807)*	132	5.6	178	6.2	310	5.9
Sonitpur *(1811)*	121	5.2	153	5.3	274	5.2
Dhubri *(1802)*	90	3.8	97	3.4	187	3.6
Marigaon *(1809)*	75	3.2	90	3.1	165	3.2
Goalpara *(1803)*	78	3.3	85	2.9	163	3.1
Bongaigaon *(1804)*	73	3.1	89	3.1	162	3.1
Others - Meghalaya	132	5.6	0	0.0	132	2.5
Jorhat *(1817)*	53	2.3	64	2.2	117	2.2
Golaghat *(1818)*	50	2.1	67	2.3	117	2.2
All Other Districts	487	20.8	724	25.1	1211	23.2
Total Cases	**2338**	**100.0**	**2887**	**100.0**	**5225**	**100.0**

signed by Govt. of Assam, Govt. of India and All Assam Students Union. In November 1989, the State Govt. of Assam entered into an agreement with the North East Council and the Department of Atomic Energy, known as Tripartite Agreement, with the objective of mobilizing resources for the development of this Institute. In pursuance of this agreement a plan of action called Revitalization Plan Phase - I was prepared and implemented from 1980 - 90 onwards. The Tripartite Agreement was further renewed on 9/10/97 and in pursuance of this second agreement, a phase II of the Revitalization Plan was proposed and implemented and extended up to March 2004. The administration and the management of this Institute has been vested upon with the Board of Directors headed by the Chairman of the North Eastern Council. This Institute has also been recognized by the Medical Council of India as a centre for training of housemen and for further up-gradation to a teaching Institute.

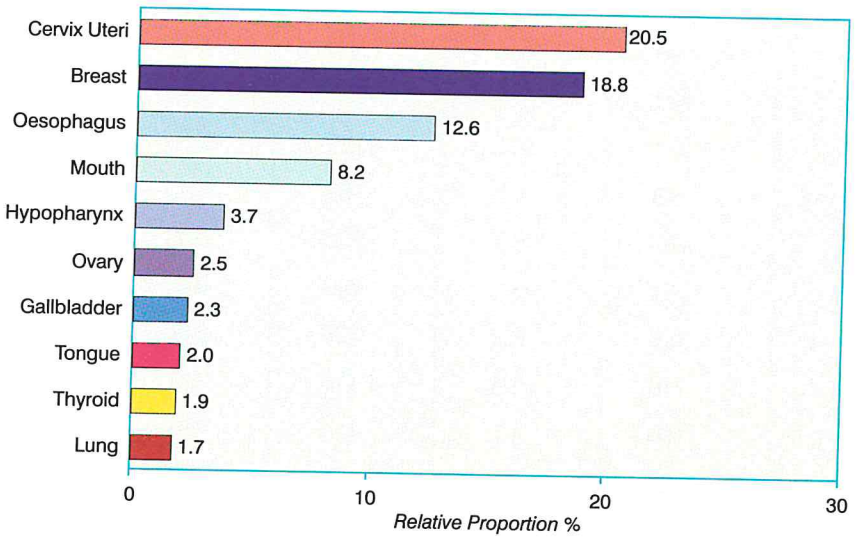
It is an 85 bedded hospital, and has 9 departments viz. Radiation Oncology, General Surgical Oncology, Gynaec-Oncology, Head and Neck Surgical Oncology, Medical Oncology, Anaesthesiology, Pathology, Radiology and Nuclear Medicine. An effort has been made for cancer prevention and early detection by holding Rural Camps in remote villages of Assam and other NE states since 1993 and this has become usual practice for BBCI to educate public through camps with the help of local people by organizing seminars and popular talks. BBCI also has early cancer detection clinic and pain clinic and effort has been made to make full-fledged hospice for terminal care.

FIGURE 7.19 : Ten Leading Sites of Cancer (2001 - 2002)

ales



nales



7.20. The Karnatak Cancer Therapy and Research Institute, Hubli

(Centre Code : 0015)

Dr. Padmashree R. B. Patil, Chairman

Dr. A. C. Deka, Medical Superintendent and Principal Investigator

Dr. Umesh R. Hallikeri, Consultant Pathologist and Co-Principal Investigator

TABLE 7.20(a) : Summary of Number of Cancers

Year	Males	Females	Total
2001	1042	1090	2132
2002	1176	1246	2422
2001 - 2002	**2218**	**2336**	**4554**

TABLE 7.20(b) : District-wise Distribution of Cancers (2001 - 2002)

Number (#) and Relative Proportion (%)

Name of District *(With Code)*	2001		2002		2001 - 2002	
	#	%	#	%	#	%
Belgaum *(2901)*	444	20.8	490	20.2	934	20.5
Dharwad *(2909)*	279	13.1	320	13.2	599	13.2
Bagalkot *(2902)*	198	9.3	256	10.6	454	10.0
Bellary *(2912)*	159	7.5	192	7.9	351	7.7
Gadag *(2908)*	151	7.1	182	7.5	333	7.3
Uttara Kannada *(2910)*	143	6.7	163	6.7	306	6.7
Koppal *(2907)*	137	6.4	163	6.7	300	6.6
Haveri *(2911)*	131	6.1	149	6.2	280	6.1
Bijapur *(2903)*	134	6.3	126	5.2	260	5.7
Davangere *(2914)*	116	5.4	118	4.9	234	5.1
Raichur *(2906)*	105	4.9	111	4.6	216	4.7
All Other Districts	135	6.3	152	6.3	287	6.3
Total Cases	**2132**	**100.0**	**2422**	**100.0**	**4554**	**100.0**

Other Co-Investigators in the project include :

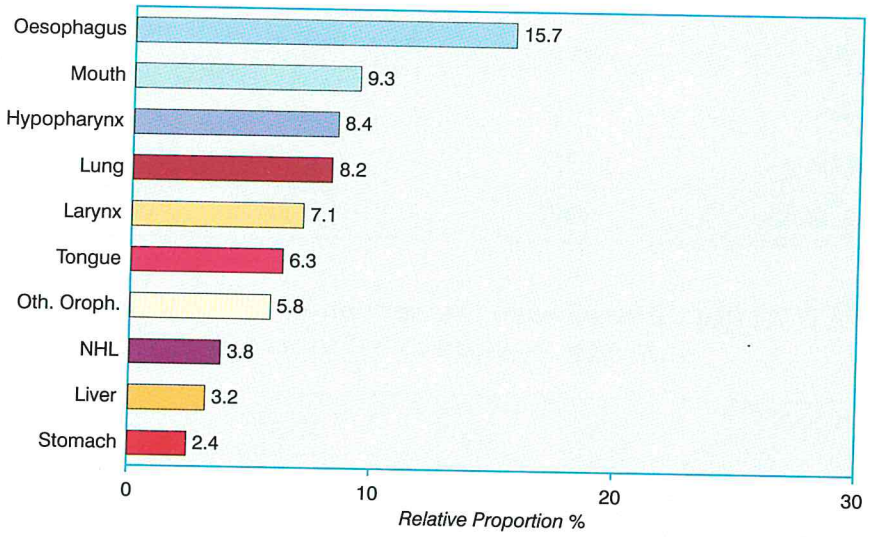
Dr. S. P. Shettar, Head of Medicine
Dr. (Mrs.) B. C. Deka, Oncologist
Dr. S. P. Srinivas, Oncologist
Dr. V. G. Yalamali, Surgeon
Dr. B.R. Patil, Onco Surgeon
Dr. K.S. Datta, Chief Pathologist
Dr. V.D. Karpurmath, Surgeon
Dr. S. Vishwanath, Surgeon

Technical Staff helping in the project are :

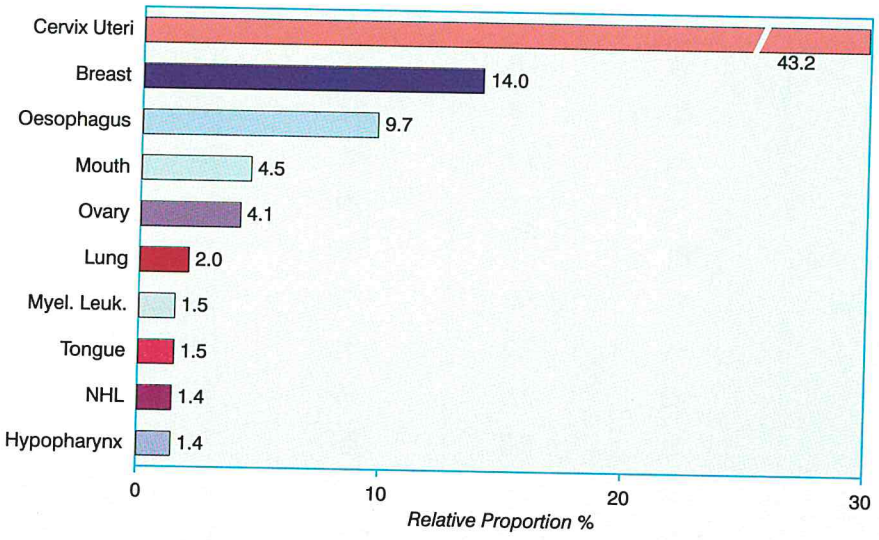
Pushpa G. Hatti, Lata K. Patil, N. Devaraju, H. H. Girish, D. I. Mulla, S. Dayanand

FIGURE 7.20 : Ten Leading Sites of Cancer (2001 - 2002)

lales



males



7.21. Santokba Durlabhji Memorial Hospital cum Medical Research Institute, Jaipur

(Centre Code : 0068)

Dr. V.D. Garg, Medical Superintendent

Dr. B. C. Sangal, Head, Department of Pathology and Principal Investigator

Dr. Shubha Gupta, Consultant Pathologist and Co-Principal Investigator

Dr. G. N. Gupta, Consultant Pathologist and Faculty In-Charge

The Department of Pathology is part of Santokba Durlabji Memorial Hospital Cum Medical Research Institute, Bharwani Singh Marg, Jaipur. This hospital is a 320 bedded ISO 2000 approved multidisciplinary set up.The department carries out approximately 400,000 investigations of all types in a year. There are about 12,000 surgicals, 5000 cytologies and about 1000 bone marrows. The department accepts samples from outside cases also.

TABLE 7.21(a) : Summary of Number of Cancers

Year	Males	Females	Total
2001	1393	781	2174
2002	1495	806	2301
2001 - 2002	**2888**	**1587**	**4475**

TABLE 7.21(b) : District-wise Distribution of Cancers (2001 - 2002)

Number (#) and Relative Proportion (%)

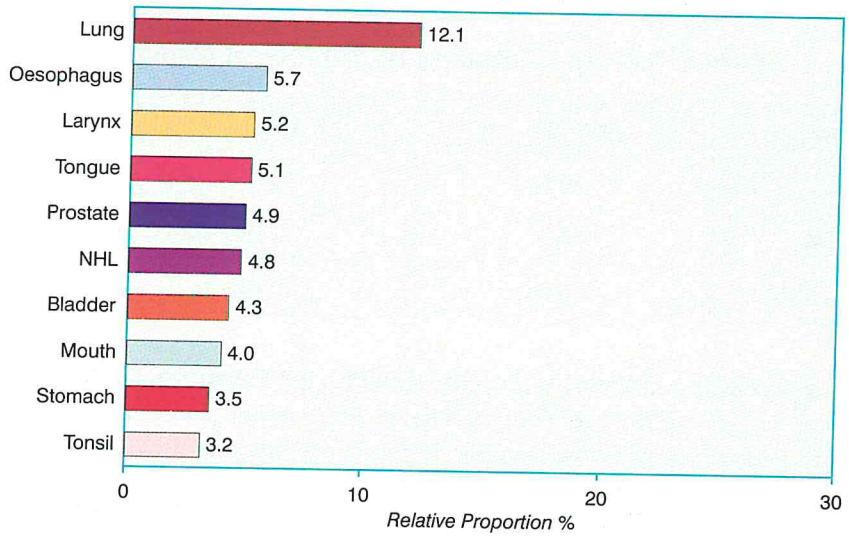
Name of District *(With Code)*	2001		2002		2001 - 2002	
	#	%	#	%	#	%
Jaipur *(812)*	735	33.8	828	36.0	1563	34.9
Sikar *(813)*	187	8.6	197	8.6	384	8.6
Alwar *(806)*	164	7.5	175	7.6	339	7.6
Jhunjhunun *(805)*	164	7.5	150	6.5	314	7.0
Nagaur *(814)*	94	4.3	84	3.7	178	4.0
Tonk *(822)*	83	3.8	83	3.6	166	3.7
Bharatpur *(807)*	83	3.8	81	3.5	164	3.7
Dausa *(811)*	76	3.5	78	3.4	154	3.4
Sawai Madhopur *(810)*	81	3.7	65	2.8	146	3.3
Mahendragarh *(816)*	70	3.2	62	2.7	132	2.9
Churu *(804)*	62	2.9	64	2.8	126	2.8
Karauli *(809)*	63	2.9	60	2.6	123	2.7
Ajmer *(821)*	51	2.3	59	2.6	110	2.5
All Other Districts	261	12.0	315	13.7	576	12.9
Total Cases	**2174**	**100.0**	**2301**	**100.0**	**4475**	**100.0**

There are 7 postgraduate pathologists, 20 regular technicians and 18 trainee technicians doing their two year DMLT Course. The department is recognized by National Board for DNB Course. At any given time there are three DNB candidates.

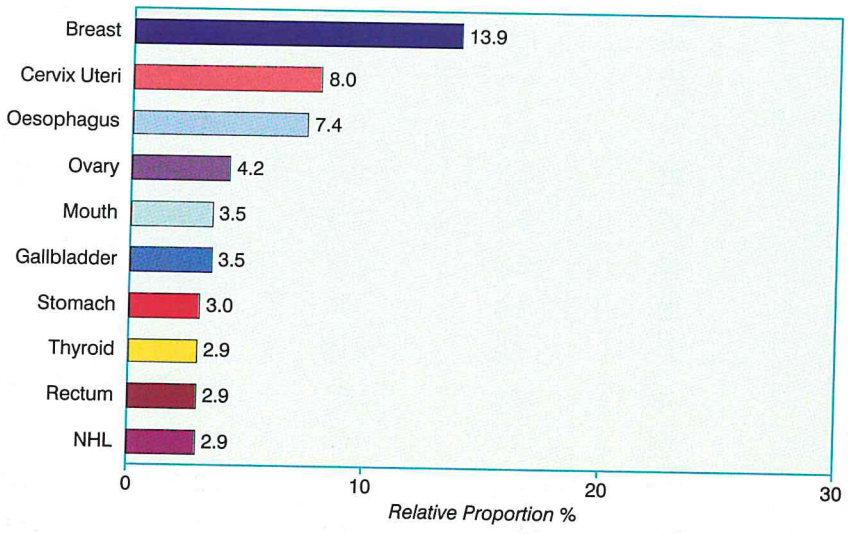
Shri H.L. Chhabra is the Secretarial Assistant of the Department.

FIGURE 7.21 : Ten Leading Sites of Cancer (2001 - 2002)

Males



Females



7.22. Acharya Tulsi Regional Cancer Treatment and Research Institute, Bikaner

(Centre Code : 0087)

Dr. D. P. Punia, Sr. Professor and Head, Dept. of Radiotherapy
Director, ATRCT & RI, Principal, S.P. Medical College,
Controller, Associated Group of Hospitals, Bikaner and Principal Investigator

Dr. Sandeep Jain, Asst. Professor, Dept. of Radiotherapy & Co-Investigator

Dr. Vipin Anand, Asst. Professor, Dept. of Radiotherapy & Co-Investigator

Dr. Vanitha Kumar, Senior Demonstrator, Dept. of Pathology & Co-Investigator

TABLE 7.22(a) : Summary of Number of Cancers

Year	Males	Females	Total
2001	357	339	696
2002	1683	1780	3463
2001 - 2002	**2040**	**2119**	**4159**

TABLE 7.22(b) : District-wise Distribution of Cancers (2001 - 2002)

Number (#) and Relative Proportion (%)

Name of District *(With Code)*	2001		2002		2001 - 2002	
	#	%	#	%	#	%
Bikaner *(803)*	89	12.8	506	14.6	595	14.3
Bathinda *(314)*	49	7.0	328	9.5	377	9.1
Ganganagar *(801)*	59	8.5	297	8.6	356	8.6
Hanumangarh *(802)*	49	7.0	246	7.1	295	7.1
Churu *(804)*	49	7.0	218	6.3	267	6.4
Firozpur *(311)*	35	5.0	197	5.7	232	5.6
Sangrur *(316)*	46	6.6	177	5.1	223	5.4
Muktsar *(312)*	27	3.9	166	4.8	193	4.6
Sirsa *(611)*	31	4.5	147	4.2	178	4.3
Mansa *(315)*	26	3.7	136	3.9	162	3.9
Hisar *(612)*	22	3.2	115	3.3	137	3.3
Nagaur *(814)*	23	3.3	112	3.2	135	3.2
Jhunjhunun *(805)*	25	3.6	103	3.0	128	3.1
Faridkot *(313)*	13	1.9	115	3.3	128	3.1
Fatehabad *(610)*	18	2.6	81	2.3	99	2.4
Moga *(310)*	24	3.4	68	2.0	92	2.2
All Other Districts	111	15.9	451	13.0	562	13.5
Total Cases	**696**	**100.0**	**3463**	**100.0**	**4159**	**100.0**

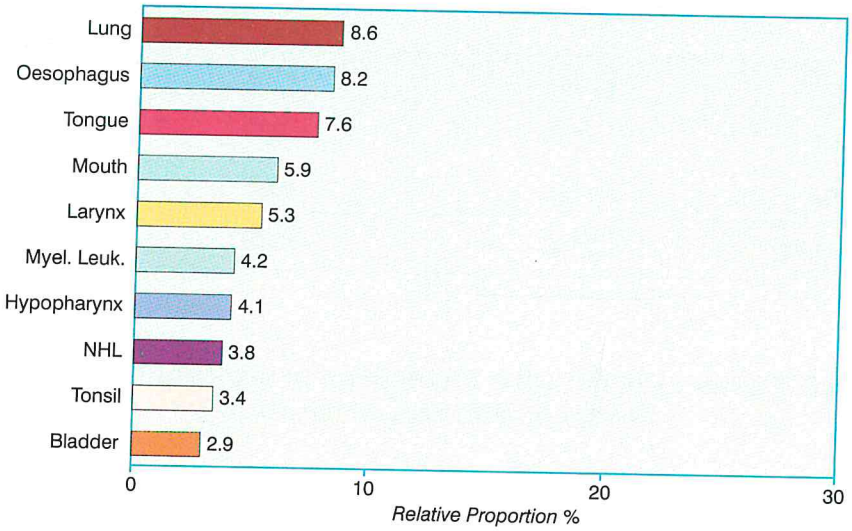
The Radiotherapy facilities for treatment include two Tele Cobalt – 60 (Theratron 780-C and 780-E) machines, High Dose Rate and Low Dose Rate Brachy Therapy Machines. Besides, Onco-Surgery and Chemotherapy facilities are also available.

The facilities for Investigation includes Dual Head Variable Angle Gamma Camera with SPECT, Ultrasonography machine, 500 mA X-Ray machine, Histopathology, Haematology and Bio-Chemistry Laboratory.

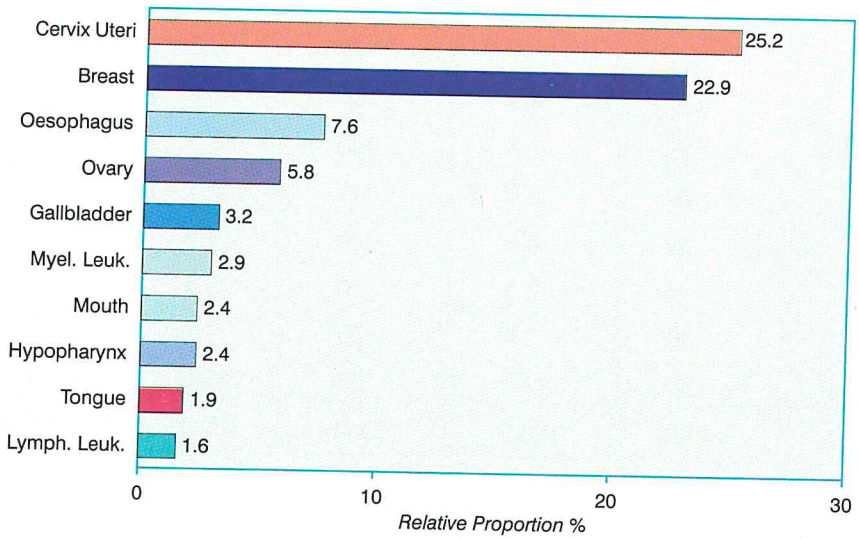
In Patient Ward consists of 200 General Beds, 13 Cancer Cottages, and 4 Air Conditioned Cancer Cottages.

FIGURE 7.22 : Ten Leading Sites of Cancer (2002)

ales



nales



7.23. MGM Medical College, Indore

(Centre Code : 0028)

Dr. (Mrs.) M. Gujral, Professor and Head, Dept. of Pathology and Principal Investigator

Dr. Sanjeev Narang, Associate Professor and Co-Principal Investigator

Dr. (Mrs.) S. Munjal, Former Principal Investigator

The Department of Pathology M.G.M. Medical College, Indore is more than fifty years old as is the institution to which it belongs. It is fully equipped with the latest and modern equipment.

The various sections are Clinical Pathology which has Automated Haematology Analyser, Chemical Pathology that has Automated Chemistry Analyser, Blood Bank has the facility for component separation, Cytopathology & Histopathology.

TABLE 7.23(a) : Summary of Number of Cancers

Year	Males	Females	Total
2001	953	835	1788
2002	1156	1035	2191
2001 - 2002	**2109**	**1870**	**3979**

TABLE 7.23(b) : District-wise Distribution of Cancers (2001 - 2002)

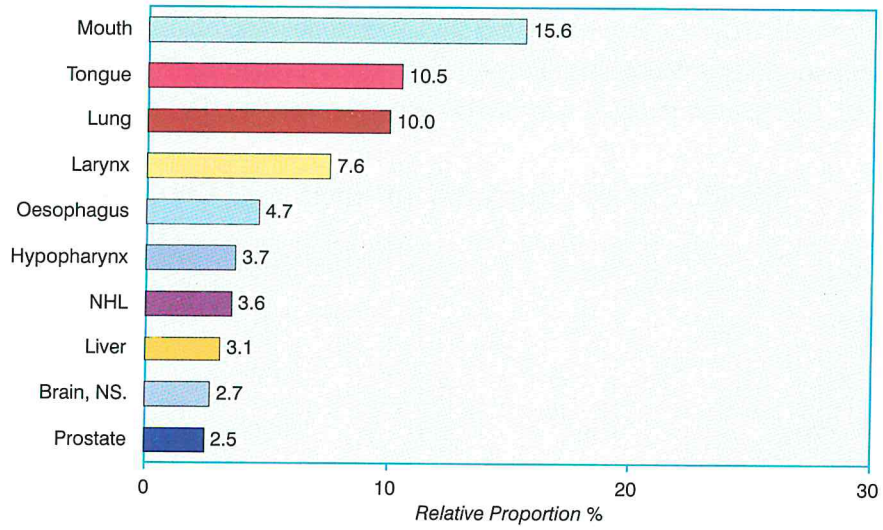
Number (#) and Relative Proportion (%)

Name of District (With Code)	2001		2002		2001 - 2002	
	#	%	#	%	#	%
Indore *(2326)*	601	33.6	798	36.4	1399	35.2
Ujjain *(2321)*	172	9.6	217	9.9	389	9.8
Dewas *(2323)*	139	7.8	179	8.2	318	8.0
West Nimar *(2327)*	131	7.3	161	7.3	292	7.3
East Nimar *(2329)*	135	7.6	142	6.5	277	7.0
Dhar *(2325)*	98	5.5	111	5.1	209	5.3
Shajapur *(2322)*	82	4.6	105	4.8	187	4.7
Ratlam *(2320)*	44	2.5	55	2.5	99	2.5
Rajgarh *(2330)*	52	2.9	37	1.7	89	2.2
All Other Districts	334	18.7	386	17.6	720	18.1
Total Cases	**1788**	**100.0**	**2191**	**100.0**	**3979**	**100.0**

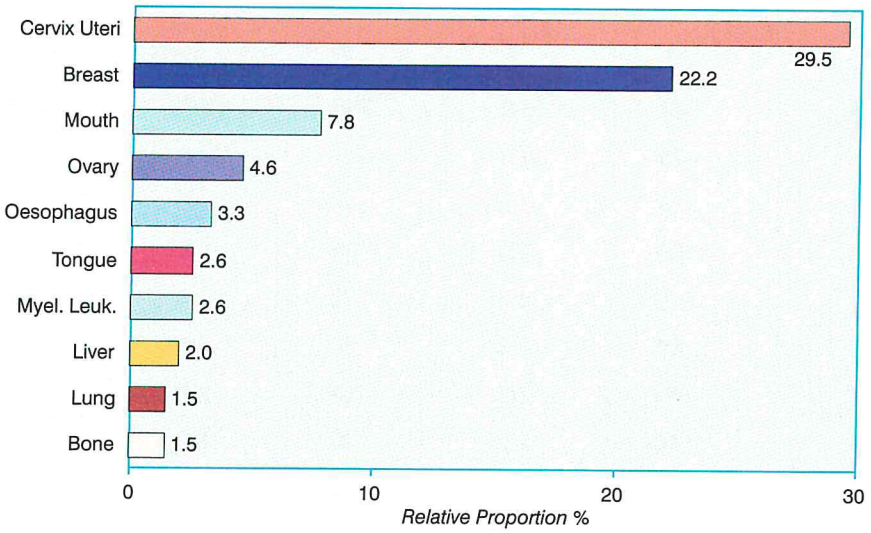
Recently an Immunohistochemistry laboratory has also been set up and is slowly gaining momentum and shall oon be functioning at its full capacity. There is a 1000 bedded General Hospital and a 92 bedded Cancer Hospital ttached to the Medical College and this ensures a wide variety and bulk of cases reaching the Department of Pathology. leferral work from other doctors of the town is also received by our Department-especially histopathology cases osing a diagnostic dilemma.

FIGURE 7.23 : Ten Leading Sites of Cancer (2001 - 2002)

ales



males



7.24. G. Kuppuswamy Naidu Memorial Hospital, Coimbatore

(Centre Code : 0054)

Dr. (AVM) N. B. Amaresh, Dean
Dr. (Col) T. B. Ramakrishnan, Medical Superintendent
Dr. M.L. Raman, Pathologist and Principal Investigator

The Valavadi Narayanasamy Cancer Centre is a unit of G.Kuppuswamy Naidu Memorial Hospital, Coimbatore. It was started as a small Radiology Department in 1958 with a Deep X-ray therapy unit. In 1970, it was upgraded into a comprehensive cancer centre with facilities for surgery, radiation therapy and chemotherapy. About 2,300 new cases, 13,000 to 14,000 review cases and 2,700 inpatients are registered annually. Patients are drawn from various parts of Tamil Nadu and also parts of Kerala and Karnataka.

Diagnostic facilities include Clinical and Histopathology Laboratories, Microbiology, Biochemistry and Radiological investigations like Mammogram and Ultrasonography and also Gamma Camera. Radiation Therapy facilities include two Cobalt 60 machines, a simulator and LDR and HDR Brachytherapy units. Dosimetric appliances, a mould room

TABLE 7.24(a) : Summary of Number of Cancers

Year	Males	Females	Total
2001	787	1034	1821
2002	835	976	1811
2001 - 2002	**1622**	**2010**	**3632**

TABLE 7.24(b) : District-wise Distribution of Cancers (2001 - 2002)

Number (#) and Relative Proportion (%)

Name of District (With Code)	2001		2002		2001 - 2002	
	#	%	#	%	#	%
Coimbatore *(3312)*	841	46.2	845	46.7	1686	46.4
Erode *(3310)*	429	23.6	421	23.2	850	23.4
Salem *(3308)*	124	6.8	120	6.6	244	6.7
Namakkal *(3309)*	100	5.5	114	6.3	214	5.9
The Nilgiris *(3311)*	82	4.5	77	4.3	159	4.4
Karur *(3314)*	60	3.3	65	3.6	125	3.4
Palakkad *(3206)*	63	3.5	52	2.9	115	3.2
Dindigul *(3313)*	40	2.2	37	2.0	77	2.1
All Other Districts	82	4.5	80	4.4	162	4.5
Total Cases	**1821**	**100.0**	**1811**	**100.0**	**3632**	**100.0**

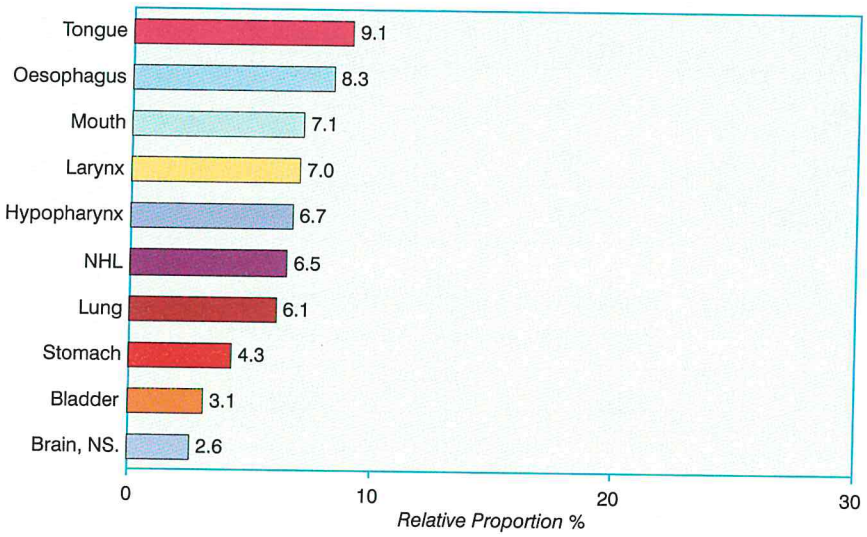
and computerized treatment planning system are also available. Other services include cancer screening programmes, cancer counseling for patients and relatives and a pain and palliative care centre (Hospice). The centre has a Post Graduate programme - DNB (Radiation Therapy) and also has a M.Sc. (Med. Physics) course in collaboration with Bharathiar University. A web page is being launched.

Profile of Histopathology Department

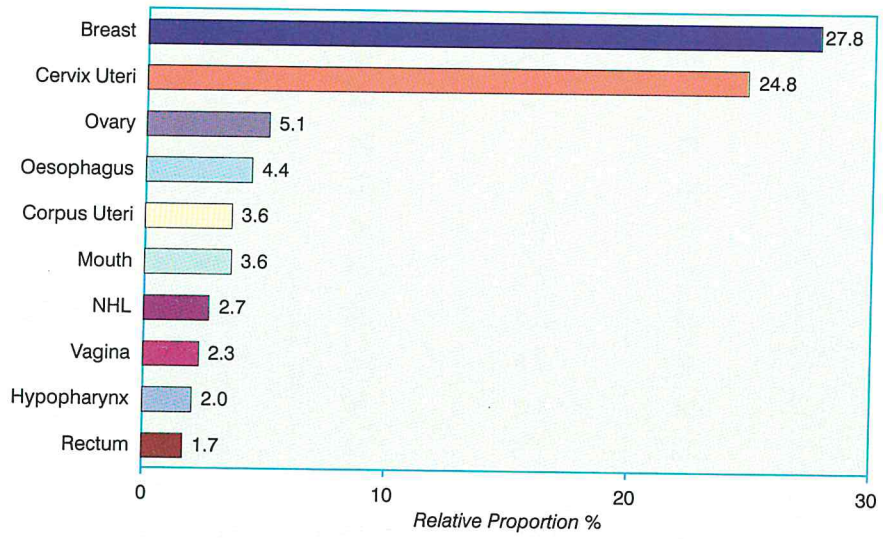
The department has a full time Pathologist, a Cytotechnologist, a Cytotechnician, two Histopathology technicians and a Receptionist cum typist. The Project Assistant for the development of an atlas of cancer in India, works in the department from 2001 onwards. The department mainly caters to the cancer centre and other departments of the hospital. It carries out routine histopathological, cytological and haemotological investigations. An aspiration puncture clinic is being run. Autopsies and Immunohistochemistry studies are also done.

FIGURE 7.24 : Ten Leading Sites of Cancer (2001 - 2002)

ales



nales



7.25. Government Medical College and Hospital, Nagpur

(Centre Code : 0050)

Dr. S. K. Bobhate, Prof. and Head of Dept. of Pathology and Principal Investigator

Dr. Meena A. Pangarkar and **Dr. Rasika U. Gadkari,** Co-Principal Investigators

Government Medical College, Nagpur is affiliated to Nagpur University for Post Graduation in Pathology. The Department of Pathology has a staff of three Professors, 12 Associate Professors and 16 Lecturers.

The Department of Pathology has Histopathology, Cytology & Hematology subdivisions. Yearly around 22,000 Histopathology slides, 11,000 Cytology specimens and 15,000 Peripheral and Bone Marrow smears are reported in the Department.

TABLE 7.25(a) : Summary of Number of Cancers

Year	Males	Females	Total
2001	880	866	1746
2002	781	771	1552
2001 - 2002	**1661**	**1637**	**3298**

TABLE 7.25(b) : District-wise Distribution of Cancers (2001 - 2002)

Number (#) and Relative Proportion (%)

Name of District *(With Code)*	2001		2002		2001 - 2002	
	#	%	#	%	#	%
Nagpur *(2709)*	688	39.4	639	41.2	1327	40.2
Amravati *(2707)*	153	8.8	132	8.5	285	8.6
Yavatmal *(2714)*	119	6.8	104	6.7	223	6.8
Bhandara *(2710)*	98	5.6	106	6.8	204	6.2
Chhindwara *(2343)*	91	5.2	84	5.4	175	5.3
Akola *(2705)*	60	3.4	72	4.6	132	4.0
Gondiya *(2711)*	73	4.2	58	3.7	131	4.0
Chandrapur *(2713)*	76	4.4	54	3.5	130	3.9
Balaghat *(2345)*	60	3.4	53	3.4	113	3.4
Seoni *(2344)*	47	2.7	50	3.2	97	2.9
Adilabad *(2801)*	45	2.6	42	2.7	87	2.6
Wardha *(2708)*	47	2.7	36	2.3	83	2.5
Betul *(2335)*	40	2.3	29	1.9	69	2.1
Washim *(2706)*	34	1.9	29	1.9	63	1.9
Buldhana *(2704)*	26	1.5	10	0.6	36	1.1
All Other Districts	89	5.1	54	3.5	143	4.3
Total Cases	**1746**	**100.0**	**1552**	**100.0**	**3298**	**100.0**

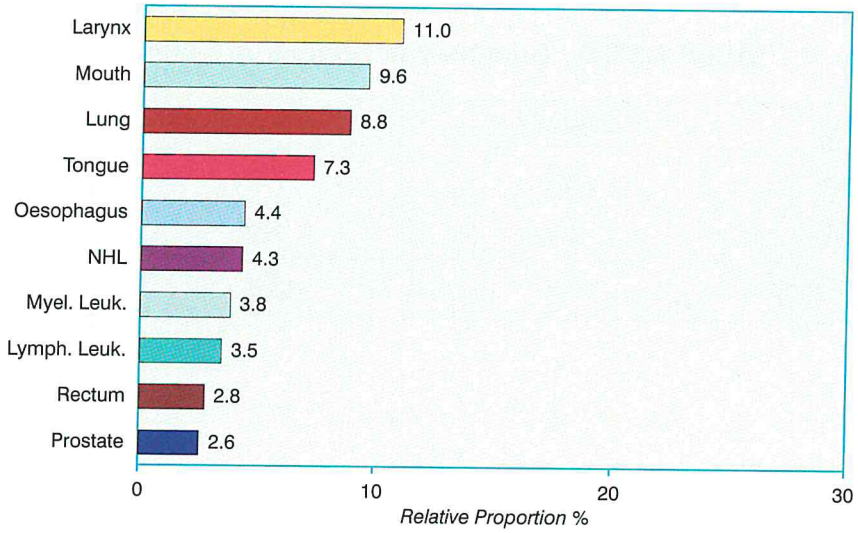
The Cytology department is an approved and accredited centre by Indian Academy of Cytology for cytotechnician and cytotechnologists.

Other facilities include a Blood Bank with component separation and Training Centre for BTOS, Clinical OPD, Zonal Blood Transfusion Centre, Immunology Lab and a Pathology Museum. All the staff are trained in Computer Applications by MHCET. The college has been conducting regional level quiz for undergraduates for the last 10 years.

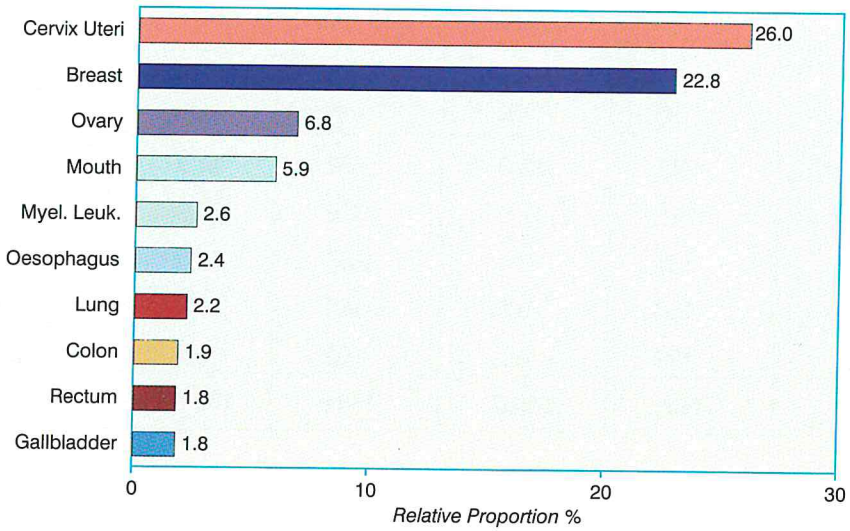
It is a Tertiary Health Care Centre for Vidarbha region and surrounding states of Madhya Pradesh, Chattisgarh and Andhra Pradesh.

FIGURE 7.25 : Ten Leading Sites of Cancer (2001 - 2002)

ales



nales



7.26. Amala Cancer Hospital and Research Centre, Thrissur

(Centre Code : 0096)

Dr. Agnesamma Jacob, Chief Pathologist and Prinicpal Investigator
Dr. Savithri M. C., Co-Prinicpal Investigator

On an average the Department of Pathology annually recieves 3,300-3,500 histopathology specimens, 1,300-1,500 cytology smears and 1,200 haematology smears.

The information on cancers sent to the project covers all the cases received in the Department of Pathology.

TABLE 7.26(a) : Summary of Number of Cancers

Year	Males	Females	Total
2001	797	772	1569
2002	814	787	1601
2001 - 2002	**1611**	**1559**	**3170**

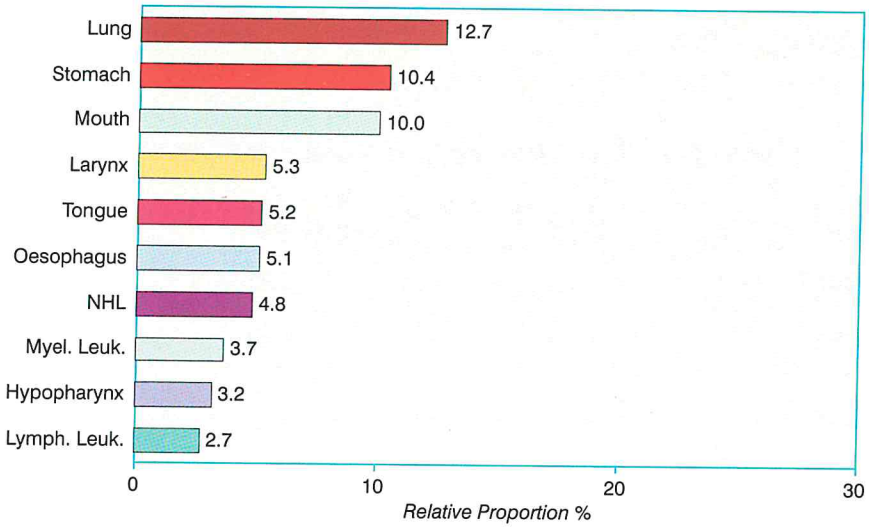
TABLE 7.26(b) : District-wise Distribution of Cancers (2001 - 2002)

Number (#) and Relative Proportion (%)

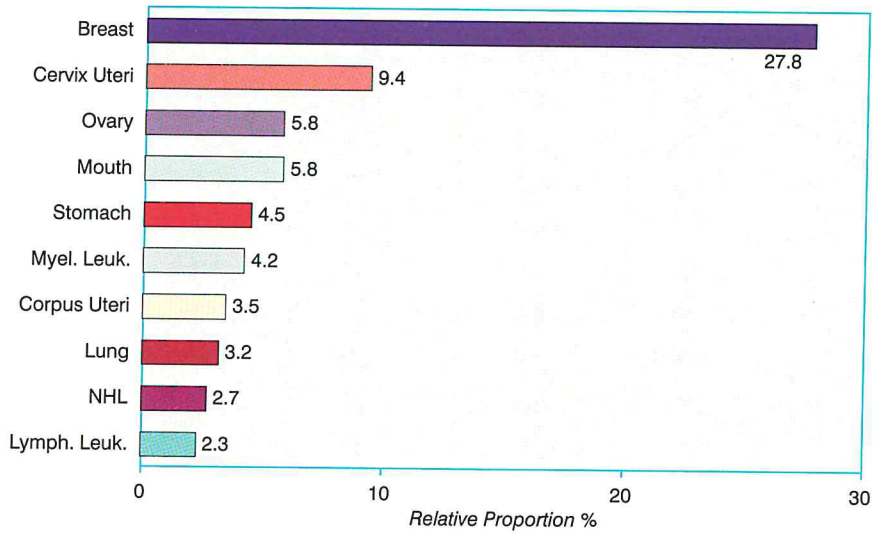
Name of District *(With Code)*	2001		2002		2001 - 2002	
	#	%	#	%	#	%
Thrissur *(3207)*	773	49.3	712	44.5	1485	46.8
Palakkad *(3206)*	276	17.6	335	20.9	611	19.3
Malappuram *(3205)*	237	15.1	237	14.8	474	15.0
Ernakulam *(3208)*	154	9.8	165	10.3	319	10.1
All Other Districts	129	8.2	152	9.5	281	8.9
Total Cases	**1569**	**100.0**	**1601**	**100.0**	**3170**	**100.0**

FIGURE 7.26 : Ten Leading Sites of Cancer (2001 - 2002)

lales



males



7.27. AH Regional Cancer Centre, Cuttack

(Centre Code : 0033)

Dr. Gadadhar Parida, Prof. and Head, Dept of Pathology and Principal Investigator
Dr. Niranjan Rout, Associate Professor of Pathology and Co-Principal Investigator
Dr. Sagarika Samantaray, Lecturer and Co-Investigator
Prof. Janardhan Mohanty, Former Principal Investigator

On an average the Department of Pathology annually receives 2,200 histopathology specimens, 6,000 cytology smears and 26,000 haematology smears.

TABLE 7.27(a) : Summary of Number of Cancers

Year	Males	Females	Total
2001	573	690	1263
2002	810	970	1780
2001 - 2002	**1383**	**1660**	**3043**

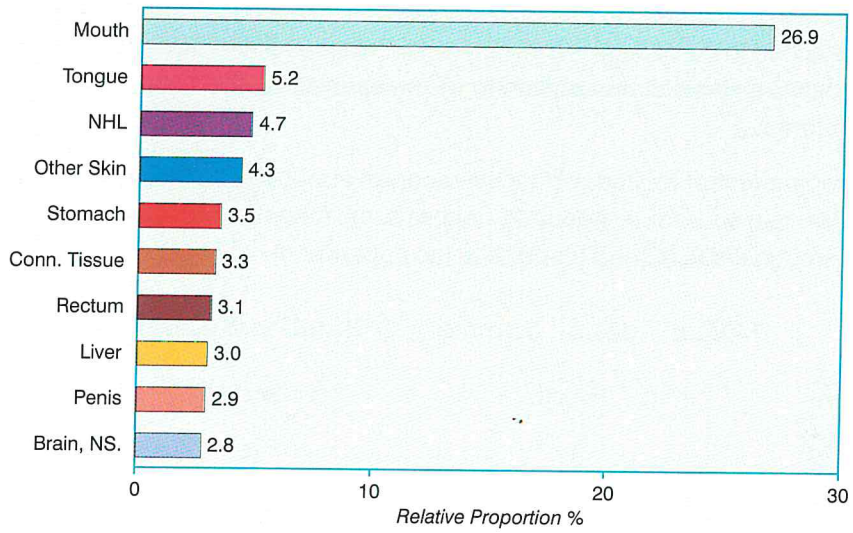
TABLE 7.27(b) : District-wise Distribution of Cancers (2001 - 2002)

Number (#) and Relative Proportion (%)

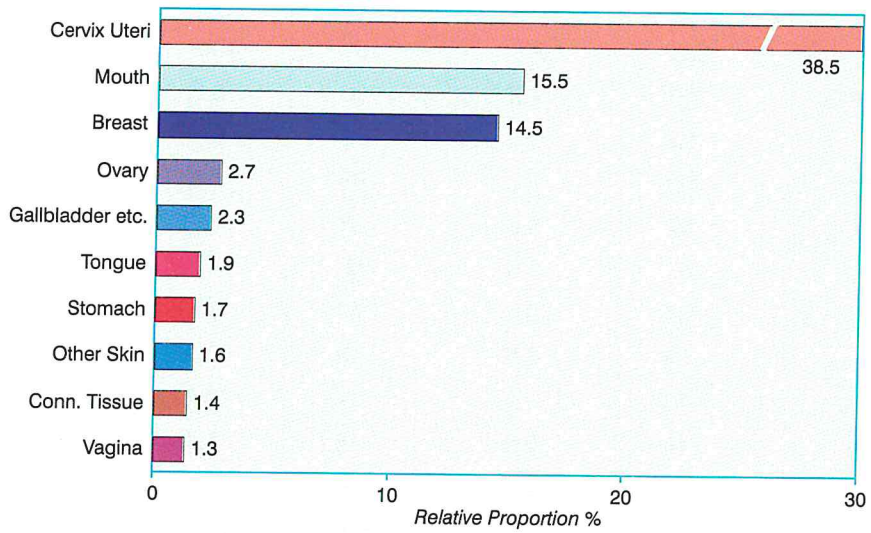
Name of District *(With Code)*	2001		2002		2001 - 2002	
	#	%	#	%	#	%
Cuttack *(2112)*	185	14.6	302	17.0	487	16.0
Khordha *(2117)*	113	8.9	200	11.2	313	10.3
Kendrapara *(2110)*	92	7.3	198	11.1	290	9.5
Puri *(2118)*	129	10.2	154	8.7	283	9.3
Jajapur *(2113)*	112	8.9	137	7.7	249	8.2
Baleshwar *(2108)*	86	6.8	130	7.3	216	7.1
Jagatsinghpur *(2111)*	86	6.8	101	5.7	187	6.1
Bhadrak *(2109)*	59	4.7	78	4.4	137	4.5
Nayagarh *(2116)*	53	4.2	68	3.8	121	4.0
Dhenkanal *(2114)*	46	3.6	58	3.3	104	3.4
Medinipur *(1915)*	58	4.6	41	2.3	99	3.3
Mayurbhanj *(2107)*	45	3.6	50	2.8	95	3.1
Kendujhar *(2106)*	45	3.6	36	2.0	81	2.7
Anugul *(2115)*	27	2.1	37	2.1	64	2.1
All Other Districts	127	10.1	190	10.7	317	10.4
Total Cases	**1263**	**100.0**	**1780**	**100.0**	**3043**	**100.0**

FIGURE 7.27 : Ten Leading Sites of Cancer (2001 - 2002)

Males



males



7.28. Kasturba Medical College, Manipal

(Centre Code : 0077)

Dr. Ravikala V Rao, Professor and Head of the Department of Pathology

Dr. Sudha S. Bhat, Prof. of Pathology and Principal Investigator

Kasturba Medical College is a private institution under Manipal Academy of Higher Education, a Deemed University. The Kasturba Hospital attached to the college is a 1472 bedded hospital. Shirdi Saibaba Cancer Hospital and Research Centre is attached to Kasturba Hospital. In addition to all the specialties, the hospital has full fledged Surgical and Medical Oncology departments.

The Pathology Department of Kasturba Hospital receives about 10,000 biopsies and about 8,500 cytologies, annually. In addition to Manipal and Udupi, nearly 65 hospitals and nursing homes from Dakshina Kannada, Kodagu, North Karnataka and Shimoga districts send biopsies to the department.

TABLE 7.28(a) : Summary of Number of Cancers

Year	Males	Females	Total
2001	916	676	1592
2002	778	595	1373
2001 - 2002	**1694**	**1271**	**2965**

TABLE 7.28(b) : District-wise Distribution of Cancers (2001 - 2002)

Number (#) and Relative Proportion (%)

Name of District (With Code)	2001		2002		2001 - 2002	
	#	%	#	%	#	%
Udupi *(2916)*	416	26.1	392	28.6	808	27.3
Kannur *(3202)*	289	18.2	216	15.7	505	17.0
Shimoga *(2915)*	203	12.8	191	13.9	394	13.3
Uttara Kannada *(2910)*	155	9.7	118	8.6	273	9.2
Kozhikode *(3204)*	95	6.0	78	5.7	173	5.8
Chikmagalur *(2917)*	90	5.7	66	4.8	156	5.3
Davangere *(2914)*	57	3.6	58	4.2	115	3.9
D. Kannada *(2924)*	47	3.0	58	4.2	105	3.5
Kasaragod *(3201)*	54	3.4	49	3.6	103	3.5
South Goa *(3002)*	24	1.5	12	0.9	36	1.2
Malappuram *(3205)*	18	1.1	11	0.8	29	1.0
Chitradurga *(2913)*	14	0.9	15	1.1	29	1.0
All Other Districts	130	8.2	109	7.9	239	8.1
Total Cases	**1592**	**100.0**	**1373**	**100.0**	**2965**	**100.0**

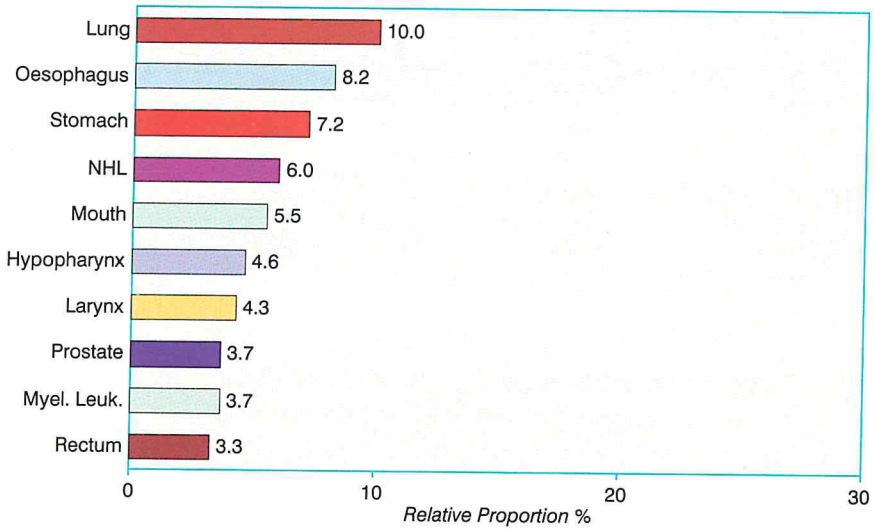
A large number of Postgraduate students have been trained in the department. The annual intake of Postgraduate students in the department is 8 MD students and 8 DCP students.

Dr. Ravikala V Rao, MD is the Professor and Head of the Department and Director of Postgraduate Studies. She has a vast experience having worked as a pathologist for 30 years.

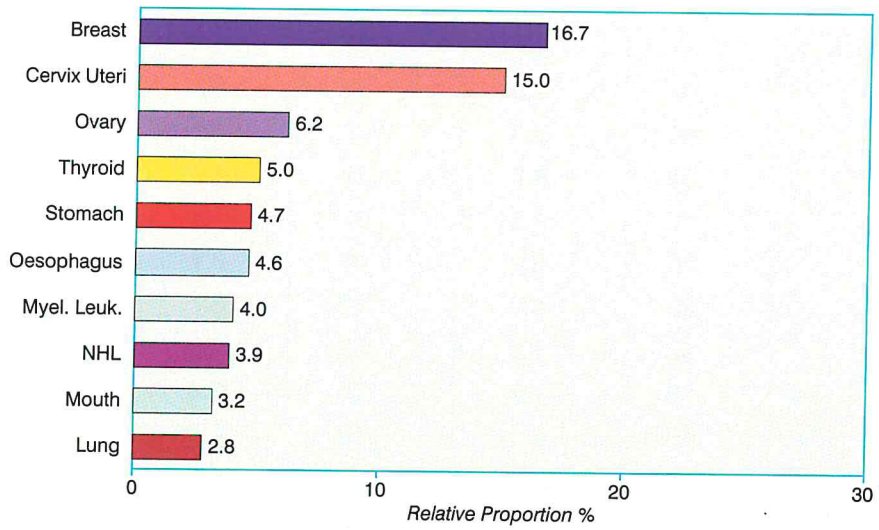
Dr. Sudha S Bhat, MD is a Professor and is the Principal Investigator of the Cancer Atlas Project.

FIGURE 7.28 : Ten Leading Sites of Cancer (2001 - 2002)

ales



males



7.29. Mahavir Cancer Sansthan, Patna

(Centre Code : 0095)

Dr. J. K. Singh, Director and Principal Investigator

Dr. Varsha Singh, Co-Principal Investigator

Built on 3 acres of land, Mahavir Cancer Sansthan is a state-of-the-art 300 bedded comprehensive cancer hospital, established in stages since December 1998. All modalities of treatment are available for cancer patients. Managed by the famous Mahavir Mandir Trust, Patna, poor patients get quality treatment and personalized affordable care.

The objective of the institute is to bring latest treatment technologies and protocols within everyone's reach; to enlist qualified and motivated professionals dedicated to cancer care; to emphasize the power of positive thinking for patient's quality of life; to ensure excellent patient care in a friendly environment at low rates.

TABLE 7.29(a) : Summary of Number of Cancers

Year	Males	Females	Total
2001	322	408	730
2002	802	1073	1875
2001 - 2002	**1124**	**1481**	**2605**

TABLE 7.29(b) : District-wise Distribution of Cancers (2001 - 2002)

Number (#) and Relative Proportion (%)

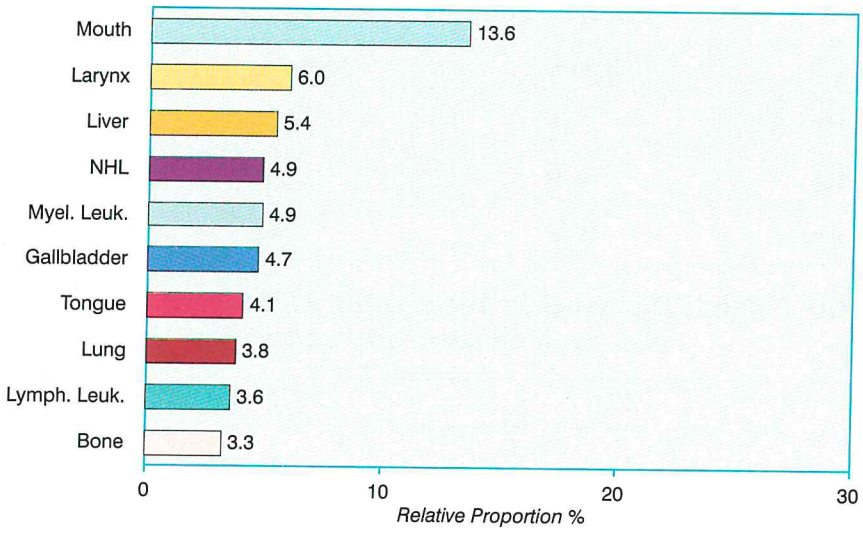
Name of District (With Code)	2001		2002		2001 - 2002	
	#	%	#	%	#	%
Patna *(1028)*	133	18.2	393	21.0	526	20.2
Vaishali *(1018)*	45	6.2	125	6.7	170	6.5
Muzaffarpur *(1014)*	45	6.2	106	5.7	151	5.8
Purba Champaran *(1002)*	32	4.4	88	4.7	120	4.6
Bhojpur *(1029)*	36	4.9	82	4.4	118	4.5
Samastipur *(1019)*	39	5.3	78	4.2	117	4.5
Begusarai *(1020)*	34	4.7	79	4.2	113	4.3
Saran *(1017)*	11	1.5	87	4.6	98	3.8
Nalanda *(1027)*	28	3.8	69	3.7	97	3.7
Gaya *(1035)*	22	3.0	70	3.7	92	3.5
Jehanabad *(1033)*	22	3.0	53	2.8	75	2.9
Bhagalpur *(1022)*	20	2.7	52	2.8	72	2.8
Darbhanga *(1013)*	15	2.1	50	2.7	65	2.5
All Other Districts	248	34.0	543	29.0	791	30.4
Total Cases	**730**	**100.0**	**1875**	**100.0**	**2605**	**100.0**

The infrastructure includes Out-patient Department, Cancer Screening and Detection centre, Laboratory and naging Departments.The Medical Oncology Department is a 30-bedded unit. A unit for "Bone marrow transplant" is eing planned. Other services include Surgical Oncology, Voluntary Services, Support Services, Blood Bank, ehabilitation, Social Welfare services, Pharmacy and Dietary Consultation and Counselling. The Institute has also a anteen, and a Meditation and Prayer Hall. A fully equipped Pain Clinic is planned, which will be unique to Bihar in ackling the agonizing pain of cancer.

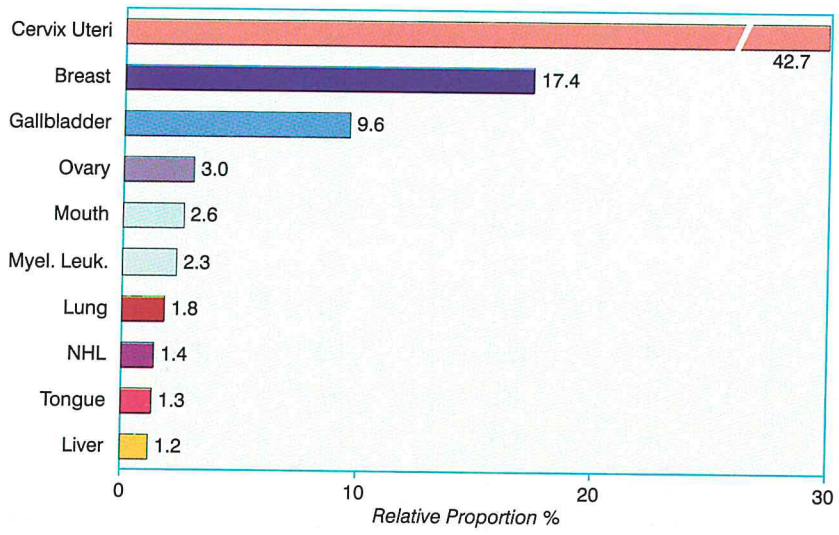
A Terminal Care Unit with 50-beds - the first in Eastern India in caring for terminally ill patients is to start very soon. ill date the total registration of new patients in the hospital for the last 4 years has gone up to more than 23,000. Almost 5% of all new patients are coming from neighbouring states like West Bengal, U.P., Assam, Jharkhand and also from epal.

FIGURE 7.29 : Ten Leading Sites of Cancer (2001 - 2002)

ales



nales



7.30. Post Graduate Institute of Medical Education and Research - Histopathology, Chandigarh

(Centre Code : 0111)

Dr. S. K. Sharma, Director

Dr. Kusum Joshi, Prof. and Head, Dept. of Histopathology and Principal Investigator

Dr. Dr. R. K. Vasishta, Addl. Prof. of Histopathology and Co-Principal Investigator

Postgraduate Institute of Medical Education and Research (PGIMER), Chandigarh is an autonomous body under the Ministry of Health and Family Welfare, Govt. of India. It became an Institute of national importance by an act of Parliament on 1st April 1967. Over the years, it has trained approximately 5000 postgraduates in various disciplines of medical sciences and presently has 580 candidates on rolls undergoing postgraduate training. The PGIMER boasts of

TABLE 7.30(a) : Summary of Number of Cancers

Year	Males	Females	Total
2001	1	139	140
2002	1648	789	2437
2001 - 2002	**1649**	**928**	**2577**

TABLE 7.30(b) : District-wise Distribution of Cancers (2001 - 2002)

Number (#) and Relative Proportion (%)

Name of District *(With Code)*	2001		2002		2001 - 2002	
	#	%	#	%	#	%
Chandigarh *(401)*	39	27.9	237	9.7	276	10.7
Rupnagar *(307)*	21	15.0	168	6.9	189	7.3
Patiala *(317)*	5	3.6	149	6.1	154	6.0
Ambala *(602)*	7	5.0	141	5.8	148	5.7
Panchkula *(601)*	4	2.9	113	4.6	117	4.5
Yamunanagar *(603)*	7	5.0	101	4.1	108	4.2
Saharanpur *(901)*	3	2.1	100	4.1	103	4.0
Kurukshetra *(604)*	4	2.9	79	3.2	83	3.2
Shimla *(211)*	1	0.7	82	3.4	83	3.2
Kangra *(202)*	2	1.4	80	3.3	82	3.2
Mandi *(205)*	1	0.7	62	2.5	63	2.4
Karnal *(606)*	2	1.4	57	2.3	59	2.3
Ludhiana *(309)*	3	2.1	54	2.2	57	2.2
Kaithal *(605)*	3	2.1	53	2.2	56	2.2
Dehradun *(505)*	4	2.9	52	2.1	56	2.2
Muzaffarnagar *(902)*	4	2.9	51	2.1	55	2.1
Solan *(209)*	1	0.7	50	2.1	51	2.0
All Other Districts	29	20.7	808	33.2	837	32.5
Total Cases	**140**	**100.0**	**2437**	**100.0**	**2577**	**100.0**

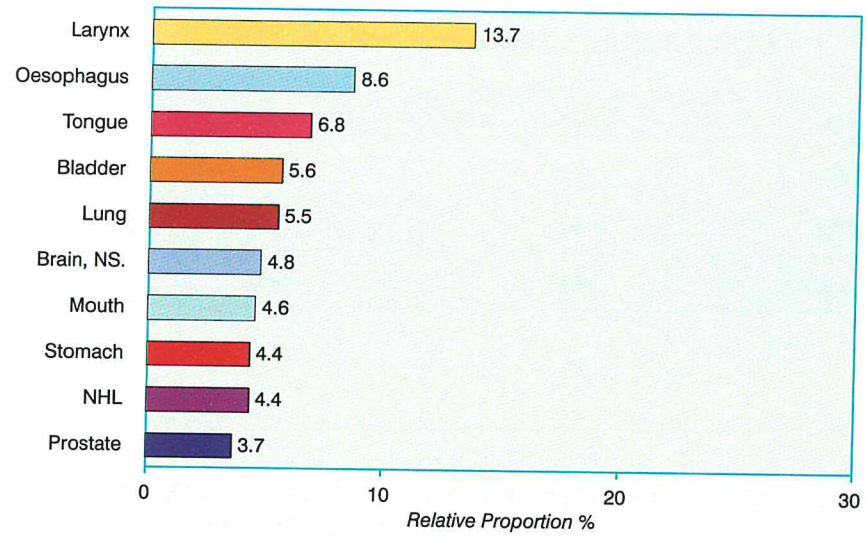
cellent patient care and all specialties are well developed. It receives many extramural grants for research projects om both national and international agencies. Eminent medical educationists have been directors of this prestigious stitute and presently Prof. S. K. Sharma is the Director.

The department of Histopathology not only caters to the out-patients and in-patients of PGIMER, but also ceives referral material from adjoining areas. The surgical pathology load (excluding Gynaecological material) is proximately 16,000 cases per year. There are 500-600 autopsies per year. The department has excellent facilities for munohistochemistry and electron microscopy. It trains, at any one time 15-18 MD students and a few Ph.D students. lso provides short term training to residents and consultants from other colleges and the Armed forces. The department known for its programme of clinico pathologic conference and conducts three Clinico Pathology Conferences in a ek. It is active in research and publishes papers in indexed journals.

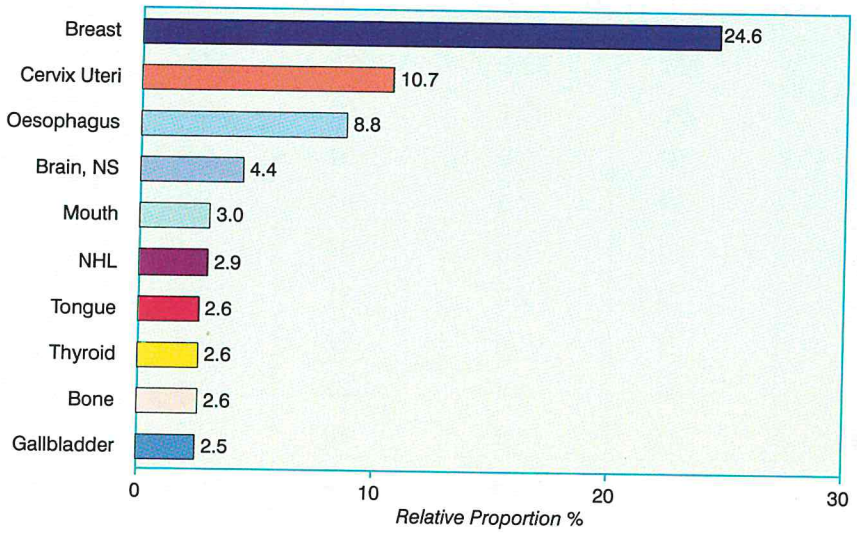
At present the department of Histopathology is headed by Prof. Kusum Joshi. Dr. R. K. Vasishta and Dr. B. D. dotra are Additional Professors. There are nine faculty members each specializing in different fields of Histopathology.

FIGURE 7.30 : Ten Leading Sites of Cancer (2001-2002)

les



ales



7.31. Kasturba Medical College, Mangalore

(Centre Code : 0003)

Dr. C. V. Raghuveer, Dean

Dr. Ramadas Nayak, Prof. & Head, Dept. of Pathology and Principal Investigator

Dr. Muktha R Pai, Addl. Prof. of Pathology and Co-Principal Investigator

The other faculty assisting in the project include Dr. Shankar Narayana, Associate Professor of Pathology, Dr. Poornima Baliga, Additional Professor of Pathology, and Ms. Asha Kamath, Senior Grade Lecturer, Department of Statistics.

TABLE 7.31(a) : Summary of Number of Cancers

Year	Males	Females	Total
2001	606	426	1032
2002	840	672	1512
2001 - 2002	**1446**	**1098**	**2544**

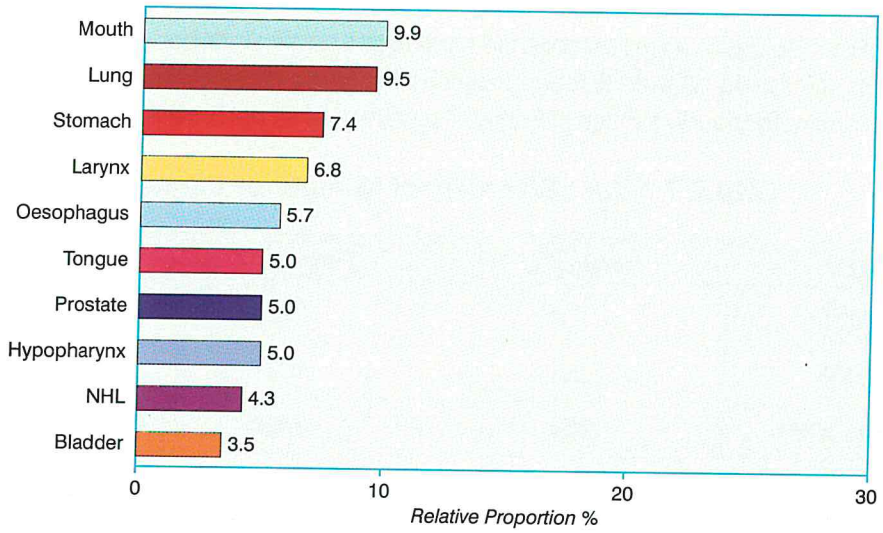
TABLE 7.31(b) : District-wise Distribution of Cancers (2001 - 2002)

Number (#) and Relative Proportion (%)

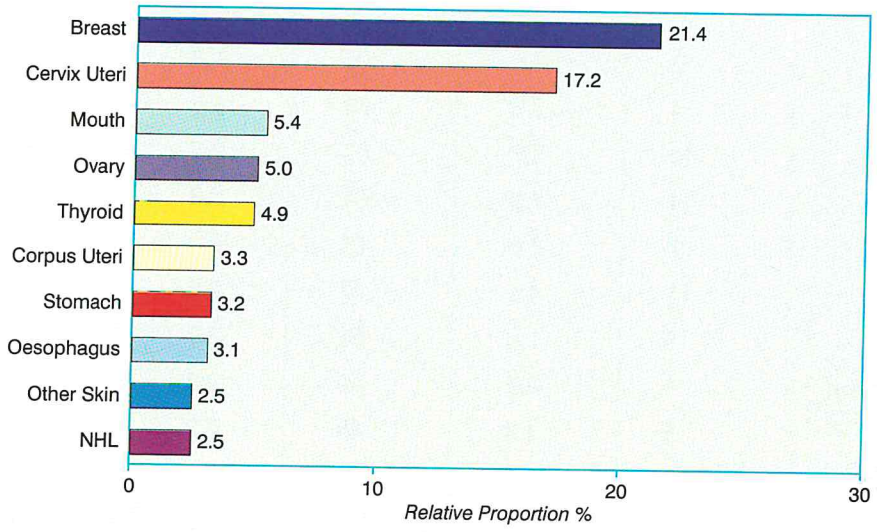
Name of District *(With Code)*	2001		2002		2001 - 2002	
	#	%	#	%	#	%
D. Kannada *(2927)*	537	52.0	874	57.8	1411	55.5
Kasaragod *(3201)*	228	22.1	309	20.4	537	21.1
Kannur *(3202)*	92	8.9	104	6.9	196	7.7
Udupi *(2916)*	77	7.5	94	6.2	171	6.7
Uttara Kannada *(2910)*	31	3.0	37	2.4	68	2.7
Chikmagalur *(2917)*	24	2.3	31	2.1	55	2.2
Kodagu *(2925)*	17	1.6	22	1.5	39	1.5
Hassan *(2923)*	11	1.1	21	1.4	32	1.3
All Other Districts	15	1.5	20	1.3	35	1.4
Total Cases	**1032**	**100.0**	**1512**	**100.0**	**2544**	**100.0**

FIGURE 7.31 : Ten Leading Sites of Cancer (2001 - 2002)

ıles



ıales



7.32. Post Graduate Institute of Medical Education and Research - Cytology, Chandigarh

(Centre Code : 0076)

Dr. S. K. Sharma, Director

Dr. A. Rajwanshi, Prof. and Head, Dept. of Cytology and Principal Investigator

Dr. Radhika Srinivasan, Addl. Prof. of Cytology and Co-Principal Investigator

Dr. S. K. Gupta, Former Principal Investigator

The Department of Cytology is a well established full-fledged and an independent department at the PGIMER, Chandigarh. It provides service to all the clinical specialties including outdoor and indoor hospitals in the Union Territory of Chandigarh and neighbouring states of Punjab, Haryana, Himachal Pradesh and other neighbouring states.

TABLE 7.32(a) : Summary of Number of Cancers

Year	Males	Females	Total
2001	0	269	269
2002	954	1221	2175
2001 - 2002	**954**	**1490**	**2444**

TABLE 7.32(b) : District-wise Distribution of Cancers (2001 - 2002)

Number (#) and Relative Proportion (%)

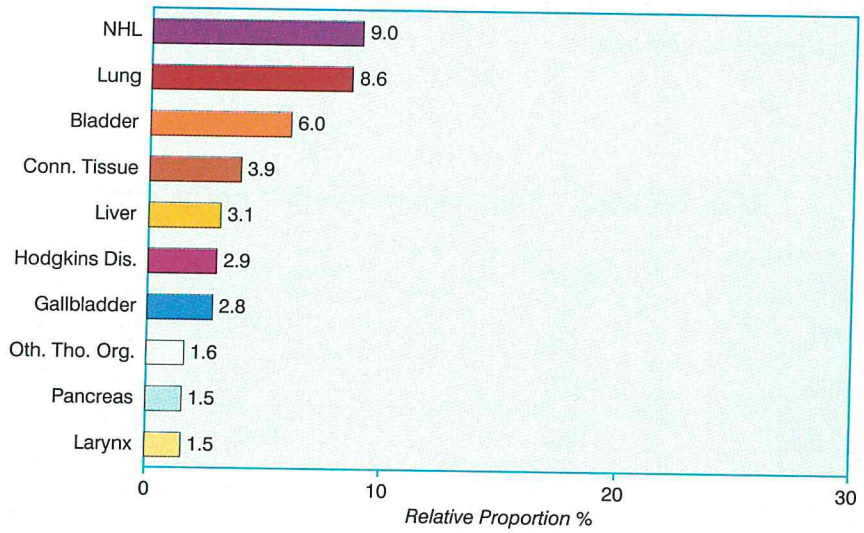
Name of District (With Code)	2001		2002		2001 - 2002	
	#	%	#	%	#	%
Chandigarh *(401)*	54	20.1	389	17.9	443	18.1
Rupnagar *(307)*	27	10.0	192	8.8	219	9.0
Panchkula *(601)*	4	1.5	131	6.0	135	5.5
Ambala *(602)*	19	7.1	111	5.1	130	5.3
Saharanpur *(901)*	10	3.7	109	5.0	119	4.9
Patiala *(317)*	13	4.8	105	4.8	118	4.8
Yamunanagar *(603)*	4	1.5	79	3.6	83	3.4
Dehradun *(505)*	10	3.7	57	2.6	67	2.7
Kurukshetra *(604)*	4	1.5	61	2.8	65	2.7
Kangra *(602)*	7	2.6	53	2.4	60	2.5
Sirmaur *(210)*	11	4.1	47	2.2	58	2.4
Karnal *(606)*	5	1.9	50	2.3	55	2.3
Muzaffarnagar *(902)*	6	2.2	49	2.3	55	2.3
Hoshiarpur *(305)*	5	1.9	48	2.2	53	2.2
All Other Districts	90	33.5	694	31.9	784	32.1
Total Cases	**269**	**100.0**	**2175**	**100.0**	**2444**	**100.0**

ıe department prepares and examines specimens of aspiration cytology, exfoliative cytology (body fluids/urine, GIT, spiratory, CSF, buccal smears for sex chromatin), gynaecologic cytology (cervical smears and hormonal cytology) ıd gynaecologic histopathology.

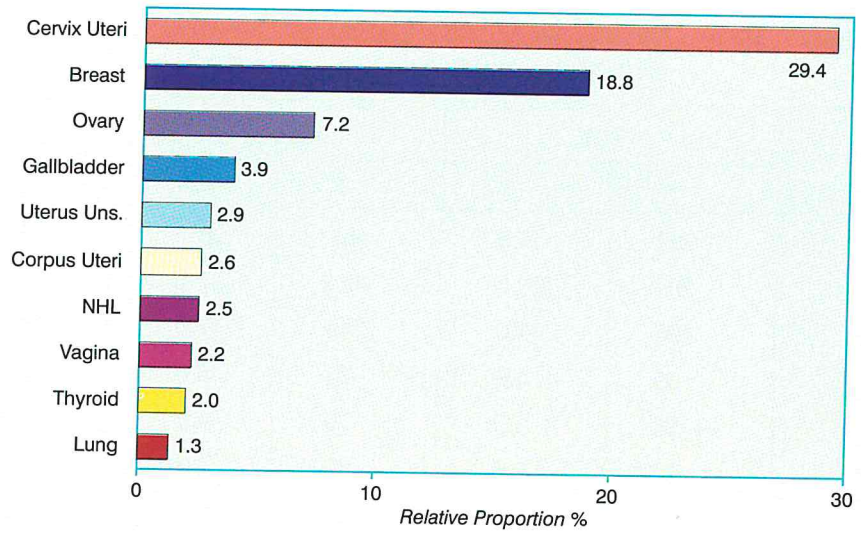
The department provides training to the M.D. residents of pathology, M.Sc. Medical Laboratory Technology and Sc. Medical Laboratory Technology students. The department has a unique feature of starting Post-MD Certificate ɔurse in Cytopathology in the year 1997. The department is actively involved in the research work and has a large mber of research papers to its credit which have been published in national and international journals of repute. The partment was assigned with the project on "Development of an Atlas of Cancer in India" by the National Cancer gistry, Bangalore in the Year 2001-2002 under the supervision of Dr. Subhash Kumari Gupta, the then Head of the partment of the Cytology. Consequent upon superannuation of Dr. Gupta, Prof. A. Rajwanshi has taken over as Head this department w.e.f. 1st January, 2003 and has started looking after this project. Dr. S. Radhika, Addl. Prof. of tology is the Co–Investigator in the project.

FIGURE 7.32 : Ten Leading Sites of Cancer (2002)

les



ales



7.33. Sai Subramanian Pathology Laboratory, Coimbatore

(Centre Code : 0091)

Dr. S. S. Sai Subramaniam, Chief and Consultant Pathologist and Principal Investigator

The Laboratory deals with histopathology, cytology and microscopic diagnosis of haematological problems. It is a sole proprietress concern owned by Mrs. B. Lalitha Sai Subramaniam. Dr. S.S.Subramaniam is the sole Consultant Pathologist of the Laboratory. It was established on 1st July 1982.

Around 10,000 biopsies and around 1200 cytological smears are done per year.

The Pathologist: Dr. S.S. Sai Subramanian (MBBS of University of Kerala), MD (Pathology) of Madurai University, retired voluntarily as Professor of Pathology and Vice Principal, Coimbatore Medical College in 1982.

The entire technical and administrative aspect of the Laboratory is managed by Mrs. B. Lalitha Sai Subramaniam (B.Sc. in Zoology). The Pathologist has trained her well in laboratory technology. Miss N.N.Vijie who is the Manager of the Laboratory does the compilation of Data.

TABLE 7.33(a) : Summary of Number of Cancers

Year	Males	Females	Total
2001	434	500	934
2002	673	789	1462
2001 - 2002	**1107**	**1289**	**2396**

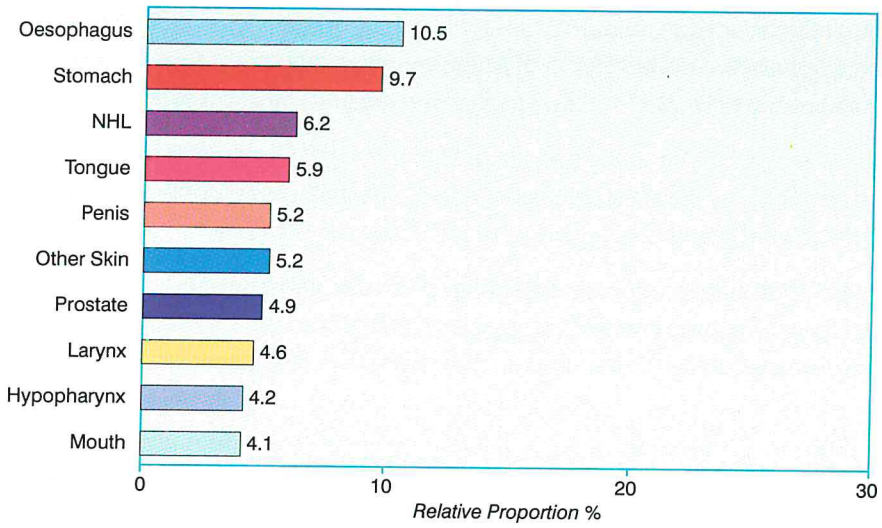
TABLE 7.33(b) : District-wise Distribution of Cancers (2001 - 2002)

Number (#) and Relative Proportion (%)

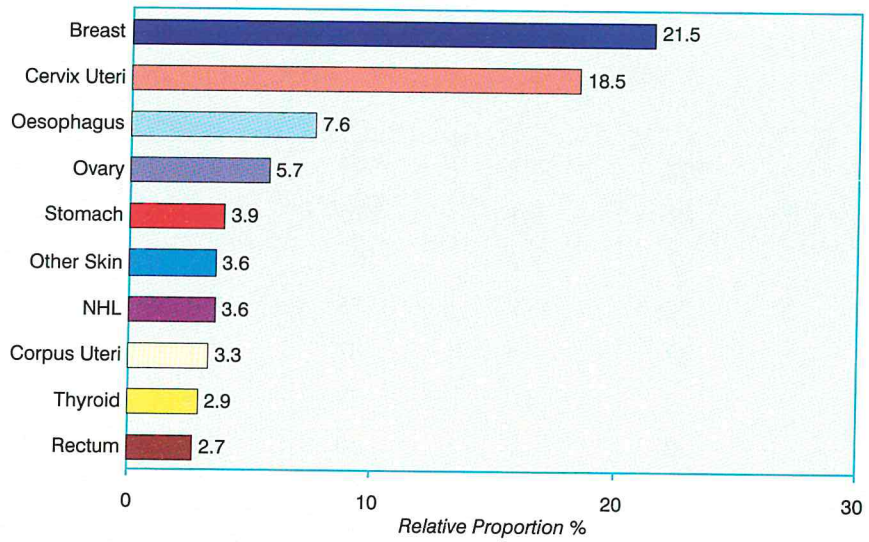
Name of District (With Code)	2001		2002		2001 - 2002	
	#	%	#	%	#	%
Erode *(3310)*	358	38.3	557	38.1	915	38.2
Coimbatore *(3312)*	264	28.3	454	31.1	718	30.0
Salem *(3308)*	196	21.0	249	17.0	445	18.6
Namakkal *(3309)*	45	4.8	73	5.0	118	4.9
The Nilgiris *(3311)*	36	3.9	70	4.8	106	4.4
All Other Districts	24	2.6	40	2.7	64	2.7
Total Cases	**934**	**100.0**	**1462**	**100.0**	**2396**	**100.0**

FIGURE 7.33 : Ten Leading Sites of Cancer (2001 - 2002)

les



ales



7.34. Jawaharlal Nehru Medical College, Aligarh

(Centre Code : 0107)

Dr. Mehar Aziz, Chairperson of Department of Pathology
Dr. Syed Shamshad Ahmad, Prof. of Pathology and Principal Investigator
Dr. Mahboob Hassan, Lecturer and Co-Principal Investigator
Dr. Nishat Afraz and **Dr. Kafil Akhtar,** Co-Investigators

Jawaharlal Nehru Medical College, Aligarh Muslim University, Aligarh was declared open on 2nd October, 1962 by Professor Hadi Hasan. Initially the departments of Anatomy, Physiology and Social and Preventive Medicine were established under the leadership of Dr. S.M.H. Naqvi, who was the first Principal of the medical college.

The departments of Biochemistry, Pharmacology, Bacteriology, Forensic Medicine, Paediatrics, Obstetrics & Gynaecology, Medicine and Surgery were established in 1964. The institute of Ophthalmology provided instructions in Ophthalmology. The college was granted recognition of MBBS degree in 1969.

The first batch of postgraduate students was admitted in 1971 and postgraduate degree in Medicine, Surgery, Pathology, Paediatrics, Ophthalmology and Radiology were recognised by the Medical Council of India in 1979. The clinical and research facilities are constantly increasing. Bed strength in the hospital is 1,100 at present. The Department

TABLE 7.34(a) : Summary of Number of Cancers

Year	Males	Females	Total
2001	646	455	1101
2002	719	524	1243
2001 - 2002	**1365**	**979**	**2344**

TABLE 7.34(b) : District-wise Distribution of Cancers (2001 - 2002)

Number (#) and Relative Proportion (%)

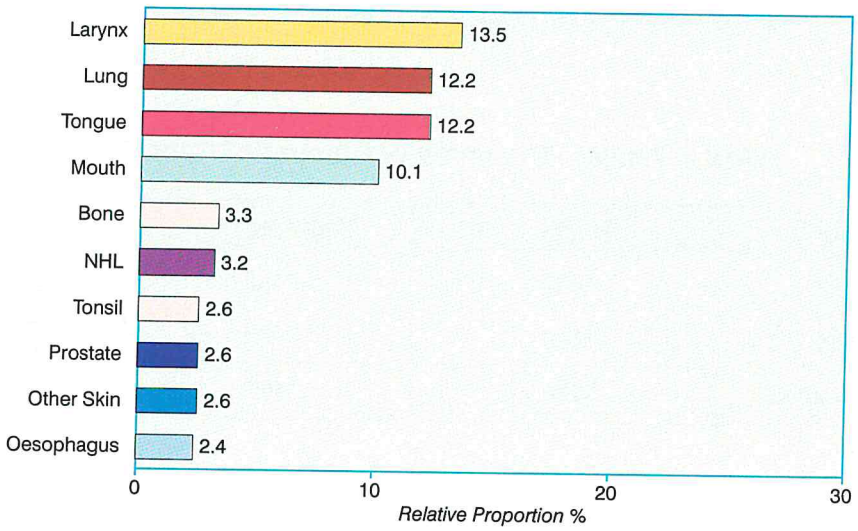
Name of District (With Code)	2001		2002		2001 - 2002	
	#	%	#	%	#	%
Aligarh *(912)*	553	50.2	644	51.8	1197	51.1
Budaun *(919)*	89	8.1	115	9.3	204	8.7
Bulandshahr *(911)*	87	7.9	87	7.0	174	7.4
Moradabad *(904)*	76	6.9	75	6.0	151	6.4
Hathras *(913)*	48	4.4	67	5.4	115	4.9
Etah *(917)*	44	4.0	57	4.6	101	4.3
Rampur *(905)*	33	3.0	48	3.9	81	3.5
All Other Districts	171	15.5	150	12.1	321	13.7
Total Cases	**1101**	**100.0**	**1243**	**100.0**	**2344**	**100.0**

Medicine is providing research facilities in the field of Cardiology, Endocrinology and Nephrology. In order to carry ther research programmes in the field of Biology, an institute of Biotechnology has been established. M.Ch. in Plastic rgery has also been started. Department of Radiotherapy was created in 1993, with a cobalt teletherapy machine d a computerised treatment planning system commissioned in 1997. The Department of Pathology has separate visions like Histopathology, Cytopathology, Clinical Pathology, Chemical Pathology and Advanced Haematology, h an annual influx of following number of cases in the respective divisions: Histopathology - 3,500 cases, Cytopathology ,500 cases, Haematopathology - 8,000 cases.

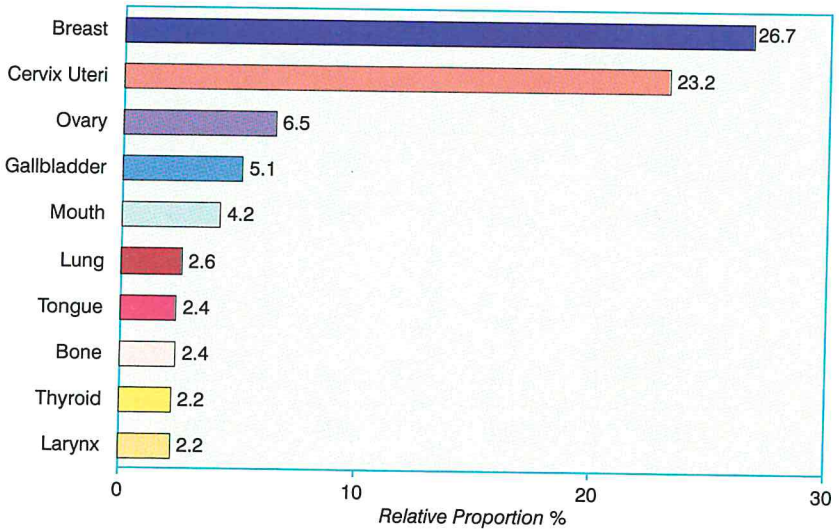
The Medical College has come a long way from its modest beginning in 1962.

FIGURE 7.34 : Ten Leading Sites of Cancer (2001 - 2002)

es



ales



7.35. Government Medical College, Thrissur

(Centre Code : 0053)

Dr. Bhagavathy Ammai, Principal

Dr. C. S. Sakunthala Bhai, Assoc. Prof. of Pathology and Principal Investigator

Dr. P. H. Prasad, Asst. Prof. of Pathology and Co-Principal Investigator

Dr. S. P. Sudha, Former Principal Investigator

Situated at the middle of Kerala, Thrissur is known as the cultural capital of Kerala. Government Medical College, Thrissur is located at Mulankunnathukavu, 13 km away from Thrissur town in an eco-friendly campus of 215 acres of land.

Each year 100 students are admitted for M.B.B.S course. Post graduate course in Radiodiagnosis is available. Several paramedical courses are also conducted. Hospital strength is 1000 beds.

TABLE 7.35(a) : Summary of Number of Cancers

Year	Males	Females	Total
2001	662	490	1152
2002	626	443	1069
2001 - 2002	**1288**	**933**	**2221**

TABLE 7.35(b) :District-wise Distribution of Cancers (2001 - 2002)

Number (#) and Relative Proportion (%)

Name of District (With Code)	2001		2002		2001 - 2002	
	#	%	#	%	#	%
Thrissur *(3207)*	764	66.3	699	65.4	1463	65.9
Palakkad *(3206)*	295	25.6	288	26.9	583	26.2
Ernakulam *(3208)*	42	3.6	47	4.4	89	4.0
Malappuram *(3205)*	35	3.0	30	2.8	65	2.9
All Other Districts	16	1.4	5	0.5	21	0.9
Total Cases	**1152**	**100.0**	**1069**	**100.0**	**2221**	**100.0**

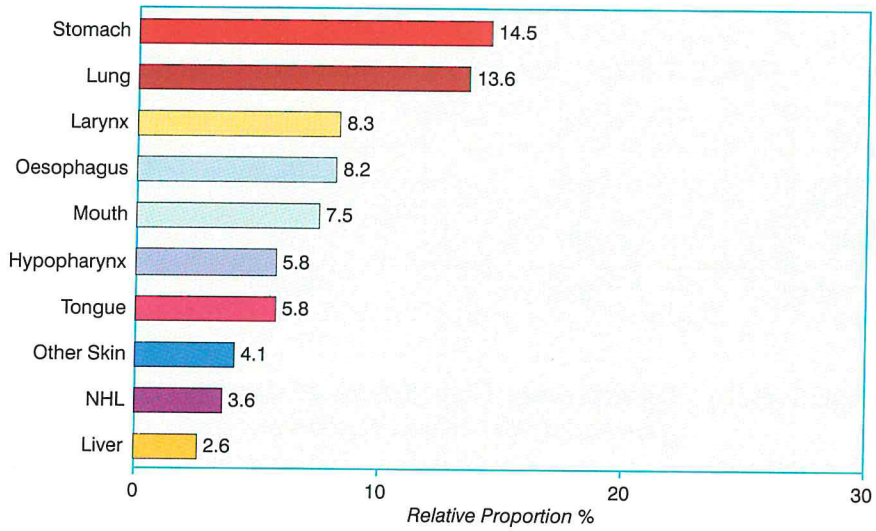
Department of Pathology has Histopathology, Cytology & Clinical Pathology subdivisions. Yearly around 7000 stopathology, 5000 cytology, and 3000 haematology specimens are received in the department.

Sixteen medical staff and sixteen non-medical staff are employed in the department.

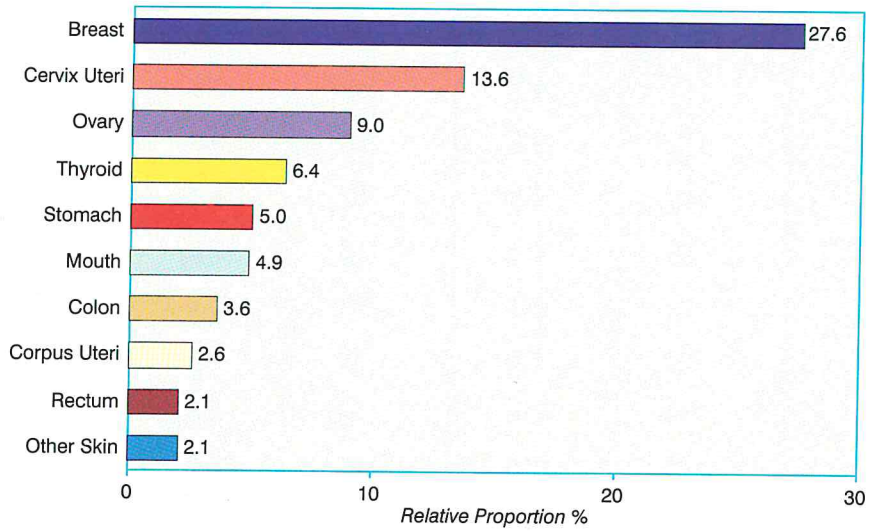
Collaboration under the project was started in the department of Pathology in the year 2001 with the initiative of S.P. Sudha the then Professor and Head of Department of Pathology.

FIGURE 7.35 : Ten Leading Sites of Cancer (2001 - 2002)

les



ales



7.36. MNJ Institute of Oncology and Regional Cancer Centre, Hyderabad

(Centre Code : 0057)

Dr. B.N. Rao, Director and Principal Investigator

Dr. V. Anjaneyulu, Prof. of Pathology and Co-Principal Investigator

Dr. Ch. V. Ramana Murthy, Former Principal Investigator

MNJ Institute of Oncology was established in 1955 and inaugurated by late Pandit Jawaharlal Nehru, the Honorable first Prime Minister of India. It is the sole referral hospital of this region of the country offering free comprehensive cancer care to the poor patients. It is also serving a number of cancer patients coming from surrounding districts of the states of Maharashtra, Madhya Pradesh, Karnataka and Orissa.

The MNJ Institute of Oncology has been given the status of Regional Cancer Centre in the year 1996 by the Govt. of India and subsequently made as an autonomous Institute of Govt. of Andhra Pradesh (A.P.). Presently the Institute is a 250 bedded teaching hospital attached to the N.T. Rama Rao University of Health Sciences, A. P. The workload of the Institute is about 7500 to 8000 new cancer cases and about 25000-30000 follow-up cases per year.

TABLE 7.36(a) : Summary of Number of Cancers

Year	Males	Females	Total
2001	267	910	1177
2002	107	889	996
2001 - 2002	**374**	**1799**	**2173**

TABLE 7.36(b) : District-wise Distribution of Cancers (2001 - 2002)

Number (#) and Relative Proportion (%)

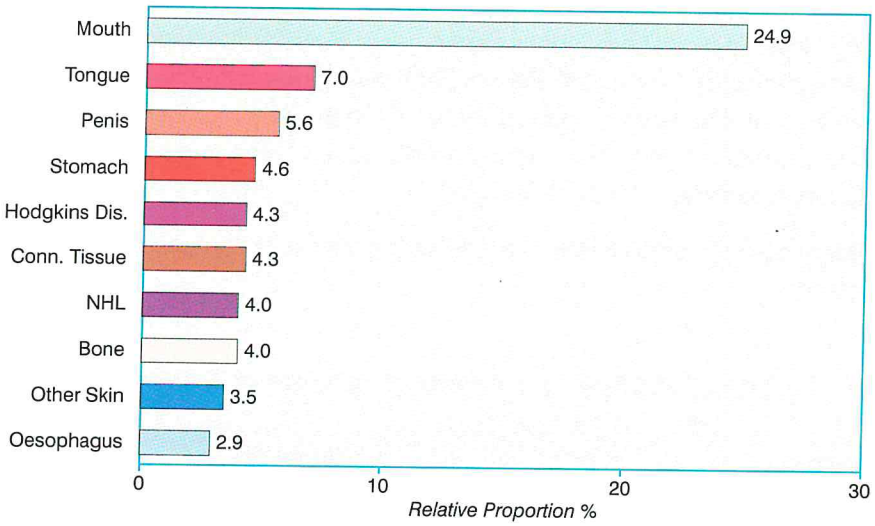
Name of District *(With Code)*	2001		2002		2001 - 2002	
	#	%	#	%	#	%
Hyderabad *(2805)*	218	18.5	149	15.0	367	16.9
Nalgonda *(2808)*	146	12.4	145	14.6	291	13.4
Mehbubnagar *(2807)*	138	11.7	121	12.1	259	11.9
Medak *(2804)*	114	9.7	128	12.9	242	11.1
Rangareddi (2806)	117	9.9	88	8.8	205	9.4
Warangal *(2809)*	110	9.3	57	5.7	167	7.7
Nizamabad *(2809)*	73	6.2	78	7.8	151	6.9
Khammam *(2810)*	72	6.1	67	6.7	139	6.4
Krishna *(2816)*	29	2.5	19	1.9	48	2.2
Adilabad *(2801)*	19	1.6	24	2.4	43	2.0
All Other Districts	141	12.0	120	12.0	261	12.0
Total Cases	**1177**	**100.0**	**996**	**100.0**	**2173**	**100.0**

This Institute is having a highly qualified and experienced team of specialists who are working in various departments th a motto of "Compassion with Care". It is the only Institute in A.P, which imparts training to the postgraduate udents in Radiation Oncology and awards M.D degrees. It is also recognized as a Centre of Excellence for imparting aining to DNB candidates in Radiation Oncology. It is also planned to start M.Ch Surgical Oncology, D.M Medical ncology, M.D Nuclear Medicine and Radiotherapy technician courses very shortly. This year several new departments Dept. of Pain and Palliative Care, Dept. of Preventive Oncology and Community based Cancer Screening Clinic have en started.

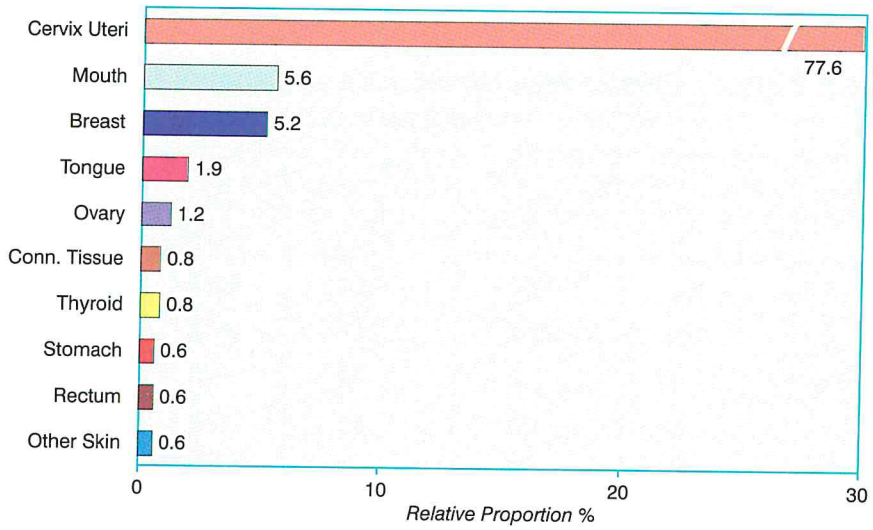
Presently the Institute is having the following units with all required infrastructure in order to discharge their rvices to cancer patients: Radiotherapy, Surgical Oncology, Medical Oncology, Plastic & Reconstruction Surgery, ntal Surgery, Diagnostic Radiology, Nuclear Medicine, Pathology, Bio-chemistry and Anaesthesia.

FIGURE 7.36 : Ten Leading Sites of Cancer (2001 - 2002)

les



ales



7.37. Goa Medical College, Goa

(Centre Code : 0100)

Dr. V. G. Dhume, Dean

Dr. R.G.W. Pinto, Prof. & Head, Dept of Pathology & Principal Investigator

Dr. M. V. Mallya, Assoc. Prof. of Pathology and Co-Principal Investigator

Dr. F. Couto, Assoc. Prof. of Pathology and Co-Investigator

Dr. (Mrs.) N. S. Nadkarni, Former Principal Investigator

Goa Medical College is the only tertiary care Hospital and Premier Institute in Goa. It conducts undergraduate and post-graduate courses besides the hospital work of catering to the patient.

The Department of Pathology receives the specimens operated by different departments of Goa Medical college, namely Medicine, Surgery, Paediatrics, E.N.T., T.B and Chest Diseases, Obstetrics and Gynaecology, as well as Haematology and Cytology investigations from various departments. Besides, the department of Pathology also receives above pathological investigations from other private hospitals and laboratories from Goa. Cancer cases which are diagnosed in private are also sent for review and further treatment to Goa Medical College. Thus on the whole the Department of Pathology receives samples from almost whole state of Goa and the statistics give a representative picture of incidences, nature and pattern of cancer in Goa.

The Department also receives samples from the town of (neighbouring states) Sawantwadi, Karwar and Londa of Maharashtra and Karnataka.

TABLE 7.37(a) : Summary of Number of Cancers

Year	Males	Females	Total
2001	426	447	873
2002	478	501	979
2001 - 2002	**904**	**948**	**1852**

TABLE 7.37(b) : District-wise Distribution of Cancers (2001 - 2002)

Number (#) and Relative Proportion (%)

Name of District *(With Code)*	2001		2002		2001 - 2002	
	#	%	#	%	#	%
North Goa *(3001)*	461	52.8	614	62.7	1075	58.0
South Goa *(3002)*	379	43.4	311	31.8	690	37.3
Uttara Kannada *(2910)*	7	0.8	32	3.3	39	2.1
Sindhudurg *(2733)*	9	1.0	15	1.5	24	1.3
All Other Districts	17	1.9	7	0.7	24	1.3
Total Cases	**873**	**100.0**	**979**	**100.0**	**1852**	**100.0**

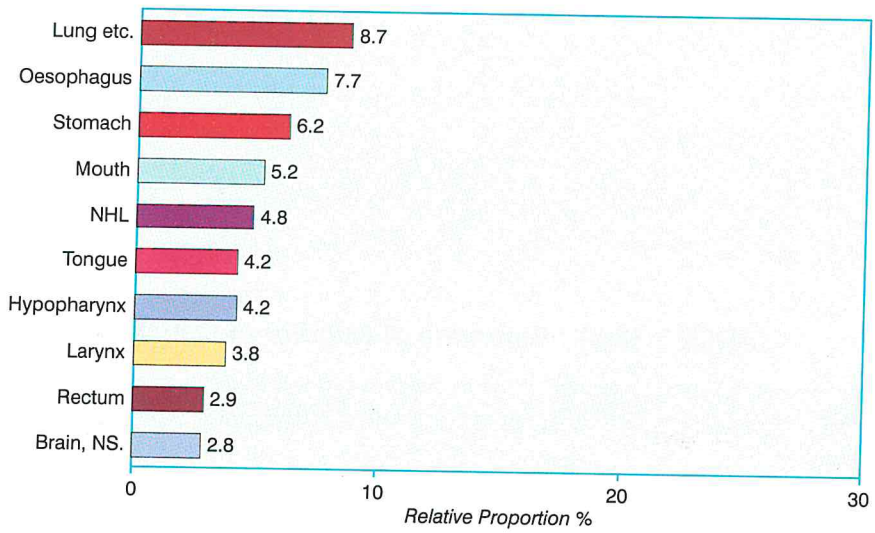
On an average the department receives in a year 12,000 haematological, 9,000 histopathological and 6,000 rtological investigations.

The department staff comprises one Professor and Head, four Associate Professors, one Assistant Professor, ree Lecturers and seven Assistant Lecturers.

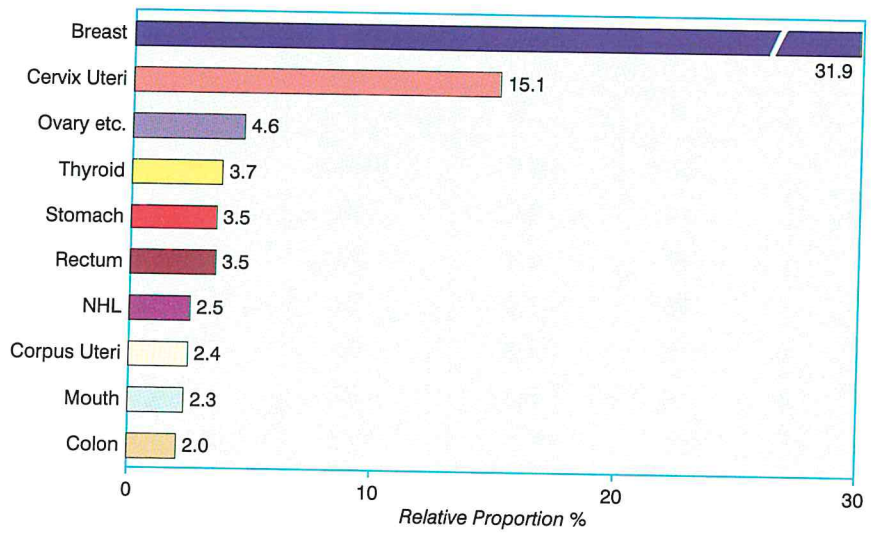
Dr. V. G. Dhume is the Head of the Institution, and Dr. N.S. Nadkarni was the Head of the Department as well as e Principal Investigator. Dr. Dominic Lobo and Dr. Sangeeta Amonkar are the Junior Faculty.

FIGURE 7.37 : Ten Leading Sites of Cancer (2001 - 2002)

ıles



ales



7.38. SMS Medical College, Jaipur

(Centre Code : 0023)

Dr. S. R. Dharkar, Principal

Dr. Haresh Saxena, Prof. and Head of Pathology and Principal Investigator

Dr. (Mrs.) Rachna Narain, Asst. Prof and Co-Principal Investigator

Dr. (Mrs.) Sunita Bundas, Co-Investigator

Dr. (Mrs.) Chandralekha Pande, Former Principal Investigator

TABLE 7.38(a) : Summary of Number of Cancers

Year	Males	Females	Total
2001	193	108	301
2002	899	521	1420
2001 - 2002	**1092**	**629**	**1721**

TABLE 7.38(b) : District-wise Distribution of Cancers (2001 - 2002)

Number (#) and Relative Proportion (%)

Name of District (With Code)	2001		2002		2001 - 2002	
	#	%	#	%	#	%
Jaipur *(812)*	86	28.6	1093	77.0	1179	68.5
Alwar *(806)*	24	8.0	52	3.7	76	4.4
Sikar *(813)*	27	9.0	33	2.3	60	3.5
Dausa *(811)*	23	7.6	22	1.5	45	2.6
Bharatpur *(807)*	13	4.3	26	1.8	39	2.3
Jhunjhunun *(805)*	16	5.3	22	1.5	38	2.2
All Other Districts	101	37.2	172	12.1	284	16.5
Total Cases	**301**	**100.0**	**1420**	**100.0**	**1721**	**100.0**

The other staff of the Dept. of Pathology include :

Professors: Dr. Narayani Joshi. Dr. Abha Choudhary

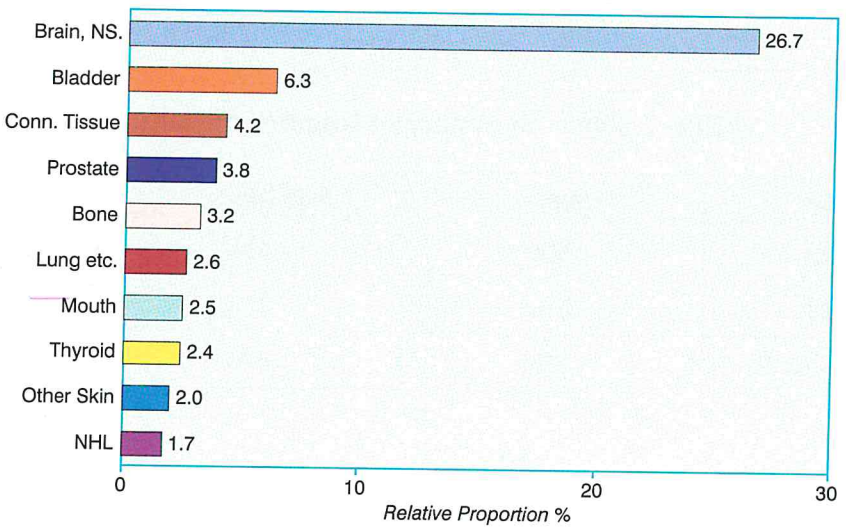
Associate Professors: Dr. Shashi Singhvi, Dr. M. L. Yadav, Dr. Veena Saxena

Assistant Professors: Dr. U.B. Sharma, Dr. Kalpana Sankhla, Dr. BRN Srivastava, Dr. Sushma Sharma, Dr. Suman Khatri, Dr. Kusum Mathur, Dr. Rachna Narain, Dr. Sandhya Gulati, Dr. Amit Sharma, Dr. Manju Mehra, Dr. Karuna Gupta, Dr. Sangeet Sehgal, Dr. Sunita Bundas,

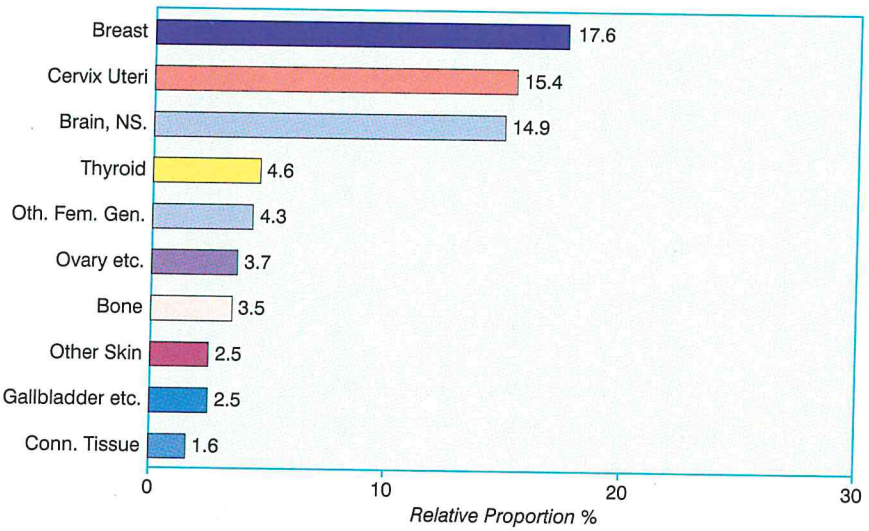
Sr. Demonstrators : Dr. Jayanthi Mehta, Dr. Arpita Jandil, Dr. Dilip Ramrakhiyani, Dr. Komal Kalla, Dr. Deepika Mishra, Dr. Anita Harsh, Dr. Sapna Gandhi, Dr. Deepika Hemarajani, Dr. Ranjana Solanki, Dr. Preeti Saini, Dr. Vandana Pathak, Dr. Ekta.

FIGURE 7.38 : Ten Leading Sites of Cancer (2001 - 2002)

ıles



ıales



7.39. Regional Institute of Medical Sciences, Imphal

(Centre Code : 0048)

Dr. Y. Mohen Singh, Prof. and Head, Dept. of Pathology and Principal Investigator

Dr. Th. Tomcha Singh, Prof. and Head, Dept. of Radiotherapy and Co-Principal Investigator

Dr. Kaushik Debnath, Asst. Professor, Dept of Pathology and Faculty In-charge

Dr. (Mrs.) Soibam Subadani Devi, Former Principal Investigator

Regional Institute of Medical Sciences is the only medical college in Manipur. It caters the need of health care system primarliy of the people of Manipur and referral cases of other North East (NE) States. In addition to its undergraduate teaching facilities, it also imparts training to the Post Graduate students belonging to the other NE States, viz, Manipur, Tripura, Arunachal Pradesh, Meghalaya, Mizoram, Nagaland and Sikkim. The institute has joined the project for the development of an atlas of cancer in India since 2001 and successfully completed the data collection up to 2002.

TABLE 7.39(a) : Summary of Number of Cancers

Year	Males	Females	Total
2001	454	478	932
2002	316	371	687
2001 - 2002	**770**	**849**	**1619**

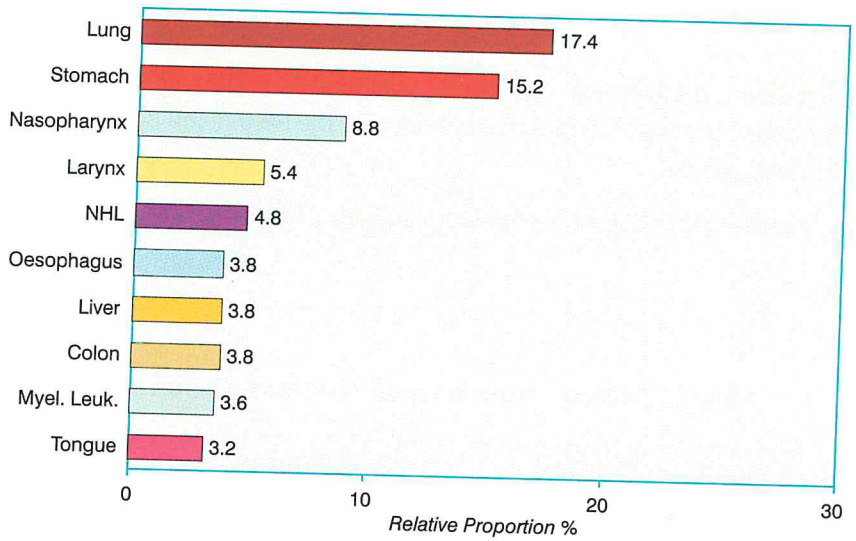
TABLE 7.39(b) : District-wise Distribution of Cancers (2001 - 2002)

Number (#) and Relative Proportion (%)

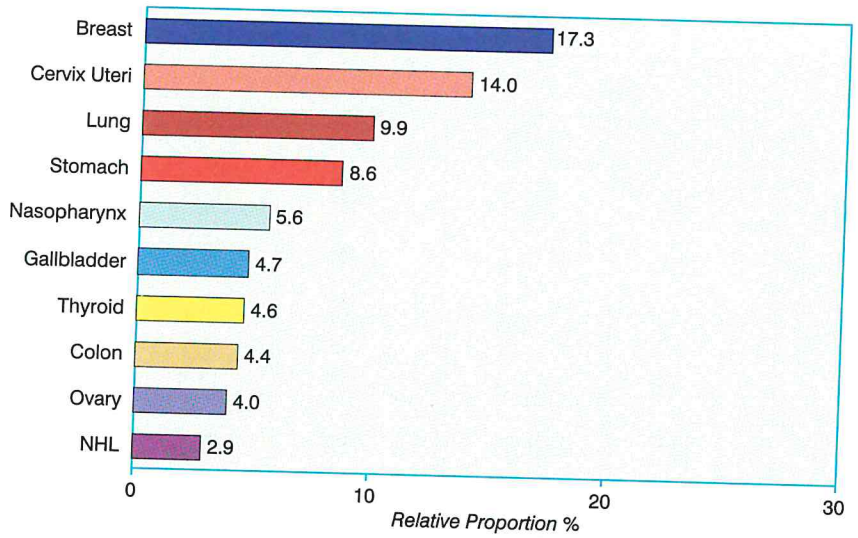
Name of District *(With Code)*	2001		2002		2001 - 2002	
	#	%	#	%	#	%
Imphal West *(1407)*	256	27.5	205	29.8	461	28.5
Thoubal *(1405)*	152	16.3	133	19.4	285	17.6
Imphal East *(1406)*	172	18.5	91	13.2	263	16.2
Churachandpur *(1403)*	107	11.5	56	8.2	163	10.1
Bishnupur *(1404)*	88	9.4	74	10.8	162	10.0
Senapati *(1401)*	64	6.9	48	7.0	112	6.9
Ukhrul *(1408)*	54	5.8	39	5.7	93	5.7
Chandel *(1409)*	15	1.6	28	4.1	43	2.7
Tamenglong *(1402)*	21	2.3	13	1.9	34	2.1
All Other Districts	3	0.3	0	0.0	3	0.2
Total Cases	**932**	**100.0**	**687**	**100.0**	**1619**	**100.0**

FIGURE 7.39 : Ten Leading Sites of Cancer (2001 - 2002)

ales



ales



7.40. Rangaraya Medical College, Kakinada

(Centre Code : 0005)

Dr. A. V. Krishnam Raju, Prof. and Head, Dept. of Pathology
Dr. R. Vijaya Bhaskar, Asst. Prof. of Pathology and Co-Investigator
Dr. R. Rajyalakshmi, Asst. Prof. of Pathology and Co-Investigator

The project on Development of an Atlas of Cancer was started in January 2001 with the collection of data particulars of patients diagnosed with various types of cancer with the help of the non-medical staff and the efforts of Medical Officers involved in the project.

The computer was installed in the department and the collated data entered and transmitted through the Internet.

TABLE 7.40(a) : Summary of Number of Cancers

Year	Males	Females	Total
2001	324	503	827
2002	251	472	723
2001 - 2002	**575**	**975**	**1550**

TABLE 7.40(b) : District-wise Distribution of Cancers (2001 - 2002)

Number (#) and Relative Proportion (%)

Name of District *(With Code)*	2001		2002		2001 - 2002	
	#	%	#	%	#	%
East Godavari *(2814)*	748	90.4	632	87.4	1380	89.0
West Godavari *(2815)*	61	7.4	64	8.9	125	8.1
Visakhapatnam *(2813)*	7	0.8	17	2.4	24	1.5
All Other Districts	11	1.3	10	1.4	21	1.4
Total Cases	**827**	**100.0**	**723**	**100.0**	**1550**	**100.0**

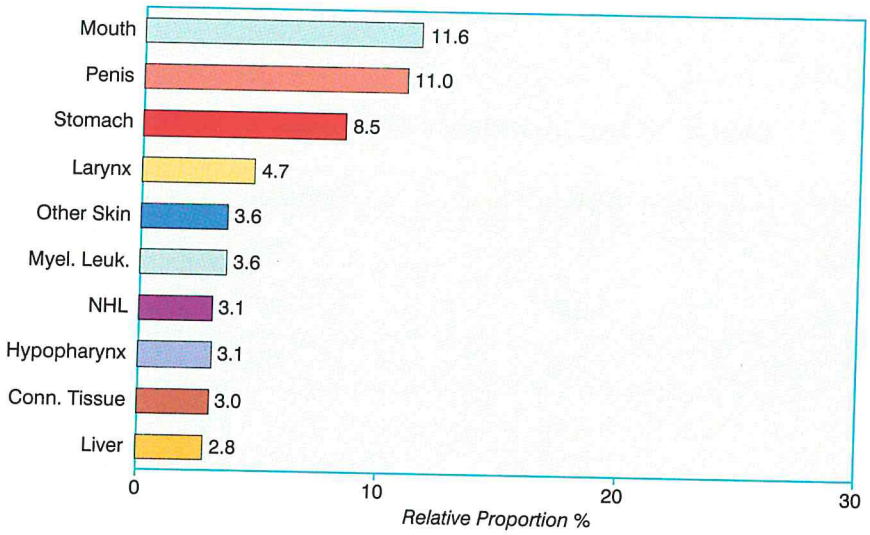
Dr. R Vijaya Bhaskar participated in the Southern Regional Workshop in May, 2001 and presented the data collected up to that period.

Dr. A.V. Krishnam Raju and Dr. R. Rajyalakshmi participated in the All India Workshop held in August 2002 and presented the data of 2001. Carcinoma of penis has dominated the type of cancer in males and carcinoma of cervix has dominated in females.

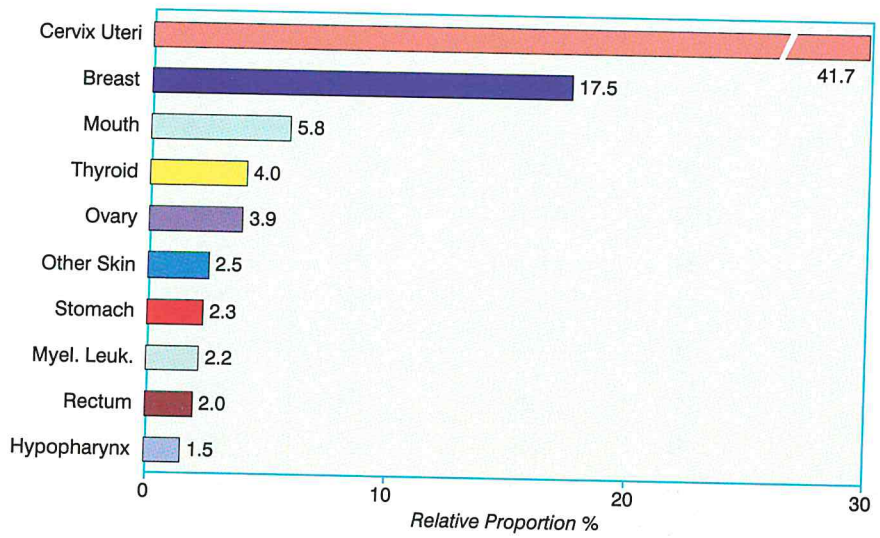
The registry is continued in the department with the collection and transmission of the data of 2003-04.

FIGURE 7.40 : Ten Leading Sites of Cancer (2001 - 2002)

lales



nales



7.41. JLN Medical College, Ajmer

(Centre Code : 0064)

Dr. A. K. Singhal, Principal

Dr. Rajendra Lal Solanki, Prof. and Head, Dept of Pathology and Principal Investigator

Dr. (Mrs.) Paras Nuwal, Assoc. Prof. of Pathology and Co-Prinicipal Investigator

Dr. (Mrs.) Vandana Porwal, Senior Demonstrator

Dr. (Mrs.) Sudha Patani, Faculty In-Charge

Ajmer is located in south east part of Rajasthan surrounded by Aravali Hills. The approximate population of Ajmer city is about 4,80,000 and the population of Ajmer districts is 17,00,000. The number of cases per year were as follows: In Histopathology 8384 (2001), 9091 (2002); in Haematology, 3470 (2001), 4172 (2002); in Cytology 3006 (2001), 3453 (2002).

TABLE 7.41(a) : Summary of Number of Cancers

Year	Males	Females	Total
2001	391	349	740
2002	397	376	773
2001 - 2002	**788**	**725**	**1513**

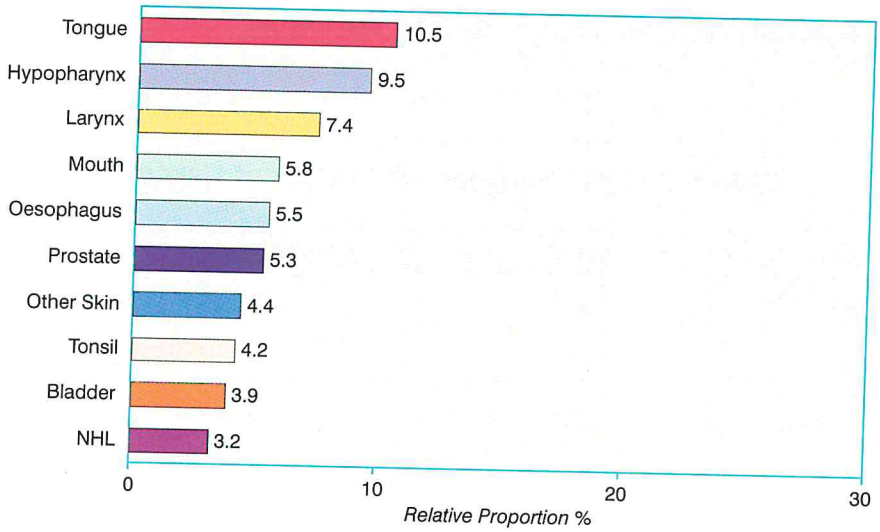
TABLE 7.41(b) : District-wise Distribution of Cancers (2001 - 2002)

Number (#) and Relative Proportion (%)

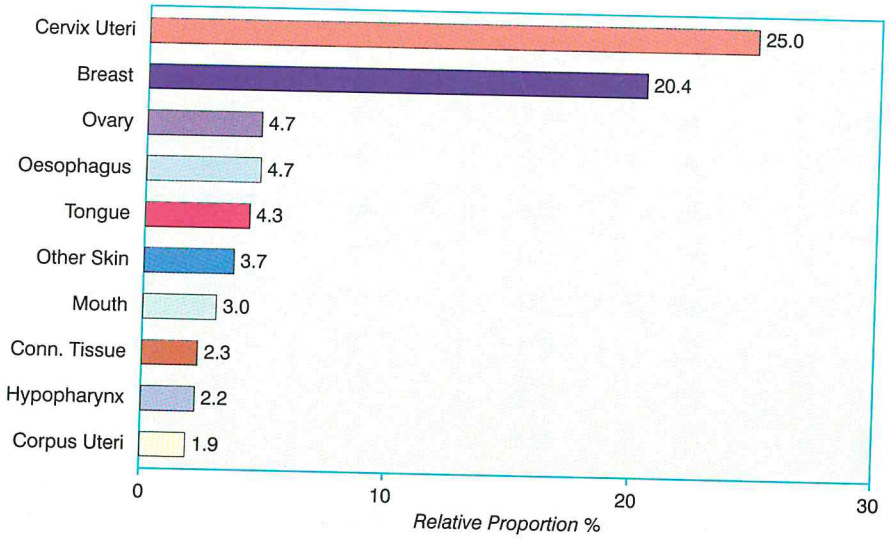
Name of District (With Code)	2001		2002		2001 - 2002	
	#	%	#	%	#	%
Ajmer *(821)*	540	73.0	573	74.1	1113	73.6
Nagaur *(814)*	109	14.7	108	14.0	217	14.3
Bhilwara *(824)*	42	5.7	54	7.0	96	6.3
Pali *(820)*	13	1.8	13	1.7	26	1.7
Rajsamand *(825)*	8	1.1	10	1.3	18	1.2
Tonk *(822)*	10	1.4	6	0.8	16	1.1
Jaipur *(812)*	9	1.2	7	0.9	16	1.1
All Other Districts	9	1.2	2	0.3	11	0.7
Total Cases	**740**	**100.0**	**773**	**100.0**	**1513**	**100.0**

FIGURE 7.41 : Ten Leading Sites of Cancer (2001 - 2002)

lales



ıales



7.42. Apollo Hospitals, Hyderabad

(Centre Code : 0043)

Dr. G. Swarnalata, Chief Pathologist and Principal Investigator

Dr. Meenakshi Swain, Consultant Pathologist and Co-Principal Investigator

The Apollo Cancer Hospitals is a unit of the Apollo Group of Hospitals and is in the main campus at Jubilee Hills. The hospital has full-fledged departments of surgical, radiation, medical and head and neck oncology.

TABLE 7.42(a) : Summary of Number of Cancers

Year	Males	Females	Total
2001	504	449	953
2002	254	271	525
2001 - 2002	**758**	**720**	**1478**

TABLE 7.42(b) : District-wise Distribution of Cancers (2001 - 2002)

Number (#) and Relative Proportion (%)

Name of District *(With Code)*	2001		2002		2001 - 2002	
	#	%	#	%	#	%
Hyderabad *(2805)*	326	34.2	253	48.2	579	39.2
Rangareddi *(2806)*	106	11.1	12	2.3	118	8.0
Guntur *(2817)*	46	4.8	20	3.8	66	4.5
Khammam *(2810)*	49	5.1	15	2.9	64	4.3
West Godavari *(2815)*	30	3.1	24	4.6	54	3.7
East Godavari *(2814)*	39	4.1	13	2.5	52	3.5
Karimnagar *(2803)*	36	3.8	13	2.5	49	3.3
Warangal *(2809)*	28	2.9	20	3.8	48	3.2
Prakasam *(2818)*	24	2.5	13	2.5	37	2.5
Krishna *(2816)*	16	1.7	17	3.2	33	2.2
Cuddapah *(2820)*	20	2.1	12	2.3	32	2.2
Nizamabad *(2802)*	21	2.2	11	2.1	32	2.2
Nanded *(2715)*	24	2.5	7	1.3	31	2.1
All Other Districts	188	19.7	95	18.1	283	19.1
Total Cases	**953**	**100.0**	**525**	**100.0**	**1478**	**100.0**

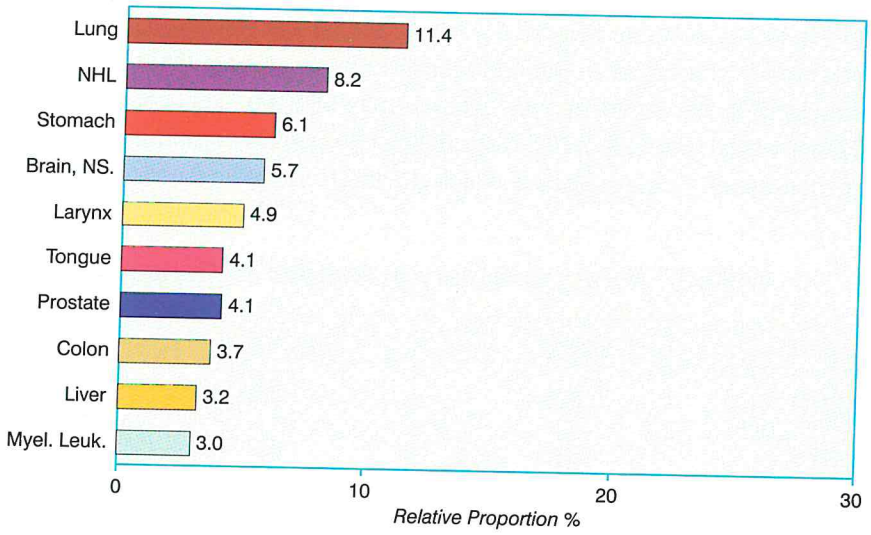
The Department of Anatomical Pathology and Cytology has been a part of the Cancer Atlas Project since its inception in 2001.

The department handles a load of about 10,000 surgical specimens and 5000 cytology specimens, with the cancer load forming about 10% of the workload. The facilities available include frozen section, immunohistochemistry and immunofluorescence testing.

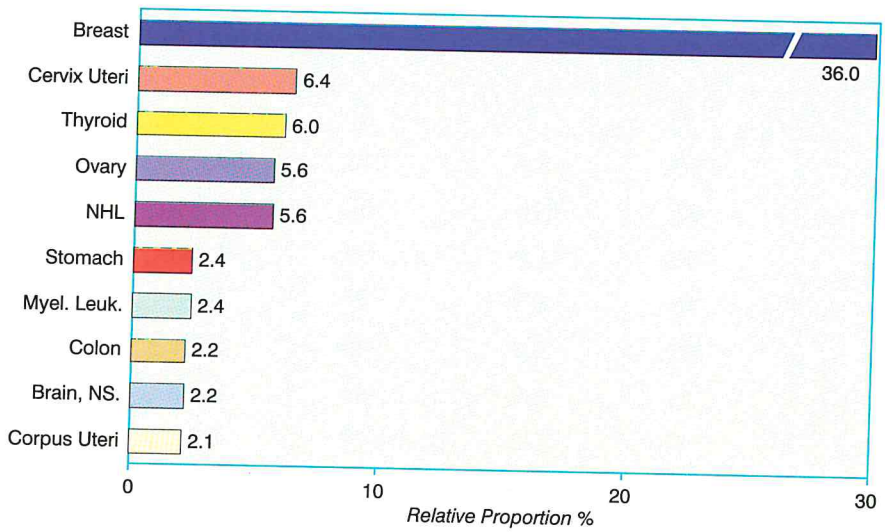
Telecobalt unit, a dual energy linear accelerator with electron facility, TPS simulator, brachytherapy and a bone marrow transplant unit are amongst the various facilities available in the centre.

FIGURE 7.42 : Ten Leading Sites of Cancer (2001 - 2002)

lales



nales



7.43. Mahatma Gandhi Institute of Medical Sciences, Sevagram

(Centre Code : 0018)

Dr. (Mrs.) Pratibha Narang, Dean and Co-Principal Investigator

Dr. S.M. Sharma, Prof. and Head, Dept. of Pathology and Principal Investigator

Dr. Nitin Gangane, Prof. of Pathology and Co-Principal Investigator

Sevagram was the de-facto capital of India during the freedom struggle. In 1936, Gandhiji settled in this remote village "Segaon" rechristened as 'Sevagram'. The crucial meetings of the Congress Working Committee were held here and the "Quit India" resolution was passed in 1942 in Sevagram.

Mahatma Gandhi Institute of Medical Sciences is located in a rural setting within 5 minutes walk from Gandhi Ashram. It is the first rural Medical Institute in India established in 1969, as a Gandhi centenary project under the dynamic leadership of late Dr. Sushila Nayar, the then Union Health Minister. The college receives grants from Central Government (50%) and Govt. of Maharashtra (25%). Kasturba Health Society contributes rest 25%. Shri. Dhiru S. Mehta is presently President of the Kasturba Health Society which governs the medical college.

TABLE 7.43(a) : Summary of Number of Cancers

Year	Males	Females	Total
2001	229	265	494
2002	399	487	886
2001 - 2002	**628**	**752**	**1380**

TABLE 7.43(b) : District-wise Distribution of Cancers (2001 - 2002)

Number (#) and Relative Proportion (%)

Name of District (With Code)	2001		2002		2001 - 2002	
	#	%	#	%	#	%
Wardha *(2708)*	263	53.2	516	58.2	779	56.4
Adilabad *(2801)*	67	13.6	102	11.5	169	12.2
Chandrapur *(2713)*	59	11.9	99	11.2	158	11.4
Yavatmal *(2714)*	43	8.7	67	7.6	110	8.0
Amravati *(2707)*	26	5.3	46	5.2	72	5.2
Karimnagar *(2803)*	15	3.0	15	1.7	30	2.2
Nagpur *(2709)*	4	0.8	12	1.4	16	1.2
All Other Districts	17	3.4	29	3.1	46	3.5
Total Cases	**494**	**100.0**	**886**	**100.0**	**1380**	**100.0**

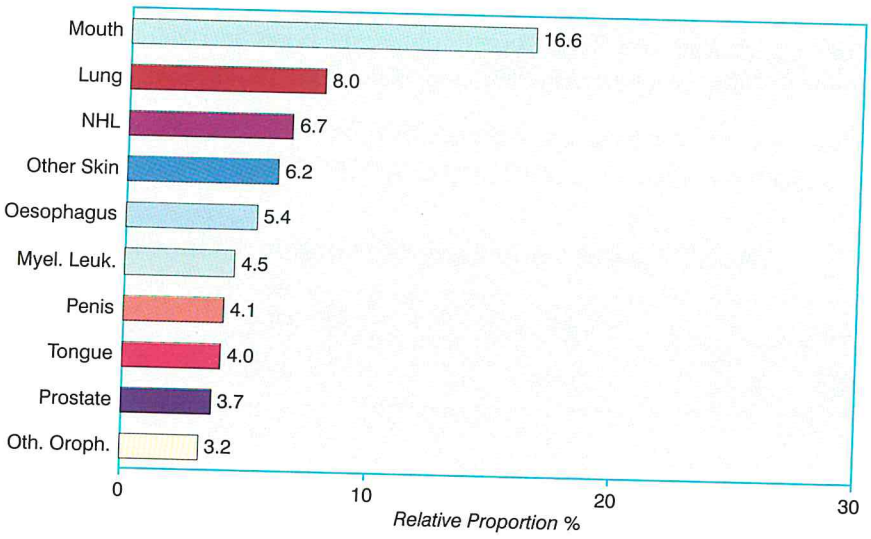
Kasturba Hospital is attached to the Medical College and was established in 1945 as a 15 bedded maternal and child hospital. The first ANM training course in India was initiated here in 1946. It was affiliated to MGIMS in 1969 and now it is a 648 bedded fully equipped hospital with facilities for diagnosis and treatment of cancer including Radiotherapy.

The Co-Principal Investigators are Dr. (Mrs.) P. Narang, Dean, Dr. A.P. Jain, Medical Superintendent, Dr. N.M. Gangane, Professor of Pathology, Dr. V.B. Shivkumar, Reader in Pathology, Dr. Anshu, Lecturer in Pathology.

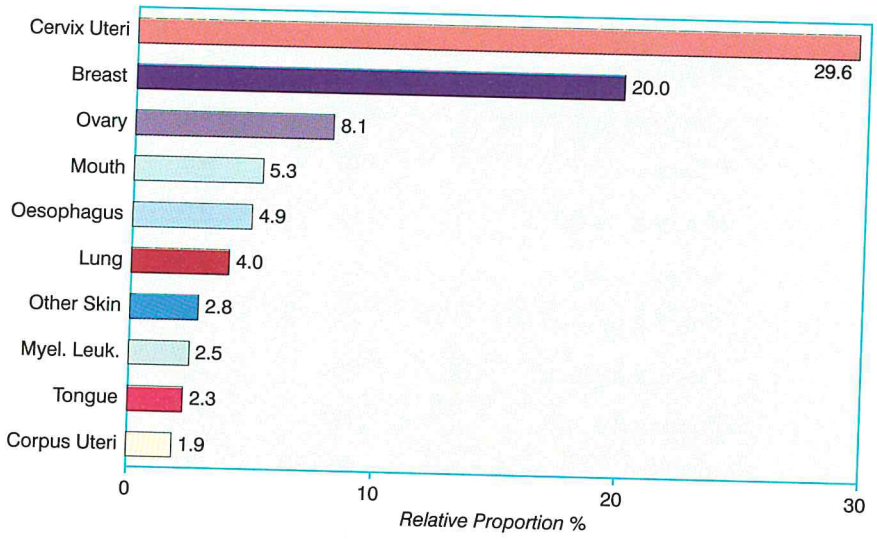
Dr. N.M. Gangane, Professor of Pathology, is also the Principal Investigator of PBCR-Wardha District. Co Investigators of PBCR are Dr. (Mrs.) P. Narang, Dean, MGIMS, District Health Officer Wardha, Civil Surgeon, Wardha, Dr. S.S.Patel, Dean, JMMC, Sawangi, all heads of the Departments of Pathology, Clinical Departments and Radiotherapy of MGIMS, Sevagram, JNMC and SPDC, Sawangi Director, RST Regional Cancer Centre, HOD, Pathology and Radiotherapy, GMC, Nagpur and private Pathologist and Clinical Oncologist at Nagpur, Wardha and Amraoti.

FIGURE 7.43 : Ten Leading Sites of Cancer (2001 - 2002)

Males



Females



7.44. Bharath Hospital and Institute of Oncology, Mysore

(Centre Code : 0135)

Dr. B. S. Ajai Kumar, Chairman and Principal Investigator

Dr. Anil Thomas, Head, Division of Surgical Oncology and Joint Medical Superintendent and Co-Principal Investigator

Dr. M. S. Vishveshwara, Head, Division of Radiation Oncology and Joint Medical Superintendent and Co-Principal Investigator

Bharath Hospital and Institute of Oncology is a comprehensive cancer centre, established in 1990 at Hebbal, Mysore. It is one of four cancer Centres started by Dr. B. S. Ajai Kumar, an NRI oncologist with over 27 years of experience in oncology in USA. The hospital aims at providing the highest quality of cancer care to people of Mysore and surrounding districts, at a cost all most at par with the government sector. The hospital has given concessions worth more than Rs. 37 lakhs over the past 5 years to patients of the lowest strata, who cannot afford even this cost. Bharath Hospital provides the highest quality of care to its patients. The well developed department of surgical oncology conducts about 250 major surgeries every year including the latest function preserving surgeries for cancers of rectum, larynx and urinary bladder. Its radiation oncology department is well equipped with teletherapy, interstitial and intra-luminal therapy, computerized Treatment Planning System and simulator facilities.

Bharath Hospital has been active in cancer prevention. The hospital in association with Karnataka Health Systems Development Projects (KHSDP) conducted the WHO project "ACCESS TO WOMEN'S HEALTH" where in 11,474 pap

TABLE 7.44(a) : Summary of Number of Cancers

Year	Males	Females	Total
2001	521	686	1207

TABLE 7.44(b) : District-wise Distribution of Cancers (2001)

Number (#) and Relative Proportion (%)

Name of District *(With Code)*	#	%
Mysore *(2926)*	648	53.7
Chamrajnagar *(2927)*	134	11.1
Hassan *(2923)*	115	9.5
Mandya *(2922)*	111	9.2
Kodagu *(2925)*	97	8.0
Chikmagalur *(2917)*	27	2.2
Wayanad *(3203)*	25	2.1
Tumkur *(2918)*	12	1.0
All Other Districts	38	3.1
Total Cases	**1207**	**100.0**

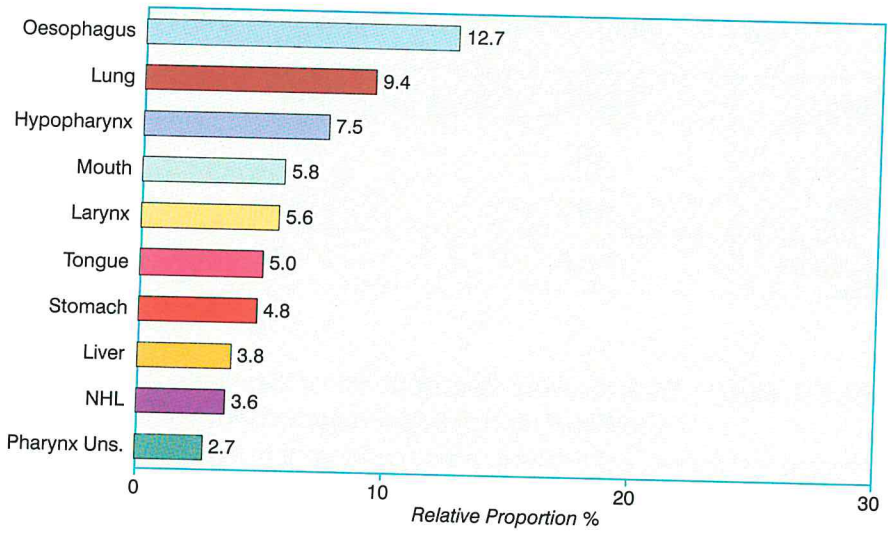
smears were taken from women of 4 taluks in Mysore and Chamarajnagar Districts. In recognition of our service to cancer patients over the past 13 years, the state government has honoured the institution with the RAJYOTSAVA AWARD for the year 2003.

Bharath Hospital provides the following free services :

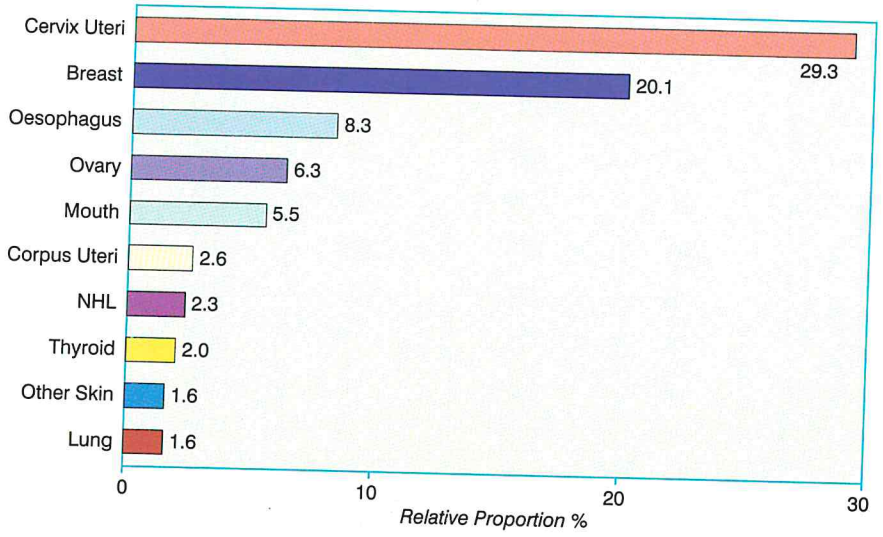
- Free Food Programme – free food to all patients in general wards.
- Free Chemotherapy Programme – to provide drugs free of cost to very poor patients with curable malignancies.
- OPD Services and General Ward Beds – free for all patients.
- Free Chemotherapy Services – for all patients (drugs purchased by patient)
- Free Cancer Detection Camps and Clinics : to recruit poor patients.
  - Camps – 28,655 patients screened in 260 camps
  - Clinics - 906 clinics in surrounding districts on fixed days every month.

FIGURE 7.44 : Ten Leading Sites of Cancer (2001)

ales



ales



7.45. Himalayan Institute of Medical Sciences, Dehradun

(Centre Code : 0066)

Dr. K. C. Mishra, Principal

Dr. Ved Parkash Pathak, Prof. and Head, Dept. of Pathology and Principal Investigator

Dr. Rani Bansal, Prof. of Pathology and Co-Investigator

Dr. Sunil Saini, Assoc. Prof. of Onco-Surgery and Co-Investigator

Dr. Dushyant S. Gaur, Assoc. Prof. of Pathology and Co-Investigator

The Department of Pathology in Himalayan Institute of Medical Sciences, Jolly Grant, Dehradun was created in 1995, when the first batch of MBBS students was admitted. Since then it has been progressing steadily and the Medical Council of India (M.C.I.) allowed us to start M.D. (Pathology) and D.C.P. courses since December 2001.

TABLE 7.45(a) : Summary of Number of Cancers

Year	Males	Females	Total
2001	297	179	476
2002	411	242	653
2001 - 2002	**708**	**421**	**1129**

TABLE 7.45(b) : District-wise Distribution of Cancers (2001 - 2002)

Number (#) and Relative Proportion (%)

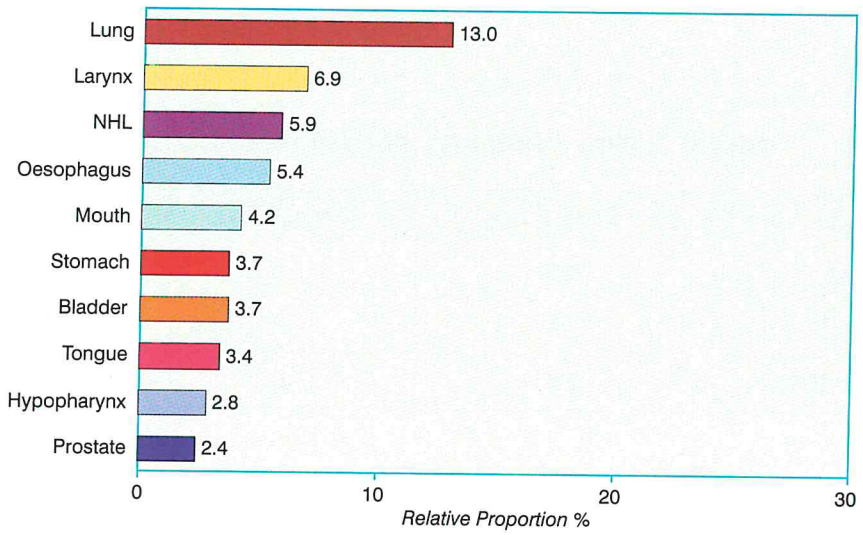
Name of District (With Code)	2001		2002		2001 - 2002	
	#	%	#	%	#	%
Dehradun *(505)*	89	18.7	101	15.5	190	16.8
Hardwar *(513)*	83	17.4	100	15.3	183	16.2
Bijnor *(903)*	63	13.2	116	17.8	179	15.9
Saharanpur *(901)*	77	16.2	88	13.5	165	14.6
Muzaffarnagar *(902)*	48	10.1	77	11.8	125	11.1
Garhwal *(506)*	47	9.9	42	6.4	89	7.9
Tehri Garhwal *(504)*	21	4.4	19	2.9	40	3.5
Chamoli *(502)*	10	2.1	24	3.7	34	3.0
Uttarkashi *(501)*	8	1.7	20	3.1	28	2.5
Rudraprayag *(503)*	6	1.3	17	2.6	23	2.0
Sirmaur *(210)*	7	1.5	10	1.5	17	1.5
Moradabad *(904)*	2	0.4	9	1.4	11	1.0
All Other Districts	15	3.2	30	4.6	45	4.0
Total Cases	**476**	**100.0**	**653**	**100.0**	**1129**	**100.0**

The department has full faculty as per M.C.I. norms and has well equipped diagnostic laboratories. We have a ıost modern blood bank. Autopsy service is also available. The department is engaged in undergraduate and ostgraduate teaching, diagnostic work for patients in our 750 bed hospital, CPCs, research and quality assurance ctivities.

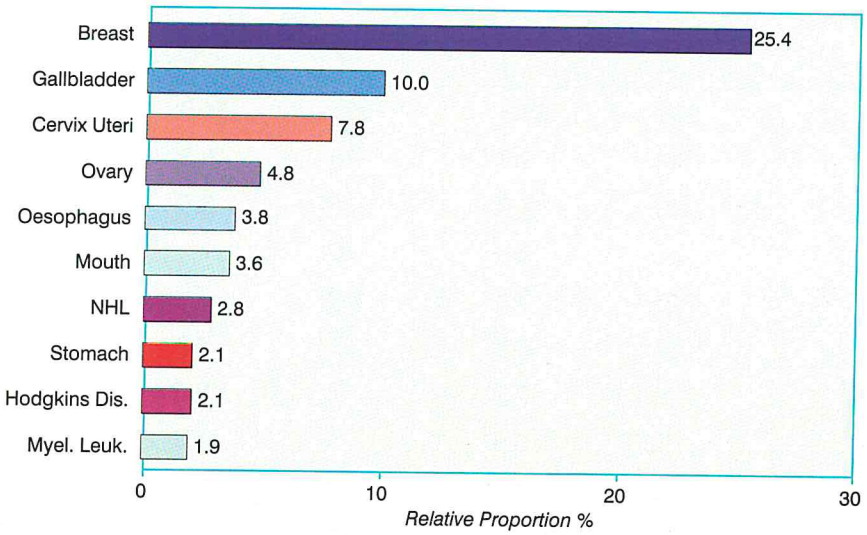
Dr. Ved Parkash Pathak is the Principal Investigator. He has 38 years of experience in Pathology and is the rofessor and Head of Pathology Department. The Co-Principal Investigators are Dr. Rani Bansal MD Professor of athology and Dr. Dushyant S.Gaur Associate Professor of Pathology with a total of 13 years experience in Pathology. r. Sunil Saini M.S. is Associate Professor of Onco-Surgery and heads that unit.

FIGURE 7.45 : Ten Leading Sites of Cancer (2001 - 2002)

ales



nales



7.46. Civil Hospital, Aizawl

(Centre Code : 0130)

Dr. D. Baruah, Medical Superintendent

Dr. Eric Zomawia, Prof. & Head, Dept. of Pathology and Principal Investigator

This is the largest Hospital and the only referral Hospital in the entire State of Mizoram. It has all major departments. Recently, this hospital was accorded the status of Regional Cancer Centre (RCC).

Dr. John Zohmingthanga, Dr. Lalchhanhimi and Lily Chhakchhuak are Co-Investigators in the project.

TABLE 7.46(a) : Summary of Number of Cancers

Year	Males	Females	Total
2001	283	229	512
2002	311	277	588
2001 - 2002	**594**	**506**	**1100**

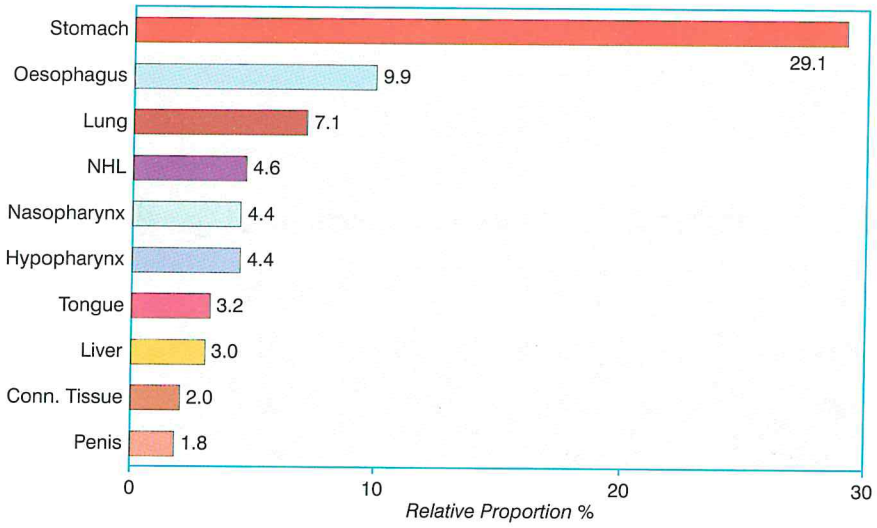
TABLE 7.46(b) : District-wise Distribution of Cancers (2001 - 2002)

Number (#) and Relative Proportion (%)

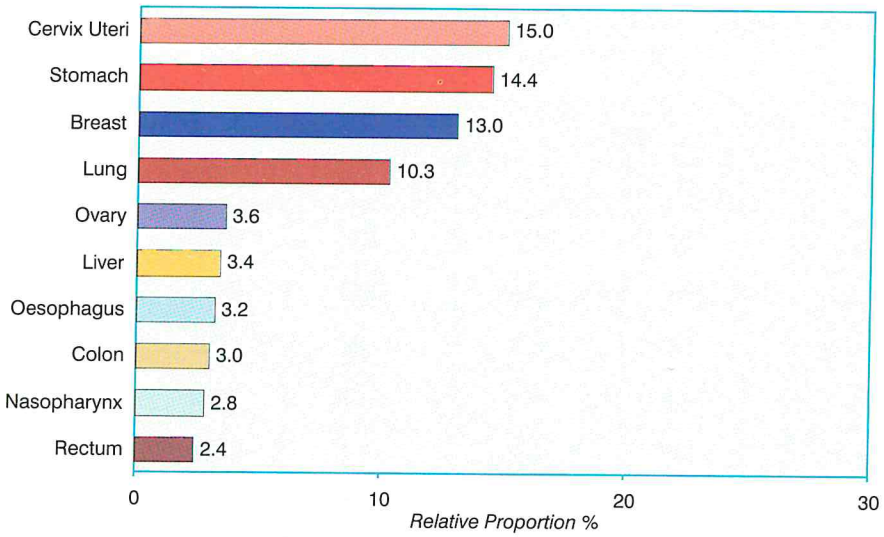
Name of District *(With Code)*	2001		2002		2001 - 2002	
	#	%	#	%	#	%
Aizawl *(1503)*	286	55.9	321	54.6	607	55.2
Lunglei *(1506)*	47	9.2	78	13.3	125	11.4
Champhai *(1504)*	46	9.0	56	9.5	102	9.3
Kolasib *(1502)*	41	8.0	42	7.1	83	7.5
Serchhip *(1505)*	40	7.8	42	7.1	82	7.5
Mamit *(1501)*	32	6.3	25	4.3	57	5.2
Saiha *(1508)*	14	2.7	15	2.6	29	2.6
Lawngtlai *(1507)*	3	0.6	9	1.5	12	1.1
All Other Districts	3	0.6	0	0.0	3	0.3
Total Cases	**512**	**100.0**	**588**	**100.0**	**1100**	**100.0**

FIGURE 7.46 : Ten Leading Sites of Cancer (2001 - 2002)

ales



nales



7.47. Tirunelveli Medical College, Tirunelveli

(Centre Code : 0024)

Dr. V. Paramasivan, Prof. and Head, Dept. of Pathology and Principal Investigator

Dr. J. Suresh Durai, Asst. Prof. of Pathology and Co-Principal Investigator

Dr. A. Kalaivani, Former Principal Investigator

TABLE 7.47(a) : Summary of Number of Cancers

Year	Males	Females	Total
2001	237	320	557
2002	241	301	542
2001 - 2002	**478**	**621**	**1099**

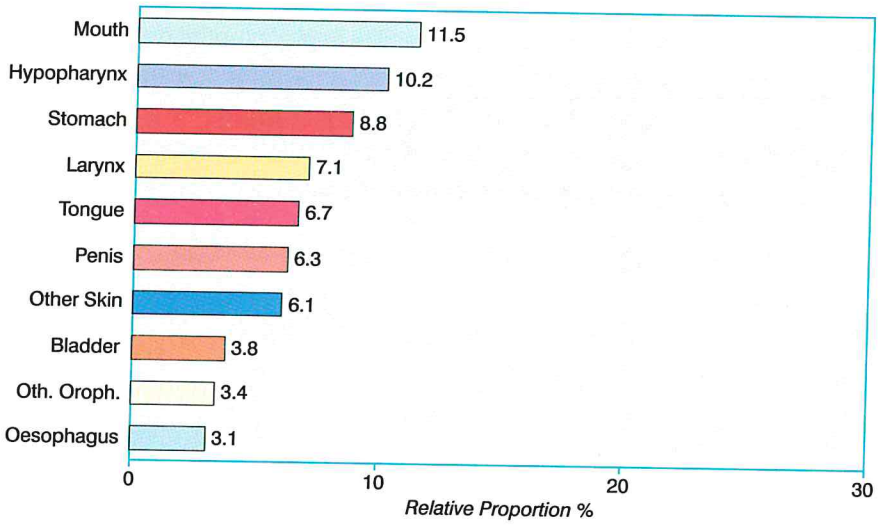
TABLE 7.47(b) : District-wise Distribution of Cancers (2001 - 2002)

Number (#) and Relative Proportion (%)

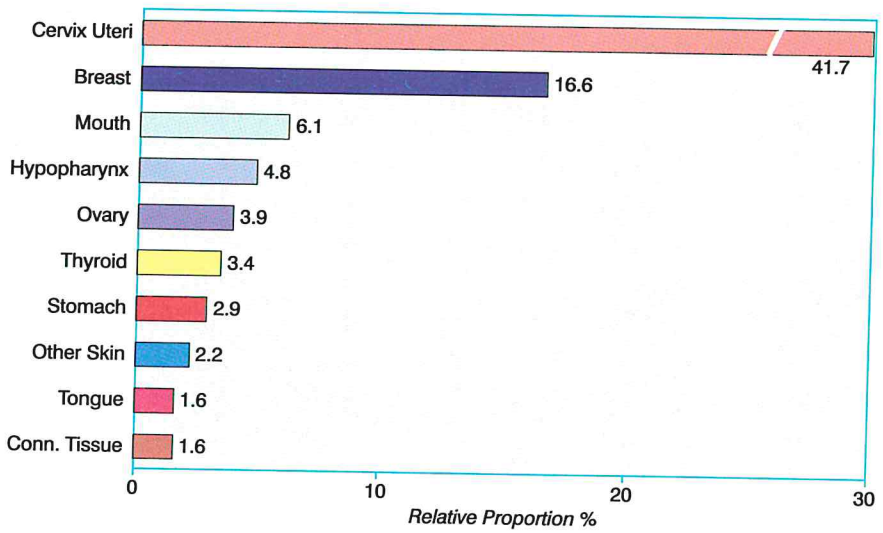
Name of District *(With Code)*	2001		2002		2001 - 2002	
	#	%	#	%	#	%
Tirunelveli *(3329)*	416	74.7	383	70.7	799	72.7
Thoothukkudi *(3328)*	116	20.8	130	24.0	246	22.4
Kanniyakumari *(3330)*	18	3.2	20	3.7	38	3.5
Virudunagar *(3326)*	6	1.1	8	1.5	14	1.3
All Other Districts	1	0.2	1	0.2	2	0.2
Total Cases	**557**	**100.0**	**542**	**100.0**	**1099**	**100.0**

FIGURE 7.47 : Ten Leading Sites of Cancer (2001 - 2002)

ales



ıales



7.48. Bhagwan Mahaveer Cancer Hospital and Research Centre, Jaipur

(Centre Code : 0060)

Dr. Rameshwar Sharma, Director
Dr. C. L. Pandey, Senior Consultant in Pathology
Dr. Archana N. Parikh, Asst. Consultant in Pathology and Principal Investigator
Dr. Rakesh Gupta, Former Principal Investigator

Bhagwan Mahaveer Cancer Hospital and Research Centre became functional in October, 1997. The hospital occupies an area of 22,166 sq. mtr. The hospital building is constructed on an area of 90,000 sq. ft. There are three in-patient wards - medical oncology, surgical oncology and private ward, an intensive care unit and a day care ward. Total bed strength of the hospital is 100 beds. All the wards have a facility of glucometer, nebuliser, pulse oximeter, bed side ECG, X-Ray & Sonography. There are more than 20 full time consultants in various specialties - Medical, Surgical And Radiation Oncology, Anesthesia, Critical Care, Radio-diagnosis, Pathology and Transfusion Medicine, twelve resident doctors and 40 nursing personnel and other paramedical staff provide dedicated services to the cancer patients. The registration counter maintains a perfect personal record of every patient coming to the hospital.

TABLE 7.48(a) : Summary of Number of Cancers

Year	Males	Females	Total
2001	491	419	910
2002	77	59	136
2001 - 2002	**568**	**478**	**1046**

TABLE 7.48(b) : District-wise Distribution of Cancers (2001 - 2002)

Number (#) and Relative Proportion (%)

Name of District *(With Code)*	2001		2002		2001 - 2002	
	#	%	#	%	#	%
Jaipur *(812)*	281	30.9	39	28.7	320	30.6
Sikar *(813)*	95	10.4	21	15.4	116	11.1
Alwar *(806)*	62	6.8	17	12.5	79	7.6
Jhunjhunun *(805)*	53	5.8	9	6.6	62	5.9
Ajmer *(821)*	45	4.9	3	2.2	48	4.6
Nagaur *(814)*	43	4.7	3	2.2	46	4.4
Tonk *(822)*	31	3.4	6	4.4	37	3.5
Bhilwara *(824)*	26	2.9	2	1.5	28	2.7
Sawai Madhopur *(810)*	24	2.6	2	1.5	26	2.5
Kota *(830)*	23	2.5	2	1.5	25	2.4
Dausa *(811)*	19	2.1	5	3.7	24	2.3
Bharatpur *(807)*	21	2.3	2	1.5	23	2.2
Churu *(804)*	21	2.3	1	0.7	22	2.1
All Other Districts	187	20.5	25	17.6	190	18.2
Total Cases	**910**	**100.0**	**136**	**100.0**	**1046**	**100.0**

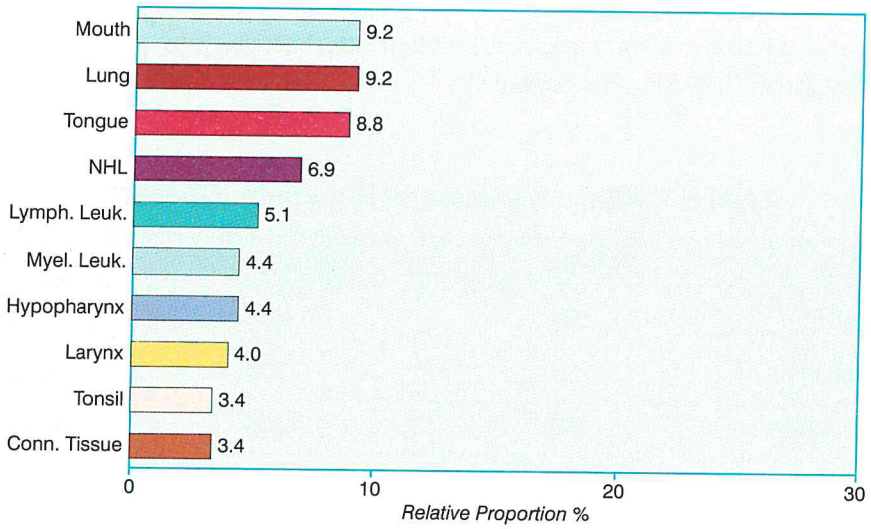
There are other facilities provided for the patients coming to the hospital - Canteen & Kitchen, Dharmshala, harmacy Shop, Bank and Vishramsthal. 'Cancer Care', is a group of women volunteers who are important and integral art of the hospital. Their aim is to inculcate a positive attitude towards life in a despondent patient and other members f the family who are shattered, once the diagnosis of cancer is revealed to them. The hospital has recently established state-of-art blood bank and soon facilities for bone marrow transplant will be available. All major and minor surgeries e done in the most modern operation theatre equipped with laminar flow (hepafilters) to ensure a zero post operative fection rates. The radio therapy department is equipped with Tele Cobalt Machine and facilities for high dose intracavitary achytherapy. The Department of Pathology is fully equipped to carry out all histopathology, cytology, intraoperative ozen section, haematology, clinical pathology, microbiology and serology investigations. On an average we receive 00 biopsy and an equal number of cytology specimens. Bone marrow aspiration and cytochemistry are done utinely. Around 400 bone marrow aspirations are reported per year. For immunocytochemistry, flow cytometry and togenetics we send our samples to SRL, Mumbai.

Other persons associated with the project are :

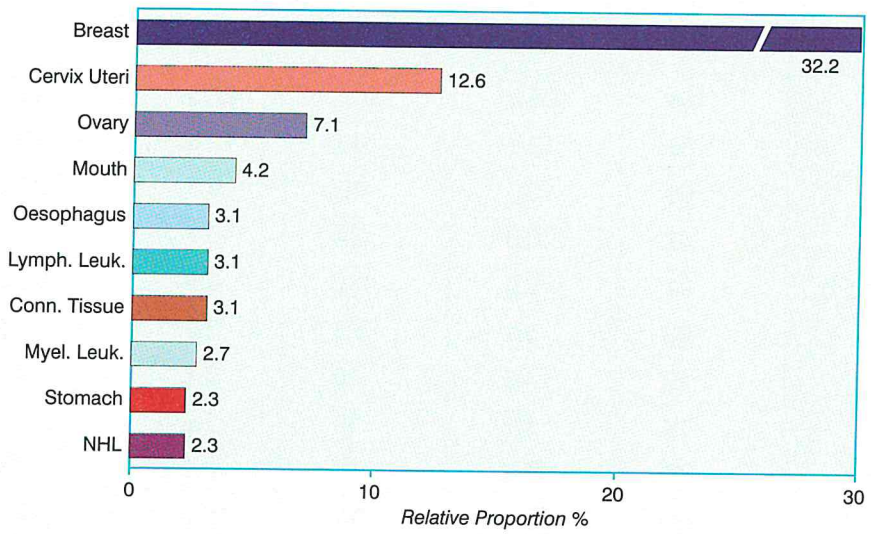
Mr. Sanjay Joshi, Data Management and **Mr. Samuel,** Technical Asst.

FIGURE 7.48 : Ten Leading Sites of Cancer (2001 - 2002)

ales



nales



7.49. Jawaharlal Nehru Cancer Hospital and Research Centre, Bhopal

(Centre Code : 0009)

Shri. Madan Mohan Joshi, Chairman

Dr. B. Sanyal, Director and Principal Investigator

Dr. Ritu Singhal, Junior Consultant Pathologist and Co-Principal Investigator

Dr. Pakiza Naqvi, Pathologist and Co-Principal Investigator

Dr. Rachna Jain, Pathologist and Co-Principal Investigator

Jawaharlal Nehru Cancer Hospital is a comprehensive cancer centre having full-fledged basic facilities for investigation and treatment of all types of cancer. It has the following specialties – Surgical, Medical and Radiation Oncology, Pain & Palliative Care and Community Oncology Departments.

The department of Pathology has Haematology, Biochemistry, Microbiology, and Immunology units as well as Tumour marker assays facility and Immuno Histochemistry.

TABLE 7.49(a) : Summary of Number of Cancers

Year	Males	Females	Total
2001	351	298	649
2002	181	208	389
2001 - 2002	**532**	**506**	**1038**

TABLE 7.49(b) : District-wise Distribution of Cancers (2001 - 2002)

Number (#) and Relative Proportion (%)

Name of District (With Code)	2001		2002		2001 - 2002	
	#	%	#	%	#	%
Bhopal *(2332)*	183	28.2	107	27.5	290	27.9
Sagar *(2311)*	85	13.1	48	12.3	133	12.8
Vidisha *(2331)*	68	10.5	36	9.3	104	10.0
Raisen *(2334)*	57	8.8	34	8.7	91	8.8
Hoshangabad *(2337)*	42	6.5	31	8.0	73	7.0
Rajgarh *(2330)*	33	5.1	23	5.9	56	5.4
Sehore *(2333)*	29	4.5	20	5.1	49	4.7
Guna *(2307)*	24	3.7	10	2.6	34	3.3
All Other Districts	119	18.3	80	20.9	208	20.2
Total Cases	**649**	**100.0**	**389**	**100.0**	**1038**	**100.0**

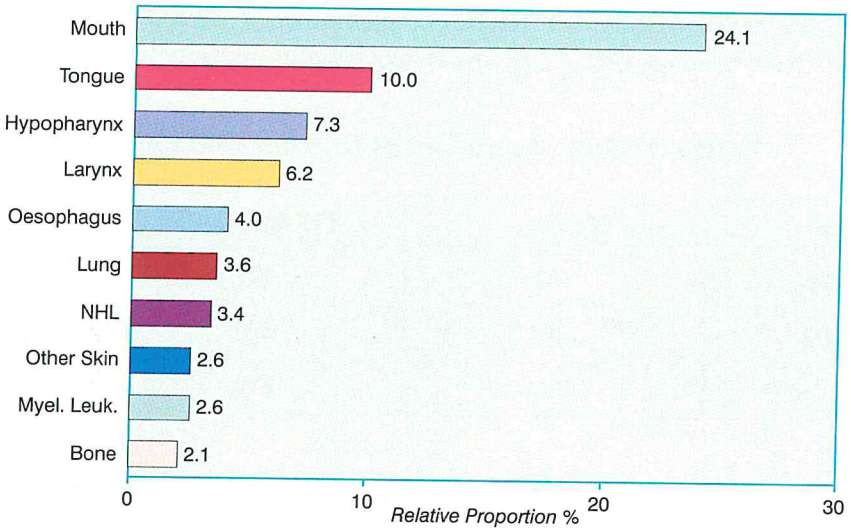
The hospital has a well-equipped Research Department, headed by an eminent Radiobiologist Dr. P. Uma Devi. has a well designed animal house approved by CPCSEA for experimental work. An ethical committee overviews all esearch activities.

The hospital is affiliated to Govt. Gandhi Medical College, Bhopal and recognized by Barkatullah University Bhopal University) for Research, Ph.D. and other work.

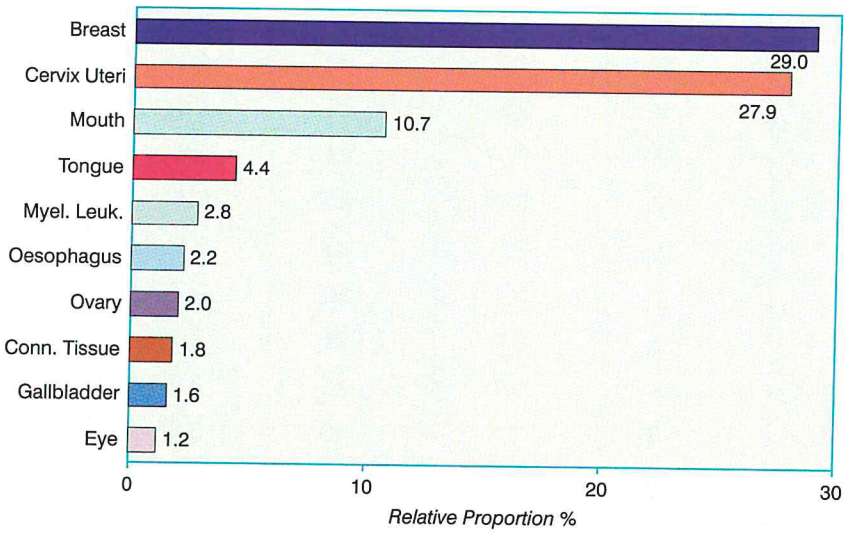
An NGO (M.P. Cancer Chikitsa Evam Seva Samitee), supported by the State Govt., runs the hospital. The basic hilosophy of this hospital is to provide excellent treatment facilities with affordable cost.

FIGURE 7.49 : Ten Leading Sites of Cancer (2001 - 2002)

ales



nales



7.50. Indian Railway Cancer Institute and Research Centre, Varanasi

(Centre Code : 0106)

Dr. S. Y. Kalgaonkar, Medical Director

Dr. Gyanendra Mohan, Senior Pathologist and Principal Investigator

Dr. Sunanda Chaturvedi, Pathologist and Co-Principal Investigator

Way back in 1970s, Indian Railways decided to develop a speciality centre for comprehensive care of cancer patients. The foundation stone of the Institute was laid on 6th April 1980. OPD services, Radiotherapy services and Emergency OT services were started in 1984. Initially, there were only 50 beds. Pathology and Radiology services were started in 1989.

At present, this Institute has 131 beds with 6 additional beds in ICU. Facilities of comprehensive diagnostic and therapeutic services and self-sufficient Operation Theatre complex are being offered under one roof to cancer patients. The Institution is catering to the needs of 1200-1500 new cancer patients annually.

TABLE 7.50(a) : Summary of Number of Cancers

Year	Males	Females	Total
2001	79	111	190
2002	342	399	741
2001 - 2002	**421**	**510**	**931**

TABLE 7.50(b) : District-wise Distribution of Cancers (2001 - 2002)

Number (#) and Relative Proportion (%)

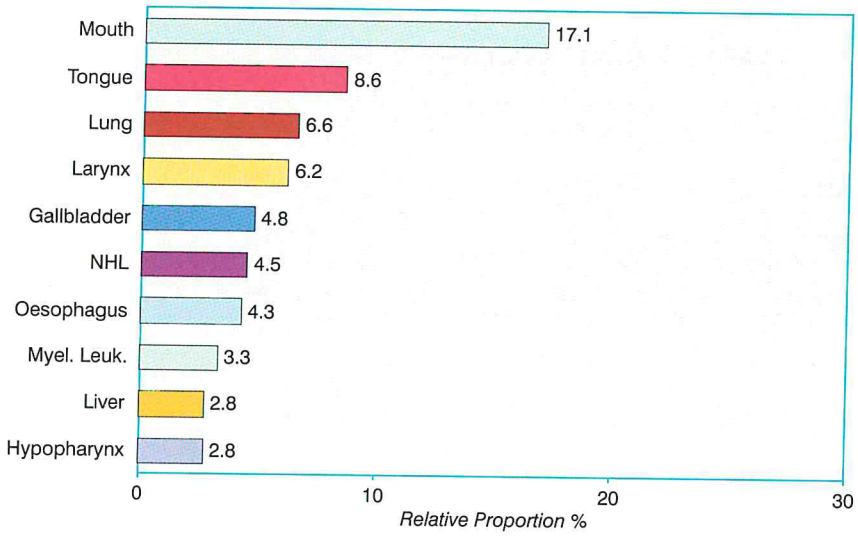
Name of District (With Code)	2001		2002		2001 - 2002	
	#	%	#	%	#	%
Varanasi *(967)*	34	17.9	142	19.2	176	18.9
Jaunpur *(964)*	9	4.7	67	9.0	76	8.2
Chandauli *(966)*	9	4.7	32	4.3	41	4.4
Ballia *(963)*	4	2.1	36	4.9	40	4.3
Gorakhpur *(958)*	7	3.7	27	3.6	34	3.7
Azamgarh *(961)*	7	3.7	25	3.4	32	3.4
Lucknow *(927)*	5	2.6	23	3.1	28	3.0
Mau *(962)*	7	3.7	20	2.7	27	2.9
Mirzapur *(969)*	6	3.2	21	2.8	27	2.9
Allahabad *(945)*	7	3.7	15	2.0	22	2.4
Deoria *(960)*	6	3.2	15	2.0	21	2.3
All Other Districts	89	46.9	318	42.9	407	43.7
Total Cases	**190**	**100.0**	**741**	**100.0**	**931**	**100.0**

The Institute organises Cancer Education exhibitions and early Cancer Detection Camps in different remote areas of Northern India at regular intervals. Voluntary Counseling and Testing Centre (VCTC) for AIDS, funded by NACO, is also being run.

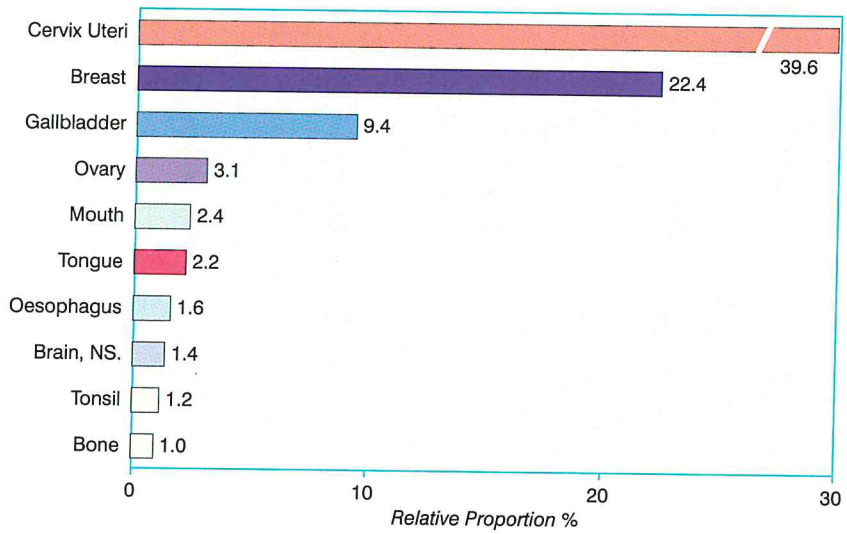
The Medical Staff comprise Surgical, Medical, Radiation and Gynaec Oncologists, Oncopathologists, Radiologists and Anaesthetists. The Medical Director is heading this team of well-trained doctors. There are more than twenty doctors working in the Institute. Total staff strength of the hospital is approximately 175.

FIGURE 7.50 : Ten Leading Sites of Cancer (2001 - 2002)

ales



nales



7.51. Government Medical College, Patiala

(Centre Code : 0075)

Dr. Kiranjeet Kaur, Principal

Dr. Ravinder Singh, Ex-Principal & Director, Research & Medical Education, Punjab

Dr. Manjit Singh Bal, Prof. & Head, Dept. of Pathology and Principal Investigator

Dr. Kanwal Surinder, Asst. Prof. of Pathology and Co-Principal Investigator

Dr. Jasbir Singh, Asst. Prof. of Pathology, Faculty In-Charge

TABLE 7.51(a) : Summary of Number of Cancers

Year	Males	Females	Total
2001	173	115	288
2002	361	279	640
2001 - 2002	**534**	**394**	**928**

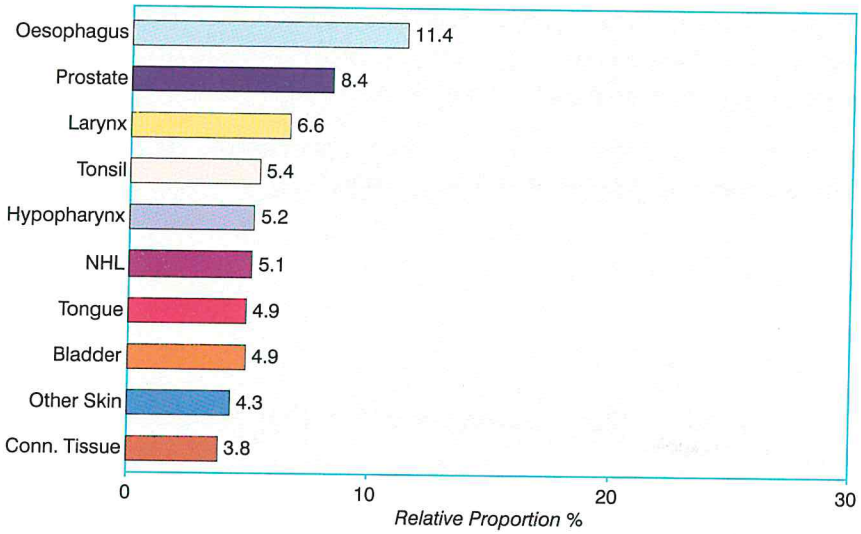
TABLE 7.51(b) : District-wise Distribution of Cancers (2001 - 2002)

Number (#) and Relative Proportion (%)

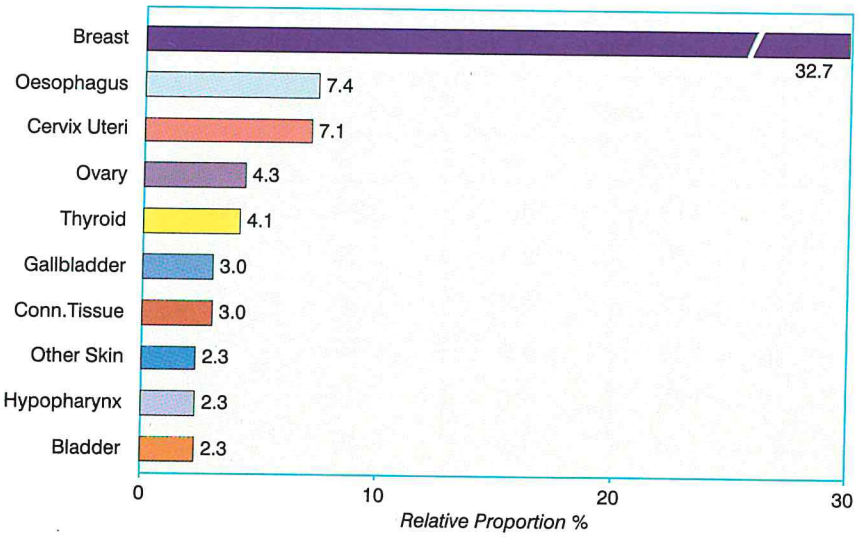
Name of District *(With Code)*	2001		2002		2001 - 2002	
	#	%	#	%	#	%
Patiala *(317)*	174	60.4	327	51.1	501	54.0
Sangrur *(316)*	39	13.5	110	17.2	149	16.1
Fatehgarh Sahib *(308)*	13	4.5	33	5.2	46	5.0
Kaithal *(605)*	14	4.9	27	4.2	41	4.4
Bathinda *(314)*	4	1.4	29	4.5	33	3.6
Ludhiana *(309)*	10	3.5	18	2.8	28	3.0
Kurukshetra *(604)*	7	2.4	17	2.7	24	2.6
All Other Districts	27	9.4	79	12.3	106	11.4
Total Cases	**288**	**100.0**	**640**	**100.0**	**928**	**100.0**

FIGURE 7.51 : Ten Leading Sites of Cancer (2001 - 2002)

lales



nales



7.52. Dr. SN Medical College, Jodhpur

(Centre Code : 0082)

Dr. P. K. Gupta, Principal and Controller

Dr. D. R. Mathur, Prof. & Head, Dept. of Pathology and Principal Investigator

Dr. Deepa Mathur, Co-Principal Investigator

Our centre for cancer registry situated at Jodhpur drains the area of western Rajasthan which is an opening to the Thar Desert and is termed as arid hot area by virtue of its climate, prolonged hot sun-shine and scanty annual rain-fall. It shows extremes of temperature with mean maximum temperature ranging from 40-45 degree Celsius in summer.

We receive about 10,000 specimens for histology / cytology / haematology per year. This also includes biopsies from other cities like Barmer, Jaisalmer, Udaipur, Pali, Nagaur, Jalore etc.

TABLE 7.52(a) : Summary of Number of Cancers

Year	Males	Females	Total
2001	139	175	314
2002	231	319	550
2001 - 2002	**370**	**494**	**864**

TABLE 7.52(b) : District-wise Distribution of Cancers (2001 - 2002)

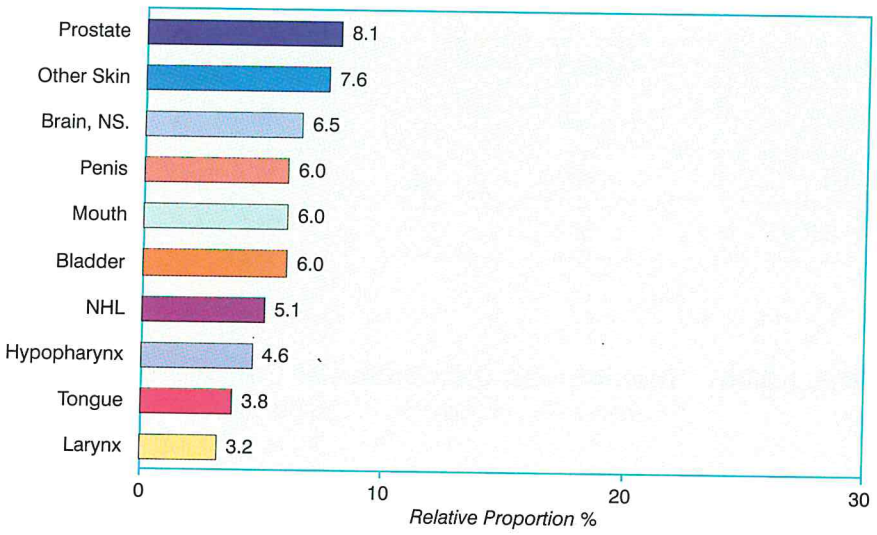
Number (#) and Relative Proportion (%)

Name of District (With Code)	2001		2002		2001 - 2002	
	#	%	#	%	#	%
Jodhpur *(815)*	178	56.7	365	66.4	543	62.8
Pali *(820)*	70	22.3	73	13.3	143	16.6
Barmer *(817)*	25	8.0	34	6.2	59	6.8
Nagaur *(814)*	14	4.5	37	6.7	51	5.9
Jalor *(818)*	22	7.0	11	2.0	33	3.8
Jaisalmer *(816)*	3	1.0	27	4.9	30	3.5
All Other Districts	2	0.6	3	0.5	5	0.6
Total Cases	**314**	**100.0**	**550**	**100.0**	**864**	**100.0**

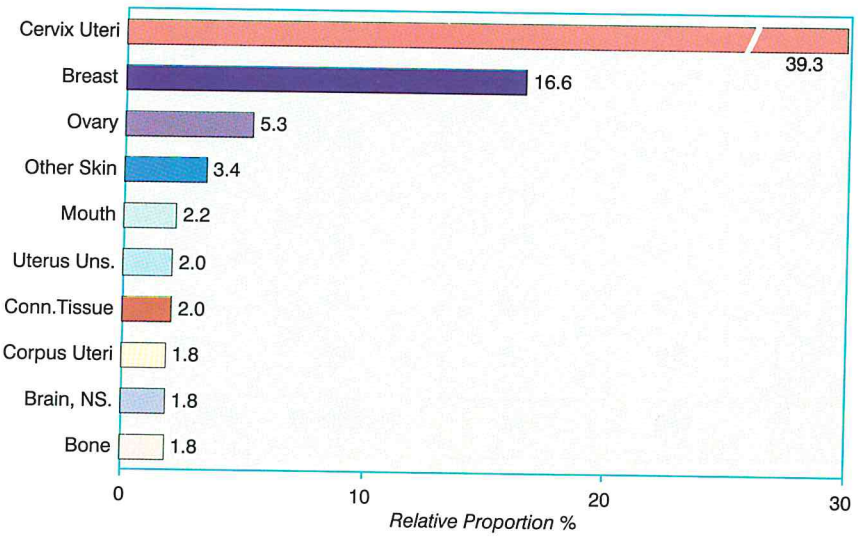
The Department of Pathology, Dr. S.N. Medical College, Jodhpur is one of the participating centres for the ancer Atlas Project since January 2001 and the data is being sent regularly since then. From the year 2003 the data om 2-3 private centres where Histopathology and Cytology is being done will also be included.

FIGURE 7.52 : Ten Leading Sites of Cancer (2001 - 2002)

ales



ıales



7.53. VSS Medical College, Burla

(Centre Code : 0086)

Dr. Suresh Chandra Mahapatra, Principal

Dr. Janet Khalkho, Professor & Head, Dept. of Pathology and Principal Investigator

Dr. Chitta Ranjan Prasad, Lecturer in Pathology and Co- Principal Investigator

V.S.S Medical college is located at Burla in the district of Sambalpur, Orissa.

TABLE 7.53(a) : Summary of Number of Cancers

Year	Males	Females	Total
2001	80	79	159
2002	267	325	592
2001 - 2002	**347**	**404**	**751**

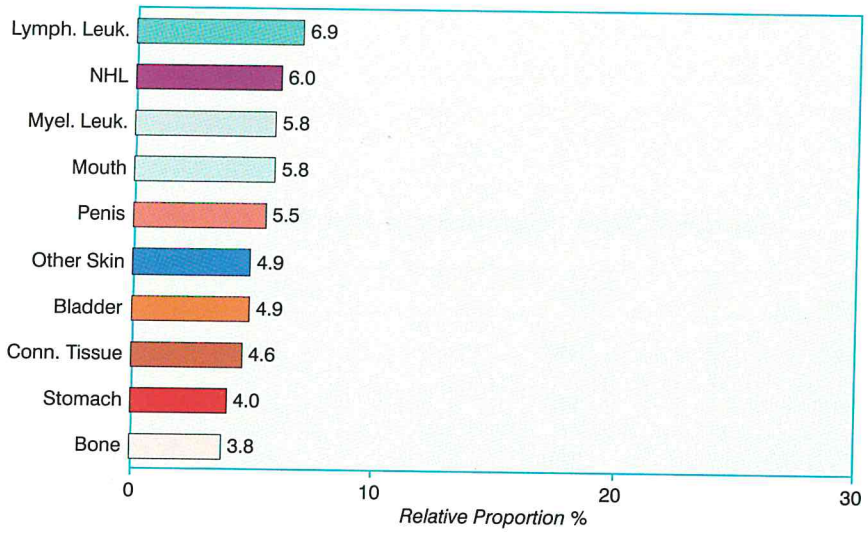
TABLE 7.53(b) : District-wise Distribution of Cancers (2001 - 2002)

Number (#) and Relative Proportion (%)

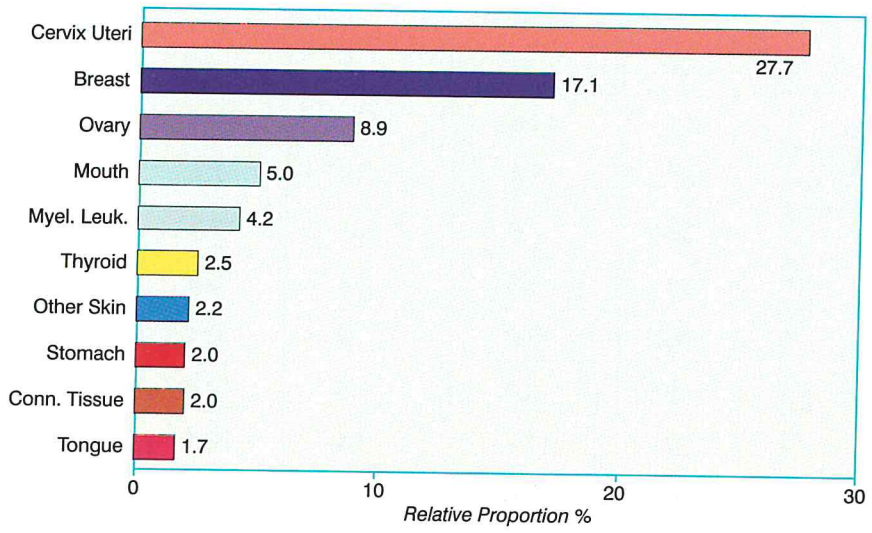
Name of District (With Code)	2001		2002		2001 - 2002	
	#	%	#	%	#	%
Bargarh *(2101)*	46	28.9	149	25.2	195	26.0
Sambalpur *(2103)*	34	21.4	153	25.8	187	24.9
Sundargarh *(2105)*	16	10.1	60	10.1	76	10.1
Balangir *(2124)*	17	10.7	56	9.5	73	9.7
Jharsuguda *(2102)*	18	11.3	54	9.1	72	9.6
Sonapur *(2123)*	8	5.0	28	4.7	36	4.8
Raigarh *(2204)*	1	0.6	20	3.4	21	2.8
Deogarh *(2007)*	5	3.1	11	1.9	16	2.1
Kalahandi *(2126)*	2	1.3	13	2.2	15	2.0
All Other Districts	12	7.5	48	8.1	60	8.0
Total Cases	**159**	**100.0**	**592**	**100.0**	**751**	**100.0**

FIGURE 7.53 : Ten Leading Sites of Cancer (2001 - 2002)

ales



ıales



7.54. GSVM Medical College, Kanpur

(Centre Code : 0025)

Dr. S.K. Katiyar, Principal

Dr. S. N. Singh, Prof. & Head, Dept. of Pathology and Principal Investigator

Dr. Asha Agarwal, Assoc. Prof. of Pathology and Co-Principal Investigator

G.S.V.M Medical College is a U.P State Govt.-run institution, catering to the needs of urban and rural population of Kanpur and adjoining districts of Kannauj, Farrukhabad, Fatehpur and Etawah. Kanpur is an industrial city with a population of close to 3.5 million.

TABLE 7.54(a) : Summary of Number of Cancers

Year	Males	Females	Total
2001	244	256	500
2002	116	118	234
2001 - 2002	**360**	**374**	**734**

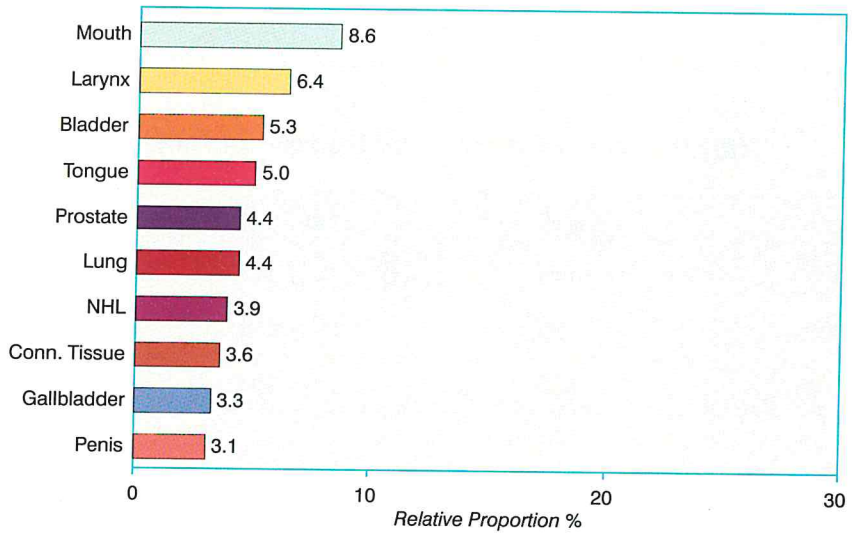
TABLE 7.54(b) : District-wise Distribution of Cancers (2001 - 2002)

Number (#) and Relative Proportion (%)

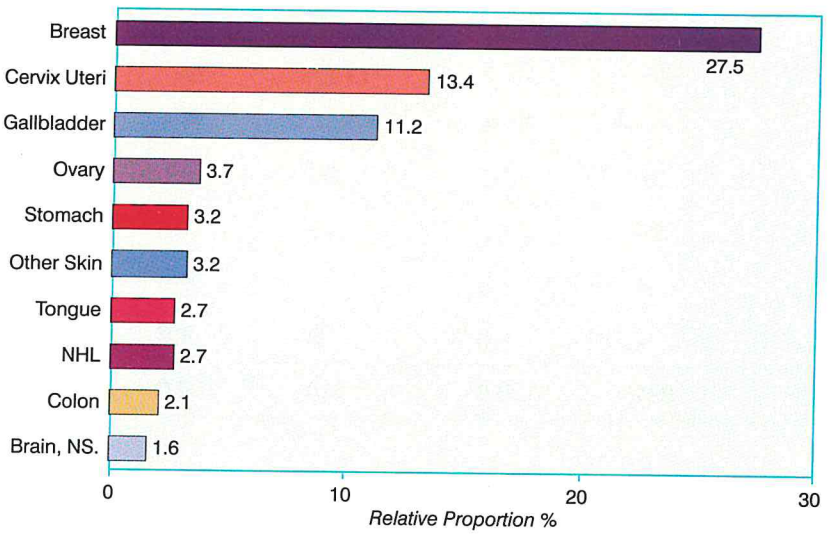
Name of District *(With Code)*	2001		2002		2001 - 2002	
	#	%	#	%	#	%
Kanpur Nagar *(934)*	224	44.8	104	44.4	328	44.7
Kanpur Dehat *(933)*	67	13.4	18	7.7	85	11.6
Unnao *(926)*	39	7.8	31	13.2	70	9.5
Fatehpur *(942)*	28	5.6	13	5.6	41	5.6
Etawah *(931)*	40	8.0	1	0.4	41	5.6
Banda *(940)*	15	3.0	6	2.6	21	2.9
All Other Districts	87	17.4	61	26.1	148	20.2
Total Cases	**500**	**100.0**	**234**	**100.0**	**734**	**100.0**

FIGURE 7.54 : Ten Leading Sites of Cancer (2001 - 2002)

ales



nales



7.55. Andhra Medical College, Visakhapatnam

(Centre Code : 0039)

Dr. B. Sundareshwar, Principal Investigator
Dr. P. V. B. Ramalaxmi, Co-Investigator

TABLE 7.55(a) : Summary of Number of Cancers

Year	Males	Females	Total
2001	143	248	391
2002	95	215	310
2001 - 2002	**238**	**463**	**701**

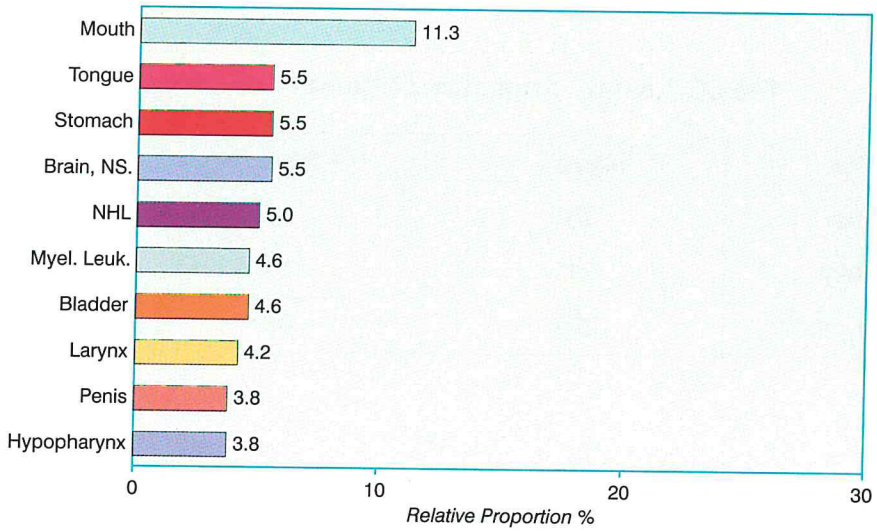
TABLE 7.55(b) : District-wise Distribution of Cancers (2001 - 2002)

Number (#) and Relative Proportion (%)

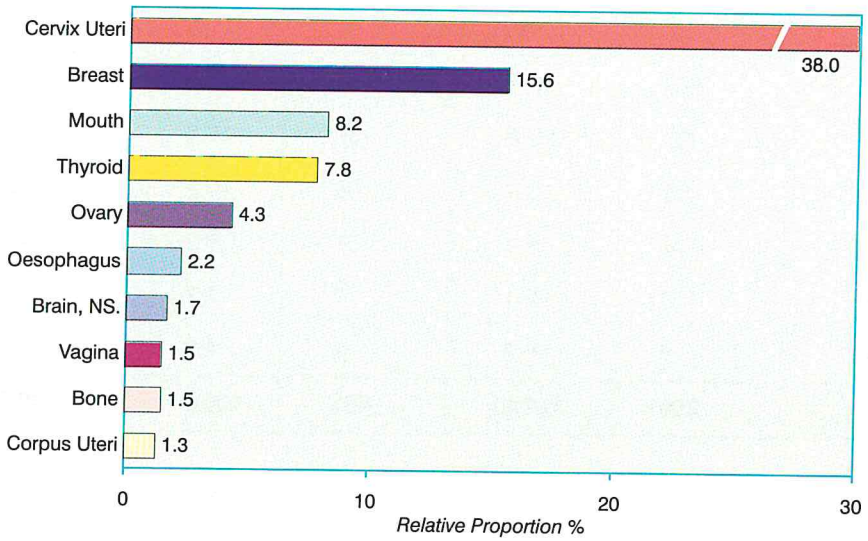
Name of District *(With Code)*	2001		2002		2001 - 2002	
	#	%	#	%	#	%
Visakhapatnam *(2813)*	264	67.5	208	67.1	472	67.3
Vizianagaram *(2812)*	60	15.3	57	18.4	117	16.7
Srikakulam *(2811)*	37	9.5	30	9.7	67	9.6
East Godavari *(2814)*	19	4.9	6	1.9	25	3.6
West Godavari *(2815)*	4	1.0	4	1.3	8	1.1
All Other Districts	7	1.8	5	1.6	12	1.7
Total Cases	**391**	**100.0**	**310**	**100.0**	**701**	**100.0**

FIGURE 7.55 : Ten Leading Sites of Cancer (2001 - 2002)

ıles



ıales



7.56. Sudharma Laboratory, Thrissur

(Centre Code : 0092)

Dr. V. P. Gopinathan, Principal Investigator

Dr. Devadas T. N., Co-Principal Investigator

TABLE 7.56(a) : Summary of Number of Cancers

Year	Males	Females	Total
2001	160	130	290
2002	211	192	403
2001 - 2002	**371**	**322**	**693**

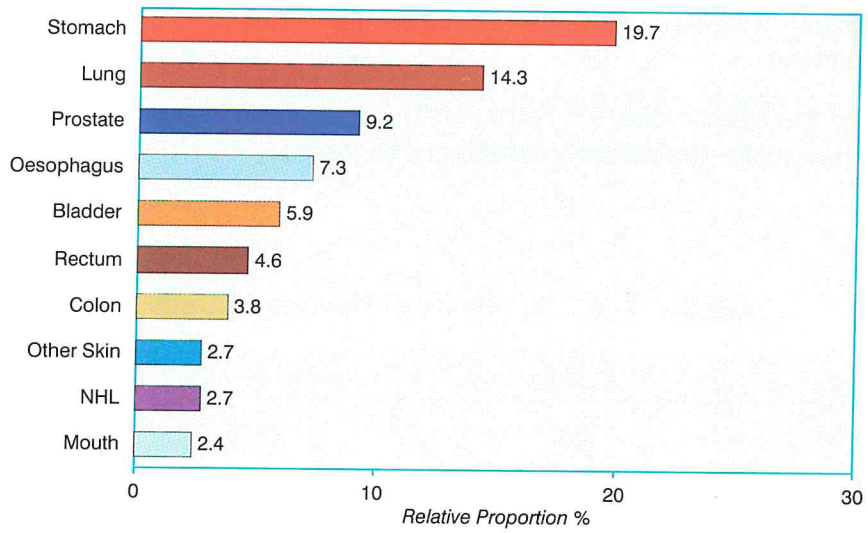
TABLE 7.56(b) : District-wise Distribution of Cancers (2001 - 2002)

Number (#) and Relative Proportion (%)

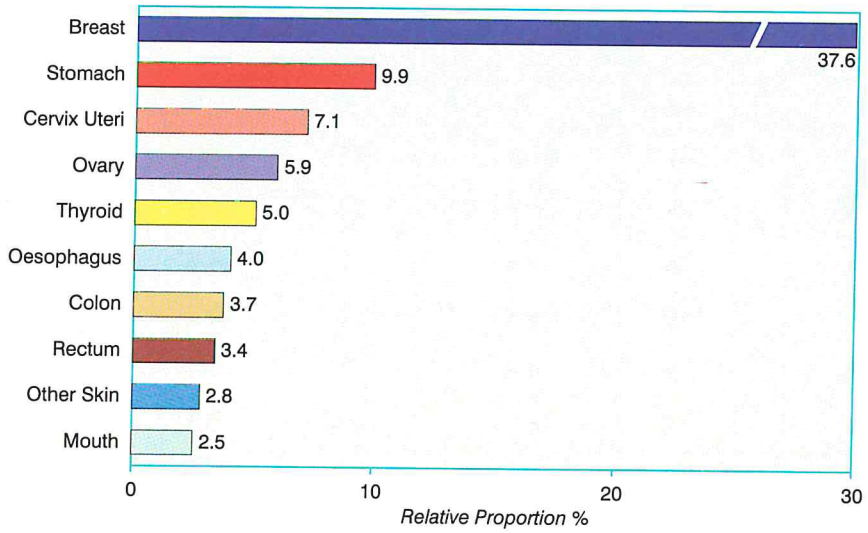
Name of District *(With Code)*	2001		2002		2001 - 2002	
	#	%	#	%	#	%
Thrissur *(3207)*	175	60.3	242	60.0	417	60.2
Palakkad *(3206)*	66	22.8	67	16.6	133	19.2
Malappuram *(3205)*	38	13.1	43	10.7	81	11.7
Kannur *(3202)*	4	1.4	37	9.2	41	5.9
Ernakulam *(3208)*	6	2.1	7	1.7	13	1.9
All Other Districts	1	0.3	7	1.7	8	2.1
Total Cases	**290**	**100.0**	**403**	**100.0**	**693**	**100.0**

FIGURE 7.56 : Ten Leading Sites of Cancer (2001 - 2002)

ales



nales



7.57. BJ Medical College, Pune

(Centre Code : 0042)

Dr. V. L. Yemul, Dean

Dr. Sanjay Deshmukh, Prof. & Head, Dept. of Pathology & Principal Investigator

Dr. (Mrs.) M. V. Jadhav, Assoc. Prof. of Pathology and Co-Principal Investigator

B. J. Medical College is a State Govt. Medical College at Pune. It is affiliated to the Sassoon General Hospitals, with bed strength of over 1200.

Both are located in the same campus. The total annual Under Graduate Student intake is 200. It runs several Post graduate courses. The new super-speciality hospital will soon be started.

TABLE 7.57(a) : Summary of Number of Cancers

Year	Males	Females	Total
2001	362	299	661
2002	180	177	357
2001 - 2002	**542**	**476**	**1018**

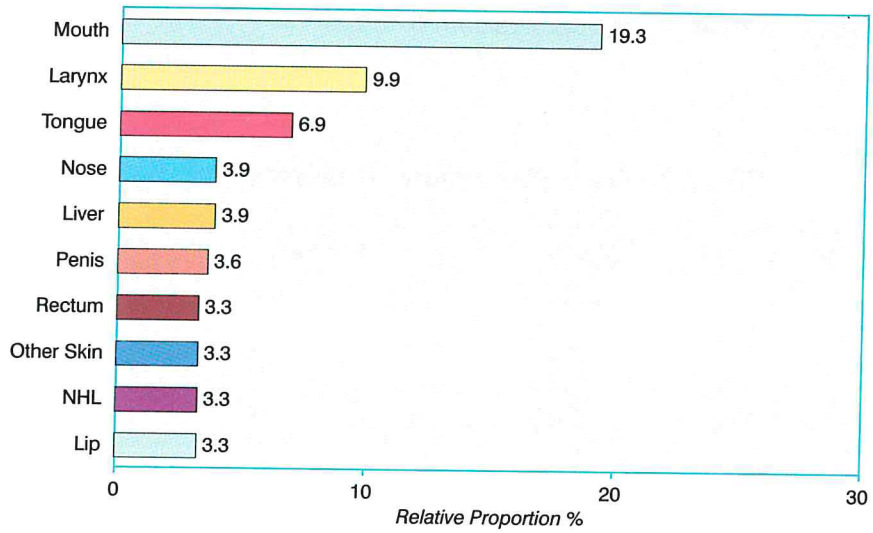
TABLE 7.57(b) : District-wise Distribution of Cancers (2001 - 2002)

Number (#) and Relative Proportion (%)

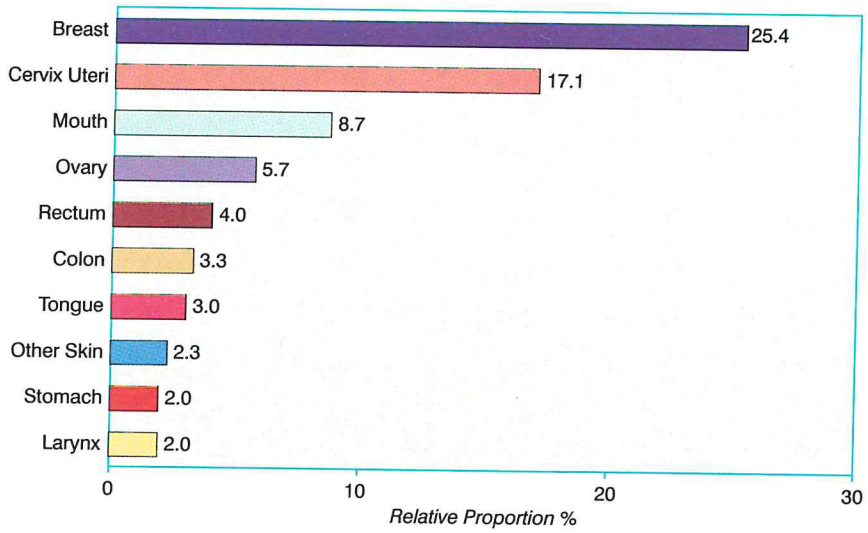
Name of District *(With Code)*	2001		2002		2001 - 2002	
	#	%	#	%	#	%
Pune *(2725)*	541	81.8	275	77.0	816	80.2
Ahmadnagar *(2726)*	44	6.7	28	7.8	72	7.1
Satara *(2731)*	16	2.4	17	4.8	33	3.2
Bid *(2727)*	10	1.5	9	2.5	19	1.9
Solapur *(2730)*	12	1.8	4	1.1	16	1.6
All Other Districts	38	5.7	24	6.7	62	6.1
Total Cases	**661**	**100.0**	**357**	**100.0**	**1018**	**100.0**

FIGURE 7.57 : Ten Leading Sites of Cancer (2001)

ales



nales



7.58. BRD Medical College, Gorakhpur

(Centre Code : 0027)

Dr. Surendra Pal Sharma, Prof. & Head, Dept. of Pathology and Principal Investigator

Dr. Rajiv Kumar Mishra, Assoc. Prof. of Pathology and Co-Principal Investigator

BRD Medical College, Gorakhpur is a government institution, situated in Eastern part of U.P., serving patients from adjoining areas of Bihar and Nepal apart from Eastern U.P., itself.

TABLE 7.58(a) : Summary of Number of Cancers

Year	Males	Females	Total
2001	127	157	284
2002	153	220	373
2001 - 2002	**280**	**377**	**657**

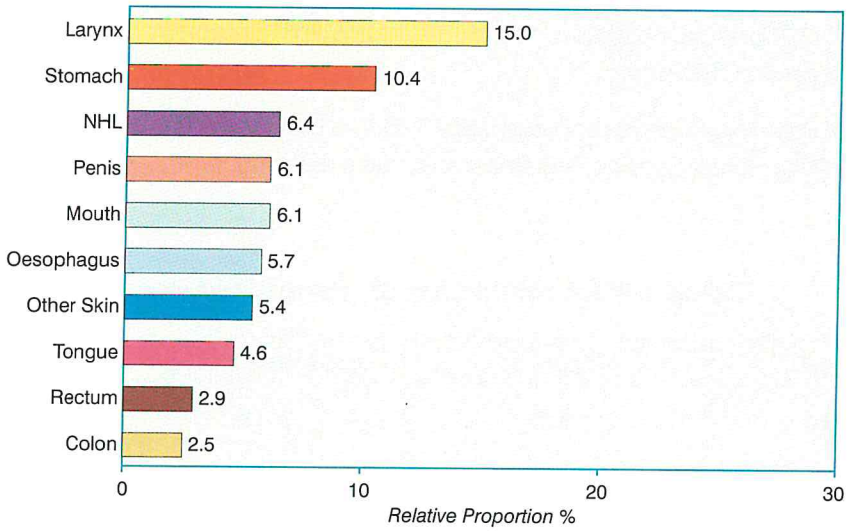
TABLE 7.58(b) : District-wise Distribution of Cancers (2001 - 2002)

Number (#) and Relative Proportion (%)

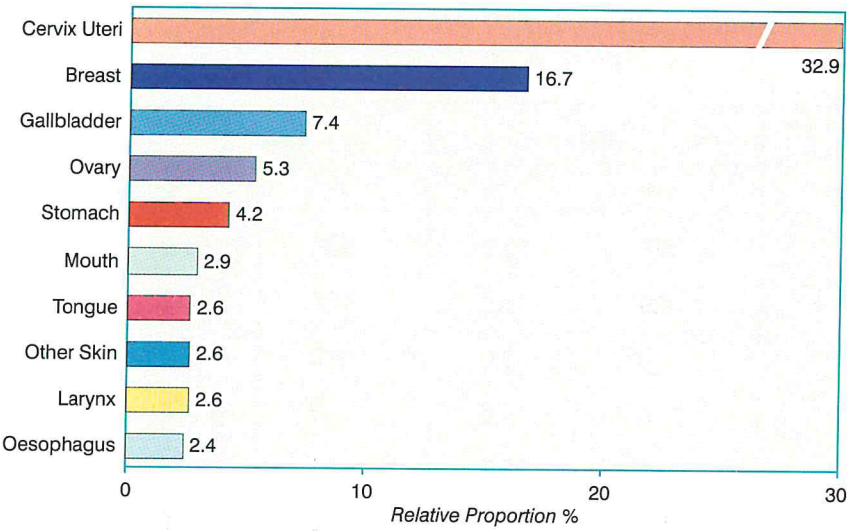
Name of District *(With Code)*	2001		2002		2001 - 2002	
	#	%	#	%	#	%
Gorakhpur *(958)*	70	24.6	111	29.8	181	27.5
Maharajganj *(957)*	48	16.9	53	14.2	101	15.4
Kushinagar *(959)*	31	10.9	50	13.4	81	12.3
Deoria *(960)*	32	11.3	42	11.3	74	11.3
Sidharthnagar *(954)*	27	9.5	22	5.9	49	7.5
Sant Kabir Nagar *(956)*	14	4.9	18	4.8	32	4.9
Basti *(955)*	17	6.0	14	3.8	31	4.7
Gopalganj *(1015)*	13	4.6	18	4.8	31	4.7
Siwan *(1016)*	10	3.5	10	2.7	20	3.0
All Other Districts	22	7.7	35	9.4	57	8.7
Total Cases	**284**	**100.0**	**373**	**100.0**	**657**	**100.0**

FIGURE 7.58 : Ten Leading Sites of Cancer (2001 - 2002)

les



ıales



7.59. Topiwala National Medical College, Mumbai

(Centre Code : 0031)

Dr. (Mrs.) Geeta V. Koppikar, Dean

Dr. (Mrs.) Jaya R. Deshpande, Prof. & Head, Dept. of Pathology and Principal Investigator

Dr. (Mrs.) Jyoti D. Rege, Assoc. Prof. of Pathology and Co-Investigator

Dr. Kusum D. Jashnani, Assoc. Prof. of Pathology and Co-Investigator

Topiwala National Medical College and B.Y.L. Nair Charitable Hospital, are located in Mumbai Central, in Mumbai, Maharashtra.

This hospital is a 1,300-bedded hospital run by Mumbai Municipal Corporation. It caters to approximately 1,900 to 2,200 patients daily on an OPD basis.

The department of Pathology receives approximately 5,000 – 6,000 specimens/biopsies annually. Similar numbers of Cytology smears (FNACs, Fluids, Gynaec Pap smears) are also received.

TABLE 7.59(a) : Summary of Number of Cancers

Year	Males	Females	Total
2001	130	94	224
2002	232	196	428
2001 - 2002	**362**	**290**	**652**

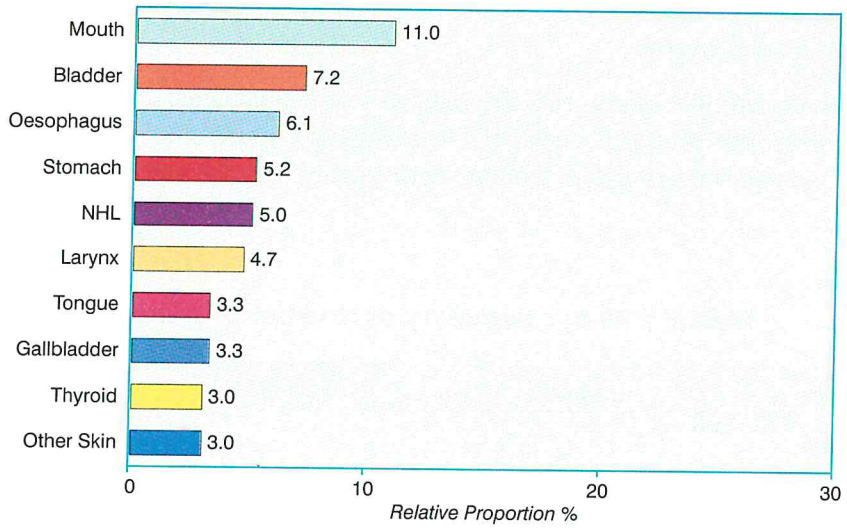
TABLE 7.59(b) : District-wise Distribution of Cancers (2001 - 2002)

Number (#) and Relative Proportion (%)

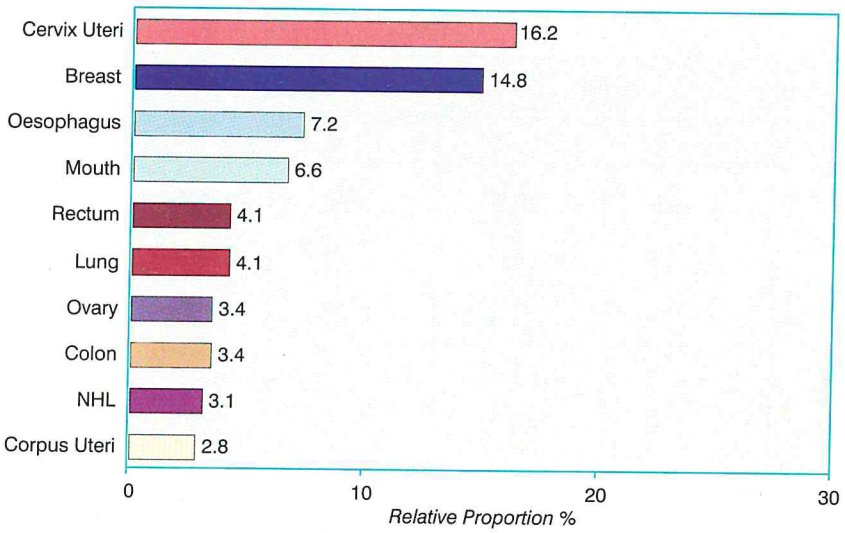
Name of District *(With Code)*	2001		2002		2001 - 2002	
	#	%	#	%	#	%
Mumbai *(2723)*	127	56.7	282	65.9	409	62.7
Thane *(2721)*	26	11.6	57	13.3	83	12.7
Raigarh *(2724)*	8	3.6	10	2.3	18	2.8
Ratnagiri (2732)	10	4.5	8	1.9	18	2.8
All Other Districts	53	23.7	71	16.6	124	19.0
Total Cases	**224**	**100.0**	**428**	**100.0**	**652**	**100.0**

FIGURE 7.59 : Ten Leading Sites of Cancer (2001 - 2002)

les



ales



7.60. PSG Institute of Medical Sciences and Research, Coimbatore

(Centre Code : 0001)

Dr. K. R. Bagyalakshmi, Principal and Prof. and Head, Dept. of Pathology
Dr. S. Shanthakumari, Asst. Prof. of Pathology and Principal Investigator
Dr. T.M. Subbarao, Asst. Prof. of Pathology and Co-Principal Investigator

The Department of Pathology has a plethora of subunits to cater to the needs of its ever-expanding teaching hospital. The 'PSG Hospitals' is a centre that offers quality health care at the tertiary level. The department is now a fully recognized postgraduate training centre.

The Department is involved in research activities with the 'International Agency for Research on Cancer', France and the 'Indian Council of Medical Research', New Delhi. The Department also collaborates with local universities such as the 'Avinashilingam Deemed University' and 'Bharathiar University' in conducting research on animal models.

TABLE 7.60(a) : Summary of Number of Cancers

Year	Males	Females	Total
2001	201	127	328
2002	165	151	316
2001 - 2002	**366**	**278**	**644**

TABLE 7.60(b) : District-wise Distribution of Cancers (2001 - 2002)

Number (#) and Relative Proportion (%)

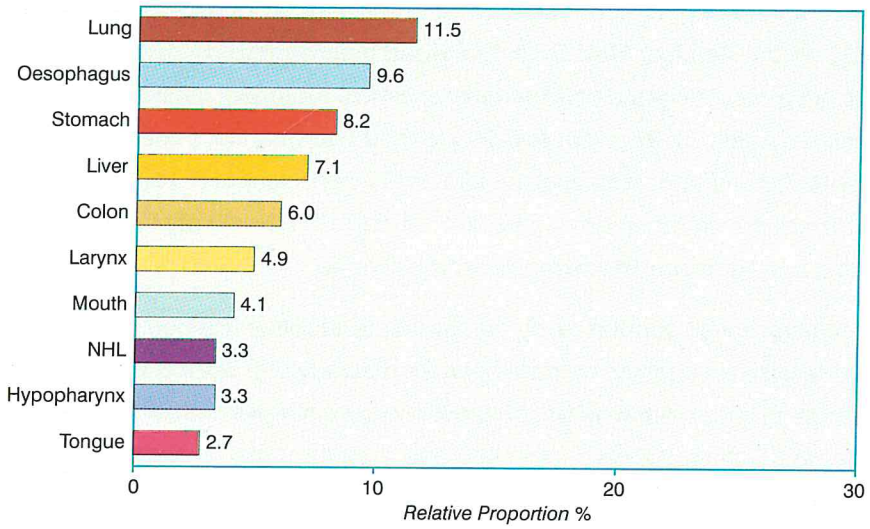
Name of District *(With Code)*	2001		2002		2001 - 2002	
	#	%	#	%	#	%
Coimbatore *(3312)*	259	79.0	242	76.6	501	77.8
Erode *(3310)*	38	11.6	33	10.4	71	11.0
Palakkad *(3206)*	11	3.4	16	5.1	27	4.2
The Nilgiris *(3311)*	4	1.2	7	2.2	11	1.7
Salem *(3312)*	2	0.6	5	1.6	7	1.1
All Other Districts	14	4.3	13	4.1	27	4.2
Total Cases	**328**	**100.0**	**316**	**100.0**	**644**	**100.0**

Apart from Histopathology, Clinical Pathology and Cytopathology sections that form the basic framework of the epartment, special services such as immunohistochemistry, frozen section and transfusion services represent the mbols of advancement and sophistication.

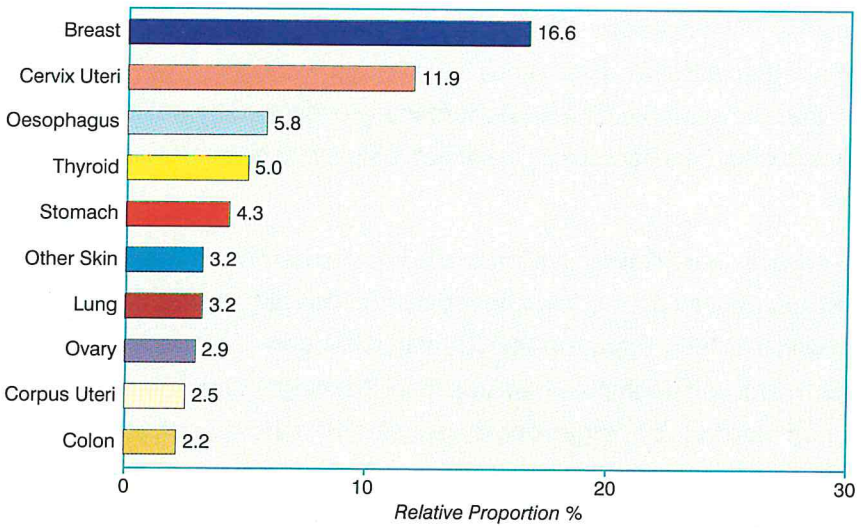
Dr. K.R. Bagyalakshmi MD, DCP heads the Department, with 30 years of teaching experience. She is ably sisted by Dr. T.M. Subba Rao MD, Dr. S. Shanthakumari MD and Dr. D. Jeevan MD in most of the research activities. hile Dr. Pushpavalli MD heads the Cytology section, Dr. Prasanna heads the Clinical Pathology and Transfusion edicine services.

FIGURE 7.60 : Ten Leading Sites of Cancer (2001 - 2002)

les



ıales



7.61. Mohan Dai Oswal Cancer Treatment and Research Foundation, Ludhiana

(Centre Code : 0002)

Dr. Satish Jain, Medical Director cum Chief of Surgery and Surgical Oncology

Dr. Veena Jain, Chief of Gynaec-oncology and Principal Investigator

Dr. R. Vasishtha, Sr. Consultant cum Deputy Medical Superintendent, Dept. of Radiotherapy and Investigator

Dr. Moyna, Consultant, Dept. of Pathology and Co-Investigator

Mohan Dai Oswal Cancer Treatment and Research Foundation was established in 1984 as a charitable institution to extend comprehensive quality care to community at large suffering from cancer at an affordable cost. It is a 300 bedded hospital located on the Amritsar-New Delhi G.T Road near Sherpur bypass Ludhiana. Over the period the hospital has developed into a well-equipped comprehensive cancer treatment centre. Clinical services are adequately supported by diagnostic divisions. On an average 3,000 to 3,500 new cancer patients are registered in the hospital besides follow-up patients. This number increases by 10% every year. Daily O.P.D attendance ranges from 350 to 400 patients (old and new). These patients include people from all walks of life not only from Punjab but adjacent Northern states of India including J & K, Himachal Pradesh, U.P. and Haryana.

Clinical departments are well supported by infrastructure facilities. Radiology Department has full range of conventional diagnostic facilities in addition to state-of-art whole body C.T. Scan & Ultrasound including transvaginal and transrectal probes. Image intensifier in operation theatre is specially useful in orthopaedic surgery. New additions in radiology department are Colour Doppler Logic 400 and a Mammography Unit with stereotactic biopsy facility. Nuclear medicine department with a Gamma camera and RIA lab are the busiest diagnostic services in this part of country. The institution has well-equipped and manned Laboratories like Histopathology and Biochemistry deptt. Cell counter, Autoanalyser, Blood-Gas and electrolyte analysis equipment are few of these. A walk-in-cooler in Blood Bank is an asset for supermajor cancer surgery. In addition blood bank has facilities for single donor platelet transfusion and stem cell transplantation using a Baxtor Blood cell separator.

Apart from providing comprehensive treatment for cancer, the hospital has fully developed departments of General surgery, Neurosurgery, Orthopaedics, Obstetrics & Gynaecology, Ophthalmology, Otorhinolaryngology, Dental Surgery, Medicine and allied specialities. Paediatrics, Cardiology, Endocrinology, Pulmonology, Gastroenterology and Psychiatry services are also available. These departments are manned by well-qualified and experienced senior consultants. Our motto is to offer best services to maximum patients at minimum cost. The charges of the hospital are as low as possible.

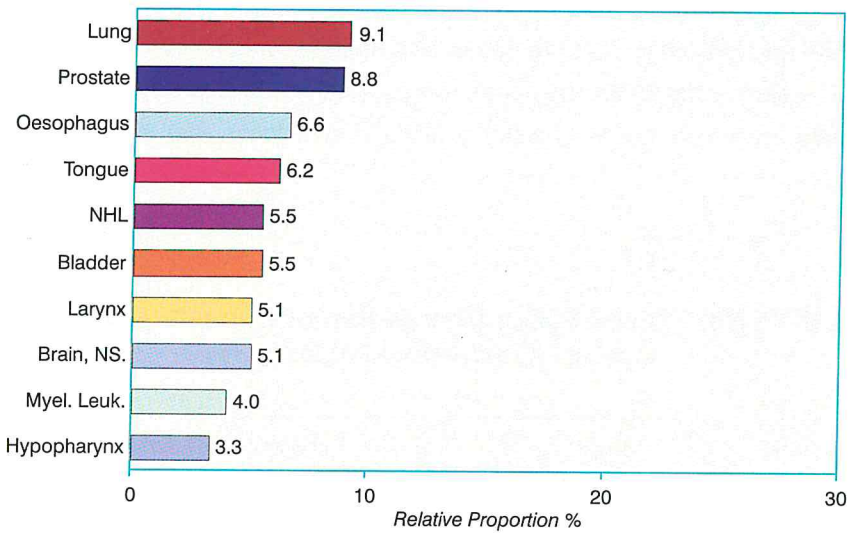
The Oncological services provided by this institution are comparable to the best in India. This centre is being increasingly recognized as a referral centre for cancer patients. The department of Radiation Oncology has got all facilities under one roof which include Theratron-780 (Cobalt), Mevatron –74 (Linear Accelerator), Selectron (Remote after loading system, a Simulator and a computerized Treatment Planning System. Recent addition in Radiation oncology is High Dose Selectron. On Surgical Oncology front, the spectrum of surgical procedures range from routine surgical procedures to major and ultra major Oncological procedures under the leadership of eminent and experienced surgeons. All of this is possible due to the availability of well-equipped most modern anaesthetic and surgical set up in operation

TABLE 7.61(a) : Summary of Number of Cancers

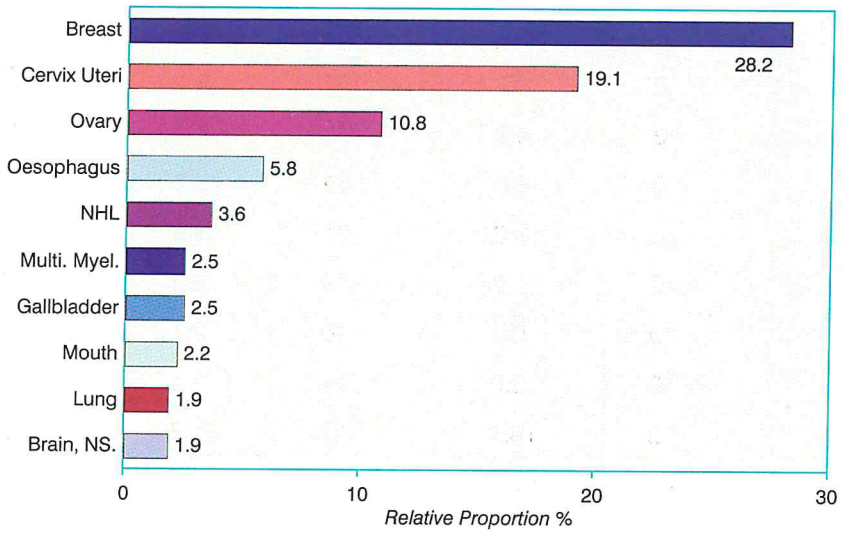
Year	Males	Females	Total
2001	23	20	43
2002	251	342	593
2001 - 2002	274	362	636

FIGURE 7.61 : Ten Leading Sites of Cancer (2001 - 2002)

es



ales



theatres, excellent I.C.U & Post-operative recovery room care. Medical Oncology department has unique "Protected Environment Ward" for the care of chemotherapy induced immuno-compromised patients which is only one of its kind in this part of the country. Gastroenterology department has Video-endoscopy and Spirometry is available in the department of Chest and Tuberculosis.

For indoor patients there are private super deluxe, double-deluxe, semi-deluxe and spacious well lit centrally air-conditioned and non air-conditioned general wards. The hospital runs a well person and well baby clinic which provide comprehensive health checkups and preventive programmes. Vidya Sagar Oswal Eye Unit has all the state of art equipment. All types of eye surgery are done with the latest Zeiss microscope. Stitchless cataract surgery is done by Phacoemulsification. Other facilities available are slit-lamp examination, computerized refraction, Applanatron tonometry, A-Scan Biometry. Low vision aids clinic is run regularly. An important aspect of management of ailing human beings especially for those suffering from cancer is the psychological support. Well-experienced psychotherapist is available for counseling of these patients along with their family members.

RURAL AND CANCER DETECTION CENTRE AT LOHARA, DISTT. MOGA

Whereas the foundation is committed to provide hi-tech medicare, it has chosen not to ignore the basic health needs of the country i.e. to provide the Service at the Doorstep in Rural India. This has been achieved through Rural Centre at Lohara which is being established through the joint efforts of the residents of the locality spearheaded by Mr. Kulwinder Singh, a NRI and his family. This is a 15 bedded hospital which was inaugurated by His Excellency the Governor of Punjab on 21st December 2000. The centre is equipped with Lab facility, X-ray, Ultrasound, Labour room, Operation theatre and male and female wards. The staff of MDOCT & RF looks after the entire patient care. The hospital

TABLE 7.61(b) : District-wise Distribution of Cancers (2001 - 2002)

Number (#) and Relative Proportion (%)

Name of District (With Code)	2001		2002		2001 - 2002	
	#	%	#	%	#	%
Ludhiana *(309)*	13	30.2	154	26.0	167	26.3
Jalandhar *(304)*	10	23.3	86	14.5	96	15.1
Hoshiarpur *(305)*	2	4.7	34	5.7	36	5.7
Sangrur *(316)*	6	14.0	29	4.9	35	5.5
Gurdaspur *(301)*	2	4.7	32	5.4	34	5.3
Amritsar *(302)*	2	4.7	31	5.2	33	5.2
Kapurthala *(303)*	0	0.0	30	5.1	30	4.7
Patiala *(317)*	0	0.0	21	3.5	21	3.3
Bathinda *(314)*	0	0.0	17	2.9	17	2.7
Firozpur *(311)*	0	0.0	16	2.7	16	2.5
Nawanshahr *(306)*	0	0.0	14	2.4	14	2.2
All Other Districts	8	18.6	129	21.8	137	21.5
Total Cases	**43**	**100.0**	**593**	**100.0**	**636**	**100.0**

ganizes camps in different fields every week to create health awareness in the community. All types of minor and lective major surgical procedures are done here. We plan to affiliate 2-3 more peripheral centres to launch such tivities. Our involvement in promotion of national programmes has been significant.

DUCATION AND TRAINING PROGRAMMES

We are an institution committed to excellent training of medical, paramedical and nursing manpower. National oard has recognized the hospital for specialist training in Radiotherapy, Radio-diagnosis, Orthopaedics, Surgery, naesthesia, Medicine & Gynae and Obstetrics. Hospital is recognized for rotating internship and house job in all ecialties by MCI, New Delhi. School of Nursing, Radiographer training for DML are all recognized by Govt. of Punjab. adiotherapy students are certified by Bhabha Atomic Research Centre (BARC) for radiation safety course. Our centre recognized for field training in medical physics by BARC. It may be of interest to note that we provide the cheapest ncer treatment facilities in the region. Our charges are at par with the Govt. institutions levy for similar services. Our eady growth and progress has been possible by the active and willing co-operation extended to us by sister institutions. day the hospital is recognized as a centre of excellence and this encourages us to make better efforts to reach eater heights in all fields of patient care. We are thankful to the medical fraternity and people at large without whose th and support it would never have been possible, for us to achieve and maintain our objective of "Maximum benefits largest number at minimum cost".

7.62. Silchar Medical College and Hospital, Silchar

(Centre Code : 0079)

Dr. R. Purkayastha, Principal in Charge

Dr. Sekhar Chakravarty, Prof. and Head, Dept. of Pathology and Principal Investigator

Dr. D. Dutta, Asst. Professor of Pathology and Co-Principal Investigator

Silchar Medical College a premier undergraduate and post-graduate teaching institute is located in southern Assam at the foothills of Borail hill range of the eastern Himalayas in the town of Silchar, which is called the gateway to the states of Mizoram, Tripura and Manipur. Silchar town forms the eastern most point of the 'Golden Quadrilateral'- the dream National superhighway project. The various departments of the 850 bedded Silchar Medical College and Hospital cater health care facilities to the population of Barak Valley region of Assam and adjoining states of Tripura, Manipur and Mizoram as well as some areas of neighbouring Bangladesh. Under the leadership of the present Principal (I/c), Dr. R. Purkayastha, the staff members of the institute strive hard to meet the needs of suffering as well as upholding the standards of medical education and service with available resources.

The department of Pathology of the college is well equipped and housed in a three storied building with its various divisions. There are six faculty members, five demonstrators and fourteen medical laboratory technicians under the leadership of Dr. Sekhar Chakravarty, Professor & Head of the department. It imparts undergraduate teaching in

TABLE 7.62(a) : Summary of Number of Cancers

Year	Males	Females	Total
2001	132	95	227
2002	208	135	343
2001 - 2002	**340**	**230**	**570**

TABLE 7.62(b) : District-wise Distribution of Cancers (2001 - 2002)

Number (#) and Relative Proportion (%)

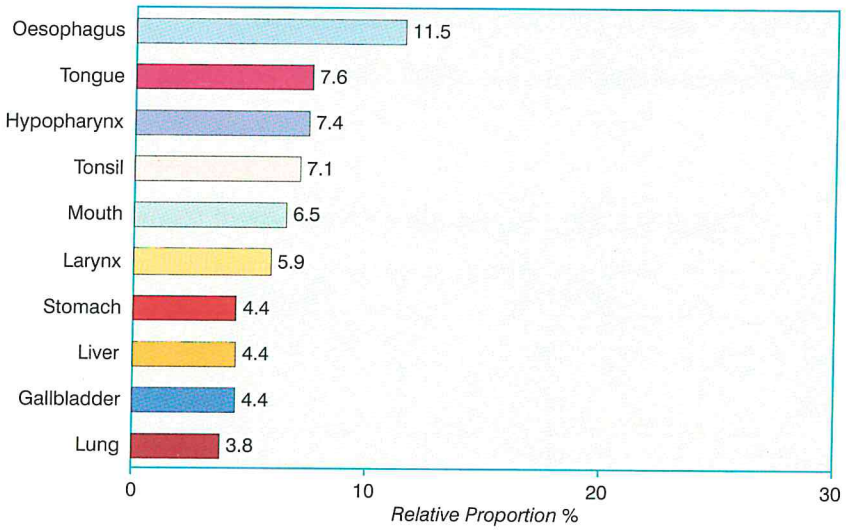
Name of District (With Code)	2001		2002		2001 - 2002	
	#	%	#	%	#	%
Cachar *(1821)*	132	58.1	188	54.8	320	56.1
Karimganj *(1822)*	46	20.3	55	16.0	101	17.7
Hailakandi *(1823)*	35	15.4	63	18.4	98	17.2
North Tripura *(1604)*	6	2.6	26	7.6	32	5.6
South Tripura *(1602)*	0	0.0	6	1.7	6	1.1
All Other Districts	8	3.5	5	1.5	13	2.3
Total Cases	**227**	**100.0**	**343**	**100.0**	**570**	**100.0**

athology, medical laboratory technician training course and collaborates with the Post-graduate thesis works of the inical post-graduate departments. Apart from routine biopsy examination, the Histopathology division carries out utopsies. The haematology division has facilities for coagulation study, nutritional and hemolytic anemia profile and /tochemistry for leukemia. Cytology division deals in exfoliative cytology, fluid cytology and FNAC including CT uided ones. Clinical pathology conducts routine investigations on all in-patients and out-patients of the hospitals. The epartment is also involved in different research projects of local importance.

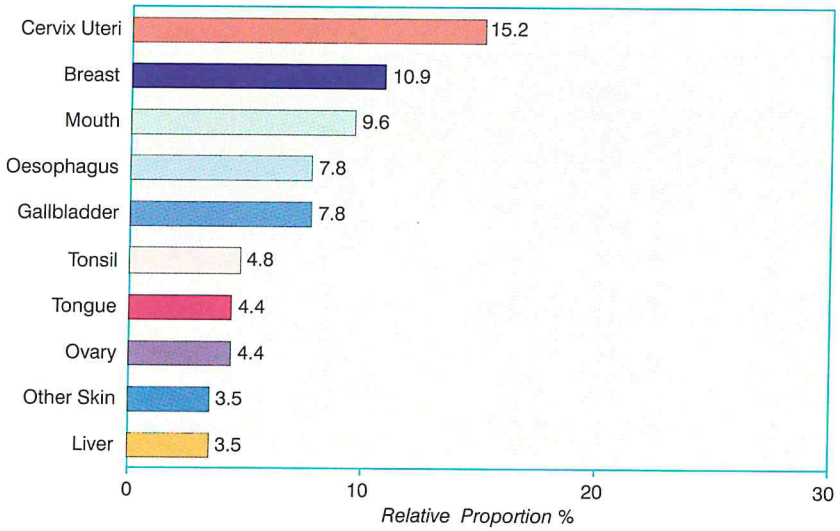
The department under Dr. Sekhar Chakravaty, Professor & Head, as the Principal Investigator and Dr. D. Dutta, sst. Professor, as the Co-Investigator, has been selected by ICMR as one of the participating centres for the projects, evelopment of an Atlas of Cancer in India' and 'Population Based Cancer Registry (PBCR) in Silchar Town'. The staff the 'PBCR' in Silchar Town consist of one statistician and one Social Investigator at present. Both the projects have ade significant progress in the fulfillment of their objectives.

FIGURE 7.62 : Ten Leading Sites of Cancer (2001 - 2002)

ales



nales



7.63. Government Medical College, Nanded

(Centre Code : 0037)

Dr. S. K. Kawathekar, Principal

Dr. S. B. Rathod, Prof. and Head, Dept. of Pathology and Principal Investigator

Dr. (Mrs.) S. A. Deshpande, Assoc. Prof. and Co-Principal Investigator

Dr. B. H. Namdhari, Lecturer and Faculty In-Charge

Nanded is a small city on the river side of Godavari, it is also called as Dakshin Ganga. Nanded city was previously known as Nandigram and it was a part of Nizam state, now it is placed in Marathwada, a revenue division of Maharashtra state.

This city is also famous for Gurudwara of the 10th Guru of Sikh religion. The sikh community from the entire world visits NANDED as it is called 'Dakshin Kashi'.

Nanded disitrict is a border district for Andhra and Karnataka states. The hospital named 'SHRI GURU GOBIND SINGH JI MEMORIAL HOSPITAL' caters to patients from these states also.

This medical college was established in the year 1988 with an intake capacity of 50 MBBS students.

TABLE 7.63(a) : Summary of Number of Cancers

Year	Males	Females	Total
2001	85	162	247
2002	71	175	246
2001 - 2002	**156**	**337**	**493**

TABLE 7.63(b) : District-wise Distribution of Cancers (2001 - 2002)

Number (#) and Relative Proportion (%)

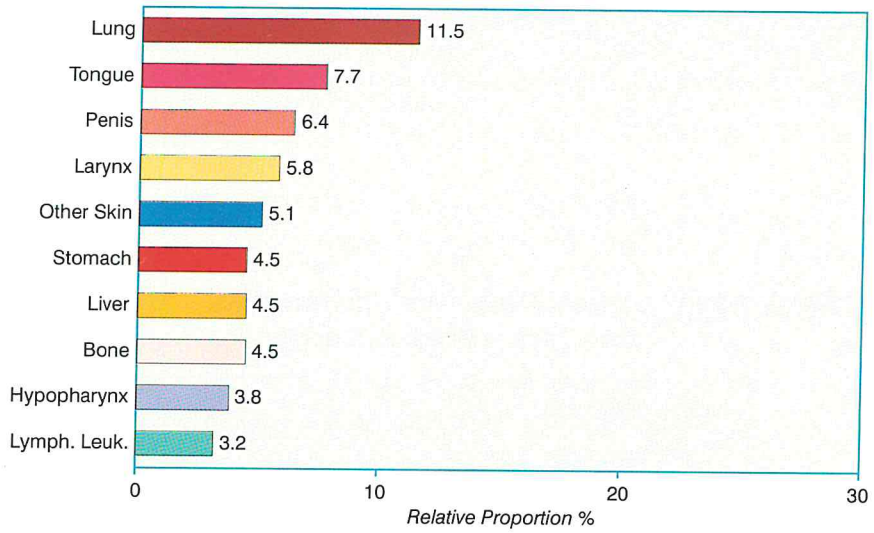
Name of District *(With Code)*	2001		2002		2001 - 2002	
	#	%	#	%	#	%
Nanded *(2715)*	191	77.3	197	80.1	388	78.7
Hingoli *(2716)*	25	10.1	8	3.3	33	6.7
Parbhani *(2717)*	9	3.6	14	5.7	23	4.7
Yavatmal *(2714)*	10	4.0	10	4.1	20	4.1
Adilabad *(2801)*	5	2.0	2	0.8	7	1.4
All Other Districts	7	2.8	15	6.1	22	4.5
Total Cases	**247**	**100.0**	**246**	**100.0**	**493**	**100.0**

The other faculty involved in the project include :

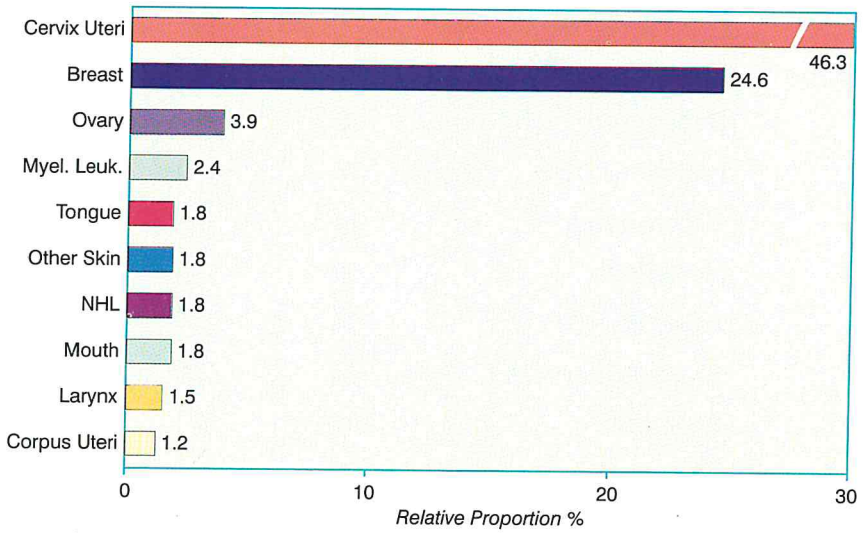
Dr. S.V. Bhatambrekar
Dr. (Mrs.) P.S.Muley
Dr. A.G. Labhshetwar
Dr. S.V. Suvenkar
Dr. M.S.Dhawale
Dr. Y.H. Chavan
Dr. P.N. Kadam.

FIGURE 7.63 : Ten Leading Sites of Cancer (2001 - 2002)

les



ıales



7.64. King George's Medical College, Lucknow

(Centre Code : 0055)

Dr. M. R. S. Kushwaha, Prof. and Head, Dept. of Pathology and Principal Investigator

Dr. Raj Mehrotra, Prof. of Pathology and Co-Principal Investigator

TABLE 7.64(a) : Summary of Number of Cancers

Year	Males	Females	Total
2001	273	201	474

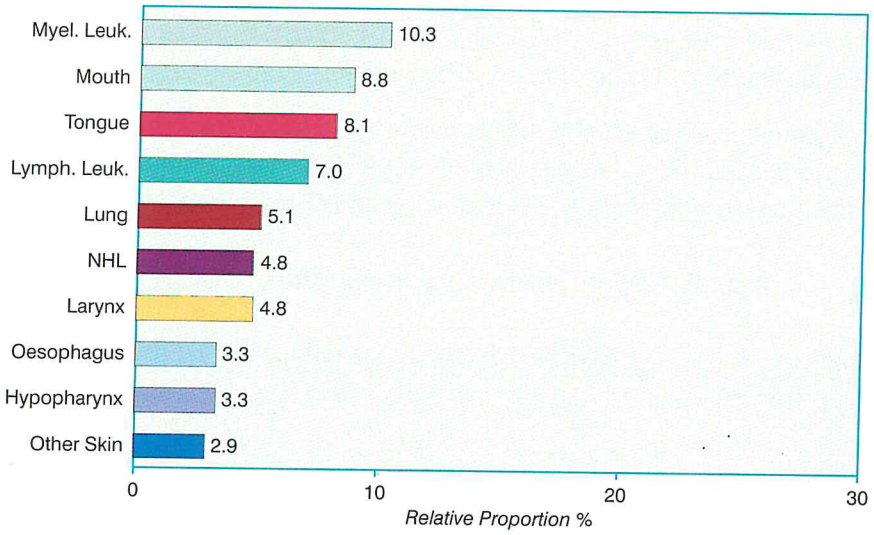
TABLE 7.64(b) : District-wise Distribution of Cancers (2001)

Number (#) and Relative Proportion (%)

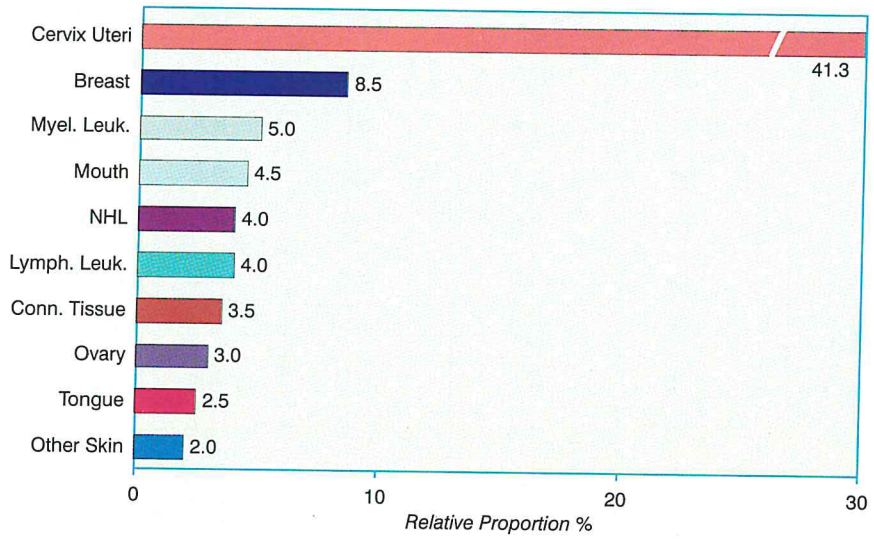
Name of District *(With Code)*	#	%
Lucknow *(927)*	155	32.7
Barabanki *(946)*	45	9.5
Sitapur *(924)*	31	6.5
Hardoi *(925)*	23	4.9
Rae Bareli *(928)*	21	4.4
Sultanpur *(949)*	20	4.2
Gonda *(953)*	19	4.0
Lakhmipur *(1812)*	19	4.0
Bahraich *(950)*	16	3.4
Unnao *(926)*	15	3.2
Faizabad *(947)*	14	3.0
Shahjahanpur *(922)*	14	3.0
Basti *(955)*	10	2.1
All Other Districts	72	15.2
Total Cases	**474**	**100.0**

FIGURE 7.64 : Ten Leading Sites of Cancer (2001)

les



ales



7.65. Gandhi Medical College, Hyderabad

(Centre Code : 0013)

Prof. Dr. M. Sikinder Hayath, Prof. & Head, Dept. of Pathology and Principal Investigator

Dr. Vani Padmaja, Assoc. Prof. of Pathology and Co-Principal Investigator

Gandhi Medical College situated in Basheerbagh, Hyderabad in Andhra Pradesh was started in 1956. The Department of Pathology was commissioned in 1959. This department caters to the needs of patients not only within the twin cities of Ranga Reddy district but also to those from the neighbouring districts.

Post-graduate course commenced from 1983. Since then, to date twentyfour MDs and seventeen D.C.Ps have taken their postgraduate degrees from this department. It also caters to 150 undergraduate students every year.

The staff of this department consists of two Professors, five Associate Professors, eleven Assistant Professors and four Tutors. It provides services to fourteen specialties and four super specialties. The work undertaken by this department is in the fields of Histopathology, Cytopathology, Haematology and Clinical Pathology.

TABLE 7.65(a) : Summary of Number of Cancers

Year	Males	Females	Total
2001	117	103	220
2002	126	124	250
2001 - 2002	**243**	**227**	**470**

TABLE 7.65(b) : District-wise Distribution of Cancers (2001 - 2002)

Number (#) and Relative Proportion (%)

Name of District *(With Code)*	2001		2002		2001 - 2002	
	#	%	#	%	#	%
Hyderabad *(2805)*	80	36.4	114	45.6	194	41.3
Medak *(2804)*	37	16.8	46	18.4	83	17.7
Nalgonda *(2808)*	35	15.9	21	8.4	56	11.9
Rangareddi *(2806)*	20	9.1	24	9.6	44	9.4
Warangal *(2809)*	16	7.3	13	5.2	29	6.2
Nizamabad *(2802)*	8	3.6	8	3.2	16	3.4
Karimnagar *(2803)*	6	2.7	7	2.8	13	2.8
Mehbubnagar *(2807)*	5	2.3	7	2.8	12	2.6
Khammam *(2810)*	3	1.4	3	1.2	6	1.3
All Other Districts	10	4.5	7	2.8	17	3.6
Total Cases	**220**	**100.0**	**250**	**100.0**	**470**	**100.0**

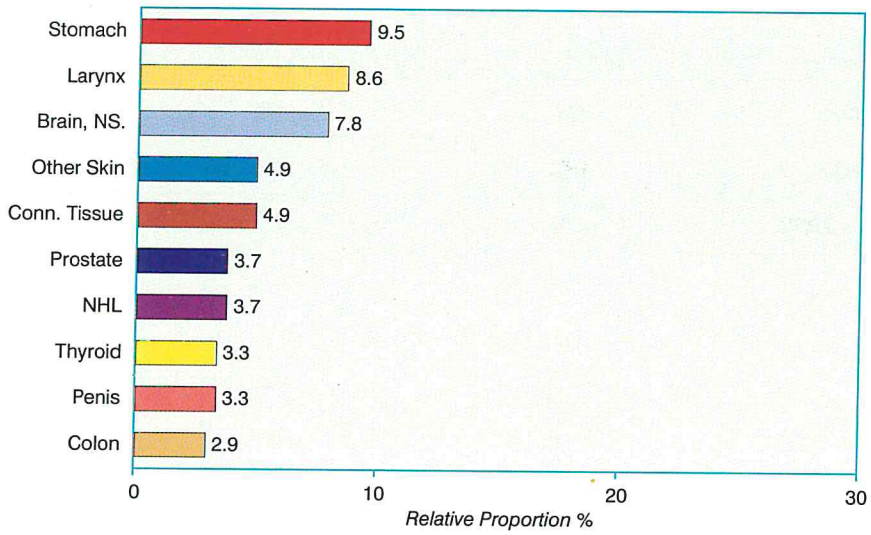
Academic profile of this department: 10-15 papers are presented every year in the state conference, a minimum six workshops/CME is conducted and this department monitors the medical education cell.

The Principal Investigator, Prof. Dr. M. Sikinder Hayath has put in a total of 31 years of service with fifteen years post-graduate teaching. He is also the recipient of the Best Teacher Award of the State of A.P. for the year 2001.

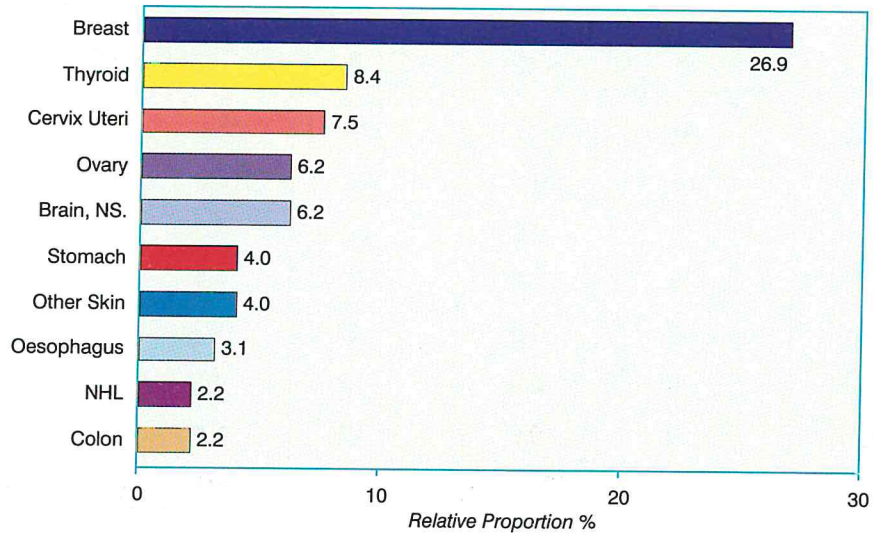
The Co-Principal Investigator - Dr. Vani Padmaja, a graduate and post-graduate of Gandhi Medical College, has een working for the past ten years.

FIGURE 7.65 : Ten Leading Sites of Cancer (2001 - 2002)

ıles



ıales



7.66. Burdwan Medical College, Burdwan

(Centre Code : 0115)

Prof. Bijoy Mukherjee, Principal

Dr. Sulekha Ghosh, Asst. Prof. of Pathology and Principal Investigator

Dr. Tapan Kumar Ghosh, Demonstrator and Co-Principal Investigator

Other persons assisting in the project include Sri Dhruba Jyoti Ghosh in computer CD preparation and Sri Sashi Bhusan Tewari, Sri Narayan Chandra Das and Sri Pranabesh Bhattacharya for collection of data.

TABLE 7.66(a) : Summary of Number of Cancers

Year	Males	Females	Total
2001	31	24	55
2002	187	228	415
2001 - 2002	**218**	**252**	**470**

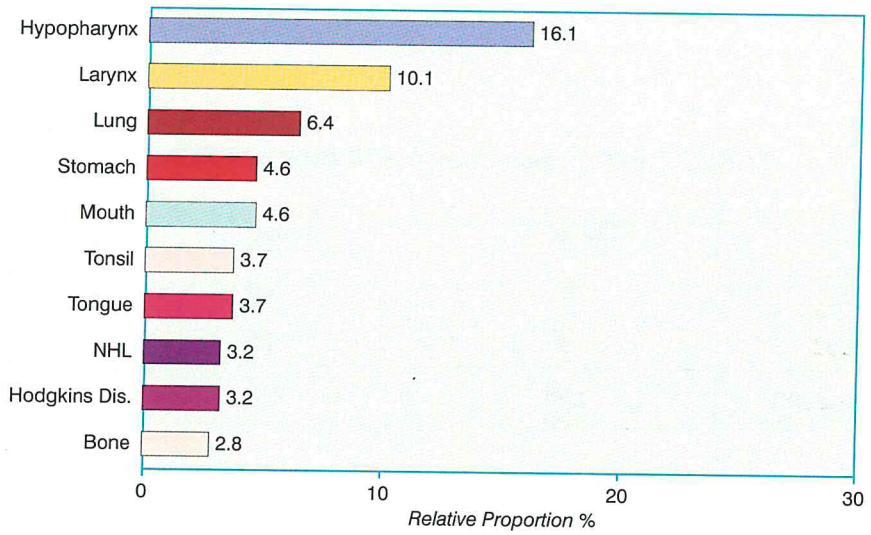
TABLE 7.66(b) : District-wise Distribution of Cancers (2001 - 2002)

Number (#) and Relative Proportion (%)

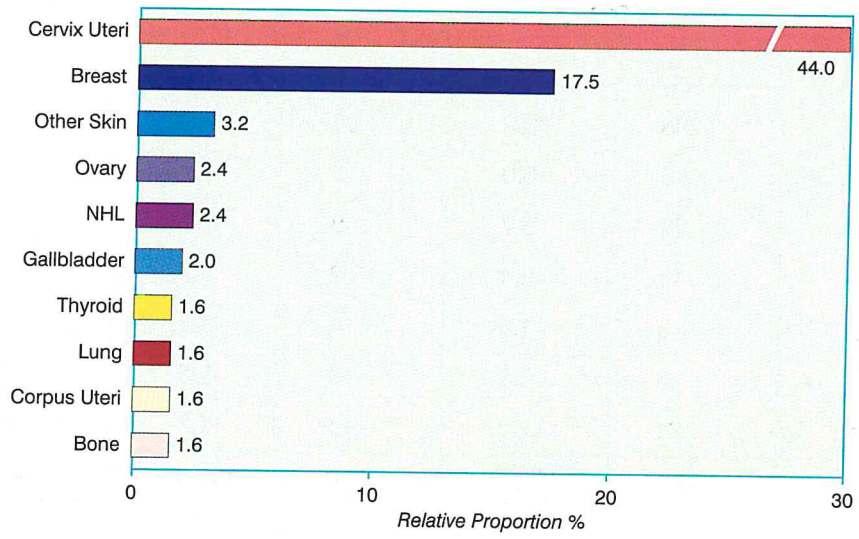
Name of District *(With Code)*	2001		2002		2001 - 2002	
	#	%	#	%	#	%
Barddhaman *(1909)*	38	69.1	274	66.0	312	66.4
Birbhum *(1908)*	16	29.1	70	16.9	86	18.3
Hugli *(1912)*	0	0.0	32	7.7	32	6.8
Bankura *(1913)*	1	1.8	17	4.1	18	3.8
Murshidabad *(1907)*	0	0.0	5	1.2	5	1.1
Nadia *(1910)*	0	0.0	5	1.2	5	1.1
All Other Districts	0	0.0	12	2.9	12	2.6
Total Cases	**55**	**100.0**	**415**	**100.0**	**470**	**100.0**

FIGURE 7.66 : Ten Leading Sites of Cancer (2001 - 2002)

les



ales



7.67. Anand Institute of Laboratory Medicine, Bangalore

(Centre Code : 0059)

Dr. A. V. Ramprasad, Head of the Institute

Dr. N. Jayaram, Principal Investigator

Dr. N. Sujay Prasad, Dr. Shubhangi Tambwekar, Dr. K. P. Suneetha, Co-Investigators

Anand Diagnostic Laboratory was established in the year 1974. It's a multispecialty clinical diagnostic laboratory.

The various departments include Clinical Pathology, Clinical and higher chemistry, Haematology, Microbiology and Serology, Histopathology and Cytopathology, X-ray and Ultrasound Scan.

TABLE 7.67(a) : Summary of Number of Cancers

Year	Males	Females	Total
2001	169	158	327
2002	55	65	120
2001 - 2002	**224**	**223**	**447**

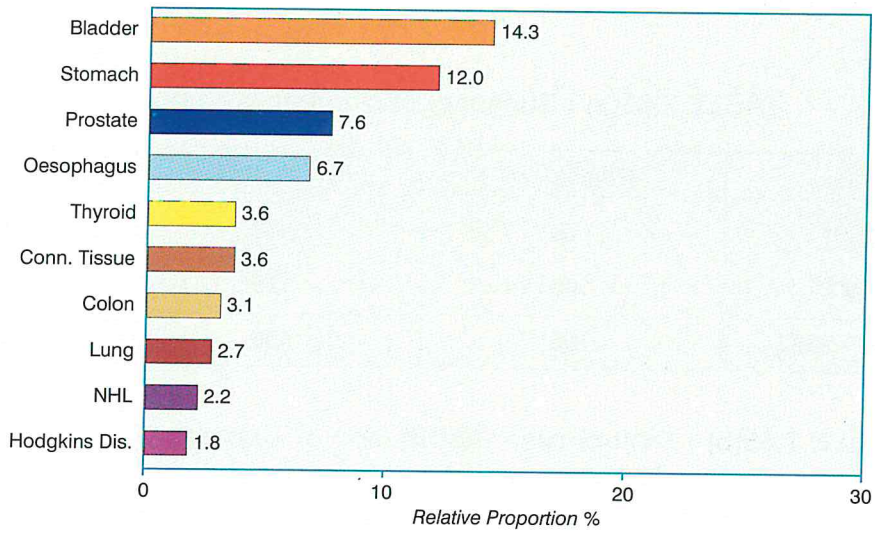
TABLE 7.67(b) : District-wise Distribution of Cancers (2001 - 2002)

Number (#) and Relative Proportion (%)

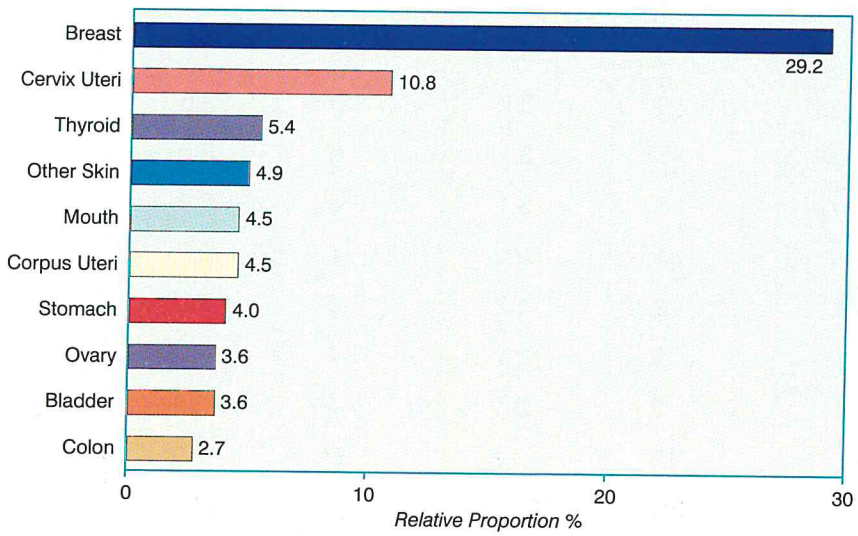
Name of District *(With Code)*	2001		2002		2001 - 2002	
	#	%	#	%	#	%
Bangalore *(2920)*	236	72.2	84	70.0	320	71.6
Bangalore Rural *(2921)*	26	8.0	5	4.2	31	6.9
Kolar *(2919)*	22	6.7	8	6.7	30	6.7
Tumkur *(2918)*	11	3.4	2	1.7	13	2.9
Dharmapuri *(3305)*	5	1.5	4	3.3	9	2.0
Anantapur *(2822)*	3	0.9	3	2.5	6	1.3
All Other Districts	24	7.3	14	11.7	38	8.5
Total Cases	**327**	**100.0**	**120**	**100.0**	**447**	**100.0**

FIGURE 7.67 : Ten Leading Sites of Cancer (2001 - 2002)

ıles



ıales



7.68. National Pathology Laboratory, Hyderabad

(Centre Code : 0089)

Dr. A. Rajasekhar, Chief Pathologist and Principal Investigator

The laboratory receives approximately 6,000 cases per year (4,000 histopathology cases, 1,500 cytology cases and 500 hematology and clinical pathology cases).

Dr. Rajasekhar is the sole consultant. The laboratory is equipped with an automatic tissue processor and Leica microtome, microwave oven, laboratory centrifuge, micro centrifuge, universal incubator, electronic balance, calorimeter, hotplate, magnetic stirrer, refrigerator, water bath and autoclave.

TABLE 7.68(a) : Summary of Number of Cancers

Year	Males	Females	Total
2001	79	82	161
2002	109	116	225
2001 - 2002	**188**	**198**	**386**

TABLE 7.68(b) : District-wise Distribution of Cancers (2001 - 2002)

Number (#) and Relative Proportion (%)

Name of District (With Code)	2001		2002		2001 - 2002	
	#	%	#	%	#	%
Hyderabad *(2805)*	73	45.3	104	46.2	177	45.9
Nalgonda *(2808)*	11	6.8	13	5.8	24	6.2
Mehbubnagar *(2807)*	7	4.3	12	5.3	19	4.9
West Godavari *(2815)*	8	5.0	9	4.0	17	4.4
Nizamabad *(2802)*	3	1.9	14	6.2	17	4.4
Karimnagar *(2803)*	5	3.1	9	4.0	14	3.6
Warangal *(2809)*	6	3.7	8	3.6	14	3.6
Medak *(2804)*	5	3.1	8	3.6	13	3.4
East Godavari *(2814)*	5	3.1	6	2.7	11	2.8
Rangareddi *(2806)*	4	2.5	6	2.7	10	2.6
Khammam *(2810)*	2	1.2	5	2.2	7	1.8
Krishna *(2816)*	5	3.1	2	0.9	7	1.8
Kurnool *(2821)*	5	3.1	2	0.9	7	1.8
All Other Districts	22	13.7	27	12.0	49	12.7
Total Cases	**161**	**100.0**	**225**	**100.0**	**386**	**100.0**

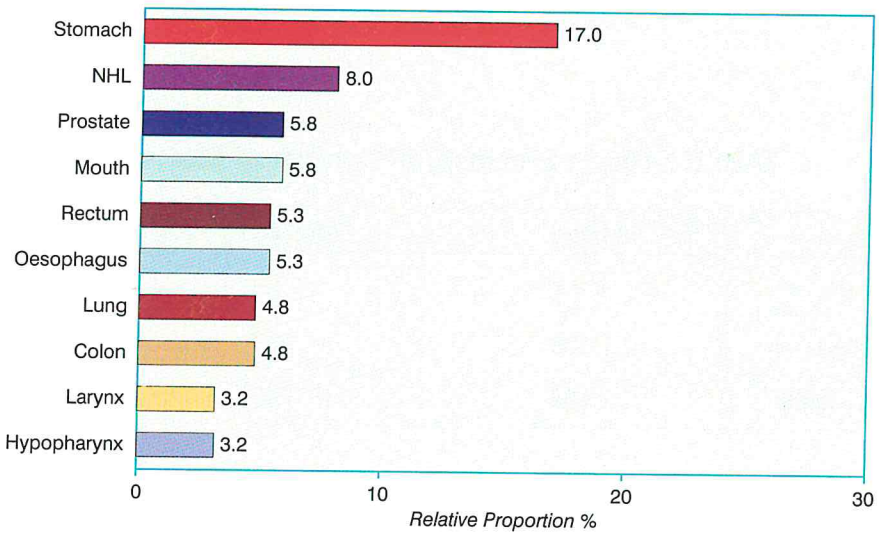
Laboratory software based on the Oracle and Visual Basic has been developed.

Internet based customer services like report dispatch and related enquiries are provided.

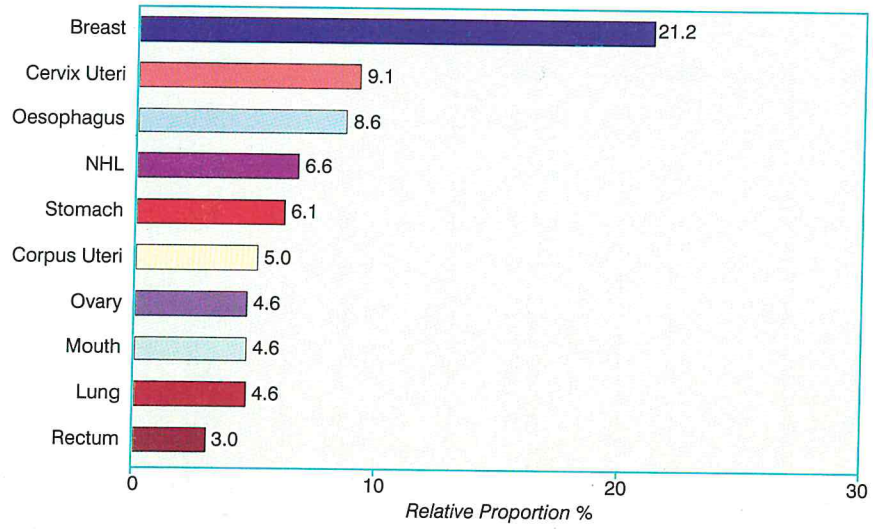
In addition to the diagnostic pathology services, we are collaborating with the Indian Institute of Chemical chnology and Reddy's Research Foundation for toxicological studies on experimental animals to find out the histological anges during the administration of newly developed drugs.

FIGURE 7.68 : Ten Leading Sites of Cancer (2001 - 2002)

ıles



ıales



7.69. Rural Medical College, Loni

(Centre Code : 0103)

Dr. A. G. Kulkarni, Principal

Dr. (Col) A.G. Bhopte, Prof. & Head, Dept. of Pathology and Principal Investigator

Dr. R.R Karle, Assoc. Prof. of Pathology and Co-Principal Investigator

Dr. S.D. Dongre, Prof. of Pathology and Co-Principal Investigator

TABLE 7.69(a) : Summary of Number of Cancers

Year	Males	Females	Total
2001	21	38	59
2002	103	202	305
2001 - 2002	**124**	**240**	**364**

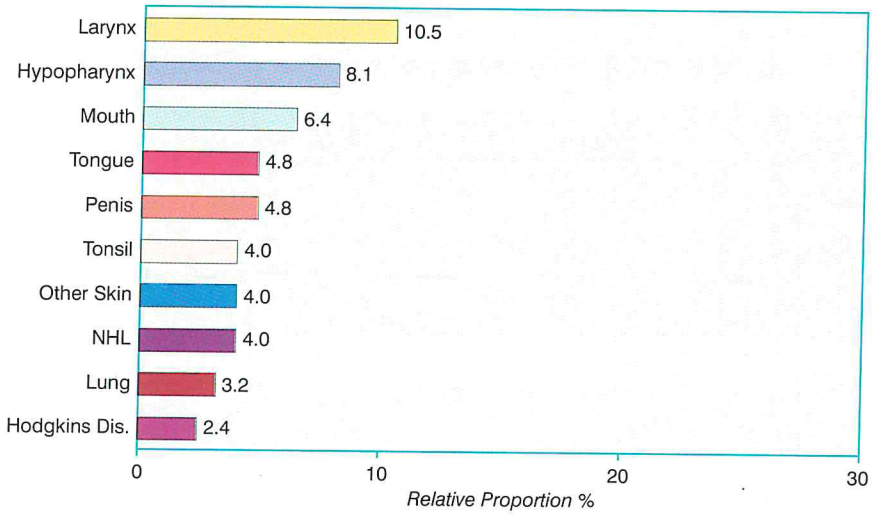
TABLE 7.69(b) : District-wise Distribution of Cancers (2001 - 2002)

Number (#) and Relative Proportion (%)

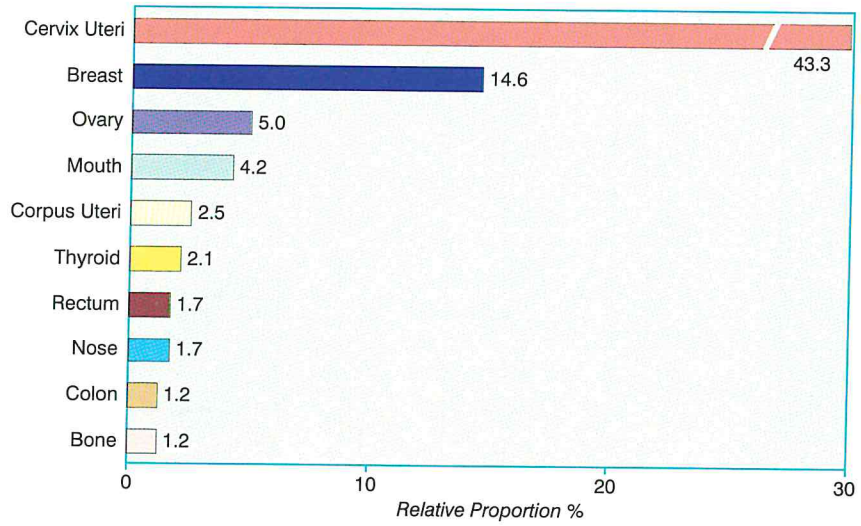
Name of District *(With Code)*	2001		2002		2001 - 2002	
	#	%	#	%	#	%
Ahmadnagar *(2726)*	45	76.3	240	78.7	285	78.3
Nashik *(2720)*	9	15.3	40	13.1	49	13.5
Aurangabad *(2719)*	2	3.4	12	3.9	14	3.8
Jalgaon *(2703)*	1	1.7	5	1.6	6	1.6
Bid *(2727)*	1	1.7	4	1.3	5	1.4
Pune *(2725)*	1	1.7	2	0.7	3	0.8
Osmanabad *(2729)*	0	0.0	1	0.3	1	0.3
Surendranagar *(2408)*	0	0.0	1	0.3	1	0.3
All Other Districts	3	5.1	13	4.3	16	4.4
Total Cases	**59**	**100.0**	**305**	**100.0**	**364**	**100.0**

FIGURE 7.69 : Ten Leading Sites of Cancer (2001 - 2002)

les



ales



7.70. Dr. Ravi's Pathology Laboratory, Nagpur

(Centre Code : 0110)

Dr. R. Ravi, Chief Pathologist and Principal Investigator

TABLE 7.70(a) : Summary of Number of Cancers

Year	Males	Females	Total
2001	78	44	122
2002	126	71	197
2001 - 2002	204	115	319

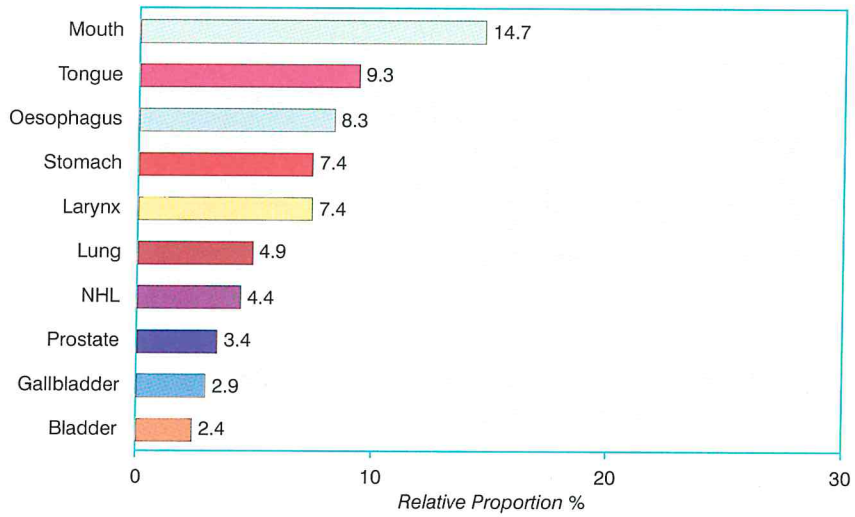
TABLE 7.70(b) : District-wise Distribution of Cancers (2001 - 2002)

Number (#) and Relative Proportion (%)

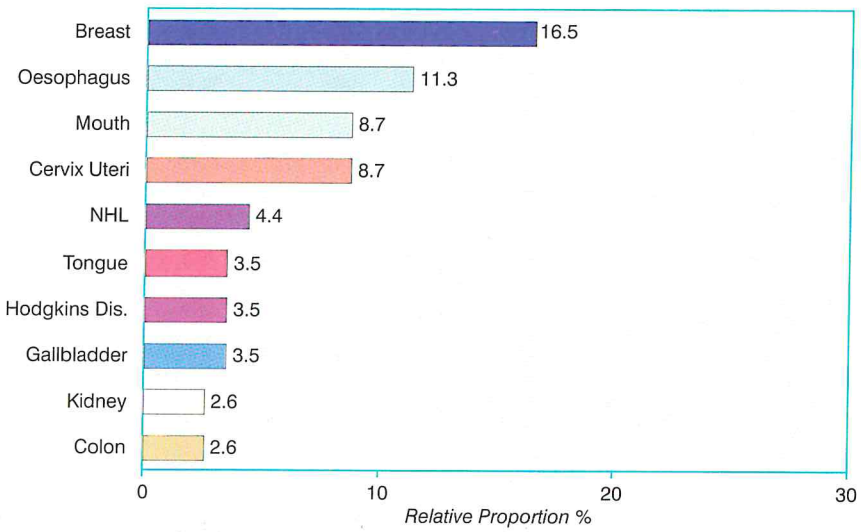
Name of District (With Code)	2001		2002		2001 - 2002	
	#	%	#	%	#	%
Nagpur *(2709)*	74	60.7	95	48.2	169	53.0
Chandrapur *(2713)*	16	13.1	14	7.1	30	9.4
Yavatmal *(2714)*	4	3.3	15	7.6	19	6.0
Bhandara *(2710)*	2	1.6	11	5.6	13	4.1
Chhindwara *(2343)*	1	0.8	11	5.6	12	3.8
Seoni *(2344)*	2	1.6	9	4.6	11	3.4
Jabalpur *(2339)*	5	4.1	6	3.0	11	3.4
Balaghat *(2345)*	3	2.5	6	3.0	9	2.8
Wardha *(2708)*	3	2.5	4	2.0	7	2.2
Mandla *(2342)*	4	3.3	2	1.0	6	1.9
Betul *(2335)*	1	0.8	4	2.0	5	1.6
All Other Districts	7	5.7	20	10.2	27	8.5
Total Cases	**122**	**100.0**	**197**	**100.0**	**319**	**100.0**

FIGURE 7.70 : Ten Leading Sites of Cancer (2001 - 2002)

ıles



ıales



7.71. SCB Medical College, Cuttack

(Centre Code : 0101)

Dr. Atul Krushna Mohanty, Prof. and Head,
Dept. of Pathology and Principal Investigator

Dr. Lity Mohanty, Lecturer and Facutly In-Charge

Dr. Adikanda Patra, Former Principal Investigator

TABLE 7.71(a) : Summary of Number of Cancers

Year	Males	Females	Total
2001	194	114	308
2002	375	277	652
2001 - 2002	**569**	**391**	**960**

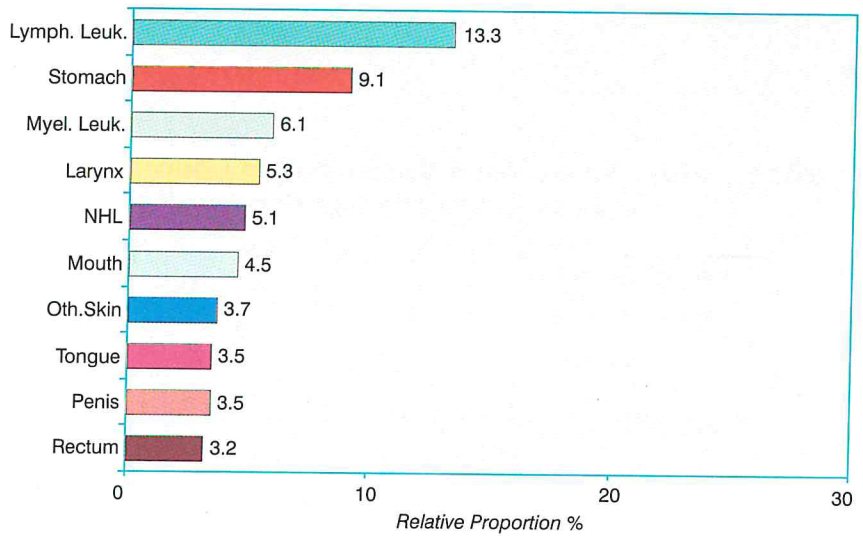
TABLE 7.71(b) : District-wise Distribution of Cancers (2001 - 2002)

Number (#) and Relative Proportion (%)

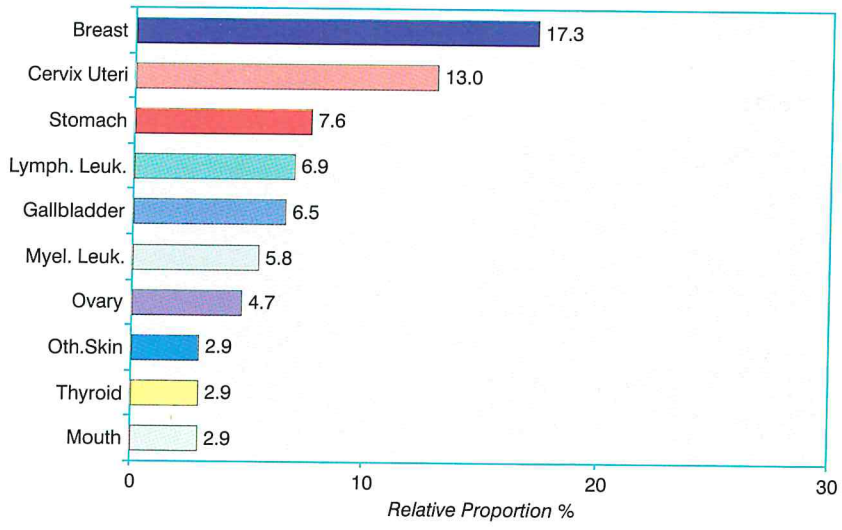
Name of District *(With Code)*	2001		2002		2001 - 2002	
	#	%	#	%	#	%
Cuttack *(2112)*	79	25.6	146	22.4	225	23.4
Jajapur *(2113)*	38	12.3	78	12.0	116	12.1
Jagatsing *(2111)*	30	9.7	57	8.7	87	9.1
Puri *(2118)*	12	3.9	64	9.8	76	7.9
Kendrapa *(2110)*	25	8.1	47	7.2	72	7.5
Khordha *(2117)*	29	9.4	42	6.4	71	7.4
Bhadrak *(2109)*	23	7.5	36	5.5	59	6.1
Baleshwar *(2108)*	14	4.5	32	4.9	46	4.8
Dhenkana *(2114)*	11	3.6	24	3.7	35	3.6
Kendujha *(2106)*	12	3.9	17	2.6	29	3.0
Mayurbh *(2107)*	7	2.3	22	3.4	29	3.0
Nayagarh *(2116)*	4	1.3	23	3.5	27	2.8
Medinipu *(1915)*	9	2.9	12	1.8	21	2.2
All Other Districts	15	4.9	52	7.9	67	7.0
Total Cases	**308**	**100.0**	**652**	**100.0**	**960**	**100.0**

FIGURE 7.71 : Ten Leading Sites of Cancer (2002)

les



ales



7.72. Kurnool Medical College, Kurnool

(Centre Code : 0016)

Dr. K. Sivanagamani, Prof. and Head, Dept. of Pathology and Principal Investigator

Dr. K. Bharathi, Co-Principal Investigator

TABLE 7.72(a) : Summary of Number of Cancers

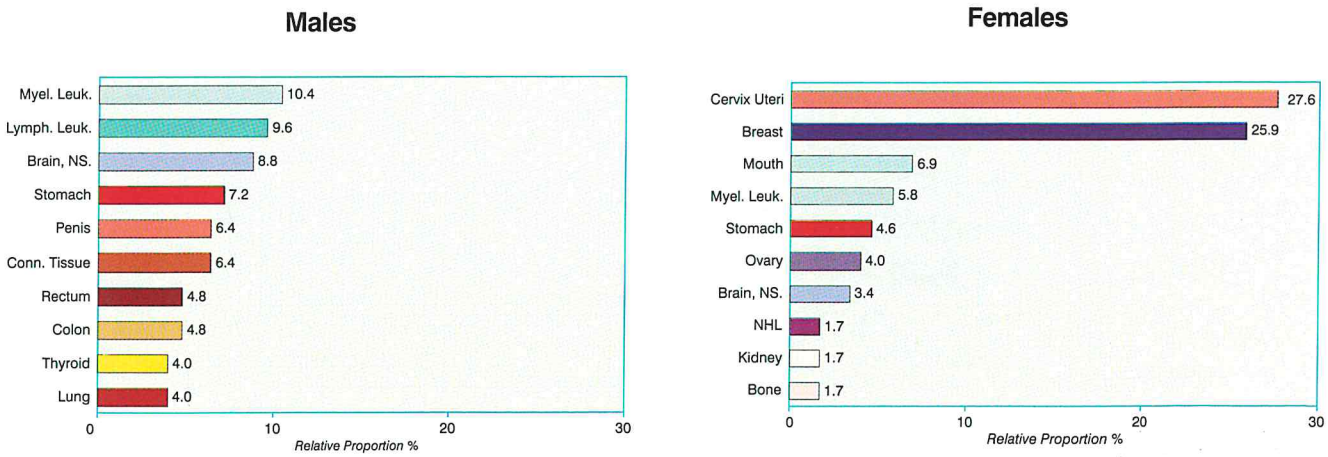
Year	Males	Females	Total
2001	125	174	299

TABLE 7.72(b) : District-wise Distribution of Cancers (2001)

Number (#) and Relative Proportion (%)

Name of District *(With Code)*	#	%
Kurnool *(2821)*	153	51.2
Anantapur *(2822)*	42	14.0
Mehbubnagar *(2807)*	32	10.7
Cuddapah *(2820)*	27	9.0
Prakasam *(2818)*	8	2.7
Cuddalore *(3318)*	7	2.3
All Other Districts	30	10.0
Total Cases	**299**	**100.0**

FIGURE 7.72 : Ten Leading Sites of Cancer (2001)



7.73. Cancer Hospital and Research Institute, Gwalior

(Centre Code : 0008)

Dr. B. R. Shrivastava, Director

Dr. Harsh Vardhan, Medical Superintendent and Principal Investigator

Dr. Sanjeev Gupta, Co-Principal Investigator

TABLE 7.73(a) : Summary of Number of Cancers

Year	Males	Females	Total
2001	119	179	298

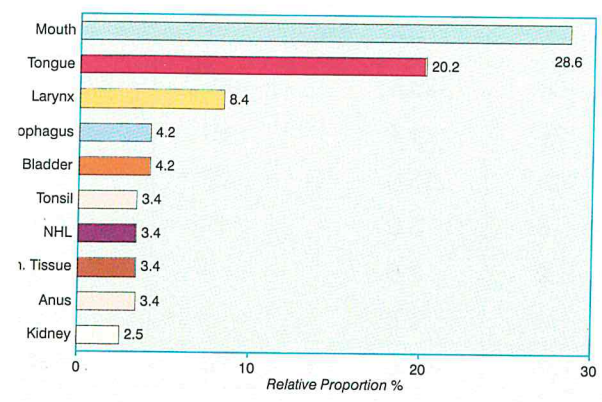
TABLE 7.73(b) : District-wise Distribution of Cancers (2001)

Number (#) and Relative Proportion (%)

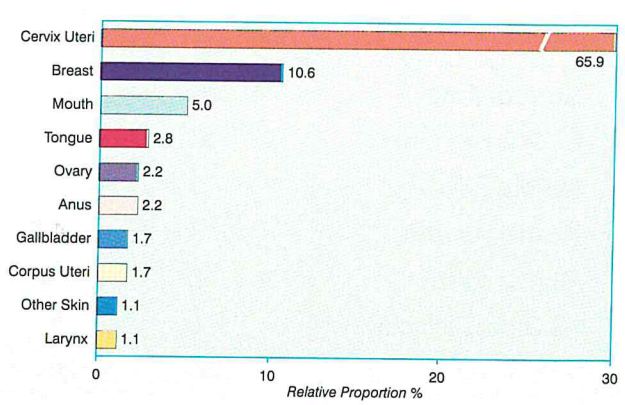
Name of District *(With Code)*	#	%
Gwalior *(2304)*	54	18.1
Bhind *(2303)*	30	10.1
Jalaun *(935)*	27	9.1
Morena *(2302)*	23	7.7
Jhansi *(936)*	18	6.0
Chhatarpur *(2309)*	17	5.7
Shivpuri *(2306)*	14	4.7
Tikamgarh *(2308)*	12	4.0
Guna *(2307)*	12	4.0
Mainpuri *(918)*	12	4.0
Banda *(940)*	9	3.0
Etawah *(931)*	9	3.0
All Other Districts	61	20.5
Total Cases	**298**	**100.0**

FIGURE 7.73 : Ten Leading Sites of Cancer (2001)

Males



Females



7.74. Sri Venkateswara Institute of Medical Sciences, Tirupati

(Centre Code : 0132)

Dr. G. Subramanyam, Director

Dr. K. Sambasivaiah, Asst. Prof. and Head of Oncology and Principal Investigator

Dr. M. Kumaraswamy Reddy, Prof. and Head, Dept. of Pathology and Co-Principal Investigator

Sri Venkateshwara Institute of Medical Sciences (SVIMS) is a tertiary care, 250-bed university hospital. This hospital is run by Tirumala Tirupati Devasthanams. The institute offers various super speciality (DM, MCh) courses in different disciplines.

Department of Oncology (Medical) has been started in the year 2000. The Institute is meeting the surgical and medical oncology needs of the cancer patients. Radiotherapy services are being added.

TABLE 7.74(a) : Summary of Number of Cancers

Year	Males	Females	Total
2001	80	76	156
2002	77	50	127
2001 - 2002	**157**	**126**	**283**

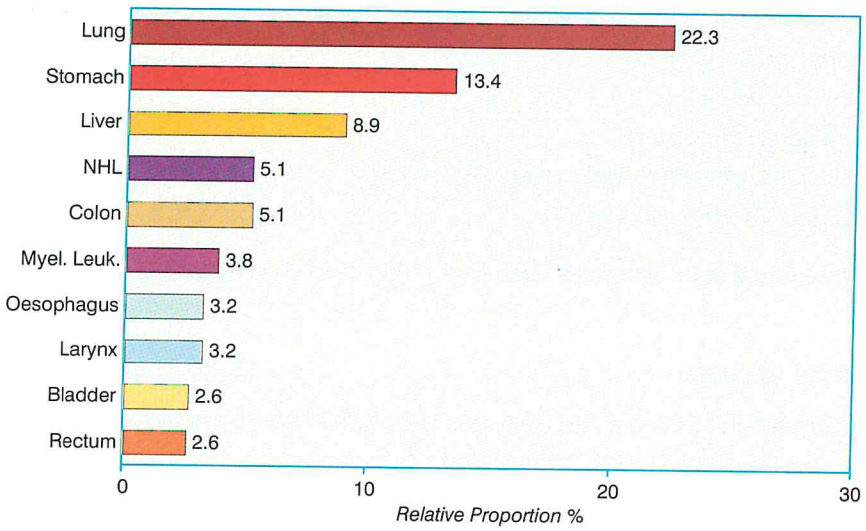
TABLE 7.74(b) : District-wise Distribution of Cancers (2001 - 2002)

Number (#) and Relative Proportion (%)

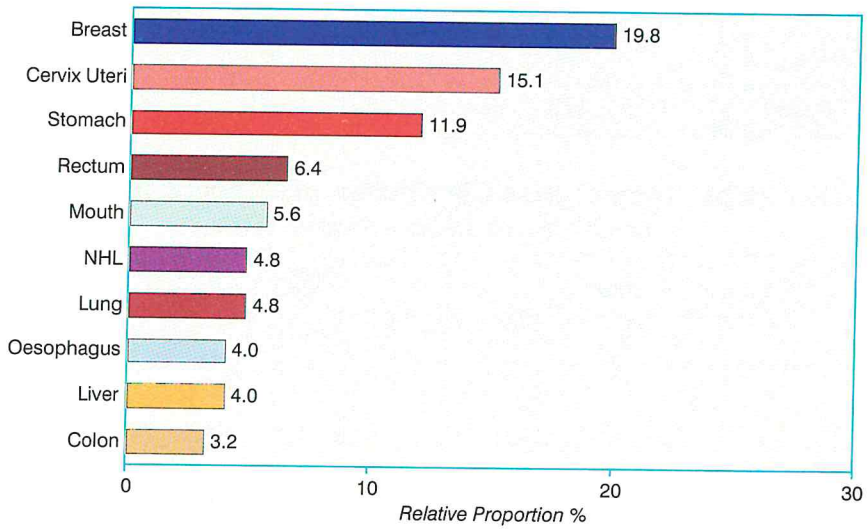
Name of District *(With Code)*	2001		2002		2001 - 2002	
	#	%	#	%	#	%
Chittoor *(2823)*	98	62.8	68	53.5	166	58.7
Cuddapah *(2820)*	35	22.4	31	24.4	66	23.3
Nellore *(2819)*	9	5.8	19	15.0	28	9.9
Anantapur *(2822)*	7	4.5	5	3.9	12	4.2
Guntur *(2817)*	2	1.3	2	1.6	4	1.4
All Other Districts	5	3.2	2	1.6	7	2.5
Total Cases	**156**	**100.0**	**127**	**100.0**	**283**	**100.0**

FIGURE 7.74 : Ten Leading Sites of Cancer (2001 - 2002)

ales



nales



7.75. Pramukhswami Medical College, Karamsad

(Centre Code : 0026)

Dr. K.K. Sharma, Dean

Dr. Girish Mishra, Prof. and Head, Dept. of ENT, Director, Cancer Project and Principal Investigator

Dr. Monica Gupta, Assoc. Prof. of Pathology and Co-Principal Investigator

Dr. Sanjay Chaudhari, Asst. Prof. of Pathology and Faculty-in-charge

Dr. Menka Shah, Prof. & Head, Dept. of Pathology

Ms. Indu Kumar, Health Educator

HM Patel Centre for Medical Care and Education has five Institutions under its umbrella-

- *Pramukhswami Medical College*
- *Shree Krishna Hospital*
- *Shri GH Patel School of Nursing*
- *Smt LP Patel Institute of Medical Laboratory Technology*
- *Shri KM Patel Institute of Physiotherapy*

The Centre is at a distance of 8 kilometres from Anand and is 45 kilometres away from Baroda and 80 kilometers from Ahmedabad.

Pramukhswami Medical College

The College was started in 1987 and is affiliated to the Sardar Patel University, Vallabh Vidyanagar. It has been accorded recognition by the Medical Council of India. It admits 100 students every year for a five-and-a-half year course leading to degrees of Bachelor of Medicine and Bachelor of Surgery (M.B.B.S). The College has the state-of-art research and development facilities, a Library and other infrastructure support systems. The College places particular emphasis on community medicine. Its Department of Preventive & Social Medicine successfully implemented a Family Welfare Education and Services Project (which was sponsored by UNFPA & AIDAB) till 1995. The project aimed to reduce the high rate of infant and maternal mortality in 30 villages of Anand and Kheda districts.

TABLE 7.75(a) : Summary of Number of Cancers

Year	Males	Females	Total
2001	98	62	160
2002	65	41	106
2001 - 2002	**163**	**103**	**266**

TABLE 7.75(b) : District-wise Distribution of Cancers (2001 - 2002)

Number (#) and Relative Proportion (%)

Name of District (With Code)	2001		2002		2001 - 2002	
	#	%	#	%	#	%
Anand *(2415)*	109	68.1	70	66.0	179	67.3
Kheda *(2416)*	42	26.3	33	31.1	75	28.2
All Other Districts	9	5.6	3	2.8	12	4.5
Total Cases	**160**	**100.0**	**106**	**100.0**	**266**	**100.0**

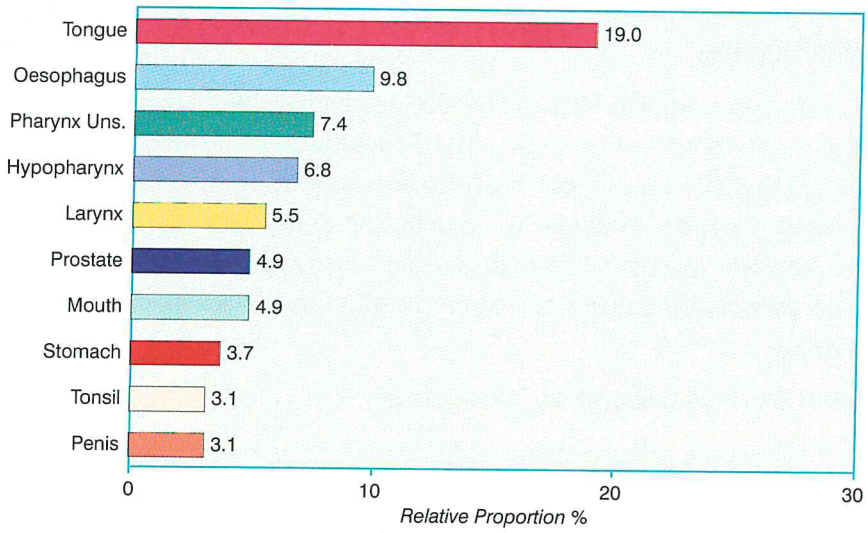
Other community outreach programmes include an Integrated Rural Community Health Project (at Village Ardi), ı Urban Health Centre (at Anand) and an Adolescent Counseling Clinic (at the University Health Centre). The department ganizes School Health Programmes and periodic multi-diagnostic mass screening camps in the surrounding villages. ıe hospital is the referral hospital for Tribhuvandas Foundation, the largest non-government organization in Asia, orking in the field of maternal and infant care in over 600 villages of the district. The college has a dedicated faculty, ɔme of whom have won national and international acclaim. More than 450 original research papers written by staff embers have been published in reputed scientific journals in India and abroad.

hree Krishna Hospital

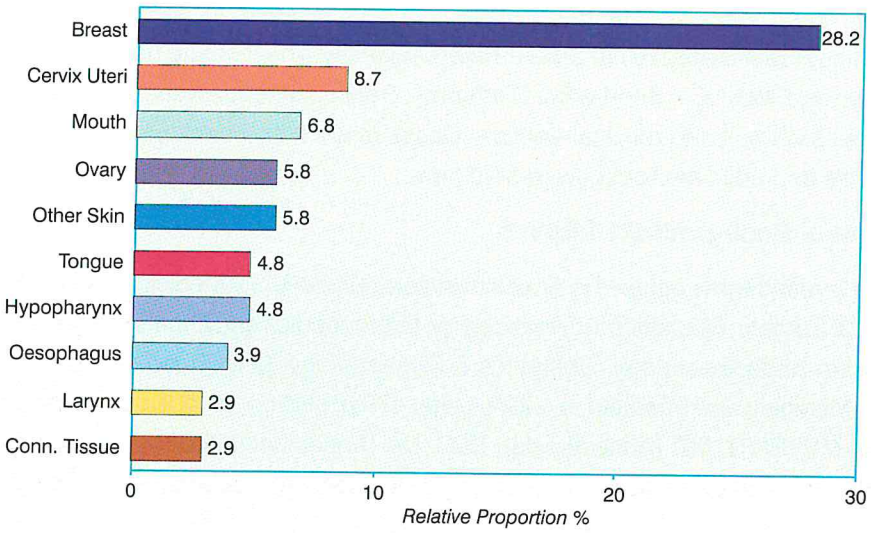
The 550-bed Shree Krishna Hospital offers a complete array of curative, diagnostic, therapeutic and educational cilities in a range of specialised fields. It has well-equipped laboratories, operation theatres, medical, surgical, paediatric ıd neo-natal ICUs, Trauma Centre and a CT Scan Centre, Mammography unit and IITV. The Hospital's ICUs have met, a large extent, a need greatly felt by the region to have well-equipped facilities for handling emergency cases quiring intensive care. The ICUs have advanced equipment for centralised monitoring, artificial ventilation and dialysis.

FIGURE 7.75 : Ten Leading Sites of Cancer (2001 - 2002)

ıles



ıales



The Hospital has been recognised by the Government of Gujarat for treating medico-legal cases and therefore, all accident cases occurring within a radius of 25 km. are brought here. A Cancer Project is amongst the latest areas of expansion within the institution. With Radiotherapy Unit becoming functional shortly, it is expected that there will be a new dimension to the already diverse group of patients being catered to at the centre. The Department of Pathology has a staff of two Professors, two Associate Professors, four Assistant Professors and six Tutors. Apart from routine clinical pathology work, the department also has facilities for doing haematology work up with a special emphasis on anaemias and haemoglobinopathies. There is a fully functional Histopathology Section equipped with Cryostat. Aspiration and Exfoliative Cytology are the other sections in the department. The department boasts of the only Telepathology Unit in the state, in collaboration with the Tata Memorial Hospital, Mumbai. Approximately 75,000 Haematopathology investigations, 1,500 biopsies and 2,000 cytology samples are received every year.

The Blood Bank, named after Shri A.D. Gorwala – one of our finest civil servants and a close friend of our founder Chairman – has facilities for storage, testing - both serological and microbial - and cross-matching of blood. The Blood Bank is one of the best in Gujarat. It collects over 4,000 units of blood every year. Soon, it would add a plasma separation unit, which would help enhance its services even further. All these services are supported by administrative departments, which are now in the process of full-fledged computerisation. Even the clinical services would soon be integrated through computers. The Medical Records Office, a vital component of any Hospital Management System, is being computerised too so as to be able to generate valuable epidemiological data. Billing and Accounts Departments have already been computerised, and so have the Purchase Department and Stores – Pharmacy, Medical and General.

Shri GH Patel School of Nursing

The School of Nursing was started in 1980. It offers 25 seats for its three-year General Nursing and Midwifery course and is affiliated to the Sardar Patel University. The School was set up with the primary aim of meeting the requirement of nurses at the Hospital, an aim that has been successfully achieved, as over 90% of the nurses so far graduated have been employed by the Hospital. Till recently, the School admitted students free of cost. The high deficit being incurred has, however, compelled the School to start charging a modest fee for admissions. Students who are unable to afford the fee, especially those that come from the tribal and backward districts of the State, are still being admitted without any charges.

Smt LP Patel Institute of Medical Laboratory Technology

The Institute of Medical Laboratory Technology was started in 1981 to meet the hospital's requirement of laboratory technicians, especially to provide paramedical services. It offers 60 seats for its one year course which is affiliated to and recognised by the Sardar Patel University. The Institute has introduced an on-the-job training programme for its students under which the students on merit are given six months in-lab training at the Shree Krishna Hospital.

Shri KM Patel Institute of Physiotherapy

The Institute of Physiotherapy was started in 1998. It offers 30 seats for its four-and-a-half year Bachelor of Physical Therapy (BPT) course affiliated to the Sardar Patel University. The Institute has advanced equipment such as Laser, Microwave Diathermy, EMG/NCV, Short-wave Diathermy, Transcultaneous Nerve Stimulator, Ultrasound Infra-red, Muscle Stimulator, a wax bath unit and cervical traction. Cases of neck and back pain, arthritis, spondylitis, sprains, frozen shoulder, tendinitis and polio are routinely treated here.

The HM Patel Institute of Post-graduate Studies

The Institute runs 3 year degree courses in Anaesthesiology, Community Medicine, General Medicine, Paediatrics, Radio-diagnosis, General Surgery, Obstetrics & Gynaecology, Orthopaedics and Otorhinolaryngology. Two-year diploma courses are conducted in Anaesthesiology, Obstetrics & Gynaecology, Orthopaedics, Otorhinolaryngology, Radio-diagnosis, Community Medicine and Paediatrics. MCI's Letter of Permission for all the courses have been received. So far, the MD (Medicine), MS (ENT), MD (Anaesthesia), DLO, DA (Anaesthesia) courses have been recognised by the Medical Council of India. More details about Charutar Arogya Mandal are available at www.charutarhealth.org.

7.76. National Institute of Nutrition (ICMR), Hyderabad

(Centre Code : 0200)

Dr. B. Sesikeran, Deputy Director and Principal Investigator

TABLE 7.76(a) : Summary of Number of Cancers

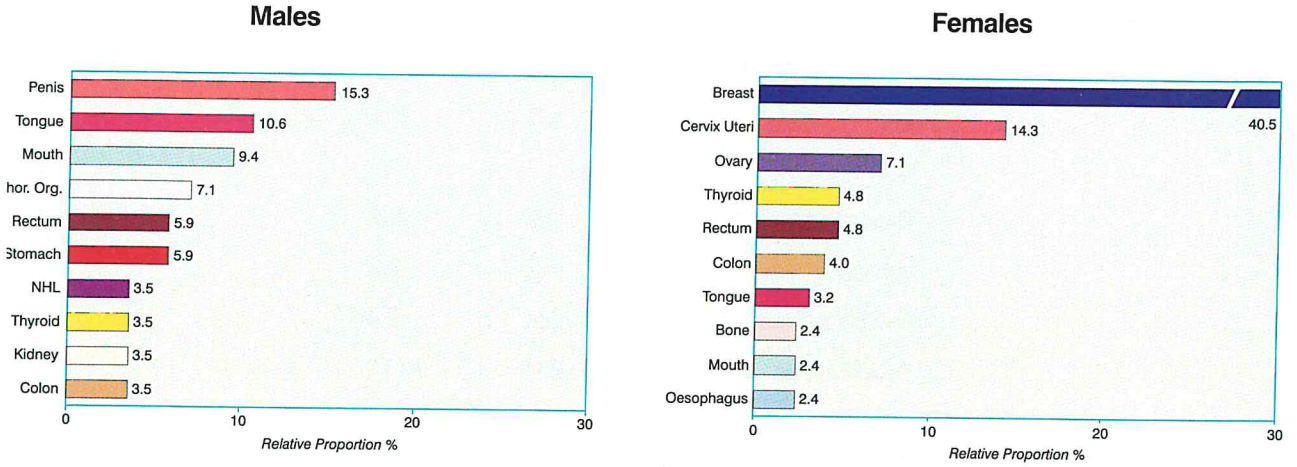
Year	Males	Females	Total
2001 - 2002	86	129	215

TABLE 7.76(b) : District-wise Distribution of Cancers (2001)

Number (#) and Relative Proportion (%)

Name of District *(With Code)*	#	%
Hyderabad *(2805)*	52	24.6
Nalgonda *(2808)*	28	13.3
Medak *(2804)*	17	8.1
Mehbubnagar *(2807)*	17	8.1
Warangal *(2809)*	14	6.6
Rangareddi *(2806)*	13	6.2
West Godavari *(2815)*	12	5.7
Krishna *(2816)*	12	5.7
Khammam *(2810)*	11	5.2
Nizamabad *(2802)*	9	4.3
Karimnagar *(2803)*	6	2.8
All Other Districts	20	9.5
Total Cancers	**211**	**100.0**

FIGURE 7.76 : Ten Leading Sites of Cancer (2001)



7.77. Sri Ramachandra Medical College and Research Institute, Chennai

(Centre Code : 0088)

Dr. K.V. Somasundaram, Dean

Dr. D. Prathiba, Prof. and Head, Dept. of Pathology

Dr. Sandhya Sundaram, Associate Prof. of Pathology and Principal Investigator

Dr. Anila Mathew, Co-Investigator

Sri Ramachandra Medical College and Research Institute, Chennai is a 1,500 bedded multi speciality, tertiary care referral centre. It is a Harvard Medical International Associated Institution. In 1994, in view of academic excellence of Sri Ramachandra Medical College and Research Institute, the Government of India declared the instituion as a Deemed University. The out-patient department receives on an average 2500 patients per day. All the out-patients are given free treatment, in addition to free medicine and free medical investigations. We have a separate in-patient block with 700 beds for poor patients where quality healthcare services as well as food are provided free of cost to the in-

TABLE 7.77(a) : Summary of Number of Cancers

Year	Males	Females	Total
2002	150	104	254

TABLE 7.77(b) : District-wise Distribution of Cancers (2002)

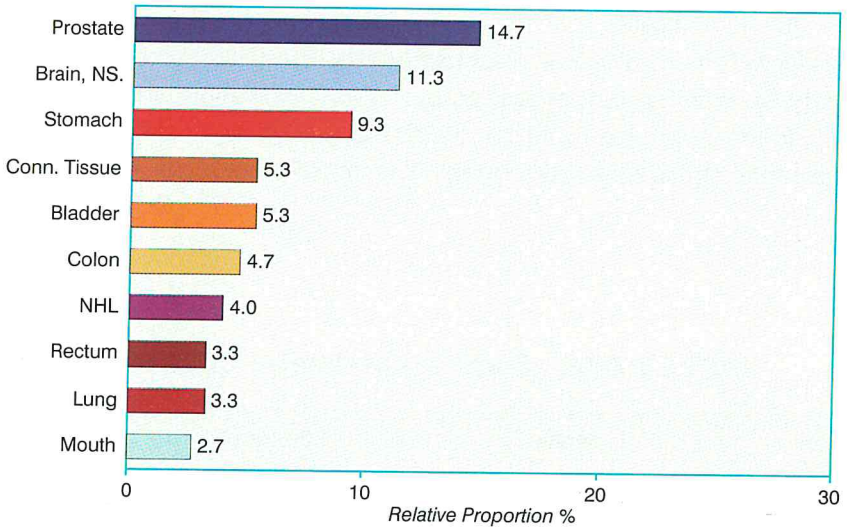
Number (#) and Relative Proportion (%)

Name of District *(With Code)*	#	%
Chennai *(3302)*	150	59.1
Kancheepuram *(3303)*	18	7.1
Thiruvallur *(3301)*	17	6.7
Andamans *(3501)*	13	5.1
Vellore *(3304)*	9	3.5
Tiruvannamalai *(3306)*	8	3.1
Villupuram *(3307)*	5	2.0
All Other Districts	34	13.4
Total Cases	**254**	**100.0**

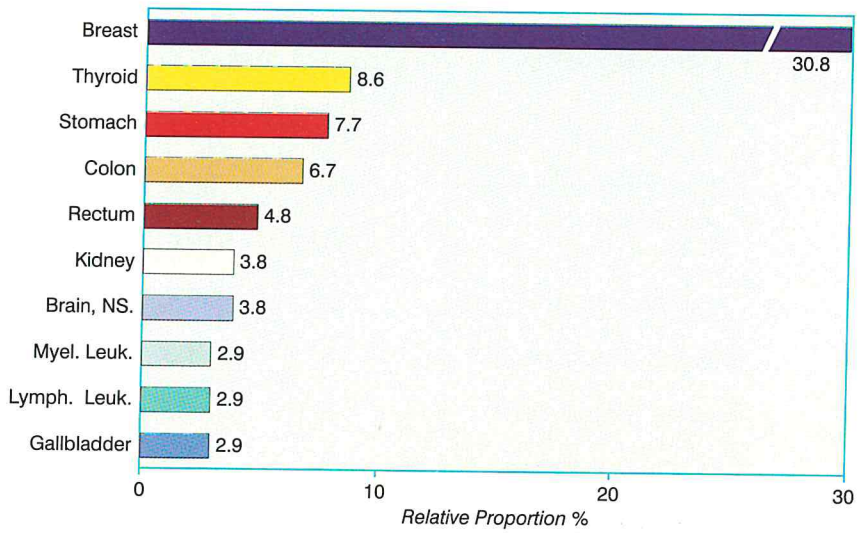
atients. The hospital also serves a large number of patients coming from various states of our country including far off laces like the Andaman Islands. Sri Ramachandra Medical College and Research Institute has state-of-the-art equipments Histopathology, Haematology and Cytology Departments. There are thirteen specialist pathologists in the Department Pathology. Post-graduate (MD Course), Undergraduate (MBBS/BDS) and a host of paramedical courses (B.Sc, P.T, Clinical Pharmacy etc.) are catered by this institution.

FIGURE 7.77 : Ten Leading Sites of Cancer (2002)

ales



ıales



7.78. Babina Diagnostic Centre, Imphal

(Centre Code : 0112)

Dr. Th. Dhabali Singh, Managing Director and Principal Investigator

Dr. K. Gojen Singh, Co-Principal Investigator

Babina Diagnostic Centre, established in 1983 is one of the well-equipped diagnostic laboratories in Eastern India. Sixty five experienced and dedicated staff are working in the clinic. It has a good infrastructure, state-of-the-art instruments and provision for wide menu of tests at reasonable costs. The centre is recognized as a "Referral Laboratory" under the National Quality Control Program organized by Indian Association of Pathologists and Microbiologists. Dr. Th. Dhabali Singh MD, former Associate Professor of Pathology, Regional Institute of Medical Sciences, Imphal is Managing Director of the centre and is working along with a team of Pathologists, Microbiologists and Radiologists.

TABLE 7.78(a) : Summary of Number of Cancers

Year	Males	Females	Total
2001	135	105	240

TABLE 7.78(b) : District-wise Distribution of Cancers (2001)

Number (#) and Relative Proportion (%)

Name of District *(With Code)*	#	%
Kohima *(1307)*	94	39.2
East Khasi Hills *(1706)*	74	30.8
Cachar *(1821)*	30	12.5
Dimapur *(1306)*	29	12.1
North Tripura *(1604)*	3	1.3
West Tripura *(1301)*	3	1.3
All Other Districts	7	2.9
Total Cases	**240**	**100.0**

Inique Features:

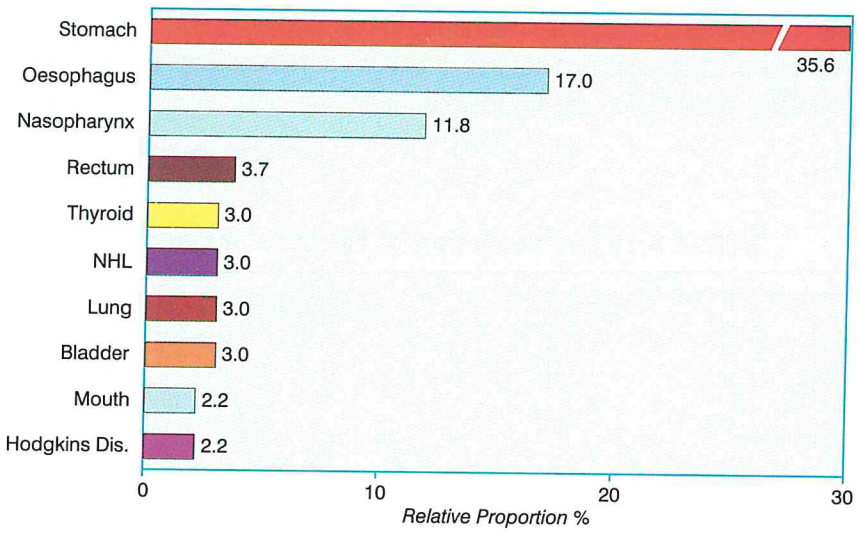
Fully computerized patient registration and data management through Local Area Network

Safest blood sample collection with world class Vacutainer System from Becton Dickinson (BD) that eliminates pre-analytical factors which may interface with accuracy of test results.

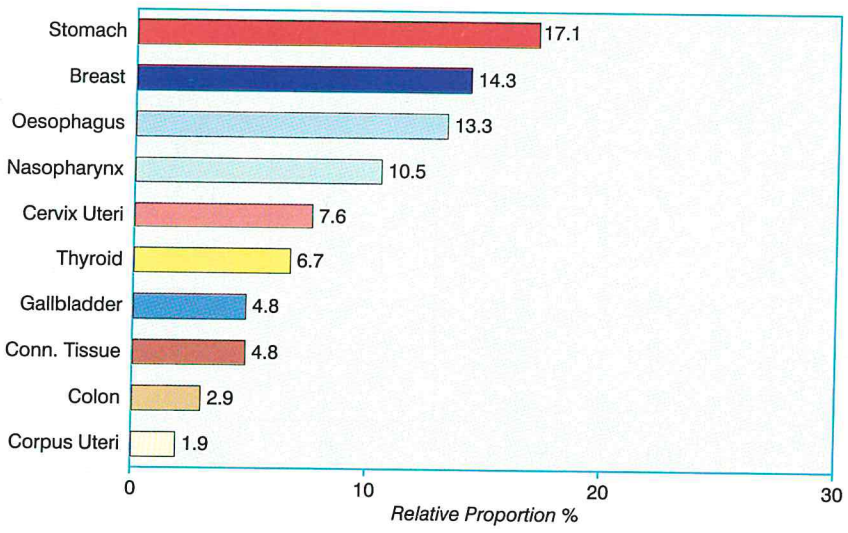
The centre receives over 4000 biopsy specimens and 3000 FNAC and cytological samples a year. Besides the ɔst state, it also gets biopsy and cytology specimens from other states like Nagaland, Assam and Meghalaya.

FIGURE 7.78 : Ten Leading Sites of Cancer (2001)

ales



nales



7.79. Sir Thutob Namgyal Memorial Hospital, Gangtok

(Centre Code : 0129)

Dr. H. Pradhan, Medical Superintendent and Director

Dr. Yogesh Verma, Head, Dept. of Pathology, Principal Investigator and Faculty-in-charge

Dr. Prakash Pradhan, Pathologist and Co-Principal Investigator

Sir Thutob Namgyal Memorial Hospital was established in the year 1935. It is presently a Multi Specialty state Referral Hospital and has a bed strength of 350. There is no advanced treatment centre for cancer in the state of Sikkim. Most of the Cancer patients are referred to Cancer hospitals mainly at Kolkata, New Delhi and Mumbai. The state has an unique referral system in which all cases of cancer of Sikkim domiciles and Government employees are given financial assistance by the State Government for further treatment.

TABLE 7.79(a) : Summary of Number of Cancers

Year	Males	Females	Total
2001	48	52	100
2002	65	58	123
2001 - 2002	**113**	**110**	**223**

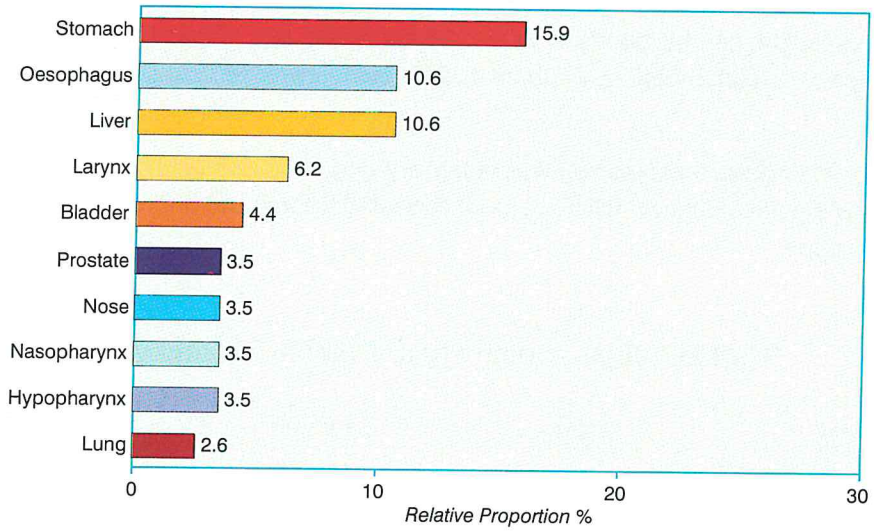
TABLE 7.79(b) : District-wise Distribution of Cancers (2001 - 2002)

Number (#) and Relative Proportion (%)

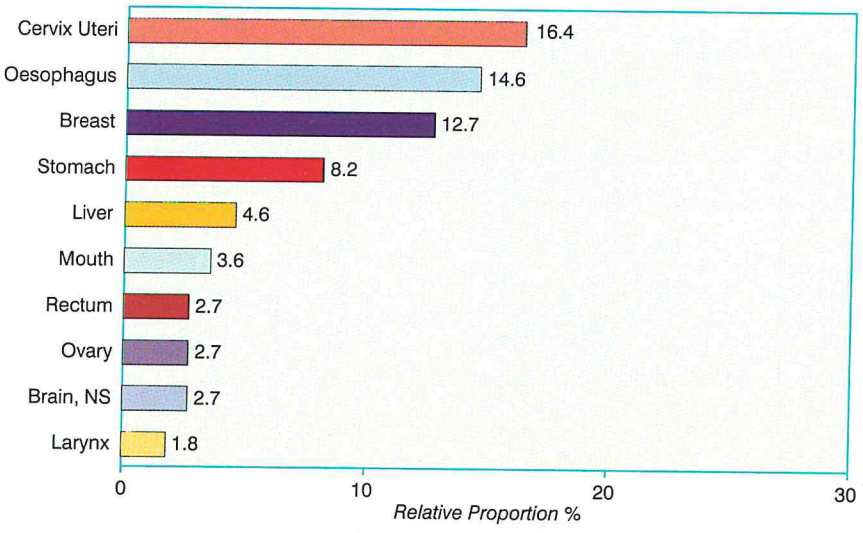
Name of District *(With Code)*	2001		2002		2001 - 2002	
	#	%	#	%	#	%
East Sikkim *(1104)*	59	59.0	81	65.9	140	62.8
West Sikkim *(1102)*	21	21.0	15	12.2	36	16.1
South Sikkim *(1103)*	9	9.0	19	15.4	28	12.6
North Sikkim *(1101)*	8	8.0	7	5.7	15	6.7
Others - Sikkim *(1199)*	3	3.0	0	0.0	3	1.3
All Other Districts	0	0.0	1	0.8	1	0.4
Total Cases	**100**	**100.0**	**123**	**100.0**	**223**	**100.0**

FIGURE 7.79 : Ten Leading Sites of Cancer (2001 - 2002)

ıles



ıales



7.80. Mahatma Gandhi Missions Medical College, Aurangabad

(Centre Code : 0067)

Dr. A. M. Vale, Principal

Dr. Abdul Khalique, Prof. and Head, Dept. of Pathology

Dr. Dinesh Kulkarni, Assoc. Prof. of Pathology and Principal Investigator

Dr. (Mrs.) Smita Mulay and **Dr. Suparna Bindu,** Co-Investigators

Mahatma Gandhi Missions Medical College and Hospital is in the historical city of Aurangabad in the Marathwada region of Maharashtra state. The nearby places of historical importance include the Deogiri fort at Daulatabad, Ajanta & Ellora caves, the replica of Taj Mahal-Bibi-ka Maqbara, the Ghrishneshwar Temple at Ellora and Dhyaneshwar Udyan Paithan.

The MGM's Medical College and Hospital was established in 1990. It is recognized by MCI and is affiliated to Maharashtra University of Health Science (MUHS). It has a capacity to admit 100 undergraduate students per year with hospital strength of 500 beds.

TABLE 7.80(a) : Summary of Number of Cancers

Year	Males	Females	Total
2001	26	41	67
2002	77	54	131
2001 - 2002	**103**	**95**	**198**

TABLE 7.80(b) : District-wise Distribution of Cancers (2001 - 2002)

Number (#) and Relative Proportion (%)

Name of District (With Code)	2001		2002		2001 - 2002	
	#	%	#	%	#	%
Aurangabad *(2719)*	43	64.2	73	55.7	116	58.6
Nanded *(2715)*	10	14.9	29	22.1	39	19.7
Jalna *(2718)*	6	9.0	14	10.7	20	10.1
Buldhana *(2704)*	1	1.5	5	3.8	6	3.0
Parbhani *(2717)*	2	3.0	3	2.3	5	2.5
Ahmadnagar *(2726)*	1	1.5	3	2.3	4	2.0
All Other Districts	4	6.0	4	3.1	8	4.0
Total Cancers	**67**	**100.0**	**131**	**100.0**	**198**	**100.0**

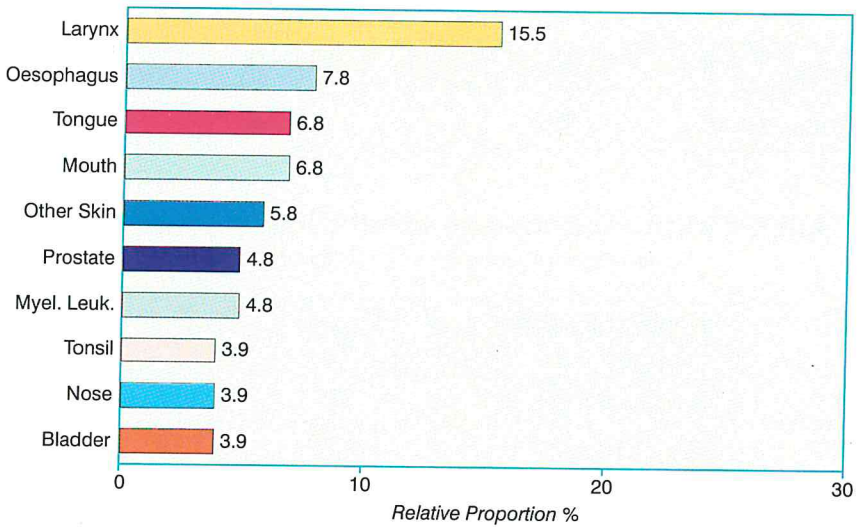
Postgraduate courses have started in various departments including Pathology under the able guidance of ɜnior professors in respective departments.

Clinical pathology laboratory started functioning in 1990 and is now fully equipped with automated instruments. ɪe Histopathology and Cytology work began in early 1992. Both these laboratories are well equipped and with the ɜined technicians who provide timely and proper slides, we are establishing various special staining methods. The ɔod bank was established in 1994 and it provides blood to the needy in the hospital and surrounding hospitals as ɜll. All the laboratories are under the direct supervision of Prof. & Head of the Dept. Dr. Abdul Khalique.

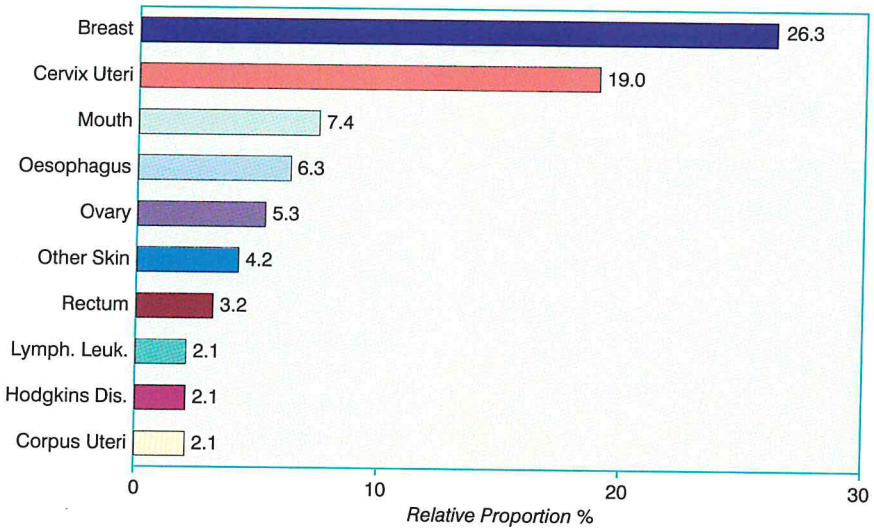
The pathology department is actively functioning with a team of a Professor, four Associate Professors, three ɔcturers, and a Tutor along with four postgraduate students and a good number of trained technicians.

FIGURE 7.80 : Ten Leading Sites of Cancer (2001-2002)

ɪles



ɪales



7.81. Dr. Purohit's Pathology and Bacteriology Laboratory, Kolhapur

(Centre Code : 0123)

Dr. P.V. Purohit, Head of Laboratory and Principal Investigator

Jayant Limaye & Shrikrishna Kamat, Co-Principal Investigators

The work done by the laboratory is mainly Clinical Pathology, Biochemistry and Histopathology. About 600 biopsies are recived per year and of these 150 are malignant cases. Specimens are mainly received from Kolhapur, Ratnagiri and Belguam districts. Cases are also sent from Dr. A. G. Gujar, Sangli and Dr. U. V. Nigwekar from Ichalkaranji (Kolhapur District) both about 30-50 KM from Kolhapur.

TABLE 7.81(a) : Summary of Number of Cancers

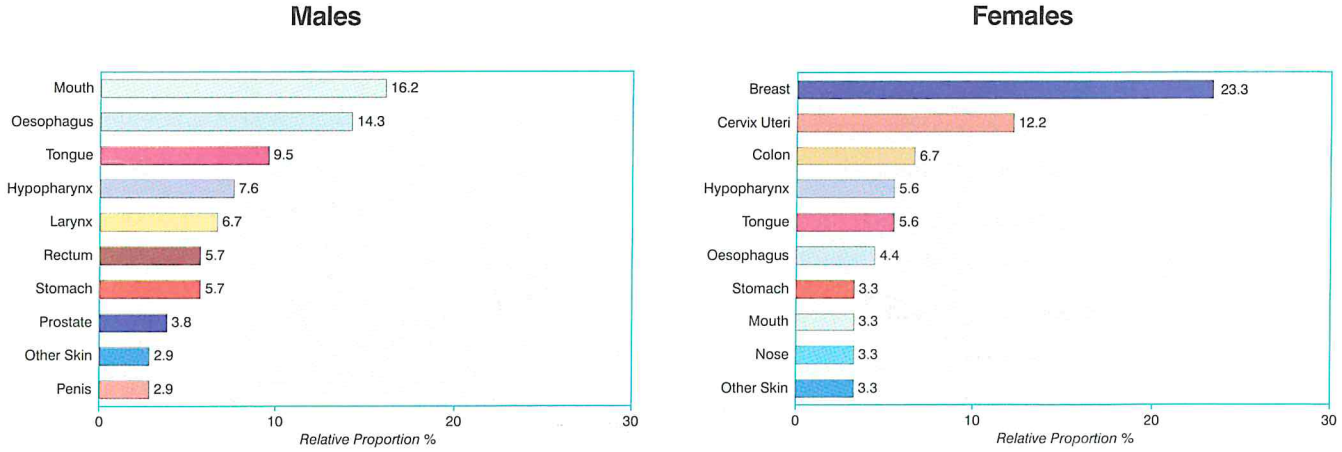
Year	Males	Females	Total
2002	105	90	195

TABLE 7.81(b) : District-wise Distribution of Cancers (2001)

Number (#) and Relative Proportion (%)

Name of District *(With Code)*	#	%
Kolhapur *(2734)*	125	64.1
Sangli *(2735)*	37	19.0
Belgaum *(2901)*	15	7.7
Ratnagiri *(2732)*	6	3.1
Satara *(2731)*	6	3.1
All Other Districts	6	3.1
Total Cancers	**195**	**100.0**

FIGURE 7.81 : Ten Leading Sites of Cancer (2002)



A write-up (wherever available) followed by a summarised table of the number of cancers reported by each of the llaborating centres is given.

83. BS Medical College, Bankura *(Centre Code : 0069)*

Bankura Sammilani Medical College is a tertiary care centre. It is a 960 bedded hospital. The various number of tology smear includes : Fluid Cytology about 273 per year, Vaginal Exfoliative Cytology about 45 per year and I.A.C about 1767 per year.

The total O.P.D and Indoor turnover is 1200 and 940 patients per day respectively.

The number of Histopathology Specimens is 2497 per year, number of Bone marrow aspiration is 112 per year d number of Peripheral blood smear (For Leukaemia Study) is 1232 per year.

The College admits 100 students per batch.

8. Vinayaka Mission Medical College, Karaikal *(Centre Code : 0074)*

Vinayaka Mission's Medical College is located in a rural area, Viz. Keezhzkasakudi. The college is mainly involved liagnosing and treating patients of this locality and surrounding areas. At present, the college and hospital provide nary health care. Tertiary level care/ referral services are to be introduced soon.

2. Getwell Polyclinic and Diagnostic Centre, Jaipur *(Centre Code : 0120)*

With over 20 years of experiences, our centre is Rajasthan's premier Diagnostic Centre. Our success comes from best professionally trained team of doctors and technicians who are certified in Pathology, Biochemistry, Radiology, irology and Computer Technology.

5. Bharati Vidyapeeth Medical College, Pune *(Centre Code : 0052)*

Bharati Vidyapeeth (DU) Medical college and Bharati Hospital (attached 630 bedded Teaching Hospital) is lved in the diagnosis and treatment of a variety of neoplastic diseases for 14 years. It provides care to the Pune an as well as rural population. A variety of diagnostic treatment Medical camps (free) are also held in various rural urban areas. The Dept. of Pathology of the Medical College has all the equipment and expertise for prompt opathological, Cytological and Haematological diagnosis of the Neoplastic lesions.

2. Shri Ganapathi Netralaya, Jalna *(Centre Code : 0117)*

The Histopathology and Cytology unit of the Laboratory Service of Shri Ganapati Netralaya is responsible for the oscopic evaluation of Orbital and Ocular neoplasms. Being in a semi-rural area, we cater mainly to an agrarian ety of the surrounding areas. Of the 407 tissue samples we received in 2002, 16 proved to be malignant. Apart from E, we have the facility to stain tissue sections with special stains such as Alcain blue, PAS etc. We also avail the y of Electron microscopy, which aids in diagnosis in selected cases.

Our ongoing projects include

1. Detection of matrix metalloprotienases in pterygia
2. Electron microscopic study of trabecular meshwork in pseudoexfoliation syndrome.

	Collaborating Centres (with Centre Code in parentheses)	Names of Principal Investigators/ Co -Principal Investigators/Others	Total No.of Cancers		
			2001	2002	Total
7.82	Jawaharlal Nehru Medical College, Wardha (0051)	Dr. Narendra Samal, Dr. Sunita J. Vagha	193	0	193
7.83	BS Medical College, Bankura (0069)	Dr. Indrajit Roy, Dr. Gaurishankar Mahapatra, Dr. Manoj Chaudhuri, Dr. Anup Roy, Dr. Rupam Karmakar, Dr. Gautam Bandyopadhyay	163	10	173
7.84	Elite Mission Hospital, Thrissur (0098)	Dr. K. V. Praveen	0	146	146
7.85	LLRM Medical College, Meerut (0108)	Dr. Dipti Bisht, Dr. Veena Sharma	26	118	144
7.86	Christian Medical College, Ludhiana (0040)	Dr. Sheila Das, Dr. Nalini Calton	116	0	116
7.87	City Pathology Laboratory, Nagpur (0126)	Dr. Lalit Jain	28	87	115
7.88	Vinayaka Missions Medical College, Karaikal (0074)	Dr. N. Saradambal, Dr. M. Balamurugan, Dr. A. Ramesh	78	35	113
7.89	Dr. DY Patil Medical College, Kolhapur (0032)	Dr.S.S.Mole, Dr.(Mrs.)V.R.Pawar, Dr. R.A.Dighe	97	12	109
7.90	Sri Guru Ramadas Institute of Medical Sciences and Research, Amritsar (0072)	Dr. U.S.Dhaliwal, Dr. Sanjay Bedi, Dr.Swarn Kaur, Dr.R.Devan Dr. Kanwaljit Kaur, Dr. Amarjit Kaur, Dr. Neeraj Jain, Dr. Harpreet Kaur, Dr. Mohanpal Singh, Mr. Harinder Singh	31	65	96
7.91	Dr. Panjabrao Deshmukh Memorial Medical College, Amravati (0029)	Dr. A.T. Deshmukh, Dr. R.R.Sonl	67	26	93
7.92	Getwell Polyclinic and Diagnostic Centre, Jaipur (0120)	Dr. G.D. Mody, Dr. Devendra Laddha, Dr. Seema Bhutia	0	93	93
7.93	NRS Medical College, Kolkata (0012)	Dr.Sudhipta Bhattacharya, Dr. Jayashri Chakroborty	60	29	89
7.94	The Polyclinic Pvt .Ltd., Thrissur (0099)	Dr.K.V. Praveen	0	82	82
7.95	Indira Gandhi Medical College, Nagpur (0010)	Dr. A.V.Shrikhande, Dr. A.Dani, Dr. S.Hingway and Dr. J Tijare	81	0	81
7.96	Bharati Vidyapeeth Medical College, Pune (0052)	Dr. M. R. Rao, Dr. Y. V. Machave, Dr. R. C Nimbargi, Dr. Rupal Shah	53	26	79
7.97	Indo-American Cancer Institute and Research Centre, Hyderabad (0078)	Dr.S.Sudha	55	24	79
7.98	Sri Venkateswara Medical College, Tirupati (0094)	Dr. B. Anuradha, Dr. T.T. Parthasarathi	79	0	79
7.99	RNT Medical College, Udaipur (0102)	Dr.S.Surana, Dr. Mogra	1	68	69
7.100	Sri Siddhartha Medical College, Tumkur (0004)	Dr. C.R. Kondandaswamy, Dr. K.V. Santosh	41	0	41
7.101	NIMHANS, Bangalore (0080)	Dr.Vani Santosh	34	0	34
7.102	Shri Ganapathi Netralaya, Jalna (0117)	Dr. Alka Thool	18	16	34
7.103	Medwin Hospital, Hyderabad (0093)	Dr.B.Ramesh Baku, Dr.Sudha, Dr.A.Fathima	9	12	21
7.104	Medical College, Kottayam (0020)	Dr.N. Sundareshan	17	0	17
7.105	MKCG Medical College, Behrampur (0034)	Dr. M.M. Mishra	0	16	16

DEVELOPMENT OF AN ATLAS OF CANCER IN INDIA

First All India Report: 2001 - 2002

Discussion

ıe Indian Council of Medical Research (ICMR) initiated a network of cancer registries under the National ancer Registry Programme (NCRP) in 1981 and data collection commenced in these registries from 1st ınuary 1982. Since then, the registries have provided information on incidence and patterns of cancer that in ms of quality and validity meet international standards. This is evidenced by the fact that the data from the ›pulation based cancer registries under the NCRP has been continuously published in successive volumes the World Health Organization (WHO) publication - Cancer Incidence in Five Continents (Muir et al, 1987; ırkin et al, 1992, 1997, 2002). This volume is published every five years by the International Agency for ısearch on Cancer - the cancer research arm of the WHO. Data on childhood cancer and cancer occurrence developing countries have also appeared in the Agency's publications (Parkin et al, 1988; Sankarnaryanan al, 1998). The NCRP, itself has been bringing out its own annual and consolidated reports since 1982 (NCRP ports, 1985... 2002). The preparation for the 1999-2000 report is underway. Besides, the registries under CRP there are eight population based cancer registries with funds met from other sources. The data of some these registries has also been published in Cancer Incidence in Five Continents.

ıs, in India, for cancer, and perhaps for only this disease, we have a systematic programme of data collation as to have reliable incidence and mortality rates, thereby laying a foundation for scientific research - whether t research be epidemiological, basic, clinical or in cancer control. However, India being a vast country, ensive areas need to be covered. The NCRP cancer registries cover selected urban centres and just one al pocket. The other population cancer registries also cover essentially urban centres except for parts of › districts in Kerala State and part of one district in Tamil Nadu State. Consequently, the patterns of cancer several urban centres and rural regions remain largely unknown. Setting up of new registries throughout country as in some Western countries would involve enormous cost in establishing and maintaining the ne.

refore, under this project, a cost-effective design and plan using advances in modern electronic information nology, was conceived, to collate and process relevant data on cancer so as to fulfill the objectives of:

i) obtaining an overview of patterns of cancer in different parts of the country; and,

ii) calculating estimates of cancer incidence wherever feasible.

data of the NCRP shows that 80-85% of registered cases of cancer has microscopy as the basis of ınosis. Modern electronic information technology needed to be harnessed in a cost-effective way. Thus the artment of pathology and pathologist became the focal point of data capture and the internet was identified ıe primary communication medium for data acquisition and transmission. Internet as a tool for data collection ›atient information was a unique concept being tried for the first time (in India and to the best of our wledge anywhere else in the world) under the project.

ser friendly 'core proforma' for collecting the patient information was hosted on the web-site v.canceratlasindia.org. Internet Browser based data entry eliminated the need for software to be installed very system and the hassles of administration and maintenance. Collaborating centres were given an

individual login-ID and password with detailed instructions on entering the core patient information. Care was taken to code/encrypt the data entered so that the identity or the nature of the data could not be deciphered by any one except those concerned with the project. This ensured confidentiality of patient information and security of data transmitted. The collaborating centres transmitted the required information (mainly patient identification details including area of living, and site and morphology of tumour) on all malignant cases reported by the department of pathology.

The successful working of this concept was reflected, first, in the data that was and is downloaded on a regular basis for the past two and a half years. The core data of approximately 1200-1500 cancer cases is received every week. Secondly, in the feedback received from the participating centres during the All India Workshop - 95% of the respondents, felt, that the web-site was easy to use and 80% of them had a fairly stable Internet connection. Thirdly, because most of the collaborating centres were able to transmit the required information as soon as a diagnosis was made, this report of 2001-2002 could be brought out fairly early (comparable to international standards). In due course the experience should enable us to provide the main tables of incidence rates and report soon after the end of the calendar year and then on-line. The fact that through this project, one could receive, analyse and provide the 2001-02 report in early 2004 posed problems for comparison, since international rates on a global basis were available only for 1993-97, and the rates of the PBCRs under NCRP were for the years 1997-99. However, from the epidemiological stand-point and knowing that incidence rates of cancer take several years before showing significant variations in time trends, these differences are unlikely to have notable impact in the interpretation of geographic patterns of cancer.

The data received through the web-site was downloaded periodically at the Coordinating Unit of the NCRP and the details of checks carried out have been described earlier (Chapter 2). Based on the above, a total of 2,17,174 microscopically diagnosed cancers for the two year period (1 January 2001 to 31 December 2002) from 105 centres across the country was taken up for analysis. The centres included the cancer registries under the NCRP and other functioning cancer registries. A condensed profile with tabular and graphic presentation of cancer patterns in these 105 centres is given in Chapter 7. This report is the culmination of sustained interest and efforts made by these participating centres.

The reference manual - Cancer Incidence in Five Continents (Parkin et al, 2002) was used to group neoplasms by site (WHO, ICD-10, 1994), calculate incidence rates and determine leading sites of cancer. The Census of India publications gives the population according to five-year age group and gender by district. As per the 2001 census results, there were 593 districts in the country. Information on cancer cases also gives the name of the district for each case, apart from age, gender, site and type of cancer.

Cancer incidence is generally expressed as age-adjusted or age standardized (according to world population) incidence rate per 100,000 persons. Therefore, the district was taken as a unit for calculation of incidence rates, with one difference. Unlike the regular age adjusted incidence rates (AAR) used in PBCRs throughout the world, minimum age adjusted incidence rates (MAAR) based on microscopically diagnosed cancers of the districts is used here.

The most recent data (1997-99) from the established population based cancer registries (PBCR) is included for description and comparison. The MAAR of cancer (for microscopically diagnosed cases) in these PBCRs was also calculated so as to have a benchmark for analysis, and, as a baseline for comparison with the MAAR of the districts. Under the NCRP, the population based cancer registry at Barshi is the only registry as of now, that has given incidence rates representative of the rural population in the country. Majority of the districts in the country has predominantly semi-urban or rural population. The MAAR for Barshi (all sites) for the period 1997-99, is 36.21 and 45.02 per 100,000 for males and females respectively. Thus the MAAR of 36.2 has been used as the cut off level to select districts for observing and compare cancer incidence and patterns. In all there were 82 districts that had a MAAR higher than 36.2/100,000 for at least one of the two years (2001 or 2002) and in either sex.

'he information on cancer cases obtainable from a specified district and the calculation of incidence rates (in ıis instance the MAAR of at least 36.2/100,000) to be usable or workable for measuring and depicting patterns f cancer in that district depends on a number of factors. The availability and accessibility of nearby facilities ɔr cancer diagnosis and treatment is the most important. The participation in this project of centre or centres ; crucial. If there is just one comprehensive centre in a region and that centre collaborates in the project then ıe chances of receiving information on almost all cancer cases in those districts is high. This becomes reflected ı the MAAR. All the eleven cancer registries under the NCRP and the other Hospital and Population Based ancer Registries (not as yet under the NCRP network) have contributed to the project. Since nearly all of ıese registries are located at established regional cancer centres the districts served by them are suitably ;presented. In addition, centres like the Tata Memorial Centre, Mumbai and Cancer Institute, Chennai draw ıtients from several other parts of the country. On the other hand, if there are several cancer diagnosis and ɜatment facilities in a particular area and only some of the centres are collaborating in the project, then the ıances of the information on cancers giving practicable MAAR are slim. The literacy and the general health vareness of the population are among other factors that could contribute to the extent of coverage of data ı cancers.

all there were 82 districts that had incidence rates (MAAR) higher than 36.2/100,000 for at least one of the o years (2001 or 2002) and in either sex. Of the six PBCRs under NCRP, in males, Delhi PBCR had the ghest MAAR of 103.0/100,000 for all sites (ICD-10: C00-C96) of cancer. There were ten districts under the ɔject that had a MAAR higher than that of Delhi. These included six districts in Mizoram State, one in the ıte of Kerala, North and South Goa, and Chandigarh. Among the urban PBCRs, Bangalore had the lowest \AR of 75.1 per 100,000. There were eight districts that were above this MAAR but below that of Delhi, ;CR. The remaining fifty-one districts listed had MAAR lower than the urban PBCRs but above that of the 'al PBCR at Barshi. Among females, Delhi PBCR had the highest MAAR of 113.9/100,000. There were four ;tricts that had MAAR higher than this. These were in Mizoram State (three districts) and Chandigarh. ıong the urban PBCRs, Bhopal PBCR had the lowest MAAR of 94.0/100,000. There were three districts that ɔ a higher MAAR than that of Bhopal. There were forty-four districts that had a MAAR above that of Barshi CR, which in females was 45.0/100,000.

apter 6 furnishes a summary of important specific sites of cancer. It is the key chapter that presents the ;ential results and outcome of this project. It acts as a ready reckoner, for comparison of the MAARs of the tricts with that of the PBCRs and of international and national AARs as well. Highlights of some sites are ɜn below.

gue- Males: Bhopal, PBCR has an AAR of 10.9 and Ahmedabad urban registry has also a high AAR of 9.3/ ı,00. The district of Aizawl in Mizoram State, has a slightly higher MAAR compared to Bhopal, PBCR. There several districts throughout the country that have a higher MAAR compared to the urban PBCRs. Of ticular importance seems to be the State of Gujarat. Several districts (Mahesana, Gandhinagar, Kheda, nedabad, Anand, Bhavnagar, Sabarkantha and Banaskantha) show high incidence rates of tongue cancer.

ıth - Males: Again Bhopal, PBCR has a high AAR of 9.6/100,000. There were five districts that had a higher \R than that of Bhopal, PBCR. Wardha district in Maharashtra State has a MAAR of 14.1. Of the other four ricts that had a higher MAAR than Bhopal, two were in Tamil Nadu State and two in Kerala State. At least ıtysix other districts across the country had a higher MAAR than that of the other PBCRs. Other than ɜral districts in Tamil Nadu State, many districts in Assam State (Kamrup, Goalpara, Darrang, Nalbari, igaon, Jorhat) showed a high MAAR.

ɔpharynx - Males: Among the PBCRs the AAR of cancer of the hypopharynx is high in Bhopal and Ahmedabad ın PBCR. Aizawl district in Mizoram State had a higher MAAR (16.1/100,000). Besides, numerous districts ɜsam State (Dibrugarh, Kamrup, Darrang, Jorhat, Nalbari, Golaghat, Barpeta, Sibsagar, Goalpara to name ν) had high incidence rates.

Oesophagus - Males: The urban PBCRs have AARs varying from 6.3 to 10.3/100,000. The district-wise comparison of MAAR showed that Aizawl had a higher MAAR (26.7/100,000). Several districts especially in Assam and Karnataka State had MAAR comparable with the rates in the urban PBCRs. The districts of North and South Goa also had high MAARs.

Stomach - Males: Among males, Chennai and Bangalore PBCRs have had cancer stomach as the leading site of cancer since the commencement of the NCRP in 1982. But the AARs in these urban areas have been much lower than that seen in Japan or in other high incidence areas of the world. The district wise comparison of MAARs with that of Chennai and Bangalore showed that the district of Sercchip in Mizoram State had eight and a half times higher rate of stomach cancer than that of Chennai. Several districts in the North Eastern states of Mizoram, Nagaland, Manipur and Sikkim had MAARs equivalent to the AARs of high incidence regions of the world.

Gall Bladder - Females: Delhi females have shown a high incidence rate (AAR: 10.6/100,000) of cancer of the gall bladder. The district-wise comparison showed that Imphal East and West districts of Mizoram State and the Union Territory of Chandigarh had comparable incidence rates.

Lung - Males: The district-wise figures revealed that Aizawl in Mizoram State and Imphal West in Manipur State, had 1½ times the MAAR of the highest urban PBCR - Delhi (11.5/100,000). Further nine other districts had MAARs higher than the MAAR of Delhi.

Lung - Females: Except in Mumbai PBCR, cancer of the lung in females has not been a leading site of cancer in women, in the PBCRs under NCRP. Even the rate (AAR of 4.2/100,000) in Mumbai is lower than that seen in Indians in Singapore and in other women in areas of high incidence in the world. Observation of the MAARs in the districts showed that Aizawl women had almost ten times (26.2 compared to 2.8/100,000) the MAAR of women in Mumbai. Imphal West and East in Mizoram State and South Goa had much higher MAARs than that seen in Mumbai.

Breast - Females: Cancer of the breast has been replacing cancer of the cervix as the leading site of cancer in all urban PBCRs, except Chennai and the AARs of this site of cancer have also been on the rise. Among the Indian PBCRs, Delhi has the highest AAR of breast cancer. At least four districts led by Chandigarh (followed by North Goa, Aizawl in Mizoram State and Panchkula in Haryana State) had higher MAAR than that of Delhi. The rates were also similar in South Goa and three districts (Kollam, Thiruvananthapuram, Thrissur) in Kerala State.

Cervix Uteri: Chennai PBCR has had the highest incidence rate of cervical cancer among the Indian PBCRs. The district-wise MAARs indicate a region of high incidence rates even higher than Chennai in the North Eastern districts of Tamil Nadu State including Pondicherry which had the highest MAAR of 39.2/100,000.

Penis: In the Indian PBCRs penile cancer has been high in Chennai and Barshi. A high incidence of penile cancer was seen in the north eastern districts of Tamil Nadu and Villupuram district had a high MAAR of 3.1/100,000.

Thyroid - Females: Of the PBCRs under NCRP, Bangalore PBCR has shown the highest AAR of cancer of the thyroid. The PBCR at Thiruvananthapuram has shown a high incidence of cancer of the thyroid where it is the third leading site of cancer. Similarly, the district-wise distribution showed a higher MAAR in Thiruvananthapuram district, with a belt of high incidence right from the southern tip of the country - Kanniyakumari in Tamil Nadu State along the coast of the States of Kerala and Karnataka extending on to South Goa.

imitations of the Report

massive exercise such as this project on developing an atlas for cancer in a vast country like India with ıried types of populations, differing literary and socioeconomic status has its limitations.

›verage: The coverage of the 35 states and union territories of the nation is far from complete. In several ates such as UP, Bihar, Jharkand, Chattisgarh etc. there were hardly any districts where there was information ı cancer cases based on which the patterns could be described. Even in some of the comparatively 'better ›vered' states the cancer patterns could not be characterized in several districts in each of these states. In ief, in only 82 of the 593 districts, a picture of the incidence and pattern of cancer could be provided. This is e of the main reasons why this project needs continuity.

easurement based on Minimal or Microscopic Age Adjusted Incidence Rates: The fact that only Minimal Age justed Incidence Rates (MAAR) in exchange for the standard Age Adjusted Incidence Rates (AAR) was ›vided is the other major limitation. Thus, no active effort could be made to get the cases of cancer diagnosed ough means other than microscopic. This would have required lot more resources and involvement of veral additional clinical departments and personnel therein in each collaborating institution. The advantages using MAAR are that core information on microscopically confirmed cases can be obtained from a single ırce within a hospital and therefore with minimal cost and effort. Moreover, microscopy is the basis of gnosis and treatment of cancer. The other advantage of a pathology based approach was the chances of luding prevalent cases are less likely. In a population based approach, there are more chances of including cases especially in the first year of operation. Obtaining details of cancer cases diagnosed through other ans requires scrutiny of records in multiple departments, critical review of the same by a medical person or ained tumour registrar, with at times further clarification from the treating clinician before arriving at a final gnosis of cancer. All this involves, especially in the Indian set-up, considerable time, effort, cost and expertise. ıcer registries under the NCRP as in registries elsewhere in the world include cases with cancer as a gnosis on the death certificates that are not matched with registered incident cases. Such cases are egorised as cases diagnosed through 'Death Certificate Only' (DCO). Collation of mortality data and identifying rtality records with cancer as an antecedent or associated cause is a major exercise of population based cer registries. The second factor in providing only MAAR was incomplete coverage of the specific geographic a. Unlike the working of PBCRs, no systematic attempt was made to actively visit every diagnostic and tment centre in the region to record all diagnosed/treated cancers. Therefore, while the MAAR provides a dy and quick assessment of the burden of cancer it is an underestimate of the actual incidence of cancer ıat specific population or geographic area.

n all, the incidence rates provided are truly minimal. But what makes this information valid whether for ıntific or administrative purposes?

t and 'fortunately' in our country for the disease - cancer, an established network of cancer registries ıer the NCRP and others) is functioning for over 20 years. These registries have established over the s, not only sound functioning, but also provided consistent internationally accepted incidence rates and ərns of cancer albeit in few centres. Thus, a baseline data is available for ready comparison. Second, the əm of registration and certification of cause of death in our country does not help in providing reliable cer specific mortality rates to assess incidence or patterns of cancer in the country. Third, the medical mation (as represented by the patient medical records) in most institutions in our country are inadequate rovide information on disease, especially on a population basis. Hence the need for special efforts to te and develop a system of specific disease registers - whether for research, administration or disease rol. A scheme that will sustain and furnish the required information for all of the aforementioned reasons sential.

Cost

Advances in electronic information technology have to be harnessed to deliver quality and complete valid data. The project was extremely cost-effective. The amount spent per cancer case under the PBCRs of the ICMR is on the average Rs 350 for the urban areas and Rs 4,500 for the rural registry. Under this Project the cost per case worked out to approximately Rs 24.

After all, in this study the MAAR was found to be a fairly dependable cost effective measure of incidence and patterns of cancer in diverse districts of the country. Since several parts show minimum incidence rates higher than that observed in the established registries there appears a need for a pragmatic appraisal of the utility and validity of MAARs in the Indian context.

Future Scope of the Project

The advent of Information Technology (IT) has had its impact in several fields. In a developing country like India, its reach in the health sector has been visible in components of diagnostic reports and as part of patient management tools, especially in the private sector. The diffusion of IT has, however, been negligible in gathering health information or consolidating existing information to either influence health care delivery or foster health informatics as an instrument towards disease control or research.

The reasonably successful outcome of this project opens the doors for manifold possibilities. Some of those, which are of direct relevance to this study, are outlined below.

A. On-line dynamic generation of Incidence Rates

During the next few months a plan has been drawn to make available the basic incidence tables and map dynamically on the web-site. The completeness and validity of this information would of-course depend on the speed and promptness with which centres transmit data.

B. Increase Coverage - Establishing Descriptive Cancer Epidemiology

1. More areas and States especially in the North, East and West have to be covered. There are 593 districts in the country and comparable incidence rates and patterns could be estimated in only 82 districts leaving vast portions uncovered;
2. Some of the states and union territories have the scope of having a cancer map to cover the entire state with additional yet minimal efforts;
3. Verification and stability of incidence rates so determined in the existing districts;
4. Derivation of more localized incidence rates at the tehsil/taluk levels;
5. Institute full fledged Population Based Cancer Registries in identified areas;

C. Based on the findings of this study a variety of Analytic Epidemiological studies with laboratory component can be done in the respective areas

D. Pathological Studies

If pathology is the basis of diagnosis of cancer the pathologist has been the basis of the success of this project. Therefore, for the pathologist, there are several uses and extended uses of this project with specific use of the web. Apart from have a ready analysis of cancers by type and morphology, the canceratlasindia web-site could be well utilised for exhibiting microphotographs of unusual cancer cases or diagnostic problems or for standardisation of morphological diagnosis. The website could also be used to study morphological patterns as related to prognosis and such studies could be undertaken relatively easily in collaboration with several institutions.

Patterns of Cancer Patient Care and Survival

The concept of using a web-site for gathering information and the internet as a medium of transmission has also found application in the study on "Patterns of Cancer Patient Care and Survival" for specific sites of cancer.

Cancer Control and Health Services Research

The cancer registry is central to any rational programme on control of cancer (Muir C.S.1985). So the cancer data through the cancer atlas could act as critical baseline information for monitoring and evaluation of cancer control programmes.

Initiation and Development of the new field of Health Informatics with specific reference to cancer and cancer research

onclusion

ne may emphasize that this is the first outcome of a two-year activity using a hitherto untried methodology. onsistency of methods and continuity over time, are essential components that need to be maintained.

conclusion three essential features stand out:

1. The results presented throw a whole new set of cancer incidence and patterns demonstrating the immense potential of the system and the numerous possibilities for cancer research and control. It has identified hot spots of high incidence, recognised belts of geographic areas with specific types of cancer and discerned likely zones for establishing population based cancer registries.
2. The project was extremely cost-effective.
3. The concept of using web-based design and approach with on-line transmission of cancer data has worked - a major advance for using Information Technology in Medicine - Measuring Disease Burden and Health Informatics.

References

Boyle, P. and Parkin, D.M. Statistical Methods for Registries- Ch. in Cancer Registration- Principles and Methods, Eds. Jensen, O.M., Parkin, D.M., Maclennan, R., Muir, C.S. and Skeet, R.G., IARC Scientific Publications, 1991, No 95, Lyon.

Census of India, 1991, Series - I, India - C Series - Socio Cultural Tables; Office of the Registrar General of India, New Delhi.

Census of India, 2001, Series - I, India - C Series - Socio Cultural Tables; Office of the Registrar General of India, New Delhi.

Gupta, S.P. - Statistical Methods, Thirty First Revised Edition, Vital Statistics: Census Enumeration, 2002, 16, 714, Sultan Chand & Sons, New Delhi.

Hennekens, C.H. and Buring, J.E. - Ch 4 Measures of Disease Frequency in Epidemiology in Medicine, edited by Mayrent, 1987, S.L. Little Brown, Boston/Toronto.

Muir C.S., Demaret E and Boyle P., The cancer registry in cancer control: an overview. IARC Sci Publ. 1985, 66, 13-26.

Muir, C.S., Waterhouse, J., Mack, T., Powell, J & Whelan, S., eds., Cancer Incidence in Five Continents, Volume V, IARC Scientific Publications, 1987, No.88, Lyon.

NCRP Annual Report 1982: Indian Council of Medical Research, 1985 New Delhi.

NCRP Annual Report 1983: Indian Council of Medical Research, 1986, New Delhi.

NCRP Annual Report 1984: Indian Council of Medical Research, 1987, New Delhi.

NCRP Annual Report 1985: Indian Council of Medical Research, 1988, New Delhi.

NCRP Annual Report 1986: Indian Council of Medical Research, 1989, New Delhi.

NCRP Annual Report 1987: Indian Council of Medical Research, 1989, New Delhi.

NCRP Biennial Report 1988-1989: Indian Council of Medical Research, 1992, New Delhi.

NCRP Consolidated Report of the Population Based Cancer Registries 1990-1996: National Cancer Registry Programme (ICMR), Coordinating Unit, 2001, Bangalore.

NCRP Ten Year Consolidated Report of the Hospital Based Cancer Registries 1984-93: National Cancer Registry Programme (ICMR), Coordinating Unit, 2001, Bangalore.

NCRP Two-Year Report of the Population Based Cancer Registries 1997-1998: National Cancer Registry Programme (ICMR), Coordinating Unit, 2002, Bangalore.

NCRP Five Year Consolidated Report of the Hospital Based Cancer Registries 1994-98: National Cancer Registry Programme (ICMR), Coordinating Unit, 2002, Bangalore.

Parkin DM, Stiller CA, Draper GJ, Bieber CA, Terracini B, Young JL. eds. International Incidence of Childhood Cancer, IARC Scientific Publication, 1988, No 87, International Agency for Research on Cancer, Lyon.

Parkin, D.M., Muir, C.S., Whelan, S.L., Gao, Y.T., Ferlay, J. & Powell, J. eds. Cancer Incidence in Five Continents Volume VI, IARC Scientific Publications, 1992, No. 120, Lyon.

Parkin, D.M., Chen, V.W., Ferlay, J., Galceran, J., Storm, H.H. and Whelan, S.L. Comparability and Quality Control in Cancer Registration. IARC Technical Report No. 19, 1994, Lyon.

Parkin, D.M., Whelan, S.L., Ferlay, J., Raymond L. & Young, J., eds. Cancer Incidence in Five Continents, Volume VII, IARC Scientific Publications No.143, 1997, Lyon.

Parkin, D.M., Whelan, S.L., Ferlay, J., Teppo L. & Thomas, D.B. eds. Cancer Incidence in Five Continents, Volume VIII, IARC Scientific Publications No.155, 2002, Lyon.

Sankarnarayanan, R., Black, R.J. and Parkin, D.M. Cancer Survival in Developing Countries, IARC Scientific Publication No. 145, 1988, Lyon.

Sen, U., Sankarnarayanan, R., Mandal, S., Ramankumar, AV., Parkin, DM. and Siddiqi M. - Cancer Patterns in Eastern India: The first report of the Kolkata Cancer Registry, Int. J. Cancer: 2002, 100, 86-91.

Sundar Rao, P.S.S., Jesudian, G., Richard, J. - An Introduction to Biostatistics, Population Estimation, 1978, 24, 214-216, Christian Medical College, Vellore.

Sundar Rao, P.S.S., Richard, J. - An Introduction to Biostatistics, Third Edition, Demography: Population Estimation, 2001, 21.8, 170-172, Prentice Hall of India, New Delhi.

WHO International Statistical Classification of Diseases and Related Health Problems - 10th revision, 1994, World Health Organization, Geneva.

WHO International Classification of Diseases for Oncology (ICD-O), Third Edition, eds. Fritz, A., Percy, C., Jack, A., Shanmugaratnam, K., Sobin, L., Parkin, D.M. and Whelan, S. 2000, World Health Organization, Geneva.

Appendix I

DEVELOPMENT OF AN ATLAS OF CANCER IN INDIA

A Project of the NCRP - ICMR Supported by the WHO

Core Proforma

NAME OF PARTICIPATING CENTRE: CENTRE CODE: ☐☐☐

Name of Other Institution *(if from other source)*

REGISTRATION NUMBER:..... ☐☐☐☐☐☐

HOSPITAL REGISTRATION NUMBER:..... ☐☐☐☐☐☐

FULL NAME OF PATIENT:

AGE (in years):..... ☐☐ GENDER: *(Tick ✓ one)* Male ☐ Female ☐

NAME OF FATHER:_____ NAME OF MOTHER:_____

NAME(S) OF SON(S):_____

NAME OF HUSBAND/WIFE:_____

NAME(S) OF DAUGHTER(S):_____

PLACE OF RESIDENCE:

Permanent Address

Urban Areas (Towns/Cities)

House No:

Road/Street Name:_____

Area/Locality:_____

Town/City:_____

Non-urban/Rural Areas

Name of Gram Panchayat/Village, etc:

_____

Name of Sub-Unit of District (Taluk/Tehsil/Other):

_____

Name of District (IN CAPITALS):_____

Postal Pin Code..... ☐☐☐☐☐☐

Duration of Stay (in years) at Permanent Address..... ☐☐

Telephone No (if any):

Local Address (if any, for non-resident patients) - record below as per details above

9. Relationship of Respondent (regarding Information on Items 1-8 above) to Patient? *(Tick ✓ one)*

(1) Self (Patient) ☐ (2) Family Member ☐

(3) Friend ☐ (4) Others (specify) ☐

10. TYPE OF MICROSCOPIC SLIDE *(Tick ✓ one)*

(1) Histopathology ☐ (2) Blood Smear ☐

(3) Bone Marrow Smear ☐ (4) Cytology Smear ☐

(5) FNAC Smear ☐ (6) Other ☐

PATHOLOGY / SLIDE NO(S).

11. ANATOMICAL SITE OF SPECIMEN/BIOPSY/SMEAR: _____

12. COMPLETE PATHOLOGICAL DIAGNOSIS

Primary Site of Tumour - Topography: _____

(include sub-site if any)

Morphological Diagnosis: _____

13. CODING ACCORDING TO ICD-O-3

PRIMARY SITE OF TUMOR - TOPOGRAPHY:..... ☐☐☐☐

PRIMARY HISTOLOGY - MORPHOLOGY:..... ☐☐☐☐☐☐

If morphology is that of metastasis mention Primary Site above and

SECONDARY SITE OF TUMOUR (SITE OF BIOPSY/SMEAR):..... ☐☐☐☐

MORPHOLOGY OF METASTASES:..... ☐☐☐☐☐☐

If the morphology diagnosis is only that of metastatic site, mention the Primary Site as taken by the treating clinician either through discussion or from case record

14. DATE OF REPORT:..... ☐☐☐☐☐☐

If there is an earlier report of malignancy in the same patient mention that date as well or attach another form

15. NAME OF PERSON COMPLETING FORM (IN CAPITALS): _____

16. Signature: Date:..... ☐☐ / ☐☐ / ☐☐

d d / m m / y y

Appendix II

Definitions, Statistical terms and Methods used in Calculations

Cancer Case: All neoplasms with a behaviour code of '3' as defined by the International Classification of Diseases – ncology, (Third edition, WHO, 2000) are considered reportable and therefore registered.

Age-Group: The age groups used for estimating populations as well as grouping cancer cases is as per the WHO guidelines ıich is 0-4, 5-9, 10-14....75+. According to the same definition the age group 0-14 constitutes childhood cancer.

Incidence: Cancer incidence denotes new cases diagnosed in a defined population in a specified time period. For this report cancer cases diagnosed from 1 January 2001 to 31 December 2002 in the different geographic areas covered by the different ɜtricts are included.

Rates: Rates for cancer are always expressed per 100,000 population. For childhood cancer this may be expressed as per e million, but the latter is not used in this report.

Crude Incidence Rate (CR): This refers to the rate obtained by division of the total number of cancer cases by the corresponding ɪimated population (mid-year) for that respective geographic area and multiplying by 100,000.

$$CR = \frac{\text{New cases of cancer of a particular year}}{\text{Estimated population of the same year}} \times 100{,}000$$

Age Specific Rate (ASpR): This refers to the rate obtained by division of the total number of cancer cases by the corresponding imated population in that age group and sex/site/geographic area/time period and multiplying by 100,000.

$$ASpR = \frac{\text{New cases of cancer of a particular year in the given age group}}{\text{Estimated population of the same year for the given age group}} \times 100{,}000$$

Age Adjusted or Age Standardised Rate (AAR): Most cancers increase to occur as age increases. Therefore the higher proportion of older population the higher the number of cancers. Most developed and western countries have a higher portion of older population. So in order to make rates of cancer comparable between developed and developing countries a ɪld standard population that takes this into account is used to arrive at age adjusted or age standardised rates. The world ıdard population approximates the proportional age distribution of the world. The AAR in this report is calculated according to direct method (Boyle and Parkin, 1991) by obtaining the age specific rates and applying these rates to the standard population ıat age group.

$$AAR = \frac{\sum_{i=1}^{A} a_i \, w_i}{\sum_{i=1}^{A} w_i}$$

where:

a_i is the age specific rate (AspR) in age class *i*;

w_i is the standard population in age class *i*;

A represents the number of age intervals.

Or expressed in more simpler terms thus:

$$AAR = \sum \frac{(ASpR) \times (\text{No. of persons in Std. world population in that 5 yr. age group})}{100{,}000}$$

Census and Population Estimation

The five year age group populations of 1991 and Total Population of 2001 census have been used in this report to calculate the estimates of population for the years 2001 and 2002.

The major source of information for population analysis is census data. The term census is often used to denote population counts of all kinds. A census is an enumeration at a specified time of individuals inhabiting a specified area, during which particulars are collected regarding age, sex, marital status, occupation, religion etc. In most countries of the world, population census is undertaken generally at ten year intervals. In India, the census count was taken hitherto as of sunrise on 1st March every year.

The fundamental deficiency of the census method is that it is impossible to get intercensal years information. As population is liable to change every instant due to birth, death, immigration and emigration, the population at any given time period can only be obtained as an estimate. Population estimation is possible for the year which falls in between two-census dates (i.e.) atleast two census information should be known. Most annual rates are computed by using the population estimate referring to 1st July (Mid-Year Population).

Each census data has age distribution starting from 0-4, 5-9,..... ANS. The ANS is the column where age not specified. While estimating population ANS is also estimated, but for calculating rates such as CR and AAR, ANS is completely omitted.

We have different methods for making population estimates of which most commonly used method is Arithmetic Progression method.

Increase in 10 year = Census Population 2001 — Census Population 1991

In this method it is assumed that the population increases or decreases by a constant figure year to year, between any two census years. This assumption however need not be correct. Nevertheless, the method has simplicity and the estimates have been checked by actual surveys to be reasonably correct.

Here we use the method, which is similar to Arithmetic Progression method. The difference between the population figures of the two census gives the total increase of the population in ten years. Assuming the same relative proportion of five-year age group of census 1991 population to 2001, we estimate five-year age group for 2001. Then dividing the product of the difference value between census 2001 and 1991 and estimated five-year age group of 2001 by 100 gives the 10-year increase for each specific age group.

$$\text{10 year increase in 1991 census} = \text{Relative proportion of 1991 for each specific age group} \times \frac{\text{Census Population of 2001} - \text{Census Population of 1991}}{100}$$

From 10-year increase, 4-month increase in population can be obtained by multiplying with 4/120.

4 month increase = 10 year increase × (4/120)

Then the addition of 10 year and 4 month increase to census 1991 population gives the mid-year 2001 population.

Mid-year 2001 estimated population = Census 1991 + 10 yr increase in population + 4 month increase in population

Similarly 16-month increase in population is obtained by multiplying 16/120 to 10 year increase population.

16 month increase = 10 year increase × (16/120)

The addition of 10 year and 16 month increase population to census 1991 gives the mid-year 2002 population.

Mid-year 2002 estimated population = Census 1991 + 10 yr increase in population + 16 month increase in population

Assuming that this annual and monthly change occurs uniformly, we calculate the growth of the population from the last census to the time when the estimate is required. This method can also be used to estimate the population of any year after the last census.

Appendix III

List of Topography sites with ICD-10 code with mode of grouping for determining leading sites of cancers and acronyms used in figures of bar charts.

Site Code (ICD-10)	Topography Site Name	Grouped Name	Acronym
C00	Malignant neoplasm of lip	Lip	Lip
C01 C02	Malignant neoplasm of base of tongue Malignant neoplasm of Other and unspecified parts of tongue	Tongue	Tongue
C03 C04 C05 C06	Malignant neoplasm of gum Malignant neoplasm of floor of mouth Malignant neoplasm of palate Malignant neoplasm of other and unspecified parts of mouth	Mouth	Mouth
C07 C08	Malignant neoplasm of parotid gland Malignant neoplasm of other and unspecified major salivary glands	Salivary glands	Salivary Gl.
C09	Malignant neoplasm of tonsils	Tonsils	Tonsil
C10	Malignant neoplasm of oropharynx	Other Oropharynx	Oth. Oroph.
C11	Malignant neoplasm of nasopharynx	Nasopharynx	Nasopharynx
C12 C13	Malignant neoplasm of pyriform sinus Malignant neoplasm of hypopharynx	Hypopharynx	Hypopharynx
C14	Malignant neoplasm of other and ill-defined sites in the lip, oral cavity and pharynx	Pharynx unspecified	Pharynx Uns.
C15	Malignant neoplasm of oesophagus	Oesophagus	Oesophagus
C16	Malignant neoplasm of stomach	Stomach	Stomach
C17	Malignant neoplasm of small intestine	Small Intestine	Small Intestine
C18	Malignant neoplasm of colon	Colon	Colon
C19 C20	Malignant neoplasm of rectosigmoid junction Malignant neoplasm of rectum	Rectum	Rectum
C21	Malignant neoplasm of anus and anal canal	Anus etc	Anus
C22	Malignant neoplasm of liver and intrahepatic bile ducts	Liver	Liver
C23 C24	Malignant neoplasm of gallbladder Malignant neoplasm of other and unspecified parts of biliary tract	Gallbladder etc	Gallbladder
C25	Malignant neoplasm of pancreas	Pancreas	Pancreas
C26	Malignant neoplasm of other and ill defined digestive organs	Others & Unspecified	O&U
C30 C31	Malignant neoplasm of nasal cavity and middle ear Malignant neoplasm of accessory sinuses	Nose, Sinuses etc	Nose
C32	Malignant neoplasm of larynx	Larynx	Larynx
C33 C34	Malignant neoplasm of trachea Malignant neoplasm of bronchus and lung	Lung etc	Lung
C37 C38	Malignant neoplasm of thymus Malignant neoplasm of heart, mediastinum and pleura	Other thoracic organs	Oth. Tho. Org
C39	Malignant neoplasm of other and ill-defined sites in the respiratory system and introthrocic organs	Others & Unspecified	O&U
C40 C41	Malignant neoplasm of bone and articular cartilages of limbs Malignant neoplasm of bone and articular cartilages of other and unspecified sites	Bone	Bone
C43	Malignant melanoma of skin	Melanoma of skin	Melanoma of skin

Site Code (ICD-10)	Topography Site Name	Grouped Name	Acronym
C44	Other malignant neoplasms of skin	Other skin	Other skin
C45	Mesothelioma	Mesothelioma	Mesothelioma
C46	Kaposi sarcoma	Kaposi sarcoma	Kaposi sarcoma
C47 C49	Malignant neoplasm of of peripheral nerves and autonomic nervous system Malignant neoplasm of other connective and soft tissue	Connective and soft tissue	Conn. Tissue
C48	Malignant neoplasm of retroperitoneum and peritoneum	Others & Unspecified	O&U
C50	Malignant neoplasm of breast	Breast	Breast
C51	Malignant neoplasm of vulva	Vulva	Vulva
C52	Malignant neoplasm of vagina	Vagina	Vagina
C53	Malignant neoplasm of cervix uteri	Cervix Uteri	Cervix Uteri
C54	Malignant neoplasm of corpus uteri	Corpus Uteri	Corpus Uteri
C55	Malignant neoplasm of uterus, part unspecified	Uterus unspecifed	Uterus Uns.
C56	Malignant neoplasm of ovary	Ovary	Ovary
C57	Malignant neoplasm of other and unspecified female genital organs	Other female genital organs	Oth. Fem. Gen.
C58	Malignant neoplasm of placenta	Placenta	Placenta
C60	Malignant neoplasm of penis	Penis	Penis
C61	Malignant neoplasm of prostate	Prostate	Prostate
C62	Malignant neoplasm of testis	Testis	Testis
C63	Malignant neoplasm of other and unspecified male genital organs	Other male genital organs	Oth. Male Org.
C64	Malignant neoplasm of kidney, expect renal pelvis	Kidney	Kidney
C65	Malignant neoplasm of renal pelvis	Renal pelvis	Renal Pelvis
C66	Malignant neoplasm of ureter	Ureter	Ureter
C67	Malignant neoplasm of bladder	Bladder	Bladder
C68	Malignant neoplasm of other and unspecified urinary organs	Other urinary organs	Oth. Uri. Org.
C69	Malignant neoplasm of eye and adnexa	Eye	Eye
C70 C71 C72	Malignant neoplasm of meninges Malignant neoplasm of brain Malignant neoplasm of spinal cord, cranial nerves and other parts	Brain, Nervous system etc	Brain, NS.
C73	Malignant neoplasm of thyroid gland	Thyroid	Thyroid
C74	Malignant neoplasm of adrenal gland	Adrenal gland	Adrenal Gland
C75	Malignant neoplasm of other endocrine glands and related structures	Other endocrine	Oth. Endocrine
C76	Malignant neoplasm of other and ill -defined sites	Others & Unspecified	O&U
C81	Hodgkin's disease	Hodgkin's disease	Hodgkins Dis.
C82 C83 C84 C85 C96	Follicular (nodular) non-Hodgkin's lymphoma Diffuse non-Hodgkin's lymphoma Peripheral and cutaneous T-cell lymphomas Other and unspecified types of non-Hodgkin's lymphoma Other and unspecified Malignant neoplasms of lymphoid, haematopoietic and related issue	Non-Hodgkin's lymphoma	NHL
C88	Malignant immunoproliferative diseases	Immunoproliferative diseases	Imm. Dis.
C90	Multiple myeloma and malignant plasma cell neoplasms	Multiple myeloma	Multi. Myel.
C91	Lymphoid leukaemia	Lymphoid leukaemia	Lymph. Leuk.
C92 C93 C94	Myeloid leukaemia Monocytic leukaemia Other leukaemias of specified cell type	Myeloid leukaemia	Myel. Leuk.
C95	Leukaemia of unspecified cell type	Leukaemia unspecified	Leuk. Uns.

Appendix IV

List of States/Union Territories with code (according to Census of India, 2001) and acronyms used in figures of bar charts against names of districts.

State Code	Name of State/Union Territory*	Acronym
1	Jammu & Kashmir	JK
2	Himachal Pradesh	HP
3	Punjab	PB
4	Chandigarh *	CH
5	Uttaranchal	UL
6	Haryana	HR
7	Delhi *	DL
8	Rajasthan	RJ
9	Uttar Pradesh	UP
10	Bihar	BH
11	Sikkim	SK
12	Arunachal Pradesh	AR
13	Nagaland	NL
14	Manipur	MR
15	Mizoram	MZ
16	Tripura	TR
17	Meghalaya	MG
18	Assam	AS

State Code	Name of State/Union Territory*	Acronym
19	West Bengal	WB
20	Jharkhand	JH
21	Orissa	OR
22	Chhatisgarh	CG
23	Madhya Pradesh	MP
24	Gujarat	GJ
25	Daman & Diu *	DD
26	Dadra & Nagar Haveli *	DN
27	Maharastra	MH
28	Andhra Pradesh	AP
29	Karnataka	KA
30	Goa	GA
31	Lakshadweep *	LK
32	Kerala	KL
33	Tamil Nadu	TN
34	Pondicherry *	PY
35	Andaman & Nicobar Islands *	AN

Index to Chapter 5 -
Distribution and Patterns of Cancer in Selected Districts

Index to Chapter 6 -

Summary of Specific Sites of Cancer

Index to Chapter 7 -
Profile of Cancers in Collaborating Centres