



# **REGIONAL CANCER CENTRE**

**THIRUVANANTHAPURAM**

**2005-2006**

# **REGIONAL CANCER CENTRE**

THIRUVANANTHAPURAM – 695011, KERALA, INDIA

## **REPORT OF ACTIVITIES 2005-2006**

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**GOVERNING BODY**

**EXECUTIVE COMMITTEE**

**DIRECTOR**

**ADMINISTRATION**

General Administration  
Finance

**SERVICES**

**CLINICAL**

Radiation Oncology  
Surgical Oncology  
Medical Oncology  
Paediatric Oncology  
Anaesthesiology  
Radiation Physics  
Community Oncology  
Multidisciplinary Clinics

**DIAGNOSTIC**

Cytopathology  
Imageology  
Nuclear Medicine  
Clinical Laboratory

**AFFILIATED UNITS**

Nursing  
Pain & Palliative Care  
Blood Bank  
Pharmacy  
Medical Records  
Dental Care

**RESEARCH**

Basic Research  
Molecular Medicine, Drug  
Development and  
Chemo-informatics  
Epidemiology &  
Clinical Research

Outreach Programmes  
ECDC, Ernakulam  
ECDC, Palakkad  
NBRR, Karunagapally

Library & Information  
Services  
Information Systems

**GOVERNING BODY MEMBERS OF REGIONAL  
CANCER CENTRE (2005-2006)**

- |     |   |                    |
|-----|---|--------------------|
| 1.  | Sri Oommen Chandy,<br>Hon'ble Chief Minister of Kerala  | Chairman           |
| 2.  | Sri K.K. Ramachandran Master<br>Hon'ble Minister for Health,<br>Govt. of Kerala                                 | Vice-Chairman      |
| 3.  | Dr. Vishwas Mehta, IAS<br>Secretary to Govt. of Kerala,<br>Health and Family Welfare                            | Alt. Vice-Chairman |
| 4.  | Sri K. Jose Cyriac, IAS<br>Principal Secretary to Govt. of Kerala,<br>Finance Department                        | Member             |
| 5.  | Smt. Lizzie Jacob, IAS<br>Addl. Chief Secretary to Govt. of Kerala,<br>Planning and Economic Affairs Department | -do-               |
| 6.  | Dr. Meenu Hariharan<br>Director of Medical Education, Trivandrum  | -do-               |
| 7.  | Dr. A.V. Remadevi<br>Principal, Medical College, Trivandrum   | -do-               |
| 8.  | Dr. K.Mohandas,<br>Director, SCTIMST, Trivandrum  | -do-               |
| 9.  | Dr. M.S. Valiathan, Hon'y. Advisor,<br>Manipal Academy of Higher Education                                      | -do-               |
| 10. | Director General of Health Services<br>Ministry of Health & Family Welfare,<br>Govt. of India                   | -do-               |
| 11. | Secretary,<br>Ministry of Health & Family Welfare,<br>Govt. of India  | -do-               |
| 12. | Dr. S.C. Gupta<br>'Valdya', Pulayanarkotta,<br>Thiruvananthapuram   | -do-               |
| 13. | Dr. B. Rajan<br>Director, Regional Cancer Centre,<br>Thiruvananthapuram   | Convener           |

**EXECUTIVE COMMITTEE MEMBERS OF THE  
REGIONAL CANCER CENTRE (2005-2006)**

- |    |   |          |
|----|---|----------|
| 1. | Dr. Vishwas Mehta, IAS<br>Secretary to Govt. of Kerala,<br>Health and Family Welfare Department                 | Chairman |
| 2. | Sri K. Jose Cyriac, IAS<br>Principal Secretary to Govt. of Kerala,<br>Finance Department                        | Member   |
| 3. | Smt. Lizzie Jacob, IAS<br>Addl. Chief Secretary to Govt. of Kerala,<br>Planning and Economic Affairs Department | -do-     |
| 4. | Dr. Meenu Hariharan<br>Director of Medical Education,<br>Thiruvananthapuram                                     | -do-     |
| 5. | Dr. A.V. Remadevi<br>Principal, Medical College,<br>Thiruvananthapuram  | -do-     |
| 6. | Dr. B. Rajan<br>Director, Regional Cancer Centre,<br>Thiruvananthapuram   | Convener |

## OVERVIEW

Regional Cancer Centre, Trivandrum is completing twenty five years of service to the community. At this great juncture, it would be desirable to take stock of the achievements and have an evaluation as to how far the centre could fulfill its objectives, particularly in its core areas – clinical excellence, cancer prevention and control and research. On a closer look at its activities, one can see that there have been tremendous developments in all service areas and infrastructural facilities. The increment in the annual new patient registration from 3000 in 1981 to 10500 in 2005 shows the quality of cancer care and the patients' trust in RCC. In the areas of basic and clinical research also, the Centre has made remarkable progress. The centre could publish more than 1350 papers in all these years of which 650 are in international peer reviewed journals.

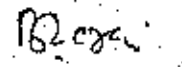
The year under report was also remarkable in the sense there was tremendous improvement in the infrastructure and human resource development. There has been some improvement in the overall financial position with the support from State and Central governments. Acquisition of the state-of-the-art systems for cancer diagnosis and management was the major addition to the infrastructure. The Linear Accelerator (LINAC) based radiotherapy was upgraded by the introduction of three-dimensional conformal radiotherapy. A computer aided treatment planning system and CT Simulator facility were installed. With the aim of providing high quality diagnostic services, a digital high resolution stereotactic mammography unit, a stereotactic mammotome biopsy system and a Doppler ultrasound scanner were also installed. All these new additions have strengthened and improved the quality of diagnostic services.

On the academic front the National Board of Examinations (NBE) accredited RCC for conducting post graduate and super specialty courses in various disciplines such as Radiotherapy, Pathology, Radiodiagnosis, Anesthesia, Medical Oncology and Surgical Oncology. The courses duly commenced during this period.

The Centre has made excellent progress in the areas of clinical and basic research. The results of Trivandrum Oral Cancer Study (TOCS), the major research project funded with support from International Agency for Research on Cancer (IARC) received International recognition for the publication of its work in the 'Lancet' and its high citations thereafter. Researchers bagged many international and national awards for quality innovations. At present there are more than 50 ongoing research projects supported by national and international agencies. The young scientists awards received by our researchers at the 5<sup>th</sup> National Congress on Medicinal plants and 18<sup>th</sup> Kerala Science Congress truly reflect the benchmark put for the research activities on basic aspects. Impressed by the role played by RCC in cancer education, community outreach programmes and research, a Deemed to be University status is in the active consideration of University Grants Commission (UGC) and Ministry of Human Resources Development, Government of India.

RCC continued to organize workshops, seminars and conferences with high standards. A one day seminar on 'Recent Trends in Brachytherapy' was organized to commemorate installation of 'Selectron', the first modern brachytherapy machine coming to India at RCC. A two day national workshop, 'Talent 2005' highlighted the emerging trends in radiologic techniques. In association with the Indian Council of Medical Research (ICMR), RCC conducted a national level event Oral Cancer Conference (ORCA) which was well received by the active participation of eminent oncologists.

Once again we pledge to dedicate ourselves to the fight against cancer. This report contains activities of various divisions and peripheral units of RCC for the year 2005-06.

  
 (Dr. B. Rajan)  
 DIRECTOR

## MULTISPECIALITY CLINICS AT RCC

Clinics	Specialities	Specialized Services
A. Hemato/Lymphoreticular malignancy & Sarcoma	Medical Oncology Radiation Oncology Surgical Oncology	High-dose chemotherapy, Peripheral Blood Stem cell Transplantation.
B. Head & Neck	Radiation Oncology Medical Oncology Surgical Oncology	External Radiotherapy-both photon & electron, Brachytherapy-both High Dose Rate(HDR) and Low Dose Rate (LDR) Concurrent chemoradiation.
C. Breast & Central Nervous System	Radiation Oncology Medical Oncology Surgical Oncology	Breast conservation Breast Reconstruction Adjuvant / Neoadjuvant treatments Support services.
D. Gynaec & Genitourinary.	Radiation Oncology Surgical Oncology Medical Oncology	Brachytherapy - both HDR & LDR Gynaec Tumour Board & Genitourinary Tumour Board.
E. Chest & Gastro.	Radiation Oncology Surgical Oncology Medical Oncology	Bronchoscopy, Oesophagoscopy, Colonoscopy, Colostomy care, Brachytherapy for Lung, Oesophagus, Bile duct & anus Gastro-tumour Board Concurrent chemoradiation.
F. Pediatric Oncology	Pediatric Oncology Radiation Oncology Surgical Oncology	Pediatric Tumour Board. Aggressive chemotherapy for high risk Acute leukemias and Non Hodgkins Lymphomas.
G. Thyroid	Nuclear Medicine Surgical Oncology	Thyroid Scan and uptake, Ultrasonography, In vitro assays, radioiodine therapy, radio nuclide therapy.



## DEPARTMENTAL ACTIVITIES

### RADIATION ONCOLOGY

Dr. B. Rajan	Professor & Director
Dr. P.G. Jayaprakash	Professor
Dr. S. Parameswaran	Professor
Dr. Suresh Chandra Dutt	Additional Professor
Dr. Jayaprakash Madhavan	Additional Professor
Dr. K. Ramadas	Additional Professor
Dr. K. Ratheesan	Additional Professor
Dr. Francis V. James	Additional Professor
Dr. Thomas Koilparambil	Associate Professor
Dr. Beela Sarah Mathew	Associate Professor
Dr. Aswin Kumar	Assistant Professor
Dr. C.D. Sivanandan	Assistant Professor
Dr. R. Rejnish Kumar	Assistant Professor
Dr. Susan Mathews	Lecturer
Dr. Sajeed A.	Lecturer
Dr. Asha Arjunan	Lecturer

The division of Radiotherapy is the major player in the conduct of multidisciplinary clinics as the majority of patients require Radiotherapy at some stage of treatment. The notable achievement of the division was the introduction of newer radiotherapy techniques facilitated by the installation of modern radiotherapy gadgets for planning radiation treatment. The four major site-wise clinics conducted by the division, with the support of Surgical and Medical Oncology divisions, are Head and Neck, Breast & Central Nervous System, Gynaec & Genitourinary and Chest & Gastro.

#### Academic Activities

The division got accredited to the National Board of Examinations (NBE) for conducting DNB in Radiotherapy and four candidates were admitted

during the report year. The staff of the division have been quiet active in the conduct of Tumor Boards, CME programmes and participation in National and International meetings.

#### Origing Research Projects

1. FIST programme 2005-06. (Funded by: Department of Science & Technology, New Delhi)  
Principal Investigator: Dr. B. Rajan
2. INDOX studies. (Funded by: Department of Pharmacology, University of Oxford, UK)  
Principal Investigator: Dr. B. Rajan
3. Psycho-social problems of the spouses of patients with breast cancer. (Funded by: Kerala State Council for Science, Technology and Environment)  
Principal Investigator: Dr. B. Rajan
4. Tobacco cessation clinic. (Funded by: World Health Organisation)  
Principal Investigator: Dr. B. Rajan
5. Development of in vitro cellular model to predict tumor response to radiation therapy. (Funded by: Kerala State Council for Science, Technology and Environment)  
Principal Investigator: Dr. P.G. Jayaprakash
6. Multiparametric radiosensitivity prediction in uterine cervical cancers. (Funded by: Kerala State Council for Science, Technology and Environment)  
Principal Investigator: Dr. P.G. Jayaprakash
7. Primary chemotherapy with gemcitabine and cisplatin in locally advanced and metastatic (T3, T4 & M1) transitional cell carcinoma of urinary bladder. (Funded by: Eli Lilly India Pvt.Ltd)  
Principal Investigator: Dr. P.G. Jayaprakash
8. Phase III randomized comparison of concurrent gemcitabine, cisplatin, and radiation followed by adjuvant gemcitabine and cisplatin versus concurrent cisplatin and radiation in cancer of the cervix stages IIB

to IVA. (Funded by: Eli Lilly India Pvt.Ltd)

Principal Investigator: Dr. P.G. Jayaprakash

9. Development of an in vitro cellular model for predicting the value of apoptosis in radiation treatment of carcinoma cervix. (Funded by: Kerala State Council for Science, Technology and Environment)  
Principal Investigator: Dr. P.G. Jayaprakash
10. A multi-centric, open label, phase II clinical trial to evaluate the safety and efficacy of interleukin-2 (Zenotech) in patients with renal cell carcinoma. (Funded by: Zenotech Laboratories Ltd., Hyderabad)  
Principal Investigator: Dr. P.G. Jayaprakash
11. A phase III randomized, double blind, placebo controlled multicentre study to evaluate efficacy and safety of pazopanib in patients with locally advanced or metastatic renal cell carcinoma who has progressed on cytokine based first line treatment  
Principal Investigator: Dr. P.G. Jayaprakash
12. A randomized double blind placebo controlled phase II study of oral recombinant human lactoferrin as monotherapy in patients with locally advanced or metastatic renal cell carcinoma.  
Co-investigator: Dr. P.G. Jayaprakash
13. A randomized double blind placebo controlled phase II study of oral recombinant human lactoferrin as monotherapy in patients with recurrent and refractory carcinomas of ovary, prostate, urinary bladder, melanoma etc.  
Co-investigator: Dr. P.G. Jayaprakash
14. 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)  
Principal Investigator: Dr. Jayaprakash Madhavan
15. 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. (Funded by: Reliance Clinical Research Services, Mumbai)

Principal Investigator: Dr. Jayaprakash Madhavan

16. A phase III, 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 & Co (India) Pvt. Ltd)

Principal Investigator: Dr. Jayaprakash Madhavan

17. 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: Clnigene International Pvt. Ltd., Bangalore)

Principal Investigator: Dr. Jayaprakash Madhavan

18. Randomized clinical trial to test the efficacy of Ayurvedic mouthwash in the management of radiation induced oral mucositis.

Principal Investigator: Dr. K. Ramadas

19. TOCS Project follow up program for oral cancer prevention. (Funded by: Institute of Atomic Research Centre, France)

Principal Investigator: Dr. K. Ramadas

20. Efficacy of Varanadi Gritha as a biological response modifier in controlling the recurrence of treated Head & Neck cancers: A randomized pilot study. (Funded by: Kerala State Council for Science, Technology, and Environment)

Principal Investigator: Dr. K. Ramadas

21. A phase II randomized, double blind, placebo controlled, multicentre comparative study of ZD1839 250 mg or 500 mg (IRESSA™) given either continuously or concomitantly with cisplatin plus radiotherapy for the treatment of patients with previously untreated unresected late stage III/IV non-metastatic head and neck squamous cell carcinoma. (Funded by: Quintiles Research (India) Pvt.Ltd.,

Bangalore)

Principal Investigator: Dr. K. Ramadas

22. A phase III randomized, stratified, parallel group, multi-center, comparative study of ZD 1839 (IRESSA) 250 mg and 500 mg versus Methotrexate for previously treated patients with squamous cell carcinoma of the head and neck (Funded by: Siro Clinpharm Pvt.Ltd, Mumbai)

Principal Investigator: Dr. K. Ramadas

23. Randomized controlled evaluation of clinical early detection in the control of breast cancer in low and medium resource settings. (Funded by: World Health Organisation, International Agency for Research on Cancer, France)

Principal Investigator: Dr. K. Ramadas

24. Production of training materials on visual screening for oral cancer. (Funded by: International Agency for Research on Cancer, France)

Principal Investigator: Dr. K. Ramadas

25. Clinical and patho-biological effects of Curcumin on oral leukoplakia. (Funded by: Department of Biotechnology, New Delhi)

Principal Investigator: Dr. K. Ramadas

26. Genetic determinants of treatment response in advanced uterine cervix cancer patients undergoing radical chemoradiotherapy.

Principal Investigator: Dr. Aswin Kumar

27. A randomized, double blind parallel group, multicentre, phase III study comparing the efficacy and tolerability of Fulvestrant (FASLODEX™) 500 mg with Fulvestrant (FASLODEX™) 250 mg in post menopausal 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. K. Ratheesan

28. A phase III randomized, placebo controlled, double blind study of oral CCI-779 administered in combination with Letrozole Vs Letrozole alone as first line hormonal therapy in postmenopausal women with locally

advanced or metastatic breast cancer (Funded by: Quintiles Research (India) Pvt Ltd.

Principal Investigator : Dr. K. Ratheesan

29. Phase III randomized, double blind, placebo controlled multicenter study to evaluate efficacy and safety of GW786038 compared to (placebo) pazopanib in patients with locally advanced or metastatic renal cell carcinoma who has progressed on cytokine based first line treatment.

Principal Investigator : Dr. Francis V. James

30. Lactoferrin for metastatic renal cell carcinoma.

Principal Investigator : Dr. Francis V. James

31. 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. R. Rejnish Kumar

#### **Conferences / Workshops / Training programmes attended, Papers presented**

##### **Dr. P.G. Jayaprakash, Dr.Francis V.James**

Investigators and monitors meeting of a study involving kidney cancer patients, U.K., 1-5 March 2006.

##### **Dr. S. Parameswaran**

1. The 5<sup>th</sup> International from Gene to Cure Congress, Amsterdam, 30 January-8 February 2006.
2. Breast Cancer Summit 2005, Bangalore, 27-29 August 2005.
3. National Comprehensive Cancer Network (India) conference, Jaipur, 12-13 April 2003.
4. International workshop on Oesophagus cancer, Lakeshore Hospital & Research Centre, Kochi, 12-14 March 2004.



Dr. K.T. Dinshaw, Director, Tata Memorial Hospital inaugurating the Oral Cancer Conference (ORCA 2006) in Thiruvananthapuram (27.01.2006)



Shri K.K.Ramachandran Master, Hon'ble Minister for Health and Family Welfare inaugurating the CLINAC 600C Linear Accelerator (25.07.2005)





Dr. Vishwas Mehta, Secretary, Department of Health and Family Welfare  
at the RCC (22.10.2005)



Dr. Vishwas Mehta, Secretary, Department of Health and Family Welfare, at the newly installed Linear Accelerator with RCC doctors (22.10.2005).

**Dr. Jayaprakash Madhavan**

1. Conference on Xeloda Stand Alone Event, Hungary, 8-10 April 2005.
2. Investigators meeting of AHMTA trial on lung cancer, Kochi 22 March 2005.

**Dr. K. Ramadas**

1. Investigators Meeting, Barcelona, Spain, 30 November-5 December 2005.
2. Workshop on 'Oral Cancer update in the Asia Pacific: A regional Update and Networking', Kuala Lumpur, Malaysia 16 -18 February 2006 (Invited speaker).

**Dr. Beela Sarah Mathew**

ASTRO Spring Refresher Course, USA 28 March-13 May 2005.

**Dr. Aswini Kumar**

International Telemedicine Conference, Luxembourg 4-10 April 2005.

**Dr. R. Rejniish Kumar**

1. Investigators Meet-Multinational study of protocol 392/MD/15/C, U.K., 23-27 March 2006.
2. Association of Radiation Oncologists of India National Conference, Ahmedabad, Gujarat, 30 November-3 December 2005.

**Dr. Susan Mathews**

International conference on Emerging Trends In Radiation Oncology (ETROC 2005), NIMHANS Convention Centre, Bangalore 8-11 September 2005.



## SURGICAL ONCOLOGY

Dr. Paul Sebastian	Professor & Head
Dr. Jem Prabhakar	Associate Professor
Dr. Shaji Thomas	Associate Professor
Dr. Bipin T. Varghese	Associate Professor
Dr. Paul Augustine	Associate Professor
Dr. K. Chandramohan	Assistant Professor (on deputation)
Dr. Elizabeth Mathew Iype	Assistant Professor
Dr. Balagopal P.G.	Assistant Professor
Dr. Rema P.	Lecturer
Dr. Kurien Cherian	Lecturer
Dr. Madhu Muraloo	Lecturer
Dr. Arun Peter Mathew	Lecturer
Dr. Suchetha S.	Lecturer

During the reporting year, 2813 surgeries (Major 2393 and Minor 420) and 1912 endoscopic procedures were carried out. The Division got accredited to the National Board of Examinations for the conduct of DNB in Surgical Oncology. Sanction was accorded to admit two candidates every year.

**Table - 1: Major operations - sitewise distribution**

Site	Number	Percentage
Head and Neck	1063	44.5
Breast	757	31.6
Thorax and Abdomen	182	7.6
Genito-Urinary	230	9.6
Bone and extremity soft tissue sarcoma	89	3.7
Skin and other miscellaneous tumours	72	3.0
<b>Total</b>	<b>2393</b>	<b>100.00</b>

**Table - 2: Head and Neck Cancer- sitewise distribution**

Site	Numbers	Percentage
Oral cavity and oropharynx	538	50.6
Larynx and hypopharynx	106	10.0

Metastatic Neck Nodes	97	9.1
Thyroid	155	14.6
Salivary gland	32	3.0
Others	135	12.7
<b>Total</b>	<b>1063</b>	<b>100.00</b>

**Table - 3: Breast Cancer -- Operative procedures**

Procedure	Numbers
Modified Radical Mastectomy	548
Breast Conservation	133
Breast Reconstruction	7
Others	69
<b>Total</b>	<b>757</b>

**Table - 4: Endoscopic procedures**

Procedure	No (1713)
Nasopharyngoscopy	857
Bronchoscopy	130
Upper GI endoscopy	335
Colonoscopy	151
Oesophageal Stricture Dilatation	23
Rigid Nasal Endoscopy and DL scopy	308
Cystoscopy + Colposcopy	53
LEEP	55
<b>Total</b>	<b>1912</b>

### Academic activities

1. The division was involved in the conduct of the Oral Cancer Conference (ORCA 2006) jointly organized by ICMR, New Delhi, Rajiv Gandhi University for Health Sciences, Bangalore and RCC Trivandrum.
2. Provided training in surgical oncology for postgraduate students in Surgery, ENT and Maxillofacial Surgery from various Medical and Dental colleges in Kerala, Tamil Nadu and Karnataka.

### Ongoing Research Programmes

1. Molecular analysis of surgical markers in oral cancer patients. (Funded by: Kerala State Council for Science, Technology and Environment)  
Principal Investigator : Dr. Paul Sebastian
2. Mode of INK4A/MTS 1 inactivation and over expression of RB1 genes of oral Carcinoma (Funded by: Department of Science and Technology , Govt. of India)  
Co-investigator : Dr. Paul Sebastian
3. Photo diagnosis of oral cancer using laser induced fluorescence and reflectance spectroscopy (Funded by: Dept. of Biotechnology, Govt. of India)  
Co-investigator : Dr. Paul Sebastian
4. Trivandrum Oral Cancer Screening Study (TOCS) (Funded by: International Agency for Research on Cancer, France)  
Co-investigator : Dr. Paul Sebastian
5. Trivandrum Breast cancer Screening project (Funded by: International Agency for Research on Cancer, France)  
Co-investigator : Dr. Paul Sebastian
6. EGF 104334 – A Randomized, Single Blinded, Placebo controlled, Multicentre, Phase II Study of Lapatinib in Patients with Locally Advanced Squamous cell Carcinoma of the Head and Neck.  
Principal Investigator : Dr. Paul Sebastian
7. Evaluation of efficacy of reverse hockey stick incision in neck dissection in oral cancer patients.  
Co-investigator : Dr. Shaji Thomas
8. Characterization of molecular mechanism of cell cycle dysregulation in oral cancer.  
Co-investigator : Dr. Shaji Thomas
9. Role of FNAC in salivary gland neoplasms.  
Co-investigator : Dr. Shaji Thomas

10. Role of FNAC in thyroid nodules.  
Co-investigator : Dr. Shaji Thomas
11. Role and oncological safety of submental artery island flap for Intraoral reconstruction for oral cancer.  
Co-investigator : Dr. Shaji Thomas
12. Analysis of surgically inserted central venous lines for long term chemotherapy in pediatric malignancies.  
Co-investigator : Dr. Shaji Thomas
13. Study on treatment outcome in patients undergoing surgery for carcinoma larynx and hypopharynx - a follow up study.  
Co-investigator : Dr. Bipin T. Varghese
14. Ongoing clinical study on molecular markers in oral cancers in collaboration with the department of laboratory medicine  
Co-investigator : Dr. Bipin T. Varghese
15. Multicentric clinical study on role of IRESSA(Gefitinib) Epidermal Growth Factor in inoperable Head and Neck Cancers. (Funded by: Quintiles (India) Pvt Ltd.  
Co-investigator : Dr. Bipin T. Varghese
16. Evaluation of early detection of cervical cancer precursors by VIA, VIAM and VILI and treatment methods (cryotherapy, Loop electro surgical excision procedure). (Funded by: International Agency for Research on Cancer, France)  
Co-investigators : Dr. Rema P. and Dr. Suchetha S.
17. Validation of P16 expression as a marker for oncogenic HPV infection in uterine cervix.  
Co-investigator : Dr. Rema P.
18. The Transforming Growth Factor- Beta signaling in Ovarian cancer.  
Co-investigator : Dr. Rema P.

### Ongoing Doctoral Programme

Development of a Strategy for comprehensive post laryngectomy rehabilitation: A Kerala Perspective.

**Awards / Conferences / Workshops / Training Programmes attended, Papers presented**

**Dr. Paul Sebastian, Dr. Shaji Thomas, Dr. Paul Augustine, Dr. Balagopal P.G., Dr. Rema P., Dr. Suchetha S., Dr. Madhu Muralee, Dr. Kurien-Cherlan, Dr. Arun Peter Mathew**

Oral Cancer Conference (ORCA 2006). Organised by Indian Council of Medical Research, Rajiv Gandhi University of Health Sciences, Karnataka, and Regional Cancer Centre, Thiruvananthapuram. 27-29 January 2006.

**Dr. Paul Sebastian, Dr. Madhu Muralee**

Amrita Head and Neck Oncology Post Graduate Teaching Programme (AHEAD 2005). Amrita Institute of Medical Sciences, Kochi. February 2006.

**Dr. Shaji Thomas, Dr. Madhu Muralee**

'Multi modality Head and Neck Cancer in the new millennium'. Tata Memorial Hospital and MD Anderson Cancer Centre, Mumbai. December 2005.

**Dr. Paul Augustine, Dr. Madhu Muralee**

National Conference of the Indian Association of Surgical Oncologists. Kodai Kanal, Tamil Nadu. 23-25 September 2005.

**Dr. Suchetha S, Dr. Rema P.**

Master trainers course on Cervical cancer screening and Large Loop Excision treatment of Cervical Intraepithelial Neoplasia. Ambilikkal, Tamil Nadu. 1-3 January 2006.

**Dr. Paul Sebastian**

1. Visiting professorship at National Cancer Centre, Singapore. July 2005. Paper presented: 'Oral cancer management: RCC experience'.
2. 6<sup>th</sup> Annual meeting of INCTR, Chennai. December, 2005.

**Dr. Shaji Thomas**

1. UICC ICRETT fellowship for training in surgical techniques of insertion of central venous lines at National cancer Centre, Singapore May 2006.

Advanced training programme in vascular surgery, Ethicon Institute, Chennai, May 2005.

**Dr. Bipin T. Varghese**

UICC ICRETT fellowship for training in Prosthetic Voice Rehabilitation after Laryngectomy under Prof. Frans JM Hilgers, The Netherlands Cancer Institute, Amsterdam, The Netherlands. 20 April-19 May 2005.

10<sup>th</sup> International Congress on Surgical and Prosthetic Rehabilitation after laryngectomy. University Medical Center, Groningen, The Netherlands. 17-19 April 2005. Paper presented: 'Our experience with Near Total Laryngectomy'

6<sup>th</sup> International EGFL (European Group for rehabilitation and Functional surgery following Laryngectomy) workshop on voice rehabilitation (Servox Digital Workshop).

4. Advanced temporal bone dissection course at Amrita Institute of Medical Sciences, Kochi. 25-26 January 2006.

**Dr. Paul Augustine**

1. Videoconference on "Management of Rectal cancer: Modern trends" organized by Ethicon Institute of Surgical Education, Chennai, Tamil Nadu. 16 April 2005.
2. Videoconference on "Minimally Invasive Gastric cancer Management: Current concepts" organized by Ethicon Institute of Surgical Education, Chennai, Tamil Nadu. 2 July 2005.
3. Simulated Training Programme on Basic course on microsurgery by Indian Society for Reconstructive Microsurgery. Ethicon Institute of Surgical Education, Chennai, Tamil Nadu. 16-20 August 2005.

**Dr. Elizabeth Mathew Iype**

1. NCI Fellowship for training in Skull base surgery at Memorial Sloan Kettering Cancer Center, New York, United States. May-July 2005.
2. Observership in Head and Neck surgery unit in MD Anderson Cancer Center, Houston, United States. July 2005.
3. 10<sup>th</sup> International Congress on oral cancer, Crete, Greece. April 2005. Paper presented: 'The Role of SOHND in the management of NO

neck in oral cancer.

4. Annual conference of the American Laryngology Association. Boca Raton, Florida, United States. May 2006.
5. CME on Recent advances in Head and Neck surgery. New York University Hospital, New York, United States. June 2005.

**Dr. Balagopal P.G.**

1. UICG ICRET Fellowship for training at Central Brain Tumour Registry. Hinsdale, Chicago, United States, March 2006.
2. World Congress on Endoscopic brain, skull base and spine surgery University of Pittsburgh, United States. September 2005.

**Dr. Rema P.**

UICC ICRET Fellowship for training in Laparoscopic surgery in Cervical cancer at Royal Marsden Hospital, United Kingdom. September 2005.

**Dr. Suchetha S.**

Observership in Department of Surgical oncology (GU&GYN unit) at Tata Memorial Hospital, Mumbai, Maharashtra. May 2005.

**Dr. Kurien Cherian**

Basic laparoscopic training programme at VG Hospital, Coimbatore, Tamil Nadu. March 2006.

## MEDICAL ONCOLOGY

<b>Dr. Geetha N.</b>	Additional Professor & Head
<b>Dr. Sreejith G. Nair</b>	Associate Professor
<b>Dr. Mirsa Hussain</b>	Assistant Professor
<b>Dr. N.P. Prakash</b>	Assistant Professor
<b>Dr. Santhosh Thyagu</b>	Assistant Professor
<b>Dr. Lali V.S.</b>	Resident Medical Officer

### Clinical activities

This division is responsible for the diagnosis and management of haematological and lymphoreticular malignancies, sarcomas and other solid tumors where intensive chemotherapy is indicated. It conducts outpatient clinics 6 days a week. About 1300 new cases were treated during 2005-06. The number of outpatient attendance was about 21000.

Special procedures like bone marrow aspiration & biopsy, liver biopsy, intrathecal chemotherapy and central venous catheter insertions were done daily. More than 2000 patients were admitted for administration of high profile chemotherapy and management of emergencies and complications. Critically ill patients were closely monitored and managed in the ICU. About 100 patients with CML were enrolled in the GIPAP programme last year and are getting free 'Imatinib'.

Autologous bone marrow transplantation following High dose chemotherapy for multiple myeloma was performed in 6 patients.

### Academic activities

DNB programme in Medical Oncology was started in the report year and one candidate selected to undergo the training. Post graduate residents in general medicine and radiation oncology were given training in medical oncology. In addition, staff nurses were given training in patient care.

### Ongoing Research Projects

1. Molecular Remission with Arsenic Trioxide in Acute Promyelocytic Leukemia (Indian APML Study Group - IASG)  
Principal Investigator: Dr. Geetha N.

- Co-investigators: Dr. Sreejith G. Nair, Dr. B.MirsaHussain,  
Dr. Santhosh Thyagu, Dr. Manju Varghese
2. Recombinant Human Granulocyte Colony Stimulating Factor (rHu-GCSF) in Acute Myeloid Leukaemia  
Principal Investigator: Dr. Geetha N.  
Co-investigators: Dr. Sreejith G. Nair, Dr. Lali V.S.  
Dr. B.Mirsa Hussain, Dr. Manju Varghese
  3. Clinical Study Protocol 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.  
Principal Investigator: Dr. Geetha N.  
Co-investigators: Dr. Sreejith G. Nair, Dr. Lali V.S.  
Dr. B.Mirsa Hussain
  4. A clinical study to evaluate the tolerability, safety and efficacy of amphotol (amphotericin b emulsion) as empirical antifungal therapy in patients with febrile neutropenia.  
Principal Investigator: Dr. Geetha N.  
Co-investigators: Dr. Sreejith G. Nair, Dr. Jwala Dillip
  5. An open label phase 2 study of oral recombinant monotherapy in patients with advanced renal cell carcinoma.  
Principal Investigator: Dr. Sreejith G. Nair
  6. Multi-National International trial "A Randomised 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)". Protocol-LF-0206, 2005.  
Co-investigator: Dr. B.Mirsa Hussain
  7. Multi-National International trial "A Randomised 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<sup>st</sup> or 2<sup>nd</sup> line chemotherapy" Protocol LF-0201, 2005

Co-Investigator: Dr. B.Mirsa Hussain

#### Merits, Conferences / Meeting attended

1. Dr. Geetha N  
International Conference on Malignant Lymphoma, Switzerland, June 2006.
2. 37<sup>th</sup> STOP Congress. Vancouver, Canada. September 2005.
3. Dr. B. Mirsa Hussain  
Royal College of Physicians International Conference on Internal Medicine. Trivandrum, 5 - 6 March 2006.
4. 41<sup>st</sup> Annual Meeting of the American Society of Clinical Oncology (ASCO). Orlando, Florida, United States. 13 - 17 May 2005.
5. Recent Trends in Imaging & Radiological Techniques (TALENT 2005). Regional Cancer Centre, Trivandrum 13 - 14 August 2005.
6. Dr. B. Mirsa Hussain  
INCTR Conference, Chennai, December 2005.

## PAEDIATRIC ONCOLOGY

Dr. P. Kusuma Kumary      Additional Professor & Head  
 Dr. T. Priya Kumari      Associate Professor  
 Dr. Usha Suresh          Lecturer

This Division attends to patients upto the age of 14 years.

### CLINICAL ACTIVITIES

Paediatric Oncology out-patient service functions six days a week. The distribution pattern of pediatric patients registered and the total number of outpatient visits during the reporting year is given below.

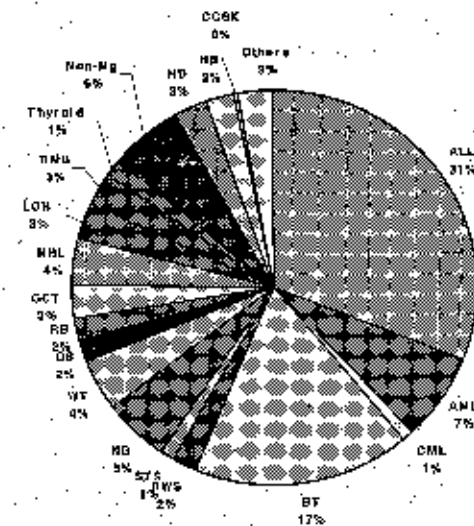
Table - 5: Patient Statistics

Paediatric Cases	No.	Percentage
Acute Lymphoblastic Leukemia	137	31.53
Acute Myeloid Leukemia	31	6.9
Chronic Myeloid Leukemia	3	0.67
Brain Tumour	77	17.34
Ewings Sarcoma	8	1.8
Soft Tissue Sarcoma	5	1.13
Neuroblastoma	23	5.18
Wilm's Tumour	18	4.05
Osteosarcoma	9	2.02
Retinoblastoma	7	1.57
Germ Cell Tumour	13	2.92
Non Hodgkins Lymphoma	17	3.82
Langerhans cell Histiocytosis	13	2.92
Rhabdomyosarcoma	13	2.92
Thyroid	6	1.35

Non Malignant	26	5.85
Hodgkins Disease	12	2.7
Hepatoblastoma	9	2.03
Clear Cell Sarcoma Kidney	2	0.44
Others	12	2.72
Total number of new patients	441	100.00
Total number of out patient visits	15,651	

As in the previous years the most common malignancy reported was Acute lymphoblastic leukaemia (31.5%). All new patients underwent detailed diagnostic workup and appropriate treatment was given.

Fig.1 - Paediatric patients during 2005-06



Paediatric tumour board with a multidisciplinary team consisting of, Paediatric oncologists, Radiation oncologists Paediatric surgeons and Pathologists is conducted on all Mondays at 2pm and major management decisions are taken by this team. Counselling sessions for parents of paediatric cancer patients are conducted every day. Detailed counselling sessions are given every Saturday. Onam, X'mas & New year celebrations



were organized during the period. New clothes were distributed to all the children of paediatric oncology ward during onam function by our Director. The annual meeting of Prathyasha, (a voluntary organization consisting of paediatric cancer survivors, their parents & doctors of Paediatric Oncology Division) was held in a big way in RCC, with Chief Minister presiding over the function.

#### Academic and Research activities

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

#### Conferences / Meeting attended, Paper presented

##### Dr. P. Kusumakumary

National Conference on Biotechnology. NIMS. 17-18 February 2006.  
Paper presented: 'Molecular Genetics in Paediatric Oncology'.

##### Dr. Priya Kumari T.

1. Sarcoma Meeting Stuttgart (SMS 2005) Scholarship.
2. International Sarcoma Meeting Stuttgart (SMS 2005). Stuttgart, Germany 15-17 June 2005.
3. International Symposium on Translational Research: apoptosis and cancer. Rajiv Gandhi Centre for Biotechnology, Thiruvananthapuram. 18-21 December 2005.

##### Dr. Usha Suresh

International symposium on Paediatric Malignancies. All India Institute of Medical Sciences (AIIMS), New Delhi. 29-31 December 2005.



Shri Oommen Chandy, Hon'ble Chief Minister presiding over the X'mas and New Year celebrations under the auspices of 'Prathyasha', a charitable organization at RCC.



Dr. K.T.Dinshaw, Director, Tata Memorial Hospital inaugurating the Oral Cancer Conference (ORCA 2006) in Thiruvananthapuram (27.01.2006)

## PATHOLOGY

Dr. Elizabeth K. Abraham	Professor & Head
Dr. Jayasree K.	Additional Professor
Dr. Rekha A. Nair	Additional Professor
Dr. Anitha Mathews	Associate Professor
Dr. Thara Somanathan	Associate Professor
Dr. K. Raveendran Pillai	Associate Professor
Dr. Nileena Nayak	Assistant Professor
Dr. T.R. Preethi	Assistant Professor
Dr. K. Sujathan	Assistant Professor
Ms. Veena V.S.	Sr. Cytotechnologist
Mr. Mani K.S.	Cytotechnologist
Mr. Jayalal K.S.	Cytotechnologist

### I. Achievements

- Obtained recognition for conducting DNB course in Pathology.
- Established Molecular Pathology laboratory under the FIST grant of the Department of Science and Technology, Govt. of India.
- Standardised Flow Cytometry reporting of Leukemias.

### II. Diagnostic Services

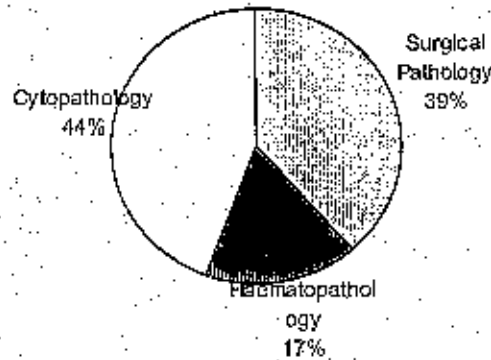
#### A. Total Work Load at a Glance

During this year, a total of 26686 cases were diagnosed and these include 10306 (39%) Surgical pathology; 11866 (44%) Cytopathology, and 4514 (17%) Haematopathology cases. Among these, 9966 were malignant reports (Table-6, Fig 2). Immuno histo/cytochemical staining was done in 2635 number of these cases (5460 tests).

**Table - 6: Total Workload**

	Surgical pathology	Haemato pathology	Cytopathology	Total
No. of Cases	10306(39%)	4514(17%)	11866(44%)	26686
Malignant	6956	938	2072	9966

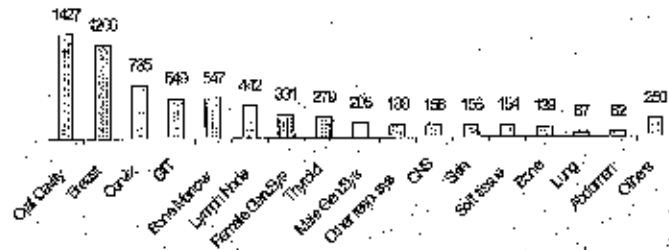
**Fig.2 - Total Work load (n-26686)**



**B. Surgical Pathology**

**i. Histopathology:** Out of 10306 cases of histopathological specimens processed, 6959 cases were surgical specimens of the Centre and 3347 were review cases referred from other hospitals. Among these malignancy was reported in 6956 cases. The predominant sites of malignancy were oral cavity, breast, cervix, GIT, lymph nodes and bone marrow (Fig. 3). The work load indicated includes 490 cases for second opinion (non-registered) from outside institutions / hospitals.

**Fig.3 - Surgical Pathology - Malignant Cases = 6956**



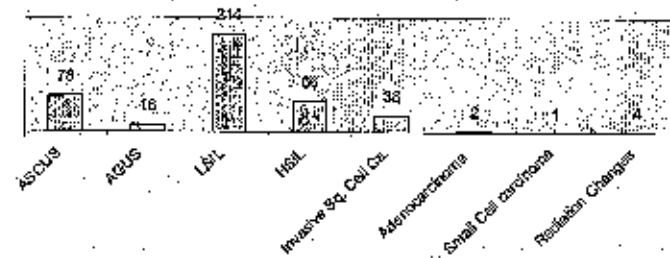
**ii. Immunohistochemical staining:** IHC staining was done in cases where there was diagnostic difficulty by routine stains. Immunophenotyping was carried out on almost all lymphoma cases. A total of 5460 (2835 cases) immunohistochemical tests were performed in the current year, which 1010 tests were for assessing Estrogen receptor status, 950 tests for Progesterone receptor status assessment and 400 for Her2neu marker

detection in breast cancer patients. Rest of the Immuno markers were done for proper classification of undifferentiated tumors.

**C. Cytopathology**

**i. Gynaec cytology:** 4126 Cervical Smears were examined of which, 3103 cases were from different projects. Out of these, 419 were having epithelial lesions / malignancy (Fig. 4) and 3674 were negative for intra epithelial lesions. Second opinion on cervical smears were also given to smears referred from Peripheral centers (ECDGs) of RCC.

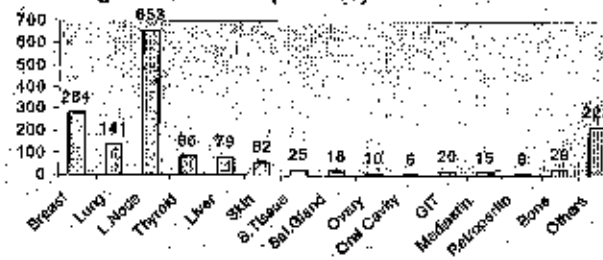
**Fig.4 - Cervical Epithelial lesions / Malignancy (n=419)**



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

**ii. Fine Needle Aspiration Cytology:** 4782 Fine needle aspirations were performed and the major sites of aspiration were lymph node (1278), thyroid (1072) and breast (767). Out of these, 1659 were malignant lesions. Among the malignancies, majority were from lymph nodes (653) of which 566 were metastatic tumours. Total number and split up of malignancies at various sites are depicted in Fig. 5.

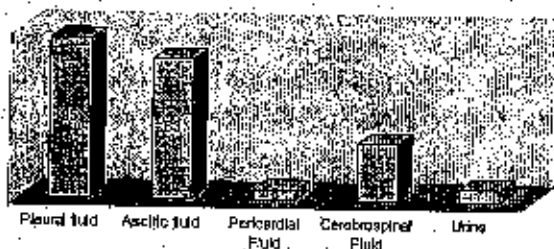
**Fig.5 - FNAC Malignant Lesions (n=1659)**





**III. Fluid Cytology :** A total of 1798 effusions and other body fluid samples were processed in the reported year, which includes 985 samples of Cerebrospinal Fluid (CSF), 366 ascitic fluid, 370 pleural fluid, 56 urine and 21 pericardial fluids. Among these, 225 samples were reported to have malignant cells. (Fig.6)

**Fig.6 - Fluid Cytology malignant (n=225)**

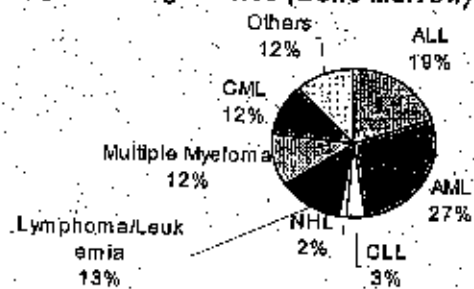


**iv. Sputum Cytology:** Sputum samples from 1160 patients were studied. 3-5 morning samples were collected from each patient on consecutive days and 2 smears were prepared from each sample. 173 malignancies were reported. These include 158 Non Small cell carcinoma and 15 small cell carcinoma.

#### D. Haematopathology

4514 haematopathological cases were studied. These include 3112 bone marrow samples, 1228 peripheral blood smears and 174 haematology slide reviews. 938 cases of malignancy were reported of which, 184 were cases of Acute lymphoblastic leukemia (ALL), 260 were cases of Acute myeloid leukemia (AML), 109 CML, 30 CLL, 15 NHL, 120 leukemia / lymphoma and 184 were multiple myeloma cases. (Fig.7) Special stains, 171 surface immunophenotyping and 74 Flowcytometry were done for subtyping of leukemias:

**Fig.7 - Haematological malignancies (Bone Marrow) n=938**



#### B. Molecular Pathology

Standardization of HPV genome identification by PCR method was carried out during the year under report, utilising cervical scrape smears from PCR project. A total of 47 samples were studied, of which 17 were found to be positive for high risk HPV.

#### III. Teaching / Training Programmes

One year post-doctoral certificate course in Oncopathology, 1 year Cytotechnologists training, 6 months Cytotechnician training and 9 months course in Histotechnology for histotechnicians were conducted. As part of short-term training, theory and practical teaching were given to 35 B.Sc (MLT) students of MG University posted for one month each in batches and four M.Sc. (MLT) students of Calicut University.

Regular posting were given to MD pathology students of Kottayam, Kozhikode, Allappuzha and Thiruvananthapuram Medical Colleges. Hands on training on Histotechnology and Immunohistochemistry were given for lab technicians from various institutions.

#### IV. Academic Activities

Developed training manual and module for laboratory technicians with special reference to cancer cytology under the NCCP funded by WHO. Telepathology consultation service given to Peripheral Early Cancer Detection Centres at Ernakulam and Kannur through telemedicine network of RCC. Slide seminars and Journal conferences general meetings, Tumor Board meetings in RCC and SAT Hospital were also conducted.

#### Ongoing Clinical Trials & Research Projects.

- Trivandrum breast cancer screening project (Funded by: International Agency for Research on Cancer, France).  
Co-investigator : Dr. Elizabeth K. Abraham
- Adjuvant tamoxifen in breast cancer - Long against shorter (ATLAS) (Funded by: Clinical Services Unit, Oxford, UK).  
Co-investigator : Dr. Elizabeth K. Abraham
- Multicentric project on evaluation and validation of molecular markers in oral cancer (Funded by: Department of Biotechnology).  
Co-investigator : Dr. Elizabeth K. Abraham

4. Identification of markers for biological grading of malignant lesion in the bronchopulmonary mucosa. (Funded by: Kerala State Council for Science, Technology and Environment).  
Principal Investigator: Dr. K. Raveendran Pillai  
Co-Investigator: Dr. Elizabeth K. Abraham
5. Study of Gef 3, Gal-1, T antigen and Bcl 2 expression, in breast cancer (Funded by: Kerala State Council for Science, Technology and Environment).  
Principal Investigator: Dr. K. Sujathan  
Co-Investigators: Dr. Elizabeth K. Abraham  
Dr. Thara Somanathan
6. Tumour suppressor genes in Nasopharyngeal carcinoma. An evaluation. (Funded by: Kerala State Council for Science, Technology and Environment)  
Principal Investigator: Dr. K. Jayasree
7. Human Papilloma Virus 16 and 18 associated cancers in Natural background Radiation Area of Kerala (Funded by: Department of Epidemiology and Preventive medicine, Kagoshima University, Japan)  
Principal Investigator: Dr. K. Jayasree  
Co-Investigator: Dr. Anitha Mathews
8. Patterns of care and survival studies on Head and Neck cancer- National Cancer Registry Programme, Indian Council of Medical Research.  
Co-investigator: Dr. K. Jayasree
9. Role of FNAC in Evaluation of Thyroid Neoplasms- A retrospective study.  
Co-Investigator: Dr. K. Jayasree
10. Development of laser-induced multi-wavelength fluorescence imaging cum photodynamic therapy system for cancer diagnosis and treatment. (Funded by: Biophotonics laboratory, Centre for Earth

- Science Studies, Trivandrum.)  
Co-Investigator: Dr. Anitha Mathews
11. Evaluation of oral cancer screening in a randomized controlled trial in Trivandrum District, India. (Funded by: International Agency for Research on Cancer, Lyon, France.)  
Principal Investigator: Dr. Thara Somanathan  
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 (Funded by: International Agency for Research on Cancer Lyon, France).  
Principal Investigator: Dr. Thara Somanathan
13. Evaluation of early clinical detection of breast cancer in Trivandrum district, India. (Funded by: International Agency for Research on Cancer)  
Principal Investigator: Dr. Thara Somanathan
14. Phase II randomized double blind placebo controlled multicentre comparative study of ZD1839-250/500mg (IRESSA) given either continuously or concomitantly with cisplatin and radiotherapy for treatment of patients with previously untreated, unresected late stage III/IV, no metastasis Head and Neck squamous cell carcinoma.  
Co-Investigator: Dr. Nileena Nayak
15. Phase III randomized stratified parallel group multicentre comparative study of ZD1839 (IRESSA) 250/500mg versus methotrexate for previously treated patients with squamous cell carcinoma of Head and Neck.  
Co-Investigator: Dr. Nileena Nayak
16. Role of FNAC in evaluation of salivary gland neoplasms - A retrospective study - 2000-2004.  
Co-Investigator: Dr. Nileena Nayak
17. Trivandrum Corporation Comprehensive Cancer Control Programme (Funded by: Corporation of Trivandrum).  
Co-Investigators: Dr. K. Raveendran Pillai  
Dr. K. Sujathan



**Merits, Conferences/Meetings/Workshops attended,  
Papers presented**

**Dr. Elizabeth K. Abraham, Dr. Jayasree K.**

Examiners. National Cytotechnologist's & Cytotechnician's Examinations. (Indian Academy of Cytologists). 5-6 September 2005

**Dr. Elizabeth K. Abraham, Dr. Jayasree K., Dr. Rekha A. Nair,  
Dr. Anitha Mathews, Dr. Thara Somanathan, Dr. Nileena Nayak,  
Dr. Preethi T.R., Dr. Raveedran Pillai K., Dr. Sujathan K.,  
Veena V.S., Mani K.S., Jayalal K.S.**

Oral Cancer Conference (ORCA 2006). Organised by Indian Council of Medical Research, Rajiv Gandhi University of Health Sciences, Karnataka, and Regional Cancer Centre, Thiruvananthapuram. 27-29 January 2006.

**Dr. Elizabeth K. Abraham, Dr. Rekha A. Nair, Dr. Anitha Mathews**

Progress in Pathology: an International update. St. Johns Medical College, Bangalore. 1-3 February 2006.

**Dr. Elizabeth K. Abraham, Dr. Jayasree K., Dr. Anitha Mathews,  
Dr. Thara Somanathan, Dr. Nileena Nayak, Dr. Preethi T.R.**

3<sup>rd</sup> National CME of Indian Association of Pathologists and Microbiologists (Kerala Chapter). Sree Chitra Tirunal Institute for Medical Sciences and Technology, Thiruvananthapuram. 13-15 August 2005.

**Dr. Elizabeth K. Abraham, Dr. Jayasree K., Dr. Thara Somanathan**  
35<sup>th</sup> Annual Conference of Indian Academy of Cytologists, Jamnagar, Gujarat. December 2005.

**Dr. Rekha A. Nair, Dr. Raveedran Pillai K., Dr. K. Sujathan**

International Symposium on Translational Research: apoptosis and cancer. Rajiv Gandhi Centre for Biotechnology, Thiruvananthapuram. 18-21 December 2005.

**Dr. Rekha A. Nair, Dr. Nileena Nayak**

6<sup>th</sup> Indo-US flow cytometry workshop on monitoring of stem cell phenotype, proliferation, and apoptosis. Sree Chitra Tirunal Institute for Medical Sciences and Technology, Thiruvananthapuram. 5-12 February 2006.

**Dr. Jayasree K.**

Jayasree K, Thara Somanathan, Sindhu Nair P, Rekha A. Nair, Anitha Mathews, Nileena Nayak, Preethi T R, Elizabeth K. Abraham.

35<sup>th</sup> Annual Conference of Indian Academy of Cytologists, Jamnagar, Gujarat. December 2005. Paper presented: 'Malignant Lymphomas of Thyroid: Role of Fine Needle Aspiration in Diagnosis'

**Dr. Rekha A. Nair, Dr. Nileena Nayak**

1. Co-guide for MD Pathology (Medical college Trivandrum) Thesis. Impact of clinico pathological factors on Prognosis in Childhood Leukemia. 2004-2006.
2. XI National CME in Haematology 22-24 April 2005 at Bombay Hospital, Mumbai.

**Dr. Thara Somanathan**

1. Global meeting on Prevention of Cervical cancer: Research putting into Practice Bangkok, 4-7 December 2005. Paper Presented: 'Is VILI as good as VIA?'
2. Thara Somanathan, Jayasree K, Sindhu Nair P, Raveendran Pillai, Elizabeth K. Abraham. 35<sup>th</sup> Annual Conference of Indian Academy of Cytologists, Jamnagar, Gujarat. December 2005. Paper presented: 'Ovarian malignancy presenting as carcinomatous meningitis-a case report'.

**Dr. Raveedran Pillai K.**

WHO Expert Committee Meeting on Cervical Cancer Control Programme in India. Postgraduate Institute of Medical Education and Research, Chandigarh, 18-19 November 2005.

## IMAGEOLOGY

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

**Table - 7: Diagnostic and interventional studies.**

Plain X-rays	19724
Special investigations using X-rays:	
Barium meal	24
Barium swallow	323
Barium enema	9
Mammogram single	1316
Mammogram Double	1281
CT Scan	7056
CT & guided procedures	377
Ultrasound	9382
Doppler studies	198
USS guided FNAC	165

### Academic Activities:

The division was sanctioned 2 seats for DNB in Radiology by the National Board of Examinations, New Delhi and two candidates are undergoing training since January 2006.

The division hosted a National Conference, on 'Recent Trends in Imaging and Radiologic Techniques (TALENT 2005) In August 13<sup>th</sup> & 14<sup>th</sup> during the report period. Eminent speakers like Dr. Bhavin Jhankaria gave lectures on cardiac CT Functional MRI, Diffusion imaging as well as conventional topics were also discussed.

Training and short term postings in various imaging modalities including mammography were provided to Radiologists and postgraduates from

various parts of Kerala. In addition to the daily noon clinics, the Division actively participated in the monthly meetings of Trivandrum Radiology Club, Pulmonary Radiology Club in SUT Hospital etc.

A mammography unit with stereotactic biopsy facility was commissioned in the department. A mammotome biopsy system was also installed along with a high resolution gray scale ultrasound scanner.

### Ongoing Clinical Trials & Research Projects

1. A phase III randomized, double blind, placebo controlled multicentre study to evaluate efficacy and safety of pazopanib in patients with locally advanced or metastatic renal cell carcinoma who has progressed on cytokine based first line treatment.

Co-Investigator: Dr. M. Venugopal

2. Randomized controlled evaluation of clinical early detection in the control of breast cancer in low and medium resource settings. (Funded by: International Agency for Research on Cancer, France).

Co-Investigator: Dr. M. Venugopal

3. A Randomized Multicenter Therapeutic confirmatory study to Evaluate the Efficacy and Safety of Proxiniam Plus Best Supportive Care Versus Best Supportive Care alone in patients with Recurrent Squamous Cell Carcinoma of the Head and Neck who have received at least one prior chemotherapy regimen for recurrent disease. (Funded by: Viventia Biotech Inc.)

Co-Investigator: Dr. M. Venugopal

4. 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 (Funded by: Reliance Clinical Research Services, Mumbai)

Co-Investigator: Dr. A.S. Krishna Kumar

5. Phase III randomized comparison of concurrent gemcitabine, cisplatin, and radiation followed by adjuvant gemcitabine and cisplatin versus concurrent cisplatin and radiation in cancer of the cervix stages IIB

to IVA (Funded by: Eli Lilly India Pvt.Ltd)

Co-Investigator : Dr. A.S. Krishna Kumar

#### Merits, Conferences/Training attended

##### Dr. K. Ramachandran

1. Examiner, MD (Radiodiagnosis) and DMRD Examination, Medical College, Kozhikkode and MD (Radiodiagnosis) Examination, Medical College, Thrissur.
2. Chairman, Organising committee, Recent Trends in Imaging and Radiologic Techniques (TALENT 2005) Regional Cancer Centre, Thiruvananthapuram, 13-14 August 2005
3. Mammotome Training in the Department of Oncological Imaging, National Cancer Centre, Singapore, 26-30 September 2005
4. Oral Cancer Conference (ORCA 2006), Organised by Indian Council of Medical Research, Rajiv Gandhi University of Health Sciences, Karnataka, and Regional Cancer Centre, Thiruvananthapuram, 27-29 January 2006.

##### Dr. A.S. Krishna Kumar

1. Organising Secretary, Recent Trends in Imaging and Radiologic Techniques (TALENT 2005) Regional Cancer Centre, Thiruvananthapuram, 13-14 August 2005.
2. National Conference on Prostatic Imaging, Baroda, Gujarat, 25 June 2005.
3. National IRIA Conference, Chennai, 6-8 January 2006.
4. International Symposium on Translational Research: apoptosis and cancer, Rajiv Gandhi Centre for Biotechnology, Thiruvananthapuram, 18-21 December 2005
5. International Seminar on Breast Disease and Imaging, National Breast Foundation of India, Hyderabad, 11-13 March 2006.

## NUCLEAR MEDICINE

✓ Dr. V.M. Pradeep

Additional Professor & Head

Dr. A. Sreekumar

Associate Professor

The major addition to the Nuclear Medicine division was a dual head SPECT gamma camera, supplied by Wipro GE. The Model Infinia was the state of the art system at time of its introduction. The availability of this equipment has brought about a vast difference in the quality as well as quantitative output.

#### Description of Work

Nuclear Medicine division provides diagnostic and therapeutic facilities using open radioactive sources. The work in Nuclear Medicine division includes in-vitro assays, various types of scans, and treatment for Thyrotoxicosis and thyroid cancer as well as palliative treatment of bone pain. This is the only Centre in the state that provides high-dose therapy using radioactive sources. The division has also been recognized as a training Centre for high dose therapy. This division also participated in several teaching and other academic activities.

#### Thyroid Clinic

The major part of the work of this division comprises evaluation and treatment of Thyroid disorders. Facilities for comprehensive diagnostic and therapeutic options for various thyroid disorders are available. These include thyroid scanning, ultrasonography, in-vitro assays, and radioiodine therapy. 11008 cases attended the thyroid clinic as new cases with direct referrals as well as follow-up cases. These included cases of Ca Thyroid and Thyrotoxicosis as well as other cases were referred for various investigations such as thyroid function tests, thyroid uptake and scan.

Thyroid scans are done with radioiodine (I-131), technetium (Tc99m). Large dose, whole body radioiodine scans are done for Ca. Thyroid Immunoassay.

The Immunoassay section performed 18664 assays of thyroid hormones, tumor markers and miscellaneous assays. The break up is as shown

below. These included cases for thyroid evaluation, tumor markers, and other assays.

#### Imaging (Gamma Camera)

The Nuclear Medicine Division has a Siemens Gamma Camera, Basicam Model with a microdelta computer. This is one of the most ancient equipment still functioning, in this series of gamma cameras. This equipment is used for static and dynamic scintigraphy. Bone scanning for cancer patients forms the main work on this instrument. Dynamic renal studies including pediatric renal evaluation are the second most important. Tetrofosmin imaging was introduced recently. Technetium for the purpose of these scans is eluted from Molybdenum using Mo-Tc generator from BARC. Scanning for medullary Ca. Thyroid using  $^{99m}\text{Tc(V)}$ -DMSA was started.  $^{131}\text{I}$ -MIBG scanning for Medullary Ca thyroid has also been started.

#### Radionuclide Therapy

Radionuclide therapy section of Nuclear Medicine is one of the largest in the country. Our Centre has recently been recognized by the Atomic Energy Regulatory Board as a training Centre for high dose treatment with pen radioactive sources. Radioiodine therapy is routinely given for Thyrotoxicosis and Ca Thyroid. The division has a full-fledged radionuclide therapy ward with delay tank for the treatment of thyroid cancer. The division has facilities for bone pain palliation using  $^{89}\text{Sr}$ . and  $^{153}\text{Sm}$ .

Table - 8: Workout

Therapy	
Ca Thyroid therapy	498
Thyrotoxicosis	194
<b>New cases registered in NMC</b>	<b>2236</b>

Table - 9: Quantum of diagnostic work

Gamma Camera	
Bone scan	1726
MUGA	41
Renal	45
DMSA	75

MIBI	70
Hepatobiliary	1
Meckel's	1
LD Scan	1985
SD Scan	284
PT Scan	2
TcO <sub>4</sub> Thyroid	489
<b>Total</b>	<b>4719</b>
Immunoassays	
T3	2208
T4	2477
TSH	3217
FT3	219
FT4	219
ATG	146
AMC	146
TG	1124
PTH	41
Calcitonin	17
HCG	1512
AFP	677
CEA	1613
CA-125	883
PSA	292
FSH	34
LH	28
Prolactin	74
Testosterone	34
Cortisol	18
GH	102
<b>Total</b>	<b>15081</b>

#### Academic Activities

Medical and paramedical students from various institutions were posted for advanced training in this Division during the period. Assistance was also given to Post-graduate students in their theses work.

### Merits, Conferences attended, Papers presented

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

SNM Annual Conference, Kozhikkode. December 2005.

Dr. A. Sreekumar

1. SNM Southern Chapter Annual Conference, Kasturba Medical College, August 2005. Paper presented: 'Metastatic bone disease'
2. Annual conference of ANMPI, Srinagar, Jammu & Kashmir, September 2005. Paper presented: 'Extra skeletal uptake of <sup>109m</sup>Tc-MDP'.

### RADIATION PHYSICS

Dr. Raghu Ram K. Nair	Additional Professor & Head
Dr. Thayal Singh Elias	Associate Professor
Mr. Raghu Kumar P.	Assistant Professor
Mr. Sajju B.	Assistant Professor
Mr. Giri Purushothaman	Lecturer-Electronics Engineering
Ms. Zhenia Gopalakrishnan	Lecturer
Ms. Divya K.T.	Lecturer

The activities of this division include calibration and quality assurance of radiotherapy equipments, treatment planning, dose computation, radiation safety in radiotherapy, imageology and nuclear medicine, participation in intercomparison and external verification of dose output of treatment machines using TLD in BARC/IAEA programs, daily maintenance, checking and repair of all teletherapy and brachytherapy equipments and intraoperative, intraluminal and mould brachytherapy using Microselectron HDR. A new 6MV Linear accelerator from M/s Varian and a new water phantom RFA 300 and IMRT Phantom and QA s/w from M/s Scanditronix were added.

Table - 10: Patient Services

Treatment given	No.
External Beam Radiotherapy	7348
Interstitial Implantation	41
Microselectron HDR	
Gynaec	1278
Oesophagus	97
Bronchus	2
Others	11
<b>Total</b>	<b>8777</b>
Simulator	7155
Mould Room	
Orfit Shell	1454
Bite Block	489

Electron Cut-outs	192
Head rest, Leg rest, face rest, mould etc.	270
Pelvic Immobilization, vac loc, lead shields etc	20

### Academic Activities

Classes were conducted in Medical physics and practical training imparted to the students of Diploma in Radiological Technology (DRT), B.Sc.(MLT), DMLT, B.Sc.(Nursing), M.Sc.(Nursing), MBBS, DMRT, DMRD, MDS(Oral Radiology), MD (Radiotherapy), and MD & Dip NB (Radiodiagnosis)

### Training Programmes

The three months refresher programme in Imageology/Nuclear Medicine and Radiotherapy for Radiographers, started in 1994, covered 130 trainees in Imageology/Nuclear Medicine and 31 Trainees in Radiotherapy till March 2006. Two Dip RP students from BARC, Mumbai attended two months training in 2005.

### Ongoing Research Projects

1. Natural Background Radiation Registry (NBRR) Physics Studies. (Funded by: Health Research Foundation, Japan)

Principal Investigator: Dr. Raghu Ram K.Nair

2. Technology Development of Cancer Treatment Gadgets. (Funded by: Kerala State Council for Science, Technology and Environment.)

Principal Investigator: Dr. Thayal Singh Elias

3. Software development of Radiotherapy Management System.

Principal Investigator: Dr. Thayal Singh Elias

4. Development of a latex packing balloon to reduce rectal and bladder dose in IC HDR Brachytherapy. (Funded by: M/s Hindustan Latex)

Investigators: Dr. Raghu Ram K. Nair,  
Mr. Raghu Kumar P.

### Ongoing Doctoral Programmes

1. Calibration, Dosimetry and Safety in Brachytherapy Techniques in the treatment of malignant Diseases. Mr. P. Raghu Kumar (M.G.University, Kottayam)
2. Development of a Quality Assurance protocol, dose measurement and radiation safety evaluation in CT Scanners. Mr. K.A.Davis (M.G.University, Kottayam)
3. Modification of Radiotherapy by physical parameters. Dr Sajeed A. (University of Kerala)

Merits, conferences/meetings attended, papers presented

Dr. Raghu Ram K. Nair, Raghu Kumar P, Zhenia Gopalakrishnan, Divya K.T.

International Conference on Medical Physics & Radiation Safety (AMPICON 2005), Chennai. Tamil Nadu. 10-12 November 2005.

Dr. Raghu Ram K. Nair, Raghu kumar P, B. Saju B., Zhenia Gopalakrishnan, Divya K.T.

Annual Meeting of the Association of Medical Physicists of Kerala (KAMP2005). Thiruvananthapuram. 15 May 2005.

Mr. Raghu kumar P, Saju B., Zhenia Gopalakrishnan, Divya K.T.

Oral Cancer Conference (ORCA 2006). Organised by Indian Council of Medical Research, Rajiv Gandhi University of Health Sciences, Karnataka, and Regional Cancer Centre, Thiruvananthapuram. 27-29 January 2006.

Rajesh P.R, Sunilkumar S, Radhkrishnan Nair T.

Sunil Kumar S., Aswin kumar, Raghu kumar P., Saju B., Raghu Ram K. Nair. 9<sup>th</sup> National Conference of Association of Radiation Therapy Technologists of India. Patna, Bihar. 1-2 October 2005. Paper presented: 'Treatment of orbital cancer with electron beam: a retrospective analysis'

Dr. Raghu Ram K. Nair

1. Examiner. MD (Radiodiagnosis) and DMRD Examinations. University of Kerala.
2. Examiner. Ph.D Thesis. Manipal Academy of Higher Education, Manipal, Karnataka.



3. Member, Board of Studies in Radiation Physics, Calicut University.
4. Discussion Meeting on Impact radiotherapy and hospital management system, Elekta, United Kingdom, 3-5 October 2005
5. Recent Trends in Imaging and Radiologic Techniques (TALENT 2005) Regional Cancer Centre, Thiruvananthapuram. 13-14 August 2005. Paper presented: 'Imaging Artefacts'
6. International Symposium on Translational Research: apoptosis and cancer. Rajiv Gandhi Centre for Biotechnology, Thiruvananthapuram, 18-21 December 2005
7. 1<sup>st</sup> Asian Congress of Radiation Research and 49<sup>th</sup> Annual meeting of the Japan Radiation Research Society, Hiroshima, Japan, 16-17 November 2005.

#### Dr. Thayal Singh Elias

Organising Secretary, Seminar on 'Advances in Brachytherapy'. Regional Cancer Centre, Thiruvananthapuram. 24 April 2005

#### Raghu Kumar

1. International symposium and live workshop on Prostate Brachytherapy, Apollo Specialty Hospital, Chennai. 9-10 January 2006.
2. Annual Meeting of the Association of Medical Physicists of Kerala (KAMP2005), Thiruvananthapuram. 15 May 2005. Paper presented: 'Variation of Effective SSD with field size of Precise Linac'

#### Saju B.

Annual Meeting of the Association of Medical Physicists of Kerala (KAMP2005), Thiruvananthapuram. 15 May 2005. Paper presented: 'Steps in conformal Radiotherapy'

## ANAESTHESIOLOGY

Dr. Rachel Cherlan Koshy	Additional Professor & Head
Dr. Mary Thomas	Associate Professor
Dr. Venugopal.A	Assistant Professor
Dr. Mallika Balakrishnan	Assistant Professor
Dr. Ajay Pillai	Assistant Professor
Dr. Sudha.P	Lecturer
Dr. Deepak.V	Lecturer
Dr. Viji Pillai	Lecturer

#### Academic activities

The division got accreditation of the National Board of Examinations (NBE), New Delhi to conduct DNB in Anaesthesiology and 2 candidates were admitted for the programme commenced in January 2006.

#### Clinical activities

There was 18% increase in turn over of major cases compared to previous year. Pre-anaesthetic clinic and major OT's were conducted 6 days/week, and round the clock emergency anaesthetic service was provided throughout the year. Besides providing anaesthesia for surgical procedures, services were provided for diagnostic and therapeutic endoscopic procedures, radiation and CT guided biopsies for children and also central venous access for adults and children.

#### Pre-anaesthetic Clinic

New cases	3007
Review	2800
<b>Total patients visits</b>	<b>5807</b>

#### Anaesthetic provided

Major surgical procedures under anaesthesia	2473
Day care procedures under anaesthesia	306
<b>Total</b>	<b>2779</b>

**Table - 11: Site wise break up of major surgeries done under anaesthesia**

	Number	Percentage
Breast	965	40.0%
Head and Neck	958	39.0%
Thorax & Abdomen	260	10.5%
Genito-Urinary	183	7.0 %
Bone & Extremity/Skin/soft tissue tumour	87	3.5%
Total	2473	100.00%

Of 2473 cases, 33 were paediatric and 2443 were adult patients. Of 2473 cases, 42 were emergency and 2431 were elective cases. There were 65 patients who underwent major cancer surgery in the presence of significant coronary artery disease. There were 16 HbsAg positive patients and 1 HIV positive patient among surgical patients requiring anaesthesia.

#### Post operative Surgical ICU

431 patients were provided postoperative epidural analgesia for 72 hours each. 9 patients were put on ICU ventilator for a total of 28 days altogether.

**Table - 12: Anaesthesia services**

<b>Day Care Procedures</b>	
Paediatric cases	138
Endoscopic Procedures	168
<b>Total</b>	<b>306</b>
<b>Paediatric Anaesthesia</b>	
Broviac lines	27
Central line insertion	6
Biopsies	7
Sedation for radiation	125 fractions
<b>Total</b>	<b>165</b>
<b>Difficult Airway</b>	
Blind nasal intubation	44
Fiberoptic intubation	15
<b>Total</b>	<b>59</b>

<b>Special Anaesthesia Techniques</b>	
TIVA	233
Combined spinal epidural anaesthesia	125
GA+Epidural	306
Laryngeal mask airway	7
Regional blocks	8
<b>Total</b>	<b>679</b>

#### Awards, Conferences/Training attended, Papers presented

**Dr. Rachel Cherian Koshy, Dr. Mary Thomas, Dr. Venugopal A., Dr. Mallika Balakrishnan., Dr. Deepak.V,Dr.Sudha P.**

29<sup>th</sup> Annual conference of ISA South Zone and 21<sup>st</sup> Annual Conference of ISA, Kerala. Thiruvananthapuram. 13-15 August 2005.

**Dr. Venugopal A., Dr. Mallika Balakrishnan., Dr. Sudha P.**

Oral Cancer Conference (ORCA 2006). Organised by Indian Council of Medical Research, Rajiv Gandhi University of Health Sciences, Karnataka, and Regional Cancer Centre, Thiruvananthapuram. 27-29 January 2006.

**Dr. Deepak V., Dr.Sudha P.**

12<sup>th</sup> Annual conference of the Indian Society of Critical Care Medicine (CRITICARE CHENNAI 2006), Chennai, Tamil Nadu. 2006.

**Dr. Mallika Balakrishnan., Dr. Sudha P.**

Basic Life Support (BLS) & Advanced Cardiac Life Support (ACLS) training courses conducted by the Indian Institute of Emergency Medical Services (IEMS) in association with American Heart Association, American Academy for Emergency Medicine in India and Apollo Hospitals, Hyderabad, October 2005.

**Dr. Rachel Cherian Koshy**

1. UICC.ICRETT fellowship for training in 'Long Term Central Venous Access: Insertion and Care'. Leeds General Infirmary, Leeds, UK. April 2005.
2. 29<sup>th</sup> Annual conference of ISA South Zone and 21<sup>st</sup> Annual Conference of ISA, Kerala. Thiruvananthapuram. 13-15 August 2005. Paper presented: 'Long Term Central Venous Access'

**Dr. Mary Thomas**

1. UICC ICRETT fellowship for training in 'Anesthesia for Hepatobiliary Surgery'. Singapore General Hospital, Singapore. January 2006.
2. 29<sup>th</sup> Annual conference of ISA South Zone and 21<sup>st</sup> Annual Conference of ISA, Kerala. Thiruvananthapuram. 13-15 August 2005. Paper presented: 'Polymyositis with Malignancy: Anaesthetic Management'

**Dr. Mallika Balakrishnan**

UICC ICRETT fellowship for training Anaesthesiology & Critical Care Medicine. Johns Hopkins University School of Medicine, Baltimore, USA. 2005

**Dr. Ajay Pillai**

Ajay Pillai, Deepak V, Rachel Cherian Koshy. 29<sup>th</sup> Annual conference of ISA South Zone and 21<sup>st</sup> Annual Conference of ISA, Kerala. Thiruvananthapuram. 13-15 August 2005. Paper presented: 'Tumescent Anaesthesia for Simple Mastectomy'

**Dr. Sudha P.**

29<sup>th</sup> Annual conference of ISA South Zone and 21<sup>st</sup> Annual Conference of ISA, Kerala. Thiruvananthapuram. 13-15 August 2005. Paper presented: 'Comparison of post op analgesia with preemptive epidural Ketamine & Bupivacaine in abdominal Hysterectomy'

**Dr. Deepak V.**

Deepak V., Mary Thomas, Rachel Cherian Koshy. 29<sup>th</sup> Annual conference of ISA South Zone and 21<sup>st</sup> Annual Conference of ISA, Kerala. Thiruvananthapuram. 13-15 August 2005. Paper presented: 'An unusual cause of Post Extubation Stridor'.

**CANCER RESEARCH**

Dr. Prabha Balaram	Professor & Head
Dr. Ravindran Ankathil	Additional Professor
Dr. S. Kannan	Associate Professor
Dr. P. Remani	Associate Professor
Dr. Sreelekha T.T.	Research Associate

Major academic activities include designing of new research aspects and submission of research project proposals for funding from various research funding agencies, supervision of research projects; doctoral theses; training of B.Sc, M.Sc and MD/MDS students.

The major findings that transpired from the work in this division during the report period are:

1) Lymphocytes from patients with cancer of the oral cavity and uterine cervix display inherent defects in T cell signal transduction, as measured by the expression of the signal transducing proteins, especially in patients with poor response to therapy. An activation induced apoptosis of T cells with increased expression of Fas ligand and Bax proteins was also noticed in the patients with poor response to therapy. The immunoregulatory effects was seen to be closely related to the clinical response of the patients and hence could be a potential marker of prognosis.

2) GSTM1 homozygous null genotype and a combination genotype in which either GSTM1 or GSTT1 was null have a significant risk for familial breast cancer susceptibility. A significant association of GSTT1 null genotype with lung cancer was observed and this was associated with an over expression of variants of CYP1A1, XRCC1 and p53. No germline mutations were observed in the first six exons of hMLH1 gene in Hereditary Non Polyposis cancer patients as reported from elsewhere.

3 a) Inactivation of p16 gene in oral cancer was observed to be mainly due to homozygous deletion and promoter methylation and gene (point) mutation does not have any significant role in its aberration. Microsatellite analysis

revealed alleles to be comparatively unstable at 9p21 region (p16) than 13q13 (Rb1) chromosomal regions.

b) Elucidating the molecular markers for diagnosis and prognosis of oral cancer, circulating antibodies to p53, telomerase activity and p53 accumulation emerged as independent events in the progression of oral premalignant lesions to oral squamous cell carcinomas. Increased alterations at the microsatellite locus C13-373 emerged to be independently associated with metastasis. Four markers namely EGFR, P53, P16 and Rb appeared to be significant for progression of premalignant lesions to oral cancer. A gradation of molecular alterations could be noticed in the oral cancers from Delhi, Gujarat, Bombay and Kerala, the reason for which is to be identified. The differences in the constituents of the betel quid and the genetic characteristics are thought to be the reasons behind these differences putting the oral cancers of Kerala to have a unique etiological pattern.

c) The EGF receptor in persisting disease of gestational Trophoblastic diseases was found to harbour a deletion of DNA sequences in the EGF binding domain thus conferring a constitutively active status to the EGFR. A multifold increase in the phosphorylated (active) form was also observed in these cases. Presence of circulating extra cellular domain of EGFR was found to have good potential as a prognostic indicator in GTD.

d) NPC in this region of Southern India follows the endemic pattern and has lesions harboring EBV alone, HPV alone and both. Among the environmental factors, exposure to smoke emerged out as one of the important etiological factors. Assessing the influence of viral infection, the infection by EBV appears to mainly influence the apoptotic and DNA-repair and invasion related compartments while that of HPV influences proliferative, apoptotic and DNA-repair compartments. The putative role of DNA-PKcs as the most sensitive marker for survival along with Apoptotic Index for response to treatment, and ATM, NM23H1 and VEGF expression and Apoptotic Index as predictors of recurrence emerged out as the important findings of this study in regression analysis. Presence of serum EBV DNA was observed to be a diagnostic marker of EBV infection.

among the natural products studied, extracts of *Elephantopus scaber* were found to have anti-tumour activities and *Aegle Marmelos* was observed to be a good immunomodulator. Administration of Rasayana Indukantha Ghrita (IG) to mice was associated with an induction of TH1 of immune response with increase in lymphopoiesis, (especially CD3+ and CD4+); TH1 cytokines and phagocytic activity. Use of IG as an adjuvant therapy along with cyclophosphamide in DLA tumour bearing mice was found to be very effective in tumour regression.

The activities under different laboratories of this Division are detailed below

### 1. Laboratory of Tumour Immunology and Functional Genomics & Laboratory of Biopharmaceuticals

#### Ongoing Research Projects

1. Evaluation and validation of molecular markers in oral cancer - A multicentric study (2001-2005) (Funded by: Department of Biotechnology, Government of India)  
Principal Investigator : Dr. Prabha Balaram
2. Tumour suppressor genes in Nasopharyngeal carcinoma- An evaluation (2004-2007). (Funded by: Kerala State Council for Science, Technology & Environment)  
Principal Investigator : Dr. Prabha Balaram
3. Evaluation of T-cell mediated signal transduction in oral cancer patients in relation to immune response and response to therapy (2001-2005). (Funded by: Indian Council of Medical Research, Government of India)  
Principal Investigator : Dr. Prabha Balaram
4. T-cell mediated signal transduction: correlation with immune response and response to therapy in patients with cancer of the uterine cervix (2002-2006). (Funded by: Kerala State Council for Science, Technology & Environment)  
Principal Investigator : Dr. Prabha Balaram
5. Immunomodulation of T cell signal transduction by exosomes from oral cancer patients (2006-2008). (Funded by: Kerala State Council for Science, Technology & Environment)  
Principal Investigator : Dr. Prabha Balaram

6. FIST grant for development of Infrastructure (2004-2009)  
(Funded by: Department of Science and Technology, Govt. of India)

Principal Investigator: Dr. Prabha Balaram

7. Polysaccharides from *Tamarindus indica* as inhibitors of mitotic progression in malignant cell lines - elucidation of the target protein (2006-2008). (Funded by: Kerala State Council on Science, Technology and Environment).

Principal Investigator: Dr. T.T. Sreeslekha

#### Ongoing Doctoral Programmes

1. Adhesion protein as metastatic markers.
2. T cell signal transduction in correlation with immune response and response to therapy in patients with cancer of the uterine cervix.
3. Molecular alterations in relation to radiation response in squamous cell carcinoma.
4. Analysis of molecular alterations of epidermal growth factor receptor in GTD.
5. Immunomodulatory activities of Rasayana Indukantha Ghritha in experimental animals.
6. Immunomodulatory activities of major plants used in the preparation of Indukantha Ghritha.
7. Serum mediated immunoregulation in oral cancer: Analysis of serum factors.

#### II. Laboratory of Cytogenetics and Molecular Diagnostics

##### Ongoing Research Projects

1. Cytogenetic studies on the effect of chronic level radiation in the residents of higher background radiation areas (HBRA) in Kerala, India. (Funded by: Health Research Foundation, Japan)

Principal Investigator: Dr. Ravindran Ankathil

2. Cytogenetic effects of radiotherapy in patients with carcinoma cervix. (2004-2007) (Funded by: Kerala State Council for Science, Technology & Environment)

Principal Investigator: Dr. Ravindran Ankathil

Genetic susceptibility studies in Lung Cancer (2005-2008) (Funded by: Department of Science and Technology, Govt of India)

Principal Investigator: Dr. Ravindran Ankathil

Study of Galectin-3, Galectin-1, T antigen and BCL<sub>2</sub> expression in Breast cancer. (Funded by: Kerala State Council for Science, Technology & Environment, Govt. of Kerala. (2004-2007)

Co-Investigator: Dr. Ravindran Ankathil

#### Ongoing Doctoral Programmes

1. Genetic susceptibility studies in lung cancer.
2. Molecular genetic analysis of germline BRCA2 gene mutations and pathobiology of BRCA2 gene mutated hereditary breast cancer.
3. Genetic profile of fetal wastage - A hospital based study.
4. Genetic determinants of radiation response in uterine cervix cancer patients undergoing Radiotherapy.
5. Role of Germline polymorphism of few low penetrance genes in familial breast Cancer.
6. Genetics of colorectal Cancer susceptibility.
7. Germline mutation analysis of mismatch repair genes in familial colorectal Cancer patients.

#### III. Laboratory of Cell cycle Regulation and Molecular Oncology

##### Ongoing Research Projects

1. Characterization of pathways involved in the upregulation of cyclin D1 expression in oral carcinoma (2005-2008) (Funded by: Kerala State Council for Science, Technology & Environment)

Principal Investigator: Dr. Kannan.S.

2. Mode of INK4A/MTS1 inactivation and Overexpression of RB1 Genes in Oral Carcinoma (2004-2007) (Funded by: Department of Science and Technology, Govt. of India)

Principal Investigator: Dr. Kannan.S.

3. Scheme Augmentation of R & D (SARD): Setting up of Real-Time PCR Facility (Funded by: Kerala State Council for Science, Technology

& Environment)

Principal Investigator: Dr. Kannan.S.

#### Ongoing Doctoral Programmes

1. Characterization of molecular alterations in p53 gene in oral carcinoma.
2. Characterization of molecular alterations in INK4A/MTS-1/p16 gene in oral carcinoma.
3. Characterization of molecular alterations in Cyclin D1 gene in oral carcinoma.
4. Molecular studies on involvement of p14/ARF Gene in oral carcinoma.
5. Characterization of molecular alterations in the Retinoblastoma(Rb) gene in oral carcinoma.

#### IV. Laboratory of Glycobiology and Phytopharmacology

##### Ongoing Research Projects

1. Study of Galectin-3, Galectin-1, T antigen and BCL<sub>2</sub> expression in Breast cancer. (Funded by: KSCSTE, Govt. of Kerala. (2004-2007)

Co-Investigator: Dr. Remani. P.

2. Antitumour activity of a Medicinal Plant Elephantopus scaber.

Principal Investigator: Dr. Remani.P.

##### Ongoing Doctoral Programmes

1. Multiparametric evaluation of radiation induced changes in the erythrocytes of cancer patients.
2. Antitumour properties of selected medicinal plants of Zingiberaceae.
3. Cytochemical and Immunological studies of Solanaceae lectins
4. Telomerase as tumour marker in oral cancer as an indicator for staging and treatment outcome.

##### Awards, merits, conferences / workshops attended, papers presented

Dr. Prabha Balaram, Dr. Ravindran Ankañhil, Dr. Kannan S., Dr. Remani P., Jemima Jacob, Vino T. Cheriyan, Rajesh R., Suraj K. George, Vijayalakshmi N. R., Volga S. S., Vani, S., Sreeja L., Sathyan K. M., Sailasree R., Praveen Kumar B.

International Symposium on Translational Research: apoptosis and cancer. Rajiv Gandhi Centre for Biotechnology, Thiruvananthapuram. 18-21 December 2005.

Dr. Prabha Balaram, Dr. Kannan S., Dr. Remani P., Vino T. Cheriyan, Abhilash A., Abitha A., Sailasree R.

Oral Cancer Conference (ORCA 2006), Organised by Indian Council of Medical Research, Rajiv Gandhi University of Health Sciences, Karnataka, and Regional Cancer Centre, Thiruvananthapuram. 27-29 January 2006.

Dr. Prabha Balaram, Dr. Kannan S., Dr. Remani P., Dr. Hariharan S., Vino T. Cheriyan, Suraj K. George, Rajesh R., Vani, S., Sreeja L., Sathyan K. M.,

18<sup>th</sup> Kerala Science Congress. Kerala State Council for Science Technology and Environment. Thiruvananthapuram. 29-31 January 2006.

Dr. Prabha Balaram, Vino T. Cheriyan, Rajesh R., Suraj K. George, Vijayalakshmi N. R.

32<sup>nd</sup> Annual Conference of Indian Immunological Society (IMMCON '05). PGIMER, Chandigarh. 2005

Dr. Prabha Balaram, Dr. Remani P., Dr. Sreelekha T. T., Vino T. Cheriyan, Rajesh R., Suraj K. George, Vijayalakshmi N. R.

International Conference on Ethnopharmacology and Alternative Medicine & Annual Conference of National Society of Ethnopharmacology. Thrissur. 20-22 January 2006.

Dr. Prabha Balaram, Vino T. Cheriyan

Annual Conference of the Society for Biotechnologists. Rajiv Gandhi Centre for Biotechnology, Thiruvananthapuram. 25-26 March 2006

Dr. Prabha Balaram, N. K. Hareendran

8<sup>th</sup> Indo-US flow cytometry workshop on monitoring of stem cell phenotype, proliferation, and apoptosis. Sree Chitra Tirunal Institute for Medical Sciences and Technology, Thiruvananthapuram. 5-12 February 2006

Dr. Prabha Balaram

1. Referee for research Projects and Publications:  
ICMR: 23 CSIR: 1 DST: 1 DBT: 3 KCSTE: 6

2. Examiner, PhD Examination: Mahatma Gandhi University (3 Students), University of Calicut (2 Students).
3. Positions held:
  - Executive Committee Member : Indian society for Radiation Biology
  - Member : Governing Body Amala Cancer Centre, Trichur.
  - Executive Member : Indian Association of Biomedical Scientists
  - Executive Member : Indian Association for Cancer Research
  - PAC member : Dept. of Science and Technology, Govt. of India.
4. International Conference on Ethnopharmacology and Alternative Medicine & Annual Conference of National Society of Ethnopharmacology. Thrissur. 20-22 January 2006. Invited talk: Indukantha ghritham: an immunomodulatory and antitumour agent.

**Mr. Vino T. Cherlyan**

N.Narasimhiah Award (2006) for best original paper presentation in cancer biology at the Annual award session, Society of Biotechnologists, India 2005.

**PhD awarded**

**Ms. Smriti M. Krishna**

University of Kerala. (2005) Title: 'Molecular alterations in nasopharyngeal carcinoma with reference to cell cycle regulatory genes and tumour suppressor genes'.

**Dr. Sreelekha T. T.**

1. 5<sup>th</sup> National Congress on Medicinal Plants. Thiruvananthapuram. 4-5 December 2005.
2. Sreelekha TT, Vijayan KK, Prabha Balaram. International Conference on Ethnopharmacology and Alternative Medicine & Annual Conference of National Society of Ethnopharmacology. Thrissur. 20- 22 January 2006. Paper presented: Antimitotic polysaccharide from *Punica granatum*.

**Dr. Ravindran Ankathil**

Dr. S.Vasudev award for best project. 18<sup>th</sup> Kerala Science Congress of the Kerala State Council for Science Technology and Environment.

Thiruvananthapuram. 29-31 January 2006. Title: 'Cytogenetic and Haematological response studies of Interferon therapy in patients with Chronic Myeloid Leukemia'.

**Dr. Sheeja V.R.**

Young Scientist award for Health Science (2005) 18<sup>th</sup> Kerala Science Congress of the Kerala State Council for Science Technology and Environment, Thiruvananthapuram, 29-31 January 2006. Title: 'DNA Repair Mechanisms Cytogenetics and Tumour profile in Down syndrome patients'

**PhD awarded**

**Mr. Sunil K.S.**

University of Kerala. (2005) Title: 'Cytogenetic and Molecular genetic studies in Acute Non lymphocytic Leukemias'.

**Ms. Reshni Thomas**

University of Kerala. (2005) Title: 'Cytogenetic studies in myelodysplastic syndromes'

Ravindran Ankathil, Raghuram. K. Nair, Jayalekshmy. P, Rajan. B. 1<sup>st</sup> Asian Congress of Radiation Research and 48<sup>th</sup> Annual meeting of the Japan Radiation Research Society, Hiroshima, Japan from 16-17 November 2005. Paper presented: 'Review of studies in High Level Natural Radiation Areas in India'.

**Mr. Sathyan K.M.**

Young Scientist Award for Life Sciences. 18<sup>th</sup> Kerala Science Congress of the Kerala State Council for Science Technology and Environment, Thiruvananthapuram. 29-31 January 2006.

**Dr. Harlharan S.**

5<sup>th</sup> workshop on 'Prenatal and Postnatal Diagnosis of Genetic Disorders using Molecular Methods'. All India Institute of Medical Sciences, New Delhi. 2005.



## MOLECULAR MEDICINE, DRUG DEVELOPMENT AND CHEMOINFORMATICS

Dr. Lakshmi S.

Lecturer

The work in the division is interdisciplinary and interdepartmental, including both basic-scientists and physician-scientists. The educational program of the division ranging from training graduate, post graduate and doctoral students involves a close participation of basic and clinical scientists in every step of the educational process.

### Research Projects :

Isolation and characterisation of Anti cervical cancer agents from natural compounds.

Nutrigenomics, homocysteine and cervical cancer.

Nf-kb and cox-2 in oral surgical margins and assessment of minimal residual disease.

Programmed cell death as a determinant for treatment outcome in cervical cancer.

Molecular screening for oral tumorigenesis: profiles of DNA repair genes.

Benzamide riboside induced apoptosis in human cervical cancer cell lines.

P16<sup>ink4a</sup> expression as a marker for oncogenic HPV infection in the uterine cervix.

### Cheminformatics and molecular modeling

Research in this area can be grouped into two heads:

*Structure prediction and analysis:* Advanced bioinformatics methodologies were employed to generate reliable homology models (3D models) of the human Smad 5 protein, an important member of the Smads, known to play key roles in oncogenesis. The predicted model has helped in unravelling new structure-function relationships among the members of this family and also has led to an interesting hypothesis linking Smad5 and the human papillomavirus E6 oncoprotein. This hypothesis needs to be validated in future experiments.

*Molecular Docking:* Molecular docking, implemented in windows-based packages such as Hex and G.O.L.D was used for protein-protein docking and protein-small molecule docking studies. The protein-protein docking methodology was successfully used to analyze a specific molecular interaction, human BRCA1- HPV E2 protein. This study revealed amino acid residues involved in the protein-protein interface and provides a structural basis for transcriptional co-activation by HPV E2. Protein-small molecule docking was used for the molecular target prediction of a few natural compounds such as curcumin and resveratrol. Virtual screening of chemical libraries based on docking, was also implemented to identify putative lead molecules, that might act as small molecule perturbations for some key proteins in cancer (HPV E2, Ras, Aurora kinase, etc.). A few novel putative ligands or "virtual hits" were identified for these targets, which warrant further wet lab validation.

### Ongoing Doctoral Programmes

1. Cellular pharmacology of anti-tumor and anti-viral activity of curcumin against cervical cancer. (Funded by: Council of Scientific and Industrial Research)  
Principal Investigator: Dr. M. Radhakrishna Pillai
2. Molecular markers for the detection and progression of cervical cancer. (Funded by: Department of Biotechnology, Government of India)  
Principal Investigator: Dr. M. Radhakrishna Pillai
3. The nutri-genomics of cervical cancer. (Funded by: Kerala State Council for Science, Technology and Environment)  
Principal Investigator: Dr. M. Radhakrishna Pillai
4. Development of human papillomavirus vaccine prototype/s - Molecular epidemiology of HPV types prevalent in India and identification of HPV-16 L1 & E6 variants. (Funded by: Department of Biotechnology, Government of India)  
Principal Investigator: Dr. M. Radhakrishna Pillai
5. Validation of p16 Ink4a expression as a marker for oncogenic HPV infection in the uterine cervix. (Funded by: Kerala State Council for

Science, Technology and Environment)

Principal Investigator: Dr. S. Lakshmi

### Human Resource Development

The division is an important training centre in cell and molecular biology for postgraduate students from various colleges. This year 15 B.Sc. and 21 M.Sc. Biotechnology & Biochemistry theses were done in the division. A large number of graduate students in Life Sciences and Biotechnology also rotated through the Division. Three MD theses were awarded and currently one MD student is carrying out post graduate thesis in the Division.

### Merits, Conferences attended, Papers presented

#### Sreekala Nair, Hariharan, R

International Symposium on Translational Research: apoptosis and cancer. Rajiv Gandhi Centre for Biotechnology, Thiruvananthapuram. 18-21 December 2005. Best Poster presentation: Sreekala Nair, Priya Srinivas, Reghuran Nair, Pillai MR. In vitro characterization of Plumbagin as a radiosensitizer for cervical cancer cells.

#### Dr. Lakshmi S.

NCBS Cancer Meet, National Center for Biological sciences, Bangalore, August 2005.

#### Santhi W.S.\*

Oral Cancer Conference (ORCA 2006). Organised by Indian Council of Medical Research, Rajiv Gandhi University of Health Sciences, Karnataka, and Regional Cancer Centre, Thiruvananthapuram. 27-29 January 2006.

\* Full time PhD student.

## EPIDEMIOLOGY & CLINICAL RESEARCH

Dr. Aleyamma Mathew

Associate Professor

Ms. Padmakumary Amma C.

Lecturer in Bio-Statistics

Dr. Kalavathy M.C.

Lecturer in Epidemiology

The division runs cancer registries (hospital and population based), conducts survival and epidemiological studies as well as cancer control programmes.

### Ongoing Research Programmes

1. Hospital-Based Cancer Registry, Regional Cancer Centre, Thiruvananthapuram (Partially funded by: Indian Council of Medical Research, New Delhi).
2. Population-Based Cancer Registry, Thiruvananthapuram taluk (urban and rural) (Partially funded by: Finnish Cancer Society, Finland) and District Cancer Registry, Thiruvananthapuram (part of District Cancer Control Programme, Thiruvananthapuram).
3. Thiruvananthapuram Corporation Cancer Control Programme (Funded by: Thiruvananthapuram Corporation).
4. Cancer Atlas in India (Funded by: National Cancer Registry Programme of India, Bangalore).
5. Case-control study of breast cancer in South Asia comparing rural and urban women (Funded by: International Agency for Research on Cancer, Lyon, France).
6. Pattern of care and survival studies on cancers of cervix, female breast and head and neck (Funded by: Indian Council of Medical Research, New Delhi).
7. District Cancer Control Programme (DCCP) Thiruvananthapuram (Funded by: Government of India).
8. 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 and  
Part C: Evaluation of follow-up and end-point ascertainment. (Funded  
by: National Cancer Institute, USA).

### 1. Hospital Based Cancer Registry (HBCR), Regional Cancer Centre, Thiruvananthapuram

A total of 8718 cancer patients (4571 males and 4147 females) reported at the RCC during the year 2003. The commonest site of cancer was oral cavity among males and breast among females (Tables 13 & 14).

**Table - 13: Number (#) and proportion (%) of ten leading sites of cancer (Male)-HBCR, RCC (2003)**

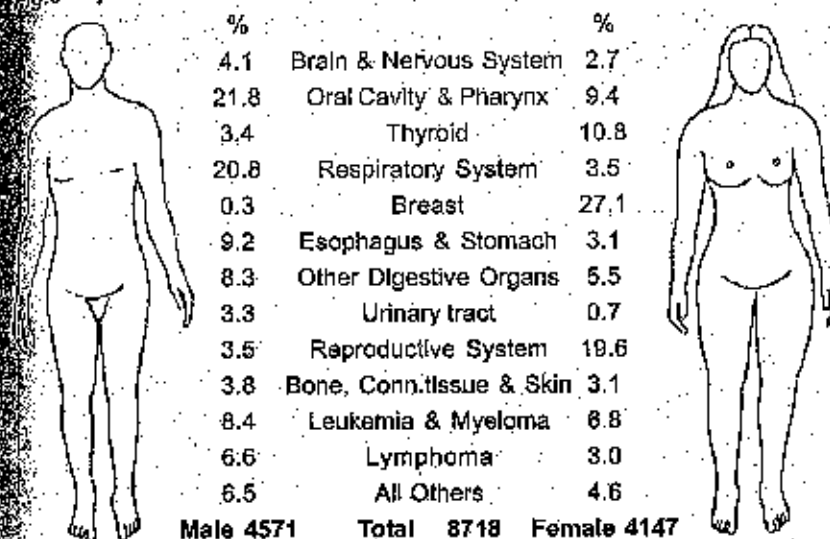
ICD-10	Site	#	%	Rank
C00-06	Oral cavity	680	14.9	1
C09-10, C12-14	Pharynx	273	6.0	5
C15	Oesophagus	235	5.1	7
C16	Stomach	187	4.1	8
C19- C20	Rectum	129	2.8	10
C32	Larynx	261	5.7	6
C33- C34	Lung	628	13.7	2
C70- C72	Brain & nervous system	189	4.1	9
C81- C85 & C96	Lymphoma	301	6.6	3
C91- C95	Leukemia	301	6.6	4
C00-C96	Total	3184	70.0%	
	All Sites	4571		

**Table - 14: Number (#) and relative proportion (%) of ten leading sites of cancer (Female), HBCR, RCC (2003)**

ICD-10	Site	#	%	Rank
C00-06	Oral cavity	360	8.7	4
C19-20	Rectum	103	2.5	9
C33- C34	Lung	100	2.4	10
C50	Breast	1125	27.1	1
C53	Cervix uteri	458	11.0	2
C58	Ovary	226	5.4	5
C70- C72	Brain & nervous system	110	2.7	8

C73	Thyroid	447	10.8	3
C81-C85 & C96	Lymphoma	126	3.0	7
C91- C95	Leukemia	223	5.4	6
C00-C96	Total	3278	79.0	
	All Sites	4147		

**Fig. 8- System-wise distribution (%) of patients, HBCR, RCC (2003)**



### 2. Population Based Cancer Registry (PBCR), Thiruvananthapuram

The PBCR provide data on cancer incidence and mortality covering a population of nearly 1.2 million in the Thiruvananthapuram Corporation (urban population) and adjoining three community development blocks such as Thiruvananthapuram rural, Kazhakuttam and Chirayinkil (rural population). The incidence rate of all cancers per-100,000 in males and females was 92.2 and 89.9 in Thiruvananthapuram urban and 94.1 and 76.9 in Thiruvananthapuram rural during 2001-2002 (Tables 16 & 17).

**Table - 15: Hospital Cancer Registry - Thiruvananthapuram : Cancer Cases of 2003**  
**Five Year Age Groups - Males**

ICD_10 SITE	0-4	5-9	10-14	15-19	20-24	25-29	30-34	35-39	40-44	45-49	50-54	55-59	60-64	65-69	70-74	75+	Total		
C00	UP	0	0	0	0	0	0	0	0	1	2	1	0	3	1	1	9	0.2	
C01	BASE OF TONGUE	0	0	0	0	0	0	0	1	3	8	2	12	2	4	2	54	0.7	
C02	TONGUE	0	0	0	0	0	3	10	22	29	30	32	27	27	15	20	230	5.0	
C03	GUM	0	0	0	0	0	1	2	2	4	10	14	10	11	10	17	81	1.8	
C04	FLOOR OF MOUTH	0	0	0	0	0	0	1	0	7	11	8	13	8	7	3	59	1.3	
C05	PALATE	0	0	0	0	0	0	1	2	2	5	11	13	8	3	4	49	1.1	
C06	OTHER MOUTH	0	0	0	0	0	1	3	8	11	22	20	25	28	30	22	219	4.8	
C07	PAROTID GL.	0	0	1	1	0	1	0	2	0	2	0	2	3	2	4	20	0.4	
C08	SALIVARY GL.	0	0	0	0	0	0	0	1	1	0	0	1	0	1	0	4	0.1	
C09	TONSIL	0	0	0	0	0	1	0	1	1	3	8	10	10	7	2	43	0.9	
C10	OROPHARYNX	0	0	0	0	0	0	3	3	6	13	17	16	20	7	8	89	1.9	
C11	NASOPHARYNX	0	0	3	0	2	2	3	3	6	6	5	4	7	2	0	46	1.0	
C12	PYRIFORM SINUS	0	0	0	0	0	0	0	8	1	8	13	16	18	12	7	83	1.9	
C13	HYPOPHARYNX	0	0	0	0	0	0	2	4	8	4	7	7	10	4	2	48	1.0	
C14	PHARYNX, ETC.	0	0	0	1	0	0	0	0	0	1	2	3	0	0	0	6	0.1	
C15	ESOPHAGUS	0	0	0	0	0	1	2	6	8	21	30	36	41	39	26	235	5.1	
C16	STOMACH	0	1	0	0	2	1	6	8	10	21	24	24	23	33	19	15	187	4.1
C17	SMALL INTES.	0	0	0	0	0	0	0	0	1	0	0	1	1	1	1	1	0.1	
C18	COLON	0	0	0	0	1	0	5	5	4	8	12	11	12	6	12	3	79	1.7
C19	RECTO SIGMOID	0	0	0	0	0	1	0	0	0	0	2	5	3	4	0	2	17	0.4
C20	RECTUM	0	0	0	0	0	1	4	4	6	9	18	13	17	15	15	112	2.4	
C21	ANUS & ANAL C	0	0	0	0	0	0	0	0	1	4	2	1	1	1	2	1	13	0.3
C22	LIVER	3	1	0	0	1	1	1	9	11	10	12	14	10	10	3	4	95	2.1
C23	GALL BLADD.	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	2	0.0	
C24	OTH. BILIARY	0	0	0	0	0	0	0	1	2	4	1	1	2	0	2	13	0.3	
C25	PANCREAS	0	0	0	0	0	1	3	5	8	6	4	7	11	2	1	42	0.9	
C26	OTHER DIG. SYS.	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	1	0.0	
C30	NASAL CAV.	0	1	0	1	0	1	0	0	1	1	1	1	0	1	3	11	0.2	
C31	ACCESSORY SIN.	0	0	0	0	1	1	0	1	3	8	2	1	4	2	5	3	26	0.6
C32	LARYNX	0	0	0	0	0	0	1	5	15	23	38	32	43	49	34	21	261	6.7
C34	LUNG	0	0	0	0	1	6	18	26	69	78	95	109	127	57	48	628	13.7	
C37	THYMUS	0	0	0	2	0	0	0	0	0	1	0	0	0	0	0	3	0.1	
C38	HEART, MEDIA &	0	0	0	0	2	2	0	0	3	1	3	0	2	1	3	20	0.4	
C40	BONE OF LIMBS	0	2	6	9	5	1	2	0	0	0	0	0	0	0	0	25	0.5	
C41	OTHER BONE	1	0	0	5	4	0	2	3	0	0	0	1	1	1	0	16	0.3	
C43	SKIN, MELA.	0	0	0	1	1	0	2	0	0	2	3	4	2	4	2	25	0.5	

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**Hospital Cancer Registry - Thiruvananthapuram : Cancer Cases of 2003**  
**Five Year Age Groups - Males**

ICD_10 SITE	0-4	5-9	10-14	15-19	20-24	25-29	30-34	35-39	40-44	45-49	50-54	55-59	60-64	65-69	70-74	75+	Total		
C44	SKIN, OTHER	0	0	0	1	1	0	2	0	0	2	8	4	2	4	2	4	25	0.5
C47	PERIPH. NERVE S	0	0	0	0	0	1	1	1	0	1	0	0	0	0	0	4	0.1	
C48	REINDEBENT	4	1	0	0	0	0	0	0	0	0	0	0	1	0	0	6	0.1	
C49	CONN. TISS.	3	4	2	0	3	5	8	3	6	2	6	6	7	4	1	58	1.3	
C60	BREAST	0	0	0	0	0	0	1	1	9	3	2	1	1	1	2	12	0.3	
C69	FEMUR	0	0	0	0	0	1	4	2	3	6	7	3	3	2	3	34	0.7	
C61	PROSTATE	0	0	0	0	2	0	0	2	2	9	13	18	21	18	20	102	2.2	
C62	TESTIS	1	0	0	4	3	4	1	4	0	0	2	0	1	0	0	29	0.4	
C63	OTH. GENIT. ORG.	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1	3	0.1	
C64	KIDNEY	9	2	0	1	0	1	1	4	8	5	4	10	5	6	3	57	1.2	
C65	RENAL PELVIS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0.0	
C66	URETER	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0.0	
C67	URIBLADDER	1	0	1	0	1	1	1	3	4	19	13	8	12	18	16	99	2.0	
C69	EYE	7	1	0	2	0	0	1	0	0	1	2	0	0	0	1	15	0.3	
C71	BRAIN	9	16	6	9	19	15	14	18	21	19	15	11	6	6	2	185	4.1	
C72	SPINAL CORD	1	0	0	0	0	1	0	0	1	0	0	0	0	0	0	3	0.1	
C73	THYROID GL.	0	1	4	5	8	12	22	19	18	9	16	12	9	9	7	155	3.4	
C74	ADRENAL GL.	6	2	0	0	0	1	0	0	0	1	0	0	0	0	0	10	0.2	
C75	OTH. ENDO. GL.	1	0	1	0	1	0	0	1	0	0	0	0	0	0	0	4	0.1	
C76	THL DEF. ST.	0	0	1	0	0	0	0	1	0	0	1	0	0	0	0	3	0.1	
C77	SEC. LYMPH N	0	0	0	0	0	1	4	5	10	14	17	14	13	5	8	92	2.0	
C78	SEC. RES. ETC.	0	0	0	0	1	0	2	0	3	7	6	8	10	10	12	64	1.4	
C79	SEC. OTHER	1	0	0	0	0	0	1	2	4	10	11	11	8	6	5	61	1.3	
C80	PRM UNK.	0	0	0	0	0	2	3	0	0	1	6	4	4	1	1	26	0.6	
C81	HODGKINS D.	1	4	3	3	14	4	7	6	2	5	5	1	2	1	4	0	58	1.3
C82	FOLLICULAR NHL	0	0	0	0	0	2	2	3	2	4	3	2	6	1	4	34	0.7	
C83	DIFFUSE NHL	4	3	6	3	2	6	4	7	9	10	14	8	9	15	12	9	119	2.6
C84	T-CELL LYMPHO	0	0	0	0	1	0	0	1	4	4	3	1	1	3	6	2	26	0.6
C85	OTHER NHL	1	3	2	4	1	2	1	5	2	3	9	4	9	3	6	8	63	1.4
C90	MULDERYMELOMA	0	0	0	0	0	1	1	1	0	3	11	13	9	17	11	7	82	1.8
C91	LEUKLYMPHA.	38	28	22	15	9	6	6	0	7	5	4	6	1	3	0	142	3.1	
C92	LEUK. MYE O.	4	6	7	11	7	13	12	12	9	10	11	10	5	4	7	4	132	2.6
C93	LEUK. MONOC.	0	0	0	0	0	1	0	0	0	0	0	1	0	0	0	2	0.0	
C94	OTH. SPELEUK	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0.0	
C96	LEUK. UNS.	2	0	4	5	1	3	0	1	0	2	1	2	0	2	1	24	0.5	
ALL SITES	98	70	70	79	92	91	133	189	249	405	655	563	612	602	411	368	4577	100.0	

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**Table - 16: Hospital Cancer Registry - Thiruvananthapuram : Cancer Cases of 2003**  
**Five Year Age Groups - Females**

ICD_10 SITE	0-4	5-9	10-14	15-19	20-24	25-29	30-34	35-39	40-44	45-49	50-54	55-59	60-64	65-69	70-74	75+	Total				
C00	UP	1	0	0	0	0	0	0	0	1	3	1	0	5	2	4	17	0.4			
C01	BASE OF TONGUE	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	2	0.0			
C02	TONGUE	0	0	0	0	0	1	2	5	6	12	10	11	23	14	10	36	11.0	2.7		
C03	GUM	0	0	0	0	0	1	0	1	2	6	5	11	9	12	7	54	1.3			
C04	FLOOR OF MOUTH	0	0	0	0	0	0	0	0	0	0	0	1	1	1	2	6	0.1			
C05	PALATE	0	1	0	1	1	0	0	1	1	2	1	6	2	2	2	23	0.6			
C06	OTHER MOUTH	0	0	0	0	1	0	0	1	6	9	7	27	29	31	17	21	149	3.6		
C07	PAROTID GL.	0	0	0	0	2	2	3	2	2	3	2	1	0	1	0	0	18	0.4		
C08	SALIVARY GL.	0	0	0	0	1	1	0	1	1	1	0	0	1	0	0	7	0.2			
C09	TONSIL	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1	0.0			
C10	OROPHARYNX	0	0	0	0	0	0	0	1	0	0	1	1	1	1	2	1	7	0.2		
C11	NASOPHARYNX	0	0	0	1	0	0	0	2	1	0	1	2	0	1	0	8	0.2			
C12	PYRIFORM SINUS	0	0	0	0	0	0	0	0	0	0	0	1	0	0	2	1	4	0.1		
C13	HYPOPHARYNX	0	0	0	0	1	1	0	0	1	0	0	2	1	1	0	0	10	0.2		
C15	ESOPHAGUS	0	0	0	0	1	0	0	1	6	9	6	8	12	12	6	3	65	1.6		
C16	STOMACH	0	0	0	0	0	0	0	0	4	8	5	4	2	11	9	5	2	4	63	1.6
C17	SMALL INTES.	0	0	0	0	0	0	0	0	1	0	0	0	1	4	0	0	6	0.1		
C18	COLON	0	0	0	0	0	1	1	2	6	4	6	4	8	4	5	1	42	1.0		
C19	RECTO SIGMOID	0	0	1	0	0	0	0	0	1	1	2	0	1	1	1	8	0.2			
G20	RECTUM	0	0	0	0	1	0	3	6	6	10	14	12	13	14	8	3	95	2.3		
C21	ANUS & ANAL C.	0	0	0	0	0	0	0	0	0	1	1	0	1	1	0	0	4	0.1		
C22	LIVER	0	0	0	0	0	2	0	6	0	4	5	7	3	4	0	3	34	0.8		
C23	GALL BLADD.	0	0	0	0	0	0	0	0	2	0	3	1	3	1	0	11	0.3			
C24	OTH. BILIARY	0	0	0	0	0	0	0	0	0	0	2	0	0	1	0	0	5	0.1		
C25	PANCREAS	0	0	0	0	0	1	3	1	5	5	4	2	0	1	1	25	0.6			
C26	OTHER DIG. ORG.	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	2	0.0		
C30	NASAL CAV.	0	0	0	1	0	0	0	1	0	1	2	1	2	1	0	9	0.2			
C31	ACCESSORY SIN.	0	1	0	0	0	1	1	1	2	2	0	0	2	3	0	0	13	0.3		
C32	LARYNX	0	0	0	0	0	0	0	1	1	1	1	0	1	4	1	10	0.2			
C34	LUNG	0	0	1	1	0	2	5	7	6	14	8	16	16	14	4	4	100	2.4		
C37	THYMUS	0	0	0	0	0	1	2	0	1	0	1	0	0	0	0	6	0.1			
C38	HEART MEDIAST.	0	0	0	1	0	0	0	1	2	2	1	1	1	0	0	9	0.2			
C40	BONE OF LIMBS	0	1	5	6	3	0	1	0	1	0	0	0	0	0	0	17	0.4			
C41	OSTEOCHONDR.	0	0	2	6	1	0	1	1	1	0	0	1	2	0	2	16	0.4			

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**Hospital Cancer Registry - Thiruvananthapuram : Cancer Cases of 2003**  
**Five Year Age Groups - Females**

ICD_10 SITE	0-4	5-9	10-14	15-19	20-24	25-29	30-34	35-39	40-44	45-49	50-54	55-59	60-64	65-69	70-74	75+	Total		
C43	SKIN MELANOMA	0	0	0	0	0	0	0	1	3	0	1	2	0	0	2	9	0.2	
C44	SKIN, O.HER.	1	0	0	0	0	0	0	0	1	0	0	0	0	0	0	4	0.1	
C47	PERIPH. NERVS	1	1	0	0	0	1	0	0	2	1	0	0	0	0	0	14	0.3	
C49	RETINOPERE.	0	0	0	1	1	1	0	0	0	0	1	2	0	2	0	14	0.3	
C49	CONJ. ISS.	4	1	0	7	2	6	5	4	2	2	5	4	1	4	1	53	1.3	
C50	BREAST	0	0	0	1	4	26	66	150	171	189	166	136	81	81	34	1126	27.1	
C51	VULVA	1	0	0	0	0	0	0	0	0	0	1	1	0	0	1	4	0.1	
C52	VAGINA	1	0	0	0	0	1	1	0	0	2	2	2	5	2	1	0	17	0.4
C53	CERVIX	0	0	0	0	0	1	7	20	57	68	64	77	62	59	37	34	458	11.0
C54	BODY UTRINUS	0	0	0	0	1	2	1	2	2	14	17	12	12	6	9	94	2.3	
C56	UTERUS NOS.	0	0	0	0	0	0	0	1	3	0	2	1	1	0	0	8	0.2	
C56	OVARY	1	2	3	12	11	14	7	19	24	29	31	24	19	14	7	9	226	5.4
C57	OTH. GEN. ORG.	0	0	0	0	0	0	0	1	0	1	2	0	0	1	0	0	6	0.1
C61	KIDNEY	2	5	0	0	0	2	0	1	0	2	2	1	1	2	0	0	18	0.4
C67	UR. BLADDER	1	0	0	0	0	0	0	2	0	1	0	0	0	2	1	4	16	0.4
C68	URICRG. UNSPE.	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	1	0.0	
C69	EYE	13	0	0	0	0	0	0	0	1	0	0	0	0	0	0	13	0.3	
C71	BRAN.	10	17	6	2	3	6	10	10	8	10	9	7	5	2	2	1	103	2.6
C72	SPINAL CORD	1	0	0	0	0	0	0	0	1	0	0	0	0	0	0	2	0.0	
C73	TRYPHOD GL.	0	0	5	14	39	58	72	65	42	41	33	29	23	11	8	11	447	10.9
C74	ADIPNAL GL.	3	0	0	0	0	0	0	0	1	0	0	0	0	0	0	4	0.1	
C75	OTH. END. GL.	0	1	0	1	0	0	1	0	0	0	0	0	0	0	0	2	0.0	
C76	HL DEF. ST.	1	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	2	0.0
C77	SEC. LYMPH. N.	0	0	0	0	0	1	1	4	2	7	2	4	2	2	1	5	51	1.3
C78	SEC. RES. ETC	0	0	0	0	0	1	2	0	5	3	5	10	6	9	4	6	47	1.2
C79	SEC. OTHER	1	0	0	0	0	0	2	2	4	0	5	4	2	3	3	0	26	0.6
C80	PRM. OTH.	0	0	0	0	0	0	2	3	1	2	4	4	2	1	2	0	21	0.5
C81	HODGKINS D.	1	1	1	3	4	6	1	1	2	3	3	0	0	1	2	0	29	0.7
C82	FOLLICULAR NH	0	0	0	0	0	0	0	2	1	2	1	4	3	2	0	0	15	0.4
C83	LYMPH. NOS.	0	1	1	2	1	2	1	2	4	6	3	1	3	5	3	3	36	0.9
C84	T-CELL LYMPHO	0	0	0	0	0	0	0	0	0	2	2	1	3	1	1	12	0.3	
C86	OTH. LYM.	0	0	1	0	1	3	1	3	2	3	1	5	3	0	6	1	32	0.8
C90	MUL. MYELOMA	0	0	0	0	0	0	2	2	6	6	9	6	8	5	12	4	59	1.4
C91	LEUK. LYMPH.	10	16	12	6	2	3	4	2	2	2	2	2	2	4	1	102	2.7	
C92	LEUK. MYE. CD	4	5	6	5	8	9	7	13	12	11	4	9	6	6	3	2	119	3.0
C93	LEUK. UNSPECIF.	1	1	1	0	1	0	1	0	0	2	0	1	0	1	0	9	0.2	
ALL SITES	86	50	45	70	90	159	207	356	391	503	474	488	508	340	234	212	4147	100.00	

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**Table - 17: Age-adjusted incidence rates (AAR) per 100,000 population of leading cancer sites, Thiruvananthapuram Urban (2001-2002)**

Male					Female			
Rank	ICD-10	Site	AAR	%	ICD-10	Site	AAR	%
1	C00-06	Oral cavity	14.1	15.2	C50	Breast	30.5	34.0
2	C33-34	Lung	7.3	8.1	C53	Uterine cervix	6.8	7.4
3	C09,10,12,14	Pharynx	6.0	6.9	C00-06	Oral cavity	6.1	7.1
4	C61	Prostate	5.4	5.4	C73	Thyroid	5.8	7.0
5	C32	Larynx	4.5	5.0	C56	Ovary	5.3	6.0

**Table - 18: Age-adjusted incidence rates (AAR) per 100,000 population of leading cancer sites Thiruvananthapuram Rural (2001-2002)**

Male					Female			
Rank	ICD-10	Site	AAR	%	ICD-10	Site	AAR	%
1	C00-06	Oral cavity	17.7	19.1	C50	Breast	19.8	26.2
2	C33-34	Lung	12.6	13.1	C53	Uterine cervix	9.3	12.1
3	C09,10,12,14	Pharynx	6.1	6.7	C00-06	Oral cavity	6.7	9.4
4	C61	Prostate	4.9	5.1	C73	Thyroid	6.6	8.6
5	C32	Larynx	4.5	4.7	C56	Ovary	3.5	4.5

### 3. District Cancer Registry (Part of District Cancer Control Programme), Thiruvananthapuram

The district cancer registry, Thiruvananthapuram is implemented to evaluate the District Cancer Control Programme (DCCP), Thiruvananthapuram. The cancer registration area covers the entire Thiruvananthapuram district. The total population of the district is more than 32 lakhs. The Thiruvananthapuram Corporation and four municipalities such as Varkala, Attingal, Nedumangad and Neyyattinkara are included in the urban population, which covers around 34% of total population in the district.

The rural area of the district includes 78 panchayats covering 66% of the total population. An active case finding methodology has been adopted for recording cancer cases in Thiruvananthapuram district by visiting the hospitals, laboratories and death registration offices in the entire district and record the necessary information using a standard proforma. All cases diagnosed from January 2005 were used for estimating cancer incidence and mortality rates.

### 4. Thiruvananthapuram Corporation Cancer Control Programme

A weekly Pap-smear clinic has been started in the Government Fort Hospital, Thiruvananthapuram on all Fridays since 2<sup>nd</sup> September 2005. Two invasive cervical cancers, 4 HSIL and 6 LSIL were obtained. Details of cancer awareness classes and cancer detection camps in the community conducted during 2005-2006 are provided below.

**Table - 19: Cancer awareness programmes**

Sl No	Date	Place	No of persons
1	09/04/2005	Palayam	78
2	15/04/2005	Killippalam	25
3	15/04/2005	Killippalam	52
4	07/05/2005	Thirumala	66
5	22/05/2005	Sreevaraham	43
6	28/05/2005	Azhakulam	93
7	04/06/2005	Vikas Bhavan	121
8	11/06/2005	Barton Hill	94
9	17/07/2005	Balaramapuram	249
10	06/08/2005	Poonthura	152
11	29/10/2005	Veli PHC	173
12	17/02/2006	Pallithura	35
13	19/02/2006	Pettah	54
14	24/02/2006	Kulathoor	25
15	03/03/2006	Attipra	60
16	10/03/2006	Mannanthala	52
17	25/03/2006	Cheruvikkal	57

**Table - 20: Cancer detection camps**

SL No.	Date	Place	Persons attended	Cancers detected	precancers detected
1	10/04/2005	Palayam	52	nil	3
2	17/04/2005	Killippalam	40	nil	1
3	18/04/2005	Killippalam	50	nil	nil
4	08/05/2005	Thirumala	82	nil	2
5	23/05/2005	Sreevaraham	34	nil	nil
6	29/05/2005	Azhakulam	83	nil	2
7	05/06/2005	Palayam	98	nil	1
8	07/08/2005	Poonthura	14	2	4
9	12/08/2005	Nedumangad	32	1	1
10	30/10/2005	Veli	126	1	3
11	18/02/2006	Pailithura	53	nil	2
12	25/02/2006	Kulathoor	27	nil	2
13	04/03/2006	Attipra	22	nil	nil
14	11/03/2006	Mannanthala	16	nil	nil
15	26/03/2006	Cheruvikkal	56	1	2

**Registry Reports and Newsletters**

1. Hospital Based Cancer Registry (HBCR) Regional Cancer Centre, Thiruvananthapuram: Annual Report for the year 2002.
2. Population-Based Cancer Registry, Thiruvananthapuram (Urban and Rural), Two-year report 2001-2002.
3. Cancer Registry Abstract (CRAB): Newsletter of the National Cancer Registry Project (ICMR), Vol. 12, 2005.

**Ongoing Doctoral Research Programmes/ Training provided**

1. Diet and risk of breast cancer: A multivariate analysis
2. One-year cancer registry training to Mr. Shiva Hari Sapkota, B.P Koirala Memorial Cancer Hospital, Nepal, 2005-2006.
3. One-day training in Epidemiology to 20 M.Sc. (Bio-Statistics), St. Thomas College, Pala on 21<sup>st</sup> December 2005.

**Merits, Conferences/Meetings attended, Papers presented**

**Dr. Aleyamma Mathew**

- Chairman, MSc. Biostatistics Core-Committee, Mahatma Gandhi University, Kottayam.
- Research Guide in Epidemiology: University of Kerala, Thiruvananthapuram and Mahatma Gandhi University, Kottayam.
- Asla Cohort Consortium meeting, Fred Hutchinson Cancer Research Centre, Seattle, Washington, United States, 14-15 April 2005. Paper presented: 'Central obesity, insulin resistance and physical activity in Indian women and its relation to cancer'
- 21<sup>st</sup> Annual Review Meeting & Pre ARM Workshop on Cancer Registry National Cancer Registry Programme, ICMR, Kolkotta, West Bengal. 9-12 November 2005. Paper presented: 'Population Based Cancer Survival and Population-Based Cancer Registry: Thiruvananthapuram Methodology'
- International Symposium on Cardiovascular Diseases, Stroke and Diabetes. All India Institute of Medical Sciences, New Delhi, 17-18 February 2006. Life style modifications in cancer risk reduction. Do they work? (Invited talk).

**Dr. Kalavathy M.C.**

- First National Tobacco Control Conference, Mumbai. 27-29 January 2006. Paper presented: 'Prevalence of Tobacco Habits in a coastal area in the city of Thiruvananthapuram, Kerala'.



## COMMUNITY ONCOLOGY

✓ Dr. Raman S. Wesley	Professor & Head
Dr. Gigi Thomas	Assistant Professor
Dr. R. Jayakrishnan Brockman C	Lecturer

The major activities of this division are centered around human resource development, primary and secondary prevention of common cancers through cancer education and detection camps and early detection clinic functioning in RCC. The Division organised a Workshop on 'Prevention, control and Management of Oral precancers and Cancers' in connection with the National Cancer Day on 7<sup>th</sup> November 2005.

### 1. Human Resource Development

- Professional education and training:** Trainer trainee programmes were given to 397 doctors, 138 nurses, 225 Community Volunteers, 3368 teachers and student representatives, and 475 office workers.
- International School of Colposcopy:** 6 doctors, 98 nurses, 150 paramedicals were given training in colposcopy and treatment of pre-invasive lesions of cervix and low cost cervical cancer detection strategies.
- Public education:** Through 39 cancer education programmes, 8538 persons were trained.

**Table - 21: Details of Cancer Awareness programmes**

Sl.No	Categories	No. of Programmes	No. of persons Trained
1	Nurses	5	138
2	Doctors	8	397
3	Community Volunteers	1	225
4	Student representatives & teachers	13	3368
5	Bank/Factory/ Company workers	2	475
6	Lay public	16	3925
7	Tribal population	1	70
8	Female health workers	3	508
	<b>Total</b>	<b>48</b>	<b>9106</b>

### 2. Generation and distribution of health education materials

#### a) **Audio-Visual aids:**

400 slides, photo albums on oral precancers, oral cancers and colposcopy were prepared for training. The health education materials generated during previous years were distributed among community volunteers and other target groups.

#### b) **Exhibitions:**

Four exhibitions were conducted which were viewed by around one lakh people, the majority of which were lay public.

#### c) **Training Manuals, Modules and Atlas:**

In connection with the National Cancer Awareness on November 7<sup>th</sup> 2005, a manual, "Handbook on Prevention and Control of Oral Cancer - A Clinician's Manual" was prepared for training the doctors. Two articles in press, and 150 health education display boards were prepared.

### 3. Anti-tobacco programmes and campaigns

Tobacco awareness was given to 8538 persons through 39 programmes. On May 31<sup>st</sup> 2005, a Tobacco Cessation Clinic has started functioning in the Division and was formally inaugurated by Justice K. Narayanakurup, former acting Chief Justice and Judge, High Court of Madras and Kerala. The day was also observed as World No Tobacco Day. In this connection, an open forum was conducted in the Centre in collaboration with Indian Medical Association (Trivandrum branch) and Regional Cancer Association. Bureaucrats, health professionals, members of Non Governmental Organisations, medical and paramedical students participated in the programme based on the theme 'Role of Health Professionals in Tobacco Control'.

### 4. Early cancer detection clinic, Dysplasia clinic, Colposcopy clinic and Breast screening clinic

- Early cancer detection clinic:** A total of 3587 persons with warning signals of cancer were evaluated. A total of 58 oral cancers, 37 breast cancers, 34 cervical cancers and 46 other cancers were detected. 226 oral precancerous lesions and 82 benign lesions of the breast and 304 cervical precancers were detected and kept under surveillance.

- b) **Dysplasia clinic:** 226 cases of oral precancers were diagnosed. Among them 122 patients had leukoplakia, 104 patients were suffering from Oral Sub Mucous Fibrosis, and 167 patients had other 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 so that any evidence of malignant transformation could be detected promptly and treated early. Biopsies were done for 78 high-risk oral precancers and 35 precancers were surgically excised
- c) **In the colposcopy clinic:** 1944 colposcopies, 430 colpo directed biopsies, 2490 pap smears, 38 LEEP diathermic excisions and 25 cryotherapies were done for cervical precancers. 120 Low grade lesions, 46 high grade lesions (CIN 2&3) and 26 invasive cancers were detected through this clinic.
- c) **Breast screening clinic:** Propagation of breast self examination and clinical evaluation of breast disease and referral for mammography were done for 556 patients.

#### 5. Peripheral Early Cancer Detection Programmes through ECDCs, Janakeeya Asoothranam and Village level Cancer Control Programmes Early Cancer Detection Clinics (ECDC):

The peripheral centres and nodal centres are referring patients with precancers and cancers to the ECDC of RCC for confirmation of diagnosis, colposcopy, LEEP, cryotherapy etc. Technical guidance and assistance were also given for the nodal centres of RCC. The main stay of peripheral cancer detection programmes was through 35 cancer detection camps through which 5,373 people were screened. 40 oral cancers, 12 breast cancers, 14 cervical cancers and 7 cancers of other sites were detected. 191 oral precancers, 177 cervical precancers and 20 other precancers were detected.

#### Ongoing Research Projects

1. Prognostic Biomarkers in Leukoplakia  
Principal Investigator: Dr.Gigi Thomas
2. Tobacco Cessation Clinic project (Funded by: WHO Regional Officer,

New Delhi)

Principal Investigator: Dr. R. Jayakrishnan

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. R. Jayakrishnan

Prevention and control of cancer diseases in the Tribal population of Kerala State (Funded by: Kerala State Tribal Welfare Dept., Govt. of Kerala)

Principal Investigator: Mr.C.Sreekumar

Table - 22: Details of Cancer Detection Camps

Sl. No.	Date	Place	Organised by	Total Screened	Cancer			
					New	Old	Oral	Other
1	20/5/05	Varkala	Jilla Panchayath	110	4	3	3	1
2	22/5/05	Kodungalloor	Health Care Institute	325	13	2	8	18
3	28/5/05	Uppalam	Residents association	300	2	2	3	9
4	5/6/05	Kidangoor	Sal samithi	220	-	1	8	7
5	12/6/05	Wayanad	Tribal Project	107	-	-	7	2
6	13/6/05	Mananthavady	Tribal Project	63	1	-	-	2
7	14/6/05	Cholavayal, Wayanad	Tribal Project	54	-	-	3	3
8	23/7/05	Trivandrum	Reserve Bank of India	150	-	-	-	4
9	29/7/05	Keppleel	Tribal project	51	-	-	4	-
10	30/7/05	Empode	Tribal project	64	-	-	2	1
11	19/8/05	Palayam	Secretariat	210	2	-	5	8
12	10/9/05	Vellayambalam	Udarastraman Residents Association	140	-	-	4	5
13	26/9/05	Idukki	Tribal project	98	-	-	8	5
14	27/9/05	Panpadikuzhy	Tribal project	41	-	-	9	3
15	28/9/05	Kozhimala, Idukki	Tribal Project	63	1	-	6	4
16	30/9/05	Poozhenedu	PHC	185	4	3	4	5
17	29/10/05	Neyyattinkara	RCA	400	4	2	7	3
18	13/11/05	Kodungalloor	Health Care Institute	115	7	4	4	8

19	14/11/05	Palakkad	Tribal Project	31	-	-	3	1
20	15/11/05	Vannamala	Tribal Project	53	-	-	3	-
21	16/11/05	Sarkarpathy	Tribal project	68	-	-	5	-
22	23/11/05	Varkala	Varkala PHC	110	4	2	8	8
23	28/11/05	Kattakada	CSI Church	135	3	1	6	19
24	14/12/05	Varkala	PHC	75	1	4	4	6
25	15/1/06	Kottarakkara	Marthoma Convention Centre	150	3	1	7	11
26	18/1/06	Thodikkode	PHC	140	2	2	7	8
27	5/2/06	Malayinkil	Vidyadhiraja Resident's Association	80	1	1	4	3
28	10/2/06	Punaloor	Public Library Kakkode	306	5	2	7	12
29	11/2/06	Kundara	Mulavana Marthoma Church	155	3	1	7	7
30	19/2/06	Vakkom	PHC	325	1	1	6	14
31	22/2/06	Attakulangara	Subjail	300	1	-	10	-
32	25/2/06	Kallara	Solidarity Youth Friend	210	-	-	5	8
33	15/3/06	Kollam	Subjail	250	3	-	7	-
34	19/3/06	Vallathura	St. Antony's Church	170	4	-	9	8
35	27/3/06	Amboori	PHC	80	5	-	12	6

**Table - 23: Details of Cancer Awareness Programmes**

SL No.	Date	Place	Organised by	No. Att. ended	Type of participants
1.	23/4/05	Mavelikkara	Rotary Club	200	Laypublic
2.	28/4/05	Statue	Public Health Training School	200	Health workers
3.	2/6/05	Palghat	Tribal project	70	Laypublic
4.	3/6/05	Palghat	Tribal project	80	Laypublic
5.	4/6/05	Palghat	Tribal project	75	Laypublic
6.	17/5/05 18/5/05	Statue	Public Health Training School	300	Health workers
7.	21/5/05	Attakulangara	RCA	250	Laypublic

8.	22/6/05	Petta	RCA	275	Laypublic
9.	24/6/05	Model School	RCA	800	Students
10.	15/6/05	RCC	Nursing Division, RCC	8	BSc Nursing students
11.	18/6/05	RCC	Nursing Division, RCC	50	BSc nursing students
12.	20/6/05	Kulasekharam	RCA	225	Laypublic
13.	24/6/05	Karikkakom	RCA	350	Laypublic
14.	27/6/05	Kollam	Jilla Panchayat	300	Laypublic
15.	2/8/05	RCC	Nursing Division	30	BSc Nursing students
16.	6/8/05	Statue	Secretariat	200	Office workers
17.	12/8/05	RCC	Nursing Division	25	Nursing students
18.	13/8/05	RCC		25	Nursing student
19.	29/8/05 31/8/05	RCC	RCC	40	BSc MLT students
20.	6/9/05	Thiruvalla	Marthoma Church	300	Laypublic
21.	27/8/05	Child Development Centre	Asraya	150	Laypublic
22.	10/9/05	Vellayambalam	Udarasiromani Residents Association	200	Laypublic
23.	28/10/05	Karaman	NSS College	300	Students
24.	25/11/05	Pathanamthitta	TOC	450	Students
25.	11/12/05	Kozhikkode	Malebar Cancer Foundation	225	Laypublic
26.	19/12/05	Achuthamenon Centre	SCTIMST	40	Doctors
27.	6/1/06	RCC	Asraya	275	Volunteers
28.	6/1/06	Kollam	District Jail	210	Lay public
29.	13/1/06	Pattom	Public Provident Fund Office	275	Employees
30.	16/1/06	Pathanamthitta	TOC	350	Students

31	20/1/06	Medical College	Lady's circle	600	Students
32	21/1/06	Balarampuram Centre	Child Development	300	Laypublic
33	30/1/06 31/1/06	RCC	RCC	8	Health workers
34	10/2/06 12/2/06	RCC	Cancer Centre.. Ludhiana	2	Doctors
35	10/2/06	Punalur	Public Library	350	Lay public
36	17/2/06	Kattakada	Marthoma Sevika Sangham	300	Laypublic
37	22/2/06	Attakulangara	Subjai	350	Laypublic
38	8/3/06	Pottah	Pottah Girl's High School	100	Students
39	19/3/06	Vallathura	St. Antony's church	250	Laypublic

#### Awards, Conferences / Meetings / Training attended, papers presented

##### Dr. Ramani S. Wesley

1. Global meeting on Prevention of Cervical cancer: Research putting into practice Bangkok, 4-7 December 2005. Paper presented: 'Preventing Cervical Cancer: From Research to Practice, India Experience'.
2. Expert Committee Meeting to identify strategies for Cervical cancer control in India. Department of Cytology and Gynecologic Pathology, Postgraduate Institute of Medical Education and Research, Chandigarh. 18-19 November 2005.

##### Dr. Gigi Thomas

1. Gigi Thomas, Ramidas K, Sankaranarayanan R, Thara Somanathan. 17<sup>th</sup> Annual Conference of Indian Academy of Oral Medicine and Radiology, Wardha, India. 6-8 January 2006. Paper presented: 'Trivandrum Oral Cancer Screening Study: Natural history of oral premalignancies'.
2. Oral Cancer Conference (ORCA 2006). Organised by Indian Council of Medical Research, Rajiv Gandhi University of Health Sciences,

Karnataka, and Regional Cancer Centre, Thiruvananthapuram. 27-29 January 2006

##### Dr. R. Jayakrishnan

1. Appreciation award for conducting anti tobacco activities in the state of Kerala by Regional Cancer Association. October 2005.
2. 4th World Assembly on Tobacco Counters Health. New Delhi. 5-9 December 2005. Paper presented: 'Tobacco use and smoking dependency among tribal population in Kerala State, India'.
3. Asia Pacific Cancer Society Training Conference (APCASOT) Cancer Council, Victoria, Australia. 3-7 October 2005.
4. IARC Summer School training Programme on Cancer Epidemiology. IARC, France. 4-15 July 2005.



## PAIN & PALLIATIVE CARE

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

The division takes care of physical, emotional, psychological, psychosocial and spiritual needs of patients and their families. The Department has multifaceted activities that include in-patient and out-patient care, conduct of lymphoedema services, support groups, counselling, home-care, rehabilitation, and providing prosthesis to post-mastectomy patients. Financial support to needy patients are given from donations received from well wishers. (The NGOs, 'Ashraya' and 'Care-Plus' work alongside the Department.)

Distinguished visitors during the report period included Dr. Ann O 'Callagan, Hematologist and Palliative Care Physician from New Zealand, Hamish Holewa and Zoe McGrath from International Program for Psychosocial Health Research, Central Queensland University, Australia and Ms Gilly Burn, Director, Cancer Relief India. They evinced keen interest in collaborative work.

### Patient Statistics

#### Pain Clinic

New Cases	2432
Follow-up cases	5754

#### Lymphoedema Service

New cases	175
Follow up	210
Counselling	62
Prosthesis provided	336

### Training programmes

1. Continuing Nursing Education programme on 4<sup>th</sup> and 5<sup>th</sup> February 2006.
2. Refresher Programme in Palliative Care 25<sup>th</sup> and 26<sup>th</sup> February 2006. Faculty included Dr. Cynthia Goh, and Dr. Rosalie Shaw from Singapore and Dr Mhoira Leng from UK.



'Sangeetha Santhwanam' (Music for Relief), Music concert for patients  
by Dr. K.J. Yesudas (12.11.2005)

3. Around 100 doctors from Directorate of Health Services were given two day training in Palliative Care. ( February and March 2006)
4. Five doctors were given hands on training for one month.
5. Seven nurses and four nursing assistants received Palliative Care training.

**Awards, Merits, Conferences attended, Paper Presented**

**Dr. Cherian Koshy, Dr. Latha P.T., Sr. Kumari Thankam**

Indian Association of Palliative Care Annual Conference, Chennai, February 2006.

**Dr. R Manjula**

Oral Cancer Conference (ORCA 2006). Organised by Indian Council of Medical Research, Rajiv Gandhi University of Health Sciences, Kamataka, and Regional Cancer Centre, Thiruvananthapuram. 27-29 January 2006.

**Dr. Prasanth C.V.**

Member, Asia Pacific Hospice Palliative Care Network.

Member, International Association of Hospice and Palliative Care

Organising Secretary, Refresher Course in Palliative Medicine, Regional Cancer Centre, Thiruvananthapuram. 25-26 February 2006.

Clinical Fellowship for training In Palliative Medicine at Department of Palliative Medicine, National Cancer Centre, Singapore: 1 October 2005 - January 2006.

**Ms. Kumari Thankam**

Task force member, Palliative Care group of National Cancer Control Programme 2006.

Executive member, Indian Association of Palliative Care.

Indian Association of Palliative Care Annual Conference, Chennai, February 2006. Paper presented: 'Quality Palliative Nursing: Challenging the Status Quo'



## DENTAL CARE

Dr. Nalinakumari K.R.

Assistant Professor

This department provides facilities for biopsy, dental extractions, pre and post radiation care of teeth, maxillofacial prosthesis, oral prophylaxis, conservative therapy etc. for oral cancer patients.

### Highlights of activities

1. Minor surgeries like oral biopsies.
2. Dental extractions.
3. Oral prophylaxis.
4. Conservative therapy.
5. Providing occlusal adjustments.
6. Reconstructive procedures like construction of Maxillofacial prosthesis.
7. Therapeutic management of pre-cancerous and other oral lesions.
8. Management of temporomandibular problems.
9. Management of trismus.
10. Pre and post radiation care of teeth including Fluoride gel application.
11. Management of oral problems of patients undergoing Chemotherapy like Chemotherapy induced stomatitis, ulcer, spontaneous bleeding, toothache, etc.
12. Management of oral problems in Radiation therapy induced stomatitis or mucositis.
13. Management of oral problems in pre and post operative cases.
14. Management of radiation caries and osteoradionecrosis.

### Patients attended

- |                                   |        |
|-----------------------------------|--------|
| 1. Total number of patient visits | : 5765 |
| 2. Total number of new cases      | : 890  |
| 3. Pre-cancerous patients         | : 13   |

### Conference attended

Dr. Nalina Kumari K. R

Oral Cancer Conference (ORCA 2006). Organised by Indian Council of Medical Research, Rajiv Gandhi University of Health Sciences, Karnataka, and Regional Cancer Centre, Thiruvananthapuram. 27-29 January 2006.

## NURSING SERVICES

Dr. Sr. Vijaya Puthusseral

Chief Nursing Officer &  
Assoc. Prof. of Nursing

Ms. Flower Augustine

Nursing Superintendent

Ms. Geetha S

Nursing Supervisor

Ms. Annamma Jacob

Nursing Supervisor

Nursing division is responsible for round the clock patient care in the in-patient and out-patient units. Complementary therapies and rehabilitative services are incorporated in the routine care to improve the quality of life of cancer patients. Audited and reviewed Nursing Standards have been established in all inpatient units and are in daily use to ensure quality patients care. International Nurse's Day (12<sup>th</sup> May) was commemorated by a panel discussion on 'Nurses for patient safety - targeting counterfeit and substandard medicines' which was the theme of the year.

### Programmes of the year

1. Orientation/Observation update for M.Sc. Nursing students from J.K.K. College of Nursing Erode, Tamilnadu as part of their Summer field experience on 20<sup>th</sup> May 2005 (3 students).
2. Orientation/Observation update for M.Sc. Nursing students from R.A.K. College of Nursing, New Delhi, as part of their summer field experience on 20<sup>th</sup> May 2005 (1 student).
3. Orientation/Observation update for students from College of Nursing Kozhikode on 27<sup>th</sup> May 2005 (26 students and 1 faculty)
4. Orientation/Observation updates for students from Karolinska Institute of Sweden under Global Health Exchange Programme affiliated to College of Nursing, Thiruvananthapuram on 31<sup>st</sup> May 2005 (15 students and 2 faculty) and on 17<sup>th</sup> January 2006 (25 students and 2 faculty)
5. Orientation/Observation Update for Students from College of Nursing Kottayam on 15<sup>th</sup> June 2005 (22 students and 1 faculty)
6. Orientation/Observation update for students from College of Nursing Little Flower College of Nursing, Angamall on 18<sup>th</sup> June 2005 (50

students and 2 faculty)

7. Orientation/Observation update for BSc Nursing students from Samaritan College of Nursing, Pazhanganad on 16<sup>th</sup> August 2005 (25 students and 2 faculty) and on 17<sup>th</sup> August 2005 (26 students and 2 faculty)
8. Orientation/Observation update for BSc Nursing students from College of Nursing, Kozhikode on 19<sup>th</sup> August 2005 (25 students and 1 faculty)
9. Clinical posting in Oncology Nursing for MSc students (Paediatric Nursing specialty) of College of Nursing, Thiruvananthapuram from 22<sup>nd</sup> August to 3<sup>rd</sup> September 2005 (4 students)
10. Orientation/Observation update for BSc Nursing students from CSI College of Nursing, Karakonam on 3<sup>rd</sup> September 2005 (22 students and 1 faculty)
11. Orientation/Observation update for BSc Nursing students from K.V.M. Hospital, College of Nursing, Cherthala on 20<sup>th</sup> October 2005 (25 students and 2 faculty) and on 29<sup>th</sup> October 2005 (25 students and 2 faculty).
12. Orientation/Observation update for students from Rufaida College of Nursing, New Delhi on 6<sup>th</sup> March 2005 (44 students and 1 faculty)
13. Clinical posting in Oncology Nursing for M.Sc Students (Medical Surgical Nursing Specialty) of College of Nursing, Thiruvananthapuram from 6<sup>th</sup> - 18<sup>th</sup> March 2006 (45 students)

### Training attended

Ms. Sunilkumar R.

One month training programme for registered nurses on 'Long term Central Venous Access Device Management', Tata Memorial Hospital, Mumbai. 31 December 2005.

## CLINICAL LABORATORY SERVICES

Dr. Thomas Abraham      Scientific Officer Gr.I  
 Ms. C. Gangadevi      Technical Officer

This division provides diagnostic facilities for all patients arriving at the Centre for diagnosis and treatment. The Department carries out haematology investigations like CBC, Differential count by microscopy, Reticulocyte count, Coagulation parameter analysis like Bleeding time, Clotting time, Prothrombin Time (PT), Activated Prothrombin Time and Clinical Chemistry Analysis and Urinalysis for in-patients and out-patients. The phlebotomy section carries out phlebotomy for about 350 out-patients who arrive at the laboratory for the various investigations on any given day. The Clinical laboratory processes and reports about ¾ million haematological, biochemical and urinalysis tests annually. Majority of the tests are done for out-patients which require venipuncture by the phlebotomy section of the Clinical Lab. Round the clock services are available for in-patients and casualty patients.

The biochemistry section is equipped with fully automated Vitros 250 and Vitros 750XRC chemistry systems (Johnson & Johnson Clinical Diagnostics). Haematology Analysis (CBC) is done on automated haematology analysers. Coagulation test profile is analysed using Coagulation Analysers. The commonly performed coagulation tests were bleeding time (100%), clotting time (100%), prothrombin time (17.5%) and APTT (6.3%). The Department supports several clinical research projects carried out at the Centre. The Department supported and/or collaborated in more than 30 major clinical research projects during the period.

The department is a participant in the International External Quality Assurance Scheme (Randox) for clinical chemistry programme. Quality Control is also being done for Haematological Investigations.

**Table - 24: Details of Investigations**

Biochemical Investigations			
Sugar	38260	Urea	29138
Creatinine	30136	Uric Acid	18182

Bilirubin	16661	SGOT (AST)	19480
SGPT (ALT)	20352	Alkaline Phosphatase	14798
Total Protein	8350	Albumin	8007
Globulin	7871	Cholesterol	755
Calcium	13890	Phosphorous	802
Sodium (Na <sup>+</sup> )	19752	Potassium (K <sup>+</sup> )	21878
Creatinine Clearance Test	3344	LDH	2705
Amylase	263	CSF (Sugar & protein)	238
Serum Electrophoresis	329	Immunoglobulin assay (IgG, IgA, IgM)	528

### Haematology Investigations

Haematology CBC (Haemoglobin, WBC count & platelets)	100807	Differential Count	10152
		ESR	3184

### Coagulation parameters

Bleeding Time/ Clotting Time	5578	Prothrombin Time	979
		APTT	354

### Urinalysis

Urine Routine (Sugar, protein, pH, Specific gravity, Ketone, Urobilinogen, Deposits etc.)	7866	Bence-Jones Protein	415
---	------	---------------------	-----

### Training and HRD

The Department provides practical clinical laboratory training to students of Clinical Laboratory Services from various Centres and Universities. Intensive training (up to 6 months) was given to 6 M.Sc Appl.Sc (Medical Biochemistry) students and one B.Sc (M.L.T.) student during the report period. Ten B.Sc students (Biotechnology, Biochemistry & Industrial Microbiology) have done their degree theses in the Department during the period. Short term training was also given to 69 B.Sc. (M.L.T.) students.

## BLOOD BANK

Dr. P. Jayalekshmi

Medical Officer

During period under report there has been an increase in the number of blood donors, preparations and issue of blood products. Two deep Freezers, (-85°C, -40°C) were procured and the preparation of Fresh Frozen Plasma resumed. Electronic Centrifuge Balance, Tube Sealer, Haemo Mixer were the other equipments procured during this period.

**Training:** 3 weeks training was given to 8 B.Sc.(M.L.T.) students from School of Medical Education, MG University.

Blood and blood products were issued to other hospitals in Thiruvananthapuram.

752 PRCs were issued outside RCC during the reporting year.

**Table - 25: Blood Bank Statistics**

Blood grouping	32924
Cross matching	7396
Blood donors	9646
HBsAg +Ve	96
HIV +Ve	6
HCV +Ve	16
VDRL +Ve	12
Malaria +Ve	1
HIV Patients	6236
HBsAg Patients	6236
HIV +Ve Patients	17
HBsAg +Ve Patients	153

**Table - 26: Components Prepared**

Packed Red Cells (PRC)	9029
Platelet Rich Plasma (PRP)	8656
Single Donor Plasma (SDP)	373
Issue to other hospitals	752

## CLINICAL SERVICES & MEDICAL RECORDS

✓ Mr. R. Raveendran Nair

Administrative officer  
(Clinical Service)

Mr. V. Surendran Nair

Public Relations Officer

Mr. Rajasekharan Nair G.

Medical Records Officer  
(Till 31-01-06)

Ms. Chandrika D.

Medical Records Officer

This division is entrusted with Front Office management, Medical Records maintenance, Patient accounts and billing, Pharmacy, Vehicles, Cancer Care for Life scheme, other patient related services. This Division has been actively involved in the newly introduced telemedicine service for conducting follow up clinics at various peripheral centers.

The patients referred to RCC for consultation, investigation, treatment and follow-up were registered.

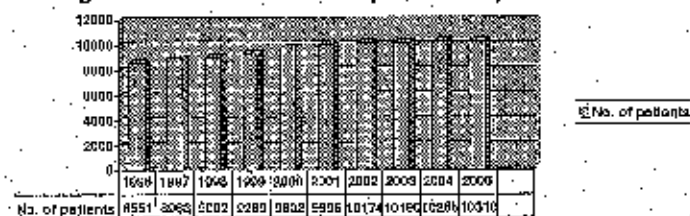
The following table shows the hospital statistics:

**Table - 27: Patients Statistics**

No.	Item	Numbers
1	New patients registered	10310
2	Review cases*	118131
3	Total patients (New + review)	128441
4	Daily average	428
5	Average attendance per patient	12
6	No. of in-patient admissions	9855
7	Total bed occupancy	86340
8	In Patient bed	268
9	Average bed occupancy	237
10	Percentage of bed occupancy	88
11	Average length of stay	8
12	Hospital death	485

\*Follow up at peripheral centers through tele clinic, and palliative care not included.

**Fig.9 Patient registration in last decade (1996-2005)**



**Patient Categories**

Every new patient reporting to RCC is assessed and categorized according to Income as O, M and F categories.

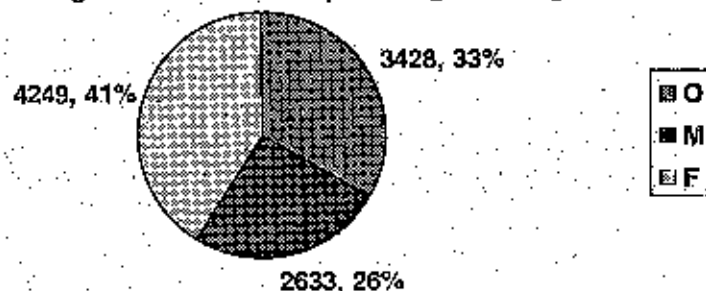
O - Affordable to pay fully

M - Affordable to pay partially

F - Not affordable to pay (No payment charged for radiation).

The diagram shows the category wise distribution of new patients.

**Fig.10 Categories: Numbers and percentage wise registration**



Every new patient is registered in the site specific speciality clinic.

**Table - 28 Distribution of patients in the speciality clinics**

Clinic	No.	Percentage	Description
A	1301	13%	A-Lympho reticular system, bone and sarcomas
B	2197	21%	B-Head and Neck
C	1659	16%	C-Breast and CNS
D	1662	16%	D-Genito-urinary and others
E	2423	24%	E-Respiratory and Gastro Intestinal
F	455	4%	F-All patients less than 14 years of age
G	613	6%	G-Thyroid
<b>Total</b>	<b>10310</b>	<b>100%</b>	

**Table - 29: Religion wise distribution of new cases**

Religion	Male	Female	No.	Percentage
Hindu	3106	3037	6143	60%
Muslim	1002	838	1840	18%
Christian	1157	1170	2327	22%
<b>Total</b>	<b>5265</b>	<b>5045</b>	<b>10310</b>	<b>100%</b>

**Table - 30: Clinic wise attendance of patients**

Clinic	New 2005-06	Review* 2005-06	Total 2005-06	Average attendance/daily
A	1301	19717	21018	70
B	2197	20992	23189	77
C	1659	24237	25896	86
D	1662	17471	19133	64
E	2423	15402	17825	59
F	455	13746	14201	47
G	613	6566	7179	24
<b>Total</b>	<b>10310</b>	<b>118131</b>	<b>128441</b>	<b>428</b>

**Table - 31: Clinic wise number of inpatients admission**

Clinic	Admission**	Percentage
A	2466	25%
B	1670	17%
C	1216	12%
D	1288	13%
E	1640	17%
F	979	10%
G	596	6%
<b>Total</b>	<b>9855</b>	<b>100%</b>

\*\*Admission to palliative care, surgery, also included.

RCC is getting patients from different hospitals on referral basis. The majority of patients are from teaching hospitals (31%) and 25% each from eminent private doctors and private hospitals.

**Table - 32: Distribution of referrals**

Reference	No.	Percentage
Teaching Hospitals (MCH)	3215	31%
Govt. hospitals	794	8%
Other corp. hospitals	162	2%
ESI hospitals	618	6%
ECDC and peripheral centers	171	2%
Other Cancer Centers	103	1%
Private doctors	2661	25%
Private hospitals	2586	25%
Total	10310	100%

in RCC 25% of patients are reporting from Trivandrum district and 11% from outside Kerala state. Distribution of new patients according to geographical area.

**Table - 33: Geographic distribution of patients**

District	Number	Percentage
Trivandrum	2568	25%
Kollam	1968	19%
Pathanamthitta	674	6%
Allapuzha	708	7%
Kottayam	313	3%
Idukki	151	2%
Ernakulam	574	6%
Trichur	446	4%
Palakkad	388	4%
Calicut	312	3%
Malappuram	520	5%
Wayanad	59	1%
Kasargode	95	1%
Kannur	356	3%
Other states	1178	11%
Total	10310	100%

**Pharmacy**

Anti cancer medicines worth Rs. 13,47,033/- have been issued free to 176 cancer patients belonging to very low socio-economic status as recommended by the academic forum of the centre. They are ALL-90, lymphoma-54, seminoma-5, GCT-11, choriocarcinoma-2, RMS-3, EST-1, Wilms tumor-10. Other medicines worth Rs. 2,63,900/- were issued free of cost to poor patients.

**Cancer Care for Life Scheme**

During the reporting period 141 new patients availed Cancer care for Life scheme of this center. Rs 55,27,915/-† was spent towards the cost of investigation, treatment etc. On an average Rs. 39,200/-† is spent per patient. Rs.29,55,270/-† was collected through new membership scheme.

**Cash**

During the reporting period this section handled Rs. 26,84,37,770/-† transaction for various patient services.

† : Unaudited data

**Student Training:**

- 1) Thirty students of M.App.Science Medical documentation course from M.G University Kottayam had completed their practical study for a period of 15 days about Medical Record organization and management.
- 2) Two students of M.Sc Health care and hospital management from Krishnraj college, Trichy have undergone practical training and project work in clinical service for a period of 45 days.
- 3) Three students of Master in Applied Sciences (Medical Documentation) from M.G University completed project work for 45 days.

**Public Relations activities**

Public relations activities are currently attached to the clinical services division for proper monitoring of patient information and guidance. Public relations needs of the Centre especially media relations, health communication through print and electronic media, liaison with philanthropic organizations etc are the major activities. The activities include:

**a) Cancer Awareness through visual media**

A unique cancer awareness serial "Mukthi" started telecasting from June 2005 in Kairali TV (weekly twice) without any financial expenditure to



RCC. This programme was instrumental in getting financial aid to the poor needy patients. Kairali TV plays a major role for this philanthropic venture. The Cancer Awareness Programme, 'Swasthi', telecasted in visual media was made available on CD-Rom to the public on a nominal fee. This CD has been distributed to NGOs and other health communication organisations.

#### **b) Media Relations & Health Communication**

Various programmes about RCC have been aired in different electronic media like AIR, Doordarsan, Asianet, Amritha TV, Jaya TV, Jeevan TV, Kairali TV etc during the year. More than 30 articles and features were published in different dailies and periodicals about the plans, programmes and services of the Centre.

#### **c) Cancer Care for Life (CCL) Campaign**

CCL campaign was relaunched during the year with the support of Service Co-operative Banks, NGO's, Residents Associations etc. CCL campaign with the support of Nattika Firka Cooperative Bank was inaugurated by Sri.V.S.Achuthanandan, Leader of Opposition at Valappad, Trichur and Desabhirnanj published a special issue on this. Another Campaign with the support of Ayarkunnam Service Cooperative Bank was inaugurated by Shri.Oommen Chandy, Chief Minister, at Ayarkunnam, Kottayam. Deepika published a special issue on this programme.

#### **d) Event Management**

Several functions and events were coordinated during the year like cancer awareness day, ORCA-2006 etc. Regular monthly programme 'Sangeetha Santhwanam' was organised with the support from Sathya Sai Orphanage Trust during the first half of the year. Renowned singers such as K.S.Chithra, M.G.Sreekumar, Ramesh Narayanan, Kalthapram Sankaran Namboothiri, Dr.Suvarna Nalappat, Manjari, Balachandra Menon etc were participated in this music therapy programme.

## **LIBRARY AND INFORMATION SERVICES**

**M. Chandrakumaran Nair**

Senior Library & Information Officer

Regional Cancer Centre Library has been in the forefront in the collection, organization and dissemination of oncology information. With the adoption of technological advancements that have emerged in the past decade, the information services were more strengthened to support the increasing demand for Oncology and allied information. The Library continued all its activities and services to facilitate effective information support for the patient care, research, teaching/training etc and to various other academic programmes. Steps are being initiated to build up an institutional archive of RCC Publications using standard open source software.

#### **Inauguration of Oncology Resource Information Centre (Digital Library)**

The notable event during the report year was the inauguration of the Oncology Resource Information Centre (Digital Library); developed as part of the Centre's Telemedicine project, 'Onconet', by Shri M.M.Nambiar, Additional Secretary, Ministry of Information Technology, Govt. of India on 5<sup>th</sup> May 2005. The Digital Library, organized with the technical support from Information Systems Division and the Centre for Development of Advanced Computing (C-DAC) and funded by the Central IT Ministry, has been linked to RCC Intranet (Campus LAN). The resources of the Digital Library include both physical and virtual collection of documents in the form of CDs/DVDs, E-journals, E-books, Databases, Websites, Digital records of video clippings, softwares, data files, inhouse databases and other internet resources. It facilitates access to these resources from our remote peripheral centers too.

Library continued the Digital Library Services like RCCL Current Contents (journals), Onconews (Press clippings), Conference Alert, Reprint service etc. During the report year, full text access to 60 journals was also provided on the network nodes.

**Table - 34: Collection Development**

Document type	Additions	Collection as on March 2006
Books, Monographs and Back volumes	354	9813
Current Journals	5	90
Reprints and reports	410	5001
CD ROMs/DVDs	82	252

### **RCC Publications**

During the report year, 70 papers contributed by the academic staff of the Centre were added with informative abstract to the in-house database, 'RCC Pub'. This database contains citations with abstracts of RCC publications published since 1981 and is accessible over the intranet as well as internet.

### **Access to 'Science Direct'**

As part of the Digital Library Services, the library continued to provide electronic access to 'Science Direct' of Elsevier which facilitates campus wide access (IP based) to full text of 15 international journals and the abstract database.

### **Resource sharing/Access to Delnet**

Library continued its interaction with national/ international organizations to collect necessary information and for information exchange. For the journals not available in the library, reprints are being collected on request to the authors concerned, free of cost. The demand for other information and resources not available locally is effectively met by membership subscription to the Delhi based library network, 'Delnet', and from other resource centres.

### **Online access to E-journals**

Online full text access to 77 journals have been provided in the library. Access to 15 journals was also available from all the terminals in the Campus.



Shri K.A.Nambiar, Additional Secretary, Dept. of Information Technology, Govt. of India, inaugurating the Oncology Resource Centre (Digital Library) at RCC (05.05.2005)

#### **Library Committee**

Library Committee met three times during the report year and decisions were taken on various issues relating to the Library including Physical verification of library books and other materials and the development of Digital Library.

#### **External users/ Project students/ Training**

The Library resources and services are being used heavily by Project students worked in various divisions of the Centre. Apart from them, a number of external users from University departments, Medical Colleges, Research institutions and other organizations visited the library and made use of the resources.

#### **Publication of Annual Report of RCC**

This division continued the compilation and editing of Annual Report of the Centre and arrangements were made for the publication of the report for 2004-05 on time.

#### **Conference/workshop attended**

##### **M.Chandrakumaran Nair**

National seminar on 'Towards excellence in Higher Education in Kerala through IT-enabled Library & Information System', Thiruvananthapuram. May 2005 Paper presented: 'Medical Libraries in Kerala: A study on the resources, technology, application and prospects.'

National workshop on Scientific Journal Publishing in India, organized by National Centre for Science Information, IISc, Bangalore, 10<sup>th</sup>-11<sup>th</sup> February, 2006.

#### **Erratum:**

Read as 'Shri M.M. Namblar' for 'K.A. Namblar' in the photograph caption.

## INFORMATION SYSTEMS

Mr. Manoj G. Systems Manager  
Mr. Sujin P. Narendran System Analyst

This division continued to provide quality services in maintaining computers and strengthening the Hospital Information System.

### Infrastructure

#### Hardware:

Xeon Servers - 5 Nos  
Pentium IV Server - 4 Nos.  
Personal Computers - 250  
Thin clients - 80

**Network:** Connecting the entire campus with 400 access points.

#### Software:

Application Server - Oracle 10 g  
Database - Oracle 10 g, Ingress 6.4  
Reports - Oracle Reports  
Operating Systems - Enterprise Linux 3.0, Windows 2000/2003/XP

The division implemented the following modules of Hospital Information System. These modules were designed in-house and developed by C-DAC, Trivandrum.

OP and IP Billing	Laboratory Information System
Consultation	• Clinical Laboratory
• Consultation notes	• Imageology (Radiology)
• Case sheet Images	• Pathology
• Service ordering and scheduling	• Nuclear Medicine
• Reports viewer	Pharmacy
Chemotherapy Management & Scheduling	Ward Management
Radiation Treatment Scheduling	Purchase & Central Store
Surgical scheduling and management	Service Ordering and scheduling CSSD

### Tele-Medicine Applications

CME Programmes transmitted to various Centers across India through Telemedicine network include:

Continuing Medical Education Programs - 33

Panel Discussions - 19  
Nurses Training programs - 12  
Talks by doctors of RCC - 15

### Major CME programmes Received:

1. AROI annual conference from RCC, Ahmedabad.
2. Multi modality Head and Neck cancer care in new millennium, TATA Memorial Hospital, Mumbai.

### Follow-up of Patients through Onconet

Patients returning home after initial treatment at the RCC could communicate their post treatment problems and results of investigations from nodal centers. The doctors at RCC were also 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 also helped to boost the confidence of the cancer patients by providing counseling. Apart from RCC patients, the public as well as doctors of other institutions also availed services of ONCONET.

During the financial year a total of 2292 patients attended the follow-up clinics from the nodal centres.

### Telepathology Clinic

RCC took initiative for the telepathology consultations between Kannur and Kochi Early Cancer Detection Centres.

### Ongoing Projects

1. 'OncoNET'-Cancer Care for Rural Masses by-Ministry of IT, Govt. of India, ISRO and C-DAC, Trivandrum.
2. 'GARUDA'-National Grid Computing Initiative-connects 45 Research and academic institutions across 17 cities in India by CDAC, Pune, ERNET, Govt of India.

### Meeting attended

#### Manoj G

- 1\* National Grid Computing Initiative (GARUDA) Partners Meet, Bangalore, 12-13 December 2005.

## EARLY CANCER DETECTION CENTRE (ECDC) ERNAKULAM

Dr.Latha.A	Cytopathologist
Ms. C.Radha	Cytotechnologist Sr.Gr.
Ms. Mercy Joseph	Cytotechnologist Sr.Gr.

The overall activities of the Early Cancer Detection Centre, Ernakulam were:

1. Cancer screening clinic every day at ECDC, Ernakulam.
2. Cancer screening camps in rural and urban areas with assistance from non-Governmental and Governmental organizations.
3. Cancer awareness programmes to public and member of Kudumbasree unit.
4. Monthly follow up clinics of RCC treated patients at ECDC, Ernakulam.
5. Monthly Pain & Palliative Care Clinics.
6. Telemedicine facility for cancer patients; awareness classes for public and videoconferencing.
7. Provide cytology, and haematology diagnostic facilities for materials send from other medical centers.
8. Colposcopy for patients of this center as well was from referral centers.

**Table - 35: Resume of work done**

Specimen	At Centre	At Camps	Total
Persons screened	5989	2278	8267
Cervical Smear	3413	927	4340
Oral Smear	363	34	397
Fine Needle Aspiration Cytology	1688	217	1905
Sputum Cytology	67		67
Colposcopy	2		2
Body Fluids	12		12
Peripheral Blood Smear	13		13
Cancer Detection Camps	22		22
Awareness Classes	22		22

**Table - 36: Gynaecological Cytology**

Lesion	At Centre	Follow up	At Camps	Total
Normal	206	73	178	457
Inflammation	977	440	413	1830
Atypical glandular cells	40	16	27	83
<i>Trichomonas vaginalis</i> infection	337	85	99	521
T.V with Mild Dysplasia	29	16	12	57
T.V with Severe Dysplasia	1			1
Fungal infection	173	54	43	270
Fungal infection with atypia	20	11	8	39
Human Papilloma Virus infection	7	3	2	12
<i>Herpes simplex</i> Virus Infection	125	29	17	171
Viral infection with Mild Dysplasia	14	5	15	34
Viral infection with Moderate Dysplasias	3			3
Mixed infection	427	112	71	610
Mixed infection with Dysplasia	64	35	15	114
Mild Dysplasia	25	20	16	61
Moderate Dysplasia	11	4	2	17
Severe Dysplasia	9			9
Autolytic atrophy	3		1	4
Carcinoma <i>in situ</i>	3	1	1	5
Suspicious of carcinoma	2			2
Invasive squamous cell carcinoma	12		1	13
Adenocarcinoma	10			10
Radiation changes	6		1	7
Miscellaneous	5		5	10
<b>Total</b>	<b>2509</b>	<b>804</b>	<b>927</b>	<b>4340</b>



**Table - 37: Non-Gynaecological Cytology**

Oral lesion	At Centre	At Camps
Benign	281	32
Pre-malignant	14	
Suspicious	10	
Malignancy	52	
Radiation changes	6	2
<b>Total</b>	<b>363</b>	<b>34</b>
<b>Sputum</b>		
Benign	54	
Malignant	5	
Miscellaneous	8	
<b>Total</b>	<b>67</b>	
<b>Breast</b>		
Benign	526	20
Suspicious	15	
Malignancy	85	1
<b>Total</b>	<b>626</b>	<b>21</b>
<b>Thyroid</b>		
Benign	505	120
Suspicious	8	
Malignancy	8	
<b>Total</b>	<b>521</b>	<b>120</b>
<b>Lymphnode</b>		
Benign	129	13
Suspicious	2	1
Malignancy		
Primary	5	
Secondary	63	
<b>Total</b>	<b>199</b>	<b>14</b>
<b>Salivary gland</b>		
Benign	41	7

Malignancy	5	
<b>Total</b>	<b>46</b>	<b>7</b>
<b>Other sites</b>		
Benign	169	58
<b>Suspicious</b>		
Malignancy	4	
Miscellaneous	12	10
<b>Total</b>	<b>186</b>	<b>68</b>
<b>Body fluids</b>		
Nipple Discharge		
Benign	109	8
Malignancy	1	
<b>Total</b>	<b>110</b>	<b>8</b>
<b>Ascitic fluid</b>		
Benign	3	
Malignancy	2	
<b>Total</b>	<b>5</b>	
<b>Pleural fluid</b>		
Benign	7	
<b>Total</b>	<b>7</b>	
<b>Peripheral Blood Smear</b>		
Benign	10	1
Malignancy	2	2
<b>Total</b>	<b>12</b>	<b>1</b>



## EARLY CANCER DETECTION CENTRE (ECDC) PALAKKAD

Dr. I.B. Sulekha

Medical Officer

The main activities of this centre were creating cancer awareness among the public and screening them for warning signals of cancer. The screening is done at the Centre (for referred cases and patients coming voluntarily) and by conducting cancer detection camps in various places with the help of voluntary organizations. Every Thursday the staff nurses attend to Gynaec O.P. at District Hospital Palakkad to take Pap Smear.

### Resume of work done

Total No. of persons screened	8885
No. of persons screened in camps	6850
No. of persons screened in the Centre and District Hospital	2035
No. of smears taken	1711
No. of camps	24
No. of Awareness classes given	31

**Table - 38: Details of Cytological Specimens Screening**

No.	Specimen	ECDC	Camp	Total
1.	Cervical Smear	696	722	1418
2.	Oral Smear	63	73	136
3.	Sputum	30	-	30
4.	Breast (FNAC)	37	23	60
5.	Thyroid (FNAC)	8	11	19
6.	Lymphnode (FNAC)	12	-	12
7.	Nipple Discharge	4	3	7
8.	Fluids	4	-	4
9.	Other Sites	10	15	25
	<b>Total</b>	<b>864</b>	<b>847</b>	<b>1711</b>

**Table - 39: Analysis of Gynaecological Specimens**

No.	Type of lesion	At ECDC	At Camps	Total
1.	Normal	162	269	431
2.	Inflammation	291	265	556
3.	T.V. Infection	102	77	179
4.	Fungal Infection	14	22	36
5.	HSV Infection	15	11	26
6.	Mixed Infection TV+HSV	12	2	14
7.	Endocervicitis	17	19	36
8.	Glandular cell atypia	45	50	95
9.	Mild dysplasia	8	4	12
10.	Moderate dysplasia	6	2	8
11.	Severe dysplasia/ca-in-situ	1	-	1
12.	Invasive Squamous cell carcinoma	23	1	24
	<b>Total</b>	<b>696</b>	<b>722</b>	<b>1418</b>

**Table - 40: Non-Gynaecological Smears**

No.	Type of lesion	At ECDC	At Camps	Total
1.	<b>Oral Smear</b>			
	Normal	34	64	98
	Pre malignant	10	8	18
	Malignant	19	1	20
	<b>Total</b>	<b>63</b>	<b>73</b>	<b>136</b>
2.	<b>Sputum Cytology</b>			
	Non malignant	29	-	29
	Malignant	1	-	1
	<b>Total</b>	<b>30</b>	<b>-</b>	<b>30</b>
3.	<b>Breast FNAC</b>			
	Benign	34	22	56
	Malignant	3	1	4
	<b>Total</b>	<b>37</b>	<b>23</b>	<b>60</b>

<b>4.</b>	<b>Thyroid</b>			
	Benign	7	11	18
	Malignant	1	-	1
	<b>Total</b>	<b>8</b>	<b>11</b>	<b>19</b>
<b>5.</b>	<b>Lymphnode</b>			
	Benign	12	-	12
	Malignant	-	-	-
	<b>Total</b>	<b>12</b>	<b>-</b>	<b>12</b>
<b>6.</b>	<b>Nipple Discharge</b>			
	Benign	4	3	7
	Malignant	-	-	-
	<b>Total</b>	<b>4</b>	<b>3</b>	<b>7</b>
<b>7.</b>	<b>Fluids</b>			
	Benign	2	-	2
	Malignant	2	-	2
	<b>Total</b>	<b>4</b>	<b>-</b>	<b>4</b>
<b>8.</b>	<b>Other sites</b>			
	Benign	10	15	25
	Malignant	-	-	-
	<b>Total</b>	<b>10</b>	<b>15</b>	<b>25</b>

#### Pain Clinic

New cases registered		39
Step I	Analgesic	3
Step II	"	6
Step III	"	30
Number of follow up cases		140

### NATURAL BACKGROUND RADIATION CANCER REGISTRY (NBRR), KARUNAGAPPALLY

Principal Investigator	Dr. B. Rajan
Co-Principal Investigator	Dr. Raghu Ram K. Nair
Co-Investigators	Dr. Jayasree Dr. Ravindran Ankathil
Co-Investigator & Officer-in-charge	Dr. P. Jayalekshmi
Cytotechnologist	Mr. K.S. Mani
Medical Officer	Dr. C.V. Prasanth

The study is being supported by Health Research Foundation (HRF), Japan since 2000 and cancer control activities and cancer patients support services are facilitated by RCC and Panchayats.

During the report year, critical evaluation of exposure effects of radiation was attempted in the selected cohort (6 panchayats) using specialized computer package Epicure and the risk analysis was started by measuring individual dose in a sample population. Individual dosimetry of 200 subjects from the cohort and control areas was started. A risk analysis of the increased incidence of lung cancer seen in the cohort showed that this is related to tobacco rather than radiation. The analysis can be fine tuned when the individual dose estimation is completed. This will cover the entire taluk for enhancing the data along with the registry activities covering the whole 12 panchayats of Karunagappally taluk. In the current year, 380 cancer cases were recorded.

#### Clinical activities

Majority of population living in Karunagappally taluk is very poor and they needed facilities for cancer diagnosis, cancer related review check-ups, and Pain and Palliative care services. Services continued successfully with community support. Review clinics, pain & supportive clinics were strengthened by 'TeleMedicine' facility.

**Table - 41: Clinical Activities and Patient Services**

	No.	No. of persons attended
Follow-up clinics conducted for treated cancer patients.	05	426
Cancer awareness classes.	15	623
Field clinics & Cervical screening camps.	14	568
Cytology examinations in peripheral hospitals & NBRR (FNAC, Oral Scrape, Cervical smear and Sputum)		592
Cancer cases detected.		7
Patients attended in pain clinics		1241

**Ongoing Projects:**

1. Dosimetric, Cyto-genetic and Epidemiological studies in High Background Radiation Area. (Funded by: Health Research Foundation, Japan)
2. Population Based Cancer Registry, Karunagappally. (Funded by: NCRP, Indian Council of Medical Research)
3. Cancer Control and Patient Services (Funded by: Local Area Development (LAD), Govt. of Kerala)
4. Development of an atlas of cancer in India (Funded by: NCRP, Indian Council of Medical Research)
5. Old age welfare project - Neendakara Grama Panchayat. (Funded by: Neendakara Grama Panchayat, Kollam)

**Conference attended**

**Dr. P. Jayalekshmi, S. Bindu, R. Kanchana**

21<sup>st</sup> Annual Review Meeting & Pre ARM Workshop on Cancer Registry, National Cancer Registry Programme, ICMR. Kolkotta, West Bengal. 9-12 November 2005.



Shri Therambil Ramakrishnan, Hon'ble speaker, Kerala Legislative Assembly at the state level inauguration of WHO World No-Tobacco Month - 2005 (31.05.2005).



Shri K.K. Ramachandran Master Hon'ble Minister for Health and Family Welfare inaugurating the 'Visrama Kendra' (13.10.2005).



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## Non-academic staff strength.

### Administrative staff

Position	No.	Position	No.
Registrar	1	Clerk Gr. I	7
Controller of Finance	1	Clerk	6
Administrative Officer	1	Typist Gr. I	1
Administrative Officer (Clin. Ser.)	1	Typist	2
Accounts Officer	1	Coding Clerk	1
Purchase Officer	1	Clinical Records Asst.	4
Public Relations Officer	1	Dark Room Asst.	1
Asst. Administrative Officer	1	Driver Gr. I	1
Asst. Accounts Officer	1	Driver Sr. Gr.	3
Asst. Internal Audit Officer	1	Driver	2
Junior Personal Assistant	5	Senior Helper	12
Office Assistant Sr. Gr.	4	Senior Animal Housekeeper	2
Office Assistant	5	Hospital Attender	7
Cashier Grade I	2	Helper	5
Cashier Cum Receptionist	1	Despatcher	2
Cashier	1	Security Guard	11
Telephone Operator cum Recp. Gr. I	1	Gardner	1

### Technical and Scientific Staff

Position	No.	Position	No.
Nursing Supdt. Gr. II	1	Research Assistant	1
Scientific Officer Gr. I	1	Resident Medical Officer	4
Medical Records Officer	1	Library Assistant Gr. I	1
Cytotechnologist Sr. Gr.	3	Library Assistant	1
Technical Officer	8	Audio Visual Operator	1
Research Associate	1	Dietician Gr. I	1



Position	No.	Position	No.
Radiographer Sel. Gr.	6	Laboratory Technician	17
Radiographer Sr. Gr.	14	Pharmacist Gr.I	1
Radiographer	8	Pharmacist	2
Head Nurse Gr.I	3	Social Investigator Gr.I	2
Head Nurse	11	Mould Room Technician Sr. Gr.	1
Nursing Supervisor	2	Anaesthesia Technician Gr.I	1
Head nurse & Clinical Instructor	1	Theatre Technician Gr.I	1
Protocol Nurse	1	Systems Manager	1
Staff Nurse	146	Systems Analyst	1
Cytotechnologist	3	Asst. Programmer	1
Cytotechnician Sel. Grade	2	Data Entry Operator Gr.I	3
RIA Technician	1	Data Entry Operator	7
RIA Technician Gr.I	2	Dental Hygienist	1
RIA Technician Sr. Gr.I	1	Project Assistant	1
Lab Technician Sr. Gr.	6	Telephone Operator	1
Lab Technician Sel. Gr.	2	Tailor	1

### Engineering Staff

Position	No.
Chief Maintenance Engineer	1
Maintenance Engineer	1
Supervisor (Electrical)	1
Supervisor (Electrical) Sr. Gr.I	1
Electrician Gr.I	1
Electrician	2
Electronic Technician Gr.I	1
Technical Assistant	1

### Best Wishes

#### RCC BID FAREWELL TO THE FOLLOWING STAFF DURING 2005-2006

1. Mr. Rajasekharan Nair G.      Medical Records Officer
2. Sri Vijayan Nair                      Sergeant Gr. I
3. Sri Stephenson C                      Security guard

*RCC wish them a happy and prosperous life*

**ACCOUNTS**  
**2005-2006**

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

**Statement of Affairs as at 31<sup>st</sup> March 2006**

	Sch	31st March 2006		31st March 2005	
		Rs.	Rs.	Rs.	Rs.
<b>I Source of Funds.</b>					
1. Capital Fund	1	641885042.99		534102207.99	
2. Research Funds	2	873577.00		873577.00	
3. Welfare and Charity Funds	3	<u>47683938.87</u>		<u>48257190.87</u>	
			690442558.86		583232975.86
4. Secured Loans	4		42189539.51		49802037.84
5. Current Liabilities	5		<u>49505742.33</u>		<u>69716065.10</u>
<b>Total</b>			<b><u>782137840.70</u></b>		<b><u>702751078.80</u></b>
<b>II Application of Funds</b>					
1. Fixed Assets - Gross Block	6	614317448.64		507037768.64	
Less Depreciation		<u>297735739.96</u>		<u>253484998.16</u>	
Net Block			316581708.68	253552770.48	253552770.48
2. Investments	7		53552750.00		49074874.00
3. Current Assets Loans and Advances					
(a) Inventories	8	20180635.00		14432315.32	
(b) Receivables	9	13170223.77		10201631.95	
(c) Cash and Bank balances	10	1227264.70		296570.13	
(d) Other Current Assets	11	3493537.75		23835144.00	
(e) Advances	12	<u>26616830.99</u>		<u>8942839.74</u>	
			64688492.21		57708501.14
4. Income and Expenditure Account			<u>347314889.81</u>		<u>342414933.18</u>
<b>Total</b>			<b><u>782137840.70</u></b>		<b><u>702751078.80</u></b>

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Significant Accounting Policies 20

Notes on Accounts 21

The Schedules referred to above form an integral part of the Balance Sheet

**Auditor's Report.**

This is the Statement of Affairs referred to in our report of even date

Thiruvananthapuram  
11/8/2006

For RENJITH K.K. & CO.  
Chartered Accountants

Renjith K.K., B.Sc., FCA.,  
Proprietor  
M. No. 204398

Dr. B. RAJAN  
Director

T.K. SURESHBABU  
Controller of Finance  
Regional Cancer Centre  
Thiruvananthapuram-695 011

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**REGIONAL CANCER CENTRE SOCIETY, TRIVANDRUM (Reg. No. 567/81)**  
**Income and Expenditure Account for the Year Ended 31.03.2006**

	Sch	For the year ended 31st March, 2006		For the year ended 31st March, 2005	
		Rs.	Rs.	Rs.	Rs.
<b>I. Income</b>					
1. Grant received					
Government of India		0.00		50000000.00	
Government of Kerala		<u>115000000.00</u>		<u>60200000.00</u>	
			115000000.00		110200000.00
Less Grant utilised for Assets					
Government of India		0.00		49377630.00	
Government of Kerala		<u>67111140.00</u>		<u>24702963.00</u>	
			<u>67111140.00</u>		<u>74080593.00</u>
			47888860.00		36119407.00
2. Income from Operations	13		220888805.00		163739835.41
3. Other Income	14		4149102.18		1654578.00
			<u>272926767.18</u>		<u>201513820.41</u>
<b>II. Expenditure</b>					
1. Education and Research	15	1264127.00		1639337.80	
2. Pharmacy	16	75917516.19		52053955.10	
3. Operational Expenditure	17	46369448.21		45168933.86	
4. Staff Costs	18	102027762.95		96895248.18	
5. Deficit in CCL Scheme		2801608.00		2250217.75	
6. Administration Costs	19	4230585.66		4366966.40	
7. Interest and Bank Charges		591034.00		2967558.34	
8. Depreciation		<u>44624641.80</u>		<u>35006386.00</u>	
			277826723.81		240348601.43
<b>III. Deficit</b>					
Deficit brought forward			-4899956.63		-38834781.02
Balance carried forward			-342414933.18		-303580152.16
			-347314889.81		-342414933.18
Significant Accounting Policies	20				
Notes on Accounts	21				
The Schedules referred to above form an integral part of the Profit and Loss Account.					
<b>Auditor's Report</b>					
This is the Income and Expenditure Account referred to in our report of even date.					
Thiruvananthapuram 11.08.2006		For RENJITH K.K. & CO. Chartered Accountants	Dr. B. RAJAN Director	T.K. SURESHBABU Controller of Finance Regional Cancer Centre Thiruvananthapuram-695 011	
		Renjith K.K., B.Sc., FCA., Proprietor M. No. 204398			

**THE REGIONAL CANCER CENTRE SOCIETY**  
Schedules to Statements of Account  
6 Fixed

Sl.	Asset	Cost			
		Cost as at 4/1/2005 Rs.	Additions for the year Rs.	withdrawn in year Rs.	Cost as at 3/31/2006 Rs.
1	Land	0.00	1000.00		1000.00
2	Buildings	147159931.90	2110796.00		149270727.90
3	Civil Works	127118.63			127118.63
4	Hospital Equipment				
	(a) Cobalt Unit	18123455.30			18123455.30
	(b) Hosp & Lab Equip	169130201.97	88577288.00		257707487.97
	(c) HE Linear Acc	52987763.00			52987763.00
	(d) Assets (Donation)	337812.00			337812.00
	(e) Telemedicine	4909159.00	2808464.00		7718623.00
	(f) Hospital Equip Pr.	3735287.00	9142636.00		12877923.00
	(g) Gas and Cylinder	8613137.05	81000.00		6694137.05
5	Plant and Machinery				
	(a) Electrical Installation	37180392.90	1158614.00		38339006.90
	(b) Water & Sanitation	2114586.43			2114586.43
	(c) Air conditioning	16683556.36	917849.00		17601404.35
	(d) Lift and Elevator	5913240.00			5913240.00
	(e) Fire Detection	3841120.00			3841120.00
	(f) Telephones	2940975.00	11281.00		2952256.00
	(g) Office Equipment	2579063.43			2579063.43
6	Furniture & Fixtures	10074462.43	578702.00		10653164.43
7	Computers	3228818.00	21500.00		3248318.00
8	Books & Journals	18597307.65	1861577.00		20458884.65
9	Vehicles	782581.60	513130.00	503155.00	772556.60
	<b>Total</b>	<b>507037768.64</b>	<b>107782835.00</b>	<b>503155.00</b>	<b>614317448.64</b>
	Previous year	395866458.00	111283228.64	111918.00	507037768.64

**THIRUVANANTHAPURAM (REG. NO. 567/81)**  
for the year ended 31.03.2006  
Assets

up to 4/1/2005 Rs.	Depreciation		up to 3/31/2006 Rs.	Net Block	
	for the year Rs.	on with- drawals Rs.		as at 3/31/2006 Rs.	as at 3/31/2005 Rs.
0.00	0.00		0.00	1000.00	0.00
56003544.04	4663359.18		60666903.23	89803824.67	91156387.86
73968.14	2857.52		76625.66	50492.97	53150.49
8725062.75	1409758.88		10134821.63	7988333.67	9398392.55
95427781.85	24341955.92		119789737.77	137937750.20	73702420.12
7948164.00	8755939.86		14704103.85	38283659.15	45033599.00
282014.05	6839.89		298953.74	38758.28	45597.85
1963884.00	863243.85		2826907.85	4891715.15	2945495.00
944176.00	1792062.05		2734238.05	10148684.95	2791111.00
5214307.35	221974.46		5436281.81	1257855.24	1398829.70
29798300.27	1281195.89		31079436.26	7259830.84	7382092.63
1778788.12	50669.75		1827457.87	287128.56	337798.31
14131789.54	528442.22		14652231.76	2849172.58	2551765.81
4882489.83	157611.03		5020110.86	893129.14	1050740.17
3052635.06	118272.74		3170907.80	670212.20	783484.94
2326587.64	93550.25		2420437.89	531818.11	614387.38
1814459.51	114693.59		1929150.10	649913.33	764603.92
6052707.22	459845.72		6512552.94	4138611.49	4021755.21
3139978.98	65183.42		3204862.38	43455.62	87139.04
9424172.46	1655206.83		11079379.29	9379605.36	9173135.19
138797.37	51971.85		180769.22	581787.38	623784.23
<b>253111098.16</b>	<b>44624641.80</b>	<b>0.00</b>	<b>297735739.96</b>	<b>316581708.68</b>	<b>253926670.48</b>
218478812.16	35008366.00	0.00	253484998.16	253552770.48	177387845.84

**REGIONAL CANCER CENTRE SOCIETY**

Trivandrum (Reg. No. 567/81)

**CANCER CARE FOR LIFE SCHEME**

**Income and Expenditure Account for the year ended 31.03.2006**

	For the year ended 31st March, 2006		For the year ended 31st March, 2005	
	Rs.	Rs.	Rs.	Rs.
<b>I Income</b>				
1. Interest on Fixed Deposits	2836307.00		3241697.25	
		2836307.00		3241697.25
<b>II Expenditure</b>				
1. Treatment costs of Members	5527915.00		5380040.00	
2. Administration Costs	110000.00		111875.00	
		5637915.00		5491915.00
<b>III Surplus</b>		-2801608.00		-2250217.75

**Auditor's Report**

This Statement of Income and Expenditure is in agreement with the Books of Account maintained by the Society and give a true and fair view of the deficit of the Scheme for the year ended 31/03/2006

Thiruvananthapuram  
11/8/2006

For **RENJITH K.K. & CO.**  
Chartered Accountants

Renjith K.K., B.Sc., FCA.,  
Proprietor  
M. No. 204398

**T.K. SURESHBABU**  
Controller of Finance  
Regional Cancer Centre  
Thiruvananthapuram-695 011

**Dr. B. RAJAN**  
Director

**AUDIT REPORT**

1. We have audited the attached Statement of Affairs of the Regional Cancer Centre Society, Thiruvananthapuram as at 31<sup>st</sup> March 2006, and also the Income and Expenditure Account for the year ended on that date annexed thereto, both of which we have signed under reference to this report. These financial statements are the responsibility of the company'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 generally accepted auditing standards in India. These standards require that we plan and perform the audit to obtain reasonable assurance about whether the financial statements are free of material misstatement(s). 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. We report that:

3.1 Attention is drawn to Note 5 on Schedule 21 to the financial statements regarding accounting for Gratuity on payment basis

4. Further to our comment in paragraph 3 above, we report that

4.1 We have obtained all the information and explanations which to the best of our knowledge and belief were necessary for the purposes of our audit

4.2 In our opinion, proper books of accounts have been maintained by the Society

4.3 The Balance Sheet and Profit and Loss Account dealt with by this report are in agreement with the books of account.

4.4 Subject to our observation in paragraphs 3.1 above, in our opinion and to the best of our information and according to the explanations given to us, the said financial statements together with the notes thereon and attached thereto give a true and fair view in conformity with the accounting principles generally accepted in India.

(i) In the case of the Statement of Affairs, of the state of affairs of the Society as at March 31, 2006;

(ii) In the case of the Income and Expenditure Account, of the deficit for the year ended on that date.

Trivandrum  
08/11/2006

For **RENJITH K.K. & CO.**  
Chartered Accountants

Renjith K.K., B.Sc., FCA.,  
Proprietor  
M. No. 204398



**REGIONAL CANCER CENTRE SOCIETY**

Trivandrum (Reg. No. 567/81)

**Schedules to Account for the year ended 31.03.2006**

**20. Significant Accounting Policies**

**Basis of preparation of Financial Statements**

1. 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.

**Revenue Recognition**

2. To recognize income from medicines issued for consumption by the patient at the time of issue. To recognize income from services at the time of delivery of services. To recognize income from investments when the right to receive the income arises.

**Fixed Assets**

3. 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 pre operational expenses in respect of projects involving construction in the value of capitalized assets.

To capitalize interest on borrowings attributable to assets as appropriate.

To state assets held for disposal at their book value or estimated net realizable value, whichever is lower.

**Depreciation**

4. To provide depreciation on all assets 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.

**Inventories**

5. To value all inventories at lower of cost and net realizable value. Cost includes freight and other related incidental expenses and is computed on weighted average method.

**Borrowing costs**

6. 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.

**Government Grants**

7. To account for Government Grants received as Capital Receipts 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.

**21. Notes on Accounts**

**Contingent Liabilities**

1. Demand of Rs 90,26,490.00 by the Corporation of Thiruvananthapuram towards property tax for the period upto 30/09/2002 is treated as a Contingent Liability and has not been provided for in the books of account.

2. Demand by the Executive Engineer, Special Buildings, PWD amounting to Rs 345,615 is treated as a Contingent Liability and has not been provided for in the books of account.

**Land**

3. Land of extent six acres and ten cents was transferred to the RCC Society by the Government of Kerala vide GO(MS) 189/87/RD dated 26/03/1987 at zero value which is now capitalized at a nominal value of Rs 1000 in accordance with AS 12 (Accounting for Government Grants) issued by the Institute of Chartered Accountants of India.

**Investigation Fee Rs 1322.08 lakhs.**

4. Investigation Fee includes Registration, Ward charges, Nuclear Medicine, Radiotherapy, Imageology, Surgery, and Lab fee.

**Gratuity**

5. The Society has not provided for Gratuity for employees during the year. Gratuity is accounted on cash basis.

**Classification and Presentation**

6. Figures for the previous year have been regrouped wherever necessary to conform to presentation of current year figures.

Signature to Schedule 1 to 21

Thiruvananthapuram

08/11/2006

For RENJITH K.K. & CO.  
Chartered Accountants

Renjith K.K., B.Sc., FCA.,  
Proprietor  
M. No. 204398

T.K. SURESHBABU

Controller of Finance  
Regional Cancer Centre  
Thiruvananthapuram-695 011

Dr. B. RAJAN  
Director

**The Income Tax Rules, 1962  
Form No. 10B (Refer Rule 17B)**

**Audit Report under Section 12A(b) of the Income Tax Act, 1961, in the case of Charitable or Religious trusts or Institutions**

We have examined the statement of affairs of the **Regional Cancer Centre Society** as at 31/03/2006 and the Income and Expenditure Account for the year ended on that date which are in agreement with the books of account maintained by the said trust or institution.

We have obtained all the information and explanations which to the best of my/our knowledge and belief were necessary for the purpose of the audit. In our opinion, proper books of account have been kept by the head office and the branches of the above named trust/ institution visited by us so far as appears from our examination of the books, and proper returns adequate for the purposes of audit have been received from the branches not visited by us, subject to the comments given below:

No Comments

In our opinion and to the best of my/our information, and according to information given to us, the said accounts give a true and fair view -

- (i) In the case of the Statement of Affairs, of the state of affairs of the above named trust/ institution as at 31.03.2006 and
- (ii) in the case of the Income and Expenditure Account, of the excess of income over expenditure/ expenditure over income for the year ended on 31.03.2006.

The prescribed particulars are annexed hereto.

Place Thiruvananthapuram  
Date 09/11/2006

For **RENJITH K.K. & CO.**  
Chartered Accountants

Renjith K.K., B.Sc., FCA.,  
Proprietor.  
M. No. 204398

**Annexure to Form 10B**

Statement of particulars

I. Application of Income for Charitable or Religious Purpose

1.	Amount of Income of the previous year applied to charitable or religious purposes in India during that year	Application to charitable purposes during the year is Rs. 3409,84,917.01 (Capital Expenditure Rs.1077,82,835 and Revenue Expenditure Rs.2332,02,082.01)
2.	Whether the trust/ institution has exercised the option under clause (2) of the Explanation to section 11(1)? If so, the details of the amount of income deemed to have been applied to charitable or religious purposes in India during the previous year	No.
3.	Amount of income accumulated or set apart/ finally set apart for application to charitable or religious purposes, to the extent it does not exceed 25 percent of the Income derived from property held under trust wholly/ in part only for such purposes	Nil
4.	Amount of income eligible for exemption under section 11(1)(c) (Give details)	Nil
5.	Amount of income, in addition to the amount referred to in item 3 above, accumulated or set apart for specified purposes under section 11(2)	Nil
6.	Whether the amount of income mentioned in item 5 above has been invested/ deposited in the manner laid down in section 11(2)(b)? If so, the details thereof.	NA
7.	Whether any part of the Income in	NA

	respect of which an option was exercised under Clause (2) of the Explanation to section 11(1) in any earlier year is deemed to be income of the previous year under Section 11(1B)? If so, the details thereof	
8.	Whether, during the previous year, any part of income accumulated or set apart for specified purposes under Section 11(2) in any earlier year	
8(a)	Has been applied for purposes other than charitable or religious purposes or has ceased to be accumulated or set apart for application thereto	Nil
8(b)	Has ceased to remain invested in any security referred to in Section 11(2)(b)(i) or deposited in any account referred to in Section 11(2)(b)(ii) or section 11(2)(b)(iii)	Nil
8(c)	Has not been utilized for purposes for which it was accumulated or set apart during the period for which it was to be accumulated or set apart, or in the year immediately following the expiry thereof? If so, the details thereof	Nil

II. Application or use of income or property for the benefit of persons referred to in Section 13(3)

1.	Whether any part of the income or property of the trust/ institution was lent, or continues to be lent, in the previous year to any person referred to in Section 13(3)? If so, give details of the amount, rate of interest charged and the nature of security, if any	No
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2.	Whether any land, building or other property of the trust/ institution was made, or continued to be made, available for the use of any such person during the previous year? If so, give details of the property and the amount of rent or compensation charged, if any	No
3.	Whether any payment was made to any such person during the previous year by way of salary, allowance or otherwise?	No
4.	Whether the services of the trust/ institution was made available to any such person during the previous year? If so, give details thereof together with remuneration or compensation received, if any	No
5.	Whether any share, security or other property was purchased by or on behalf of the trust/ institution during the previous year from any such person? If so, give details thereof together with the consideration paid	No
6.	Whether any share, security or other property was sold by or on behalf of the trust/ institution during the previous year to any such person? If so, give details thereof together with the consideration received	No
7.	Whether any income or property of the trust/ institution was diverted during the previous year in favour of any such person? If so, give details thereof together with the amount of income or value of property so diverted	Nil

8.	Whether the income or property of the trust/ institution was used or applied during the previous year for the benefit of any such person in any other manner? if so, give details.	No
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III. Investments held at any time during the previous year(s) in concerns in which persons referred to in Section 13(3) have a substantial interest

Sl.	Name and address of the concern	Where the concern is a company, number and class of shares held	Nominal value of the investment.	Income from the investment	Whether the amount in col. 4 exceeded 5 percent of the capital of the concern during the previous year (Y/N)

Place : Thiruvananthapuram  
Date : 08/11/2006

For **RENJITH K.K. & CO.**  
Chartered Accountants

Renjith K.K., B.Sc., FCA.,  
Proprietor  
M. No. 204398

### CERTIFICATE OF UTILISATION

1. During 2005-2006, the Regional Cancer Centre Society received Grant in Aid totaling Rs 1150 lakhs from the Government of Kerala in four installments as detailed below

Installment	Reference	Date	Amount (Rs.in lakhs)
1	GO(Rt) No 2119/2005/ H&FWD	21/07/2005	670.00
2	GO(Rt) No 3542/2005/ H&FWD	08/12/2005	250.00
3	GO(Rt) No 180/2006/ H&FWD	17/01/2006	130.00
4	GO(Rt) No 2378/2006/ Fin	29/03/2006	100.00
	<b>Total</b>		<b>1150.00</b>

2. The amount was utilized for acquisition of Assets (Rs 671,11,140) subsidized treatment to patients, Education and Research (Rs 178,88,860) and Operational Expenditure (Rs 300,00,000).

3. We certify that the utilization mentioned under (2) above is true and correct.

Certified today, the Eight Day of November, Two Thousand and Six at Thiruvananthapuram.

For **RENJITH K.K. & CO.**  
Chartered Accountants

Renjith K.K., B.Sc., FCA.,  
Proprietor  
M. No. 204398

**AJITH KUMAR.T. B.Com, ACA**  
**CHARTERED ACCOUNTANT**

T.C.6/1012, Konathukulangara,  
 Vattiyookavu.P.O., Trivandrum - 695 013,  
 Telephone : 0471 2495839  
 Mobile : 9349990489  
 E-mail: ajithkumarc@ 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 31<sup>st</sup> March, 2006 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 2005-2006 was Rs.97,83,821.42
2. Foreign Contribution worth Rs.73,02,438.00 with interest of Rs.1,21,645.00 were received by the Association during the year ended 31<sup>st</sup> March,2006.
3. The balance of unutilized foreign contribution with the association at the end of the financial year 2005-2006 was Rs.1,12,12,202.92.
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.

Trivandrum,  
 29<sup>th</sup> September, 2006.

T. AJITH KUMAR B.Com,  
 ACA  
 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 2006

LIABILITIES	Amount (Rs. Ps.)	Amount (Rs. Ps.)	ASSETS	Amount (Rs. Ps.)
<b>CAPITAL FUND</b>			<b>FIXED ASSETS</b>	
As on 1-4-2005	84,49,983.82		Computer	1561101.00
Add: Utilised During the year for fixed assets	16,32,438.00		Printer & UPS	236,596.00
	<u>100,82,421.82</u>		Fax Machine	24,995.00
			Refrigerator	11,953.00
Add: Other Receipts	21,65,24.00		Deep Freezer	12,36,74.00
Bank Interest	<u>3,36,603.00</u>		Vehicle	1,40,797.00
Accrued Interest on FD		106,35,548.82	Furniture	45,20,22.29
			Equipments	35,15,074.00
Project Balances as per Schedule			Air Conditioner	1,39,640.00
Research Funds as per Schedule			Photocopier	9,22,735.00
<b>CURRENT LIABILITIES</b>			Building Addl. Facilities	78,58,29.55
Salary Recovery		15,696.00	<b>CURRENT ASSETS &amp; LOANS AND ADVANCES</b>	
Overheads Payable		10,27,35.00	Interest Accrued but not Due	88,8748.00
Advances pending Settlement		3,000.00	Term Deposit with S.B.I	61,00,090.00
			Term Deposit with Fed.Bank	44,18,448.00
			Cash in Hand	98,89.00
			Cash at Bank	1,92,28,51.90

		Advances Recoverable		3000.00
		Imprest		6000.00
		Rent Deposits		38000.00
		<b>TOTAL</b>	<b>21969182.74</b>	<b>21969182.74</b>
<b>TOTAL</b>				

Vide my report of even date attached.

Trivandrum 29 September 2006

Finance Manager(Projects)      DIRECTOR      T.AJITH KUMAR B.Com, ACA  
 CHARTERED ACCOUNTANT  
 MEM.NO:209348

**THE REGIONAL CANCER CENTRE SOCIETY,**  
 Trivandrum (Reg. No. 567/81)  
 Foreign contribution for Research Projects  
 Receipts and Payments Account for the year ended 31-03-2006

RECEIPTS	Amount (Rs)	PAYMENTS	Amount (Rs)
To Opening balance	9783821.42	By Salary	2584013.95
* Foreign Contribution received during the year	7302438.00	* Consumables	256690.50
* Interest Received	121645.00	* Stationary & Printing	259823.50
		* Electricity Charges	28773.00
		* Rent & Maintenance	116577.00
		* Travelling expenses	556689.00
		* Miscellaneous	122081.55
		* Repairs	72688.00
		* Postage & Communications	80423.00
		* Slides & Photographs	7525.00
		* Assistance to Patients	7097.00
		* Medicines	70384.00
		* Spare Parts	32627.00
		* Insurance	36814.00
		* Advertisement	331.00
		* Overheads Charged	102735.00
		* Conference & Seminars	6991.00
		* Gas & Cylinder	18000.00
		* Air Conditioner	60800.00
		* Equipment	1280069.00
		* Printer	5180.00
		* Furniture	43394.00
		* Computer	234995.00
		* Project Advances	3000.00
		* Excess of Receipts over Payments.	11212202.92
<b>TOTAL</b>	<b>17207904.42</b>	<b>TOTAL</b>	<b>17207904.42</b>

Vide my report of even date attached.

Trivandrum 29 Sept: 2006      Finance Manager (Projects)      DIRECTOR      T.AJITH KUMAR  
 B.Com, ACA  
 CHARTERED  
 ACCOUNTANT  
 MEM.NO:209348



**AJITH KUMAR.T. B.Com, ACA**  
**CHARTERED ACCOUNTANT**

T.C.6/012, Konathukulangara,  
 Vattiyuorkavu.P.O., Trivandrum - 695 013,  
 Telephone : 0471 2495939  
 Mobile : 9349990489  
 E-mail: ajithkumarce @ yehco.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 Xli of 1955 (Reg.No.567/81) with registered office at Medical College P.O, Thiruvananthapuram-695011, Kerala State for the year ending 31<sup>st</sup> March, 2006 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 31<sup>st</sup> March,2006 was Rs.2,06,09,844.40.
2. The unutilized Project Fund balance with the association at the end of the financial year 2005-2006 was Rs.1,17,73,333.11.
3. The information furnished above and in the Balance Sheet and statement of Income and Expenditure Account are correct as checked by me.

Trivandrum,  
 29<sup>th</sup> September, 2006.

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

<b>THE REGIONAL CANCER CENTRE SOCIETY, TRIVANDRUM (Reg. No. 567/81)</b> <b>PROJECT CELL (Financial Assistance received from National Agencies for Research Projects)</b> <b>Balance Sheet as at 31st March 2006</b>				
LIABILITIES	Amount (Rs. Ps.)	Amount (Rs. Ps.)	ASSETS	Amount (Rs. Ps.)
<b>CAPITAL FUND</b>			<b>FIXED ASSETS</b>	
Income and Expenditure A/c As per Last B/S	3445196.07		Fixed Assets:- Sch-2	104704.17
Add: Excess of income over Expenditure for the year	755863.01	4201059.08		
Training Fund(Schedule-5)		2083409.50	<b>TERM DEPOSITS :</b>	10053564.00
Current Liabilities	33875.00		SBT	1946829.19
Security Deposits	11773333.11		Syndicate Bank	
Project Balances as per Sch-1		11807208.11	Cash in Hand - Sch-3	39178.00
Other Liabilities			Cash at Bank - Sch-4	5605569.33
NBRR Project (sale of vehicle)		85600.00	Visram Kendra Receivable	263265.00
			Overheads Receivable	102735.00
			Interest Accrued but not Due	29068.00
			not Due	
<b>TOTAL</b>		<b>18177276.69</b>	TDS	32364.00
			<b>TOTAL</b>	<b>18177276.69</b>
Trivandrum 29 September 2006	Finance Manager(Projects)		DIRECTOR	
			Vide my report of even date attached. <b>T. AJITH KUMAR B.Com, ACA</b> <b>CHARTERED ACCOUNTANT</b> <b>MEM. NO. 209348</b>	

**PROJECT CELL  
THE REGIONAL CANCER CENTRE SOCIETY**

Income and Expenditure Account for the year ended 31st March 2006

Expenditure	Amount (Rs.Ps.)	Income	Amount (Rs.Ps.)
Salary Paid	206900.45	Income from Projects	272643.40
Travelling Expenses	24539.00		
Audit Fee	23500.00	Interests received	771231.19
Printing & Stationery	6904.00		
Computer Stationery	4621.00		
Postage & Telephone Expenses	776.00		
Other Miscellaneous Expenses	4663.40		
Depreciation	16107.73		
Excess of Income Over Expenditure	755863.01		
<b>TOTAL</b>	<b>1043874.59</b>	<b>TOTAL</b>	<b>1043874.59</b>

Trivandrum  
29 September 2006

Finance Manager(Projects)

DIRECTOR

T.AJITH KUMAR B.Com, ACA  
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, Lyon, France  
 Bhabha Atomic Research Centre, Mumbai  
 Director General of Health Services, Government of India, New Delhi  
 Medical College, Thiruvananthapuram  
 Sree Avittam Thirunal Hospital for Women and Children  
 Dental College, Thiruvananthapuram  
 Sree Chitra Thirunal Institute for Medical Sciences & Technology  
 Kerala State Committee on Science, Technology and Environment  
 Director of Health Services, Government of Kerala  
 Atomic Energy Commission, Government of India  
 Department of Economics and Statistics, Government of Kerala  
 University of Kerala, Thiruvananthapuram  
 Mahatma Gandhi University, Kottayam  
 Drugs Controller, Thiruvananthapuram  
 College of Pharmaceutical Sciences, Thiruvananthapuram  
 C-DAC, Thiruvananthapuram  
 Centre for Earth Science Studies, Thiruvananthapuram  
 Indian Space Research Organisation  
 Finnish Cancer Society, Finland  
 University Grants Commission  
 Corporation of Thiruvananthapuram  
 Health Research Foundation, Japan

Kairali TV, Thiruvananthapuram

Care Plus, Thiruvananthapuram

Asraya, Thiruvananthapuram

Prathyasa, Thiruvananthapuram

Regional Cancer Association, Thiruvananthapuram

SDM Cancer Relief Fund, California

All our wellwishers and friends