



ANNUAL REPORT
2008-2009



28 years of Crusade Against Cancer

*Leadership in cancer treatment and research is not a matter of chance...
It is a matter of continued excellence...*

MANDATES

Evolve a comprehensive cancer control programme for the Region.

Offer state-of-the-art facilities for diagnosis, treatment, palliation & rehabilitation of cancer.

Undertake basic and applied research and to publish research papers in various specialties of Oncology.

Create atmosphere for conducting graduate, postgraduate, superspecialty and paramedical courses in all branches of Oncology.

Generate trained manpower for the region in various specialties of Oncology – medical, para-medical and non-medical.

Organise cancer registries in modern lines.

Work in collaboration with other medical institutions, health service department, universities, aid agencies and other institutes of repute.

ANNUAL REPORT 2008-2009



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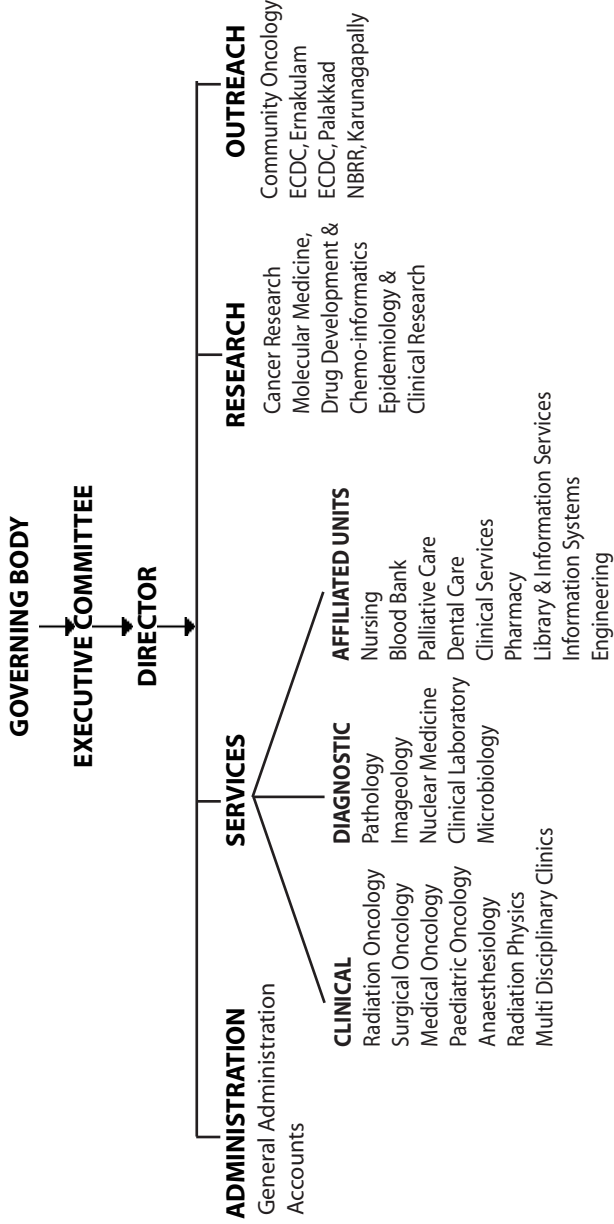
Compiled and Edited by :
Library and Information Services Division
Regional Cancer Centre, Thiruvananthapuram

Published by :
Director, Regional Cancer Centre, Thiruvananthapuram

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R E G I O N A L C A N C E R C E N T R E <hr style="width: 50%; margin: 0 auto;"/> T H I R U V A N T H A P U R A M	ORGANISATIONAL SETUP
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GOVERNING BODY (2008-2009)

1.	Sri.V.S.Achuthanandan Hon'ble Chief Minister of Kerala	Chairman
2.	Smt. P.K.Sreemathy Teacher Hon'ble Minister for Health Govt. of Kerala	Vice-Chairman
3.	Dr.Vishwas Mehta, IAS Secretary to Government Health & Family Welfare Department Govt. of Kerala	Alt.Vice-Chairman
4.	Dr. L.C.Goyal, IAS Principal Secretary to Government Finance Department, Govt. of Kerala	Member
5.	Dr.Teeka Ram Meena, IAS Secretary to Government Planning Department Govt. of Kerala	Member
6.	Dr.K.Mohandas Director Sree Chitra Tirunal Institute for Medical Sciences & Technology, Thiruvananthapuram	Member
7.	Director General of Health Services Ministry of Health and Family Welfare Govt. of India	Member
8.	Secretary Ministry of Health and Family Welfare Govt. of India	Member
9.	Dr.S.C.Gupta 'Vidya', Pulayanarkotta Road Thiruvananthapuram	Member
10.	Dr. P.V. Ramachandran (Till 30-04-2008) Director of Medical Education, Thiruvananthapuram	Member
11.	Dr.V.Geetha (From 01.05.2008) Director of Medical Education, Thiruvananthapuram	Member

12.	Dr.K.Salilkumar (Till 30.06.2008) Principal, Medical College, Thiruvananthapuram	Member
13.	Dr.Ramdas Pisharody (From 01-07-2008) Principal, Medical College, Thiruvananthapuram	Member
14.	Dr.B.Rajan (Till 18.10.2008) Director, Regional Cancer Centre, Thiruvananthapuram	Convener
15.	Dr.K.Ramachandran (From 19.10.2008) Director-in-Charge, Regional Cancer Centre Thiruvananthapuram	Convener

EXECUTIVE COMMITTEE (2008-2009)

1.	Dr.Vishwas Mehta, IAS Secretary to Government Health & Family Welfare Department Govt. of Kerala	Chairman
2.	Dr. L.C.Goyal, IAS Principal Secretary to Government Finance Department, Govt. of Kerala	Member
3.	Dr.Teeka Ram Meena, IAS Secretary to Government Planning Department, Govt. of Kerala	Member
4.	Dr.P.V. Ramachandran (Till 30.04.2008) Director of Medical Education, Thiruvananthapuram	Member
5.	Dr.V.Geetha (From 01.05.2008) Director of Medical Education, Thiruvananthapuram	Member
6.	Dr.K.Salilkumar (Till 30.06.2008) Principal, Medical College, Thiruvananthapuram	Member
7.	Dr.Ramdas Pisharody (From 01-07-2008) Principal, Medical College, Thiruvananthapuram	Member
8.	Dr.B.Rajan (Till 18.10.2008) Director, Regional Cancer Centre, Thiruvananthapuram	Convener
9.	Dr.K.Ramachandran (From 19.10.2008) Director-in-Charge, Regional Cancer Centre Thiruvananthapuram	Convener

OVERVIEW

Regional Cancer Centre, Thiruvananthapuram (RCC), now in its 28th year of service, is an autonomous scientific institution sponsored jointly by the Government of Kerala and the Government of India receiving financial assistance from both. The Centre was established as per Govt. of India letter No. T. 200125/79 of October 1980 as one among six such Centres in India. The State Government transferred a few departments of Medical College Thiruvananthapuram, which were primarily concerned with cancer care, to RCC. The Centre was registered as a society under Travancore Cochin Literary Scientific and Charitable Societies Registration Act 1955 vide No. 567/81 dated 19.08.1981. It has been designated as a Science and Technology Centre in health sector by State Government as per G. O. (Rt) No. 1521/85/11 H & FWD dated 18.11.1985.

From a modest beginning, Regional Cancer Centre has evolved into an internationally recognised centre catering to the population of the State of Kerala and adjoining parts of Tamil Nadu and Karnataka. RCC is a unique example of co-operation between State and Central Governments, National and International agencies and Non-Governmental Organisations. We have been striving to provide world-class state-of-the-art facilities for cancer diagnosis, prevention, treatment, research, palliation and rehabilitation.

It is estimated that on an average 35,000 new cancer cases are being reported in a year in the State. Out of this, about one-third of the cases are being registered in RCC alone. During this report period, 12,123 new patients were registered and 1,51,714 review cases were seen. 45% of the patients were given free treatment during the report period. To supplement our efforts, under the 'Kerala Social Security Mission', Government of Kerala charted out plans to provide free treatment to cancer patients below the age of 18 years. This ambitious programme was inaugurated by Smt. P.K. Sreemathi Teacher, Hon. Minister for Health & Family Welfare, Govt. of Kerala, at a function organized at RCC on 12th December 2008.

Our academic and research activities remained strong throughout the period with a plethora of scientific papers emanated from our

professionals, on diagnostic, clinical and experimental aspects of cancer found a place in global Medical parlance. About 40 articles in peer-reviewed journals, 24 conference papers and 7 chapters in books have come out as research output of the Centre. Our clinicians and researchers received many honours during this period too. Fellowships were awarded for training at internationally acclaimed institutions like National Cancer Institute, USA (1), International Agency for Research on Cancer (IARC), France (2), International Union Against Cancer-UICC/ICRETT (1), Indo-American Cancer Association (1), etc. One of our research scholars, Mr. Deepak Roshan V. G., received the Young Scientist Award at the 21st Annual Kerala Science Congress. During the report period, two of the staff members and three research scholars were awarded Ph.D. in their concerned fields.

A MOU was signed on March 12, 2009 between RCC and Bhabha Atomic Research Centre (BARC), Mumbai for strengthening the research programme being carried out on the population residing in high background natural radiation areas of Kerala. This project is a continuation of the work done earlier in the high background radiation areas of Karunagappally Taluk of Kollam district, by extending it to the Southern areas of Kollam district.

We offer DNB programmes in Superspecialities (Surgical Oncology and Medical Oncology) and Specialities (Radiotherapy & Oncology, Radiodiagnosis, Pathology and Anaesthesiology). Students have been undergoing two year Fellowship training in Head and Neck Surgery and one year Post-doctoral certificate course in Oncopathology. In addition to the above programmes, short term and long term training programmes are running for Cytotechnologists and Cytotechnicians. Our Research division is sought after by students in Biotechnology, MLT, etc. from various Universities for their training and project works.

We organized several seminars and training programmes during the period. Addressing the RCC Silver Jubilee Seminar on 'Cancer and its socio-economic challenges', Sri. V. S. Achuthanandan, Hon. Chief Minister and Chairman of the Governing body, RCC, lauded the multi-pronged strategies of the Centre towards comprehensive cancer care, prevention, control and research. An international meeting on 'Voice preservation and rehabilitation in Laryngectomy' was organized

in August 2008, which was led by Dr. Eric D. Blom, one of the pioneers in voice rehabilitation. We hosted the 12th National Conference of the Association of Radiation Therapy Technologists of India (ARTTICON 2008) in November 2008, the first of its kind in Kerala. To promote tobacco control and 'Tobacco Free Initiative', a State-level advocacy workshop on tobacco control laws was organized at RCC in collaboration with World Health Organization. World Palliative Care Day celebrations were inaugurated on 11th October 2008 by Smt. P.K. Sreemathi Teacher, Hon. Minister for Health & Family Welfare. As a nodal agency for implementing the Palliative Care Policy for the State, we organised a series of training programmes for doctors, nurses and other health care professionals.

We further strengthened infrastructure, improved facilities and services and put innovations into practice during the report period also. A full-fledged Microbiology lab, as a new diagnostic department was set up in October 2008. In collaboration with IARC, France, we introduced cold coagulation as one of the modalities in the treatment of cervical pre-cancers for the first time in the country. Our Blood Bank, a National AIDS Control Organisation (NACO) recognised division, has acquired an automated ELISA machine. In diagnostic pathology services, HPV detection by PCR method and FISH testing for breast cancer and leukaemia were noteworthy additions. In an effort to strengthen experimental research, the Cancer Research Division has acquired an Inverted Fluorescent Microscope with CCD camera. In May 2008, Paediatric Oncology division implemented the 'Indian Paediatric Oncology Initiative' (IPOI) project supported by JivDaya Foundation, United States aimed at improving quality of paediatric patient care.

RCC has years of exposure in pain and palliative care services. As a matter of recognition, Government of Kerala empanelled RCC to chart out the Palliative Care Policy for the State, the first of its kind in India. The policy ensures provision of palliative care and right to live with dignity for the terminally ill. As a sequel, RCC collaborated with National Rural Health Mission (Arogya Keralam) and Thiruvananthapuram district panchayat to set up an exclusive Pain and Palliative Care Centre with inpatient facility at a Primary Health Centre in the District. Our Community Oncology division conducted 81 Cancer Detection Camps and 52 Cancer Awareness Programmes as part of our community based cancer control activities and the Division of Cancer Epidemiology and

Clinical Research conducted 52 Cancer Detection Camps and 86 Cancer Awareness Programmes as part of Trivandrum Corporation Cancer Control Programmes.

The Centre continued to receive support in the name of philanthropy from NGOs, institutions and individuals. The commitments of 'Asraya', 'Careplus' and 'Prathyasa' to serve patients, survivors, and dependents deserve appreciation. 'Akshaya Patram', the food project envisaged by RCC to distribute food four times a day for all patients below poverty line, completed the first year of service.

As part of the expansion plans, a range of new equipments, a ten-storeyed building, modernisation of laboratories, etc are on the cards and some preliminary works were initiated during the period. But, to move ahead with these plans, we need the support of both State and Central governments as in the past.

We have proved to excel and redefine cancer care for the last 28 years. We build on the achievements of our past and remain firmly focused on the future. The staff maintained their extraordinary commitment to service, teamwork and overall excellence throughout the year. Our dedicated work will help in improving and prolonging the lives of the patients we see today and those we will care for in years to come. We would like to place on record our gratitude to all those who have been supporting us in this crusade against cancer.

I am very pleased to present the annual report which contains the activities of various Divisions and Peripheral Centres of RCC for the period 2008 – 2009.



Dr. B. Rajan
Director (Till 18th October 2008)

Dr. K. Ramachandran
Director-in-Charge

Professor B. Rajan MD

Former Director



One of the significant events during the report period was the retirement of Prof. Dr. B. Rajan on 18th October 2008. He came at the helm of affairs of RCC on 20th May 2004 as a successor to Prof. M. Krishnan Nair, the Founder Director of the Centre. Before assuming the post, he had served RCC in many official capacities as Superintendent (1997-2001), Additional Director (2001-2003) and Director-in-charge.

Prof. Rajan earned his postgraduation in Clinical Oncology from Postgraduate Institute of Medical Education & Research (PGIMER), Chandigarh (1979) after his MBBS from Trivandrum Medical College in 1971. Before joining RCC in 1984, he served Trivandrum Medical College as an Assistant Professor of Radiotherapy & Oncology (1980-84). He had also served Royal Marsden Hospital, UK as Clinical Research Fellow in Neuro-Oncology in different periods. He received training in advanced arenas of oncology from reputed international institutions and also has a plethora of scientific publications to his credit. He was also awarded the Commonwealth Medical Fellowship, UICC Fellowship and Fellowship of the Institute of Cancer Research, UK.

As a close associate of Prof. M. Krishnan Nair, Prof. Rajan was instrumental in developing RCC as an institution of international repute. As Director, he set his priorities in strengthening the infrastructural facilities and patient amenities. His strenuous efforts were fruitful through the installation of new MRI and CT scanners, X-Ray units, Digital Radiotherapy Simulator, CT Simulator, SPECT Gamma Camera, setting up of the Bone Marrow Transplantation Unit and Microbiology Lab. The BMT unit in RCC is the first of its kind in a government hospital in India. He further uplifted academic and teaching activities by starting DNB programmes in specialties and super specialties.

We acknowledge his valuable contributions with deepest sense of gratitude.

MULTIDISCIPLINARY CLINICS

Clinical services provided by RCC are multidisciplinary in nature and are classified into A, B, C, D, E, F & G as detailed below.

'A' Clinic

Haematological, Lymphoreticular, Bone & Soft tissue sarcoma

'B' Clinic

Head & Neck

'C' Clinic

Breast & Central Nervous System

'D' Clinic

Gynaec & Genitourinary

'E' Clinic

Chest & Gastrointestinal

'F' Clinic

Paediatric Oncology

'G' Clinic

Thyroid

DEPARTMENTAL ACTIVITIES



RADIATION ONCOLOGY

Dr. Rajan B.	Professor & Director (Till 18.10.2008)
Dr. Jayaprakash P.G.	Professor
Dr. Parameswaran S.	Professor
Dr. Suresh Chandra Dutt	Additional Professor (On deputation from 07.08.2008)
Dr. Jayaprakash Madhavan	Additional Professor
Dr. Ramadas K.	Additional Professor (Rejoined after leave on 16.07.2008)
Dr. Ratheesan K.	Additional Professor
Dr. Francis V. James	Additional Professor
Dr. Beela Sarah Mathew	Additional Professor (From 01.07.2008)
Dr. Thomas Koilparambil	Associate Professor
Dr. Aswin Kumar	Associate Professor
Dr. Sivanandan C.D.	Associate Professor (From 01.07.2008)
Dr. Rejnish Kumar R.	Associate Professor (From 01.07.2008)
Dr. Susan Mathews	Assistant Professor
Dr. Asha Arjunan	Assistant Professor (From 21.2.2009)
Dr. Sajeed A.	Lecturer (on leave from 18.12.2008)
Dr. Kainickal C.T.	Lecturer

Radiation Oncology is the major division of RCC both in terms of patient flow and academic staff strength. This division plays the lead role in the conduct of multispeciality clinics by attending the 4 major clinics- 'B' (Head & Neck), 'C' (Breast & Central Nervous System), 'D' (Gynaec and Genitourinary) and 'E' (Chest & Gastro). The division works in unison with Surgical Oncology, Medical Oncology and Paediatric Oncology divisions in patient care activities. During the period under report, about 75% of the new cases were registered under the various clinics of this division. Similarly, the division managed about 60% of the review cases also. Oncologists of this division were also actively engaged in the conduct of follow-up clinics at peripheral centres

of RCC. Overall, the workload has increased substantially during the report period. In order to strengthen the delivery of radiotherapy at the right time, works are fast progressing for the installation of two state-of-the-art radiotherapy machines with facility for Image Guided Radiotherapy (IGRT), Stereotactic Radiotherapy (SRT) and Stereotactic Radiosurgery (SRS).

As part of academic activities, DNB programme in Radiotherapy and Oncology with an annual intake of 4 students has been continuing successfully. The staff have been quite active in postgraduate teaching, training, conduct of multidisciplinary patient review meetings, tumour boards, participation in national and international conferences/workshops, etc.

Ongoing Research Projects

1. HBRA Project, Karunagapally: Cancer occurrence in the Natural Radiation Area of Kerala (Funded by: Health Research Foundation, Kyoto, Japan).
Principal Investigator: Dr. Rajan B.
2. Estimation of tobacco attributable mortality in Kerala, India (Funded by: International Agency for Research on Cancer, Lyon, France)
Principal Investigator: Dr. Ramadas K.
3. TOCS Project follow-up programme for oral cancer prevention (Funded by: International Agency for Research on Cancer, Lyon, France)
Principal Investigator: Dr. Ramadas K.
4. Organisation of a community based cluster randomized controlled trial for the early detection of breast cancer, Thiruvananthapuram District (Funded by: WHO-IARC, France)
Principal Investigator: Dr. Ramadas K.
5. A randomized, double-blind parallel-group, multicentre, phase III study comparing the efficacy and tolerability of Fulvestrant (FASLODEX TM) 500 mg with Fulvestrant (FASLODEX TM) 250 mg in Postmenopausal women with Oestrogen receptor positive advanced breast cancer progressing or relapsing after previous endocrine therapy (Funded by: Quintiles Research (India) Pvt.Ltd.)
Principal Investigator: Dr. Ratheesan K.
6. Clinical and patho-biological effects of Curcumin on oral

- leukoplakia (Funded by: Dept. of Biotechnology, New Delhi)
Principal Investigator: Dr. Ramadas K.
7. INDOX Trial (Funded by: Dept. of Pharmacology, University of Oxford, UK)
Co-Investigator: Dr. Beela Sarah Mathew
 8. A phase III randomized double blind placebo-controlled multicentric study to evaluate the efficacy and safety of GW786034 compared to placebo in patients with locally advanced and/or metastatic renal cell carcinoma which have progressed following cytokine based first line treatment (Funded by: Glaxo Smithkline)
Principal Investigator: Dr. Francis V. James
 9. An open label study to evaluate the efficacy and safety of Human recombination granulocyte colony stimulating factor developed by Biocon Limited in patients with chemotherapy induced neutropenia (GCSF-study) (Funded by: Clinigene International Pvt. Ltd., Bangalore)
Principal Investigator: Dr. Jayaprakash Madhavan
 10. A randomized active control double blind double dummy parallel group multi-national study to assess the efficacy, tolerability and safety of the granisetron transdermal delivery system (GTDS) in chemotherapy induced nausea and vomiting associated with the administration of moderately or high emetogenic multiday chemotherapy (Funded by: Kendle India Pvt.Ltd.)
Principal Investigator: Dr. Rejnish Kumar R.
 11. A randomized single blind placebo controlled multicentre phase II study of Lapatinib in combination with concurrent radiotherapy and Cisplatin versus Radiotherapy and Cisplatin alone, in subjects with stage III and IV A, B squamous cell carcinoma of the head & neck (Funded by: Glaxo Smithkline Pharmaceuticals).
Principal Investigator: Dr. Ramadas K.
 12. A randomized phase III trial of Alimta (Pemetrexod) and Carboplatin in extensive stage small cell lung cancer. (Funded by: Eli Lilly & Co. (I) Pvt. Ltd.)
Principal Investigator: Dr. Jayaprakash Madhavan
 13. An open label randomized phase II study of two different dosing regimens of capecitabine in combination with intravenous Docetaxel (Q3W) in patients with locally advanced and/or metastatic breast cancer (Funded by: Quintiles Research India Pvt.Ltd)

- Principal Investigator: Dr. Ratheesan K.
14. A randomized open label, multicenter, phase III study of Epoetin Alfa plus standard supportive care versus standard supportive care in anemic patients with metastatic breast cancer receiving first line standard chemotherapy. (Funded by: Parexel International Synchron Pvt. Ltd)
Principal Investigator: Dr. Beela Sarah Mathew
 15. A randomized, double blind, placebo-controlled, multicenter phase III study of Denosumab on prolonging bone metastasis free survival in men with hormone refractory prostate cancer.
Principal Investigator: Dr. Jayaprakash P.G.
 16. Amgen study Denosumab- 20050136 (Funded by: PPD India)
Principal Investigator: Dr. Ratheesan K.
 17. Development of data management system for oncology with special reference to RCC (Funded by: C-DAC)
Principal Investigator: Dr. Ramadas K.
 18. A phase III randomized, double blind, multi centre parallel-group study to assess the efficacy of ZD6474 (ZACTIMA TM) vs. Erlotinib (TARVEVA) in patients with locally advanced or metastatic non-small cell lung cancer after failure of at least one prior cytotoxic chemotherapy (Funded by: Astra Zeneca Pharma India Ltd)
Principal Investigator: Dr. Jayaprakash Madhavan
 19. International randomized study to evaluate the addition of docetaxel to the combination of Cisplatin-5-fluorouracil (TCF) Vs.Cisplatin-5-Fluorouracil (CF) in the induction treatment of nasopharyngeal carcinoma (NPC) in children and adolescents. (Funded by: Sanofi Aventis)
Principal Investigator: Dr. Rejnish Kumar R.
 20. A randomized, double blind, placebo-controlled, multicenter phase III study of Denosumab on prolonging bone metastasis free survival in men with hormone refractory prostate cancer.
Principal Investigator: Dr. Jayaprakash P.G.
 21. Phase III study of vinflunine plus gemcitabine vs. paclitaxel plus gemcitabine in patients with unresectable locally recurrent or metastatic breast cancer after prior anthracycline-based adjuvant chemotherapy (Funded by: Chiltern International Pvt.Ltd)

- Principal Investigator: Dr. Asha Arjunan
22. A randomized, controlled phase III trial of picoplatin and best supportive Care (BSC) Vs. BSC alone in patients with small cell lung cancer, refractory or progressive within six months of completing first line, platinum-containing chemotherapy. (Funded by: Siro clinpharm)
Principal Investigator: Dr. Jayaprakash Madhavan
23. A randomised, double blind placebo controlled, multicentre, phase III study of post operative adjuvant Lapatinib or placebo and concurrent chemoradiotherapy followed by maintenance Lapatanib or placebo monotherapy in high risk subjects with resected squamous cell carcinoma of head and neck. (Funded by: Glaxo Smithkline)
Principal Investigators: Dr. Ramadas K.; Dr. Rejnish Kumar R.
24. A phase III randomised trial of chemotherapy with or without planitumumab in patients with metastatic and or recurrent squamous cell carcinoma of the head and neck. (Funded by: PPD Pharmaceuticals)
Principal Investigator: Dr. Rejnish Kumar R.
25. A randomized double blind phase III study to compare the efficacy and safety of AZD2171 when added to 5-fluorouracil, leucovorin and oxaliplatin (Folfox) or capecitabine and oxaliplatin (Xelox) with the efficacy and safety of placebo when added to Folfox or Xelox in patients with previously untreated metastatic colorectal cancer. (Funded by: Astra Zeneca Pharma India Ltd)
Principal Investigator: Dr. Jayaprakash Madhavan
26. A phase II, open-label, randomized, multicenter trial of pazopanib in combination with lapatinib compared to pazopanib monotherapy and lapatinib monotherapy in subjects with FIGO stage IVB metastatic or recurrent cervical cancer with zero or one prior chemotherapy regimen for advanced/recurrent disease. (Funded by: Glaxo Smithkline)
Principal Investigator: Dr. Jayaprakash P.G.
27. A randomized phase III study of Pemetrexed in combination with Cisplatin Vs. Cisplatin monotherapy in patients with recurrent or metastatic head and neck cancer. (Funded by: Eli Lilly (I))
Principal Investigator: Dr. Rejnish Kumar R.
28. A phase II, randomized, double masked, placebo controlled study to evaluate the efficacy of SNX-1012 in reducing the

- duration and severity of ulcerative oral mucositis in patients receiving cytotoxic chemotherapy for breast or lung cancer. (Funded by: Kendle (I) Ltd.)
Principal Investigator: Dr. Ratheesan K.
29. A pivotal plus phase III observer blind, randomized clinical trial of the efficacy and safety of APF530 compared to Aloxi for the prevention of acute onset and delayed onset chemotherapy induced nausea and vomiting following the administration of either moderately or highly emetogenic chemotherapy regimens. (Funded by: Neeman Medical International (Asia))
Principal Investigator: Dr. Jayaprakash Madhavan
30. A phase III randomized, double blind placebo controlled study to assess the efficacy and safety of 10 mg ZD4054 in combination with docetaxel in comparison with docetaxel in patients with metastatic hormone resistant prostate cancer. (Funded by: ICON Clinical Research (I) Pvt. Ltd.)
Principal Investigator: Dr. Jayaprakash P.G.
31. A randomized phase II biomarker neoadjuvant study of sequential AC followed by Ixabepilone compared to sequential AC followed by paclitaxel in women with early stage breast cancer not overexpressing HER-2 or estrogen receptors. (Funded by: Bristol-Myers Squibb (I) Pvt. Ltd.)
Principal Investigator: Dr. Asha Arjunan
32. An open label, prospective, multicentric study to evaluate the safety and efficacy of biomab-EGFR (Nimotuzumab) as induction and maintenance therapy in combination with radiotherapy plus Temozolomide in Indian patients with Glioblastoma multiforme. (Funded by: Clinigene, Bangalore)
Principal Investigator: Dr. Beela Sarah Mathew
33. Protocol No. VB4-845 01 III a- Proxinium study. (Funded by: PPD India)
Principal Investigator: Dr. Ramadas K.
34. Protocol 22807 Study. (Funded by: Lambda Therapeutic Research Ltd.)
Principal Investigator: Dr. Ratheesan K.
35. Protocol No. NU 07B1 study (Funded by: Reliance Clinical Research)
Principal Investigator: Dr. Ratheesan K.
36. A phase III, multicenter, randomized, placebo-controlled,

- double-blind trial of AMG-706 in combination with paclitaxel and carboplatin for advanced non-small cell lung cancer protocol No.20050201 (Funded by: Amgen Technology Pvt Ltd.)
Principal Investigator: Dr. Jayaprakash Madhavan
37. A randomized, multi-centre, open label, phase III study of adjuvant lapatinib, trastuzumab, their sequence and their combination in patients with HER2/ErbB2 positive primary breast cancer. (Funded by: GSK Pharmaceuticals Ltd.)
Principal Investigator: Dr. Beela Sarah Mathew
38. Protocol No.CST1571B2404/amendment 1/the global observational registry collecting longitudinal data on advanced GIST patients (Funded by: Parexel International Synchron Pvt. Ltd)
Principal Investigator: Dr. Jayaprakash Madhavan
39. An open label, multicentre phase II study to evaluate efficacy and safety of P276-00 in Indian subjects with recurrent, metastatic or unresectable locally advanced squamous cell carcinoma of head and neck (Funded by: Piramal Life Sciences)
Principal Investigator: Dr. Rejnish Kumar R.
40. Phase II study of pemetrexed (Alimta) plus carboplatin or pemetrexed cisplatin with concurrent radiation therapy followed by every 21 day pemetrexed consolidation in patients with favourable prognosis inoperable stage III A/B non-small cell lung cancer. (Funded by: Eli Lilly & Co. Pvt.Ltd)
Principal Investigator: Dr. Sivanandan C.D.
41. Randomized, phase IIIB, multicentre, open label, parallel study of enoxaprin given concomitantly with chemotherapy Vs. chemotherapy alone in patient with inoperable gastric & gastro-oesophageal cancer. (Funded by: Criterium Clinical Research Pvt. Ltd)
Principal Investigator: Dr. Jayaprakash Madhavan.
42. Open label randomized, multicentric clinical trial of Mycobacterium in combination with Docetaxel Vs. Docetaxel in metastatic hormone refractory prostate cancer. (Funded by: Cadila Pharmaceuticals Ltd.)
Principal Investigator: Dr. Jayaprakash P.G.
43. A randomized, double-blind parallel, three arm, multicenter, phase II trial evaluating the efficacy and safety of Ipilimumab (BMS 734016) in combination with Taxol/ Paraplatin (Paclitaxel/

Carboplatin) compared to taxol/paraplatin alone in previously untreated subjects with lung cancer (CA-184-041). (Funded by: Bristol Myers Squibb (I) Pvt. Ltd.)

Principal Investigator: Dr. Jayaprakash Madhavan.

44. Phase IIIB, randomized, open label study of Bevacizumab + Temsirolimus Vs. bevacizumab + Interferon-Alfa as first line treatment in subjects with advanced renal cell carcinoma (3066K1-3311-WW) (Funded by: Wyeth Pharmaceuticals Ltd.)
Principal Investigator: Dr. Francis V. James

Awards, Conferences/ Training Programmes attended

Dr. Parameswaran S., Dr. Jayaprakash P.G., Dr. Jayaprakash Madhavan, Dr. Francis V. James, Dr. Asha Arjunan

30th annual conference of the Association of Radiation Oncologists of India, Mumbai. 27-30 November 2008.

Dr. Jayaprakash P.G., Dr. Beela Sarah Mathew

50th annual meeting of American Society of Therapeutic Radiology and Oncology, Boston, USA. 21-25 September 2008.

Dr. Jayaprakash P.G., Dr. Susan Mathews

12th biennial meeting of the International Gynecologic Cancer Society, Bangkok, Thailand. 25-28 October 2008.

Dr. Parameswaran S.

13th Annual national conference of Breast Cancer Foundation of India, Chennai. 7-8 March 2009.

Biennial national conference of Indian Society of Oncology, Chennai. 13-15 February 2009.

Dr. Ratheesan K.

44th annual meeting of American Society of Clinical Oncology, Chicago, Illinois, USA. 30 May – 3 June 2008.

Dr. Ramadas K.

Visiting scientist award for senior scientists, WHO-International Agency for Research on Cancer (IARC), 2007-2008.

Award for Excellence for meritorious public service, 2008: professional excellence and outstanding service to the community instituted by Sree Sarada Educational Society.

3rd IARC handbook meeting on tobacco control: evaluating the

effectiveness of smoke-free policies (as a member of IARC secretariat), Lyon, France. 31 March- 5 April 2008.

6th Women's Cancer Initiative-Tata Memorial Hospital (WCI-TMH) conference on prevention and early detection of common cancers in women, Tata Memorial Hospital, Mumbai. 24-25 October 2008.

8th National conference of Foundation for Head and Neck Oncologists, Bhubaneswar, Orissa. 4-7 December 2008.

International symposium on Human Papillomavirus-associated cancers: translating research into cancer prevention and medicine, Rajiv Gandhi Centre for Biotechnology, Thiruvananthapuram. 1-3 November 2008.

'LARYNXCON-2008': 3rd International CME and workshop on 'Voice preservation and rehabilitation in laryngectomy', Regional Cancer Centre, Thiruvananthapuram. 16-17 August 2008.

'ARTTICON 2008': 12th National conference of the Association of Radiation Therapy Technologists of India, Sree Chitra Tirunal Institute for Medical Sciences and Technology, Thiruvananthapuram. 8-9 November 2008.

CDE programme on oral cancer, Government Dental College and Research Institute, Bangalore, Karnataka. 28 February 2009.

Dr. Beela Sarah Mathew

Training course in randomized controlled trials, Oxford University, UK. 16- 20 June 2008.

Dr. Aswin Kumar

International Postgraduate programme in epidemiology (Ph.D student), University of Tampere, Finland. 26 August 2007 - 2 June 2008.

Dr. Rejnish Kumar R., Dr. Kanickal C.T.

EQUAL-ESTRO training on imaging for target volume determination in radiotherapy planning, Prague, Czech Republic. 8-12 June 2008.

Dr. Asha Arjunan, Dr. Kanickal C.T.

3rd Asia-Pacific lung cancer conference, Hyderabad. 5-7 December 2008.



Hon'ble Chief Minister, Govt. of Kerala, Sri. V.S. Achuthanandan at the inaugural session of RCC Silver Jubilee Seminar on 'Cancer and its socio-economic challenges' (27 May 2008)

SURGICAL ONCOLOGY

Dr. Paul Sebastian	Professor & Head
Dr. Iqbal Ahamed M.	Additional Professor (Rejoined on 05.07.2008, after deputation)
Dr. Jem Prabhakar	Additional Professor
Dr. Shaji Thomas	Additional Professor (From 01.07.2008)
Dr. Bipin T. Varghese	Associate Professor
Dr. Paul Augustine	Associate Professor
Dr. Chandramohan K.	Associate Professor
Dr. Elizabeth Mathew Iype	Associate Professor (From 01.07.2008)
Dr. Balagopal P.G.	Associate Professor (From 01.07.2008)
Dr. Rema P.	Assistant Professor
Dr. Kurian Cherian	Assistant Professor
Dr. Madhu Muralee	Assistant Professor
Dr. Arun Peter Mathew	Assistant Professor
Dr. Suchetha S.	Assistant Professor

Novel achievement

Cold coagulation was introduced as one of the modalities in the treatment of cervical pre-cancers for the first time in the country in collaboration with International Agency for Research on Cancer, Lyon, France.

Surgical and Endoscopic Procedures

During the reporting year, 4439 surgeries and 1741 endoscopic procedures were carried out in the Division. Out of 4439 surgical procedures, 2956 were major cases and 1483 were minor cases. [Table 1 to 3]

Table 1: Major procedures

Procedure	Number	%
Head & Neck	1140	38.6
Breast	875	29.6
Gynaecological	297	10.1
Thorax & Abdomen	322	10.8
Bone & Soft tissue	148	5.0
Genitourinary	97	3.3
Miscellaneous	77	2.6
Total	2956	100

Table 2: Minor procedures

Procedure	Number
Minor surgeries	1420
Cryosurgery	11
Cold coagulation	5
LEEP	47
Total	1483

Table 3: Endoscopic procedures

Procedure	Number
Nasopharyngoscopy	792
Bronchoscopy	108
Oesophagogastroduodenoscopy	417
Oesophageal dilatation	37
Colonoscopy	385
Colonic dilatation	2
Total	1741

Academic activities

- DNB programme in Surgical Oncology with an annual intake of 2 candidates. [7 candidates undergoing training]

- Two year Fellowship programme in Head & Neck Oncology with an annual intake of 1 candidate. [2 candidates undergoing training]
- Organised 'LARYNXCON 2008' : 3rd International CME and Workshop on 'Voice preservation and rehabilitation in laryngectomy' at Regional Cancer Centre, Thiruvananthapuram. 16 -17 August 2008.
- Training in Surgical Oncology for post-graduate trainees of General Surgery, Otolaryngology, Obstetrics & Gynaecology, Oral and Maxillofacial Surgery and Plastic Surgery from Medical and Dental Colleges in Kerala, Tamil Nadu and Karnataka.
- Weekly seminars and site specific tumour boards and monthly morbidity & mortality meetings.

Ongoing Doctoral Programmes

The following academic staff have been pursuing their Ph.D. programmes under University of Kerala.

Dr. Paul Sebastian

Clinical profile and molecular genetics of oral cancer in young Indian adults.

Dr. Bipin T. Varghese

Development of a strategy for comprehensive post-laryngectomy rehabilitation: a Kerala perspective.

Dr. Elizabeth Mathew Iype

Selected molecular markers as indicators of prognosis and treatment outcome in squamous cell carcinoma of the larynx.

Dr. Balagopal P.G.

Role of telomerase as a prognostic factor in oral cancer.

Ongoing Research Projects

1. A pilot multi-centre international double blind placebo controlled randomized study of Sulindac: a pan COX inhibitor in oral premalignant lesions. (Funded by: National Cancer Institute, USA).
Principal Investigator: Dr. Paul Sebastian
2. TOCS project follow up programme for oral cancer prevention. (Funded by: International Agency for Research on Cancer, Lyon,



Dr. Eric D. Blom, St. Vincent Hospital, Indianapolis at the international meeting on 'Voice preservation and rehabilitation in laryngectomy' (16 August 2008)

- France).
Principal Investigator: Dr. Paul Sebastian
3. Molecular ecology and molecular genetics of anterior tongue cancer in young adults without (or insignificant) tobacco exposure: can a distinct clinical entity be defined? (Funded by: Department of Biotechnology, Govt. of India).
Principal Investigator: Dr. Paul Sebastian
 4. Pattern of care and survival studies on cancers of head and neck (Funded by: Indian Council of Medical Research, Govt. of India).
Co-Investigator: Dr. Paul Sebastian
 5. A randomised, double – blind placebo – controlled, multicentre phase II study of oral lapatinib in combination with concurrent radiotherapy and cisplatin versus radiotherapy, in subjects with Stage III & IV A, B squamous cell carcinoma of the head and neck. (Funded by: Glaxo Smith Kline).
Co-Investigator: Dr. Paul Sebastian
 6. Evaluation of early clinical detection of breast cancer in Trivandrum district, India. (Funded by: International Agency for Research on Cancer, Lyon, France).
Co-Investigator: Dr. Jem Prabhakar
 7. Elucidation of the role of EphB4 in the wnt pathway by RNA interference and its significance in colon cancer. (Funded by: International Agency for Research on Cancer, Lyon, France).
Co-Investigator: Dr. Jem Prabhakar
 8. Cancer progenitor cells, tumorigenesis and treatment outcome in breast cancers. (Funded by: Department of Biotechnology, Govt. of India).
Principal Investigator: Dr. Jem Prabhakar
 9. Peroxisomal Proliferators activated Receptor (PPR γ): a tumor promoter or tumor inhibitor in breast cancer? (Funded by: Council for Scientific & Industrial Research, Govt. of India).
Principal Investigator: Dr. Jem Prabhakar
 10. Differential gene expression on tumour tissue at different stages of menstrual cycle (Funded by: Kerala State Council for Science, Technology and Environment, Govt. of Kerala).
Principal Investigator: Dr. Jem Prabhakar
 11. A study on role of cold coagulation in the management of Cervical Intraepithelial Neoplasia. (Funded by: International Agency for

- Research on Cancer, Lyon, France).
Co-Investigators: Dr. Rema P. and Dr. Suchetha S.
12. Tumour primordial cells in colorectal cancer: implications for surgical margins and minimal residual disease. (Funded by: Department of Biotechnology, Govt. of India).
Principal Investigator: Dr. Chandramohan K.
 13. An open label, multicenter phase II study to evaluate efficacy and safety of P276-00 in Indian subjects with recurrent, metastatic or unresectable locally advanced squamous cell carcinoma of head and neck. (Funded by: Piramal Life Sciences).
Co-Investigator : Dr. Elizabeth Mathew Iype
 14. Brain tumour registry project. (Funded by: Kerala State Council for Science, Technology and Environment, Govt. of Kerala).
Principal Investigator: Dr. Balagopal P.G.
 15. Speech outcome after treatment of T1 and T2 cancers of the tongue – comparison between different treatment methods used: a multi centric study.
Principal Investigator: Dr. Paul Sebastian
 16. Randomized controlled study on morbidity in SOHND and methods of its reduction.
Principal Investigator: Dr. Paul Sebastian
 17. Role of anterior chemotherapy in locally advanced carcinoma tongue: a randomized controlled study.
Co-Investigator: Dr. Paul Sebastian
 18. Evaluation of aesthetic outcomes in breast conservation surgery following large volume resection.
Principal Investigator: Dr. Jem Prabhakar
 19. Analysis of risk factors of sarcoma after breast cancer surgery: a prospective study.
Principal Investigator: Dr. Jem Prabhakar
 20. The multicentric clinical study on role of IRESSA (Gefitinib) Epidermal Growth Factor in inoperable head and neck cancers. (Funded by: Quintiles Pharma).
Principal Investigator: Dr. Bipin T. Varghese
 21. Translation and validation of Malayalam version of FACT-C and EORTC questionnaire for assessing QOL in colorectal cancer patients.
Principal Investigator: Dr. Chandramohan K.
 22. Tobacco related habits among the first degree relatives of

patients who underwent surgery for advanced head and neck malignancies.

Principal Investigator: Dr. Balagopal P.G.

23. Level 2B node involvement in early and late head and neck malignancies.

Principal Investigator: Dr. Balagopal P.G.

24. Role of mastopexy in breast conservation surgery.

Co-investigator: Dr. Madhu Muralee

25. Development of strategy for comprehensive post-laryngectomy rehabilitation: a Kerala perspective. (Funded by: Kerala State Council for Science, Technology and Environment, Govt. of Kerala).

Principal Investigator: Dr. Bipin T. Varghese

Fellowships/Awards/Merits, Conferences / Workshops / CMEs attended, Papers presented, Talks delivered.

Dr. Paul Sebastian

National Cancer Institute (USA) Fellowship for advanced training in Head and Neck surgery at Memorial Sloan Kettering Cancer Centre, New York. March – May 2008.

Visiting Fellowship, International Agency for Research on Cancer, Lyon, France. July 2008.

Best Doctor, 2008 instituted by Government of Kerala.

Award for Excellence for meritorious public service, 2008: professional excellence and outstanding service to the community, instituted by Sree Sarada Educational Society.

Eminent personality award 2008, by Kerala Cancer Care Society, Kochi.

Workshop on pattern of care and survival of breast, cervix and head and neck cancers, Bangalore. December 2008. Paper: 'Status report on head and neck cancers at Regional Cancer Centre, Thiruvananthapuram'.

Workshop on 'bedside teaching for DNB teachers', organized by National Board of Examinations, New Delhi, at Southern Railway Hospital, Chennai. October 2008.

RCC Directors' meeting, Thiruvananthapuram. 30 September 2008.

Dr. Paul Sebastian, Dr. Jem Prabhakar, Dr. Madhu Muralee, Dr. Arun Peter Mathew

7th Annual Evidence Based Management of cancers in India, Tata

Memorial Hospital, Mumbai. 27 February-1 March 2009.

Dr. Paul Sebastian: Panelist: Discussion on 'complications of breast cancer surgery'. Talk on: 'Complications of surgery in previously irradiated tissue'.

Dr. Paul Sebastian, Dr. Jem Prabhakar, Dr. Bipin T. Varghese, Dr. Elizebath Mathew Iype

International Federation of Head and Neck Oncologic Societies (IFHNOS) global CME on current concepts in head and neck surgery and oncology, Mumbai. 19-22 October 2008.

Dr. Paul Sebastian : Panelist: Discussion on 'metastatic neck nodes from unknown primary'.

Dr. Bipin T. Varghese: Chairman : Panel discussion on 'post laryngectomy voice rehabilitation'.

Dr. Elizebath Mathew Iype: Chaired session on 'The use of harmonic scalpel in Head and Neck surgery'.

Dr. Paul Sebastian, Dr. Bipin T. Varghese

8th National conference of Foundation for Head and Neck Oncologists, Bhubaneswar, Orissa. 4-7 December 2008.

Dr. Paul Sebastian: Talk: 'Role of salvage surgery in the management of laryngopharyngeal cancers in the era of chemo-radiation'.

Dr. Bipin T. Varghese: Panel discussion: 'Head and neck reconstruction'.

Dr. Paul Sebastian, Dr. Chandramohan K., Dr. Madhu Muralee, Dr. Arun Peter Mathew

Annual conference of the Indian Association of Surgical Oncology (IASO) in association with British Association of Surgical Oncology (BASO), Hyderabad. 19-21 September 2008.

Dr. Arun Peter Mathew: Paper: 'Pelvic exenteration for locally advanced gynaecological malignancy: a 5 year institutional review'.

Dr. Paul Sebastian, Dr. Elizabeth Mathew Iype

IRX Investigators meeting, Singapore. November 2008.

Dr. Paul Sebastian, Dr. Madhu Muralee

Training in microvascular surgery, Ethicon Institute of Surgical Education, Chennai. March 2009.

Dr. Jem Prabhakar

Invited Faculty, Indian Breast Cancer Initiative, Artemis Health Institute, New Delhi. April 2008

Dr. Jem Prabhakar, Dr. Paul Augustine

Conference on the role of Aromatase inhibitors as adjuvant therapy in receptor positive postmenopausal breast cancer patients, organized by AstraZeneca, Bangalore. July 2008.

Dr. Shaji Thomas

Investigators' meet and 2nd combined Asian Cancer Centre network meeting, Tata Memorial Hospital, Mumbai. 10 -11 May 2008. Trial discussion: 'Nimotuzumab in post-operative adjuvant treatment for head neck cancers'.

Dr. Shaji Thomas, Dr. Bipin T. Varghese, Dr. Paul Augustine, Dr. Chandramohan K., Dr. Elizabeth Mathew Iype, Dr. Balagopal P.G., Dr. Kurian Cherian, Dr. Madhu Muralee, Dr. Arun Peter Mathew

'LARYNXCON-2008': 3rd International CME and workshop on 'Voice preservation and rehabilitation in laryngectomy', Regional Cancer Centre, Thiruvananthapuram. 16-17 August 2008.

Dr. Bipin T. Varghese

21st Kerala Science Congress, Kollam. 29-31 January 2009.

Head and neck oncology CME, Malabar Institute for Medical Sciences, Kozhikode. Talk : 'Current management of head and neck cancers'.

Dr. Bipin T. Varghese, Dr. Madhu Muralee

Annual conference of Association of Surgeons of India (Kerala Chapter). 6 September 2008.

Dr. Bipin T. Varghese: Moderator: Discussion on: 'Management of neck node metastasis'.

Dr. Madhu Muralee: Best paper award: 'Oncoplasty: expanding the scope in breast conservation surgery'. Best poster: 'Synchronous carcinomas: RCC experience'.

Dr. Chandramohan K.

Sarcoma Fellowship of IACA (Indo-American Cancer Association), University of California, John Wayne Cancer Institute, and University of

South California, Los Angeles, California, USA. 4 June - 10 July 2008.
44th Annual meeting of the American Society of Clinical Oncology, Chicago, USA. 29 May – 3 June 2008.

Advanced laparoscopy workshop, Ethicon Institute of Surgical Education, Chennai. 8-9 August 2008.

International Laparoscopic Oncology Workshop (ILOW), Hyderabad. 30 -31 August 2008.

Annual meet of AKMGA (All Kerala Medical Graduate Association), Newport Beach, California. 28- 29 June 2008. Talk: 'Recent advantages in oncology'.

National conference of the Association of Surgeons of India, Ludhiana. 24-30 December 2008. Best paper award: 'Thoracoscopic versus open surgery for carcinoma oesophagus'.

Dr. Elizebath Mathew Iype

One week training in Head and Neck Surgery, Tata Memorial hospital, Mumbai. May 2008.

Dr. Balagopal P.G.

Award for best science literature in in-depth science, 2008 by Government of Kerala.

Neurological Society of India (NSI) mid zone conference, Kochi. 12 -13 April 2008.

Neurological Society of India (NSI) South Zone conference, Kollam. 20-21 September, 2008.

15th Indian Co-operative Oncology Network (ICON) conference, Patna, Bihar. 21-23 March 2009.

Dr. Rema P.

Workshop on research methodology in health sciences. 7- 9 August 2008

Dr. Rema P., Dr. Suchetha S.

International symposium on Human Papillomavirus-associated cancers: translating research into cancer prevention and medicine, Rajiv Gandhi Centre for Biotechnology, Thiruvananthapuram. 1-3 November 2008.

17th Annual conference & workshop of the Association of Gynecologic Oncologists of India, Hyderabad. 28-30 November 2008.

Dr. Rema: Paper: 'Recurrent cervical cancers: a surgical challenge'.

9th Annual congress of Trivandrum OBGYN club, KJK Hospital, Trivandrum. 22-24 August 2008. Dr. Rema: Talk: 'Surgery for ovarian cancer'.

Dr. Suchetha S.: Paper: 'Endometriosis with massive haemorrhagic ascites: a case report and review of literature'.

Dr. Madhu Muralee

Best paper award: Annual peripheral meet of Association of Surgeons of India (Kerala Chapter), Palakkad. February 2009.

Best paper: 'Adequacy of information provided to patients undergoing head & neck surgery in Regional Cancer Centre, Thiruvananthapuram'.

Dr. Arun Peter Mathew

First annual CME on bone tumours (Insight 2009), Kerala Orthopaedic Association and Department of Orthopaedics, SUT Hospital, Thiruvananthapuram. 22 February 2009.

MEDICAL ONCOLOGY

Dr. Geetha N.	Additional Professor & Head
Dr. Sreejith G. Nair	Additional Professor
Dr. Mirsa Hussain	Associate Professor
Dr. Prakash N.P.	Associate Professor (on leave from 02.03.09)
Dr. Santhosh Thyagu	Assistant Professor (on leave from 23.06.08)
Dr. Lali V.S.	Resident Medical Officer

Clinical activities

The Division is responsible for the diagnosis and management of haematological and lymphoreticular malignancies, sarcomas and other solid tumors where intensive chemotherapy is indicated. The department conducts outpatient clinics 6 days a week. About 1600 new cases were treated during the reporting period, where as the outpatient attendance was about 26500.

Autologous bone marrow transplantation following high dose chemotherapy for multiple myeloma was performed in 10 patients. Special procedures like bone marrow aspiration & biopsy, liver biopsy, intrathecal chemotherapy and central venous catheter insertions were performed daily. About 2000 patients were admitted for the administration of high profile chemotherapy and management of emergencies and complications. Critically ill patients were closely monitored and managed in the ICU. About 200 new patients with Chronic Myeloid Leukaemia were enrolled in the Glivec International Patient Assistance Programme (GIPAP) programme and were given imatinib free of cost.

Academic activities

Postgraduate students in General Medicine and Radiation Oncology were given training in Medical Oncology. DNB candidates in Medical Oncology were given training in delivering high dose chemotherapy and bone marrow transplantation in addition to the regular training programmes. Staff nurses were also given training in patient care.

Ongoing Research projects

1. PIX301 : A novel aza-anthracenedione versus other chemotherapeutic agents for third line single agent treatment of patients with relapsed aggressive non-Hodgkin's lymphoma: A randomized, controlled phase III comparative trial. (Funded by: Quintiles Research, India)
Principal Investigator: Dr. Geetha N.
2. Efficacy and safety of XM01 compared to placebo in patients with solid tumours or non-myeloid haematological tumours receiving no platinum chemotherapy: A multinational, multicentre, randomized, placebo-controlled, double blind, parallel-group phase III study. (Funded by: Lambda Therapeutics Research)
Principal Investigator: Dr. Geetha N.
3. Efficacy and safety of XM01 compared to placebo in anaemic patients with low grade non-Hodgkin's lymphoma, chronic lymphocytic leukaemia or multiple myeloma receiving anticancer therapy: A multinational, multicentre, randomised, placebo controlled, double blind parallel-group phase III study.
Principal Investigator: Dr. Geetha N.
4. CA180056: BMS clinical Study: An open-label, randomized, multicentre phase III trial of Dasatinib (SPRYCEL) Vs. standard dose Imatinib (400 mg) in the treatment of subjects with newly diagnosed chronic phase Philadelphia chromosome positive Chronic Myeloid Leukemia. (Funded by: Bristol-Myer's Squibb India)
Principal Investigator: Dr. Geetha N.
5. PRELUDE: A phase III clinical study to investigate the prevention of relapse in lymphoma using daily Enzastaurin H6Q-MC-JCBJ(c). (Funded by: Eli Lilly)
Principal Investigator: Dr. Geetha N.
6. Molecular remission with arsenic trioxide in Acute Promyelocytic Leukaemia: Indian APLM Study Group (IASG). (Funded by: Department of Biotechnology)
Principal Investigator: Dr. Geetha N.
7. PROTOCOL:AP23573-07-302. A pivotal trial to determine the efficacy and safety of AP23573 when administered as maintenance therapy to patients with metastatic soft-tissue or bone sarcomas.
Principal Investigator: Dr. Sreejith G. Nair

8. A randomised, open-label multicentre phase III study of the combination of Rituximab, Cyclophosphamide, Doxorubicin, VELCADE and Prednisone (VcR-CAP) or Rituximab, Cyclophosphamide, Doxorubicin, Vincristine and Prednisone (R-CHOP) in patients with newly diagnosed mantle cell lymphoma who are not eligible for a bone marrow transplant.
Principal Investigator: Dr. Sreejith G. Nair
9. A randomized controlled open label comparative multicentric trial to compare the safety and efficacy of indigenous recombinant human granulocyte colony stimulating factor (rhG-CSF) with neupogen in patients on myelosuppressive therapy for non-myeloid malignancies.
Principal Investigator: Dr. Sreejith G. Nair
10. WORLD observational registry collecting longitudinal data on the management of Chronic Myelogenous Leukemia patients (The WORLD CML registry) in routine practice.
Principal Investigator: Dr. Prakash N.P.
11. LYM-3001: A randomized, open label, multicentre study of VELCADE with rituximab alone in subjects with relapsed or refractory, rituximab naive or sensitive follicular B-cell non-Hodgkin's lymphoma. (Funded by: Johnson & Johnson)
Principal Investigator: Dr. Sreejith G. Nair
12. A phase II open label, randomized, multicentre trial of GW786034 (Pazopanib) in combination with GW572016 (Lepatinib) compared to Lepatinib alone as first line therapy in subjects with advanced or metastatic breast cancer with ErbB2 fluorescence in situ hybridization (FISH) positive tumours. (Funded by: Glaxo Smithkine)
Principal Investigator: Dr. Sreejith G. Nair
13. Randomized, controlled, open label, multicentre comparison of thalidomide versus high dose dexamethazone for the treatment of relapsed, refractory multiple myeloma. (Funded by: Reliance Clinical Research services)
Principal Investigator: Dr. Sreejith G. Nair
14. Role of NFκB activation and target-gene expression in malignant lymphomas. Principal Investigator: Dr. Geetha N.
15. Molecular prognostic factors in diffuse large B-cell lymphomas. Principal Investigator: Dr. Geetha N.
16. Clinical and prognostic significance of molecular factors in adult

Acute Myeloid Leukaemia.

Principal Investigator: Dr. Geetha N.

17. Clinical presentation and outcome of patients with Philadelphia chromosome positive Acute Lymphoblastic Leukaemia.

Principal Investigator: Dr. Lali V.S.

18. Pattern of surface antigen expression in adult Acute Leukaemia and their clinical significance.

Principal Investigator: Dr. Prakash N.P.

19. Transfusional iron overload in patients with acute leukaemia.

Principal Investigator: Dr. Prakash N.P.

Conferences/Training programmes attended, Paper presented

Dr. Geetha N.

American Society of Clinical Oncology annual meeting, Chicago, USA. 29 May - 3 June 2008.

Training in allogenic bone marrow transplantation at Fred Hutchinson Cancer Centre, Seattle, USA. 1 March – 31 May 2008.

Dr. Mirsa Hussain

31st Annual San Antonio breast cancer symposium, Texas, USA. 10-14 December 2008.

Dr. Prakash N.P.

European Society of Medical Oncology conference, Lugano, Switzerland (ECLU 2008). 3-6 July 2008. Paper: 'Clinical profile of non-Hodgkin's lymphoma: experience from a single centre in India'.

Training in allogenic bone marrow transplantation at Fred Hutchinson Cancer Centre, Seattle, USA. 1 March – 31 August 2009.

PAEDIATRIC ONCOLOGY

Dr. Kusumakumary P.	Additional Professor & Head
Dr. Priya Kumari T.	Additional Professor (from 01.07.08)
Dr. Anu Ninan	Lecturer

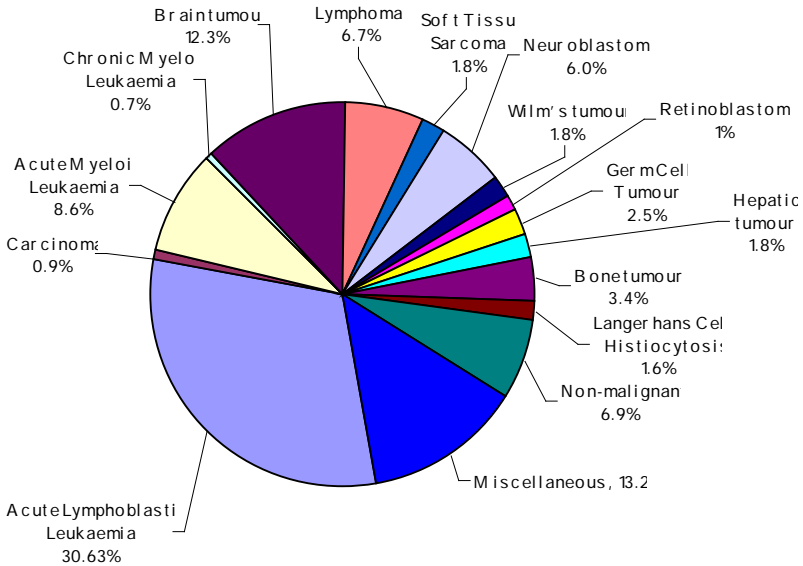
Clinical activities

Paediatric Oncology Division continues to work for the primary care of paediatric patients up to the age of 14 years registered in RCC. The Outpatient service functions six days a week. A number of 568 new patients were registered and the total outpatient visits were 16380, during the report period. The distribution of patients registered during the reporting year is given in the table below.

Table 4: Distribution of patients

Paediatric Cases	No	Percentage
Acute Lymphoblastic Leukaemia	174	30.10
Acute Myeloid Leukaemia	49	8.4
Chronic Myeloid Leukaemia	4	0.6
Brain tumour	70	12.1
Lymphoma	38	6.57
Soft Tissue Sarcoma	10	1.73
Neuroblastoma	34	5.88
Wilm's tumour	10	1.73
Bone tumour	21	3.76
Retinoblastoma	6	1.08
Germ Cell Tumour	14	2.42
Hepatic tumour	10	1.73
Langerhans Cell Histiocytosis	9	1.55
Carcinoma	5	0.86
Non-malignant	39	6.74
Miscellaneous	75	5.19
Total number of new patients	568	100.00
Total number of outpatient visits	16380	

Fig. 1: Distribution of patients



Acute Lymphoblastic Leukaemias (30.1%) constituted the most common malignancy reported, followed by brain tumours, Acute Myeloid Leukaemia and lymphomas. All new patients underwent detailed diagnostic workup and were given appropriate treatment.

Paediatric tumour board with a multidisciplinary team consisting of Paediatric Oncologists, Radiation Oncologists, Paediatric Surgeons and Pathologists was conducted every Monday at 2 pm and major management decisions were taken by this team.

Conducted daily counselling sessions as well as detailed counselling sessions on Saturdays for parents.

Academic activities

This division actively participated in the teaching and training of post-graduates of Radiotherapy and Paediatrics, undergraduate medical students, B.Sc. and M.Sc. nursing students.

The Indian Paediatric Oncology Initiative (IPOI)

The IPOI is a project supported by the Jiv Daya Foundation, USA, aimed at improving the quality of paediatric oncology patient care. The project implemented in May 2008, has helped to improve the following areas of patient care delivery:

- Arrangement for blood collection in the Division itself.
- Triage and quick sick patient evaluation at the O.P.
- Procedural sedation with i.v. Midazolam.
- Detailed discharge counselling to parents of acute leukaemia patients.
- Patient tracking and maintenance of follow-up.
- Neuro-oncology Programme: It was initiated as a step towards comprehensive care of brain tumour patients, incorporating the active participation of Neurosurgeons, Radiation Oncologists, Pathologists and Diagnostic Radiologists. Meetings were conducted once in 2 weeks and brain tumour cases of interest were discussed.

Cultural activities

The Division organised various cultural activities and programmes with the participation of children and parents during festivals like Onam, X'mas, Deepavali, etc. In a programme named 'Art Therapy', children were actively participated in drawing competitions and craft work and mothers were trained in making paper bags. New clothes, sweets and toys were distributed on various occasions.

Ongoing Research Project

Molecular genetics of paediatric Acute Lymphoblastic Leukaemia in Kerala. (Funded by: Kerala State Council for Science, Technology and Environment, Govt. of Kerala)
Principal Investigator: Dr. Priya kumari T.

Conferences/Meetings attended, Papers presented, Talks delivered

Dr. Kusumakumary P.

CME programme, Kozhikode. June 2008. Paper: 'Life threatening complications of acute leukaemias.'

Indian Academy of Paediatrics district meeting , Kollam. 4 September

2008. Paper: 'Role of paediatricians in shared care in paediatric malignancies'.

'Oncoped 2009': Continuing Medical Education, Kottayam. 15 March 2009. Talk: 'Clinical manifestations of acute leukaemia'.

Annual meeting of the International Network for Cancer Treatment and Research, Antalya, Turkey. 22-24 March 2009.

Indian Paediatric Oncology Initiative (IPOI) annual meeting, New Delhi. 24-25 January 2009. Paper: 'Building Neuro-oncology programme'; 'Impact of Indian Paediatric Oncology Initiative programme'.

Dr. Kusumakumary P., Dr. Priya Kumari T.

First annual CME on bone tumours (Insight 2009), Kerala Orthopaedic Association and Department of Orthopaedics, SUT Hospital, Thiruvananthapuram. 22 February 2009

Dr. Kusumakumary P.: Talk: 'Malignant bone tumours in children'.

Dr. Priya Kumari T.

PHOCON 2008: Paediatric Haematology Oncology Conference 2008, New Delhi. 6-9 November 2008.

Nephrokid 2008: First annual meeting of the Paediatric Nephrology in association with the Paediatric Nephrology chapter of the Indian Association of Paediatrics (Kerala Chapter), Thiruvananthapuram. 21 September 2008.

Dr. Anu Ninan

40th Congress of the International Society of Pediatric Oncology (SIOP), Berlin, Germany. 2-6 October 2008.

Poster: Anu Ninan, Kusumakumary P., Priyakumary T., Manjusha Nair, Rekha A. Nair. 'Survival outcome of Hodgkin's lymphoma in children according to histological subtypes'.



RCC Director presenting new cloths to children as part of Onam festival

PATHOLOGY

Dr. Elizabeth K. Abraham	Professor & Head
Dr. Jayasree K.	Additional Professor
Dr. Rekha A. Nair	Additional Professor
Dr. Anitha Mathews	Additional Professor
Dr. Thara Somanathan	Associate Professor
Dr. Nileena Nayak	Associate Professor
Dr. Preethi T.R.	Assistant Professor
Dr. Sindhu Nair P.	Resident Medical Officer
Dr. Raveendran Pillai K.	Associate Professor of Cancer research in Cytopathology
Dr. Sujathan K.	Assistant Professor of Cytotechnology

1. Achievements

- Services of FISH (Fluorescent In Situ Hybridization) testing for detection of HER-2/neu amplification in Breast cancer, and bcr/abl in Chronic Myeloid Leukemia started on a regular basis.
- Introduced HPV (Human Papillomavirus) detection by PCR method, as routine molecular diagnostic test in cervical scrape smears.
- Standardized the newly installed Flow Cytometer.

2. Academic Activities

The Division conducted many academic sessions on various topics with National and International faculties. The key areas addressed were:

1. 'Lung and skin tumours' by Dr. Mariamma Joseph, Professor of Pathology, University of London, Ontario, Canada. November 2008.
2. 'Muscle biopsy' by Dr.V.V. Radhakrishnan, Professor of Pathology, Sree Chitra Tirunal Institute of Medical Sciences and Technology, Thiruvananthapuram.
3. 'Cervical cytology' by Dr. N. Sreedevi Amma, Retd. Addl. Director and Professor of Pathology, RCC, Thiruvananthapuram.
4. 'Histopathology techniques' by Dr. Lakshminarayanan, Nicholas Piramel Laboratories, Mumbai.

Regular courses conducted

Course	Duration
DNB Pathology	3 years
Postdoctoral certificate course in Oncopathology	1 year
Cytotechnologists training	1 year
Cytotechnicians Training	6 months
Advanced training in Histotechnology for Histotechnicians	9 months

Training programmes

Regular postings were given to DNB students of Radiotherapy, Medical Oncology and Surgical Oncology from RCC and MD and DNB students from Medical College, Thiruvananthapuram.

Regular postings were given to MD (Pathology) students of Kottayam, Calicut, Allappuzha and Thiruvananthapuram Medical Colleges.

Three months project training for 2 B.Tech. (Biotechnology) and 2 M.Sc. (Biotechnology) students.

One month practical orientation for 138 B.Sc. (M.L.T.) students of Mahatma Gandhi University, Kottayam.

Hands on training in Histotechnology and Immunohistochemistry for laboratory technicians and pathologists from various institutions.

A number of 3 Ph.D. students have been supervised by the faculty of this Division.

3. Diagnostic Services

During the report period, a total of 38,543 pathology reports were generated. These included 13,116 Surgical Pathology, 19,117 Cytopathology (FNAC & Exfoliative Cytology- Gynaec & non-gynaec), and 6310 Haematopathology reports. These reports included Immunohistochemical tests (9524), Frozen section (385), PCR for HPV (103) and FISH for HER 2 amplification & bcr-abl (15) performed as special/advanced tests. (Table 5 & 6)

Table 5: Work load at a glance

Surgical Pathology	Cyto-pathology	Haemato-pathology	Total
13,116	19,117	6,310	38,543

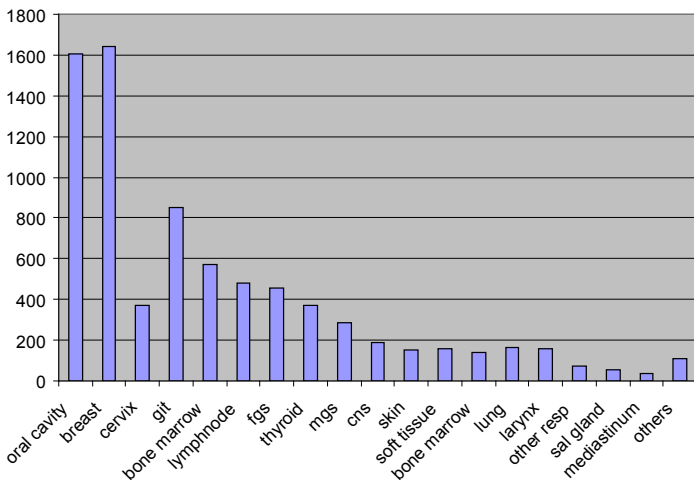
Table 6: Special/Advanced tests done

Immunohistochemical staining (Surgical Path+Cytopath+Haematopath)	Frozen section	PCR for HPV	FISH-Her2/neu&bcr-abl
9524	385	103	15

A. Surgical Pathology

Out of the 13,116 surgical pathology specimens processed during the period under report, 8581 cases were surgical specimens from RCC and 4535 were review cases referred from other hospitals. Among this, malignancy was reported in 7868 cases. The predominant sites of malignancy were oral cavity, breast, GIT and lymph nodes (Fig. 2). These included 698 specimens referred from other institutions/hospitals for second opinion.

Fig. 2: Surgical Pathology: Malignant cases (Sitewise)



a. Immunohistochemistry

A total of 9524 immunohistochemical tests were performed, of which 3875 tests were for assessing Estrogen & Progesterone receptor status and Her2/neu protein detection in breast cancer patients. Immunophenotyping was resorted for almost all Lymphoma cases and proper classification of tumours.

b. Frozen section reporting

Routine reporting of frozen sections were done in the operation theatre setting. A total number of 385 cases were reported, based on which major surgical decisions were taken.

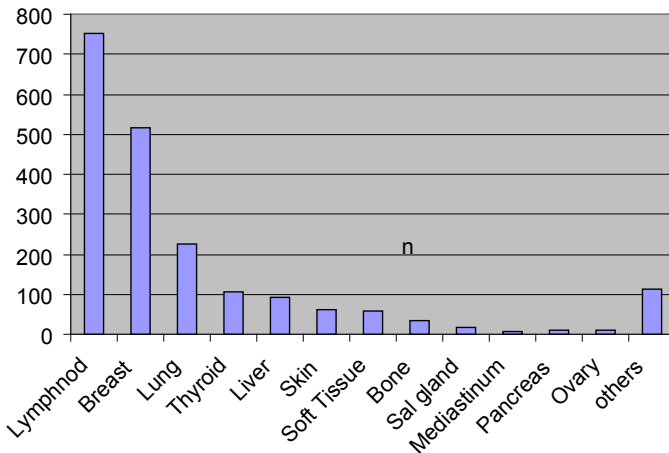
B. Cytopathology

The main samples examined for cytological abnormalities include, Fine Needle Aspirations, cervical smears, body fluids and sputum.

a. Fine Needle Aspiration Cytology (FNAC)

Out of the 5441 Fine Needle Aspirations performed, lymph node (1353), breast (1195) and thyroid (1315) constituted the major sites. Out of this 2004 were malignant lesions. Among the malignancies, majority were from lymph nodes (751), of which 578 constituted metastatic tumours. Site-wise split up of the 2004 cases of malignancies are depicted in Fig. 3

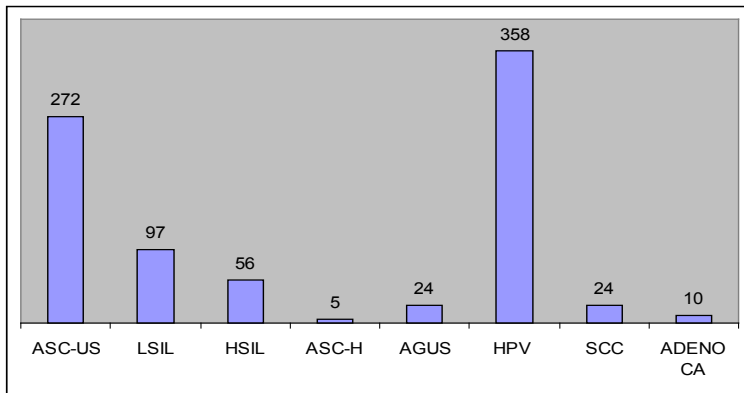
Fig. 3: FNAC : Malignant cases (Sitewise)



b. Cervical Smear

10,240 cervical smears were examined in the reporting period, of which 8871 cases were from different projects. While 846 were positive for intraepithelial lesions / malignancy, 9384 were negative. (Fig. 4) Second opinion on cervical smears were also given to smears referred from Peripheral centres (E CDCs).

Fig. 4: Cervical smear: Malignant Cases

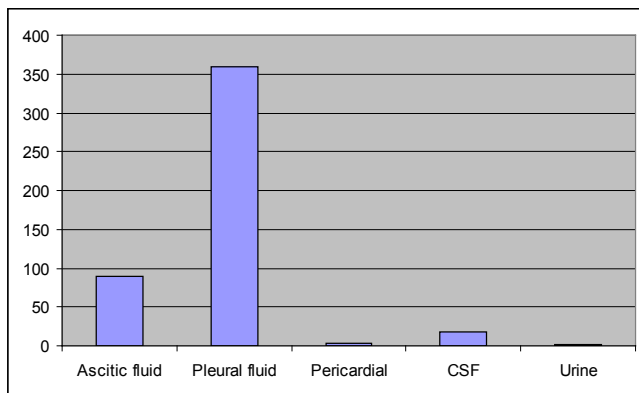


ASCUS-Atypical Squamous Cells of Undetermined Significance
LSIL- Low grade Squamous Intra epithelial Lesion
HSIL- High grade Squamous Intra epithelial Lesion

c. Fluid Cytology

A total of 2684 effusions and other body fluid samples were processed during the reporting period, which included 981 samples of cerebrospinal fluid (CSF), 538 ascitic fluid, 1117 pleural fluid, 30 urine and 18 pericardial fluid. Among these, malignancies were reported in 472 samples. (Fig.5)

Fig. 5: Fluid cytology : Malignant Cases



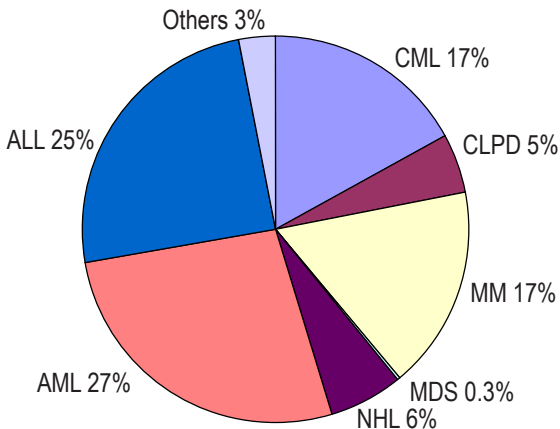
d. Sputum Cytology

Sputum samples from 1317 patients (3 to 5 samples per patient) were studied. Malignancies were reported in 181 samples, which include 60 cases of Non-small cell carcinomas (Adenocarcinoma-25, Squamous cell carcinoma 10, Unclassified-25) and 9 Small cell carcinomas.

C. Haematopathology

6310 haematopathology specimens were studied during the period under report. These included bone marrow samples (3210), peripheral blood smears (2910) and haematology slide reviews (190). Out of the 868 cases of malignancies reported, 161 were cases of precursor B-Acute lymphoblastic leukemia (B-ALL), 56 were precursor T-Acute lymphoblastic leukaemia (T-ALL), 231 were acute myeloid leukemia (AML), 143 were chronic myeloid leukemia (CML), 42 were chronic lymphoproliferative disorders (CLPD), 50 were non-Hodgkin's lymphoma (NHL), and 151 were of multiple myeloma (MM) cases (Fig. 6). In addition to special stains, immunophenotyping was done in 124 cases of acute leukaemias.

Fig. 6: Haematopathology : Malignant Cases



(Specimens received :- Bone marrow – 3210, Peripheral smears – 2910; Slide reviews – 190)

D. Molecular Pathology

HPV DNA test in cervical cytology were done for women referred from the Division of Community Oncology, RCC as well as women with cytological abnormalities referred from the Thiruvananthapuram Corporation Cancer Control Programme. Out of the 103 samples processed during the period, 44 were reported positive for oncogenic HPV.

E. Fluorescent In Situ Hybridization (FISH) Techniques

12 cases of HER 2-neu amplification and 3 cases of bcr-abl gene product detection were done using FISH.

4. Ongoing Research Projects

1. FIST grant for development of infrastructure (Funded by: Department of Science and Technology, Govt. of India).
Principal investigator: Dr. Rekha A. Nair
2. Micro RNA profiling in leukaemias and lymphomas (Funded by: Department of Biotechnology, Govt. of India).
Principal investigator: Dr. Rekha A. Nair
3. Micro RNA profiling of breast and colon cancers : Collaborative study with Centre for Cellular and Molecular Biology (CCMB) (Funded by: Department of Biotechnology, Govt. of India).
Co-investigators : Dr. Jayasree K. & Dr. Rekha A. Nair
4. Evaluation of oral cancer screening in a randomized controlled trial in Trivandrum district, India in collaboration with WHO-IARC, Lyon, France.
Co-principal Investigator: Dr. Thara Somanathan
Co-investigator: Dr. Elizabeth K. Abraham
5. Evaluation of early clinical detection of breast cancer in Trivandrum district, India, in collaboration with WHO-IARC, Lyon, France.
Co-principal Investigator: Dr. Thara Somanathan
Co-investigator: Dr. Elizabeth K. Abraham
6. Adjuvant Tamoxifen in breast cancer Long Against Shorter (ATLAS). (Funded by: Clinical Services Unit, Oxford, UK.)
Co-investigator: Dr. Elizabeth K. Abraham
7. Study of Galectin-3, Galectin-1, T-antigen & Bcl-2 expression in breast cancer. (Funded by: Kerala State Council for Science, Technology & Environment, Govt. of Kerala).
Principal investigator: Dr. K. Sujathan

- Co-investigators: Dr. Elizabeth K. Abraham & Dr. Thara Somanathan
8. Antimetastatic protein nm23 and adhesion molecule CD44 in breast cancer. (Funded by: Kerala State Council for Science, Technology & Environment, Govt. of Kerala).
Co-investigator: Dr. Elizabeth K. Abraham
 9. Biological prognostic markers in oral squamous cell carcinoma. (Funded by: Indian Council of Medical Research, Govt. of India).
Co-investigator: Dr. Elizabeth K. Abraham
 10. Patterns of care and survival studies on Head and Neck cancer (Funded by: National Cancer Registry Programme, Indian Council of Medical Research).
Co-investigator: Dr. K. Jayasree
 11. Molecular markers as indicators of clinical profile, tumour characteristics and treatment outcome in squamous cell carcinoma of the larynx.
Co-investigator: Dr. K. Jayasree
 12. Assessment of the role of Tyrosine kinase EphB4 in the wnt pathway by RNA interference and its significance in colon cancer: towards novel cancer therapeutics-Collaborative study with Centre for Cellular and Molecular Biology (CCMB), Hyderabad.
Co-investigator: Dr. K. Jayasree
 13. Randomised Phase II biomarker neoadjuvant study in women with early stage breast cancer not overexpressing HER-2 and estrogen receptors
Co-investigator: Dr. K. Jayasree
 14. Comparative evaluation of visual inspection with acetic acid, visual inspection with Lugol's iodine, HPV testing and cytology in the early detection of a cervical neoplasia in collaboration with the WHO-IARC, Lyon, France.
Co- principal investigator: Dr. Thara Somanathan
 15. Medical image processing for automated Pap smear screening in collaboration with C-DAC.
Co-investigator: Dr. Thara Somanathan
 16. Expression of estrogen receptor & co-factors in breast carcinoma. (Funded by: Indian Council of Medical Research, Govt. of India)
Co-investigator: Dr. Thara Somanathan
 17. Role of stat3 as downstream mediator of steroid and epidermal

- growth factor pathways in breast cancer. (Funded by: Department of Biotechnology, Govt . of India)
Co-investigator: Dr. Thara Somanathan
18. Validation of p16ink4a expression as a predictor of high risk HPV infection in the uterine cervix. (Funded by: Kerala State Council for Science, Technology & Environment, Govt. of Kerala).
Co-investigator: Dr. Thara Somanathan
 19. Phase II double blind placebo controlled randomized study of Sulindac, a pan cox inhibitor in oral premalignant lesions.
Co-investigator: Dr. Thara Somanathan
 20. Significance of Psammoma bodies in Fine Needle Aspiration Cytology of breast: A clinicopathological study – Five year retrospective analysis.
Principal Investigator: Dr. K. Raveendran Pillai
 21. District Cancer Control Programme, Tiruvananthapuram. (Funded by: National Cancer Control Programme, Govt.of India).
Co-investigator: Dr. K. Sujathan
 22. Thiruvananthapuram Corporation Cancer Control Programme. (Funded by: Thiruvananthapuram Corporation)
Co-investigator: Dr. K. Sujathan

5. Awards/Merits received, Conferences/ Seminars/Workshops attended, Papers presented, Talks delivered

Dr. Elizabeth K. Abraham

Award for 'Professional Excellence' instituted by Sree Sarada Education Society.

External Faculty, National Board of Examinations in Pathology, Medical College, Trivandrum.

Reviewer, 'Indian Journal of Medical Research'.

Ph.D. guide, University of Kerala.

13th Annual National conference of Breast Cancer Foundation (India), Meenakshi Mission Hospital & Research Centre, Madurai. 7 March 2009. Talk: 'Reporting guidelines in breast cancer pathology'.

Dr. Elizabeth K. Abraham, Dr. Jayasree K., Dr. Rekha A. Nair, Dr. Anitha Mathews, Dr. Nileena Nayak, Dr. Preethi T.R., Dr. Sindu Nair P.

63rd Indian Association of Pathology and Microbiology (Kerala Chapter) meeting & 6th National CME in Pathology, Amrita Institute of Medical

Sciences, Kochi. 14 – 16 February 2009.

Papers:

Sanjay Gandhi, Jayasree K., Anitha Mathews, Thara Somanathan, Nileena Nayak, Elizabeth K. Abraham. 'Sialoblastoma: a rare congenital salivary gland neoplasm'.

Jahnvi Gandhi, Jayasree K., Anitha Mathews, Thara Somanathan, Elizabeth K. Abraham. 'Malignant phyllodes tumor with heterologous elements: a retrospective analysis'.

Jahnvi Gandhi, Nileena Nayak, Rekha A. Nair, Sindhu Nair, Preethi T. R., Elizabeth K. Abraham. 'Diagnosis of Non-Hodgkin lymphoma on effusion cytology'.

Talks:

Dr. Rekha A. Nair. 'Diffuse large B-cell lymphomas: current perspectives'.

Dr. Nileena Nayak. 'Effusion cytology: interpretation of immunohistochemistry on cell block'.

Dr. Elizabeth K. Abraham, Dr. Thara Somanathan

RCC Directors' Meeting, Trivandrum. 30 September 2008.

Dr. Jayasree K.

Talk: 'Approach to diagnosis of bone tumours', Amrita Institute of Medical Sciences, Kochi. April 2008.

Guest Faculty, First annual CME on bone tumours (Insight 2009), Kerala Orthopaedic Association and Department of Orthopaedics, SUT Hospital, Thiruvananthapuram. 22 February 2009.

Dr. Jayasree K., Dr. Anitha Mathews, Dr. Preethi T.R., Dr. Sindu Nair P.

Indian Association of Pathology and Microbiology (Kerala Chapter) meeting, Dr. Somervell Memorial CSI Medical College, Karakonam. August 2008.

Papers:

Sanjay Gandhi, Anitha Mathews, Jayasree K., Elizabeth K. Abraham. 'Mucinous adenocarcinoma metastasis to papillary carcinoma of the thyroid'.

Jahnvi Gandhi, Anitha Mathews, Thara Somanathan, Jayasree K., Elizabeth K. Abraham. 'Primary liposarcoma of the stomach: a case report'.

Dr. Rekha A. Nair

ICMR Task force member on 'immunophenotyping of haematolymphoid neoplasms'.

Ph.D guide, Faculty of Medicine, University of Kerala.

Established Flow Cytometry facility in the Division.

Basic flow cytometry training course conducted by the Cytometry Society of India at the National Centre for Biological Sciences, Bangalore. 1- 4 May 2008.

Special course on clinical applications of flow cytometry, BD Biosciences Training Centre, Gurgaon. 23- 25 June 2008.

14th Meeting of the European Association for Haematopathology, Bordeaux, France. 20- 25 September 2008. Talk: 'Peripheral T-cell lymphomas: the Indian scenario' at the International Lymphoma Epidemiology Biology Study group meeting, Bordeaux, France. 21 September 2008.

Paper: Rekha A.Nair, Sindu Nair P., Nileena Nayak, Elizabeth K. Abraham. 'A comparative study of bone marrow biopsy infiltration patterns in angioimmunoblastic T- cell lymphoma and classical Hodgkin's lymphoma'.

International stem cell meeting at IITM, Chennai. November 2008.

Dr. Anitha Mathews

State chapter meeting of the Association of Oral Pathologists, October 2008. Talk: 'Salivary gland tumours: an overview'.

Dr. Thara Somanathan

UICC World Cancer Congress 2008, Geneva , Switzerland. 27-31 August 2008. Paper: 'Accuracy of Pap smear : results from a large multicentric cross sectional study in India'.

Dr. Nileena Nayak

Annual meeting of Medical Oncology Group of Kerala (MOGK), Calicut. November 2008. Talks: 'Classification of Non-Hodgkin's Lymphoma & approach to diagnosis by histopathology & immunohistochemistry'; 'Diagnostic dilemmas in lymphoma'.

Dr. Preethi T.R.

38th Annual conference of Indian Academy of Cytologists, pre conference CME & workshop, BJ Medical College, Ahmedbad. 13- 16 November

2008.

Papers:

Nileena Nayak, Jahnvi Gandhi, Rekha A. Nair, Sindhu Nair P., Preethi T.R., Elizabeth K. Abraham. 'Cytological and immunological evaluation of malignant lymphoma in serous effusions'.

Nileena Nayak, Sanjay Gandhi, Thara Somanathan, Elizabeth K. Abraham. 'Giant cell tumour of mandible masquerading as a parotid tumour'.

Preethi T.R., Nileena Nayak, Jayasree K., Elizabeth K. Abraham. 'Oncocytic carcinoid tumour of kidney: a diagnostic challenge in fine needle aspiration cytology'.

Dr. Raveendran Pillai K., Veena V.S., Jayalal K.S.

International symposium on Human Papillomavirus-associated cancers: translating research into cancer prevention and medicine, Rajiv Gandhi Centre for Biotechnology, Thiruvananthapuram. 1-3 November 2008.

IMAGEOLOGY

Dr. Ramachandran K.	Professor and Head
Dr. Krishnakumar A.S.	Additional Professor
Dr. Venugopal M.	Associate Professor
Dr. Jiji V.	Assistant Professor
Dr. Sumod Mathew Koshy	Assistant Professor

The Division works in unison with Nuclear Medicine and Pathology Divisions of the Centre and provided all necessary diagnostic backing up for the various Divisions of RCC. Non vascular interventions are now increasingly being done. MRI has gained momentum and has been widely used for various diagnostic purposes including breast imaging.

Diagnostic and interventional studies done during the period under report were as follows.

Table 7: Investigations done

Plain X-rays	22502
Special Investigations	
Barium Meal	17
Barium Swallow	154
Mammogram - Single	2045
Mammogram - Double	2552
Ultrasound	10499
Doppler studies	200
Ultrasound guided FNAC	359
CT Scan	12129
CT guided procedures	262
MRI	1820

Academic activities

Academic activities include fulltime training to students in DNB-Radiodiagnosis and other DNB programmes conducted by RCC. Training and short term postings were also given to MD postgraduates from various Medical Colleges. The faculty participated in activities like monthly meetings of Trivandrum Radiology Club, Neuro Oncology Club, Pulmonary Radiology in SUT and RCC, Breast clinic seminars in MRI in Sree Chitra Tirunal Institute of Medical Sciences and Technology, Thiruvananthapuram.

Ongoing Research Projects

1. A randomized single blinded placebo controlled multicentre phase II study of Lapatinib in combination with concurrent radiotherapy and Cisplatin versus Radiotherapy and Cisplatin alone, in subjects with Stage III and IVA, B squamous cell carcinoma of the Head & Neck. (Funded by: Glaxo Smithkline)
Co-investigators: Dr. K. Ramachandran, Dr. M. Venugopal
2. An open label, prospective, multicentric study to evaluate the safety and efficacy of biomab-EGFR (Nimotuzumab) as induction and maintenance therapy in combination with radiotherapy plus Temozolomide in Indian patients with Glioblastoma multiforme. (Funded by: Clinigene, Bangalore)
Co-investigator: Dr. K. Ramachandran
3. A phase II open label, randomized, multicenter trial of GW786034 (Pazopanib) in combination with GW572016 (Lepatinib) compared to Lepatinib alone a first line therapy in subjects with advanced or metastatic breast cancer with ErbB2 Fluorescence in situ Hybridisation (FISH) positive tumours. (Funded by: Glaxo Smithkline)
Co-investigator: Dr. K. Ramachandran
4. An open label randomized Phase II Study of two different dosing regimens of capecitabine in combination with intravenous Docetaxel (Q3W) in patients with locally advanced and /or metastatic breast cancer (Roche study) (Funded by: Quintiles Research (India)
Co-investigator: Dr. K. Ramachandran
5. A randomized, double blind, placebo controlled phase II study of oral recombinant human lactoferrin (rhLF) in combination with Carboplatin and Paclitaxel (C/P) chemotherapy in patients with locally advanced and /or metastatic non-small cell lung cancer

- (NSCLC). (Funded by: Reliance Clinical Research Services, Mumbai)
Co-investigator: Dr. A. S. Krishnakumar
6. A phase III randomized, double blind, multi centre parallel-group study to assess the efficacy of ZD6474 (ZACTIMATM) Vs. Erlotinib (TARVEVA) in patients with locally advanced or Metastatic non small cell lung cancer after failure of at least one prior cytotoxic chemotherapy. (Funded by: Astra Zeneca Pharma India Ltd)
Co-investigator: Dr. A. S. Krishnakumar
 7. A randomized, double blind, placebo controlled phase II study of oral recombinant human lactoferrin (rhLF) monotherapy in patients with locally advanced or metastatic non-small cell lung cancer (NSCLC) who have failed 1 or 2 line chemotherapy. (Reliance Clinical Research Services, Mumbai)
Co-investigator: Dr. A. S. Krishnakumar
 8. A phase 3, Double Blind, placebo-controlled study of maintenance pemetrexed plus best supportive care versus best supportive care immediately following induction treatment for advanced non-small cell Lung Cancer. (Funded by: Eli Lilly (India))
Co-investigator: Dr. A. S. Krishnakumar
 9. H3E-MC-JMHO Study: A randomized phase III trial of Alimta (Pemetrexod) and Carboplatin in extensive stage small cell Lung Cancer. (Funded by: Eli Lilly (India))
Co-investigators: Dr. A. S. Krishnakumar, Dr. Sumod Mathew Koshy
 10. A phase II, Open-label, randomized, multicenter trial Pazopanib in combination with Lapatinib compared to pazopanib monotherapy and lapatinib monotherapy in subjects with FIGO stage IVB metastatic or recurrent cervical cancer with zero or one prior chemotherapy regimen for advanced/recurrent disease. (Funded by: Glaxo Smithkline)
Co-investigator: Dr. A. S. Krishnakumar
 11. A randomized, controlled phase III trial picoplatin and best supportive care (BSC) Vs. BSC alone in patients with small cell lung cancer, refractory or progressive within six months of completing first line, platinum-containing chemotherapy. (Funded by: Siro Clinpharma)
Co-investigator: Dr. A. S. Krishnakumar
 12. A randomized double blind phase III study to compare the efficacy and safety of AZD2171 when added to 5-fluorouracil, Leucovorin

- and Oxaliplatin (Folfox) or capecitabine and Oxaliplatin (Xelox) with the efficacy and safety of placebo when added to Folfox or Xelox in patients with previously untreated metastatic colorectal cancer. (Funded by: Astra Zeneca Pharma India Ltd)
Co-investigator: Dr. A. S. Krishnakumar
13. Organisation of a community based cluster randomized controlled trial for the early detection of breast cancer, Thiruvananthapuram District. (Funded by: International Agency for Research on Cancer, France)
Co-investigator: Dr. M. Venugopal
 14. A phase 3 randomised double blind placebo-controlled multicentric phase III study to evaluate the efficacy and safety of GW786034 compared to placebo in patients with locally advanced and /or metastatic renal cell carcinoma who have progressed following cytokine based first line treatment. (Funded by: Glaxo Smithkline)
Co-investigator: Dr. M. Venugopal
 15. Protocol PIX 301:Pixantrone Vs. other chemotherapeutic agents for third line single agent treatment of patients with relapsed aggressive non-hodgkin's lymphoma. (Funded by: Quintiles Research (India))
Co-investigator: Dr. M. Venugopal
 16. A randomized, double blind, parallel-group, multicentre, phase II study comparing the efficacy and tolerability of Fulvestrant (FASLODEXTM) 500 mg with Fulvestrant (FASLODEXTM) 250 mg in postmenopausal women with Oestrogen Receptor positive advanced breast cancer progressing or relapsing after previous endocrine therapy. (Funded by: Quintiles Research (India))
Co-investigator: Dr. M. Venugopal
 17. Phase III study of vinflunine plus gemcitabine Vs. paclitaxel plus gemcitabine in patients with unresectable locally recurrent or metastatic breast cancer after prior anthracycline-based adjuvant chemotherapy. (Funded by: Chiltern International Pvt. Ltd.)
Co-investigator: Dr. Jiji V.
 18. A phase 3 clinical study to investigate the prevention of relapse in lymphoma using daily 'enzastaurin' prelude. (Funded by: Eli Lilly & Co.)
Co-investigator : Dr. Jiji V.
 19. A randomized, open label, multicentre phase 2/3 study to evaluate the safety and efficacy of lumiliximab in combination

with Fludarabine, Cyclophosphamide and Rituximab versus Fludarabine, Cyclophosphamide and Rituximab alone in subjects with relapsed chronic Lymphocytic Leukemia (Funded by: SIRO Clinpharma Ltd)

Co-Investigator: Dr. Jiji V.

20. International randomized study to evaluate the addition of docetaxel to the combination of cisplatin-5-fluorouracil (TCF) Vs. cisplatin-5 Fluorouracil (CF) in the induction treatment of nasopharyngeal carcinoma (NPC) in children and adolescents EFC10339. (Funded by: Sanofi Aventis)

Co-investigator: Dr. Sumod Mathew Koshy

21. A randomised open label, multicenter, phase 3 study of Epoetin Alfa plus standard supportive care versus standard supportive care in Anemic patients with metastatic breast cancer receiving first line standard chemotherapy.

(Funded by: M/s. Parexel International Synchron)

Co-investigator: Dr. Sumod Mathew Koshy

22. A randomized phase 3 study of pemetrexed in combination with Cisplatin versus Cisplatin monotherapy in patients with recurrent or metastatic head and neck cancer (Funded by Eli Lilly & Co.)

Co-Investigator: Dr. Sumod Mathew Koshy

Honour, Conferences/workshops attended

Dr. Ramachandran K.

Holding the charge of Director of Regional Cancer Centre from 18th October 2008.

Examiner, DNB (Radiodiagnosis), National Board of Examinations.

Examiner, MD (Radiodiagnosis), Sri. Ramachandra Medical College and Research Institute, Chennai.

Dr. Jiji V., Dr. Sumod Mathew Koshy

Dr. Mahadevan Pillai memorial workshop on Clinical and Biomedical MRI, Sree Chitra Tirunal Institute of Medical Sciences and Technology, Thiruvananthapuram. 1-3 October 2008.

National workshop on Musculo-skeletal sonography, Sree Chitra Tirunal Institute of Medical Sciences and Technology, Thiruvananthapuram. 11 May 2008.

Dr. Sumod Mathew Koshy

'Spiral CT updated', Indian Imaging Academy, Goa. 29-31 August 2008.

NUCLEAR MEDICINE

Dr. Pradeep V.M.
Dr. Sreekumar A.

Additional Professor & Head
Additional Professor (From 01.07.08)

Clinical activities

The division of Nuclear Medicine caters to patients requiring investigations and/or treatment involving the use of open radioactive sources. Patients from Regional Cancer Centre as well as outside were continued to be served by this Division. Facilities for comprehensive diagnostic and therapeutic options for various thyroid disorders were utilised by patients from various parts of Kerala, South Tamil Nadu and abroad.

While diagnostic work involved scans using the Dual Head SPECT Gamma Camera (Infinia II GE) and Immunoassays, therapeutic work involved radioisotopes such as I-131 for thyrotoxicosis and carcinoma thyroid as well as bone pain palliation using Samarium-153.

Thyroid clinic

The major part of the work of this Division comprised evaluation and treatment of thyroid disorders. This included thyroid scanning, ultrasonography, in-vitro assays and radioiodine therapy. The Thyroid clinic registered about 10,000 cases for evaluation and/or management, treated 823 cases of carcinoma thyroid and 441 cases were treated for thyrotoxicosis with radioiodine.

Carcinoma Thyroid	- 823
Thyrotoxicosis	- 441
Ultrasound Thyroid	- 308

Immuno assay & Gamma Camera imaging

The in-vitro immuno assay section of this division was the first of its kind to start functioning in the state in the early 1981. The section had done more than 23,000 investigations during the period under report. More than 5,000 different types of investigations were also performed using the SPECT Gamma camera. Bone scanning for cancer diagnosis and dynamic renal studies including paediatric renal evaluation were among the major investigations done using gamma camera. Six patients received 153-Sm EDTMP therapy for bone pain palliation also. (Table 8)

Table 8: Investigations done

Immuno assays	Number
T3	2368
T4	2678
TSH	3658
FT3	148
FT4	207
ATG	797
AMC	864
TG	2613
PTH	733
CALCITONIN	32
HCG	1674
AFP	945
CEA	2462
CA-125	2673
PSA	1078
FSH	12
LH	13
PRL	41
TESTO	58
CORTISOL	16
GH	0
B2MU	220
CA 19-9	280
Total	23570

Gamma Camera	Number
LD-SCAN	2272
SD-SCAN	190
PT scan	426
99mTc O4	691
BONE	1608
RENOGRAM	69

DMSA(Tumor)	51
DMSA(Kidney)	19
MUGA	6
RBC	0
Meckel's	1
MIBI(Tumor)	146
BIDA	11
PARA THYROID	1
SAILOSCINTIGRAPHY	13
Total	5504

Academic Activities

The Division was involved in the training of medical (undergraduate and postgraduate) students and para medical (Nurses, Radiographers, Laboratory Technicians) students.

Merits, Conferences attended, Papers presented

Dr. Pradeep V.M.

Examiner, DNB (National Board of Examinations) and M.Sc.(NMT) (Manipal Academy of Higher Education)

Dr. Sreekumar A.

'RAMIRO-2009': Conference on 'Recent advances in molecular imaging and radiation oncology' organized by Indian Nuclear Society, National Institute of Mental Health and Neurosciences, Bangalore. 18-19 January 2009.

9th Asia Oceania congress of Nuclear Medicine and Biology, New Delhi. 31 October-4 Novemembr 2008. Paper: 'Tc99m(V) DMSA in the evaluation of medullary carcinoma thyroid: a retrospective analysis'.

ANAESTHESIOLOGY

Dr. Rachel Cherian Koshy	Additional Professor & Head
Dr. Mary Thomas	Associate Professor
Dr. Venugopal A.	Associate Professor
Dr. Mallika Balakrishnan	Associate Professor
Dr. Sudha P.	Assistant Professor
Dr. Viji Pillai	Assistant Professor

Anaesthetic services were provided for major cancer surgeries, minor procedures, CT guided procedures and long term central venous access in adults and children requiring radiation. Round the clock coverage was provided for emergency surgeries. Pre-anaesthetic evaluation was done 6 days a week. There was a substantial increase in the use of epidural and spinal anaesthesia and also in the use of Laryngeal Mask Airway (LMA). Support was provided to the nursing division to start a PICC (Peripherally Inserted Central Catheter) service. Nerve stimulator guided nerve blocks and use of classic and ProSeal LMA for paediatric cases were initiated. Intensive care and invasive ventilatory support for post operative patients and non invasive ventilation were also provided whenever indicated. Acute pain service for post-operative cases were provided for upto 72 hours after surgery.

Table 9: Clinical work

Pre-anaesthetic assessment clinic	Number
New cases	3210
Review cases	2912
Total	6122
Anaesthetics administered	
Major cases	3060
Minor cases	84
Total	3144
Break up of Major cases	
Head and neck	1217
Breast	965

Gastro-intestinal	414
Gynae-urology	333
Oesophagus	22
Extremity	109
Total	3060
Special techniques	
Total intravenous anaesthesia (TIVA)	71
GA+Epidural	534
Combined Spinal Epidural	196
LMA	203
Plexus and other blocks	15
Anticipated difficult airway	105
Blind nasal intubation	13
Retrograde intubation	1
Total	1138
Tracheostomy	
Preoperative	44
Perioperative	29
Postoperative	9
Total	82

Ongoing Research Projects

1. A prospective double blind randomized control trial to study the efficiency of a single dose pre-emptive Gabapentin to reduce post operative pain and opioid demand following head and neck surgery.
Investigators: Dr. Rachel Cherian Koshy, Dr. Preethy Elizabeth Benoy.
2. Comparison of intravenous induction with propofol versus inhalation induction with sevoflurane: a randomized control trial.
Investigators: Dr. Rachel Cherian Koshy, Dr. Divya John
3. Epidural infusion of Fentanyl versus intermittent Buprenorphine for post operative pain relief.

- Investigators: Dr. Mary Thomas, Dr. Rajesh
4. IV ketamine versus IV xylocaine for preventing pain due to injection of propofol.
Investigators: Dr. Mary Thomas, Dr. Ranju
 5. Epidural clonidine versus epidural fentanyl for intraoperative analgesia.
Investigators: Dr. Mary Thomas, Dr. Anand
 6. A prospective randomised controlled study comparing the incidence of post operative pharyngolaryngeal morbidity following the use of endotracheal tube versus LMA.
Investigators: Dr. Venugopal A., Dr. Ron Mathew
 7. Comparison of ephedrine versus ketamine in the prevention of hypotension following propofol induction.
Investigators: Dr. Venugopal A., Dr. Gopakumar
 8. Effect of Isoflurane anaesthesia on the QTc prolongation in breast cancer patients pretreated with anthracycline chemotherapy.
Investigators: Dr. Venugopal A., Dr. Rajasree

Fellowship, Conferences/CME's/Workshops attended, Papers presented, Talks delivered

Dr. Rachel Cherian Koshy

CME workshop conducted by National Board of Examination, New Delhi, St. Johns Medical College, Bangalore. October 2008.

Cleveland clinic activity on 'Updates in Anaesthesiology'. 28 May 2008.

Talk: 'Cancer pain management', Tata Tea Hospital, Munnar, Idukki, Kerala. 13 March 2009.

Dr. Rachel Cherian Koshy, Dr. Venugopal A., Dr. Mallika Balakrishnan, Dr. Sudha P.

PG quest: Indian Society of Anaesthesiologists-World Federation of Societies of Anaesthesiologists CME, Sree Chitra Tirunal Institute for Medical Sciences & Technology, Thiruvananthapuram. 5- 6 April 2008.

Dr. Rachel Cherian Koshy: Invited talk: 'Clinical evaluation and conduct of anaesthesia for surgical correction of contracture neck in an elderly lady with stable angina'.

Dr. Mallika Balakrishnan: Talk: 'Cardio pulmonary resuscitation'.

Dr. Mary Thomas

8th National conference of Foundation for Head and Neck Oncologists, Bhubaneswar. 4-7 December 2008.

Second best paper: 'A novel morbidity prediction score for head & neck oncosurgery'.

Dr. Mary Thomas, Dr. Venugopal A.

'LARYNXCON-2008': 3rd International CME and workshop on voice preservation and rehabilitation in laryngectomy, Regional Cancer Centre, Thiruvananthapuram. 16-17 August 2008.

Dr. Mary Thomas, Dr. Venugopal A., Dr. Sudha P.

'ISACON 2008': 32nd Annual conference of Indian Society of Anaesthesiologists (Kerala State Branch), Kottayam. 11-12 October 2008.

Dr. Venugopal A.

'ISACON 2008': 56th National conference of Indian Society of Anaesthesiologists, Jodhpur, Rajasthan. 25-29 December 2008. Talk: 'Preoperative lab testing: what do we need?'

PG QUEST 7: Midterm CME 2009, Thrissur. 7-8 February 2009.

Dr. Mallika Balakrishnan

UICC-ICRETT fellowship for training in 'Ambulatory anaesthesia for oncosurgery', at Singapore General Hospital, Singapore. July 2008.

Dr. Sudha P.

ICU Update 2008, Kovai Medical Centre, Coimbatore. 4 May 2008.

Completed Cleveland Clinic activity on 'Updates in Anesthesiology' on 28 May 2008

'Medallion 2008': 3rd National conference on 'Current trends in public health and hospital administration', School of Medical Education, Mahatma Gandhi University and FHA Kerala chapter. 23- 24 May 2008.

RADIATION PHYSICS

Dr. Raghu Ram K. Nair	Additional Professor & Head
Dr. Thayal Singh Elias	Associate Professor
Dr. Raghu Kumar P.	Assistant Professor
Dr. Saju B.	Assistant Professor
Sri. Giri Purushothaman	Lecturer in Electronics Engineering
Smt. Zhenia Gopalakrishnan	Lecturer
Smt. Divya K.T.	Lecturer

Routine activities

- Calibration and quality assurance of Radiotherapy equipments.
- Treatment planning and Dose computation.
- Radiation safety in Radiotherapy, Imageology and Nuclear Medicine Divisions of RCC, Thiruvananthapuram.
- Daily maintenance, checking and repair of all teletherapy and brachytherapy equipments.
- Intraoperative, intraluminal and mould brachytherapy using Microselectron HDR.
- Participation in intercomparison and external verification of dose output of treatment machines using Thermoluminescence in BARC/IAEA programs.

Table 10: Patient services

Treatment given	Number of patients
External Beam Radiotherapy	6527
Brachytherapy	
Conventional	
Interstitial Implantation	21
Microselectron HDR	
Gynaec	1420
Oesophagus	18
Others	49
	1508
Total	8035

Simulator		4349
Mould Room		
Orfit Shell	1356	
Bite Block	494	
Wax Bolus	238	
Electron Cut – outs, Head rest, Leg rest, face rest, mould, etc	297	2385

Academic activities & Training programmes

The Division organised 'ARTTICON 2008': 12th National conference of the Association of Radiation Therapy Technologists of India, at Sree Chitra Tirunal Institute for Medical Sciences and Technology, Thiruvananthapuram. 8-9 November 2008.

Classes were conducted in Medical Physics and practical training was imparted to students engaged in following academic programmes.

1. Diploma in Radiological Technology (DRT)
2. B.Sc. (MLT); DMLT
3. B.Sc. & M.Sc. (Nursing)
4. MBBS
5. M.Sc. Radiation Physics
6. DMRT, MD Radiotherapy
7. DMRD, MDS (Oral Radiology)
8. MD & DNB (Radiodiagnosis)

The three months Refresher programme in Imageology/Nuclear Medicine and Radiotherapy for Radiographers started in 1994 has covered 34 trainees in Radiotherapy till March 2009.

As part of the M.Sc. (Radiation Physics) programme started in collaboration with Calicut University in 2007, eight students appeared and passed the examination held in January 2009.

Ongoing Research Projects

1. Natural Background Radiation Registry (NBRR): radiation measurement studies (Funded by: Health Research Foundation, Japan)
Dose from diet studies nearing completion. Individual dose estimation using pocket dosimeters completed. Cancer risk estimation done.
Principal Investigator: Dr. Raghu Ram K. Nair
2. Software development of Radiotherapy Management System.
Principal Investigator: Dr. Thayal Singh Elias

3. Development of a latex packing balloon to reduce rectal and bladder dose in IC HDR brachytherapy. (Funded by: M/s Hindustan Lifecare (Latex) Ltd.)
Investigators: Dr. Raghu Ram K. Nair; Dr. Raghu Kumar P.

Awards/Honours, Conferences/CME's attended, Papers presented, Talks delivered

Dr. Raghu Ram K. Nair

Examiner, MD (Radiodiagnosis) and DMRD of University of Kerala.

Examiner, Ph.D. thesis, Calicut University and Manipal University.

Member, Board of Studies in Radiation Physics, Calicut University.

Supervised the following Ph.D. programmes:

1. 'Design and development of a balloon device and its evaluation in patients with carcinoma of the uterine cervix undergoing HDR brachytherapy' by Sri. P. Raghu Kumar, Mahatma Gandhi University, Kottayam. (Ph.D. awarded)
2. 'Development of a quality assurance protocol, dose measurement and radiation safety evaluation in CT Scanners' by Sri. K.A. Davis, Mahatma Gandhi University, Kottayam.
3. 'Modification of radiotherapy by physical parameters' by Dr. Sajeed A., University of Kerala.

'Jyothirgamaya': National workshop on Musculo-skeletal ultrasound, Sree Chitra Tirunal Institute for Medical Sciences & Technology, Thiruvananthapuram. 1 May 2008.

CME, Indian Society of Radiographers and Technologists, Medical College, Thiruvananthapuram. 6 April 2008. Paper: 'Current concepts in radiation protection'.

Talk in the science program of AIR: 'How safe is radiation?' 30 September 2008.

Dr. Raghu Ram K. Nair, Dr. Thayal Singh Elias, Dr. Raghu Kumar P., Dr. Saju B.

CME, Association of Medical Physicists of Kerala, Alappuzha. 22 March 2009. Papers: Dr. Raghu Ram K. Nair : 'AERB regulations'.

Dr. Saju B.: 'TRS 398'.

Dr. Raghu Ram K. Nair, Dr. Raghu Kumar P., Dr. Saju B., Sri. Giri Purushothaman, Sri. Ramabhadran P., Sri. Sunilkumar S., Smt. Salini G.S.

'ARTTICON 2008': 12th National conference of the Association of Radiation Therapy Technologists of India, Sree Chitra Tirunal Institute for Medical Sciences and Technology, Thiruvananthapuram. 8-9

November 2008.

Dr. Raghu Ram K. Nair: Chairman, Organising committee.

Sri. Sunilkumar S.: Organising Secretary

Papers:

Dr. Raghu Kumar P.: 'Geometrical variations due to multiple fractions of HDR brachytherapy in the treatment of Carcinoma Cervix: can we minimize it?'

Dr. Saju B.: 'Radiotherapy: past, present, future'.

Smt. Salini G.S.: 'Quality assurance management in a Radiation Oncology context'.

Sri. Ramabhadran P.: Talk: 'Evolution of Radiotherapy techniques in RCC in the last two decades: an overview in EBRT for uterine cervix and breast'.

Dr. Raghu Ram K. Nair, Dr. Raghu Kumar P.

Association of Medical Physicists of India, international conference on Medical Physics, BARC, Mumbai. 26-29 November 2008.

Dr. Raghu Ram K. Nair: Chaired a session

Dr. Raghu Kumar P.: Rapporteur of one session

Dr. Raghu Kumar P.

Awarded Ph.D. on the topic, 'Design and development of a balloon device and its evaluation in patients with cancer of the uterine cervix undergoing HDR brachytherapy'. Mahatma Gandhi University, Kottayam (2008).

Examiner, B.Sc.(MRT), Mahatma Gandhi University, Kottayam.

National workshop on calibration of High Dose Rate brachytherapy sources, Kamakshi Memorial Hospital, Chennai. 5-6 September 2008.

Dr. Saju B.

Awarded Ph.D. on the topic, 'Design and development of devices for radiation dosimetry'. Calicut University, Kozhikode (2008).

Examiner, M.Sc.(Medical Physics), Manipal Academy of Higher Education, Manipal.

Sri. Giri Purushothaman

9th National conference on Technological trends, College of Engineering, Thiruvananthapuram. 30 November-1 December 2008. Paper: 'ROI identification for the detection of incidence of stroke'.



Inaugural address by Sri. P.K. Gurudasan, Hon'ble minister for Labour, Govt. of Kerala, at 'ARTTICON 2008' (8 November 2008)

CANCER RESEARCH

Dr. Kannan S.	Additional Professor & Head-in-Charge
Dr. Ravindran Ankathil	Additional Professor (on leave)
Dr. Remani P.	Additional Professor
Dr. Sathyan K.M.	Lecturer
Dr. Hariharan S.	Lecturer
Dr. Sreelekha T.T.	Scientific Officer Gr.I

The Division has been focusing its activities on interdisciplinary areas of research with special emphasis on diagnostic, prognostic and therapeutic areas of oncology through its four research groups, viz. Cell Cycle Regulation and Molecular Oncology, Glycobiology and Phytopharmacology, Cytogenetics and Molecular Diagnostics and Biopharmaceuticals. The Division also provided certain molecular diagnostic services for cancer treatment and also for Postgraduate/B.Tech. training programmes. Important activities and focuses of research during the report period were as follows.

LABORATORY OF CELL CYCLE REGULATION & MOLECULAR ONCOLOGY

Group leader: Dr. S. Kannan Lecturer: Dr. K.M. Sathyan

This Laboratory group has been involved in deciphering the underlying molecular mechanisms leading to oral cancer. Analysis of the cell cycle regulatory genes have revealed p53, p16 and cyclin D1 to be good biomarkers for predicting prognosis in oral carcinoma. The Lab has successfully profiled cell cycle regulatory genes expression at the transcriptome level using TLDA. Three clusters were identified based on the differential expression of 47 cell cycle regulatory genes; each of these clusters exhibited a markedly different recurrence-free survival pattern. Of these genes, CDKN2D, RBL2 and CCEN2 showed a significant association with treatment response. Molecular classification using TLDA was found to have good precision in predicting recurrence free survival compared to conventional clinical markers. Studies were also initiated on miRNA profiling in oral carcinoma using microarray and found a differential expression in 25 out of 799 miRNAs. This

data needs to be validated further using Real-Time PCR. Our studies suggested that, miRNA profiling may provide molecular clues of oral carcinogenesis and enable the development of new targets as well as prognostic biomarkers for its therapeutic management. Previous studies on the prognostic evaluation of biological and clinical factors in oral carcinoma have revealed that the intra-oral site of the lesion is an important marker for determining the survival of patients. Studies are underway to characterize the transcriptomes of buccal mucosa and tongue carcinomas to understand the reason for this discrepancy in tumor behavior. Studies were also initiated to delineate the alterations in the TGF β / Smad pathway in oral carcinoma.

LABORATORY OF GLYCOBIOLOGY AND PHYTOPHARMACOLOGY

Group leader Dr. P. Remani

A study has been progressing with an aim to isolate the active principles from medicinal plants and to evaluate their antioxidant, antibacterial and antiproliferative properties. Studies showed the presence of these biological properties in the petroleum ether extract of *Alpinia galanga* and *Solanum trilobatum*. Gas Chromatography Mass Spectrometric analysis revealed that 2, 4-dimethylbenzoic acid with 65.2% was the most prominent compound present in the volatile fraction of petroleum ether extract of *Alpinia galanga*. 5,7-dihydroxy flavone, a UV active compound was obtained as yellow needle like crystals after column chromatography over silica gel. Further studies are in progress to evaluate its capacity to induce apoptosis in different human tumor cells in vitro.

LABORATORY OF CYTOGENETICS AND MOLECULAR DIAGNOSTICS

Group leader Dr. S. Hariharan

This Laboratory group is mainly concentrating on the cytogenetic aspects of leukemia, such as, characterization of chromosome abnormalities and molecular cytogenetic response of CML patients treated with Imatinib mesylate. Study has been progressing on the

molecular genetic basis of resistance to Imatinib mesylate treatment in CML patients and the prognostic significance of chromosomal aberrations and FLT3 gene mutation status in AML patients. In addition, the group is also involved in the identification of tumour susceptibility genes in lung cancer and mutation analysis of mismatch repair genes in colorectal cancer.

LABORATORY OF BIOPHARMACEUTICALS

Group leader Dr. T.T. Sreelekha

The Lab has evaluated the immuno-potentiating activity and *in vivo* toxicity of polysaccharide PST001 isolated from the seed kernel of *Tamarindus indica*, which already showed antitumor activity on various cancer cell lines. The study showed that PST001 has no toxicity at all, as evidenced by no LD50 upto a concentration of 2000 mg/kg body weight. Histopathological evaluations as well as liver and kidney function parameters were also normal. Lymphocyte proliferation assays and lymphocyte sub typing by flow cytometry showed an increase in cell proliferation and increased T-helper and cytotoxic cells (CD4 and CD8) in PST001 treated animals. CD4/CD8 ratio was also significantly higher. Bone marrow cellularity was also examined and a significant increase was observed with PST001. The above observations along with previous results on antitumor activity of PST001 strongly recommend that PST001 could be a beneficial immunomodulator/antitumor agent in cancer management after conducting clinical studies in human subjects. In an another study, we observed estrogen deficit and increased IL-6 production along with CYP1A1 polymorphism associated with lung carcinogenesis. The study is in progress with higher number of samples and the association of the above findings with other genomic alterations.

Ongoing Research Projects

1. Characterization of pathways involved in the upregulation of cyclin D1 expression in oral carcinoma (Funded by: Kerala State Council for Science, Technology & Environment, Govt. of Kerala)
Principal Investigator: Dr. S. Kannan
2. Scheme augmentation of R & D (SARD): Setting up of Real-

- Time PCR facility (Funded by: Kerala State Council for Science, Technology & Environment, Govt. of Kerala).
Co-ordinator: Dr. S. Kannan
3. Study on the significance of Micro-RNA expression pattern in oral carcinoma (Funded by: Department of Biotechnology, Govt. of India, 2008-2010).
Principal Investigator: Dr. S. Kannan
 4. Molecular dissection of TGF β / Smad pathway in oral carcinoma. (Funded by: Department of Biotechnology, Govt. of India, 2009-2011).
Principal Investigator: Dr. K.M. Sathyan
 5. Cytotoxic and immunological evaluation of active principles of two Solanaceae plants. (Funded by: District Development Office for Scheduled Castes, Thiruvananthapuram.
Student Project -Supervisor: Dr. P. Remani
 6. Antitumour properties of *Alpinia galanga*, a medicinal plant of Zingiberaceae. (Funded by: Indian Council of Medical Research, Govt. of India).
Student Project -Supervisor: Dr. P. Remani
 7. Cytogenetic studies on the effects of chronic low level radiation in the residents of high background radiation areas (HBRA) in Kerala, India. (Funded by: Health Research Foundation, Japan).
Principal Investigator. Dr. Hariharan S.
 8. Search for predictive genetic markers of high risk malignant transformation potential in oral leukoplakia patients. (Funded by: Kerala State Council for Science, Technology and Environment, Govt. of Kerala)
Co-Investigator: Dr. Hariharan S.
 9. Polysaccharides from *Tamarindus indica* as inhibitors of mitotic progression in malignant cell lines – elucidation of the target protein. (Funded by: Kerala State Council for Science, Technology and Environment, Govt. of Kerala).
Principal Investigator: Dr. T.T. Sreelekha
 10. Immunomodulation of T-cell signal transduction by exosomes from oral cancer patients. (Funded by: Kerala State Council for Science, Technology and Environment, Govt. of Kerala).
Co-Investigator: Dr. T.T. Sreelekha
 11. Influence of Indukantha Ghritha: an Ayurvedic Rasayana on

immune responses and prognosis in oral cancer patients: A feasibility study (Funded by: Kerala State Council for Science, Technology and Environment, Govt. of Kerala).

Co-Investigator: Dr. T.T. Sreelekha

12. Genomic instability in lung cancer as an early prediction tool. (Funded by: Department of Science & Technology, Govt. of India)

Principal Investigator: Dr. T.T. Sreelekha.

13. Elucidation of the molecular mechanism of mitotic inhibition by polysaccharide PST001 in human cancer cell lines. (Funded by: Life Sciences Research Board, DRDO, Govt. of India)

Principal Investigator: Dr. T.T. Sreelekha.

Academic activities

Ph.D. in Life Sciences and Biotechnology (ongoing) - 23

Training programmes:

M. Sc. project dissertation - 37

MD/MDS project dissertation - 1

Observation training for M.Sc./B.Tech. (Biotechnology) students - 90

Cytogenetics training for B.Sc.(M.L.T) students -180

Ph.D. Awarded:

Geo Francis: Characterization of molecular alterations in p53 gene in oral carcinoma (January 2009).

Abhilash A.:Characterization of molecular alterations in INK4A/MTS-1/p16 gene in oral carcinoma (March 2009).

Jemima Jacob: Analysis of molecular alterations of epidermal growth factor receptor in gestational trophoblastic diseases (March 2009).

Table 11: Ongoing Doctoral Programmes

Sl. No.	Research topic	Research scholar	Research supervisor
1	Molecular studies on involvement of p14/ARF gene in oral carcinoma. (Thesis submitted)	Sailasree R.	Dr. S. Kannan

2.	Characterization of molecular alterations in the Retinoblastoma (Rb) gene in oral carcinoma.	Abitha Murali	Dr. S. Kannan
3.	Study on the identification of factor/s involved in over expression of Cyclin D1 in oral carcinoma.	Deepak Roshan V. G	Dr. S. Kannan
4.	Studies on the biology of carcinoma of buccal mucosa and tongue.	Dileep Kumar U.	Dr. S. Kannan
5.	Study of the significance of miRNA expression pattern in oral carcinoma.	Christo Rajan	Dr. S. Kannan
6.	Molecular dissection of TGF β / Smad pathway in oral carcinoma.	Sivadas V.P.	Dr. S. Kannan
7.	Antitumour activity of some selected medicinal plants of <i>Zingiberaceae</i> .	Lakshmi S.	Dr. P.Remani
8.	Cytotoxic and immunological studies of two <i>Solanaceae</i> plants.	Dhanya G. S:	Dr. P.Remani
9.	Characterization and evaluation of anticancerous properties of compounds from selected medicinal plants.	V. Viji (Part-Time)	Dr. P.Remani
10.	Antimicrobial, antitumour and immunomodulatory properties of two species of <i>Annona</i> . (<i>Annonaceae</i>)	Biba V. S.	Dr. P.Remani

11.	Genetic susceptibility studies in lung cancer. (Thesis submitted)	Sreeja L.	Dr. Ravindran Ankathil
12.	Molecular genetic analysis of BRCA2 gene mutations and its pathobiology in hereditary breast and ovarian cancer. (Thesis submitted)	Vani S.	Dr. Ravindran Ankathil
13.	Role of germline polymorphism of few low penetrance genes in familial breast cancer.	Volga S.S.	Dr. Ravindran Ankathil
14.	Genetics of colorectal cancer susceptibility.	Vijayalekshmy R.V.	Dr. Ravindran Ankathil
15.	Germline mutation analysis of mismatch repair genes in familial colorectal cancer patients	Praveen Kumar B. R.	Dr. Ravindran Ankathil
16.	Molecular genetic basis of resistance to Imatinib mesylate treatment in chronic myeloid leukaemia patients.	Sangeetha Vijay	Dr. S. Hariharan
17.	Prognostic significance of chromosomal aberrations and FLT-3 gene mutation status in patients with Acute Myeloid Leukemia	Santhi S.	Dr. S. Hariharan
18.	Molecular alterations in regulation to radiation response in squamous cell carcinoma. (Thesis submitted)	Salini S.	Dr. Prabha Balaram

19.	Immunomodulatory activities of major plants used in the preparation of Indukantha Ghritha (Rasayana) in experimental animals. (Thesis submitted)	Suraj K.George	Dr. Prabha Balaram
20.	Treatment response in oral cancer patients in relation to T- lymphocyte function.	Vino T. Cherian	Dr. Prabha Balaram
21.	Immunomodulatory and anticancerous properties of Tamarind seed polysaccharides.	Aravind S.R.	Dr. T.T. Sreelekha
22.	Studies on <i>Tamarindus indica</i> polysaccharide nanoparticle as immunomodulatory / anticancer agent and as a potent drug carrier.	Manu M. Joseph	Dr. T.T. Sreelekha
23.	Studies on the molecular mechanisms of antitumor / immunomodulatory polysaccharide from <i>Mangifera indica</i> .	Sheeja Varghese	Dr. T.T. Sreelekha

Patient services:

Cytogenetics	-	Karyotyping	-	686
Flow Cytometry	-	Immunophenotyping/ stem cell enumeration	-	250
RT-PCR	-	Qualitative and quantitative	-	610

New equipment added : Inverted fluorescent microscope with CCD camera.

Awards, Conferences/ Workshops attended, Papers presented

Mr. Deepak Roshan V.G.

Received YOUNG SCIENTIST AWARD 2009 (Life Sciences), awarded by Kerala State Council for Science, Technology and Environment (KSCSTE), at the 21st Kerala Science Congress, Kollam, 2009 for the paper 'Differential expression of cell cycle regulatory genes in oral carcinoma and its relation with disease recurrence'

Dr. Kannan S., Mr. Deepak Roshan V.G., Mr. Aravind S.R., Mr. Rajesh M.

28th Annual Convention of the Indian Association for Cancer Research, Indian Institute of Science, Bangalore. 21-23 February 2009.

Papers:

Deepak Roshan V.G., Sathyan K.M., and Kannan S. 'Prognostic significance of the expression of cell cycle regulatory genes in oral carcinoma-TLDA analysis'.

Aravind S.R., Prabha Balam, Hareendran N.K., Vijayan K.K., Sreelekha T.T. 'Immunomodulatory activities of the polysaccharide PST001 isolated from the seed kernel of *Tamarindus indica*'.

Rajesh M., Prabha Balam, Jayaprakash Madhavan, Sreelekha T.T. 'CYP1A1 polymorphism regulated estradiol expression and IL-6 production in lung cancer'.

Dr. Sathyan K.M., Ms. Abitha Murali, Mrs. Lakshmi S., Dr. Remani P., Mrs. Dhanya G., Dr. Hariharan S., Dr. Sreelekha T.T., Mr. Aravind S.R.

21st Kerala Science Congress, Kolam. 28-31 January 2009

Papers:

Sathyan K. M., Rejnish Kumar R. and Kannan S. 'Polymorphic genotype specific acquisition of genetic alterations and clinical response in oral carcinoma'.

Abitha Murali, Sailasree R., Nalinakumari K. R. and Kannan S. 'Allelic Loss of Chromosome 9 correlates with recurrence in oral carcinoma'.

Lakshmi S., Dhanya G. S., Beena Joy, Padmaja G., Remani P. 'Medicinal potentials of *Alpinia galanga*'.

Dhanya G. S., Lakshmi S., Beena Joy., Remani P. 'Cytotoxicity and Antimicrobial studies of *Solanum trilobatum*'.

Aravind S.R., Vijayan K.K., Prabha Balam, Sreelekha T.T. 'Apoptotic

evaluation of polysaccharide PST 001 in tumor cells’.

Dr. Hariharan S.

Workshop on interphase FISH in haematological malignancies, CMC Vellore. 16-19 February 2009.

International symposium on ‘Ethics, culture, and population genomics’ and 34th Annual conference of the Indian Society of Human Genetics (ISHG), New Delhi. 17 –20 March 2009

Dr. Sreelekha T.T.

National seminar on ‘Career in science for women - challenges and opportunities’ organised by Kerala State Council of Science, Technology and Environment, Govt. of Kerala and Dept. of Science & Technology, Govt. of India, Thiruvananthapuram. 17-18 March 2009.

MOLECULAR MEDICINE, DRUG DEVELOPMENT AND CHEMO-INFORMATICS

Dr. Lakshmi S.

Lecturer and Officer-in-charge

This Division has been working on areas of molecular and cellular biology, which are fundamental to any advancement in the field of medical sciences. The ongoing projects are focussing on human papillomavirus-associated cancers, role of estrogen receptor co-regulators and elucidation of cell signaling pathways in breast carcinogenesis. In addition, the Division has been working in collaboration with the Rajiv Gandhi Centre for Biotechnology, Thiruvananthapuram in areas like, molecular profiling of HPV subtypes prevalent in India, proteomic profiling of breast tumour markers for early onset and tamoxifen resistance in breast cancer. The research works has been progressing in the following areas.

Role of estrogen receptor co-regulators and elucidation of cell signaling pathways in breast carcinogenesis

Breast cancer development and progression are primarily influenced by estrogen. In breast cancer, genomic actions of estrogen are mediated through its receptor, leading to the transcription and translation of genes relevant to tumor progression. The study examines the differences in expression and clinical correlations of ER isoforms in human breast cancer and also the local expression of co-activator and co-repressor proteins. Similarly, breast cancer growth is regulated by co-ordinated actions of the estrogen receptor (ER) pathway and various growth factor pathways. Moreover, our study is also designed to substantiate the hypothesis that STAT3 acts as common downstream mediator of the ER and EGFR pathways. This study may bring out the role of STAT3 expression as a diagnostic marker indicating transition of the tumor from ER-independent to growth factor-dependent signaling.

Gene-environment interaction and susceptibility to breast cancer

Lifestyle, environmental, hormonal and dietary risk factors are the most likely contributors to the differences in regional incidence rates of majority of sporadic breast cancer cases. The study is aimed at identification of various breast cancer susceptibility genes, to measure the interactive effects of these genes with lifestyle and environmental

factors and to evaluate the combined effect of these genes on breast cancer risk.

Molecular genetics of paediatric acute lymphoblastic leukemia in Kerala

Acute lymphoblastic leukaemia (ALL) is the most common paediatric malignancy. Many clinical, biological & molecular genetic features have been identified as having prognostic significance and hence they play a critical role in directing therapy for ALL. This molecular genetic study might prove that most of the P-ALL patients have adverse genetic events and treating them aggressively will improve their survival.

Molecular markers as indicators of clinical profile, tumour characteristics and treatment outcome in squamous cell carcinoma of the larynx.

Squamous cell carcinoma (SCC) of the larynx is widely prevalent in our country and is the fourth leading cancer in males. The study analyzes the expression of selected molecular markers in SCC larynx and correlate their relationship with the environmental, clinical and histopathological parameters and treatment outcome. Identification of multiple markers will hopefully be useful in the prediction of response to treatment and survival in patients.

Academic activities

As part of human resource development, the Division provided training to Postgraduates in biotechnology and molecular biology in their dissertation/project work. Two weeks summer training was given to 18 B.Sc. and M.Sc. students in May and June 2008. Similarly, 9 M.Sc. students carried out their dissertation work from December 2008 to March 2009.

Ongoing Research Projects

1. Validation of p16ink4a expression as a marker for oncogenic HPV infection in the uterine cervix. (Funded by: Kerala State Council for Science, Technology and Environment, Govt. of Kerala).
Principal Investigator: Dr. Lakshmi S.
2. Expression levels of estrogen receptor cofactors in breast carcinoma. (Funded by: Indian Council of Medical research, Govt.

- of India).
Principal Investigator: Dr. Lakshmi S.
3. Gene-environment interaction and susceptibility to breast cancer. (Funded by: Department of Science and Technology, Govt. of India).
Principal Investigator: Dr. Lakshmi S.
 4. Role of STAT3 as downstream mediator of steroid and epidermal growth factor pathways in breast cancer. (Funded by: Department of Biotechnology, Govt. of India).
Principal Investigator: Dr. Lakshmi S.
 5. Molecular genetics of paediatric Acute Lymphoblastic Leukaemia in Kerala. (Funded by: Kerala State Council for Science, Technology and Environment, Govt. of Kerala).
Co-investigator: Dr. Lakshmi S.

Ongoing Doctoral Programmes

Mr. Binu K.A. –‘Role of estrogen receptor coregulators in breast cancer’.

Ms. Prabha Pillai –‘Role of signal transducers and activators of transcription in breast carcinogenesis’.

Awards, Conferences/Workshops/Training programmes attended, Papers presented

Dr. Lakshmi S.

International symposium on Human Papillomavirus-associated cancers: translating research into cancer prevention and medicine, Rajiv Gandhi Centre for Biotechnology, Thiruvananthapuram. 1-3 November 2008. Paper: ‘Expression of p16INK4a protein in Human Papillomavirus-associated lesions of the uterine cervix’.

Training course on Real time PCR: Hands-on training in Real time PCR applications and data analysis. Genomics and proteomics training facility, Labindia Research and Devpt. Laboratory, Gurgaon. 6-8 July 2008.

Mr. Binu K. A.

Shri K.N. Narasimhaiah Award for best original paper in cancer biology.

Annual meeting of Society for Biotechnologists of India (SBTI-2008) and National conference on new frontiers and current trends in

Biotechnology, University of Madras, Chennai. 18 – 19 October 2008.
Paper: 'Differential expression of estrogen receptor coregulators in breast cancer'.

Workshop on 'Research methodology and application of SPSS for data analysis', Albertian Institute of Management, Kochi. 11 -13 April 2008.

Mr. Binu K.A., Ms. Lekshmy Thampi

Indo-US Symposium on emerging concepts in cancer biology: targeted therapeutics, cancer stem cells and nanotechnology, Rajiv Gandhi Centre for Biotechnology, Thiruvananthapuram. 14-15 December 2008.

28th Annual convention of Indian Academy of Cancer Research & International symposium on emerging challenges and approaches in cancer biology, Indian Institute of Science, Bangalore. 21– 23 February 2009.

Ms. Prabha Pillai, Ms. Lekshmy Thampi

Schrodinger computer aided drug design, Bioinformatics Centre (DISC), Rajiv Gandhi Centre for Biotechnology, Thiruvananthapuram. 1 – 2 August 2008.

CANCER EPIDEMIOLOGY AND CLINICAL RESEARCH

Dr. Aleyamma Mathew	Additional Professor in Statistics and Epidemiology & Head
Dr. Kalavathy M.C.	Assistant Professor in Epidemiology
Smt. Padmakumary Amma G.	Lecturer in Bio-Statistics
Dr. Preethi Sara George	Lecturer in Bio-Statistics

The Division runs and maintains cancer registries (Hospital based and Trivandrum population based). These registry data have been widely used for planning, administration and cancer control activities. Conducts hospital-based and community based epidemiologic studies to assess the risk factors of various cancers for the purpose of primary prevention of cancers. Some other works undertaken by the Division were conducting cancer surveillance programmes to assess the pattern of care and survival of cancer patients and regular cancer awareness classes and detection camps in Thiruvananthapuram and Kollam districts. The Division also provided statistical design and analytical support to all research studies undertaken by RCC during the report period

1. Ongoing Research Projects

1. Hospital-based cancer registry, Regional Cancer Centre, Thiruvananthapuram (Partially funded by: Indian Council of Medical Research, Govt.of India).
Principal Investigator: Dr. Aleyamma Mathew
2. Population-based cancer registry, Thiruvananthapuram taluk (Funded by: Indian Council of Medical Research, Govt.of India).
Principal Investigator: Dr. Aleyamma Mathew
3. Rural cancer registry, Thiruvananthapuram, Kazhakuttam and Chirayinkil community development blocks (Funded by: Finnish Cancer Society, Finland).
Principal Investigator: Dr. Aleyamma Mathew
4. Thiruvananthapuram Corporation Cancer Control Programme (Funded by: Thiruvananthapuram Corporation).
Co-investigator: Dr. Kalavathy M.C.
5. Cancer screening at Women and Children hospital, Thycaud,

Thiruvananthapuram

Co-investigator: Dr. Kalavathy M.C.

6. Role of cervical Human Papillomavirus infection in progression or regression of a Pap smear diagnosis of atypical squamous cells in women attending the Gynaec OPD, Women and Children Hospital, Thycaud, Thiruvananthapuram. (Funded by: Kerala State Council for Science, Technology and Environment, Govt. of Kerala).

Principal Investigator: Dr. Kalavathy M.C.

7. Pattern of care and survival studies on cancers of cervix, female breast and head and neck (Funded by: Indian Council of Medical Research, Govt. of India).

Principal Investigator: Dr. Aleyamma Mathew

8. District Cancer Control Programme, Thiruvananthapuram. (Funded by: National Cancer Control Programme, Govt. of India).

9. Feasibility study for a prospective life-style and dietary cohort in Thiruvananthapuram.

Part A : Logistics of conducting a cohort study.

Part B : Detailed characterization of the Indian diet.

Part C : Evaluation of follow-up and end-point ascertainment for conducting a cohort study. (Funded by: National Cancer Institute, USA).

Principal Investigator: Dr. Aleyamma Mathew

10. Psycho-sexual problems of the spouses of patients with breast cancer (Funded by: Kerala State Council for Science, Technology and Environment, Govt. of Kerala).

Principal Investigator: Dr. Aleyamma Mathew

11. Risk factors of bladder & kidney cancers : a case-control study (Funded by: Kerala State Council for Science, Technology and Environment, Govt. of Kerala).

Principal Investigator: Dr. Aleyamma Mathew

12. Case-control study of breast cancer. (Funded by: International Agency for Research on Cancer, Lyon, France)

Principal Investigator: Dr. Aleyamma Mathew

13. Meta analysis of anthropometric factors and cancer risk. (Funded by: University of Kerala)

Principal Investigator: Dr. Aleyamma Mathew

14. Progression or regression of Cervical Intraepithelial Neoplasia after a period of three and five years– among a cohort of

asymptomatic women who attended a Pap smear screening programme.

Principal Investigator – Dr. Kalavathy M.C.

15. Meta analysis of occupation and the risk of various cancers.

Principal Investigator: Dr. Preethi Sara George

16. Estimation of burden of cancer and projection of cancer load in Kerala.

Principal Investigator: Dr. Preethi Sara George

2. Academic activities

- Published annual reports of Hospital Based Cancer Registries (2006 & 2007), biennial report of Population Based Cancer Registry (2005-2006) and progress report of District Cancer Control Programme (2007-2008)
- Teaching and training in bio-statistics and epidemiologic methods to postgraduate students and professionals of RCC.
- Guiding students undergoing Doctoral research programme in Bio-statistics/ Epidemiology under the University of Kerala and M.Sc. Biostatistics of Mahatma Gandhi University, Kottayam.

Ongoing Doctoral Programmes

Research Topics

1. Risk factors of breast cancer: a multivariate analysis.
2. Risk estimates of bladder cancer: multiple logistic regression model.
3. Risk factors of kidney cancer: a matched case-control study.
4. Performance status and quality of life of ovarian cancer patients.

3. Cancer Registries: Summary reports

A. Hospital Based Cancer Registry [HBCR], (2007 & 2008)

A total of 11,300 new patients and 12,055 new patients were registered in 2007 and 2008 respectively. A 6% rise in patient registration was noted in 2008 when compared to the previous year. Among these, 9913 cases (5082 males and 4831 females) of 2007 (88% of total) and 10,494 cases (5273 males and 5221 females) of 2008 (87.1% of total) were diagnosed to have invasive cancers. Among males, the commonest cancer sites were oral cavity, lung, leukemia and lymphoma in both the years. The relative proportion of lung cancer has increased

nearly by 1% in the year 2008 compared to that in 2007. In females, the commonest sites were breast, cervix uteri, thyroid and oral cavity. Thyroid cancer is the second leading cancer among females in 2008 as against cancer of the cervix uteri in previous years (Tables 12-16).

Table 12: HBCR: Number (#) and relative proportion (%) of leading cancer sites (2007 & 2008) (Male)

ICD-10	Site	2007			2008		
		#	%	Rank	#	%	Rank
C00-06	Oral cavity	793	15.6	1	812	15.4	1
C09-10, C12-14	Pharynx	300	5.9	5	296	5.6	5
C15	Esophagus	227	4.5	7	206	3.9	8
C16	Stomach	222	4.4	8	233	4.4	7
C19-20	Rectum	144	2.8	10	163	3.1	10
C32	Larynx	236	4.6	6	239	4.5	6
C33- C34	Lung	684	13.5	2	747	14.2	2
C70- C72	Brain & nervous system	147	2.9	9	160	3.0	11
C73	Thyroid	141	2.8	11	173	3.3	9
C81-C85 & C96	Lymphoma	327	6.4	4	331	6.3	4
C91- C95	Leukemia	441	8.7	3	441	8.4	3
C00-C96	Total	3662	72.0		3801	80.5	
	All Sites	5082			5273		

Table 13: HBCR: Number (#) and relative proportion (%) of leading cancer sites (2007 & 2008) (Female)

ICD-10	Site	2007			2008		
		#	%	Rank	#	%	Rank
C00-06	Oral cavity	392	8.1	4	466	8.9	4
C19-20	Rectum	104	2.2	11	125	2.4	10

C33- C34	Lung	127	2.6	9	141	2.7	9
C50	Breast	1416	29.3	1	1486	28.5	1
C53	Cervix uteri	495	10.2	2	492	9.4	3
C54	Corpus uteri	132	2.7	8	187	3.6	7
C56	Ovary	224	4.6	6	292	5.6	6
C70- C72	Brain & nervous system	105	2.2	10	99	1.9	11
C73	Thyroid	491	10.2	3	602	11.5	2
C81-C85 & C96	Lymphoma	167	3.5	7	155	3.0	8
C91- C95	Leukemia	278	5.8	5	323	6.2	5
C00-C96	Total	3931	81.4		4368	83.7	
	All Sites	4831			5221		

Table 14: HBCR: System-wise distribution (%) of cancer sites (2007 & 2008)

Male		Site	Female	
2007	2008		2007	2008
2.9	3.0	Brain & Nervous System	2.2	1.9
22.3	22.1	Oral Cavity & Pharynx	9.5	10.6
2.8	3.3	Thyroid	10.2	11.5
19.2	19.8	Respiratory System	3.4	3.6
0.2	0.2	Breast	29.3	28.5
8.8	8.3	Esophagus & Stomach	3.2	2.6
9.2	9.6	Other Digestive Organs	5.1	5.5
3.5	3.5	Urinary tract	0.7	0.5
4.1	4.0	Reproductive System	18.9	19.9
4.4	4.2	Bone, Connective tissue & Skin	3.0	2.9
10.6	8.4	Leukemia & Myeloma	7.1	6.2

6.4	6.3	Lymphoma	3.5	3.0
5.6	7.3	All Others	4.0	3.4
5082	5273	Total	4831	5221

Table 15: HBCR: Number (#) & relative proportion (%) of cancer sites (2007 & 2008) (Male)

ICD-10	Site	2007		2008	
		#	%	#	%
C00	Lip	10	0.2	22	0.4
C01	Base of tongue	42	0.8	44	0.8
C02	Tongue	290	5.7	313	5.9
C03	Gum	107	2.1	106	2.0
C04	Floor of mouth	66	1.3	62	1.2
C05	Palate	42	0.8	35	0.7
C06	Other mouth	236	4.6	230	4.4
C07	Parotid gland	29	0.6	21	0.4
C08	Salivary gland	4	0.1	6	0.1
C09	Tonsil	29	0.6	35	0.7
C10	Oropharynx	139	2.7	112	2.1
C11	Nasopharynx	38	0.7	32	0.6
C12	Pyiform sinus	76	1.5	77	1.5
C13	Hypopharynx	49	1.0	64	1.2
C14	Pharynx unspecified	7	0.1	8	0.2
C15	Oesophagus	227	4.5	206	3.9
C16	Stomach	222	4.4	233	4.4
C17	Small intestine	9	0.2	14	0.3
C18	Colon	86	1.7	122	2.3
C19	Rectosigmoid colon	19	0.4	27	0.5
C20	Rectum	125	2.5	136	2.6
C21	Anus & anal canal	11	0.2	9	0.2
C22	Liver	110	2.2	99	1.9

C23	Gall bladder	8	0.2	7	0.1
C24	Other biliary tract	23	0.5	13	0.2
C25	Pancreas	77	1.5	78	1.5
C30	Nasal cavity	14	0.3	7	0.1
C31	Accessory sinus	33	0.6	35	0.7
C32	Larynx	236	4.6	239	4.5
C33	Trachea	2	0.0	0	0.0
C34	Lung	682	13.4	747	14.2
C37	Thymus	1	0.0	2	0.0
C38	Heart & mediastinum	9	0.2	13	0.2
C40	Bone of limbs	44	0.9	40	0.8
C41	Other bone	18	0.4	23	0.4
C43	Skin melanoma	26	0.5	20	0.4
C44	Skin other	66	1.3	71	1.3
C47	Peripheral nerves system	1	0.0	0	0.0
C48	Retroperitoneum	15	0.3	16	0.3
C49	Connective tissue	67	1.3	69	1.3
C50	Breast	11	0.2	10	0.2
C60	Penis	30	0.6	35	0.7
C61	Prostate	149	2.9	150	2.8
C62	Testis	28	0.6	28	0.5
C63	Other genital organs	3	0.1	3	0.1
C64	Kidney	62	1.2	64	1.2
C65	Renal pelvis	2	0.0	4	0.1
C66	Ureter	2	0.0	6	0.1
C67	Urinary bladder	108	2.1	106	2.0
C68	Other urinary organs	2	0.0	0	0.0
C69	Eye	10	0.2	8	0.2
C70	Meninges	0	0.0	1	0.0
C71	Brain	142	2.8	152	2.9

C72	Spinal cord	5	0.1	7	0.1
C73	Thyroid gland	141	2.8	173	3.3
C74	Adrenal gland	8	0.2	17	0.3
C75	Other endocrine gland	1	0.0	3	0.1
C76	Ill defined sites	5	0.1	5	0.1
C77	Secondary lymphnode	86	1.7	90	1.7
C78	Secondary respiratory & digestive	42	0.8	57	1.1
C79	Secondary Other sites	58	1.1	46	0.9
C80	Primary unknown	26	0.5	34	0.6
C81	Hodgkins disease	77	1.5	89	1.7
C82	Follicular NHL	51	1.0	33	0.6
C83	Diffuse NHL	139	2.7	136	2.6
C84	T-cell lymphoma	16	0.3	20	0.4
C85	Other NHL	36	0.7	46	0.9
C90	Multiple myeloma	98	1.9	109	2.1
C91	Leukemia, lymphoid	196	3.9	186	3.5
C92	Leukemia, myeloid	203	4.0	203	3.8
C93	Leukemia, monocytic	21	0.4	30	0.6
C94	Other specified leukaemia	3	0.1	6	0.1
C95	Leukemia, unspecified	18	0.4	16	0.3
C96	Other lymphoid neoplasm	8	0.2	7	0.1
	All Sites	5082	100	5273	100

Table 16: HBCR: Number (#) & relative proportion (%) of Cancer sites (2007 & 2008) (Female)

ICD-10	Site	2007		2008	
		#	%	#	%
C00	Lip	19	0.4	19	0.4
C01	Base of tongue	4	0.1	1	0.0
C02	Tongue	130	2.7	163	3.1

C03	Gum	79	1.6	91	1.7
C04	Floor of mouth	6	0.1	7	0.1
C05	Palate	13	0.3	20	0.4
C06	Other mouth	141	2.9	165	3.2
C07	Parotid gland	18	0.4	25	0.5
C08	Salivary gland	4	0.1	6	0.1
C09	Tonsil	5	0.1	6	0.1
C10	Oropharynx	5	0.1	4	0.1
C11	Nasopharynx	19	0.4	16	0.3
C12	Pyriiform sinus	6	0.1	9	0.2
C13	Hypopharynx	30	0.6	16	0.3
C14	Pharynx unspecified	2	0	5	0.1
C15	Oesophagus	87	1.8	61	1.2
C16	Stomach	67	1.4	76	1.5
C17	Small intestine	7	0.1	2	0.0
C18	Colon	56	1.2	77	1.5
C19	Rectosigmoid colon	16	0.3	15	0.3
C20	Rectum	88	1.8	110	2.1
C21	Anus & anal canal	8	0.2	6	0.1
C22	Liver	22	0.5	28	0.5
C23	Gall bladder	10	0.2	9	0.2
C24	Other biliary tract	4	0.1	8	0.2
C25	Pancreas	35	0.7	34	0.7
C30	Nasal cavity	10	0.2	11	0.2
C31	Accessory sinus	14	0.3	19	0.4
C32	Larynx	7	0.1	12	0.2
C33	Trachea	3	0.1	0	0.0
C34	Lung	124	2.6	141	2.7
C37	Thymus	1	0	2	0.0
C38	Heart & mediastinum	5	0.1	2	0.0

C40	Bone of limbs	18	0.4	18	0.3
C41	Other bone	15	0.3	14	0.3
C43	Skin melanoma	18	0.4	17	0.3
C44	Skin other	26	0.5	45	0.9
C48	Retroperitoneum	18	0.4	9	0.2
C49	Connective tissue	70	1.4	57	1.1
C50	Breast	1416	29.3	1486	28.5
C51	Vulva	9	0.2	13	0.2
C52	Vagina	25	0.5	24	0.5
C53	Cervix uteri	495	10.2	492	9.4
C54	Corpus Uteri	132	2.7	187	3.6
C55	Uterus, nos	21	0.4	22	0.4
C56	Ovary	224	4.6	292	5.6
C57	Other female genital organs	5	0.1	6	0.1
C58	Placenta	3	0.1	1	0.0
C64	Kidney	14	0.3	13	0.2
C65	Renal pelvis	2	0	0	0.0
C66	Ureter	1	0	0	0.0
C67	Urinary bladder	14	0.3	12	0.2
C68	Other urinary organs	1	0	0	0.0
C69	Eye	9	0.2	4	0.1
C70	Meninges	0	0	1	0.0
C71	Brain	103	2.1	94	1.8
C72	Spinal cord	2	0	4	0.1
C73	Thyroid gland	491	10.2	602	11.5
C74	Adrenal gland	10	0.2	11	0.2
C75	Other endocrine gland	3	0.1	2	0.0
C76	Ill defined sites	3	0.1	8	0.2
C77	Secondary lymphnode	29	0.6	17	0.3

C78	Secondary respiratory & digestive	46	1	28	0.5
C79	Secondary Other sites	28	0.6	19	0.4
C80	Primary unknown	24	0.5	19	0.4
C81	Hodgkins disease	42	0.9	26	0.5
C82	Follicular NHL	28	0.6	29	0.6
C83	Diffuse NHL	59	1.2	63	1.2
C84	T-cell lymphoma	7	0.1	5	0.1
C85	Other NHL	23	0.5	26	0.5
C90	Multiple myeloma	66	1.4	60	1.1
C91	Leukemia, lymphoid	101	2.1	119	2.3
C92	Leukemia, myeloid	138	2.9	158	3.0
C93	Leukemia, monocytic	24	0.5	26	0.5
C94	Other specified leukaemia	3	0.1	2	0.0
C95	Leukemia, unspecified	12	0.2	18	0.3
C96	Other lymphoid neoplasm	8	0.2	6	0.1
	All sites	4831	100	5221	100

B. Population Based Cancer Registry (PBCR), Thiruvananthapuram District (2005-2006)

The PBCR provides data on cancer incidence and mortality covering a population of nearly 9.4 lakhs in Thiruvananthapuram Corporation and 24.7 lakhs in the rest of area from the Thiruvananthapuram district as on January 2006. Age-adjusted incidence rates (AAR) per 100,000 population of all cancers and the ten leading cancer sites in the district are given in Tables 17 & 18.

Table 17: PBCR: Leading cancer sites: Thiruvananthapuram Corporation (2005-2006)

Rank	Male (n=936)			Female (n=953)		
	ICD-10	Site	AAR	ICD-10	Site	AAR
1	C00-06	Oral cavity	10.62	C50	Breast	28.87
2	C33-34	Lung	9.19	C53	Cervix uteri	7.08
3	C61	Prostate	6.15	C73	Thyroid	5.2

4	C32	Larynx	5.31	C00-06	Oral cavity	4.84
5	C9, 10, 12-14	Pharynx	4.29	C56	Ovary	4.28
6	C16	Stomach	4.15	C54	Corpus uteri	3.91
7	C91-C95	Leukemia	4.08	C81-C85, C96	Lymphoma	2.94
8	C81-C85, C96	Lymphoma	4.03	C91-C95	Leukemia	2.85
9	C15	Esophagus	2.84	C33-34	Lung	1.82
10	C70-C72	Brain & nerves	2.75	C70-C72	Brain & nerves	1.77
	C00-C96	All sites	93.4	C00-C96	All sites	86.5

**Table 18: PBCR: Leading cancer sites: Thiruvananthapuram
District (2005-2006)**
(Corporation area excluded)

Rank	Male (n=2413)			Female (n=2309)		
	ICD-10	Site	AAR	ICD-10	Site	AAR
1	C33-34	Lung	12.29	C50	Breast	19.43
2	C00-06	Oral cavity	12.15	C53	Cervix uteri	7.81
3	C16	Stomach	4.41	C00-06	Oral cavity	5.58
4	C32	Larynx	4.19	C73	Thyroid	5.06
5	C 9 , 10,12-14	Pharynx	3.94	C56	Ovary	4.18
6	C91-C95	Leukemia	3.83	C91-C95	Leukemia	3.57
7	C 8 1 - C 8 5 , C96	Lymphoma	3.63	C33-34	Lung	2.13
8	C15	Esophagus	3.33	C54	Corpus uteri	1.87
9	C61	Prostate	2.56	C81- C85, C96	Lymphoma	1.68

10	C70-C72	Brain & nerves	1.70	C70-C72	Brain & nerves	1.38
	C00-C96	All sites	101.9	C00-C96	All sites	81.1

4. Cancer Control Programmes: Summary statistics

A. Thiruvananthapuram Corporation Cancer Control Programme (TCCP) (Co-ordinator: Dr. Kalavathy M.C.)

Cancer awareness classes, cancer detection camps and house-to-house visits by trained volunteers were conducted in the above area.

No. of cancer awareness programmes conducted	–	86
No. of cancer detection camps conducted	–	52
No. of patients examined for uterine cervical cancer	–	1785
No. of patients examined for breast cancer	–	5785
<i>(includes patients screened at RCC and Women and Children hospital, Thycaud)</i>		
No. of patients examined for tobacco related cancers	–	7259
<i>(includes patients screened at RCC and Women and Children hospital, Thycaud)</i>		
No. of mammogram done from TCCP	–	31
No. of patients receiving free treatment from TCCP	–	45
No. of FNACs & Ultrasound scan done from TCCP	–	134
No. of mammogram done without support from TCCP	–	113

Table 19: TCCP: Details of camps conducted

No	Place	Cervical cancer			Breast cancer		Oral cancer		
		Nos. screened	Pre-cancers	Cancers	Nos. screened	Cancers	Nos. screened	Pre-cancers	Cancers
1	Konchiravila 20/04/2008	16	0	0	33	0	33	3	0
2	Maruthankuzhy 18/05/2008	11	0	0	82	1	82	2	1

3	Thiruvallom 25/05/2008	14	1	1	32	0	35	0	0
4	Muttada 01/06/2008	27	0	1	98	1	117	1	0
5	Vazhamuttom 08/06/2008	44	2	0	68	0	70	2	0
6	PTP Nagar 14/06/2008	11	2	0	26	0	59	2	0
7	Muttathara 15/06/2008	46	2		80	1	95	1	0
8	Attipra, 2/06/2008	22	0	0	36	0	42	1	0
9	Thycaud 29/06/2008	24	0	0	62	0	91	2	1
10	Ambalathara 13/07/2008	21	1	0	45	0	11	2	1
11	Thirumala 20/07/2008	90	3	1	81	0	91	4	0
12	Kalady 27/07/2008	24	2	1	66	0	66	0	0
13	Karimatom colony	6	0	0	52	0	52	6	0
14	Sreevaraham 10/08/2008	16	0	0	40	0	49	0	0
15	Veli 15/08/2008	47	0	0	41	0	47	3	0
16	Perunthanny 17/08/2008	33	0	0	56	0	56	4	1
17	Mudavanmughal	19	0	0	44	0	44	0	0
18	Thiruvallom 30/08/2008	41	0	0	75	0	89	0	0
19	Sreekanteswaram	21	1	0	55	1	69	2	0
20	Poonthura 20/07/2008	20	0	1	79	0	79	15	1
21	Fort 27/08/2008	46	0	0	94	0	116	3	0
22	Nalanchira 28/09/2008	35	1	0	67	0	81	1	0

23	Kuriathy 02/10/2008	32	0	0	61	1	93	5	0
24	Kulathoor 05/10/2008	22	0	0	52	1	55	0	0
25	Jagathy 10/10/2008	26	0	1	58	1	63	1	0
26	Karamana 12/10/2008	51			94	0	147	4	1
27	Bheemapally 19/10/2008	29	---	---	61	0	69	6	0
28	Mannammoola 26/10/2008	34	---	---	85	0	85	4	0
29	Pettah 27/10/2008	60	---	---	99	0	126	0	0
30	Mannanthala 31/10/2008	69	1	--	115	0	125	3	0
31	Museum 09/11/2008	26	--	--	64	0	100	3	0
32	Pattom 12/11/2008	34	--	--	76	0	92	0	0
33	Palayam 16/11/2008	12	--	--	30	0	37	1	0
34	Kannammoola 23/11/2008	15	--	--	29	0	37	1	0
35	Valiathura 29/11/2008	16	--	--	31	0	37	2	0
36	Kunnukuzhy 30/11/2008	14	2	--	49	1	56	1	0
37	Karamana 07/12/2008	13	0	0	46	0	53	1	0
38	Chenkalchoola 13/12/2008	42	4	0	98	1	99	9	0
39	Kamaleswaram 14/12/2008	35	4	0	74	1	80	0	0
40	Pachalloor 28/12/2008	30	2	0	93	0	98	7	1

41	Nanthancode 11/01/2009	25	1	0	31	1	35	1	0
42	Vattiyoorkkavu 18/01/2008	24	1	0	50	0	55	0	0
43	Fort 21/01/2009	38	0	0	67	0	67	0	0
44	Palkulangara 25/01/2009	14	0	0	68	0	74	3	0
45	Chalai 26/01/2009	40	0	0	70	2	79	6	0
46	AKG Centre	15	1	0	44	0	52	2	0
47	Punnakkamughal 18/02/2009	18	1	0	48	0	54	0	0
48	PTP Nagar 22/02/2009	14	0	0	33	0	39	2	1
49	Punkulam 25/02/2009	29	0	0	94	0	104	4	0
50	Vazhuthacaudu 28/02/2009	15	0	0	22	1	27	1	0
51	Peroorkkada 01/03/2009	47	1	0	89	0	98	4	0
52	Pangode 15/03/2009	11	0	0	26	0	30	2	0
	Total	1484	22	6	3169	14	3640	130	8

B. Cancer detection programmes conducted in collaboration with Federation of Residents' Association, Thiruvananthapuram.
(Co-ordinator – Dr. Kalavathy M.C.)

14 Cancer detection camps were conducted. Out of the 338 women undergone Papsmear testing, 17 were diagnosed to have cervical precancers and 1 with cervical cancer. Breast screening detected cancer in 2 women.

C. Regular cancer screening clinics in hospitals
(Co-ordinator – Dr. Kalavathy M.C.)

Cervical cancer screening is conducted twice a week in a peripheral government hospital in Thiruvananthapuram Corporation (Women & Children Hospital, Thycaudu). Out of the 1939 Pap-smears

collected, 18 precancers and 12 cancers were detected.

D. District Cancer Control Programme (DCCP), Thiruvananthapuram.

Conducted 39 DCCP camps and clinically examined 1932 women for breast cancer. 3 breast cancers, 1 penis cancer, 2 oral cancers, 1 urinary bladder cancer and 1 laryngeal cancer were detected.

E. Cancer Detection Programmes in Cashew factories.

Conducted 26 cancer detection programmes in cashew factories of Kollam District under the programme of the Kollam Jilla Panchayath.

5. Merits received, Conference attended, Papers presented, Talks delivered

Dr. Aleyamma Mathew

External examiner, M.Sc. Biostatistics Core-Committee, Mahatma Gandhi University, Kottayam and Research Guide in Epidemiology, University of Kerala and Mahatma Gandhi University.

Ph.D Thesis examiner, International Institute for Population Sciences (Deemed University), Deonar, Mumbai.

Member of the Doctoral Advisory Committee, Achutha Menon Centre for Health Science Studies, Sree Chitra Tirunal Institute for Science and Technology, Thiruvananthapuram.

Member, Asia Cohort Consortium Meeting.

Reviewer, 'Indian Journal of Cancer', 'Indian Journal of Community Medicine' and 'Journal of Public Health'.

UGC sponsored National Seminar on Nutrigenomics, Thiruvananthapuram. 26 September 2008. Talk on: 'Cancer and life-style: special emphasis on diet'.

RCC Directors' meet, Thiruvananthapuram, 29 September 2008. Talk on: 'District Cancer Control Programme : work report'.

Meeting on National Cancer Registry Programme of India, Bangalore. 1-3 December 2008. Talk on: 'Pattern of care and survival studies on breast, cervix and head & neck cancers'.

National seminar on Bio-statistics, Nedumkandam, Idukki, Kerala. 3-4 February 2009. Talk on: 'Applications of stochastic process in medicine'.

Dr. Kalavathy M.C.

Trainer of Homeo medical students and nursing students in early cancer detection programmes.

International symposium on Human Papillomavirus - associated cancers: translating research into cancer prevention and medicine, Rajiv Gandhi Centre for Biotechnology, Thiruvananthapuram. 1-3 November, 2008.

14th World conference on Tobacco or Health, Mumbai. 8-12 March 2009. Paper on: 'Tobacco access and use - a survey among the senior grade schools in the capital city of Trivandrum, Kerala, India.'

Dr. Preethi Sara George

Supervisor, Post-graduate thesis in Bio-statistics, Mahatma Gandhi University, Kottayam.

Talk on: 'Prevention and early detection of common cancers and the role of Homoeo Medical Practitioners in cancer prevention', Govt Homoeo Medical College, Thiruvananthapuram. 26th February 2008.

CLINICAL LABORATORY SERVICES

Dr. Thomas Abraham

Scientific Officer Gr.I

Activities of the Division included specimen collection, processing, analysis and reporting of various tests for both out-patients and in-patients. About 1 million tests are being carried out annually. During the report period, the division provided services to 21,965 patients including review cases. On an average a patient made use of the services of this division about 9 times.

Token system introduced for collection of blood samples has increased the efficiency of the lab in terms of quality and reduction in turn around time. Average turn around time is about 1.2 hours for haematology and 1.5 hours for clinical chemistry and coagulation profile. This has led to quick patient flow and more relaxed atmosphere for both patients and staff. Improvement in working conditions of staff was also noticed after introducing the token system.

The division comprises of Phlebotomy, Clinical chemistry and Haemotology laboratories.

Phlebotomy

The phlebotomy lab provided services mainly to out-patients of this Centre. These included blood collection, provision of containers for urine and instructions for 24-hour urine sample collection for creatinine clearance test. The lab carries out approximately 1.5 lakh collection related procedures annually.

Clinical Chemistry

A notable achievement during the report period was the acquisition of a fully automated high through-put clinical chemistry analyser (Vitros Fusion). This facilitated improvement in the quality as well as turn around time.

Clinical chemistry lab processes, analyses and reports about 400,000 tests annually. The lab carried out several additional investigations which included total CO₂, Lipase, Lipid profile, C- reactive

protein, Gamma Glutamyl Transferase (GGT), Bilirubin conjugated, Bilirubin unconjugated, Magnesium, Serum Iron, Total Iron Binding Capacity (TIBC) etc. Measurement of Bilirubin and its fractions in blood specimens provided additional diagnostic information for clinicians when compared to the total bilirubin alone. Assay for determination of Bilirubin conjugated and Bilirubin unconjugated were continued to be done this period also. Special tests like serum immunoglobulin estimation, Serum electrophoresis etc. were also being carried out. Urine analysis section analysed and reported about 10,000 samples (Sugar, Protein, pH, Specific gravity, Ketone, Urobilinogen, Deposits etc.).

Haematology

Haematology section carried out about 0.5 million tests which included automated haematology (Haemoglobin, Total WBCs, Platelets, PCV, RBC etc.). Differential count and reticulocyte count were carried out by microscopy. Daily QC analysis is also being carried out for automated haematological analysis.

Quality assurance

Daily QC analysis is also done for clinical chemistry as well as for haematology. The division has been a participant in the External Quality Assurance Services Bio-Rad Laboratories, USA for Clinical Chemistry proficiency testing programme. The department has been actively supporting and collaborating with several clinical research projects.

Table 20: Investigations done

Biochemical Investigations	No.
Sugar	49460
Urea	36052
Creatinine	41548
Uric Acid	22596
Bilirubin	25737
Other Bilirubin fractions (Direct bilirubin, Conjugated & Unconjugated bilirubin, Delta bilirubin & Neonatal bilirubin)	3634
SGOT (AST)	25216

SGPT (ALT)	26277
Alkaline Phosphatase	21213
Gamma Glutamyl Transferase	188
Total Protein	16385
Albumin	16276
Globulin	16276
C- Reactive protein	224
Cholesterol	601
Lipid profile (HDL, LDL & Triglyceride)	382
Sodium	35196
Potassium	35196
Chloride	870
Total CO2	443
Calcium	21446
Phosphorous	1570
Magnesium	1681
Iron	45
Total Iron Binding Capacity	35
Creatinine Clearance Test	1614
LDH	5059
Amylase	468
Lipase	120
CSF (sugar & protein)	167
Serum Immunoglobulin assay (IgG, IgA & IgM)	761
Serum Electrophoresis	595
Haematology Investigations	No.
Haematology CBC (Haemoglobin, WBC & Platelets Count)	128259
Differential Count	12552
Reticulocyte count	30

ESR	4235
Coagulation parameters	No.
Bleeding Time/Clotting Time	3706
Prothrombin Time	2409
APTT	431
Urinalysis	No.
Urine Routine (Sugar, Protein, pH, Specific gravity, Ketone, Urobilinogen, Deposits etc.)	11806
Bence-Jones Protein	182

Human Resource Development

Training was imparted to graduate and post-graduate students of Laboratory technology from various Colleges and Universities. Short term industrial training was also given to graduate and post-graduate students of Biological Sciences stream. Similarly, 15 Biochemistry post-graduates underwent intensive training for 3 - 6 months. Eight M.Sc. students and one MHA student completed their project dissertation in the division. Short term training, upto one month was given to several B.Sc. (MLT) and B.Sc. Biotechnology/ Microbiology students.

MICROBIOLOGY

Dr. Swapna R. Nath Assistant Professor & Head

The Division was formally inaugurated by Dr. B. Rajan, Director of RCC in October 2008 and become fully operational by December 2008. The establishment of the Microbiology lab has filled up one of the lacunas in the infrastructural facilities of RCC.

At present the division is providing bacteriological services, including tests for bacterial identification such as bacterial culture, biochemical reactions and serological tests and antibiotic sensitivity tests. The Division was able to isolate causative organisms including acid fast bacteria and fungi from the patient samples, which has contributed to not only better clinical outcome in patients but provided valuable inputs in the evaluation of a hospital outbreaks also. Constant monitoring and evaluation of sterility in operation theatres, ICUs, Bone Marrow Transplant Unit and other critical care areas were also under the purview of the Division. Future plans include automated blood culture and TB culture.

Table 21: Investigations done (January – March '09)

Investigation	Number
Blood culture	163
Urine culture	122
Exudate culture (pus aspirates, pus swabs, catheter tips, biopsy specimens, other aspirates)	193
Sputum culture	65
Throat swab culture	32
CSF culture	3
Faeces culture	10
Surveillance cultures	11
Routine culture and sensitivity + anaerobic culture	35
Fungal culture	4
AFB culture	8
Widal test	1
AFB staining	63

Academic activities

One month observership training for B.Sc.(M.L.T) students.

Training programme/CME attended**Dr. Swapna R. Nath**

Observer training in 'Infection control' for one week, at CMC Vellore. June 2008.

CME on 'Hospital acquired infections', Medical College, Thiruvananthapuram. August 2008.

BLOOD BANK

Dr. Vijayalakshmi K.

Assistant Professor & Head

Dr. Jayalekshmi P.

Resident Medical Officer

Dr. Rajesh R. Chandran

Resident Medical Officer

Blood Bank is a round the clock functioning department, with cent percentage component separation facility and apheresis. The transfusion services of the Blood Bank meet the requirement of not only the patients of RCC but of hospitals in and around Thiruvananthapuram city also.

The Division has acquired an Automated ELISA machine-DAVINCI QUATRO and one Cryofuge with 12 bag capacity during the reporting period.

National AIDS Control Organization (NACO) has recognized the Division as a major Blood bank with component separation facility and regularly providing it with kits, reagents and consumables. NACO has also provided one Lab Technician and a Counsellor as staff members to this division.

Routine activities

- Collection of blood from voluntary and replacement donors.
- Processing of blood and separation into components like Red cells, Platelets and Plasma.
- Issue of blood and blood components to oncology and surgery patients of RCC and to patients of hospitals in and around Thiruvananthapuram City.
- 32 numbers of plateletapheresis were done during the period.
- The Division has conducted 13 outdoor and 2 inhouse blood collection camps.
- All positive cases of the transmissible diseases detected were traced, called back, counselled and referred to higher centers for confirmation and further advice.

Academic activities

- Three months training to M.Sc. (M.L.T) students, from other institutions as part of their project works.

- Monthly training classes for nursing staff.
- Regular training classes for B.Sc. (M.L.T) & D M.L.T students.
- Provided observational training on good Blood Banking practices for staff members from Terumo Penpol and Hindustan Latex Ltd. The details of the work done during the period are depicted below. (Tables 22 to 25).

Table 22: Blood collection details

Donors	Number
Male	18570
Female	531
Total	19101

Table 23: Blood component separation

PRC*	PRP*	FFP*	PC*
18910	16155	2599	2599

Table 24: Blood component issue

	PRC*	PRP*	FFP*	PC*
To RCC	14076	16115	2361	2517
To Other Hospitals	1725	--	--	--

**(PRC-Packed Red Cell; PRP-Platelet Rich Plasma; FFP-Fresh Frozen Plasma; PC-Platelet Concentrates)*

Table 25: Transmissible diseases detected

HbsAg	HCV	HIV	VDRL
157	16	40	4

Conference attended

Dr. Vijayalakshmi K.

Conference on 'Haemotherapy', Al Shifa Hospital, Perinthalmanna. 5 August 2008. Paper: 'Stem cell processing and leucoreduction'.

NURSING SERVICES

Smt. Sreelekha R.	Chief Nursing Officer (From 05.04.2008)
Smt. Flower Augustine	Nursing Superintendent Gr.II

The Division is responsible for rendering comprehensive Nursing care to cancer patients at all stages of their illness. The Division carried out an array of activities for the benefit of the nursing staff which included monthly classes on subjects of clinical importance, CME on chemotherapy and in-service classes for Nursing Assistants. Awareness classes were organized for Nurses, Nursing Assistants & Cleaners on infection control activities in connection with 'Infection Control Week', which was celebrated from 20 - 26 October 2008.

Academic activities

Division offered orientation/observation update, clinical experience and training to Nursing students from Govt. as well as private Institutions.

Orientation Update

1. B.Sc. Nursing students, Karolinka Institute, Sweden. 2 June 2008 & 13 January 2009. (25 Nos. each)
2. B.Sc. Nursing students, S.N. College of Nursing, Kollam. 4th & 8th August 2008. (50 Nos.)
3. B.Sc. Nursing students, KVM College of Nursing, Cherthala. 3rd November 2008. (49 Nos.)
4. B.Sc. Nursing students, Sree Mookambika College of Nursing, Kulashekaram. 9th December 2008. (49 Nos.)

Clinical Experience

1. B.Sc. Nursing students, College of Nursing, Thiruvananthapuram. 9-28 June 2008. (50 Nos.)
2. B.Sc. Nursing students, Benziger College of Nursing. 21 July - 2 August 2008. (49 Nos.)
3. M.Sc. Nursing students, College of Nursing, Thiruvananthapuram. 1-13 September 2008 (8 Nos.), from 22-27 September 2008 (7 Nos.) and 2-14 February 2009. (8 Nos.)
4. B.Sc. Nursing students, VNSS College of Nursing, Kollam from

- 16-26 September 2008. (50 Nos.)
5. M.Sc. Nursing students, College of Nursing, Calicut from 27- 31 January 2009. (6 Nos.)
 6. B.Sc. Nursing students, College of Nursing, St. Joseph's Hospital, Anchal. 21-28 February 2009. (15 Nos.)
 7. B.Sc. Nursing students, Upasana College of Nursing, Kollam. 2-7 March 2009 (1st Batch) and 7-14 March 2009 (2nd Batch). (50 Nos.)
 8. B.Sc. Nursing students, College of Nursing, Bishop Benziger College of Nursing. 16-21 March 2009 (1st Batch) and 23-28 March 2009 (2nd Batch). (50 Nos.)

Training programmes

1. 'Managerial skills for nurse managers-I' for Nurse Administrators sponsored by DGHS, Govt. of India. 27 January - 6 February 2009.
2. 'Oncology nursing update-I' for registered Nurses sponsored by DGHS, Govt. of India. 16-26 February 2009.

Nursing Assistants Training

7th batch Nursing Assistant trainees were on their apprenticeship (16 Nos.)

Conferences/Training programmes attended

Mrs. Mariamma James

'Evolving trends in nursing care', KIMS Hospital, Thiruvananthapuram .18 April 2008.

Mrs. Lizyamma Jacob

'Management of work place : a contemporary approach', Sree Chitra Tirunal Institute for Medical Sciences and Technology, Thiruvananthapuram. 30 June - 10 July 2008.

Mrs. Sheela Rodriquez

'Management of work place: a contemporary approach', Sree Chitra Tirunal Institute for Medical Sciences and Technology, Thiruvananthapuram. 17 - 27 September 2008.

Mrs. Elsamma Joseph

'Clinical update in cardiac and neuro nursing', Sree Chitra Tirunal Institute for Medical Sciences and Technology, Thiruvananthapuram. 15-25 October 2008.

Mrs. Sivakumari P.R.

'Clinical update in cardiac and neuro nursing', Sree Chitra Tirunal Institute for Medical Sciences and Technology, Thiruvananthapuram. 12-22 November 2008.

Mrs. Geethakumari B.S.

'Management of work place: a contemporary approach', Sree Chitra Tirunal Institute for Medical Sciences and Technology, Thiruvananthapuram. 12-22 January 2009.

'National Master class on stoma care and wound care', Ganga Hospital, New Delhi. 19- 24 March 2009.

Mrs. Cherupushpam M.

'Inservice training on emergency and trauma care', Medical College Hospital, Thiruvananthapuram 5 March - 3 April 2009.

Mrs. Sindhu R.; Mrs. Ajitha S; Mrs. Gracy Sebastian, Mr. Suraj, Mrs. Mangalam S; Mrs. Saritha S.S; Mrs. Aradhana, Mrs. Amrutha L. Raj, Mrs. Nisha K.Thomas, Mrs. Jyothilekshmi, Mrs. Renjini R.S; Mrs. Sophiya Lilly

'A refresher course for Staff Nurses', College of Nursing, Thiruvananthapuram. 15 November 2008.

Mrs. Sreeja A.P., Mrs. Shijikumari N.G.

'Workshop on prosthetic post laryngectomy vocal, pulmonary & olfactory rehabilitation', Tata Memorial Hospital, Mumbai. 5 - 6 February 2009.

PAIN AND PALLIATIVE CARE

Dr. Cherian M. Koshy	Associate Professor & Head
Dr. Manjula R.	Resident Medical Officer
Dr. Prasanth C.V.	Resident Medical Officer
Dr. Latha P.T.	Lecturer in Sociology

Multifaceted activities of the Division included, routine outpatient clinics, in-patient care, taking care of the physical problems and psychosocial, emotional, financial and spiritual issues of the terminally ill. The Division have support groups, counselling facilities and lymphoedema clinic. Home care and rehabilitation services were done through 'Care Plus'. Regular Tele-clinics were conducted on Tuesdays in collaboration with Adimali Pain and Palliative Care Centre, known by the name 'HELP for the Hills'. [HELP= Hear, Ease, Link, Palliate].

The Division liaises with the National Rural Health Mission (NRHM) in implementing the Palliative Care Policy of Government of Kerala. The Division started an inpatient facility on 3rd March 2009 at Thettivilla Primary Health Centre, Thiruvananthapuram in collaboration with NRHM and Health Services, which is a trio of three government services, the NRHM, Health Services and RCC. Division organized 'Foundation courses in Palliative care for doctors and nurses'. A number of 8 courses were conducted in this respect and 225 professionals were imparted training on the basis of palliative care.

Visitors to this Division included Dr. John Wright, Head, Department of Medicine and Epidemiology and Dr. Helen Ford, Dean, Department of Neurology at Bradford University, UK, who generously contributed to the Home Care programme of the Division through 'Care Plus'.

The 'World Palliative Care Day' was celebrated with great gusto on 11th October 2008, which was inaugurated by Smt. P.K. Sreemathy Teacher, Hon. Minister for Health and Family Welfare, Govt. of Kerala, and was felicitated by Shri. Dinesh Arora, IAS, State Mission Director, NRHM, Govt. of Kerala. A rally was flagged off and two snow white pigeons were released, which signified peace and release from painful captivity.

Table 26: Patients seen

New cases	2700
Review cases	5225
Teleclinic with Adimali	57

Honours/Awards, Conferences attended, Papers presented

Dr. Cherian M. Koshy

Nodal officer for Trivandrum district for implementing the Palliative Care Policy of the Government of Kerala.

Award for Professional Excellence and Meritorious service, 2008: instituted by Sree Sarada Educational Society.

Annual meeting of the International Network for Cancer Treatment and Research (INCTR), Antalya, Turkey. 22-24 March 2009. Best poster: 'Making a difference and leading by Example: palliative care services at the Regional Cancer Centre, Thiruvananthapuram'.

16th annual International conference of Indian Association of Palliative Care, All India Institute of Medical Sciences, New Delhi. 13-15 February 2009. Paper: 'Cost of treating cancer pain in India: a look at some issues involved'.



Release of doves to symbolise 'peace and freedom from captivity' on World Hospice and Palliative Care Day by Smt. P.K. Sreemathi Teacher, Hon'ble Minister for Health and Social Welfare, Govt. of Kerala (11 October 2008)

DENTAL CARE

Dr. Nalinakumari K.R. Assistant Professor
[on leave from 26.02.2009]

During the report period the division provided a variety of treatment modalities for the oral health of cancer patients, as detailed below.

Clinical Activities

1. Minor surgical procedures like oral biopsies.
2. Basic procedures like
 - a) Oral prophylaxis (scaling)
 - b) Conservative therapy
 - c) Dental extractions
 - d) Occlusal adjustments
3. Therapeutic management of pre-cancerous oral lesions.
4. Pre and post-radiation care of teeth including neutral fluoride application.
5. Reconstructive procedures like construction of maxillofacial prosthesis.
6. Management of oral problems like ulcers, spontaneous bleeding, toothache, etc. of patients undergoing chemotherapy
7. Management of temporomandibular problems and trismus.

Pre & post radiation care of teeth

In the pre-radiation care we try to eliminate all the conditions such as caries tooth, root stumps, poor oral hygiene etc. within the oral cavity which are liable to pose a problem during the next 5-10 years after radiation therapy especially in the head & neck region. This includes procedures like oral prophylaxis, conservative therapy, dental extractions and oral hygiene instructions for better maintenance during radiation treatment. Post radiation care mainly includes neutral fluoride therapy, advocated to all patients undergoing radiotherapy in the head and neck region. Neutral fluoride gel application is one of the best possible ways to protect the teeth from sensitivity, post radiation caries, etc. More than 1500 patients have undergone fluoride therapy of which nearly 400 were new cases. This treatment should be continued for about 2-3 years or more from the day of radiation. Patients who are

undergoing this therapy have less complaints of oral cavity than those who do not.

Pre- surgical oral care

In the pre surgical oral care, conditions such as caries tooth, root stumps poor oral hygiene etc. within the oral cavity which is liable to pose a problem during and after surgery and later radiotherapy in almost all cases especially in the head and neck region are eliminated. The same procedures which are mentioned in the pre-radiation dental care are continued. In the post-surgical period, sometimes maxillofacial prosthesis was advocated for correcting deformities of the face.

Post chemotherapy oral care

The burning sensitivity after chemotherapy was managed by the use of smoothing, protecting and antimicrobial oral rinses and ointments. Post-chemo dental caries occurred in some cases were managed by neutral fluoride gel therapy, conservative therapy and proper oral hygiene instructions.

CLINICAL SERVICES AND MEDICAL RECORDS

Mr. Raveendran Nair R.	Administrative officer (Clinical Services)
Mrs. Chandrika D.	Medical Records Officer
Mr. Surendran Nair V.	Public Relations Officer

This division has been entrusted with the management of:

Front Office, Medical Records, Pharmacy, Vehicles, Cancer Care for Life scheme, Patient accounts & billing, all kinds of patient welfare services and Public Relations activities.

1. Total Patient Flow

Patients referred to RCC for consultation and treatment were registered and those who were referred just for the purpose of investigations alone were not registered.

The following table shows the patient attendance statistics during the period, 2008-2009.

Table 27: Hospital statistics (2008-2009)

No.	Item	Number
1	New cases registered	12123
2	Review cases*	151714
3	Total patients (New + Review)	163837
4	Daily average	546
5	Average attendance per patient	14
6	In-Patient admissions	9838
7	Total bed occupancy	94789
8	In-Patient bed**	278
9	Average bed occupancy	260
10	Percentage of bed occupancy	94
11	Average length of stay	10
12	Hospital death	671
13	Telemedicine consultations	2437

*Follow up at peripheral centers, tele clinic, palliative care, clinic to clinic consultation, review during treatment etc. are not included.

** Day care chemo ward, cubicle chemo ward and other admissions not meant for overnight stay are not included.

Figures 7 & 8 show the trend in the increase of new patients registration.

Fig. 7: New registrations (1982-2008)

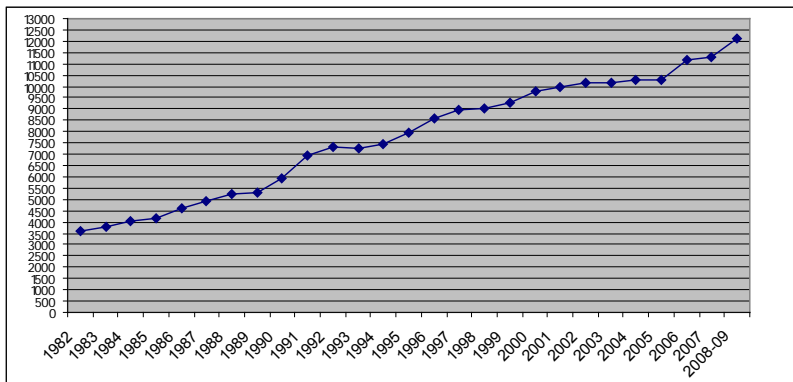
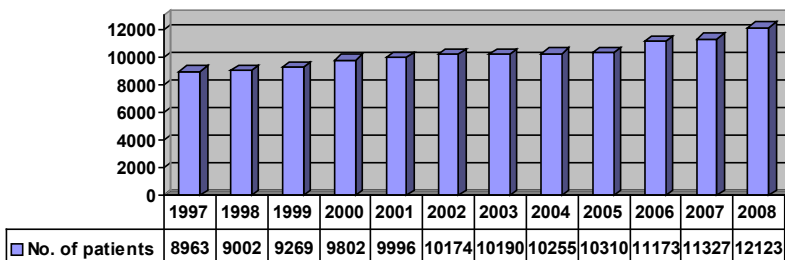


Fig. 8: New registrations: Absolute numbers (1997-2008)

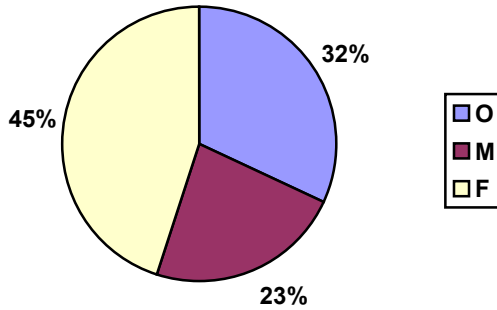


2. Patient categories

Patients referred to RCC were assessed and classified for registration into the following categories:

- O – Affordable to pay fully
- M – Affordable to pay partially
- F – Not affordable to pay but a little (Radiation totally free)

Fig. 9: New registration: Category wise distribution (2008-09)



Out of the registered cases, applications were received from 1329 patients for re-considering their income category. A designated committee reviewed all applications on a monthly basis and decided to change the category of 52 patients from 'O' to 'F', 326 from 'O' to 'M' and 521 from 'M' to 'F'. Concession for treatment was given to 113 patients.

3. Patient statistics: Different breakups (2008-2009)

Every new patient was registered in the site specific clinic. Compared to previous year, percentage wise distribution of cases remains the same except for the 1 % increase in F & G clinics.

Table 28: New cases (Speciality clinic wise)

Clinic	No.	%
A	1672	14
B	2363	19
C	1901	16
D	2068	17
E	2737	22
F	568	5
G	814	7
Total	12123	100

A – Hemato-Lymphoreticular, bone and CT
 B – Head and Neck
 C – Breast and CNS
 D – Gynaec & Genito urinary and others
 E – Chest and Gastro-intestinal
 F – Paediatric (Patients less than 14 years of age)
 G - Thyroid

Table 29: New & Review cases (Speciality clinic wise)

Clinic	New	Review*	Total	Average/day
A	1672	26106	27778	93
B	2363	20172	22535	75
C	1901	27539	29440	98
D	2068	23341	25409	85
E	2737	19769	22506	75
F	568	15421	15989	53
G	814	8139	8953	30
SO	--	11227	11227	37
Total	12123	151714	163837	546

Table 30: New cases (Age/Sex wise)

Age Group	Male	%	Female	%	Total	%
0 -14	334	6	242	4	576	5
15-24	238	4	277	5	515	4
25-34	306	5	544	9	850	7
35-44	593	10	1117	18	1710	14
45-54	1190	20	1465	24	2655	22
55-64	1634	27	1305	21	2939	24
65-74	1243	21	861	14	2104	17
75+	458	7	316	5	774	7
Total	5996	100	6127	100	12123	100
Percentage	49%		51%		100%	

Table 31: Patient statistics: New cases (Religion wise)

Religion	Male	%	Female.	%	Total	%
Hindu	3446	57	3795	62	7241	60
Muslim	1349	23	1082	18	2431	20
Christian	1201	20	1250	20	2451	20
Total	5996	49	6127	51	12123	100

4. In-Patient admission (2008-2009)

Table 32: In-Patient admission (Speciality clinic wise)

Clinic	Admission**	New Admission	Repeat Admission	%
A	1890	440	1450	19
B	1540	1070	470	16
C	1521	1059	462	15
D	1261	671	590	13
E	1782	926	856	18
F	1189	295	894	12
G	655	655		7
Total	9838	5116	4722	100

***Admissions in Palliative Care, Surgical Oncology were also included.*

19% of the In-Patient admissions belonged to the 'A' Clinic. The present capacity of General Ward and Pay Wards is inadequate to accommodate all needy patients in time.

5. Referral System

RCC is a tertiary referral hospital and patients are coming from in and outside Kerala on a referral basis. The majority of the patients were referred from/by teaching hospitals, private hospitals and eminent private doctors. The following tables show the hospital wise and District wise references.

Table 33: Referred cases (2008-2009)

Referred from	No.	%
Teaching Hospitals (MCH)	3614	30.0
District/ General Hospitals	622	5.1
Other Govt. hospitals	721	5.9
VSSC/ECHS/ESI/CGHS/ Railway Hospitals	1449	12
ECDC and peripheral centers	107	0.9

Other Cancer Centers	68	0.6
Private doctors	601	5.0
Private hospitals	4474	36.9
Over Seas	158	1.3
Self/RCC	309	2.5
Total	12123	100

23% of patients were reported from Trivandrum district and 15% from outside Kerala.

Table 34: New cases by geographical area (2008-2009)

District	Number	%
Trivandrum	2754	23
Kollam	2167	18
Pathanamthitta	704	6
Allapuzha	711	6
Kottayam	325	3
Idukki	169	1
Ernakulam	590	5
Trichur	514	4
Pallakad	566	5
Calicut	406	3
Malappuram	680	5
Wayanad	81	1
Kasargode	146	1
Kannur	522	4
Others *	1788	15
Total	12123	100

* Others include Tamil Nadu (1534), Abroad (158) and other states (96).

6. Treatment Modalities

Radiotherapy, Surgery and Chemotherapy remained the mainstay of treatment options. The following table shows the distribution of patients undergone treatment during the reporting period.

Table 35: Treatment modalities (2008-2009)

Mode of Treatment*	Total Patients	Reporting Period	%	Previous Year
Radiotherapy	7434	3780	36	3654
Chemotherapy	6995	4444	43	2551
Surgery	2886	2187	21	699
Total	17315	10411	100	6904

**Supportive treatment, hormone therapy, etc. not included.*

7. Follow-up Schedule

Close follow-up is very essential for cancer treatment. RCC patients are scheduled for follow-ups upto a period of 2 years. 75 % of patients attended review clinics as scheduled (minimum follow up is for 2 years). The following table shows the percentage of follow up from 2000 onwards.

Table 36: Follow-ups at RCC (2000-2007)

Year	Total patients (New cases)	No. attended follow-up*	%
2007	9912	5243	52.9
2006	9441	3682	39.0
2005	8762	2743	31.3
2004	8854	2313	26.1
2003	8724	1993	22.8
2002	8391	1601	19.1
2001	7994	1218	15.2
2000	7496	1100	14.8

**Patients attending follow up clinics at peripheral centres and other hospitals not included.*

8. Site/Sex wise distribution of cases

All the new cases registered during 2008 were classified according to ICD-10. Lung cancer dominates among males and breast cancer dominates among females.

Table 37: Site/Sex wise distribution of all new registrations (2008)

ICD10	Site	Male	%	Female	%	Total	%
C00	Lip	20	0.4	14	0.3	34	0.3
C01	Base of the tongue	47	0.9	--	0.0	47	0.4
C02	Tongue	345	6.4	134	2.5	479	4.5
C03	Gum	109	2.0	91	1.7	200	1.9
C04	Floor of the mouth	62	1.1	06	0.1	68	0.6
C05	Palate	37	0.7	20	0.4	57	0.5
C06	Other parts of the mouth	234	4.3	168	3.2	402	3.8
C07	Parotid gland major	20	0.4	27	0.5	47	0.4
C08	Salivary gland	7	0.1	06	0.1	13	0.1
C09	Tonsil	32	0.6	05	0.1	37	0.3
C10	Oropharynx	114	2.1	04	0.1	118	1.1
C11	Nasopharynx	34	0.6	16	0.3	50	0.5
C12	Pyriiform sinus	78	1.4	09	0.2	87	0.8
C13	Hypopharynx	65	1.2	15	0.3	80	0.7
C14	Pharynx, oral cavity, etc.	10	0.2	05	0.1	15	0.1
C15	Oesophagus	203	3.7	64	1.2	267	2.5
C16	Stomach	232	4.3	80	1.5	312	2.9
C17	Small intestine	13	0.2	02	0.0	15	0.1
C18	Colon	123	2.3	79	1.5	202	1.9
C19	Rectosigmoid	29	0.5	15	0.3	44	0.4
C20	Rectum	135	2.5	107	2.0	242	2.3
C21	Anus & anal canal	9	0.2	06	0.1	15	0.1
C22	Liver	113	2.1	32	0.6	145	1.4

C23	Gall bladder	8	0.1	09	0.2	17	0.2
C24	Other biliary tracts	14	0.2	08	0.2	22	0.2
C25	Pancreas	82	1.5	35	0.7	117	1.1
C26	Other ill Defined digestive organs	--	--	--	--	--	--
C30	Nasal cavity	7	0.1	10	0.2	17	0.2
C31	Accessory sinuses	32	0.6	20	0.4	52	0.5
C32	Larynx	241	4.5	14	0.3	255	2.4
C33	Trachea	01	0.0	--	--	01	0.0
C34	Lung	758	14.0	149	2.8	907	8.5
C37	Thymus	04	0.1	02	0.0	06	0.1
C38	Haert, Mediastinum, Pleura	18	0.3	07	0.1	25	0.2
C40	Bone of limbs	42	0.8	14	0.3	56	0.5
C41	Other bone	33	0.6	15	0.3	48	0.4
C43	Skin, melanoma	19	0.3	18	0.3	37	0.3
C44	Skin other	68	1.2	50	0.9	118	1.1
C47	Peripheral nerves & Ans	--	--	02	0.0	02	0.0
C48	Retroperitoneum	17	0.3	11	0.2	28	0.3
C49	Connective tissue, ST	72	1.3	61	1.1	133	1.2
C50	Breast	15	0.3	1481	27.8	1496	14.0
C51	Vulva	--	--	13	0.2	13	0.1
C52	Vagina	--	--	25	0.5	25	0.2
C53	Cervix uterix	--	--	503	9.5	503	4.7
C54	Corpus uteri	--	--	184	3.5	184	1.7
C55	Uterus, Nos	--	--	27	0.5	27	0.2
C56	Ovary	--	--	315	5.9	315	2.9
C57	Other female genital organs	--	--	06	0.1	06	0.1

C58	Placenta	--	--	01	0.0	01	0.0
C60	Penis	35	0.6	--	--	35	0.3
C61	Prostate	153	2.8	--	--	153	1.4
C62	Testis	30	0.5	--	--	30	0.3
C63	Other Unspecified Malig. M.G.organ	04	0.1	--	--	04	0.0
C64	Kidney	63	1.2	12	0.2	75	0.7
C65	Renal pelvis	04	0.1	01	0.0	05	0.0
C66	Ureter	05	0.1	--	0.0	05	0.0
C67	Urinary bladder	108	2.0	14	0.3	122	1.1
C68	Other urinary organs	--		--	--	--	--
C69	Eye & adnexa	10	0.2	04	0.1	14	0.1
C70	Meninges	03	0.1	01	0.0	04	0.0
C71	Brain	164	3.0	102	1.9	266	2.5
C72	MN,SC & Other CNS.	10	0.2	04	0.1	14	0.1
C73	Thyroid	167	3.1	627	11.8	794	7.4
C74	Adrenal gland	17	0.3	11	0.2	28	0.3
C75	Other endocrine glands	03	0.1	05	0.1	08	0.1
C76	Ill defined sites	08	0.1	09	0.2	17	0.2
C 7 7 - C80	M.N Ill defined secondary & USS	229	4.2	84	1.6	313	2.9
C 8 1 - C85	Lymphomas	322	6.0	150	2.8	472	4.4
C 9 0 - C96	Leukemias - lincl. M.M	563	10.4	409	7.7	972	9.1
	Total	5400		5318		10718	89%
D 0 0 - D09	In situ neoplasms (all sites)	05	6.76	45	13.89	50	12.56

D 1 0 - D36	Benign neoplasms (all sites)	38	51.35	145	44.75	183	45.98
D 3 7 - D48	Neoplasms - Uncertain or unknown behaviour (all sites)	31	41.84	68	20.99	99	24.87
O01	Vesicular Mole	--		66	20.37	66	16.58
	Total	74		324		398	3%
R69	Diagnosis deferred other than above	463		486		949	8%
	Grand total	5937		6128		12065	

9. Other Activities

a. Pharmacy

The pharmacy services wing of this Division handled medicines worth Rs.30,44,95,434/- during the period under report. Anti-cancer drugs worth Rs .9,14,859/- have been issued free to patients belonging to very low socio-economic status under the treatment protocol recommended by the academic forum of the centre. They are ALL-80, Lymphoma-48, GCT-11, Wilms' tumour-2, Dysgerminoma-2 and Other sites-5. Other medicines worth Rs.2,78,380/- were issued free of cost to poor patients.

b. Cancer Care for Life (CCL) scheme

CCL scheme covered 170 new patients for treatment during the period. Out of this, 157 patients belonged to Scheme I and 19 patients belonged to Scheme III. Rs.1,35,14,816/-† was spent towards the cost of investigations, treatment etc. and the average amount spent per patient was Rs.79,499/-. Rs.39,21,900/-† was collected through new memberships. 3411 individuals were enrolled under Plan A scheme and 2362 individuals took addition memberships. In the plan B scheme 113 individuals took new memberships.

† - Unaudited figure

c. Patients Accounts and Billing

The Division handled more than Rs.49,83,51,991/- by cash and credits part of patient related accounts and billing. RCC has signed

MOU with a number of organizations such as ESI, ECHS, CGHS, VSSC, Railways etc. for providing treatment on credit basis.

d. Patients Welfare Schemes

A new scheme to provide free treatment to cancer patients below the age of 18 years named 'Cancer Suraksha', an initiative of Govt. of Kerala was introduced with effect from 1/11/2008. The Society for Medical Assistance to the Poor, Govt. of Kerala has provided financial support for treatment with a maximum limit of Rs.10,000/-. Quite a number of patients were also benefited by the the Prime Minister's Relief fund with a maximum limit of Rs. 2,00,000/-.

We acknowledge with thanks Board of Directors, SDM, California, Sri Shirdi Sai Trust, Madhyamam, Melam Masala, Asraya, Care Plus, Prathyasa, Holy Trinity Karunya Nilayam and various individuals and NGOs who helped or sponsored the treatment/welfare of poor and deserved patients. The Mar Gregorios Karunya Nilayam, Kottayam has sponsored the treatment of 100 patients in the Paediatric Oncology division.

e. Student Training

One week training in Clinical service activities was imparted for students of MA/MSW from various universities. Also provided hospital orientation and project work for students from Mahatma Gandhi University, Kottayam.

10. Public Relations wing

Activities of the Public Relations wing of RCC were focused mainly on the reputation management of the Centre along with patients welfare activities. The Security system, Telephone exchange, Information counter and helpdesk were also under the supervision of the PR wing.

More volunteers were posted in the information counter during the period to strengthen the patients guidance process. 'Mukthi', the cancer awareness programme of RCC, telecasted through Karali TV, was prepared under the supervision of the PR wing. 'Akshaya Pathram'(free food and medicine programme of RCC), and other poor patients' welfare programmes of the Centre have been benefited

from the viewers of 'Mukthi'. Campaigning for the CCL scheme were conducted at various parts of the state. The number of enrolment in CCL scheme has also increased owing to the wide publicity given by the wing in the form of lectures in different parts of the State.

Other PR activities

- Preparation and distribution of brochures and handouts on patients welfare fund programmes.
- Maintaining excellent media relations-both print and visual.
- Co-ordinating public functions and VIP visits .
- Building a network of philanthropic individuals and organizations to help poor patients.
- Conducting orientation classes for students of B.Sc.(MLT), M.Sc. (Medical Documentation), MSW, etc. from various institutions.

LIBRARY & INFORMATION SERVICES

Mr. Chandrakumaran Nair M. Senior Library & Information Officer

RCC Library maintained its status as one of the most sought-after information centres in oncology through its versatile and professional approach to information. The Division continued to serve as the hub of all information activities by providing right information at the right time. Library is carrying out a wide spectrum of information services via print and electronic forms. The Division provided information support for diagnosis, treatment, research and planning activities of the Centre. Steps were taken to fortify the specialized collections for supporting ongoing DNB programmes. Various audio-visual and reprographic requirements for conferences, meetings, DNB programmes, etc. were also looked after by the Division.

Collection Development

The Library has a wide and varied collection of Books, Journals, Back volumes, Theses, Reprints, CD/DVD ROMs, etc. High priority has been accorded to the subscription of journals in both print and electronic format. High impact factor journals in oncology constituted about 80% of journal collection. Thrust was also given for the acquisition of highly cited reference books. Publications of RCC staff covering the reporting period were updated and all the materials have been technically processed and added to the Library management software 'Alice for Windows' for wider use.

Table 38: Collection development

Document type	Additions	Collection as on 31st March 2009
Books, monographs and backvolumes	320	11151
Current Journals	5	120
Reprints and reports	175	5832
CD ROMs/DVDs	40	318

Electronic access to journals

During the period 2008-2009, a number of 94 journals were accessed online through various modalities. IP-based access within Campus LAN, access via. Login at library terminals and free-based access to subscribed titles were the different approaches employed to get fulltext. Many of the IP based journals were made available through well-known Science, Technology and Medicine platforms such as Elsevier's ScienceDirect, Wiley-Blackwell, Ovid, Informaworld, Springerlink, and Oxford University Press.

Out of the 94 online journals subscribed, 79 (84%) titles were available within Campus LAN. Since single user permission through login was set, fulltext access to 15 (16%) titles required library visits by patrons. All of the subscribed Indian journals were made available in free fulltext form. (Table 39).

Table 39: E - Journal access

E - Journals by Origin	IP-Based	Login- based	Free-based	Total
Foreign	44	15	12	71
Indian	---	---	23	23
Total	44	15	35	94

Electronic access to Reference books

Password protected online access to the full text of major reference books acquired by the Library during the reporting period was made available in the Library LAN. Complementary CD/DVDs, which accompany books were also added to Non-book materials collection. All such e-books containing not only textbook content, but supplementary data were also being heavily used.

Digital Library Services

The work relating to the digitization of 'RCC Publications' is progressing. Various Current Awareness Services like RCCL Current Contents, Additions list of newly arrived books, Onconews (Press clippings), Reprint service, Conference alert, etc. were provided through the RCC INTRANET, as part of the digital library services.

Reprint procurement from DELNET

The Division renewed its Institutional membership in Developing Library Network (DELNET), New Delhi. Articles appeared in journals that are not being subscribed to by the Library, have been obtained from DELNET on request from users of various divisions. Almost 90% of article procurement requests posted were successfully entertained through these services.

Publication of Annual Report

The Division has been entrusted with the compilation and editing of Annual Report of the Centre. The work relating to the publication of Annual Report for 2007-2008 in English and Hindi was completed and copies were distributed to all Divisions, Members of Kerala Legislative Assembly, Kerala Members to Parliament, Subject Committee members of Kerala Legislative Assembly, members of Governing body/Executive Committee, etc.

External Users

The Library has been heavily utilized by surgical residents, Post-graduate/DNB students of Radiotherapy, other medical Postgraduates, project students, trainees and research scholars from various hospitals/institutes, University departments & colleges from various parts of India.

Library hours

The Library remained open upto 8 pm on stipulated days except on Sundays for the benefit of all categories of users during reporting period.

Conference attended

Mr. Saji S. Nair

Workshop on 'KOHA', Kerala Library Association, Thiruvananthapuram. 13-17 February 2009.

INFORMATION SYSTEMS

Mrs. Neelima N.

Systems Manager

This Division continued to provide quality services in maintaining computer systems and building the Hospital Information System. The division also provided Internet facility to all the Divisions in RCC through 1 Mbps leased line connection from BSNL.

Infrastructure

Hardwares:

Item	No.
Xeon Servers	: 8
Pentium IV Server	: 2
AMD Opteron Server	: 1
Personal Computers	: 250
Thin clients	: 80

Softwares:

Application Server	: Oracle 10 g
Database	: Oracle 10 g
Reports	: Oracle Reports
Operating Systems	: Enterprise Linux 3.0, Windows 2003, Windows 2000, Windows XP
Office Tools	: Microsoft Office 2000, Office XP
Webserver	: Apache
Mail Server	: Sendmail
Statistical	: Stata Release 8
Virus Scanner	: Trend Micro Client Server Security

Network: Structured cabling connecting entire campus with 400 access points.

Major activities

The division maintained 22 modules of Hospital Information System. Applications were developed for Surgical Oncology (Doctors Logbook), Microbiology Lab and Chemotherapy ward.

<p>Reception OP and IP Billing (including Credit Card acceptance)</p> <p>Consultation</p> <ul style="list-style-type: none"> ● Consultation notes ● Case sheet images ● Service ordering and scheduling ● Reports viewer <p>Chemotherapy Management & scheduling</p> <p>Radiation treatment scheduling</p> <p>Surgical scheduling and management</p>	<p>Laboratory Information System</p> <ul style="list-style-type: none"> ● Clinical Laboratory ● Imageology ● Pathology ● Nuclear medicine <p>Pharmacy</p> <p>Ward Management</p> <p>Purchase & Central Store</p> <p>Service ordering and scheduling</p> <p>CSSD</p> <p>Microbiology</p>
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Telepathology Clinic

Provided support for telepathology consultations between Early Cancer Detection Centres in Kannur and Kochi.

Follow-up of patients through Onconet

Patients returning home after initial treatment at the RCC can communicate their post treatment problems and results of investigations from nodal centers. The doctors at RCC could also be able to render advice on a real time basis for terminally ill patients who require only palliative care. Besides helping patients for follow-up visit, the online facility will boost the confidence of the cancer patients by providing counseling. Apart from RCC patients, the public as well as doctors of other institutions can also availed services of ONCONET.

Patients attended in telemedicine clinics:

Follow up consultation	- 2780
Awareness/Screening	- 1998
Early cancer detection	- 955

Cancer registry network

The Hospital Cancer Registry and Population Based Cancer Registries were fully computerized and data entry and searching facilities were made available on intranet.

Other activities

Provided training to B.Tech., M.C.A. and B.Sc.(Computer Science) students from various colleges for their final year project work.

Ongoing Research Projects

1. 'GARUDA': National Grid Computing Initiative – connecting 45 Research and academic institutions across 17 cities in India. (Funded by: CDAC, Pune; ERNET, Govt of India)
2. 'Development of data management system in Oncology': enhancement of existing HIS by developing and implementing a data management system for oncology using patient database at Regional Cancer Centre Thiruvananthapuram, with the help of available clinical guidelines and electronic medical record, which is compatible with HL7 and DICOM standard. (Funded by: CDAC, Govt of India).

COMMUNITY ONCOLOGY

Dr. Ramani S. Wesley Professor & Head
 Dr. Gigi Thomas Associate Professor
 Dr. Jayakrishnan R. Lecturer

The major activities of this Division are primarily aimed at human resource development and primary and secondary prevention of common cancers. These were achieved through conducting trainer-trainee programmes, cancer awareness/education programmes, cancer detection camps and also through the functioning of the early cancer detection clinic in the Division.

1. Human Resource Development

- a) Trainer-trainee Programmes : Through 49 programmes, 6529 trainers were educated. (Table 40).
- b) Cancer awareness programmes: Through 52 cancer education programmes 6463 persons were trained using LCD projection of slides. (Table 42).
- c) International School of Colposcopy: Through video conferences 356 gynaecologists were given a single day orientation on Visual Inspection with Acetic Acid (VIA), Visual Inspection with Lugol's Iodine (VILI) and colposcopy. 18 gynaecologists were given one week hands on training at RCC. 71 nurses, 282 health workers and 111 B.Sc. (MLT) students were given one day orientation programme on VIA, VILI and colposcopy.

Table 40: Trainer Trainee programmes

Sl. No	Trainees	No. of programmes	No. trained
1.	Nurses	4	98
2.	Doctors – Allopathy	7	344
3.	Dentists/Dental students	1	50
4	Community Volunteers	3	186
5	Paramedicals - B.Sc. (MLT)	3	98
6	Health supervisors and workers	4	282
7	Student representatives & teachers	15	3804
8	Bank/Factory/ Technopark/VSSC	3	540
9	Laypublic and NGO's	9	1127
	Total	49	6529



Towards a 'tobacco free youth' : RCC sponsored World No Tobacco Day Rally (31 May 2008)

2. Generation and distribution of health education materials

- a. Display boards and pamphlets on the warning signals of common cancers were prepared and distributed among grass root level health workers.
- b. Training manuals, modules and atlases: In connection with the National Cancer Awareness Day on 7th November 2008, a workshop on 'Role of dental professionals in the early detection and prevention of oral cancers' was conducted, in which 50 dental professionals were participated. A training manual was prepared and two articles in popular magazines were published.

3. Exhibitions

Seven exhibitions were conducted, which were got benefited by around 1.5 lakhs of people, including students, school teachers and laypublic.

4. Antitobacco programmes and campaigns

The Tobacco Cessation Clinic of the Division organized several cancer awareness programmes during the report period. On 31st May 2008, a programme was organised in collaboration with the National Literacy Mission, Regional Cancer Association and Indian Medical Association (Trivandrum Branch) as part of the World No Tobacco Day. The programme was inaugurated by Sri. Jayadevan, Director of Kerala State Literacy Mission and Shri. Janardana Iyer, Hon. Secretary of the Regional Cancer Association delivered the address based on the theme 'Tobacco Free Youth'. A training programme on 'Tobacco control measures' and the importance of 'smoke free city campaign' were also organized for the Kerala State Literacy Mission workers.

On 15th January 2009, a State level advocacy workshop was organised for sensitizing various stake holders on the 'Implementation of Tobacco Control Laws', which was inaugurated by Dr. Vishwas Mehta, Secretary to Govt., Ministry of Health and Family Welfare, Govt. of Kerala. It was felicitated by Dr. T. S. Selvavinayagam, Tobacco Control Officer, Govt. of Tamil Nadu and Mr. Praveen Kumar Sinha, Senior National Consultant, Ministry of Health and Family Welfare, Govt. of India. About 115 NGO's and other Government officials were participated in the workshop.

5. Conduct of cancer detection clinics

- a) **Early Cancer Detection Clinic:** A total of 5573 persons with warning signals of cancer were evaluated. A total of 121 oral cancers, 72 breast cancers, 22 cervical cancers and 80 other cancers were detected. 392 oral precancerous lesions and 378 benign lesions of the breast and 270 cervical precancers

and treatable lesions were treated and others were kept under surveillance during this year.

- b) **Dysplasia Clinic:** Out of 392 cases of oral precancers detected, there were 190 leukoplakia, 162 Oral Sub Mucous Fibrosis and 40 benign oral lesions. Patients having leukoplakia were treated by chemoprevention or by excision. Precancerous conditions like Oral Sub mucous Fibrosis and Erosive Lichen Planus were given medication and kept under close follow up.
- c) **Colposcopy Clinic:** 2423 colposcopies, 378 colpo directed biopsies, 2012 Pap smears, 47 LEEP diathermic excisions, 11 cryotherapies and 43 cold coagulation procedures were done for cervical pre-cancers. 224 Low grade lesions, 44 high grade lesions (CIN 2 & 3), and 24 invasive cancers were also detected.
- d) **Breast Screening Clinic:** Propagation of breast self examination and clinical evaluation of breast disease using physical examination, USS and mammography were done for 1250 patients.
- e) **Tobacco Cessation Clinic:** This clinic treated 574 patients during the report period. Among the tobacco habitués, 77% were smokers, 13% were tobacco chewers and 10% had both the habits. They were given behavioural counselling and Nicotine Replacement Therapy was given for patients with severe nicotine dependence.

6. District Cancer Control Programme (DCCP)

During the report period, 47 cancer detection camps were conducted for DCCP in Trivandrum and Kollam districts. 30 cancers (14 - oral, 12 - breast, 4 – cervix) cases and 280 pre-cancerous lesions were detected through these screening programmes.

7. Peripheral Early Cancer Detection Programmes through ECDC's and Village level Comprehensive Cancer Control Programmes (VCCCP)

Early Cancer Detection Clinics (ECDC): The peripheral centres and nodal centres have been referring patients with pre-cancers and cancers to the ECDC of RCC for confirmation of diagnosis, colposcopy, LEEP, cryotherapy etc. Technical guidance and assistance are also given for the nodal centres of RCC. The mainstay of peripheral cancer detection programmes was 81 cancer detection camps in which 10163 people were screened. 34 oral cancers, 26 breast cancers, 4 cervical cancers and 4 cancers of other sites were detected. 243 oral pre-cancers, and 189 cervical pre-cancers were detected. A cervical cancer detection clinic is conducted at Mangalapuram for the women residing



Inaugural speech by Dr. Vishwas Mehta, Secretary to Govt., Health and Family Welfare Dept., Govt. of Kerala at 'State level advocacy workshop on National Tobacco Control Laws' (15 January 2009)

in the control area of Breast Cancer Screening project. Out of 593 women screened, 16 cervical pre-cancers were detected and treated.

Table 41: Details of Cancer Detection Camps

Sl. No	Date	Place	Organised through	Total Screened	Cancers		Precancers	
					Oral	Others	Oral	Cervical
1	02/04/08	Jovita G Hospital, Valiyathura	Jovita G Hospital	50	-	0	-	-
2	05/04/08	Nedumangadu	DCCP	83	-	-	-	1
3	12/04/08	Chirayinkil	DCCP	103	-	-	-	8
4	17/04/08	Ambalakkara	Cashew factory	110	1	-	9	-
5	20/04/08	Kodungalloor	Health Care Institute	260	5	-	9	-
6	17/04/08	Chathannoor	DCCP	96	-	-	-	14
7	19/04/08	Idukki	Tribal Project	28	1	-	2	1
8	20/04/08	Idukki	Tribal Project	37	-	-	3	-
9	21/04/08	Kizhuvillam	PHC, Kizhuvillan	132	-	-	4	7
10	23/04/08	Kulathoorpuzha	DCCP	96	3	-	1	8
11	28/04/08	Karunagappally	Lourd Matha Cashew Factory	196	1	-	14	-
12	30/04/08	Pooyappally	VLC Cashew Factory	278	-	-	11	-
13	03/05/08	Kalayapuram	Alphonse Cashew Factory	128	2	-	20	-
14	04/05/08	Kollam	Public Library	76	-	-	3	3
15	05/05/08	Pallimon	St.Paul Cashew Factory	244	-	-	8	-
16	07/05/08	Nedumparambu	Challenge Arts	88	-	-	4	2
17	12/05/08	Navaikulam	DCCP	48	2	-	5	2
18	14/05/08	Ponvila	DCCP	93	1	-	1	3
19	15/05/08	Karunagappally	Kottukal Cashew Factory	195	1	-	10	-
20	18/05/08	Udiyanoor	Udiyanoor Residents Asso.	25	-	-	1	-
21	19/05/08	Poovar	DCCP	76	-	-	-	3
22	16/06/08	Aruvikkara	DCCP	64	-	-	4	-

23	21/06/08	Chirayinkil	DCCP	218	-	-	5	11
24	23/06/08	Vellanad	DCCP	105	-	-	4	2
25	28/06/08	Cheruniyoor	DCCP	143	1	2	2	2
26	05/07/08	Vizhinjam	DCCP	79	2	-	4	2
27	06/07/08	Venganoor	DCCP	92	-	2	-	1
28	16/07/08	Eliyavoor	DCCP	68	-	-	4	-
29	19/07/08	Vamanapuram	DCCP	73	1	1	-	1
30	23/07/08	Kuttichal	DCCP	27	-	1	1	-
31	30/07/08	Venjaramoodu	DCCP	81	-	-	1	-
32	02/08/08	Kattakkada	DCCP	95	-	-	-	-
33	09/08/08	Peyad	DCCP	126	1	-	-	-
34	27/08/08	Niyamasabha	DCCP	217	-	-	5	-
35	29/08/08	Karunagappally	Kannanellore Cashew factory	25	-	-	5	-
36	30/08/08	Kuttichal	DCCP	50	1	-	-	-
37	06/09/08	Vilappilsala	DCCP	58	-	-	2	1
38	08/09/08	Bonakkad	DCCP	67	-	-	6	2
39	10/09/08	Kallubathukkal	DCCP	66	-	-	4	4
40	04/10/08	Chirayinkil	DCCP	98	-	3	1	4
41	11/10/08	Perumpuzha	Orthodox church Perumpuzha	203	-	-	9	1
42	20/10/08	Poojappura	DCCP	78	-	-	3	2
43	25/10/08	Kattaikonam	DCCP	152	-	-	3	4
44	8/11/08	Vikasbhavan	DCCP	188	-	-	-	2
45	19/11/08	Akkulam Airforce	DCCP	256	-	-	-	6
46	22/11/08	Kazhakuttom	DCCP	137	-	-	-	6
47	24/11/08	Vadasserikonam	Community Oncology	115	-	1	-	7
48	26/11/08	Vazhuthacaud	Shalom Marthoma Church	126	-	-	1	8
49	08/12/08	Kadakkavoor	DCCP	102	-	-	10	1
50	10/12/08	Pirappancode	Thycaud Residents Asso.	44	1	-	3	1
51	13/12/08	Pooyappally	Bhadrasana Sevika Sangham	112	-	-	2	4
52	15/12/08	Nallilia	Nedumpana Grama Panchayat	82	1	2	2	3

53	22/12/08	Pattom	ORBIT	63	-	-	-	1
54	29/12/08	Nedumpana	Grama Panchayat	205	-	1	-	2
55	10/01/09	Nellimoodu	DCCP	31	-	-	6	1
56	17/01/09	Keraladi- tyapuram	Residents Association	250	-	-	1	1
57	21/01/09	Nedumpana	Grama Panchayat	38	2	-	4	2
58	23/01/09	Kizhuvillam	Grama Panchayat	225	-	-	3	3
59	26/01/09	Kizhuvillam	Grama Panchayat	175	1	1	4	3
60	28/01/09	Muttakkavu	Nedumpana Grama Panchayat	230	-	1	8	2
61	31/01/09	Vattiyoorkavu	DCCP	64	1	1	-	1
62	02/02/09	Vembayam	Manikkal Grama Panchayat	53	-	-	3	2
63	07/02/09	Vizhinjam	DCCP	138	-	-	-	1
64	09/02/09	Nedumpana	Grama Panchayat	180	1	1	4	1
65	11/02/09	Vakkom	DCCP	131	-	-	2	3
66	16/02/09	Adichanalore	PHC Adichanalore	210	1	1	2	5
67	18/02/09	Vilappilsala	PHC Vilappilsala	105	-	-	1	1
68	21/02/09	Koithoorkonam	DCCP	142	-	-	-	1
69	25/02/09	Neyyadam	DHS	174	-	2	10	3
70	02/03/09	Vellanad	DHS	190	-	2	5	-
71	07/03/09	Balaramapuram	DCCP	79	-	-	-	3
72	14/03/09	Venganoor	SBT	64	-	-	-	1
73	14/03/09	Kundara	Shalom Marthoma Church	350	-	4	3	7
74	16/03/09	Uchakkada	DCCP	53	-	-	6	2
75	18/03/09	Pangappara	DHS	186	-	-	5	9
76	21/03/09	Vizhinjam	DCCP	72	1	-	3	1
77	22/03/09	Kallara	DHS	175	1	-	3	1
78	23/03/09	Kizhuvillam	PHC Kizhuvillam	110	-	1	8	3
79	25/03/09	Adichanalore	PHC Adichanalore	75	-	-	3	2
80	28/03/09	Chemboor	DCCP	174	-	-	-	-
81	30/03/09	Statue	DCCP	216	-	-	-	2
		Total		10163	34	27	243	189

Table 42: Details of Cancer Awareness Programmes

SI No.	Date	Place	Organised through	No. attended	Type of participants
1	02/04/08	Vaiyathura	Jobita General Hospital	30	Nun sisters
2	16/04/08	Trivandrum Airport	Kalyanmayi Womens Organisation	47	Staff, Airport
3	31/05/08	RCC	Tobacco Cessation Clinic(TCC), RCC	124	Kerala State Literacy Mission Workers
4	03/06/08	Manacaud	Tobacco Cessation Clinic, RCC	56	Health workers
5	07/06/08	DMD Office	DMD	126	Doctors and Health workers
6	12/06/08	Ayurveda College	RCA and Tobacco Cessation Clinic	57	Doctors
7	14/06/08	Trivandrum Press Club	Muslim Association	75	Members
8	19/06/08	Pathanamthitta	Tobacco Cessation Clinic, RCC	110	High School Students
9	20/06/08	Aranmula, Pathanamthitta	Tobacco Cessation Clinic, RCC	64	High School Students
10	24/06/08	SMV High School	RCA & Tobacco Cessation Clinic	360	High School Students
11	26/06/08	Fort Primary School	RCA & Tobacco Cessation Clinic	52	Primary School students
12	26/06/08	RCC	Nursing Division RCC	60	BSc.Nursing students
13	29/06/08	Fort UP School	Residents Association	64	Association members
14	14/07/08	Poojappura Mandiram School	Mandiram School	172	Laypublic
15	15/07/08	RCC	RCC	20	MSW Students
16	17/07/08	Kanjeetukara, Pathanamthitta	Tobacco Cessation Clinic	248	Highschool students

17	18/07/08	Thodiyoor, Pathanamthitta	Tobacco Cessation Clinic	317	High School students
18	24/07/08	Kerala University	RCA	75	College Students
19	27/07/08	Kasargod		30	Gynecologists
20	05/08/08	Pathanamthitta	Tobacco Cessation Clinic	152	High School Students
21	06/08/08	Pathanamthitta	Tobacco Cessation Clinic	110	Higher Secondary Students
22	11/08/08	Poovar	Tobacco Cessation Clinic	525	High School students
23	18/08/08	RCC	RCC	8	BSc MLT students
24	04/09/08	Aranmula	Tobacco Cessation Clinic	282	High School students
25	05/09/08	Nedumbram, Pathanamthitta	Tobacco Cessation Clinic	215	High School students
26	22/09/08	RCC	Nursing Division, RCC	4	Nurses
27	23/09/08	RCC	Nursing Division, RCC	4	Nurses
28	06/10/08	Thycaud Women and Children Hospital	W&C Hospital, Thycaud	21	Gynecologists
29	22/10/08	Nedumangadu	Bhadrasana Sevika Sangham	173	Laypublic
30	26/10/08	Kozhikode	TCC & Samanuaya Samskarika Vedi	375	Laypublic
31	07/11/08	RCC	RCC	50	Dental Students
32	10/11/08	Vettucaud	RCA	80	High School students
33	11/11/08	RCC	RCC	1	Gynecologist
34	25/11/08	Vazhamuttam	Tobacco Cessation Clinic	170	High School Students
35	27/11/08	RCC	RCC	20	BSc MLT Students
36	02/12/08	Statue	Government Press	75	Staff members

37	09/12/08	Pathanamthitta	Tobacco Cessation Clinic	232	High School Students
38	19/12/08	SAT Hospital	SAT Hospital	60	Gynecologists
39	07/01/09	Thonnakkal A.J.College	A.J College of Science and Technology	305	College Students
40	15/01/09	RCC	Tobacco Cessation Clinic	115	NGOS and Gazetted officers
41	18/01/09	Kochuveli	Kochuveli St.Joseph's Church	70	Laypublic
42	04/02/09	Technopark	US Software	400	Software Engineers
43	17/02/09	RCC	Nursing Division	30	Staff nurses
44	21/02/09	Idukki	Tobacco Cessation Clinic	46	Estate workers
45	22/02/09	Idukki	Tobacco Cessation Clinic	81	Laypublic
46	23/02/09	Peyad	Marthoma Mission Centre	20	Laypublic
47	13/03/09	Nalanchira	MarBasellious College & ASPRAYA	402	Students and Teachers
48	17/03/09	Science and Technology	Science and Technology	65	Female scientists
49	27/03/09	Changanassery NSS college	Tobacco Cessation Clinic	85	College students
50	28/03/09	Kozhencherry	TCC & District Cancer Centre, Kozhencherry	70	Healthworkers and paramedical staff
51	27/03/09	Medical College	Medical College Hospital	50	House Surgeons
52	31/3/09	Pattoor	Sevika Sangham Marthoma Church	80	Elegant women
			Total	6463	

Ongoing Research Projects

1. Evaluation of early detection of cervical cancer precursors by Visual Inspection with Lugol's Iodine (VILI), Visual Inspection with Acetic Acid (VIA) and magnified VIA (VIAM) in Kerala, India. (Funded by: International Agency for Research on Cancer and Bill Gates Foundation through ACCP).
Principal Investigator : Dr. Ramani S. Wesley
2. Satellite training centre for training health professionals in colposcopy, visual screening strategies and cryotherapy. (Funded by: International Agency for Research on Cancer and Bill Gates Foundation through ACCP).
Principal Investigator : Dr. Ramani S. Wesley
3. Cervical cancer screening using VIA, VILI for women in the control area of Trivandrum Breast Cancer Screening Project. (Funded by: International Agency for Research on Cancer Lyon, France).
Principal Investigator : Dr. Ramani S. Wesley
4. Search for predictive genetic markers of high-risk malignant transformation potential in oral leukoplakia patients (Funded by: Kerala State Council for Science, Technology and Environment, Govt. of Kerala)
Principal Investigator: Dr. Gigi Thomas
5. A Multi-centre Phase II randomised double-blind placebo controlled chemo-prevention study to determine the clinical efficacy and safety of Curcumin in oral premalignant lesions. (Funded by: Department of Biotechnology, Govt. of India)
Co-investigator: Dr. Gigi Thomas
6. Randomised controlled trial of oral cancer screening by mouth examination in Kerala, India. (Funded by: International Agency for Research on Cancer, Lyon, France)
Co-investigator: Dr. Gigi Thomas
7. Estimation of tobacco attributable mortality in Kerala in collaboration with WHO-IARC., (Funded by: International Agency for Research on Cancer, Lyon, France)
Co-investigator: Dr. Gigi Thomas
8. District Cancer Control Programme (DCCP), Thiruvananthapuram. (Funded by: Ministry of Health and Family Welfare, Govt. of India)
Co-investigators: Dr. Gigi Thomas, Dr. Jayakrishnan R.
9. Tobacco cessation centre project. (Funded by: World Health

Organization)

Principal Investigator: Dr. Jayakrishnan R.

10. Tobacco awareness programmes among high school/higher secondary school students of Pathanamthitta district, Kerala state. (Funded by: District Cancer Centre Society, Kozhencherry)
Principal Investigator: Dr. Jayakrishnan R.
11. Evaluating the effectiveness of community based tobacco cessation strategies in Kerala State. (Partly funded by: Tobacco Cessation Project)
Principal Investigator: Dr. Jayakrishnan R.
12. Prevention and control of cancer among cashew workers of Kollam Jilla Panchayath. (Funded by: Jilla Panchayath, Kollam)
Co-Investigator: Dr. Jayakrishnan R.

Merits, Conferences/Workshops attended, talks delivered

Dr. Ramani S. Wesley

Programmes through Electronic media:

- Amritha TV : 'Cancer Nerathe Kandupidikam, thadayam'
Doordarshan : Kootukari Programme
Veetuvishesham
AIR : Programme on female cancers

International student conference on cancer conducted by Community Medicine Department, Medical College, Trivandrum. 10 January 2009. Gynec Society Club meeting, Trivandrum. 24 January 2009. Talk: 'HPV vaccination and colposcopic evaluation of HPV infection',

Dr. Jayakrishnan R.

Programmes through Electronic media:

- Kairali TV : Importance of tobacco cessation
AIR : Importance of World No Tobacco Day

Regional advocacy workshop (Southern Region) on 'Tobacco control laws and related issues in India', Cancer Institute (WIA), Chennai. 14-15 November 2008. Talk: 'Sharing of state experiences on tobacco control: Kerala state'.

EARLY CANCER DETECTION CENTRE (ECDC), ERNAKULAM

Dr. Latha A.

Cytopathologist

The overall activities of the Early Cancer Detection Centre, Ernakulam during the report period were as follows:

- Daily cancer screening clinic at the ECDC.
- Cancer screening camps in rural and urban areas with assistance from Non- Governmental and Governmental organizations.
- Cancer awareness programmes to public and members of Kudumbasree unit.
- Monthly follow up clinics for RCC patients.
- Telemedicine facility for cancer patients, awareness classes for public and videoconferencing.
- Cytology and Haematology diagnostic facilities for materials send from other medical centers and also from ECDC, Palakkad.
- Colposcopy for patients of this Centre as well as from referral centers.

Table 43: Resume of work done

SI.No	Tasks	Centre	Camps	Total
1.	Persons screened	7535	3492	11027
2.	Cervical smears	3705	1060	4765
3.	Oral smears	411	48	459
4.	Fine Needle Aspiration Cytology	2623	354	2977
5.	Sputum cytology	80	--	80
6.	Colposcopy	22	--	22
7.	Body fluids	145	26	171
8.	Peripheral blood smears	33	4	37
9.	Cancer detection camps	28	--	28
10.	Awareness classes	24	--	24

Table 44: Gynaecological cytology

Sl. No.	Nature of lesion	Centre	Follow up	Camps	Total
1.	Normal	441	160	229	830
2.	Inflammation	1045	398	412	1855
3.	Atypical glandular cell	86	19	49	154
4.	<i>Trichomonas vaginalis</i> (T.V.) infection	857	225	244	1326
5.	T.V. with dysplasias	122	39	52	213
6.	Fungal infection	45	17	20	82
7.	Fungal infection with atypia	10	5	1	16
8.	Human Papillomavirus infection	3	1	3	7
9.	<i>Herpes simplex</i> virus	5	4	--	9
10.	Viral infection with dysplasias	3	--	--	3
11.	Mixed infection	72	30	21	123
12.	Mixed infection with dysplasias	22	6	19	47
13.	Mild dysplasia	22	12	9	43
14.	Moderate dysplasia	3	4	--	7
15.	Severe dysplasia	6	--	--	6
16.	Carcinoma <i>In-situ</i>	2	--	--	2
17.	Invasive squamous cell carcinoma	22	--	--	22
18.	Adenocarcinoma	6	1	1	8
19.	Radiation changes	3	1	--	4
20.	Miscellaneous	8	--	--	8

Table 45: Non-gynaecological cytology

SI.No.	Sites	Screened at	
		Centre	Camps
1.	Oral Lesion		
	Benign	296	44
	Pre-malignant	57	2
	Malignancy	49	2
	Radiation changes	9	--
	Total	411	48
2.	Sputum		
	Benign	70	--
	Suspicious	4	--
	Malignancy	6	--
	Total	80	--
3.	Breast		
	Benign	825	39
	Suspicious/atypia	55	4
	Malignancy	159	2
	Total	1039	45
4.	Thyroid		
	Benign	896	218
	Suspicious/atypia	78	2
	Malignancy	26	--
	Total	1000	220
5.	Lymphnode		
	Benign	83	9
	Suspicious	4	--
	Malignancy-		
	Primary	13	--
	Secondary	78	4
	Total	178	13

6.	Salivary gland		
	Benign	79	2
	Malignancy	7	--
	Total	86	2
7.	Other sites		
	Benign	309	74
	Suspicious	--	--
	Malignancy	11	--
	Total	320	74
8.	Body fluids		
	Nipple discharge		
	Benign	131	26
	Malignancy	2	--
	Total	133	26
	Ascitic fluid		
	Benign	8	--
	Malignancy	2	--
	Total	10	--
	Pleural fluid		
	Benign	2	--
	Peripheral smear		
	Benign	33	4

EARLY CANCER DETECTION CENTRE (ECDC), PALAKKAD

Dr. I. B. Sulekha

Medical Officer

The Early Cancer Detection Center, Palakkad, one of the peripheral centers of RCC, Thiruvananthapuram is located at Kanjikode, 8 km east to Palakkad town.

Main activities

- Creating cancer awareness among the public and screening them for warning signals of cancer. The screening is done at the center (for referred cases and patients coming voluntarily) and also at cancer detection camps organized by the Centre. Also conducts awareness classes in various places with the help of voluntary organizations.
- The staff nurse of the Centre attends the Gynaecology OP of the District Hospital, Palakkad on Thursdays to take PAP smear with the permission of the Superintendent and co-operation of staff.
- Detected cancer cases are referred to RCC or other Institutions for expert management.
- Provides telemedicine facility and conducts house visits for the benefit of patients.
- Participation in exhibitions at Palakkad, with the posters and related materials available.
- Palliative care treatment is also given by the center.

Table 46: Resume of work done

Patients screened	Total No.
ECDC (1666)	7889
Camps (6223)	
Smears collected	2308
ECDC (691)	
Camps (1617)	
Camps conducted	30
Awareness classes conducted	32

Patients referred to RCC	70
Patients attended the Pain Clinic	31
Railway passes issued	236
Medical Certificate issued	196
Telemedicine consultations	22
Home visits	13
Exhibitions conducted	9

Table 47: Cytological specimens screened

Nature of Specimen	ECDC	Camps	Total
PAP Smear	618	1592	2210
Oral Smear	27	3	30
FNAC Breast	25	9	34
FNAC Lymphnode	4	1	5
FNAC Thyroid	2	5	7
FNAC Salivary gland	--	1	1
Sputum	13	--	13
Scrape smear Others	1	--	1
FNAC other sites	1	6	7
Total	691	1617	2308

Table 48: Cervical smears screened

Nature of Specimen	ECDC	Camps	Total
Normal	490	1405	1895
<i>Trichomonus vaginalis</i> infection	55	79	134
Fungal infection	6	40	46
Mixed infection	39	25	64
<i>Herpes simplex</i> viral infection	1	--	1
Atypical cells	2	--	2
Atypical Squamous Cells (ASCUS)	1	9	10

Atypical Glandular Cells (AGUS)	3	3	6
Human papillomavirus infection	1	13	14
Low grade squamous intraepithelial lesions	4	14	18
High grade squamous intraepithelial lesions	7	4	11
Squamous cell carcinoma	6	--	6
Adenocarcinoma	2	--	2
Radiation changes	1	--	1
Total	618	1592	2210

Table 49: FNACs performed

SI.No.	Sites	ECDC	Camps	Total
1.	Breast			
	Normal	6	4	10
	Benign	8	4	12
	Suspicious	3	1	4
	Malignancy	8	-	8
	Total	25	9	34
2.	Thyroid			
	Normal	1	2	3
	Benign	1	3	4
	Total	2	5	7
3.	Lymphnode			
	Normal	2	1	3
	Benign	--	--	--
	Suspicious	--	--	--
	Malignancy	3	--	3
	Total	5	1	6
4.	Salivary gland			

	Normal	--	1	1
	Benign	--	--	--
	Suspicious	--	--	--
	Malignancy	--	--	--
	Total	--	1	1
5.	Oral Cavity			
	Normal	17	3	20
	Benign	--	--	--
	Suspicious	3	--	3
	Malignancy	7	--	7
	Total	27	3	30
6.	Others			
	Normal	1	2	3
	Benign	--	4	4
	Suspicious	--	--	--
	Malignancy	--	--	--
	Total	1	6	7

NATURAL BACKGROUND RADIATION CANCER REGISTRY (NBRR), KARUNAGAPPALLY

Dr. Jayalekshmi P. Lecturer & Officer-in-charge

Natural Background Radiation Cancer Registry was started in 1990 with a special purpose to study the health effects and natural radiation present in the sea coast of Karunagappally Taluk of Kollam district, Kerala. The scope of this outreach centre has further enhanced and now this facility has also been involved in the cancer control activities in Kollam district, especially in Karunagappally Taluk. As part of that, a Cancer Care Centre has been functioning in the premises of Neendakara Community Health Centre.

Major activities

Natural Background Radiation studies: Natural Background Radiation Registry (NBRR) studies the health effects of high background radiation seen in coastal areas of Karunagappally taluk. The study was initiated in 1990 and is continuing with the support of various research agencies such as Health Research Foundation, Japan, Indian Council of Medical Research, Local Administration Department, Govt. of Kerala, etc. This cohort study so far showed that there is no excess risk of cancer due to normal radiation present in the sea coast. Dosimetric studies for ingested dose using diet analysis shows there is no higher concentration of Uranium 238 and Thorium 232 in diet samples in the high background radiation area.

District Cancer Registry: District Cancer Registry covering the whole Kollam District started registering cancer cases from year 2006 onwards. 2886 cases were registered during the year 2006. The incidence rates shows 108/100,000. The commonest site of cancer among males was Lung (14.5%) and Gastro Intestinal cancers (24%). In females, the commonest sites were Breast (23.4%) and Cervix Uteri (10%).

Cancer control activities & Patient services: The main clinical activities included community cancer control programmes and cancer patient services, offered with the financial support of Kollam Jilla panchayat and Panchayats of Karunagappally taluk. Follow up clinics, Thyroid clinic, Cancer detection clinic and Pain & Palliative care clinic

were offered to all the residents in Kollam District. These clinics were well supported by the Telelinking facility with RCC, Thiruvananthapuram.

Table 50: Clinical services at a glance

Patient attendance in review clinics	685
Volunteer training programs	43
Cancer detection camps	50
Pap smear screening	4137
FNAC, Smear scrape & Sputum cytology	215
Cancer cases detected	25
Pain clinic, Supportive clinics and Patient visits	2595
Home care visits for palliative care	343

Ongoing Research Projects

1. District Cancer Registry, Kollam. (Funded by: National Cancer Registry Programme, Indian Council of Medical Research, Govt. of India)
Investigators: Dr. Jayalekshmi P., Dr. Raghu Ram K. Nair, Dr. K. Ramachandran
2. Radiation epidemiologic studies. (Funded by: Health Research Foundation, Japan).
Investigators: Dr. Raghu Ram K. Nair, Dr. Jayalekshmi P., Dr. K. Ramachandran
3. Cytogenetic studies on the effects of chronic low level radiation in the residents of High Background Radiation Areas (HBRA) in Kerala, India. (Funded by: Health Research Foundation, Japan).
Investigators: Dr. Hariharan S., Dr. Raghu Ram K. Nair, Dr. Jayalekshmi P., Dr. K. Ramachandran
4. Thyroid nodularity studies in high background radiation areas. (Funded by: Health Research Foundation, Japan).
Investigators: Dr. Sreekumar A., Dr. Raghu Ram K. Nair, Dr. Jayalekshmi P., Dr. K. Ramachandran
5. Cancer control & patients services projects. (Funded by: Grama Panchayats, Blocks Panchayats, Jilla Panchayat and Local Administration Department, Govt. of Kerala).
Principal Investigator: Dr. Jayalekshmi P.

6. Cancer detection among female cashew workers. (Funded by: Jilla Panchayat, Kollam and Local Administration Department, Govt. of Kerala).
Principal Investigator: Dr. Jayalekshmi P.
7. Cancer detection among Scheduled Caste women cashew workers. (Funded by: Jilla Panchayat, Kollam and Local Administration Department, Govt. of Kerala).
Principal Investigator: Dr. Jayalekshmi P.

Conference attended, Paper presented

Dr. Jayalekshmi P.

24th Annual review meeting of the National Cancer Registry Programme, Tripura. 14-16 November 2008.

Paper: 'Report of District Cancer Registry, Kollam, Kerala: 2007 – 2008'.

PUBLICATIONS (2008 – 2009)

Journal Articles

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MISCELLANEOUS

1. Human Resources

a. Staff strength

Type of Staff	Permanent	New Recruits	Temporary	Daily Wages	Deputation		Consultants engaged
					In	Out	
Academic	84	1	6	--	--	2	5
Non-Academic	435	19	47	210	3	--	2

b. Academic staff strength

Professors -7, Additional Professors-26, Associate Professors-18, Assistant Professors-19 and Lecturers-14.

c. Non-Academic staff strength

Administrative staff

Position	No.	Position	No.
Registrar	1	Clerk Gr. I	19
Controller of Finance	1	Typist	3
Administrative Officer	1	Coding Clerk	1
Administrative Officer		Clinical Records Assistant	5
(Clinical Services)	1	Dark Room Assistant Gr.I	1
Accounts Officer	1	Driver Sel.Grade	1
Purchase Officer	1	Driver Sr.Gr.	3
Public Relations Officer	1	Driver	2
Asst.Administrative Officer	1	Senior Helper	13
Asst.Accounts Officer	1	Senior Animal Housekeeper	2
Asst.Internal Audit Officer	1	Hospital Attender	6
Junior Personal Assistant	5	Helper	6
Office Assistant Sr. Gr.	4	Despatcher	2
Office Assistant	6	Security Guard (Temp)	14
Cashier Gr. I	2	Security Guard (Daily wage)	7
Cashier cum Receptionist	1	Gardener	1
Telephone Operator cum Receptionist	1		

Technical and Scientific staff

Position	No.	Position	No.
Nursing Supdt. Gr.II	1	Radiographer Sel.Gr	15
Scientific Officer Gr.I	2	Radiographer	26
Medical Records Officer	1	Lab. Technician	17
Technical Officer	7	Lab. Technician Sr.Gr.	2
Nursing Supervisor	2	Lab. Technician Sel.Gr.	6
Resident Medical Officer	6	RIA Technician	1
Cytopathologist (ECDC, EKM)	1	RIA Technician Sr.Gr	3
Cytotechnician Sel.Gr.	2	Asst.Programmer	1
Cytotechnologist Sr.Gr.	4	Systems Analyst	2
Cytotechnologist	3	Systems Manager	1
Social Investigator Gr.1	1	Protocol Nurse	1
Social Investigator Sr.Gr.	1	Pharmacist	2
Library Assistant Gr.I	2	Pharmacist Gr.1	1
Audio Visual Operator	1	Mould Room Technician Sr.Gr.	1
Dietitian Gr.I	1	Anaesthesia Technician Gr.1	1
Chief Nursing Officer	1	Theatre Technician Gr.1	1
Staff Nurse	121	Data Entry Operator Gr.1	3
Staff Nurse Grade I	36	Data Entry Operator	5
Head Nurse Gr.1	4	Research Assistant	1
Head Nurse	13	Project Assistant	1
Radiographer Sr.Gr.	6		

Engineering staff

Position	No.
Chief Maintenance Engineer	1
Maintenance Engineer	1
Supervisor (Electrical)	1
Supervisor (Electrical) Sr.Gr	3
Electrician Gr.I	1
Electrician	3
Electronic Technician	1
Electronic Technician Gr.I	1
Technical Assistant	1

d. Dismissals/Retrenchments : Nil

e. Retirements

Sri. A. Rajan (Chief Maintenance Engineer)

Sri. V. Prabhakaran Nair (Sergeant)

Sri. A. Krishnankutty (Hospital Attender)

2. Right to Information Act

a. Public Information Officers

Sri. M.A. Rajan, Accounts Officer

Sri. V. Shyam Mohan, Administrative Officer

Sri. R. Raveendran Nair, Administrative Officer (Clinical Services)

Smt. N. Beena, Assistant Accounts Officer

Smt. N. Neelima, Systems Manager

b. Assistant Public Information Officers

Smt. B. Lalitha, Assistant Administrative Officer

Smt. N. Beena, Assistant Accounts Officer

Sri. S.V. Sasikumar, Purchase Officer

c. Appellate Authority

Dr. B. Rajan, Director (Till 18.10.2008)

Dr. K. Ramachandran, Director-in-Charge (from 18.10.2008)

d. Number of applications

Received : 44

Disposed : 40

Pending : 4 (as on 31.03.2009)

e. Penalties levied for non-supply of information : Nil

f. Cases pending with State Information Commission : Nil

3. Internal Control Mechanism

- a. **Staff used exclusively for internal audit** : 1
- b. **Audit Committee meetings** : Nil
- c. **Monitoring Committees set up** : Administrative Committee consisting of all HODs, Medical Superintendent and Additional Directors with the Director as the Head, meets periodically to evaluate the functioning of the Centre.

4. Other matters

- a. **Grievance redressal mechanism**: Committee for redressal of complaints of sexual harassment against female employees.
- b. **Official language act** : Not implemented
- c. **Computerisation** : Progressing

**ACCOUNTS
(2008-2009)**

REGIONAL CANCER CENTRE SOCIETY,
BALANCE SHEET AS ON

Previous Year		Sch No.	Liabilities	Current Year	
Rs	Ps			Rs	Ps
792984549.52		I	Capital Fund	824530516.52	
	0.00		State Govt. Grant	70301276.00	
11150609.02		II	Specific Funds	35039723.84	
67860595.99			CCL Fund	71793749.00	
484581.00		III	Adv. Received For Research Projects	484581.00	
			<u>CURRENT LIABILITIES AND PROVISIONS</u>		
39116369.64		IV	Current Liabilities -others	49254167.54	
26500000.00			Provision For Gratuity	26292157.00	
38053479.25		V	Creditors For Goods Supplied	37646939.00	
403457584.28		VI	Provision For Depreciation	454709137.16	
1379607768.70			TOTAL	1570052247.06	

XIV Significant accounting policies

XV Notes on accounts

Schedules I to XIV form an integral part of this Balance Sheet.

Dr. Paul Sebastian
Director

Thiruvananthapuram,
21.10.2009

TRIVANDRUM (Reg. No. 567/81)

31st MARCH 2009

Previous Year		Sch No.	Assets	Current Year	
Rs	Ps			Rs	Ps
780930606.06		VI	Fixed Assets	817831874.11	
124735449.00		VII	Investments	225693401.00	
			<u>CURRENT ASSETS AND LOANS AND ADVANCES</u>		
25617884.00		A	Closing Stock	35251331.18	
11038579.40		VIII	Advances - Others	7814685.20	
55294071.92		IX	Investigation Fees Receivable	75631856.64	
2091824.16		X	Balance With Banks	12077539.48	
629025.43		XI	Cash In Hand	518943.37	
379270328.73		XII	Income & Expenditure A/c	395232616.08	
1379607768.70			TOTAL	1570052247.06	

Vide our report of even date attached

Uma Maheswary K.
Controller of Finance

For **SANTHOSH ALEXANDER & ASSOCIATES**
Chartered Accountants

Santhosh Alexander, FCA.,
M. No. 207251, Partner

**REGIONAL CANCER CENTRE SOCIETY,
Income and Expenditure Account**

Previous Year		Sch No.	EXPENDITURE	Current Year	
Rs	Ps			Rs	Ps
23964102.00			Opening Stock	25617884.00	
207207626.88		A	Purchases Medicines, Chemicals etc.	275288203.55	
137398657.27		B	Salaries and Allowances	171263388.65	
549749.00			Uniform and Liveries	661651.00	
310114.00		C	Rent, Rates & Taxes	858042.00	
615521.50		D	Postage, Telephone & Telegrams	325116.50	
257368.00		E	Travelling Expenses	245423.00	
913430.00			Printing & Stationary	1553378.00	
176246.00			Advertisement Charges	107646.00	
13944734.00		F	Electricity and Water Charges	18653751.00	
6408544.52		G	Repairs & Maintenance	6696045.11	
4142535.75		H	Service Contract Charges	3801034.00	
170000.00			Audit Fees	178755.00	
421049.00		I	Computer Expenses	540554.00	
9941.00			Books & Periodicals	10495.00	
1504465.00			Expenses to NTR	1732076.00	
0.00		J	Medicine issues (free)	2253304.95	
159518.00			Miscellaneous Expenses	423954.46	
2511478.50		Vi	Housekeeping Expenses	1931562.20	
56734292.91			Depreciation	51251552.88	
1700000.00			DCCP expenditure		
459099373.33		Total		563393817.30	

XIV SIGNIFICANT ACCOUNTING POLICIES

XV NOTES ON ACCOUNTS

Schedules A to L, XII, XIII and XIV form an integral part of this Statement.

Auditor's Report

This is the Income and Expenditure Account referred to in our report of even date.

**Trivandrum (Reg. No. 567/81)
for the Year Ended 31.03.2009**

Current Year		Sch No.	Income	Current Year	
Rs	Ps			Rs	Ps
60254790.58			Grant-in-aid; Govt of Kerala	63113000.00	
0.00			Donations	26703.00	
1700000.00			DCCP Grant received	0.00	
151222308.70			Investigation Fees	186015692.50	
205967350.79			Medicine Receipts	258509005.99	
4717056.90			Interest Income	6580557.40	
2114472.00		K	Training Fees	2439215.89	
1961347.14		L	Miscellaneous Income	2275982.99	
25617884.00		A	Closing Stock	35251331.18	
5544163.22			Excess of Expenditure over Income	9182328.35	
459099373.33		Total		563393817.30	

Dr. Paul Sebastian
Director

Uma Maheswary K.
Controller of Finance

For **SANTHOSH ALEXANDER & ASSOCIATES**
Chartered Accountants

Thiruvananthapuram,
21.10.2009

Santhosh Alexander, FCA.,
M. No. 207251, Partner

THE REGIONAL CANCER CENTRE SOCIETY,

Schedule VI

Item	Cost On 1.4.08	Gross Block		
		Additions	Deduction	Cost On 31.3.2009
Land	1000.00	0.00	0.00	1000.00
Buildings	154134547.92	3465492.00	0.00	157600039.92
Civil Works	127118.63	0.00	0.00	127118.63
Cobalt Unit	18123455.30	0.00	0	18123455.30
Water Supply And Drainage	2164586.43	582759.00	0.00	2747345.43
Furniture And Fittings	12759745.43	1303348.05	0.00	14063093.48
Office Equipments	2585693.43	0.00	0.00	2585693.43
Hospital & Lab. Equipments	389150310.97	8274081.00	0.00	397424391.97
Electrical Installation	39983488.90	333021.00	0.00	40316509.90
Fire Detection	3841120.00	6525.00	0.00	3847645.00
Air Conditioning	20562694.35	1016478.00	0.00	21579172.35
Computer Hardware And Software	4870874.00	610370.00	0.00	5481244.00
Gas And Cylinder	7425809.05	16270.00	0.00	7442079.05
Vehicles	1325445.60	0.00	0.00	1325445.60
Library Books And Journals	26366953.65	3467512.00	0.00	29834465.65
Lift And Elevator	5913240.00	0.00	0.00	5913240.00
Assets (Donations)	337612.00	0.00	0.00	337612.00
Telephone Equipments	4310986.00	18211.00	0.00	4329197.00
High Energy Linear Accelerator	52987763.00	0.00	0.00	52987763.00
Assets-telemedicines Project	7718623.00	0.00	0.00	7718623.00
Hospital Equipments & Other Assets (Project)	22628049.00	1847243.00	0.00	24475292.00
Low Energy Linear Accelerator	3611489.40	0.00	0.00	3611489.40
Buildings Work In Progress	0.00	15959958.00	0.00	15959958.00
Total	780930606.06	36901268.05	0.00	817831874.11

TRIVANDRUM (REG. NO. 567/81)

Depreciation			Net Block	
Up To 31.3.08	Additions	Total Upto 31.3.2009	As On 31.3.2009	As On 31.3.08
0.00	0.00	0.00	1000.00	1000.00
69670114.65	4396496.26	74066610.91	83533429.01	84464433.27
81548.73	2278.50	83827.22	43291.41	45569.90
12351667.47	865768.17	13217435.65	4906019.65	5771787.83
1914636.04	124906.41	2039542.45	707802.98	249950.39
7576389.43	648670.40	8225059.84	5838033.64	5183356.00
2111056.80	71195.49	2182252.30	403441.13	474636.63
185995779.43	31714291.88	217710071.31	179714320.66	203154531.54
33384790.63	1039757.89	34424548.52	5891961.38	6598698.27
3356891.69	73613.00	3430504.68	417140.32	484228.31
15971832.41	841100.99	16812933.40	4766238.95	4590861.94
4219966.30	756766.62	4976732.92	504511.08	650907.70
5986906.57	218275.87	6205182.44	1236896.61	1438902.48
448188.40	175451.44	623639.84	701805.76	877257.20
14907241.15	2239083.68	17146324.82	12688140.83	11459712.50
5267954.20	96792.87	5364747.07	548492.93	645285.80
309609.16	4200.43	313809.58	23802.42	28002.84
2772254.04	233541.44	3005795.49	1323401.51	1538731.96
25327819.26	4148991.56	29476810.82	23510952.18	27659943.74
4184358.80	530139.63	4714498.43	3004124.57	3534264.20
7076855.72	2609765.44	9686621.16	14788670.84	15551193.28
541,723.41	460464.90	1002188.31	2609301.09	3069765.99
-	0.00	0.00	15959958.00	0.00
403457584.28	51251552.88	454709137.16	363122736.95	377473021.78

REGIONAL CANCER CENTRE SOCIETY
Trivandrum (Reg. No. 567/81)
CANCER CARE FOR LIFE SCHEME
Income and Expenditure Account for the year ended 31.03.2009

EXPENDITURE	Rs. Ps.	INCOME	Rs. Ps.
Salaries & Allowances	160000.00	Interest on FD & Investments	6894857.00
Reimbursement to Patients	13514816.00	Excess of Expenditure over Income	6779959.00
TOTAL	13674816.00	TOTAL	13674816.00

Dr. Paul Sebastian
Director

Uma Maheswary K.
Controller of Finance

For **SANTHOSH ALEXANDER & ASSOCIATES**
Chartered Accountants

Santhosh Alexander, FCA.,
M. No. 207251
Partner

Thiruvananthapuram,
21.10.2009

AUDITORS REPORT

1. We have audited the attached balance sheet of Regional Cancer Centre Society, Thiruvananthapuram as at 31.03.2009 and the Income and Expenditure Account for the year ended on that date together with the accounting policies and notes annexed thereto. These financial statements are the responsibility of the society's management. Our responsibility is to express an opinion on these financial statements based on our audit.
2. We conducted our audit in accordance with auditing standards generally accepted in India. Those Standards require that we plan and perform the audit to obtain reasonable assurance about whether the financial statements are free of material misstatement. An audit includes examining, on a test basis, evidence supporting the amounts and disclosures in the financial statements. An audit also includes assessing the accounting principles used and significant estimates made by management, as well as evaluating the overall financial statement presentation. We believe that our audit provides a reasonable basis for our opinion.
3. Further to our comments in the Annexure referred to above and subject to,
 1. Significant Accounting Policies No. 4 and Notes on Accounts No. 4.
 2. Investigation fee receivable, Creditors for goods supplied, other current liabilities and advances are subject to confirmation.
- a) We have obtained all the information and explanations which to the best of our knowledge and belief were necessary for the purpose of our audit.
- b) In our opinion proper books of accounts have been maintained by the Society.
- c) The Balance sheet and Income and Expenditure account dealt with by this report are in agreement with the books of accounts.
- d) Subject to our observations mentioned above, in our opinion and to the best of our information and according to the explanations given to us, the said accounts together with the notes thereon attached thereto give a true and fair view in conformity with the accounting principles generally accepted in India
 - (a) In the case of Balance sheet of the state of affairs of the society as at 31st March 2009.
 - (b) In the case of the Income and Expenditure account of the deficit of the society for the year ended on that date.

For **SANTHOSH ALEXANDER & ASSOCIATES**
Chartered Accountants

Trivandrum,
21.10.2009

Santhosh Alexander, FCA.,
M. No. 207251
Partner

REGIONAL CANCER CENTRE SOCIETY, TRIVANDRUM (Reg. No. 567/81)
Schedule XIII

SIGNIFICANT ACCOUNTING POLICIES

1. Basis of Preparation of Financial Statements

To prepare Financial Statements in accordance with the historical cost convention, Generally Accepted Accounting Principles (GAAP) in India and the Accounting Standards issued by the Institute of Chartered Accountants of India.

2. Revenue Recognition

To recognize income from services at the time of delivery of services. To recognize income from investments when the income actually received.

3. Fixed Assets

To state Fixed Assets at Original Cost of acquisition and subsequent improvements thereto inclusive of freight, duties and taxes and incidental expenses related to acquisition and installation. To include related preoperational expenses in respect of projects involving construction in the value of capitalized assets.

4. Depreciation

To provide depreciation on all the assets held, on the written down value method at the rates adopted by the Society. To provide for depreciation for the whole year in respect of assets put to use for a part of the year.

5. Inventories

To value all the inventories at cost or net realizable value whichever is less. Cost includes freight and other related incidental expenses and is computed on weighted average method.

6. Borrowing Costs

To capitalize the borrowing costs that are directly attributable to the acquisition or construction of that capital asset and to recognize other borrowing costs as expense in the period in which they are incurred.

7. Government Grants

a) To account for Government Grants received as Capital Receipts [Shown as Capital Fund in the balance sheet] to the extent such grants are applied for the acquisition or construction of Fixed Assets and to treat the balance (if any) as Revenue Income.

b) The amount Rs. 7,03,01,276/- shown as state govt grant in the balance sheet represent the state govt grant utilized for opening LC for acquiring fixed assets, details are as follows

- o LC No. & Date: 7002909IM0000032, 30.03.2009 Amount \$ 20 lacs, ≈ INR 10.27 crores.
- o Asset Details: Varian Clinac IX high-energy linier accelerator.

Dr. Paul Sebastian
Director

Uma Maheswary K.
Controller of Finance

For **SANTHOSH ALEXANDER & ASOCIATES**
Chartered Accountants

Thiruvananthapuram,
28.10.2009

Santhosh Alexander, FCA.,
M. No. 207251, Partner

REGIONAL CANCER CENTRE SOCIETY, TRIVANDRUM (Reg. No. 567/81)

Schedule XIV

NOTES ON ACCOUNTS

1. Contingent Liabilities

A liability of Rs. 1,04,67,369/- plus interest towards the property tax for the period upto 31.03.2009 is treated as a Contingent Liability and has not been provided for in the books of account.

2. Investigation

Investigation Fee includes Registration, Ward Charges, Nuclear Medicine, Radio-therapy, Imageology, Surgery, and Lab fee.

3. Interest on Treasury Deposits of CCL

Interest on Deposits of the CCL with the Treasury is accounted on Cash Basis.

4. Employee Benefits

Provision for Leave Salary has not been done.

5. Impairment of Assets

There is no indication of impairment of assets as per AS-28

6. Classification and Presentation

Figures for the previous year have been regrouped and recast wherever necessary to suit the current year's layout.

7. Long outstanding dues under the schedule Investigation fee receivable is yet to be ascertained.

Dr. Paul Sebastian
Director

Uma Maheswary K.
Controller of Finance

For **SANTHOSH ALEXANDER & ASSOCIATES**
Chartered Accountants

Thiruvananthapuram,
28.10.2009

Santhosh Alexander, FCA.,
M. No. 207251, Partner

CERTIFICATE OF UTILISATION

1. During 2008-2009, the Regional Cancer Centre Society received Grant in Aid totaling Rs. 1631.13 Lakhs from the Government of Kerala as detailed below.

Installment	G.O Numbers	Date	Amount (Rs.in Lakhs)
1	G.O.(Rt) No. 2174/2008/H&FWD	23.06.08	84,00,000
2	G.O.(Rt) No. 2173/2008/H&FWD	26.06.08	1,68,00,000
3	G.O.(Rt) No. 2906/2008/H&FWD	28.08.08	84,00,000
4	G.O.(Rt) No. 3689/08/H&FWD	07.11.08	84,00,000
5	G.O.(Rt) No. 3688/08/H&FWD	07.11.08	6,00,00,000
6	G.O.(Ms) No. 121/2009/H&FWD	13.01.09	2,48,00,000
7	G.O.(Rt) No. 739/2009/H&FWD	19.03.09	2,32,00,000
8	G.O.(Rt) No. 889/09/H&FWD	30.03.09	1,31,13,000
TOTAL			16,31,13,000

2. The amount was utilized as follows

Sl	Purpose	Amount
1	Acquisition of Assets	29698724.00
2	Opened LC for acquiring fixed assets [LC No. & Date: 7002909IM0000032, 30.03.2009] [Total Amount of LC \$ 20 lacs, ≈ INR 10.27 crores] [Asset Details: Varian Clinac IX high energy linier accelerator]	70301276.00
3	Operational Expenditure	63113000.00
Total		163113000.00

3. We Certify that the utilization mentioned under (2) above is true and correct as disclosed by the Books of Account of the Society.

For **SANTHOSH ALEXANDER & ASSOCIATES**
Chartered Accountants

Thiruvananthapuram,
28.10.2009

Santhosh Alexander, FCA.,
M. No. 207251, Partner

T. AJITH KUMAR B.Com., FCA
CHARTERED ACCOUNTANT

T.C. 6/1012, Konathukulangara
Vattiyoorkavu P.O.,
Thiruvananthapuram - 695 013
Telephone : 0471 2495939
Mobile : 9349990489
E-mail: ajithkumarca @ yahoo.com

AUDITOR'S REPORT

I have audited the accounts of the Foreign Contribution for Research Projects of the Regional Cancer Centre Society, registered as per T.C. Literary Scientific and Charitable Societies Regulation Act XII of 1955 (Reg.No.567/81) with registered office at Medical College P.O., Thiruvananthapuram-695011, Kerala State for the year ending 31st March 2009 and relevant books and vouchers and certify that according to the audited accounts.

1. The brought forward foreign contribution at the beginning of the financial year 2008-2009 was Rs.1,29,32,979.56
2. Foreign Contribution worth Rs.1,13,73,725.92 was received by the Association during the year ended 31st March 2009.
3. The balance in foreign contribution account together with interest earned thereon at the end of the financial year 2008-2009 was Rs.2,01,93,339.46
4. Certified that the Association has maintained the accounts of foreign contribution and records relating thereto in the manner specified in section 13 of the Foreign Contribution (Regulation) Act, 1976 read with rule 8 (1) of the Foreign Contribution (Regulation) Rules, 1976.
5. The information furnished above and in the Balance Sheet and statement of receipts and payments are correct as checked by me.

Thiruvananthapuram,
19th October 2009.

T. AJITH KUMAR B.Com., FCA
CHARTERED ACCOUNTANT
MEM. NO. 209348

THE REGIONAL CANCER CENTRE SOCIETY, TRIVANDRUM (Reg. No. 567/81)
Foreign Contribution for Research Projects
Balance Sheet as at 31st March 2009

LIABILITIES	Amount (Rs. Ps.)	Amount (Rs. Ps.)	ASSETS	Amount (Rs. Ps.)
CAPITAL FUND			FIXED ASSETS	
As on 1-4-2008	12751097.82		Computer	1827189.00
Less:- Transfer to R&D Fund	3840547.98		Printer & UPS	261856.00
Add : Utilised during the year for			Fax Machine	51359.00
Fixed assets	621118.00		Refrigerator	11953.00
		9531667.84	Deep Freezer	123674.00
			Vehicle	1407937.00
			FAN	3687.00
			Furniture	608768.29
			Equipments	3926991.00
			Air Conditioner	199689.00
Project balances as per schedule		10762506.33	Photocopier	322735.00
Research funds as per schedule		9430833.13	Building Additional facilities	785829.55
CURRENT LIABILITIES			CURRENT ASSETS &	
Salary recovery		39,486.00	LOANS AND ADVANCES	
			Interest accrued but not due	2190401.00

Payable to res. Project A/c			994044.00	Term Deposit with Syndicate Bank	2689801.00
Payable to RCC			122575.00	Term Deposit with S.B.T	9623689.00
				Term Deposit with Federal Bank	1500000.00
				Term Deposit with PNB	1000000.00
				Cash in hand	14128.00
				Cash at bank	4287425.46
				Imprest	6000.00
				Rent deposits	38000.00
TOTAL			3088112.30	TOTAL	3088112.30

Vide my report of even date attached.

Finance Manager (Projects)

Director

T. AJITH KUMAR B.Com., FCA
 CHARTERED ACCOUNTANT
 MEM. NO. 209348

Thiruvananthapuram
 19th October 2009

THE REGIONAL CANCER CENTRE SOCIETY, TRIVANDRUM (Reg. No. 567/81)
Foreign Contribution for Research Projects
Receipts and Payments Account for the year ended 31st March 2009

RECEIPTS	Amount (Rs)	PAYMENTS	Amount (Rs)
To Opening balance	12932979.56	By Salary	5934480.00
“ Foreign Contribution received during the year	11373725.92	“ Consumables	159409.00
“ Interest earned	199057.00	“ Electricity charges	30668.00
“ R&D fund	5165875.98	“ Travelling expenses	430142.00
		“ Miscellaneous	144409.00
		“ Repairs	10907.00
		“ Postage & communications	3431.00
		“ Vehicle tax	9660.00
		“ Slides & photographs	507.00
		“ Stationary	178229.00
		“ Fuel	214290.00
		“ Assistance to patients	741364.00
		“ Building maintenance	52695.00
		“ Insurance	30945.00
		“ Investigation charges	39688.00
		“ Building rent	128980.00
		“ Overhead expenses	495049.00
		“ Telephone charges	99660.00
		“ Computer stationery	32423.00
		“ Maintenance others	74872.00
		“ Conferences & Seminars	21024.00
		“ Audit fee	18500.00
		“ Advertisement charges	4028.00
		“ Ultrasound machine	400000.00
		“ Minor Hospital & Lab equipments	1821.00
		“ Computer	221118.00
		“ Excess of receipts over payments.	20193339.46
TOTAL	29671638.46	TOTAL	29671638.46

Vide my report of even date attached.

Thiruvananthapuram **Finance Manager**
19th October 2009 **(Projects)**

DIRECTOR

T. AJITH KUMAR

B.Com., FCA

CHARTERED ACCOUNTANT

MEM.NO:209348

T. AJITH KUMAR B.Com., FCA
CHARTERED ACCOUNTANT

T.C. 6/1012, Konathukulangara
Vattiyookavu P.O.,
Thiruvananthapuram - 695 013
Telephone : 0471 2495939
Mobile : 9349990489
E-mail: ajithkumarca @ yahoo.com

AUDITOR'S REPORT

I have audited the accounts of the Project Cell of the Regional Cancer Centre Society, registered as per T.C Literary Scientific and Charitable Societies Regulation Act XII of 1955 (Reg. No. 567/81) with registered office at Medical College P.O, Thiruvananthapuram-695011, Kerala State for the year ending 31st March 2009 and relevant books and vouchers and certify that according to the audited accounts.

1. Total Financial Assistances from funding agencies in India during the year ended 31st March 2009 was Rs.4,11,13,043.32
2. The unutilized Project Fund balance with the association at the end of the financial year 2008-2009 was Rs.2,02,99,394.63.
3. The information furnished above and in the Balance Sheet and statement of Income and Expenditure account are correct as checked by me.

Thiruvananthapuram,
19th October 2009.

T. AJITH KUMAR B.Com., FCA
CHARTERED ACCOUNTANT
MEM. NO. 209348

THE REGIONAL CANCER CENTRE SOCIETY, TRIVANDRUM (Reg. No. 567/81)
PROJECT CELL (Financial Assistance received from National Agencies for Research Projects)
 Balance Sheet as at 31st March 2009

LIABILITIES	AMOUNT (Rs)	AMOUNT (Rs)	ASSETS	AMOUNT (Rs)	AMOUNT (Rs)
CAPITAL FUND					
Income and Expenditure A/c: As per Last B/S	9841109.30		Fixed Assets:- Sch-2		267820.41
Less:- Transfer to R&D Fund	5663252.00				
Add: Excess of Income over Expenditure for the year	5711883.45	9889740.75			
R&D Fund		10016519.05	Foreign Contribution		
Donation for Specific Purpose		1500000.00	Receivable Account		994044.00
Training Fund(Schedule-5)		4791275.90	TERM DEPOSITS :		
			SBT	24462594	
CURRENT LIABILITIES			Punjab Nat. Bank	1588314	
Security Deposits	86350.00				
Project Balances as per Sch-1	20299394.63	20385744.63	Cash in Hand - Sch-3		7207.00
Salary Recovery		10288.00	Cash at Bank - Sch-4		15599230.92
			Interest Accrued but not Due		1935792.00
			TDS		1738566.00
TOTAL		46593568.33	TOTAL		46593568.33

Vide my report of even date attached.

Thiruvananthapuram
19th October 2009

Finance Manager(Projects)

DIRECTOR

T. AJITH KUMAR B.Com., FCA
 CHARTERED ACCOUNTANT
 MEM.NO:208348

PROJECT CELL
THE REGIONAL CANCER CENTRE SOCIETY
Income and Expenditure Account for the year ended 31st March 2009

Expenditure	Amount (Rs.Ps.)	Income	Amount (Rs. Ps.)
Salary paid	226379.80	Income from Projects	6036543.00
Travelling expenses	931.00		
Audit fee	19000.00		
Printing & Stationery	4075.00		
Computer stationery	3522.00		
Postage & Telephone expenses	615.00		
Other miscellaneous expenses	15116.00		
Depreciation	55020.75		
Excess of Income over Expenditure	5711883.45		
TOTAL	6036543.00	TOTAL	6036543.00

Thiruvananthapuram
19th October 2009

Finance Manager(Projects)

DIRECTOR

T. AJITH KUMAR B.Com.,FCA
CHARTERED ACCOUNTANT
MEM.NO:209348

ACKNOWLEDGEMENTS

Ministry of Health & Family Welfare, Government of India
Ministry of Information Technology, Government of India
Department of Science and Technology, Government of India
Department of Health & Family Welfare, Government of Kerala
Indian Council of Medical Research, New Delhi
World Health Organisation, Geneva, Switzerland
World Health Organisation, Regional Office, New Delhi
International Union Against Cancer (UICC) Geneva, Switzerland
National Cancer Institute, Bethesda, Maryland, USA
International Agency for Research on Cancer (IARC), Lyon, France
Atomic Energy Commission, Government of India
Bhabha Atomic Research Centre, Bombay
Director General of Health Services, Government of India, New Delhi
Director of Health Services, Government of Kerala, Trivandrum
Indian Space Research Organisation
Health Research Foundation, Japan
Finnish Cancer Society, Finland
University Grants Commission
Kerala State Committee on Science, Technology and Environment, Trivandrum
Medical College, Trivandrum
Sree Avittam Thirunal Hospital for Women and Children, Trivandrum
Sree Chitra Thirunal Institute of Medical Sciences & Technology, Trivandrum
Dental College, Trivandrum
University of Kerala, Thiruvananthapuram
Department of Economics and Statistics, Kerala
Mahatma Gandhi University, Kerala
Drugs Controller, Trivandrum
College of Pharmaceutical Sciences, Trivandrum
C-DAC, Trivandrum
Centre for Earth Science Studies, Trivandrum
Corporation of Thiruvananthapuram
Regional Cancer Association, Thiruvananthapuram
Kairali TV, Thiruvananthapuram
Care Plus, Thiruvananthapuram
Asraya, Thiruvananthapuram
Prathyasa, Thiruvananthapuram
SDM Cancer Relief Fund, California
All our Wellwishers and Friends