



**REGIONAL
CANCER
CENTRE**

THIRUVANANTHAPURAM

2001-2002

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Trivandrum-695 011.

REGIONAL CANCER CENTRE

TRIVANDRUM-695 011, KERALA, INDIA



REPORT OF ACTIVITIES 2001-2002

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**ORGANISATION
&
SERVICES**

GOVERNING BODY



EXECUTIVE COMMITTEE



DIRECTOR



ADMINISTRATION

General Administration
Finance

SERVICES

CLINICAL
Radiation Oncology
Surgical Oncology
Medical Oncology
Paediatric Oncology
Anaesthesiology
Radiation Physics
Dental Wing
Multidisciplinary
Clinics
DIAGNOSTIC
Cytopathology
Imageology
Nuclear Medicine
Clinical Laboratory
AFFILIATED UNITS
Nursing
Palliative Care
Pain Clinic
Blood Bank
Pharmacy
Medical Records

RESEARCH

Basic Research
Laboratory Medicine &
Tumor Biology
Epidemiology &
Clinical research
Community Oncology
Outreach Programmes
ECDC, Ernakulam
ECDC, Palakkad
Information Systems
Library & Information
services

**REGIONAL CANCER CENTRE
GOVERNING BODY MEMBERS**

- | | | |
|-----|---|--------------------|
| 1. | Sri. A.K.Antony
Hon'ble Chief Minister of Kerala | Chairman |
| 2. | Adv. Sri. P. Sankaran
Hon'ble Minister for Health, Govt. of Kerala | Vice-Chairman |
| 3. | Sri. N. Chandrasekharan Nair
Addl. Chief Secretary to Govt. of Kerala &
Principal Secretary, H & FWD, Govt. of Kerala | Alt. Vice-Chairman |
| 4. | Smt. Sudha Pillai
Principal Secretary, Finance Department, Govt. of Kerala | Member |
| 5. | Sri. S. M. Vijayanand
Secretary Planning Department, Govt. of Kerala | -do- |
| 6. | Dr. M.S. Vallathan
Chairman, STEC, Trivandrum | -do- |
| 7. | Dr. M.O. Annamma
Director of Medical Education, Trivandrum | -do- |
| 8. | Dr. P.C. Kesavankutty Nair
Principal, Medical College, Trivandrum | -do- |
| 9. | Dr. M.R. Das
Former Director
Rajeev Gandhi Centre for Biotechnology, Trivandrum | -do- |
| 10. | Dr. S.C. Gupta
Former Director, VSSC, Trivandrum | -do- |
| 11. | Dr. S.P. Agarwal
Director General of Health Services, Govt. of India nominee | -do- |
| 12. | Sri. G.R. Patwardhan
Special Secretary, Health & Family Welfare,
Govt. of India | -do- |
| 13. | Dr. M. Krishnan Nair
Director, RCC, Trivandrum. | Convener |

**REGIONAL CANCER CENTRE
EXECUTIVE COMMITTEE MEMBERS**

- | | | |
|----|--|-------------------------------|
| 1. | Sri. N. Chandrasekharan Nair
Addl. Chief Secretary Govt. of Kerala & Principal Secretary,
H&FWD, Govt. of Kerala | Chairman (from July 2001) |
| 2. | Sri. Rajeev Sadanandan
Principal Secretary, H&FWD, Govt. of Kerala | Chairman (till June 2001) |
| 2. | Sri. Vinod Rai
Principal Secretary
Finance Department, Govt. of Kerala | Member (till August 2001) |
| 3. | Smt. Sudha Pillai
Principal Secretary
Finance Department, Govt. of Kerala | Member (since September 2001) |
| 4. | Sri. K. Mohandas
Principal Secretary
Planning Dept., Govt. of Kerala | Member (till June 2001) |
| 5. | Sri. S.M. Vijayanand
Secretary, Planning Dept., Govt. of Kerala | Member (since July 2001) |
| 6. | Dr. Sadasivan Pillai
Director of Medical Education, Trivandrum | Member (till June 2001) |
| 5. | Dr. M.O. Annamma
Director of Medical Education, Trivandrum | Member (since July 2001) |
| 6. | Dr. P.C. Kesavankutty Nair
Principal, Medical College, Trivandrum | Member |
| 7. | Dr. M. Krishnan Nair
Director, RCC, Trivandrum | Convener |

OVERVIEW

During 2001-2002, the Regional Cancer Centre (RCC) completed the re-organization of multidisciplinary clinics for all cancer sites. The various clinics are hematology (A clinic), head and neck (B clinic), breast and central nervous system (C clinic), gynaec and genito urinary (D clinic), chest and gastro enterology (E clinic), paediatric (F clinic) and thyroid (G clinic). This multi-disciplinary approach has helped to provide the optimum treatment for patients.

The RCC commissioned a new telecobalt unit (Theratron Elite-80) as well as the first indigenously developed brachytherapy unit for clinical use. This has helped to avoid treatment delays significantly.

Another hallmark in clinical service has been the commissioning and functioning of four new operation theaters, which has considerably reduced the waiting period for surgery.

The RCC established tele-medicine service connecting its peripheral centers including Kochi, Palakkad, Karunagappally and Kannur to RCC, with the technical support from Electronic Research and Development, Govt. of India, Trivandrum.

The division of pathology commenced a telepathology service with the introduction of trinocular microscope with digital camera attachment. This would facilitate transmission of images of pathological slides to other reputed centres for a second opinion.

The cancer registry at RCC has made significant achievements in data abstraction during this year. The data abstraction and retrieval is now online via intranet with easy data management. This is the first paperless registry in the country. The registry has started

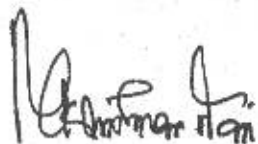
medical documentation of case sheets in electronic form. This will help clinicians and other researchers to obtain the necessary information more easily.

During the year, the RCC continued to maintain high standards in its academic activities by organizing a number of workshops and continuing medical education programmes. The most notable among them had been the workshop on telemedicine in oncology, which was conducted in collaboration with the WHO and the Ministry of Health and Family Welfare, Govt. of India.

The national cancer day was observed on 7th November 2001 and the RCC has decided to observe this day every year, as it is the birthday of Madam Marie Curie, whose discovery of radium revolutionized the treatment of cancer. In connection with this, the RCC conducted a workshop for the panchayat presidents and Municipal chairpersons of Trivandrum district on cancer control.

Three fellows of the research divisions were awarded doctorates in disciplines such as biotechnology and tumour biology.

This report contains the activity report of various divisions of this centre for the year 2001-2002.



DIRECTOR



Dr. M. Krishnan Nair in discussion with Sri. A. Gehlot, Chief Minister of Rajasthan on Cancer Control programme in Rajasthan

DEPARTMENTAL ACTIVITIES

RADIATION ONCOLOGY

Dr. M. Krishnan Nair	Professor
Dr. B. Rajan	Professor
Dr. T. Gangadevi	Professor
Dr. P. G. Jayaprakash	Additional Professor
Dr. C. S. Rafeeka Beegum	Additional Professor
Dr. Sureshchandra Dutt	Additional Professor
Dr. S. Parameswaran	Additional Professor
Dr. V. N. Bhattathiri	Associate Professor
Dr. Jayaprakash Madhavan	Associate Professor
Dr. K. Ramadas	Associate Professor
Dr. K. Ratheesan	Associate Professor
Dr. Thomas Koiparambil	Associate Professor
Dr. Francis V. James	Associate Professor (on leave)
Dr. Beela Sarah Mathew	Assistant Professor
Dr. Aswin Kumar	Lecturer
Dr. C. D. Sivanandan	Lecturer

Teaching/ Training Programme

As in the previous year, the division continues to be fully involved in the post-graduate teaching programme for MD Radiotherapy and DMRT, University of Kerala. Annually 2 students are recruited for MD Radiotherapy and 3 for DMRT. There are 13 post-graduates for MD and DMRT in the division.

Tumour Board

Regular Tumour Board meetings are organized every month for the various multi-disciplinary clinics. Some of the meetings are conducted in association with Medical College, Trivandrum. The management of mutually referred cases is discussed. Four symposias were held in 2001 on the following topics:

- Chemotherapy of Epithelial Ovarian Cancer
- Management of Uterine Sarcomas
- Germ Cell Tumours of Ovary
- Management of carcinoma of Vagina

Ongoing Research Projects

1. **Adjuvant tamoxifen in breast cancer – Longer against shorter**
(Funding agency: -Clinical trial Services Unit, Oxford, U.K.)
Principal Investigator Dr.B. Rajan
2. **Estrogen receptor gene polymorphism in breast cancer and response to tamoxifen treatment**
(Funding agency: Science & Technology Department, Govt. of Kerala.)
Principal Investigator Dr.B. Rajan
3. **Primary progesterone therapy for operable breast cancer - a randomised multi-centre trial,**
(In association with Tata Memorial Hospital, Mumbai)
Principal Investigator Dr.B. Rajan
4. **Case-control study of breast cancer in South Asia comparing rural and urban woman.**
(Funded agency: International Agency for Research on Cancer, Lyon.)
Co-Principal Investigator Dr.B. Rajan
5. **Trivandrum oral cancer screening study (TOCS).**
(Funding agency: International Agency for Research on Cancer, Lyon, France)
Principal Investigator Dr. K. Ramdas
6. **Genotyping of the CYP1A and GSTM1 genes in tobacco associated oral cancers.**
(Funding agency: Indian Council of Medical Research, New Delhi)
Principal investigator Dr. K. Ramdas
7. **Multicentre study of cremophor-free, protein stabilized, nanoparticle formulation of paclitaxel (ABJ-007) in patients with stage IV metastatic breast cancer.**
(Funding agency: Quintiles India Ltd.)
Principal Investigator Dr. M. Krishnan Nair
Co-investigator Dr. K. Ratheesan
8. **Tobacco related mortality study**
(Funding agency: International Agency for Research on Cancer, Lyon, France)
Principal investigator Dr. K. Ramdas
9. **Impact of cancer in the geriatric patients**
(Funding agency: Science and Technology, Govt. of Kerala)
Principal Investigator Dr. Suresh C. Dutt
10. **Is clinical response to treatment with methotrexate of oral cancer proportional to the degree of folate deficiency?**
(Funding agency: Science and Technology, Govt. of Kerala)
Principal Investigator Dr. V. N. Bhattathiri
11. **A randomized trial of gemcitabine and INT115777 versus gemcitabine and placebo in patients with advanced pancreatic cancer.**
(Funding agency: Quintiles Spectral India Ltd, Ahmedabad)
Principal investigator Dr. M. Krishnan Nair
Co-investigators Dr. Jayaprakash Madhavan, Dr. Francis V. James
12. **Project on natural background radiation and cancer, Karunagappally**
(Funding agency: Health Research Foundation, Japan)
Principal investigator Dr. M. Krishnan Nair
13. **Cancernet Kerala -Development of an online cancer detection and patient follow-up system**
(Funding agencies: Ministry of Information Technology, Government of India and Electronics, Research and Development Centre of India, Trivandrum)
Co-investigator Dr. Aswin Kumar
14. **Evaluation of a new estrogen receptor modulator compared with tamoxifen in women with locally advanced or metastatic breast cancer -Randomized double-blind trial.**
(In collaboration with M/s Eli Lilly Ranbaxy Ltd.)
Co-investigator Dr. Beela Sarah Mathew

Other projects

1. A randomized trial of concurrent cisplatin based chemo-radiotherapy in cancer of the cervix.
2. Comparison of local control & morbidity of HDR vs. LDR brachytherapy in cancer of the cervix.
3. Comparison of CP (cisplatin & cyclophosphamide) vs. EP (etoposide & platinum) in non-debulked stage IIIc & IV epithelial ovarian cancer.

Other ongoing collaborative studies in basic research

1. Cellular immortality and apoptosis in tumour tissue significance of response to radiotherapy for cervical cancer (*Funding agency: Dept. of Atomic Energy, Govt. of India*).
2. HPV gene polymorphism in Indian cervical cancer (*Funding agency: ICMR, New Delhi*).
3. Development of bioactive compound for HPV infected cells (*Funding agency: ICMR, New Delhi*).

Conferences/ Workshops/ Awards/ Fellowships etc.

Dr. M. Krishnan Nair

1. INCTR meeting in Brussels 17-27th April 2001
2. Visited John Hopkin's University, Baltimore, USA, 9th July 2001.
3. Attended 60th Anniversary of Health Research Foundation, Kyoto, Japan 13-16 July 2001.

Dr. B. Rajan

1. Regional cancer center representative, WHO meeting on Cancer Control Activities, Jaipur, February 2002.
2. Indian breast group meeting, New Delhi, February 2002.
3. European breast cancer conference, Barcelona, March 2002.

Dr. P.G. Jayaprakash

1. ARO annual state chapter, November 2001.
2. CME on quality assurance and safety of treatment planning, OBGYN (Obstetricians and Gynaecologists), Trivandrum, November 2001.
3. Organized CME on gastrointestinal malignancy, RCC, October 2001.
4. Chaired session on postoperative management of colorectal malignancy, CME on oncology, Dept. of Radiotherapy, Thiruvananthapuram.
5. Examiner, Tamil Nadu Dr.M.G.R. medical university, DMRT (Madras Medical College) and MD Radiotherapy (Vellore Medical College & Adyar Cancer Institute).

Dr. S. Parameswaran

1. Re-elected as joint secretary of breast cancer foundation of India.
2. Chairman, academic sessions, Breast cancer foundation of India, Annual conference, Goa, March 2002.
3. Guest speaker, I.M.A Krishnapuram and Kayamkulam.

Dr. K. Ratheesan

Attended pan AscO conference held at New Delhi on January 2002.

Dr. Thomas Koiparampil

Editor-in-chief of Austral-Asian Journal of Cancer, The 3rd issue of this journal has released.

Dr. K. Ramdas

Trivandrum oral cancer study meeting, Lyon, October 2001.

Dr. Beela Sarah Mathew

1. Fellowship of the National Cancer Institute, USA to undergo advanced training in neuro-oncology at the neuro-oncology unit, Johns Hopkins Oncology Center, USA, Jun-Nov 2001.
2. First quadrennial meeting of the international society of neuro-oncology, Washington DC, Nov 2001.

Dr. Aswin Kumar

1. Treatment of soft tissue sarcomas -A panel discussion, Association of surgeons of India CME, Calicut, November 2001.
2. Invited lecture, Introduction to telemedicine, WHO sponsored workshop on telemedicine in oncology, Trivandrum, December 2001.
3. Invited lecture, Current concepts in radiotherapy of carcinoma cervix, quality assurance and safety of treatment planning systems, Association of Medical Physicists of Kerala, December 2001.
4. Invited lecture, Emergencies in oncology, Association of Medical Oncologists of Kerala, Trivandrum, January 2002.
5. Invited lecture, Radiation approaches to breast cancer, CME on breast cancer, Kollam Surgeons' Association, Kollam, May 2002.
6. Examiner, BSc MRT, Mahatma Gandhi University.

Papers published - (Chapter IV)

SURGICAL ONCOLOGY

Dr. Paul Sebastian	Associate Professor
Dr. K.Chitrathara	Associate Professor
Dr. Jem Prabhakar	Assistant Professor
Dr. Cherian M. Koshy	Assistant Professor
Dr. Namratha Dhakkad	Assistant Professor
Dr. Manoj Pandey	Assistant Professor
Dr. Shaji Thomas	Assistant Professor
Dr. Bipin T. Varghese	Assistant Professor
Dr. Paul Augustine	Assistant Professor
Dr. Firoz Rajan	Assistant Professor
Dr. P.G. Balagopal	Lecturer
Dr. Elizabeth. M. Iype	Lecturer
Dr. Manoj Jacob	Lecturer
Dr. K. Chandramohan	Lecturer

Clinical activities

Out patient clinics are conducted on all working days and operations are performed from Monday to Friday (5 days a week). During the reporting period, 2143 surgical operations were performed. Of these, 1341 were major surgical procedures performed under general anesthesia and the rest 802 were minor procedures done in the operating rooms. Compared to the previous year, the number of operations has increased by 19%. The region-wise distribution of the 1341 major operations is given in Table 1.

Table - 1. Major operations by region

Region	No. (1341)	Percentage
Head and neck	610	45.48
Breast	302	22.52
Thorax and abdomen	91	6.78
Genitourinary	200	14.91
Bone and soft tissue tumors	82	6.11
Skin and others	56	4.17

Head and neck cancers continue to constitute the largest group. The site distribution of head and neck cancers is given in Table 2. Oral cancers constitute the majority of cases in this group. Of these, tongue was the most common site, followed by buccal mucosa and then cancers of the alveoli. Most of the cases were locally advanced necessitating composite resection and primary reconstruction. The number of thyroidectomies and neck dissection for metastatic nodes have also increased compared to the previous year.

Table - 2. Head and neck cancers by site

Site	No. (610)	Percentage
Oral cavity and oropharynx	369	60.49
Larynx and hypopharynx	9	1.47
Metastatic neck nodes	94	15.40
Thyroid	89	14.59
Salivary gland	27	4.46
Others	22	3.60

The number of breast cancers is ever increasing- 91 more cases operated upon in the reporting year compared to the previous year. Most of the patients (81%) still undergo modified radical mastectomy, 39 patients opted for breast conservation therapy, 12 patients had reconstruction of the breast or chest wall utilizing pedicled flap. The division has started performing skin sparing mastectomy and immediate reconstruction of the breast in the reporting year. This is a procedure in which the whole of breast tissue along with nipple-areola complex is removed, preserving the skin and subcutaneous tissue of the breast. Minimal skin is removed when oncological clearance is suspected. This is followed by immediate breast reconstruction using the TRAM flap. This technique gives better cosmetic results in the reconstructed breast (Figures -1,2,3).

The site-distribution of genitourinary cancers is given in Table 3. Approximately 50% of patients with extremity soft tissue sarcomas had limb salvage surgery. Seven patients with soft tissue sarcoma had immediate postoperative brachytherapy. Groin dissection was done in 20 patients for metastatic disease.

Table - 3. Genitourinary cancers by site

Site	No. (200)	Percentage
Cervix	52	26
Endometrium	22	11
Ovary	64	32
Vulva	8	4
Penis	14	7
Kidney and urethra	4	2
Urinary bladder	17	8.5
Others	19	9.5

Reconstruction of defects caused by ablation of extensive tumors and for cosmetic purposes, was performed in 228 cases (Table 4).

Table - 4. Flaps used for reconstruction

Flap	No. (228)
Pectoralis major myocutaneous	167
Nasolabial flap	25
Deltpectoral	7
Stemomastoid myocutaneous	6
Platysma myocutaneous	3
Latissimus dorsi myocutaneous	10
TRAM	5
Tensor fascia lata myocutaneous	4
Groin	1

Endoscopy services

Flexible fiberoptic video endoscopy (upper GI endoscopy and colonoscopy) as well as rigid nasal endoscopy, DL scopy and cystoscopy are routinely performed. Most of the endoscopies were done as part of initial diagnostic work-up or as part of routine follow-up of treated patients. A few interventional procedures like esophageal stricture dilatation and stenting were also done (Table 5).

Table – 5. Endoscopic procedures

Procedure	No. (1063)
Nasopharyngoscopy	30
Upper GI endoscopy	390
Sigmoidoscopy	15
Colonoscopy	65
Esophageal stricture dilatation	16
Esophageal stenting	2
Rigid nasal endoscopy	79
DL scopy	190
Cystoscopy	276

Ongoing Research Projects

- Study on sentinel node identification and analysis for patients with clinical T1 and T2 breast carcinoma conducted at the Washington Cancer Center, U.S.A**
Principal investigator: Marc E. Boisvert, Director, Breast Services, Washington cancer Center, U.S.A
Co-Investigator: Dr. Paul Augustine
- Trivandrum oral cancer screening study (TOCS).**
(Funded by: International Agency for Research on Cancer, France.)
Co-Investigators: Dr. Manoj Pandey, Dr. Paul Sebastian
- Role of vitamin A prophylaxis in prevention of malignant changes in oral premalignant lesions.**
(Funded by: International Agency for Research on Cancer, France.)
Co-Investigator: Dr. Manoj Pandey
- Study of the role of vitamin A in preventing second malignancy in treated oral cancer lesions.**
(Funded by: International Agency for Research on Cancer, France.)
Co-Investigator: Dr. Manoj Pandey

- Genotyping of the CYP1A1 and GSTM1 genes in tobacco associated oral cancer.**
(Funded by: Indian Council of Medical Research, New Delhi.)
Co-Investigator: Dr. Manoj Pandey
- Metalloproteinases in oral cancer.**
(Funded by: Indian Council of Medical Research, New Delhi.)
Co-Investigator: Dr. Manoj Pandey
- Trivandrum quality of life study (TQOLS), in patients with head and neck cancer undergoing curative treatment.**
(Funded by: University Grants Commission, New Delhi.)
Co-Investigator: Dr. Manoj Pandey
- Comparative evaluation of early detection of cervical cancer precursors by cytology, HPV testing, visual inspection with acetic acid and with uegol's iodine in Kerala, India.**
Co-investigators: Drs. Paul Sebastian, Namratha Dhakad, K. Chitrathara.
- Cervical cancer control project.**
(Funded by: Bill Gates Foundation, US.)
Co-investigators: Dr. Paul Sebastian, Dr. Namrata Dhakad
- Clinico-pathological and radiological correlation of involvement of bone in cancers of the oral cavity.** MDS, Thesis of Dr. Latha, Dental College, Trivandrum 2001.
Co-guide: Dr. Manoj Pandey

Awards/ Honors/ Training/ Conferences/ Workshops/ CME attended

Dr. Paul Sebastian

- Workshop on Stapling Techniques, Mumbai, July 2001
- Panelist on STS, ASI Kerala Chapter, Calicut, October 2001.
- Recent advances in surgical management of rectum, Prof. F Joseph memorial CME, Trivandrum, November 2001.

4. Dr. Padmanabhan memorial oration on extremity soft tissue sarcoma, AROI, Trivandrum, November 2001.
5. ISHNO Workshop on tumours of the nasal cavity and paranasal sinuses, Jaslok Hospital, Mumbai, December 2001
6. CME, Surgery of colorectal tumor, AROI meet, Trichur, February 2002.
7. Panel Discussion on Early breast cancer, ASI South zone conference, Kanyakumari, February 2002.
8. ASI Peripheral meet, Tiruvalla, February 2002.

Dr. K. Chithrathara

1. Guest Lecture, Surgical management of ovarian carcinoma. Kerala Medical Oncologist Association, Ernakulam, April 2001 & Trivandrum, October 2001.
2. Guest Lecture, Surgical management of invasive carcinoma cervix. Kerala Chapter FOGSI, May 2001, Trivandrum.
3. Guest Lecture, Surgical management of testicular tumor. Kerala Medical Oncologist Association, Trivandrum at February 2002.
4. USICON National Urology Conference and pre-conference workshop Jaipur, Rajasthan February 2002.
5. Endoscopy training, Department of Surgery (Gynaec & Uro), TMH, Mumbai, April 2001.

Dr. Jem Prabhakar

1. Workshop – "Staplers in surgery" by Ethicon, Mumbai, July 2001.
2. Guest lecture- "Oral Cancers – An overview of management" at the ASI (Kerala chapter) peripheral meet, Elite continental Hotel, Tiruvalla February 2002.
3. Panelist Symposium on Breast cancer, Kanyakumari - Kasicon 2002 - ASI South Zone Meet. February 2002.

Dr. Namratha Dhakad

1. CME on cancer pain management and palliative care, Regional Cancer Centre 3rd November 2001.

2. II Prof. F Joseph Memorial CME in Oncology, at Regional Cancer Centre, November 2001.
3. Medical Oncology CME under auspices of Kerala Medical Oncologist Association at AME January 2002.

Dr. Manoj Pandey

1. Measuring Quality of life. Sevagram, January 2001.
2. Cancer in Asia. Incidence and Prevention. Summer course in cancer prevention and molecular epidemiology, NCI, Washington DC, USA. July 5- August 10, 2001.
3. Metastasis of unknown origin. Monthly meeting of Association of Plastic Surgeons, Trivandrum, December 2001
4. Symposium on breast cancer. ASI south zone meeting KASICON 2002, Kanya Kumari, February 2002.
5. Reviewer, Australasian Journal of Cancer, Neoplasia, Cancer, Cancer Practice and Postgraduate Medical Journal.
6. Awarded National Cancer Institute fellowship to attend the NCI Summer course in cancer prevention and molecular epidemiology at National Cancer Institute, Maryland, USA from July 5 to August 15, 2001.
7. Editor, Advances in Oncology, Published by Jaypee Brothers, New Delhi.
8. Editor, Monograph on Gallbladder cancer.

Dr. Paul Augustine

1. ASI (Kerala chapter) peripheral meet held at Elite continental Hotel, Tiruvalla, February 2002.
2. Panelist, Symposium on Breast cancer at Kanyakumari - Kasicon 2002 - ASI South Zone Meet. February 2002.
3. Six months of training at the Washington Cancer Institute, Washington DC and Memorial Sloan-Kettering Cancer Center, New York, USA. National Cancer Institute Fellowship in Breast diseases, August 2001 – January 2002.

Dr. Bipin T. Varghese

1. Awarded 2nd prize for the paper on Endoscopic Transnasal Sphenopalatine Ganglion Block, in Devan Gold medal Session, Conference of Association of Otolaryngologists of India.
2. Guest Lecture on Alternative Flaps in Head and Neck Reconstruction, South Zone E.N.T Conference October 3-6, 2001.
3. Panelist on Mandibular preservation and reconstruction in head and neck surgery at the pre-conference workshop of the South zone conference of Association of Otolaryngologists of India.
4. Guest Lecture on Folded (bipaddled) pectoralis major myocutaneous alap in laryngopharyngeal reconstruction with video demonstration South Indian Plastic Surgeons Association (SIPSA-2002).

Dr. K. Chandramohan

1. Thoracic oncology workshop, Cancer Institute, Adayar, Chennai January 2002.
2. Clinical training in department of general surgery, Basildon and Thurrock general hospital, UK. October -November 2001.

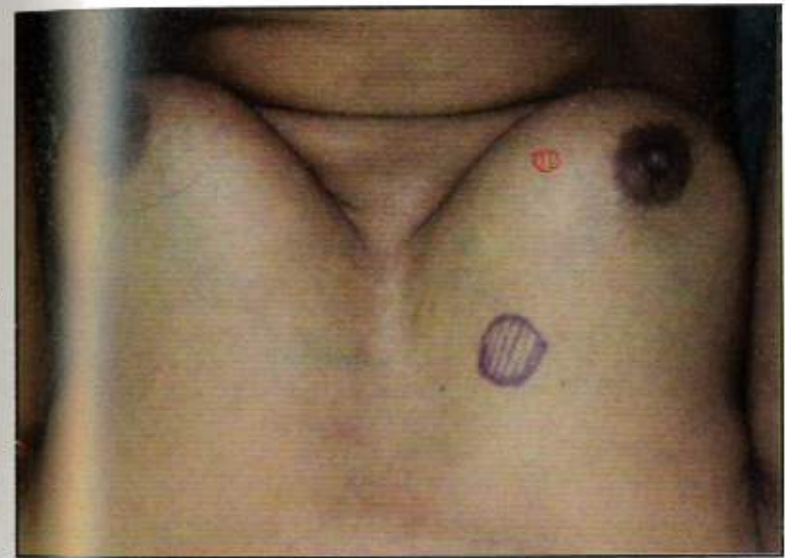
Dr. Elizabeth Mathew Iype

1. International CME on cancer pain management held in RCC, Trivandrum, November 2001.
2. Comprehensive update on tumors of the nasal cavity and paranasal sinuses. Jaslok hospital, Mumbai- December 2001.

Dr. Firoz Rajan

1. Panelist on small round cell tumors – A heterogeneous entity for Annual CME on Medical Oncology, Trivandrum February 2002.
2. Guest lecture, Surgery for germ cell tumor of tests at South Zone ASI meet, Kanyakumari, February 2002.

Papers published - (Chapter IV)



Photograph of a woman with cancer of the (R) breast before surgery and after skin sparing mastectomy and immediate reconstruction with TRAM flap

ANAESTHESIOLOGY

Dr. Rachel Cherian Koshy	Associate Professor
Dr. Mary Thomas	Lecturer
Dr. A. Venugopal	Lecturer
Dr. Mallika Balakrishnan	Lecturer
Dr. Renju Kuriakose	Lecturer
Dr. Ajay Pillai	Lecturer
Dr. Shiju Mathew	Registrar in Anaesthesiology

Clinical activities

A 21% increase in turnover of major cases occurred. A total of 365 patients were provided anaesthesia for major surgical procedures of which 62 patients was given subarachnoid block, 53 patients received epidural anaesthesia and analgesia and 1250 patients were given balanced general anaesthesia. Sixty-two patients had blind nasal intubation for predicted difficult tracheal intubation. In addition, 78 patients were provided anaesthesia care for procedures such as oesophageal dilatation, central venous cannulation, radiation therapy, and direct laryngoscopy. Post operative pain management and ICU care were also provided.

Awards/ Honors/ Conferences/ Workshops/Training attended

Dr. Rachel Cherian Koshy

1. Attended Anaesthesia update (CME and workshop) conducted by Cochin Anaesthesia Research Society, May 12-13, 2001.
2. Chaired a "Free Paper Session" on 14-10-2001 at ISACON – SILVER – XXV Annual Conference of Indian Society of Anaesthesiologists, Kerala Chapter, Trivandrum, October 2001.
3. Invited speaker for panel discussion on "Safe Blood Usage" at CME on "Recent Trends in Transfusion – Clinicians Approach", Medical College Trivandrum, November 2001.

Dr. Mary Thomas

1. Attended ISACON – Silver, Kerala chapter, Trivandrum, October 13th to 14th 2001.

2. Awarded ICRET fellowship for advanced training in critical care at MD Anderson Cancer Center, Houston, Texas USA from April to May 2001.

Dr. Mallika Balakrishnan- Attended ISACON-Silver, Kerala chapter, Trivandrum, October 13th to 14th 2001.

Dr. Renju Kuriakose – Attended ISACON – Silver, Kerala chapter, Trivandrum, October 13th to 14th 2001.

Dr. A. Venugopal

1. Presented paper – "A case report of chronic reflex pain syndrome type I after Radioisotope contact skin burns" at ISACON – SILVER XXV Annual Conference of Indian Society of Anaesthesiologists, Kerala Chapter, Trivandrum October 2001.
2. Faculty, One day CME on pain and palliative care on 9-6-02 and 3-11-02.

Papers published - (Chapter IV)

PAEDIATRIC ONCOLOGY

Dr. P. Kusumakumary - Associate Professor
 Dr. T. Priya Kumari - Assistant Professor

Clinical Activities

Out patient service functions six days a week. The paediatric tumour board with a multidisciplinary team consisting of paediatric oncologist, paediatric surgeon, pathologist and radiation oncologist meets every Monday where major management decisions are taken by the team.

The disease-wise pattern of patients (under <= 14 years) registered during the reporting year is given in Table 1. The most common malignancy was acute leukaemias.

Table 1 - Disease-wise pattern

Disease	Number (362)	Percentage
Acute lymphatic leukemia	112	31
Acute myeloid leukemia	21	6
Chronic myeloid leukemia	6	2
Brain tumors	31	8
Lymphomas	47	13
Soft tissue sarcomas	13	5
Neuroblastomas	18	5
Wilm's tumor	7	2
Bone tumor	26	7
Retinoblastomas	11	3
Germ cell tumors	7	2
Hepatic tumors	5	1
Histiocytosis	9	2
Rhabdomyosarcoma	8	2
Carcinomas	6	1
Miscellaneous	35	10
Total number of out patient visits: 10,044		

Ongoing research projects

1. **Molecular epidemiology of acute lymphoblastic leukaemia and Non-Hodgkin's lymphoma patients in Kerala**
 (Funded by: Kay Kendall Leukaemia fund, UK)
 Co-investigator Dr.P. Kusumakumarj
2. **Significance of programmed cell death in paediatric acute lymphoblastic leukaemia**
 (Funded by: Department of Science and Technology, Govt. of India.)
 Co-Investigator Dr. P. Kusumakumari

3. Susceptibility to childhood ALL: Influence of CYP1A1, CYP2D6, GSTM1 and GSTT1 genetic polymorphism.

(Funded by: Council of Scientific and Industrial Research, New Delhi.)

Co-investigator Dr.P.Kusumakumari

Conference/ Workshops/ Training attended

Dr.P. Kusumakumari

1. Invited talk, "Paediatric Lymphomas" - for medical oncology CME at Cochin April 25th 2001.
3. Invited talk, "Malignant round cell tumours - a Heterogeneous Entity" for medical oncology CME at Thiruvananthapuram, January 20th 2002.
4. Invited talk, "Early diagnosis of childhood cancer - An approach for the clinician" 39th National Conference of Indian Academy of Paediatrics 25- 26 January 2002.
5. Invited talk "Evaluation methodology" - for 2nd National training project on Practical Paediatric Oncology Mumbai 22-24 February 2002.

Dr. T. Priya Kumari

1. Attended Paediatric cardiology update at Achutha Menon Auditorium, Thiruvananthapuram 2001.
2. Presented a paper "Germ cell tumours of ovary in children - a 10 year experience from a developing country. XXXIII SIOP Meeting Brisbane, Australia. October 10 - 13. 2001.

Papers published - (Chapter IV)

MEDICAL ONCOLOGY

Dr. V. P. Gangadharan	-	Associate Professor
Dr. N. Geetha	-	Associate Professor
Dr. Sreejith Nair	-	Assistant Professor
Dr. N. P. Prakash	-	Lecturer (on deputation for DM)
Dr. B. Mirsa Husain	-	Lecturer ()
Dr. V.S. Lali	-	Resident Medical Officer

Ongoing Research Projects (List provided by the project cell, RCC)

1. **Study of the safety and efficacy of an indigenous human recombinant interferon alpha -20 (Shanferon) in chronic myeloid leukemia patients**
(Funding agency: M/s Shanta Biotech, Hyderabad)
Principal Investigator Dr. V. P. Gangadharan
Co-Investigator Dr. Sreejith G. Nair
2. **Comparison of gemcitabine plus carboplatin vs. carboplatin monotherapy in patients with advanced ovarian cancer who failed first line platinum based therapy: Randomized study**
(Funding agency: M/s Eli Lilly Ranbaxy Ltd., New Delhi)
Principal Investigator Dr. V. P. Gangadharan
Co-Investigator Dr. Sreejith G. Nair
3. **A randomized multicentric study of the efficacy, safety and toleration of voriconazole versus amphotericin B followed by other licensed antifungal therapy in the treatment of acute invasive aspergillosis in immunocompromised patients.**
(Funding Agency: M/s Pfizer India Ltd)
Co-Investigator Dr. N. Geetha
4. **Randomized multicentric study of peginterferon versus interferon- α for the treatment of patients with chronic myelogenous leukemia not previously treated with interferon.**
(Funding Agency: M/s Quintiles Spectral India Ltd)
Co-Investigator Dr. N. Geetha

5. Multicentre study of cremophor-free, protein stabilized nanoparticle formulation of paclitaxel (ABJ-007) in patients with stage IV metastatic breast cancer.

(Funding agency: Quintiles India Ltd.)

Co-investigator Dr. N. Geetha

6. Chemotherapy response in osteosarcoma, role of intrinsic cellular factors

(Funding agency: Indian Council of Medical Research, New Delhi)

Principal investigator Dr. N. Geetha

Conference/ Workshops/ Training attended

Dr. N. Geetha

1. Editor, Austral Asian Journal of Cancer.
2. Member, Ethics Committee, Regional Cancer Centre, Trivandrum.
3. Attended Panasco Conference, New Delhi, February 2002.

Papers published - (Chapter IV)

DENTAL CARE

Dr.K.R. Nalinakumari

Lecturer

Highlights of Activities

1. Basic procedures such as oral prophylaxis, conservative therapy and dental extractions.
2. Minor surgeries such as oral biopsies.
3. Therapeutic management of pre-cancerous and other oral lesions.
4. Management of temporomandibular problems such as trismus, occlusal adjustments.
5. Reconstructive procedures such as construction of maxillofacial prosthesis.
6. Pre and post radiation care of teeth.

7. Management of oral problems for patients undergoing chemotherapy like ulcers, toothache etc.
8. Preparation Preparation and moulds.

Table-1. Patients statistics

Total number of patients seen	2965
Total number of new cases	847
C.C.L. patients	10
E.S.I. patients	25
Pre-cancer patients	11

Table-2. Resume of the work

Biopsies taken	214
Teeth extraction	2025
Post radiation (new cases)	218
Total number of P.R.C. of teeth cases	482
Maxillofacial prosthesis	15
Conservative therapy	1
Oral prophylaxis done	60
Occlusal adjustments done	1

Table-3. Site-wise distribution of biopsies done

Site of biopsy	No.(214)	Percentage
Buccal mucosa	105	49.06
Commissure	9	4.21
Hard palate	8	3.74
Retromolar region	8	3.73
Dorsum of tongue	12	5.61
Border of tongue	22	10.28
Under surface of tongue	2	0.93
Floor of the mouth	2	0.93
Alveolus	33	15.41
Sulcus	6	2.79
Lip	7	3.27

Papers published - (Chapter IV)

CLINICAL SERVICES AND MEDICAL RECORDS

Mr. G. Rajasekharan Nair	Medical Records Officer
Mr. V. Surendran Nair	Asst. Public relations officer
Mr. B. Sreekumar	Administrative officer (clinical service) (I/C)

Highlights of activities

1. New patient registration

2. Front office management

- Case review, appointment, patients correspondence
- Distribution of investigation reports & reimbursement bills
- Clinic wise file distribution, arrangement and setting of files

3. Medical documentation units

Conducts follow up & pain clinic at ECDG centers - Karunagappally, Kannur, Palakkad, Kodungalloor, Kozhancherry, Ernakulam & Kannur.

Case sheet abstraction and data entry.

4. Maintenance of medical records

Case sheet filing, retrieval, coding, indexing on the basis of ICD, and maintenance of death register and death reports

Table 1. Number of case records distributed to the various divisions

Appointment, late appointment without appointment	103337
ECDG, Ernakulam - Follow-up clinic	1260
NBRR, Karunagappally - Follow-up clinic	792
Academic, research study purpose	15954
Other purpose, LIC, billing, cytology etc	825
Total	123168
Investigation results, brachytherapy / teletherapy filed	13473
Chest X-rays	1304
Total new patients registered	9996
Total hospital deaths* (1.1.2001 to 31.12.2001)	607

*All deaths are reported to the registrar, births & deaths registers office, Trivandrum.

Figure 1. Number of new patients registered during the last 10 years (1991-2001)

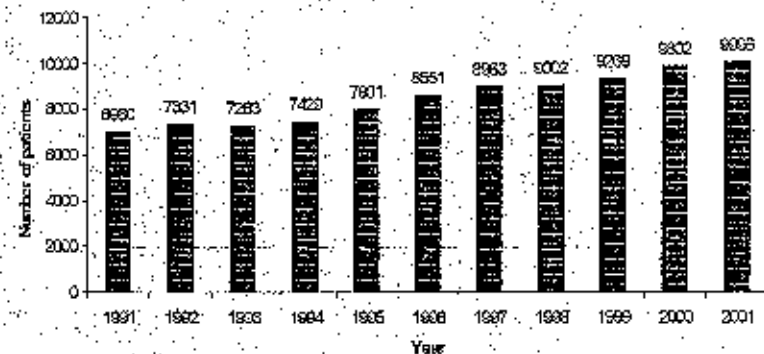
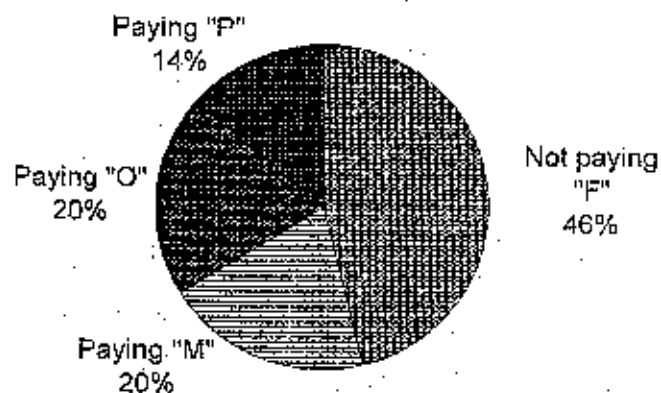


Table 2. District-wise distribution of new cases reported at RCC : 2001

District	Number(9996)	Percentage
Trivandrum	2642	26.43
Kollam	2061	20.62
Pathanamthitta	712	7.12
Alappuzha	512	5.12
Kottayam	306	3.06
Idukki	118	1.18
Emakulam	709	7.09
Trichur	499	4.99
Palakkad	335	3.35
Malappuram	398	3.98
Wayanad	38	0.38
Kozhikode	229	2.29
Kannur	277	2.77
Kasargod	40	0.4
Other States	1120	11.2

Figure 2: Percentage distribution of paying and non-paying patients -2001



Public relation activities

1. Assistance to patients for getting financial aid from PMRF, CMRF, Gariapanchayath, Philanthropic organization etc.
2. Guidance to trainees visiting to RCC from other institutions.
3. Assistance to RCC officials to publish articles in various media.
4. Laslon with media.
5. Write ups for press releases
6. Raising contributions to 'Kinginicheppu' & poor patient welfare fund
7. Blood donation and other human resource services for poor patients with the support of philanthropic organisations.

Visitors

1. Ms. Waseema Fikuraa & Mr. Mohammed Ali, WHO fellow from Maldives.
2. Hannagh Monsy & Mrs. Reshma K, social work trainees, Dept. of social work, Vimala College, Thrissur.
3. Ms. Meena Beegum & Rekha T.K, project fellows, M.G. University, Kottayam.

NURSING SERVICES

Sr. Vijaya Puthusseril	Chief Nursing Officer & Assoc. Professor
Mrs. Graceama Joseph	Nursing Superintendent
Mrs. S. Geetha	Nursing Supervisor
Mrs. Annamma Jacob	Nursing Supervisor

Clinical activities

The clinical activities of the division include patient care round the clock by staff nurses, supervision and management of respective patient care units by head nurses and nursing supervisors. The computer network system introduced in the various wards during the years has facilitated smooth patient documentation.

Staff development programme

Meetings for head nurses, staff nurses and nursing assistants are held every month. All matters affecting patient care are discussed and educational sessions on related topics are conducted for nurses to achieve skill in rendering quality care.

Training programmes organized

1. Training programme of 10 days duration in oncology nursing under the title 'Oncology Nursing – A comprehensive approach for senior staff nurses/nursing superintendents of Kerala State, sponsored by DGHS / Govt. of India from 11th – 21st February 2002.
2. Orientation training for 44 students of 3rd year B.Sc (N) of College of Nursing, Kozhikode. 2nd June 2001.
3. Summer field experience in oncology nursing for Ms. Sherry Alex, final year M.Sc (N) of RAK college of nursing, New Delhi, 1st -31st May 2001.
4. Orientation and observation update to 26 nursing & midwifery students from Karolinska Institute, Sweden under global health exchange programme, affiliated to college of nursing, Trivandrum. 23rd May 2001 & 3rd January 2002.
5. Observation update for 3rd year B.Sc (N) of college of nursing, Kottayam (in two batches). 6th July & 13th July 2001.
6. Orientation training to 14 students of 1st year M.Sc (N) of Sri Ramakrishna institute of paramedical sciences, Coimbatore 14th January 2002.
7. Clinical posting in oncology nursing & nursing administration for IVth semester M.Sc (N) students of college of nursing, Trivandrum 18th-30th March 2002.

Nursing assistants training programme

The 4th batch of nursing assistant trainees (16 Nos.) has successfully completed 1-year training and 1-year compulsory apprenticeship. The recruitment and selection process of 5th batch is in progress.

Rehabilitation services

The division undertakes rehabilitative services for ostomy patients, and training of cancer care takers for home care by giving basic informations on cancer using audio visual aids and teaching simple nursing procedures. It also undertakes preparing patients psychologically for surgery, teaching post operative exercises such as post mastectomy exercises and providing relaxation therapy for those tensed and anxious cancer patients.

Ongoing research projects

1. Effectiveness of a self instructional module on reducing oral mucositis
2. Relevance of tracheostomy training to carers
3. Nutritional problems in AML patients on chemotherapy
4. Side effects of Carboplatin / Taxol

Visitors

1. Dr. Michael Morgan – Asst. prof. from Wayne state university was available in the division from 1st – 9th June 2001, providing guidance and assistance for nursing staff in conducting mini research projects in oncology nursing practice.
2. Sr. Lilia S. D, president, TNAI, Kerala state branch & Sr. Gabriella Illickal - Zonal president TNAI made an observation visit to the nursing division on 30th April 2001.

Conferences/ Awards/ Honors

Sr.Vijaya Puthusseril

1. Resource person assigned by Indian nursing council to prepare the syllabus for a specialty course in oncology and palliative care.
2. Resource person assigned by Indian nursing council to evaluate the syllabus of diploma course in 'Oncology Clinical Nurse' prepared by Dharamshila Cancer Hospital & Research Centre, New Delhi.

3. Invited lecture on 'Nursing standard setting and its practical applications' Nurses' workshop, on 3rd December 2001, of 'Effective nursing management for better nursing Care' MOSC MM hospital, Kolencherry, sponsored by Govt of India & Christian Medical Association of India.

Vilaya A K – Attended "Update on Human relation in nursing" organized by college of nursing Trivandrum (10 days); April 2001.

Prasanna Peter – Attended "Update on management technique for nurse managers" – Organized by college of nursing Trivandrum (10 days); April 2001.

Aleykutty PM – Training programme on competent critical care management organized by SCTIMST, Trivandrum, May 2001.

Anniemma Joseph & Jessy Thomas: 'CME on paediatric surgical care organized by Indian Association of Paediatric Surgeons' In September 2001.

Christeen V & Anniemma Joseph. Attended "Nurses Workshop at Kolenchery Hospital, Emakulam sponsored by Govt. of India / CMAI

Grija K 'Critical care – A holistic approach for nurses' organized by SCTIMST, Trivandrum, January 2002.

Prasannakumary S 'Managing critical care – A challenge' organized by SCTIMST, Trivandrum, February 2002.

Athira Rani 'Nursing education & research' organized by college of nursing, Trivandrum, January 2002.

Papers published - (Chapter IV)

PHARMACEUTICAL SERVICES

Dr. T. Gangadevi
Sri. Sivasankara Pillai

Medical Officer (in-charge)
Pharmacist cum Storekeeper

1. Central Stores

This section renders quality medicines/equipments, chemicals/reagents and other disposable items for outpatients, inpatients, diagnostic, research and palliative care divisions periodically. Drugs and chemicals are dispensed on weekly requirements.

The central store possess 48 anti cancer drugs, all first and second line of antibiotics, analgesics, anti-pyretic, anti-emetic, anti-histamines, diuretics, laxative drugs and costly disposables like removee suction and cavafix and pain and palliative drugs like morphine sulphate tabs, control released tabs, and liquid morphine. The main functions of central stores are appended below.

- Receipt of all drugs, disposable items, minor equipments, X-ray films/chemicals, laboratory chemicals/ reagents, cleaning materials, clothing for patients/ staff from different suppliers as per purchase orders.
- Receipt/ issue of local purchase items to meet emergent requirements in wards/depts.
- Stock entry as per invoice is made in to the computer stock from time to time.
- Issue of anti-cancer drugs, antibiotics, fluids and other disposable items to pharmacy for patient care service.
- Issue of all drugs/ disposable (except anti cancer drugs) cleaning materials for all wards/ departments through their weekly demand after the perusal of MO /c/ supdt./ authority concerned.
- Proper maintenance of stock and accounts.
- Conducting of stock verification on a monthly basis quarterly by audit authorities and yearly.
- Preparation of all types of indents in time.

Purchase of all drugs and other requirements are mainly through tender system. The requirements will be calculated on the basis of average monthly consumption recorded during the last 12 months. Local purchases are made when required to meet the exigencies of drug. Equipment for a particular period or for a particular case is purchased only after the sanction accorded by supdt/ Addl. Director.

A total of 194 patients received free treatment through the CCL programme, 266 patients received benefit of free treatment through ESI programme.

A morphine-manufacturing unit is commissioned to meet the requirement of palliative care unit. The drug is being issued to all peripheral centers as per the existing regulations. A comparative statement of free issue for the last 3 years is also appended below.

2. Pharmacy

The pharmacy outlet functions daily from 9 am to 4.30 pm. The most noteworthy aspect of this service is the supply of drugs far below the maximum retail price, which is a real blessing to all patients. The difference in cost of drugs ranges from 10-40% in comparison to other medical shops.

PAIN AND PALLIATIVE CARE

Dr. Rachel Cherian Koshy	Associate Professor
Dr. Vasudevan Mappat	Anesthesiologist
Dr. R. Manjula	Resident Medical Officer
Dr. P. T. Latha	Lecturer in Sociology
Ms. Kumary Thankom	Staff Nurse (in charge)

The division is rendering comprehensive palliative care service, consisting of out patient care, counseling, complementary therapies, rehabilitation, volunteer services, social support, and spiritual support. This is carried out with the help of a multidisciplinary team consisting of doctors, nurses, social worker and volunteers.

Pain control and symptom management is a major routine activity. Pain was treated by the WHO step ladder approach based on pain intensity. Interventional pain management including nerve blocks and epidural blocks were performed as and when needed for intractable pain.

Patient statistics	
New patients	2179
Review	6053
Total	8232
Inpatients	
Male	185
Female	236
Total	421
Home visits	100
Lymphoedema management	50
Financial help provided	380

One major development of the division was commencement of a one-year certificate course in palliative care nursing. One candidate has enrolled for the course.

Another major step of progress was the support received from rotary club of Berkeley, USA along with rotary club of Trivandrum to strengthen our endeavors. The rotary project has helped to bridge our deficiencies in furniture, computer etc. A doctor, two nurses, one social worker, one data entry operator and one recreational therapist have been recruited for one year under the rotary project.

Morphine consumption

RCC and its peripheral clinics consumed 15.641 kgs of oral morphine (including 4 kgs supplied to pain and palliative care society, Calicut). RCC has a wide range of morphine preparations – immediate release morphine tablets 10 mg and 60 mg, liquid morphine 2 mg/ml and 5 mg/ml (with the collaboration of college of pharmaceutical sciences). Morphine suppository form has also been successfully formulated for the first time in India by college of pharmaceutical sciences. All the required equipment for the morphine capsule-manufacturing unit has been procured and it is ready to be launched after inspection by drugs controller.

Overseas visitors

1. Dr. Graham Marlin- Palliative care physician from Australia
2. Ms. Sarah Wemyss, Clinical nurse specialist (palliative care) St. Helier hospital, Surrey, UK.

Social support and rehabilitation

Several charitable organisations, non-governmental organizations and individuals have extended their arms of support to help terminally ill cancer patients. Asraya volunteers took turns to visit palliative ward. They offered financial assistance and emotional support to patients. 26 poor children whose education was jeopardized by parent's disease or death are being financially supported regularly (Rs. 250/- per month) to help them complete their education. Several different donors have made this possible. Mrs. Sobha George volunteer, has done the liaison work for this. Sewing machines have been arranged for widowed ladies with no other means of livelihood.

The social wing of RBI has given support for purchase of patient roller for shifting patients.

The Trivandrum club has donated Rs. 50,000/- worth of patient mobility devices.

Atkinson Cooper trust continued to provide financial support for free transportation of poor patients.

Four usable wheel chairs have been donated to palliative care ward by Jerusalem Mar Thoma church, Nanthancode.

Peripheral pain and palliative care service

ECDC, Ernakulam; ECDC, Palakkad; District hospital, Kollam; District hospital, Palakkad; District hospital, Kozhencherry; CSI hospital, Attingal and Karunya Vishranthi hospice, Trivandrum

The staff of palliative care division periodically visit the above peripheral centres. RCC is also supplying morphine to the above centres.

Spadework has been done for starting pain and palliative care service at Karunagapally and Adimali (Idukki district).

Kollath hospital, Trivandrum and CSI hospital, Karakonnai have been designated as "Recognised Medical Institution" for stocking and dispensing oral morphine as a result of training imparted to doctors at those institution at the palliative care centre at RCC, Trivandrum.

Research Activities

Smt. Bindu B, MSc. Nursing student, College of Nursing Trivandrum. Dissertation Work on "Development of an Instructional module for care given in Palliative Care of Cancer patients at home" - Guidance given was given for this work by Dr. Rachel Cherian Koshy.

2. Cost effective methods of delivery of continuous infusion (analgesics for pain control).

Training Programmes Organized

1. One day C.M.E. programmes were conducted on 09-06-2001 and 03-11-2001. Each programme had about 75 participants consisting of doctors, nurses, medical students and volunteers.

2. Five doctors were each given one-month hands on training in pain and palliative care. A handbook "Lecture notes in palliative care" was printed with DHS support.

Conferences/ CME attended

Dr. Rachel Cherian Koshy

1. Invited Lecture, Pain relief and palliative care at cancer control and awareness programme for DHS Doctors (A WHO sponsored programme organised by Community Oncology Division on 27-06-01 and 27-07-01).

Papers published - (Chapter IV)

BLOOD BANK

Dr. P. Jayalakshmi - Resident Medical Officer
Mr. P. Meera Sahib - Senior Scientific Officer

During the reporting year there has been considerable increase in the preparation and issue of blood components such as packed red cells, platelet rich plasma. One blood collection monitor and one calorimeter were installed on August 2001.

Camps and training

1. Blood-grouping camp was conducted on 8.6.01 at VNRA Powdikonam, where 144 people were grouped.
2. Provided two weeks training to 40 BSc MLT students from M.G. University, during December 2001 - March 2002.
3. Training provided to one medical officer, one lab technician and one staff nurse from Malabar Cancer Centre, for a period of 10 days from 11.3.02.

Blood bank statistics

Blood grouping	-	17560
Cross matching	-	6529
Blood donors	-	5255
HIV +ve donors	-	12
HCV +ve donors	-	2
Hbs Ag +ve donors	-	137
VDRL +ve donors	-	8

Components Prepared

Packed red cells	-	4561
Platelet rich plasma	-	4561
Single donor plasma	-	368
Fresh frozen plasma	-	199
Platelet pheresis	-	54

Conference Attended

Dr. P. Jayalakshmi. Attended the 26th National Conference of Indian Society of Blood Transfusion and Immuno Haematology, Bangalore, February 2002.

Papers published - (Chapter IV)

CYTOPATHOLOGY

Dr. B. Chandralekha	Professor
Dr. Elizabeth K. Abraham	Professor
Dr. K. Jayasree	Associate Professor
Dr. Rekha A. Nair	Associate Professor
Dr. Anitha Mathews	Assistant Professor
Dr. Thara Somanathan	Assistant Professor
Dr. Nileena Nayak	Assistant Professor
Dr. K. Raveendran Pillai	Assistant Professor
Dr. K. Lakshminarayanan	Assistant Professor
Dr. S. Lakshmi	Lecturer
Mr. K. Sujathan	Sr. Cytotechnologist
Mr. K. S. Jayalal	Cytotechnologist

I. Diagnostic services

A. Surgical pathology

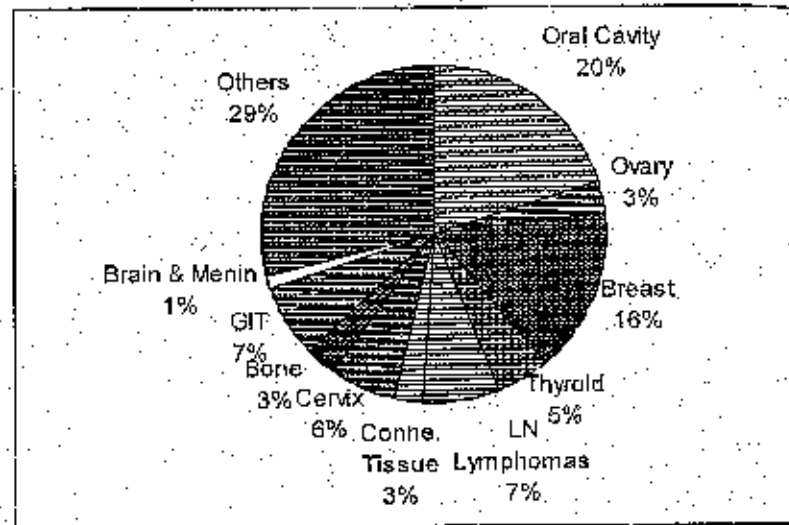
Surgical pathologic examinations were done in 848 cases of which 344 cases specimens were from RCC and 3114 were review cases of patients referred from other hospitals.

A total of 44 malignancies were reported. The predominant sites of malignancy were oral cavity, followed by breast, GIT, lymph nodes, cervix and thyroid. There were 368 cases of lymphomas of which 83 were in extranodal sites.

Immunohistochemical (IHC) staining

In selected cases IHC staining is done routinely to improve the accuracy of diagnosis. Current year 1740 IHC tests were done for 785 cases. IHC staining is also utilized for finding out estrogen (ER) and progesterone (PR) receptor status of breast cancer patients. 774 ER and 540 PR tests were done during the current year. ER and PR status is now included as one of the routine baseline investigations for deciding management in breast cancer patients.

Figure 1. Malignant lesions in major sites: Surgical pathology (n=5454)



B. Cytology

Non-gynaec and aspiration cytology

From a total of 5548 fine needle aspiration specimens, 1757 (31.7%) malignancies were diagnosed. The major sites of aspiration were lymph node (1520), thyroid (1224) and breast (1025). Aspirated samples from lung (326), bone (268) and liver (186) were also received quite frequently.

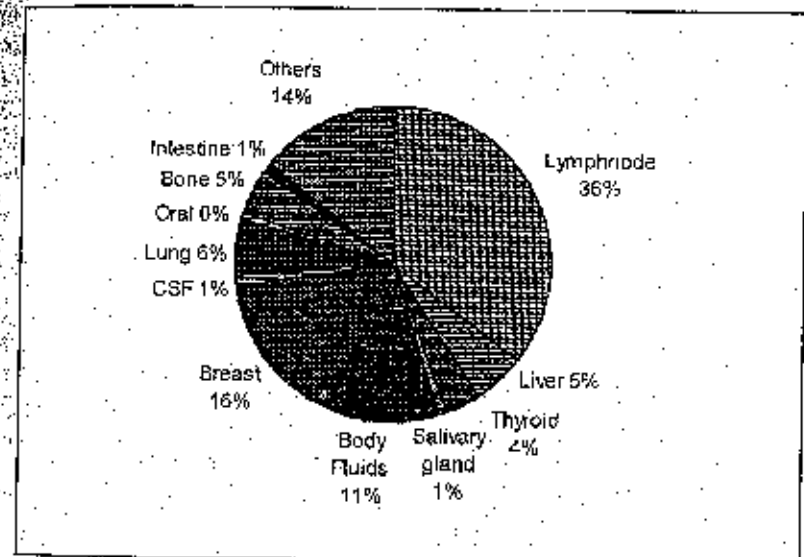
Site wise split up of malignancies is given in Figure 2. Maximum number of malignancies was reported from lymph node 711 (35.4%) of which majority were metastatic -576 cases (81%) and 135 cases (19%) were lymphomas. Next frequent were breast carcinomas - 322 cases (16.01%). Lung 118 cases (5.87%), liver 103 cases (5.12%), and thyroid 77 cases (3.83%) come as less frequent malignancies in the descending order.

Expert opinions on FNAC smears are given to other peripheral centers like Natural Background Radiation Registry (NBRR), Karunagapally and various Early Cancer Detection Centers of RCC. 227 cases of FNAC smears of NBRR were reported, of which 12 cases (5.3%) were malignant.

Fluid cytology

Out of 1705 samples of aspirated fluids from various body cavities and natural secretions examined, 753 (44%) were cerebrospinal fluid. 254 cases (14.9%) of the fluid samples were malignant, out of which 231 cases (91%) were from body fluids and 23 cases (9%) were from CSF sample.

Figure 2. Non-Gynaec & Aspiration Cytology (n=2011)



Gynaec Cytology

Cervical smears were examined for 7595 cases; of which 7149 were from various projects of IARC, UNFPA and NBRR. 194 cervical intraepithelial neoplasias (CIN) were reported (CIN I - 142, CIN II - 18, CIN III - 34). Out of the 42 cases of malignancy reported, 31 were squamous cell carcinoma, 9 were adenocarcinoma and 2 were poorly differentiated carcinomas. ASCUS (atypical squamous cells of undetermined significance) and AGUS (atypical glandular cells of undetermined significance) were reported in 10 and 8 cases respectively. Second opinion on cervical smears was given to various ECDCs of Kollam & Kozhencherry.

Technical support for Pap smear test

Technical expertise in Pap smear is being given to cytology laboratories at Kannur, Kasargod and Wayanad. One day training was given for 33 Junior Public Health Nurses and Medical Officers as part of Trivandrum Corporation Cervical Cancer Control project.

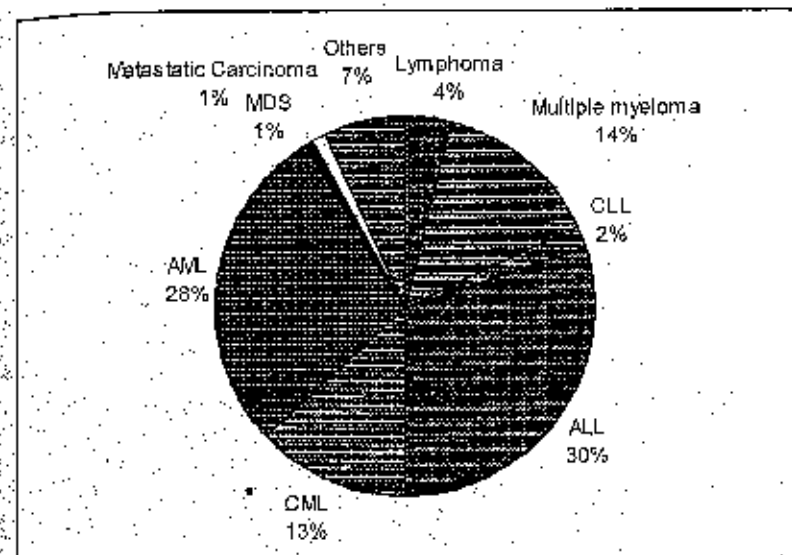
Sputum Cytology

During the reporting year sputum samples from 1092 cases were examined. Two smears from three to five consecutive samples from each case were studied. A total of 78 malignancies were reported, of which adenocarcinoma was the predominant type as in the previous years (40 cases) followed by squamous cell carcinoma (13 cases). Rest of the less frequent types includes small cell carcinoma (6), non-small cell carcinoma (15) and Adenosquamous carcinoma (2).

C. Haematopathology

Materials studied included 2578 bone marrow aspirates and imprints, 783 blood smears and 187 slide reviews. There were 507 malignancies - most common were acute leukemias (335) ALL-170, AML-165. Special stains for typing leukemia include myeloperoxidase, PAS, Non-specific esterase, LAP, chloroacetate esterase. Immunophenotyping were done on 111 slides (CD7, CD19, CD33).

Figure 3. Hematological Malignancies (n=507)



II. Academic and teaching programmes

The division conducted teaching sessions and participated in the routine case discussions, monthly special clinics, tumor board meetings and other postgraduate teaching programmes of the center. Weekly slide discussion sessions and journal clubs are conducted in the division to update the knowledge.

Full time cytotechnician and cytotechnologist training courses of 6 months and one-year duration respectively was included as part of manpower generation in cancer control activities. This division is accredited by the Indian Academy of Cytologists (IAC) for diagnostic and examination purposes.

Participated in the clinicopathologic correlation meetings of neighbouring centers like SCTIMST, Medical College- Gynaec Medicine and Pathology Departments.

Detailed theory and practical teaching of cytopathology is given on a regular basis to BSc MLT students from MG University. Practical training both on slide reading and techniques is given to MD

pathology students from Kottayam & Calicut and also oral pathology postgraduates from Dental College, Trivandrum.

Conferences/ workshops/training organized

1. Conducted National Workshop on 'Quality assurance in Pap smear' sponsored by WHO and directorate general of health services, Govt. of India, 12-15 September 2001. 50 participants including pathologists and cytotechnologists from Kerala, Tamil Nadu and Karnataka attended the workshop.
2. Under a WHO fellowship, 6 months training was given to one cytotechnologist from Royal Hospital, Muscat, Sultanate of Oman.

IV. External quality control (EQC) programme

As part of the Trivandrum cervical neoplasia early detection study, a collaborative programme on EQC on cytopathology was conducted between RCC and IARC-Lyon, France, from 25th-30th June 2001. Dr. L. Frappart and Dr. B. Fontaniere pathologists were the experts from IARC. Slides from RCC Cytopathology were reviewed at IARC, Lyon and interesting cases were discussed. Proportional re-screening of randomly selected cervical smears were done by the experts. Histologic and colposcopic findings were correlated with the Pap smear findings.

V. Ongoing research projects

1. **Adjuvant tamoxifen in breast cancer -Longer against shorter.**
Funding agency: Clinical Trial Services Unit, Oxford, UK
Co-investigator Dr. Elizabeth.K.Abraham.
2. **Nasopharyngeal carcinoma with special reference to oncogenes and tumor suppressor genes.**
Funding agency: Indian Council of Medical Research, New Delhi
Co-investigator Dr. Jayasree.K.

Cell surface changes in leukemia cells -study using plant lectins.

Funding agency: STEC, Govt. of Kerala
Co-investigator Dr. Rekha.A.Nair.

Expression of plant lectins in malignant tumours.

Funding agency: Indian Council of Medical Research, New Delhi
Co-investigator Dr. Rekha.A.Nair.

Trivandrum oral cancer screening study

Funding agency: IARC, Lyon and AICR, UK.
Co-investigators Dr. Elizabeth.K.Abraham &
Dr. Thara Somanathan.

Comparative evaluation of visual inspection with acetic acid, visual inspection with Lugol's iodine, and cytology of uterine cervix, using HP as the gold standard.

Funding agency: IARC, Lyon.
Co-investigator Dr. Thara Somanathan.

Comparative evaluation of VIA, VILI, HPV testing and colposcopy

Funding agency: IARC, Lyon.
Co-investigator Dr. Thara Somanathan.

Identification of markers for biological grading of malignant lesions in the bronchopulmonary mucosa

Funding agency: STEC, Kerala
Principal Investigator: Dr. Raveendran Pillai

Isolation of a plant lectin correlation of the tissue binding properties of the plant lectin with that of animal lectin (Galectin-1&3) and evaluation of its significance as a diagnostic and prognostic marker.

PhD programme of Mr. Sujathan.K.

10. A multicentre case-control study of breast cancer in India comparing rural and urban women.

Funding agency: IARC, Lyon.

Co-investigator

Dr. Anita Mathews

8. **Mandibular invasion by oral squamous cell carcinoma. A histopathological assessment with clinical and radiological, correlation** Thesis submitted to the University Kerala by Dr. Sheima R Das, post graduate student, Dept. of Pathology, Medical College, Trivandrum
Co-guide Dr. Anita Mathews

Conferences/ Workshops attended

Dr. Elizabeth. K. Abraham

1. Guest Speaker, "Pitfalls in the diagnosis of ovarian neoplasms" at challenges in Surgical Pathology - The III National CME in surgical pathology at Tirunelveli medical college, July, 2001.
2. Guest Speaker "Cytoscreening and evaluation of Pap Smear at quality assurance in Pap smear -orientation training workshop in cytopathology", sponsored by WHO & DGHS, Govt. of India at RCC, Trivandrum, in Sept., 2001.
3. Guest Speaker, "Diagnostic measures -cytological and histopathological" at Oncology Nursing -A challenge for nurses sponsored by AOOHS, Govt. of India. March, 2001 at RCC, Trivandrum.
4. Guest Speaker, The Pathology of ovarian tumours at gynaecology tumour board meeting at SAT Hospital, Trivandrum. in October 2001.
"Pathology of breast cancer" presented at the symposium on cancer breast at KASICON -South Zone. Conference of association of surgeons of India, Tamil Nadu & Pondychei Chapter at Nagercoil in Feb. 2002.
6. Seventh international CME & update in surgical pathology, Rajiv Gandhi Convention-Centre, Kovalam, Trivandrum, Jan 7-9th, 2002
7. Indian association of pathologists and microbiologists, Kerala Chapter Meeting at SCTIMST, Trivandrum in Oct. 2001.

Dr. Jayasree. K.

1. IAPM Kerala Chapter at SCTIMST, Trivandrum. October 2001.
2. Workshop on gynaecologic cytopathology and colposcopy at Hyderabad, Nov. 3rd 2001.
3. 7th International CME and update in surgical pathology at Kovalam, Trivandrum, Jan. 2002.
4. Faculty member in orientation training workshop on cytopathology- Quality assurance in Pap smears sponsored by the WHO and directorate general of health services held on, at RCC, Trivandrum 12 to 15 September 2001.
5. Faculty member in the panel discussion on malignant small round cell tumors at Medical Oncology CME 2002 at Trivandrum, 20th January 2002.
6. Presented 3 interesting cases of ovarian tumours in the 3rd National CME in Surgical Pathology at Tirunelveli, July 2001.
7. Leydig cell tumor of the testis -Diagnosed by aspiration cytology- at 31st Annual conference of the IAC at Hyderabad, November 2001.

Dr. Rekha. A. Nair

- Faculty -Medical oncology CME 2001, Amala cancer center, Thrissur, presented paper on acute leukemia - pathology, July 28th 2001.
- Faculty -ovarian tumors -National surgical pathology CME Thirunelveli Medical College, June 2001.
- Faculty -WHO orientation workshop on "Quality assurance in Pap smear", RCC, Trivandrum. Topic: Automated rescreening in cervical cytology 12th -15th September 2001.
- Faculty -FNAC of head and neck lesions -7th International CME and update in surgical pathology, Kovalam, Trivandrum 6-9 January 2002.
- Invited lecture -on Pathology of lymphomas -Dept. of Pathology, Medical College, Trivandrum. -February 1st 2002.

Dr. Anitha Mathews

1. IAPM Kerala Chapter -SCTIMST, Trivandrum, October 2001.
2. Rare and interesting ovarian tumours challenges in surgical pathology -Medical College, Thirunelveli, June 2001.
3. Faculty, External quality control measures: proficiency testing, Role of professional bodies in quality assurance' - Quality assurance in Pap smear. Orientation training workshop in cytopathology (sponsored by WHO & DGHS), RCC, Trivandrum, September 2001.
4. Faculty, Soft tissue sarcomas (panel discussion) -Association of surgeons of India -Annual CME, Calicut, Kerala November 2001.
5. FNAC of head and neck lesions -discussion of interesting cases, 7th international CME and update in surgical pathology - Kovalam, Trivandrum January 2002.

Dr. Thara Somanathan

1. Faculty in the WHO sponsored training programme for medical officers on awareness and early detection of cancer. Organized by the dept. of community oncology, RCC, Trivandrum. in June and July 2001.
2. Faculty in the orientation training workshops on quality assurance in Pap smear, sponsored by WHO and DGHS, RCC, Trivandrum, September 2001.
3. IAPM Kerala Chapter, SCTIMST- Trivandrum, October 2001.
4. CME on cervical precancers in TMH, Bombay, October 2001.
5. Cytology of bone and soft tissue lesions, Workshop on gynaecologic cytopathology and colposcopy, 31st IAC Conference, Hyderabad, November 2001.
6. 7th International CME and update in surgical pathology, Trivandrum, January 2002.

Dr. Raveendran Pillai

1. Joint organizing secretary and faculty of the WHO sponsored workshop on, 'Quality assurance in Pap smear', Regional Cancer Centre, Trivandrum, September 12th to 15th, 2001.
2. Participated in the Australian external quality assurance programme in cytopathology at Royal Hospital, Muscat, Sultanate of Oman, January 5th & March 2nd, 2001.
3. Internal quality control measures: Laboratory protocol. WHO sponsored workshop on 'Quality assurance in Pap Smear', Regional Cancer Centre, Trivandrum, September 12th to 15th, 2001.

Dr. K. Lakshminarayanan

1. Faculty member of the workshop "Quality assurance in Pap smear" conducted -by RCC in September 2001.
2. CME on cervical precancers held at Tata Memorial Hospital, Mumbai, October 2001.
3. Written a laboratory manual on histotechnology and is in use in the laboratory as reference manual.

Dr. S. Lekshmi

1. Member, organizing committee for workshop on "Quality assurance in Pap smears" organized by WHO and DGHS. September 2001.

Mr. K. Sujathan

1. Faculty member workshop on Quality assurance in Pap smear conducted on 12th -15th September 2001.
2. Editor, handbook on quality assurance in Pap smear.

Mr. K.S. Jayalal

1. Participated in the external quality control programme on cervical cytology: A collaborative programme between Regional Cancer Centre and the International Agency for

Research on Cancer and Chitharanjan National Cancer Institute, Kolkotta, April- May 2001.

2. Participated in the external quality control programme; A collaborative programme between Regional Cancer Centre and the International Agency for Research on Cancer, at RCC, Trivandrum, 24 to 30, June, 2001.
3. Organizing committee member and faculty of the WHO sponsored workshop on Quality assurance in Pap smear, Regional Cancer Centre, Trivandrum, September 12th to 15th 2001.

Mr. K.S.Mani

1. Participated in the external quality control programme on cervical cytology; A collaborative programme between Regional Cancer Centre and the International Agency for Research on Cancer and Chitharanjan National Cancer Institute, Kolkotta, April- May 2001.
2. Participated in the external quality control programme; A collaborative programme between Regional Cancer Centre and the International Agency for Research on Cancer at RCC, Trivandrum, 24 to 30, June, 2001.
3. Organizing committee member and faculty, WHO sponsored workshop on quality assurance in Pap smear, Regional Cancer Centre, Trivandrum, September 12-15, 2001.
4. Participated on CME on cervical pre-cancer, Tata memorial centre, Mumbai, 5th and 8th October 2001.

Papers published - (Chapter IV)

DIVISION OF IMAGEOLOGY

Dr. K. Ramachandran	-	Professor
Dr. A.S. Krishnakumar	-	Associate Professor
Dr. M. Venugopal	-	Lecturer
Dr. Bimalkumar	-	Lecturer

Diagnostic investigations done during the period under report are as follows:

Plain X-ray	15127
Special investigations using X-rays	149
Mammography	1524
CT scan	5455
CT & guided procedures	312
Ultrasound	7409
Doppler studies	152

Academic Activities

Six weeks training in ultrasonography for post graduate degree/diploma holders continued this year and 5 candidates completed the training. Three candidates from World Health Organization attended the training programme. Teaching of undergraduates and post graduates on basic principles of modern imaging techniques continued. The film reading sessions every day morning and the monthly meeting of Trivandrum radiology club provided opportunities for discussion of interesting and problematic cases for diagnosis. We added several more interesting and rare cases to our film library.

Conferences/Workshops/ Awards/ Honors

Dr. K. Ramachandran

1. Appointed as examiner by the Tamil Nadu Dr. M.G.R Medical University, Chennai for MD & DMRD examinations held from at Madurai Medical College, Madurai 10th to 12th April 2001.
2. Faculty in postgraduate medical entrance coaching classes conducted by the Indian Medical Association, Kerala State, Trivandrum Branch, 2001.

3. Faculty member in training programme for medical officers of Kerala health services in ultrasound scanning, 15-17th October 2001 and 10th to 12th January 2002.
4. The radiological spectrum of Langerhans cell histiocytosis. Annual state conference of IRIA, and update on medical imaging, under the auspices of Dept. of Radiodiagnosis, Medical College Calicut, Calicut Radiology Club and Indian Radiological and Imaging Association Kerala chapter, Calicut 5th and 6th May 2001.
5. Advances in bone tumours – Medical oncology CME 2001 and update on malignant bone tumours with live surgical workshop on limb salvage, Amala Cancer Hospital, Thrissur Kerala, 28 – 29th July 2001.
6. Imaging in paediatric malignancies, Golden Jubilee CME in radiodiagnosis, October 2001, jointly organized by Dept. of Radiodiagnosis, Medical College, Trivandrum, IR & IA Kerala and Trivandrum Radiology Club at Trivandrum, 14th October 2001.
7. Panelist in "Early Breast Cancer" in KASICON 2002, South Zone meet of Association of surgeons on India at Kanyakumari, Tamil Nadu, 27th February 2002.
8. Medical oncology CME 2002, conducted by Kerala medical oncologists association, Achutha Menon Centre, Trivandrum 20th January 2002.
9. Imageology update clinics conducted by Dept. of Imageology, SUT hospital, Trivandrum, 17th February 2002.

Dr. A. S. Krishnakumar

Faculty member, training programme for medical officers of Kerala health services in ultrasound scanning, held at W & C hospital, Trivandrum 15th - 17th October 2001 and 10th - 12th January 2002.

Dr. M. Venugopal

1. Approach to diagnose bone tumor, Imageology update clinics, conducted by the department of imageology, SUT hospital, Trivandrum, February 2002.

2. Faculty member, training programme for medical officers of Kerala health services in ultrasound scanning, W&C hospital, Trivandrum 15-17 October 2001 & 10-12 Jan. 2002.

Dr. Bimal Kumar

1. Golden Jubilee CME in radiodiagnosis, organized by Dept. of Radiodiagnosis, Medical College, Trivandrum, IR & IA Kerala and Trivandrum radiology club, 14th October 2001.
2. MRI review course, Mumbai.
3. Radiology of extradural compression – palliative care conference, RCC, Trivandrum.
4. Radiology of posterior fossa tumours – imaging update clinic, SUT, Trivandrum.
5. Ultrasonography training programme for medical officers of Kerala health services, October 2001.

Mr. P.P. Prasad

International conference and CME on radiological protection of patients using ionizing radiation, S.G.P.G.I, Lucknow, 22nd to 23rd March 2002.

Mr. S. Pradeep

1. Kodak radiology education service workshop, Trivandrum, July 2001.
2. 1st Asia Pacific conference on radiology technologists New Delhi, October 12-15, 2001.

Papers published - (Chapter IV)

NUCLEAR MEDICINE

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

Associate Professor
Assistant Professor

The work in the 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 center in the state that provides high-dose therapy using radioactive sources. The in-vitro assay section was the first of its kind to start functioning in the state. Now the assay section caters to more than 40,000 patients annually.

Thyroid clinic

The major part of the work 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 radioactive iodine therapy. 10033 cases attended the thyroid clinic as new cases with direct referrals and follow-up cases. These were primarily thyroid cancers and thyrotoxicosis. The other cases were referred for various investigations such as thyroid function tests, thyroid uptake and scan. The commissioning of the new ultrasound machine has further improved the patient care provided.

Table 1- Breakup of thyroid investigations

Thyroid Scans + Uptake	5082
Thyroid Ultrasound	1149
Thyrotoxicosis	108
Ca Thyroid	448

Thyroid scans are done with radioiodine ($I-131$), technetium ($Tc99m$). Large dose, whole body radioiodine scans are done for thyroid cancers. Both rectilinear scanner and gamma camera are used for thyroid scanning. An ECIL uptake system is used for thyroid uptake studies.

Immunoassay

Performed 43336 assays of thyroid hormones, tumor markers and miscellaneous assays (Table 2). These included cases for thyroid evaluation, tumor markers, and other assays.

Table 2- Breakup of immunoassays (n=43336)

TG	7734
FSH	7810
LH	7889
TESTOSTERONE	6189
PROGESTERONE	1309
ACTH	1864
PTH	1989
CA-125	828
PSA	828
IGG	837
IGM	837
IGG	165
CORTISOL	150
GH	183
TESTOSTERONE	106
17-OH PROGESTERONE	2192
TG	378
FSH	336
LH	489
PRL	584
PSA	536
PTH	57
ACTH	40
CALCITONIN	

Imaging - (Gamma Camera)

The division has a Siemens gamma camera, Basicam model with a microdelta computer. This equipment is used for static and dynamic scintigraphy. Bone scans for cancer patients forms the main work on this instrument. Dynamic renal studies including paediatric

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 carcinoma thyroid using $^{99m}\text{Tc(V)}$ -DMSA was started. ^{131}I -MIBG scanning for medullary carcinoma thyroid has also been started. Radionuclide scans done in the gamma camera are shown in Table 3.

Table 3- Breakup of work in the gamma camera

Bone	905
Renal	185
Liver	19
Meckel's	11
$^{99m}\text{Tc(V)}$ -DMSA	45
^{131}I -MIBG	2

Radionuclide therapy

Radioiodine therapy is routinely given for thyrotoxicosis and thyroid cancers. 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}Sr .

Conferences/ Workshops/ Training

Dr.V.M.Pradeep

1. Radioisotopes in hematological malignancies, Association of Medical Oncologists, Kerala 2001.
2. Invited lecture, Radioisotopes in healthcare. Organized by the public awareness, Division of BARC, Nagercoil, 7-February, 2002.

Dr.A.Sreekuinar

Retrospective analysis of ^{99m}Tc -MDP bone scans findings in primary bone tumors-RCC experience, SNM Annual conference, NewDelhi, December 12-15, 2001.

Papers published - (Chapter IV)

RADIATION PHYSICS

Dr.V.Padmanabhan	Professor (Retired on 31-01-2002)
Dr.Raghu.Ram.K.Nair	Associate Professor
Sr.C.A.Davis	Associate Professor
Sri.Thayal.Singh.Elias	Assistant Professor
Sr.P.Raghu.Kumar	Assistant Professor
Sr.B.Saju	Lecturer
Sri.Giri.Purushothaman	Lecturer in Electronics Engineering

Routine activities

- 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 equipment
- Intraoperative, intraluminal and mould brachytherapy using microselectron HDR

A new teletherapy machine Elite 80 from M/s Theratronics Ltd was installed and commissioned in November 2001.

Patient statistics

External Beam Radiotherapy	7573
Brachytherapy	1262
Conventional	
Interstitial Implantation	48
Mould	8
Selectron LDR	92
Microselectron HDR	1114
Gynaec	861

	Esophagus	166
	Soft tissue sarcoma	51
	Mould	35
	Anal canal	1
Simulator		4667
Mould Room		
	Orfit Shell	568
	Thermocol -Head Rest	174
	-Face Rest	31
	-Leg Rest	1
	-Spine Rest	1
	Mantle Block	2
	Bite Block	294
	Wax Bolus	94
	Penis Mould	3
	Scalp Mould	2
	Total	1170

Academic activities

Classes were conducted in medical physics and practical training imparted to the following categories of students:

Diploma in Radiological Technology (DRT); B.Sc. MLT; DMLT; B.Sc. Nursing; M.Sc. Nursing; MBBS; DMRT; DMRD; MDS (Oral Radiology); MD Radiotherapy; MD & Dip NB (Radiodiagnosis).

Training Program Organized

Three months refresher program in imageology /nuclear medicine and radiotherapy for radiographers started in 1994 has covered 110 trainees in imageology /nuclear medicine and 24 trainees in radiotherapy till March 2002.

Research projects completed

1. **Standardization of treatment plans for the treatment of cancer of cervix using microselectron HDR** - Ms Bindhu J.G. and Ms. Lethy K.J. Department of Physics, Kerala University.
Supervising Guides: Sri Saju B, Sri Raghukumar P, and Dr V.Padmanabhan
2. **Micro controlled gamma meter for monitoring gamma dose rate levels in teletherapy machines** -Sri Manesh G, Department of Electronics, Bharathiar University.
Supervising guide: Sri. Giri Purushothaman
3. **Dose measurements in patients undergoing diagnostic X-ray examinations including special investigations** (Funded by AERB Mumbai).
Principal Investigator: Dr Raghu Ram K.Nair
Co-Investigators: Dr V.Padmanabhan & Dr M.Krishnan Nair

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. **Dosimetry of early head and neck cancers, mantle field treatment and cervical cancer with special reference to radiation protection.**
(Funded by: AERB Mumbai)
Principal Investigator: Sri T.S.Elias
Co-Investigator: Dr V.Padmanabhan, Sri C.A.Davis
3. **Development of indigenous after-loading brachytherapy unit (Qri) in the treatment of Ca Cx.**
(Funded by: Dept. of Science & Technology, New Delhi and RCC, Trivandrum)

Principal Investigator: Sri T.S.Elias.

Co-Investigators: Dr. V.Padmanabhan, Sri C.A.Davis, and Dr. M.Krishnan Nair

4. **Fabrication of beam direction device for external beam therapy.**

(Funded by: STEC, Govt of Kerala)

Principal Investigator: Sri T.S.Elias

Co-Investigators: Dr. V.Padmanabhan, Sri C.A.Davis, and Dr. B.Rajan

5. **Development of indigenous software controlled remote afterloading micro high dose rate system in brachytherapy.**

(Funded by DST, New Delhi)

Principal Investigator: Sri T.S.Elias

Co-Investigators: Dr. V.Padmanabhan, Sri C.A.Davis, and Dr P.G.Jayaprakash

Meetings Organized

1. CME/Workshop – Quality assurance and safety (QuAS) of treatment planning systems in radiotherapy- Regional Cancer Centre and Association of Medical Physicists of Kerala
2. 7th Dr TPR memorial oration on 9th Dec 2001 organized by RCC & KAMP at RCC.

Awards/Honours/Fellowship/Nominations/Training/ Conferences/ CME

Dr.V.Padmanabhan

1. MD/DMRD (Radiodiagnosis) examiner – University of Kerala 2000-2001
2. President KAMP, 2000-2002.
3. Member, Scientific program committee, International conference on Med Physics, ICMP, BARC, 26-29 Nov 2001.
4. Board of studies member in M.Sc. medical physics, Faculty of health sciences, University of Calicut.

Dr Raghu Ram K.Nair

1. Faculty member for workshop on ultrasound training for doctors in DHS, Govt of Kerala, 15-10-2001, 10-01-2002.
2. Organizing secretary, CME/Workshop – Quality assurance and safety (QuAS) of treatment planning systems in radiotherapy – Regional Cancer Centre, 9th December 2001.
3. Review meeting, High natural background radiation areas of the world, Organized by health research foundation, Japan, 12-16 July 2001.
4. Annual meeting of association of medical physicists of Kerala (KAMP) and CME held at RCC on 9 Dec 2001.
5. Dr T.P.Ramachandran memorial orations (1995-2001): Compiled & edited by Dr. V.Padmanabhan, Dr. G.Ramakrishnan & Dr Raghu Ram K.Nair.
6. Edited, Proceedings of the CME on quality assurance and safety of treatment planning systems held on 9th Dec 2001.
7. Invited talk, Radiation and cancer, National service scheme, Kerala University, Annual camp, Dec 24, 2001.

Sri.C.A.Davis

1. Examiner for MD (Radiotherapy) /DMRT/DMRD of TN Dr.MGR Medical University, Chennai.
2. Board of studies member, M.Sc Medical Physics, Faculty of health sciences, University of Calicut.
3. Annual meeting of Association of medical physicists of Kerala (KAMP) and CME held at RCC on 9 Dec 2001.
4. CME in Oncology organized by MCH, Thrissur and AROI, Kerala on 18 Feb 2002.

Sri T.S.Elias

1. Paper presented, Indigenous remote after loading system – Ori. International conference on medical physics & radiation safety, Mumbai, 26-29 Nov 2001.

Sri P. Raghukumar

1. Examiner, B.Sc MRT, M.G. University, Kottayam.
2. Member, Pass board of B.Sc MRT, M.G. University, Kottayam.
3. Annual meeting of Association of Medical Physicists of Kerala (KAMP) and CME held at RCC on 9 Dec 2001.
4. Demonstration of the Plato Planning System in the CME program on Quality Assurance & Safety of TPS Dec 9, 2001.
5. CME Program in Oncology organized by MCH, Thrissur and AROI, Kerala on 17 Feb 2002.
6. Demonstration of the working of RT equipment to the participants of State level training program in Oncology Nursing for Regd. Nurses Feb 11-21, 2002.

Sri Giri Purushothaman

1. Annual meeting of Association of Medical Physicists of Kerala (KAMP) and CME held at RCC on 9 Dec 2001.
2. Workshop on Telemedicine in Oncology organized by WHO Ministry of H&FW, Govt of India and RCC on 21-22 Dec 2001.

Sri B. Saju

1. Annual meeting of Association of Medical Physicists of Kerala (KAMP) and CME held at RCC on 9 Dec 2001.
2. Demonstration of the Plato Planning System in the CME program on Quality Assurance & Safety of TPS Dec 9, 2001.
3. Demonstration of the working of RT equipment to the participants of State level training program in Oncology Nursing for Regd. Nurses Feb 11-21, 2002.

Papers published - (Chapter IV)

EPIDEMIOLOGY AND CLINICAL RESEARCH

D. Aleyamma Mathew

Assistant Professor of Statistics & Epidemiology

M. Padmakumary Amma G

Lecturer in Biostatistics

D. Kalavati M C

Lecturer in Epidemiology

The division is in charge of cancer registries (Hospital-based cancer registry, Regional Cancer Centre, Trivandrum and Population-based cancer registry, Trivandrum), conducts epidemiological and clinical research studies and organizes cancer-screening programmes. This division is the nodal point for planning, implementation and evaluation of cancer control programmes and provides statistical consultancy for various ongoing research projects at the hospital. Teaching and training programmes on cancer registry operations and epidemiologic methods are held regularly for undergraduate and postgraduate students from medical and paramedical sciences within and outside the campus.

Cancer Registries

1. Hospital Cancer Registry, Regional Cancer Centre, Trivandrum

(Partially funded by: Indian Council of Medical Research, New Delhi)

A total of 7316 patients were reported during the year 1999. The distribution of cancer patients with respect to site, age and sex are given in Tables 1 & 2. The male: female ratio was 1.1: 1. The age distribution of males and females are shown in Figure 1. The peak age in males was observed in 7th decade and females in the 6th decade. The system wise distribution of cancer cases is shown in Figure 2. The ten leading sites of cancer in men and women are shown in Table 3. The commonest site of cancer was lung among males and breast among females.

2. Population Based Cancer Registry, Trivandrum

(Funded by: Cancer Society of Finland)

The registry provides data on cancer incidence and mortality covering a population of 1.17 million in the Trivandrum Corporation

(urban population) and adjoining three Community Development Blocks (rural population) as on January 1999. The crude, age-adjusted and truncated incidence (35-64 years) rates for all sites for urban and rural population are given in Table 4. Table 5 provides the five leading sites of cancer in men and women for urban and rural populations respectively. The data for the years 1993-1997 has been published in the 'Cancer Incidence in Five Continents', IARC, WHO.

3. Population-based Cancer Registry, Kannur

(Funded by: UNFPA)

A population based cancer registry to assess the cancer incidence and mortality was initiated in collaboration with the Department of community medicine, Medical College, Panyaram. The registry area includes Kannur Taluk (Kannur district), Hosdurg Taluk (Kasargod district) and Manathavadi Taluk (Wayanad district) with a total population of 1.3 million. To identify cancer cases in the above areas, enumerators regularly visit Regional Cancer Centre, Trivandrum; Medical college, Calicut; Medical College, Manipal and various other hospitals, diagnostic centers and pathology labs in the private and public sectors as well as vital statistic offices of various panchayats in the study area. The project is part of the ongoing cancer control programme in the northern districts of Kerala supported by the UNFPA.

Epidemiologic research projects

1. Case-control study of breast cancer in south Asia comparing rural and urban women (Collaborators: International Agency for Research on Cancer, Lyon, France)

Investigators at RCC: Principal Investigator (s): Dr. Aleyamma Mathew and Dr. B Rajan

Co-investigator (s): Dr. Paul Sebastian and Dr. Anita Mathews

2. Molecular Epidemiology of Paediatric Leukaemia and Lymphoma in Kerala, India

(Collaborators: University of Leeds, UK)

Investigators at RCC: Dr. Cherian Varghese, Dr. P. Kusuma Kurnari

Cancer ATLAS in India

(Collaborators: National Cancer Registry Programme, Technical wing supported by WHO)

Investigators at RCC: Dr. M. Krishnan Nair, Dr. Aleyamma Mathew

Clinical research programmes

1. End Result and Survival after Cancer Treatment

This study is to assess the effectiveness of a given treatment, as measured by cause specific and disease free survival, to understand the biological behaviour of tumours and to plan further prospective clinical research. This project will provide a summary index of the efficacy of the existing treatment modalities for various types of cancers which will help not only in optimising treatment and to improve survival of cancer patients, but will also help in planning future clinical research programmes.

2. OncoNET in Kerala

(Collaborator: Electronic Research and Development Centre of India, Trivandrum)

The cancer registry data abstraction and retrieval have been made online via intranet with easy data management. This is the first paperless registry in the country. Medical documentation of case sheets in electronic form has been started at the RCC. Diagnostic, treatment and follow-up details are documented through the website www.onconetkerala.org. This helps clinicians and other researchers to more easily obtain the necessary information.

Screening programmes

1. Cervical Cancer Control Programme in Northern districts of Kerala

(Funded by: UNFPA)

The cancer control programme in northern districts of Kerala is continuing. Training on early cancer detection and management were provided to 16 medical officers, 327 junior public health nurses, 117 junior health inspectors, 30 other senior paramedical staff, and

480 anganwady workers by Dr. Kalavaty. Various pamphlets were supplied. A video film on cancer control programme was developed. Around 300 cancer awareness programmes and 250 cancer detection campaigns were conducted in three districts and nearly 14,000 women were screened for cervical, breast and oral cancers. Twenty seven cases of CIN II, 47 cases of CIN III, 3 uterine cervix cancers and 3 breast cancers were detected. Cervical pre-cancers are subjected to colposcopic biopsy and cryotherapy or hysterectomy. Cancer patients were referred to medical college, Calicut or Regional Cancer Centre, Trivandrum.

2. District Cancer Care Centre, Kozhencherry, Pathanamthitta

Patients from the District Hospital are using the much needed laboratory services established as part of this programme. Follow-up clinics are conducted monthly by RCC specialists.

3. Cancer control programme, Trivandrum (Founded by: The Trivandrum Corporation)

Initiating a community based cancer control programme in the Corporation area. Health workers and other related personnel in different parts of the Trivandrum Corporation have received cancer control training.

OTHER ACTIVITIES

1. Statistical consultancy for various research projects ongoing at RCC
2. Providing hospital statistics for activities related to patient care and research

Awards/ Nomination/ Fellowship/ Conferences/ Workshops

Dr. Aleyamma Mathew

1. Worked as a Post-doctoral visiting Scientist, at the Nutritional Epidemiology, Division of Cancer Epidemiology and Genetics, National Cancer Institute, April 2000-July 2001.
2. Received Prof. B G Prasad award for the best-published work related to Epidemiology, by the Indian Society for Medical Statistics, Indian Council of Medical Research, New Delhi.
3. Presented a paper on Global increases of kidney cancer incidence 1973-92. Annual meeting of Indian Society for Medical Statistics, Lucknow, December 2001.
4. Invited talk. Past, Present and Future role of Hospital Cancer Registry, Trivandrum. Cancer Registry annual review meeting, National Cancer Registry Programme, Indian Council of Medical Research, New Delhi, November 2001.
5. Case-control study of Breast Cancer Study meeting, Kolkata, February 2002.

Dr. M.C Kalavathy. Attended Cancer Atlas meeting, Bangalore, August 2001.

Dr. Padmakumary Amma. Attended Cancer Atlas meeting, Bangalore, August 2001.

Papers published - (Chapter IV)

Table 1: Hospital Cancer Registry, Regional Cancer Centre - Trivandrum : 1999
Number of Cancer by Cases Age and Site --- Males

ICD10 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 LIP							1		3	1	2		3	2	6	18	0.47	
C01 BASE OF TONGUE								3	3	5	7	11	5	6	4	44	1.15	
C02 TONGUE				1	2	4	8	14	31	31	28	20	19	10	21	189	4.93	
C03 GUM		1				1	1	4	7	9	10	12	18	4	9	74	1.93	
C04 FLOOR OF MOUTH						2	2		8	4	14	8	3	5		44	1.15	
C05 PALATE						1	2	3	3	3	5	6	10	4	3	40	1.04	
C06 OTHER MOUTH							5	12	18	25	31	37	32	15	22	197	5.13	
C07 PAROTID GLAND		1	1		1		1	1	2	4	3	5	1	1	1	22	0.57	
C08 SALIVARY GLAND								2	2		1		3	1	1	10	0.26	
C09 TONSIL						1	1	2	7	4	3	2	4	4	4	32	0.83	
C10 OROPHARYNX						1	2	5	7	10	11	13	11	8	7	75	1.95	
C11 NASOPHARYNX		2	3			1		3	3	3	5	2	3			25	0.65	
C12 PYRIFORM SINUS						1	3	2	2	7	21	7	7	6	3	59	1.54	
C13 HYPOPHARYNX							3	4	8	12	15	7	10	6	4	69	1.80	
C14 PHARYNX ETC.							1	1	1	1	2	1	1	4		12	0.31	
C15 OESOPHAGUS						1	5	6	15	27	35	33	42	22	18	204	5.32	
C18 STOMACH				2	2	3	2	10	13	18	20	28	24	22	12	154	4.01	
C17 SMALL INTESTINE												1	1			2	0.05	
C18 COLON					1	3	2	1	8	7	5	8	8	6	1	50	1.30	
C19 RECTOSIGMOID COLON												1	1	1	1	4	0.10	
C20 RECTUM			1		2	5	8	4	4	4	15	18	5	8	6	80	2.08	
C21 ANUS & ANAL CANAL						1		1	3	2	3	1				11	0.29	
C22 LIVER	4			2	2	7	5	8	11	12	10	10	2	3	7	77	2.01	

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Table 2: Hospital Cancer Registry, Regional Cancer Centre - Trivandrum : 1999
Number of Cancer Cases by Age and Site --- Males

ICD10 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	%
C23 GALL BLADDER							1	1	1				2		1		6	0.16
C24 OTHER BILIARY TRACT													1				1	0.03
C25 PANCREAS							4	3	3	2	6	5	6	7	4	2	42	1.09
C30 NASAL CAVITY							1		2	1	1	3	1	1	2	1	13	0.34
C31 ACCESSORY SINUSES		1			1	1	1	2	2	4	2	4	8	5	2	2	35	0.91
C32 LARYNX						1	1	3	8	19	22	38	23	31	18	21	183	4.77
C33 TRACHEA						1					1						2	0.05
C34 LUNG							3	15	22	50	58	93	87	88	59	40	511	13.32
C38 HEART/MEDIASTINUM	1				1	1		2	2		1	1	1		1	1	12	0.31
C40 BONE OF LIMBS		3	4	6	15	4						1	1	1			35	0.91
C41 OTHER BONE		1	3	2	4	2	2	3				1					18	0.47
C43 SKIN MELANOMA						1			1	1	5	1	3	2	5	2	21	0.55
C44 OTHER SKIN	1			1	1		1	3		9	8	5	10	8	4	6	57	1.49
C47 PERIPHERAL NERVOUS										1							1	0.03
C48 RETROPERITONIUM	1		1				1	1			1	1	2	1			9	0.23
C49 CONNECTIVE TISSUE	3	2	1	3	5	6	8	2	1	4	3	8	2		4	2	51	1.33
C50 BREAST							1	1	1	1	1	3		1	1	3	13	0.34
C60 PENIS								3	4	2	8	1	2	5	3	3	31	0.81
C61 PROSTATE								2		1	5	8	9	12	10	12	59	1.54
C62 TESTIS	3			3	3	4	3	1	1	4		1		1			27	0.70
C63 OTHER MALE GENITAL									1						1		2	0.05
C64 KIDNEY	5	2				1	2		4	6	6	2		1	2	1	32	0.83
C65 RENAL PELVIS														1			1	0.03
C67 URINARY BLADDER	1						1	2		1	2	9	4	9	8	7	42	1.09

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Table 1: Hospital Cancer Registry, Regional Cancer Centre - Trivandrum : 1999
Number of Cancer Cases by Age and Site --- 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	%
C68 OTHER URINARY	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	1	0.03	
C69 EYE	8	-	1	-	-	-	-	-	-	-	1	-	-	-	-	14	0.36	
C71 BRAIN	2	10	4	7	5	11	9	11	11	14	13	8	5	6	6	1	123	3.21
C72 NERVOUS SYSTEM	-	1	1	-	-	-	-	-	1	2	-	-	-	-	-	-	5	0.13
C73 THYROID GLAND	-	-	-	3	4	7	8	8	8	11	12	9	8	6	5	6	93	2.42
C74 ADRENAL GLAND	3	-	-	-	-	-	1	-	-	1	-	-	-	-	-	-	5	0.13
C78 ILLDEFINED SITES	1	-	-	-	1	1	1	2	-	-	-	-	-	-	-	1	7	0.18
C77 SEC. LYMPH NODES	-	-	-	-	-	2	5	1	5	11	13	21	18	20	10	10	116	3.02
C78 SEC. RESPIRATORY SITES	-	-	-	-	1	-	6	4	15	9	16	7	16	21	11	166	2.76	
C79 SEC. OTHER SITES	-	1	-	1	-	-	-	4	6	9	7	19	11	10	13	6	87	2.27
C80 PRIMARY UNKNOWN	-	-	-	1	1	-	2	2	2	5	2	2	2	-	-	1	22	0.57
C81 HODGKINS DISEASE	3	7	5	-	3	2	1	4	2	-	2	2	1	-	-	2	34	0.89
C82 FOLLICULAR NHL	-	1	-	-	-	2	3	5	5	6	4	2	4	6	2	1	41	1.07
C83 DIFFUSE NHL	1	2	1	5	3	6	6	4	8	10	9	9	13	10	10	5	102	2.66
C84 T-CELL LYMPHOMA	-	-	-	3	1	2	1	2	-	2	3	-	4	4	-	2	24	0.63
C85 OTHER NHL	1	-	3	1	1	1	2	1	3	2	3	6	-	2	2	5	33	0.86
C88 IMMUNO PROLIFERATIVE DISEASES	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	1	0.03
C90 MULTIPLE MYELOMA	-	-	-	-	-	1	-	2	4	5	9	11	13	11	8	5	69	1.80
C91 LYMPHOID LEUKEMIA	30	22	13	19	13	7	7	3	4	2	8	2	-	3	3	1	137	3.57
C92 MYELOID LEUKEMIA	9	4	7	5	4	15	13	12	9	9	5	5	8	1	8	3	117	3.05
C95 LEUKEMIA UNSPECIFIED	1	-	-	2	-	-	-	-	-	-	-	1	-	-	-	-	4	0.10
	78	57	48	67	71	80	124	159	212	364	419	541	485	483	350	289	3837	

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Table 2: Hospital Cancer Registry, Regional Cancer Centre - Trivandrum : 1999
Number of Cancer Cases by Age and Site --- Females

ICD10SITE	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 LIP	-	-	-	-	-	-	-	1	1	1	1	3	-	2	3	12	0.34	
C01 BASE OF TONGUE	-	-	-	-	-	-	1	-	-	1	1	-	-	-	-	3	0.09	
C02 TONGUE	-	-	-	1	-	4	4	6	5	11	18	11	12	12	16	100	2.67	
C03 GUM	-	-	-	-	-	-	1	7	5	11	9	12	5	8	58	1.67		
C04 FLOOR OF MOUTH	-	-	-	-	-	-	-	-	2	2	1	-	-	1	6	0.17		
C05 PALATE	-	-	-	1	-	-	-	-	2	1	4	2	3	1	3	17	0.49	
C06 OTHER MOUTH	-	-	-	-	-	1	1	7	12	13	22	20	16	18	18	126	3.82	
C07 PAROTID GLAND	-	1	1	-	-	-	3	1	-	3	-	-	2	-	1	12	0.34	
C08 SALIVARY GLAND	-	-	-	-	1	-	2	-	-	-	1	-	-	1	-	5	0.14	
C09 TONSIL	-	-	-	-	-	-	1	-	-	1	-	1	-	-	-	3	0.09	
C10 OROPHARYNX	-	-	-	-	-	-	-	1	-	-	-	1	1	1	-	4	0.11	
C11 NASOPHARYNX	-	4	1	3	1	1	-	-	1	3	-	-	2	1	-	17	0.46	
C12 PYRIFORM SINUS	-	-	-	-	-	-	-	-	-	1	-	-	2	-	-	3	0.09	
C13 HYPOPHARYNX	-	-	-	-	-	2	-	-	2	2	1	2	1	-	1	11	0.32	
C14 PHARYNX ETC.	-	-	-	-	-	-	-	-	1	1	-	-	-	-	1	3	0.09	
C15 OESOPHAGUS	-	-	-	-	-	-	2	2	5	6	10	7	14	1	5	62	1.69	
C16 STOMACH	-	-	-	1	1	3	6	2	3	3	5	5	4	5	2	39	1.12	
C17 SMALL INTESTINE	-	-	-	-	2	-	-	-	-	1	1	1	-	-	-	5	0.14	
C18 COLON	-	-	1	1	-	2	3	3	2	5	3	7	2	1	1	31	0.86	
C19 RECTOSIGMOID COLON	-	-	-	-	-	-	-	-	-	-	1	1	1	1	-	4	0.11	
C20 RECTUM	-	-	-	-	3	1	1	3	7	6	8	12	8	5	2	58	1.81	
C21 ANUS & ANAL CAVITY	-	-	-	-	-	-	-	-	-	3	1	2	1	1	-	8	0.23	
C22 LIVER	2	-	-	-	-	1	1	1	3	2	2	1	1	1	2	17	0.48	

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Table 2: Hospital Cancer Registry, Regional Cancer Centre - Trivandrum : 1999
Number of Cancer Cases by Age and Site --- Females

ICD10 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	%
C23 GALL BLADDER	-	-	-	-	-	-	-	1	2	-	1	1	1	1	-	-	7	0.20
C24 OTHER BILIARY TRACT	-	-	-	-	-	-	-	-	-	-	-	2	-	-	-	-	3	0.09
C25 PANCREAS	-	-	-	-	-	-	1	1	2	1	3	1	5	2	1	-	17	0.49
C28 OTHER DIGESTIVE SYSTEM	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	1	0.03
C30 NASAL CAVITY	-	-	1	-	-	-	-	1	1	1	1	-	-	1	-	-	6	0.17
C31 ACCESSORY SINUSES	-	-	-	-	-	1	1	-	2	1	-	2	3	2	1	2	15	0.43
C32 LARYNX	-	-	-	-	-	1	1	2	1	2	-	1	2	-	-	1	11	0.32
C34 LUNG	-	-	-	-	-	1	4	1	4	5	12	11	5	11	5	1	60	1.72
C37 THYMUS	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	1	0.03
C38 HEART, MEDIASTINUM	1	-	-	-	-	-	-	-	1	1	1	1	2	1	-	-	8	0.23
C40 BONE OF LIMBS	-	5	6	5	1	-	1	-	2	-	-	-	-	-	-	-	21	0.60
C41 OTHER BONE	-	2	2	-	-	-	-	1	-	-	1	1	-	-	-	-	7	0.20
C43 SKN MELANOMA	-	-	-	-	-	1	-	1	-	-	2	1	2	1	-	-	8	0.23
C44 OTHER SKIN	1	-	-	-	1	3	1	2	1	1	5	2	4	4	1	5	31	0.89
C47 PERIPHERAL NERVOUS SYSTEM	1	-	-	1	-	-	-	-	-	-	1	-	-	-	-	-	3	0.09
C48 RETROPERITONIUM	1	-	-	-	1	1	1	-	-	-	1	1	1	-	-	-	7	0.20
C49 CONNECTIVE TISSUE	1	-	1	4	-	2	1	4	3	3	5	4	1	8	1	1	37	1.06
C50 BREAST	-	-	-	-	2	19	52	105	150	190	222	101	70	53	32	15	911	26.19
C51 VULVA	-	-	-	-	-	-	1	1	-	1	-	-	1	2	-	4	10	0.29
C52 VAGINA	1	-	-	-	-	-	2	-	5	1	3	1	4	4	1	2	24	0.69
C53 CERVIX	-	-	-	-	-	2	10	33	38	75	63	77	63	60	42	33	494	14.20
C54 BODY UTERUS	-	-	-	-	1	2	1	2	5	13	13	14	7	10	3	10	82	2.36
C55 UTERUS NOS.	1	-	-	-	-	-	-	1	1	1	4	2	1	-	-	-	11	0.32
C56 OVARY	-	1	7	11	30	75	73	29	22	33	28	24	25	21	17	4	235	7.33

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Table 2: Hospital Cancer Registry, Regional Cancer Centre - Trivandrum : 1999
Number of Cancer Cases by Age and Site --- Females

ICD10 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	%
C57 OTH.FEMALE GENITAL	-	-	-	-	-	2	-	-	-	-	-	1	-	-	1	-	2	0.06
C58 PLACENTA	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	0.06
C64 KIDNEY	6	1	-	2	-	1	1	-	-	-	-	-	2	4	-	-	17	0.49
C66 URETER	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	1	0.03
C67 URINARY BLADDER	-	-	-	-	-	-	-	-	-	1	1	-	3	-	2	2	9	0.26
C69 EYE	6	2	-	1	-	1	-	-	-	-	-	1	1	1	-	-	13	0.37
C70 MENINGES	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	2	0.03
C71 BRAIN	4	8	4	9	4	2	7	9	9	2	5	4	1	2	-	2	72	2.07
C72 NERVOUS SYSTEM	1	1	1	-	-	1	-	-	1	-	-	-	-	-	-	-	5	0.14
C73 THYROID GLAND	-	1	7	15	27	32	36	44	29	21	23	21	18	15	7	5	295	8.48
C74 ADRENAL GLAND	3	-	-	-	-	-	-	-	-	1	1	-	-	-	-	-	5	0.14
C75 OTHER ENDOCRINE	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	3	0.09
C76 ILL DEFINED SITES	3	-	-	-	-	1	-	-	-	-	-	2	2	1	-	1	10	0.29
C77 SEC. LYMPH NODES	-	-	-	-	2	1	3	5	-	6	3	2	3	2	3	2	32	0.92
C78 SEC. RESPIRATORY SITES	-	-	-	-	-	-	5	5	1	3	1	4	6	5	9	4	43	1.24
C79 SEC. OTHER SITES	-	-	-	1	1	-	3	-	1	3	2	2	3	5	2	3	26	0.75
C80 PRIMARY UNKNOWN	-	-	-	-	-	-	1	-	-	1	-	4	1	1	2	-	10	0.29
C81 HODGKINS DISEASE	1	2	4	2	2	1	-	-	-	-	-	1	-	-	-	-	13	0.37
C82 FOLLICULAR NHL	-	-	1	-	-	-	1	2	1	3	1	2	-	1	3	-	15	0.43
C83 DIFFUSE NHL	-	-	2	4	3	4	2	2	4	3	3	5	6	5	3	2	50	1.44
C84 T-CELL LYMPHOMA	-	-	-	-	1	2	-	-	1	-	1	-	2	-	-	-	7	0.20
C85 OTHER NHL	-	1	1	-	1	3	-	2	2	3	3	1	3	3	1	2	26	0.75
C90 MULTIPLE MYELOMA	-	-	-	-	-	-	2	2	2	4	5	3	5	3	6	1	31	0.89
C91 LYMPHOID LEUKEMIA	17	13	12	5	11	5	2	4	1	2	2	3	1	1	2	-	81	2.33
C92 MYELOID LEUKEMIA	4	2	6	9	7	6	17	5	3	5	6	5	6	3	1	1	86	2.47
C95 LEUKEMIA UNSPECIFIED	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	0.03
Total	55	38	57	73	82	120	183	269	322	441	391	401	343	318	200	166	3179	

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**Table 3. Hospital Cancer Registry, Regional Cancer Centre, Trivandrum
Ten leading sites by sex - 1999**

MALE				FEMALE			
ICD-10	SITE	No.	%	ICD-10	SITE	No.	%
C00-C06	Oral Cavity	608	15.8	C50	Breast	911	26.2
C34	Lung	511	13.3	C53	Cervix	494	14.2
C91-C95	Leukemia	258	6.7	C00-C06	Oral Cavity	322	9.2
C09,10,12,13,14	Pharynx	247	6.4	C73	Thyroid	295	8.5
C81-C85	Lymphoma	235	6.1	C56	Ovary	255	7.3
C15	Esophagus	204	5.3	C91-C96	Leukemia	168	4.8
C32	Larynx	183	4.8	C81-C85	Lymphoma	111	3.2
C16	Stomach	154	4.0	C54	Body Uterus	82	2.4
C71	Brain	123	3.2	C71	Brain	72	2.1
C73	Thyroid	93	2.4	C34	Lung	60	1.7
	Total	2614	68.0	Total		2770	79.6
C00-C96	All Sites	3837		C00-C96	All Sites	3479	

**Figure 1: Hospital Cancer Registry, Regional Cancer Centre, Trivandrum
- Cancer Cases by age 1999
(Male - 3837, Female - 3479)**

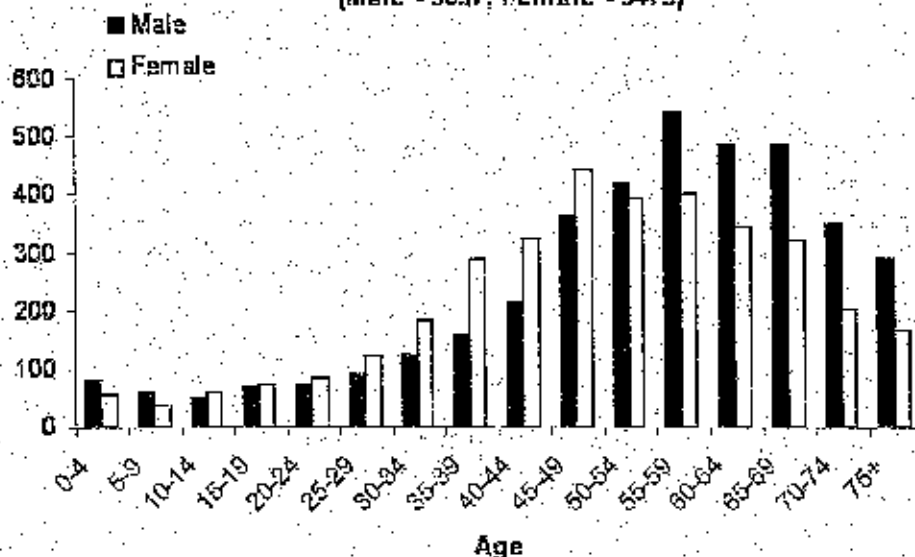


Figure 2. Hospital cancer Registry, Regional Cancer Centre, Trivandrum
System-wise distribution of cancer cases for both sexes - 1999

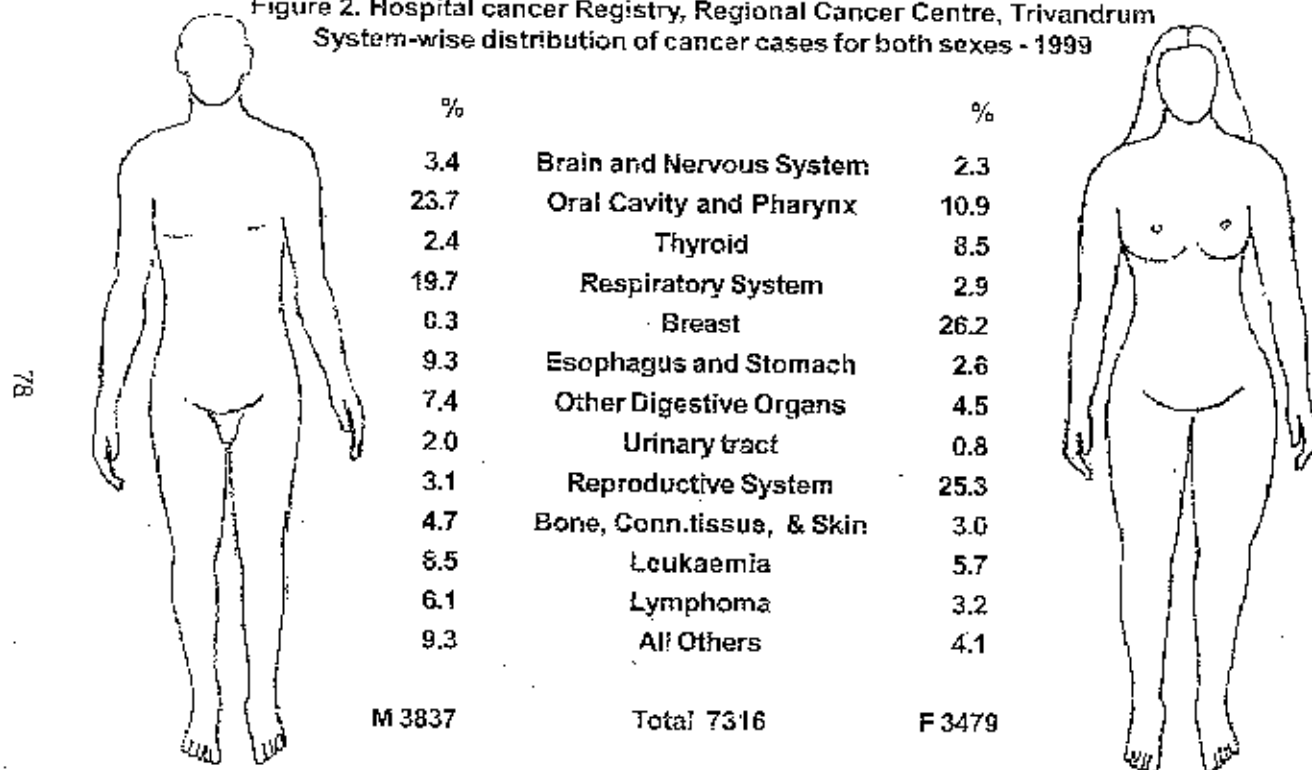


Table 4: Cancer incidence rates per 100,000 populations (1998-1999)
Population Based Cancer Registry, Trivandrum

Incidence rates	URBAN		RURAL	
	Males	Females	Males	Females
Crude incidence rate	83.4	84.6	75.1	67.6
Age-adjusted incidence rate	93.8	90.8	85.5	70.2
Truncated				

Table 5: Leading cancer sites (percentage) (1998-1999)

Population Based Cancer Registry, Trivandrum

URBAN		RURAL	
Male	Female	Male	Female
Oral cavity 13.8	Breast 31.2	Oral Cavity 16.6	Breast 22.8
Lung 8.7	Uterine cervix 10.6	Lung 9.5	Uterine cervix 16.1
Prostate 8.3	Ovary 6.9	Stomach 6.2	Oral Cavity 9.2
Larynx 4.3	Thyroid 5.7	Larynx 5.1	Thyroid 5.3
Stomach 4.0	Oral cavity 5.3	Esophagus 4.2	Ovary 5.1

**NATURAL BACKGROUND RADIATION CANCER REGISTRY
KARUNAGAPPALLY, KOLLAM**

Principal Investigator Dr. M. Krishnan Nair
Co-Principal Investigator Mr. P. Gangadharan
Co-Investigators Dr. V. M. Pradeep, Dr. Ravi Ankathil
 Dr. P. Jayalekshmi
Co-Investigator &
Project Co-coordinator Dr. Raghu Ram K. Nair

During the year 2001, the Chavara Block Panchayat handed over to RCC the old pediatric ward of Govt. hospital Neendakara for organizing cancer pain and palliative care services in the taluk. In order to organize such services the NBRR office was shifted from Vavvakkavu to a building near the hospital as a temporary arrangement.

In a meeting jointly sponsored by IMA & RCC on 26/06/01, in IMA hall Karunagappally, the RCC director presented the detailed report and the results of the NBRR studies done during 1990-98. Dr. B. Rajan, Additional Director and Dr. S. Parameswaran, Additional Professor also participated in the discussions and answered the queries regarding cancer and the radiation studies.

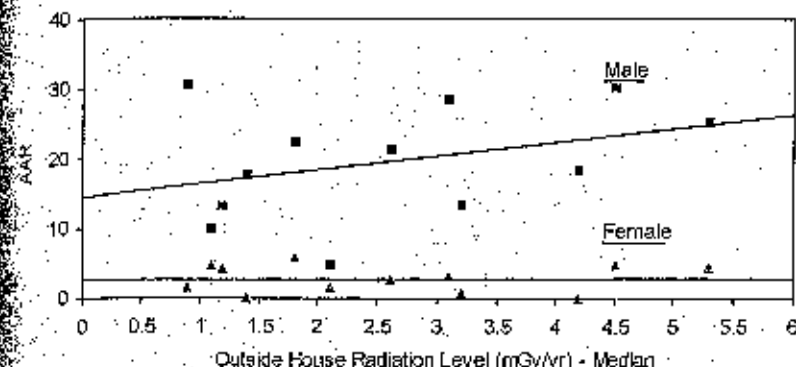
Last year we had submitted the research report of NBRR from 1990-1998 to the BRNS monitoring committee. The report received wide appreciation from the Director, BARC and subsequent to a discussion meeting on the report with BRNS committee chaired by Dr. (Mrs.) A.M. Samuel it was recommended that a MOU be developed with BARC unit (LLRL), Kollam and other units of BARC for further collaborative studies.

Cancer morbidity & mortality data collection has been continued. Cancer Incidence data of 1993-1997 period have been published by the International Agency for Research on Cancer (WHO), in their global cancer data compilation 'Cancer incidence in Five Continents Vol. VIII'.

Two important cancer types detected among the people of Karunagappally taluk are lung cancer and thyroid cancer. The age adjusted lung cancer incidence in Karunagappally 1993-1997 were male - 19.4/100,000 and for female - 2.9/100,000. These were much

higher than the male rates in Mumbai (male rate - 11.9 and female rate - 3.4) and Trivandrum Urban rates (male rate - 8.1 and female rate - 1.8) for lung cancer. Further, we observed that incidence of lung cancer increased in relation to increase of radiation levels as shown in Figure 1.

Figure 1. Lung cancer incidence Vs Outside house radiation levels in panchayats of Karunagappally 1993-'97



This increase was observed only for males but not for females, which signifies that the increase noted may not be due to the effect of radiation. The tobacco smoking habit prevalence is very high in males of this taluk, more than 70% of males above the age of 35 indulge in tobacco habits.

The studies on health effects due to exposure to natural background radiation are continuing with the support of Health Research Foundation (HRF), Japan. Chavara, Neendakara, Panmana, Alappad which are taken as high radiation area and Oachira, Thevalakkara as control cohort. As part of the radiation cohort analysis in the six panchayats, migration survey was done by visiting 60,301 individuals in 3 panchayats (Oachira, Alappad & Neendakara) and data processing and analysis have been started.

All the 2223 deaths in the taluk for the year 2001 were followed back for collecting the relevant information on cause of death. We have identified around 150 deaths among the residents not re-

ported in the taluk's death records. These were identified during the routine field visits by the enumerators. A verbal autopsy had been started for all deaths recorded since 1998.

Last year, the Panchayats including Block Panchayats of the taluk contributed Rs. 5.7 Lakhs from people's planning funds for continuation of the studies and services in the taluk. With this fund, two major community oriented programmes were started during this year. These related to

- 1) Early cancer detection and
- 2) Palliative care of the patients with advanced cancer.

We started routine Pap-smear clinics in 4 hospitals (Karunagappally taluk hospital – taluk hospital is a first referral unit hospital, Govt. hospital Neendakara, Community Health Centers at Oachira and Chavara). Facilities for FNAC, sputum cytology and patient guidance were also offered.

Panchayat wise field clinics were started on 01-11-2001. Ward wise Pap smear screening camps and field clinics were conducted after awareness talks. 12 Public Awareness classes, 16 Pap smear screening camps have been conducted up to December 2001. In the field medical clinic conducted at Alappad around 300 persons were screened by Dr. Mirza Hussain of RCC.

Eight cancer patients follow-up clinics were held. In these clinics 332 old RCC treated patients were examined, in addition to this 160 patients referred by the local medical doctors were examined and advised. Further, from 12/07/01 we had offered facilities for Pap smear testing and other cytology testing facility in Taluk Head Quarters Hospital Karunagappally, Community Health Centers Chavara & Oachira and Govt. Hospital at Neendakara. In all during the total 12 months period Pap smear test were done in 2083 women, FNAC testing for 193 persons, Oral scrape smear test to 34 persons and Sputum cytology testing to 10 persons.

During the year under report the District Collector Kollam, Dr. Jayathilak IAS visited the NBRP along with the medical officer of the Kollam District Cancer Control programme.

Conference/ Workshops/ Training attended

Dr. P. Jayalekshmi

1. Attended meeting on 'Cancer Atlas' in India Bangalore, August 2001.
2. Attended 2 days workshop on "Impact of Application of Radiation on Food & Agriculture". Organised by BARC and Kerala Agricultural University, Thrissur, 27-28 December 2001.

BASIC RESEARCH

Dr. Prabha Balaram	-	Additional Professor
Dr. Ravindran Ankathil	-	Associate Professor
Dr. S. Kannan	-	Assistant Professor
Dr. P. Rernani	-	Assistant Professor
Dr. Thomas Abraham	-	Scientific Officer

The research conducted by this division is directed at (1) understanding the aetiology and basic mechanisms of carcinogenesis at the molecular, immunological and cytogenetic levels (2) identification of markers of potential application in diagnosis and assessment of prognosis and (3) identification of plant products and preparations with immunological and antitumour activities and potential as diagnostic tools.

Viruses and cancers

We have demonstrated the presence of Human Papilloma Virus in Nasopharyngeal carcinoma in addition to Epstein Barr Virus. Gestational Trophoblastic disease is another disease of high incidence in the state of Kerala. Human papilloma viruses have been detected in about 40% of the complete hydatidiform moles. Respiratory syncytial virus is another virus, which was found to be present in these lesions and has been detected at the protein and genomic level.

Molecular biology of cancers

The major cell cycle regulatory proteins associated with dysplastic changes in oral carcinogenesis were observed to be those of the tumour suppressor genes Rb, p53, p21 and associated genes such as mdm2, cyclin D1 and c-myc characterised by their over expression. Tumour suppressor genes p27 and p16 are mostly altered in the higher grades of dysplasia suggesting the multistep progression in oral dysplasia.

Studies related to metastasis show the adhesion proteins to be of importance. The cadherins and endothelial adhesion proteins were of importance as anti-invasive proteins in breast cancer while in CHM down regulation of CD44 and its variant and lower expression of the tumour suppressor protein Rb was related to invasion.

Complete Hydatidiform moles are defined to be hyperproliferative lesions of placenta. In our studies, however, we failed to notice an enhanced mitotic rate in these tissues when compared to normal placenta of corresponding gestational ages. We further evaluated the apoptotic status by morphological criteria, DNA laddering, caspase-3 expression and observed a defect in apoptosis. BRCA1 gene is recognized as one of the most important cancer susceptibility genes in breast cancers and ovarian tumours. Evaluation in our population showed BRCA1 mutation in 38% of familial breast cancers and 2% of sporadic breast cancers. 54% of the BRCA1 mutation in familial breast cancer was founder mutation (185delAG), which is reported, only in the Jewish population in rest of the world.

Immunological aspects of cancers

T-cell mediated signal transduction was found to be defective in cancers of the oral cavity and uterine cervix. Our studies further show that the impairment increases with the severity of the disease. The T-cell receptor and downstream proteins are being studied in detail to identify the defective proteins.

Rasayana, an ayurvedic preparation administered for overall health improvement was demonstrated to be leukopoietic in humans. The effect of this drug on bone marrow cellularity, lymphocyte subpopulation and immune functions is being assessed.

Identification of potential biomarkers

Studies in our lab have identified mutagen hypersensitivity to be an indicator of deficient DNA repair capacity, thereby susceptibility to cancer.

Adhesion proteins are responsible for holding the cells together. In breast cancer, the down regulation of cadherins and endothelial adhesion proteins such as V-CAM, I-CAM and E-selectin has been found to be related to nodal invasion and distant metastasis. Of these, down regulation of cadherins and V-CAM were found to be independent prognostic indicators of nodal invasion. Further, expression of endothelial adhesion molecules correlated well with the degree of lymphocyte infiltration of the tumour, again pointing out their role as indicators of good prognosis.

Identification of plant products and preparations with immunological, tumour binding and Antitumour activity

Various indigenous plants are being screened in this laboratory for their ability to bind cells or stimulate lymphocytes. Of the various plant lectins isolated and evaluated, Artocarpus hirsuta agglutinin (AHA) and Trichosanthus anguina agglutinin (TAA) were found to be mitogenic to lymphocytes. Incubation of these lectins with sections of cancer tissues of the oral cavity, breast and uterine cervix reveal that these lectins could be used for differential diagnosis of benign from malignant cells.

Antitumour activity of Barringtonia racemosa seed extract was studied and it showed significant antitumour activity against *in vivo* DLA and EAC animal tumour models. It also exhibited strong cytotoxicity against a variety of murine and human tumour cell lines by inducing apoptosis in DLA tumour cells. The mechanism of action of the drug and structural elucidation are being studied.

Ongoing Research Projects

1. Establishment of a Familial Cancer Registry (1995-continuing)
Drs. Ravindran Ankathil, Aleyamma Mathew, M. Krishnan Nair.

2. **Characterization of molecular alterations in p53 and cyclin D1 gene in oral carcinoma (2001-2004)**
(Funded by Department of science, Technology and Environment, Govt. of Kerala).
Drs. S. Kannan, VN Bhattathiri, Elizabeth K Abraham, KR Nalinakumari
3. **Evaluation of metastatic potential in gestational trophoblastic disease using adhesion proteins and antimetastatic genes as indicators (1998 - 2001)**
(Funded by: Indian council of Medical Research, New Delhi)
Drs. Prabha Balaram, C. Chandrika Devi
4. **Cytogenetic and Haematologic response studies of alpha Interferon therapy in Chronic Myeloid Leukemia patients (1998-continuing)**
Drs. Ravindran Ankathil, V.P.Gangadharan, N. Geetha, C Sreejith Nair
5. **Role of Apoptosis and multidrug resistance related genes in relation to regression in Gestational Trophoblastic Diseases (GTD) (1999-2001)**
(Funded by: Science, Technology and Environment Government of Kerala).
Drs. Prabha Balaram, C. Chandrika Devi
6. **Cytogenetic evaluation of genomic instability in Down Syndrome patients with and without malignancies (1999-2001)**
(Funded by: Kerala State Dept. of Science & Technology)
Drs. Ravindran Ankathil, P. Kusumakumary
7. **Cytogenetic and Haematologic response studies of alpha interferon therapy in Chronic Myeloid Leukemia patients (1998-continuing)**
Drs. Ravindran Ankathil, V.P.Gangadharan, N. Geetha, C Sreejith Nair
8. **Evaluation and validation of molecular markers in oral cancer – a Multicentric study (2001-2004)**

- (Funded by: DBT, Government of India.)
Drs. Prabha Balaram, K Ramdas, KR Nalinakumary, Anita Balan
9. **Molecular alterations in nasopharyngeal cancer with reference to onco-genes and tumour suppressor genes (2001-2004)**
(Funded by: Indian council of Medical Research, New Delhi).
Drs. Prabha Balaram, K Ramdas, K Jayasree
 10. **T_H cell mediated signal transduction: correlation with immune response and response to therapy in patients with cancer of the uterine cervix (2001-2004)**
(Funded by: Science, Technology and Environment department, Govt. of Kerala).
Dr. Prabha Balaram, Dr. Ganga Devi
 11. **Immunomodulatory activities of Rasayana – Indukantha Gritha (2001-2004)**
(Funded by: Ministry of Health and Family Welfare, Govt. of India).
Drs. Prabha Balaram, M.R.Vasudevan Nambodiri, P.Sankarankutty
 12. **Analysis of molecular alterations of EGFR molecule in GTD with special reference to treatment potential (2001-2004)**
(Funded by: Department of Science and Technology, Govt. of India).
Dr. Prabha Balaram, Dr. P. K.Syamala Kumari
 13. **Cell surface changes in leukemic cells – a study using plant lectins (1999-2002)**
(Funded by: STED, Government of Kerala).
Drs. P. Remani, Rekha A.Nair, V.N.Bhattathiri
 14. **Indigenous plant lectins and their use as reagents in immunology and pathology (2000-2003)**
(Funded by: Indian Council of Medical Research, New Delhi)
Drs. P. Remani, Rekha. A.Nair, V.N.Bhattathiri

Courses conducted

1. Annual Immunology training (Two months) for M.D Microbiology students, Medical College, Trivandrum.
2. Training on Human Cytogenetic Techniques - B.Sc. MLT students - M.G. University.
3. Lectures and practical demonstrations on Immunological techniques, Molecular biology techniques, human karyo type analysis etc. to students of M.SC biotechnology, Masc. Biochemistry, MBBS, B.SC MLT, and Bask-Biotechnology students of Kerala and MG Universities.

Investigations done for clinical management

1. Peripheral blood lymphocyte karyotyping : 225
2. Bone marrow karyotyping : 230

Awards/ Research supervision/Conferences/Workshops attended

Dr. Prabha Balaram

1. Reviewer for ICMR, CSIR, DST, STED research Projects and Australasian Journal of Cancer.
2. Executive committee member of Indian society for Radiation Biology.
3. Member of Governing Body Amala Cancer Centre, Trichur.
4. Guest lecture, Invasion related proteins in Complete Hydatidiform Moles (CHM): International Conference on New Horizons in Biotechnology, Trivandrum, April 18-21, 2001.
5. Guest lecture, Immunology of Oral cancer - National symposium in the new millennium, Chennai, June 2, 2001.
6. Invasion related proteins in Complete Hydatidiform Moles (CHM): International Conference on New Horizons in Biotechnology, Trivandrum, April 18-21, 2001.
7. Immunology of Oral cancer - National symposium in the new millennium, Chennai, June 2, 2001.

8. Research supervision

1. Genomic instability in breast cancer : Ms. Priya Srinivas
2. Molecular biology of Gestational trophoblastic disease : Ms. Swapna Enose
3. Molecular alterations in oral cancer with special emphasis on oncogenes and tumour suppressor genes : Ms. Prishla Varghese
4. Adhesion protein as metastatic markers : Ms. Maya Madhavan
5. T cell signal transduction in correlation with immune response and response to therapy in patients with cancer of the uterine cervix. : Ms. Smriti Krishna
6. Molecular alterations in relation to radiation response in squamous cell carcinoma. : Ms. Salini V.
7. Analysis of molecular alterations of epidermal growth factor receptor in GTD : Ms. Jemima Jacob
8. p53 alterations in relation to habits in oral cancer : Dr. Sanila (Dental college, TVM)
9. Molecular alterations and association with Human papilloma Virus in Nasopharyngeal Carcinoma : Dr. Nayana (ENT, MCH, TVM)

Dr. Ravindran Ankathil

Received the Indian Council of Medical Research (ICMR) award for Biomedical Research conducted in underdeveloped areas.

Genetic predisposition to cancer - 21st Annual conference of the Indian Association for Cancer Research, Bangalore, Jan 31-Feb 2, 2002

Attended XXVII Annual Conference of the Indian Society of Human Genetics at Rajiv Gandhi Centre for Biotechnology, Trivandrum 14-16, Feb, 2002.

Research supervision

1. Genetic susceptibility studies in Breast/Ovarian cancer families : Mr.B. Vinod Kumar
2. Cytogenetic and Haematologic response studies of biotherapy in patients with Haematological malignancies : Mr.S. Hariharan
3. Cytogenetic studies in myelodysplastic syndromes. : Ms.Roshni Thomas
4. Genetic studies in Down syndrome patients with and without malignancies : Ms. Sheeja V.R
5. Cytogenetic and Molecular cytogenetic studies in Acute Nonlymphocytic Leukaemias. : Mr.Sunil K.S
6. Genetic susceptibility studies in lung cancer : Ms. Sreeja L.
7. Pathobiology of BRCA2 gene mutated breast and ovarian cancers : Ms. Vanl.S

Dr. P. Remani

1. Awarded the Science Technology Agency Fellowship funded by the Ministry of Education, Science and Technology of Japan
2. Hyperthermia on transmembrane potential of human colon carcinoma cells measured by flowcytometry. 6th Annual meeting on Clinical Research of High Temperature therapy. Osaka, Japan, August 25,2001.
3. 4th Annual Meeting of the Japan Radiation Society. Osaka, Japan, October 29-31, 2001.
5. Research supervision
 1. Plant lectins and their applications in oncology : Ms. Smitha LS
 2. *Artocarpus integrifolia* lectin as a biological marker in hematological neoplasms : Ms. Lajja S Nair

3. Isolation and purification of some plant lectins and its application in cytopathology : Mr.Sujathan K
4. Anti-cancer studies in selected medicinal plants used in traditional and folklore medicine of Kerala with particular reference to the Western Ghats. : Ms. Geetha B.S
5. Multiparametric evaluation of radiation induced changes in the erythrocytes of cancer patients : Ms. Geetha C.S

Dr. S. Kannan

Loss of heterozygosity of tumor suppressor genes and its relevance in analyzing the resection margins in oral carcinoma. In: 27th Annual Conference of the Indian Society of Human Genetics – Recent Trends in Genomics. Rajiv Gandhi Centre for Biotechnology, Thiruvananthapuram, 14-16 February 2002.

Research supervision
 Studies on cell cycle regulatory proteins in oral carcinoma : Mr.R. Jayasurya

Papers published – (Chapter IV)

LABORATORY MEDICINE AND TUMOR BIOLOGY

Dr. M. Radhakrishna Pillai Associate professor

The division continued to register sustained success in cell and molecular biology cancer research. Details on research programs and results are available at the division's personal website <http://mradillai.freeservers.com>

1. Our human papillomavirus (HPV) research program continued with significant success. Having documented some of the most valuable data on the virus and its role in the development of cancer, the division is now the national coordinat-

ing center for a multi-centric HPV research program of the department of biotechnology, Government of India. Important findings include the frequency of p53 codon 72 polymorphism, characterization of HPV 16 subtypes based on mutations of E6 and E7 genes and the interaction between HPV and xenobiotic metabolizing genes. We have also described activity of bioactive compounds with anti cancer and antiviral properties against HPV infected cells.

2. The genetic epidemiology of Indian breast cancer continues with description of genetic heterogeneity and polymorphism in genes associated with estrogen and tamoxifen metabolism.
3. The division is part of the National Task force on Oral Cancer set up by the Department of Biotechnology and coordinates work on genetic susceptibility to tobacco associated oral cancers.
4. Research on the molecular mechanisms of invasion and metastasis continues looking at regulation and activity of matrix metalloproteinases.
5. Significant advances have been made in research on the molecular genetics of pediatric acute lymphoblastic leukemia. The role of genetic susceptibility to the disease and mechanisms of tumor cell response to anti cancer drugs are being elucidated.
6. As a newer activity, the division has taken up environmental genetics and cancer as a major research program.

Ongoing research projects

1. **Cellular immortality and de novo apoptosis in tumor tissue: significance for response to radiotherapy for cervical cancer.** Dept. of Atomic Energy, Govt. of India, 1999-2002.
2. **Susceptibility to childhood acute lymphoblastic leukemia: Influence of CYP1A1, CYP2D6, GSTM1 & GSTT1 genetic polymorphisms.** Council of Scientific and Industrial Research, 1999-2002.

[With Dr. P. Kusumakumary, Division of Paediatric Oncology].

3. **Significance of programmed cell death in pediatric acute lymphoblastic leukemia.** Dept of Science & Technology, Govt. of India, 2000-2003.
[With Dr. P. Kusumakumary, Division of Paediatric Oncology].
4. **Genotyping of the CYP1A1 and GSTM1 genes in tobacco associated oral cancer.** Indian Council for Medical Research, 2000-2002.
[With Dr. K. Ramadas, Department of Radiation Oncology].
5. **Metalloproteinase gene activation during tumor progression in the oral mucosa.** Indian Council for Medical Research, 2000-2002.
6. **The role of telomere fragment lengths and telomerase activation during tumor progression in the uterine cervix.** Kerala State Committee for Science, Technology & Environment, 2000-2002.
7. **Estrogen receptor gene polymorphism in Indian breast cancer and response to tamoxifen treatment.** Kerala State Committee for Science, Technology & Environment, 2000-2002.
[With Dr. B. Rajan, Department of Radiation Oncology].
8. **Fund for Improvement of Science & Technology Infrastructure in Universities and Higher Educational Institutions.** Dept of Science and Technology, Govt. of India, 2000 - 2005.
9. **Chemotherapy response in osteosarcoma: role of intrinsic cellular factors.** Indian Council for Medical Research, 2001 - 2003.
[With Dr. Geetha. N, Division of Medical Oncology].
10. **Polymorphism in CYP1A1, GSTM1 and XRCC1 genes and susceptibility in oral cancer.** Dept. of Biotechnology, Govt. of India, 2001 - 2004.
[With Dr. R. A. Bhisey, Cancer Research Institute, Mumbai].
11. **Human papillomavirus E6, E7 and p53 gene polymor-**

phism in Indian cervical carcinoma. Indian Council for Medical Research, 2002 - 2004.

12. Cellular and molecular manifestations of natural plant compounds on human papillomavirus infected cells. Indian Council for Medical Research, 2002 - 2004.

Thesis work

This year one MD pathology thesis and 12 MSc Biotechnology & Biochemistry theses were done in the division. A post doctoral trainee of the division applied for a young scientist research grant award based on the work being done by the division on genetic susceptibility to tobacco associated cancer. This was granted by the Department of Science & Technology to be carried out at this division.

Awards/ Conferences/ Workshops attended

M. Radhakrishna Pillai

1. Awarded the UICC Y-Y fellowship to the University of Texas Health Sciences Center at San Antonio, USA.
2. Guest lecture, Human papillomaviruses and cancer. Indian Association of Pathologists & Microbiologists, Thiruvananthapuram, October 2001.
3. Invited talk, Molecular epidemiology of human papillomavirus infection. 20th Annual convention of Indian Association for Cancer Research, The Gujarat Cancer & Research Institute, Ahmedabad, India 2001.

Papers published - (Chapter IV)

CLINICAL LABORATORY SERVICES

C. Gangadevi - Technical Officer

Clinical laboratory provides round the clock service for the patients. On an average of 400 patients (In patients & out patients) are receiving services daily from the clinical lab. Test results are collected through computer network from wards. Analyzer flagged samples are manually scanned by the technicians to provide accurate results.

Equipments

- 1) Fully Automated Haematology Analyzer - 1 No.
- 2) Coulter T-series - 3 Nos.
- 3) Fully Automated Dry Chemistry Analyzer - 2 Nos.
- 4) Wet Chemistry Analyzer - 2 Nos.
- 5) Coagulation Analyzer - 1 No.

Quality Control

Quality control check for hematology and biochemistry investigations is from Bio-rad laboratories, which is accepted by WHO.

Special tests

Immunoglobulin assay and electrophoresis are doing for outside patients also. Assistance is provided for various research ongoing projects. Assistance is provided for various research projects ongoing at RCC. In addition to this Urine analysis and various body fluids (CSF & Pleural fluid) also investigated.

Training provided

1. Two months training for B. Sc MLT students of Mahatma Gandhi University.
2. Two weeks training for B. Sc & M. Sc Biochemistry students from various colleges.

LIBRARY AND INFORMATION SERVICES

Mr.M.Chandrakumaran Nair

Senior Librarian

RCC Library on the Internet

Online public access catalogue (OPAC), RCC publications database, holdings list, current journals, are accessible now over the Internet with the support of the upgraded 'web inquiry module' of the 'Alice for Windows' (www.rcctvm.org). The establishments of Intranet facility also augmented further the use of library materials as the entire divisions are interconnected through fibre links and structured cabling. As a result, users could make use of this facility from their divisions as well as residence. Steps have been initiated to provide online access to the library's current awareness services like 'RCCL Current Contents', Onconews (press clippings bulletin), conference alert service and new arrivals.

Library Committee

During the report period, the library committee met two times and decisions were taken on various issues relating to the library. Apart from the routine matters, the major issues discussed were the physical verification of books and materials for 2001 and upgradation of the CD ROM network setup in the library.

External users

External users continued to enjoy free entry to the library and access to all library materials. On an average of 30 external users from medical colleges, university departments and other organizations are visiting the library every day for consulting the library materials.

Library collections

	Added during the year 2001-02	Collection as on March 2002
Books, Monographs & Back volumes	380	7880
Current Journals	2	109
Reprints and reports	141	3672
Audio-video cassettes	15	130

Databases on CD ROM Network

'Cancer CD', the most consulted database for therapeutic, diagnostic and clinical research requirements were made accessible from all the nodes of library LAN. Users could make use of all other information resources on CD ROM, particularly the full text databases from different nodes.

RCC Publications

RCC publications database maintained in the library was updated adding 52 papers with informative abstracts during the period. These papers contributed by the staff of the centre include articles in scientific journals, research monographs and proceedings of the conferences and the abstracts of the same are accessible over the Internet.

Conference Alert Service

Details of the forthcoming conferences, seminars and training programmes, which are of interest to our user community, were collected and the information pertaining to these were circulated to all concerned.

Other Services

Library continued to provide other services - the 'circulation of RCCL Current Contents' and 'Onconews', reprints service, current contents-online, inter library loan and support to all audio visual and photocopying requirements.

Fellowships/Honors/Training/Conferences/Workshops

M.Chandrakumaran Nair

1. Nominated as a member to the board of studies, (library & information science), University of Kerala, constituted by the syndicate of the university for a period of three years from 16.01.2002.
2. Associate editor, Journal 'Kelpro bulletin'.
3. Convener, Publication committee and library committee, Regional Cancer Centre.
4. Delivered two lectures for the participants of the refresher course in library & information science organized by UGC -academic staff college, University of Kerala, June 2001.
5. Hon. consultant, Dental college library, Trivandrum.
6. Attended the XXII All India conference of Indian association of special libraries and information centers, 4-7 December 2001, University of Kerala, Trivandrum.

Papers published - (Chapter IV)

INFORMATION SYSTEMS

Mr.Manoj G

Jr. System Analyst

This division is responsible for the development and maintenance of application software for the computerization of various activities of the hospital. There are 130 computers in three different networks and the entire hospital is linked through structured cabling (Nordex certified) and having 4 servers with Sco Unix, Linux, Windows 2000 as operating systems and Ingres and Oracle 8i are used as databases.

Patient management services

Patient registration, cancer registry, medical documentation, patient appointment, cash management, accounts, wards, inventory (central store, purchase), pharmacy, surgical oncology, cytopathol-

ogy, clinical laboratories and radiation physics are computerized and maintained in-house by the division.

Web Services

Internet and mail access to all divisions of RCC are provided. Presently 110 staff members utilize this facility. RCC web site is updated.

The applications of cancer registration and medical documentation are developed in intranet and maintained. All general information related to the center and staff is now available in intranet.

Tele-medicine applications

Established tele-medicine facility - "OncoNET Kerala" connecting its peripheral centers with a teleclinic in RCC with the technical support of ER&DCI Trivandrum and is funded by the ministry of information technology, Govt. of India. Presently ECDCs of Kochi, Kanner and Palakkad are connected to this network.

As part of tele-pathology programme one trinocular microscope with digital camera attachment is installed in RCC. Through this facility images of pathological slides for second opinion are sent.

Other activities

The division also maintains the database of members of Cancer Care for Life (Scheme II & III) and also issues membership certificates.

Project guidance is given to the B.Sc (Computer Science), PGDCA students of various colleges to do their final year project work. This year we have provided guidance to 15 students from various colleges.

Workshop / Conferences Organized

A two-day workshop on telemedicine in oncology on 21-22 December, 2001, in association with Ministry of Health & Family Welfare, Govt. of India and the WHO. 35 participants from various places attended the programme.

Ongoing research projects

Establishment of a oncology network providing telemedicine services in cancer detection, treatment and pain-relief.

Technical support: ER&DCI, Trivandrum

Funded by: Ministry of Information Technology, Govt. of India.

Other projects supported

As in earlier years, during this period also this division provides support for creating database, data entry, and data processing for various projects undertaken by RCC.

Conferences/Workshops attended

Mr. Manoj G

Attended national workshop on tele-oncology held at AIIMS, New Delhi on August 10-11, 2001.

COMMUNITY ONCOLOGY

Dr.Ramani Wesley - Associate Professor
Dr.Gigi Thomas - Lecturer

The major activities of this division are centred round, human resource development, primary and secondary prevention of common cancers through cancer education and detection camps.

1. Human Resource Development a) Professional education and training

Two hundred and fourteen Gynaecologists, 120 technicians and 39 nurses were trained in low cost cancer detection strategies to initiate cancer control in Kerala, Kolkatta and Mumbai. Short-term training was given to nursing students of private hospitals and medical colleges. Orientation training was given to cytotechnologists and cytotechnicians from other centres. Training in colposcopy, cryotherapy, biopsy and LEEP was given to 7 Gynaecologists and 2 doctors of UNFPA and one doctor from air force. An intensive training



Dr.M.A. Kuttappan Minister for Welfare of Scheduled Castes, Scheduled Tribes and Backward Classes Inaugurates the World No Tobacco Day workshop for professionals and media persons. Prof. Chandra, Mayor of Trivandrum looks on.



Dr. Remani Wesley giving training to East African Gynaecologists on early cancer detection as part of the RCC-international school of Colposcopy (in collaboration with IARC) activities.



Antitobacco campaign through magic, a project by RCC. 26460 school students and lay public of Palakkad, Idukky and Waynad districts were covered

in colposcopy and LEEP was conducted for 6 doctors and 12 nurses of Jaipur Cancer Centre, Rajasthan. Training was given to 30 nurses in a workshop on oncology training for general nurses organised by WHO.

b) Public education

1. 26,460 persons were trained through 97 cancer awareness programs, of which 50 awareness programs were conducted in the tribal and other backward areas of Kerala. 200 community volunteers, 380 women volunteers, 399 NSS volunteers, 283 health workers, 150 literacy workers, 56 panchayath presidents were specially trained in cancer awareness as key trainers. 560 volunteers were trained for cancer survey and screening.
2. Teachers, parents and student representatives (21,579) were given tobacco education and cancer education classes. Among them around 16,000 students were from the tribal areas of Palakkad, Waynad and Idukki districts.
3. Voluntary workers of HOPE Foundation were trained. They are involved in-group activities like early detection of TB and cancer.

2. Generation and distribution of health education materials

- a) About 520 slides and 10 photo albums on colposcopy were prepared for training. Health education materials were distributed among community volunteers and other target groups.
- b) Nine exhibitions were conducted which were viewed by around two lakhs people of which majority are school and college students.
- c) Teaching manual prepared for visual inspection of uterine cervix with 4% dilutes acetic acid (VIA) and Lugol's iodine.

3. Antitobacco programmes and campaigns

26,460 persons were given tobacco awareness classes. Further, we had utilised 56 panchayath presidents to promote anti tobacco campaigns. The world no tobacco day was observed on 31st

May with a workshop for media people and professionals. Voluntary organisations like Regional Cancer Association, Alcohol and Drug Information Centre, International Union for Health Promotion and Education and Bharath Scouts and Guides collaborated with RCC to observe "World No Tobacco Day".

4. Religious leaders in cancer control

Religious leaders like priests of churches, nuns from convents, promoters of various foundations like the art of living foundation, Ramakrishnan mission ashram, Vishwa Hindu Parishad, SNNNSS karayogams and leaders of meditation promoters were educated and trained as key trainers. They have successfully conducted anti tobacco campaigns, life style modulation in the area of dietary life style and sexual life style among public and is carrying on tobacco cessation programs in their local areas.

5. NSS volunteers in cancer control

As part of the "Dasadina" camp, 399 NSS volunteer leaders and program officers of different colleges were given awareness classes regarding primary and secondary prevention of tobacco related cancers and camps were conducted for their adopted villages.

6. Residence associations in cancer control

234 resident association members were given awareness and they were screened for common cancers.

7. Screening of commercial sex workers

Since the prevalence of Human Papilloma virus and cervical cancer is high among commercial sex workers, 138 commercial sex workers were screened through a project organized by KISS (Kovalam intervention project for safe sex).

8. International school of colposcopy

Trained 8 gynecologists from Kerala and 6 gynecologists and 2 nurses from Jaipur were given training in colposcopy and treatment. 214 gynecologists from Kolkatta, 120 technicians from Kerala and 6 doctors and 30 health workers of Tata Memorial Hospital, Mumbai were given orientation in low cost cervical cancer detection strategies using vinegar and Schiller's.

9. Early cancer detection, dysplasia, colposcopy and breast screening clinics

Early cancer detection clinic: 95 oral cancers, 26 breast cancers, 20 cervical cancers and 49 other cancers were detected. 215 oral precancerous conditions and 36 other precancers were diagnosed and kept under surveillance during this year.

Dysplasia clinic: 215 cases of oral precancers were diagnosed. Among them 59 patients had leukoplakia, 23 patients were suffering from oral sub mucous fibrosis, while 133 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 are given medication and kept under close follow-up so that any evidence of malignant transformation can be detected promptly and treated early. Biopsies were done for 69 high-risk oral precancers and 25 precancers were surgically excised.

Colposcopy clinic: 2833 colposcopies, 270 colpo directed biopsies, 25 LEEP diathermic excisions and 28 cryotherapies were done for cervical precancers. 119 low-grade lesions, 29 high-grade lesions (CIN 2 & 3) and 20 invasive cancers were detected.

Breast screening clinic: Propagation of breast self examination, FNAC's and discharge collection for cytology and referral for mammography are done.

10. Peripheral early cancer detection programmes through ECDCs, Janakeeya Asoothranam programs and village level cancer control programme

a) Early Cancer Detection Clinics (ECDC)

ECDC, Kollam is sending patients with precancers and cancers to this clinic for confirmation of diagnosis, colposcopy, LEEP, cryotherapy etc. Early cancer detection work started in Kodungalloor named as Health Care Institute is conducting camps once in three months. We have trained doctors, nurses, health workers and volunteers who act as key trainers for conducting comprehensive village level cancer control programmes in Kodungalloor. A palliative care centre has also started functioning at Kodungalloor, which is supplying analgesics to all cancer patients, and hence providing pain control for terminally ill patients.

b) Cancer detection camps

The main stay of peripheral cancer detection programmes was through 32 cancer detection camps. As part of village level comprehensive cancer detection programmes, seven new villages were included. 560 volunteers were trained to carry out cancer related survey.

11. Programs through media

1 All India Radio

1. Hazards of panmasala (Dr. Ramani Wesley)
2. Warning signals of cancer (Dr. Ramani Wesley)
3. Common female cancers (Dr. Ramani Wesley)
4. Cancer Phobia (Dr. R. Jayakrishnan)
5. Group discussion on media persons and tobacco control (Dr. Babu Mathew)
6. Detection, treatment and pain control in oral cancer (Dr. Babu Mathew)

Television programme

Asianet- Telecast on 31-05-01 "World No tobacco day"
Morning guest.

12. Ongoing research projects

Evaluation of unaided visual inspection, cervicossopy and Pap smear in screening for cervical cancer

(Funded by IARC, France)

Principal Investigator Dr. Ramani S. Wesley

Performance characteristics of conventional cytology and visual examination after dilute acetic acid (VIA) or Lugol's iodine application (VILI) and HPV testing by digene in the early detection of cervical neoplasia Kerala, India.

Principal Investigator Dr. Ramani S. Wesley

Cervical cancer control project

(Funded by: Bill Gates Foundation, U.S.A)

Principal Investigator Dr. Ramani S. Wesley

Trivandrum oral cancer screening study (TOCS)

(Funded by: IARC, France and AICR U.K)

Principal Investigator Dr. Babu Mathew / Dr. K. Ramdas

Tobacco awareness through magic for teenagers in the tribal and other backward areas of Kerala state.

(Funded by: World Health Organisation)

Principal Investigator Dr. Babu Mathew

Co Investigator Mr. C. Sreekumar

Study of tobacco related mortality in Trivandrum District
(Funded by: Oxford University, U.K)

Principal Investigator Dr. Babu Mathew / Dr. K. Ramdas

Global youth tobacco survey programme

(Funded by: WHO Geneva)

Chief Investigator Dr. Babu Mathew

Co-investigator Sri. C. Sreekumar

13. Books and manuals prepared.

1. Principles of Cancer Prevention and Control. Article on Prevention and control of Ca.Cervix, Page W1, RCC, June 2001.
2. A handbook on quality assurance in Pap smear, contributed an article on cervical cancer control strategies, page 88.
3. Principles of cancer prevention and control, Regional Cancer Centre, editor Dr Babu Mathew, June 2001.

14. Awards/ Confererices/Seminars/ Workshops attended

Dr.Remani Wesley

1. Low cost cervical detection strategies. WHO workshop on prevention and control of cancers for 30 doctors from Kerala June 2001.
2. Cervical cancer control. WHO workshop on prevention and control of cancers for 30 doctors from Tamilnadu, July 2001.
3. Faculty member in workshop sponsored by WHO and DHS at RCC. Presented a paper on cervical cancer control strategies, 12-15th September 2001.
4. Course director in training five doctors, 2 nurses, 3 paramedical – Tata Memorial Hospital, Mumbai, 2001.
5. Faculty, WHO workshop on oncology training for nurses, February 2002, RCC.

Mr.C.Sreekumar

Awarded U.I.C.C. ICRETT fellowship at Johns Hopkins oncology centre, Baltimore, USA on "Technology transfer in cancer rehabilitation in developing countries" under the supervision of Dr.Matthew J. Loscalzo, Director, Patients and family welfare services, Johns Hopkins Oncology Centre, U.S.A.

Papers published – (Chapter IV)

E.C.D.C, ERNAKULAM

Dr. B. Syamalakumari Cytopathologist

The early cancer detection center, Ernakulam- one of the peripheral center of RCC, Trivandrum, offers facilities for cancer awareness and early cancer detection programmes.

Table 1- Resume of work

	ECDC	DCCP	Total
Persons screened	6820	4792	11612
Cervical smear	3817	2953	6770
Oral smears	184	428	612
FNAC	1995	584	2579
Sputum cytology	91		91
Histopathology	40		40
Colposcopy	35		35
Colpo directed biopsy	10		10
Body fluids	71		71

Table 2- Gynaecological cytology

No	Lesion	Centre	Followup	Total (3817)
1	Normal	183	65	248
2	Inflammation	1133	532	1665
3	Atypical glandular cells	14	9	23
4	Trichomonas vaginalis (TV) infection	565	130	695
5	TV with mild dysplasia	51	15	66
6	TV with moderate dysplasia	6	1	7
7	TV with severe dyaplasia	1	-	1
8	Fungal infection	15	1	16
9	Fungal infection with atypla	2	-	2
10	Human papilloma virus Infection	5	-	5

11	Herpes simplex virus infection	290	67	357
12	Viral infection with mild dysplasia	92	23	115
13	Viral infection with moderate dysplasia	12	3	15
14	Viral infection with severe dysplasia	1	-	1
15	Mixed infection	222	71	293
16	Mixed infection with dysplasia	132	63	195
17	Mild dysplasia	28	13	41
18	Moderate dysplasia	5	-	5
19	Severe dysplasia	3	4	7
20	Carcinoma in-situ	5	2	7
21	Invasive squamous cell carcinoma	35	2	37
22	Adenocarcinoma	5	-	5
23	Radiation changes	2	-	2
24	Miscellaneous	7	2	9

Table 3- Non-gynecological cytology

Oral (184)		Breast (755)		Thyroid (573)		Lymphnode (410)	
Benign	55	Benign	828	Benign	534	Benign	321
Pre malignant	30	Suspicious	3	Suspicious	9	Suspicious	6
Suspicious	6	Malignancy	124	Malignancy	30	Malignancy	78
Malignancy	93					Miscellaneous	6

Salivary Gland (48)	Liver (18)	Lungs (7)	Other site (184)				
Benign	46	Benign	9	Benign	3	Benign	156
Suspicious	1	Malignancy	9	Malignancy	4	Suspicious	2
Malignancy	1					Malignancy	26

Table 4- Body fluids

Ascitic fluid (7)	Pleural (10)	Nipple discharge (53)	Sputum (91)				
Benign	3	Benign	8	Benign	52	Benign	66
Malignancy	3	Malignancy	2	Suspicious	1	Suspicious	2
Miscellaneous	1					Malignancy	19
						Miscellaneous	4

Table 5- Histopathological examination

Gynaecological (18)	Breast (8)	Oral (4)	Other site (10)				
Benign	12	Benign	7	Benign	3	Benign	8
Ca. in-situ	4	Malignancy	1	Malignancy	1	Malignancy	2
Malignancy	2						

Table 6- DCCP activities

Oral (428)	Breast (184)	Cervix (2953)
Non-malignancy	315	2625
Pre malignancy (clinic/cyto)	96	321
Malignancy	17	7
	Non malignancy	Non malignancy
	Malignancy	Pre Malignant
	Miscellaneous	Malignancy
	131	12
	41	41

Thyroid (120)	Lymphnode (80)	Other site (200)
Benign	Benign	Benign
Suspicious	Granulomatous	Suspicious
Atypia	Suspicious	Malignancy
Malignancy	Malignancy	Miscellaneous
Miscellaneous	Miscellaneous	
107	19	114
0	54	0
1	0	3
4	7	83
8	0	

E.C.D.C., PALAKKAD

Dr. Binu.M.Chandini Resident Medical Officer

The early cancer detection center, Palakkad - one of the peripheral center of RCC, Trivandrum, offers facilities for cancer awareness, early cancer detection, chemotherapy, pain and palliative care. Cancer awareness classes, slide shows and cancer detection camps for 3 different population groups were conducted. These groups were:

1. People coming to district hospital, taluk hospitals, primary health center and other private hospitals.
2. People from tribal areas like Agali, Sholayoor, Pudur, Attappadi and Walayar.
3. People from industrial area - those who are working in different companies and those who are residing near the industrial area.

A total of 23 cancer awareness classes and 21 cancer detection camps were conducted in association with ISH project during the year. These camps were organized at the tribal areas Vadhyaarchalla, Mangalamthumchalla, Nadupathy and Chellankavu.

Total number of persons screened : 7,120
 Number of persons screened in the center : 3,118
 Number of persons screened in the camp : 4,002

Table 1 Details of cytological specimens screened

Specimen	ECDC	Camp	Total
Cervical smears	468	581	1,047
Oral smears	96	66	162
Sputum	172	—	172
Breast (FNAC)	28	25	53
Thyroid (FNAC)	7	3	10
Lymphnode (FNAC)	12	6	18
Nipple discharge	8	2	10
Fluids	4	0	4
Other sites	22	8	30
Total	815	691	1,506

Table 2 Analysis of gynecological specimens

Lesion	Centre	Camp	Total
Normal	79	192	271
Inflammation	186	210	406
Inflammation with glandular cell proliferation	26	12	38
Trichomonas vaginalis infection	53	68	121
Fungal infection	8	15	23
Trichomonas & H.S.V. infection	5	8	13
Viral infection	3	4	7
Mild dysplasia	5	8	13
Inflammation with mild dysplasia	7	10	17
Trichomonas vaginalis infection with mild dysplasia	10	4	14
Fungal infection with mild dysplasia	1	2	3
Viral infection with mild dysplasia	2	0	2
Inflammation with moderate dysplasia	4	2	6
Trichomonas vaginalis infection with moderate dysplasia	3	1	4

Glandular cell atypia	13	2	15
Endocervicitis	18	15	33
Severe dysplasia / Ca. in-situ	5	11	16
Atypical/suspicious of malignancy	3	1	4
Squamous cell carcinoma	19	12	31
Radiation changes	5	5	10
Total	466	581	1,047

Table 3 Oral Smear

Lesion	Centre	Camp	Total
Normal	73	41	114
Inflammation	5	22	27
Dysplasia	4	2	6
Atypical/Suspicious	8	0	8
Malignant	6	1	7
Total	96	66	162

Sputum cytology

Lesion	Centre	Camp	Total
Non-Malignant	155	0	155
Atypical/Suspicious	7	0	7
Malignant	10	0	10
Total	172	0	172

Breast (FNAC)

Lesion	Centre	Camp	Total
Non-Malignant	20	19	39
Fibro-adenoma	4	3	7
Atypical/Suspicious	2	3	5
Malignancy	2	0	2
Total	28	25	53

Thyroid (FNAC)

Lesion	Centre	Camp	Total
Non-Malignant	7	3	10
Total	7	3	10

Lymphnode (FNAC)

Lesion	Centre	Camp	Total
Non-Malignant	10	6	16
Lymphadenitis	1	0	1
Malignancy	1	0	1
Total	12	6	18

Nipple discharge

Lesion	Centre	Camp	Total
Non-Malignant	8	2	10
Total	8	2	10

Fluids

Lesion	Centre	Camp	Total
Non-Malignant	3	0	3
Malignant	1	0	1
Total	4	0	4

Other sites

Lesion	Centre	Camp	Total
Benign	20	8	28
Malignant	2	0	2
Total	22	8	30

PAIN CLINIC

New Cases	=	75
Step I	=	3
Step II	=	16
Step III	=	56
Number of follow up cases	=	186

ENGINEERING SECTION

The new operation theatre block was completed. Canteen is shifted to the place earmarked in the block II ground floor of RCC. The civil work for the new cobalt unit is expected to complete shortly. Thirty number of semi pay ward spaces for international school of colposcopy in the community oncology division was completed. The civil work for the morphine-manufacturing unit for RCC has been completed in the pharmacy wing of medical college, Trivandrum. The new ultrasound room for thyroid scanning was completed. Additional facilities were given in the blood bank and clinical lab for improving blood donor facilities and blood collection facilities. One 120 Ton reciprocating chiller for the central air conditioning system was replaced and commissioned in place of old and damaged 200 Ton chiller.

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 World Health Organisation, Geneva, Switzerland
 World Health Organisation, Regional office, New Delhi
 International Union Against Cancer (UICC) Geneva, Switzerland
 National Cancer Institute, Bethesda, Maryland, USA
 International Agency for Research on Cancer (IARC), Lyon, France
 Bhabha Atomic Research Centre, Bombay
 Director General of Health Services, Government of India, New Delhi
 Medical College Hospital, Trivandrum
 Sree Avittam Thirunal Hospital for Women and Children, Trivandrum
 Dental College, Trivandrum
 Sree Chitra Thirunal Institute of Medical Sciences & Technology, Trivandrum
 Kerala State Committee on Science, Technology and Environment, Trivandrum
 Director of Health Services, Government of Kerala, Trivandrum
 Atomic Energy Commission, Government of India
 Census Operations, Kerala
 Directorate of Economics and Statistics, Kerala
 University of Kerala
 Mahatma Gandhi University, Kerala
 Drugs Controller, Trivandrum
 College of Pharmaceutical Sciences, Trivandrum
 United Nations Population Fund
 Electronic, Research & Development Centre of India, Trivandrum

STAFF STRENGTH

Technical and Scientific Staff

Position	No.	Position	No.
Scientific Officer Gr. I	1	Lab. Technician Sr. Gr.	8
Senior Scientific Asst.	1	Jr. System Analyst	1
Medical Records Officer	1	Library Assistant	2
Cytotechnologist Sr. Gr.	3	Lab. Technician	2
Technical Officer	4	Dietitian	1
Nursing Superintendent	1	Staff Nurse	10
Nursing Supervisor	2	Protocol Nurse	1
Radiographer Sr. Gr.	20	Staff Nurse	148
Senior Radiographer	1	Radiographer	7
Lab. Technician Sr. Gr.	1	Pharmacist	1
Head Nurse	14	Social Investigator Gr. I	1
Head Nurse and		Social Investigator	1
Clinical Instructor	1	Mould Room Technician Sr. Gr.	1
Cytotechnician Sr. Gr.	2	Anaesthesia Technician Gr. I	1
Cytotechnologist	4	Theatre Technician	1
Senior Lab. Technician	1	Data Entry Operator	3
RIA Technician Gr. I	3		

Engineering Staff

Position	No.
Chief Maintenance Engineer	1
Maintenance Engineer	1
Electrical Supervisor Gr. I	4
Electrician	3
Electronic Technician	1

Administrative Staff

Position	No.	Position	No.
Registrar	1	Cashier Gr. I	1
Controller of Finance	2	Cashier cum Receptionist	3
Administrative Officer	1	Telephone operator	1
Finance Officer	1	Clerk Gr. I	2
Administrative Officer (Clin. ser.)	1	Clerk	1
Accounts Officer	1	Typist Gr. I	8
Asst. Public Relations Officer	1	Dark Room Asst.	1
Asst. Administrative Officer	1	Driver Gr. I	3
Asst. Accounts Officer	1	Driver Sr. Gr.	1
Asst. Purchase Officer	1	Senior Helper	18
Secretary to Director	1	Senior Animal House Keeper	2
Sergeant Gr. I	1	Despatcher	2
Senior Office Asst.	1	Helper	4
Junior Personal Asst.	5	Security Guard Gr. I	1
Office Asst. Sr. Gr.	2	Security Guard	19
Office Asst.	1	Gardner	1

RCC BID FAREWELL TO THE FOLLOWING STAFF DURING 2000-2001

1. Dr. B Chandralekha
Professor of Cytopathology
2. Dr. V Padmanabhan
Professor of Radiation Physics
3. Sri. C. Viswanathan
Sr. Radiographer
4. Sri. B. Sadasivan Nair
Security Guard
5. Sri. G. Sukumaran Nair
Security Guard

RCC wish them a happy prosperous of life

ACCOUNTS 2001-2002

**REGIONAL CANCER CENTRE SOCIETY,
BALANCE SHEET**

PREVIOUS YEAR	SCH	LIABILITIES	CURRENT YEAR	
			Rs.	Ps.
382747852.29	I	CAPITAL FUND	386256777.29	
2052449.12	I	SPECIFIC FUNDS	2202066.12	
11301315.00		UNUTILISED GRANTS	6047536.00	
1378042.95		STAFF WELFARE FUND	1378042.95	
38435842.10		CCL FUND	38572342.10	
931002.14	II	ADV. RECEIVED FOR RESEARCH PROJECTS	800629.46	
43788204.19	IV	SECURED LOANS	89938684.67	
		<u>CURRENT LIABILITIES AND PROVISIONS</u>		
20774681.48	V	CURRENT LIABILITIES - OTHERS	11744237.70	
18897196.85	VI	CREDITORS FOR GOODS SUPPLIED	17381198.85	
159687097.53	VII	PROVISION FOR DEPRECIATION	179587133.16	
679993673.63		TOTAL	723905650.30	

Notes Forming Part Of Accounts.

Place : Trivandrum
Date : 8/10-2002

R.MOHANAKUMAR
CONTROLLER OF FINANCE

**TRIVANDRUM (Reg. No. 567/81)
AS ON 31st MARCH 2002**

PREVIOUS YEAR	SCH	ASSETS	CURRENT YEAR	
			Rs.	Ps.
328637029.18	VII	FIXED ASSETS	355678556.24	
10485470.06	VIII	CAPITAL WORK-IN-PROGRESS	10465470.06	
48767575.00	IX	INVESTMENTS	47267575.00	
		<u>CURRENT ASSETS AND LOANS AND ADVANCES</u>		
6816983.76	X	CLOSING STOCK	7473781.27	
3724104.52	XI	ADVANCES TO PROJECTS	4166484.52	
11919049.50	XII	ADVANCES - OTHERS	10214076.14	
9017684.00	XIII	INVESTIGATION FEES RECEIVABLE	11375858.00	
377059.00		SECURITY DEPOSITS	368559.00	
10820743.82	XIV	BALANCE WITH BANKS	1037824.82	
575296.96	XV	CASH IN HAND	337532.71	
4750000.00		GRANT IN TRANSIT	0.00	
244122877.85	XVI	INCOME & EXPENDITURE A/C	275624952.54	
679993673.63		TOTAL	723908550.30	

This is the Balance Sheet referred to in my Report Of Even Date

TAJITH KUMAR, B.Com,ACA
CHARTERED ACCOUNTANT
MEMBERSHIP NO.209348

**REGIONAL CANCER CENTRE SOCIETY
INCOME AND EXPENDITURE ACCOUNT**

PREVIOUS YEAR	SCH	EXPENDITURE	AMOUNT	
			Rs.	Ps
2814714.97	A.	Opening Stock	4987656.92	
39375890.24	A.	Purchases	45829662.53	
57192933.88	B	Salaries and Allowances	71979665.33	
275793.00		Uniform and Liveries	452455.25	
274597.00	C	Rent,Rates & Taxes	218253.00	
941352.65	D	Postage, Telephone & Telegrams	1259175.32	
738599.40	E	Travelling Expenses	734677.00	
594090.85	F	Printing & Stationary	666630.83	
55039.00		Advertisement Charges	189378.50	
5534751.80	G	Electricity and Water Charges	6368039.00	
88630.00		Remuneration to Auditors	102479.00	
4093806.21	H	Repairs & Maintenance	5820946.44	
1097264.00	I	Service Contract Charges	1019913.00	
2486438.62		Interest & bank Charges	3766295.57	
3000.00		Training Expenses	5928.00	
121097.50		Conference/Seminar/Workshop	130456.00	
182593.00	J	Computer Expenses	189866.00	
7018.00		Books & Periodicals	5741.00	
45422.00		Landscaping & Gardening	70646.50	
1184487.00		Proportionate Share to NTR	1435705.00	
163540.00	K	Miscellaneous Expenses	166578.00	
18205063.00		Depreciation	18309458.00	
10545.00		Cancer Education Programme	113946.00	
135458839.12		TOTAL	153823652.16	

Notes Forming Part Of Accounts

**TRIVANDRUM(Reg.No567/31)
FOR THE YEAR ENDED 31st MARCH 2001**

PREVIOUS YEAR	SCH	INCOME	AMOUNT	
			Rs.	Ps
33691000.00		Grant-In-aid, Govt of Kerala	34625000.00	
0.00		Grant-in-aid, Govt of India	1359005.00	
47260174.36		Investigation Fees	67385624.00	
17042328.29		Sale of Medicines	26909295.50	
38188.00		Interest Income	364339.00	
156007.00	L	Training Fees	428300.00	
636980.35	M	Miscellaneous Income	532263.65	
4987656.92		Closing Stock	6816983.76	
31646504.20		Excess of Expenditure over Income	25402741.25	
135458839.12		TOTAL	163823652.16	

Vide my Report of even date

TAJITH KUMAR, B.Com,ACA
CHARTERED ACCOUNTANT
MEMBERSHIP NO.209348

REGIONAL CANCER CENTRE SOCIETY
CANCER CARE
INCOME AND EXPENDITURE ACCOUNT

PREVIOUS YEAR	EXPENDITURE	CURRENT YEAR	
		Rs.	Ps.
84000.00	Salaries & Allowances	85000.00	
50500.00	Advt. & Publicity	34050.00	
53380.00	Fuel charge	27141.25	
16424.00	Maintenance & spare parts	5506.00	
2553814.00	Reimbursement to Patients	3717260.00	
5484.00	Miscellaneous Expenses	525.00	
8050.00	Insurance Charges	0.00	
680115.92	Excess of Income over Expenditure	0.00	
3451567.92	TOTAL	3869482.25	

Place : Trivandrum.
Date : 9/10-2002

R.MOHANAKUMAR
CONTROLLER OF FINANCE

TRIVANDRUM (Reg.No. 567/81)
FOR LIFE SCHEME
FOR THE YEAR ENDED 31st MARCH 2001

PREVIOUS YEAR	INCOME	CURRENT YEAR	
		Rs.	Ps.
3451567.92	Interest on FD & Investments	3304989.89	
	Excess of Expenditure over Income	564492.36	
3451567.92	TOTAL	3869482.25	

T.AJITH KUMAR. B.Com,ACA
CHARTERED ACCOUNTANT
MEMBERSHIP NO.200348

**SCHEDULE -VII
REGIONAL CANCER CENTRE SOCIETY
SCHEDULE OF FIXED ASSETS**

ITEM	Gross Block			Cost on 31.3.2002
	Cost on 1.4.01	Additions	Deduction	
BUILDINGS, OLD	890110.25	0.00		860110.25
BUILDINGS	29416877.06	202935.00		29619812.06
BUILDINGS, RT	17094500.70	0.00		17094500.70
BUILDING PHASE II	80487812.99	0.00		80487812.99
BOUNDARY WALL	127118.63	0.00		127118.63
BUILDING - COBALT UNIT	975347.00	0.00		975347.00
COBALT UNIT	0.00	17904878.30		17904878.30
WATER SUPPLY AND DRAINAGE	2105115.43	9471.00		2114586.43
FURNITURE AND FITTINGS	8117020.43	500135.00		8617155.43
OFFICE EQUIPMENT	1922501.43	228555.00		2151056.43
HOSPITAL & LAB EQUIPMENTS	103269938.97	3017743.00		106287681.97
ELECTRICAL INSTALLATION	37006364.90	27320.00		37033684.90
FIRE DETECTION	3841120.00	0.00		3841120.00
AIR CONDITIONING	16589104.35	66300.00		16655404.35
COMPUTER HARDWARE AND SOFTWARE	3115200.00	40525.00		3155725.00
GAS AND CYLINDER	6589152.05	13985.00		6613137.05
VEHICLES	1243151.60	0.00	480570.00	762581.60
LIBRARY BOOKS AND JOURNALS	5761346.37	5383555.78		12154902.15
LIFT AND ELEVATOR	5913240.00	0.00		5913240.00
ASSETS (DONATIONS)	337612.00	0.00		337612.00
TELEPHONE EQUIPMENTS	2872586.00	14683.00		2887269.00
TOTAL	328637028.16	27420097.08	480570.00	355576558.24

**TRIVANDRUM (Reg. No. 567/81)
AS ON 31-03-2002**

ITEM	DEPRECIATION			NET BLOCK	
	Up to 31.3.01	Additions	Total upto 31.3.2002	Ason 31.3.2002	Ason 31.3.01
BUILDINGS, OLD	462732.55	19888.88	482601.43	377508.82	397377.70
BUILDINGS	1230422.16	865769.50	13170191.68	16446620.40	17112454.50
BUILDINGS, RT	5662888.49	571580.61	6234469.10	10880031.60	11431612.21
BUILDING PHASE II	17986379.85	3124061.65	21110441.50	59357171.49	62461233.14
BOUNDARY WALL	61863.38	3262.76	65126.14	61932.49	65255.25
BUILDING - COBALT UNIT	0.00	48767.35	48767.35	926579.65	
COBALT UNIT	0.00	2832033.75	2832033.75	15072844.55	975347.00
WATER SUPPLY AND DRAINAGE	1467471.95	97067.17	1564539.12	560047.31	637613.48
FURNITURE AND FITTINGS	4200630.76	441652.46	4642283.22	3674572.21	3916389.57
OFFICE EQUIPMENT	1154268.29	143518.22	1337786.51	813269.92	728233.14
HOSPITAL & LAB EQUIPMENTS	62286948.89	6600259.96	68886208.85	37401473.12	40663590.06
ELECTRICAL INSTALLATION	23094202.99	2091222.28	25185425.27	11890259.63	13914161.95
FIRE DETECTION	2330631.84	226573.22	2557205.06	1263914.94	1510488.16
AIR CONDITIONING	11812863.40	735381.14	12538244.54	4116158.81	1776240.93
COMPUTER HARDWARE AND SOFTWARE	2713433.28	176916.68	2890349.96	265375.04	401768.72
GAS AND CYLINDER	3663417.41	401957.94	4365375.35	2277761.70	2665734.64
VEHICLES	162516.37	122013.00	274529.37	489062.23	610065.23
LIBRARY BOOKS AND JOURNALS	3748091.17	1261023.29	5009114.46	7145798.69	3013255.20
LIFT AND ELEVATOR	3900352.75	301933.08	4202285.83	1710964.17	2012887.25
ASSETS (DONATIONS)	250200.30	13102.75	263303.05	74248.95	87351.70
TELEPHONE EQUIPMENTS	1791411.70	164379.84	1955791.54	931486.36	1081183.30
TOTAL	158353787.53	20233345.63	179587133.16	17989423.08	168802671.63

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

T.C.6/1012
Konathukulangara
Vattiyoorkavu.P.O.
Trivandrum - 695 013
Telephone : 362159
Mobile : 98473 16622
954651-645045
E-mail: ajithchartered@rediff.com

AUDITOR'S REPORT

1. I have audited the attached Balance Sheet of the REGIONAL CANCER CENTRE SOCIETY, Regn. No. 587/81, Thiruvananthapuram as at 31st March, 2002 and the Income and Expenditure Account for the year ended on that date, annexed thereto. These Financial Statements are the responsibility of the RCC Management. My responsibility is to express an opinion on these financial statements based on my audit. I conducted my audit in accordance with auditing standards generally accepted in India. Those standards require that I plan and perform the audit to obtain reasonable assurance about whether the financial statements are free of material misstatement. An audit includes examining on a test basis, evidence supporting the amounts and disclosures in the financial statements. An audit also includes assessing the accounting principles used and significant estimates made by management, as well as evaluating the overall financial statement presentation. I believe that my audit provides a reasonable basis for my opinion.
2. I have obtained all the information and explanation which to the best of my knowledge and belief were necessary for the purpose of my audit.
3. In my opinion, proper books of accounts have been kept by the Society so far as it appears from my examination of those books of accounts.

4. The Balance Sheet, Income and Expenditure account and the schedules thereon are in agreement with the books of accounts maintained by the Society.
5. In my opinion and to the best of my information and according to the explanations given to me and subject to the following:
 - I. Internal Audit and Internal control in respect of Purchases of Medicines, Chemicals acquisition of fixed assets, Purchases of other Stores items including Stationeries and the functions of Engineering Department relating to the Civil and Electrical Projects and its maintenance works are not satisfactory and not commensurate with the size and magnitude of activities of the Society.
 - II. Allocation of grant of Rs.413.73 Lakhs received from Government of Kerala between Capital and Revenue at Rs. 10.14 Lakhs and Rs.403.59 Lakhs respectively as referred to in Note-No-1.
 - III. The land assigned by the State Government Vide GO/619/88/RD, dated, 28.7.1988, measuring 69 cents at Palghat and the building constructed there on for which the Patta has not been received as referred to in Note-No.4
 - IV. Land at Pulayanarkotta measuring 17 acres in Sy.No.2122 assigned by the Government of Kerala Vide Order No.GO/MS/1054/22/RD, dated 17.11.1982 has not been brought to the accounts for want of clear documents of Title as referred to in Note No.5
 - V. Cancer care for life "SBT Staff SB A/C No.400328" is subject to reconciliation and confirmation and there is a reconciliation difference of Rs.13720/- as on 31.3.2002 between the Bankbook balance and PassBook balance as referred to in Note No.7.
 - VI. Capital WIP for an amount of Rs.10465470.06/- as on 31.3.2002 is the balance in the account brought forward from

last five years and carried as such as the same is pending proper adjustments in the accounts since the finalisation of the contractor's bill has not been completed as referred to in Note No.8.

VII. The investment and term deposit suspense account made against CCL fund account has not been reconciled as on 31.3.2002 as referred to in Note No.2 and;

i. The Balance Sheet read together with the Schedules and Notes thereon gives a true and fair view of the state of affairs of the Society as at 31st March, 2002 and ;

ii. The Income and Expenditure Account read together with the Schedules and Notes thereon gives a true and fair view of the excess of expenditure over income of the Society for the year ended 31st March, 2002.

T.AJITH KUMAR. B.Com, ACA,
CHARTERED ACCOUNTANT,
Mem. No. 209348.

Place : Thiruvananthapuram,
Date : 09-10-2002.

SCHEDULE NOTES FORMING PART OF ACCOUNTS

1. Out of the grant received from Government of Kerala during the financial year 2001-2002 amounting to Rs.413.73 Lakhs. an amount of Rs.10.14 Lakhs have been transferred to Capital Fund representing Fixed Assets acquired or constructed during the year and the balance of Rs.403.59 Lakhs, have been treated as Revenue and taken to Income and Expenditure Account.
2. The investments against Cancer Care for Life Fund Account has not been reconciled as on 31.3.2002.
3. An amount of Rs.3,50,000/- representing unidentified credit in the account with State Bank of Travancore for which proper adjustments in the accounts are pending.
4. The land assigned by the State Government vide GO/619/88/RD. dated. 28.7.1988 measuring 69 cents at Palghat and the building constructed there, has not been brought to the accounts, since clear documents of Title has not been received.
5. The Land at Pulayanarkotta measuring 17 acres assigned by the Government of Kerala vide order No.GO(MS)No.1054/22/RD. dated: 17.11.1982 has not been brought to accounts, since the clear document of Title has not been received.
6. Claim made by the Executive Engineer, Special Building, PWD amounting to Rs.3,45,615/- deposit works, carried out for RCC, has not been acknowledged as debt and hence not provided for in the accounts.
7. Cancer care for life "SBT Staff SB A/C No.400328" is subject to reconciliation and confirmation and there is a reconciliation difference of Rs.13720/- as on 31.3.2002 between the Bankbook balance and PassBook balance.
8. Capital WIP for an amount of Rs.10465470.06/- as on 31.3.2002 is the balance in the account brought forward from last five years and carried as such as the same is pending proper adjustments

in the accounts since the finalisation of the contractor's bill has not been completed.

9. Stationery is accounted on cash basis and no stock in hand is taken in the account as on 31st March, 2002.
10. The balances in Suppliers Account and other party accounts are subject to confirmation of the concerned suppliers and parties.
11. Previous year figures have been re-grouped and re-cast wherever necessary to suit the current year's layout.

Vide my Report of even date.

R.MOHANAKUMAR
CONTROLLER OF FINANCE

T.AJITH KUMAR B.Com,ACA
CHARTERED ACCOUNTANT
Mem.No.209348.

Place:Trivandrum
Date:09-10-2002

SIGNIFICANT ACCOUNTING POLICIES

1. The Financial Statements are prepared on historic cost convention method.
2. Fixed Assets are accounted for at cost less depreciation. Depreciation is provided at the rates as evaluated by the management and on written down value method. Full depreciation for the year is provided at in respect of additions.
3. Chemicals, medicines and consumable stores are valued at cost.
4. Grant from Governments are accounted, based on the sanction received.
5. Contributions in foreign currency are accounted on realisation basis.
6. Provident Fund is regularly contributed to the Employees Provident Fund and is deposited with Regional Employees Provident Fund Commissioner, Contributions towards gratuity is made through Group Gratuity Scheme of Life Insurance Corporation.

Vide my Report of even date.

R.MOHANAKUMAR
CONTROLLER OF FINANCE

T.AJITH KUMAR B.Com,ACA
CHARTERED ACCOUNTANT
Mem.No.209348.

Place:Trivandrum
Date:09-10-2002