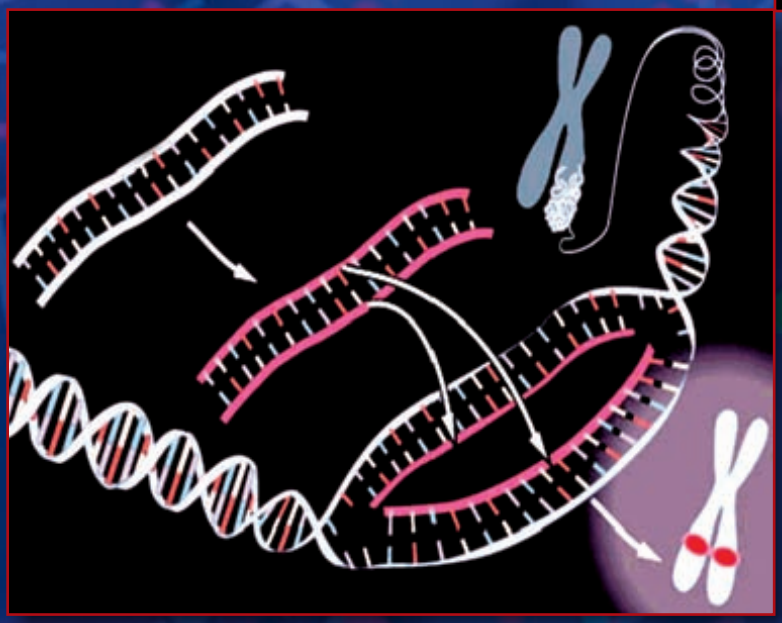
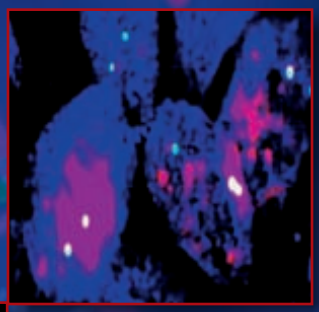
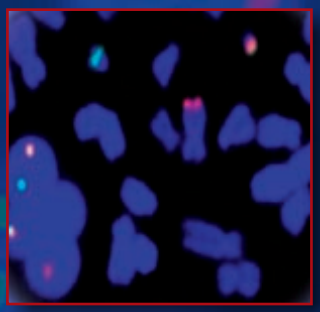
TATA MEMORIAL CENTRE

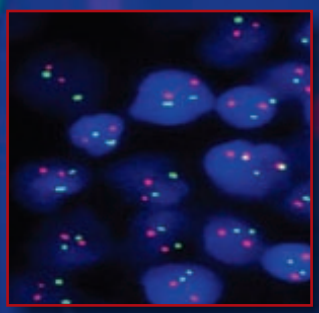
- TATA MEMORIAL HOSPITAL
  and
- ADVANCED CENTRE FOR TREATMENT, RESEARCH AND EDUCATION IN CANCER

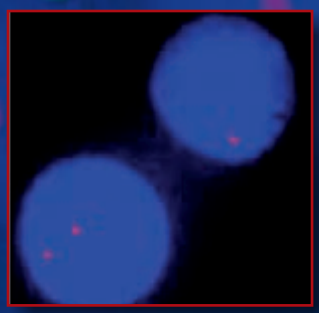


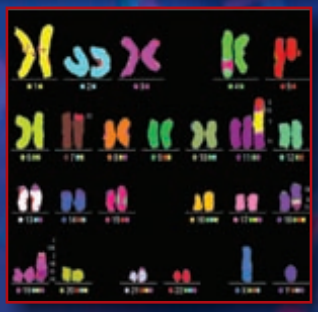


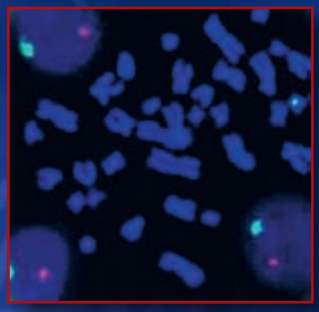


Cancer
Cytogenetics









ANNUAL REPORT 2012-13

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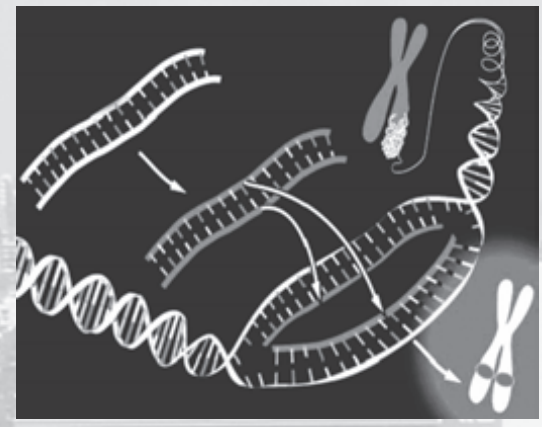


Introduction of FISH, a powerful, and efficient molecular cytogenetic technology has made significant contribution in our cancer cytogenetics, molecular diagnostic service program. Application of FISH for the comprehensive analysis of genetic markers that includes unique chromosome abnormalities and gene/s alterations such as genes fusion, allelic loss , gene insertion, gene amplification in fresh and archival tissue as well made remarkable improvement in precise diagnosis, prediction of prognosis, treatment decision, early identification of disease recurrence and detection of residual disease which led to profound improvement in disease management in hematolymphoid malignancies and solid tumors as well. Implementation of M-FISH disclosed detection of hidden, masked complex structural aberrations in a apparently normal karyotype in Myelodysplastic Syndromes (MDS).

TATA MEMORIAL CENTRE

TATA MEMORIAL HOSPITAL
AND
ADVANCED CENTRE FOR TREATMENT, RESEARCH AND EDUCATION IN CANCER

ANNUAL REPORT 2012 - 13

CONTENTS

ADVANCED CENTRE FOR TREATMENT, RESEARCH & EDUCATION IN CANCER

3

Message From Director - TMC

The annual report 2012 is a comprehensive summary of the activities pertaining to service, education and research at Tata Memorial Hospital and the Advanced Centre for Treatment Research and Education in Cancer. Tata Memorial Centre is fast moving into the eighth decade and has made significant contributions to pave the way forward in holistic cancer care.

Improvements in service have been achieved through the addition of new technology, better equipment and the addition of qualified and well trained medical and paramedical staff.

As a premier referral institute, receiving patients from across the country, efforts are ongoing to evolve cost effective treatment for common cancers in India. TMC has evolved a low cost screening methodology for cancer of the cervix using acetic acid for visual inspection. Trials conducted by us have shown a 31% reduction in deaths using this as a screening tool. Implementation of this at the National level will help save the lives of 22,000 women every year. A low cost injection for breast cancer, given prior to surgery, has shown to save 28% of patients who would have died from the disease.

There has been an explosion in knowledge with the introduction of “molecular” diagnostics and therapeutics. Radio immunotherapy has been introduced to improve outcomes of monoclonal antibody based treatment.

Pari passu with the advances in molecular therapeutics, the installation of the indigenously developed Cobalt Therapy machine-the Bhabhatron, have made radiotherapy affordable and possible to 23 Centers and more than 36,000 patients.

We are in the process of setting up a National facility for Hadron Beam Therapy-cutting edge technology for the treatment of challenging cancers in children, head and neck cancers, brain tumours and many others. With the acquisition of land at the Haffkine Institute, Parel, Mumbai, this facility is now a reality.

In fulfillment of the mandate of service, research and education, we are now expanding towards a larger network with the formalization of the National Cancer Grid. The objective of this effort is to evolve and implement state of the art standard cancer care across the country. This Grid includes four centers, Tata Memorial Centre, Tata Medical Centre (Kolkata) and two more centers which are to be commissioned in Vishakhaptnam and Chandigarh. The latter two centers and Tata Memorial Centre will be governed by the National Cancer Grid Council (NCG), as the apex body. The NCG Council will enable uniform policy and clear vision in dealing with service and education as well as consolidate research efforts and facilitate collaboration for multicentric studies. Both these new projects have commenced in 2012.

The establishment of the International Agency for Research in Cancer (IARC) Regional Hub-Asia (Centre of excellence for strengthening cancer registries in Asia); on the 1st October, 2012 under the Centre for Cancer Epidemiology was a landmark. This program will help India and its neighbors in capacity building for setting up cancer registries which in turn identify the cancer burden.

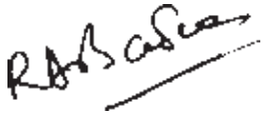
In a significant step forward, collaboration was set up with the King's Health Partners Integrated Cancer Centre (ICC). This partnership will facilitate joint research, fellowships, training and exchange visits between TMC and ICC.

There has been a gradual shift of focus in cancer care from "cells" to "molecules". The addition of a molecular diagnostic facility at TMC is in keeping with this theme. This state of the art diagnostic facility will add value to the diagnosis and management of many common cancers.

ACTREC continues to excel in basic, clinical and translational research and trial protocols. Facilities at ACTREC are being upgraded and augmented in the areas of Bone Marrow Transplantation and Hematolymphoid malignancies.

Post-graduate education is a major strength of the Tata Memorial Centre. The number of students and programs are continuously on the rise.

This report pays tribute to our patients for whom the Tata Memorial Centre strives to deliver the highest quality of care.



Dr R A Badwe

Message From Director - TMH

2012 is the beginning of the XII Five Year Plan and the hospital has projected a roadmap for major expansion. This includes up gradation of the Mumbai facility as well as the setting up of hospitals at Vizag and Punjab towards providing state of the art cancer care across the country. Also projected is the establishment of the first government run Proton Radiotherapy Facility in the country which would be of major benefit for pediatric and cancers adjacent to critical structures, minimizing side effects significantly.

Inundated by the large number of patients we strive to make the hospital more patient friendly, reduce waitlists as well as continue to provide cancer care comparable to the best across the globe. Towards this goal, we have upgraded our Positron Emission Tomography (PET) and CT-Scan facilities by installing new scanners. The PET Scanner is the latest "Time of Flight" system which is unique, in that it scans faster, uses less isotope, gives better images and exposes patients to lesser radiation. The number of scans performed daily has doubled with the installation of these equipments in both departments.

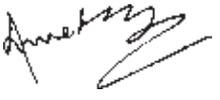
The IT Department is making efforts towards establishing TMC as a paperless hospital which we hope to achieve in the near future. This eco-friendly initiative ensures integrity and safety of important clinical data which would otherwise be lost with patients carrying case files away with them. There has also been an emphasis on the development of a robust patient follow up system. The hospital information system (HIS) has been integrated the SMS gateway for sending SMS alerts while registering ,scheduling and reminding patients of follow up appointments.

Today Immunohistochemistry (IHC) is imperative for the diagnosis and prognostication of many cancers. The (IHC) facility in the Department of Pathology has been fully automated. From using five anti-bodies and processing about 20 slides daily in 1986, the laboratory now uses 90 anti-bodies and processes over 400 slides a day. The automation has helped handle the increased workload, eliminate manual errors, ensures reproducibility as well as assures quality.

Towards patient safety, and acute care, a new ICU and casualty ward was commissioned. The 14 bedded (including 4 isolation beds) ICU has helped overcome many of the obstacles in delivery of high quality intensive care for our patients. Very critical patients, including those needing isolation are better cared for. The 11 bedded casualty ward has helped cater to over a hundred patients daily providing round the clock care for emergency services.

The Rajiv Gandhi Jeevandayee Arogya Yojana Scheme initiated by the Maharashtra government to help below poverty line patients has also been adopted by the hospital. About one thousand five hundred patients have benefited from this scheme availing cashless state of art services at the hospital.

Our patients from all over the country continue to repose their trust and faith in us as manifested by an increase in the number of registrations year after year. This would not have been possible without the tireless and dedicated services of each and every one of our employees despite an acute shortage of manpower given the bed strength and the services provided. I place on record our appreciation to each and every one of them.



Dr. A. K. D'cruz

TATA MEMORIAL CENTRE

I

Executive Summary

The Tata Memorial Centre (TMC) comprising Tata Memorial Hospital (TMH), the Advanced Centre for Treatment, Research and Education in Cancer (ACTREC), and Centre for Cancer Epidemiology (CCE) is a grant-in-aid institution under the administrative control of Dept. of Atomic Energy, Govt. of India. The mandate of TMC is Service, Research and Education. The TMC continued to provide the highest standard of patient care through its services and research, and builds capacities by imparting knowledge through various educational activities.

Tata Memorial Hospital (TMH)

Our Services

The year saw an overall increase of 1.48 % in new cases registered as compared to last year. During the year, 34073 new cases were registered in addition to the 5030 cases registered in Preventive Oncology. About 20077 referral cards were issued for investigations like mammography, pathology etc.

The disease management groups formed for each cancer site, ensured evidence based diagnosis and treatment deciding holistically on the treatment modality viz., surgery, radiation and chemotherapy as combination or independent, for each individual patient. This also ensured better outcome and quality of life for the patient.

Anaesthesiology department provided quality anaesthetic services. The department anaesthetized 9623 patients for major or supra major surgeries, while over 19000 minor surgeries were conducted in endoscopic, radiotherapy and Minor OT under local and general anaesthesia. The ICU provided high quality intensive care for management of acute cardiovascular, metabolic and other critical illnesses associated with major surgery, pre-existing disease, and chemotherapy. The recovery room catered to 6158 patients, and a total of 1993 patients were admitted to postsurgical and medical ICUs, of which 595 patients were ventilated. The pain unit of this department offers state of the art treatment for pain relief, to post operative cancer patients with acute pain. This year 1826 patients were given relief from acute pain while a total of 1917 patients were treated in the pain clinic - 1016 being new and 901 follow-up patients. The unit also performed 52 interventional pain procedures.

The radiation oncology offered state-of-the-art treatments to over 5000 patients. It provides a spectrum of radiotherapy procedures from conventional, 2D RT to the latest with volumetric modulated arc therapy. The several services offered are - 3-D conformal radiotherapy (3-D CRT), intensity modulated radiotherapy & radio-surgery (IMRT & IMRS), Stereotactic radiotherapy/ radiosurgery and Image Guided Radiation therapy (IGRT) and also specializes in procedures like, Total Skin Electron Beam Therapy (TSET) for Mycosis Fungoides. A stringent quality assurance (QA) program ensures efficient and accurate radiotherapy treatment.

The Department of Nuclear Medicine and Molecular Imaging conducted 7948 PET/CT, 4100 NM and 250 CT scans during the year. On the whole, 1,57,202 Radiological investigations, 23,79,656 Pathological investigations, 23450 Cyto-pathological investigations, 1,50,000 microbiological tests were conducted showing huge volume and rise over the previous year. About 30,277 patients were offered Occupational therapy and Speech Therapy for better improvement and quality of life maintenance; and were also supported for Psychiatry, Palliative and Stoma Care. The Blood Bank of Transfusion Medicine department, collected, 20325 units of blood and platelets and 52,726 components were prepared. It organized 84 blood collection camps.

The Department of Preventive Oncology a designated 'WHO Collaborating Centre for Cancer Prevention, Screening and Early Detection' has actively contributed for the cancer prevention, education and control activities though various programs and in association with various NGOs and corporators. It reached the community for health welfare, through its community outreach activities, viz. the community out-reach programs . The Tata Memorial Centre Rural Outreach Program (TMCROP) reaching out to about 8600 households for screening (1997 persons) and health awareness and offered treatment to those needed; Tata Memorial Centre – Urban Outreach Programme reaching out at tobacco users in slum areas within Mumbai to educate and counsel and conducted tobacco cessation clinics; and conducted capacity building programs(9), trained observers (31) in Cancer Prevention Control and Early Detection activities.

The EBM conference

The 10th Annual Meeting on Evidence Based Management of Cancers in India (EBM-2012) was held from 24th to 26th February 2012. The EBM meeting for 2012 was focused on Head and Neck cancers, Hodgkin's Lymphoma and Infections and Cancer.

The Head and Neck sessions covered topics ranging from pathology, the role of imaging modalities from conventional modalities to PET scan, the optimum diagnostic pathways, therapeutic algorithm in the management of head and neck cancers, late effects of therapy and rehabilitation.

The Hodgkin's Lymphoma sessions highlighted currently accepted standard of care but also addressed controversial issues and ongoing research areas.

The Infections and Cancers sessions discussed epidemiology of infection related cancers, HIV, current evidence, therapeutics and prevention of infection.

The meeting was attended by 550 participants. As a part of EBM conferences, four books were published. Of which, three books were based on the symposium / modules held and fourth book was on Treatment Algorithms in Cancers. These four books are available on TMC website.

The Hospital Day Oration

The Hospital Day Oration on "Progress in customizing therapy for head and neck cancer" was delivered by Prof. Kie Kian Ang, a leading head and neck radiation oncologist from Department of Radiation Oncology, MD Anderson Cancer Center, Houston, Texas, USA on 25th February, 2012.

Clinical Research

Clinical Research Secretariat (CRS) along with Department of Atomic Energy Clinical trials unit (DAE-CTC) has been facilitating research at Tata Memorial Hospital for almost a decade, through support for clinical trials in the form of infrastructural, funds, trained manpower, study design, statistical assistance, data management and analyses, data monitoring, translations; propagating evidence based medicine practice and capacity building. It supported 15 Clinical trials during the year.

In 2012, seven international teams visited Clinical Research Secretariat (CRS) for collaborative trials across the countries. DAE-CTC unit and CRS continued to provide support in the form of funds and human resource for research and conferences. As part of its mandate to update and train in research, two courses viz. "Clinical Research Methodology Course (CRM)" and "Good Clinical Practice Workshop (GCP)" were organized during the year. The CRM focuses on various aspects of the design, conduct and reporting of clinical trials and publication. The Good Clinical Practice Workshop, is another annual event emphasizing on Principles of GCP, Informed Consent process, Investigator Responsibilities and Monitoring and Adverse Event Reporting. About 350 participants were trained under these courses.

Academic Activities

The Educational activities at TMC are under Prof. K.S. Sharma, Director (Academics) TMC who is also a member of Board of Governors, Medical Council of India, New Delhi. Tata Memorial Centre is affiliated to Homi Bhabha National Institute (HBNI) Mumbai, a Deemed University, for imparting PG training in Oncology and other broad specialty. Tata Memorial Center is a recognized training center in cancer Education and Research by several National and International organizations, including WHO, IAEA and INCTR.

The hospital offered education through various activities like PG courses, and training through short term observer ship and summer training programs. About 72 students were registered for PG courses in various disciplines. The hospital strengthened its capacity building activity and educational activities by initiating three new DM courses in Pediatric Oncology, Gastroenterology, and Critical Care and a two years short term Advance diploma in Radio Imaging Technology. The TMC Staff contributed more than 200 international/national publications in indexed peer reviewed journals.

Awards:

Tata Memorial Centre, Mumbai was awarded the " Rajbhasha Shield" for the year 2011 – 2012 , among the aided institutions of the Department of Atomic Energy, an honour for effective implementation of the policies of Official Language.

Advanced Centre for Treatment, Research and Education in Cancer (ACTREC):

The Advanced Centre for Treatment, Research and Education in Cancer (ACTREC) - The R&D arm of the Tata Memorial Centre, is a unique model of a comprehensive centre where basic, translational and clinical research on cancer is undertaken on the same campus. At the core of ACTREC lies the Clinical Research Centre, set up in 2005, which focuses on conducting clinical and translational research and developing new therapeutic modalities, and a 100 bedded hospital where cancer patients are offered the latest treatment options - advanced surgery including neurosurgery, chemotherapy, radiotherapy and bone marrow transplantation. The Cancer Research Institute (CRI), with its 23 Principal Investigator-led laboratories and research support facilities, is the central hub for basic and applied research projects encompassing varied aspects of normal, tumour and stem cell biology, immunology, cell signaling and complex molecular interactions, genomics, proteomics, structural biology, cancer genetics and related areas.

In the year 2012, the Centre celebrated two landmark events, the Tenth Anniversary of ACTREC which was commissioned in 2002 at Navi Mumbai, and the Platinum Jubilee of CRI which was founded in 1952 at Mumbai. On 26th January 2012, the refurbished auditorium in ACTREC was named 'Khanolkar Auditorium' in honour of the Founder Director of CRI, Prof. VR Khanolkar, by none other than the Nobel laureate Prof. Harald zur Hausen.

III

The vision that was envisaged during the creation of ACTREC has over the past decade turned into reality with the integration of basic and clinical research programs, and is now clearly heading towards the translational platform. In keeping with recent trends, a large number of the Centre's research projects involve close academic and clinical collaborations within and outside the Centre - both in India and abroad. During 2012, a total of 125 research projects were on-going at ACTREC. A sum of Rs. 1.25 crore was received from governmental agencies such as DBT, DST, ICMR, LTMT, etc., to meet the expenditure on 12 of the on-going projects. In addition, 15 new extramurally funded projects to the tune of Rs. 10.43 crore for a three year period were sanctioned by these funding agencies, of which Rs.4.64 crore were received during the calendar year.

Over the years, the Centre has been consistently building up its staff strength. The year 2012 brought with it the induction of 12 new staff members - three of them clinicians, while seven senior staff members superannuated or chose voluntarily retirement. During the year, scientists of the Centre filed two Indian/ US patent applications. A multiple format HIV-2 derived lentiviral vector designed for use in gene transfer is ready for technology transfer. Research conducted by faculty of the Centre during 2012 yielded 117 indexed publications - 57 of these encompassed basic and translational research, while 50 covered clinical research and medical technology.

A brief summary report of the Centre's programs during the year is provided below.

Clinical Research Centre & Hospital

The Clinical Research Centre programs continued to show an upward trend during 2012, particularly in terms of the patient services provided. In all, 4470 new patients were referred to the Centre for investigation or treatment as a part of various IRB approved translational or clinical research projects - a 26% increase over the previous year's figures. The Hematolymphoid ward became fully functional, necessitating increased provision for OPD facilities. The Day Care timings were also increased to keep up with the demand. A Dental Clinic and Pediatric OPD were set up and made fully functional to meet patient requirements. A new Digital Subtraction Angiography (DSA) facility was donated to the Centre by a philanthropic organization.

The diagnostic facilities (Clinical Biochemistry, Hematopathology, Microbiology, Molecular Pathology and Surgical Pathology) are already NABL accredited, and reassessment of the diagnostic laboratories is scheduled in January 2013. The following quality initiatives were undertaken during the year 2012 in order to improve patient care: (a) Analysis of incident reporting with root cause analysis, (b) Patient feedback redressal with response from the respective areas with regard to patient suggestions and complaints, (c) Registering patients at ACTREC, and (c) Implementation of referral card facility.

The established programs of the Radiation Oncology department and Bone Marrow Transplant Unit, besides catering to increased patient care, also included a large number of collaborative projects with ACTREC scientists and TMH clinicians. Clinical Pharmacology programs covered the successful development of models for therapeutic drug monitoring, and PK-PD correlation of curcumin in preventing oral mucositis in BMT patients. Translational research on the study of the genomic instability caused by circulating DNA and chromatin was accompanied by experiments to bring about their degradation using a therapeutic combination of Resveratrol and copper. The Bioengineering (Medical electronics lab) and Gynecology-Video Colposcopy research facility (Cancer Theranostics) aimed to develop newer, affordable diagnostic tools and treatment protocols through the amalgamation of clinical, experimental, theoretical and engineering research techniques.

Cancer Research Institute

In recent years, an impetus has been given to basic research programs in newly emerging areas at the Cancer Research Institute. Newer investigations include study of the structure, function and specificity of proapoptotic proteins and their role in cancer; examination of infra red absorption, Raman and fluorescence spectroscopy methods as non invasive tools for the early diagnosis of cancer; development of imaging protocols suitable for testing experimental concepts in small animal models which can be translated into clinical diagnosis/ personalized therapy applications in human cancer; early detection of molecular changes during the acquirement of chemotherapy drug resistance in ovarian cancer cells; use of biophysical techniques, macromolecular crystallography, structural biology and bioinformatics tools to visualize the association of cancer susceptibility genes and proteins at the atomic level; study of molecular and cellular mechanisms governing stem cell regulation and their perturbation during oncogenesis.

Continuing multipronged investigations addressing fundamental aspects of normal and tumour biology have come up with interesting leads. Basic research studies involve the dissection of cellular pathways and interplay between various proteins that regulate neoplastic progression. Assessment of the immune scenario and immune dysfunction in cancer patients has highlighted the vital role of gd T cells and Toll like receptors present in the tumour microenvironment. The role of protein glycosylation in invasion and organ specific metastasis is being examined by studying b1,6 branched N-oligosaccharides which promote invasion by modulating adhesion, chemotaxis, and movement. Assessment of the anti-metastatic activity of drugs and other complexes is underway. The analysis of genomic alterations has identified

putative 'driver' genes associated with oral carcinogenesis and shorter survival. Expression of histone variants during sequential hepatocellular carcinogenesis suggests a strong association of increased H2A.1 and decreased H2A.2 variant with the process of de-differentiation.

The anti-initiating and anti-promoting properties of chemopreventive agents have been shown to involve modulation of signaling kinases or their xenobiotic-induced activation/ translocation. Using whole exome capture followed by sequencing, identification of novel somatic single nucleotide polymorphisms (SNPs) is underway in a bid to elucidate cervical cancer pathogenesis. The screening of high risk families for hereditary cancers has led to the identification of several community and region specific founder gene mutations, using cost effective screening and identification techniques. Also under investigation is the deregulation of tumor suppressive and oncogenic signaling pathways in glioblastoma, and identification of genetic alterations in medulloblastoma. The expression of various anti-apoptotic proteins in human oral cancers/ cell lines and premalignant lesions and their role in cancer progression is also receiving attention. A detailed study of the aberrant expression in cancer of the intermediate filament proteins keratin and vimentin is underway using experimental animal models. Proteomic profiling of biological samples to unravel different aspects of cancer is another major thrust area of the Institute.

Academic Programs

The Centre today offers a Doctoral program in the Life Sciences under the aegis of the Homi Bhabha National Institute, a deemed University. During 2012, there were a total of 109 graduate students working towards the Ph.D. degree at ACTREC. In addition, 188 graduate students from colleges and universities across the country visited the Centre to work on their Master's dissertation projects or to receive specialized training in research methodologies under the close supervision of ACTREC faculty.

The academic fervor at the Centre is maintained through the conduct of national and international conferences, workshops, symposia, etc. During 2012, 21 scientific conferences and workshops were organized at the Centre, beginning with the 31st Annual Convention of the Indian Association of Cancer Research and International Symposium on 'Cancer genomics and its impact in the Clinics' in January, and ending with the 8th National Research Scholars Meet in Life Sciences in December. The Centre also played host to a galaxy of experts from India and abroad who delivered 34 research seminars on topics ranging from 'Metabolomics: bridging the gap between basic and translational chemical biology' to 'Cancer biomarkers and immunotherapies: a novel approach for cancer treatment and management'. During the year, the Centre and its faculty also conducted a series of outreach programs to create 'Cancer Awareness' amongst the general public, and educate them about how cancer develops and the risk factors/ early warning signs of cancer.

GOVERNING COUNCIL

7

TATA MEMORIAL CENTRE

Chairman	**Dr. R. K. Sinha,** Chairman, AEC & Secretary to Govt. of India, Dept. of Atomic Energy (From 30th April 2012)
	Dr. Srikumar Banerjee, Former Chairman, AEC and Secretary to Govt. of India, Dept. of Atomic Energy (Upto 29th April 2012), Mumbai
Members:	**Mr. P. R. Baviskar** Jt. Secretary (R&D) DAE, Mumbai (from 01st Jan 2013)
	Dr. C. B. Venkataramana Addl Secretary / Jt Secret. (R&D) DAE (from 01st March 2012 to 31st Dec. 2012)
	Mrs. Revathy Iyer Jt secretary (R&D) DAE, (upto 29th Feb 2012)
	Dr. N. K. Ganguly, Former Director General (ICMR) and Distinguished Biotechnology Fellow & Advisor, Translation Health Science & Technology Institute, National Institute of Immunology, New Delhi.
	Dr. V. K. Iya, Former Director, Isotope Group, BARC.
	Shri. Praveen P. Kadle, Managing Director & CEO, Tata Capital Limited. (from 10th Oct. 2012), Mumbai.
	Mr. K. A. Chaukar Chairman, Tata Council for Community Initiatives. (up to 9th Oct. 2012)
	Mr. S. J. Phansalkar Sr. Programme Officer, Sir Dorabji Tata Trust, Bombay House, Mumbai.
	Mrs. R. F. Savaksha Secretary & Chief Accountant Sir Dorabji Tata Trust, Bombay House, Mumbai.
	Dr. Ravindra D. Bapat, Chairman, Haffkine Bio-Pharmaceutical Corpn. Ltd., Mumbai.
Member Ex-Officio:	**Dr. R. A. Badwe**, Director, TMC
Permanent Invitees	**Dr. Rajiv Sarin,** Director, ACTREC
	Dr A. K. D'Cruz, Director, TMH
	Dr K. M. Mohandas, Director CCE (up to 1st Sept. 2012)
	Dr. K. S. Sharma, Director (Academics), TMC
Secretary,:	**CAO, TMC**

Annual EBM & Hospital Day Celebrations

10th Evidence Based Management conference was held from 24th to 26th February 2012.

The 10th EBM focused on three aspects viz., Head and Neck, Hodgkin's Lymphoma and Infections and Cancer.

The Head and Neck sessions during EBM 2012 were conducted from the 24th - 26th February 2012. The sessions covered topics ranging from pathology, the role of imaging modalities from conventional modalities to PET scan, the optimum diagnostic pathways, therapeutic algorithm in the management of head and neck cancers, late effects of therapy & rehabilitation.

The Hodgkin's lymphoma sessions highlighted currently accepted standard of care but also addressed controversial issues and ongoing research areas.

The Infections and Cancers sessions discussed epidemiology of infection related cancers, HIV, current evidence, therapeutics and prevention of infection related

Organizing Secretaries - Dr. Sarbani Ghosh Laskar, Dr. Siddhartha Laskar and Dr. Sheela Sawant, respectively.

The Hospital day Oration on "Progress in customizing therapy for head and neck cancer" was delivered by Prof. K. Kian Ang on 25th Feb 2012.

Prof. K. Kian Ang Professor, Department of Radiation Oncology, Division of Radiation Oncology, The University of Texas MD Anderson Cancer Center, Houston, TX. He is a leading head and neck radiation oncologist, and has authored the book – "Radiotherapy for head and neck cancers" which in its third edition is considered as essential source for reference and treatment guide. His studies established that accelerated fractionation is better than standard fractionation in yielding tumour control, and adding inhibitor of epidermal growth factor receipt signaling pathway to radiation, improves survival.

This year four books were published- 3 books were related to the EBM symposium themes and the fourth book published was on Treatment Algorithms in Cancers. All these books are available on TMC website.

9

Augmentation of New Facilities. in the year 2012-2013

1. 16 Slice CT scanner Inaugurated by Srikumar Banerjee, Chairman, Atomic Energy Commission of India on 30th Jan 2012

2. Dr Savant Memorial ICU- Inaugurated by Srikumar Banerjee, Chairman, Atomic Energy Commission of India on 30th January 2012

3. VENTANA machine Inaugurated by Mr. A. P. Joshi, Addl. Secretary, DAE & Dr. C. B. Venkatramana, Joint Secretary (R&D) DAE on 12th May 2012

4. New PET/CT Inaugurated by R.K.Sinha, Chairman, Atomic Energy Commission of India on 20th October 2012

Augmentation of New Facilities. in the year 2012-2013

5. 64 Slice CT Scanner Inaugurated by R.K.Sinha, Chairman, Atomic Energy Commission of India on 20th October 2012

6. USG HD 6 Philips Inaugurated by R. K. Sinha, Chairman, Atomic Energy Commission of India on 20th October 2012

7. Dr R A Badwe, Director TMC and Dr Arnie Purshottam , Director, Kings Integrated Cancer Centre, UK, Signing MOU, November 19, 2012, at TMH Mumbai

Visitors

Visit of Ms. Kathleen Sebelius, Secretary, Dept. of Health & Human Services USA along with her tem on 16-01-2012.

Visit of Chief Minister of Punjab Mr. Prakash Singh Badal on 16-04-2012.

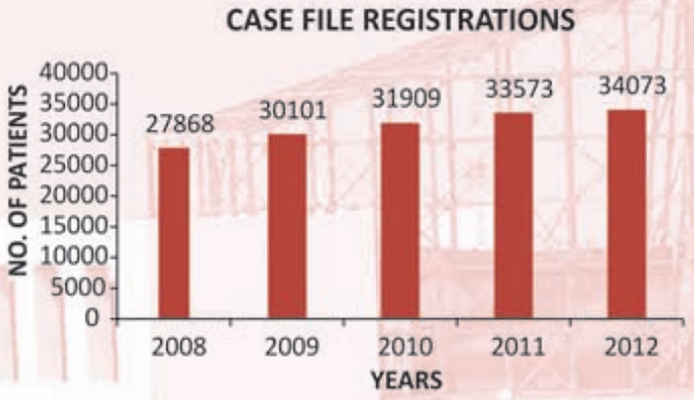
Visit of Mr. A. P. Joshi, Addl. Secretary, DAE & Dr. C. B. Venkataramana, Joint Secretary (R&D) DAE to various depts. & for inauguratino of machine "VENTANA" of Pathology department on 28-05-2012.

Visit of Mrs. Sheela P. Chavan, wife of Chief Minister of Maharashtra for inauguration of TMH-WCI conference on 19-10-2012.

Visitors 2012

- Visit of Dr. Al. Zahrani Abdullah Saed M. Head Dept. of Oncology from Abdullah Medical City Hospital along with his team members on 10-03-2012.
- Visit of Dr. Thomas Byrne, Professor of Neurology of Howard on 15-03-2012.
- Visit of Mr. Simon Trowel, Clinical Development Quality & Risk Management Ltd. of Glaxo Smithkline Pharmaceuticals Ltd. on 16-05-2012.
- Visit of student from John Hopkins University, USA on 06-08-2012.
- Visit of Ms. Tutayo Pelo Elizabeth, medical student form Kenyalta University, Kenya on 09-08-2012.
- Visit of Officer from Armed Forces Medical College, Pune on 05-12-2012.
- Visit of students from Mar Gregorios College, Chennai on 05-10-2012.
- Visit of students of Siddharth College of Commerce & Economics on 24-12-2012.

Trends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30000
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15000
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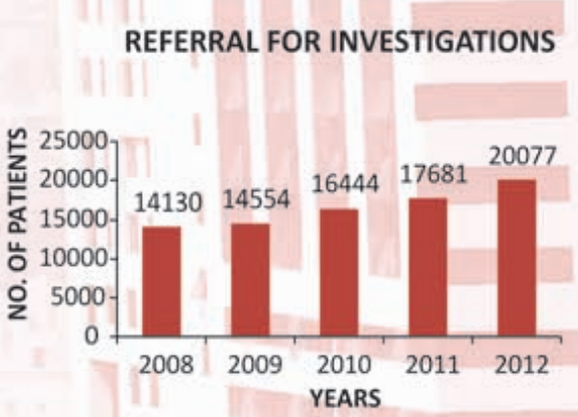
30101
31909
33573
34073
2008
2009
2010
2011
2012
YEARS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2008
2009
2010
2011
2012
YEARS


PREVENTIVE ONCOLOGY
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1000
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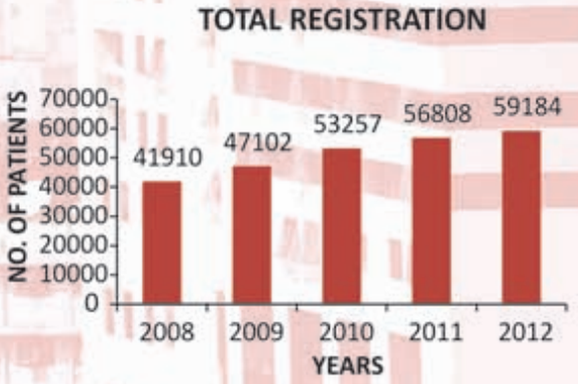
2008
2009
2010
2011
2012
YEARS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60000
50000
40000
30000
20000
10000
0
41910
47102
53257
56808
59184
2008
2009
2010
2011
2012
YEARS


NO OF ADMISSION
NO. OF PATIENTS
25000
20000
15000
10000
5000
0
18546
19741
21477
21871
23019
2008
2009
2010
2011
2012
YEARS

Performance Statistics

	2011	2012
Total Registrations	56,808	**59,184**
Patient Chart Files	33,573	**34,073**
General Category	19,575	**20,628**
Private Category	13,998	**13,445**
Referrals for Investigations	17,681	**20,077**
Preventive Oncology	5,554	**5,030**
Inpatient Admissions	21,871	**23,019**
Average Length of Stay (Days)	04	**6.5**
Bed Occupancy %	94	**92**
Radio-Diagnosis		
Conventional Radiography	61,830	**55,832**
CT Scan	11,280	**15,571**
Mammography	8,540	**9,369**
MRI Scan	3,651	**3,894**
Ultrasonography	20,179	**35,127**
Interventional Radiology	1,982	**2,019**
Nuclear Medicine and Molecular Imaging		
PET-CT	6,216	**7,948**
SPECT-CT	3,888	**3,800**
CT Scan	429	**250**
General Medicine		
Consultations	10,500	**11,060**
HIV Consultations	369	**231**
ECG	29,400	**29,685**
EchoCardiography	7,411	**6,500**
Pulmonary Function Tests	3,214	**3,165**

	2011	2012
Pathology		
Surgical Pathology	49,700	**49,378**
Fine Needle Aspiration Cytology	7730	**7814**
Frozen section	7,740	**8,739**
Immunohistochemistry	22,302	**27,181**
Haematopathology	4,07,542	**4,42,593**
Biochemistry	16,55,405	**17,45,353**
Molecular Pathology	692	**886**
Tumor Marker	61,817	**78,918**
Electrophoresis	16,542	**18,794**
Cytopathology	23,606	**23,450**
Microbiology		
Bacteriology	25,300	**26,907**
Mycobacteriology	10,399	**8,941**
Mycology	4,564	**4,770**
Serology	90,707	**92,242**
Clinical Microbiology	6,565	**6,526**
Transfusion Medicine		
Blood and Platelet Units Collected	20,700	**20,325**
Blood Grouping	48,843	**49,081**
Cross Matching	29,233	**29,930**
Blood Components	51,373	**52,726**
Platelet Pheresis	2,566	**2,687**
Specialised Procedures	21,920	**21,798**
Cytogentics		
Patients referred for Cytogenetic Study	4,400	**5,500**
Surgical Oncology		
Major OT Procedures	9,524	**9,623**
Minor OT Procedures	18,985	**18,432**
Radiation Oncology		
External Beam Therapy	5,368	**5,517**
Brachytherapy (Number of applications)	2,411	**2,292**
Treatment Planning/Beam Modification	13,863	**12,540**
Medical Oncology		
Bone Marrow Transplants at ACTREC	72	**57**
Day Care Paediatric (General)	1,704	**6,177**
Digestive Diseases and Clinical Nutrition		
Outpatient Registration	16,741	**16,409**
Inpatient Admissions	2,471	**1,434**
Minor OT Procedures	4,517	**6,028**
Nutrition Clinic	3,105	**4,588**

	2011	2012
Anaesthesiology		
Patients Given Anaesthesia	26,152	**28,106**
Patients in ICU	797	**1,993**
Patients in Recovery Wards	6,389	**6,158**
Patients on Ventillator	560	**595**
Patients seen in Pain Clinic	2,530	**1,917**
Tisssue Bank (Allografts Produced)	5,737	**8,978**
Rehabilitation Services (Patients seen) (Occupational/Physiotherapy)	18,229	**19,896**
Psychiatry and Clinical Psycology		
No. of Patient seen	2,274	2,436
Stoma Care		
No. of Patient seen	3,818	**3,827**
Speech Therapy		
No. of Patient seen	2,124	**2,365**
New Patients	995	**1,068**
Palliative care		
Patients seen	6,335	**6,615**
Home Care Visits	1,092	**1,936**
Dental		
Patients seen	4,996	**5,543**
All Services	10,095	**11,427**
Prosthetic Services	974	**891**
Waste Management (Hydroclave)		
Number of Loads Completed	1042	**981**
Total Infectious Waste Treated (Kg)	93,755	**92,766**
Medical Social Work		
Guidance	18,670	**19,850**
Counseling	7,670	**8,220**

SERVICE

Adult Hematolymphoid DMG

Dr. Hari Menon- Convener

Dr. Navin Khattry- Secretary

Medical Oncology
Dr. Manju Sengar
Dr. Bhausaheb Bagal
Dr. Jawant Gawade
Dr. Uma Danji
Dr. Anuradha Chougule

Radiology
Dr. V Rangarajan

Medical Social Worker
Ms. Sunita Jadhav - TMC
Mrs. Bhagyashree - ACTREC

Clinical Trial Co-ordinator
Ms. Preeti Pawaskar
Er. Rekha Vijayakumaran

Pathology
Dr. Tanuja Seth
Dr. Sumeet Gujral
Dr. P. G. Subramanian
Dr. Sridhar Epari
Dr. Nilesh Phatak
Dr. Prashant Tembhare

Radiation Oncology:
Dr. Sidharath Laskar
Dr. Snehal Khanna
Cytogenetic
Dr. Pratibha Amare

Pharmacology
Dr. Vikram Gota

Psychiatrist
Dr. Joyita Deodhar

The important function of Hematolymphoid DMG is to update members on newer management strategies and implementation in patients.

Services

In view of the large number of patients who get referred, the DMG identifies cases, who will undergo full treatment at TMH further they ensure timely management and optimized therapy. Patients are advised on treatment options and feasibility of treatment at TMH or otherwise with the help of the medical social workers. A post remission therapy for our Acute Leukemia patients has been initiated at ACTREC.

Indicators

A total of 3037 new patients were registered and 48752 cases were seen during follow-up. There were 240 new Bone Marrow Transplantation (BMT/HSCT) patients and 2980 follow up cases. This included 9096 patients under lymphoma clinic, 129 in the myeloma clinic and 390 in the leukemia clinic.

In-hospital mortality has been substantially reduced by a process of triage, constant supervision & aggressive management of treatment related complications in last few years. The diagnostic molecular hematology services have helped in improving outcomes in acute leukemia and lymphomas. The lymphoma registry maintains details of epidemiology and outcomes. The disease free survival amongst BMT patients is 70% and transplant related mortality is 6%.

Research

The DMG undertook a total of 54 research studies. Out of 54, 11 were student research (6 completed), 25 studies were initiated by investigators (10 completed) and 18 studies were sponsored clinical trials. The DMG published 20 articles related to its research activity and members also contributed 8 chapters to various books

Education

Classes for all students (residents and nurses) are conducted thrice a week. Registrars are also encouraged to participate in research projects with consultants, which include clinical studies and laboratory based projects, retrospective analysis and are also encouraged to publish during their training period.

Bone & Soft Tissue DMG

19

Dr. S Laskar- Convener

Dr. B Rekhi- Secretary

Surgery
Dr. A Puri
Dr. A Gulia

Radiation Oncology
Dr. S Laskar
Dr. N Khanna

Medical Oncology:
Dr. PA Kurkure
Dr. J. Bajpai
Dr. J Ghosh
Dr. G Chinnaswamy
Dr. T Vora

Pathology
Dr. NA Jambhekar
Dr. B. Rekhi
Dr. S Desai

Radiology
Dr. S Juvekar
Dr. S Desai
Dr. S Dhanda

Service

The DMG has now achieved full compliance with the written guidelines. The joint clinic activities have been integrated in to the daily routine to improve patient care diagnosis, and patient rehabilitation. Efforts are on going to optimize the number of patients being treated at TMH.

Indicators

The DMG registered 1756 new patients. This consisted of 34% Soft Tissue Sarcomas, 27% Bone Metastases, 17% Osteogenic Sarcomas, 10% Ewing Sarcomas, 7% Giant cell tumors, and 5% Chondro Sarcomas.

The two year overall survival rates for Ewings sarcoma is 73.7%, with 68.4% disease free survival rate; the overall survival for osteosarcoma is 47.3% with 37% Disease free survival; the over all survival rate for Chondrosarcoma is 79.2% with disease free survival rate of 70.8%; while the Soft tissue sarcoma showed a overall survival rate of 77.5% with disease free survival rate of 69%.

The DMG performed 600 major surgeries and radiated 450 patients with 20 brachytherapies. Chemotherapy was administered to 436 patients.

Breast Services - DMG

Dr. Vani Parmar -Convener

Dr. Tanuja Shet -Secretary

Surgery
Dr. Rajendra Badwe
Radiation Oncologists
Dr. Rajiv Sarin

Bioimaging
Dr. V. Rangarajan
Dr. Indraneel Mittra
Dr. Ashwini Buddrukkar
Dr. Abhijit De
Dr. Nita Nair
Dr. Rakesh Jalali
Dr. Ujjwala Warawdekar
Dr. Prabha Yadav

Medical oncologist
Dr. T .Wadasadawala

Pathologists
Dr. Pradyumma Mishra
Dr. Sudeep Gupta
Dr. Sangeeta Desai

ACTREC
Dr. Narendra Joshi

Statistics
Dr. Jaya Ghosh
Dr. Asawari Patil
Ms. Rohini Hawaldar

Co-ordinators
Dr. Jyoti Bajpai
Dr. M Thakur
Ms. Shabina Siddique
Dr. Bhawna Sirohi
Dr. S Ramani
Mr. Vaibhav Vanmali
Dr. S Kembhavi

The Breast DMG in order to ensure appropriate and timely -treatments to the patient several delays were studied and measures to shorten these delays were undertaken and adherence to guidelines were strictly followed. The guidelines and treatment algorithms were reviewed and updated in 2012.

Service

Critical self audits were performed at regular intervals to ensure reasonable time lines. The patients were provided with state of the art treatment which included surgery, chemotherapy and radiotherapy, and were also counselled and referred to post operative rehabilitation services, for better recovery. The role of breast reconstruction in the Indian context is being evaluated. Ongoing audits include survival studies and patterns of care.

Indicators

The DMG registered a total of 3505 patients. A total of 1920 surgeries were performed of which approximately 50% were breast conservation surgeries. The noteworthy additional procedures performed include 59 oophorectomies and six breast implants. Twenty-four patients received plastic reconstruction with flaps. 2252 minor procedures were performed. Adjuvant radiotherapy was given to 769 patients, 463 patients received palliative radiotherapy and 38 patients received brachytherapy. Chemotherapy was administered to 3315 patients of which 1615 patients received adjuvant chemotherapy and the remaining received palliative chemotherapy. The 30 day mortality rate was observed to be zero percent and the Rte of complications like infection, etc. was 8%. The overall disease free survival at five years was observed to be 82%.

The compliance to clinical guidelines was evaluated. Over all protocol adherence for surgery was 93% and for chemotherapy and radiotherapy as 100%.

The research interests of the DMG extend from basic research on various markers for diagnosis and therapy, invasion and metastasis in breast cancer to clinical trials on chemotherapy, and hormonal therapy.

Gastrointestinal - DMG

Dr S V Shrikhande
Convener

Dr. Shaesta Mehta
Secretary

Radiation oncology
Dr S K Shrivastava
M A Muckaden
R Engineer
S Chopra

Digestive Diseases
M K Mohandas
(upto Aug 2012)
Prachi Patil
Mehul Choksi

Surgical Oncology
Mahesh Goel
George Barretto

Pathology
Mukta Ramadwar
Munita Menon
Kedar Deodhar

Medical Oncology
Bhawna Sirohi

Nuclear Imaging
Venkatesh Rangarajan
Dr Nilendhu Purandare
Sandip Basu

Radiology
Suprita Arya
Suyash Kulkarni
Nitin Shetty

Pain Clinic
P N Jain

Palliative Care Unit
M A Muckaden
Epidemiaologist
Dr Rajesh Dikshit

This DMG deals with a wide range of digestive cancers and includes medical, and surgical gastrointestinal services and hepatobilliary surgical services.

Service

The DMG –Gastrointestinal (GI) initiated under the theme "Safe Chemotherapy administration" several proposals for improvements in patient safety.

Indicators

Diagnostic Endoscopy: There were 3726 procedures including 2520 Upper GI endoscopies, 936 lower GI endoscopies and 263 endoscopic ultrasound procedures. The morbidity was 0.001and mortality 0%.

Therapeutic Endoscopy: There were 1238 procedures including 577 Enteral tube placements with mobidity of 0% , mortality of 0.0017%; 292 Dilations with 0.003% morbidity and 0% mortality, 220 ECRP with 7.7% morbidity and 0.005% mortality; 58 luminal stenting with 0.017% morbidity and mortality of 0.034%, and 114 others like polypectomy APC and FB removal. The morbidity and mortality was 0%.

The focus was on improving techniques and safety of procedures. The GI services registered nearly 6000 patients with 2210 admissions. They performed 15 different types of surgical procedures of the pancreas, gall bladder, liver, colon, spleen, stomas, and exploratory laparotomies, totaling to 832. Of these, there were 104 colonic resections, 89 abdomino perineal resections, 73 pancreatico-duodenectomies, 52 anterior resections and 34 liver resections.

The over all surgical mortality was 1.2%. The mortality was higher during emergency surgical procedures (3.9%).

Research

A dedicated thrust towards developing clinical and basic science research was undertaken. This resulted in a number of investigator initiated trials being submitted to IRB in addition to those that have been already underway.

Educational Activities

The DMG organizes seminars, case presentations and journal clubs for the postgraduate students. The DMG contributed to the ICMR guidelines on Esophageal and Gastric cancer.

A patient support group meeting for patients with advanced colorectal cancer initiated in association with the Psychiatry Unit.

Patient information sheets for gastric, gall bladder, liver, colon and rectal cancer. Also patient guide for GI-DMG to ensure smoother flow for patients in TMC.

GIST and colorectal support group meetings

The DMG members participated in several National and international conferences and meetings.

Gynaecology DMG

Dr. Sudeep Gupta, Convener

Dr. Amita Maheshwari, Secretary

Surgery
Dr. Rajendra Kerkar
Dr. T S Shylasree

Radiation Oncology
Dr. S K Shrivastava
Dr. Reena Engineer
Dr. Umesh Mahantshetty
Dr. Supriya Chopra

Medical Oncology
Dr. Jaya Ghosh
Dr. Jyoti Bajpai
Dr. Bharat Bhosale

Pathology
Dr. Santosh Menon
Dr. Bharat Rekhi
Dr. Kedar Deodhar

Radiology
Dr. Meenakshi Thakur
Dr. Sunita Dhanda

Cytopathology
Ms Dulhan Ajit
Microbiology
Dr. Rohini Kelkar

Preventive Oncology
Dr. S S Shastri
Dr. Gauravi Mishra
Dr. Sharmila Patil

Cancer Biology
Dr. S V Chiplunkar
Dr. Rita Mulherkar
Dr. Tanuja Teni

Gynaecology Fellow
Dr. Sampada Desai

Occupational Therapists
Ms. Manjusha Vagal
Ms. Shruti Velaskar

The Gynaecologic Oncology DMG is a multidisciplinary disease management group (DMG) and includes Surgeons, Radiation Oncologists, Medical Oncologists, Pathologists, Radio-diagnosis experts, Cytologists and basic scientists and other specialists as and when required.

Service

Laparoscopic surgery for cervical and endometrial cancer is now offered as standard of care. Ovarian canacer management has been protocolised. Radiotherapy services have been augumented for the management of cancers to include new radiation techniques with image guided facilities, and Helical Tomotherapy. Intracavitary and interstitial brachytherapy procedures are practiced.

Indicators

703 major surgeries were performed. This includes 133 cervical cancers, 77 uterine cancers, 386 ovarian cancers and 19 vulval cancers. The DMG performed 295 minor surgical procedures. Radio therapy was administered to 465 patients and 173 patients received palliative radiotherapy. Five hundred and fifty-three brachytherapy procedures were performed. Chemotherapy was administered to 450 cervical cancer with concurrent radiotherapy and 500 ovarian cancers.

The thirty day mortality as an indicator of outcome was observed to be 0.56%. The compliance with evidence based guidelines for ovarian cancer was evaluated through an audit of 21 cases and was observed to be 85%.

Head and Neck

Dr J.P. Agarwal - Convener (Radiation Oncology)

Dr Shubhda Kane - Secretary (Pathology)

Surgical Oncology
Dr Anil D'cruz
Dr Pankaj Chaturvedi
Dr Prathamesh Pai
Dr Devendra Chaukar
Dr Gouri Pantvaidya
Dr Anuja Deshmukh
Dr Deepa Nair
Dr Sudhir Nair

Radiation Oncology
Dr J.P. Agarwal
Dr Sarbani Laskar
Dr Ashwini Budrukkar
Dr Tejpal Gupta
Dr Vedang Murthy

Medical Oncology
Dr Kumar Prabhash
Dr Amit Joshi
Dr Vanita Narhona

Radiology
Dr Supreeta Arya
Dr Shashikant Juvekar

Pathology
Dr Shubhda Kane
Dr Asawari Patil
Dr Munita Bal

Neurosurgery
Dr Aliasgar Moiyadi
Dr Prakash Shety

Plastic & reconstructive Surgery
Dr Prabha Yadav
Dr Vinay Shankhadar
Dr Dushyant Jaiswal

ENT Surgeon
Dr Chris E Desouza

Dental Services
Dr Kanchan Dholam
Dr Karthik M Sadashiva

Speech Therapy
Dr Gurmit Bachher

Nuclear Medicine
Dr Venkatesh Rangarajan

Cancer Biology
Dr S.M. Zingde
Dr Rajiv Sarin
Dr S Chiplunkar
Dr Manoj B. Mahimkar
Dr G.B. Maru
Dr Rita Mulherkar
Dr Murali Chilkapati
Dr Tanuja Teni
Mrs S Sawnt
Dr M Vaidya

Palliative Care
Dr M A Muckaden

Physiotherapist
Dr A Daptardar
Dr M Kamat

Nursing
Sister Nenel

Coordinator
Mrs Indumati Mhatre
Ms Nadeera Quadri

The Head and Neck disease management group (DMG) functions as a multidisciplinary group to provide the best possible holistic care to the patients. The group has a strong presence of supportive and rehabilitative services to improve the overall quality of life of patients being treated in Head & Neck.

Service

The DMG functions through joint clinic which discuss treatment modalities, clinical ward rounds to ensure uniformity of services and skull-base clinics.

The DMG lays emphasis on planning and execution, monitoring compliance, ensuring completion and adherence to established guidelines, to ensure quality of life. The periodically reviewed and updated Evidence Based Medicine (EBM) guidelines based on published literature also emphasizes on pracability and suitability to patients.

Evidence based treatment for patients is prioritized based on – their requirement of specialized treatment unavailable elsewhere, treatment for curatve intent, socio-economically challenged patients and their eligibility for clinical trials.

The data on compliance, morbidity and outcome about patients treated at TMH is regularly captured and maintained. At present, data is captured for certain sub sites like Thyroid, PNS, Nasopharynx, Skull base and Early Vocal Cord lesions with an emphasis on issues like Quality of life indicators and Post laryngectomy speech rehabilitation.

The thrust areas of the DMG are screening, and early detection of oral cacners, copmprehensive rehabilitation, development of indigenous imobililzation devices for radiotherapy and development of low cost systemic therapy for head and enck cancers (Metronomic therapy)

Indicators

The number of registrations were 8654 an increase by 2.4%. the DMG performed 1279 surgeries on the oral cavity, 235 thyroid surgeries 85 laryngeal surgeries, 77 cases of para-nasal sinuses and 903 other surgical procedures. There 192 patients treated with chemoradiation and 27 cases receveid radical radiotherapy. Palliative radiotherapy was given to 191 cases. 657 bpatients reeived chemotherapy of which 255 cases were treated with Neoadjuvant chemotherapy.

The surgical mortality rate was 0.053% with an average hospital stay of 8.4 days. The two year survival rate of oral cavity was 45%. Metronomic chemotherapy was introduced and had a median survival of 8 months.

Neuro-Oncology DMG

Dr. Ali Asagr Moiyadi - Convenor

Dr. Tejpal Gupta - Secretary

Radiation Oncology:
Dr. Rakesh Jalali
Dr. Goda Jayant Sastri

Neurosurgery:
Dr. Prakash Shetty

Neuroradiology:
Dr. S. L. Juvekar
Dr. Abhishek Mahajan

Paediatric Medical Oncology:
Dr. Purna Kurkure
Dr. Tushar Vora
Dr. Girish Chinnaswamy
Dr. Vandana

Clinical Trial Coordinator:
Ms. Nazia Bano
Ms. Shraddha Churi
Mr. Karim Khan

Adult Medical Oncology:
Dr. Hari Menon

Neuropathology:
Dr. E. Sridhar
Dr. S V Kane

Occupational Therapist:
Dr. Manasi Takle

Asst Data Manager
Mr. Praveen Kumar Gunjal

Baisc Neuro-Oncology:
Dr. Neelam Shirsat

Data Manager:
Ms. Nayana Golambade

Psychiatrist:
Dr. Joyita Deodhar

Medical Social Worker:
Mrs. Bhagyashree - ACTREC
Mr. S A Deshmukh- TMH

Clinical Psychologist:
Mrs. Savita Goswami

Neuro Oncology Fellow:
Dr. Uday Krishnan

The Neuoroncology DMG is a closely knit multidisciplinary group of members from neuro-surgery, radiation oncology, medical oncology radio-diagnosis and pathology.

Service

The neurosurgery service is a recently introduced entity, and the DMG is on the process of ensuring optimal data collection treatment planning and follow up. Efforts are on going to enhance patient care, with improved diagnostics through molecular tests. The number of patients seen by the DMG has been steadily increasing. 260 major surgeries were performed including the entire spectrum of craniotomies, endoscopic procedures spinal tumors, and skull base surgeries. The operating facilities were augmented through a 3D sono-navigation system and operating microscope for performing florescence guided resections. Radiotherapy was delivered through conventional RT in 79 cases, 3 Dimensional Conformal Radiotherapy(3D-CRT), in 192 cases, stereotactic radiosurgery/ radiotherapy in 15 and 5 cases respectively and image Guided Intensity Modulated Radiation Therapy (IG-IMRT) in 80 cases.

The medical oncology services of this DMG are involved in adjuvant therapy for certain brain tumours like oligodendrogliomas, and CNS embryonal tumours. Molecular pathology namely 1p19q deletion and EGFR amplification has helped in the evaluation of gliomas and primitive embryonal cell tumours.

Neuroradiology constitutes the backbone of this service.

Indicators

The DMG had 1010 new registrations. The five year survival rates for craniopharyngioma are 70-80 %, meningioma 85%, medulloblastoma 80%, and the median survival for glioblastoma is 17 months.

Research

The research interest of the DMG focus on the use of hyperfractionated radiation therapy for craniospinal irradiation, and the use of helical tomotherapy based image guided intensity modulated radiation therapy for intracranial tumours with the intension of sparing critical structures during radiation and consequent reduction in mortality and morbidity.

Pediatric Hematolymphoid DMG

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Dr S D Banavali. - Convener

Dr. Brijesh Arora - Secretary

Pediatric Medical Oncology
Dr. Akash Nahar
Dr. Gaurav

Radiology & Nuclear Medicine
Dr. V Rangarajan
Dr Sneha Shah
Dr Seema Medhi

Surgical Oncology
Dr Sajid Qureshi

Psychiatry and Clinical Psychology
Dr. Joyita Deodhar
Ms Savita Goswami

Pathology
Dr. Tanuja Seth
Dr. Sumeet Gujral
Dr. P. G. Subramanian
Dr. Sridhar Epari
Dr. Prashant Tembhare
Dr Nikhil Patkar

Trial Coordinators
Ms. Krutika Kadam
Mr Amey Paradkar

Radiation Oncology:
Dr. Siddharth Laskar
Dr. Nehal Khanna

Clinical Pharmacology
Dr. Vikram Gota

Molecular Hematology & Cytogenetics
Dr. Pratibha Amare Kadam
Dr. Anuradha Chougule

Medical Social Worker
Mr. Parab
Mr Neelima Dalvi

The important function of Pediatric Hematolymphoid DMG is to provide service of international standards to patients, conduct research in to novel locally-relevant therapeutic strategies and educate trainees to expand the treatment net for Pediatric hematolymphoid cancers in India.

Services

Pediatric HLG sees approximately 700 patients every year, which is the highest in the country and among the highest in the world. The cumulative patient visits every year exceeds 35,000 as majority of these require intense, curative and prolonged therapies with multiple outpatient and inpatient visits. PHLG has set up an organized psychosocial-economic support group to provide holistic care of children and their families during treatment consisting of social workers, data managers, counselors, psychologists, and multiple NGOs to ensure accommodation, travel support, emotional & nutritional help, transfusion support and education etc.

Indicators

A total of 694 new patients were registered and 34718 cases were seen during follow-up. There were 400 new cases of acute leukemias and 123 new cases of lymphomas which are among the highest seen by any Pediatric cancer unit in the world.

The establishment of social support group has dramatically decreased the abandonment rates (TR&A) from >20% in 2009 to 9.5% in 2010. This has further reduced to 5% in 2012. This highly successful model of support won the international society of Pediatric Oncology (SIOP) award at London meeting in 2012. The overall induction mortality rates in leukemias have reduced from 8% in 2010 to 4.5% in 2012 by a process of triage, constant supervision & aggressive management of treatment related complications. Number of patients being treated as per standard TMH protocols has improved from 79% in 2010 to 89% in 2012 with reduction in the rates of TR&A and second opinions. The Pediatric cancer registry maintains details of epidemiology and outcomes of all Pediatric hematolymphoid cancers. The disease free survival amongst BMT patients is 70% and transplant related mortality is 6%.

Research

The DMG undertook a total of 43 research studies. Out of 43, 10 were student research (7 completed), 30 studies were initiated by investigators (9 completed) and 3 studies were sponsored clinical trials. The DMG published 15 articles related to its research activity and members also contributed 6 chapters to various books

Education

Teaching sessions for all students (residents and nurses) are conducted thrice a week. Pediatric Oncology trainees are also guided to participate in research projects, which include clinical studies and laboratory based projects, retrospective analysis and are also encouraged to publish during their training period.

Pediatric Solid Tumors -DMG

Dr. Sajid Qureshi - Convener

Dr. Seema Kembhavi - Secretary

Surgical Oncologist
Dr. Sajid Qureshi

Medical Oncologist
Dr. Tushar Vora
Dr. Girish Chinnaswamy
Dr. Purna Kurkure

Radiation Oncologist
Dr. Siddharth Laskar
Dr. Nehal Khanna

Pathologist
Dr. Mukta Ramadwar
Dr. Saral Desai

Radiologist
Dr. Seema Kembhavi
Dr. Sunita Dhanda

Palliative Care
Dr. Maryann Muckaden
Dr. Manjiri Dighe

Honorary Ophthalmologist
Dr. Nandan Shetye

Service

Clinical guidelines were reviewed and treatment pathways based on the contemporary evidence were developed.

The DMG has registered 904 cases with 68 new registrations and 650 follow up cases. 245 surgeries were performed. These included 128 major surgeries, 32 minor surgeries and the provision of vascular access in 85 cases. The 30 day surgical mortality in 245 cases was zero. The surgical morbidity was 9.38% (23/245). The overall five year survival rate for all pediatric solid tumours was 71%.

The compliance with evidence based clinical guidelines was 70%.

Thoracic DMG

27

Dr C S Pramesh - Convenor

Prof. S. (Ghosh) Laskar - Secretary

Surgical Oncology
Dr George Karimundackal
Dr Sabita Jiwnani

Medical Oncology
Dr Kumar Prabhash
Dr Vanita Noronha
Dr Amit Joshi

Radiation Oncology
Dr J P Agarwal
Dr Sarbani Ghosh-Laskar

Pulmonary Medicine
Dr Sandeep Tandon

Pathology
Dr N A Jambhekar
Dr Saral Desai

Bioimaging
Dr Nilendu Purandare

Radiology
Dr S Ramani
Dr A Mahajan

Physiotherapy
Ms Anuradha Daptardar

Palliative Care
Joyita Deodhar

The Thoracic Oncology Disease Management Group (DMG) has specialized surgeons, medical and radiation oncologists with ongoing support from a pulmonary physician, specialized pathologists, radiologists and physiotherapists.

Service

The thoracic oncology DMG is a specialized multidisciplinary group treating a wide variety of lung, esophageal, chest wall and mediastinal tumors. The DMG treats over 1300 patients with lung cancer, over 1200 patients with esophageal cancer.

Specific unique strengths include a large thoracoscopic surgery programme, with an ever increasing number of complex thoracic surgical procedures. Management of advanced lung and esophageal cancers is practiced following evidence based and state-of-the-art targeted therapies including radiotherapy techniques like tomotherapy with outcomes that can be benched marked with the world's best centres.

The "high-risk" multidisciplinary meeting with anesthesiologists, critical care specialists and pulmonary physicians introduced last year is a unique feature of the DMG and optimizes patients with multiple comorbidities prior to surgery. Active participation from the physiotherapy department on postoperative rounds ensures individualized attention to specific patients. Early referrals to the palliative medicine department also were initiated this year.

The DMG conducts audits of peri-operative, post chemotherapy and post radiotherapy morbidity and mortality, estimation of postoperative infections and treatment compliance as indicators.

Indicators

The thoracic surgical unit performed 573 major surgeries and over 2000 minor procedures. A total of 481 and 192 patients underwent chemotherapy for lung and esophageal cancers while 415 and 188 patients received radiation therapy for lung and esophageal cancers respectively.

The overall postoperative mortality rate was 0.5%. Postoperative mortality rates after esophagectomy (9/187), lung resections (1/97), mediastinal resections (n=1/30) were 4.8%, 1% and 3.3% respectively. Morbidity and mortality rates were comparable with similar high volume specialised thoracic surgery centres in the west.

Four hundred and nine patients received palliative first-line chemotherapy for lung cancer One hundred and eight patients received chemoradiation for esophageal cancer. A total of 415 patients underwent radiation therapy for lung cancer (75% palliative and 25% radical) with 2% mortality with concurrent chemoradiation.

Research

The thoracic DMG conducts several investigator-initiated and sponsored research studies. Ongoing randomized trials include

the trials comparing radical three-field vs two field esophagectomy for operable esophageal cancer, and neoadjuvant chemotherapy with neoadjuvant chemoradiation for locoregionally advanced esophageal cancer. In addition, several new studies were initiated..

The CHEST (Cancers of the Hypopharynx and Esophagus Trial) screening trial is underway in Ratnagiri district with over 11000 individuals having been screened for upper aerodigestive tract cancers. Twelve patients with esophageal cancer and 13 with oral cancers were diagnosed and treated. Extensive health education and awareness of health hazards of tobacco use is an integral part of the programme.

Departmental staff contributed to 11 peer reviewed indexed publications including randomized trials.

Education

The DMG contributes dedicated teaching sessions and on-the job training for the MCh (Surgical Oncology), DM (Medical Oncology) and MD (Radiation Oncology) courses. In addition, a two-year fellowship in thoracic surgical oncology is offered under the Homi Bhabha National Institute and is the only one of its kind in the country. The teaching programme is highly structured and includes didactic lectures, seminars and case-presentations. Regular orientation lectures are taken for all new registrars and fellows working in thoracic surgery nine times a year.

The DMG participated in the annual surgical oncology workshop (Oncosurg 2012) for post-graduate students and practising surgeons, which is a three-day operative workshop attended by more than 300 delegates. The DMG is also organizing the 11th Evidence Based Management meeting in esophageal, gastric and lung cancers in 2013. Several renowned clinicians and researchers from all over the world participated.

Achievements of members

Many DMG staff participated as faculty at national and international conferences and as examiners for academic degree courses in various universities. Members of the DMG also functioned as editors, members of editorial boards and peer reviewers for high-impact national and international medical journals.

Urology DMG

Dr. Umesh Mahantshetty - Convenor

Dr. Ganesh Bakshi - Sectretary

Radiation Oncology
Dr. U. Mahantshetty
Dr. SK Shrivastava
Dr. Vedang Murthy

Surgical Oncology
Dr. Ganesh Bakshi
Dr. Gagan

Medical Oncology
Dr. Kumar Prabash
Dr. Vanita Noronha
Dr. Amit Joshi

Radiology
Dr. Suyash Kulkarni
Dr. Meenakshi Thakur
Dr. Nilesh Sable

Pathology
Dr. Sangeeta Desai
Dr. Santosh Menon

Cyto-pathology
Dr. Dulhan Ajit

Epidemiology
Dr. R Dikshit

Bio-Imaging
Dr. V Rangarajan
Dr. N Purandare

Basic Scientists
Dr. Pratibha Amre
Dr. SV Chiplunkar
Dr. K Amin

Coordinator
Mr. Ganesh Shinde

The Urology Oncology DMG a multi disciplinary group that aims to deliver optimum patient care and ensure optimum outcomes from clinical and translational research. The Urology Oncology Group members work actively with other DMG members and staff towards optimum patient care and outcome.

Service

The Urology DMG initiated several action plans to address service and patient issues. Minimal Access Surgery was added as a routine in the form of laparoscopy and endourology.

Over the years, the DMG has achieved "0" 30 day mortality as well as morbidity and has attempted treatment approaches for organ and function preservation. The number of patients receiving state-of-the art radiotherapy including IMRT, IGRT, for prostate and bladder cancers have increased substantially and brachytherapy for penile conservation and prostate cancers 674 major surgical procedures were performed including 54 nephrectomies, 46 radical cystectomies, 38 ileal conduits and 8 neobladders. There were 59 penile cancers, 23 laparoscopic surgeries and 38 testicular tumours. 2902 minor surgical procedures including cystoscopies, BCG injections etc. were performed.

Radiotherapy was given to 266 patients of which 123 cases received radical treatment and 143 patients received palliative treatment.

Chemotherapy was administered to 60 Testicular tumours, 40 Bladder tumours, 20 Prostate Cancers, 40Penile Cancers, 250 Hormonal therapy for Prostate Cancers, 50 Targeted or cytokine therapy for renal cancers

Indicators

The DMG registered 1778 new patients. Follow up around 6500 patients (whole year). The 30 day mortality was observed to be nil and the complication rates were accorded as per Clavien Dindo system Grade 1 – 6.1%, Grade 2 – 0.7%, Grade 3 – 0.7%, Grade 4 – 0.3%, and Grade 5 – 0.3%.

Compliance with evidence based guidelines was 98 % . Prof. Peter Iverson visited and addressed DMG in Oct. 2012

Department of Preventive Oncology

Dr. S. S. Shastri, Head
Dr. S. A. Pimple
Dr. G. A. Mishra

Service

The department is involved with preventive screening for male and female cancers like breast cancers, cervical cancers and tobacco related cancers. An active clinic for tobacco cessation caters to those with tobacco habits. Community services for cancer prevention and early detection are a part of the routine activities.

Research

Research Projects include studies for the early detection and prevention of common cancers in women, particularly cervical cancers and the HPV vaccine. Studies to evaluate the efficacy of interventions in tobacco cessation and the Impact of 'Gutkha and Pan Masala ban' in the state of Maharashtra on users and vendors.

Education

The department conducts cancer awareness programmes, health education and awareness programmes, and several workshops on tobacco cessation and control, which benefitted 51 communities and 11000 people.

	New Registration	Follow up	Total
Hospital Based Screening	5030	7376	12,406
Clinic based Tobacco Cessation Clinic	1309	45	1354
Community based tobacco cessation	358	340	698

Department of Pathology

Dr. N.A. Jambhekar, Head, Dept. of Pathology

Dr. S.V. Kane, Head, Dept. of Cytopathology

Dr. S.B. Desai, OIC Molecular Pathology

Dr. S. Gujral

Dr. Tanuja Shet

Dr. M. Ramadwar

Dr. K. Deodhar

Dr. B. Rekhi

Dr. Munita Bal

Dr. Santosh Menon

Dr. Rajiv Kumar

Mr. N. V. Shinde

Mrs. U. A. Joshi

Mrs. M. B. Kulkarni

Mrs. N. M. Prabhudesai

Mrs. J. J. Chowalloor

Highlights

1. Two new tests introduced : i) MGMT methylation MS PCR for gliomas and ii) ALK-FISH for Lung adenocarcinoma,
2. On line Interdepartmental Anatomic Pathology Order/ Procedure request introduced.
3. Overall Reduction of Turn Around Time by one day

Services

The department of pathology incorporates the sections of Surgical pathology, Immunohistochemistry, Fine needle Aspiration Cytology, Molecular pathology, Biochemistry, Haematology and Tele-pathology and the ICMR funded National Tumour Tissue Repository commissioned in 2005.

The clinical activities include providing Diagnostic services to the in house patients and also offers Pathology consultation to samples referred from all over the country.

The department's pathologists are part of the Disease management groups assigned for each anatomic sites and contribute to the decision making. Designated staff members for Immunohistochemistry, Molecular pathology, Haematopathology and Biochemistry support introduction and validation of new tests, EQAS program, Inter Laboratory comparison programs and the administrative aspects.

A rise in the total test conducted in 2012 over 2011 has been observed in all specialties of the pathology, viz., Surgical pathology 49378, FNAC 7814, Imunohisotchemsitry 27181, Frozen Section 8739, Hematopathology 442593, Biochemistry 17,45,353, tumor markers 78,918 and Electrophoresis 18,794, to name a few.

The department also undertook audits for 4624 frozen section and 550 surgical pathology addendum for 2011.

The introduction of automation and other facilities resulted in reduction in turnaround time from 8 days (2011) to 7 days (2012) in big specimen (Frozen Section and immunochemistry), while the turnaround time did not change for small specimens. The turnaround time for outside slides, was reduced by one and two days for unstained and stained slides respectively. .

Research

The department undertook research on following topics:

1) Sarcomatoid neoplasms of the Breast: Study of morphological Immunohistochemical features and clinical outcome.

2) A retrospective case control study evaluating tamoxifen resistance in hormone receptor positive breast cancer: A) Role of Estrogen receptor Beta and B) Role of Transforming Growth Factor Beta.

3) Immunohistochemical expression of epidermal growth factor receptor (EGFR) in non-small cell lung cancer (NSCLC) and its clinical significance.

4) ALK detection in Lung adenocarcinoma using Immunohistochemistry, Chromogenic in situ hybridization and Fluorescence in situ hybridization.

Education

The department continued with post graduate educational program under HBNI and also trained 86 observers. It also organized CME programs on biopsy interpretations, and histotechnologists; teaching pathologist conferences and meet under educational programs.

The system wise catalogued teaching sets as learning modules comprising of comprise glass slides, gross specimens and autopsy specimens. Lectures in digital format benefited the trainees and observers.

Clinical Biochemistry

Dr. M. S. Ghadge, OIC
Dr. S. L. Redkar
Dr. N. A. Inamdar
Mrs. G. Rathnakumar
Dr. R. M. Hegde
Mrs. P. P. Naik
Dr. P. K. Sadhukhan
Mr. B. J. Shinde
Mr. D. P. Birwatkar

Services

This department provides routine biochemical parameters to support the needs of all cancer patients including services of tumor markers which supplement the diagnosis of various malignancies.

The department uses state of the art equipment with bi-directional interface and online reporting formats.

The department observed a rise of about 11.34% over the services offered in the previous year.

Research

The research activities of the department include studies to identify risk factors for prostatic cancers, hepatocellular cancers.

Education

The department conducts post graduate training programs in Advanced Clinical Biochemistry and supports clinical trials.

Types	Numbers of investigations
Biochemical test	1745353
Tumor markers tests	78918
Protein Electrophoresis	18794
Total	**1843065**

Dr.P.G. Subramanian
Dr. Sumeet Gujral
Dr.Ashok Kumar M. S.
Mrs. S. C. Shinde
Mr. Y. Badrinath
Dr. S. A. Chaudhary
Mrs. S. K. Joshi
Mr. S. G. Mahadik

Haematopathology Laboratory

Highlights

Initiation of 8 color Immunophenotyping Diagnostic Molecular hematology

Service

This Laboratory provides common diagnostic tests required for day to day patient care as well specialized tests, viz., Complete Hemogram, Manual Differential Counts, ESR, Coagulation studies, Bone Marrow Aspiration, Immunophenotyping & Body Fluid for cell counts & Morphology.

Interlaboratory Comparison Program for immunophenotyping by flow cytometry.

Research

Analysis of Minimal residual disease by Flow Cytometry in Acute Lymphoblastic Leukemia, Immunophenotyping of hematolymphoid neoplasia.

Education

The department participates in training postgraduates for the MD and DM programs and provides fellowships in Hematopathology. In addition the department conducts workshops and educational programs for pathologists and technologists in Flow.

Department of Cytopathology

Dr. S. V. Kane, Head
Mrs. D. Ajit, OIC
Mrs. M.S. Uke
Ms. S. B.Dighe

Service

The department provided service to 23,450 cases, consisting of 86,400 smears. These include Gynecological (4850), Non-Gynecological (10,600) and Fine needle aspiration specimens (8000) Increased Workload was observed in, referral exfoliative cytology cases by 25.29%. and in hospital Respiratory 25%, CSF 12%,,Oral cavity 33% Nipple discharge 19% and Alimentary tract 33% specimens.

The department continued to post by committed cytotechnical staff in the radiology OPD for the **CT** Guided Fine Needle Aspiration. This "On-site adequacy" check has reduced inadequate smears by 28% . In order to ensure quality control the department stringently monitors turn- around time for routine and ICU and also has three tier screening of cytology smear. The technical and microscopic Interpretation competency of the staff is assessed by proficiency test.

Research

The research activity focused on cytomorphology in thyroid cancer, role of IHC in diagnosis of sinonasal cases, Cytomorphology of Thymoma in a Respiratory specimen and in NHL involving uterine Cervix, to name a few. It also initiated a project titled 'Liquid based cytology in thyroid FNAC to improve diagnostic cell yield.

Education

The department continued with the PG program. The department also conducted various programes like Cytotechnicians Training Courses and the **EQAS program** in diagnostic cytology and received wide participation from laboratory across the country. The web based educational quiz activity for interesting cytology cases were updated monthly on the TMC website.

The department staff were trained for Accreditation of Hospital SHCO and Laboratory Management and Internal Audit course conducted by NABL.

Cancer Cytogenetics

Dr. P. S. Kadam Amare, Head

Mrs. S. S. Kabre

Ms. H. V. Jain

Service

Cancer Cytogenetics Service program was extensively expanded to patients referred from other medical centers from India besides TMH. In year 2012, total 5500 patients at diagnosis and on treatment were investigated for cancer cytogenetic studies. Total 10,020 tests were carried out in the department. Overall there was 22% increase in hematolymphoid malignancies and 50% increase in Multiple Myeloma(MM) genetic service program. Laboratory updated panel of cytogenetic markers with comprehensive analysis of all IgH translocations, 13q, TP 53 aberrations, copy no analysis of various chromosomes for hyperdiploidy, 1p, 1q aberrations in MM. Lab introduced FGFR1 rearrangement test in addition to PDGFR-A and PDGFR-B rearrangement tests in hypereosinophilic syndromes. Laboratory also introduced C-KIT mutation test.

The department also participates in the Mumbai Myeloma Registry Program – to register the cytogenetic profile and treatment outcomes of patients with multiple myeloma.

Research

The department participates in several studies related to cytogenetics, few are cytogenetic profile of multiple myeloma patients, open labeled multicentric trials evaluating the safety and tolerability of daily oral administration, evaluation of various molecular prognostic markers in leukemia patients, and in the study of the efficacy of Radotinib versus Imatinib in CML patients.

Education

The department offers course in Cancer Cytogenetics-Molecular Cytogenetics, short term training and guidance in short term project in cancer genetics to PG biotechnology Students from Mumbai University, and supported M.Sc. (Biotechnology) and Applied medical sciences and Nursing programs of the university.

Department of Microbiology

Dr. Rohini Kelkar, Head
Dr. Sanjay Biswas
Mrs. P. H. Dixit
Mr. V. B. Jaiswar

Service

The department of Microbiology is accredited by the National Accreditation Board for Laboratories and provides supportive services for the diagnosis and management of infectious complication of cancer patients. The number of tests performed by the Department has increased by 5% in one year and a total of 150,000 tests. The testing for the emerging infections namely dengue, chickungunya and leptospirosis continues to rise and new tests are being added for the rapid diagnosis of infections like malaria. Automation for the rapid identification of micro organisms including yeasts was added with reduction in the turnaround time and the reporting of antimicrobial susceptibility as minimum inhibitory concentrations.

Infection control and waste management activities are progressing rapidly towards continued improvements in processes, reduction of infection rates through targeted surveillance. More than 100 tonnes of infectious waste was treated in the in-house facility

Research

The research interests of the department include the studies on the efficacy of copper in reducing microbial burden on touch surfaces in the intensive care units, resistance patterns and mechanisms of hospital based microbial isolates and the use of molecular tools for the detection of DNA of a parasite, Schistosoma in tissues from patients with bladder cancer.

Education

The department has been involved with training programs in the areas of clinical microbiology, infection control and waste management. Several presentations have been made at local, national and international meetings and conferences on current topics like drug resistant microorganisms, Hospital Waste, and Hospital Infection Control.

Department of Transfusion Medicine

Dr. S.B. Rajadhyaksha, Head

Dr. Anita A. Tendulkar

Dr. P.D. Desai

Dr. Chowphi C. Rapthap

Service

Haemotherapy in cancer patients depends on a constant, safe and reliable supply of blood components. The Department of Transfusion Medicine provides requisite transfusion services to hospital patients including specialized blood products such as irradiated and leukocyte depleted components, apheresis platelet concentrates and hematopoietic stem cells. Facilities for therapeutic apheresis procedures are available. The department collected 20,325 units of blood and arranged 84 Blood collection camps.

Research

A study to assess the stability of selected hematological parameters in platelet donors in blood on storage at 4 degrees.

Education

The Department continues to conduct the MD (Immunohaematology and Blood Transfusion) Course.

A preferred centre for training in the speciality, the Department conducts training programmes for Blood Bank medical officers, technologists and nurses. It also provides hands-on training in specialized areas such as apheresis and component separation.

Public awareness programmes to promote blood and platelet collection and utilization form an intrinsic part of departmental activities.

Department of Nuclear Medicine & Molecular Imaging

Dr Venkatesh Rangarajan, Head
Dr Nilendu C Puranadare
Dr Sneha Shah
Dr Archi Agrawal
Mrs. B. S. Shetye
Ms. P. V. Monteiro
Mrs. S. Mithun
Mr. Ashish K. Jha
Mrs. Mehjabeen A. M. Pathan

Service

A pioneer in PET/CT and SPECT/CT in the country, and conforms to regulatory requirements. The department caters to the requirements of disease management groups, by providing comprehensive nuclear medicine services at diagnosis, re-staging, follow-up and for biopsy, intervention and radiotherapy planning . The department has set benchmarks and guided the growth of PET scanners throughout the country. A new PET /CT facility was added.

It also introduced new radioisotopes like 18 F FLT and 18F FMISO. The ^{18}F choline PET/CT scan for prostate cancer and hepatocellular carcinoma were recently introduced for clinical use in a trial setting. Post-radioembolisation therapy Y-90 PET/CT scan were introduced for Hepatocellular carcinomas.

Research

The department runs several investigator-initiated studies and also participates in number of trials conducted by the various disease management groups.

Education

Besides catering to the requirements of several short-term and long-term visitors from both, clinical nuclear medicine, radio diagnosis and nuclear medicine technology, the department conducts full-time apprenticeship training programme for nuclear medicine technologists. The department conducts the DNB and MD program for postgraduates.

Department of Radio Diagnosis

Dr. M. H. Thakur
Dr. S. Arya
Dr. S. L. Juvekar
Dr. S. M. Desai
Dr. S. K. Ramani
Dr. S. S. Kulkarni
Dr. N. S. Shetty
Dr. Sunita Dhanda
Dr. Abhishek Mahajan
Dr. Nilesh P. Sable
Mr. T. N. Mishra

Service

A new 16 slice CT scanner was commissioned, with a high throughput bringing down the waiting period.

In interventional Radiology following Procedures have been started which are exclusively done in our institute like **i.** Transarterial chemo-infusion for retinoblastoma, **ii.** Indwelling tunneled catheters for malignant ascites and pleural effusions, **iii.** Fluoroscopy guided percut. Gastrostomy, **iv.** Lymphangiography with Thoracic duct embolisation, **v.** Transarterial Radioembolisation for Liver tumors, **vi.** USG Guided Botulinum Toxin injection for post laryngectomy patients, vii, Osteoplasty for painful bony skeletal metastasis.

The PACS in hospital has been upgraded from centercity 2.1 to 3.0.

Research

The department contributes to research through various projects independently and in collaboration with Disease Management Groups.

Education

The department conducts post graduate Course for the MD degree and Post MD super specialties fellowship programs in Cancer Imaging and Oncointervention.

Advanced Diploma in Medical Imaging Technology course and a training program in Interventional Radiology, Mammography, CT and MRI for the radiology technologist was initiated.

Department of Surgical Oncology

Service

The surgical oncology department has spearheaded the field of cancer surgery in the country for several decades and performed over 9623 major surgeries and over 18000 minor OT procedures. Comprehensive Operative services for all cancers sites are offered both at TMH and ACTREC with optimal utilization of Operating rooms. The number of minimally invasive surgery, skull-base procedures, major vascular replacements, limb salvage and microvascular surgery have increased indicating departmental strength in these specialties. Results of postoperative outcomes are comparable with the best in the world serving as measure of patient safety. The WHO surgical safety check list for patient safety has been implemented. The overall postoperative mortality rate was 0.5%. The introduction of theatre committee has helped in streamlining the functioning of Operating Rooms.

Monthly visits of residents and faculty to Ratnagiri , under the outreach programmes ensures provision of surgical oncology expertise in an underserved area. More than 11000 individuals have been screened for upper aerodigestive tract cancers under the "CHEST"(Cancers of the Hypopharynx and Esophagus Trial) screening trial. This trial is set to increase further after augmentation with more equipment.

Research

Several units within the department conduct investigator-initiated and sponsored research studies. Large randomized trials in head and neck, esophageal, breast, lung, cervix and soft tissue tumors are underway with most studies having crossed half the target sample size. Some of the studies initiated earlier were published and presented in high impact journals and international conferences respectively. In addition, several new studies were initiated this year and planned for the next year.

A major thrust was given to translational research in collaborations with investigators at ACTREC, National Institute of Biomedical Genomics, Indian Institute of Technology, George Washington University, and many others.

Education

The teaching programme for surgical oncology at TMH is highly structured and includes didactic lectures, seminars and case-presentations. Regular appraisals are conducted every 4 months for periodic evaluation of the students' progress. The department continued to conduct the M Ch programmes for Surgical Oncology and Gynecologic Oncology and is planning new programs. A unique training scheme incorporating training in general surgical oncology and specialist training including training in basic sciences (at ACTREC) has been introduced, to cater to the ever increasing needs of cancer specialists for the country. Members of the department also functioned as editors, members of editorial boards and peer reviewers for renowned national and international medical journals. Departmental faculty were core members in several public health initiatives like anti tobacco campaigns, Government of India task force to evolve treatment guidelines for cancer, expert groups to disseminate information about safety of nuclear power plants, etc.

Dr Prabha Yadav, HOD
Dr Indraneel Mittra
Dr R A Badwe
Dr A K Dcruz
Dr R A Kerkar
Dr Ajay Puri
Dr Amita Maheshwari
Dr Devendra Chaukar
Dr Pankaj Chaturvedi
Dr Prathamesh Pai
Dr Vani Parmar
Dr S V Shrikhande
Dr C S Pramesh
Dr Aliasgar Moiyadi
Dr Gouri Pantvaidya
Dr Ganesh Bakshi
Dr George Karimundackal
Dr Sajid Qureshi
Dr Vinaykant Shankdhar
Dr Anuja Deshmukh
Dr Ashish Gulia
Dr Nita Nair
Dr Deepa Nair
Dr Dushyant Jaiswal
Dr Mahesh Goel
Dr Prakash Shetty
Dr Sudhir Nair
Dr Shylasree Saklani
Dr Sabita Jiwnani
Dr. G. K. Bachher

Department of Anaesthesiology, Critical Care & Pain

Dr. J. V. Divatia, Head
Dr. R. P. Gehdoo
Dr. P. N. Jain
Dr. (Mrs.)V. P. Patil
Dr. A. P. Kulkarni
Dr. (Mrs.) S. N. Myatra
Dr. A. S. Chatterjee
Dr.(Ms.) M.G. Shetmahajan
Dr. N. S. Amin
Dr. Vandana Agarwal
Dr. Sumitra G. Bakshi
Dr. Priya Ranganathan
Dr. (Ms) Madhavi D. Desai
Dr. Shilpushp J. Bhosale
Dr. Jeson R. Doctor
Dr. S. Y. Parab
Dr. S. L. Solanki

The Department of Anaesthesia incorporates the Anaesthesia service, the Intensive Care Unit and the Pain Management Service.

Service

Anaesthesia: The department provides quality anaesthetic services, using state- of – the- art technology. 6641 patients were anaesthetized for major or supra major surgeries while over 19000 minor surgeries were conducted in endoscopic, radiotherapy and Minor OT under local and general anaesthesia.

Critical Care: provides high quality intensive care for management of acute cardiovascular, metabolic and other critical illness associated with major surgery, pre-existing disease, and chemotherapy. A total of 6158 patients were admitted to the Recovery room, and 1993 patients were admitted to postsurgical and medical ICUs. 595 patients were ventilated.

The Pain Service runs provides pain relief to postoperative cancer patients round the clock, using latest technology. This year 1826 patients were provided analgesia services for acute postoperative pain. A Total of 1917 patients were treated in the pain clinic: 1016 being new and 901 were on follow-up. 52 interventional pain procedures were carried out.

Research

1. Nutrition Practices and outcomes in critically ill cancer patients, Epidemiologic Prospective Investigation Acute Kidney Injury. Prevalence, management and outcomes of patients with Coagulopathy in an Oncology Intensive Care Unit. Comparison of the accuracy of clinical palpation versus ultrasound imaging in location of the level of intervertebral space.
2. Effect of radio-frequency ablation procedures on body temperature. Patients' experience with epidural analgesia. Estimation of radiation exposure to medical professionals working in the Intensive Care Unit. Audit of Therapeutic Hypothermia in Post Cardiac Arrest Patients in a Tertiary Cancer Hospital.
3. Predicting pulmonary complications after esophagectomy .

Education

The department continues to organize three day CME for the postgraduate students in anaesthesia called **Anaesthesia Review Course** which has become very popular**.** The Haemodynamic Monitoring Workshop called **THEMATICC** was conducted for intensive care trainees and practitioners. The second National Conference on Difficult Airway management was organized. The Department conducts the MD, and Fellowship programs, the ICU Technician's Course, a hospital CPR Course for nurses and doctors, and an Orientation Lecture series in Pain for hospital nurses.

Departments of Radiation Oncology and Medical Physics

Service

Over 5000 patients undergo radiotherapy annually at the TMH.. PET-CT (Advantage-Sim) and MRI Based Treatment Planning for Newer Radiation Techniques are networked with the Radiology Department.

The current facilities offer modern sophisticated, state-of-the-art treatments like 3-D conformal radiotherapy (3-D CRT), intensity modulated radiotherapy & radio-surgery (IMRT & IMRS), Stereotactic radiotherapy/ radio-surgery and Image Guided Radiation therapy (IGRT). Specialized procedures like, Total Skin Electron Beam Therapy (TSET) for Mycosis Fungoides & Total Body Irradiation (TBI) as conditioning for Bone Marrow Transplantation (BMT) are regularly conducted by the department. The external beam planning system (ECLIPSE) is capable of image fusion using MRI/ PET/ CT images and planning. A stringent quality assurance (QA) program ensures efficient and accurate radiotherapy treatment. The Department is unique in respect of being able to carry out a spectrum of radiotherapy procedures from conventional, 2D RT to the latest with volumetric modulated arc therapy.

Brachytherapy forms an integral part of treatment protocols and the intertstitial brachytherapy was introduced for the first time in 1981 by the hospital. The Radiation Oncology Information System (ROIS) software was developed in-house, in collaboration with ECIL.

Research

The department is involved in several multicentric clinical trials, for different body sites.

Education

The department conducts MD (radiotherapy) course; a fellowship programme in IMRT-IGRT and Brachytherapy and supports training in other specialties.

Dr. S. K. Srivastava, Head
Dr. J. P. Agarwal
Dr. S. S. Laskar
Dr. Rakesh Jalali
Prof. S. (Ghosh) Laskar
Dr. U. M. Mahantshetty
Dr. A. N. Budrukkar
Dr. R. Engineer
Dr. Nehal R. Khanna

Medical Physics

Dr. D. D. Deshpande, Head
Dr. R. A. Kinhikar
Mrs S.V. Jamema
Mr. Rituraj Upreti
Mr. Suresh Choudhary
Mr. Yogesh Ghadi
Mr. Shrikant Kale
Mr. Ritesh Mhatre

Service

The Department of Medical Physics is equipped with sophisticated modern equipment such as Radiation Field Analyzer (Blue Phantom), ionization chambers, I - matrix for IMRT dose verification FC 65 G plus dose 1 electrometer & brachytherapy dosimetry systems with electrometers, TLD dosimeter, film dosimetry system etc. for accurate and precise dose computation and treatment delivery. We have now evolved our brachytherapy from conventional 2D X-ray based to 3D CT / MRI Image Based Brachytherapy Planning. This is especially used for brachytherapy for gynecological, genitourinary, head and neck, breast cancers and soft tissue sarcomas.

In addition the department acts as a training ground for Resident Medical Physicists after completion the Dip Radiation Physics course and for RT training after completion of their training.

Research

The research component involves studies on dosimetry, Quality assurance, image fusion of PET-CT with MRI and radiation dose escalation and the evaluation of various dosimetric aspects of radiotherapy.

Research

Radiation Safety committee addressed issues related to radiation safety and ensures compliance with the regulatory requirements.

Education

Conducts Ph D program, and is involved in training medical physicist, nurses and radiotherapy technologists.

Dr Aruna Alahari Dhir,Head

Dr Sheela Sawant

Department of General Medicine

The staff made several oral and poster presentations at national and international conferences such as HIV congress at Mumbai, and were appreciated for the presentations.

Research

Ongoing research includes studies for anthracycline induced cardio-toxicity and studies on HIV and cancer.

Education

The department is involved in training programmes for infectious diseases.

Staff Achievements

The oral and poster presentations by staff, in several international and national conference like - HIV Congress at Mumbai, were appreciated.

Dr. K. M. Mohandas, Head

Dr. Shaesta Mehta

Dr. P. S. Patil

Department of Digestive Diseases and Clinical Nutrition

Service

The department of Digestive Diseases and Clinical Nutrition cater to nearly 20,000 patients with Gastrointestinal and Hepato-pancreatico-biliary cancers. These services include endoscopy, general gastroenterology and clinical nutrition services. More than 6000 diagnostic and therapeutic endoscopies were performed during the year under report which included procedures like ERCP, Stent placements and Endosonography with FNAC. The department also administers chemo-therapy to patients with Gastrointestinal and Hepato-pancreatico-biliary cancers. The nutrition clinic evaluated more than 4500 patients. Procedural audits for outcomes of endoscopy and similar outcomes in chemotherapy have been initiated.

Research

The department participates in a number of clinical trials- both, investigator initiated and industry sponsored. Presently, there are nine ongoing trials in gastrointestinal and HPB cancers which include phase II/III and epidemiological studies. It also is a part of the INDOX consortium.

Education

The department continued to conduct DNB (Gastroenterology) programme, and the MCI approved for a DM (Gastroenterology) programme under HBNI. The department also conducts other training programmes for endoscopy, a fellowship in GI oncology; and the Nutrition and dietetics students are trained for 6-8 weeks by the Nutrition Clinic.

Seminars in GI cancers, advanced endoscopy training programme and an update in clinical nutrition are planned in the coming year.

Department of Medical Oncology

Dr Shripad D Banavali, Head

Dr Purna A Kurkure,
OI C, Pediatric Oncology

Dr Reena Nair

Dr Sudeep Gupta

Dr Hari Menon

Dr Kumar Prabhash

Dr Brijesh Arora

Dr Naveen Khattry

Dr Manju Sengar

Dr Amit Joshi

Dr Jaya Ghosh

Dr Vanita Noronha

Dr Jyoti Bajpai

Dr Tushar Vora

Dr Bhausaheb Bagal

Dr Girish Chinnaswami

Dr. G. Narula

Dr Pratibha Amare- Kadam

Dr Anuradha Chougule

Dr Jayant Gawande

Dr Uma Dangi

Dr Bharatsinha Bhosale

Dr. Vandana Padgaonkar

Service

With the advent of personalized medicine, especially in the field of oncology, the scope of medical oncology is fast expanding. Along with the usual chemotherapies, the department now also deals with various monoclonals and targeted therapies. The department has recently initiated a Geriatric Cancer Clinic, and is expanding the services of After Cancer Therapy (ACT) Clinic from only pediatric patients, to include adult solid tumors. The department continues to treat lymphomas and leukemias and is actively involved in treatment and clinical management of solid tumors. Improved supportive and social services, has decreased the number of patients refusing or abandoning treatment from nearly 30% in 2009 to <5% in 2012. The Bone Marrow Transplant Services are being expanded and more challenging BMTs like unrelated, cord and haplo-identical transplants are now being done. The departmental Molecular Lab has been instrumental in developing and standardizing various clinically oriented molecular tests and more than 3000 tests were performed in 2012.

Research

The Department members are involved with collaborative research in several IRB approved studies. Majority of these are investigator initiated studies. The department is in the process of establishing a “Center of excellence” in the field of “Metronomic Therapies” .

Education

The department conducts the DM (Medical Oncology) course and a DM (Pediatric Oncology) course was started. The department offers fellowships in Adult Hematology & Solid Tumors; Pediatric Oncology and Bone Marrow Transplantation.

The Department members are represented on various IAP & ICMR committees for formulating treatment guidelines for the country. The members also contributed as edition to national and international publication.

Dental & Prosthetic Surgery

Service

The department provided nearly 6000 consultations to support the dental needs of head and neck cancer patients. The department specializes in providing prosthesis particularly the Bite Guide and Maxillary Prosthesis, and Fluoride gel therapy for the post operative care.

Research

The department initiated research on several topics, relevant to patient care, viz., free fibular graft reconstruction following mandibulectomy, Evaluation of function in various stages of prosthetic rehabilitation with obturator following maxillectomy, Oral health of children with leukemia, evaluate factors associated with maximum mouth opening in patients with squamous cell carcinoma, impact of oral rehabilitation on head and neck cancer etc.

Education

The department is involved in training programmes for specialized prosthesis and implantology.

The staff participated in several international and national conferences , seminars and workshops.

Dr Kanchan P. Dholam

Dr Karthik M. S.

Department of Nursing

Service

The nursing department continued to provide holistic care to cancer patients and their families to attain optimal health and quality of life. Specialized nurses were involved in administration of chemotherapy, radiotherapy, and management of patients under treatment, including patient counseling, palliative care and critical care.

Research

The M.Sc. nursing students under took research as part fulfillment of their degree.

Education

Apart from M. Sc. in Oncology Nursing, the department also conducted several courses, viz., Intensive care nursing, Phlebotomy course, Diploma in Oncology Nursing and infection control. In-service education programs were conducted during the year as a part of continuing education. The nurses also participated in workshops and conferences held during the year, like the pediatric nursing, leadership development workshop and the national oncology nursing conference.

Ms. Swapna Joshi,
Professor & NS

Ms. S. Retnamony, Dy NS

Ms. M. Anilkumar, ANS

Ms. Carmine Lasrado, ANS

Ms. Shweta Ghag, ANS

Ms. Maria Carvalho
Principal ,
College of Nursing

Ms. Anita Dsouza
Vice -Principal
College of Nursing

Ms. Prathepa Jagdish
Lecturer,
College of Nursing

Department of Enterostomal Therapy

Mrs.Shivani Tanak
Enterostomal Therapist

Mrs. Hemlata Gupte

Mr. Mina Sarate

Service

The services provided are holistic including patients and their families and consist of Pre-operative counseling & Stoma marking, Post-operative Stoma assessment and management & Irrigation procedure.

The department offers empathetic help to people with permanent stomas arising out of surgeries performed for various cancers. This involves solutions for physical problems with appropriate containment system and allied products and to help individuals use appropriate coping mechanisms to manage their psycho -social problems with ostomies, wounds and incontinence. The department provided service s to nearly 4000 patients for the management of various stomas, the majority being colostomies.

Research

The departmental research includes trials on wound care methods and methodology for the management of wounds and fistulas.

Education

The Department conducts internationally recognized Enterostomal Therapy Training programs for trained nurses, medical & paramedical trainees from all over the country.

Occupational Therapy Department & Rehabilitation

Mrs Manjusha Vagal, OIC

Service

The Occupational Therapy is an important branch of rehabilitation. The department works to assist people manage the limitations caused by cancer. These include the physical, functional, and psychological difficulties to improve quality of life.

The department offered services to 10250 patients in the outpatient department and 2436 In- patients. The department provided 256 orthoses, 22 prostheses; and 28 temporary and 380 Lymphedema kits and 700 Jaw stretcher keys.

The Department has an extension at Ernest Borges Memorial Home, where the fabrication of orthosis, prosthesis and adaptive devices are done

Research

Validation of EORCT CIPN 20 module in to Indian languages Hindi and Marathi.

Education

The department conducts several Post Graduate Training Programs in Oncology.

Physiotherapy Department

Service

The department continues to offer physiotherapy services to multitude of cancer patients undergoing surgery. A new technique for Lymphedema Management has been introduced.

A preoperative Pulmonary Rehabilitation group for patients undergoing thoracic surgery was initiated.

The other activities include - Management of Cancer Related Fatigue, Acute post-operative breast care group, Shoulder and Neck Dysfunction and Trismus, Gait Training, Mobilization and Ambulation.

Research

Three ongoing trials in collaboration with the Breast Unit, Radiation Unit and Head and Neck Unit.

Education

The department conducts educational activities on Cancer Rehabilitation, in the form of internship and training program for students.

Mrs. Anuradha Daptardar – OIC

Mr. Vincent Singh P

Mrs. Ajeeta Hasabnis

Mrs. Manali Kamat

Mrs. Sarika Mahajan

Department of Palliative Medicine

Service

The department has registered 2542 new cases including pediatric patients and 4073 follow-up cases. The home care services have been expanded and improved with nearly 2000 visits. There was an average of three home visits per day for high priority patients.

Emphasis was given to pediatric palliative care with the formulation of child protection policy and improving access to opioids.

Research

Research activities include collaborative studies on predictors of symptom response in advance cancers, Domiciliary Palliative Care model, distress in care givers in terminally ill cancer patients, and coping capabilities of the families of pediatric cancer patients.

Education

The department has started postgraduate program in palliative medicine. The department conducts several training and educational activities in palliative care for medical and nursing students at the state level.

Dr. M.A. Muckaden, Head

Dr. J.K. Deodhar

Dr. Manjiri Dighe

Psychiatric Unit

Dr. Jayita Deodhar

Mrs. S. S. Goswami

Miss. L. N. Sonkusare

Service

A total number of 2436 patients were seen by the service in 2012, with 1044 as first time asssessments seen as part of consultation as well as liaison inputs and 1392 reviews (as of 21 Dec 2012). Screening of patients for psychiatric disorders was undertaken in the wards and continues as part of the service. Psychological and neurocogntive testing, both for clinical purposes and as part of research projects, remains the focus of service. Support groups for patients and caregivers as well as staff have been held by the Unit.

Research

Psychiatric Unit initiated and projects and collaboration with other departments on research projects is ongoing.

Education

The Psychiatric Unit has contributed in different training, academic and orientation programmes in the hospital and has also been invited for talks and lectures in other institutions and organizations.

Medical Social Services

Mr. M.S. Patil - OIC

Services

Medical Social Services focuses on supporting the patient challenged with Socio-Economic conditions, illiteracy, lack of basic amenities especially in villages and low health budget. It also counsels patient regarding treatment procedures, and facilitates financial and accommodation help. Overall the department guided 19850 patients of which around 4500 were supported for treatment, railway concession, and nutritional supplements. The patients were also referred to Borges Home for free accommodation.

The department also organizes special programs for pediatric patients on Children's Day, Christmas, and organizes outings and Educational support programs.

Education

The department participates in training program for student Social workers from Tata Institute of Social Sciences, SNDT University, North Maharashtra University through field work practicum.

Tissue Bank

Dr. Astrid Lobo Gajiwala, Head

Ms. Urmila Samant

Ms. Cynthia D'Lima

Service

The number of grafts produced increased from 5737 in 2011 to 8978 in 2012, and the number of grafts utilized increased from 5658 in 2011 to 9292 in 2012 and were used for patient from 354 hospitals in Mumbai and 70 hospitals from other States in India. These grafts have contributed to better radiotherapy outcomes and helped improve the quality of life of patients. 151 bone grafts were used in 70 TMH patients for reconstructing skeletal defects following ablative surgery for cancer. A rise in demand for bone granules and chorion by oral surgeons has been observed. Over 2738 bone granules vials and 836 chorion were utilized as compared to less than 1800 bone granules and 307 chorion in 2011.

1869 amnion dressings were used for 227 TMH patients for the management of skin reactions following radiotherapy, and bedsores. The bank also supported patients (1655) outside TMH for extensive burns, non-healing diabetic ulcers, orbital and ocular surface reconstruction, and vaginoplasty.

Research

The department participated in The International Atomic Energy Agency (IAEA). Research Coordinated Project about the clinical use of Irradiated Amnion Dressings in the Management of Moist Desquamation Following Radiotherapy in Cancer Patients and in study related diseased human bone, and bone substitute scaffolds. It also supported research for MDS program.

Education

The bank was associated with several awareness programs for tissue donation, and organized three hands on training for physicians planning to establish new tissue banks at Delhi, Ludhiana, Mumbai and Nagpur during the year.

Pulmonary Medical Unit

Dr S.Tandon

Service

The Pulmonary Medical Unit which is a part of the Thoracic DMG, assesses patients referred for respiratory evaluation and management. It also works in collaboration with the Rehabilitation Services to ensure an optimum preoperative pulmonary evaluation, respiratory optimization and exercise schedule to reduce pulmonary morbidity. The number of cross referred patients in the pulmonary OPD has been steadily increasing over the past few years. In 2012, more than 4500 patients were consulted in the Pulmonary Medical OPD. A 6-Minute Walk Test Service was introduced, to assess patients with borderline high-risk respiratory functions, from all DMGs, specifically for Thoracic and Anaesthesia Services.

Research

An Intramurally funded Project on Sleep Apnea in patients treated for Oral Cancer was successfully completed and results were presented at international conferences. The Unit in association with the Respiratory Group of Royal Brompton Hospital and the Imperial College, London formulated a research project for Chronic Non-Communicable Diseases, however it did not receive grants. The Unit is now focuses on increasing its contribution to the Thoracic DMG - clinical and research activities, through clinically relevant research projects.

Education

It has over the past years managed to create an increasing awareness of the need for diagnosing and treating respiratory co-morbidity either pre-existent or iatrogenic (post-therapy) in cancer patients, resulting in a steady increase in referrals from all clinicians.

Staff Clinic

Dr S.Tandon, Head

Dr R.S.Birla

Dr S.Ansari

Service

The Staff Clinic provides medical treatment to 3820 TMH staff, including 2200 super staff (excluding CHS dependents), 927 labour staff (including their dependents) and 697 temporary project staff for their day-to-day ailments.

Apart from conducting routine activities of clinical medicine, Occupational Health related administrative responsibilities; it also develops health-related policies and guidelines. The Staff Clinic also conducts regular health checkups of staff apart from Pre employment Medical examinations.

In 2012, the Staff Clinic had approximately 42000 consultations, 345 pre-employment examinations, 460 Hepatitis B vaccinations and 71 Needle stick injuries. It has successfully implemented online prescription, online investigational reports and the Health Insurance Scheme for the Labour Staff.

Education

the Staff Clinic uses every possible opportunity to educate the staff about their illness and positive health including the importance of dietary restrictions and vaccinations. It promotes positive health by encouraging and conducting check-ups for early detection of modifiable and treatable risk factors for Lifestyle Diseases like Hypertension, Diabetes, and Dyslipidemias.

Research

The initiation of computerized health related data of all TMH staff would help identify staff with increased risk for various Lifestyle Diseases and help in timely execution of appropriate interventional policies.

Digital Library

Dr. M. V. Joshi, Head

Mrs. M. C. Pusalkar

The library as information scientific resource centre continued to offer services to faculty, staff, and students of the hospital and also supported needs of medical and biomedical professionals from other hospitals and educational institutes, and industry. The library offered range of services viz. Inter Library Loan, document delivery, information search, and also attended to general queries made by the members/ visitors. The services mainly focused to support information needs of staff and students for patient-care, academic and research activities. The library made significant progress during the year.

The library holds an specialized collection of over 7708 printed books, 20000 bound journals and subscribes to 177 journals apart from its collection of theses, reports and standards on all aspects of oncology. The library has steadily built its collection of e-books for 24X7 accesses to this monographic information across the campus. During the year, 125 electronic books, 158 e-journals and 4 databases were made accessible across the campus. It continued to be a member of DAE consortium for Science Direct, supporting information on medicine, social sciences and humanities.

Services

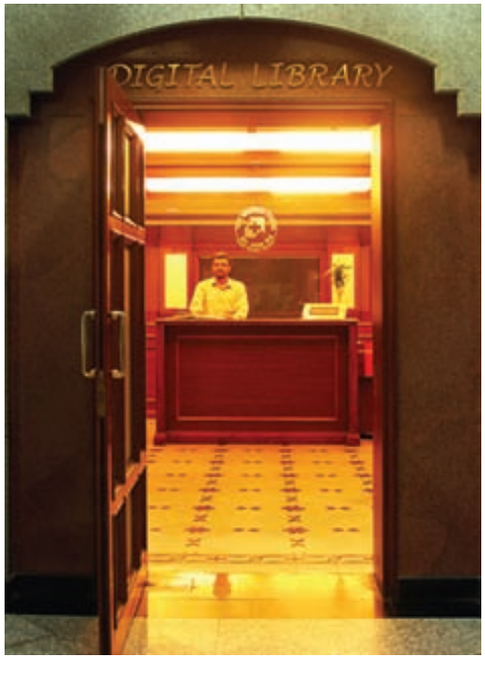
Even though library resources are often used remotely, many people physically visit the library for a number of reasons—to study, use reserve materials, use the computers and scanners, attend classes, consult library staff, conduct research in the literature, check out print materials. It provides access to 4 full text databases to support clinical research, education and patient care viz., CINHAL, TNM, Ovid, and British National Formulary (BNF).

Library received about 2325 article requests, from 759 users; and of these, 1781 article requests were satisfied. Of the 2325 article requests, 288 requests were supported for visitors. Over all, the library satisfied 76% of document supply requests. Of these 71% requests were satisfied through in-house resources and the rest were supported from libraries within the country. These numbers indicate a rise from the previous year. The library satisfied 12 requests for database search.

Library collated staff publications into a Bound Volume with appropriate contents and indexes.

Education

The library conducted three training programs for information literacy skills and about 30 end-users benefited through these tutorials. The tutorials focused on - PubMed, Library orientation and web services, and Publishers interface. The library inducted two library trainees for practical knowledge.



Dept. of Medical Records, Biostatistics and Epidemiology

Dr. Ganesh B., Head

Mr. S. D. Talole

Service

The Department is custodian of all case papers registered in the hospital. This section stores, maintains and archives primary and secondary medical records that have been registered in TMH. In the year 2012, 33,967 were registered. The department continues to be one of the important sources for identification and registration of cancer cases. Hospital Based Cancer Reigstry registered 27,365 cancer cases.

Leukemia and Breast were the leading site of cancer in males and females respectively. Rural Population based cancer registry have been setup in Ratnagiri (2009) and Sindhudurg (2011) district. In Ratnagiri.

Research

- A project on Head & Neck, Breast and Cervix Cancers is ongoing under National Cancer Registry Program (NCRP).
- Screening for Pharyngeal and Esophageal cancer in Ratnagiri district of Maharashtra and Early detection of breast and cervical cancer in Mumbai.

Education

- Training conducted for Rural Cancer Registry Staff.
- National & International doctors & researchers underwent training in the Department on archival, maintenance and management of Medical Records.
- The Department provides supports clinicians, students and research workers in Biostatistics. The department supports doctoral and other training programs on epidemiology, conducted by the hospital.

Highlights

Expansion of cancer registries to other parts of the country.

- *4 PBCR have been setup at Tarapur, Karwar, Rawatbhata & Kakrapara*
- non-DAE population in **Rawatbhatta in Gujarat** (population 100,000) and **Kaiga in Karnataka**

Department of Information Technology

Mr. M. S. Mangrulkar, I.T. Manager, TMC

Mr. V. N. Marathe

Mr. S. K. Sinha

Mrs. C. R. Nimji

Information Technology Department plays a pivotal role in the day to day functioning of Tata Memorial Hospital. All activities of the hospital are computerized. Hospital Information System runs 24x7 on a DB2 Database with IBM power Server with High Availability & Disaster Recovery features. The front end software is developed in Visual Basic, ASP.net, .NET. The main features of the system are modularity, scalability, built in security and flexibility to take care of unforeseen situations.

During 2012, several browser based applications were developed and implemented, viz., Diagnostics Information System, Electronic Medical Records, Employee portal, Online prescription, LTC module, queries related to billing & receipting. The systems were refined, amended to address the needs and newer requirements of the end users.

Software Maintenance, Hardware Maintenance, Network monitoring & supervision, User training, various trouble shooting procedures, solving day-to-day user problems, data analysis, conducting meetings with users etc. are the major departmental activities.

Medical Administration

Dr. H. K. V. Narayan,
Medical Suprintendent

Ms C. V. Hingnekar

Service

The Office of Medical Suprintendent facilitates patient care and thrives to maintain quality and quantity by continuous monitoring of services. The deficient areas are strategically addressed to maintain quality. It also oversees the materials procurement and management for the hospital.

New casualty block, Minor OT complex and day care centers were relocated and commissioned to suit contemporary needs. Paperless operations have heralded a new set of challenges overcoming apprehensions from patients and providers alike. With cooperation from various stake holders we have been able to achieve our immediate objectives and geared up to meet the long term aspirations which in itself is challenging.

The introduction of Smartcard operations with Photo ID has reduced long waits at cash counters. The SMS alert system was introduced to improve patient compliance for registrations, appointment a financial transactions. Introduction of online registration, e consent and scanning of outside reports were considered as part of becoming paperless system.

The MS office through the Quality Manager and the accredited laboratories has continued to maintain the established Quality Management System by conducting:

- Quality System training Program as per the training calendar
- Co-ordinating and conducting Internal audits by trained TMC NABL assessors
- Monitoring the Incident reports and conducting root cause analysis for sentinel events.
- Overseeing the Patient Feedback Redressal
- Evolving Uploading and maintaining the hospital related documents and information on Document Management System - Disha.

Education

The Medical Secretary's Certificate Course initiated by the office, emphasizes on skills, self improvement, personality development and basic training in Medical terminologies with the team of expert faculty from both In house and outside.

The first batch of Medical Secretary's Certificate Course for the Hospital Administration students posted in TMH during the observership and internship, was initiated with external faculty.

Administration

Mr. G.S.Dhanoa,
Chief Engineer.

Mr. S. H. Jafri, Sr. PRO

Mr. R. P. Jaisawar, Sr. P. O.

Mr. A. N. Sathe, Sr. A. O.

Mr. P. K. Sukumaran,
HRDO

Ms. Indira Pasupathy,
D.C.A.

Ms. S. E. Brid,
Purchase Officer.

Mr. J. Lukose, Dy. C.S.O

Mr. R. Kotian, A.O

Mr. A. L. Kuvalekar,
Stores Officer

The administrative group consists of General Administration, H.R.D., Personnel Dept., Purchase, Stores, Accounts, Engineering Services and Security, providing administrative and infrastructure support to the Centre.

An approximate amount of Rs 24 lakhs, was disbursed to employees as advance towards housing, Motor cycle, computers, etc. The Administration supported 345 employees for national deputation, and 147 employees for international deputation during the year. The Administration added 715 members, received 652 claims of which 586 were sanctioned under CHSS. The Department answered to 66 applications and 12 appeals under the RTI act of 2005. During the year, the administration facilitated observership of 320 doctors.

Human Resource (HR) is focused on management and development of Human resources within the organization to support meeting its objectives. H.R. management involves functions like recruitment and development, performance management and motivation of man power. During the year the department recruited 37 medical and non medical personnel, and a special recruitment drive for filling up the backlog of vacancies reserved for SC/ST/OBC/PH quota was conducted and a total of 17 SC/ST/OBC and 1 PH quota vacancies was undertaken.. 50 employees superannuated during the year.

Various short-term and long-term training programs were conducted for Doctors, Nurses and Technicians. Training programs were also organized for paramedical, administrative and labor staff and were deputed to programs at DAE and ISTM.

Purchase department facilitated acquisition of capital equipments worth Rs. 22 Crores from Import Cell, consumables, spares, etc., worth Rs. 51 Crore from Non Rate Contract Cells and reagents, consumables, and other services essential for the hospital through its automated systems.

The hospital security department ensured safety and organized for special talks on importance of vigilance.

The Engineering department comprises of civil, electrical and mechanical sections. They together facilitate smooth functioning of hospital by ensuing regular repairs and undertaking development of new engineering requirements to support the hospital. The Air conditioners, equipments, and other machinery and utilities are maintained by this department.

Public Relations office

Special activities were conducted to understand the needs and requirements of patients and their relatives. Information on such matters was collected through surveys. The department addressed grievances on day to day basis and gave away booklets for their guidance. The dept works as the liaison office for these patients accommodation, currency exchanges, visa issues etc. The department supported Registration of Foreign National patients, through its new venture for support for foreign patients. The Helpline of the department coordinated with 22 organizations and their volunteers were given specific roles to help patients in registration, guidance and counseling. Special entertainment program were also organized for the patients independently and in coordination with NGO's as well.

The department coordinated for various conferences and seminars and other academic events organized by hospital.

'Hindi Fortnight' was organized from 14th-30th September 2012. Competitions such as Essay, Debate, Handwriting, Singing etc. were organized for the members of staff.

28th February is the foundation day of the Tata Memorial Hospital. On this day the public relations department arranges a program for all the staff which includes entertainment as well as motivational awards to the best workers and exemplary workers along with felicitation to the retirees, to the staff who have completed 30 years of their service.

Highlights

A special service for Foreign National Patients was initiated.

'Rajbhasha Shield' for effectively implementing the Official Language Policy for the Eighth consecutive year.

RESEARCH

TMC Research Administration Council (TRAC)

Ms Rohini Hawaldar,
TRAC, Administrator

TRAC was constituted in the year 2008. TRAC has a broad mandate to maintain and improve all aspects basic, translational and clinical research in TMC with specific focus on the following areas:

- Develop mechanisms to implement the recommendations of the TMC SAC and periodically review its progress.
- Set directions, priorities and thrust areas for research within the overall scope set by the SAC.
- Suggest and review proposals for collaborations between TMC / TMH / ACTREC or units / groups within TMC with other Indian or International Institutions, Groups, Individuals or industry. When required suggest the names of possible Principal and Co-investigators within TMC for this collaboration
- Review pre-proposals for sponsored research and suggest the names of possible Principal and Co-investigators within TMC.
- Review the functioning and coordination between various committees for research and ethics review in TMC (IRB, DSMC, ASRC, IAEC, IBSC etc.)
- Review applications for waiver of HSRC or HEC review on the recommendations of the secretaries of these committees and grant these waivers when appropriate and fulfilling the defined criteria.
- Review the expenditure and income incurred on hospital services, laboratory and administrative functions for investigator initiated and sponsored research conducted in TMC.

TRAC conducted three committee meetings and on e special meeting during the year. Based on the CDSCO guidelines on compensation, the TRAC facilitated the development of Compensation Guidelines for investigator Initiated Studies called as “Support given on compassionate grounds” and also has facilitated the Comprehensive Insurance policy.

Activities

The TRAC facilitated workshops for IRB, SIDCER Re-evaluation program, and development of IRB automation software. It has also initiated the process of Accreditation by Association for the Accreditation of Human Research Protection Program (AAHRPP) and has completed the step one of the same. It also supported disbursement of funds for intramural studies.

Institutional Review Board (IRB)

Dr. J. V. Divatia,
Member Secretary IRB-I

Dr. S. Laskar,
Member Secretary IRB-II

In order to manage the review process more efficiently and reduce the time for review and decision, the TMC Scientific Review Committee and the Human Ethics Committees (viz. HEC-I & HEC-II), were merged to form the Tata Memorial Centre - Institutional Review Board (TMC-IRB). Two Institutional Review Boards (i.e. IRB I & IRB II), were instituted to manage and review the huge number of research protocols submitted every year. Each IRB review both the scientific and ethical aspects of the study. The IRBs are constituted by the Director TMC, under authority vested by the Governing Council of the TMC. The IRB (I and II) became functional in February 2012.

These two committees review of studies sponsored by industry, multi-centric trials funded by other funding agencies, collaborative research with institutions within and out the country, investigator initiated studies, research proposals of students and live workshops etc. The two committees meet once every month on the second and fourth Fridays, to facilitate timely and accurate scientific and ethical reviews.

The Institutional Review Board consists of 19 members, including both, in-house and experts from outside the institution.

The MANDATE

The mandate of TMC-IRB is to maintain a consistent scientific and ethical framework for patient care and research, integrating ethical values into practice, policy relationships, and organizational activities.

The IRB functions to ensure highest scientific and ethical standards of research, approve clinical, basic or translational research proposals, issue guidelines on ethical dilemmas and appropriately advise administration on related policies, issue and periodically, update and revise SOP's, and impart training to all.

The members for each committee are listed below:

Institutional Review Board - I

Sr. No.	Names	Affiliation	Gender	Expertise
1.	Dr. Tapan Saikia, Chairperson	Head of Medical Oncology & Research Director, Prince Aly Khan Hospital, Mazagaon, Mumbai	Male	Medical Oncologist
2.	Dr. Nithya Gogtay, Co- Chairperson	Professor, Clinical Pharmacology, KEM Hospital	Female	Clinical Pharmacologist

Sr. No.	Names	Affiliation	Gender	Expertise
3.	Dr. J. V. Divatia, Member Secretary	Professor and Head, Department of Anaesthesia, Critical Care & Pain TMH,	Male	Anaesthetist
4.	Dr. P. Talawadekar, Member	Country Co-ordinator for India Association Children Palliative Care Project ,	Female	Medico- Legal expert
5	Mr. P. K. Rao, Member	Founder/ Trustee of JASCAP, Jeet Association for support to Cancer patients ,	Male	Lay person
6	Dr.A. Lobo Gajiwala, Member	Head, Dept. of Tissue Bank, TMH	Female	Theologian
7	Dr. N. Shirsat, Member	Associate Professor, Advanced Centre for Treatment, Research and Education in Cancer (ACTREC)	Female	Basic Scientist
8	Dr. Medha Joshi, Member	Head, Dept of Library Sciences, TMH	Female	Social scientist/ Library Sciences
9	Dr. Avinash Supe, Member	Prof and Head, G I Surgery GS Medical College KEM Hospital	Male	Surgeon
10	Dr. Prathamesh Pai, Member	Associate Professor, Dept. of Surgical Oncology, TMH	Male	Surgeon
11	Dr. R. Jalali, Member	Professor, Dept of Radiation Oncology, TMH	Male	Radiation Oncologist
12	Dr. George Karimundackal, Member	Associate Professor, Dept. of Surgical Oncology, TMH	Male	Surgeon
13	Dr. Hari Menon, Member	Associate Professor, Dept of Medical Oncology, TMH	Male	Medical Oncologist
14	Dr. S.L. Juvekar, Member	Professor, Dept of Radio diagnosis, TMH	Male	Radiologist
15	Dr. Tanuja Shet, Member	Professor, Dept. of Pathology, TMH	Female	Pathologist
16	Dr. Manju Sengar, Member	Associate Professor & Dept. of Medical Oncology, TMH	Female	Medical Oncologist
17	Dr. S.Ghosh Laskar, Member	Associate Professor, Dept. of Radiation Oncology, & Member-Secretary, Data Safety and Monitoring Subcommittee, TMH	Female	Radiation Oncologist
18	Dr. B. Ganesh, Member	Head, Dept of Medical Records, TMH	Male	Statistician
19	Mrs. S. Kannan, Member	Data Manager, ECTU, Advanced Centre for Treatment, Research and Education in Cancer (ACTREC)	Female	Statistician

Institutional Review Board-II

Sr. No.	Names	Affiliation	Gender	Expertise
1.	Dr.(Mrs)Urmila Thatte, Chairperson	Professor & Head, Dept. of Clinical Pharmacology, KEM Hospital	Female	Clinical Pharmacologist
2	Dr. Vinay Deshmane, Co-Chairperson	Consultant in Surgical Oncology & Breast Diseases, P.D. Hinduja National Hospital & Medical Research Centre	Male	Surgeon
3	Dr. Siddhartha Laskar, Member Secretary	Professor, Dept. of Radiation Oncology, TMH	Male	Radiation Oncologist
4	Dr. Vikram GS, Member	Clinical Pharmacologist, Advanced Centre for Treatment, Research and Education in Cancer (ACTREC)	Male	Clinical Pharmacologist
5	Dr. Subodh Sirur, Member	Dermatologist, Mahatma Gandhi Memorial Hospital & Consultant at Medlawindia	Male	Medico-legal expert
6	Ms. Mrunal Marathe, Member	Counselor, LTMG -Sion Hospital	Female	Social Scientist
7	Mrs.Manisha Naikdalal, Member	Member of Ethics Committees at KEM Hospital(ECRHS)& Hinduja Hospital(CREC)	Female	Lay Person
8	Dr. T. Teni, Member	Scientific Officer, Advanced Centre for Treatment, Research and Education in Cancer (ACTREC)	Female	Basic Scientist
9	Dr. CS Pramesh, Member	Associate Professor, Dept. of Surgical Oncology, Tata Memorial Hospital	Male	Surgeon
10	Dr. Vani Parmar,	Associate Professor,	Female	Surgeon
	Member	Dept. of Surgical Oncology , TMH		
11	Dr. Sudeep Gupta, Member	Professor, Dept. of Medical Oncology, TMH	Male	Medical Oncologist
12	Dr. Prachi Patil, Member	Associate Professor, Dept. of Digestive Diseases and Clinical Nutrition, Tata Memorial Hospital & Jt. Secretary, Data Safety and Monitoring Subcommittee, TMH	Female	Gastro-enterologist
13	Dr. MH Thakur, Member	Professor & Head, Dept. of Radio-diagnosis, TMH	Female	Radiologist
14	Dr. Umesh Mahantshetty, Member	Associate Professor & Dept. of Radiation Oncology, TMH	Male	Radiation Oncologist

Sr. No.	Names	Affiliation	Gender	Expertise
15	Dr. P.N. Jain, Member	Professor, Dept. of Anaesthesia, TMH	Male	Anesthesio-logist & Pain physician
16	Dr. Kedar Deodhar, Member	Associate Professor, Dept. of Pathology, TMH	Male	Pathologist
17	Dr. Sandeep Tandon, Member	Associate Professor, Pulmonary Medical Unit, TMH	Male	Chest Physician
18	Dr. Rajesh Dikshit, Member	Associate Professor, Centre for Cancer Epidemiology, TMH	Male	Epidemiologist
19	Ms. Rohini Hawaldar, Member	Scientific Officer, TMH	Female	Statistician

The IRB functions as per the SOPs laid down for this institution. The revised SOPs are accessible at - http://tmc.gov.in/research/pdf/TMC-HEC-SOP.pdf

IRB Performance in 2012:

IRB I

The committee conducted 12 full board committee meetings. A total of 78 research projects were meticulously scrutinized by IRB for scientific and ethical issues. Of these, a total of 69 projects were approved, 9 projects were subjected to modifications/ resubmission/ or are awaiting approval.

In addition to these 131 amendments, 136 violations/ waivers/ deviations, 119 letters, 148 status reports & 26 miscellaneous items were discussed during these meetings.

IRB II

The committee conducted 12 full board committee meetings. A total of 74 research projects were scrutinized by IRB for scientific and ethical issues. Of these, a total of 62 projects were approved, 12 projects were subjected to modifications/ resubmission/ and are awaiting approval.

In addition to these 83 amendments, 79 violations/ waivers/ deviations, 72 letters 75 status reports/safety reports and 15 miscellaneous items were discussed during these meetings.

One subcommittee meeting was jointly conducted by the two IRBs. A total of 3 projects were discussed. Of the projects reviewed 3 were approved. Sixteen letters were discussed during this meeting.

The average duration from IRB submission to decision was 15 weeks.

Summary

IRB- I

Projects discussed		Approved		Approved with modifications		Resubmit	
2011	2012	2011	2012	2011	2012	2011	2012
71	78	58	69	13	6	0	3

IRB- II

Projects discussed		Approved		Approved with modifications		Resubmit	
2011	2012	2011	2012	2011	2012	2011	2012
53	74	37	62	16	5	0	07

IRB- I & II subcommittee

Projects discussed		Approved		Approved with modifications		Resubmit	
2011	2012	2011	2012	2011	2012	2011	2012
6	3	6	3	0	0	0	0

IRB- I & II

Projects Discussed		Extramural		Institutional *(Intra Mural / No Funding required)		Sponsored (Pharma / Trade)		P. G. Thesis (dissertation)	
2011	2012	2011	2012	2011	2012	2011	2012	2011	2012
130	155	10	18	57	54	24	29	39	54

* Includes projects approved for funding, awaiting funding and short research conducted without funds.

Workshops

- FERCAP Survey training workshop for TMH & KEM surveyors and trainees was organized by IRB, TMH
- Dr. Siddhartha Laskar, Member Secretary, IRB-II presented "An Overview of the TMH IRB " at the 12th Annual FERCAP Conference and General Assembly on November 18-21, 2012 at Colombo, Sri Lanka.

Achievements:

- SIDCER Survey committee visited TMC to reevaluate the IRB during 1st September, 2012 to 4th September, 2012.
- The Strategic Initiative for Developing Capacity in Ethical Review (SIDCER) in association with Forum for Ethical Review Committees in Asia Pacific Region, (FERCAP) renewed the recognition of TMC –IRB, for its compliance to ICH, GCP, national, international and WHO guidelines. The renewal recognition certificate was awarded during the 12th FERCAP General Assembly in Colombo, Sri Lanka on November 21, 2012. On behalf of TMC, the certificate was collected by Dr Siddharth Laskar, Member Secretary IRB – II.

Ongoing Activities:

- Compensation Guidelines for Intramural Investigator Initiated Studies, called as a "Support given on compassionate grounds" for TMC, are under development.
- Moving towards the goal of "Paperless IRB", the development of web-based IRB system has been initiated.

Furthering the commitment towards human protection program, IRB is furthering its understanding about policies and procedures of the Human Research Protection Program under AAHARP.

Data Safety Monitoring Subcommittee

Dr.Sarbani Ghosh Laskar
Secretary, DSMSC

Overview

The Data Safety Monitoring Sub-Committee, a subcommittee of the Institutional Review Board I & II at Tata Memorial Hospital is essentially responsible for monitoring patient safety and assessing data during the course of the study in a manner that contributes to the scientific and ethical integrity of the study.

The mandate of the Committee is to monitor over all progress of the research, ensuring adherence to clinical trial and procedural requirements, safety of participants, validity of data, continuous monitoring, regularly evaluate and report adverse events, advise investigator and report to IRB for further action.

The DSMSC meets on the second Tuesday of every month at 8.00 am in the Institutional Review Board meeting room. The DSMSC functions in accordance with TMC-IRB SOPs, which are accessible at - http://tmc.gov.in/research/pdf/TMC-HEC-SOP.pdf

Sr. No.	Names	Affiliation	Gender	Expertise
1.	Dr. Sarbani Laskar, Secretary, DSMSC Member,IRB-I	Professor, Dept of Radiation Oncology, TMH	Female	Radiation Oncologist
2	Dr. Prachi Patil, Jt. Secretary, Member, IRB-II	Assistant Professor & Assistant Gastroenterologist, Dept of Digestive diseases & Clinical Nutrition, TMH	Female	Medical Gastro-enterologist
3	Dr. Tejpal Gupta Member	Assistant Professor, Radiation Oncology, Advanced Centre for Treatment, Research & education in cancer (ACTREC)	Male	Radiation Oncologist
4	Dr. Vikram Gota Member (Member, IRB II)	Assistant Professor, Clinical Pharmacology, ACTREC	Male	Clinical Pharmacologist
5	Dr. Devendra Chaukar Member	Associate Professor & Assistant Surgeon, Dept of Surgical Oncology, TMH	Male	Surgeon
6	Dr. Bharat Rekhi Member	Assistant Professor, Dept of pathology, TMH	Male	Pathologist
7	Dr. Nilendu Purandare Member	Assistant Professor & Assistant Radiologist, Bio-imaging Unit, TMH	Male	Radiologist
8	Dr. Priya Ranganathan Member	Assistant Anesthetist 'E' Dept of Anesthesia, TMH	Female	Anesthetist
9	Dr. Jaya Ghosh Member	Assistant Professor, dept of Medical Oncology, TMH	Female	Medical Oncologist
10	Dr. Vedang Murthy Member	Assistant Professor & Assistant Radiation Oncologist, Dept of Radiation Oncology, (ACTREC)	Male	Radiation Oncologist

Sr. No.	Names	Affiliation	Gender	Expertise
11	Mr. Sanjay Talole Member	Scientific Officer 'D', Dept of Medical records, Biostatistics & Epidemiology, TMH	Male	Statistician
12	Dr. Vanita Noronha Member	Assistant Professor, Dept of Medical Oncology, TMH	Female	Medical Oncologist
13	Dr. Gauravi Mishra Member	Additional Professor, Dept. of Preventive Oncology, TMH	Female	Preventive Oncologist
14	Dr. Sheela Sawant Member	Associate Professor, Dept. of General Medicine, TMH	Female	Physician
15	Dr. Gouri Pantvaidya Member	Associate Professor, Dept. of Surgery, TMH	Female	Surgeon
16	Dr. Sheila Nainan Myatra Member	Associate Professor, Dept of Anesthesia, Tata Memorial Hospital	Female	Anesthetist
17	Dr. Sumitra Bakshi Member	Associate Professor, Dept of Anesthesia, TMH	Female	Anesthetist
18	Dr. Seema Kembhavi Member	Associate Professor, Radiodiagnosis, TMH	Female	Radiologist

The committee conducted 12 meetings from Jan - Dec 2012

The three principle functions of the committee are:

1. Review of SAE reports
2. Monitoring of institutional (investigator initiated) trials or as requested by IRBs
3. Continuing Review Application/ Annual status Report review

Review of Serious Adverse Event Reports

The primary responsibility of the DSMSC is to review and address SAE and unexpected events involving risks to research participants.

Every month, on an average the committee receives 35 SAE reports of SAEs occurring at TMC (institutional and sponsored studies). A total of 415 SAE reports on 76 clinical trials were received and reviewed by the DSMSC in from Jan 2012- Dec 2012.

In addition, the DSMSC also receives safety reports of SAE from other centers for trials which are ongoing at Tata Memorial Hospital. These Periodic Safety Update Report/ Suspected Unexpected Serious Adverse Reaction Line listings are submitted by the PI on a monthly/quarterly /Biannual basis. These are filed by the DSMSC and as the detailed review of these are beyond the scope of DSMSC. It is the PIs responsibility to review these listings in detail and report if a trend is observed and communicate the same to the DSMSC.

Monitoring of trials:

The monitoring is done for all institutional (investigator initiated) trials. Sponsored trials are not monitored regularly as they have an inbuilt monitoring plan appointed by the sponsors. However the sponsored trial may be monitored in case of reasons identified by any member of IRB/DSMSC. For cause monitoring could be initiated, in any of the following conditions: for high number of protocol violations/deviation, remarkable SAE reports and a trend for similar SAE, high recruitment rate, non-compliance or suspicious conduct and any other cause as decided by IRB.

The initial monitoring is usually conducted after the DSMSC receives the intimation of accrual of > 3 patients from the PI. Subsequent monitoring is conducted depending on risk assessment.

Significant findings of the visit were reviewed and the report was forwarded to the IRB. After discussion in the IRB the

recommendations are sent to the PI for information/action/comments.

Year	2012
Trials monitored	28

Review of the Annual Status Reports/ Continuing Review Applications

A detailed review of Annual Status Reports/ Continuing Review Application has been initiated by the DSMSC since Feb 2010. The comments from the DSMSC were forwarded for discussion in the IRB.

A total of 223 Status report were received and reviewed by the DSMSC in 2012.

During the year, the reporting forms for Continuing Review, SAE Reporting, and monitoring, were revised to include the newer and different aspects of trials like – CTCAE grade of events. The DSMSC also maintain a database for Internal SAEs occurring at TMH for easy tracking of events, it regularly reminds investigators for timely submission of continuing and annual status reports, to avoid technical/administrative problems of approval periods. It also updates the IRB on trial status.

Activities:

- Reporting form for Serious Adverse Events (SAE), Project status form / continuing review application, site monitoring form was also revised was issued to PI for implementation w.e.f. January 1, 2013
- SOPs were revised based on the SIDCER recommendations, to comply with USA 45 CFR, and suggestions of members throughout the year and to incorporate the national developments
- The queries received from patients or participants who wished to participate in trials regarding ethical issues, and were addressed on a one to one basis.

Future Plans:

- ❑ Revision and formulation of new/ updated SOPs for DSMSC
- ❑ Tagging/Flagging of real time events
- ❑ Automation of DSMSC processes.

Research Projects Approved During 2012-13

Project Name	Principal Investigator
Stability of selected hematological parameters in blood stored at 4°C for 72 hours from platelet donors	Tendulkar Anita
A Phase 1, Open Label, Non- Randomized, Multi-Arm, Multi-Centre, Parallel Sequence Study To Determine The Maximum Tolerated Dose And The Dose Limiting Toxicity Of Genopep 1 (ISSAR 1) In Relapsed Solid Tumour Cancer Patients	Prabhash Kumar
A study of microbes in oral cavity and post operative complications in patient's suffering from maliganant lesions of oral cavity.of patients suffering from malignant or premalignant lesions of oral cavity.	Chaturvedi Pankaj
Oral topical cyclo-oxygenase inhibitor (Aspirin) mouthwash for treatment of oral dysplasia	Nair Sudhir
Fitness for anaesthesia- rationalizing investigations for cancer surgery	Shetmahajan Madhavi
A Study to assess the job satisfaction of nurses working at Tata Memorial Cancer Hospital, Mumbai and corresponding Recommendations to improve Job satisfaction.	Rodrigues Nancy
Standardization Of Human Papilloma Virus (HPV) Test In Squamous Cell Carcinoma Of Head And Neck (SCCHN) With Immuno-histochemistry.–A Retrospective Analysis.	Kane S.V.
Protocol no. : AZ/CEFTAZO/FN/SENSI/CT01 - A study of in vitro sensitivity of Cefepime+tazobactam & other antimicrobial agents against *Enterobacteriaceae* isolated from hospitalized patients of Febrile Neutropenia of a tertiary care hospital in India.	Kelkar Rohini
Retrospective Analysis Of Vitamin D Levels In Patients With Malignancies Attending Paediatric Outpatient Department At Tata Memorial Centre	Banavali SD
Protocol Number: P2745/50/10- "A Phase 1, Open Label, Multicenter, Dose Escalating Cohort Study to Evaluate the Safety and Tolerability of Daily Oral Administration of P2745 in Patients with Relapsed/Refractory Hematologic Malignancies"	Menon Hari
Bcl10 expression in gastrointestinal MALT/ marginal zone lymphoma	Shet Tanuja
Phase II/III Clinical Trial of Intensity Modulated Radiation Therapy with Concurrent Cisplatin for Stage I – IV A Cervical Carcinoma	Mahantshetty U
IAEA-HypoX- A randomized multicenter study of accelerated fractionated radiotherapy with or without the hypoxic radiosen-sitizer nimorazole in the treatment of squamous cell carcinoma of the head and neck	Budrukkar Ashwini
Protocol No. DIREG_C_04823- A prospective, non-interventional, cohort survey on VTE risk in patients receiving new chemotherapy for cancer	Patil Prachi
Protocol No. OCID 4681-001- A Phase 1 Dose-Escalation Study of the Safety and Pharmacokinetics of Daily OCID 4681-S-01 Administered Orally to Subjects with Advanced Solid Tumors	Prabhash Kumar

Project Name	Principal Investigator
Impact of co-morbidity on outcome in head and neck cancer patients - A prospective longitudinal study	Agarwal JP
Prevalence and Prognostic Significance of Disruptive TP53 Mutations in Oral Cancer Around the World	D'cruz AK
A study of lifelong vegetarianism and risk of colorectal cancer in India: an INDOX case control study	Mehta Shaesta
Protocol No. 2-55-52030-729- Open label extension study of lanreotide Autogel 120 mg in patients with non functioning entero-pancreatic endocrine tumour	Patil Prachi
Pain knowledge amongst aspiring pain physicians : an analysis of pre and post CME questionnaires	Bakshi Sumitra
Patients' experience with epidural analgesia : A questionnaire survey	Priya Ranganathan
A Phase III Double Blind Randomized Placebo Controlled study of Trastuzumab as Short Duration Preoperative Therapy in patients with HER2-*neu* Positive Operable Breast Cancer	Badwe R
Protocol Number 20100007- A phase 3, Multicenter, randomized, open label trial to evaluate to the survival benefit of Panitumumab and best supportive care, compared to best supportive care alone, in chemorefractory subjects with wild type KRAS metastatic colorectal cancer	Patil Prachi
A retrospective observational study of incidence, etiopathogenesis, characteristics and treatment profile of cancer patients presenting with severe pain to the pain clinic of a tertiary cancer centre	Jain P.N.
Phase III Study Evaluating Efficacy and Safety of low dose Gemcitabine compared to standard dose Gemcitabine with platinum in advanced non-small cell lung cancer	Prabhash Kumar
Protocol Number 1200.89- An open label, phase II trial of Afatinib with or without Vinorelbine for the treatment of HER2-overexpressing Inflammatory Breast Cancer	Badwe R
Role of adjuvant chemotherapy in high grade soft tissue sarcoma: experience from a tertiary care center	Bajpai Jyoti
A prospective study to evaluate the radiological and clinical incidence of radiation induced pneumonitis in lung cancer patients treated with (chemo)radiotherapy	Agarwal JP
Comparison of I-131 MIBG Scintigraphy and F-18 FDG in neuroblastoma	Purandare NC
Role of 18F-FDG PET/CT in soft tissue sarcomas	Shah Sneha
Evaluation of accuracy of spectroscopy for non-invasive early diagnosis of oral mucosal malignant and potential malignant lesions in Ratnagiri	Majumder Shovan
Clinicopathological Co-relation of Preoperative Radiotherapy in Soft Tissue Sarcoma	Laskar Siddhartha
Prevalence & Assessment of Pain Management in Head and Neck Cancer services at a Tertiary Cancer Institute.	Thota Raghu

Project Name	Principal Investigator
A prospective observational study of Acute Kidney Injury in Critically ill cancer patients	Trivedi Bhakti
Protocol No. D2610C00004- A Randomised Open- Label Phase IIa Study to Assess the Efficacy and Safety of AZD4547 Monotherapy versus Paclitaxel in Patients with Advanced Gastric or Gastro-oesophageal Junction Cancer with FGFR2 Polysomy or Gene Amplification (Shine study)	Mehta S
Protocol No. BM200-CT3-001-11- Comparative PK, Efficacy, Safety and Immunogenicity evaluation of Bmab-200 versus Herceptin®, both in combination with Docetaxel in patients with Her2+ Metastatic Breast Cancer : A Double Blind, Randomised, Active Control, Parallel assignment, Comparative Phase III, Clinical Trial	Gupta Sudeep
A comparison of the Supreme laryngeal mask airway with the Proseal laryngeal mask airway in anesthetized adult patients: a randomized parallel-group study.	Sharma Kailash
An observational Registry in Asia Pacific region collecting longitudinal data on the management of Neuro-endocrine tumor patients in routine practice (APNET Registry)	Shrikhande SV
Can we apply WHO 2008 classification in acute leukemia cases in a tertiary care cancer hospital in India?	Gujral Sumeet
A prospective, observational study of peri-operative hypothermia in a tertiary cancer centre.	Divatia JV
Validation of EORTC CIPN20 module into Indian languages (Hindi & Marathi) for assessing Quality of Life (QOL) in chemotherapy induced peripheral neuropathy (CIPN)	Velaskar Shruti Gupta Sudeep
National Quality Assurance (NQA) program in Immunohistochemistry for biomarkers (ER/PR/cerb2) in breast cancer	Shet Tanuja
Evaluation of a self-sampling method using the menstrual sanitary devices to detect high-risk Human Papilloma Virus to simplify rural cervical cancer screening in India.	Budukh Atul
A pilot study evaluating post thyroidectomy neck : detecting residual disease of well-differentiated thyroid cancer with US neck and 99-m pertechnetate scan followed by completion thyroidectomy and correlated with histopathology	Arya Supreeta
Clinical characteristics and outcome of Pediatric Germ Cell tumours treated at Tata Memorial Centre : A Retrospective analysis	Kurkure Purna
Understanding the molecular structure of normal and diseased human bone, and bone substitute scaffolds	Bellare Jayesh
Enhanced recovery programme for patients undergoing surgery for colorectal cancers	Govindaiah Girish
Retrospective audit to evaluate Morbidity , Functional & Oncologic outcome in patients with Total Humerus Replacement Surgery	Puri Ajay
A prospective study of complications following nasotracheal intubation in patients undergoing Head and Neck cancer surgery.	Amin Nayana
An observational study to assess the feasibility of pre operative confirmation of epidural catheter placement using 3cc of 1% lignocaine.	Bakshi Sumitra

Project Name	Principal Investigator
A retrospective case control study evaluating tamoxifen resistance in hormone receptor positive breast cancer – Part A) Role of Estrogen receptor Beta Part B) Role of Transforming Growth Factor Beta	Parmar Vani
Protocol No. 04-22 (AGICC 11PAN01)- A Phase II/III, Multi-center, Randomized, Controlled Study to Compare the Efficacy and Safety of Gemcitabine Alone vs. ON 01910.Na Combined with Gemcitabine in Patients with Previously Untreated Metastatic Pancreatic Cancer	Shrikhande SV
A double-blind, multicentric, 2x2 factorial, placebo controlled, phase II randomized trial of the impact of hydroxyl progesterone and Gefitinib on disease free survival in patients undergoing potentially curative resection for non-small cell lung cancer.	Pramesh CS
The dynamics of circulating DNA and nucleosomes and their correlation with myelosupression following adjuvant, neoadjuvant or palliative chemotherapy for early breast cancer (EBC), locally advanced breast cancer (LABC) and metastatic breast cancer (MBC)	Gupta Sudeep
Efficacy and side effect profile of continuous thoracic epidural analgesia vs patient-controlled intravenous analgesia after major thoraco-abdominal surgery.	Jain P.N.
Quality of life analysis of thyroxine withdrawal versus tri-iodothyronine supplementation in preparation for radioiodine ablation in patients with differentiated thyroid cancer.	Chaukar Devendra
ALK detection in lung adenocarcinoma using Immunohistochemistry, Chromogenic in-situ hybridization and Fluorescence in-situ hybridization	Jambhekar NA
Quality of life assessment in survivors of cervical cancer	Shylasree TS
Quality of life analysis of patients who underwent maxillectomy	Chaukar Devendra
Sarcomatoid Neoplasms of the Breast: Study of Morphological, Immunohistochemical Features and Clinical Outcome	Patil Asawari
Protocol No. LUX BREAST-1, 1200.75 - An open label, randomized phase III trial of BIBW 2992 and vinorelbine versus trastuzumab and vinorelbine in patients with metastatic HER2-overexpressing breast cancer failing one prior trastuzumab treatment	Parmar Vani
Clinical trial to compare sentinel node biopsy using magnetic nanoparticles versus the standard technique (blue dye and radioisotope)	Parmar Vani
A retrospective observational study of efficacy and side effect profile of buprenorphine bolus Vs continuous infusion of combined morphine and bupivacaine thoracic epidural analgesia after major abdominal surgery	Jain P.N.
A double blind randomized controlled trial of renal protective effects of normal saline plus placebo versus normal saline plus mannitol prior to cisplatin containing chemotherapy regimens in solid tumours	Bajpai Jyoti
Rational Fluid Therapy in Asia (RaFTA)	Ambulkar Reshma
The discordance in expression of ER/PgR & HER-2 between primary breast tumors, axillary lymph node and recurrent sites (locoregional & metastatic)	Gupta Sudeep

Project Name	Principal Investigator
Protocol No. TDM4997g/BO25734- A Phase III Randomized, Multicenter, Two-Arm, Open-Label Trial To Evaluate The Efficacy Of T-DM1 Compared With Treatment Of Physician's Choice In Patients With HER2-Positive Metastatic Breast Cancer Who Have Received At Least Two Prior Regimens Of HER2-Directed Therapy	Gupta Sudeep
Intensive Care Over Nations (ICON) audit	Kulkarni Atul
Protocol No. A6181199: A Non-Interventional Retrospective Correlation Of Tumor Mutation Status To Clinical Benefit From The Su011248, A6181036 Treatment Protocol Titled: A Treatment Protocol For Patients With Gastrointestinal Stromal Tumor Who Are Ineligible For Participation In Other Su011248 Protocols And Are Refractory To Or Intolerant Of Imatinib Mesylate	Gupta Sudeep
Estimation of Glomerular filtration rate in patients receiving cancer chemotherapy	Rangarajan V.
To study the effectiveness of "Dexmedetomidine" for sedation in elective awake fibre-optic intubation	Divatia JV
Minimal Clinically Important Difference and Novel Predictors of Symptom Response in Advanced Cancer Patients	Muckaden MA
Prescription errors in post operative recovery room	Patil Vijaya
Comparison of predicted FEV1 using lung perfusion scintigraphy with observed FEV1post lung surgery.	Agrawal Archi
Protocol CDX110-04- "An International, Randomized, Double-Blind, Controlled Study of Rindopepimut/GM-CSF with Adjuvant Temozolomide in Patients with Newly Diagnosed, Surgically Resected, EGFRvIII-positive Glioblastoma (The "ACT IV" Study)	Jalali Rakesh
To assess the impact of oral rehabilitation on head and neck cancer patients by Liverpool oral rehabilitation questionnaire version-3 ($LORQv_3$) along with Oral health impact profile-49 (OHIP-49).	Dholam K
An assessment of the effect of preoperative hydroxyprogesterone on serial levels of circulating tumour cells and serum nucleic acids in patients undergoing surgery for operable breast cancer.	Badwe R
Efficacy and safety of SMILE chemotherapy for newly diagnosed advanced stage and relapsed peripheral T-cell lymphomas – a multi-centre feasibility study	Dangi Uma
A prospective pharmacokinetics and dose optimization study of extended infusion of Meropenem in adult critically ill cancer patients	Divatia JV
Withholding and Withdrawing of Life-Sustaining Therapy in Asia's Intensive Care units The ACME study (the Asian Collaboration of Medical Ethics)	Myatra SN
Protocol No. A7471009 - A randomized double blind phase 3 efficacy and safety study of PF-00299804 versus erlotinib for the treatment of advanced non-small cell lung cancer following progression after, or intolerance to, at least one prior chemotherapy	Prabhash Kumar
Establishment of audit for collating the data of lung cancer patients receiving systemic therapy with palliative intent in India.	Noronha Vanita

Project Name	Principal Investigator
Estimation of radiation exposure to medical professionals working in the Intensive Care Unit	Divatia JV
Immunohistochemical expression of epidermal growth factor receptor (EGFR) in non-small cell lung cancer (NSCLC) and its clinical significance	Desai Saral
Comparative Study Of Frozen And Paraffin Section Concordance Of Resection Margins And Lymph Node Status In Tongue Squamous Cell Carcinoma	Kane S.V.
Role of intraoperative cytology of fissuring dust from mandible specimen for bony margins of segmental and hemi mandibulectomy	Pai Prathamesh
Comparative study of of oral cancers with and without oral submucous fibrosis with respect to the histomorphological variables and expression of biomarkers.	Kane S.V.
Multicolor flow cytometric immunophenotyping of lymph nodal and extranodal hematolymphoid neoplasms: flow cytometric immunophenotyping of tissue biopsy and comparison with histopathological diagnosis.	Gujral Sumeet
The efficacy study for reduction of Bio Burden using Anti - Microbial Copper touch surfaces in the Intensive Care Units of Tata Memorial Hospital	Kelkar Rohini
Dosimetric correlation of radiotherapy doses to neural stem cell niche areas with outcome data in patients with newly diagnosed Glioblastoma treated with conventional adjuvant therapy	Jalali Rakesh
To assess the role of FDG PET/CT in predicting tumor response to preoperative chemo-radiation therapy in locally advanced rectal cancers	Agrawal Archi
Clinical and Epidemiological Study of EGFR Mutation and EML4-ALK Fusion Gene Among Indian Patients with Adenocarcinoma Lung [Version Date: 1.0 dated 16th March 2012]	Prabhash Kumar
Prevalence and clinicopathological features of colorectal polyps	Mohandas KM
Referral of patients from pre anaesthetic checkup OPD for specialist consultation – An audit of current practice	Shetmahajan Madhavi
Organ preservation protocol in India: Retrospective analysis from a tertiary cancer centre	D'cruz AK
Diagnostic accuracy of Diffusion weighted imaging for discrimination of malignant cervical lymph nodes in oral tongue squamous cell carcinoma	Arya Supreeta
Impact of waiting period for surgery on patient management and disease progression - a prospective analysis	Pai Prathamesh
Protocol No. P7170-00/70/11 - "An Open Label Multicentric Phase 1 Study of Oral PI3K/mTOR Inhibitor P7170 in Patients with Advanced Refractory Solid Tumors"	Gupta Sudeep
Prospective assessment of the quality of life in patients diagnosed with carcinoma lung with brain metastasis receiving short course palliative whole brain radiotherapy.	Agarwal JP

Project Name	Principal Investigator
Understanding the genetic basis of chemotherapy resistance in gingivobuccal squamous cell carcinoma (GSCC)	Dhara Surajit
Mammographic changes in breast cancers post neo adjuvant chemotherapy	Thakur M.H.
Correlation between levels of plasma DNA, chromatin, DNAse and inflammatory cytokines (CRP, TNF á, IL 6, INF ã) in various stages of Head and Neck Squamous cell carcinoma.	Chaturvedi Pankaj
Platinum SPARK: Protocol no: P276-00/64/11-A Multicenter, Phase II/III Study to assess Radiation Induced Mucositis in subjects with Locally Advanced Sqamous Cell Carcinomas of Head and Neck Administered Cisplatin and Radiation with or without P276-00.	Ghosh Sarbani
Perioperative factors affecting the free flap survival.	Patil Vijaya
Phase II randomized trial comparing adjuvant chemotherapy with best supportive care in patients following resection for high risk carcinoma of the penis.	Noronha Vanita
Randomised controlled trial assessing addition of neoadjuvant and maintenance oral metronomic chemotherapy to standard surgery and adjuvant therapy in Stage III/IV Operable Oral cancers	Pai Prathamesh
Prospective study of the mammographic features of operable breast carcinoma	Ramani Subhash
INNO-206-P2-STS-01, A Multicenter, Randomized, Open-Label Phase 2b Study to Investigate the Preliminary Efficacy and Safety of INNO-206 (Doxorubicin-EMCH) Compared to Doxorubicin in Subjects with Metastatic, Locally Advanced, or Unresectable Soft Tissue Sarcoma	Bajpai Jyoti
Prediction of tumor response to neo-adjuvant therapy in adenocarcinomas of the gastroeosphageal junction (AEG) using FDG PET/CT.	Purandare Nilendu
Controlled comparison between triamcinolone oral paste and lidocaine jelly applied over tracheal tube to reduce the incidence of post-operative pharyngolaryngeal complications	Gehdoo R.P.
A retrospective audit of quality of life (QoL) in patients who have undergone oncologic resection of the rectum.	Shrikhande SV
Protocol No. 1200.125 LUX-Lung 8: A randomized, open-label Phase III trial of afatinib versus erlotinib in patients with advanced squamous cell carcinoma of the lung as second-line therapy following first-line platinum-based chemotherapy.	Prabhash Kumar
A Randomized controlled study to evaluate the role of progesterone in prevention of chemotherapy induced neurotoxicity in women with breast cancer.	Badwe R
An observational study to analyse correlation between preoperative imaging findings and final histopathology report in all cases of scar revisions performed for high grade soft tissue sarcomas	Puri Ajay
Phase II Randomised Controlled Trial Of Postoperative Intensity Modulated Radiotherapy (IMRT) in Locally Advanced Thyroid Cancers	Pantvaidya Gouri

Project Name	Principal Investigator
An Observational study of Her 2 in Inoperable, Locally advanced, recurrent or metastatic adenocarcinoma of stomach or oesophago-gastric junction	Sirohi Bhawna
Regulators of the catalytic unit of telomerase in androgen dependent prostate cancer cells	Sachdeva Geetanjali
Locally Advanced Oral Squamous cell Cancers: Impact of Surgery on the Quality of Life	D'cruz AK
A post-marketing multicentre, open label, balanced, randomized, two-treatment,two-sequence, two-period, single-dose, crossover Bioequivalence study of two formulations of Paclitaxel Protein-Bound Particles for injectable suspension in breast cancer patients	Gota Vikram
A study to develop and assess the effect of an information booklet on knowledge and practice of management of side effects of chemotherapy - among patients diagnosed with cancer in a tertiary care hospital in Mumbai	Joshi Swapna
A study to assess the knowledge and practice of nursing staff in selected areas of biomedical waste management in a tertiary cancer hospital	Achrekar Meera
A study to assess the knowledge and practices of caregivers regarding tracheostomy care of patients with head and neck cancer in a tertiary care hospital.	Vinod Sibhi
A retrospective audit of perioperative anesthetic management of mediastinal mass surgeries	Gehdoo R.P.
(D4200C00097) An international, randomized, double-blind, two arm study to evaluate the safety and efficacy of Vandetanib 150 and 300mg/day in patients with unresectable locally advanced or metastatic medullary thyroid carcinoma with progressive or symptomatic disease	Prabhash Kumar
MO25515 "An open label, multi centre study to assess the safety of RO5185426 in patients with metastatic melanoma"	Gupta Sudeep
BV-NSCLC-001-A phase III, open label, multicenter, randomized trial to establish safety and efficacy of an EGF cancer vaccine in inoperable, late stage (IIIb/IV_NSCLC patients eligible to receive standard treatment and supportive care.	Noronha Vanita
Biological imaging before, during, and after simultaneous Modulated Accelerated Radiation Therapy in head and neck squamous cell carcinoma (Bio-SMART)	Gupta Tejpal
Retrospective audit of the results of ALK gene rearrangement by FISH in lung adenocarcinoma and its correlation with histopathological subtype	Jambhekar NA
"A study to explore the knowledge of Nurses regarding existing oral care protocol for reducing the severity of oral mucositis in cancer patients in Tata Memorial Hospital"	Nair Sindhu
A questionnaire survey to identify the predominant factors contributing to sleep disturance in patients receiving parenteral chemotherapy in an outpatient setting (day care) of a tertiary cancer hospital (TMH) in Mumbai	Carvalho Maria

Project Name	Principal Investigator
A retrospective, comparative study to evaluate the comparative antimicrobial activities of Daptomycin ,Teicoplanin, Vancomycin and Linezolid against gram-positive clinical isolates from complicated skin and soft tissue infections (cSSTIs) and/or bloodstream infections in Tata Memorial Hospital	Kelkar Rohini
Protocol No. BVX20-CT1-001-10- A Phase I/II First in Human, Open Label, Multi-centre, Dose Escalation, Dose Finding, Safety and Tolerability Study of BVX20 administered intravenously in patients with Relapsed/Refractory CD20+ B cell Non Hodgkin's Lymphoma	Menon Hari
"A study to assess the effect of preoperative teaching on selected aspects of postoperative complications among patients undergoing mastectomy in a tertiary cancer centre"	Carvalho Maria
D699BC00001 study Protocol Title: A Randomised, Double-blind, Parallel-group, Multicentre, Phase III Study to Compare the Efficacy and Tolerability of Fulvestrant (FASLODEXTM) 500 mg with Anastrozole (ARIMIDEXTM) 1 mg as Hormonal Treatment for Postmenopausal Women with Hormone Receptor-Positive Locally Advanced or Metastatic Breast Cancer Who Have Not Previously Been Treated With Any Hormonal Therapy (FALCON)	Badwe RA
Impact of PET-CT on treatment decisions on patients with localized or locoregionally advanced lung cancer	Pramesh CS
Reliability and validity of the marathi version of the hospital and anxiety depression scale in detecting adjustment, anxiety and depressive disorders in cancer patients	Goswami Savita
Protocol No. SLNR19- A Phase II Clinical Study to evaluate the efficacy and safety of NRC-AN-019 in cancer patients failing prior standard therapies	Prabhash Kumar
A multicentre, randomized, open-label, single dose, two-treatment, three-period, threesequence, partial replicate, crossover, pivotal bioequivalence study of Test capecitabine 500 mg tablet manufactured by Reliance Life Sciences Pvt. Ltd., India with Xeloda® (capecitabine 500 mg) manufactured by Roche Pharma AG, Germany in adult, human, cancer patients under fed condition.	Gota Vikram
Demographic profile of lung cancer and its treatment in India	Pramesh CS
Assessment of Impact of 'Gutkha and Pan Masala ban' in the state of Maharashtra on users and vendors	Mishra Gauravi
An audit of platelet transfusions at Tata Memorial Hospital	Rajadhyaksha SB
Evaluation of the diagnostic performance of HPV E6/E7 mRNA versus oncogenic HPV DNA as a secondary triage test for VIA positive women in cervical cancer screening program	Sharmila Pimple
A Phase III Prospective, Two-Cohort Non-Randomized, Multicenter, Multinational, Open Label Study To Assess The Safety Of Assisted- And Self-Administered Subcutaneous Trastuzumab As Adjuvant Therapy In Patients With Operable Her2-Positive Early Breast Cancer [SafeHer Study] Protocol No.: MO28048	Gupta Sudeep
A study to assess the feasibility of introducing early palliative care in ambulatory patients with advanced lung cancer	Deodhar Jayita

Project Name	Principal Investigator
Clinical Presentation and outcome of Hodgkin's disease in children : A retrospective study.	Arora Brijesh
Post operative analgesia following abdominal surgery- An audit of clinical practice and patient satisfaction in a tertiary care cancer centre.	Chatterjee Aparna
Pilot study of use of Sirolimus versus Everolimus pre-operatively in breast cancer patients.	Sirohi Bhawna
To study expenditure on major Gastro-Intestinal cancer surgery related expenditure in tertiary hospital in India	Guruchannabasavaiah B
Profile of cytokine/growth factors in serum and activation of ATF-2 and associated proteins in biopsy samples, and its correlation with metastatic propensity in lung cancer patients.	Pramesh CS
Pathobiology and clinical profile of HIV - associated cancers in India and the West (Indo US joint proposal R 21)	Alahari Aruna
Locoregionally advanced squamous carcinoma of Head & Neck : A study of conventional radiotherapy vs. accelerated radiotherapy vs. concomitant chemoradiotherapy	Ghosh Sarbani
Exploring CD137 and CD137L in Mediastinal lymphoma - Attempt at segregating the black (PMDLBL) from white (CHL) and the gray zone.	Shet Tanuja
Descriptive report on spectrum of cases seen in Gynaecological cancers. A study of Gynaecological pathology reports diagnosed in the department of pathology, TMH in one year (2011) according to the WHO classification	Deodhar Kedar
Frozen section : now and then (audit of 1997 and 2011)	Jambhekar NA
Audit of addendums issued by department of surgical pathology in 2012	Jambhekar NA

EDUCATION

Educational Activities Through Academics at Tata Memorial Centre, Mumbai

The Educational activities at TMC are under the Office of the Director Academics, TMC, Prof. K.S. Sharma, Director (Academics) TMC is also a member of Board of Governors, Medical Council of India, New Delhi. Tata Memorial Centre is affiliated under Homi Bhabha National Institute (Deemed University), situated in the campus of BARC, Mumbai for imparting PG training in Oncology and other broad speciality.

Tata Memorial Center is a recognized training center in cancer Education and Research by several National and International organizations, including WHO, IAEA and INCTR.

The number of applications for short term training, observers, project work by students has continued to increase in 2012-13.

Post Graduate / Super Speciality Programs

We run the following PG and super speciality program at TMC. Students for DM and MCh in the following subjects are selected by a competitive and open selection process by conducting CET on all India level. Strengthening of the training programs has been achieved by introducing Log books for all residents and yearly External appraisals for all students. All the formal Educational courses are now under the supervision of Board of Studies-Health sciences at TMH & Board of Studies- Life sciences at ACTREC.

A total number of 72 PG students are during the academic year 2012 – 2013.

No. of students admitted in the academic year 2012 with increase of subjects

Number of students appeared & passed for final degree P.G. examination held atTata Memorial Hospital under HBNI(Deemed University) in 2012

Sr. No.	Name of the Subject	No. of students appeared (2012)	No. of students passed (2012)
1	M.D. Pathology	5	5
2	M.D. Radiotherapy	6	6
3	M.D. Anaesthesia	6	6
4	M.Ch.(Surgical Oncology)	2	2
5	D.M. (Medical Oncology)	5	5

Sr. No.	Name of the Degree Course	No. of intake capacity approved by MCI (2012)
1	M.D. Pathology	09
2	M.D. Radiotherapy	07
3	M.D. Anaesthesia	13
4	M.D. Radio-diagnosis	05
5	M.D. Microbiology	01
6	M.D. Nuclear Medicine	02
7	M.D. Palliative Medicine	02
8	M.D. Immuno-Haematology & Blood Transfusion	01
SUPERSPECIALITY COURSES		
1	M.Ch.(Surgical Oncology)	16
2	M.Ch.(Gynaec. Oncology)	01
3	D.M. (Medical Oncology)	10
4	D.M. (Paediatric Oncology)	02
5	D.M. (Critical Care)	02
6	D.M. (Gastroenterology)	02

Fellowship Program:

TMC have started 2 years certified Fellowship program in various oncology units from the academic year 2009 for those who are interested to have experience in Oncology subject but not able to achieve super speciality seats. This Fellowship program in various 24 units is approved under Homi Bhabha National Institute (Deemed University). After successful completion of this, a certificate is issued to the candidate.

Till 2011 we were running only 3 super-speciality PG program but we achieved to have Permission for starting following 3 Superspeciality courses

1. DM Critical Care
2. DM Pediatric Oncology
3. DM Gastroenterology

PG Seats are increased from total 36 in 2010 to 72 in 2012.

MCI Assessors have visited TMH in the month of Nov – Dec 2012 and assessed the hospital infrastructure & other teaching facilities for the approval of increase seats in following subjects.

MD (Pathology)
MD (Radiotherapy)
MD (Anaestheisa) & Transfusion Medicine.

The Indian Nursing Council / Maharashtra Nursing Council granted permission to start M.Sc (Nursing) Programe with the intake capacity of 10 at Tata Memorial Hospital.

Oncology Training Programme

Certificate and in-House training programs for medical and Para-medical practitioners are conducted in specific areas. The programs for doctors includes training in Surgical, Medical, Radiation, and Preventive Oncology and in allied branches like, GI Endoscopy, Anaesthesia, and Intensive Care, Imaging, Onco-pathology and Cytopathology. The institute accepts 20 doctors from all over India and abroad every 6 months and offers residential training. Efforts are on to formalize this program and bring it under HBNI for certification. In addition several short and long term courses tabulated below that are conducted by various departments in various clinical areas. In the near future, all these short courses will offer structured training with certification by HBNI and some of these programs could be converted to post graduate diplomas. We also train specialist from neighboring countries like Bangladesh, Nepal, Saudi Arabia & Oman.

Proposals have been sent to MCI to start the following courses at TMH:

1. M.Ch.(Head & Neck Oncology)
2. M.Ch.(Plastic Surgery)

Proposal is in process to start M.Sc Clinical Research (02 Years) under Health sciences. To train research professionals.

Tata Memorial Centre is also a training centre for technologist for the following technology courses affiliated under Maharashtra State Board of Technical Education, Govt. of Maharashtra. (DTE)

- Advance Diploma in Radiotherapy technology.
- Advance Diploma in Medical Imaging Technology.

TRAINING PROGRAMME

FROM JANUARY 2012 TO DECEMBER 2012

No.	Name Of Training	Department	No. Of Trainee's
1	SIx Weeks Certificate Course In Hospital Infection (9th Batch)	Nursing	10
2	One Month Long Term Cvad Course (14th Batch)	Nursing	9
3	Six Months Laboratory Technician - Jan. 2012	Pathology	3
4	Interventional Radiology Training Course - Jan. 2012	Radio-diagnosis	4
5	Six Months Advanced Biochemistry Training Course - Jan. 2012	Bio-chemistry	8
6	One Year Apprenticeship Programme (Boat)	Pathology	4
7	Six Months Advanced Cancer Cytogenetics Training Course - Jan. 2012	Cancer Cytogenetics Lab	3
8	Six Months Cyto Pathology Training Course - Jan. 2012	Cyto Pathology	1
9	Advanced Haematology Training Course - Jan. 2012	Haematology	3
10	Advanced Ct Scan Imaging Training Course - Jan. 2012	Radio-diagnosis	4
11	Advanced Mri Imaging Training Course - Jan. 2012	Radio-diagnosis	4
12	Advanced Mammography Imaging Training Course	Radio-diagnosis	1
13	Apprenticeship Training In Pet/Ct - Jan. 2012	Nuclear Medicine & Molecular Imaging	7
14	Medical Secretary	Opd	8
15	One Year Library Trainee	Digital Library	2
16	Yash Foundation College Of Nursing - Stipend @ Rs.15,000/-	Nursing	21
17	Dr. J. J. Magdum College - Gnm Trainee Nurse	Nursing	17
18	Kes Institution - Jaisingpur - 1 Year 'Gnm Trainee Nurse'	Nursing	6
19	B.k.l.walawalkar Hospital - Trainee Nurse	Nursing	10
20	Six Months Certified Training In Oncology March 2012/September 2012	14 Departments	13
21	P.b.desai Uicc Fellowship	4 Departments	3
22	Intensive Care Nursing - 1st & 2nd Batch	Nursing	26
23	Three Months Certificate Course In Enterostomal Therapy - 20th Batch	Stoma Clinic	6
24	Speech Therapy	Rehabiliation Services	1

No.	Name Of Training	Department	No. Of Trainee's
25	Defence Doctors - August 2012	Surgery	3
26	Medical Physics - Trainee 'On-job-training'	Medical Physics	10
27	3 Days Certificate Course In Preventive Oncology	Preventive Oncology	17
28	Workshop On Tobacco Control & Cessation In Preventive Oncology	Preventive Oncology	6
29	2 Days Certificate Course In Essentials Of Palliative Care In Jawahar Cottage	Palliative Medicine	17
30	2 Days Certificate Course In Cme Training In Essentials Of Palliative Care	Palliative Medicine	11
31	3 Days Training Programme In 'Hands On Training & Observation In Palliative Care	Palliative Medicine	9
32	2 Days Certificate Course In Train The Trainers Programme For Dmer	Palliative Medicine	14
33	3 Days Iapc Certificate Course In 'Essentials Of Palliative Care'	Palliative Medicine	15
34	8 Days Social Worker & Volunteers Training Programme In Palliative Care	Palliative Medicine	9
35	Gnm Nurses Training Programme In Essentials Of Palliative Care From 27 - 29.08.12	Palliative Medicine	8
36	10 Days Training Programme For Nurses In Palliative Care Under The Non-communicable Disease Control Programme From 18 - 27.09.12	Palliative Medicine	17
37	5th Chemotherapy Training Programme	Palliative Medicine	9
38	'Paediatric Oncology Workshop' From 10.12.2012 To 14.12.2012	Nursing	35
	Total		354

Conferences/Workshop/Seminars in the year 2012

Dates	Name of Programme
3rd January 2012	Workshop on "Prevention and control of Common Cancers in India - Issues and Challenges" - organised by Dept. of Preventive Oncology
13th & 14th January 2012	National Padeiatric Nursing Oncology Conference on " Nurture with care and hope" - Paediatric Oncology - organised by Nursing Department
20th January 2012	Stoma Care Seminar - organised by Stoma Clinic
24th & 25th January 2012	Essentials of Head & Neck Oncoradiology meeting - organised by Head & Neck Oncology
24th January 2012	CME on Irreversible Electroporation - organised by Dept. Radio-Diagnosis
28th January 2012 4th February 2012	CPR Training for Nurses - organised by Nursing Wolrd Cancer Day -"Cancer awareness program - organised by Preventive Oncology
18th & 19th February 2012	PG Training Programme in Nuclear Medicine - organised by Dept. of Nuclear Medicine & Molecular Imaging
24th, to 26th February 2012	EBM 2012 - organised by Clinical Research Secretariat
28th Feb.,29th Feb., 1st,	Training Programme on
2nd & 3rd March 2012	Cancer Registry - organised by Centre for Cancer Epidemiology
3rd & 4th March 2012	Global Postlaryngectomy Rehabilitation Academy (GPRA) workshop - organised by Head & Neck Oncology
8th March 2012	World Women's Day - Cancer Awareness Program - organised by Dept. of Preventive Oncology
9th to 11th March, 2012	International Flow Meeting on "Multicolor immuno-phentyping, standarization and Applications" - organised by Dept. of Haematopathology
15th March 2012	Orientation to senior Social Workers - organised by Medical Social Service
16th to 18th March 2012	Anaesthesia Review Course - organised by Dept. of Anaesthesiology, Critical Care & Pain
22nd to 25th March 2012	ESTRO Conference - organised by Dept. of Radiation Oncology
28th March 2012	Press Conference - organised by Centre for Epidemiology
31st March 2012	Disability awareness programme - organised by Dept. of Medical Social Service
1st April 2012	TMH - O.T.P Training Course - organised by Bone & Soft Tissue
7th April 2012	Medical Oncology Conference - organised by Dept. of Medical Oncology
28th April 2012	Ethics Workshop - organised by Institutional Review Board
2nd to 4th May 2012	13th National Onology Nursing Conference (ONAI Conference) "Enhancing patient care through Quality Oncology Nursing" - organised by Nursing Department
25th May 2012	Seminar on Competitive Intelligence - organised by Dept. of Library Science
31 st May 2012	World No Tobacco Day - Cancer awareness program - organised by Dept. of Preventive Oncology

Dates	Name of Programme
25th to 27th June 2012	Certificate Course in Essentials of Palliative Care in Collaboration with IAPC - organised by Dept. of Palliative Medicine
30th June to 1st July 2012	Pain Conference - organised by Dept. of Dept. of Anaesthesiology, Critical Care & Pain
6th July 2012	Orientation program for chronic absentism staff - organised by Personnel Department
8th July 2012	3rd Annual workshop on Acute Care following Breast cancer - organised by Physiotherapy Department
8th July 2012	Interractive case discussion in GI Cancer - organised by Digestive Disease & Clinical Nutrition
14th July 2012	Endovascular Management of AAA - organised by Dept. of Radio-Diagnosis
19th to 22nd July 2012	2nd Post graduate training programme in Oncology for Occupational Therapist - organised by Occupational Therapy Therapy
21st July, 2012	Good Clinical Practice Workshop - organised by Clinical Research Secretariat
20th & 21st July 2012	Workshop on leadership for Nurses - organised by Nursing
6th August-10th August 2012	8th Clinical Cytometry course - organised by Dept. of Haematopathology
17th & 18th August 2012	Nursing Leadership programme - Leadership Development - organised by Nursing Department
27th August 2012	Workshop on Spirituality - organised by Nursing Department
1st September 2012	SIDCER Training Workshop (Ethics Workshop) - organised by Institutional Review Board
1st & 2nd September 2012	Palliative Care Programme - organised by Dept. of Palliative Medicine
8th & 9th September 2012	Fundamental critical care support - organised by Dept. of Anaesthesiology, Critical Care & Pain
12 - 14 September 2012	Preventive Oncology Workshop on tobacco control and cessation - organised by Dept. of Preventive Oncology
15th September 2012	Radiology Programme - organised by Dept. of Radio-Diagnosis
15th & 16th September 2012	THEMATIC 12 - organised by Dept. of Anaesthesiology, Critical Care & Pain
18th, 20th, 21st,	Palliative Care
24th to 28th September 2012	Programme - organised by Dept. of Palliative Medicine
1st October 2012	Workshop on Tobacco Control for NSS Students Program officers & Volunteers - organised by Dept. of Preventive Oncology
1st October 2012	Inauguration of Regional Hub by IARC Director - organised by Centre for Cancer Epidemiology
5th October 2012	Stoma Care Workshop - organised by Enterostomal Services
06th & 7th October, 2012	Clinical Research Methodology Course - organised by Clinical Research Secretariat
12th to 14th October 2012	Effective Rehabilitation after Head & Neck cancer - organised by Head & Neck Oncology
13th October 2012	World Hospice & Palliative Care day - organised by Dept. of Palliative Medicine

Dates	Name of Programme
8th October 2012	Basic Stoma Care Workshop - organised by Dept. of Stoma Clinic
9th October 2012	Breast Cancer Awareness Day - Cancer Awareness program - organised by Dept. of Preventive Oncology
6th & 7th October 2012	Clinical Research Methodology - organised by Clinical Research Secretariat
12-13-14 October, 2012	CME - Pathology - organised by Dept. of Pathology
13th & 14th Oct 2012	Seminar on Radiation Safety & Radiation Bio.- organised by Dept. of Nuclear Medicine & Molecular Imaging
19th to 21st October 2012	Womens Cancer Initiative Conference - Advances in locoregional treatment of breast cancer with oncoplasty workshop - organised by Dept. of Medical Oncology & Surgical Oncology
29th October 2012	Vigilance awareness week - organised by Security Department
Oct-12 3rd November 2012	Orthopaedic oncology course with Ortho-Radio-Path meet - organised by Dept. of SurgicaL Oncology Annual Art Festival - organised by Dept. of Radiation Oncology
4th & 5th October 2012	World Mental Health Day 2012 - organised by Psychiatric Unit
20th November 2012	Oncology Nursing Event - organised by Nursing Department
23rd to 25th November 2012	Oncosurg 2012 - organised by Head & Neck Oncology
26th to 29th November 2012	Symposium on Maxillofacial Prosthodentics - organised by Dental & Prosthetic Surgery
30th Nov to 2nd Dec 2012	TMC National Conference on the Difficult Airway - organised by Dept. of Anaesthesiology, Critical Care & Pain
3rd December 2012	Seminar on Social Media in Libraries - organised by Dept. of Library Science
10th 11th & 12th Dec. 2012	Radiation Oncology Programme - organised by Radiation Oncology
10th to 14th December 2012	Paediatric Oncology Nursing Training Programme - organised by Nursing Department.
19th December 2012	Workshop on Nursing Process Approach - organised by Nursing Department
22nd & 23rd December 2012	CME For Medical Laboratory Technologist - organised by Haematopathology - organised by Haematopathology
22nd & 23rd December 2012	National Meeting for Formulation organised by Dept. of Medical Oncology
28th December 2012	CME on Histopathology - organised by Pathology - organised by Dept. of Pathology
29th December 2012	CME on Germ Cell Tumors - organised by Radiation Oncology - organised by Dept. of Radiation Oncology

Publications

International

1 Agarwal JP, Rathod S, Murthy V, Ghosh-Laskar S, Budrukkar A, Dinshaw K, Chaturvedi P, Prabhash K, DCruz A, Gupta T (2012) - Improved quality of life (QOL) outcomes in patients with head-and-neck squamous cell carcinoma (HNSCC) treated with intensity modulated radiation therapy (IMRT) compared to 3-dimensional conformal radiation therapy (3D-CRT): evidence from a prospective randomized study. International Journal of Radiation Oncology Biology Physics. Nov; 84(3S):S211.

2 Aggarwal A, Chopra S, Engineer R, Phurailatpam R, Paul S, Srivastava SK (2012) - Megavoltage CT (MVCT) based evaluation of internal target volume in patients undergoing tomotherapy-based image guided intensity modulated radiation for gastric cancers. International Journal of Radiation Oncology Biology Physics. Nov; 84(3S):s317.

3 Agrawal A, Purandare N, Sridhar E, Shah S, Dua SG, Rangarajan V (2012) - Imaging findings in a rare case of extra-articular chondrocalcinosis. Clinical Nuclear Medicine. Feb; 37(2):184-187. *[PMID:22228348]*

4 Alam H, Bhate AV, Gangadaran P, Sawant SS, Salot S, Sehgal L, Dange PP, Chaukar DA, DCruz AK, Kannanl S, Gude R, Kannanl S, Gude R, Kane S, Dalal SN, Vaidya MM (2012) - Fascin overexpression promotes neoplastic progression in oral squamous cell carcinoma. BMC Cancer. Jan; 12:32.

5 Alikian M, Gerrard G, Subramanian PG, Mudge K, Foskett P, Khorashad JS, Lim AC, Marin D, Milojkovic D, Reid A, Rezvani K, Goldman J, Apperley J, Foroni L (2012) - BCR-ABL1 kinase domain mutations: methodology and clinical evaluation. American Journal of Hematology. Mar; 87(3):298-304. *[PMID:22231203]*

6 Ambatipudi S, Gerstung M, Pandey M, Samat T, Patil A, Kane S, Desai S, Schaffer AA, Beerenwinkel N, Mahimkar MB (2012) - Genome-wide expression and copy number analysis identifies driver genes in gingivobuccal cancers. Genes Chromosomes and Cancer. Feb; 51(2):161-173. *[PMID:22072328]*

7 Ambulkar R, Ranganathan P, Divatia J (2012) - Is the Blood Loss Score universally acceptable? Anaesthesia. Sept.; 67(10):1179-1180.

8 Ambulkar RP, Patil VP, Moiyadi AV (2012) - Neuroleptic malignant syndrome: a diagnostic challenge. Journal of Anaeshesiology, Clinical Pharmacology. Oct; 28(4):517-519. *[PMID:23225938]*

9 Angelini P, Arora B, Kurkure P, Bouffet E, Punnett A (2012) - Commentary: critical reflections on subspecialty fellowships in low-income countries. Academic Medicine. Feb; 87(2):139-141. *[PMID:22273612]*

10 Baijal G, Gupta T, Hotwani C, Laskar SG, Budrukkar A, Murthy V, Agarwal JP (2012) - Impact of comorbidity on therapeutic decision-making in head and neck cancer: Audit from a comprehensive cancer center in India. Head and Neck. Sept; 34(9):1251-1254. *[PMID:22076917]*

11 Bajpai J, Kumar S, Shetty N, Gupta S, Puri A, Gulia A, Jambhekar N, Banawali S(2012)- Lymphopenia as a prognostic factor for outcome in osteosarcoma. Pediatric Blood and Cancer. Dec; 59(6):1048.

12 Bakshi SG, Jibhkate B, Sareen R, Badwe R (2012) - Nausea and vomiting after breast cancer surgery, and relationship with tumor receptor status. Journal of Anesthesia. Apr; 26(2):187-195. *[PMID:22081112]*

13 Bansal S, Noronha V (2012) - The changing landscape of cancer in rural setting. South Asian Journal of Cancer. Oct-Dec; 1(2):58.

14 Basu S, Kembhavi S (2012) - Serendipitous observation of hepatic metastases on 18F-Fluoride PET in a patient with infiltrating ductal carcinoma of breast: correlation with contrast enhanced CT. Clinical Nuclear Medicine. 2012 Dec; 37(12/):1176-1178. *[PMID:23154477]*

15 Basu S, Kembhavi S (2012) - Unusual isolated perineal recurrence in mucinous adenocarcinoma of the rectum after abdominoperineal resection: usefulness of dual-time-point FDG PET in evaluating mucinous

tumors. Clinical Nuclear Medicine. oct; 37(10):989-990. *[PMID:22955074]*

16 Basu S, Mallath MK (2012) - Understanding and fighting cancer cachexia syndrome: can PET help? Nuclear Medicine Communications. Jun; 33(6):671-672. *[PMID:22395032]*

17 Basu S, Ramani Sk, Ramadwar M (2012) - Breast recurrence of primary rectal lymphoma: documentation by (18)F-FDG-PET and histopathology. Hellenic Journal of Nuclear Medicine. Jun; 15(2):153-154. *[PMID:22741152]*

18 Basu S, Rekhi B, Shamim SA, Jambhekar NA (2012) - Aggressive poorly differentiated adenocarcinoma of the lung diagnosed 13 months after initial diagnosis of papillary thyroid carcinoma with non-iodine concentrating pulmonary metastasis. Hellenic Journal of Nuclear Medicine. Sep-Dec; 15(3):252-253. *[PMID:23227462]*

19 Basu S, Shah M, Joshi JM, Lad S (2012) - Imaging calcific concretions of pulmonary alveolar microlithiasis with PET: insight into disease pathophysiology. Clinical Nuclear Medicine. Jul; 37(7):707-8. *[PMID:22691522]*

20 Basu T, Laskar S, Nair R, Gujral S, Shet T, Sengar M, Sengar M, Menon H, Mohandas K, Muckaden M (2012) - Primary diffuse large b-cell lymphoma of the stomach: prognostic factors and outcomes in 160 Indian patients. Radiotherapy and Oncology. May; 103(1):s422.

21 Bhat V, Tiwari M, Chavan P, Kelkar R (2012) - Analysis of laboratory sample rejections in the pre-analytical stage at an oncology center. Clinica Chimica Acta. Aug; 41(15-16):1203-1206. *[PMID:22507083]*

22 Bhirangi P, Somani P, Dholam KP (2012) - Technical considerations in rehabilitation of an edentulous total glossectomy patient. International Journal of Dentistry.2012:125036.

23 Biswas S, Watwani J, Vadwai V, Shetty A, Kelkar R, Rodrigues C (2012) - Comparative in vitro activities of daptomycin, vancomycin, teicoplanin and linezolid against resistant Gram-positive bacterial isolates from two large centres in western India. International Journal of Antimicrobial Agents. Dec; 40(6):567-569. *[PMID:22947124]*

24 Budrukkar A, Jagtap V, Kembhavi S, Munshi A, Jalali R, Seth T, Parmar V, Upreti R, Badwe R, Sarin R (2012) - Fat necrosis in women with early-stage breast cancer treated with accelerated partial breast irradiation (APBI) using interstitial brachytherapy. Radiotherapy and Oncology. May; 103(2):161-165. *[PMID:22280804]*

25 Budrukkar A, Krishnatry R, Rajput K, Yadadu S, George B, Chaudhari S, Chaudhari S, Ghosh-Laskar S, Murthy V, Gupta T, Agarwal J (2012) - Cone beam CT based margin generation: do we require different margins for sub-regions of head and neck? Radiotherapy and Oncology. May; 103(s1):S303-304.

26 Budrukkar A, Muttagi S, Shahid T, Chatturvedi P, Banavali S, Laskar SG, Murthy V, DCruz AK, Agarwal JP (2012) - Second primary head and neck squamous cell cancers with aggressive behavior in patients with chronic myeloid leukaemia. British Journal of Oral and Maxillofacial Surgery. Sept; 50(6):504-507. *[PMID:22119328]*

27 Chakraborty A, Narkar A, Mukhopadhyaya R, Kane S, DCruz AK, Rajan MG (2012) - BRAF V600E mutation in papillary thyroid carcinoma: significant association with node metastases and extra thyroidal invasion. Endocrine Pathology. Jun; 23(2):83-93. *[PMID:22105775]*

28 Chaturvedi P, Vaishampayan SS, Nair S, Nair D, Pawar P, Kane S (2012) - Routine removal of the carotid sheath as part of neck dissection is unnecessary if grossly uninvolved as seen intra-operatively. International Journal of Oral And Maxillofacial Surgery. May; 41(5):576-580. *[PMID:22323446]*

29 Chinnaswamy G, Prasad M, Dwivedi P, Patil V, Arora B, Banawali S (2012) - Cladribine(2-CDA) and Cytarabine(ARA-C) is an effective salvage regimen in refractory/relapsed acute myeloid. Pediatric Blood and Cancer. Dec; 59(6):1040.

30 Chopra S, Engineer R, Mahantshetty U, Misra S, Phurailatpam R, Paul SN, Kannan S, Kerkar R, Maheshwari A, Shylasree TS, Ghosh J, Gupta S, Thomas B, Singh S, Sharma S, Chilikuri S,

Shrivastava SK (2012) - Protocol for a phase III randomised trial of image-guided intensity modulated radiotherapy (IG-IMRT) and conventional radiotherapy for late small bowel toxicity reduction after postoperative adjuvant radiation in Ca cervix. BMJ Open. Dec; 2(6): e001896. *[PMID:23248427]*

31 Das P, Thomas A, Mahantshetty U, Shrivastava SK, Deodhar KK, Mulherkar R (2012) - HPV genotyping and site of viral integration in cervical cancers in Indian women. PLoS ONE. Jul; 7(7):e41012.

32 Dawood S, Shaikh AJ, Buchhloz TA, Cortes J, Cistofanilli M, Gupta S, Gonzalez-Angulo AM (2012) - The use of bevacizumab among women with metastatic breast cancer: a survey on clinical practice and the ongoing controversy. Cancer. Jun; 118(11):2780-2786.

33 DCruz AK, Sharma S, Pai PS (2012) - Current status of near-total laryngectomy: review. Journal of Laryngology and Otology. Jun; 126(6):556-562. *[PMID:22494392]*

34 Deodhar K, Gheit T, Vaccarella S, Romao CC, Tenet V, Nene BM, Jayant K, Kelkar R, Malvi SG, Sylla BS, Franceschi S, Jeronimo J, Shastri S, Sankaranarayanan R, Tommasino M (2012) - Prevalence of human papillomavirus types in cervical lesions from women in rural Western India. Journal of Medical Virology. Jul; 84(7):1054-1060. *[PMID:22585722]*

35 Deodhar K, Sankaranarayanan R, Jayant K, Jeronimo J, Thorat R, Hingmire S, Muwonge R, Muwonge R, Chiwate A, Deshpande R, Ajit D, Kelkar R, Rekhi B, Ruben I, Malvi SG, Chinoy R, Jambhekar N, Nene BM (2012) - Accuracy of concurrent visual and cytology screening in detecting cervical cancer precursors in rural India. International Journal of Cancer. Nov; 131(6):E954-E962. *[PMID:22581670]*

36 Deodhar KK (2012) - Screening for cervical cancer and human papilloma virus : Indian context. Clinics in Laboratory Medicine. Jun; 32(2):193-205.

37 Desai S, Mahajan A, Juvekar S, Gulia A, Rekhi B (2012) - Imaging characteristics of benign and malignant tumours of fibula: A clinical and radiologic-histopathologic review of 98 cases. Journal of Medical Imaging and Radiation Oncology. Jul; 56(S1):91.

38 Deshpande DD (2012) - Will MR image-guided brachytherapy be a standard of care for cervical cancer in future? An Indian perspective. Journal of Medical Physics. Jan; 37(1):1-3. *[PMID:22363105]*

39 Dhanasekar P, Karthikeyan VS, Rajkumar N, Chandra Sistla S, Manwar Ali S, Basu D (2012) - Cutaneous angiosarcoma of the scalp masquerading as a squamous cell carcinoma: case report and literature review. Journal of Cutaneous Medicine and Surgery. May-Jun; 16(3):187-190. *[PMID:22713442]*

40 Dikshit R, Gupta PC, Ramasundarachettige C, Gajalakshmi V, Aleksandrowicz L, Badwe R, Kumar R, Roy S, Suraweera W, Bray F, Mallath M, Singh PK, Sinha DN, Shet AS, Gelband H, Jha P (2012) - Cancer mortality in India: a nationally representative survey. The Lancet. Mar; 379(9828):1807-1816.

41 Dikshit RP, Yeole BB, Nagrani R, Dhillon P, Badwe R, Bray F (2012) - Increase in breast cancer incidence among older women in Mumbai: 30-Year trends and predictions to 2025. Cancer Epidemiology. Aug;36(4):e215-20. *[PMID:22521561]*

42 Dongre A, Prabhash K, Noronha V (2012) - The changing landscape of hormonal therapy in castration-resistant prostate cancer. South Asian Journal of Cancer. Oct-Dec; 1(2):53-55.

43 Dua SG, Kulkarni AV, Kulkarni SS, Shetty NS, Shet T (2012) - Hemifacial mass with extensive intralesional ossification and fat. Dentomaxillofacial Radiology. Jul; 41(5):436-439. *[PMID:22116123]*

44 Dua SG, Purandare NC (2012) - Is fibrodysplasia ossificans progressiva ever seen without skeletal abnormalities? Rheumatology International. May; 32(5):1475-1476. *[PMID:21437684]*

45 Engineer R, Goel M, Mehta S, Shrikhande SV, Patil P, Chopra S, Rangarajan V, Purandare N, Shrivastava SK (2012) - Role of neoadjuvant chemoradiation in locally advanced

unresectable gall bladder cancers. Radiotherapy and Oncology. May; 103(s1):S418-419.

46 Eswaran J, Gupta S, Dutt A, Toi M, Pillai MR, Costa L, Knapp S, Badwe RA, Kumar R (2012) - The global cancer genomics consortium: interfacing genomics and cancer medicine. Cancer Research. Aug 1;72(15):3720-3724. *[PMID:22628426]*

47 Fulzele A, Malgundkar SA, Govekar RB, DCruz AK, Chaturvedi P, Patil A, Kane SV, Zingde SM (2012) - Keratins in oral cancer: necessity of mass spectrometry for validation of antibody based identifications. Journal of Proteomics. Apr; 75(8):2404-2416. *[PMID:22387131]*

48 Gandhi R, Kakkar R, Rajan S, Bhangale R, Desai S (2012) - Menkes kinky hair syndrome: a rare neurodegenerative disease. Case Reports in Radiology. Aug:684309. *[PMID:22919529]*

49 Geol A, Moiyadi A (2012) - Evolved craniofacial surgery. World Neurosurgery. Jul; 78(1-2):62-63. *[PMID:22381332]*

50 Gollapalli K, Ray S, Srivastava R, Renu D, Singh P, Dhali S, Bajpai, Dikshit J, Srikanth R, Moiyadi A, Srivastava S (2012) - Investigation of serum proteome alterations in human glioblastoma multiforme. Proteomics. Aug; 12(14):2378-90. *[PMID:22684992]*

51 Gupta D, Shukla P, Munshi A, Aggarwal JP (2012) - Cardioprotective radiotherapy: The circadian way. Medical Hypothesis. Mar; 78(3):353-355. *[PMID:22260990]*

52 Gupta S, Bagel B, Gujral S, Subramanian PG, Khattry N, Menon H, Nair R (2012) - Parenthood in patients of acute promyelocytic leukaemia after treatment with arsenic trioxide - a case series. Leukemia and Lymphoma. Mar; 53(11):2192-2194.

53 Gupta S, Bharath R, Shet T, Desai S B, Patil V M, Bakshi A, Parmar V, Badwe R A (2012) - Single agent weekly paclitaxel as neoadjuvant chemotherapy in locally advanced breast cancer: a feasibility study. Clinical Oncology. Jan; 24(9):604-609. *[PMID:22014455]*

54 Gupta T, Agarwal J, Jain S, Phurailatpam R, Kannan S, Ghosh-Laskar S, Murthy V, Budrukkar A, Dinshaw K, Prabhash K, Chaturvedi P, DCruz A (2012) - Three-dimensional conformal radiotherapy (3D-CRT) versus intensity modulated radiation therapy (IMRT) in squamous cell carcinoma of the head and neck: A randomized controlled trial. Radiotherapy and Oncology. Jul; 104(3):343-348. *[PMID:22853852]*

55 Gupta T, Jalali R, Goswami S, Nair V, Moiyadi A, Epari S, Sarin R (2012) - Early clinical outcomes demonstrate preserved cognitive function in children with average-risk medulloblastoma when treated with hyperfractionated radiation therapy. International Journal of Radiation Oncology Biology Physics. Aug; 83(5):1534-1540. *[PMID:22342098]*

56 Gupta T, Nair S, Chaturvedi P, Kannan S (2012) - Sentinel lymph node biopsy for the diagnosis of lymph node involvement in oral/oropharyngeal squamous cell carcinoma (Protocol). Cochrane Database of Systematic Reviews. 2012:Art. No.CD010275.

57 Gupta T, Nair V, Paul SN, Kannan S, Moiyadi A, Epari S, Jalali R (2012) - Can irradiation of potential cancer stem-cell niche in the subventricular zone influence survival in patients with newly diagnosed glioblastoma? Journal of Neuro-onology. 109(1):195-203. *[PMID:22555992]*

58 Jagannath P, Chhabra D, Shrikhande S, Shah R (2012) - Surgical treatment of liver metastases in neuroendocrine neoplasms. International Journal of Hepatology. Jan; 9 pages. *[PMID:22319653]*

59 Jalali R, Dutta D (2012) - Factors influencing quality of life in adult patients with primary brain tumors. Neuro-Oncology. Sep; (Suppl 4):iv8-iv16. *[PMID:23095834]*

60 Jambhekar NA, Agarwal M, Suryawanshi P, Desai S, Rekhi B, Gulia A, Puri A (2012) - Osteosarcoma of the femur mimicking Ewing sarcoma/ primitive neuroectodermal tumour on biopsy and metastatic carcinoma on resection. Skeletal Radiology. Sep; 41(9):1163-8. *[PMID:22565380]*

61 Jatia S, Aggarwal P, Jayalakshmi KK, Arora B, Chinnaswamy G, Vora T, Kurkure P, Banawali S (2012) - Predictors of treatment refusal & abandonment

(TR&A) and impact of personalized psycho-socioeconomic support in childhood cancer in a tertiary cancer centre in India. Pediatric Blood and Cancer. Dec; 59(6):989.

62 Jeremic B, Agarwal JP, Abdel-Wahab S (2012) - Radiation Therapy for recurrent disease. Advances in Radiation Oncology in Lung Cancer. Jul-Sep; 2(3):543.

63 Jha AK, Zade AA, Rangarajan V, Purandare N, Shah SA, Agrawal A, Kulkarni SS, Shetty N (2012) - Comparative analysis of hepatopulmonary shunt obtained from pretherapy 99mTc MAA scintigraphy and post-therapy 90Y Bremsstrahlung imaging in 90Y microsphere therapy. Nuclear Medicine Communications. May; 33(5):486-490. *[PMID:22395029]*

64 Jiwnani S, Karimundackal G, Kulkarni A, Pramesh C (2012) - Hemophagocytic syndrome complicating lung resection. Asian Cardiovascular and Thoracic Annals. Jun; 20(3):341-343. *[PMID:22718729]*

65 Jiwnani S, Karimundackal G, Mehta M, Pramesh CS (2012) - Lymph nodal staging for non-small-cell lung cancer. European Cardiothoracic Surgery. Nov; 42(5):907. *[PMID:22677354]*

66 Jiwnani S, Karimundackal G, Mehta M, Pramesh CS (2012) - Oesophagectomy performed by trainees is as safe as that performed by consultants. European Journal of Cardio-Thoracic Surgery. Jul; 42(1):193. *[PMID:22246965]*

67 Jiwnani S, Karimundackal G, Pramesh CS (2012)- The philosophy of a nerve-sparing thoracotomy closure. European Journal of Cardio-Thoracic Surgery. Jul; 41(1):234. *[PMID:27133713]*

68 Jiwnani S, Mehta M, Karimundackal G, Pramesh C (2012) - Early removal of chest tubes after lung resection - VATS the reason? European Journal of Cardio-Thoracic Surgery. Sep; 41(2):464. *[PMID:21903410]*

69 Karpate A, Menon S, Basak R, Yuvaraja TB, Tongaonkar HB, Desai SB (2012) - Ewing sarcoma/primitive neuroectodermal tumor of the kidney: clinicopathologic analysis of 34 cases. Annals of Diagnostic Pathology. Aug; 16(4):267-274. *[PMID:22534242]*

70 Katna R, Deshmukh A, Sridhar E, Chaukar D, Decruz A (2012) - Primary angiosarcoma of the larynx: a rare entity. Annals of the Royal College of Surgeon of England. May; 94(4):146-148.

71 Katna R, Shet T, Sengar M, Menon H, Laskar S, Prabhash K, DCruz AK, Nair RC (2012) - linicopathologic study and outcome analysis of thyroid lymphomas: experience from a tertiary cancer center. Head and Neck. Feb *[PMID:22368156]*

72 Kaushal R, Jambhekar NA, Rao S, Raju S, Suryawanshi P, Shet T, Puri A (2012) - Primary extranodal histiocytic sarcoma of lumbar spine. Skeletal Radiology. Feb; 41(2):231-235. *[PMID:21786088]*

73 Keditsu KK, Karimundackal G, Jambhekar NA, Pramesh CS (2012) - Unusual clinical behaviour of thymoma with recurrent myasthenia gravis. Interactive Cardiovascular and Thoracic Surgery. Jun; 14(6):909-911. *[PMID:22378319]*

74 Kembhavi SA, Mahajan A, Ramadwar M (2012) - Can we omit plain CT scan while performing an abdominal scan and thus reduce the radiation burden in children? image gently a rational approach. Pediatric Blood and Cancer. Dec; 59(6):1118.

75 Krishnatry R, Patel FD, Singh P, Sharma SC, Oinam AS, Shukla AK (2012) - CT or MRI for Image-based brachytherapy in cervical cancer. Japanese Journal of Clinical Oncology. Apr; 42(4):309-313. *[PMID:22348889]*

76 Kumar D, Laskar S, Muckaden MA, Nair R, Menon H, Sengar M, Arora B, Gujral S, Shet T, Banavali S (2012) - Treatment outcomes and patterns of failure in early in early stage unfavourable hodgkins lymphoma. Radiotherapy and Oncology. May; 103(Suppl.1):S251.

77 Kurkure P, Vora T, Qureshi S, Dhamankar V, Rangarajan V, Purandare N, Shah S, Ramadwar M, Laskar S, Medhi S, Agarwal A, Zade A (2012) - F18 FDG PET/CT: a possible one stop shop for staging of neuroblastoma. Pediatric Blood and Cancer. Dec; 59(6):1052.

78 Kuter I, Gee JM, Hegg R, Singer CF, Badwe RA, Lowe ES, Emeribe UA, Anderson E, Sapunar F, Finlay P, Nicholson RI, Bines J, Harbeck N (2012)

- Dose-dependent change in biomarkers during neoadjuvant endocrine therapy with fulvestrant: results from NEWEST, a randomized Phase II study. Breast Cancer Research and Treatment. May; 133(1):237-246. *[PMID:22286314]*

79 Laskar S, Pandit P, Mallik S, Tike P, Chudhary S, Vora T, Medhi S (2012) - Adaptive radiotherapy for paediatric head and neck malignancies: dosimetric implications. Pediatric Blood and Cancer. Dec; 59(6):981.

80 Laskar S, Puri A, Gulia A, Rekhi B, Juvekar S, Desai S, Desai S, Gupta S, Ghosh J, Jambhekar N (2012) - Long term outcomes of interstitial brachytherapy in soft tissue sarcomas. Radiotherapy and Oncology. May(Suppl.2):S21.

81 Laskar S, Puri A, Vora T, Gulia A, Rekhi B, Juvekar S, Desai S, Desai S, Jambhekar N, Kurkure PA (2012) - Definitive radiation therapy for pelvic ewings sarcoma: an effective option. Radiotherapy and Oncology. May; 103(Suppl.1):S297.

82 Laskar SG, Baijal G, Murthy V, Chilukuri S, Budrukkar A, Gupta T, Agarwal JP (2012) - Hypofractionated radiotherapy for T1N0M0 glottic cancer: retrospective analysis of two different cohorts of dose-fractionation schedules from a single institution. Clinical Oncology. Dec; 24(10):e180-6. *[PMID:22862908]*

83 Mahajan A, Juvekar SL, Medhi S, Thakur MH (2012) - Role diffusion weighted MRI in oncology: With focus on tumour characterisation, prognosis and management. Journal of Medical Imaging and Radiation Oncology. Jul; 56(Suppl 1):124.

84 Mahantshetty U, Banerjee S, Kakkar S, Murthy V, Bakshi G, Tongaonkar HB, Shrivastava S (2012) - Treatment of Stage I seminoma testis with extended field adjuvant radiation. The Gulf Journal of Oncology. Jan; 1(11):20-24. *[PMID:22227541]*

85 Mahantshetty U, Khanna N, Swamidas J, Engineer R, Thakur MH, Merchant NH, Deshpande DD, Shrivastava S (2012) - Trans-abdominal ultrasound (US) and magnetic resonance imaging (MRI) correlation for conformal intracavitary brachytherapy in carcinoma of the uterine cervix. Radiotherapy and Oncology. Jan; 102(1):130-134. *[PMID:21885140]*

86 Mahantshetty U, Krishnatry R, Chaudhari S, Kanaujia A, Engineer R, Chopra S, Shrivastava S (2012) - Comparison of 2 contouring methods of bone marrow on CT and correlation with hematological toxicities in non-bone marrow-sparing pelvic intensity-modulated radiotherapy with concurrent cisplatin for cervical cancer. International Journal of Gynecological Cancer. Oct; 22(8):1427-34. *[PMID:22932264]*

87 Mahantshetty U, Shankar S, Engineer R, Chopra S, Gupta S, Maheshwari A, Kerkar R, Shrivastava S (2012) - Whole abdominal radiation using helical tomotherapy-based intensity-modulated radiotherapy: a potential for consolidation therapy in adequately treated locally advanced epithelial ovarian cancers. Clinical Oncology. Aug; 24(6):457-458. *[PMID:22507834]*

88 Mahantshetty U, Shrivastava SK, Tongaonkar HK, Gupta S, Engineer R, Kerkar RA, Maheshwari A, Chopra S, Ghosh J, Dinshaw KA (2012) - Chemo-radiation in advanced stage carcinoma cervix a phase III randomized trial: results of 1st interim analysis. Radiotherapy and Oncology. 103(s1):s48-s49.

89 Mahantshetty U, Upasani M, Engineer R (2012) - Brachytherapy as organ preservation treatment modality for localized / locally advanced cancers. Radiotherapy and Oncology. 103(s2):S111-S112.

90 Mahimkar MB, Samant TA, Kannan S, Tulsulkar J, Pai PS, Anantharaman D (2012) - Polymorphisms in GSTM1 and XPD genes predict clinical outcome in advanced oral cancer patients treated with postoperative radiotherapy. Molecular Carcinogenesis. Oct; 51(Suppl 1):E94-E103. *[PMID:22213390]*

91 Mishra D, Pruthy R, Qureshi S (2012) - Primary cervical neuroblastoma: single institution experience. Pediatric Blood and Cancer. Dec; 59(6):1134-1135.

92 Mohapatra PR, Punatar S, Prabhash K (2012) - Nomogram to predict the presence of EGFR activating mutation in lung adenocarcinoma. European

Respiratory Journal. Jun; 39(6):1550-51. *[PMID:22654017]*

93 Moiyadi AV, Shetty P (2012) - Feasibility of repeat surgery for pediatric brain tumors: an objective assessment of perioperative outcomes. Journal of Neurosurgery. Pediatrics. Nov; 10(5):411-417. *[PMID:22957754]*

94 Moiyadi AV, Ghazwan QA, Pai PS, Kelkar G, Nair D, Yadav PS (2012) - Free anterolateral thigh flap for reconstruction of complex craniofacial defects after resection of tumors of the fronto-orbitomaxillary complex. Journal of Craniofacial Surgery. May; 23(3):836-41. *[PMID:22565903]*

95 Molli PR, Pradhan MB, Advani SH, Naik NR (2012) - RhoA: a therapeutic target for chronic myeloid leukemia. Molecular Cancer. Mar; 25(11):16. *[PMID:22443473]*

96 Munshi A (2012) - Targeted therapy in cancer care - A critical snapshot. Acta Oncologica. Jan; 51(1):141-142.

97 Munshi A, Krishnatry R, Banerjee S, Agarwal JP (2012) - Stereotactic conformal radiotherapy in non-small cell lung cancer - an overview. Clinical Oncology. Oct; 24(8):556-568. *[PMID:22647347]*

98 Muralikrishna B, Chaturvedi P, Sinha K, Parnaik VK (2012) - Lamin misexpression upregulates three distinct ubiquitin ligase systems that degrade. Molecular and Cellular Biochemistry. Jun; 365(1-2):323-332. *[PMID:22382637]*

99 Murthy V, Shukla P, Adurkar P, Master Z, Mahantshetty U, Shrinivastava S (2012) - Predicting rectal and bladder overdose during the course of prostate radiotherapy using dose-volume data from initial treatment fractions. International Journal of Radiation Oncology Biology Physics. Sep; 84(1):119-124. *[PMID:22300567]*

100 Murthy V, Narang K, Agarwal JP, Ghosh-Laskar S, Gupta T, Budrukkar A (2012) - Hypothyroidism after head and neck 3DCRT and IMRT: prospective data from two randomized trials. Radiotherapy and Oncology. 103(Suppl 1):S176.

101 Nicolini G, Ghosh-Laskar S, Shrivastava SK, Banerjee S, Agarwal JP, Munshi A, Clivio A, Fogliata A, Cozzi L (2012) - VMAT with flattening filter free beams compared with IMRT and 3DCRT for advanced esophageal cancer. Radiotherapy and Oncology. May; 103(s1):S360-S361.

102 Nicolini G, Ghosh-Laskar S, Shrivastava SK, Banerjee S, Chaudhary S, Agarwal JP, Munshi A, Clivio A, Fogliata A, Mancosu P, Vanetti E, Cozzi L (2012) - Volumetric modulation arc radiotherapy with flattening filter-free beams compared with static gantry IMRT and 3D conformal radiotherapy for advanced esophageal cancer: a feasibility study. International Journal of Radiation Oncology Biology Physics. Oct; 84(2):553-560. [PMID:22386376]

103 Noronha V, Patil V, Ostwal V, Tongaonkar H, Bakshi G, Prabhash K (2012) - Role of paclitaxel and platinum-based adjuvant chemotherapy in high-risk penile cancer. Urology Annals. Sep; 4(3):150-153. *[PMID:23248520]*

104 Noronha V, Tsomo U, Jamshed A, Hai MA, Wattegama S, Baral RP, Piya M, Prabhash K (2012) - A fresh look at oncology facts on south central Asia and SAARC countries. South Asian Journal of Cancer. Jul-Sep; 1(1):1-4.

105 Ostwal V, Rekhi B, Noronha V, Basak R, Desai SB, Maheshwari A, Prabhash K (2012) - Primitive neuroectodermal tumor of ovary in a young lady, confirmed with molecular and cytogenetic results-a rare case report with a diagnostic and therapeutic challenge. Pathology Oncology Research. Oct; 18(4):1101-1106.

106 Pantvaidya GH, Vaidya AD, Metgudmath R, Kane SV, DCruz AK (2012) - Minor salivary gland tumors of the sinonasal region: Results of a retrospective analysis with review of literature. Head and Neck. Dec; 34(12):1704-1710. *[PMID:22290774]*

107 Patel M, Vogelbaum MA, Barnett GH, Ahluwalia MS (2012) - Molecular targeted therapy in recurrent glioblastoma: current challenges and future directions. Expert Opinion on Investigational Drugs. Sept; 21(9):1247-66. *[PMID:22731981]*

108 Patel S, Vetale S, Teli P, Mistry RC, Chiplunkar S (2012) - IL-10 production in non-small cell lung carcinoma patients is regulated by ERK, P38 and

COX-2. Journal of Cellular and Molecular Medicine. Mar; 16(3):531-544. *[PMID:21507199]*

109 Patil VM, Noronha V, Joshi A, Muddu V, Poladia B, Chauhan B, Prabhash K, Chaukar DA, Chatturvedi P, Pantvaidya G, Juvekar S, DCruz A (2012) - Induction chemotherapy in locally advanced pharyngolaryngeal cancers with stridor: is it feasible and safe?. Chemotherapy Research and Practice. Aug:549170. *[PMID:22924129]*

110 Pimple S, Pednekar M, Majmudar P, Ingole N, Goswami S, Shastri S (2012) - An integrated approach to worksite tobacco use prevention and oral cancer screening among factory workers in mumbai, India. Asian Pacific Journal of Cancer Prevention.; 13(2):527-532.

111 Pimple S, Pednekar M, Mazumdar P, Goswami S, Shastri S (2012) - Predictors of quitting tobacco - results of a worksite tobacco cessation service program among factory workers in mumbai, India. Asian Pacific Journal of Cancer Prevention. 13(2):533-538. *[PMID:22524820]*

112 Pramesh CS, Kariamundackal G, Jiwanani S, Mehta M (2012) - How radical should surgery be for esophageal cancer? European Journal of Surgical Oncology. Nov; 38(11):1144.

113 Prasad M, Patil V, Chinnasamy G, Vota T, Kurkure P, Banawali S (2012) - Predictors of adverse outcome in chemotherapy induced febrile neutropenia in children. Pediatric Blood and Cancer. Dec; 59(6):1111-1112.

114 Pruthy R, Mishra D, Dongre A, Thippeswamy R, Bagal B, Gawade J, Khattry N, Qureshi S (2012) - Patterns of complications and the efficacy of antibiotic lock in salvage of hickman catheters in pediatric patients undergoing hematopoietic stem cell transplant: experience from a tertiary care centre in India. Pediatric Blood and Cancer. Dec; 59(6):1020.

115 Punatar SB, Noronha V, Joshi A, Prabhash K (2012) - Thyroid cancer in Gardners syndrome: case report and review of literature. South Asian Journal of Cancer. Jul-Sep; 1(1):43-47.

116 Puri A, Gulia A (2012) - The results of total humeral replacement following excision for primary bone tumour. Journal of Bone and Joint Surgery. British Volume. Sep; 94(9):1277-1281. *[PMID: 22933503]*

117 Puri A, Gulia A, Jambhekar N, Laskar SG (2012) - The outcome of the treatment of diaphyseal primary bone sarcoma by resection, irradiation and re-implantation of the host bone: Extracorporeal irradiation as an option for reconstruction in diaphyseal bone sarcomas. Journal of Bone and Joint Surgery. British. Jul; 94(7):982-988. *[PMID:22733957]*

118 Puri A, Gulia A, Jambhekar NA, Laskar S (2012) - Results of surgical resection in pelvic Ewings sarcoma. Journal of Surgical Oncology. Jun; 126(6):556-562.

119 Puri A, Gulia A, Pruthi M, Koushik S (2012) - Primary cement spacers: a cost-effective, durable limb salvage option for knee tumors. The Knee. Aug; 19(4):320-323.

120 Qureshi SS, Patil VP (2012) - Feasibility and safety of thoracoabdominal approach in children for resection of upper abdominal neuroblastoma. Journal of Pediatric Surgery. Apr; 47(4):694-699. *[PMID:22498383]*

121 Qureshi SS, Rekhi B, Pungavkar S (2012) - Congenital angiosarcoma of the arm in a pediatric patient: a therapeutic dilemma. Journal of Clinical Oncology. Mar; 30(9):e112-e114. *[PMID:22331935]*

122 Qureshi SS, Vora T, Laskar S, Medhi S, Desai S, Ramadwar M, Chinnaswamy G, Kurkure P (2012) - Outcomes of nonrhabdomyosarcoma soft tissue sarcomas in children treated at a single institution. Pediatric Blood and Cancer. Dec; 59(6):1016.

123 Radhakrishnan S, Vora T, Chinnaswamy G, Dwivedi P, Patil V, Avinash P, Laskar S, Qureshi S, Rekhi B, Desai S, Jambhekar N, Banawali S, Kurkure P (2012) - Clinical profile and outcomes of rhabdomyosarcoma patients treated at Tata Memorial Hospital: a retrospective analysis. Pediatric Blood and Cancer. Dec; 59(6):1067.

124 Ramdwar MR, Jadhav N, Qureshi S, Vora T, Medhi S, Laskar S, Kurkure PA (2012) - Retrospective analysis of histology and evaluation of prognostic markers of pancretoblastoma. Pediatric Blood and Cancer. Dec; 59(6):1071-1072.

125 Ranganathan P, Pramesh CS (2012) - Censoring in survival analysis: potential for bias. Perspectives in Clinical Research. Jan-Mar; 3(1):40. *[PMID:22347702]*

126 Rastogi S, Vora T, Gulia A, Puri A, Qureshi S, Laskar S, Kembhavi S, Dhige M, Desai S, Jambhekar N, Kurkure P, Banavali S (2012) - Extraskeletal ewing sarcoma (EES) and skeletal ewings sarcoma : are they different entities? Pediatric Blood and Cancer. Sep; 59(6):1066-1067

127 Rathod S, Munshi A, Agarwal J (2012) - Skin markings methods and guidelines: A reality in image guidance radiotherapy era. South Asian Journal of Cancer. Jul-Sep; 1(1):27-29.

128 Rekhi B, Ahmed S, Basak R, Qureshi S, Desai S, Ramadwar M, Desai S, Kurkure P, Jambhekar (2012) - Desmoplastic small round cell tumor-clinicopathological spectrum including unusual features and immunohistochemical analysis of 45 tumors diagnosed at a tertiary cancer referral centre with molecular results t(11 22) (p13 q12) (EWS-WT1) in select cases. Pathology Oncology Research. Oct; 18(4):917-927. *[PMID:22434317]*

129 Rekhi B, Ingle A, Agarwal M, Puri A, Laskar S, Jambhekar NA (2012) - Alveolar soft part sarcoma revisited: clinicopathological review of 47 cases from a tertiary cancer referral centre, including immunohistochemical expression of TFE3 in 22 cases and 21 other tumours. Pathology. Jan; 44(1):11-17. *[PMID:22173238]*

130 Rekhi B, Sable M, Jambhekar NA (2012) - Histopathological, immunohistochemical and molecular spectrum of myoepithelial tumours of soft tissues. Virchows Archive. Dec; 461(6):687-697. *[PMID:23097005]*

131 Sanjay P, Takaori K, Govil S, Shrikhande SV, Windsor JA (2012) - Artery-first approaches to pancreatoduodenectomy. British Journal of Surgery. Aug;99(8):1027-1035.

132 Sawant S, Dhir AA, Daddi A, Nair PT (2012) - Venous thromboembolism in cancer patients. Annals of Oncology. 129(Suppl 1):S182.

133 Sayed SI, Rane P, Deshmukh A, Chaukar D, Menon S, Arya S, DCruz AK (2012) - Ancient schwannoma of the parapharynx causing dysphagia: a rare entity. Annals of Royal College of Surgeons of England. Oct; 94(7):e217-e220. *[PMID:23031754]*

134 Scagliotti GV, Hirsh V, Siena S, Henry DH, Woll PJ, Manegold C, Solal-Celigny P, Rodriguez G, Krzakowski M, Mehta ND, Lipton L, García-Sáenz JA, Pereira JR, Prabhash K, Ciuleanu TE, Kanarev V, Wang H, Balakumaran A, Jacobs I (2012) - Overall survival improvement in patients with lung cancer and bone metastases treated with Denosumab versus Zoledronic acid: subgroup analysis from a randomized phase 3 study. Journal of Thoracic Oncology. Dec; 7(12):1823-1829. *[PMID:23154554]*

135 Shetty GS, Bodhankar YD, Ingle S, Thakkar RG, Goel M, Shukla PJ, Shrikhande SV (2012) - Complications as indicators of quality assurance after 401 consecutive colorectal cancer resections: the importance of surgeon volume in developing colorectal cancer units in India. World Journal of Surgical Oncology. 10:15 *[PMID:22257531]*

136 Shetty OA, Naresh KN, Banavali SD, Shet T, Joshi R, Qureshi S, Mulherkar R, Borges A, Desai SB (2012) - Evidence for the presence of high risk human papillomavirus in retinoblastoma tissue from nonfamilial retinoblastoma in developing countries. Padiatric Blood & cancer. Feb; 58(2):185-190.

137 Shrikhande SV, Barreto SG, Goel M, Arya S (2012) - Multimodality imaging of pancreatic ductal adenocarcinoma: a review of the literature. HPB (Oxford). Oct; 14(10):658-668.

138 Shrikhande SV, Marda SS, Suradkar K, Arya S, Shetty GS, Bal M, Shukla PJ, Goel M, Mohandas KM (2012) - Gastrointestinal Stromal Tumors: Case Series of 29 Patients Defining the Role of Imatinib Prior to Surgery. World Journal of Surgical Oncology. Feb; 36(4):864-871.

139 Shrivastava SK, Mahantshetty U, Engineer R, Chopra S (2012) - Radiation therapy for gynecological cancers in resource poor countries. International Journal of Gynecology and Obstetrics. Oct; 119(Suppl3):S244.

140 Shrivastava SK, Mahantshetty U, Narayan K (2012) - B180Principles of radiation therapy in low-resource and well-developed settings, with particular reference to cervical cancer. International Journal of Gynecology and Obstetrics. Oct; 119(Suppl.2):s155-s159. *[PMID:22999507]*

141 Shukla P, Chopra S, Engineer R, Mahantshetty U, Paul SN, Phurailatpam R, Sv J, Shrivastava SK (2012) - Quality assurance of multifractionated pelvic interstitial brachytherapy for postoperative recurrences of cervical cancers: a prospective study. International Journal of Radiation Oncology Biology Physics. Mar; 82(4):e617-e622. *[PMID:22300566]*

142 Singh SP, Deshmukh A, Chaturvedi P, Krishna CM (2012) - In vivo Raman spectroscopy for oral cancers diagnosis. SIPE Proceeding. Jan; 8219

143 Singhal S, Gupta PC, Dikshit R, Jha P (2012) - Increased risk of coronary heart disease in female smokers (Correspondence to). The Lancet. Mar; 379(9818):802.

144 Sondhi V, Katoch MC, Dwivedi P, Arora B, Banavali SD, Chitalkar PG (2012) - Management of hyperleucocytosis and prevention of tumor lysis syndrome by adminstration of L-asparginase in children with acute lymphoblastic leukemia. Pediatric Blood and Cancer. Dec; 59(6):1033.

145 Swamidas J, Mahantshetty U, Deshpande D, Shrivastava S (2012) - SU-E-T-424: Inter-fraction variation of high dose regions of OARS in MR image based cervix brachytherapy using rigid registration. Medical Physics. Jun; 39(6):380-382. *[PMID:22756603]*

146 Thakkar P, Jiwnani S, Karimundackal G, Pramesh CS (2012) - Route of reconstruction after total oesophagectomy. European Journal of Cardio-Thoracic Surgery. Nov; 42(5):905. *[PMID:23087094]*

147 Turk T, Murukutla N, Gupta S, Kaur J, Mullin S, Saradhi R, Chaturvedi P (2012) - Using a smokeless tobacco control mass media campaign and other synergistic elements to address social inequalities in India. Cancer Causes Control. Feb; 23(Suppl 1):81-90. *[PMID:22350861]*

148 Udare A, Mahajan A, Thakur M, Ramani S (2012) - A rare demonstration of the filarial dance sign in the upper limb lymphatic vessels mimicking deep venous thrombosis. Journal of Ultrasound in Medicine. Sept; 31(9):1464-1465.

149 Upasani MN, Mhantshetty UM, Rangarajan V, Purandare N, Merchant N, Thakur M, Engineer R, Chopra S, Shrivastava SK (2012) - 18-fluoro-deoxy-glucose positron emission tomography with computed tomography-based gross tumor volume estimation and validation with magnetic resonance imaging for locally advanced cervical cancers. International Journal of Gynecological Cancer. Jul; 22(6):1031-6. *[PMID:22622949]*

150 Vora T, Rastogi S, Chinnaswamy G, Arora B, Laskar S, Puri A, Gulia A, Qureshi S, Kembhai S, Desai S, Desai S, Jambhekar N, Dhige M, Mukaden MA, Kurkure P, Banawali S (2012) - Ewing sarcoma family of tumors (ESFT): does modality of local therapy impact outcome? surgery versus radiotherapy versus combined multimodal approach. Pediatric Blood and Cancer. Dec; 59(6):991.

151 Zade A, Purandare N, Rangarajan V, Shah S, Agarwal A, Kulkarni M, Jha AK (2012) - Role of delayed imaging to differentiate intense physiological 18F FDG uptake from peritoneal deposits in patients presenting with intestinal obstruction. Clinical Nuclear Medicine. Aug; 37(8):783-785. *[PMID:22785511]*

152 Zade A, Purandare N, Rangarajan V, Shah S, Agrawal A, Ashish J, Kulkarni M (2012) - Noninvasive approaches to diagnose intrathoracic extramedullary hematopoiesis: 18F-FLT PET/CT and 99mTc-SC SPECT/CT scintigraphy. Clinical Nuclear Medicine. Aug; 37(8):788-789. *[PMID:22785513]*

National

1 Agarwal JP, Kadam Amare PS, Galani KS, Mittal N (2012) - Systemic mastocytosis with associated acute myeloid leukemia with t (8; 21) (q22; q22). Indian Journal of Pathology and Microbiolgy. Jul; 55(3):409-412. *[PMID:23032848]*

2 Ahmed S, Epari S, Shah M, Rao KS (2012) - Epithelioid hemangioendothelioma of

sphenoid bone: a case report of an unusual case. Neurology India. May-Jun; 60(3):344-346. *[PMID:22824706]*

3 Ahmed S, Menon S, Desai S (2012) - Epithelioid malignant mesothelioma of tunica vaginalis with deciduoid features: an unusual malignancy clinically masquerading an inguinal hernia. Indian Journal of Pathology and Microbiology. Jan; 55(1):89-91. *[PMID:22499310]*

4 Arya S, Chaukar D, Pai P (2012) - Imaging in oral cancers. Indian Journal of Radiology and Imaging. 2012 Jul-Sept; 22(3):195-208

5 Bajpai J (2012) - Locally advanced breast cancer: prevention is better than cure!. Indian Journal of Cancer. Jan; 49(1):57-59. *[PMID:22842169]*

6 Basu T, Laskar SG, Gupta T, Budrukkar A, Murthy V, Agarwal JP (2012) - Toxicity with radiotherapy for oral cancers and its management: A practical approach. Journal of Cancer Research and Therapeutics. Jan; 8(Suppl 1):S72-84. *[PMID:22322736]*

7 Bhat Singh RR, Amare Kadam PS (2012) - Investigation of recurrent deletion loci specific to conventional renal cell carcinoma by comparative allelotyping in major epithelial carcinomas. Indian Journal of Urology. Jan; 28(1):47-52. *[PMID:22557717]*

8 Bhat VG, Biswas SK, Kelkar RS, Khattry N (2012) - Antibiotic-resistant bacteria in surveillance cultures from hematopoietic stem cell transplant patients. Indian Journal of Medical and Paediatric Oncology. Jul-Sep; 33(3):190-191.

9 Chandarana MN, Epari S, Chaukar D, Moiyadi AV (2012) - Metachronous solitary metastasis of papillary thyroid cancer in the cavernous sinus: case report and review of literature. Journal of Cancer Research and Therapeutics. 2012 Jul; 8(3):436-438. *[PMID:23174730]*

10 Chaturvedi P (2012) - Effective strategies for oral cancer control in India. Journal of Cancer Research and Therapeutics. Jan; 8(6 Suppl.):S55-56. *[PMID:22322733]*

11 Chaturvedi P, Singh B, Nair S, Nair D, Kane SV, DCruz AK, Datta S, Pawar P (2012) - Utility of frozen section in assessment of margins and neck node metastases in patients undergoing surgery for carcinoma of the tongue. Journal of Cancer Research and Therapeutics. Jan; 8(6 Suppl.):S100-105. *[PMID:22322726]*

12 Chaukar DA, Vaidya AD (2012) - Pediatric thyroid cancers: an Indian perspective. Indian Journal of Surgical Oncology. 2012 September; 3(3):166-172.

13 Chavan PD, Bhat VG, Ojha S, Kelkar RS, Rajadhyaksha SB, Marathe AN (2012) - Detection of bacterial growth in blood components using oxygen consumption as a surrogate marker in a tertiary oncology setup. Indian Journal of Medicine and Microbiology. 2012 Apr-Jun; 30(2):212-214.

14 Chopra S, Verma A, Kundu S (2012) - Evaluation of diffusion-weighted imaging as a predictive marker for tumor response in patients undergoing chemoradiation for postoperative recurrences of cervical cancer. Journal of Cancer Research and Therapeutics. Jan-Mar; 8(1):68-73. *[PMID:22531517]*

15 Deodhar KK, Budukh A, Ramadwar M, Bal MM, Shrikhande SV (2012) - Are we achieving the benchmark of retrieving 12 lymph nodes in colorectal carcinoma specimens? experience from a tertiary referral center in India and review of literature. Indian Journal of Pathology and Microbiology. Jan-Mar; 55(1):38-42. *[PMID:22499298]*

16 Dholam KP, Gurav SV (2012) - Dental implants in irradiated jaws: A literature review. Journal of Cancer Research and Therapeutics. Jan(Suppl):s85-93. *[PMID:22322737]*

17 Divatia JV, Desai A, Pramesh CS, Mohandas KM, Gupta S, Badwe RA (2012) - Compensation guidelines for research related injury in India. Journal of Association of Physicians of India. Apr; 60:53-55.

18 Galani KS, Subramanian PG, Gadage VS, Rahman K, Shinde S, Ashok Kumar MS, Mahadik S, Ansari R, Sengar M, Menon H, Nair R, Gujral S (2012) - Clinico-pathological profile of Hairy cell leukemia: critical insights gained at a tertiary care cancer hospital. Indian Journal of Pathology and Microbiology. Jan-Mar; 55(1):61-5. *[PMID:22499303]*

19 Ghadge MS, Naik PP, Tiwari BP, Hegde RM, Matale TJ (2012) - A comparative study of bone scan findings and serum levels of tumor marker CA15-3 in patients with breast carcinoma. Indian Journal of Clinical Biochemistry. Jan; 27(1):97-99. *[PMID:23277720]*

20 Gupta T, Nair V, Epari S, Pietsch T, Jalali R (2012) - Concordance between local, institutional, and central pathology review in glioblastoma: Implications for research and practice: A pilot study. Neurology India. Jan-Feb; 60(1):61-65.

21 Kembhavi SA, Somvanshi S, Banavali S, Kurkure P, Arora B (2012) - Pictorial essay: acute neurological complications in children with acute lymphoblastic leukemia. Indian Journal of Radiology and Imaging. 2012 Apr; 22(2):98-105. *[PMID:23162250]*

22 Kinhikar R, Chaudhari S, Kadam S, Dhote D, Deshpande D (2012) - Dosimetric validation of new semiconductor diode dosimetry system for intensity modulated radiotherapy. Journal of Cancer Research and Therapeutics. Jan; 8(1):86-90. *[PMID:22531520]*

23 Kundu S, Chopra S, Verma A, Mahantshetty U, Engineer R, Shrivastava SK (2012) - Functional magnetic resonance imaging in cervical cancer: Current evidence and future directions. Journal of Cancer Research and Therapeutics. Jan-Mar; 8(1):11-18. *[PMID:22531506]*

24 Mishra GA, Pimple SA, Shastri SS (2012) - An overview of the tobacco problem in India. Indian Journal of Medical Pediatric Oncology. Jul; 33(3):139-145. *[PMID:23248419]*

25 Moiyadi AV, Shetty P (2012) - Giant velum interpositum meningioma in a child. Indian Journal of Medical Paediatric Oncology. Jul-Sep; 33(3):173-175.

26 Moiyadi AV, Shetty PM (2012) - Surgery for recurrent malignant gliomas: feasibility and perioperative outcomes. Neurology India. Mar-Apr; 60(2):185-190. *[PMID:22626701]*

27 Mukherjee T, Rekhi B (2012) - Ovarian endometriosis with co-existing granulomatous inflammation-a rare association. Medical Journal Armed Forces India. Apr; 68(2):182-184.

28 Munshi A, Dutta D, Budrukkar A, Jalali R, Sarin R, Gupta S, Ghosh J, Bajpai J, Parmar V, Nair N, Badwe R (2012) - Impact of adjuvant radiation therapy photon energy on quality of life after breast conservation therapy linear accelerator versus the cobalt machine. Journal of Cancer Research and Therapeutics. July-Sept; 8(3):361-366. *[PMID:23174715]*

29 Munshi A, Gupta S, Anderson B, Yarnold J, Parmar V, Jalali R, Sharma SC, Desai S, Thakur M, Baijal G, Sarin R, Mittra I, Ghosh J, Badwe R, other Locoregional Panel Members (2012) - Guidelines for locoregional therapy in primary breast cancer in developing countries: The results of an expert panel at the 8(th) Annual Womens Cancer Initiative - Tata Memorial Hospital (WCI-TMH) Conference. Indian Journal of Medical and Pediatric Oncology. Apr; 33(2):112-122. *[PMID:22988354]*

30 Murthy V (2012) - The first special issue.... of many more to come. Journal of Cancer Research and Therapeutics. Jan; 8:S53-S54. *[PMID:22322732]*

31 Murthy V, Awatagiri KR, Tike PK, Ghosh-Laskar S, Gupta T, Budrukkar A, Deshpande MS, Chaukar DA, Pantavaidya GH, Agarwal JP (2012) - Prospective analysis of reasons for non-enrollment in a phase III randomized controlled trial. Journal of Cancer Research and Therapeutics. Jan; 8:S94-S99. *[PMID:22322738]*

32 Muttagi SS, Chaturvedi P, Gaikwad R, Singh B (2012) - Head and neck squamous cell carcinoma in chronic areca nut chewing Indian women: case series and review of literature. Indian Journal of Medical and Pediatric Oncology. Jan-Mar; 33(1):32-35.

33 Nachankar A, Krishnatry R, Munshi A, Prabhash K, Pradip PB, Pramesh CS, Agarwal JP (2012) - Unusual coexistence of a renal anomaly and germ cell tumor: An embryonal happenstance?. Indian Journal of Medical and Paediatric Oncology. Jul; 33(3):179-181. *[PMID:23248427]*

34 Nair DR, Pruthy R, Pawar U, Chaturvedi P (2012) - Oral cancer: Premalignant conditions and screening - an update. Journal of Cancer Research and Therapeutics. Jan; 8:S57-S66. *[PMID:22322734]*

35 Noronha V, Dikshit R, Raut N, Joshi A, Pramesh CS, George K, Agarwal JP, Munshi A, Prabhash K (2012) - Epidemiology of lung cancer in India: Focus on the differences between non-smokers and smokers: a single-centre experience. Indian Journal of Cancer. Jan; 49(1):74-81. *[PMID:22842172]*

36 Noronha V, Philip SD, Joshi A, Prabhash K (2012) - Prolonged remission from eltrombopag in chronic refractory idiopathic thrombocytopenic purpura. Indian Journal of Cancer. Jan; 49(1):119-124. *[PMID:22851056]*

37 Parmar V, Hawaldar R, Nair NS, Shet T, Desai S, Badwe RA (2012) - Pathological complete response in locally advanced breast cancer: determinants and predictive significance. The National Medical Journal of India.; 25(3):132-136.

38 Patil PS, Mohandas KM (2012) - Primary iron overload and HFE gene mutations in North Indian adults. Indian Journal of Gastroenterology. Feb; 31(1):36-37. *[PMID:22362317]*

39 Patil V, Noronha V, DCruz AK, Banavali SD, Prabhash K (2012) - Metronomic chemotherapy in advanced oral cancers. Journal of Cancer Research and Therapeutics. Jan; 8(6 Suppl.):S106-110. *[PMID:22322727]*

40 Prabhash K, Pandey A, Kar R, Munshi A, Naronah V, Agarwal JP (2012) - Bilateral visual blurring as the first symptom of extra-cranial metastatic lung carcinoma. Indian Journal of Medical and Pediatric Oncology. Jan-Mar; 33(1):48-50.

41 Pramesh CS, Badwe RA (2012) - Compensation guidelines for research-related injury in India could destroy investigator-initiated research. The National Medical Journal of India. Jan-Feb; 25(1):35-37. *[PMID:22680323]*

42 Pramesh CS, Badwe RA (2012) - Will the proposed compensation guidelines for research-related injury spell the death knell for clinical research in India. Journal Postgraduate Medicine. Apr; 58(2):156-158. *[PMID:22718064]*

43 Priya SR, DCruz AK, Pai PS (2012) - Cut margins and disease control in oral cancers. Journal of Cancer Research and Therapeutics. Jan-Mar; 8(1):74-79. *[PMID:22531518]*

44 Puri A, Gulia A, Chan WH (2012) - Functional and oncologic outcomes after excision of the total femur in primary bone tumors: results with a low cost total femur prosthesis. Indian Journal of Orthopaedics. Jul-Aug; 46(4):470-474. *[PMID:22912524]*

45 Rahman K, Subramanian PG, Kadam PA, Gadage V, Galani K, Mittal N, Ghogale S, Badrinath Y, Ansari R, Kushte S, Nair R, Sengar M, Menon H, Gujral S (2012) - Morphological spectrum of leukemic mantle cell lymphoma. Indian Journal of Pathology and Microbiology. Jan; 55(1):66-71. *[PMID:22499304]*

46 Rathod S, Gupta T, Laskar S, Murthy V, Budrukkar A, Prabhash K, Chaturvedi P, Agarwal JP (2012) - Change in health-related quality of life scores predict survival in head-and-neck squamous cell carcinoma treated with definitive high precision radiation therapy: evidence from a prospective study. International Journal of Radiation Oncology Biology Physics. Nov; 84(3):s649.

47 Rekhi B, Basak R, Desai SB, Jambhekar NA (2012) - Immunohistochemical validation of TLE1, a novel marker, for synovial sarcomas. Indian Journal of Medical Research. Nov; 136(5):766-775. *[PMID:23287123]*

48 Rekhi B, Deodhar KK, Maheshwari A, Menon S, Kerkar R, Bajpai J, Ghosh J, Gupta S, Engineer R, Shrivastava SK (2012) - Clinicopathological spectrum of 19 adenosarcomas of female genital tract, including uncommon clinical associations and immunohistochemical profile, reviewed at a single institution. Indian Journal of Pathology and Microbiology. Jul; 55(3):326-332. *[PMID:23032825]*

49 Rekhi B, Navale P, Jambhekar NA (2012) - Critical histopathological analysis of 25 dedifferentiated liposarcomas, including uncommon variants, reviewed at a Tertiary Cancer Referral Center. Indian Journal of Pathology and Microbiology. Jul; 55(3):294-302.

50 Rekhi B, Sable M, Desai SB (2012)- Retroperitoneal sclerosing PEComa with melanin pigmentation and granulomatous inflammation-A rare association within an uncommon tumor. Indian Journal of Pathology and Microbiology. Jul; 55(3):395-398. *[PMID:23032844]*

51 Sakhadeo U, Mane A, Shet T (2012) - In situ follicular neoplasia/lymphoma: three illustrative cases exemplifying unique disease presentations. Indian Journal of Pathology and Microbiology. Apr-Jun; 55(2):218-221

52 Sawant SP, Banumathy S, Daddi A, Dhir AA (2012) - Pulmonary embolism in cancer patients. Indian Journal of Cancer. Jan; 49(1):119-124. *[PMID:22842179]*

53 Sayed SI, Kazi R, Sengupta S, Chowdhari A, Jagade M (2012) - Microbial colonization of Blom-Singer indwelling voice prostheses in laryngectomized patients: a perspective from India. Ear, Nose and Throat Journal. Apr; 91(4):E19-22. *[PMID:22522361]*

54 Shah G, Chaturvedi P, Vaishampayan S (2012) - Arecanut as an emerging etiology of oral cancers in India. Indian Journal of Medical Paediatric Oncology. Apr-Jun; 33(2):71-79. *[PMID:22988348]*

55 Shah K, Gupta S, Ghosh J, Bajpai J, Maheshwari A (2012) - Acute non-ST elevation myocardial infarction following paclitaxel administration for ovarian carcinoma: a case report and review of literature. Journal of Cancer Research and Therapeutics. Jul; 8(3):442-444. *[PMID:23174732]*

56 Shankhdhar VK, Yadav PS, Jaiswal D, SeethaRaman SS, Wingkar C (2012) - Cephalic vein: saviour in the microsurgical reconstruction of breast and head and neck cancers. Indian Journal of Plastic Surgery. Sept-Dec; 45(3):485-493.

57 Sharma S, Deshmukh AD, Bal MM, Chaukar DA, DCruz AK (2012) - Angiosarcoma of the scalp associated with Xeroderma pigmentosum. Indian Journal of Medical and Pediatric Oncology. Mar; 33(2):126-129. *[PMID:22988356]*

58 Shet T, Basak R, Epari S (2012) - Primary cutaneous marginal zone lymphoma (immunocytoma like) with lymphoepithelioid or Lennert's lymphoma like involvement of nodes. Indian Journal of Pathology and Microbiology. Apr-Jun; 55(2):222-226.

59 Shirsat HS, Epari S, Shet T, Bagal R, Hawaldar R, Desai SB (2012) - HER 2 status in invasive breast cancer: Immunohistochemistry, fluorescence in-situ hybridization and chromogenic in-situ hybridization. Indian Journal of Pathology and Microbiology. Apr-Jun; 55(2):175-179.

60 Shrikhande SV, Barreto SG (2012) - Surgery for pancreatic carcinoma state of the art. Indian Journal of Surgery. Jan-Feb; 74(1):79-86.

61 Shukla P, Gupta D, Pant MC, Parmar D (2012) - CYP 2D6 polymorphism: A predictor of susceptibility and response to chemoradiotherapy in head and neck cancer. Journal of Cancer Research and Therapeutics. Jan; 8(1):40-45. *[PMID:22531512]*

62 Singh SP, Deshmukh A, Chaturvedi P, Krishna CM (2012) - Raman spectroscopy in head and neck cancers: toward oncological applications. Journal of Cancer Research and Therapeutics. Jan; 8:S126-S132. *[PMID:22322731]*

63 Subramanian PG (2012) - Cytogenetic study in CML. Indian Journal of Medical Research. Jan; 135(1):12-13.

64 Vaidya AD, Pantvaidya GH, Metgudmath R, Kane SV, DCruz AK (2012) - Minor salivary gland tumors of the oral cavity: A case series with review of literature. Journal of Cancer Research and Therapeutics. Jan; 8(6 Suppl.1):S111-115.

65 Yadav PS, Ahmad QG, Shankhdhar VK, Nambi GI (2012) - Reconstruction of oncological oro-mandibular defects with double skin paddled-free fibula flap: a prudent alternative to double flaps in resource-constrained centres. Journal of Cancer Research and Therapeutics. Jan; 8(1):91-95. *[PMID:22531521]*

66 Yadav PS, Ahmad QG, Shankhdhar VK, Nambi GI (2012) - Skin paddle vascularity of free fibula flap - A study of 386 cases and a classification based on contribution from axial vessels of the leg. Indian Journal of Plastic Surgery. Jan-Apr; 45(1):58-61.

Honors / Awards / Achievements

Dr. Badwe RA

- Consultant for proposed Sanjivani Arogya Samiti/Trust for the welfare of poor and under privileged patients from Bihar coming to Mumbai for specialized treatment.
- Technical Advisor, Central India Cancer Research Institute, Nagpur
- Member, High Level Committee for Vision Document for setting up a high level cancer institute in Lucknow, U.P.
- Member, Post Graduate Medical Education Committee of Medical Council of India.

Dr. D'Cruz AK

- Member, Board of Directors, Union for International Cancer Control (UICC), Geneva, 2012 – 2014.
- Member, UICC Board of Director at UICC General Assembly and 2012 World Cancer Leader's Summit, Montreal, Canada
- President, Asian Society of H & N Oncology
- Invited Editor Manual Clinical Oncology (MCO) Lippincott Williams & Wilkins/UICC.
- Invited Editor Hamilton Bailey's Demonstration of Physical signs in Clinical Surgery, Cambridge University Press.

ORATIONS

- Oration Lecture, The Stell Memorial Lecture 2012 organised by Bradford Teaching Hospitals, NHS Foundation Trust, Bradford Royal Infirmary Duckworth Lane, Bradford, UK on 20- 21st Sept 2012
- Dr. Kuppuswamy Memorial Endowment Oration on "Cancer – What's New?. Basavatarakam Indo-American Cancer Hospital & Research Institute, Hyderabad, 22nd June 2012
- Federation of Head neck Oncology (FHNO)- Foundation Oration, on "Head and Neck- 25 years and beyond", Ahmedabad, 13th October 2012

Dr. Agarwal JP

- Expert Member , Board Of Maharashtra Public Service Commission, Mumbai on 19March 2012 (For Lecturer Post At Government Hospital)
- Expert Member, Board Of Maharashtra Public Service Commission, Mumbai on 24 April 2012 (For Professor Post At Government Hospital)

Dr. Arora Brijesh

- Awarded the prestigious Pediatric BMT Fellowship at Hospital For Sick Children (SickKids), Toronto, Canada.

Dr. Arya Supreeta

- Member, ICMR subcommittee for Guidelines in Tongue Cancers
- Member, ICMR subcommittee for Guidelines in Buccal Mucosa Cancers
- Invited Author for the UICC Manual of Oncology, 9th edition for the chapter " Imaging in Oncology", UICC
- Recipient of Certificate of Merit. Squamous Cancers of the RetromolarTrigone : Unexplored wisdom of MDCT in staging" at the RSNA 2012, Chicago, USA, 100th Annual conference of Radiological Society of North America.

Dr. Bagal Bhausaheb

- Awarded fellowship, Australia and Asia Pacific Clinical Oncology Research Development (ACORD), September 2012

Dr. Bakshi Ganesh

- Member, Advisory board, Pfizer Oncology, since 2011
- Office bearer, Mumbai Urology Society, Mumbai, 2012
- Invited as Guest Speaker, on "Advancements in renal cell carcinoma" at Samsung Medical Center, Seoul, S. Korea, April 2012
- Faculty, Surgical Work shop – "Midterm USI-EZ Urology Workshop", by East Zone, Urology Society of India, National Medical College, Kolkatta, May 2012

Dr. Banavali SD

- Invited Guest Speaker, 5th WIN Symposium (Organized by WIN Consortium), Paris; France, - "Metronomics: The Economics of Treating Cancers in Resource Limited Setting"

Dr. Chaturvedi Pankaj

- Awarded, Judy Wilkenfield Award for Excellence in International Tobacco Control by Campaign for Tobacco Free Kids, Washington DC
- Member, Governing Body AIIMS, Jodhpur

ORATION

- Dr. T.O Shah oration at Seth GSMC & KEM Hospital,Mumbai.

Dr. Dangi Uma

- Awarded Followship , Australia and Asia Pacific Clinical Oncology Research Development (ACORD), September 2012

Dr. Desai Sangeeta

- Member, Ethics committee, Medical Council of India
- Chairperson, Ethics Committee, Prince Aly Khan Hospital, Mumbai
- EC Invited by Forum for Ethical Review Committees in Asia Pacific (FERCAP) to survey Ethics Committees under Strategic Initiative for Developing Capacity for Ethical Review Recognition Program (SIDCER), A program developed by WHO/TDR. At PSG Institute of Medical Sciences and Research Coimbatore Sept 2012, ERC University Colombo Sri Lanka, June 2012
- Faculty, 12th FERCAP Annual Conference, Sri Lanka., Nov. 2012

Dr. Deodhar Jayita

- Office bearer, Indian Psychiatric Society, West Zonal Branch.

Dr. Deshpande DD

- President, Association of medical Physicists of India (AMPI).

Dr. Dighe Manjiri

- Awarded MSc., Palliative Care Education and Practice, Harvard Medical School

Dr Divatia JV

- Selected Chancellor, Indian College of Critical Care Medicine

Dr. Dongre Amol

- Awarded Fellowship, Australia and Asia Pacific Clinical Oncology Research Development (ACORD), September 2012

Dr. Gawande Jayant

- Awarded felloship, Australia and Asia Pacific Clinical Oncology Research Development (ACORD), September 2012

Dr. Ghosh Laskar Sarbani

- Expert Member (Radiation Oncology), IAEA project MAL 6020, Kualalumpur, Malaysia IAEA, Vienna on 18-22 June 2012.
- Expert Member (Radiation Exposure and cancer), NPCIL & BRNS NPCIL, BRNS, May 2012.
- Expert Member (Radiation Oncology), PACT Mission, Malaysia PACT, IAEA, Vienna, September 2012.

Dr. Goyal Gautam

- Awarded Fellowship, Australia and Asia Pacific Clinical Oncology Research Development (ACORD), September 2012

Dr. Gujral SG,

- Member, Staff selection committee, AIIMS.
- Member, ICMR Task Force On Review Of Cancer Management Guidelines, June 14, 2012
- Expert Member, Faculty selection, AIIMS , December

Dr Gulia Ashish

- Awarded, GAP fellowship – Oslo
- Awarded ACCORD fellowship – Australia

Dr. Gupta Sudeep

- Co- Chairperson, Taskforce on Cancer Biology of the Department of Biotechnology
- Member, Programme Advisory Committee, Department of Science and Technology, Government of India.

Dr. Gupta Tejpal

- EC Member, Treasurer
- Elected Joint Treasurer and Nominated Member, Indian Society of Neuro-Oncology ISNO on 2012

Dr. Jain PN

- President, Indian Society of Pain 2012-13

Dr. Jambhekar NA,

- Visiting Professor, Dr. MGR Medical University, Tamil Nadu.

Mr. Jafri SH

- Awarded, Hindi Service Recognition Award -2011-2012, DAE

Dr. Joshi Medha

- EC Surveyor, Invited by Forum for Ethical Review Committees in Asia Pacific (FERCAP) to survey Ethics Committees under Strategic Initiative for Developing Capacity for Ethical Review Recognition Program (SIDCER), A program developed by WHO/TDR at University of Sri Jayewardenepura, Sri Lanka, July 2012 and K E M hospital and G S Medical College, Mumbai , Sept 2012
- President - Elect – Special Library Association (Asian Chapter)

Ms. Joshi Swapna

- Secretary, TNAI Maharashtra state branch
- Chairperson, Paediatric Nursing

Dr. Kadam Amare Pratibha

- Member, Scientific advisory committee of NIRRH, Mumbai

Dr. Kane SV

- Member, ICMR, ICMR Task Force for Carcinoma of Tongue, Delhi
- Zonal Co-Ordinator, National level EQAS on Histopathology

Dr. Khattry Navin

- Secretary, Marrow Donor registry (India)
- Member, ICMR/DBT, ICMR Task Force for Stem Cell Therapy
- Member, Scientific Advisory Committee (SAC) of Moving Science Academy.
- Member, Scientific Committee of Asia Pacific Bone Marrow Transplant Group.

Dr Kulkarni A

- General Secretary, Indian Society of Critical Care Medicine 2012-2014.
- Awarded Fellowship, Indian College of Critical Care Medicine.
- Awarded Presidential Citation for outstanding contribution, Indian Society of Critical Care Medicine, Ms. Lasarado Carmine: President AORN

Dr. Siddharth Laskar

- Expert Member, Committee for Setting up of 200 Bedded Oncology Centre, Guwahati Medical College, Government of Assam.

Dr. Lobo Gajiwala A

- Expert Member, Ministry of Health & Family Welfare, National Guidelines for the Implementation - The Transplantation of Human Organs (Amendment) Bill, 2011.
- Recepient of Best Paper, 20th Annual Conference of the National Academy of Burns, India, NABICON 2012, New Delhi, 3-5 February 2012
- Recipient of India travel award scholarships, Intensive Bioethics Course, Kennedy Institute of Ethics, Georgetown University, Washington D.C., USA.

Dr. Mahantshetty Umesh

- Member, Nominated by GEC – ESTRO Committee to contest GEC – ESTRO Elections 2013
- Coordinator as expert for Kaiga Nuclear plant Health Survey, March 2012
- Faculty, CME on Stereotactic Body Radiation therapy, Fortis, Noida, February 2012
- Core Member, 3rd Annual EMBRACE Meeting, Vienna Austria, 1-3 Dec 2012
- Invited Faculty, ESTRO Course, Budapest, Hungary, October 2012, and 1st AROI- ASTRO workshop
- Guest Speaker, 27th ICON Meeting, Nasik, September 2012

Dr. Mehta Shaesta

- Member, Governing Council, Gastroenterology Research Society in 2012.
- Member, ICMR guidelines committee for Esophageal Cancer

Dr. Menon Hari

- Member, Lymphoma Advisory Board of Roche
- Member, Advisory Board Novartis
- Member, Advisory Board BMS
- Member, Advisory Board Astella

Dr. Menon Santosh

- Faculty in CME on Testicular Cancers held at TMH, Mumbai, Dec 29th 2012
- Invited speaker, Jaipur Association of Pathologists meeting, held at SMS Medical College, Jaipur 28th January 2012.
- Invited speaker, VII National conference of Indian Society of Colposcopy and Cervical Pathology, Coimbatote,16th -18th March 2012.
- Invited Speaker , Urological Society of Pune meeting June 29th 2012.
- Invited speaker IHC CME cum Workshop held at Ruby Hall Clinic, Pune on August 25th - 26th 2012
- Invited Faculty, Annual Natioanal Cytology conference Cytocon 2012 held at Bhubneshwar Dec 1-3rd,2012.
- Invited Faculty, "World kidney day- International symposium on RCC-2012", Goa 1,0-11th March, 2012

Dr. Mishra Gauravi

- Awarded - Best paper award - "Acceptability and Feasibility of HPV Vaccination among Urban Low Socio-economic Population in India" at the AOGIN 2012 conference.
- Awarded - Hindustan Unilever Limited – HUL best paper award - "Is Workplace the Ideal setting for tobacco cessation and oral cancer screening programme? — The Tata Memorial Hospital Experience" at the 62nd Annual National Conference of Indian Association of Occupational Health.

Dr. Mittal Sushant

- Awarded Fellowship, Australia and Asia Pacific Clinical Oncology Research Development (ACORD) Fellowship- September 2012

Dr. Muckaden MA

- Vice Chair, International Children's Palliative care network
- Member, drafting committee for the Palliative care policy, Govt of Maharashtra

Dr. Murthy, Vedang

- Nominated Expert, by the IAEA to visit NIRCH, Dhaka, Bangladesh , set up of 3DCRT in the department of Radiation Oncology, 25th March to 1st April 2012
- Guest Speaker, University's Jawaharlal Nehru Medical college, Belgaum. September 2012

Dr. Myatra S

- Awarded Presidential Citation for outstanding contribution to the Indian Society of Critical Care Medicine.
- Treasurer, Indian Society of Critical Care Medicine 2012-2014

Dr. Moiyah Aliasgar

- Receipient of WFNS and ESBS grant for the WFSBS conference ESBS 2012

Dr. Nair Deepa

- Travel Fellowship, European Skull Base Society, May 2012

Dr. Pai Prathamesh

- Member, ICMR Task Force committee guideleins for Management of Laryngeal Cancers

ORATION

- VP Sood Memorial Oration, 25th All India Rhinology Society Meeting, Rhinocon 2012

Dr. Parmar Vani

- National Coordinator, Reach to Recovery International in India
- Member, ICMR Task Force committee guidelines for breast cancer
- Member, Advisory Board, The International Oncoplasty Breast Cancer Surgery (IOPBS)

Dr. Patil Prachi

- Member, ICMR Task Force committee guidelines for Gastric Cancer

Dr. Prabhash Kumar

- Program Director, Oncology Teaching and awareness program in medical colleges in Jharkhand.
- Ms Prabhudesai, Neelam
- Receipient of Jwaladevi Award for bestpaper at CYTOCON 2012, National Annual Conference, organized by IAC, Bhubhaneshwar, November 2012

Dr. Pramesh CS

- Coordinator, National Cancer Grid
- Member, International Study Group of Complications Associated with Esophageal Surgery
- Member, Expert Committee, Clinical Trials training in India, Clinical Development Services Agency, Department of Biotechnology
- Member, Clinical Research Policy Advisory Board
- Member, Management Committee, Western India Health Consortium

Dr. Puri Ajay,

- Member, Global Steering Committee - International Sarcoma Kindred Study (ISKS)
- Member - ICMR Task Force - Guidelines For Management Of Musculoskeletal Sarcoma
- Chairman, Indian Orthopaedic Assoc. (Oncology)

Oration

- Prof. Natrajan oration, Indian Orthopaedic Association Conference – 2012
- Dr. Srivastav oration at the U P Orthopaedic Assoc. conference – Kanpur

Dr. Ramadwar M

- Member participant, ICMR Task Force committee guidelines for reporting colorectal carcinomas.

Dr. Rekhi Bharat

- Recipient of Grand prize for Best electronic exhibit at ISS meeting Rome,
- Recipient of Kunti Devi Mehrotra award for best published paper at APCON, Jamnagar.

Ms. Retnamony Sulochana

- President, Oncology Nursing Association of India 2012

Dr. Sengar Manju

- Awarded Best Oral Presentations at Lymphoma & Leukemias Conference, 5-8 Jan, 2012
- Receipient of Fellowship, American Society of Hematology visitors Training program – Gene expression profiling in lymphomas, 2012

Dr. Sirohi Bhawna

- Secretary, EBMT Nuclear accident committee

Dr. Shinde BJ

- Awarded Ph.D.degree by the Mumbai University.

Dr. Shrikhande Shailesh

- Chairman, ICMR -Task Force for developing Guidelines for Management of Gastric Cancer in India, 2012
- Dr. Subramanian PG
- NABL Technical assessor, Hematology and Flow cytometry.

Dr. Tandon Nidhhi

- Awarded Fellowship, Australia and Asia Pacific Clinical Oncology Research Development (ACORD), September 2012

Dr. Thota R

- Clinical Fellowship, Pain Management at the Singapore General Hospital, Singapore.

Dr. Vora Tushar

- Awarded MRes (Master of Research),Translational Cancer Medicine from King's College, London.

Baisane C

- Receipient of 2nd Award for poster presentation, European School of Oncology conference on Leukemia & Lymphoma, 6-8 Jan, 2012, ITC, Mumbai.

Chandrani Pratik et al.

- Recipient of First prize for poster presentation, Lung Adenocarcinoma at GCGC conference at ACTREC, Navi Mumbai

Dwivedi P , et.al.

- Receipient of 3rd Award for poster presentation, European School of Oncology conference on Leukemia & Lymphoma, January 2012, Mumbai.

Jatia Shalini et al.

- Receipient of Best Oral Paper Award, SIOP 2012, London

Krishna M Vamshi et al

- Receipient of 2nd Second prize for Poster presentation, ISMPO, Feb 2012.

Patil Vijay Maruti et al.

- Receipient of First Prize for Oral presentation, ISMPO Feb 2012.

Philip Deepa Susan et al.

- Reciepient of First Prize for Poster presentation, World Kidney Cancer Meeting, Goa, March 2012.

Shah Kajal et al.

- Recepient of 2nd prize for Poster presentation, World Kidney Cancer Meeting, Goa, March 2012.

ACTREC

Advanced Centre for Treatment, Research and Education in Cancer (ACTREC)

SERVICE RESEARCH EDUCATION

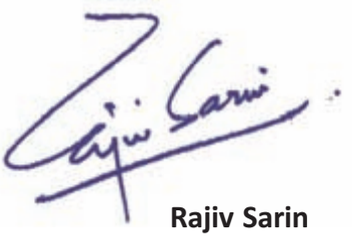
Message from the Director, ACTREC

ACTREC completes a decade and CRI completes 60 years in this beautiful 60 acre campus. With this metamorphosis of a leading basic cancer research institute to a comprehensive cancer research institution we are engaged in all aspects of cancer research - basic, translational, clinical, epidemiological and public health. Our campus is unique with synergistic co-existence of 120 bedded clinical research centre, 25 PI led basic and translational research labs and 110 PhD scholars engaged in individual led and thematic programmes in cancer research.

The Clinical Research Centre (CRC) has grown from a 35 bedded centre in 2005 to a 120 bedded *state-of-the-art* facility for clinical and translational research using novel protocols for cancer imaging, molecular pathology, surgery including neuro-navigational procedures, high precision radiotherapy and stem cell therapy. CRC along with its Phase-I trial unit is engaged in conducting phase I - III clinical trials in frontier areas of cancer therapeutics. ACTREC has played a pivotal role in co-developing and testing innovative or indigenous cost effective technology - the best example of which is 'Bhabhatron'. The relocation of haemato-lymphoid unit from TMH to ACTREC is underway and the BMTprogram with over 300 transplants continues to produce excellent clinical outcomes, at par with the best centres in the world.

In Basic Research, the Structural Biology programme has been strengthened with a new X-ray crystallography unit. The Next generation sequencing platform which has become operational recently will enable large scale genomic studies and followed with validation and functional characterization. Several novel and founder germline mutations in cancer predisposing genes have been identified and their clinical relevance established. ACTREC has enabled India's fruitful participation in the largest global mega-science project in cancer - International Cancer Genome Consortium. We have engaged with global leaders in cancer research including the NCI (USA), Cancer Research (UK) and others in developing a Multinational perspective for addressing the growing international challenge of cancer.

The vibrant and growing tribe of our clinical investigators, basic scientists and clinician scientists are ideally placed to conceive, conduct and disseminate biologically interesting and clinically relevant research and will be judged for the avenues they open and solutions they provide.



Rajiv Sarin

The **Advanced Centre for Treatment, Research and Education in Cancer (ACTREC)** - the R&D arm of the Tata Memorial Centre, is a unique model of a comprehensive centre where basic, translational and clinical research on cancer is undertaken on the same campus. At the core of ACTREC lies the Clinical Research Centre (CRC), set up in 2005, which focuses on conducting clinical and translational research and developing new therapeutic modalities, and a 100 bedded hospital where cancer patients are offered the latest treatment options - advanced surgery including neurosurgery, chemotherapy, radiotherapy and bone marrow transplantation. The Cancer Research Institute (CRI), set up in 1952 in Mwith its 23 Principal Investigator-led laboratories and research support facilities, is the central hub for basic and applied research projects encompassing varied aspects of normal, tumour and stem cell biology, immunology, cell signalling and complex molecular interactions, genomics, proteomics, structural biology, cancer genetics and related areas.

In the year 2012, the Centre celebrated two landmark events, the Tenth Anniversary of ACTREC which was commissioned in 2002 at Navi Mumbai, and the Platinum Jubilee of CRI which was founded in 1952 at Mumbai. On 26th January 2012, the refurbished auditorium in ACTREC was named 'Khanolkar Auditorium' in honour of the Founder Director of CRI, Prof. VR Khanolkar, by none other than the Nobel laureate Prof. Harald zur Hausen.

The vision that was envisaged during the creation of ACTREC has over the past decade turned into reality with the integration of basic and clinical research programs, and is now clearly heading towards the translational platform. In keeping with recent trends, a large number of the Centre's research projects involve close academic and clinical collaborations within and outside the Centre - both in India and abroad. During 2012, a total of 125 research projects were on-going at ACTREC. A sum of Rs. 1.25 crore was received from governmental agencies such as DBT, DST, ICMR, LTMT, etc., to meet the expenditure on 12 of the on-going projects. In addition, 15 new extramurally funded projects to the tune of Rs. 10.43 crore for a three year period were sanctioned by these funding agencies, of which Rs.4.64 crore were received during the calendar year.

Over the years, the Centre has been consistently building up its staff strength. The year 2012 brought with it the induction of 12 new staff members - three of them clinicians, while seven senior staff members superannuated or chose voluntarily retirement. During the year, scientists of the Centre filed two Indian/ US patent applications. A multiple format HIV-2 derived lentiviral vector designed for use in gene transfer is ready for technology transfer. Research conducted by faculty of the Centre during 2012 yielded 117 indexed publications - 57 of these encompassed basic and translational research, while 50 covered clinical research and medical technology. A brief summary report of the Centre's programs during the year is provided below.

Clinical Research Centre & Hospital

The Clinical Research Centre programs continued to show an upward trend during 2012, particularly in terms of the patient services provided. In all, 4470 new patients were referred to the Centre for investigation or treatment as a part of various IRB approved translational or clinical research projects - a 26% increase over the previous year's figures. The Hematolymphoid ward became fully functional, necessitating increased provision for OPD facilities. The Day Care timings were also increased to keep up with the demand. A Dental Clinic and Pediatric OPD were set up and made fully functional to meet patient requirements. A new Digital Subtraction Angiography (DSA) facility was donated to the Centre by a philanthropic organization.

The diagnostic facilities (Clinical Biochemistry, Hematopathology, Microbiology, Molecular Pathology and Surgical Pathology) are already NABL accredited, and reassessment of the diagnostic laboratories is scheduled in January 2013. The following quality initiatives were undertaken during the year 2012 in order to improve patient care: (a) Analysis of incident reporting with root cause analysis, (b) Patient feedback redressal with response from the respective areas with regard to patient suggestions and complaints, (c)

Registering patients at ACTREC, and (c) Implementation of referral card facility.

The established programs of the Radiation Oncology department and Bone Marrow Transplant Unit, besides catering to increased patient care, also included a large number of collaborative projects with ACTREC scientists and TMH clinicians. Clinical Pharmacology programs covered the successful development of models for therapeutic drug monitoring, and PK-PD correlation of curcumin in preventing oral mucositis in BMT patients. Translational research on the study of the genomic instability caused by circulating DNA and chromatin was accompanied by experiments to bring about their degradation using a therapeutic combination of Resveratrol and copper. The Bioengineering (Medical electronics lab) and Gynecology-Video Colposcopy research facility (Cancer Theranostics) aimed to develop newer, affordable diagnostic tools and treatment protocols through the amalgamation of clinical, experimental, theoretical and engineering research techniques.

Cancer Research Institute

In recent years, an impetus has been given to basic research programs in newly emerging areas at the Cancer Research Institute. Newer investigations include study of the structure, function and specificity of proapoptotic proteins and their role in cancer; examination of infra red absorption, Raman and fluorescence spectroscopy methods as non invasive tools for the early diagnosis of cancer; development of imaging protocols suitable for testing experimental concepts in small animal models which can be translated into clinical *diagnosis/* personalized *therapy* applications in human cancer; early detection of molecular changes during the acquirement of chemotherapy drug resistance in ovarian cancer cells; use of biophysical techniques, macromolecular crystallography, structural biology and bioinformatics tools to visualize the association of cancer susceptibility genes and proteins at the atomic level; study of molecular and cellular mechanisms governing stem cell regulation and their perturbation during oncogenesis.

Continuing multipronged investigations addressing fundamental aspects of normal and tumour biology have come up with interesting leads. Basic research studies involve the dissection of cellular pathways and interplay between various proteins that regulate neoplastic progression. Assessment of the immune scenario and immune dysfunction in cancer patients has highlighted the vital role of gd T cells and Toll like receptors present in the tumour microenvironment. The role of protein glycosylation in invasion and organ specific metastasis is being examined by studying b1,6 branched N-oligosaccharides which promote invasion by modulating adhesion, chemotaxis, and movement. Assessment of the anti-metastatic activity of drugs and other complexes is underway. The analysis of genomic alterations has identified putative 'driver' genes associated with oral carcinogenesis and shorter survival. Expression of histone variants during sequential hepatocellular carcinogenesis suggests a strong association of increased H2A.1 and decreased H2A.2 variant with the process of de-differentiation.

The anti-initiating and anti-promoting properties of chemopreventive agents have been shown to involve modulation of signaling kinases or their xenobiotic-induced activation/ translocation. Using whole exome capture followed by sequencing, identification of novel somatic single nucleotide polymorphisms (SNPs) is underway in a bid to elucidate cervical cancer pathogenesis. The screening of high risk families for hereditary cancers has led to the identification of several community and region specific founder gene mutations, using cost effective screening and identification techniques. Also under investigation is the deregulation of tumor suppressive and oncogenic signaling pathways in glioblastoma, and identification of genetic alterations in medulloblastoma. The expression of various anti-apoptotic proteins in human oral cancers/ cell lines and premalignant lesions and their role in cancer progression is also receiving attention. A detailed study of the aberrant expression in cancer of the intermediate filament proteins keratin and vimentin is underway using experimental animal models. Proteomic profiling of biological samples to unravel different aspects of cancer is another major thrust area of the Institute.

Academic Programs

The Centre today offers a Doctoral program in the Life Sciences under the aegis of the Homi Bhabha National Institute, a deemed University. During 2012, there were a total

of 109 graduate students working towards the Ph.D. degree at ACTREC. In addition, 188 graduate students from colleges and universities across the country visited the Centre to work on their Master's dissertation projects or to receive specialized training in research methodologies under the close supervision of ACTREC faculty.

The academic fervor at the Centre is maintained through the conduct of national and international conferences, workshops, symposia, etc. During 2012, 21 scientific conferences and workshops were organized at the Centre, beginning with the 31st Annual Convention of the Indian Association of Cancer Research and International Symposium on 'Cancer genomics and its impact in the Clinics' in January, and ending with the 8th National Research Scholars Meet in Life Sciences in December. The Centre also played host to a galaxy of experts from India and abroad who delivered 34 research seminars on topics ranging from 'Metabolomics: bridging the gap between basic and translational chemical biology' to 'Cancer biomarkers and immunotherapies: a novel approach for cancer treatment and management'. During the year, the Centre and its faculty also conducted a series of outreach programs to create 'Cancer Awareness' amongst the general public, and educate them about how cancer develops and the risk factors/ early warning signs of cancer.

Clinical Research Centre

Dr. Rajiv Sarin (Director, ACTREC)

Dr. Prashant C. Bhat (Asst. Medical Superintendent)

Anaesthesiology, Critical Care & Pain

Dr. Reshma Ambulkar
Dr. Bhakti S. Trivedi
Dr. Amol Kothekar
Dr. Malini P. Joshi
Dr. Raghu S. Thota
Dr. Prashant Tembre
(Clin. Scientist -Haematopath)

Biomedical Engineering

Dr. Amit Sengupta *(Clinical Scientist)*
Mr. Shine Kumar Rajappan

Cancer Genetics

Dr. Rajiv Sarin *(Clinician Scientist)*
Mrs. Neena Bhatnagar
Ms. Payal Manek**
Dr. Supriya Chopra

Composite Lab. & Microbiology

Dr. Vivek Bhat *(Microbiology)*
Dr. Preeti Chavan *(Lab Manager)*

Epidemiology & Clinical Trial Unit

Dr. Tejpal Gupta *(OIC)*
Mrs. Sadhana Kannan *(Data Manager)*
Ms. Kasturi Awatgiri
(Clinical Trial Assistant)

General Medicine

Dr. Prafulla Thakkar

Medical Oncology

Dr. Navin Khattry *(BMT)*
Dr. Manju Sengar
Dr. Amit Joshi *(BMT)*
Dr. Jaya Ghosh
Dr. Tushar Vora *(Paediatrics)*

Medical Physics

Mrs. Reena Devi Phurailatpam
Mrs. Siji Paul
Mr. Nitin Kakade**

Nursing

Mrs. Meera Achrekar
(Asst. Nursing Suptdt)

Pathology

Dr. Asawari J. Patil
Dr. Epari Sridhar
Dr. Saral Desai
Dr. Ranjan Basak *(Molecular Pathology)*
Dr. Nikhil Patkar
(Clin. Scientist -Haematopath)

Quality Manager

Mrs. Chital Naresh

Radiation Oncology

Dr. Rajiv Sarin
Dr. Tejpal Gupta
Dr. Vedang Murthy
Dr. Jayant Sastri Goda *(Clinician Scientist)*
Dr. Tabassum Wadasadawala

Radio Diagnosis

Dr. Seema Kembhavi

Rehabilitation & Support Services

Mrs. Bhagyashree Tillu
(*Medical Social Worker)*
Mrs. Mohua Chatterji *(Physiotherapist)*
Mrs. Jyoti Khade
***(Occupational Therapist)*

Surgical Oncology

Dr. Sajid Qureshi *(Paediatrics)*
Dr. Aliasgar Moiyadi *(Neurosurgery)*
Dr. Vinayak Shankhdhar *(Plastic Surgery)*
Dr. Sudhir Nair
(Clinician Scientist - Head & Neck)
Dr. Deepa Nair *(Head & Neck)*
Dr. Prakash Shetty *(Neurosurgery)*

Transfusion Medicine

Dr. Shashank Ojha
Dr. Aboli Marathe
Mrs. Manda Kamble

Translational Research Lab

Dr. Indraneel Mittra *(Professor Emeritus)*
Dr. Pradyumna Kumar Mishra
Mr. Naveen Kumar Khare

** Resigned in 2012

Bone Marrow Transplant Division of Hemato-Lymphoid Unit (Adult)

Dr. Navin Khattry
BMT Program Coordinator

Dr. Bhausaheb Bagal

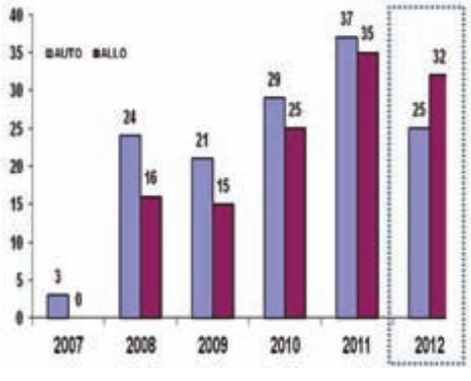
Dr. Jayant Gawande

Service

During 2012 the Bone Marrow Transplant Unit performed 57 bone marrow transplants (25 autologous and 32 allogeneic- fig 1), the vast majority being Hodgkin's disease, acute myeloid leukemia (AML), multiple myeloma, non Hodgkins lymphoma (NHL), Acute lymphoblastic Leukemia (ALL), aplastic anemia, chronic myelogenous leukemia (CML), neuroblastoma and other cancers. The overall survival at 3 years is ~ 60% with a median follow-up of 27 months. The 100-day mortality is ~10% and 365-day mortality is ~ 22% (80% of deaths are due to relapse. The leukemia/ lymphoma ward (17 beds) and adult hematolymphoid OPD are now fully functional. Around 700 patients have been treated as in-patients and 20-25 patients/ day as out-patients.

Research

The thrust area for research are evaluation of molecular prognostic markers and minimal residual disease in ALL; optimization of Bu-Cy conditioning regimen to minimize hepatic veno-occlusive disease; therapeutic monitoring of mycophenolate mofetil in allogenic stem cell transplantation; a phase III study of bosutinib versus imatinib in chronic phase Philadelphia chromosome positive CML patients.



Radiation Oncology

Dr. Rajiv Sarin,
Dr. Tejpal Gupta
Dr. Vedang Murthy
Dr. Supriya Chopra
Dr. Tabassum Wadasadawala
Dr. Jayant Goda Sastri
Ms. P Reena Devi
Ms. Siji Nojin
Mr. Nitin Kakade

Service

About 1000 new patients were referred to the Department of Radiation Oncology. A total of 774 and 115 patients were treated with external beam radiotherapy and brachytherapy respectively on IRB-approved clinical trials. The department has also been providing radiotherapy services for experimental and small animal irradiation. A novel cobalt-based total body irradiation technique prior to bone marrow transplant has also been successfully tested and implemented in the department. The indigenously developed telecobalt (Bhabhatron-II) and the Helical Tomotherapy functioned optimally. The summary statistics for 2012 are depicted below.

The department is involved in several multidisciplinary collaborative research, both investigator initiated and sponsored studies, the major thrust being gliomas, head and neck, cervical and prostate cancers. The specific projects are biological imaging in head and neck squamous cell carcinoma; compliance to hypofractionated radiation therapy, disease outcomes, and quality-of-life

in patients with gliomas; MR-PET guided interstitial Brachytherapy in cervical cancer recurrence, Phase III study of IGRT for reduction in small bowel toxicity in cervical cancer patients receiving postoperative adjuvant radiation, and evaluation of gamma H2 AX expression in cervical cancer patients undergoing radiation; Prospective randomised trial of targeted radiotherapy in high risk prostate cancer and prostate cancer genetics study including screening in BRCA1/2 mutation carriers and controls. The department is also involved in radiosensitization studies of an anticancer drug formulation and in development of, low cost radiotherapy accessories for clinical use.

Table 1: General departmental statistics

Parameters	Numbers
RT new referrals	980
External RT (XRT) started Cobalt Tomotherapy	774 550 224
No. of XRT fractions	20345 fractions
Simulator patients	536
TPS Tomotherapy Oncentra (XRT)	471 256 215
Integrated brachytherapy unit	395 fractions
In-patients	69 admissions
Average in-patient stay	5 days

Table 2: Unit-wise statistics

Parameter	Unit	No. of patients
XRT	Head & Neck	287
	Breast	119
	Gynecology	119
	Genito-urinary	38
	Gastro-intestinal	32
	Neuro-oncology	57
	Hemato-lymphoid, BST/PST	122
	XRT (total)	774
Brachytherapy (BRT)	Gynecology	89 patients 220 fractions
	Breast	25 patients 166 fractions
	Bone-soft tissue	1 patient 9 fractions
	BRT (total)	115 patients 395 treatments

Radiodiagnosis

Dr. S.L. Juvekar
Officer-in-charge
(deputed from TMH)

Dr. S.A. Kembhavi

Service

The department provides diagnostic imaging services in the form of conventional radiography, ultrasonography (USG - transabdominal, endocavitatory and small parts), color Doppler, diagnostic and planning computed tomography (CT), magnetic resonance imaging MRI scans with/ without intravenous contrast, and interventional procedures like image-guided FNAC, biopsies and drainage procedures. The department performed 1121 conventional radiological investigations including chest (972), bone (107) and abdomen/ pelvis (42). In all, 487 USG/ color Dopplers, 3223 diagnostic CT scans, 717 radiotherapy planning CT scans, and 1150 MRI scans were performed. Besides routine MR imaging, advanced MR imaging such as diffusion tractography and functional MR imaging were also performed. CT and MRI scans were also performed on animals as a part of several animal research projects.

Bioengineering & Gynecology - Colposcopy

Dr. Amit Sengupta
Consultant

Research

The thrust area of this research facility is Cancer Theranostics - development of new and affordable diagnostic tools/ treatment protocols using engineering research techniques. The department addresses development of community based affordable Preventive Oncology techniques such as Computer assisted automation and modification of PAP smear technique, imaging system or cervico-scope, bio-photonics based imaging and analytical system for mass screening and early detection of cervical and breast cancer. A the department is also engaged in use of physiological control system in - vascular model and tissue engineering of cancer like using intelligent systems, in for early diagnosis, Biological signal processing, Automation in micro-imaging and small animal models, Bio-sensor development, and Vascular remodeling in metronomic therapy. Other areas include theoretical predictive modeling and simulation to predict cancer drug dose/ concentration, and drug action,

and (cognitive and behavioral research in cancer. The specific research projects are development of novel label free cancer diagnostic and therapeutic platform, Effect of hyperbaric oxygen in control of mammary tumor growth in C3H mice, evaluation of axillary nodes by fluorescein and Raman spectroscopy, colposcopy, HPV and PAP evaluation of the cervix of women recruited under ICGC project, ,Standardizing small animal imaging modalities to study angio-architecture and functional vascular changes in relation to tumor growth.

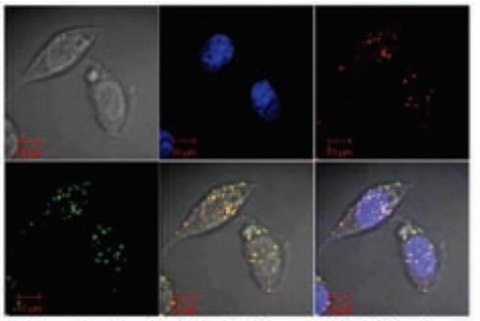
Translational Research

Dr. Indraneel Mittra
Professor Emeritus

Dr. Pradyumna Kumar Mishra

Mr. Naveen Kumar Khare

The main focus of this lab is on examining the role of circulating chromatin in cancer and chronic degenerative diseases. Earlier studies had found that fragmented circulating DNA and chromatin (DNAfs and Cfs) from cancer patients, can induce chromosomal aberrations, translocations, genomic instability and can oncogenically transform recipient cells in culture. A novel therapeutic combination of Resveratrol and copper (R-Cu^{2+}) effectively degrades Cfs and this activity increases with a decrease in copper concentration. , Extremely low R:Cu^{2+} concentration (molar ratio 1:0.000001) can degrade Cfs and prevent LPS-induced lethality in the mouse sepsis model. it can also bring down elevated levels of Cfs and inflammatory cytokines, prevent neutropenia and inflammation induced by Adriamycin, prevent metastasis in the B-16F-10 mouse melanoma model, and enhance the cytotoxic effects of Adriamycin in MDA-MB-231 xenograft in SCID mice.



Cellular uptake and nuclear localization of fluorescently labeled Cfs. Cfs were isolated from sera of cancer patients; the DNA component was labeled with Platinum Bright™ 550Red nucleic acid universal linkage system (ULS) (red), while histones were labeled with ATTO-TEC-488-NHS-ester (AT488) (green). Cfs, dually labeled red and green, generating a yellow fluorescence, are clearly seen in nuclei of treated cells. NIH3T3 cells were treated with labeled Cfs and observed under laser confocal microscope at 6 hours.

Research

1) Circulating nucleic acids damage DNA of healthy cells by integrating into their genomes, (2) A paradoxical relationship between Resveratrol, ascorbic acid and copper with respect to DNA degradation *in vitro* and *in vivo*, (3) Resveratrol-copper (II) prevents lipopolysaccharide induced inflammation and death in a mouse sepsis model, (4) Resveratrol-copper (II) prevents Adriamycin-induced neutropenia in mice, (5) A possible central role of circulating chromatin in ageing, (6) Chromatin from apoptotic tumour cells enter into healthy cells to integrate into their genomes and oncogenically transform them, (7) Chromatin from apoptotic tumour cells enter into surviving tumour cells, integrate into their genomes and impart chemotherapy resistance, (8) Resveratrol-Cu2+ prevents metastasis in the B-16F-10 melanoma model, and (9) Resveratrol-Cu2+ enhances the cytotoxic effect of Adriamycin.

Transfusion Medicine

Dr. Shashank Ojha
Officer In Charge

Dr. AN Marathe

Mrs. MG Kamble

Service

This department (DTM) maintaining high standards in provision of safe blood in adequate quantities for patients admitted at ACTREC, and hospitals/ in neighbouring areas. Its routine services include blood grouping, Rh typing, cross matching, collection of single donor platelets (SDPs) and peripheral blood stem cells, and bone marrow processing for red cell/ plasma depletion, etc. . The accompanying table provides statistics about DTM performance during 2012. DTM conducted a large number of indoor voluntary donation drives and 34 outdoor blood donation camps to achieve the goal of 100% voluntary blood donation. A 'Voluntary Donor Club' was created to handle the crisis of platelet/ rare group donors. DTM is also a primary support to the Bone Marrow Transplant unit. Collected stem cells are processed, checked for quality, cryopreserved, stored and inventory is maintained until they are issued. Unrelated stem cell transplants (cord, BMH and PBSC) are increasing. Stem cells that are received are assessed for proper documentation, a quality check is run, and the cells are preserved/ issued for transplant.

Education

DTM also conducts weekly in-house academic sessions. Staff members are encouraged to undergo training, participate in scientific meetings and conferences, and keep abreast with the latest developments in the field.

Department of Transfusion Medicine : Statistics for 2012

Blood units collected	1644 (voluntary 1522, replacement 46, credit/ debit 76)
Outdoor blood collection camps	34
Peripheral stem cell collections	87 (auto- 46 for 29 patients, allo- 41 for 32 patients)
Bone marrow harvests	3 (auto-1, allo- 2)
Bone marrow harvest processing	2
Plateletpheresis procedures done	577
Granulocyte collection	15
Leucodepleted products	1278
Irradiated blood products	1961 (apheresis platelets 577, RDPs 587, packed cells 797)
Components prepared	3635 (whole blood 464, packed cells 1095, platelets 1004, plasma 1072)
TTI tests done	19681 (HIV 4298, HBsAg 4247, HCV 4253, VDRL 3703, MP 3180)
Blood grouping	3118 (patients 426, donors 1644, TTS 1048)
Cross matching	4086
Components issued	3422 (indoors patients 2636, TMH 246, other hospitals 540)

Microbiology

Dr. Vivek Bhat
Asst. Microbiologist

Service

During the report period, the Microbiology department conducted bacteriological analysis on 3731 samples (2321 blood, 390 stool, 535 swabs, 22 pus, 209 urine, 54 tip, 115 respiratory, 41 CSF and 44 other samples). Clinical microbiological assessment was performed in 766 samples (639 urine, 117 stool and 10 UPT). Serology was undertaken for 582 samples (8 HIV, 33 HBsAg, 23 HCV, 251 viral triple marker, 166 malaria, 59 procalcitonin, and 42 other samples). Other tests included Mantoux, Widal and adenovirus antigen. Microbiology support was also provided for 766 samples (214 PBSC and 552 others such as SDP, RDP and packed cells) from the Blood Bank. The department undertook Environmental Surveillance for the

Centre, wherein air sampling was done once a week in BMT unit and once a month or as per requirement in the OTs and ICU, and water sampling was done once a week in BMT unit and once a month or as per requirement in the Kitchen.

Composite Lab

Dr. Preeti Chavan
Lab Manager

Service

Composite Lab is a diagnostic lab where hematological and biochemical investigations of patients are done. The lab processes routine hematology with two 5-part differential analyzers and one semi-automated coagulometer. Routine biochemistry is performed on two fully automated biochemistry analyzers. The lab has a fully automated analyzer for immunoassays and has recently started osmometry. During 2012, a total of 22,555 samples were processed for Biochemistry and 26,334 for Hematology.

Research

(1) Comparison of blood count parameters in venous and fingertip (capillary) blood in oncology patients.

Nursing

Mrs. Meera Achrekar
Asst. Nursing Superintendent

Service

The aim of the nursing community worldwide is for its professionals to ensure quality care for all, while maintaining their credentials, code of ethics, standards, and competencies, and continuing their education. In keeping with the changing scenario, nurses at ACTREC are not just care providers, but are managers and co-ordinators of nursing care, with a focus on development of quality nursing care, establishment of standards of practice, nursing guidelines and policies. Nursing audit on sample collection, completion of initial nursing assessment, blood transfusion practices and crash cart were initiated during 2012 and corrective action taken where needed. A format for nursing care plan for breast cancer cases has been finalized and will be implemented shortly.

Education

The department has an active in-house educational program wherein topics and cases are presented by nursing staff and experts in different disciplines. Staff members are encouraged to attend seminars and conferences to be updated about new trends.

Central Sterile Supply Department

Mrs. Shraddha Bidaye
Officer in Charge

Service

CSSD carries out sterilization of material required in the operation theatres, IBU, ICU, BMT, OPD and wards, in order to control the incidences of hospital infection, and maintains sufficient stocks of surgical instruments and related items in good condition. Sterilization equipment in CSSD include ultrasonic cleaner, washer disinfector, drying cabinet, dry heat sterilizer, pre-vacuum type steam sterilizers, ethylene oxide gas sterilizer and heat sealing machines. Stringent quality control measures are followed. During 2012, CSSD ran 3400 steam sterilizer cycles and 180 ethylene oxide sterilizer cycles to process general and heat sensitive material, resp. for provision to various end user departments.

BASIC RESEARCH TEAM - 2012

Dr. Surekha Zingde

Deputy Director, CRI – ACTREC

Scientific Officers

- Dr. Kishore Amin
- Dr. Dibyendu Bhattacharyya (PI)
- Dr. Kakoli Bose (PI)
- Dr. Pradip Chaudhari
- Dr. Murali Krishna Chilakapati (PI)
- Dr. Shubhada Chiplunkar (PI)
- Dr. Sorab Dalal (PI)
- Mr. Uday Dandekar
- Dr. Abhijit De (PI)
- Mr. Shashadhar Dolas
- Dr. Amit Dutt (PI)
- Dr. Shilpee Dutt (PI)
- Mr. Nikhil Gadewal
- Dr Vikram Gota
- Dr. Rukmini Govekar
- Dr. Rajiv Gude (PI)
- Dr. Sanjay Gupta (PI)
- Dr. Arvind Ingle
- Mr. Anand Jadhav
- Dr. Narendra Joshi
- Dr. Aarti Juvekar
- Dr. Rajiv Kalraiya (PI)
- Dr. Jyoti Kayal*
- Dr. Jyoti Kode
- Dr. Pradnya Kowtal
- Dr. Manoj Mahimkar (PI)
- Dr. Girish Maru (PI)
- Dr. Robin Mukhopadhyaya (PI)**
- Dr. Rita Mulherkar (PI)
- Mr. Anand Patil
- Dr. Asha Ramchandani
- Dr. Pritha Ray (PI)
- Dr. Rajiv Sarin (PI)
- Mrs. Sharada Sawant
- Dr. Neelam Shirsat (PI)
- Dr. Tanuja Teni (PI)
- Dr. Rahul Thorat
- Dr. Milind Vaidya (PI)
- Dr. Ashok Varma (PI)
- Dr. Prasanna Venkatraman (PI)
- Dr. Sanjeev Waghmare (PI)
- Dr. Ujjwala Warawdekar
- Dr. Surekha Zingde (PI)

* Resigned **Retired in 2012

Bhattacharyya Lab

Dr. Dibyendu Bhattacharyya
Principal Investigator

The research interest of this lab is protein trafficking, Studies focus on the size control mechanism of Golgi apparatus and that of the nucleus and its implication in cancer, and regulation of dynamics and number of ER exit sites. In saccharomyces cerevisiae disruption of the ARF 1 gene leads to larger and fewer Golgi cisternae. Similarly, data from this lab shows that with disruption of the ARF1 gene in arf1d cells, the number of late Golgi cisternae are severely reduced,. The arf1d mutation causes early Golgi cisternae to mature more slowly and less frequently, but does not alter the maturation of late Golgi cisternae. These could explain why late Golgi cisternae are fewer in number and correspondingly larger. Thus, the rates of processes that transform a compartment can influence compartmental size and copy number. Assay systems have been developed to monitor the size variation of nucleus using fluorescent fusion of lamins and histones.

Research: (1) Study to investigate the role of phosphatidylinositol 4-phosphate (PtdIns4P) binding effector GOLPH3/VPS74 in the size control mechanism of Golgi apparatus by depletion analysis using anchor away knock sideways method, and (2) The size and shape control mechanism of Golgi apparatus.

Bose Lab

Dr. Kakoli Bose
Principal Investigator

The long-term objective of this lab is to achieve a broad understanding of structure, function and specificity of proapoptotic proteins and their role in cancer. Two proapoptotic proteins viz., HtrA2/Omi (high temperature requirement protease A2) and human papillomavirus regulatory E2 protein have been chosen for study. HtrA2/Omi is a unique trimeric serine protease that performs critical cellular functions, the mechanism of which is elusive.

Research

(1) Structural and functional characterization of proapoptotic proteins: Human papillomavirus E2 and serine protease HtrA2: which involves two parts (a) Understanding protein-protein interactions involved in papillomavirus E2 induced apoptosis, and (b) Proapoptotic serine protease HtrA2/Omi: structural determinants of its mechanism of action; (2) Role of HtrA2 and its domains in regulating its specificity and functions; (3) Characterizing the ability of HPV E2 mutant in inducing apoptosis in HPV positive cell lines and in mouse model; (4) Understanding the mechanism of apoptosis regulation involving anti-apoptotic protein HAX1 and pro-apoptotic serine protease HtrA2/Omi; and (5) *In silico* prediction and validation of novel binding partners for a proapoptotic serine protease HtrA2/Omi.

Chilakapati Lab

Dr. C. Murali Krishna
Principal Investigator

There is an urgent need to develop sensitive screening tools, preferably non invasive, for early diagnosis of cancer. Optical spectroscopic methods like infra red absorption, Raman and fluorescence would be ideal for such applications. . This lab focuses on the development of *in vivo*/ *in situ* Raman microspectroscopy methods for screening/ diagnosis in clinical samples like body fluids, cells and tissues. Further interests include exploration of complementary FTIR spectroscopy to validate Raman spectroscopy findings; developing fiber probe designs for *in vivo* applications; and correlation of spectral features to biomolecules/ cancer biology.

Raman spectroscope - *In vivo* applications

Research

(1) Development of *in vivo* laser Raman spectroscopy methods for diagnosis of oral precancerous and cancerous conditions, (2) *In vivo* Raman spectroscopic prediction of radio-sensitivity in oropharyngeal cancers – a pilot study, (3) Elucidation of Raman spectral markers in the progression of cervical cancer, (4) Comparative evaluation of diagnostic efficacy of laser Raman spectroscopy and histopathology in an animal model of oral carcinogenesis, (5) A study of breast cancer progression in rodent models using Raman spectroscopy, (6) Raman mapping of oral buccal mucosa, (7) Setting up of laser facility for medical and technological applications at Anna University, Chennai, (8) Synthesis, optical and photothermal characterisation of metallic nano particles for biomedical applications, and (9) Raman micro spectroscopy studies of cervical cancer.

Chiplunkar Lab

Dr. Shubhada Chiplunkar
Principal Investigator

Dr. Jyoti Kode

The focus of Chiplunkar lab is to understand the reasons for immune dysfunctions in cancer patients, analyse the role of gd T, MDSC, Th17 cells in cancer patients, study the cross talk of T regulatory cells with other immune cell types, and study the role of mesenchymal stromal cells in cancer. The goal is to develop immunotherapeutic approaches for cancer treatment. Earlier studies from the lab have shown that CD3 zeta, the key T cell signalling molecule is degraded in oral cancer patients. Current research involves a study of how the tumor microenvironment influences CD3 zeta degradation Using LC-MS-MS, molecules present in the tumor supernatents - that may play a key role in degrading CD3 how myeloid derived suppressor cells and galectin cause immune suppression is being studied. In patients with gall bladder cancer, the functional dynamics of Th17 and regulatory T cells that contribute to the inflammatory environment in this malignancy are under investigation. The lab carried out in depth work on gd T cells both in solid tumors and in leukemias, to develop immunotherapeutic approaches for cancer treatment.. Recent studies demonstrate how Notch signalling plays an important role in regulating anti tumor function of gd T cells. In breast cancer patients, study of the crosstalk between gd T cells and osteoclasts has revealed that gd T cells inhibit osteoclastogenesis, with potential implications in the treatment of bone metastasis. The role of gd T cells in immune synapse formation with leukemic blasts and how these cells contribute to good prognosis is being studied in patients with leukemia and those receiving bone marrow transplant. The lab is also supporting the 'Science initiative in ayurveda' by investigating the immunomodulatory action of *bhasmas* and *Panchakarma* therapy.

Research

(1) Toll like receptors and anti-tumor immunity: role of gd T lymphocytes, (2) Role of alkylamines in priming gamma delta T lymphocytes for antitumor effector functions, (3) Role of Notch in regulation of gd T lymphocytes and regulatory T cell functions, (4) Immune dysfunction in oral cancer patients - role of tumour microenvironment, (5) Understanding the pathogenesis of gall bladder cancer: role of TH17 and regulatory T cells, (6) Genomic and functional studies in leukemia patients exhibiting TCR gd gene rearrangement, (7) Epigenetic regulation and anti-tumor effector functions of gamma delta T-Cells, (8) Immunodiagnostic and therapeutic potential of MAb B11F12 against oral cancer, (9) Explore pathways in the area of innate immunity using herb extracts/ fractions, (10) Bioactivity studies of *Bhasmas*, (11) Role of galectin-3 in modulating tumor specific immunity and lung metastasis in mice, and (12) Evaluation of accuracy of urinary EBV DNA estimation, its correlation with plasma EBV DNA and radiological responses in patients with locally advanced nasopharyngeal carcinoma (NPC) undergoing treatment.

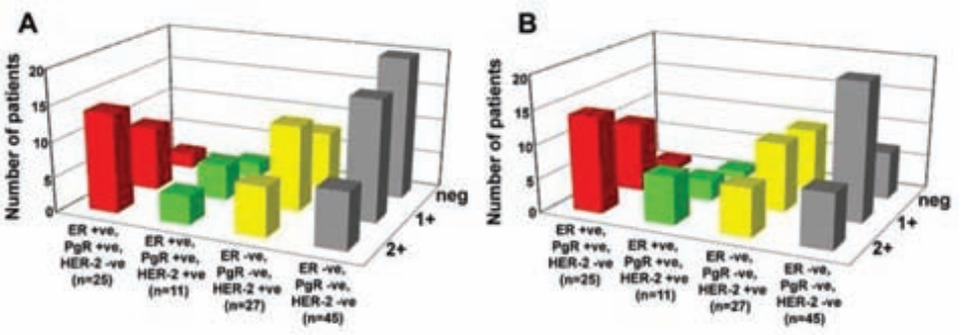
De Lab

Dr. Abhijit De
Principal Investigator

Molecular imaging provides real-time visualization and quantitative measurement abilities of cellular processes at the molecular or genetic level. Therefore, molecular functional imaging of cancer progression in experimental animal model benefits translating basic research to the clinic. Research in this lab involves miniaturized medical imaging equipments suitable for testing experimental concepts in small animal models, which can be directly translated into image-guided clinical *diagnosis* and personalized *therapy* applications in cancer.

Research

(1) Human sodium iodide symporter (hNIS) biomarker application in breast cancer diagnosis and treatment, (2) Development of in vivo bioluminescence resonance energy transfer assay sensor for cancer applications, and (3) Gold nanoparticle based targeted radiotherapy evaluation in mouse breast cancer model. Apart from these main frame projects, several collaborative studies were also initiated/ completed this year. Work done in collaboration with Dr. Sathees Raghavan's group at IISc, Bangalore on 'Evaluating novel Ligase IV inhibitor drug in animal model using optical imaging technique' has been published in the December issue of Cell (just the 3rd publication from India appeared in Cell).

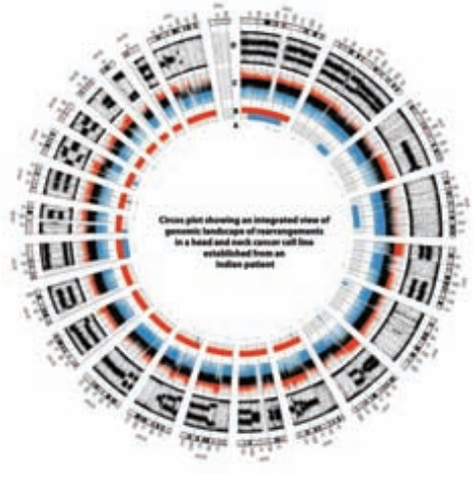


Subtype specific hNIS scoring analysis in breast cancer tissue samples.
A) IHC scoring for hNIS in various breast cancer subtypes by pathological analysis; **B**) IHC scoring for hNIS of the same dataset by semi-automated process developed. On an average 68% match and 75% match with 2+ score is observed between the two scoring methods.

Dutt Lab

Dr. Amit Dutt
Principal Investigator

The overall aim of this lab is to understand the biological basis of human cancers to guide development of clinical therapeutics. The research efforts involve integrated characterization of somatic alterations of cancer-specimens by performing genome-wide analysis of copy number changes using SNP arrays, genomic re-sequencing using Next Generation sequencing platforms, and low throughput loss-of-function pooled RNAi mediated genetic screen using tumor derived cell lines developed in-house. Using molecular and cellular approaches, the functional relevance of somatic alterations identified earlier by genomic approaches, is being studied.



Circos plot showing an integrated view of genomic landscape of rearrangements in a head and neck cancer cell line established from an Indian patient

Research

(1) Defining the cancer genome of head and neck squamous cell carcinoma (HNSCC) with SNP arrays and Next Generation sequencing technology, (2) Genome-wide RNAi screen with human pooled tyrosine kinase shRNA libraries in head and neck squamous cell carcinoma (HNSCC) cell lines, (3) Progestogenomics: Identify the transcriptional targets of progesterone in human breast cancer, (4) Profiling the incidence of novel alteration discovered in human lung cancer, (5) Characterizing the somatic landscape of genetic alterations in human retroperitoneal liposarcomas, and (6) Functional genomic characterization of therapeutically relevant vulnerabilities in TSCC.

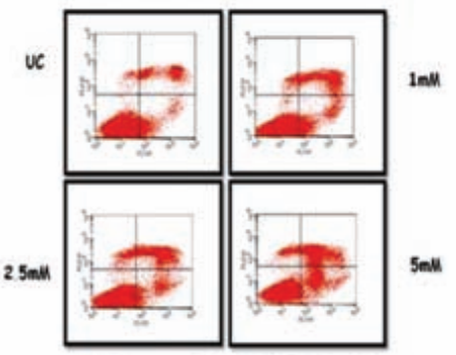
Gude Lab

Dr. Rajiv Gude
Principal Investigator

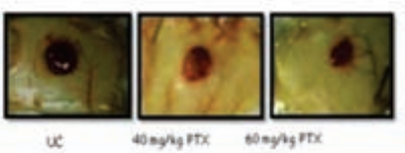
The lab examines various aspects of cancer metastasis such as the role of metastasis associated 1 (MTA1) in motility of MDA-MB-231 breast cancer cells via vasodilator-stimulated phosphoprotein (VASP) and in actin filament assembly using *in vitro* systems. Another area understudy is delineation of molecular mechanisms of anti metastatic drugs such as pentoxifylline, using human melanoma cells and. MDA-MB-231 breast cancer cells. Trials with hyperbaric oxygen therapy revealed accelerated growth and progression of mammay tumors post therapy in C3H Jax mice. To achieve better drug delivery, drug entrapped nanoparticles and PEGylated immunoliposomes. are ebign examined. The potential of lipidic nanoparticles containing polyphenolic flavonoid (PPF-QR) quercetin in improving antimetastatic/ antitumor efficacy was examined using B16F10 melanoma model. The effect of lipid nanoparticles of coenzyme Q10 analog on B16F10 melanoma cell lines was also studied.

Research

(1) The role of metastasis associated 1 (MTA1) in the metastatic process of breast cancer, (2) Effect of a methylxanthine derivative and anticancer drugs on integrin mediated adhesion and induced apoptosis in breast cancer cells, (3) Effects of a methylxanthine derivative on STAT3 mediated regulation of cytokines involved in tumor development and tumor induced angiogenesis in melanoma cells, (4) Understanding the role of bisphosphonates and gamma delta T lymphocytes in patients with breast cancer and bone metastasis, (5) Effect of hyperbaric oxygen on mammary tumor in C3H Jax mice, (6) Evaluating potential of lipidic nanoparticles to improve *in vivo* antimetastatic efficacy of polyphenolic flavonoid (PPF-QR), (7) *In vitro* study of lipidic nanoparticles coenzyme Q10 analogue on B16F10 melanoma, and (8) Design and characterization of immunoliposomes for site specific delivery of selected anticancer drugs.



(a) AnnexinV / FITC Staining

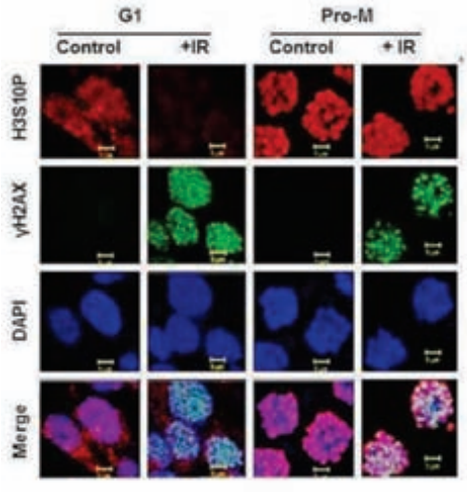


(b) Intradermal model of angiogenesis

Gupta Lab

Dr. Sanjay Gupta
Principal Investigator

This lab studiesalterations in histones during carcinogenesis and DNA repair *per se*. When incorporated into chromatin, histone post-translational modifications and/or variants participate in diverse nuclear functions including DNA damage and gene regulation and potentially play a role in epigenetic inheritance of chromatin states. Histone variants alter the structure and stability of the nucleosomes and provide the cell with the potential to change its post-translational modification profile due to amino acid sequence differences from their conventional histone counterparts. Efforts are on to decipher the relationship between histone modification and cancer, functional role of histone variants, their role in nucleosome structure organization, their differential transcriptional regulation, variant-specific modifications and binding proteins that escort histone in and out of the chromatin and their role in DNA damage response.



Decrease of H3Ser10 phosphorylation is G1-phase specific in DDR

Research

(1) Histones, chromatin structure and their role in DNA repair during carcinogenesis, (2) Transcriptional regulation of histone H2A variant genes during hepatocarcinogenesis, (3) Epigenetics in gastric cancer: analysis of histone modifications and histone modifying enzymes, (4) Chromatin organization: molecular role of H2A variants, (5) Molecular role of H2A variants and their Implications in carcinogenesis: identification of differential binding partners, and (6) Synthesis and evaluation of potential histone methyl transferase (HMTase) inhibitors as anticancer agents in leukemia cell lines.

Kalraiya Lab

Dr. Rajiv Kalraiya
Principal Investigator

Glycosylation, the major post translational modification on proteins, regulates cellular function by modulating protein structure and function. Expression of ²1,6 branched N-linked oligosaccharides present on proteins is closely linked to invasion and metastasis to lung and liver. This lab aims to investigate the mechanism by which these oligosaccharides promote these processes. Earlier studies have revealed that interaction between poly-N-acetyl lactosamine (polylacNAc) substituted ²1,6 branched N-oligosaccharides on melanoma cells. Galectin-3, the high affinity receptor for polylacNAc, expressed in highest amounts on the lung, facilitates lung homing and plays a key role in lung specific metastasis. Strategies that target galectin-3/ oligosaccharides interaction also inhibit metastasis.. Presence of Beta1,6 branched N-oligosaccharides on ²1 integrin influences its interaction with other proteins and thus cellular functions favoring invasion. The functional importance of the recently discovered O-glcNAcylation of nuclear and cytoplasmic proteins in regulating keratin 8/ 18 properties and its impact on cellular behavior and malignant transformation is being studied. Studies of the role of progesterone in imparting survival advantage to breast cancer patients irrespective of their receptor status, and that of fungal lectin in the pathogenesis of mycotic keratitis have been initiated. .

Research

(1) Role of ² 1,6 branched N-oligosaccharides and associated terminal substitutions on tumor cells and their possible receptors on lungs in organ specific metastasis, (2) Altered cell surface glycosylation and organ specific metastasis, (3) Mechanisms involved in regulation of processes critical for cancer metastasis by ²1,6 branched N-oligosaccharides, (4) Role of ²1,6 branched N-oligosaccharides in regulating the key cellular processes involved in cancer cell invasion, and (5) Role of glycosylation (O-glcNAcylation) in regulating keratins 8 and 18 functions.

Mahimkar Lab

Dr. Manoj Mahimkar
Principal Investigator

Current efforts focus of this lab on identification of genomic biomarkers in oral carcinogenesis.Proliferation of cancer initiated cells is facilitated by altered regulation of genes that affect cell cycle control, apoptosis, angiogenesis, adhesion, transmembrane signaling and DNA repair. Cancer progresses through the accumulation of genetic and epigenetic changes, ultimately resulting in gross genomic instability and changes in gene expression pattern. Hence this lab is focusing on: (a) Genomic alterations at the level of copy number across the genome, and (b) Identification of genes/ gene clusters underlying these altered genomic loci. Data reveals that *GSTM1* and *XPD* variant alleles, independently or in combination may serve as important predictors of clinical outcome in radiotherapy-treated OSCC patients. Array comparative genomic hybridization analysis of advanced stage oral cancers reveal that the chromosomal gain in region 11q22.1-q22.2 and 11q23-q25 is associated with loco-regional recurrence and shorter survival. Putative driver genes associated with oral carcinogenesis and shorter survival have been identified by integrating DNA copy number and gene expression data,

Research

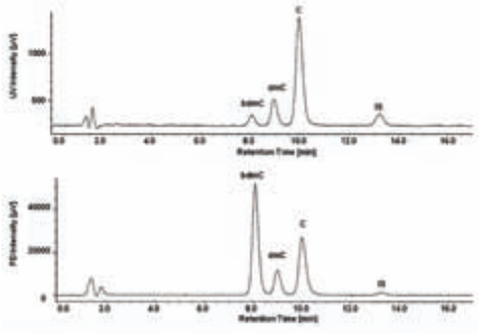
(1) Genomic profiling of oral precancerous lesions and early stages of oral cancer, (2) Analysis of genetic host factors, HPV, EGFR and Hypoxia markers and their association with clinical outcome in subjects with locally advanced squamous cell carcinoma of head and neck, and (3) Transcriptomic analysis of tobacco carcinogen induced experimental lung tumors and chemoprevention studies using phytochemicals.

Maru Lab

Dr. Girish Maru
Principal Investigator

Dr. Asha Ramchandani

The on-going research programs broadly encompass chemo-modulation of carcinogenesis where major effort is directed towards the identification and delineation of the mechanisms of action of chemopreventive agents from Indian foods and beverages, and development of surrogate endpoint biomarkers. Mechanism(s) of chemopreventive actions of monomeric (curcumin) and/or polymeric (polymeric black tea polyphenols-PBPs) or crude grape polyphenolic extracts against chemical–induced carcinogenesis were studied employing different experimental systems. The mechanisms implicated in anti-initiation and anti-promotion of carcinogenesis by chemopreventive agents show several commonalities and involve modulation of signaling kinases or xenobiotic-induced activation/ translocation of kinases ultimately leading to effects on multiple signal pathways and genes.



Representative chromatograms of blank human plasma spiked with C (100 ng/ml); dmC (33 ng/ml); bdmC (5 ng/ml) and IS (10 ng/ml) monitored at UV (λ_{max}=425 nm) and FD detector (λ_{ex}=429 nm and λ_{em} =532 nm).

Research

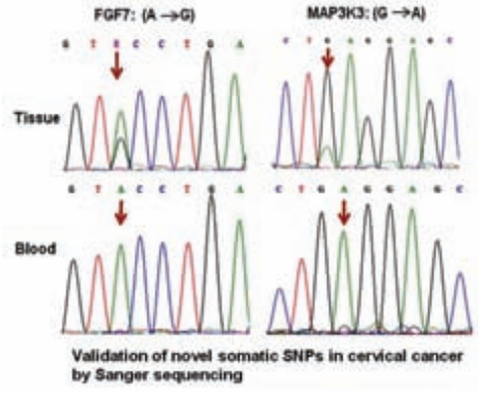
(1) Evaluation of chemopreventive efficacy of polymeric black tea polyphenols and mechanism(s) of their anti-promoting effects, (2) Evaluation of chemopreventive effects of curcumin/turmeric on lung tumorigenesis, (3) Development and validation of a sensitive HPLC method for the quantification of curcuminoids in human plasma, and (4) Evaluation of chemopreventive effects of crude polyphenols from wine varieties of Indian grapes and mechanism(s) of their action.

Mulherkar Lab

Dr. Rita Mulherkar
Principal Investigator

Dr. Ujjwala Warawdekar

The research efforts of this lab are based on three main areas: Preclinical studies in gene therapy for cancer, Genetic predisposition to cancer in patients with multiple primary cancers with special reference to tobacco related cancers, and Genomics of cervical cancers. The lab also pursues studies on minimal residual disease in solid tumours, in collaboration with surgeons from TMH, and a CSIR funded project on effect of HDAC inhibitors on gap-junctional complexes.



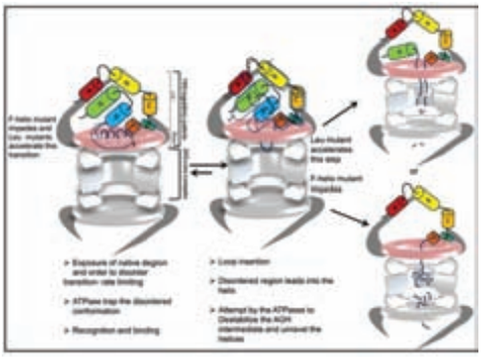
Validation of novel somatic SNPs in cervical cancer by Sanger sequencing

Research

(1) Identification of specific genetic alterations in cervical cancer by genome wide LOH and copy number analysis using SNP arrays, (2) Genotype: molecular phenotype correlation using lymphoblastoid cell lines (LCL) from patients with multiple primary neoplasia, (3) Validation of differentially expressed genes in cervical cancer from microarray data, (4) Identification and validation of novel genetic variations in cervical cancer samples using Next Generation sequencing data, (5) Assessing dissemination of breast cancer cells in general circulation due to tumour handling during surgery, and (6) Use of HDAC inhibitors and other drugs to increase gap junctions to enhance the bystander effect for tumour cell kill by prodrug activation strategy.

Prasanna Lab

Dr. Prasanna Venkatraman
Principal Investigator



This lab aims at dissecting the fundamental mechanism behind aberrations in protein synthesis trafficking and degradations for a better understanding of the global aberrations which can lead to cancer, and also for devising new strategies for therapeutic intervention. The present research focus is on structural, mechanistic and cell biological aspects of protein degradation by the proteasome; and the ATP dependent functions of the human chaperone 14-3-3. The program PNSAS developed in-house is being used to predict natural substrates of proteases, desmoglein 2 (Dsg-2. Using structural insights and bioinformatics tools, functionally relevant Isystem-wide interactions have been successfully identified between the proteasomal subunits gankyrin and PSMD9. Coupled with micro array, proteomic studies, available X-ray crystal structures, modeling and docking studies, our prediction is being validated using in vitro systems and cell based assays.

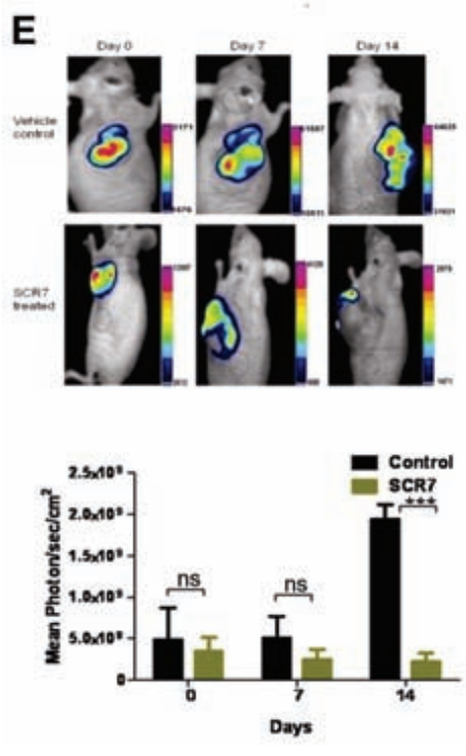
Research

(1) Structural and mechanistic aspects of protein degradation, (2) Identification of Degrons, (3) Role of PSMD9 in NFkB activation, (4) Identifying novel functions of Gankyrin, a subunit of the eukaryotic proteasome through global profiling, and (5) Identification of a novel ATP binding site in 14-3-3 zeta and elucidation of its ATP dependent functions.

Ray Lab

Dr. Pritha Ray
Principal Investigator

Acquisition of resistance to the standard platinum and taxol based therapies in the ovarian cancer patients is a considerable challenge for the clinicians. Alterations in apoptotic activities, drug transporter mechanism, DNA repair mechanism and deregulation of cell survival factors play an important role in the acquisition of chemoresistance in ovarian cancer. Ray lab is focusing on early detection of molecular changes associated with acquirement of cisplatin and paclitaxel resistance in ovarian cancer cells. The role of 'tumor initiating' or 'cancer stem cells' in development of resistance is also under investigation. Another interest is in understanding the role of Hox genes in subtype specific differentiation and ovarian cancer stem cells.



Research

(1) Early detection of molecular changes associated with acquired chemoresistance in ovarian carcinoma, (2) Role of ovarian cancer stem cells (OCSC) in development and maintenance of chemoresistance, (3) The role of cancer stem cells in biological and molecular heterogeneity of epithelial ovarian cancers, (4) Identification of potential regulators of PIK3CA promoter in chemo resistant ovarian cancer cells, (5) Characterization of the molecular dynamics of acquired chemo resistance in ovarian carcinoma using reporter gene technology, (6) Studying cellular localization of Akt and biochemical alterations during acquirement of cisplatin and paclitaxel resistance in ovarian cancer cells, and (7) Identification of novel peptide ligands for detection of Chemoresistance in epithelial ovarian carcinoma cells.

Sarin Lab

Prof. Rajiv Sarin
Principal Investigator

Dr Pradnya Kowtal
(Cancer Genetics & ICGC);

Dr Kishore Amin (ICGC)

The primary focus of Sarin lab is to understand the molecular basis of inherited cancers; gene environment interactions in sporadic breast cancers and somatic mutations in oral cancers through genetic and functional analysis and translate the findings to the clinic and community as applicable. The group is working with a cohort of 2000 families with diverse and some very rare hereditary cancer syndromes, a cohort of 2500 sporadic breast cases and matched healthy controls and 300 oral cancer tumours as a part of the International Cancer Genome Consortium . Germline driver mutations in almost all hereditary cancer syndromes have been identified, several of these being founder, novel or recurrent mutations with public health relevance. Some unique cellular model systems for biological studies have been established from biospecimens obtained from patients with rare human mutations.

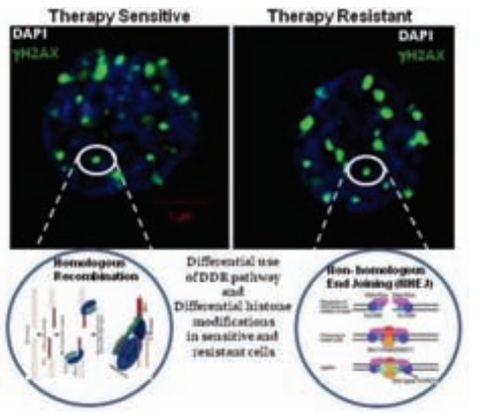
Research

(1) Hereditary breast ovarian cancer syndrome; hereditary colorectal cancers and other syndromes; (2) Breast cancer genetics, environment and lifestyle - BRCAGEL; (3) Screening geo-ethnic groups for founder mutations, (4) Step wise carcinogenesis in hereditary colorectal cancer; (5) Understanding chromothripsis using Li Fraumeni syndrome due to germline TP53 mutation as a model system; and (6) International Cancer Genome Consortium (ICGC) study on oral cancer with NIBMG, Kolkata.

Shilpee Lab

Dr. Shilpee Dutt
Principal Investigator

This lab focuses on the epigenetic regulation of chromatin structure and the DNA damage response (DDR) of a cell. DDR pathway is a well appreciated key player in conferring chemo and radiation resistance to the cancer cells. How epigenetics and chromatin structure are regulated, and contribute in modulating DNA repair in therapy resistant cancer cells is unclear. Attempts are also being made to gain insights into the radiation and chemo resistance-related molecular mechanisms that link chromatin and DNA damage repair using models of radiation resistance (glioblastoma) and chemoresistance (AML). For this purpose, radiation and chemotherapy resistant sub cell lines have been developed from glioblastoma grade IV cell line and primary cultures as well as AML cell lines and primary cultures.



Research

(1) Understanding therapy resistance in glioblastoma - role for histone modification and DNA damage repair pathway, (2) Targeting chemoresistant leukemic stem cells by understanding DNA damage repair pathway, (3) Identification of novel histone H3 and H4 'ubiqitination marks' in chemo-resistant leukemic stem cells, and (4) Differential proteome analysis of resistant glioblastoma.

Shirsat Lab

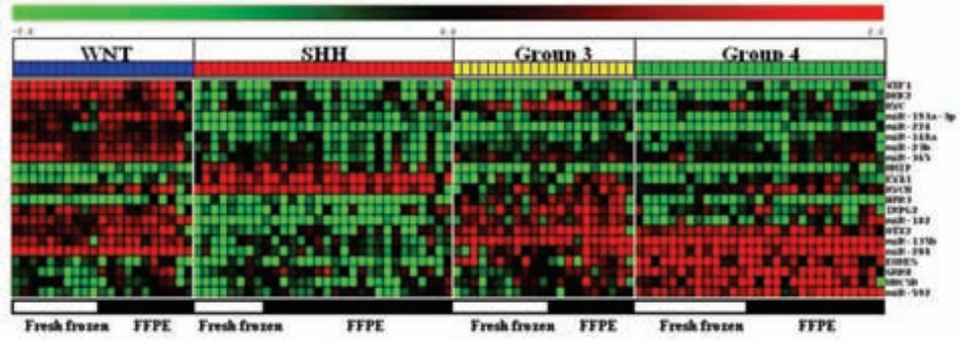
Dr. Neelam Shirsat
Principal Investigator

The major focus of research is on two malignant brain tumors *viz*. glioblastoma (GBM) and medulloblastoma, – two high-grade malignancies that differ strikingly in clinical behaviour and underlying biology. Deregulation of three pathways *viz*. tumor suppressive TP53 and pRB pathways, and oncogenic RTK/RAS/PI3K signaling pathway underlies pathogenesis of GBMs.. Alterations in these pathways are rare in medulloblastomas, , that appear to result from deregulated nervous system development. Developmental pathways *viz.* WNT and Sonic Hedgehog (SHH) signaling pathways drive pathogenesis of 30-35% of these tumors.

Identification of the genetic alterations in medulloblastomas and understanding their role in medulloblastoma pathogenesis is a another primary goal of the lab. While the genetic alterations in GBMs are largely understood, their complexity accompanied by the intrinsic resistance and invasive potential of GBMs necessitates the identification of therapeutic targets in GBMs. The molecular basis of the intrinsic resistance of GBM cells to cell death is being studied by dissecting the molecular mechanism underlying tamoxifen and radiation induced apoptosis.

Research

(1) Molecular sub-groups of medullo-blastomas and correlation with clinical characteristics, (2) microRNA profiling of medulloblastomas, (3) Role of microRNAs in pathogenesis of medulloblastomas, (4) Understanding the molecular basis of the intrinsic resistance of glioblastoma cells to cytotoxic agents, and (5) Identification of biomarkers for diagnosis and prognostication by Next Gen sequencing of oligodendroglial tumour exome.



Sorab Lab

Dr. Sorab N. Dalal
Principal Investigator

This lab focuses on two different cellular pathways that regulate neoplastic progression. The first project is to understand the regulation of multiple cellular pathways by 14-3-3 proteins. shRNA mediated knockdown technology is being used to determine the contribution of individual 14-3-3 isoforms to checkpoint control and to identify novel ligands for these proteins. The second project is to determine molecular mechanisms underlying the genesis of structures that mediate cell-cell adhesion such as desmosomes and to determine how an inhibition of desmosome function leads to an increase in neoplastic progression and metastasis. The lab has also developed a new method for the generation of transgenic animals, and this is being used to address various questions of interest in the lab.

Research

(1) Generation of stem cell lines that lack 14-3-3e and 14-3-3g using RNA interference, (2) Regulation of checkpoint pathways by 14-3-3e and 14-3-3g, (3) Role of plakophilin3 in regulating tumor growth and metastasis, (4) Role of plakophilin3 in regulating cell adhesion, desmosome formation, cell migration and EMT, (5) Identification of pathways that determine tumor survival and radioresistance in cells derived from the oral cavity, (6) Regulation of cell-cell adhesion and spermatocyte differentiation by 14-3-3g, and (7) Regulation of centrosome duplication by 14-3-3 proteins and its consequences for regulating neoplastic progression.

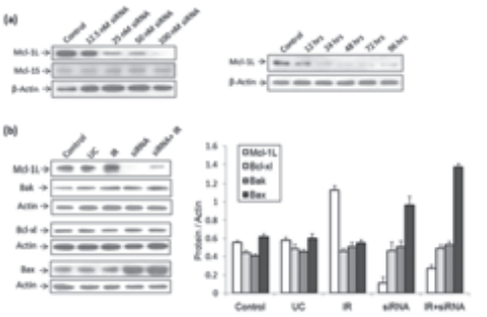
Teni Lab

Dr. Tanuja Teni
Principal Investigator

The research programs of this lab are focused to gain insight into the molecular basis of oral and cervical tumorigenesis. The projects in oral carcinogenesis aim to understand In-depth assessment of the intrinsic and extrinsic apoptosis pathways Mechanisms underlying overexpression of anti-apoptotic genes and effects of their knockdown on radio-/chemo-sensitivity; and Identify molecular markers for prediction of recurrence and response to radiation. Use of FIR regimens in vitro and proteomic approaches to understand biologic factors affecting responsiveness of tumors to radiotherapy and molecular mechanisms. Studies in oral and cervical cancers examine the efficacy of curcumin, analyze the prevalence of HPV an assess the role of TGF² family- inhibin and activins.

Research

(1) Role of anti-apoptotic Mcl-1 gene in human oral cancers/ cell lines and premalignant lesions, (2) Molecular insights into p53 repressed anti-apoptotic proteins - clusterin and survivin in the progression of human oral cancers, (3) Regulation and



targeting of MCL-1 in human oral cancers, (4) Identification of radio-resistance related proteins in human oral cancers, (5) Comparative evaluation of anti-proliferative and apoptosis-inducing potential of topical curcumin gels versus plain curcumin in hamster buccal pouch carcinogenesis model, (6) Prevalence and clinical impact of human papilloma virus in patients with head and neck squamous cell cancer treated with radiotherapy or chemoradiotherapy, and (7) Quantitative estimation and evaluation of HPV16/18 DNA in pretreatment, post treatment and follow up evaluation in carcinoma cervix, II - IIIB treated with radical radiation or chemo-radiation therapy: an observational study.

Vaidya Lab

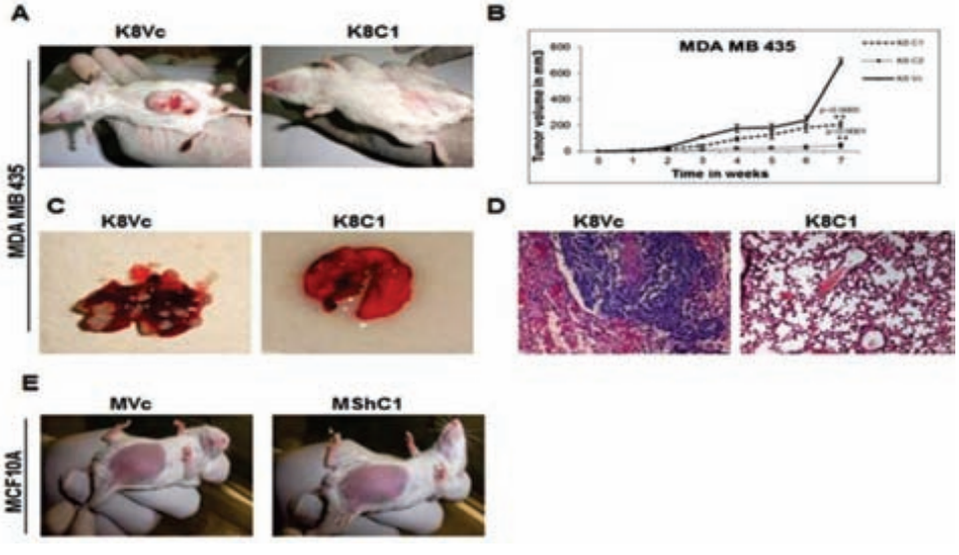
Dr. Milind Vaidya
Principal Investigator

Ms. Sharada Sawant

Keratins (K) - epithelium predominant intermediate filament (IF) proteins, whose expression is differentiation dependent and site specific., are used as diagnostic markers as their expression is frequently altered in malignancies.. Vimentin is a mesenchymal specific IF protein used as an EMT marker. Aberrant vimentin expression in carcinomas is probably an outcome of more migratory and invasive phenotype. The focus of this lab is to study keratin and vimentin biology in a bid to use these proteins as prognostic markers for oral pre-cancer and cancer in humans. An experimental animal model has been developed to study sequential changes in expression of keratins and associated proteins at different stages of oral carcinogenesis. The regulatory roles of keratin 8/ 18 and vimentin in malignant transformation, cell differentiation and apoptosis , as well as that of phosphorylated keratin 8/ 18 in tumour progression are under study.

Research

(1) Use of cytokeratins as prognostic markers in human oral precancer and cancer, (2) Keratin mediated regulation of apoptosis in stratified epithelia and its role in acquisition of transformed phenotype, (3) Role of cytokeratin 8 and 18 in differentiation and transformation of epithelial cells, (4) Diagnostic implications of aberrant Vimentin expression in oral precancer and cancer, (5) Significance of aberrant vimentin expression during early and late events of human oral oncogenesis, (6) Enrichment and characterization of cancer stem like cells and its possible role in human oral cancer, (7) Sequential protein profiling of different stages in experimental rat lingual carcinogenesis, and (8) Role of keratin 9 phosphorylation in neoplastic progression of SCC.



Varma Lab

Dr. Ashok Varma
Principal Investigator

Multi-disciplinary approaches like biophysical techniques, macromolecular crystallography, structural biology and bioinformatics tools are being used in my lab to visualize the atomic association of cancer susceptibility genes and proteins for translational research. Protein - protein, protein - small molecule interactions important at the bioactive core at the complex interface will be targeted for translational research. At present, this lab has state of art facilities for structure biology. Proteomics studies of metastasis to find novel diagnostic biomarkers have also been initiated. The areas under study include: (a) BRCA1/2 and its binding partners MERIT-40, RAP-80, ZBRK1, BARD1, BAP1, MDC1, 53BP1 and Fanconi's anemia, (b) MAPK and its downstream proteins, (c) Proteomics of metastasis, and (d) Pathogenicity of mutations and drug development using bioinformatics tools.

Research

(1) Structural and functional approaches to evaluate BRCA1/2: (a) a gene for genetic counseling, (b) a target for drug-discovery, (2) Role of h-RAP80-ABRAXAS-BRCA1 complex in the DNA damage repair: structural investigations to reveal molecular complexity, (3) Structural basis of MAPK in association with ribosomal S6 kinases, and (4) An exploratory study of a set of predictive and prognostic protein biomarkers in head and neck squamous cell carcinoma treated with radiotherapy.

Waghmare Lab

Dr. Sanjeev Waghmare
Principal Investigator

This lab focuses on the study of molecular and cellular mechanisms that govern stem cell regulation, and how perturbation in these mechanisms leads to oncogenesis. Signaling pathways such as Wnt/ Notch/ Sonic-hedgehog, TGF-^{2}, EGFR, etc regulate stem cell renewal, and the genes in these pathways are associated with oncogenesis. Therefore, it is very crucial to study the genes involved in signaling pathways that control self-renewal of normal stem cells and their malignant counterparts, i.e. cancer stem cells. Mouse skin is being used as a model and the studies will be further extended to skin cancer and other tissues in an effort to understand the mechanisms that govern stem cell regulation. This study will allow the identification of genes involved in stem cell regulation and cancer, and will help elucidate how these genes work at the cellular level to develop normal tissue and also repair injured tissue in a bid to maintain homeostasis.

Research

(1) Role of enhancing factor (EF) in hair follicle stem cells, (2) Molecular dynamics of novel interfollicular epidermal stem cells in mice, (3) Defining the novel tumor-initiating cells from human breast cancer: a preliminary preclinical study, and (4) Sfrp1 (Secreted frizzled-related protein) in hair follicle stem cell regulation and cancer.

Dr. Surekha Zingde
Principal Investigator

Dr. Rukmini Govekar

Zingde Lab

Proteomic profiling of biological samples to unravel different aspects of cancer is the thrust area of research of this lab. . using an immunoproteomics approach, tumor associated antigens that can serve as markers for the early detection and prognosis are being identified alongside assessment of global keratin profile in cancers of the buccal mucosa. Proteomic and phosphoproteomic profiling of neutrophils from patients with chronic myeloid leukemia to identify molecules with translational potential. Immunohistochemical evalution of multiple markers of cancer of the buccal mucosa reported in literature and identified in prior studies from this lab are being examined as markers of prognosis in a retrospective study. Other areas under study include in-silico and experimental studies aim at evaluating proteolysis of breast epithelial membrane proteins mediated by neutrophilic proteases, evaluation of the effect of cathepsin G on the pro-metastatic properties of breast epithelial cells in vitro.

Research

(1) Keratin profile in oral cancer, (2) Evaluation of the identified proteomic markers for predicting nodal metastasis and survival in oral squamous cell cancer, (3) Prognostic utility of autoantibodies to a-enolase and Hsp70 for cancer of the gingivo-buccal complex using immunoproteomics, (4) In-silico and experimental analysis of proteolysis of breast epithelial membrane mediated by neutrophilic proteases, and (5) Proteomic and phosphoproteomic analysis of neutrophils from patients with chronic myeloid leukemia.

Dr. Vikram Gota -
Investigator

Mr. Anand Patil

Translational Pharmacology

The department consists of three components - clinical pharmacology, preclinical pharmacology and bioanalytical lab, that exert and integrate clinical and laboratory programs. The research focus is on treatment optimization, drug development, and repositioning of drugs. Optimization of treatment is achieved through pharmacokinetic studies and pharmacokinetic-pharmacodynamic (PK-PD) modeling. During the report period, significant headway was made in developing strategies for therapeutic monitoring of mycophenolate mofetil in allogeneic stem cell transplantation using limited blood samples, on PK-PD correlation of curcumin in the prevention of oral mucositis following high dose chemotherapy, and on imatinib monitoring in CML. Therapeutic monitoring of voriconazole continues to be offered in the setting of fungal prophylaxis in BMT. A phase I clinical trials unit was set up for early clinical development of drugs. In collaborative studies, preclinical evaluation of a novel nano formulation of paclitaxel was completed in this lab and herbal principles such as curcumin, orientin, chlorophyllin and withaferin are being repositioned for use in cancer.

Research

(1) Bioequivalence study of two Rituximab formulations in patients with diffuse large B-cell lymphima (DLBCL), (2) Population pharmacokinetics and pharmacogenetics study of 6-mercaptopurine in adult patients with acute lymphoblastic leukemia, (3) A prospective, observational, open-label, non-randomized, single dose, single centre, two way, parallel group, bioequivalence study of two formulations of Pemetrexed in Indian adult chemo-naïve adenocarcinoma NSCLC patients, (4) Validation of a limited sampling strategy for therapeutic drug monitoring of Mycophanolate mofetil in allogenic stem cell transplantation – a feasibility study, (5) Pharmacokinetics driven optimization of Bu-Cy conditioning regimen to minimize hepatic veno-occlusive disease, (6) Pharmaceutical quality of anticancer generics versus innovator drug product: a comparative analysis, (7) Pharmacokinetics and pharmacogenetic study of 13-cis-retinoic acid in Indian children with high-risk neuroblastoma, (8) Evaluation of curcumin formulation, and Ashwagandha root powder extract in the management of advanced high grade osteosarcoma. The department also has four collaborative projects for preclinical evaluation of novel drug formulations.

Other Projects

Dr. Narendra Joshi
Investigator

A large body of data points to the role of inflammation in the initiation, progression and recurrence of breast cancer. These data provide a strong basis and rationale for the on-going studies that focus on inflammation associated parameters by intra-tumoral as well as genetic studies. Analysis of the expression of various genes related to inflammation and immune response was completed and extended to immunohistochemical studies in corresponding tumor specimens. Gene expression analysis has yielded a number of interesting and novel observations. Further data analysis is in progress. At the genetic level, additional SNPs associated with anti-inflammatory cytokine were studied. The results have strengthened the earlier findings suggesting that genotypes associated with higher levels of anti-inflammatory cytokines may have a protective influence on the risk for breast cancer in Maharashtrian women.

STR based analysis to monitor chimerism in patients undergoing bone marrow transplantation at ACTREC has continued with services extended to specimens from Jaipur and Kolkata.

Research

(1) Study of immunological parameters in breast tumors in the context of age at diagnosis, (2) Cytokine gene polymorphisms in breast cancer patients from Maharashtrian community; comparative assessment of allele frequencies in Parsi subjects, (3) Cloning and expression of HLA-B*4006 allele, (4) Clinical Service: Chimerism analysis using STR markers to assess donor engraftment and possibility of relapse in patients undergoing allogeneic bone marrow transplants at ACTREC, (5) Study of effect of vitamin D3 and progesterone on inflammatory and immunomodulatory phenotypes of breast cancer cell lines.

CRI - Research Support Facilities

Macromolecular Crystallography and Structural Biology

Dr. Ashok Varma
OIC

An X-ray Diffractometer was acquired this year and the structural biology division was set up for the analysis of the structure of cancer associated proteins. This facility started with the crystals obtained from Varma Lab. Good diffraction data has been collected for one protein of the BRCT complex (Figure).

Analysis of the structures of BRCA1 and associated binding partners has been initiated with the aim to set up a national facility in structural biology for cancer genomics. X-ray data has been collected, and efforts are on to set up remote data collection from the Synchrotron facility.

Anti-Cancer Drug Screening Facility

Dr. Aarti Juvekar
OIC

Dr. Jyoti Kayal

The mandate of ACDSF is to provide support in the efforts of anti-cancer drug development in India, in terms of *in vitro* and advanced *in vivo* anti-cancer drug screening. The facility received 1108 compounds for anti-cancer activity testing from three private companies and 85 academic institutes. Of these, 1104 compounds were tested *in vitro* on cell lines for anti-proliferative activity while four compounds underwent *in vivo* testing in normal mice.

Biorepository

Dr. Kishore Amin
OIC

The ACTREC Biorepository promotes safe receipt, handling, processing, storage, inventory control and distribution of biological specimens from cancer patients and issues them for IRB-approved research projects. The Biorepository received 851 samples of which, 303 were from head and neck (buccal mucosa, tongue, alveolus, GBS, RMT and lip) tumours, 274 breast tumours and the remaining 274 were from neurological, gastrointestinal, genitourinary – gynecological etc. Attempts were made to generate cell lines from tumour tissue samples at different sites. In the International Cancer Genome Consortium (ICGC) project 110 genomic DNA samples, isolated from

tumour / blood of 80 gingivo buccal mucosa cancer patients accrued during the year, were sent to NIBMG, Kolkata for whole genome scan and sequence capture based flow cell sequencing.

DBT - BTIS Bioinformatics Centre

Dr. Ashok Varma
Co-ordinator

Mr. Nikhil Gadewal

The DBT funded BTIS-SubDIC is extensively used by institutional researchers and trainees from other institutes, to whom the Centre provides infrastructure, training and software support. The Centre also collaborates with scientists from ACTREC and other academic institutes. On-going collaborative projects include: HLA-peptide interaction, MEK1-ERK2-RSK1 kinase study, mutational analysis of BRCA1, dynamics of Htra2 protein, and QSAR studies on Pim-1 kinase inhibitors. An "Oral cancer gene database and histome: the human infobase" has been developed by the Centre. The molecular dynamics facility has been strengthened with the addition of two workstations that run Gromacs and Desmond software.

Common Instruments Room

Mr. Uday Dandekar
OIC

Over the past 35 years, the Institute has maintained "Common Instruments Room (CIR)" - a department which houses all major scientific equipment, with a view to optimize their utilization and to make them available for use to the staff and students, round the clock on all days, including holidays. Qualified technical staff members attached to the CIR take care of routine maintenance and render help to the end users, thus ensuring proper use of the equipment. With a view to reduce breakdown and subsequent downtime of the instruments, requisite spares for all the centrifuges, gel documentation system, freezers and CO2 incubators, etc. are procured on a regular basis and kept in stock in the CIR. During the year 2012, the following equipments have been procured and installed: high speed refrigerated centrifuges, refrigerated vacuum concentrator, Nanodrop, and -86°C freezers.

Common Facilities

Dr. Aarti Juvekar
OIC

The CF of ACTREC manage and maintain three dark rooms, five cold rooms, three ice machines, three X-ray developing machines and five Milli Q water plants at different locations in CRI to provide ultra pure water required for experiments. CF also looks after maintenance of autoclaves, hot air ovens and glassware washing machines used in individual laboratories. It also manages a laboratory equipped with bio-safety hood and shaker incubators for bacterial work, and a laboratory equipped with biohazard hoods, radioactivity monitors, incubators, centrifuges, gamma counter and beta counter etc for work with radioisotopes (^{32}P and ^{125}I). A CF technician monitors the work area for spills, providing a safe working environment for radioisotope users.

Comparative Oncology Program & Small Animal Imaging Facility

Dr. Pradip Chaudhari
Investigator

The major research focus of this laboratory encompasses two areas: a) Comparative Oncology: Small animal spontaneous cancer care, management and its application for translational research; and b) Small Animal Imaging Facility: Establishment of a Small Animal Imaging Facility and develop a radiopharmaceutical research program.

Comparative Oncology: Pet animals having spontaneous cancer (mammary gland carcinoma, canine transvenereal tumor, lymphoma, soft tissue sarcoma, osteosarcoma, etc) are being referred to the Animal Oncology clinic for diagnosis and further management. During the year, 58 referral cases were seen at this clinic - 19 CT scans were performed for diagnosis; five animals were treated using radiation therapy and seven using single/ combination agent chemotherapy. An animal cancer tissue repository has been started to preserve the biological samples for basic cancer research. As on date, eight fresh tumor tissue samples (now stored at -80°C) and 36 formalin-fixed tissues from animal cancer biopsies and surgeries have been received. An Animal Oncology Research Fund has been created to obtain donations from pet owners to strengthen this program.

Small Animal Imaging Facility: With preclinical animal imaging and research on radiopharmaceuticals as the focus, diagnostic and therapeutic radionuclides such as Technetium-99m, Iodine-125, Lutetium-177 and Fluorine-18 complexes are evaluated for their utility in cancer diagnosis and treatment. Streamlining the animal imaging work logistics, ethical issues, and regulatory issues was a major achievement of this year. Several PET, SPECT and CT studies were performed on mice and rats. This system is being utilized for animal studies involving use of positron and gamma emitters in various animal models of cancer in mouse and rat. The facility is being used by several investigators within ACTREC and from BARC, RMC, IIT-B, Kasiac Clinical Research Organization and GE Healthcare, for projects involving animal imaging.

Digital Imaging

Dr. Dibyendu Bhattacharyya
OIC

This facility houses all the core microscopes of ACTREC - an Axio Imager Z1 upright microscope with fluorescence/ bright field, phase and DIC imaging capacity, a Zeiss Axiovert 200M inverted microscope with fluorescence/ phase and DIC imaging capacity, a Zeiss LSM510 Meta Confocal fitted to an Axio Observer Z1 inverted motorized microscope, and a laser capture microdissection microscope. The facility provides services to ACTREC staff and students, and also to users from academic and private institutes. For the benefit of users, the facility remains open even on Saturdays.

Flow Cytometry

Dr. S.V. Chiplunkar
OIC

The Flow Cytometry (FCM) Facility is a centralized facility,. The research applications include live cell sorting, multicolor analysis, DNA content and cell cycle analysis, ploidy determination, apoptosis, cell proliferation, measurement of calcium flux, intracellular antigen measurement, mitochondrial membrane potential, drug resistance, reactive oxygen species, cytometric bead array for cytokine analysis and determination of amount of DNA content of plant cells. Users were trained in data analysis and sample preparation. Assistance in data interpretation or experimental designing is provided to all the users whenever required. Softwares used are FACSDiva, CellQuest Pro, FlowJo and

Modfit. The FCM facility was used by 99 users for FACSCalibur and 30 for FACSAria. Demonstrations and training on the Flow Cytometer was carried out for visiting clinicians/ scientists/ students on request.

Gene Expression Profiling

Dr. Rita Mulherkar
OIC

The facility is equipped with a Tissue Microarray machine and Real-time PCR machine SDS Prism 7900HT unit from Applied Biosystems. The facility is used by various departments in ACTREC and also by scientists from other centres like BARC. Real-time PCR and Tissue Microarray are being used for validation of microarray data as well as for quantitative assessment of genes in disseminated cancer cells from the bone marrow. Other instruments available in the facility to support the work include a Benchtop refrigerated centrifuge (Eppendorf) for microplate/ slide centrifugation, a spectrophotometer (Ultrospec 3100, from GE) to detect DNA/ RNA in very small volumes (3-5 ¼l), a vacuum concentrator (Labconco) and a Nanodrop Spectrometer.

Histology

Dr. Arvind Ingle
OIC

The Histology laboratory is a service unit that provides slides of unstained as well as haematoxylin and eosin (H&E) stained histology sections of animal tissue samples including bone and tumour tissues to different laboratories of CRI. During 2012, the lab received 4815 tissue samples in fixative and, after processing, supplied 5199 stained and 10983 unstained slides to 19 in-house labs/ groups. The lab also provides logistic support for frozen sectioning of human/ animal tissue samples. During the report period, 998 tissues were processed and 730 H&E stained and 1961 unstained slides were supplied to four research groups. The Histology lab also provides blocks of multiple tissues by pecking method using microarray machine.

Laboratory Animal Facility

Dr. Arvind Ingle
OIC

Dr. Rahul Thorat

The main objective of this facility (LAF) is to breed, maintain and supply laboratory animals to institutional scientists. Breeding and experimentation of all Nude and SCID mice is undertaken in IVC cages. During 2012, LAF undertook planned breeding of 22 different strains of mice, 1 strain of rat, and 2 strains of hamsters; and supplied 5418 normal mice, 287 Nude mice, 57 SCID mice, 411 rats, 124 hamsters and 4 rabbits to 29 institutional researchers against 89 IAEC sanctioned research proposals. LAF also supplied 12371 normal mice, 1128 rats, and 15 hamsters as either breeding nuclei or experimental animals to 18 different CPCSEA registered outside organizations in the country.

In parallel, LAF routinely examined representative animal samples and food, water, bedding material and room air samples for microbiology, clinico-pathology, serology *and PCR based tests* for rodent pathogens. Skin grafting, biochemical markers and PCR based tests for microsatellite markers were

done in representative mice and rats to check for genetic purity. Blood samples of Nude/ SCID as well as control BALB/c and Swiss mice were tested by flow cytometry to assess the T- and B-cell profile. LAF also carried out genotyping of *ptch* KO mice. LAF also provided biochemical marker testing, serology and PCR based testing services to other organizations. As a part of the embryo freezing program, LAF has collected 3025 embryos (8-cell to morula stage) from 13 strains of mice and 78 SD rat embryos. These embryos (160 cryo-vials) have been frozen in liquid nitrogen by '*vitrification*'.

Mass Spectrometry

Dr. Rukmini Govekar
OIC

Mr. Shashadhar Dolas

This facility houses state-of-the-art mass spectrometric, high performance liquid chromatographic and robotic instrumentation including MALDI-TOF/TOF (Bruker Ultraflex II), a liquid chromatography system (Agilent 1200 series micro LC) and a spotter (Bruker Proteineer). During the report period, the system was used extensively to analyze over 2500 samples from in-house users primarily for identification of proteins by peptide mass fingerprinting, sequencing and molecular weight determination of small molecules. Identification of whole protein by sequencing using in-source decay technique is being initiated. In addition to in-house users, the facility has been used by scientists from reputed institutes in and around Mumbai, such as BARC, NIRRH, TIFR and Agharkar Research Institute, and by graduate students from colleges in Mumbai and other parts of Maharashtra.

Administrative & Support Facilities

Mr. S. Kumar,
Sr. Admin. Officer

Mr. M.Y. Shaikh,
Admin. Officer II

Ms. M.A. Sharma,
Jr. Admin. Officer

Mr. Vilas Pimpalkhare,
Jr. Admin. Officer

Mrs. P. Kamala,
Accounts Officer II

Mr. P.B. Baburaj,
OIC (ES)

Mr. S.C. Kirkase,
Jr. Purchase Officer

Ms. P. Kotenkar,
Jr. Stores Officer

Mr. B.D. Parab,
Sr. Security Officer

HRD and Establishment sections In 2012, HRD section handled the appointment of 12 regular staff members in different grades in the Medical and Technical cadres and retirement of seven staff members. Timely welfare measures and facilities necessary for maintaining excellent working atmosphere were provided. Staff training programme was strengthened by deputing 25 staff members for training courses within and outside Mumbai, and convening in-house weekly/ monthly workshops to update the knowledge of the staff.

Hindi Diwas and Hindi week was organized at the Campus from 14th to 21st September 2012. Shri Vipul Sen, Sr. Scientist, BARC, Mumbai delivered a lecture on the occasion.

Administration (Estate Management) controlled and managed all the outsourced activities aimed at providing services such as Canteen facility, Transportation, Horticulture, departmental records, repair and maintenance etc. The Centre takes pride in its large variety of trees, flowering plants and shrubs. In a special tree plantation program in November 2012, *Amla*, *Limbu*, Pomegranate, *Chiku*, Aualtas, *Sundre*, etc, and 1000 samplings of 'Bamboo' were planted. A garden covering an area of ~1500 sq.mtrs and having lawn, borders, etc. is maintained at the Faculty Club. A '*Nisarg-Runa* Biogas Plant' was successfully installed and commissioned in the campus for the disposal of organic/ kitchen waste in an eco friendly manner. **Housekeeping** Services aim to maintain cleanliness, good sanitation and hygienic conditions on the campus. A number of training sessions were also organized for Housekeeping and Horticulture workers.

Finance and Accounts department has managed the departmental and extramural funds, exercised judicious budgetary controls, and review of financial outflow in conformity with the instructions issued by the Department of Atomic Energy, Govt. of India from time to time. Procurement of various supplies, materials and equipment was undertaken by following the relevant codal provisions, viz. General Finance Rules, Purchase Procedure, besides Fundamental Rules and Supplementary Rules in respect of manpower/ salary expenditure. Data updation in Personnel Information System (PIS) and in New Payroll System is in progress. To ensure more accurate and efficient functioning of the Accounts department, Financial Management System (FMS) is under development for implementation in TMC.

E**ngineering section**, comprising of Civil, Electrical, Mechanical and Air Conditioning, works to facilitate the working of research laboratories and hospital wing of the Centre.

The scope of work includes maintenance and operation of 33 KV receiving station, 11 KV substations, transformers, lighting and power distribution, DG sets, central air-conditioning plants, pumping stations, low temperature facilities, laboratory equipment as well as building maintenance - including additions, alterations and modifications in a constructed area of ~4,00,000 sq. ft. area on the 60 acre plot of land. Engineering section also oversees the functioning of the Laundry section, Medical Gas system, LPG network and Liquid Nitrogen plant of the Centre. The department also looks after service management, project management and utility management of the Centre.

Purchase section aims to provide good services to the entire Centre by way of delivering the goods as per the approved quality and minimizing the lead time. During 2011-2012, orders for equipment worth around Rs. 12.15 crore, consumables worth around Rs. 16.85 crore, and contract for supply of spares/ AMC worth around Rs. 2.88 crore were released. Processing indents of both Purchase and Stores are done online only.

Stores department functions to ensure timely receipt of stock and non stock material from Contractors/ Suppliers, check its quality and quantity, issue received material to indenters, and maintain a stock of frequently required items. In 2012, the Stores Department shifted to a new location, with care taken to ensure that the working of both Stores and the Centre were not hampered during the move. For inventory control, stock was checked at regular intervals to monitor flow of material to other departments and simultaneous maintenance of stock at economical levels. Physical stock verification was carried out twice a year, by an internal as well as an external inspection team; a 100% match was achieved and reconciled with Accounts. Besides minor equipment and consumables, 22 major equipments were received and installed during 2012, while obsolete material/ scrap items were identified and removed. Feedback about the Stores Master program was provided to the IT department to make it simpler, more adaptable and hassle/ error free. Due attention was paid to the safety and security of the Stores, to prevent pilferage. By way of customer service, constant interaction was maintained with user departments/ laboratories. Two staff members were deputed for specialized training.

Security section conscientiously and strictly regulates the movement of men, material and vehicles into and out of the ACTREC campus, and ensures the overall safety and security of the Centre's property, personnel and students round the clock. At the Republic Day and Independence Day celebrations in ACTREC, the Security staff and firemen took part in a solemn march past after the unfurling of the flag by the Director and rendering of the National Anthem. The Security section organized Vigilance Awareness Week from 28th October 2012 to 3rd November 2012 as per the guidelines issued by the Vigilance section, DAE, and arranged a function in the Auditorium where all the staff members took a pledge in English and Hindi. Shri Fathesingh Patil, Addl Commissioner of Police, Navi Mumbai graced the occasion as Chief Guest and delivered the keynote address.

Medical Administration

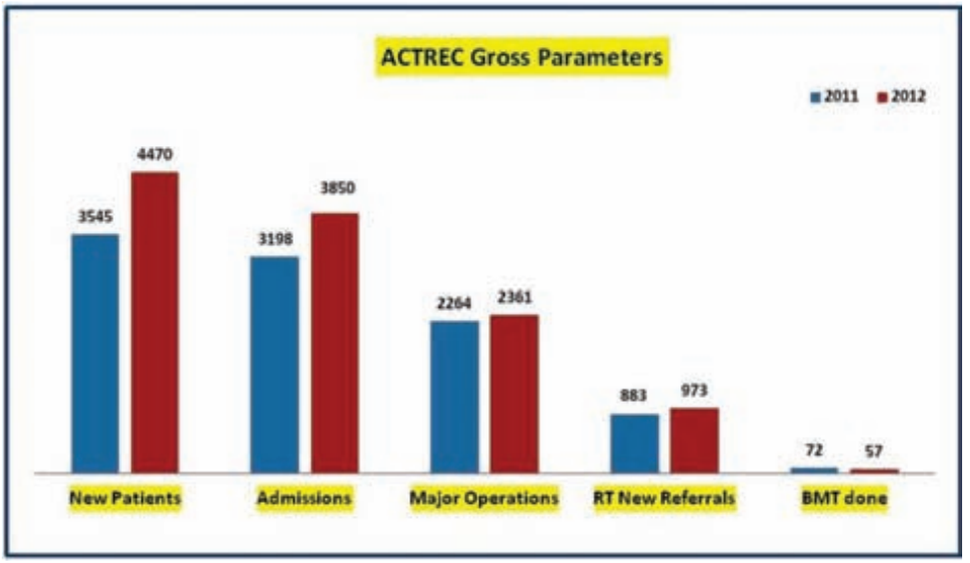
Dr. Prashant Bhat
Asst.Med. Superintendent

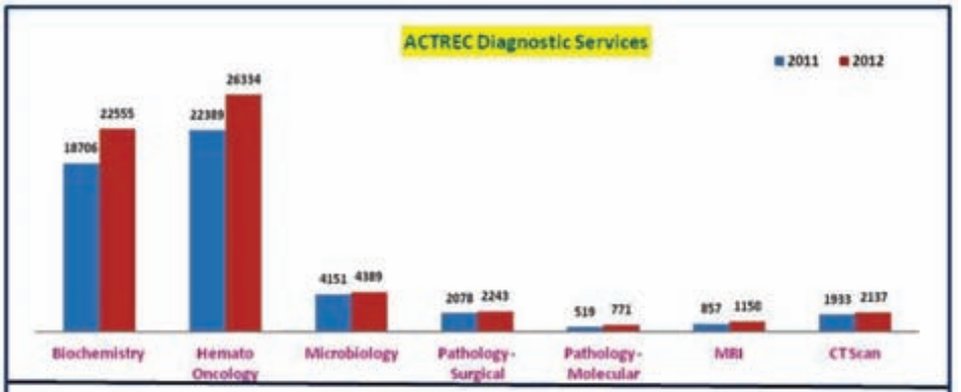
Ms. Chital Naresh

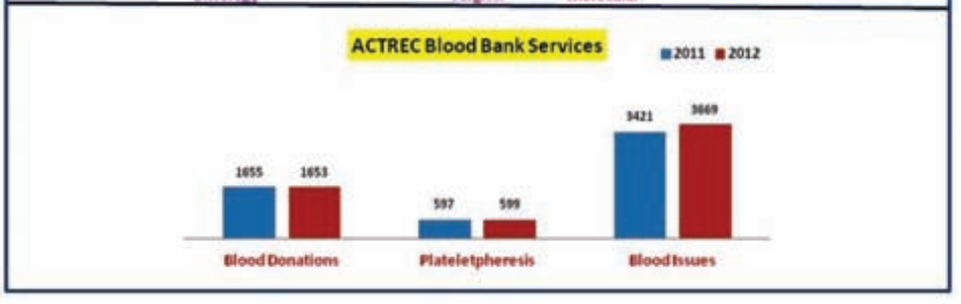
The Office of the Medical Superintendent of ACTREC is committed to improving the quality of patient care throughout all the hospital facilities. The Day Care and OPD activity intensified during 2012, due to the partial shifting of the Hematolymphoid services from TMH to ACTREC. New patient registration increased by 26%, and Day Care timings were increased by four hours to meet this requirement. The Dental Clinic and Pediatric OPD were also made fully functional taking care of the patient needs. Medical Administration faced the challenges of managing the increased patient work load across all CRC departments, by optimizing the available infrastructure support. Work load increases were noted in key areas of the Centre during 2012 (see Figures).

Medical Administration also managed the Patients Hostel, Pharmacy, Staff Clinic, Laundry services and ACTREC Liaison Counter at TMH. New facilities include a DSA facility donated by a philanthropic organization and a proposal for additional beds by renovation, which is under implementation.

Quality Initiatives of Medical Administration focused on: (a) Quality assurance in patient service, (b) Lab accreditation, (c) Patient safety, (d) Patient feedback and redressal.







Quality Assurance: Laboratory audits are conducted annually as per the Audit Calendar Plan. Trained NABL Assessors from TMC conduct Internal Audit of the laboratories and implement follow up/ corrective measures to successfully close any non-conformities raised in the audits in co-ordination with the Quality Manager. Continual monitoring of established quality indicators has resulted in a vast improvement in the turn-around time of reporting to ~95% satisfaction and a ~10% decrease in sample rejection. Nurse training on pre-analytical errors has led to improved sample collection, and decreased labeling errors/ sample rejection. The diagnostic labs participate in External Quality Assurance Schemes available in the country, and their performance is excellent vis a vis their peers. Surgical and Molecular Pathology labs also participate in CAP PT for the test menu not available in India, and score excellently with no deviation at the international level.

Lab Accreditation: ACTREC's diagnostic labs - Clinical Biochemistry, Hematopathology, Microbiology, Molecular Pathology and Surgical Pathology have NABL (National Accreditation Board for Testing and Calibration Laboratories) accreditation, and are obliged to maintain continual improvement based on user requirement. All the clinical laboratories under the TMC diagnostic services (TMH and ACTREC) obtained Continuation of Accreditation status from NABL through desktop assessment in January 2012, and are now preparing for NABL Reassessment, scheduled in late January 2013.

Patient Safety: Medical Administration worked significantly towards the following aspects in 2012: (a) Analysis of Incident reporting with root cause analysis (RCA), (b) Patient Feedback Redressal in response to patient suggestions and complaints, (c) Registering patients at ACTREC, and (d) Implementation of referral card facility. Staff members are encouraged to report all incidents having the potential to cause or caused harm to patients, staff or the environment and, since it is not punitive in nature, it helps bring into the open any deficiencies in the system. Twenty incidents (8 sharps injuries, 8 falls, 1 fire, 1 adverse drug reaction and 2 medication errors) were reported in 2012. RCA was conducted to find the cause of the incidents and to take remedial measures to avoid such incidents in the future.

Patient feedback and redressal: Feedback about the quality of patient care is sought via feedback boxes placed at various strategic locations as well as through e-mail. Each of the appreciations, complaints and suggestions are suitably addressed, and the outcome is communicated to the complainant. Of the 127 Feedback received during 2012, 77 were in appreciation of staff / different areas of ACTREC while 53 suggestions cum complaints were received and were attended.

Education: As per the calendar plan for 2012, the following training programs were conducted either for the entire hospital staff or specifically for laboratory/ nursing staff: 'Data control and confidentiality', 'Orientation on revised standards and quality system procedures', 'Infection control' and 'Sample collection and acceptance criteria to avoid pre-analytical errors'. Members of the laboratory staff were encouraged to train as internal auditors as per ISO 15189:2007. Six staff members from different labs attended the training program at CETE, Bangalore. Post training evaluation gave satisfactory results in these trained staff, who now help maintain the quality system in their area under the guidance of the Quality Manager.

Information Technology

Mr. Prasad Kanvinde
IT Co-ordinator

Mr. Padmakar Nagle

Mr. M. Sriram

Mr. Anand Jadhav

In fulfillment of its mandate, IT department provides computational facility, infrastructure and support for information access, processing, printing, archiving, dissemination, etc. ACTREC has a campus wide 100 Mbps LAN with copper/ fiber cable, embellished with ~600 LAN nodes, eight servers and is equipped with secured wifi network. The campus is connected to the Internet through a 16 Mbps information gateway. The Centre has a live mail server that holds over 300 email accounts of staff and students. Redundant/ fail safe configuration on the firewall ensures 99% uptime of internet and mail facilities. A dedicated point to point leased circuit of 12 Mbps between ACTREC and TMH facilitates sharing of patient information, PACS images, etc. Under the National Knowledge Network (NKN) project, the Centre has successfully established a seamless connectivity to NKN grid at gigabit per second speed. The hospital information system (HIS) is maintained on a newly acquired state of the art IBM power6 -520 server class machine that runs on 24x7 mode and provides information processing facility to various user departments. A summation of the activities of IT department during 2012 is provided below.

Networking: Day-to-day support, upkeep, administration and maintenance of passive and active network components constitute vital networking activities. The Centre acquired a state of art audiovisual system for its auditorium, whose capacity was increased virtually by connecting the Seminar and Conference rooms to it.

Hardware: The major activity during 2012 was commissioning of high end PACS server system and its subsequent integration with the HIS. A dedicated specialized data centre has been set up in the department to run and maintain various high end servers.

Software: Patient information processing at the centre is essentially online, multi-locational and round-the-clock. In 2012, updates for PABR, DIS, RIS, OT, Accounts, Pharmacy, Purchase and Stores modules were made available, which enabled end users to make seamless transactions on the remote server of TMH for patient services. Software updates pertaining to hospital services including 'Drug sell' were also incorporated into the system for patients registered under the *Rajiv Gandhi Jeevandayi Arogya Yojana*. The ROIS module was integrated with radiotherapy machines like Bhabhatron and Primus, and deployed successfully along with seamless data migration when patients are directed to ACTREC from TMH or *vice versa*. Integration of modules like MOIS, FMS, etc is in the pipeline. Major changes/ updates were carried out in web based EMR in tandem with the paperless drive. The Clinical Information System module was introduced with modifications to achieve paperless service. The JRF online application software was fine tuned in readiness for deployment for the next intake.

Mr. Satish Munnolli
Librarian

Library

The ACTREC library is mandated to serve the research information requirements of students, scientists and clinicians of the centre. The library subscribes to 90 journals (17 Indian and 73 international) and houses a collection of 5845 books, 12108 bound volumes, 2717 staff publications, 536 theses, 375 annual reports, 19 video cassettes in the field of cancer, clinical research and allied areas. DAE initiated consortium enables online access to ScienceDirect online database covers over 2500 journals with full text. A consortium between ACTREC and TMH enables full text access to 'Nature' and 13 'Nature Reviews' titles with archives. 'Annual Reviews' and 'Methods in Enzymology' are the two online resources subscribed during the reporting year. Other online resources like 'Britannica Online Edition', 'Sage Knowledge e-Books', 'HS Talks' and 'Wiley online library collection' have been made available on trial basis. The library supported 868 full text articles to its users arranged through various sources and provided over 60 articles to other institutes across the country, on request. To show case scholarly communications of the institute a weekly list of staff publications has been introduced as 'Science Sparks @ ACTREC'. On demand and in anticipation, the library organizes orientation programs for its users. Cancer news, useful sites, inventions and interesting articles are circulated through email as alerts. The library also offers services of Impact factor, Hirsch index, Citations of individual papers, and compilation of the centre's publication list. As an additional security measure and vigilance, library has implemented closed circuit surveillance system in the premises.

Mr. S. M. Sawant
Officer in Charge

Photography

This section provides support for basic and clinical research and for desk top publishing for educational programs and conferences/ workshops organized at ACTREC. During 2012, assistance was provided for 37 national and international events held at ACTREC.

Dr. Aparna Bagwe
Officer in Charge

Dr. Nalini Hasgekar

Science Communication and Professional Education (SCOPE) Cell

SCOPE Cell is mandated to ensure the smooth and timely conduct of the Centre's science communication and professional education programs.

Science Communication: During 2012, the Cell handled editing and compilation of ACTREC's 2011 annual report and abstract book/ other print material for various conferences. Editing services were provided for 6 manuscripts. The Cell designed and uploaded web pages for conferences, symposia and workshops held at the Centre during 2012, and routinely uploaded tenders and advertisements.. The Cell also provided support for the Cancer Awareness Program initiated in 2012, through a series of lectures focussing on the general public, school children and parishioners.

Professional Education: SCOPE cell coordinated the JRF2012 intake of Ph.D. students, screening applications (1193 applications), conduct of entrance exam and interviews. SCOPE also coordinated the JRF coursework including lab visits, PI/ lab choices, core course/ elective lectures and tests, paper correction, collation of marks, DC formation and 1st DC reports, and transcript preparation. As a part of the Centre's training program, the Cell handled the appointment of 188 graduate students from colleges/ universities across the country for training in various PI labs and CRC departments (158 short term trainees, 19 summer trainees, eight observers and three research associates) during 2012. The Cell handled four educational visits, and also co-ordinated the conduct of ACTREC's Open Day in December 2012.

SCIENTIFIC RESOURCES, EMR FUNDING, ACADEMIC & TRAINING PROGRAM, AND RESEARCH PUBLICATIONS

ACTREC Apex Committee for Research and Academics (AACRA)

AACRA, which was established in April 2006, acts as the apex research and academics committee to: carry out the mandate given to ACTREC by the Scientific Advisory Committee, promote basic, interdisciplinary, translational and disease oriented research, recommend and coordinate measures for achieving excellence in research and academics.

Chairperson	Dr. Rajiv Sarin, Director, ACTREC
Co-Chairperson	Dr. Surekha Zingde, Dy. Director, CRI-ACTREC
Member Secretary	Dr. Rita Mulherkar
Members	Dr. Shubhada Chiplunkar
	Dr. Robin Mukhopadhyaya
	Dr. Neelam Shirsat
	Dr. Rajiv Kalraiya
	Dr. Tejpal Gupta (Clinician)
	Dr. Vikram Gota (Member Secretary IRB)

ACTREC Institutional Review Board

ACTREC IRB, constituted as per the ICMR guidelines for Ethics Committees, has the mandate for combined scientific and ethics review of research projects being conducted at ACTREC. This committee monitors research studies involving human subjects and use of tissues collected/ banked during diagnostic or therapeutic procedures.

Chairperson	Dr. K.B. Sainis, Director, Biomedical Group, BARC
Co Chairperson	Dr. Tapan Saikia, Medical Oncologist, Prince Aly Khan Hospital
Member-Secretary	Dr. Vikram Gota, Clinical Pharmacologist, ACTREC
Members	Dr. Rita Mulherkar, Basic Scientist, ACTREC
	Dr. Sorab Dalal, Basic Scientist, ACTREC
	Dr. Abhijit De, Basic Scientist, ACTREC
	Dr. Nobhojit Roy, Surgeon, BARC Hospital
	Dr. Reena Nair, Medical Oncologist, TMH
	Dr. Kumar Prabhash, Medical Oncologist, TMH
	Dr. Asawari Patil, Pathologist, TMC
	Dr. Vedang Murthy, Radiation Oncologist, ACTREC
	Dr. Amit Sengupta, Biomedical Engineer, ACTREC
	Dr. Mahesh Mohite, Pediatrician, Mohite Hospital
	Dr. Tejpal Gupta, Radiation Oncologist, ACTREC
	Dr. Aliasgar Moiyadi, Surgical Oncologist, ACTREC
	Dr. B.B. Singh, Legal expert – Advocate, Mumbai High Court
	Dr. Bakhtaver Mahajan, Social scientist, IWSA
	Mrs. Sadhana Kannan, Statistician, ACTREC
	Mr. T. B. Sheshshai, Theologian – Retired BARC
	Mrs. Karuna Jaggi, Lay person – Freelance Counselor
Alternate Members	Dr. R. Munagekar, Medicolegal Consultant, Sadhana Pathology Lab
	Mrs. Tyeba Bilgrami, Lay person, St. Jude Child Care Centre

Basic Sciences Research Group

BSRG is a forum of basic scientists at ACTREC where scientific issues related to academic and research programs, infrastructure development, organization of symposia and meetings, updates on research support facilities, opportunities for extramural and intramural funding support and related matters are discussed.

Chairperson	Dr. Rajiv Sarin
Co-chairperson	Dr. Surekha Zingde
Secretary	Dr. Sorab Dalal
Members	All PIs & Co-Is
	In-charges of Facilities in CRI

Institutional Animal Ethics Committee

IAEC fulfills the requirements of the Committee for the Purpose and Control and Supervision of Experiments on Animals (CPCSEA), Ministry of Environment and Forests, Govt. of India. IAEC was set up in CRI in 1995, and its Animal House was registered with CPCSEA in 1999. IAEC reviews animal study proposals and advises the investigators to ensure optimal use of the animals as per CPCSEA guidelines.

Chairperson	Dr. Surekha Zingde, Dy. Director, CRI-ACTREC
Secretary	Dr. Arvind Ingle
Members	Dr. Shubhada Chiplunkar
	Dr. Rajiv Kalraiya
	Dr. Sanjay Gupta
	Dr. H.D. Sarma, Head, Animal Facility, BARC
	Dr. A.A. Sherikar, Navi Mumbai - Main CPCSEA Nominee
	Dr. V.K. Srivastava, Mumbai - Link CPCSEA Nominee
	Dr. S.M. Metkari, NIRRH, Mumbai
	Ms. Ranjana Baburao, Pune - Non scientific socially aware member

Institutional Biosafety Committee

IBSC serves as the nodal point for implementation of the biosafety guidelines for recombinant DNA research, their production and release into the environment and setting up containment conditions for certain experiments as set by the Recombinant DNA Advisory Committee of the Department of Biotechnology, Govt. of India. Research projects involving the use or production of microorganisms or biologically active molecules that might cause a biohazard must be notified to the IBSC in the DBT-prescribed format. The IBSC permits genetic engineering activity on classified organisms only at places where such work should be performed. The committee members are empowered to subject the storage facility, work place, etc. to inspection.

Chairperson:	Dr. Rita Mulherkar
Member Secretary:	Dr. Manoj Mahimkar
DBT-Nominee:	Dr. Shubha Tole (TIFR)
Members:	Dr. Sorab Dalal
	Dr. Sanjeev Waghmare
	Dr. Neelam Shirsat
	Dr. Vivek Bhat
	Dr. Hari Mishra (BARC)

Institutional Radiation Safety Committee

IRSC is mandated to ensure that the guidelines of the Atomic Energy Regulatory Board for the use, storage, handling and disposal of radioactivity are followed in the respective areas by the designated officers, along with guidelines defined by IRSC. At ACTREC, radioactive sources are used for in-vitro assays, radiation treatment and radiodiagnosis procedures in clinical and preclinical setup. IRSC monitors the safe handling, use and disposal of radioactive sources, and occupation safety aspects while working in the radiation areas.

Chairperson	Dr. Surekha Zingde, Dy. Director, CRI-ACTREC
Member Secretary	Dr. Pradip Chaudhari, Radiation Safety Officer, CRI
Members	Dr. Shubhada Chiplunkar, Sr. Basic Research Scientist
	Dr. D.D. Deshpande, Head, Medical Physics Div., TMH
	Dr. J.P. Agarwal, Dept of Radiation Oncology, TMH
	Dr. S.L. Juvekar, Radiodiagnosis Dept, ACTREC
	Dr. Shashank Ojha, Dept of Transfusion Medicine, ACTREC
	Ms. Siji Paul, CRC, ACTREC
	Ms. Reena Phurailatpam, CRC

Academic Committee

The Academic committee oversees all matters pertaining to the JRF program and coordinates the academic coursework (core course and electives), JRF entrance exam paper setting, and ensures the smooth conduct of the course exams.

Chairperson:	Dr. Rajiv Kalraiya
Members:	Dr. Sorab Dalal
	Dr. Tanuja Teni
	Dr. Sanjay Gupta
	Dr. Prasanna Venkatraman
	Dr. Ashok Varma
	Mrs. S.S. Sawant (*assists the Committee*)

Extra Mural Research Projects approved during 2012

Project Name	Principal Investigator
Development of indigenous, low cost radiotherapy accessories for clinical use	Dr. Vedang Murthy
Development of indigenous fiber probes for in vivo Raman spectroscopy	Dr. Murali Chilakapati
Tata Memorial Centre - International Cancer Genome Consortium (TMC-ICGC) - India project	Dr. Rajiv Sarin
Characterizing the ability of HPV E2 mutant in inducing apoptosis in HPV positive cell lines and in mouse model	Dr. Kakoli Bose
Preclinical drug evaluation studies	Dr. Aarti Juvekar
Pharmacokinetics and pharmacogenetic study of 13 cis-retinoic acid in Indian children with high risk neuroblastoma	Dr. Vikram Gota
Role of circulating chromatin in cancer and chronic degenerative diseases	Dr. Indraneel Mittra
A pilot study of H2AX foci kinetics in peripheral blood lymphocytes as a biodosimeter of DNA damage during cervical cancer radiotherapy	Dr. Jayant Goda
Human sodium iodide symporter (HNIS) expression as an endogenous marker for breast cancer diagnosis and therapy	Dr. Abhijit De
Proteomic analysis of human gliomas for biomarker discovery	Dr. Aliasgar Moiyadi
Transcriptional regulation of histone H2A variant gene during liver carcinogenesis	Dr. Sanjay Gupta
Role of keratins 8 and 18 in differentiation and transformation of epithelial cells	Dr. Milind Vaidya
Role of alkylamines in priming gamma delta cells for anti tumor effector functions	Dr. Shubhada Chiplunkar
Breast cancer genetics, environment and lifestyle study in familial breast cancer (BRCA GEL study)	Dr. Rajiv Sarin
Prevalence and clinical impact of human papillomavirus in patients with head and neck squamous cell cancer treated with radiotherapy with or without chemotherapy	Dr. Vedang Murthy
Effect of progressive resistive exercise training (PRET) on shoulder joint range of motion in post operative head and neck cancer patients undergoing radiation therapy: a phase II randomized trial	Ms. Mohua Chatterjee
Identification of men with a genetic predisposition to prostate cancer: targeted screening in BRCA 1/2 mutation carriers and controls (the impact study)	Dr. Vedang Murthy
Study of effects of hyperbaric oxygen and hypothermia in control of mammary tumour growth in SCID mice	Dr. Rajiv Gude
Evaluation of axillary nodes by fluorescein and Raman spectroscopy in women with operable breast cancer	Dr. Rajendra Badwe
Understanding pathogenesis of gall bladder cancer: role of TH17 and regulatory T cells	Dr. Shubhada Chiplunkar
Role of gamma delta T lymphocytes in T-cell acute lymphoblastic leukemia (T-ALL) patients exhibiting clonal TCR gamma and delta gene rearrangement	Dr. Shubhada Chiplunkar

Project Name	Principal Investigator
Integrative analysis of genomic and transcriptomic alterations with node metastasizing oral cancers	Dr. Manoj Mahimkar
Periventricular stem cell niche and gliomas - prognostic significance. A clinico radiological pathological correlative study	Dr. Aliasgar Moiyadi
A prospective observational, open label non randomized single dose, single centre two way parallel group bioequivalence study of two formulations of pemetrexed in Indian adult chemo naïve adenocarcinoma NSCLC patients	Dr. Vikram Gota
Evaluation of cancer stem cells and their micro environmental niches in patients with cervical cancer	Dr. Supriya Chopra
MicroRNA profiling of medulloblastoma	Dr. Neelam Shirsat
Identification of biomarkers for diagnosis and prognostification by NextGen sequencing of oligodendroglial tumor exome	Dr. Neelam Shirsat
Pharmaceutical quality of anticancer generics versus innovator drug product: a comparative analysis	Mr. Anand Patil
Dosimetric comparision of boost with HDR interstitial brachytherapy with external beam technique with electron, 3-DCRT, Tomotherapy	Dr. Rajiv Sarin
Understanding the role of bisphosphonates and gamma delta T lymphocytes in patients with breast cancer and bone metastasis	Dr. Shubhada Chiplunkar
To investigate the molecular mechanism by which a single depot injection of progesterone provides survival advantage to triple negative breast cancer patients	Dr. Rajiv Kalraiya
Evaluation of identified markers for prognosis of head and neck cancer	Dr. Surekha Zingde
Analysis of genetic host factors, HPV, EGFR and hypoxia markers and their association with outcome in subject with locally advanced squamous cell carcinoma of head and neck (LASCCHN)	Dr. Manoj Mahimkar
Affibody bio-conjugated gold nanoparticle based therapy and diagnosis in breast cancer	Dr. Abhijit De
Targeting chemo-resistant leukemic stem cells by understanding DNA damage repair pathway	Dr. Shilpee Dutt
Functional genomic characterization of therapeutically relevant vulnerabilities in TSCC	Dr. Amit Dutt
A system wide approach to elucidate novel functions of gankyrin - an oncoprotein, and strategies to inhibit its functions	Dr. Prasanna Venkatraman
Ex vivo evaluation of glioma tissues using Raman spectroscopy - a prospective study	Dr. Aliasgar Moiyadi
Development of S gene signature predicting lymph node metastasis in oral squamous cell carcinoma (GSP- OSCC)	Dr. Sudhir Nair
Feasibility study of screening of lung and other upper aero-digestive tract cancers by interrogation of buccal mucosal cells	Dr. Pankaj Chaturvedi
Possible reciprocal relationship between matriptase and desmoglein 2, and their correlation with invasion and metastasis	Dr. Prasanna Venkatraman
Comparison of blood count parameters in venous and fingertip (capillary) blood in oncology patients	Dr. Priti Chavan
Evaluation of various molecular prognostic markers and minimal residual disease (MRD) to potentiate therapy for acute myeloid leukemia (AML) patients: a two step molecular clinical investigation	Dr. Navin Khattry

Project Name	Principal Investigator
Validation of a limited sampling strategy for therapeutic drug monitoring of mycophanolate mofetil in allogenic stem cell transplantation - a feasibility study	Dr. Vikram Gota
Pharmacokinetics driven optimization of BU-CY conditioning regimen to minimize hepatic veno-occlusive disease	Mr. Anand Patil
Global protein profiling of sequential changes during rat lingual carcinogenesis and different stages of tongue cancer in human	Dr. Milind Vaidya
Identification of conserved function of VSP 74 by depletion study using anchor away knock sideways method	Dr. Dibyendu Bhattacharyya
Association of ovarian cancer stem cell with chemoresistance: cause or consequence	Dr. Pritha Ray
Retrospective analysis of hypopharyngeal patients requiring reconstruction from 2005-2010	Dr. Sudhir Nair
Structural dynamics of nucleosome core particle containing homomorphous histone variants	Mr. Nikhil Gadewal
Strategies to inhibit the functions of gankyrin - a non ATPase subunit of the proteasome and an oncoprotein	Dr. Prasanna Venkatraman
An observational study to find out the causes of advanced presentation of oral cancers	Dr. Sudhir Nair
An exploratory study of a set of predictive and prognostic protein biomarkers in head and neck services squamous cell carcinoma treated with radiotherapy	Dr. Ashok Varma
Understanding therapy resistance in glioblastoma. Role for histone modification and DNA damage repair pathway	Dr. Shilpee Dutt
Kidney cancer registry	Dr. Amit Joshi
Population pharmacokinetics and pharmacogenetics study of 6 mercaptopurine in adult patients with acute lymphoblastic leukemia	Dr. Vikram Gota
Establishing founder effect of germline mutations identified in Indian hereditary cancer families and determining their population frequency in distinct geo-ethnic groups	Dr. Rajiv Sarin
Identification and validation of potential chemical inducers for human sodium iodide symporter (HNIS) gene expression in breast cancer	Dr. Abhijit De
Identification and validation of novel genetic variation in cervical cancer samples using Next Generation sequencing data	Dr. Rita Mulherkar
Defining the cancer genome of head and neck squamous cell carcinoma (HNSCC) with SNP arrays and Next Generation sequencing technology	Dr. Amit Dutt
Characterizing the somatic landscape of genetic alterations in human retroperitoneal liposarcomas	Dr. Amit Dutt

Academic and Training Program

Education is one of the three vital mandates of the Centre. In keeping with this, the Academic & Training Programs Office, chaired by Dr. S.V. Chiplunkar, oversees an active educational program at ACTREC, which encompasses Ph.D. program in the Life Sciences under the auspices of the Homi Bhabha National Institute as well as short term and summer training programs, and staff refresher courses that are conducted by SCOPE Cell in concert with the Centre's Administration group. The Centre also organizes an Open Day to showcase its programs and facilities to college students of Mumbai and Navi Mumbai, accepts educational visits from students from colleges/ universities across the country and participates in science exhibitions such as Science Expo.

Doctoral Program: Until 2006, the Centre offered Ph.D. degree in Applied Biology, Biochemistry, and other degrees under its affiliation to the University of Mumbai. Thereafter, it came under the purview of the Homi Bhabha National Institute (HBNI), a deemed university encompassing all the units of the Department of Atomic Energy and now offers a Ph.D. degree in Life Sciences. In 2012, a new batch of 13 students joined the Centre. Besides them, 109 graduate students are enrolled in the Centre's Ph.D. program at present (Mumbai University – 3; HBNI – 106). During 2012, 8 students completed their doctoral research and were awarded the Ph.D. degree - 5 under the University of Mumbai and 3 under the Homi Bhabha National Institute. The details are given below.

Ph.D. (Applied Biology - University of Mumbai)

- Rohan Kamat: 'Efficacy of an indigenous lentiviral vector for gene transfer', Guide: Dr. Robin Mukhopadhyaya

- Srikanth Ambatipudi: 'Molecular cytogenetic profiling of oral cancer', Guide: Dr. Manoj Mahimkar
- Deepika Srivastava: 'Gene therapy for cancer: prodrug activation studies using recombinant adenoviral vector carrying herpes simplex virus thymidine kinase (HSV-tk) gene and ganciclovir (GCV)', Guide: Dr. Rita Mulherkar

Ph.D. (Biochemistry - University of Mumbai)

- Amitabha Mukhopadhyay: 'Regulation of cell cycle checkpoint pathways by 14-3-3e and 14-3-3^{3}', Guide: Dr. Sorab Dalal
- Shimul Salot: Studies on the gene metastasis associated 1 (MTA1) in the human breast cancer model MDA-MB-231', Guide: Dr. Rajiv Gude

Ph.D. (Life Sciences - Homi Bhabha National Institute)

- Ajit Chande: 'Use of lentiviral vector for improved system of protein expression in mammalian cells', Guide: Dr. Robin Mukhopadhyaya
- Lalit Sehgal: 'Generation of knockdown mice that lack 14-3-3µ and 14-3-3^{3} using RNA interference', Guide: Dr. Sorab Dalal
- Tabish Hussain: 'Genotype - molecular phenotype correlation using lymphoblastoid cell lines from patients with multiple primary neoplasms', Guide: Dr. Rita Mulherkar

Training Program: ACTREC has an active training program that accepts (a) students and other individuals who wish to merely observe the conduct of a specific technique (d"15 days), (b) undergraduate students seeking research exposure during their college's summer break (6-8 weeks), (c) graduate students seeking to work on their Master's dissertation, or staff members of colleges/ institutes who wish to learn from the Centre's expertise in emerging areas/ new technologies, or individuals who already have a doctoral/ medical degree and seek exposure to the cancer research milieu (3-6 months, extendable to a year). During 2012, a total of 188 trainees (8 observers, 19 summer trainees and 161 short term trainees) were

assigned to train under scientists and clinicians at the Centre.

Open Day 2012

Over a two-day period, ACTREC opens its doors to undergraduate/ graduate students from science, medical, pharmacy and allied degree colleges, universities and other institutions of Mumbai and Navi Mumbai with a view to highlight its research and clinical programs and provide the students an opportunity to learn about higher education and career openings at the Centre. During Open Day 2012, which was held on 6th and 7th December 2012, over 400 students accompanied by their faculty visited the Centre where a poster display on cancer research, treatment and prevention had been arranged. After an introductory talk about ACTREC, they were taken around select research laboratories, facilities and departments of the Centre by a dedicated pool of volunteers, where teams of scientists/ graduate students or clinicians/ registrars highlighted specific research programs/ techniques used in cancer research or technology applications/ equipment used in cancer diagnosis and treatment through poster/ computer-aided demonstrations. The following groups arranged demonstrations at Open Day 2012: Laboratory Animal Facility, Digital Imaging Facility, Zingde Lab, Teni Lab, Mahimkar Lab, Gupta Lab, Dutt Lab, Common Instrument Room, Composite Lab and Radiodiagnosis Dept.

Educational Visits: ACTREC played host to four educational visits during the calendar year 2012, which encompassed a total of 124 students and their accompanying faculty from Yashwantrao Chavan College of Science, Karad; Moving Academy of Medicine and Biomedicine, Pune; BARC Training School, Mumbai; and the winners of 24th DAE All India Essay Contest on 'Nuclear Science'.

Publications

International (PubMed Indexed)

1. Alam H, Bhate A, Gangadaran P, Sawant S, Salot S, Sehgal L, Dange PP, Chaukar DA, D'cruz A, Kannan S, Gude RP, Kane S, Dalal SN, Vaidya MM. Fascin overexpression promotes neoplastic progression in oral squamous cell carcinoma. BMC Cancer 12:32, 2012. PMID: 22264292 (IF 3.011)

2. Ambatipudi S, Gerstung M, Pandey M, Samant T, Patil A, Kane S, Desai RS, Schäffer AA, Beerenwinkel N, Mahimkar MB. Genome-wide expression and copy number analysis identifies driver genes in gingivobuccal cancers. Genes Chromosomes Cancer. 51(2): 161-173, 2012. PMID:22072328 (IF 3.306)

3. Arjmand F, Sayeed F, Parveen S, Tabassum S, Juvekar AS and Zingde SM: Design and synthesis of (S)- and (R)-enantiomers of [4-(2-hydroxy-1-phenylethylimino)pent-2-ol]dimethyltin(iv) and 2,2-dimethyl-4-phenyl-1,3,2-oxazastannolidine: in vitro antitumor activity against human tumor cell lines and in vivo assay of (S)-enantiomers. Dalton Trans. 2012 Dec 19. (Accepted 21st November 2012, **DOI:** 10.1039/C2DT32155F) [Epub ahead of print] PMID: 23250651

4. Bhargava A, Mishra D, Banerjee S, Mishra PK. Dendritic cell engineering for tumor immunotherapy: from biology to clinical translation. Immunotherapy 4(7): 703-718, 2012. PMID: 22853757 (IF 1.854)

5. Bhargava A, Mishra D, Banerjee S and Mishra PK: Engineered dendritic cells for gastrointestinal tumor immuno-therapy: opportunities in translational research. J. Drug Target 2012; doi:10.3109/1061186X.2012.731069 [Epub ahead of print]. PMID: 23061479

6. Bhargava A, Mishra DK, Khan S, Banerjee S and Mishra PK: Assessment of tumor antigen loaded solid lipid nanoparticles as an efficient delivery system for dendritic cell engineering. Nanomedicine (Lond.) 2012; doi:10.2217/NNM.12.164 [Epub ahead of print] PMID: 23311961

7. Bhat V, Tiwari M, Chavan P, Kelkar R. Analysis of laboratory sample rejections in the pre–analytical stage at an oncology center. Clin Chim Acta 413(15-16):1203-1206, 2012. PMID: 22507083 (IF 2.535)

8. Chande AG, Baba M, Mukhopadhyaya R. A single step assay for rapid evaluation of inhibitors targeting HIV-1 Tat mediated long terminal repeat transactivation. AIDS Res Hum Retroviruses. 28(8): 902-906, 2012. PMID: 21878060 (IF 2.246)

9. Chandrashekhar C, Pons B, Muller CD, Tounsi N, Mulherkar R and Zuber G: Oligobenzylethylenimine enriches linear polyethylenimine with a pH-sensitive membrane disruptive property and leads to enhanced gene delivery activity. Acta Biomater Epub 2012 Sep 19 PMID: 23000009

10. Chopra S, Engineer R, Mahantshetty U, Misra S, Phurailatpam R, Paul SN, Kannan S, Kerkar R, Maheshwari A, Shylasree TS, Ghosh J, Gupta S, Thomas B, Singh S, Sharma S, Chilikuri S, Shrivastava SK. Protocol for a phase III randomised trial of image-guided intensity modulated radiotherapy (IG-IMRT) and conventional radiotherapy for late small bowel toxicity reduction after postoperative adjuvant radiation in Ca cervix. BMJ Open. 2(6): e001896, 2012. PMID: 23242243

11. Chopra S, Shukla P, Paul SN, Engineer R, Phurailatpam R, Jamema SV, Mahantshetty U, Shrivastava SK: Evaluation of quality indices during multifractionated pelvic interstitial brachytherapy for cervical cancer. Brachytherapy, Nov.20, 2012. PMID: 23182042

12. Chopra S, Toi A, Taback N, Evans A,Haider M, Milosevic M, Bristow R, Chung P, Bayley A,Morton G, Vespirini D, Warde P, Catton C, Menard C: Pathological predictors for site of local recurrence after radiotherapy for prostate cancer. IJROBP 82: 441-448, 2012.PMID 22284038

13. Dalal K, Elanchezhiyan D, Maran VB, Das RK, Kumar P, Singh SP, Krishna CM, Chatterjee J. Optical spectroscopic , and doppler evaluation of normal and abnormal reflexology areas in lumbar vertebral pathology: A case study. Case Rep Med 2012. PMID: 23365581

14. Das P, Thomas A, Mahantshetty U, Shrivastava S, Deodhar K, Mulherkar R. HPV genotyping and site of viral integration in cervical cancers in Indian women. PLoS one 7(7): e41012, 2012. PMID: 22815898 (IF 4.092)

15. Dhote V, Bhatnagar P, Mishra PK, Mahajan S, Mishra D. Iontophoresis: a potential emergence of a transdermal drug delivery system. Sci. Pharm. 80(1) :1-28.2012. PMID: 22396901

16. Engineer R, Mohandas K, Shukla P, Shrikhande S, Goel M, Chopra S and Shrivastava SK: Escalated radiation dose without chemotherapy does not improve respectability for locally advanced unresectable rectal cancers over standard chemoradiation: results of phase II randomized study. IJROBP 84: S144, 2012.PMID 23358929

17. Fulzele A, Malgundkar SA, Govekar RB, D'cruz AK, Chaturvedi P, Patil A, Kane SV, ZIngde SM. Keratins in oral cancer: necessity of mass spectrometry for validation of antibody based identifications. J Proteomics. 75(8): 2404-2416, 2012. PMID: 22387131 (IF 4.878)

18. Gadewal NS, Varma A. Targeting Pim-1 kinase for potential drug-development. Int J Comput Biol Drug Des. 5(2): 137-151, 2012. PMID: 22854122

19. Gaikwad SM, Ray P. Non-invasive imaging of PI3K/Akt/mTOR signalling in cancer. Am J Nucl Med Mol Imaging 2(4): 418-431, 2012 PMID: 23145359

20. Goel A, Moiyadi AV. 'Evolved' craniofacial surgery. World Neurosurg 78(1-2): 62-63, 2012. PMID:22381332

21. Govekar RB, Kawle PD, Advani S, Zingde SM. Reduced PKC ± activity induces senescent phenotype in erythrocytes. Anemia 6:2012. PMID: 22988493

22. Govekar RB, Kawle PD, Thomas R, Advani S, Sheena PV, Zingde SM. Eryptotic phenotype in chronic myeloid leukemia: contribution of neutrophilic cathepsin G. Anemia 7:2012. PMID: 22506108

23. Gupta S, Bagel B, Gujral S, Subramaniam PG, Khattry N, Menon H, Nair R. Parenthood in patients of acute promyelocytic leukemia after treatment with arsenic trioxide - A case series. Leuk Lymphoma 53(11): 2192-2194, 2012.PMID: 22452590 (IF 2.58)

24. Gupta T, Agarwal J, Jain S, Phurailatpam R, Kannan S, Ghosh-Laskar S, Murthy V, Budrukkar A, Dinshaw K, Prabhash K, Chaturvedi P, D'Cruz A. Three-dimensional conformal radiotherapy (3D-CRT) versus intensity modulated radiation therapy (IMRT) in squamous cell carcinoma of the head and neck: A randomized controlled trial. Radiother Oncol 104(3): 343-348, 2012. PMID: 22853852 (IF 5.58)

25. Gupta T, Jalali R, Goswami S, Nair V, Moiyadi AV, Epari S, Sarin R. Early clinical outcomes demonstrate preserved cognitive function in children with average-risk medulloblastoma when treated with hyperfractioned radiation therapy. Int J Radiat Oncol Biol Phys.83(5):1534-40,2012. PMID: 22342098 (IF 4.105)

26. Gupta T, Nair V, Paul SN, Kannan S, Moiyadi AV, Epari S, Jalali R. Can irradiation of potential cancer stem-cell niche in the subventricular zone influence survival in patients with newly diagnosed glioblastoma? J Neurooncol. 109(1): 195-203, 2012. PMID:22555992 (IF 3.214)

27. Gupta T, Wadasadawala T, Master Z, Phurailatpam R, Pai-Shetty R, Jalali R. Encouraging early clinical outcomes with helical tomotherapy (HT) based image-guided intensity-modulated radiation therapy (IMRT) for residual,recurrent, and/or progressive benign/low-grade intracranial tumors: a comprehensive evaluation. Int J Radiat Oncol Biol Phys. 82(2):756-64, 2012. PMID: 21345610 (IF 4.105)

28. Inamdar SR, Savanur MZ,Eligar SM, Chachadi VB, Nagre NN, Chen C, Barclays M, Ingle A, Mahajan P, Borges A, Shashtry P, Kalraiya RD, Swamy BM, Rhodes JM, Yu L-G. The TF-antigen binding lectin from Sclerotium rolfsii inhibits growth of human colon cancer cells by inducing apoptosis in vitro and suppresses tumor growth in vivo. Glycobiology 22(9): 1227-1235, 2012. PMID: 22653662 (IF 3.58)

29. Inostroza-Nieves, Venkatraman P, Zavala-Ruiz. Role of sug1,a 19S proteosome, ATPase, in the transcription of MHC I and the atypical MHC II molecules. HLA-DM and HLA-DO. Immunol Lett. 147(1-2): 67-74,2012. PMID: 22771340 (IF 2.526)

30. Joh J, Jenson AB, Proctor M, Ingle AD, Silva KA, Potter CS, Sundberg JP, Ghim SJ. Molecular diagnosis of a laboratory mouse pappillomavirus(MusPV). Exp Mol Pathol. 93:416-421, 2012. PMID: 22796029 (IF 2.425)

31. Kamran MZ, Gude RP. Preclinical evaluation of the antimetastatic efficacy of pentoxyfylline on A375 human melanoma cell line. Biomed Pharmacother. 66(8): 617-626,2012. PMID: 23089470 (IF 2)

32. Kanojia D, Sawant SS, Borges AM, Ingle AD, Vaidya MM. Alterations in keratins and associated proteins during 4-Nitroquinoline-1-oxide induced rat oral carcinogenesis. J Carcinog 11:14, 2012. PMID:23233820

33. Kelkar M, De A. Bioluminescence based in vivo screening technologies. Curr Opinin Pharmacol 12(5) : 592-600, 2012 PMID: 22954534 (IF 6.856)

34. Khapre N, Kundu ST, Sehgal L, Sawant M, Priya R, Gosavi P, Gupta N, Alam H, Karkhanis M, Naik N, Vaidya MM, Dalal SN. Plakophilin3 loss leads to an increase in PRL3 levels promoting K8 dephosphorylation, which is required for transformation and metastatis. PLoS One 7(6): e38561, 2012. PMID:22701666 (IF 4.092)

35. Khare SP, Habib F, Sharma R, Gadewal NS, Gupta S, Galande S. HIstome—a relational knowledgebase of human histone proteins and histone modifying enzymes. Nucleic Acids Res. 40(D1): D337-D342, 2012. PMID: 22140112 (IF 8.026)

36. Kothari V, Mulherkar R. Inhibition of cyclin D1 by shRNA is associated with enhanced sensitivity to conventional therapies for head and neck squamous cell carcinoma. Anticancer Res. 32(1):121-8, 2012. PMID: 22213296 (IF 1.725)

37. Kotnis A, Namkung J, Kannan S, Jayakrupakar S, Park T, Sarin R, Mulherkar R. Multiple pathway-based genetic variations associated with tobacco related multiple primary neoplasms. PLoS One. 7(1): e30013. PMID: 22253860 (IF 4.092)

38. Kumar G, Dange PP, Kailaje V, Vaidya MM, Ramchandani AG, Maru GB. Polymeric black tea polyphenols modulate the localization and activity of 12-O-tradecanoylphorbol-13-acetate-mediated kinases in mouse skin: Mechanisms of their anti-promoting action. Free Radic Biol Med. 53(6): 1358-1370, 2012. PMID: 22841871 (IF 5.423)

39. Kumar G, Tajpara P, Maru GB. Dietary turmeric post treatment decreases DMBA-induced hamster buccal pouch tumor growth by altering cell proliferation and apoptosis-related marker. J Environ Pathol Toxicol. 31(4): 295-312, 2012. PMID: 23394443 (IF 1)

40. Kumar S, Sengupta A, Agarwal VK. Current situation of health care in India and corporatization in emerging economies – what is the way forward? World Hosp Health Serv 48(3): 25-29, 2012. PMID: 23342758

41. Mahimkar MB, Samant TA, Kannan S, Tulsulkar J, Pai PS, Anantharaman D. Polymorphisms in GSTM1 and XPD genes predict clinical outcome in advanced oral cancer patients treated with postoperative radiotherapy. Mol Carcinog. 51 Supp 1 E94-103, 2012. PMID: 22213390

42. Mallick S, Agarwal J, Kannan S, Pawar S, Kane S, Teni T. Bcl-xL protein: Predictor of complete tumor response in patients with oral cancer treated with curative radiotherapy. Head Neck 18th September 2012. PMID: 22987535 (IF 2.403)

43. Maudar KK, Gandhi P, Mishra PK, Varshney S, Punde R and Bhargava A: Novel approach for quantification of hepatitis C virus in liver cirrhosis using real-time reverse transcriptase PCR. J. Gastrointest. Surg. 2012; 16(1): 142-146.PMID: 22048842

44. Mishra DK, Dhote V and Mishra PK. Transdermal immunization: biological framework and translational perspectives. Expert Opin. Drug Deliv. 2012; doi:10.1517/17425247. 2012.746660 [Epub ahead of print].PMID: 23256860

45. Moiyadi AV, Ghazwan QA, Pai PS, Kelkar G, Nair D, Yadav PS. Free anterolateral thigh flap for reconstruction of complex craniofacial defects after resection of tumors of the fronto-orbitomaxillary complex. J Craniofac Surg 23(3): 836-841, 2012. (IF 0.822)

46. Moiyadi AV, Shetty PM. Feasibility of repeat surgery for pediatric brain tumors: An objective assessment of perioperative outcomes. J Neurosurg Pediatr.10(5): 411-417, 2012. PMID: 22957754 (IF 1.533)

47. Molli PR, Pradhan MB, Advani SH, Naik NR. RhoA: A therapeutic target for chronic myeloid leukemia. Mol Cancer 11: 16, 2012 PMID: 22443473 (IF 3.993)

48. Montegna EA, Bhave M, Liu Y, Bhattachayya D, Glick BS. Sec 12 binds at transitional ER sites. PLoS One 7(2): e31156, 2012. PMID: 22347445 (IF 4.092)

49. Murthy V, Shukla P, Adurkar P, Master Z, Mahantshetty U, Shrivastava S. Predicting rectal and bladder overdose during the course of prostate radiotherapy using dose-volume data Int J Radiat Oncol Biol Phys. 84(1): 119-24,2012.PMID: 22300567 (IF 4.105)

50. Palve VC, Teni TR. Association of anti-apoptotic Mcl-1L isoform expression with radioresistance of oral squamous carcinoma cells. Radiat Oncol 7:135,2012. PMID: 22873792 (IF 2.321)

51. Pande S, Sengupta A, Srivastava A, Gude R, Ingle A.: Re-evaluate the effect of hyperbaric oxygen therapy in cancer - A preclinical therapeutic small animal model study. PLoS One 7(11): e48432, 2012. PMID: 23144880 (IF 4.092)

52. Panwar H, Raghuram GV, Jain D, Ahirwar AK, Khan S, Jain SK, Pathak N, Banerjee S, Maudar KK, Mishra PK. Cell cycle deregulation by methyl isocyanate: Implications in liver carcinogenesis. Environ Toxicol. Jan 5 2012. PMID: 22223508 (IF 2.407)

53. Patel S, Vetale S, Teli P, Mistry R, Chiplunkar SV. IL-10 production in non-small cell lung carcinoma patients is regulated by ERK, P38 and COX-2. J Cell Mol Med. 16(3): 531-44, 2012. PMID: 21507199 (IF 4.125)

54. Pranay A, Shukla S, Kannan S, Malgundkar SA, Govekar RB, Patil A, Kane SV, Chaturvedi P, D'Cruz AK, Zingde SM. Proteomics Clin Appl 17th November 2012. PMID: 23161576 (IF 1.97)

55. Qureshi SS, Patil VP. Feasibility and safety of thoracoabdominal approach in children for resection of upper abdominal neuroblastoma. J Pediatr Surg. 47: 694-699, 2012.PMID: 22498383 (IF 1.45)

56. Rajasekaran R, Aruna P, Koteeswaran K, Padmanabhan L, Muthuvelu K, Rai RR, Thamilkumar P, Murali Krishna C, Ganesan S. Characterisation and diagnosis of cancer by native fluorescence spectroscopy of human urine. Photochem Photobiol 13th September 2012. PMID: 22971002 (IF 2.413)

57. Ray P, De A. Reporter gene imaging in therapy and diagnosis. Theranostics 2(4): 333-334, 2012. PMID: 22606212

58. Sahu A, Deshmukh A, Ghanate AD, Singh SP, Chaturvedi P, Krishna CM. Raman spectroscopy of oral buccal mucosa: A study on age-related physiological changes and tobacco-related pathological changes. Technol Cancer Res Treat. 11(6): 529-541, 2012. PMID: 23101756 (IF 1.692)

59. Salot S and Gude RP: MTA1-mediated transcriptional repression of SMAD7 in breast cancer cell lines. European J. Cancer 49(2): 492-499, 2012 (online). PMID: 22841502

60. Sarma U, Sareen A, Maiti M, Kamat V, Sudan R, Pahari S, Srivastava N, Roy S, Sinha S, Ghosh I, Chande AG, Mukhopadhyaya R, Saha B. Modeling and experimental analyses reveals signaling plasticity in a bi-modular assembly of CD40 receptor activated kinases . PLoS one 7(7): e39898, 2012. PMID: 22815717 (IF 4.092)

61. Saxena S, Gautam S, Maru GB, Kawle D, Sharma A. Suppression of error prone pathway is responsible for antimutagenic activity of honey. Food Chem Toxicol. 50(3-4): 625-633, 2012. PMID: 22269905 (IF 2.999)

62. Shetty OA, Naresh KN, Banavali SD, Shet T, Joshi R, Qureshi S, Mulherkar R, Borges A, Desai SB. Evidence for the presence of high risk human papillomavirus in retinoblastoma tissue from nonfamilial retinoblastoma in developing countries. Pediatr Blood Cancer. 58(2): 185-190, 2012. PMID: 22021092 (IF 1.891)

63. Shukla P, Chopra S, Engineer R, Mahantshetty U, Paul SN, Phurailatpam R, Jamema SV, Shrivastava SK. Quality assurance of multifractionated pelvic interstitial brachytherapy for postoperative recurrences of cervical cancers: a prospective study. Int J Radiat Oncol Biol Phys. 82(4): e617-22, 2012. PMID: 22300566 (IF 4.105)

64. Singh AK, Balkrishnan S, Venkatraman V. Direct ubiquitin independent recognition and degradation of a folded protein by the eukaryotic proteasomes-origin of intrinsic degradation signals. PLoS ONE 7(4): e34864, 2012. PMID: 22506054 (IF 4.092)

65. Singh SP, Deshmukh A, Chaturvedi P, Krishna CM. In vivo Raman spectroscopic identification of premalignant lesions in oral buccal mucosa. J Biomed Opt 17(10): 105002, 2012. PMID: 23223996 (IF 3.157)

66. Srivastav S, Kar S, Chande AG, Mukhopadhyaya R, Das PK. Leishmania donovani exploits host deubiquitinating enzyme A20, a negative regulator of TLR signaling, to subvert host immune response. J Immunol. 15:189(2): 924-34, 2012. PMID: 22685311 (IF 5.788)

67. Srivastava M, Nambiar M, Sharma Sheetal, Karki SS, Goldsmith G, Hegde M, Kumar S, Pandey M, Singh RK, Ray P, Natarajan R, Kelkar M, De A, Choudhary B, Raghavan SC. An inhibitor of nonhomologous end-joining abrogates double-strand break repair and impedes cancer progression. Cell 151(7): 1474-1487, 2012. PMID: 23260137 (IF 32.401)

68. Thorat R, Ingle AD. An attempt of cryopreservation of mouse embryos at the ACTREC laboratory animal facility in India. Exp Anim. 61(2): 139-145, 2012. PMID: 22531729 (IF 0.922)

69. Tiwari D, Kamble J, Chilgunde Sl, Patil P, Maru GB, Kawle D, Bhartiya U , Joseph L, Vanage G. Clastogenic and mutagenic effects of bisphenol A, an endocrine disruptor. Mutat Res Genet Toxicol Environ Mutagen. 743: 83-90, 2012.PMID: 22245107

70. Ukawala M, Chaudhari K, Rajyaguru T, Manjappa AS, Murthy RS, Gude RP.: Laminin receptor-targeted etoposide loaded polymeric micelles: A novel approach for the effective treatment of tumor metastasis. J Drug Target. 20(1): 55-66, 2012. PMID: 21967151 (IF 2.696)

71. Upasani MN, Mahantshetty UM, Rangarajan V, Purandare N, Merchant N, Thakur M, Engineer R, Chopra S, Shrivastava SK. 18-Fluoro-Deoxy-Glucose positron emission tomography with computed tomography-based gross tumor volume estimation and validation with magnetic resonance imaging for locally advanced Cervical Cancers. Int J Gynecol Cancer. 22(6): 1031-36,2012. PMID: 22622949 (IF 1.646)

72. van de Ven SM, Elias SG, Chan CT, Miao Z, Cheng Z, De A, Gambhir SS. Optical Imaging with HER2-targeted affibody molecules can monitor Hsp90 treatment response in a breast cancer xenograft mouse model. Clin Cancer Res. 18(4):1073-81,2012. PMID: 22235098 (IF 7.742)

73. Wadhawan V, Kolhe Y, Sangith N, Singh A, Venkatraman V. From prediction to experimental validation- desmoglein 2 is a functionally relevant substrate of matriptase in epithelial cells and their reciprocal relationship is important for cell adhesion. Biochem J 447(1): 61-70,2012 PMID: 22783993 (IF 4.897)

International (Non PubMed Indexed)

1. Badgujar DC, Sawant U, Mahadik H, Gadewal N, Varma AK. Pathogenicity of mutations discovered in BRCA1 BRCT domains is characterized by destabilizing the hydrophobic interactions. J Cancer Sci Ther 4(11): 386-393, 2012.

2. Fuji S, Mori T, Lee V, Cheng J, Linton N, Lie A, Khattry N, Shigemastu A, Uchida N, Eto T, Thang ND, Liu Y, Yang D, Kim JS, Moon JH, Kim D, Iida M, Suzuki R, Kodera Y, Kim S. A multi-center international survey related to the nutritional support after hematopoietic

stem cell transplantation endorsed by the ASIA pacific blood and marrow transplantation (APBMT). Food Nutr Sci. 3: 417-421, 2012.

3. Gupta T, Nair V, Phurailatpam R, Jalali R, Sarin R. Hyperfractionated craniospinal re-irradiation for recurrent/progressive disseminated medulloblastoma using image-guided radiotherapy: leveraging radiobiology with technology. J Radiat Oncol. 1(1):87-92, 2012.

4. Gupta T, Wadasadawala T, Phurailatpam R, Paul S, Jalali R. Helical tomotherapy based image-guided intensity-modulated radiation therapy for complex, irregular, residual, recurrent, progressive benign/low-grade meningiomas. J Nucl Med Radiat Ther S3, 2012.

5. Joseph T, Moiyadi AV, Nair DR, Pawar PV, Pai PS. Special considerations in esthesioneuroblastoma of sphenoclival region. Int J Head Neck Surg. 3(3): 158-162, 2012.

6. Mishra DK, Dhote V, Bhatnagar P, Mishra PK. Engineering solid lipid nanoparticles for improved drug delivery: Promises and challenges of translational research. Drug Deliv Transl Res 2(4): 238-253, 2012.

7. Mohan R, Sharma AK, Gupta S, Ramma CS. Design synthesis and biological evaluation of novel 2,4-thiazolidnedione derivatives as histone decetylase inhibitors targeting liver cancer cell. Med Chem Res 21(7): 1156-1165, 2012. (IF 1.271)

8. Pandey R, Mehrotra D, Catapano C, Choubey V, Sarin R, Mahdi A, Singh S. Association of mitochondrial deoxyribonucleic acid mutation with polymorphism in CYP2E1 gene in oral carcinogenesis. J Oral Biol Craniofac Res 2(1): 4-9, 2012.

9. Sehgal L, Thorat R, Khapre N, Mukhopadhyaya A, Sawant M, Dalal SN. A protocol for generation of transgenic mice by manipulating spermatogonial stem cells in vivo. Nat Protoc 29th May 2012.

10. Shrivastava R, Sirmaur M, Mishra PK, Yasir M, Tiwari A. Comparative in- Silico inhibition study of different proteins by MIC & HCN using molecular docking. IPCBB 29, 2012

11. Singh SP, Alam H, Dmello C, Vaidya MM, Krishna CM.: Raman spectroscopic study of keratin 8 knockdown oral squamous cell carcinoma derived cell. Proc. SPIE 8225: 82251C, 2012.

12. Singh SP, Deshmukh A, Chaturvedi P, Murli Krishna CM. In vivo raman spectroscopy for oral cancers diagnosis. Proc. SPIE 8219: 82190K-1, 2012.

13. Thorat R, Ingle A. Cryopreservation of mouse preimplantation embryos by slow freezing and fast thawing method. Nat Protoc 14th December 2012.

14. Varma A, Moiyadi A, Arya S, Menon H, Karbhase G, Sahwale P. Knowledge based approach in differential diagnosis of intracranial cysts -A requisite to avoid unwarranted interventions. Nepal J Cancer 2(1): 35-38, 2012.

Indian (PubMed Indexed)

1. Ahmed A, Epari S, Shah M, Rao K. Epithelioid hemangioendothelioma of sphenoid bone: A case report of an unusual case. Neurol India 60(3): 344-346, 2012. PMID: 22824706 (IF 0.956)

2. Ambulkar RP, Patil VP, Moiyadi AV. Neuroleptic malignant syndrome: A diagnostic challenge. J Anaesthesiol Clin Pharmacol 28(4): 517-519, 2012. PMID:23225938

3. Balsubramaniam S, Tyagi D, Sawant H, Epari S. Posterior fossa involvement in a recurrent gliosarcoma. J Neurosci Rural Pract. 3(1): 60-64, 2012. PMID: 22346196

4. Bhat VG, Biswas SK, Kelkar RS, Khattry N. Antibiotic-resistant bacteria in surveillance cultures from hematopoietic stem cell transplant patients. Indian J Med Paediatr Oncol 33(3): 190-191, 2012. PMID: 23248433

5. Chandarana MN, Epari S, Chaukar D, Moiyadi AV. Metachronous solitary metastasis of papillary thyroid cancer in the cavernous sinus: Case report and review of literature. J Cancer Res Ther 8(3): 436-438, 2012. PMID: 23174730

6. Chavan PD, Bhat VG, Ojha S, Kelkar RS, Rajadhyaksha SB, Marathe AN. Detection of bacterial growth in blood components using oxygen consumption as a surrogate marker in a tertiary oncology set up. Indian J Med Microbiol 30(2): 212-14, 2012. PMID:22664440 (IF 0.988)

7. Chopra S, Verma A, Kundu S, Engineer R, Medhi S, Mahantshetty U, Gupta S, Shrivastava SK. Evaluation of diffusion-weighted imaging as a predictive marker for tumor response in patients undergoing chemoradiation for postoperative recurrences of cervical cancer. J Cancer Res Ther. 8(1):68-73, 2012. PMID: 22531517

8. Gadewal NS, Joshi NN. In sillico analysis of peptide binding features of HLA-B*4006. Indian J Exp Biol. 50: 93-100, 2012.PMID: 22670471 (IF 1.295)

9. Gupta T, Nair V, Epari S, Pietsch T, Jalali R. Concordance between local, institutional, and central pathology review in glioblastoma: Implications for research and practice: A pilot study Neurol India 60(1): 61-65, 2012. PMID: 22406782 (IF 0.956)

10. Gupta T, Narayan CA. Image guided radiation therapy: Physician's perspectives. J Med Phys 37(4): 174-182, 2012. PMID: 23293448

11. Hussain T, Kotnis A, Sarin R, Mulherkar R. Establishment & characterization of lymphoblastoid cell lines from patients with multiple primary neoplasms in the upper aero-digestive tract and healthy individuals. Indian J Med Res. 135(6):820-9, 2012. PMID: 22825601 (IF 1.837)

12. Kundu S, Chopra S, Verma A, Mahantshetty U, Engineer R, Shrivastava SK. Functional magnetic resonance imaging in cervical cancer: Current evidence and future directions. J Cancer Res Ther. 8(1): 11-8, 2012. PMID: 22531506

13. Mahore A, Epari S, Katariya NG. Primary solitary malignant hemangioendothelioma of vertex: A rare calvarial tumor. Neurol India 60(5): 536-539, 2012. PMID: 23135043 (IF 0.956)

14. Mishra PK. A pragmatic and translational approach of human biomonitoring to methyl isocyanate exposure in Bhopal. Ind J Med Res 135: 479-484, 2012.PMID:22664494 (IF 1.837)

15. Mittra I, Nair NK, Mishra PK. Nucleic acids in circulation: Are they harmful to the host? J Biosci. 37(2): 1-12, 2012.PMID: 22581336 (IF 1.648)

16. Moiyadi AV, Shetty PM. Perioperative outcomes following surgery for brain tumors: Objective assessment and risk factor evaluation. J Neurosci Rural Pract. 3(1): 28-35, 2012. PMID: 22346187

17. Moiyadi AV, Shetty PM. Surgery for recurrent malignant gliomas: Feasibility and peripoerative outcomes. Neurol India 60(2): 185-190, 2012. PMID:22626701 (IF 0.956)

18. Moiyadi AV, Shetty PM. Giant velum interpositum meningioma in a child. Indian J Med Paediatr Oncol 33(3): 173-175, 2012. PMID: 23248425

19. Murthy V. The first special issue... of many more to come! J Cancer Res Ther. 8 Suppl (2): S53-54, 2012. PMID: 22322732

20. Murthy V, Awatagiri K, Tike PK, Ghosh-Laskar S, Gupta T, Budrukkar A, DeshpandeM, Chaukar G, Pantvaidya G, Agarwal J. Prospective analysis of reasons for non-enrollment in a phase III randomized controlled trial. J Cancer Res The. 8 Suppl (2): S94-99, 2012. PMID: 22322738

21. Poojari RJ, Patil AG, Gota VS. Development & botanical principles for clinical use in cancer: where are we lacking? J Postgrad Med. 58(1): 63-67, 2012. PMID:22387653 (IF 1.263)

22. Ranade KJ, Nerurkar AV, Phulpagar MD, Shirsat NV. Myoepithelial expression of Fas and strong nuclear expression of FasL in epithelial cells: A marker for risk stratification of breast cancer. Indian J Cancer 49(1): 60-65,2012. PMID:22842170

23. Rekhi B, Basak R, Desai S, Jambhekar N. Immunohistochemical validation of TLE1, a novel marker, for synovial sarcomas. Indian J Med Res 136: 766-775, 2012. PMID: 23287123 (IF 1.837)

24. Sehgal L, Budnar S, Bhatt K, Sansare S, Mukhopadhyaya A, Kalaraiya RD, Dalal SN. Generation of HIV-1 based bi-cistronic lentiviral vectors for stable gene expression and live cell imaging. Indian J Exp Biol 50: 669-676, 2012. PMID: 23214259 (IF 1.295)

25. Sharma P, Mahore A, Kansal R, Epari S, Kataria N. Supratentorial intraparenchymal schwannoma mimicking a glial tumor. Neurol India 60(3): 335-337, 2012. PMID: 22824700 (IF 0.956)

26. Shet T, Basak R, Epari S. Primary cutaneous marginal zone lymphoma (immunocytoma like) with lymphoepithelioid or lennert's lymphoma like involvement of nodes. Indian J Pathol Microbiol. 55(2):222-6, 2012. PMID:22771649 (IF 0.676)

27. Shirsat H, Epari S, Shet T, Bagal R, Hawaldar R, Desai S. HER2 status in invasive breast cancer: Immunohistochemistry , fluorescence in-situ hybridization and chromogenic in-situ hybridization. Indian J Pathol Microbiol. 55(2):175-179, 2012. (IF 0.676)

28. Singh SP, Deshmukh A, Chaturvedi P, Krishna CM. Raman spectroscopy in head and neck cancers: toward oncological applications. J Cancer Res Ther. 8 Suppl(2): S126-S132, 2012. PMID: 22322731

29. Singhal AK, Kannan S, Gota VS. 5HT3 antagonist for prophylaxis of postoperative nausea & vomiting in breast surgery: A meta analysis. J Postgrad Med. 58(1): 23-32, 2012. PMID: 22387645 (IF 1.263)

Indian (Non - PubMed Indexed)

1. Joshi A, Risbud S, Juvekar AS. Screening for anticancer activity of novel polyenzyme formulations using in vitro methods. Adv Life Sci. 1(1): 26-29, 2012.

2. Moiyadi AV, Sumukhi U, Shetty PM, Biswas S, Kelkar R. Scalp flora in Indian patients undergoing craniotomy for brain tumors-implications for pre-surgical site preparations and surgical site infection. Ind J Neurosurg 1(1): 28-32, 2012.

3. Mulherkar R. Gene therapy for cancer: Is there light at the end of the tunnel ? J Indian Inst Sci. 92(3): 347-352, 2012.

4. Sridhar E, Jalali R. Impact of biology in therapeutic management of malignant gliomas. J Ind Inst Sci. 92(3) : 333-338, 2012.

Book Chapters

1. Chikne V, Chiplunkar SV. Role of probiotics in immune modulation and anti-tumor immunity. In: Health and Impact of Probiotics: Vision and Opportunities (Ed. G Balkrishan Nair & Yoshifumi Takeda), Elsevier, New Delhi, 2012, pp.124-149

2. Chiplunkar SV, Shah S. Infection, inflammation and cancer. In: Infections and Cancers (Ed. Dhir Aruna Alahari & Sawant Sheela P), Tata Memorial Centre, Mumbai, 2012, pp. 3-15

3. Gupta N, Mukhopadhyaya R, Banerjee R. Nanoparticles for cancer vaccines. In: Nanotechnology: Diagnosis and treatment of cancers (Ed. Banerjee R), Society for Cancer Research and Communication, Narosa, New Delhi, 2012, pp. 209-227

4. Munnolli SS & Pujar SM. Data mining challenges in retrieving Indian cancer research literature from pubmed, scopus and google scholar: an experience. In: Metric Based Research Assessment & Evaluation. (Ed By SM Dhawan, NK Khatri, A Ratnakar) Indian Statistical Institute, Delhi, 2012

5. Sarin R. Cancer Genetics. In: API Textbook of Medicine, vol I. (Ed. Y P Munjal) The Association of Physician of India, Mumbai, 2012, pp. 217-222

Guest Seminars held at ACTREC

9.1.2012	The functional role of histone methyltransferase G9a in regulating gene expression program in adult erythroid cells Dr. Prakash C. Chaturvedi, Sprott Center for Stem Cell Research, Ottawa Hospital Research Institute, Ottawa, Canada
9.1.2012	Tripartite interactions between Sprouty2, PTEN and PP2A restrain prostate cancer growth and metastatic progression Dr. Rachana Patel, Hing Leung's laboratory, Beatson Institute for Cancer Research, Glasgow, UK
13.1.2012	Role of Rab25 in breast oncogenesis Dr. Shreya Mitra, Dr. Gordon Mills Lab, The University of Texas' MD Anderson Cancer Center, Houston, USA
16.1.2012	Metabolomics: bridging the gap between basic and translational chemical biology Dr. Soumen K. Manna, Center for Cancer Research, National Cancer Institute, National Institutes of Health, Bethesda, USA
17.1.2012	Glucose metabolism and oxidative stress in myeloid leukemias Dr. Mamatha Reddy Muppidi, Dana-Farber Cancer Institute, Boston, USA
18.1.2012	Passing the baton – structure reveals regulatory role of gH/gL in herpesvirus entry Dr. Tirumala Kumar Chowdary, Tufts University School of Medicine, Boston, USA
7.2.2012	The long scientific road travelled to understand the rationale to cure HIV Prof. Milton Yatvin, formerly at the University of Wisconsin, and Oregon Health & Science University, USA
8.2.2012	Application of photoacoustic spectroscopy in disease diagnosis
	Dr. Krishna K Mahato, Manipal Life Sciences Centre, Manipal University, Manipal
9.2.2012	Study of antisense PNA targeted to primer template complex of HIV-1 and effect of modified bases present in the tRNALys3 Dr. Uddhavesh B. Sonavane, Centre for Development of Advanced Computing, Pune
9.2.2012	Annotating hypothetical proteins: a case study Dr. Petety V. Balaji, Indian Institute of Technology - Bombay, Mumbai
10.2.2012	Development of docking screening protocol for enzyme inhibitor hit identification and lead optimization: a case study for HIV protease Inhibitors Dr. VN Balaji, Jubilant Biosys Ltd., Bengaluru
10.2.2012	Molecular modeling: using homology and *ab initio* tools, few aspects of docking Dr. Shailza Singh, National Centre for Cell Science, Pune
15.2.2012	Modulation of antigen presentation and BCR signaling in B cells of beige mice Dr. Anna George, National Institute of Immunology, New Delhi
27.3.2012	Health through breath Prof. Vinoda Kochupillai, former Chief of the Institute Rotary Cancer Hospital, All India Institute of Medical Science, New Delhi
24.7.2012	Role of beta 2-microglobulin and micro RNA in prostate cancer bone metastasis Dr. Sajni Josson, Cedars-Sinai Medical Center, Los Angeles, USA
16.5.2012	Novel strategies in cancer immunotherapy: a potential role for cell and gene therapy Dr. Rahul Purwar, Brigham and Women's Hospital, Harvard Institutes of Medicine, Boston, USA

22.5.2012	Understanding signal transduction at the molecular level: biological and chemical approaches Dr. Devrani Mitra, Gordon Center for Integrative Sciences, Institute Of Biophysical Dynamics, University of Chicago , Chicago, USA
22.5.2012	Systems analysis and targeting networks for cancer therapy Dr. Prahlad Ram, The University of Texas' MD Anderson Cancer Center, Houston, USA
18.6.2012	Structural diversity and ligand specificity of proteins: a case study involving lectins Prof. M. Vijayan, Indian Institute of Science, Bangalore
2.7.2012	Structural genomics of Mycobacterium proteins Dr. Shekhar Mande, Director, National Centre for Cell Science, Pune
4.7.2012	Regulation of DNA-PK by protein phosphatase 6 Dr. Amol Hosing, University of Virginia, Charlottesville, USA
11.7.2012	Cell fate specification during tube formation: lessons from *Caenorhabditis elegans* Dr. Sarfaraz Farooqui, Institute of Molecular Life Sciences, University of Zurich, Switzerland
12.7.2012	Altering functional properties of cysteine proteases by structure-based protein engineering Prof. J. K. Dattagupta, Saha Institute of Nuclear Physics, Kolkata
20.9.2012	Cancer biomarkers and immunotherapies: a novel approach for cancer treatment and management Dr. Rajesh Kumar Sharma, James Graham Brown Cancer Center, University of Louisville, Louisville, USA
25.9.2012	Targeting apoptosis-autophagy network in virus associated human cancers – a therapeutic approach Dr. Abhik Saha, Perelman School of Medicine, University of Pennsylvania, Philadelphia, USA
11.10.2012	Funds and opportunities available for Indian research labs and researchers to work with their counterparts in the European Union Mr. Freek Jan Frerichs, Attaché for Science & Technology, Consulate General of The Netherlands; Dr. Nicolas Poussielgue, Science Attaché, French Embassy; Mr. Shrikar Dole, European Business and Technology Centre, New Delhi
30.10.2012	HOX genes in tamoxifen resistance in breast cancer Dr. Saraswati Sukumar, Johns Hopkins School of Medicine, Baltimore, USA
31.10.2012	Towards a better understanding of heterogeneous (colorectal) and lethal (pancreatic) cancers using genomic approaches Dr. Murali Dharan Bashyam, Centre for DNA Fingerprinting and Diagnostics, Hyderabad
2.11.2012	Epigenetic regulation of alternative pre-mRNA splicing Dr. Sanjeev Shukla, National Cancer Institute , Frederick, USA
6.11.2012	Notch signaling in neoplastic disease Dr. Prathibha Ranganathan, University of Miami, Miami, USA
27.11.2012	Creating the cortex and the hippocampal organizer Dr. Shubha Tole, Tata Institute of Fundamental Research, Mumbai
11.12.2012	MicroRNA in leukemia Dr. Deepa Sampath, The University of Texas' MD Anderson Cancer Center, Houston, USA
13.12.2012	Influence of gut microbiota in colon cancer development Dr. Venkatakrishna Rao Jala, James Graham Brown Cancer Center, University of Louisville, Louisville, USA
14.12.2012	Mechanism regulating oral squamous carcinomas progression Dr. Joseph O. Humstoe, University of California, San Francisco, USA

Scientific Meetings & Conferences organized at ACTREC

January 26-29, 2012	31st Annual Convention of the Indian Association of Cancer Research & Intl. Symposium on 'Cancer genomics and its impact in the Clinics' Organizing Secretaries: Dr. Tanuja Teni & Dr. Neelam Shirsat
January 30, 2012	International Symposium on 'Stem Cell Biology' Organizer: Dr. Sanjeev Waghmare
January to April, June to August & September to December 2012	Program of Lectures and Demos for Registrars and Clinicians - Module 1, 2 and 3 Coordinators: Dr. Surekha Zingde (ACTREC) & Dr. Gouri Pantvaidya (TMH)
February 6, 2012	'DNA damage response and cell cycle control in cancer' – A Satellite Meeting of the Ataxia Telangiectasia Workshop 2012 Organizer: Dr. Sorab Dalal
February 9-10, 2012	DBT/ BTIS Workshop 'Applications in Bioinformatics' Organizer: Dr. Ashok Varma
February 10, 2012	CME on 'Safe Blood Component Transfusion Practices' Coordinator: Dr. Shashank Ojha and Dr. Aboli Marathe
March 24, 2012	AROI-ASTRO Teaching Course and Workshop on Head and Neck Cancers ACTREC Coordinator: Dr. Tejpal Gupta
April 13, 2012	Meeting of the IIT-B ACTREC Health Care Consortium Coordinator: Dr. Surekha Zingde
May 1-7, 2012	Pharmacokinetics Pharmacodynamics (PK / PD) Workshop Organizer: Dr. Vikram Gota
May 2, 2012	ACTREC Alumni Association's 2nd 'ALUmni Chat Meet' Organizer: Dr. Jyoti Kode
June 18 to 30, and July 1 to 13 , 2012	Bioinformatics Workshop for the NE region – Batches I & II Organizer: Dr. Ashok Varma
September 7-8, 2012	ACTREC Monsoon Retreat Coordinator: Dr. Sorab Dalal
September - December 2012	Certificate course on 'Laboratory animal techniques' (CCLAT) Coordinator: Dr. Arvind Ingle
October 1-5, 2012	IAEA Teaching Course on Head & Neck and Breast Cancer Organizer: Dr. Rajiv Sarin
November 1, 2012	ACTREC Alumni Association's 1st 'Tête-à-Tête with Alumni' Organizer: Dr. Jyoti Kode
November 19-20, 2012	Global Cancer Genomics Consortium - TMC symposium: interface between Genomics and Cancer Medicine Organizer: Dr. Amit Dutt, ACTREC
November 21-24, 2012	International Conference on Radiation Biology (ICRB-2012) & 11th Biennial Meeting of the Indian Society of Radiation Biology – 'Cosmic Radiation to Cancer Therapeutics' Coordinators: Dr. Abhijit De and Dr. Jayant Goda

November 29 - December 1, 2012	Workshop on 'Genetic quality assessment of laboratory animals through laboratory techniques' Convenor: Dr. Arvind Ingle
December 6-7, 2012	Open Day 2012 Coordinator: Dr. Aparna Bagwe
December 13, 2012	IAEA Brachytherapy Conference Co-ordinators: Dr. Rajiv Sarin & Dr. Supriya Chopra
December 17-21, 2012	Protocol Development Workshop for a Cochrane Systematic Review Co-ordinators: Dr. Tejpal Gupta & Ms. Sadhana Kannan
December 21-22, 2012	National Research Scholars Meet in Life Sciences 2012 Co-ordinators: ACTREC Graduate Students
December 28, 2012	ACTREC Alumni Association 1st Annual Meet Convenor: Dr. Jyoti Kode

Major Meetings Organized at ACTREC

31st Annual Convention of the Indian Association for Cancer Research and International Symposium on 'Cancer Genomics and its Impact in the Clinics'

Organizing Secretaries:
Dr Tanuja Teni & Dr. Neelam Shirsat,
ACTREC

The 31st Annual IACR Convention was held at ACTREC, Navi Mumbai from January 26-29, 2012. The Convention was combined along with an International Symposium on 'Cancer Genomics and its Impact in the Clinics'. This event was held in ACTREC as a part of its Diamond Jubilee Year (1952-2012) celebrations. Total participation was around 500 including registered participants, invited speakers from India and abroad, and volunteers. The Convention, Symposium and newly refurbished Khanolkar Auditorium were inaugurated by Nobel Laureate Prof. H. Zur Hausen on 26th January 2012. Dr. Anita Borges delivered the Dr. M.G. Deo Oration entitled 'Zeno and me – encounters with paradoxes in cancer pathology'. The panel discussion on 'HPV vaccine and its relevance in India' and the debate on 'Targeted therapies give doctors a better way to tailor treatment to cancer patients - Yes /No' were much appreciated. The scientific program consisted of plenary talks on each day, six scientific sessions, a panel discussion on 'HPV vaccine', three young scientists' award sessions, and two poster sessions. The plenary talks were an intellectual feast, with renowned experts sharing insights about their areas of expertise. Dr. Mariano Barbacid spoke on 'Targeting K-Ras oncogene signaling in cancer', Dr. Jeff Meyers on 'Comprehensive Genomic characterization of oral squamous cell carcinoma', Dr. Fiona Watt on 'Multiple cell types contribute to epidermal tumor formation' and Dr. Sam Hanash on 'Development and validation of protein based cancer biomarkers' The scientific sessions focused on the areas of Cancer Immunotherapy, Cell signaling, Metastasis, Stem cells, Cancer chemoprevention and therapy, and Cancer proteomics. The convention ended with the Valedictory function and prize distribution session chaired by the IACR President and Conference Chairperson Dr. Rita Mulherkar.

'The DNA damage response and cell cycle checkpoint control in cancer' - A Satellite Meeting of the ATM workshop 2012 (ATW 2012)

Organizer:
Dr. Sorab Dalal , ACTREC

A Satellite Meeting on 'The DNA damage response and cell cycle checkpoint control in cancer' was held at ACTREC on February 6, 2012, in order to focus on new findings in this vital area and to discuss how alterations in these important cellular pathways lead to neoplastic progression. Several presentations were made on the role of proteins involved in the DNA damage response in regulating tumor progression. Dr. Kastan spoke about how understanding ATM function had clinical implications for the treatment of various diseases. Dr. Chen spoke about the repair of DNA damage and Dr. Chattopadhyaya and Dr. Dutt focused on the role of chromatin in the DNA damage response. Dr. Pandita and Dr. Teni spoke of alterations in DDR signaling in cancer and Dr. Lahiri and Dr. Burger spoke about checkpoint signaling and how it correlated with tumor progression.

DBT - BTIS Bioinformatics Workshop

Workshop Coordinator
Dr. Ashok Varma, ACTREC

Every year, the BTIS sub-DIC Centre at ACTREC conducts a two-day workshop comprising of lectures and hands-on training that targets college/ universities lecturers and research scholars. This year's workshop was held on February 9-10 2012. Scientists having expertise in basic bioinformatics, proteomics, biological databases, sequence analysis, structural bioinformatics and drug design delivered lectures to the 14 participants of this workshop. The first talk was entitled 'Study of antisense PNA targeted to primer template complex of HIV-1 and effect of modified bases present in the tRNALys3' by Dr. Uddhavesh Sonawane (CDAC). The basics of bioinformatics were covered by Mr. Nikhil Gadewal through his presentation on 'Database, sequence and structure analysis'. Dr. Ashok Varma delivered a talk on 'Structural bioinformatics and translational research'. In 2012, the keynote speaker for the first day was Dr. Petety Balaji (IIT-B) who presented 'A case study for annotations of hypothetical proteins'. The next day's keynote speaker was Dr. VN Balaji (Jubilant Biosys Ltd) spoke about 'Development of docking screening protocol for enzyme inhibitor hit identification and lead optimization: a case study for HIV protease Inhibitors'. Dr. Shailza Singh (NCCS) spoke about 'Homology modeling'. The ACTREC faculty members were Drs. Amit Dutt, Prasanna Venkatraman, Kakoli Bose and Rukmini Govekar. The mornings were assigned for lectures, and the afternoons for the hands–on- workshop that covered database retrieval, protein structure visualization, prediction of secondary and tertiary structures, its validation, molecular modeling and dynamics. All the participants expressed their satisfaction after completion of training.

CME on Safe Blood Component Transfusion Practices

Organizer:
Dr. Shashank Ojha,
ACTREC

The department of Transfusion Medicine, ACTREC jointly with MDACS conducted a CME on 'Safe Blood Component Transfusion Practices' at ACTREC on February 10, 2012, to provide an update on evolving safe blood transfusion practices. The program saw participation of 148 delegates including clinicians, nurses, staff of transfusion medicine departments and blood banks, who are engaged in the supply and administration of blood and blood components. The program covered both theoretical and practical aspects of the use of blood components, requesting procedures for blood, blood components, their administration, risks of transfusion, alternatives to allogeneic blood transfusion, fractionated blood products and standard practices in transfusion medicine.

Mumbai Immunology Group - Activity Report for the Year 2012

MIG Secretary:
Dr. Shubhada Chiplunkar,
ACTREC

The Mumbai Immunology Group (MIG) was established in 2010 at ACTREC, with the mandate to provide a forum that would strengthen immunology teaching in the country and foster interaction among clinicians, scientists, students and teachers in the field. MIG has 165 life members. In May 2012, MIG organised an Essay Competition on '(1) Vaccines: sentinels of modern healthcare, and (2) Clinical applications of monoclonal antibodies. Participants from various colleges and research institutes participated in the competition. Four winners were chosen and felicitated. During the year, lectures on various topics in Immunology were held in different colleges of Mumbai.

North Eastern Region Training Program for NEBINet Co-ordinators

Organizer:
Dr. Ashok Varma,
ACTREC

A two-week training program for NEBINet Co-ordinators was successfully conducted at ACTREC during June 18-29, 2013 (First batch) and July 2-13, 2012 (Second batch). A total of 27 scientists from 24 institutions of the North-East Region attended the workshop. The main objective of the workshops was to provide hands-on- training in cell and molecular biology, protein biochemistry, structural biology, stem cell biology, medical Imaging, etc to the DBT-BTIS co-ordinators, their associated faculty and students from the NER/ under-served regions of India. At the end of the workshop, the NER participants articulated their satisfaction with the well co-ordinated program in which they were heavily engaged and learnt several techniques. Participants from both the batches expressed their strong desire for having similar, more frequent and longer training courses in ACTREC in the future.

The 5th ACTREC Monsoon Retreat

Co-ordinator:
Dr. Sorab Dalal,
ACTREC

The fifth ACTREC Monsoon Retreat was held on September 7, 2012 in ACTREC. Talks on a varied range of topics were presented by the following faculty: (1) PPP – the prognosis of cancer research, Dr. Rajiv Sarin, (2) 'Nucleic acids in circulation: are they harmful to the host?', Dr. Indraneel Mittra, (3) 'Visiting old questions with new attitude; harping old wisdom to new altitudes!', Dr. Amit Dutt, (4) 'Structural biology consortium for cancer genomics', Dr. Ashok Varma, (5) 'I have an idea', Dr. G. Baretto, TMH, (6) 'Epigenomics ... Genomics ... Proteomics ... And now "Metronomics": an emerging Approach in Oncology', Dr. S. Banavali, TMH, (7) 'Pancreatic anastomosis – can we seal the deal?', Dr. S. Shrikhande, (8) Sizing up the organelles – an update', Dr. Dibyendu Bhattacharyya, and (9) 'Too much of a good thing is bad for you. How does this aphorism apply to tumor cells?', Dr. Sorab Dalal. A poster session by graduate students and trainees from Shilpee Lab, Sorab Lab, Dutt Lab, Joshi Lab, Ray Lab, Vaidya Lab and De Lab, was held during the lunch break and after the final talk.

National Voluntary Blood Donation Day Celebrations

Organizer:
Dr. Shashank Ojha,
ACTREC

On the occasion of National Voluntary Blood Donation Day, on October 1, 2012, a voluntary blood donation camp was organized in the Department of Transfusion Medicine. Awareness about the blood donation camp was created amongst the Centre's hospital staff through posters and emails. As a result, 22 staff and students of the Centre visited the camp and voluntarily donated blood. Regular voluntary blood and platelet donors as well as 20 organizers of Voluntary Blood Donation Drives were also invited to the department, felicitated and presented with mementoes from the Mumbai Districts AIDS Control Society. Camp organizers got the opportunity to visit the department, and were very appreciative of the state of the art facilities.

International Conference on Radiation Biology 2012

Secretary General –
Dr Rajiv Sarin.
Org. Secretaries:
Dr. Abhijit De & Dr. Jayant Goda

The International Conference on Radiation Biology 2012 (ICRB – 2012) and the 11th Biennial Meeting of the Indian Society for Radiation Biology was organized at ACTREC from November 22-24, 2012. The conference, whose theme was 'Cosmic Radiation to Radiation Therapeutics', covered a wide range of subject areas relevant to today's science as well as society. Beginning with a session on 'Radiation and the Public', the conference covered diverse subjects such as space radiobiology, cell phone radiation, novel radiation modifiers, fractionation and its radiobiology and molecular mechanism of radiation resistance. Over fifty experts from USA, Canada, Japan, Europe and India presented their latest work and discussed the directions in which radiation biology is moving to address various issues relevant to the society, science and clinic. The pre-conference workshop on 'Molecular Imaging in Oncology' provided an opportunity for update and demonstration of the state-of-the-art technologies for molecular imaging. Another unique aspect of this conference was the active participation of the National Disaster Management Authority of India with a dedicated session and exhibition.

Cancer Awareness Programs during 2012

Co-ordinator:
Mrs. Meera Achrekar,
ACTREC

In a bid to fulfill its social responsibility, ACTREC embarked on an ambitious 'Cancer Awareness Program (CAP)' aiming to educate the general public about cancer and also to provide a forum where people's queries can be addressed. As a part of this program, three lecture series were held during 2012.

The first lecture series was held on May 7, 2012 at ACTREC. Prof. Surendra Shastri (TMH) delivered a lecture entitled 'Cancer prevention and early detection' highlighted the use of effective, well planned health education programs and low-cost screening methods to down-stage and reduce the mortality due to breast and cervical cancers. Dr. Shashank Ojha (ACTREC) spoke about 'The importance of blood transfusion in cancer patients' and highlighted the need for platelet donation. ACTREC was supported in this public outreach program by the Rotary Club of Kharghar Midtown (RCKMT), ensuring the participation of a keenly interested audience from various sections of the society from Kharghar.

The second lecture series on August 22, 2012, again at ACTREC, was arranged specifically for 9th, 10th and 11th standard students of the Convent of Jesus and Mary, Kharghar. Around 130 students attended this session along with their teachers. Dr. Nilesh Ingole and Mrs. Parishi Majmudar (TMH) were the lead speakers. Their lectures on the topics ''Tobacco, cancer and tobacco legislation' and 'Children and tobacco use" caused considerable interest amongst the adolescent children in the audience.

The third lecture series was conducted on October 14, 2012 at Divya Kripa Church, Prem Dan, Kharghar. Around 40 participants – all of them parishioners of this Church attended the program. Dr. Surekha Zingde (ACTREC) gave a brief overview highlighting the Centre's research and clinical programs. Dr. Supriya Chopra (ACTREC) delivered a talk on 'Cancers of the female reproductive system'. Her talk was well appreciated, and the audience members sought a future session on common cancers affecting males. The group was informed about the 'Free Cancer Screening Drive' undertaken by the Preventive Oncology Dept, TMH from October 15 - November 9, 2012. Three members of the group were provided a referral for cancer screening at TMH; others voiced the hope of having screening at ACTREC in the future. In parallel with the CAP session, a Blood Collection Drive by DTM, ACTREC was also conducted at the same venue.

ACTREC Alumni Association - Activity Report for the Year 2012

AAA Secretary:
Dr. Jyoti Kode,
ACTREC

The activities of the ACTREC Alumni Association (AAA - encompassing the Indian Cancer Research Centre, Cancer Research Institute and ACTREC) underwent a quantum leap forward during 2012. The current AAA membership strength stands at 61 alumni members, 38 affiliate members, 19 associate members and 8 well wishers. To spread awareness about AAA, souvenir T-shirts with AAA logo were launched on the eve of the 31st IACR Convention in January 2012. The association was registered with the Charity Commissioner under Mumbai Public Trust Act, 1950 in November 2012.

Cancer Screening and Support Awareness Abhiyaan (CSSAA-1) was organized in collaboration with the Swashakti-Mahabank Women Empowerment Program (Sponsor: Biocon OncoTherapeutics) at Bank of Maharashtra Staff Training Centre, Matunga Mumbai on February 25, 2012. The lead speaker was Dr. Jyoti Bajpai (TMH) who made a presentation on 'Breast and cervical cancers'. This was followed by talks about the 'Mandate of the Marrow Donor Registry India' by Dr. Praveen Clement (MDRI), 'Importance of platelet donation in healthcare management' by Ms Aarti Hirve (ACTREC), and an interactive question answer session. Around 60 participants aged between 45 and 60 yrs attended the event. The MDRI team registered 15 interested participants via registration-cum-consent forms and collected 10 ml blood samples from each of them.

2nd 'ALUmni Chat Meet' took place at ACTREC on May 2, 2012. The guest of honor was Dr. Sunil Metkar (Northshore University Healthcare System, Evanston, USA), who spoke on the topic 'Can Perforin form proteolipid pores to deliver Granzymes?' which was well appreciated. Later that evening, Dr. Sunil met students in an interactive session where he spoke about 'Conventional and non-conventional career opportunities in the scientific field'.

1st 'Tête-à-Tête with Alumni' was held at ACTREC on November 1, 2012. The guest of honor was Dr. Sanjeev Shukla (National Cancer Institute, Frederick, USA). In an informal talk, Dr. Sanjeev shared his experiences as a post-doc, gave vital tips about seeking the right post-doc positions, and how to be goal-oriented and pave the way for your own dreams. He also shared his secret of publishing in the Nature group within a short span of one year, wherein his publication received excellent comments from the Faculty of 1000 group authors and

fetched him acclaim from CCR connections in the form of an interview.

2nd Cancer Screening and Support Awareness Abhiyaan (CSSAA-2) was organized in collaboration with Rashtriya Swayamsevak Sangh, Bhandup East (Sponsor: Biocon OncoTherapeutics) at Bharatiya Tatwadyan Vishvasta Mandal Hall, Bhandup, Mumbai on November 25, 2012 The lead speaker Dr. Ashish Bakshi (Hiranandani Hospital) discussed common cancers in men and women, viz. oral, prostate, breast and cervical cancer. Dr. Tanuja Teni (ACTREC) spoke about the mandate and research programs of ACTREC. Dr. Shashank Ojha (ACTREC) discussed the importance of blood components and platelet donation for cancer patients. Dr Praveen Clement (MDRI) spoke about the mandate of MDRI, and appealed to the audience to register as donors. Around 65 participants aged 35 to 60 yrs attended the event; 13 registered themselves with MDRI - 11 for voluntary platelet donation. Registration-cum-consent forms and 10 ml blood samples were collected from the latter. In the next fortnight, seven of them visited ACTREC to provide platelet support.

1st Annual AAA Meet 2012 was held in ACTREC on December 28, 2012. Alumni and successful entrepreneurs - Dr Hemant Gharpure and Dr. Surendra Chavan were the special guests at the event, whose theme was 'Think out of the box: key to transform researcher into entrepreneur'. Dr Sarin launched the Online Membership Form on the AAA webpage. Dr Gharpure shared his journey from CRI through his post-doc stint and job up to setting up of BioPrime. Dr Chavan highlighted several key traits that one must have to become a successful entrepreneur. The 1st AAA general body meeting was then held at the same venue, where the President, Dr. Nishigandha Naik (Piramal Life Sciences) welcomed all AAA members, the 2012 activity report was presented by the Secretary, Dr Jyoti Kode followed by accounts presentation by Dr Rajiv Gude, Treasurer. Several key issues were discussed during the AGM and the meeting ended with the Vote of Thanks.

Staff Achievements

Dr. Abhijit De

- Co-Organizer: International Conference on Radiation Biology 2012: November 2012
- Special Invitee: DBT Cancer Task Force Meeting, New Delhi: June 2012
- Reviewer: Grant Proposals, BRNS, CSIR and DBT
- Associate Editor: Amer. J. Nuclear Medicine and Molecular Imaging
- Guest Editor: Theranostics - special issue on 'Reporter gene imaging': April 2012
- Guest Editor: ICRB 2012 meeting abstracts, JCRT 8(3): 468-506, 2012

Mr. Akhil Kumar Agarwal

- Society for Glycobiology Travel Award: Poster presentation, Joint Meeting of the Society for Glycobiology (SFG) and American Society for Matrix Biology (ASMB), San Diego, California: November 2012

Dr. Amit Dutt

- Organizing Secretary: The 2st Global Cancer Genomic Consortium – TMC Symposium, ACTREC, Navi Mumbai: November 2012

Mr. Amit Ranjan

- Society for Glycobiology Travel Award: Poster presentation, Joint Meeting of the Society for Glycobiology (SFG) and American Society for Matrix Biology (ASMB), San Diego, California: November 2012

Dr. Amit Sengupta

- Mandakini Parihar Award for Most Enterprising Gynecologist of the Year by NMOG-FOGSI
- Award of Excellence in Medical Profession and Distinguished Alumni Award by University of Delhi

Dr. Aparna Bagwe

- Nominated Member: Planning and Programming Committee, Nehru Science Centre, Mumbai: 2007-2009; Re-nominated 2010-2012

Dr. Arvind Ingle

- DBT Nominee: IBSC of SA-FORD, Navi Mumbai
- Member: Institutional Animal Ethics Committee, Dr. DY Patil Medical College, Navi Mumbai
- Team member: AAALAC International Site Visit (a) Bioneeds, Bangalore, (b) Nektar Therapeutics, Hyderabad: November 2012
- CPCSEA Nominee in Inspection Team: (a) Animal Facility, Flair Lab, Surat (b) Animal Facility, Haffkine Institute for Training, Research and Testing, Mumbai, (c) Equine Facility, Premium Serum and Vaccines Ltd., Pune, (d) Animal Facility, Yashraj Biotechnology, Navi Mumbai, (e) Equine Facility, Haffkine Biopharmaceuticals, Mumbai: December 2012
- Member: Education Committee International Council for Laboratory Animal Science, Brussels, Belgium: 2012
- Member: ICLAS Asia Regional Committee

Dr. Ashok Varma

- Organizer: DBT-BTIS Workshop, ACTREC, Navi Mumbai: February 2012
- Organizer: NER Training Program for NEBINet Co-ordinators, ACTREC, Navi Mumbai: June–July 2012

Dr. Bhausaheb Bagal

- Award: Australia and Asia Pacific Clinical Oncology Research Development (ACORD) Fellowship: September 2012

Dr. C. Murali Krishna

- Reviewer: Grant Proposals, Medical Research Council, UK; Broad Medical Research Program, USA

Mr. Dimpu Gogoi

- Dr. G.P. Talwar Young Scientist Award: 39th Conference of Indian Immunology Society - Immunocon 2012, Banaras Hindu University, Varanasi: November 2012

Dr. Girish Maru

- Member, Editorial Board: Indian J. Experimental Biology

Dr. Indraneel Mittra

- Patent application filed: 'Method for in-vivo binding of chromatin fragments' Inventors: I Mittra, K Pal, RM Ramesan, CP Sharma, GS Bhuvaneshwar. (International) US National Phase Appl. No. US-2012-0301487-A1 publication dated 29/11/2012
- Patent application filed: 'Resveratrol-Copper (II) mediated degradation of DNA and RNA' (PCT) Appl. No. CBR No. 6101 dated 07/05/2012

Dr. Jayant Gawande

- Award: Australia and Asia Pacific Clinical Oncology Research Development (ACORD) Fellowship: September 2012

Dr. Jyoti Kode

- Member, Institutional Committee on Stem Cell Research and Therapy, Dhirubhai Ambani Life Science Centre, Navi Mumbai: 2012-2014
- Treasurer: Indian Association for Cancer Research: 2012-2014

Mrs. Kalaivani M

- Secretary, Trained Nurses Association of India

Mr. Lalith Chaganti

- Special Prize for Best Poster Presentation by Young Scientist: 31st Annual IACR Convention, ACTREC, Navi Mumbai: January 2012

Dr. Manoj Mahimkar

- Member: Institutional Committee on Stem Cell Research and Therapy, NIRRH, Mumbai

Mrs. Meera Achrekar

- Co-ordinator: Cancer Awareness Programs, ACTREC
- Organizer: TNAI Obesity Camp, Nerul station, Navi Mumbai: February 2012
- Member: Board of Nursing Studies, MGM deemed university.

Mr. Mohd Yasser

- Best Poster Award in Basic Science Category: International Conference on Radiation Biology (ICRB), ACTREC, Navi Mumbai: November 2012

Dr. Navin Khattry

- Secretary: Marrow Donor Registry (India)
- Invited Member: Stem Cell Therapy Guidelines, ICMR and DBT; Scientific Committee, Asia Pacific Bone Marrow Transplant Group

Dr. Neelam Shirsat

- Joint Organizing Secretary, 31st Annual IACR Convention & International Symposium on 'Cancer Genomics and its Impact in the Clinics', ACTREC, Navi Mumbai: January 2012

Ms. Nitu Singh

- International Relations Committee Travel Award: Poster presentation at the 56th Annual Meeting of the Biophysical Society, San Diego, USA: February 2012

Mr. Pawan Upadhyay

- Best Poster Award: The 2st Global Cancer Genomic Consortium – TMC Symposium, ACTREC, Navi Mumbai: November 2012

Ms. Poulami Das

- Best Poster Award: The 2st Global Cancer Genomic Consortium – TMC Symposium, ACTREC, Navi Mumbai: November 2012

Dr. Pradip Chaudhari

- Member: Institutional Committee for Stem Cell Research and Therapy, NIRRH, Mumbai
- Member: Institutional Clinical Research Committee, Bombay Veterinary College, Mumbai
- Member: Institutional Animal Ethics Committee and CPCSEA Nominee, NIRRH, Mumbai; GS Medical College, Mumbai; Bombay Veterinary College, Mumbai; Invochem Laboratories, Thane
- Post-graduate Teacher: 'Veterinary Nuclear Medicine', Maharashtra Animal and Fishery Sciences University, Nagpur: 2012
- Joint Secretary: Laboratory Animal Scientist Association of India, 2010-2012

Dr. Pradyumna Kumar Mishra

- Professor GP Talwar Gold Medal Award: Indian Society for the Study of Reproduction and Fertility, ICMR: February 2012.

Dr. Prasanna Venkatraman

- Reviewer: Grant proposals, BRNS, DBT, CSIR and DST

Dr. Prashant Bhat

- Member: NABH Team for assessment of Hospitals in Mumbai

Mr. Pratik Chandrani

- Best Poster Award The 2st Global Cancer Genomic Consortium – TMC Symposium, ACTREC, Navi Mumbai: November 2012

Dr. Pritha Ray

- Reviewer: Grant proposals, CSIR and Netherlands Organisation for Health Research and Development
- Member, Associate Editorial Board: Amer. J. Nuclear Medicine Molecular Imaging
- Member, Editorial Board: J. Oncology Hematology

Ms. Priyadarshini Puri

- Best Poster Prize: The 2nd Global Cancer Genomics Consortium (GCGC) - TMC Symposium, ACTREC, Navi Mumbai: November 2012

Dr. Rita Mulherkar

- Member: Review Committee, National Institute for Research in Environmental Health, Bhopal
- Member: Research Area Panels, NII, New Delhi
- Member: Cell Biology Based Therapeutic Drug Evaluation Committee, DCGI, Ministry of Health and Family Welfare, New Delhi
- Member: DBT-IIT Partnership Program, DBT, Kanpur
- Member: Institute Committee for Stem Cell Research and Treatment, Kasiak Research Pvt. Ltd., Mumbai
- DBT Nominee: Institutional Biosafety Committee, BARC, Mumbai
- Member: Board of Directorate, WIN Consortium, Paris
- Special Invitee: Steering Committee, 'Drugs from the Sea' program, Ministry of Earth Sciences, New Delhi

- Member: Technical Screening Committee, Biotechnology Industry Partnership Program, DBT, New Delhi
- Member: Technical Screening Committee, Small Business Innovation Research Initiative, DBT-BCIL, New Delhi
- Member: Project Review Committee, Non-Communicable Disease - Oncology, ICMR, New Delhi
- Member, Scientific Advisory Committee, Super Religare Laboratories, Mumbai
- Member, Wos-A Life Sciences, DST, New Delhi
- Member: Task Force on Cancer Biology, Biomarker & Immunology under Chronic Disease Biology, DBT, New Delhi
- Member, Academic Council and Board of Studies in Life Sciences, Homi Bhabha National Institute
- Chairperson: 31st Annual IACR Convention & International Symposium on 'Cancer Genomics and its Impact in the Clinics', ACTREC, Navi Mumbai: January 2012
- Editorial Board Member: J. Biosciences, Intl. J. Cellular Molecular Medicine (Iran), Human Gene Therapy, J. Biotechnology.

Mr. Rohan Chaubal

- Best Poster Award: The 2st Global Cancer Genomic Consortium – TMC Symposium, ACTREC, Navi Mumbai: November 2012

Mr. Rushikesh Patil

- Second Prize for Best Poster Presentation; 'National Education Day', NMIMS School of Science, Mithibai College, Mumbai: November 2012

Dr. Sanjay Gupta

- Reviewer: Grant Proposals, DBT, CSIR, BRNS-DAE
- Associate Editor: J. Integrated –Omics

Dr. Sanjeev Waghmare

- Convenor: International Symposium on Stem Cell Biology, ACTREC, Navi Mumbai: January 2012

Mr. Satish Munnolli

- Member: Medical Library Association, USA: 2012

Dr. Shashank Ojha

- Organizer: One Day CME on 'Safety Issues in Blood Transfusion Services', ACTREC, Navi Mumbai: February 2012
- Organizer: National Voluntary Blood Donor Day celebrations, ACTREC, Navi Mumbai: October 2012

Dr. Shubhada Chiplunkar

- Member, Academic Council and Board of Studies in Life Sciences, Homi Bhabha National Institute (Deemed University)
- Member: Project Review Committee (PRC) for Division of Non-communicable Diseases

Centre for Cancer Epidemiology

The Centre for Cancer Epidemiology was established in the year 2009 as a part of TMC with the broad vision of conquering cancer by Epidemiology Research and Education. The centre will be housed at ACTREC campus. The centre aims at cancer control by identifying cancer burden, role of genetic and lifestyle related factors in development of cancer, evaluating the outcome, and education and training in the field of Epidemiology and Public Health. The main objectives of the centre are:

- Develop Nationally and Internationally recognized and well funded multidisciplinary research programs in Epidemiology with emphasis on assessing cancer burden, assessing prevalence of risk factors, identifying risk factors related to life style and genetics, collaborating in field intervention trial and to study risk factors for disease progression.
- Operate a Molecular Epidemiology research and resource laboratory that promotes collaborative research.
- Provide Epidemiological consultation, collaboration and service to multidisciplinary basic science, clinical and translational research programme.

The activities of centre could be classified as descriptive epidemiology, analytical epidemiology, and education and training programmes.

Descriptive Epidemiology: The descriptive epidemiology mainly deals with identification of cancer burden in population by establishing cancer registries, conducting cross sectional survey and doing time trend studies. The main activities of this unit during last year were as follows:

1. Establishing IARC Regional Hub-Asia (centre of excellence for strengthening cancer registries in Asia)
2. Establishment and monitoring of Cancer Registries in India
3. Million Death Study

Inauguration of IARC Regional Hub on 1 October 2012 by IARC Director Chris Wild

Analytical Epidemiology: Analytical Epidemiology mainly deals with identification of life style and genetic risk factors of cancer, participate in filed intervention trials to evaluate screening test for early detection of cancer, and to identify prognostic factors for cancer. The main activities during last year were as follows:

1. Establishment of Molecular Epidemiological lab with the support from DBT and DST.
2. Case control studies: Several case control studies for biomarkers were undertaken for gall bladder, breast, lung, and Brain.

3. Cohort studies: Funding was made available through XII year plan to establish cohort at Barshi , Dervan and Goa to identify nutritional and other risk factors for cancer. The pilot work has been successfully completed.

4. The study was funded by DBT to develop the methodology to extract DNA from menstrual pad to detect HPV.

5. Active participation in field intervention studies for screening of breast, cervix oesophagus, hypopharynx and oral cavity.

Education: The education and training programme consist of short term and long term training programme and PhD in Epidemiology. The main activities during last year were as follows:

1. One month training in cancer registry and epidemiology to candidate from Dharmis Institute, Jakarta, Indonesia under UICC ICREET fellowship programme.

2. Conducted course on cancer registration and epidemiology at TMH (Oct 2012), National Cancer Institute, Bangkok, Thailand (March 2013) and at Dharmis Institute Jakarta, Indonesia (May 2013) .

3. Two students were registered for PhD programme in Epidemiology.

The CCE staff published around 25 research papers in last 5 years in highly impact journals including in Lancet, British Journal of Cancer and Lancet Oncology. The collaborations with International Agency for Research on Cancer, Lyon (France), Mt. Sinai School of Medicine New York (USA), Centre for Global Health Research, Toronto, (Canada) and School of Public health New Castle (UK) were established.

ACTION TAKEN REPORT ON AUDITOR'S OBSERVATIONS

ON

ANNUAL STATEMENT OF ACCOUNTS FOR 2012-13

NAME OF INSTITUTION : TATA MEMORIAL CENTRE

Parel, Mumbai 400 012.

Paragraph No. of Auditors Report	Auditors Comments (To be reporduced in full)	Action Taken	Expected Month and year for completion of Action
(1)	(3)	(4)	(5)
1.	We have audited financial statements of Tata Memorial Centre (the Centre) which comprises Balance Sheet as at 31st March, 2013 and the Statement of Income and Expenditure Account for the year ended on that date, as required by the Bombay Public Trusts Act, 1950 (the Act), and a summary of significant accounting policies and other explanatory information.	This is a statement of fact. No Action	
2.	The Management of the Centre is responsible for the preparation of these financial statements that give a true and fair view of the financial position, financial performance and receipts and payments of the Centre in accordance with the Accounting principles and Accounting Standards general accepted in India. This responsibility includes the design, implementation and maintenance of internal control relevant to the preparation and presentation of the financial statements that give a true and fair view and are free from material misstatement, whether due to fraud or error.	This is a statement of fact. No Action	
3.	Our responsibility is to express an opinion on these financial statements based on our audit. We conducted our audit in accordance with the Standards on Auditing issued by the Institute of Chartered Accountants of India. Those standards require that we comply with the ethical requirements plan and perform the audit to obtain reasonable assurance about whether the financial statements are fee of any material misstatement. An audit involves performing procedures to obtain audit evidence about the amounts and disclosures in the financial statements. The procedures selected depend on the auditor's judgment, including the assessment of the risks of material misstatement of the financial statements, whether due to fraud or error. In making those risk assessments, the auditor considers internal control relevant to the Centre's preparation and fair presentation of the financial statements in order to design audit procedures that	This is a statement of fact. No Action	

Paragraph No. of Auditors Report	Auditors Comments (To be reporduced in full)	Action Taken	Expected Month and year for completion of Action
(1)	(3)	(4)	(5)
	are appropriate in the circumstances. An audit also includes evaluating the appropriateness of accounting policies used and the reasonableness of the accounting estimates made by management as well as evaluating the overall presentation of the financial statements. We belive that the audit evidence we have obtained is sufficient and appropriate to provide a basis for our audit opinion.		
4.	In our opinion and to the best of our information and according to the explanations given to us, the financial statements give the information required by the Act in the manner so required, we report that: (a) In the case of the Balance Sheet, of the state of affairs of the Centre as at 31st March, 2013. (b) In the case of income and Expenditure Account of the Excess of Expenditure over income of the Centre for the year ended on the date.	This is a statement of fact. No Action	

G.D. Apte & Co.
Chartered Accountants

INDEPENDENT AUDITOR'S REPORT

The Chairman,
Governing Council of Tata Memorial Centre

Report on Financial Statements

We have audited the attached financial statements of **Tata Memorial Centre (the Centre)** which comprises Balance Sheet as at 31st March, 2013 and the Statement of Income and Expenditure Account for the year ended on that date, as required by the Bombay Public Trusts Act, 1950 (the Act), and a summary of significant accounting policies and other explanatory information.

Management's Responsibility for the Financial Statements

The Management of the Centre is responsible for the preparation of these financial statements that give a true and fair view of the financial position, financial performance and receipts and payments of the Centre in accordance with the Accounting principles and Accounting Standards generally accepted in India. This responsibility includes the design, implementation and maintenance of internal control relevant to the preparation and presentation of the financial statements that give a true and fair view and are free from material misstatement, whether due to fraud or error.

Auditor's Responsibility

Our responsibility is to express an opinion on these financial statements based on our audit. We conducted our audit in accordance with the Standards on Auditing issued by the Institute of Chartered Accountants of India. Those standards require that we comply with the ethical requirements plan and perform the audit to obtain reasonable assurance about whether the financial statements are free of any material misstatement.

An audit involves performing procedures to obtain audit evidence about the amounts and disclosures in the financial statements. The procedures selected depend on the auditor's judgment, including the assessment of the risks of material misstatement of the financial statements, whether due to fraud or error. In making those risk assessments, the auditor considers internal control relevant to the Centre's preparation and fair presentation of the financial statements in order to design audit procedures that are appropriate in the circumstances. An audit also includes evaluating the appropriateness of accounting policies used and the reasonableness of the accounting estimates made by management as well as evaluating the overall presentation of the financial statements.

We believe that the audit evidence we have obtained is sufficient and appropriate to provide a basis for our audit opinion.

Mumbai Office: 9, Kamer Building, Plot No.9, Cawasji Patel Street, Fort Mumbai - 400 001. Phone: + 91 22 2285 0254
Head Office: GDA House, Plot No. 85, Bhusari Colony (Right) Paud Road, Pune – 411 038. Phone: + 91 20 2528 0081

Opinion

In our opinion and to the best of our information and according to the explanations given to us, the financial statements give the information required by the Act in the manner so required, we report that:

(a) In the case of the Balance Sheet, of the state of affairs of the Centre as at 31st March, 2013.
(b) In the case of Income and Expenditure Account of the Excess of Expenditure over Income of the Centre for the year ended on that date.

For G.D.Apte & Co
Chartered Accountants
(Firm Regn No. 100515W)

Chetan R. Sapre
(Partner)
Membership No. 116952

Date: 24-7-2013
Place: Mumbai

Mumbai Office: 9, Kamer Building, Plot No.9, Cawasji Patel Street, Fort Mumbai - 400 001. Phone: + 91 22 2285 0254
Head Office: GDA House, Plot No. 85, Bhusari Colony (Right) Paud Road, Pune – 411 038. Phone: + 91 20 2528 0081

TATA MEMORIAL CENTRE

TATA MEMORIAL HOSPITAL AND ADVANCED CENTRE FOR TREATMENT, RESEARCH AND EDUCATION IN CANCER.

BALANCE SHEEET AS AT 31 ST MARCH, 2013

in ₹

PARTICULARS	Schedule	As at 31.03.2013	As at 31.3.2012
SOURCES OF FUND			
CAPITAL FUND AND LIABILITIES			
Earmarked/Endowment Funds	1	5,009,719,512	4,911,522,554
Academic Fund	2	64,063,937	58,022,807
Secured Loans	3	987,559	1,558,651
TOTAL		**5,074,771,008**	**4,971,104,012**
APPLICATION OF FUND			
ASSETS			
Fixed Assets			
Gross Block	4	5,457,939,157	5,087,454,957
Less:Provision for Depreciation		2,001,778,380	1,701,610,987
Net Block		3,456,160,777	3,385,843,970
Capital Work - in - Progress		195,715,290	144,613,174
TOTAL		**3,651,876,067**	**3,530,457,144**
Current Assets, Loans and Advances	5	3,294,836,250	2,983,000,531
Less: Current Liabilities and Provisions	6	8,956,318,988	6,863,539,608
NET CURRENT ASSETS		(5,661,482,739)	(3,880,539,077)
Losses carried forward from previous year		5,321,185,945	4,427,618,608
Add: Excess of Expenses over Income during the year		1,763,191,735	893,567,337
Deficit In Income and Expenditure account		7,084,377,680	5,321,185,945
TOTAL		**5,074,771,008**	**4,971,104,012**
Significant Accounting Policies	**A**		
Notes on Accounts	**B**		

As per our report of even date attached
For G. D. Apte & Co.
Chartered Accountants
ICAI Registration No. : 100515W

Partner : CA. Chetan R. Sapre
Membership No. : 116952
Mumbai

For and on behalf of the Governing Council

Indira Pasupathy
Jt. Controller (Finance & Accounts)

Dr. Venkata V.P.R.P.
Chief Administrative Officer

TATA MEMORIAL CENTRE

TATA MEMORIAL HOSPITAL AND ADVANCED CENTRE FOR TREATMENT, RESEARCH AND EDUCATION IN CANCER
INCOME AND EXPENDITURE ACCOUNT FOR THE YEAR ENDED 31st MARCH 2013

in ₹

	Schedule		Year Ended 31.03.2013	Year Ended 31.3.2012
A) INCOME				
Recurring Government Grants			1,829,100,000	1,688,200,000
Hospital Income			1,240,768,410	864,365,138
Sale of Drugs and Surgical Goods			1,426,941,908	1,261,936,664
Interest Income	7		214,536,832	185,950,502
Other Income	8		45,761,909	42,875,708
TOTAL (A)			4,757,109,058	4,043,328,012
B) EXPENDITURE				
Transfer to Academic Fund			30,806,225	18,652,246
Consumption of drugs and Surgical Goods	9		1,374,720,533	1,207,643,257
Consumables			491,746,141	409,281,871
Staff Cost / Salaries	10		2,208,079,649	1,931,672,031
Other Administrative Expenses	11		671,379,139	543,895,508
Interest on HDFC Loan			202,620	268,320
Depreciation	4	302,738,534		295,878,833
Less: Adjusted against Non recurring Grants		302,738,534		295,878,833
			-	-
TOTAL (B)			4,776,934,306	4,111,413,233
Excess of Expenditure over Income Before Provisions on retirement benefits of employees (A-B)			(19,825,249)	(68,085,221)
Less : Provision for Retirement Benefits				
Gratuity		57,763,122		(19,500,285)
Pension		1,558,940,449		(765,229,211)
Leave Encashment		126,662,915	(1,743,366,486)	(40,752,620)
Balance being surplus / (deficit) for the year trf to Balance Sheet			(1,763,191,735)	(893,567,337)

As per our report of even date attached
For G. D. Apte & Co.
Chartered Accountants
ICAI Registration No. : 100515W

Partner : CA. Chetan R. Sapre
Membership No. : 116952
Mumbai

G. D. APTE & CO. Chartered Accountants

For and on behalf of the Governing Council

Indira Pasupathy
Jt. Controller (Finance & Accounts)

Dr. Venkata V.P.R.P.
Chief Administrative Officer

TATA MEMORIAL CENTRE

TATA MEMORIAL HOSPITAL AND ADVANCED CENTRE FOR TREATMENT, RESEARCH AND EDUCATION IN CANCER.

SCHEDULE 1 - EARMARKED / ENDOWMENT FUNDS

in ₹

PARTICULARS	As at 31.03.2013		As at 31.3.2012	
a) Non-Recurring Grants				
Opening Balance	4,352,644,747		3,914,766,947	
Add: Received during the year	296,000,000		740,000,000	
Less:				
Depreciation for the current year	302,738,534		295,878,833	
Expenditure on Cancer Registries, outreach programme & Plan Expenditure	67,187,345		6,243,367	
Non recurring grant carried to Balance sheet	**4,278,718,868**	**4,278,718,868**	**4,352,644,747**	**4,352,644,747**
b) Donations				
Opening Balance	203,958,976		183,420,805	
Additions during the year	77,454,855		30,099,783	
Deduction during the year	25,548,754		9,561,612	
Closing Balance	**255,865,077**	**255,865,077**	**203,958,976**	**203,958,976**
c) Unspent Balance of Workshops / Projects		**475,135,567**		**354,918,832**
Total		5,009,719,512		4,911,522,555

Note :

Earmarked/Endowment Funds comprise of Non-Recurring grants received from Government of India and Donations received from external agencies/ individuals.

G. D. APTE & CO. Chartered Accountants

24/7/2013

TATA MEMORIAL CENTRE

TATA MEMORIAL HOSPITAL AND ADVANCED CENTRE FOR TREATMENT, RESEARCH AND EDUCATION IN CANCER.

SCHEDULE 2 - ACADEMIC FUND

in ₹

PARTICULARS	As at 31.3.2013	As at 31.3.2012
Opening Balance	58,022,807	57,099,140
Add :- Addition During the year	30,806,224	18,652,246
	88,829,031	**75,751,386**
Less : Deduction During the year	24,765,094	17,728,579
Total	**64,063,937**	**58,022,807**

G. D. APTE & CO. Chartered Accountants

24/7/2013

TATA MEMORIAL CENTRE

TATA MEMORIAL HOSPITAL AND ADVANCED CENTRE FOR TREATMENT, RESEARCH AND EDUCATION IN CANCER.

SCHEDULE 3 - SECURED LOANS

in ₹

PARTICULARS	As at 31.3.2013	As at 31.3.2012
Loan from Housing Development Finance Corporation Limited (HDFC) (Secured by mortgage of dwelling units of the TMC's employees)	987,559	1,558,651
TOTAL	**987,559**	**1,558,651**

G.D. APTE & CO. Chartered Accountants

Pradip 24/7/2013

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TATA MEMORIAL CENTRE

TATA MEMORIAL HOSPITAL AND ADVANCED CENTRE FOR TREATMENT, RESEARCH AND EDUCATION IN CANCER

Schedule 4 - FIXED ASSETS

in ₹

DESCRIPTION	GROSS BLOCK				DEPRECIATION							NET BLOCK	
	Cost / Valuation as at the beginning of the year (01/04/2012)	Total Additions / adjustments during the year	Deletions / Adjustments	Cost / Valuation at the end of the year (31/03/2013)	As at the beginning of the year (01/04/2012)	Depreciation on the opening balance	Depreciation on Additions during the year	Total Depreciation during the year	On Deletion / Adjustment		Total upto the year end (31/03/2013)	As at the Current year-Ended 31/03/2013	As at the Previous year-Ended 31/03/2012
									From the opening	Current Year			
A. FIXED ASSETS :													
1. LAND:													
a) Freehold	197,608	-	-	197,608	-	-	-	-			-	197,608	197,608
2. BUILDINGS :													
a) On Freehold Land	1,419,020,552	10,329,433	3,220,258	1,426,129,727	105,618,114	23,130,035	146,169	23,276,204		79,813	128,814,505	1,297,315,222	1,313,402,438
3. PLANT MACHINERY & EQUIPMENT	3,200,594,479	326,027,395	3,810,635	3,522,811,239	1,257,041,191	224,160,032	14,638,407	238,798,439	1,266,656		1,494,572,974	2,028,238,266	1,943,553,288
4. VEHICLES	24,125,077	4,238,416	-	28,363,493	9,938,696	2,722,413	169,750	2,892,163			12,830,859	15,532,634	14,186,382
5. FURNITURE, FIXTURES	134,094,390	7,762,524	361,122	141,495,792	90,198,910	12,762,121	560,552	13,322,673	131,980	33,097	103,356,505	38,139,287	43,895,480
6. OFFICE EQUIPMENT	34,783,180	6,775,896	115,000	41,444,076	5,987,397	1,649,771	218,655	1,868,426	27,561		7,828,262	33,615,814	28,795,783
7. COMPUTER/ PERIPHERALS	274,639,671	24,002,551	1,145,000	297,497,222	232,826,680	20,081,801	2,611,738	22,693,539	1,144,944		254,375,275	43,121,947	41,812,991
TOTAL (A)	5,087,454,957	379,136,215	8,652,015	5,457,939,157	1,701,610,989	284,506,173	18,345,271	302,851,443	2,571,141	112,910	2,001,778,380	3,456,160,778	3,385,843,970
CWIP	145,415,544	439,927,269	388,825,153	196,517,660								196,517,660	145,415,544
LESS: PROVISION FOR DOUBTFUL CAPITAL ADV (LAND)	802,370			802,370								802,370	802,370
NET CAPITAL WIP (B)	144,613,174	439,927,269	388,825,153	195,715,290								195,715,290	144,613,174
TOTAL (A + B)	**5,232,068,131**	**819,063,484**	**397,477,168**	**5,653,654,447**	**1,701,610,989**	**284,506,173**	**18,345,271**	**302,851,443**	**2,571,141**	**112,910**	**2,001,778,380**	**3,651,876,067**	**3,530,457,144**
PREVIOUS YEAR (TMC)	4,646,941,497	1,733,597,195	1,148,470,561	5,232,068,131	1,405,732,153	274,433,083	21,445,750	295,878,833	-	-	1,701,610,987	3,530,457,144	3,241,209,344

1) Capital Work in Progress includes freehold land amounting to Rs. 11,662,520 (previous year Rs. 11,662,520) which is pending registration with the appropriate authorities.
2) Captial Work in Progress also includes freehold land amounting to Rs. 802,370 (previous year Rs. 802,370) which is disputed and hence provided for as doubtful in the financial year 2009-2010

G. D. APTE & CO. Chartered Accountants

24/7/2013

TATA MEMORIAL CENTRE

TATA MEMORIAL HOSPITAL AND ADVANCED CENTRE FOR TREATMENT, RESEARCH AND EDUCATION IN CANCER

SCHEDULE 5 - CURRENT ASSETS, LOANS AND ADVANCES

in ₹

PARTICULARS	As at 31.3.2013		As at 31.3.2012	
A. CURRENT ASSETS				
1. Inventories				
Stock of Drugs, Medical and Surgical Goods		**144,062,810**		**151,888,520**
2. Sundry Debtors				
a) Outstanding more than six months				
Considered Good	37,546,774		38,218,324	
Considered Doubtful	38,650,062		34,684,209	
	76,196,836		72,902,533	
Outstanding less than six months				
Considered Good	281,848,998		204,863,885	
Considered Doubtful	-		-	
	358,045,834		277,766,418	
b) Less: Provision for Doubtful Debts	38,650,062	**319,395,772**	34,684,209	**243,082,209**
3. Cash on hand (Franking Machine)		**29,837**		**69,329**
4. Bank Balances				
With Scheduled Banks :				
- On Current Accounts	176,299,588		551,469,790	
- On Fixed / Margin money Deposit Accounts	2,451,882,171		1,825,006,477	
- On Savings Accounts	1,701,894	**2,629,883,653**	1,310,106	**2,377,786,373**
TOTAL (A)		**3,093,372,072**		**2,772,826,431**

contd.....

G. D. ARTE & CO. Chartered Accountants

24/7/2013

TATA MEMORIAL CENTRE

TATA MEMORIAL HOSPITAL AND ADVANCED CENTRE FOR TREATMENT, RESEARCH AND EDUCATION IN CANCER

SCHEDULE 5 - CURRENT ASSETS, LOANS AND ADVANCES

in ₹

PARTICULARS	As at 31.3.2013		As at 31.3.2012	
B. LOANS AND ADVANCES				
1. Advances recoverable in cash or in kind or for value to be received (unsecured, considered good)				
Considered Good	1,831,220		3,246,770	
Considered Doubtful	-		-	
	1,831,220		3,246,770	
Less: Provision for Doubtful Advances	-	1,831,220	-	3,246,770
b) Prepaid expenses		17,507,263		17,664,248
c) Other Deposits		10,368,440		8,723,380
2. Loans & Advances to staff		35,598,703		36,468,582
3. Interest accrued on fixed deposits		120,609,777		130,590,694
4. Tax Deducted at Source		15,548,775		13,480,426
TOTAL (B)		201,464,178		210,174,100
TOTAL (A+B)		3,294,836,250		2,983,000,531

G. D. APTE & CO. Chartered Accountants

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TATA MEMORIAL CENTRE

TATA MEMORIAL HOSPITAL AND ADVANCED CENTRE FOR TREATMENT, RESEARCH AND EDUCATION IN CANCER

SCHEDULE 6 - CURRENT LIABILITIES AND PROVISIONS

in ₹

PARTICULARS	Year Ended 31.3.2013	Year Ended 31.3.2012
A) CURRENT LIABILITES		
Current Liabilities		
Undisbursed and Unclaimed Salaries	7,376,035	4,366,224
Miscellaneous Liabilities	23,958,084	11,795,973
Patients Deposits and Other Deposit	648,355,595	514,971,757
New pension scheme liability	12,109,449	14,909,843
Sundry Creditors-Capital	226,187,725	232,338,591
Other Liabilities	58,446,416	24,630,209
Provision for Salary	283,679,431	286,514,752
Provision for expenses	466,536,977	287,709,471
TOTAL (A)	**1,726,649,712**	**1,377,236,819**
B) PROVISIONS(for retirement benefits of employee)		
Gratuity	602,909,429	545,146,307
Leave Encashment	665,804,978	539,142,063
Pension	5,960,954,869	4,402,014,420
TOTAL (B)	**7,229,669,276**	**5,486,302,790**
TOTAL (A+B)	**8,956,318,988**	**6,863,539,609**

G.D. APTE & CO. Chartered Accountants

24/7/2013

TATA MEMORIAL CENTRE

TATA MEMORIAL HOSPITAL AND ADVANCED CENTRE FOR TREATMENT, RESEARCH AND EDUCATION IN CANCER

SCHEDULE 7 - INTEREST INCOME

in ₹

PARTICULARS		Year Ended 31.3.2013		Year Ended 31.3.2012
Interest : (gross)				
(includes tax deducted at source)				
from banks :				
on fixed deposits/ margin money deposits	209,272,942		182,596,178	
on saving accounts	71,910		67,360	
		209,344,852		**182,663,538**
from others :				
on Vehicle Advances	104,868		226,794	
on House Building Advances	4,452,788		2,989,492	
on Computer Advances	192,744		70,678	
		4,750,400		**3,286,964**
Income Tax Refund		**441,580**		**-**
Total		**214,536,832**		**185,950,502**

G. D. APTE & CO. Chartered Accountants

24/7/2013

TATA MEMORIAL CENTRE

TATA MEMORIAL HOSPITAL AND ADVANCED CENTRE FOR TREATMENT, RESEARCH AND EDUCATION IN CANCER.

SCHEDULE 8 - OTHER INCOME

in ₹

PARTICULARS	Year Ended 31.3.2013	Year Ended 31.3.2012
Miscellaneous Receipts	33,927,207	28,517,321
Animal House Receipts	6,002,328	5,652,120
Project Overheads	6,242,634	7,983,622
Sundry balances written back(net)	-	259,970
Effect of exchange fluctuation (net)	(410,260)	462,675
TOTAL	**45,761,909**	**42,875,708**

G. D. APTE & CO. Chartered Accountants

24/7/2013

TATA MEMORIAL CENTRE

TATA MEMORIAL HOSPITAL AND ADVANCED CENTRE FOR TREATMENT, RESEARCH AND EDUCATION IN CANCER

SCHEDULE 9 - Consumption of Drugs and Surgical Goods

in ₹

PARTICULARS	Year Ended 31.3.2013	Year Ended 31.3.2012
Opening stock of Drugs / Surgical goods	151,888,520	113,746,619
Add: Purchases	1,376,289,363	1,250,166,042
Less: Closing stock of Drugs / Surgical goods	144,062,810	151,888,520
Less: Return/ Rejected / Expired Drugs / Surgical goods	9,394,540	4,380,884
TOTAL	**1,374,720,533**	**1,207,643,257**

G. D. APTE & CO. Chartered Accountants

24/7/2013

TATA MEMORIAL CENTRE

TATA MEMORIAL HOSPITAL AND ADVANCED CENTRE FOR TREATMENT, RESEARCH AND EDUCATION IN CANCER.

SCHEDULE 10 - STAFF COST / SALARIES

in ₹

PARTICULARS	Year Ended 31.3.2013	Year Ended 31.3.2012
a) Salaries and Wages	712,494,238	701,183,596
b) Allowances and Bonus	1,088,946,652	945,142,999
c) Expenses on Employee's Retirement and Terminal Benefits	63,527,690	40,524,263
d) Pension scheme	208,450,806	141,623,407
e) Fellowships	134,660,263	103,197,766
TOTAL	**2,208,079,649**	**1,931,672,031**

G. D. APTE & CO. Chartered Accountants

24/7/2013

TATA MEMORIAL CENTRE

TATA MEMORIAL HOSPITAL AND ADVANCED CENTRE FOR TREATMENT, RESEARCH AND EDUCATION IN CANCER

SCHEDULE 11 - OTHER ADMINISTRATIVE EXPENSES

in ₹

PARTICULARS		Year Ended 31.3.2013		Year Ended 31.3.2012
a) Linen and Laundry		31,053,637		28,703,777
b) Library Expenses		15,839,000		15,787,576
c) Electricity		253,885,811		174,082,145
d) Water Charges		15,044,874		8,984,777
e) Repairs and Maintenance		243,488,261		184,148,817
f) Animal House Expenses		3,448,330		2,562,260
g) Rates and Taxes		6,504,614		6,237,962
h) Minor Equipments and Replacement of Capital Equipments		273,458		410,055
i) Postage, Telephone and Communication Charges		7,639,044		8,659,096
j) Printing and Stationery		16,322,255		12,753,773
k) Travelling and Conveyance Expenses		11,457,926		9,175,031
l) Intra Mural Research Expenses		21,242,607		38,092,695
m) Other Plan / Research Expenses *		3,261,374		24,040,546
n) Auditors Remuneration				
Audit fees	438,061		289,500	
Service tax	49,440	487,501	35,782	325,282
o) Symposium and Training		6,118,282		2,434,682
p) Professional Charges		2,366,673		3,615,741
q) Advertisement Expenses		11,871,258		10,485,746
r) Provision for Doubtful Debts		3,959,402		(2,152,996)
s) Hostel maintenance expenses		8,684,069		7,386,432
t) Miscellaneous Expenses		8,403,339		3,358,911
u) Bad debts written off		27,424		4,803,202
TOTAL		**671,379,139**		**543,895,508**

* Plan expenditure for the year 2012-13 adjusted against N R Grants (Schedule 1)

G. D. APTE & Co. Chartered Accountants

TATA MEMORIAL CENTRE

SCIENCE AND RESEARCH FUND

INCOME & EXPENDITURE ACCOUNTS

FOR THE YEAR ENDED 31 ST MARCH, 2013

in ₹

2011-12	EXPENDITURE	2012-13	2011-12	INCOME	2012-13
	To Bank charges	154			
	To Transfer to Research Project	870,000			
11,818,981	To Excess of Income over Expenditure	12,220,789	11,818,981	By Interest Income	13,090,943
11,818,981	**TOTAL**	**13,090,943**	**11,818,981**	**TOTAL**	**13,090,943**

As per our report of even date attached
For G. D. Apte & Co.
Chartered Accountants
ICAI Registration No : 100515W

Partner : CA Chetan R Sapre
Membership No. : 116952

For and on behalf of the Governing Council

Indira Pasupathy
Jt. Controller (Finance & Accounts)

Dr. Venkata V.P.R.P.
Chief Administrative Officer

Tata Memorial Centre Science and Research Fund

Balance Sheet as at 31st March, 2013

in ₹

Sources of Fund	As at 2012-13	As at 2011-12
Corpus Fund And Liabilities		
Corpus Fund	154,080,801	141,860,012
Total	**154,080,801**	**141,860,012**
Application of Fund		
Current Assets, Loan And Advances		
Receivable from TMH	81,894	
Fixed Deposit with Bank	147,726,830	130,990,671
Bank Balance	7,266	5,475
Interest accrued on Fixed Deposit	6,264,811	10,863,866
Total	**154,080,801**	**141,860,012**

Note :

This Fund has been created based on the approval of the Director of Tata Memorial Centre dated 24th March 2004, which amount has been transferred to a separate Bank Account in order to ensure that the objectives of the Fund are fulfilled.

As per our report of even date attached
For G. D. Apte & Co.
Chartered Accountants
ICAI Registration No: 100515W

Partner : CA Chetan R. Sapre
Membership No. : 116952

G. D. APTE & CO. Chartered Accountants

For and on behalf of the Governing Council

Indira Pasupathy
Jt. Controller (Finance & Accounts)

Dr. Venkata V.P.R.P.
Chief Administrative Officer

TATA MEMORIAL CENTRE

SAM JAL MISTRY DONATION

INCOME & EXPENDITURE A/C

FOR THE YEAR ENDED 31 ST MARCH, 2013

in ₹

2011-12	EXPENDITURE	2012-13	2011-12	INCOME	2012-13
1,583,831	To Expenses	1,351,636	1,525,123	By Interest Income	1,742,744
551	To Bank Charges	2,584			
			2,183	By Dividend	2,345
(57,076)	To Excess of Income over Expenditure	390,869			
1,527,306	**TOTAL**	**1,745,089**	**1,527,306**	**TOTAL**	**1,745,089**

As per our report of even date attached
For G. D. Apte & Co.
Chartered Accountants
ICAI Registration No: 100515W

Partner : CA Chetan R. Sapre
Membership No. : 116952

For and on behalf of the Governing Council

Indira Pasupathy
Jt. Controller (Finance & Accounts)

Dr. Venkata V.P.R.P.
Chief Administrative Officer

TATA MEMORIAL CENTRE

DONATION FROM SAM JAL MISTRY DONATION FUND

BALANCE SHEET AS AT 31ST MARCH, 2013

in ₹

SOURCES OF FUND	AS AT 2012-13	AS AT 2011-12
DONATION	25,660,481	25,269,612
TOTAL	**25,660,481**	**25,269,612**
APPLICATION OF FUND		
Current Assets, Loan and Advances		
Fixed Deposit with Bank	17,220,363	17,220,363
Bank Balance	2,458	5,042
Amount receivable from TMC	5,953,366	7,123,999
Interest on Fixed Deposit		
Accrued Interest on FDR	2,484,294	920,208
TOTAL	25,660,481	25,269,612

As per our report of even date attached
For G. D. Apte & Co.
Chartered Accountants
ICAI Registration No: 100515W

Partner : CA Chetan R. Sapre
Membership No. : 116952

G. D. APTE & CO. Chartered Accountants

For and on behalf of Governing Council

Indira Pasupathy
Jt. Controller (Finance & Accounts)

Dr. Venkata V.P.R.P.
Chief Administrative Officer

TATA MEMORIAL CENTRE
[TATA MEMORIAL HOSPITAL AND ADVANCED CENTRE FOR TREATMENT, RESEARCH AND EDUCATION IN CANCER]

The Tata Memorial Centre (TMC) Comprising of the Tata Memorial Hospital (TMH) and the Advance Centre for Treatment, Research& Education in Cancer (ACTREC) functions as a grant- in- aid Institute under the administrative control of the Department of Atomic Energy, Government of India and recognized as the national cancer centre with a mandate for Service, Education and Research in Cancer. It is registered under the Societies Registration Act (1860) and the Bombay Public Trust Act (1950).

SCHEDULE A: SIGNIFICANT ACCOUNTING POLICIES

1. BASIS OF PRESENTATION

The financial statements are prepared on historical cost convention and on an accrual basis. Revenues and costs are accrued, that is, recognized as they are earned or incurred and recorded in the financial statements of the periods to which they relate. The Centre follows accrual basis of accounting, except for Grants, Donations and Commuted Pensions (in case of existing pensioners), which are accounted for on cash basis

2. REVENUE RECOGNITION

i) Hospital income from services rendered to patients is recognized as and when the bills for the services are generated.

ii) Interest income is recognized on a time proportion basis taking into account the amount invested and the rate of interest.

iii) Other Revenue items are recognized only when it is reasonably certain that the ultimate collection will be made

3. FIXED ASSETS

i) Fixed assets are capitalized at acquisition cost (net of duty / tax credits availed, if any), including directly attributable costs such as freight, insurance and specific installation charges for bringing the assets to working condition for use.

ii) Expenditure relating to existing fixed assets is added to the cost of the assets, where it increases the performance / life of the asset as assessed earlier.

iii) Fixed assets are eliminated from financial statements only on disposal.

4. DEPRECIATION

i) Depreciation on tangible fixed assets is provided at the rates and in the manner specified in Schedule XIV of the Companies Act, 1956, on straight-line method.

ii) Individual assets costing less than Rs.5,000/- are expensed out in the year of purchase

5. INVENTORIES

i) Inventories consist of Drugs and Surgical meant for sale purpose are valued at lower of cost or Net Realisable Value. Cost is determined on first-in-first-out basis.

G. D. APTE & Co. Chartered Accountants

ii) Stock of linen, laundry, cutlery and crockery, consumables, surgical and allied stores meant for consumption purpose and spares are treated as consumed as and when purchased

6. GOVERNMENT GRANTS

i) Recurring grant related to the revenue are recognized on systematic basis in the income and expenditure account over the period, necessary to match them with the related costs which they are intended to compensate.

ii) Non recurring grants related to depreciable fixed assets are treated as deferred income, which is recognized in the income and expenditure account on systematic and rational basis over the useful life of the asset, i.e. such grants are allocated to income and expenditure over the periods and in the proportions in which depreciation on those asset is charged.

7. DONATIONS

Donations in kind received prior to 1st April, 2003 are included under 'Earmarked / Endowment Funds' at comparable purchase price. With effect from 1st April, 2003 Donations received in kind are being recorded in the books at nominal value.

8. FOREIGN CURRENCY TRANSACTIONS

a. Transactions in foreign currencies are recorded at the exchange rates prevailing on the transaction dates.

b. Monetary items denominated in foreign currencies remaining unsettled at the year end are translated at the year end exchange rates.

c. All exchange gains / losses on settlement / translation, are recognized in the Income & Expenditure Account.

9. EMPLOYEE BENEFITS

Short Term Employee Benefits:

All employee benefits wholly payable within twelve months of rendering the service are classified as short term employee benefits. Benefits such as salaries, wages, bonus, etc are recognized in the period in which the employee renders the related service.

Post Employment Benefits:

i) Defined Contribution Plans:

Employee benefits in the form of Contributory Provident Fund and New Pension Scheme (for employees joined from 1st January, 2004) are considered as defined contribution plans. The contribution paid / payable under the scheme is recognized in the period in which the employee renders the related service.

G. D. APTE & CO. Chartered Accountants

ii) Defined Benefit Plans:

Retirement benefits in the form of gratuity to eligible employees, leave encashment and pension scheme (other than employees covered in (i) above) are considered as defined benefit plans. The present value of the obligation under such defined benefit plans is determined based on actuarial valuation using the Projected Unit Credit Method, which recognizes each period of service as giving rise to additional unit of employee benefit entitlement and measures each unit separately to build up the final obligation.

The obligation is measured using at the present value of the estimated future cash flows. The discount rates used for determining the present value of the obligation under defined benefit plans, is based on the market yields on Government securities as at the Balance Sheet date, having maturity periods approximating to the terms of related obligations.

10. PROVISIONS, CONTINGENT LIABILITIES AND CONTINGENT ASSETS

a. Provisions are recognized for liabilities that can be measured only by using a substantial degree of estimation, if

i) The Centre has a present obligation as a result of past event
ii) a probable outflow of resources is expected to settle the obligation
iii) The amount of obligation can be reliably estimated.

b. Contingent liability is disclosed in the case of :

i) a present obligation arising from past event, when it is not probable that an outflow of resources will be required to settle the obligation.
ii) a possible obligation, unless the probability of outflow of resources is remote.

c. Provisions, Contingent Liabilities are reviewed at each Balance Sheet date.

11. EVENTS OCCURING AFTER THE BALANCE SHEET DATE

Where material, events occurring after the date of the Balance Sheet are considered upto the date of approval of accounts by the members of the Governing Council.

12. ACADEMIC FUND

A percentage as prescribed by the Governing Council of Tata Memorial Centre is transferred from the Hospital Income to a separate fund named as the "Academic Fund". The expenditure incurred towards fulfillment of the objectives is debited to the said fund.

G. D. APTE & CO. Chartered Accountants

SCHEDULES FORMING PART OF ACCOUNTS

SCHEDULE B : NOTES ON ACCOUNTS

1. Contingent liabilities not provided for in respect of :
   Claims against the hospital made by patients are not acknowledged as debts, since the same are not quantifiable.

2. Estimated amount of contracts remaining to be executed on capital account and not provided for (net of advances) Rs.22,61,87,725/- (Previous year Rs. 22,32,85,336/-)

3. Prior Period Expenses of Rs.54,06,488/- charged to Income & Expenditure account during the financial year.

4. Sundry debtors, and creditors balances, and balances of certain liabilities are subject to confirmation, reconciliation and consequent adjustments, if any.

5. Up to financial year 2006-07 the Centre has accounted all its fixed assets acquired at its original costs and depreciation thereon is charged to income and expenditure accounts. The non-recurring grants received for acquisition of such fixed assets is disclosed under earmarked funds.

   With effect from April 1, 2007 the Centre has decided to account the Non-recurring grants as per Accounting Standard 12 on Accounting for Government Grants. As per the said standard, non-recurring grants related to depreciable fixed assets are treated as deferred income, which is recognized in the income and expenditure account on systematic and rational basis over the useful life of the asset, i.e. such grants are allocated to income and expenditure account over the periods in the proportion in which depreciation on those asset is charged.

6. The Centre is covered by a system of internal audit conducted by the Department of Atomic Energy and Indian Audit and Accounts Department.

7. The Centre has filed a writ petition in the Honorable High Court Bombay for non-applicability of Bombay Labour Fund Act, 1956 in the year 2001-02, the final verdict for which is still pending. Each year the centre recovers the LWF amount from employees and also contributes towards the said liability amounting to Rs.45,08,642/- respectively which is disclosed under current liabilities in the financial statement. The centre has also kept as deposit Rs.5,50,000/- each with Maharashtra Labour Welfare Board and Hon'ble Bombay High Court.

8. The disclosures pursuant to Accounting Standard 15 (Revised) on "Employee Benefits" are as follows :

(in Rs.)
Defined Contribution Plan :
Contribution to Defined Contribution Plan, recognised as an expense and included in "Staff and Welfare" – Schedule 10 in the Income and Expenditure Account are as under : - Employers contribution to Provident Fund – Rs. 35,31,199 /- - Employers contribution payable to New Pension Scheme – Rs.2,31,43,108./-

			Gratuity	
			31-3-2013	31-3-2012
I	**Change in obligation during the year**			
	1	Liability at the beginning of the year	545,146,307	525,646,022
	2	Interest Cost	44,624,404	41,050,856
	3	Current Service Cost	15,081,022	17,692,971
	4	Past Service Cost	0	0
	5	Benefit Paid	(32,236,572)	(28,928,444)
	6	Actuarial (Gain)/Loss	30,294,268	(10,315,098)
	7	Liability at the end of the year	602,909,429	545,146,307
V	**Net asset / (liability) recognised in the Balance Sheet**			
	1	Liability at the end of the year	602,909,429	545,146,307
	2	Plan assets at the end of the year	0	0
	3	Liability recognised in the Balance sheet	602,909,429	545,146,307

VI	**Expenses recognized in the Income and Expenditure account**			
	1	Current Service Cost	15,081,022	17,692,971,
	2	Interest Cost	44,624,404	41,050,856
	3	Expected Return on Plan Assets	0	0
	4	Actuarial (Gain)/Loss	30,294,268	(10,315,098)
	5	Past service cost	0	0
	6	Total expenses recognised in the Income and Expenditure Account	89,999,694	48,428,729
VIII	**Principal actuarial assumptions at the Balance Sheet date:**			
	1	Discount rate at	8.00%	8.50
	2	Expected return on plan assets	0.00%	0.00%
	3	Salary escalation	7.00%	7.00%

General description of the defined benefit plan :	
1	The Centre operates a gratuity scheme, which is a unfunded scheme for qualifying employees. The Scheme provides for lump sum payment to employees on retirement, death while in employment or termination of employment of an amount equivalent to 15 days salary for every completed year of service or part thereof in excess of six months, provided the employee has completed five years in service.
2	The Centre operates a leave encashment scheme, which is an unfunded scheme. The present value of obligation under this scheme is based on an actuarial valuation, using the Projected Unit Credit Method, which recognizes each period of service as giving rise to additional unit of employee benefit entitlement and measures each unit separately to build up the final obligation. Based on the actuarial valuation, the liability as at 31st March, 2013 works out to Rs. 66,58,04,978/-.
3	The Centre operates a Pension scheme which is an unfunded scheme for employees, who have joined prior to 1st January, 2004. The benefit is payable at the time of superannuation or voluntary retirement after completion of minimum of 20 years service. Based on the actuarial valuation, the liability as at 31st March, 2013 works out to Rs. 5,960,954,869/-.

8. Figures for the previous year have been regrouped / reclassified wherever necessary to make them comparable with those of the present year.

Mumbai,

As per our report attached

G.D. Apte & Co.
Chartered Accountants
ICAI Registration No. :

Partner : CA Chetan R. Sapre
Membership No. 116952

Indira Pasupathy
Jt. Controller (F & A)

Dr. Venkata V.P.R.P.
Chief Administrative Officer

G. D. APTE & CO. Chartered Accountants

TMH Lighted Pink - 10th Annual WCI Conference : Focusing on Woman's Health.

Guest at WCI Inaguration : L to R - Ms. Devika Bhojvani, Mrs. Sheela P. Chavan, Dr. Vani Parmar and Dr. R. A. Badwe (Director TMC)

TATA MEMORIAL HOSPITAL

E. Borges Marg, Parel, Mumbai - 400012, INDIA
Tel: 91-22-24177000, **Fax:** 91-22- 24146937

Email: medimail@gov.in
Website : http://tmh.gov.in

ADVANCED CENTRE FOR TREATMENT, RESEARCH AND EDUCATION IN CANCER

Kharghar, Navi Mumbai - 410210, INDIA
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