



**REGIONAL
CANCER
CENTRE**

TRIVANDRUM

1994-95

TRIVANDRUM 10 10 95
Senior Librarian
Regional Cancer Centre
Trivandrum-695 011.

REGIONAL CANCER CENTRE

TRIVANDRUM-695 011, KERALA, INDIA



REPORT OF ACTIVITIES 1994-95

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INTRODUCTION

During the year under report, the Regional Cancer Centre, Trivandrum witnessed rapid progress in all the field of activities like clinical services, community outreach programmes, research, conduct of seminars and conference etc. This year the Centre got the rare privilege of hosting the 16th Annual Congress of Association of Radiation Oncologists India (A.R.O.I) and Centenary Celebrations of Rontgen's discovery of x-rays and we are proud of the fact that the same was conducted with all the grandeur and splendour characteristic of Kerala, hospitality and culture. The Centre received quite a good number of visitors of international repute like Dr. Rajendra G. Desai, MD, Ph.D, California, Dr. M.R. Das, Director, Centre for Cellular & Molecular Biology, Hyderabad, Dr. D. M. Parkin, I.A.R.C., France, Prof. Francisco Nogales, university of Granada, Dr. Ishikawa, Pancreatic Surgeon, Dr. Nori, Adult diseases Hospital, Osaka, Japan, Dr. Julien Peto, Rotary Cancer Hospital, U. K., Dr. Mircheva, Atomic Energy Agency, Vienna, Dr. Kunugita, Japan, Dr. Michael Brada, Dr. Peter Blake of Royal Marsdon Hospital, U.K., Dr. Twycross of Oxford University, U. K. and Dr. Jan Stjernsward, Chief, Cancer Care Unit, W.H.O, Geneva and interaction with them has significantly enhanced the academic standard of our faculty members.

In the field of clinical services, the number of new patients touched an all time high mark of 7429 per year in spite of the fact that at present the Medical Colleges and a few private Cancer Institutes in Kerala acquired modern equipment for clinical services, again indicating the confidence of the public of Kerala in the quality of our services. The diagnostic investigations also showed a marked increase mostly referrals from other hospitals in the Medical College campus, again emphasizing the quality and the reliability of the diagnostic services of this Centre.

The Regional Cancer Centre through its community programmes and field activities was able to downstage the common forms of cancers in Kerala and to modify the referral patterns in the state through professional training programmes. As a result of this more than 2/3rd of the referrals to R.C.C. at present come directly from doctors working in P. H. Centres and private Hospitals which will go a long way in administering early treatment.

In the administrative set up Sri. A. K. Antony in his capacity as Hon'ble Chief Minister of Kerala took over the Chairmanship of the Governing Body of the R.C.C. Society. Sri V. M. Sudheeran, Hon'ble Minister for Health took over the Vice-Chairmanship of the Society.

We acknowledge with gratitude the donations the Centre received from various sources especially those from Sir Rattan Tata Trust and Kerala Transport Development Finance Corporation.

The construction work of the new building is nearing completion and it will be ready for occupation by April, 1996.

DEPARTMENTAL ACTIVITIES

DIVISION OF RADIOTHERAPY

Dr. M. Krishnan Nair	Director & Professor
Dr. N. Balakrishnan Nair	Professor
Dr. F. Joseph	Professor
Dr. B. Rajan	Professor
Dr. T. Gangadevi	Assoc. Professor (On leave)
Dr. Suresh Chandra Dutt	Assoc. Professor
Dr. P. G. Jayaprakash	Assoc. Professor
Dr. C.S. Rafeeka Beegum	Assoc. Professor
Dr. S. Parameswaran	Assoc. Professor
Dr. V. Narayana Bhattathiri	Assoc. Professor
Dr. Jayaprakash Madhavan	Assoc. Professor
Dr. K. Ramadas	Asst. Professor
Dr. K. Ratheesan	Asst. Professor
Dr. Thomas Koilparambil	Lecturer
Dr. Francis V. James	Lecturer
Dr. Rema Jyothirmayi	Lecturer
Dr. Rojymon Jacob	Lecturer

The division of Radiotherapy is responsible for the primary care of cancer patients attending this centre and it functions as two units conducting outpatient clinics, 6 days a week. This division along with other divisions of this centre conducts regular combined tumour board three times a week. We also closely interact with other departments in the Medical College Hospital, Trivandrum and conduct speciality clinics regularly as follows:

Paediatric Tumour Board	Every Monday
Gynaecological Tumour Board	Last Friday of every month
Gastroenterology Tumour Board	1st Thursday of every month
Surgery Tumour Board	3rd Thursday of every month

We also conduct regular follow-up clinics at our peripheral centres at Ernakulam (ECDC) on 3rd Saturday and at Karunagappally on 3rd Thursday of every month.

Clinical Activities:

Compared to previous years the number of patients attending our clinic has increased.

Total number of new patients	7429
Review cases	58899
Total patient visits	66928
No. of Inpatient admissions	5951
No. of patients who had teletherapy trt	5836
Interstitial implantation (Radium)	99
Interstitial implantation (Iridium)	1
Mould treatment	10
Intracavitary treatment of carcinoma Oesophagus (Radium)	39
Intracavitary treatment (Selectron) for Gynaecological Malignancy	349
Intracavitary treatment (Manual Afterloading) for Gynaecological malignancies	29

Academic Activities:

The division of Radiotherapy functions as the postgraduate training centre for Medical College, Trivandrum and admits 2 candidates for MD radiotherapy and 2 candidates for DMRT every year and also is an approved centre for Dip. N. B. (Radiotherapy). We actively participate in the training programme of the medical and paramedical students of Medical College, Trivandrum and give them the basic concepts in oncology management.

During this year our academic activities included seven guest lecturers in addition to regular Journal Clubs and Symposia.

List of Postgraduate Students:

1.	Dr. Joseph Edison	M.D. Radiotherapy
2.	Dr. Beela Rasah Mathew	"
3.	Dr. Ajith Kumar T. V.	"
4.	Dr. Sivanandan	"
5.	Dr. Aswin Kumar	"
6.	Dr. Cherian Varghese	"
7.	Dr. Shereen Satheesh	DMRT (Diploma)
8.	Dr. Indumathy	"

This year two of our staff, Dr. K. Ramadas and Dr. K. Rathoosan were awarded NCI Fellowship and successfully completed 6 months training in Brachytherapy and paediatric Oncology at the Department of Radiation Oncology, UCSF San Francisco and Mallinckrot's Institute of Radiology, St. Louis respectively. Dr. V. N. Bhattahtiri was awarded the ICRETT Fellowship to visit Cookridge Hospital, Leeds UK in March 1995.

Workshops and Conferences:

This division hosted the VI AROI Kerala Chapter annual meeting on 4th December 1994. In addition to the staff of the centre 30 delegates from different parts of the State attended the meeting.

This centre hosted the centenary celebration of Roentgen's Discovery of X-rays and XVI Annual Congress of AROI from 2nd to 4th February 1995. A short account of the same is given below.

The 16th AROI Congress coincided with the Centenary Celebration of the Roentgen's Discovery of X-rays and the RCG got the rare privilege to host the same. We are proud of the fact that the congress was conducted with all the grandeur and splendour characteristic of Kerala hospitality and culture.

More than 300 delegates including many from outside India attended the conference held at I.T.D.C. Convention Centre Kovalam.

The conference was inaugurated by Hon'ble Chief Minister of Kerala Shri. K. Karunakaran. Dr. Muruswamy gave the Presidential address and Dr. M. Krishnan Nair, Chairman of the Organising Committee welcomed the gathering. Dr. Mahajan, Secretary of AROF presented the report and the proceedings of the conference was released by Shri. Gopal Krishna Pillai, IAS, Secretary to Govt., Health & Family Welfare Dept., Govt. of Kerala. Dr. B. Rajan, Secretary-General gave the vote of thanks. All previous Presidents and Secretaries of the AROF were honoured with medal inception.

The academic lustre was the pre-congress workshop for two days. It was conducted in the Regional Cancer Centre Conference hall and attended by 100 delegates. The topics discussed were Neuro Oncology, Genetherapy, Urooncology, Radiobiology, Palliative care and Rehabilitation. Dr. Michael Brada of Royal Marsden Hospital conducted the Neurooncology workshop. Professor Karol Sikora of Hammersmith was in charge of Genetherapy. Dr. Gill Ross of Royal Marsden Hospital and Institute of Cancer Research, Sutton led the Radiobiology workshop. Dr. Dutta of Pittsburgh and Dr. Peter Blake of Royal Marsden Hospital were in charge of Urooncology. We were fortunate enough to have two stalwarts in the field of palliative care namely Dr. Jan Stjernsward, Chief, Cancer Care Unit, WHO, Geneva and Prof. Twycross of Oxford University, U.K. The workshop was very useful and well appreciated by all participants.

Scientific programmes of the conference consisted of various invited talks, preferred papers and posters. The prestigious Padam Singh Memorial Oration was delivered by Michael Brada of Royal Marsden Hospital and Institute of Research, Sutton, Surrey, UK. He talked on innovations in radiotherapy. The other prestigious Haldar Memorial Oration was given by Prof. Dr. B. D. Gupta, Prof. of Radiotherapy and Oncology, PGI, Chandigarh. He gave a brilliant overview of Radiotherapy developments and practice in India over the century.

The first day was marked by the lectures by J. Stjernsward on cancer control programmes and by Prof. K. Sikora on Radiotherapy on the 21st Century. The topics covered on first day were Radiobiology and Head and Neck Oncology. Both sessions had

invited papers as well as selected preferred papers. Dr. G. Ross of UK, Dr. J. Mircheva, International Atomic Energy Agency, Vienna, Dr. Kunugita, Dept. of Radiation Oncology, Health Kutakyushu, Japan gave invited lectures in radiobiology. Dr. N. K. Gupta of Christie Hospital and Holt Radium Institute, Manchester, UK and Dr. Thomas Cherian, Prof. of Surgical Oncology, Kasturba Medical College, Manipal gave the lead talks in Head and Neck Oncology.

On the second day we had two Guest Lectures, one was on Prostate cancer delivered by Dr. T. K. Dutta, Pittsburgh, USA. Other was by Dr R. Sankaranarayanan, International Agency for Research on Cancer, Lyon, France on "Cancer Survival in Developing countries—challenges and applications". The most important Gynaec Oncology session was lead by Dr. Dr. K. A. Dinshaw, Dr. N. Syed and Dr. Shirley Murrell. Dr. Dinshaw gave an overview of cervical cancer problems and challenges in Indian context, Dr. Syed talked on ISI in cervical and vaginal cancer and Dr. Shirley Murrell dealt on the management of carcinoma ovary.

Award paper session was also included in the evening. It was a great honour for the Regional Cancer Centre when Dr. Rema Jyothirmayi of RCC bagged the Gold Medal for best paper. She got the best paper award for her paper on "Randomised Trial of the chemopreventive potential of Vitamin A in Recurrence of Head and Neck Cancers".

On the final day Dr. Peter Blake gave the conference lecture on "Causes of Treatment Failure in Carcinoma Cervix". The Guest Lectures were given by M. Herbst of Germany on invention and development of X-rays—a Century.

The Radiation Physics session was conducted by Dr. P.N. Srivastava of USA and Mr. C.A. Davis of Regional Cancer Centre. Various participants also presented papers of very high standard.

The Palliative Care Session was marked by the guest lectures of Prof. R. Twycross "On challenges in Palliative Care". He also headed the sessions.

On all the three days there were poster sessions and poster resume. Best posters were given special awards. There was a very

informative and interesting Trade exhibition participated by leading companies from all over the world in the Radiation and Oncology. Both evenings there were good cultural programmes. I. T. D. C. Hotel, Kovalam co-operated with us very well and the Organizing Committee are extremely thankful to them.

Dr. V. N. Bhattathiri, very efficiently and promptly edited and published the proceedings entitled "Radiotherapy and Oncology 1995".

Research:

The list of clinical trial researches is given below:

Clinical Trials in Radiotherapy:

1. A randomised trial to evaluate the chemo-preventive potential of Vit. A. in the prevention of recurrence and 2nd primaries in Head and Neck Cancer.

R. Jyothirmayi, R. Sankaranarayanan, K. Ramadas, C.Varghese, F. Joseph, M. K. Nair

2. Use of concurrent Cisplatinium with radical radiotherapy in advanced carcinoma cervix.

Gangadevi, J. Edison, F. Joseph

3. Multiparametric radiosensitivity prediction in cervical cancer. P.G. Jayaprakash, Ramani, V. N. Bhattathiri and E. Abraham.

4. A clinical trial of 5 FU and interferon alfa 2b in Hepatocellular carcinoma. A. Kumar, J., Madhavan, K. Ramadas, R. Jyothirmayi, R. Jacob, F.V. James, F. Joseph, M. K. Nair.

5. A clinical trial on combined radiotherapy and Mitromycin C for Oropharyngeal cancer. R. Jyothirmayi, V.N. Bhattathiri, Ramadas K, F. Joseph, M.K. Nair.



Shri. K. Karunakaran, Hon'ble Chief Minister of Kerala is inaugurating the XVth AROI Conference (Feb. 1995) at Trivandrum. Standing from (R) to (L) Dr. G. Munuswamy, President AROI, Dr. M. Krishnan Nair, Chairman AROI Dr. Mahajan, Secretary AROI, Shri. Gopaikrishna Pillai, Secretary (Health), Dr. B.Rajan, Chief Organising Secretary. Prof. (Dr.) Twycross, Oxford University.



Shri. K. Karunakaran, Hon'ble Chief Minister of Kerala meets the distinguished visitors.



Dr. M. Krishnan Nair, Chairman of the Organising Committee (AROI) welcomes the gathering



Dr. M. Thangavelu inaugurating the International Symposium on "Recent advances in Pathology of Gynaecological Cancers".

6. Adjuvant chemotherapy with Procarbazine, Lomustin and Vincristin in Grade III & IV Glioma - a randomised study. B. Rajan, B. Mathew, F. Joseph, M. K. Nair.
7. Role of Interferon in the management of carcinoma nasopharynx. V. N. Bhattathiri, K. Ratheesan, F. V. James, F. Joseph, M. K. Nair.
8. Multimodal Assaying for prediction of intrinsic radiosensitivity of oral cancer. Bhattathiri V. N., Vijayakumar T., R. Ankathil & Raman P.
9. Influence of Haemoglobin and Iron on the radiocurability of oral cancer. Bhattathiri V. N., Sasidharan K & Chandralekha B.
10. Adjuvant Trial on carcinoma colon using 5 Fu and Levamisole vs 5 Fu. J Madhavan, F V James, Ramadas, Ratheesan, I Praseetha, Dr. Anandakumar, F Joseph and M. K. Nair.
11. Vincristine Trial in malignant Pleural effusion. Sivanandan, J Madhavan, R Jacob, Rema Jyothirmayi, F. V James, Ramadas, Anandakumar, F Joseph and M. K. Nair.

This division also collaborated with the Research division on several ongoing research programmes.

DIVISION OF SURGICAL ONCOLOGY

Surgery

Dr. Paul Sebastian	Associate Professor
Dr. M. Iqbal Ahmed	Assistant Professor
Dr. Chitrathara. K.	Assistant Professor
Dr. Jem Prabhakar	Lecturer
Dr. Berrylson Edward	Lecturer
Anaesthesiology	
Dr. Gladys Jeevy	Associate Professor
Dr. Rachel Cherian Koshy	Assistant Professor
Dr. P. Usha	Lecturer

In this reporting year 1368 surgical procedures and 272 endoscopies were done in this division. (Table 1)

TABLE 1

Major Operations	764
Minor Operations	631
Endoscopies	272
Total	1,667

The number of operations done in this division has been consistently increasing over the last 5 years (Figure 1). This has been achieved without any compromise in the quality of the work. The emphasis has been on preservation of function without affecting cure.

Flexible fibre optic nasopharyngolaryngoscopy, frozen section, colposcopy and LEEP were introduced during this year.

The region - wise distribution of the 764 major cases are given in Table 2.

TABLE 2

Surgical Procedures - distribution by region

Region	No.	Percent
Head and neck	394	49.9
Breast	161	21.8
GI & Retroperitoneum	44	6.0
Genito urinary and pelvis	91	12.3
Bone and soft tissue	49	6.6
Skin	25	3.4
	764	100.0

Head and neck cancers constituted the majority of cancers operated in this division. Their site - wise distribution was as follows (Table 3).

TABLE 3.

Head and neck cancers - site - wise distribution

Site	No.	Percent
Oral cavity	249	67.8
Oropharynx & Larynx	10	2.7
Thyroid	34	9.3
Salivary glands	21	5.7
Neck nodes	47	12.9
PNS	6	1.6
	367	100.0

Most oral cancers were either radiorecurrent or radio resistant cases. A large number of these patients required very extensive ablative procedures necessitating reconstruction which was always done as a primary procedure.

Modified radical mastectomy was done in 147 patients with

breast cancer, while 14 patients underwent breast conservation procedures. Operations for GI malignancies included oesophagogastric resections for carcinoma oesophagus, gastrectomies for carcinoma stomach, whipples resection for carcinoma head of pancreas, abdomino perineal resection and anterior resection for carcinoma rectum.

Of the 35 soft tissue sarcomas of which 26 were in the extremities. Limb conservation was possible in 15 of the patients. All the skin cancers were treated by wide excision except in 4 patients who required amputation of their lower extremity below the knee.

Table 4 gives the site wise distribution of genitourinary cancers.

TABLE 4

Genito urinary cancers - site distribution

Site	No.
Ovary	26
Cervix	27
Endometrium	13
Vulva & Vagina	8
Urethra	2
Penis	12

218 Cystoscopies were also done for initial staging of disease in carcinoma cervix and for post treatment evaluation Colposcopy and Loupe Electro surgical Excision Procedures (LEEP) for pre invasive lesion of the uterine cervix was started this year.

A variety of flaps were employed for reconstruction of defects after excision. Most of them were used for head and neck reconstruction while a few were for reconstruction of defects after mas-

ectomy and after excision of large soft tissue sarcomas.

TABLE 5

Flaps used for reconstruction

Flap	No.
Pectoralis major myocutaneous	109
Sternomastoid myocutaneous	14
Latissimus dorsi myocutaneous	3
Platysma myocutaneous	4
TFL myocutaneous	2
Gracilis myocutaneous	1
Nasolabial	18
Deltpectoral	6

Anaesthesia

Anaesthesia was given to 716 patients. 60% were head and neck cancers, the majority of which were post irradiation cases. These patients have problems like trismus and distorted anatomy of the airway which made intubation very difficult. Blind nasal intubation was done in all patients with a difficult airway and a tracheostomy was avoided. Analgesia was obtained by giving paracetamol and ketarolac 2 hours before wound closure. By this method, not only is the patient pain free at the end of surgery, but is awake, quiet and well oriented, thereby reducing the chance of post operative respiratory complications which occur with narcotics.

One lung ventilation using double lumen endobronchial tube was used in 6 cases. 25% of patients who underwent surgery for carcinoma breast had previous chemotherapy.

92 patients had hypertension and 59 had diabetes which were controlled before surgery.

20 patients whose blood group was rare or blood was not available from the blood bank, were given autologous blood transfusion. Hemoglobin and PCV were monitored. Hemodilution also

contributed to flap survival in patients who had primary reconstruction.

Teaching and Training

Post graduate students in General Surgery from Medical College, Trivandrum and in Oral and Maxillofacial Surgery from Dental College, Trivandrum and AB. Shetty Dental College, Mangalore had regular postings in this division. Journal clubs, and symposia are conducted regularly. This division also take part in all the academic activities of the centre.

Research Programme

1. STEC funded project "Evaluation of speculum examination and single Pap Smear in a high risk population (Principal investigator - Dr. Chitrathara. K) was completed in December 1994.
2. HPV project at Kazhakuttam Dr. Chitrathara is one of the clinical investigators.
3. This division collaborated with the Research Division on several ongoing research programmes.

Fellowships and awards

1. Dr. Chitrathara : ICRET Fellowship to undergo training in 'LEEP' at Jewish General Hospital, Montreal, Canada under Dr. A. Ferenezzy during October - December 1994.
2. Dr Jem Prabhakar: ICRET Fellowship to undergo training in Laser Surgery at National Medical Laser Centre, Rayne Institute University College Hospital, London, UK under Prof Stephen G. Bown from February - April 1995.
3. Dr. Paul Sebastian was awarded the best paper award in the Head and Neck Poster session for the paper "The sternomastoid island myocutaneous flap for oral cancer reconstruction" at the XVI UICC International Cancer Congress November 1994, New Delhi.

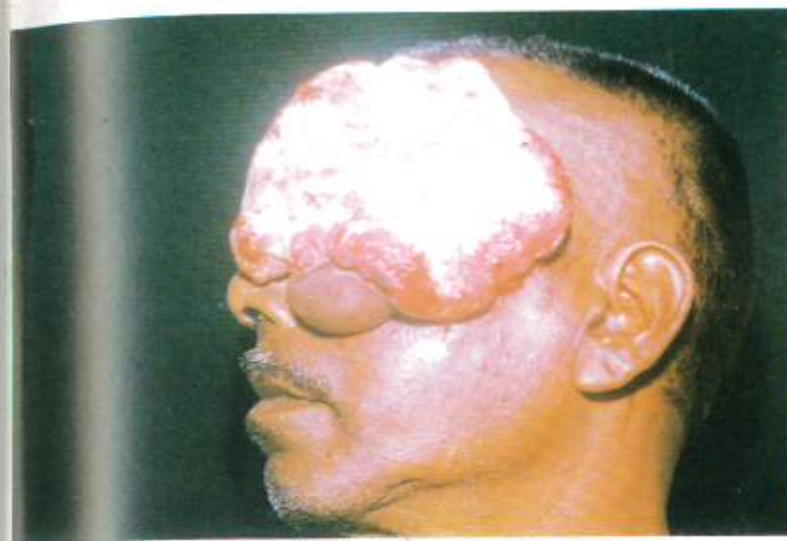


Fig. 1: A patient with advanced orbital tumour



Fig. 2: The same after radical surgery and primary reconstruction with pectoralis major myocutaneous flap



Fig. 3: A patient with advanced carcinoma tongue

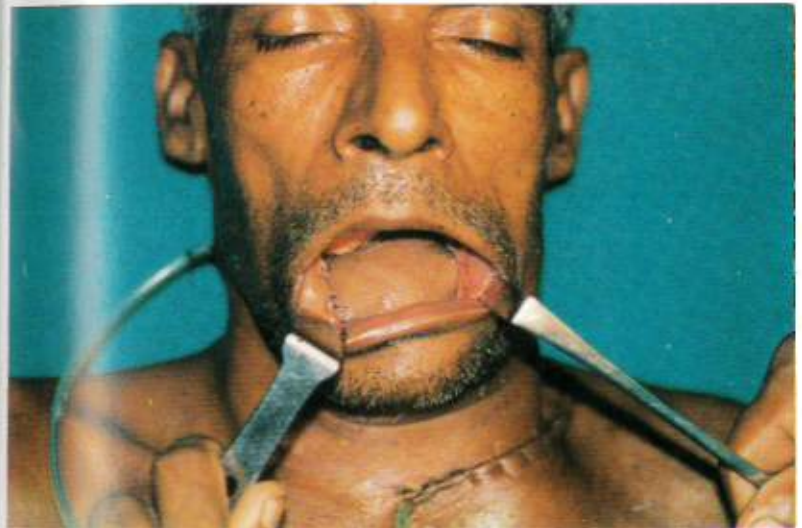


Fig. 4: The same after total glossectomy, arch mandibulectomy and primary reconstruction with pectoralis major myocutaneous flap

DIVISION OF PAEDIATRIC ONCOLOGY

Dr. P. K Kusumakumary

Assoc. Professor

This division is responsible for the primary care of all the patients under the age of 15 years registered in this centre.

Clinical activities: Paediatric Oncology out patient service functions on a referral basis six days a week. The number of new patients registered was more than that of previous years. The pattern of malignancy reported this year is given below:

	No. of cases	%
Leukaemias	100	36
Brain tumors	40	24
Lymphomas	19	7
Soft tissue sarcomas	7	2.5
Neuroblastoma	12	4.4
Wilm's tumor	9	3.3
Bone tumors	15	5.5
Retinoblastoma	14	5.1
Hepatoblastoma	6	2.2
Histiocytosis	9	3.3
Germ Cell Tumors	12	4.4
Miscellaneous	27	
Total number of new patients	-	290
M:F	-	177:113
Total number of admission	-	229
Number of out patient visits	-	5125

As in previous years the most common malignancy reported this year also was leukemias. All of them except 2 cases were acute leukaemias. The incidence of other tumors was comparable with that of previous years except the low incidence of soft tissue sarcomas.

All new patients underwent detailed diagnostic work up and appropriate therapy was given.

No. of L.P done	-	558
„ Bone marrow aspirations	-	178
„ Bone marrow biopsy	-	82
„ FNAC	-	20
„ Liver biopsy	-	3

As in the previous years paediatric tumor board met every Monday at 2 pm and major management decisions were taken by this team.

Academic & Research activities

This division actively participates in the teaching and training programme of undergraduates and postgraduates (MD radiotherapy & MD paediatrics) of Medical College, Trivandrum.

Dr. P. Kusumakumary is one of the principal investigators of the ICMR funded project 'Childhood Cancer—parental occupation and electromagnetic fields' in collaboration with National Institute of Occupational Health. The study is in progress.

Dr. Kusumakumary was deputed to Paediatric haematology Oncology Department of Kansas University Medical Centre under NCI Fellowship for a period of 6 months from September 1994.

DIVISION OF MEDICAL ONCOLOGY

Dr. Gangadharan V. P.

Assoc. Professor

Dr. Geetha. N.

Asst. Professor.

The division of Medical Oncology started functioning in the year 1990. This division has contributed much to the clinical and academic activities of this centre. It deals mainly with lymphoreticular malignancies and solid tumors where aggressive chemotherapy is required.

Clinical activities

The outpatient services of this centre function on a referred basis 8 days a week. During the year 1994-'95, about 1000 new cases and 10000 review cases were attended to by this division. As in the previous years, patients with acute leukemias and aggressive lymphomas formed the majority. In addition, solid tumors where high profile chemotherapy is required were also treated. These include germ cell tumors, osteogenic sarcoma etc.

Our inpatient care was rendered to about 1600 cases. Here we deal mainly with neutropenia sepsis, aggressive chemotherapy and other medical complications. We have a full - fledged intensive care unit attached to the medical oncology ward where all medical emergencies are handled.

Academic activities

The division is actively involved in teaching undergraduate and postgraduate students and paramedical students.

Postgraduates in medicine and radiotherapy are posted to this division for specialised training. Nursing staff are also given inservice training programmes from time to time.

A prospective study of cytogenetic response of CML to 2 Interferon is in progress and a protocol for osteogenic sarcoma with intensive chemotherapy is in vogue.

2 Post Graduate students in General Medicine did their dissertation work in this division.

DIVISION OF DENTAL WING

Dr. K. R. Nalina Kumari

Lecturer

This wing has been in existence even prior to the starting of the Cancer Centre in the Medical College Hospital. At present this division plays an important role in the detection of oral cancer and clinical and research activities of the Centre.

Highlights of Activities:

(A) During the year under report the Dental Wing was engaged in the following items of work.

- (1) Minor operations for biopsies
- (2) Dental Extractions
- (3) Preparation of bite blocks and prosthetic appliances
- (4) Preparation of moulds.
- (5) Management of pre-cancerous and other oral lesions

(B) Clinical Activities

This clinic is attending to out patients as well as inpatients. The out patients are referred by the Division of Radiotherapy. Dental extractions and biopsies are the main items of work in the clinic. The clinic works on all days of the week except Sundays.

The following table gives data on services rendered by the Dental Wing.

(a) Total Number of cases attended during the year	3188
(b) Of which new cases	745
(c) No. of biopsies	528
(d) No. of bite blocks and moulds prepared	157
(e) Supplementary registered cases	3
(f) Cancer Detection & Preventive clinic	0
(g) Early Cancer Detection Camps	6
(h) Cancer Care for Life patients attending RCC	7

Following are the details of biopsies done in the Dental Wing during the period under report.

Name of Site	No. of cases	Percentage to total
1. Left Buccal Mucosa	112	20.74
2. Right Buccal Mucosa	71	13.15
3. Right Commissure	16	3.00
4. Left Commissure	23	4.26
5. Hard Palate	27	5.00
6. Soft Palate	6	1.1
7. Right Retromolar region	20	3.7
8. Left Retromolar region	14	2.6
9. Dorsum of Tongue	16	3.00
10. Left border of tongue	56	10.37
11. Right Border of tongue	34	6.24
12. Under Surface of tongue	5	0.93
13. Floor of the mouth	19	3.52
14. Left Lower alveolus	21	3.9
15. Right Lower alveolus	32	5.9
16. Left upper alveolus	9	1.67
17. Right upper alveolus	8	1.48
18. Right lower sulcus	8	1.48
19. Left lower sulcus	9	1.67
20. Left Upper sulcus	8	1.48
21. Right upper sulcus	0	0
22. Lower lip	23	4.26
23. Upper lip	2	0.37
24. Right Oropharynx	0	0
25. Left Oropharynx	1	0.19

Bite blocks and moulds are prepared by this wing for treatment of oral cancer patients in connection with their treatment with radiation and radium implantation.

In cases of leukoplakia, SMF, Lichenplanus etc monthly check up is conducted to assess the condition of these patients who are under treatment.

(C) Research Activities:

This division has been extending support for research work done by research Division and Radiotherapy department during the year under report. The necessary research assistance by way of supply of required specimens was given for publishing papers by these two departments.

MEDICAL RECORDS & CLINICAL SERVICES

R. Raveendran Nair

-M. R. & C. S. O.

The activities are same as those of previous year regarding the preparation, maintenance and retrieval of records and patient related services. The primary objective is to assist the clinicians, to provide better care and assist the clinical needs. The following are the activities of this section during the period under report.

- OP Service - This is managed with the support of nurses and other paramedical workers.
- New case registration and income assessment - This is managed with the support of tumour registry and computer division.
- Medical record assembling
- Patient identity card preparation
- Information
- Telephone Operation
- Follow up
- Appointment scheduling
- Admission & Discharge
- Death reporting
- Railway concession
- Issue of reports, certificates etc.
- Payment and patient billing
- Coding & indexing
- Filing & retrieval
- Patient correspondence
- Conduct of follow-up clinics at E.C.D.C., Ernakulam
- Cancer Detection & Preventive Clinics
- Co-ordination with ESI, CCL & other schemes to provide related services.
- Security
- Garden
- Pay ward booking and its allotment.

The Medical Records are preserved and maintained year-wise according to serial number. The records are retrieved and utilised for patient service, cancer registry operation, academic & research activities and administrative purposes. At present this section is handling more than 86000 individual records. The filing room has been shifted to new block with an area of 1000 sq. feet and 2 numbers of new Godrej mobile filing units have been installed. The present space is sufficient to file only 10 years' case sheet. To save more space we planned to divide the files into two categories after five years of registration.

- (1) Files of patient on active follow-up are to be kept according to serial number.
- (2) Inactive files (lost follow-ups, deaths etc.) are to be kept according to site-wise of malignancy.

The following table shows the year wise distribution of patients who came for follow-up at least once after 1993.

Year	Total Case	No. of Active follow-up	Percentage
1982	3626	124	3.4%
1983	3788	164	4.4%
1984	4060	224	5.5%
1985	4182	317	7.6%
1986	4633	358	7.7%
1987	5108	499	9.8%
1988	5265	683	13.0%
1989	5110	754	14.8%
1990	5918	1096	18.5%
1991	6960	1803	26.0%
1992	7331	3327	45.4%

The following data will depict the heavy workload of this Division:

	1994	1993
Total new case registered	7429	7263
Review cases at RCC	58899	53085
Total patient visits (Old & New)	66328	63782
Daily average patient visits	221	213
Average attendance per patient	9	9
Number of inpatient admission	5951	4539
Number of inpatient discharge	5878	4558
Average length of stay	16	12
Hospital death	309	274
Total appointment given	59468	55529
Attendance from appointment	48764 (82%)	45534 (82%)

During the year under report 216 new patients received CCL benefits and 295 CR & 847 Non CR patients received benefits under ESI scheme. This section also helped the patient patients for obtaining financial aid from Prime Minister's Relief Fund and other sources.

Conference/training/workshop:

This section and MRD of Sree Chitra Thirunal Institute for Medical Sciences and Technology jointly organised a National Conference on Health Information & Management 1994 at SCTIMST on 23.12.94 focusing the different method of medical records keeping and its use. More than 100 delegates participated in the conference. R. Raveendran Nair was the Programme Co-ordinator and Mohanachandran Nair, CRA was Joint Organising Secretary. R. Raveendran Nair has introduced the programme and presented a paper on "current status of records maintenance in Speciality Hospitals."

Mr. R. Raveendran Nair, Mr. Mohanachandran Nair, Mr. Anil Kumar, Mrs. Siju R. Nair & Mrs. Sreelatha participated in the conference.

This section is actively involved in organising all functions, meetings, conferences & seminars at Regional Cancer Centre. Mr. R. Raveendran Nair was one of the members of the Organising Committee of the AROI- National Conference held at Trivandrum in February 95.

DIVISION OF NURSING SERVICES

Sr. Vijaya
Smt. Flower Augustine

Chief Nursing Officer
Nursing Superintendent
(Left service - Sept. 1994)

The objectives of the division are to (a) render quality patient care services (b) assist the Doctors in various patient care activities (c) help with investigations and treatments (d) render palliative care (e) maintain proper records (f) give guidance and help to patients with various needs (g) provide awareness in cancer prevention and control (h) give health education and counselling to patients and families (i) be a source of support in bereavement (j) update the nursing staff with current knowledge and skills in patient care. The following have been the activities during the year under report, carried out with the services of nearly 95 nursing staff.

Out patient clinics

The services include assisting in screening of the patients, meeting any emergencies brought to the OPD, giving guidance and help to patients and bystanders, assisting in procedures like pleural tapping, suture removal, bone marrow aspiration, bone marrow biopsy and lumbar puncture, taking care of fungating wounds, and attending the daily pain clinic. In this unit the nurses work in a straight shift.

Nursing services are extended to the clinical laboratory, blood bank, pain clinic, palliative care division, chemotherapy day care unit.

Regular in service education is given to the nurses working in this unit on administration of these drugs and on minimizing the effect of tissue necrosis.

Imageology (CT Scan and Thyroid Clinic)

In the Imageology division two nurses and two nursing assistants assist with CT scan, ultrasonography, Doppler Ultrasonography, mammography and thyroid function studies. They also engage in giving health education to patients and family on cancer awareness, preparation for the above investigations and the follow up treatments.

Patient Care Services in Inpatient Dept.

The diet for the patients are supplied from hospital canteen under the technical supervision of a Dietitian.

Medical Oncology

Medical Oncology department has a capacity of nineteen beds. Nurses take care of patients with acute and chronic leukaemia, lymphoma, solid tumours, osteosarcoma, germ cell tumour, cancer cervix with aggressive chemotherapy and also neutropenic and palliative care patients. Regular inservice education is conducted in this unit on the care of patients with such conditions.

Radio Iodine Unit:

Radio Iodine therapy ward functions as a separate unit with a bed capacity of seven. Patients are admitted for Radio Iodine therapy. Nurses are on call to the unit through a hot line system.

Surgical Oncology:

The Surgical Oncology department comprises of operation theatre and surgical wards. In the operation theatre the nurses work in two shifts and in the wards in three shifts.

Payward Block:

Here patients are distributed in four floors. All types of cancer patients are being cared in this block; medical, surgical, paediatric and palliative care patients. Special care is given to bed-ridden patients giving more stress on prevention of bed sore. During each shift there is usually one staff nurse and one nursing assistant in each floor.

Brachytherapy:

Brachytherapy department was shifted to the new block in September 1994. It has a bed strength of ten patients with interstitial implantation, mould treatment, intracavitary application, such as selectron, Intraluminal radiotherapy or with radium-implantation. Here also the total responsibility is vested upon the nursing staff

because no bystander is allowed. Nurses and nursing assistants are distributed in three shifts duty. Precautionary measures are being taken against radiation hazards decontamination of linen and waste wearing the radiation measurement badge etc. All staff in this unit are getting special coaching on radiation hazards and patient care.

Paediatric Oncology:

Paediatric Oncology ward even now functions in the old Block at Medical College Hospital under the total management of RCC. Children with leukaemias, lymphoma, neuroblastoma, wilm's tumour, soft tissue sarcomas and CNS tumour are cared for by the nursing staff. Nurses extend psychological support to these children and family and direct those with financial problems to certain voluntary agencies. During the year under report, the number of cases increased and with limited bed strength it has become difficult to accommodate more cases.

IP wards in old Block:

The IP wards in old block cater to all types of cancer patients for investigations and treatment. The services are rendered jointly by the staff of medical college hospital and Regional Cancer Centre.

Palliative Care Activities:

The activities of palliative care include that of pain clinic and other IP services. A nurse assists the Doctor in pain clinic daily. A core group of palliative care nurses are given special training on the topic and are rotated through this clinic in turn.

Staff Development Programme:

There is a regular monthly staff meeting for the nursing staff. This serves as a forum for discussion of routine duties as well as educational matters also. Nurses also take turn in presenting topics of interest and care studies in such forums. The expertise of external lectures are also made use of.

Observation visits and Orientation Programmes:

Various groups of nurses and nursing students of undergraduate and postgraduate level from the State as well as from various

parts of the country have made observation visits in the centre with specific objectives in nursing care. Most of these were one day programme in which classes on various oncology topics were also dealt with by doctors and other expert nurses of the nursing division. Since the curriculum of nurses training have very little content on oncology nursing and palliative care, these visits have been reported to be as very beneficial.

Consultant Service to Students and Staff:

The Chief Nursing Officer is consulted by various groups of nurses, nursing leaders and nursing students with regard to on-going education, staff development programme nursing standards, palliative care and research as the pre requisite for masters level. She also avails herself for classes on general topics for outside groups on special requests.

DIVISION OF PAIN AND PALLIATIVE CARE

Dr. Vasudevan Mappat

Anaesthesiologist

Total number of new cases seen at pain clinic -	1192
Total number of repeat cases	3155
W.H.O. Step I	- 102 cases
Step II	- 230 cases
Step III	- 860 cases

This year we continued our activities as in previous years with greater momentum. The modalities of management of cases were according to the guidelines given by W.H.O. We got the requisite amount of Morphine Sulphate from the College of Pharmaceutical Sciences.

This division works as a team with the active participation from Dr. Paul Sebastian, Dr. Francis V. James, Dr. Thomas Koilparambil and Dr Gladys Jeevy.

DIVISION OF BLOOD BANK

Dr. Jayalakshmi P.

Blood Bank Officer

Dr. Kusumam K.

Medical Officer

Mr. Meera Sahib P.

Technical Assistant

The Regional Cancer Centre has one of the modern fully equipped blood banks in the country. It is one of the few blood banks which has license to process blood in Kerala. The blood bank has facilities for the separation and storage of blood components. The refrigerated centrifuge is used for the separation of the plasma components. A platelet incubator and agitator is available which facilitates storage of the separated platelets up to 72 hours. Plasma or single donor plasma is stored in the deep freezer to be supplied as fresh frozen plasma or single donor plasma.

Activities:

The Blood Bank functions from 9 AM to 4 PM, six days a week. The donors are screened for HIV-1, Hepatitis-B and Syphilis. Blood components are stored after preparation and are made available even at short notice. Emergency requirements outside working hours and holidays are met with by technicians posted for duty. Blood components are supplied to other major hospitals on payment.

23.2.94 - Blood grouping camp was conducted at Thumba VSSC where 110 people were grouped.

29.9.94- All the staff attended the ISBT conference held at Cahank Tower, Trivandrum.

Awards:

8.5.1995- The Blood Bank got the award from the Indian Red Cross Society, Kerala State Branch in recognition of the meritorious service in Blood Transfusion and Blood donation.

Blood Bank Statistics: 1.4.94 to 31.3.95

Grouping	14372
Blood Donors	3674
Cross Matching	4022
Hbs Ag done	3674
Hbs Ag+ve reports	73
HIV-I (donors) done	3674
HIV-I+ve (donors)	6
HIV-I (patients)	1245
HIV-I+ve (patients)	2
Components prepared:	
Total PRP	1607
Total SDP	275
Total FFP	450
Total PRC	2208

DIVISION OF CYTOPATHOLOGY

Dr. N. Sreedevi Amma	-	Professor
Dr. B. Chandralekha	-	Professor
Dr. Elizabeth K. Abraham	-	Associate Professor
Dr. Rajasekharan Pillai	-	Associate Professor
Dr. Jayasree, K	-	Assistant Professor
Smt. J. Ambika Kumary	-	Senior Scientific Officer
Dr. K. Raveendran Pillai	-	Cytotechnologist
Sri. K. Sujathan	-	Cytotechnologist

The prime function of this division is to assist in the proper management of patients by providing microscopic confirmation of the diagnosis and tumour grade by cytologic and/or histopathologic examination. This is further strengthened by participation of the staff members in the daily noon clinic and monthly special clinic discussions and clinicopathological conferences. A special achievement in the academic field this year was organisation of an International symposium on "Recent advances in Pathology of Gynaecological Cancers" in which three world renowned pathologists viz Dr. H. Fox, Professor of reproductive pathology, Manchester; Dr. F. Nogales, Professor of Pathology, University of Granada Spain (President, International Society of Gynaec Pathologists) and Dr. M. Wells, Professor of Gynaecological Pathology, University of Leeds, U.K. participated as faculty members. They have extensively discussed all diagnostic and differential diagnostic problems of Gynaecological cancers and there was a diagnostic slide seminar also. Fifty five senior pathologists participated in the two day symposium.

Achievement in the routine functioning of the Division was computerized reporting of both histopathology and cytology. A major breakthrough in the diagnostic field was introduction of Non specific esterase and leukocyte alkaline phosphatase (LAP) score in haematology which helped in precise classification of leukaemias.

Highlights of activities

The major activities were diagnostic services, teaching, training and other academic activities and Research programmes.

Diagnostic services

The major diagnostic services offered were cytology, Histopathology and Bone marrow examinations.

Cytology Services

Gynaec Cytology:- Cervical smears were examined from 6587 women out of which 4141 were from various projects and community oriented cancer detection camps and 2446 from women who have attended the centre. The distribution of normal, including inflammatory, premalignant and malignant lesions are shown in Fig. V(a).

Non Gynaec and aspiration cytology

6936 Samples of fluids and FNACs were obtained from almost all sites. The major sites were thyroid, Breast, lymphnodes, bone, lung, liver, oral cavity and salivary glands. The age and sex distribution of the malignant cases are shown in Fig I (b). The age distribution tallies with the general trend in the hospital. There is a predominance of Female sex, this might be due to the fact that the predominant sites of FNAC were breast and thyroid lesions which are more common in women. The proportion of the malignant lesions in the major sites are shown in Fig II(b).

Fluid Cytology:- The proportions of different fluid samples examined are shown in Fig. V (b).

Bone Marrow aspiration and imprint smears

Bone marrow aspiration and imprint smears were examined from 1309 cases. There was only a marginal increase of 53 cases from the previous year. The real workload was more than 5000 smears because on an average at least 4 smears had to be examined from each case. The predominant disease diagnosed was acute lymphatic Leukaemia. Due to the extensive use of esterase,

LAP score, peroxidase and PAS wherever indicated, we were able to reduce the number of unclassified acute leukaemias to 7. These cases require immunophenotyping also for classification which we hope to start in the near future. Rare diseases diagnosed include 2 cases each of hairy cell leukaemia, retinoblastoma, and myelofibrosis, and one case each of rhabdomyosarcoma, histiocytosis, myelodysplastic syndrome and falsiparum malaria.

Sputum Cytology:- Sputum samples were examined from 671 cases by collecting 3 to 5 or more early morning samples and preparing minimum 2 smears from each sample. 60 cases of malignancies of different types were reported from these.

Histopathology:- Histopathologic Examinations were done in 4352 samples which included review slides of referred patients with prior biopsy/surgery in other hospitals. From each case, 1 to 15 or more slides were examined and the total workload is 3-4 times more than the total number of cases. The age and sex distribution of the malignant cases is given in Fig I a and the proportion of malignant lesions in the major sites in Fig II a. Age distribution of malignant lesions in oral cavity, breast and cervix are shown in Fig. III a,b and c respectively. The proportion of premalignant and malignant lesions of the oral cavity, breast and cervix are shown in Fig IV. Some of the rare cases worth mentioning are pagatoid reticulosis of skin, cystic partially differentiated nephroblastoma, mesothelioma of tunica vaginales testis with vertebral metastasis, CLL presenting as vaginal nodule, Adenocarcinoma tibia, kimura's disease in bone (Metacarpal) and two cases of rhabdomyosarcoma of breast with dissemination in children aged 12 years and 14 years.

Teaching and Training

Full time training courses are conducted for Cytotechnicians (6 months) and Cytotechnologists (1 year) following set objectives and defined curriculum. This lab is accredited by Indian Academy of Cytologists for diagnostic and examination purposes. Candidates for these training were selected through a selection test or sponsored by ICMR under a fellowship. The Division is also involved in the teaching and training programme of the Medical College, Trivandrum by imparting training to students of various medical and para-

medical courses. Besides these short term training is given to Pathologists under IAC fellowship. Short term training is also given to paramedical staff for undertaking various cancer control activities.

The National exam for cytotechnicians & technologists was conducted here in September 1994 in which candidates from different states of India had registered.

Research Programmes

The extramurally funded project of HPV, NBRR, WHO assisted House surgeons training programme and Immunobiology of trophoblastic tumours are continuing and the staff of this division give support to these. Studies on molecular aberrations in oral squamous cell carcinoma and its adjacent epithelium is a new project in which staff members of this division are involved.

Awards & Honours

- | | | |
|--------------------------|---|---|
| Dr. N. Sreedevi Amma | - | "Advani - Braganza oration award - 1994". |
| Dr. K. Raveendran Pillai | - | Awarded PhD degree by Kerala University for the thesis "Cytological & Biochemical investigation on oral carcinoma". |

Association with Professional bodies

Dr. N. Sreedevi Amma

1. Member of Indian Academy of Cytologists (IAC) and Treasurer of IAC.
2. Member of accreditation and Examination committee (Cytology) of IAC
3. Member subcommittee of IAC for human resource development in cytology in India.
4. Member of Editorial board of Journal of cytology.
5. Member IAPM - Kerala Chapter.
6. Member Regional Cancer Association.

Dr. B. Chandralekha

1. Life Member of IAC
2. Member of the Executive council of IAC.
3. Member Regional Cancer Association.
4. Member of the Editorial Board - Journal of Cytology.

Dr. Elizabeth K. Abraham

1. Life Member of Indian Association of Pathologists & Microbiologist (IAPM)
2. Member of IAC
3. Member of Review Committee of Indian Journal of Medical Research.
4. Member, Regional Cancer Association.

Dr. Rajasekharan Pillai

1. Member of IAPM
2. Organising Secretary of the International Symposium on "Recent advances in the pathology of Gynaecological Cancers".

Dr. Jayasree. K.

1. Life Member of Indian Division of International Academy of Pathology
2. Life Member of IAC.
3. Member IAPM Kerala Chapter.
4. Member Indian Society of Blood Transfusion and Immunohaematology.

Smt. J. Ambika Kumary

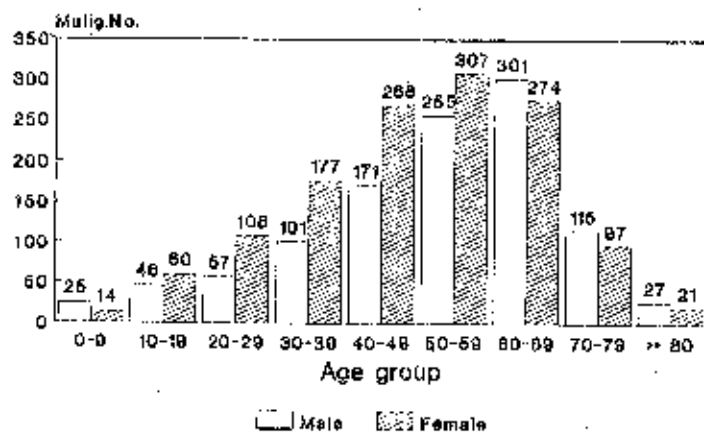
Member of IAC

Dr. K. Raveendran Pillai

1. Executive committee member - Kerala Academy of Sciences, - Life Science Chapter.

FIGURE - I

a) AGE & SEX DISTRIBUTION OF MALIGNANT CASES (Histopathology)



b) AGE & SEX DISTRIBUTION OF MALIGNANT CASES (Aspiration Cytology)

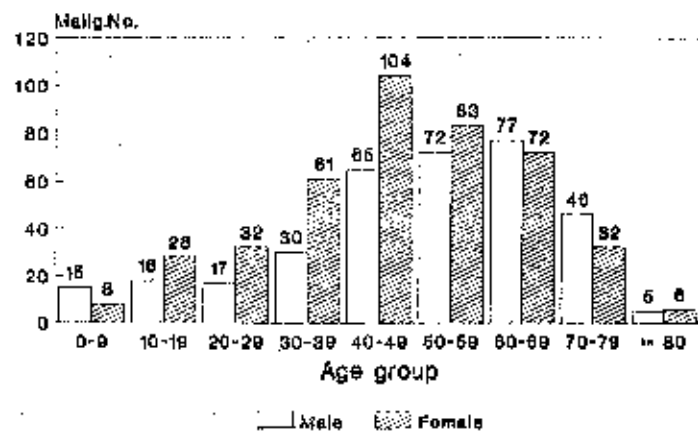
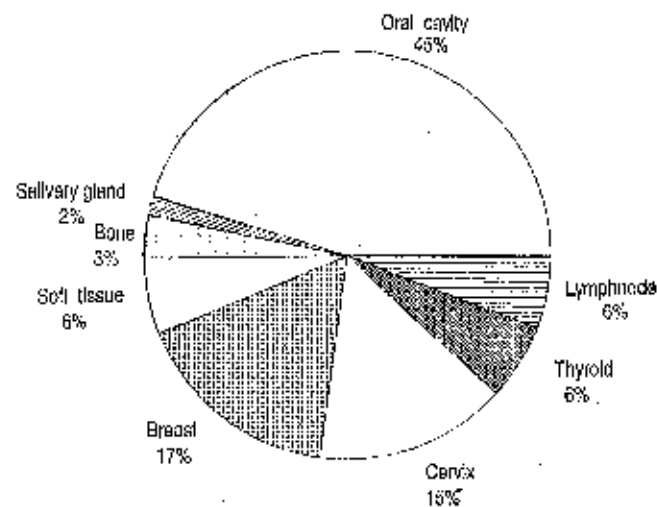


FIGURE - II

a) MALIGNANT LESIONS IN MAJOR SITES (Histopathology)



b) MALIGNANT LESIONS IN MAJOR SITES (Aspiration Cytology)

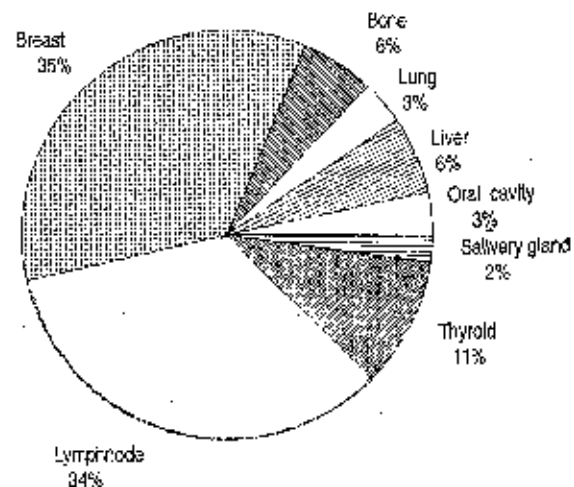
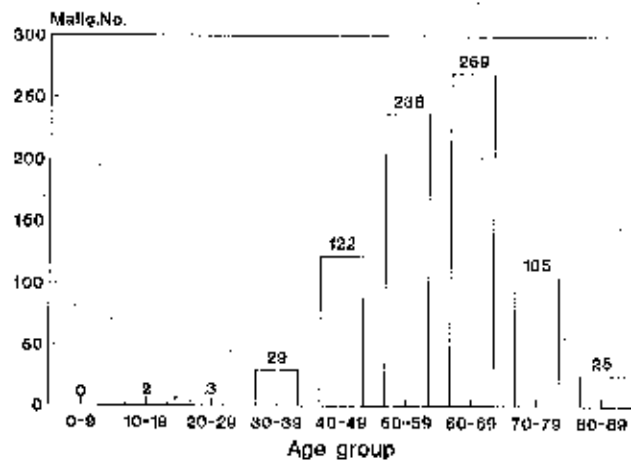
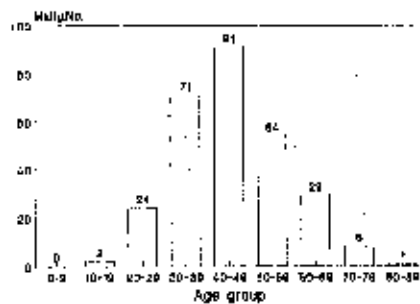


FIGURE - III

(a) AGE DISTRIBUTION OF ORAL CANCERS



(b) AGE DISTRIBUTION OF BREAST CANCERS



(c) AGE DISTRIBUTION OF CERVIX CANCERS

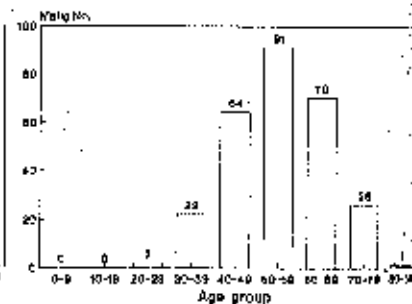
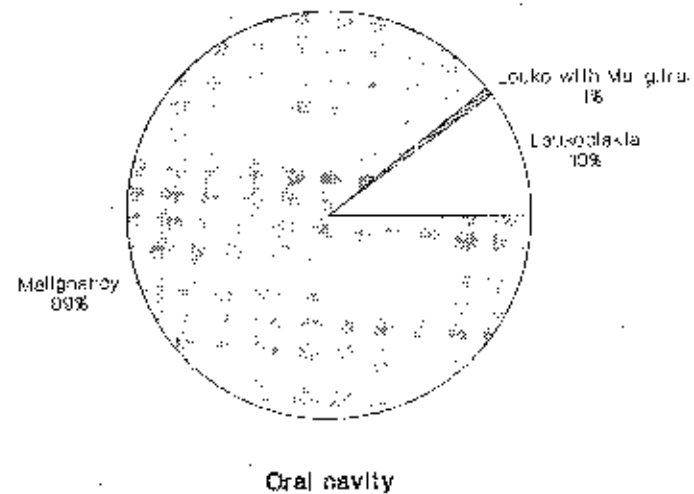
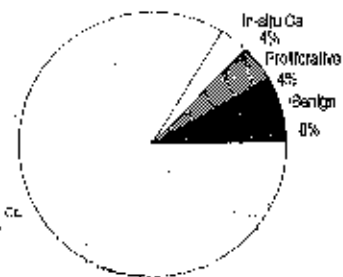


FIGURE - IV

**BENIGN, PREMALIGNANT & MALIGNANT LESIONS
ORAL CAVITY, BREAST AND CERVIX**



Oral cavity



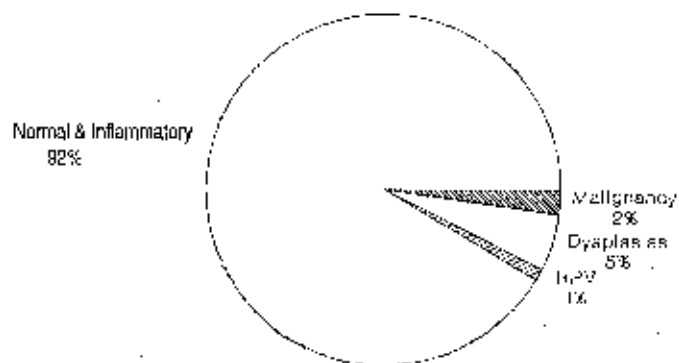
Breast



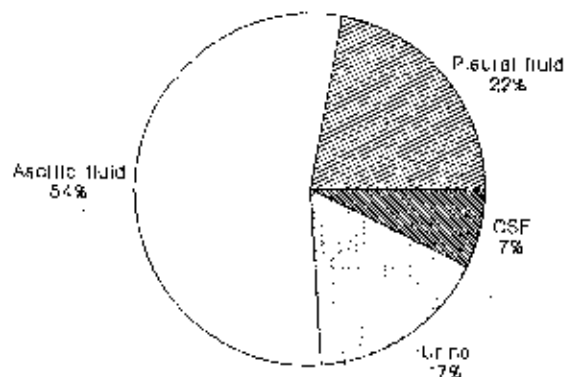
Cervix

FIGURE - V

a) CERVICAL SMEAR- DISTRIBUTION OF NORMAL, PREMALIGNANT & MALIGNANT LESIONS



b) FLUID CYTOLOGY



DIVISION OF IMAGEOLOGY

Dr. K. Sasidharan	Professor (on leave)
Dr. Alex K. Ittyavirah	Associate Professor
Dr. K. Ramchandran	Assistant Professor
Dr. A.S. Krishnakumar	Assistant Professor

The break up of various Imaging investigations is as follows:

Plain X-ray studies	9755
X-ray tomograms	48
Mammograms	583
CT Scans	4845
Ultrasonography	11756
CT/US guided procedures	170
Doppler Sonography	382

The demand for CT/US guided aspiration and cytology showed a marked increase as compared to that of previous years. Patients for these procedures were referred mainly from Medical College Hospital as well as this Institute.

Doppler sonography also showed a marked increase. Patients for this investigation were mainly from Sree Chithira Thirunal Medical Centre & Medical College Hospital.

Academic Activities:

Training for undergraduates, postgraduates and paramedical courses continued this year also. MBBS students were given an insight into the various imaging modalities, their indications & limitations. Postgraduates in surgery and Obst. & Gyn. were given training in CT & Sonography for one month as part of their curriculum. Postgraduates in medicine and surgery were also given regular weekly lecture classes on CT scan by Dr. Alex Ittyavirah and Dr. Ramchandran.

As members of the Trivandrum Radiological Club, the faculty members met every month & presented interesting cases investigated in the department and exchanged ideas with radiologists of other institutions in the city.

DIVISION OF NUCLEAR MEDICINE

Dr. V. M. Pradeep	Associate Professor & Head of Division
Mr. Reghu Rain K. Nair	Assistant Professor
Dr. Kuruvila Varkey,	Lecturer

Dr. Kuruvila Varkey, Lecturer went on leave to take up a foreign assignment.

There were no additions by way of equipment. However certain innovations were made in the functioning of the Division which has yielded dividend in the form of better patient through put.

Thyroidology continued to be the major activity of the department. A new scheme for evolving a demographic profile of the patients attending the Nuclear Medicine Clinic was started. This is expected to yield valuable information in a year or two once sufficient number of cases are accrued. Steps were taken to speed up the issue of RIA results. The following new RIAs were added besides the existing assays: PSA, ACTH, DHEA, PTH.

The total number of individual tests and therapy carried out in the department for various investigations and management was 49442.

The break-up of cases according to categories is given below:-

A. Thyroid

Radioisotope Scan	:	1782
Ultrasound Scan	:	4613
Uptake	:	1090
Thyroid cases	:	7485
TOTAL	:	14970

B. Gamma Camera

Bone	:	151
Renal	:	28
Liver	:	13
Brain	:	2
Cardiac	:	1
TOTAL	:	195

C. Immunoassay

1. T3	:	8905
2. T4	:	8909
3. TSH	:	8905
4. TG	:	368
5. AMC	:	46
6. ATG	:	46
7. FT3	:	70
8. FT4	:	70
9. HCG	:	3176
10. AFP	:	697
11. CEA	:	593
12. FSH	:	460
13. LH	:	409
14. PRL	:	610
15. Testosterone	:	184
16. Cortisol	:	298
17. Growth Hormone	:	113
18. Progesterone	:	27
19. Insulin	:	40
TOTAL	:	33926

D. Therapy

1. Ca. Thyroid	:	220
2. Thyrotoxicosis	:	104
3. ³² P-phosphorus	:	4
TOTAL	:	351
GRAND TOTAL	:	49442

Academic Activities

Apart from teaching activities of medical undergraduates, post-graduates and paramedicals we have initiated certain new studies into the epidemiology and basic biology of thyroid disorders. The emphasis of the study is localized to South Kerala and the HDRR area. The results from this study are expected from the next year onwards.

In collaboration with the Division of Molecular Biology and Laboratory medicine as well with the Research Division we are well on the way to establishing certain studies which would help in better understanding of basic Thyroid cancer biology. Again, this being a long term study which has just started, the results are expected only after another year.

OBITUARY



Dr. T. P. Ramachandran (1944-1994), Professor and Head of Radiation Physics, Regional Cancer Centre Trivandrum passed away after a massive heart-attack on 7th August 1994.

Born in Kattur, a village in the Trichur district of Kerala, he graduated from Kerala University in 1964. After completing the one year post graduate training in radiological Physics from B.A.R.C. in 1964-65 he joined the Trivandrum Medical College as a Research Assistant. He took his M.Sc in physics from the Kerala University in 1968 and rejoined in the Medical College as a faculty member of Radiation Physics Division in 1968. He was awarded the Ph.D degree by Banares Hindu University in 1982. Subsequently he rose to become the Professor and Head of the division which is now a part of the Regional Cancer Centre.

Dr. Ramachandran was the founder member of AMP; and was currently the Vice-President. He was a good organiser and had organised many conferences and workshops in and outside the state.

He was the person who motivated the state government for the formation of Directorate of Radiation Safety which is still on the anvil. He was an excellent teacher, eminent scientist, and had many scientific papers to the credit. He was the co-investigator for the DAE project on natural background radiation in the Kanuragappally region - the high background belt in Kerala.

'Dr. T.P.R.' as he was affectionately called, was a stickler for perfection in his work, be it teaching, treatment planning or quality control of the equipment.

Mild mannered and soft spoken, Dr. T.P. Ramachandran was liked and respected by those who came in contact with him. He leaves behind his wife Smt. Sabita Ramachandran and ten year old daughter Gayatri. His untimely demise is a great and heart rending loss not only to the family but also to the entire community of Medical Physicists in the country.

May the departed soul rest in peace.

OBITUARY



Sri. L.G. Amaldas of the Hospital Cancer Registry division passed away on 11.6.94.

Sri. Amaldas was attached to the Regional Cancer Centre, Trivandrum ever since its inception in 1982. He was sincere and hard-working and silently discharged all the responsibilities entrusted to him. He was our mainstay in the medical record repository and through his meticulous work he had created a goodwill among the staff for his dedicated service.

In his demise we have lost a sincere and dedicated worker and a friend of the staff of Regional Cancer Centre, Trivandrum.

May his soul rest in peace.

DIVISION OF RADIATION PHYSICS

Dr. T. P. Ramachandran	Professor (expired on 7.8.1994)
Dr. V. Padmanabhan	Professor (joined on 9-11-1994)
Sri. C. A. Davis	Associate Professor
Sri. Thayal Singh Elias	Assistant Professor
Sri. L. S. Arunkumar	Assistant Professor
Smt. P. Sushama	Lecturer.

Main Activities

Clinical Physics:

Calibration of Radiotherapy Equipment
Quality assurance
Treatment Planning
Dose computation
Radiation Safety
Intercomparison studies using TLD (WHO/BARC)
Teaching, training and research
Daily maintenance, checking and repair of all teletherapy and brachytherapy equipments

Patient Service

Treatment planning and related dose computation were carried out routinely in the case of patients undergoing external beam therapy and brachytherapy. The number of patients planned and treated during the year was as follows:

External beam therapy	5826
Brachytherapy treatment for carcinoma cervix using Selection remote after loading System	349

Intracavitary treatment for carcinoma oesophagus	39
Intracavitary treatment with selectron	5
Interstitial implants for carcinoma tongue, carcinoma buccal mucosa, carcinoma lip etc	.99
Mould treatments	10

One case of carcinoma lip was treated with the newly started interstitial Ir¹⁹² implant facility.

Co⁶⁰ source replacement was carried out in Thoratron 780 (July'94)

Selectron afterloading system and other brachytherapy facilities and mould room and treatment computation facilities were shifted to the newly built DAE aided radiotherapy block in the RCC campus.

Mould room facilities were updated by adding Orfit and Aquaplast immobilisation system.

	No. of Cases.
Orfit/Aquaplast immobilisation shell	147
Conventional shell with plaster of paris	30

Mould/bite block, wax bolus, head rest and other immobilisation devices were made for necessary patients.

Contour plotting system developed by Mr. T. S. Elias was installed in the DAE aided radiotherapy block. In order to improve the CRA training course, practical experiments were started.

Research activities:

This division is collaborating in the research project "Natural background radiation cancer registry" funded by the Department of

Atomic Energy with regard to radiation measurements in the study area. A new technique (SSNTD) for environmental air alpha monitoring set up was introduced with the help of BARC team. Dr. Padmanabhan was made the co-investigator in this project.

The academic staff are engaged in their Ph.D. work in addition to the routine work.

Mr. Raghu Ram K Nair, Asst. Prof., Nuclear Medicine submitted his Ph.D thesis to University of Kerala. "Ultrasound and radionuclide imaging of the urinary system-Physical and Clinical Studies".

(Guides: Dr. V. Padmanabhan and Dr. M. Krishnan Nair).

Radiation Safety activities:

Personnel dose monitoring using film badge is carried out for 102 radiation staff in this centre. Periodical radiation protection surveys of teletherapy and brachytherapy installations ensured safety of radiation to staff, patients and public.

Academic Programmes:

Teaching and training in Medical physics were imparted to the following categories of students.

- M. D. Radiotherapy
- M.D. Radio diagnosis
- MDS oral medicine and radiology
- DMPD, DMRT, CRA, Third year MBBS

Practical field training for one month was given to two students of the Diploma in Radiological Physics Course of BARC, Bombay.

Mr. C.A. Davis was nominated by the Government as Technical committee member for purchase of x-ray machines and Hospital equipment for Insurance Medical Service Department. He was also nominated as Selection Committee member for the purchase of Co⁶⁰ teletherapy machine for Medical College, Kottayam.

DIVISION OF CANCER EPIDEMIOLOGY AND CLINICAL RESEARCH

Dr. R. Sankaranarayanan	Assoc. Professor (On leave)
Dr. Cherian Varghese	Assistant Professor (On leave)
Ms. Aleyamma Mathew	Lecturer in Computational Statistics & Epidemiology

The division acts as the nodal point for organising epidemiological and clinical research activities of the centre and provides project consultancy.

Ongoing Studies:

(1) Cohort Study on Human Papilloma virus and cervical neoplasia.

Collaborators: Institute of Cancer Research, Cancer Research Campaign, Sutton, UK

Objective. To address the natural history of cervical neoplasia and Human Papilloma virus in a stable population in Kazhakuttan Panchayat near Trivandrum.

The project is in the third year of operation. The first round of screening programme was completed by the end of July, 1994 covering a cohort of 8000 females. Of these, 3350 cervical smears were collected with 38% compliance rate. The HPV analysis is being done at the Institute of Cancer Research in UK. The following three papers were prepared based on the study.

a. Visual examination of the uterine cervix - Is it effective as a pre selection screening method in developing countries?

This paper attempts to evaluate the efficacy of visual inspection in detecting cervical dysplasia using the data from a hospital screening clinic and the above screening programme.

b. Risk factors of cervical pre malignant lesions in a rural community of Kerala

The paper attempts to find out the major risk factors of premalignant lesions of cervix.

c. Population based screening programmes in developing countries: Experience from a cervical cytology screening project in Kerala, South India.

This paper presents the experience of organising a population based screening programme in Kerala.

2) A case control study on Human papilloma virus and oral neoplasia

The aim of the study is to investigate the association between human papilloma virus infections and oral neoplasia. Study addresses to determine the prevalence of oral HPV infection, measured by the consensus primer PCR in a defined population in an area of high oral cancer risk and also the risk of oral infections in partnership in which the women are known to carry HPV in the genital tract.

The study population is the married couple in which the wife has participated in the above cervical screening study and the residents of Maryanad and Kazhakkootam panchayats. Oral samples were collected from 52 couples in which the wife has positive HPV infection on cervical screening and 60 married couples were selected at random from the rest of the eligible population. The PCR analysis is being done at the Institute of cancer research, Sutton, UK.

3) A Case-control study on occupational exposure and cancer.

Collaborators: Unit of Analytical Epidemiology, IARC, Lyon. The study objective is to evaluate the association between occupational exposures and other risk factors in the etiology of lung cancers, leukaemia and lymphoma..

Using a structured questionnaire with a retrospective (case control) design, occupational exposure to various agents are collected. All male histologically confirmed lung cancer lymphoma and leukaemia cases aged 25-65 years registered at RCC are included as cases and controls during the period 1994-1995 are selected using a cancer control approach. Cancer cases other than lung

cancer, lymphoma, leukaemia and from a few other restricted sites form the control group. Based on these, information on socio-demographic factors, tobacco alcohol habits and occupational exposures are collected from 331 'cases' and 1549 'controls'.

4) Surveillance system to monitor cancer incidence and mortality in Trivandrum Corporation, Chirayinkil, Kazhikutam and Trivandrum rural Development Blocks.

Collaborators: Unit of Descriptive Epidemiology IARC, Lyon. The main objective of the study is to develop a population based cancer registration in the Trivandrum Corporation area and in the three community development blocks. The registry provides reliable incidence data, and mortality from major cancers in the region.

The population based registry has been organised for Trivandrum Corporation area and the three community development blocks since 1994 January. The survey region is 236.06 sq.km. and has a population of 10,66,322 for the year 1991. 90 hospitals in the Government and Private sector are being covered to get all the cancer cases originating in this area. Registers in the vital statistics departments are also being scrutinised to collect mortality information.

5) Project on cancer survival estimation

Collaborators: Unit of Descriptive Epidemiology unit, IARC, Lyon. The objective of the study is to estimate the survival of cancer patients hailing from Trivandrum district who had been registered during the years 1988 and 1989 at RCC, Trivandrum and to evaluate the methods of follow up. A total of 2312 cases with different sites were included in the study. Of these the active follow up rate was only 50%. Reply paid post cards were sent for the lost to follow up cases. The response rate for the post card was 40%. The survival rates will be estimated using suitable statistical softwares.

Project consultancy

A project cell has been formed to coordinate all the research projects ongoing at RCC. A computerized information such as objective, list of investigators, progress report, renewal, release of grants, submission of reports, the staff pattern etc. has been prepared.

Assistance in the design, implementation and analysis have been provided to researchers within the department and for those from the Medical College hospitals. Statistical analytical support was provided for post graduate dissertations and other research programmes.

Fellowships

Dr. Cherian Varghese was awarded UICC-ICRETT fellowship for a period of one month at University of California, San Francisco, August, 1994.

HOSPITAL CANCER REGISTRY (NCRP)

Sri. P. Gangadharan

Emeritus Medical Scientist
I.C.M.R.

Smt. G. Padmakumari

Medical Statistician

Sri. G. Rajasekharan Nair

Medical Records Officer

Hospital Cancer Registry (NCRP)

The Hospital Cancer Registry (HCR) is part of the National Cancer Registry Programme of India and is in the 13th year of existence. During the reporting year, the registry has abstracted, analysed and generated the annual report for the year 1992.

Cancer Pattern

Five thousand eight hundred and eighteen cases were reported during the year 1992. The distribution of cancer cases with respect to site, age and sex are given along with the total and percentage in Tables 1 & 2. The male female ratio was 1.2 : 1. The peak age frequency in males was observed in the sixth decade. The age distributions for males and females are shown in Figures 1 and 2. Ninety percent of cases had microscopic verification of their diagnosis. In the 4745 analytic (previously untreated) cases 17.05% were in the localised stages. Radical treatment was offered to 56.9% of cases. Radiotherapy was the predominant form of treatment (73.6%) followed by chemotherapy (29.1%) and surgery (24.00%).

Leading Cancers:

Among males lung was the commonest site of cancer and among females it was breast cancer. The ten leading sites of cancer are shown in Table 3 and Fig. 3. The system wise pattern of cancers is shown in Fig. 4.

Childhood cancers (0-14 years)

The childhood cancers formed 3.7% of the total cancer load. In 1992, 217 childhood cancers were registered Brain (13.82%), Acute lymphatic leukaemia (26.2%), Eye (6.7%), Hodgkins disease (5.1%) and Bone tumours (4.6%) were the common sites of cancer seen in the paediatric age group.

TABLE 1

Hospital Cancer Registry - Trivandrum : Incident Cancer Cases of 1991 : Age, Site (ICD - 9) and Percentage - Males.

ICD-9 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	%
140 Lip										1	1		1	6	4	3	18	0.51
141 Tongue						5	4	10	15	14	26	33	25	21	26	17	190	6.59
142 Salivary Gl.				1			2	1				2	2	5		2	16	0.51
143 Gum								3	2	3	7	8	11	12	7	5	58	1.86
144 Floor of mouth									1	4	8	10	6	6		3	36	1.15
145 Other Mouth						2	3	8	18	15	45	54	49	17	24	29	294	9.42
146 Oropharynx							2	1	2	10	16	21	18	15	9	7	101	3.24
147 Nasopharynx				1				2	2	4	1	4	6	3	1		23	0.83
148 Hypopharynx					1		2	1	5	19	16	21	15	18	5	5	99	3.17
149 Pharynx Etc.												3	1				5	0.16
150 Oesophagus							2	2	7	12	26	39	36	28	20	10	182	5.83
151 Stomach								7	8	13	26	26	21	26	10	6	139	4.45
152 Small Intes.									1	1				2		1	5	0.16
153 Colon				1	2	1	4	2	7	9	9	7	7	4	4	3	49	1.57
154 Rectum					2	1	1	1	5	2	7	9	8	4	3	3	49	1.57
155 Liver			2			1	5	6	10	15	13	9	7	11	6	2	84	2.69
156 Gall Bladd.								1	1		1						3	0.10
157 Pancreas							1	3	2	4	8	9	4	3	5	1	41	1.31
158 Retroperit.						1				4			1	2	1		10	0.32
159 Other Dig Sys.													1				1	0.03
160 Nasal Cav.	1	1						1	3	7	2	2	5	4	1	3	33	1.06
161 Larynx					2		2		4	9	12	31	26	27	12	10	129	4.13
162 Lung				2			1	7	24	33	49	67	74	58	28	14	362	11.50
163 Pleura								1					1				2	0.06
164 Thymus Etc.				2	2		3	1	3								11	0.35
170 Bone		2	3	10	2	3	3	1		3	1			2			36	1.15
171 Conn. Tiss			2		3	3	7	2		1	4	3	3	2	2		33	1.06
172 Skin/Mela				1					1		1	2			2	3	18	0.58

172	Skin, Other	1	2	1	-	-	1	2	1	2	2	3	4	16	9	12	7	63	2.02
175	Breast Male	-	-	-	-	-	-	-	2	-	1	1	1	-	1	1	-	7	0.22
185	Prostate	-	-	-	-	-	-	-	-	-	4	-	2	16	20	16	13	72	2.31
186	Testis	1	-	1	1	1	2	4	3	3	3	1	1	1	-	-	-	22	0.70
187	Penis etc.	-	-	-	-	-	-	2	1	3	5	1	2	3	3	4	6	30	0.96
188	Uri. Blad.	1	1	-	-	-	-	-	1	3	2	3	5	3	6	8	6	48	1.54
189	Kidney	5	2	-	-	-	1	-	-	4	1	2	3	1	5	1	-	25	0.80
190	Eye	6	3	1	-	-	-	2	-	-	2	-	1	1	-	-	1	17	0.54
191	Brain	7	6	4	7	4	9	12	14	11	13	11	8	2	8	2	-	118	3.78
192	Nervous Sys.	-	-	1	1	2	1	-	-	-	-	-	-	-	-	-	-	5	0.16
193	Thyroid Gl	-	-	-	2	10	8	7	5	8	2	7	5	4	3	-	-	61	1.95
194	Oth. Endo Gl	4	2	-	1	-	-	1	-	-	-	-	-	-	-	-	-	8	0.26
195	[I] Def. St	1	1	-	-	-	1	-	-	1	-	-	-	-	-	-	-	4	0.13
196	Sec. Lymph.N.	-	-	-	-	1	1	1	5	10	8	7	18	16	19	4	4	96	3.07
197	Sec. Res. Etc	1	-	-	-	1	3	3	3	5	3	4	10	8	7	7	3	53	2.02
198	Sec. Other	-	-	-	-	-	-	1	3	4	6	6	15	16	10	9	5	77	2.47
199	Prim. Unk	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	1	0.03
200	Lymphosarc.	-	1	2	2	1	3	2	2	5	7	8	12	5	8	3	3	67	2.15
201	Hodgkins D.	-	5	2	1	4	5	2	5	-	1	1	4	1	3	1	-	35	1.12
202	Oth. Lymph.	1	4	3	3	4	6	3	8	9	9	9	10	3	7	8	6	96	3.07
203	Mult. Myel	-	-	-	-	-	-	-	-	3	4	3	7	8	12	4	5	49	1.57
204	Leuk. Lymph.	12	9	15	10	9	2	4	1	-	1	1	4	2	1	1	1	73	2.34
205	Leuk. Myelo	-	4	3	2	7	7	3	6	2	2	3	3	4	1	1	1	48	1.54
206	Leuk. Monoc.	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	1	0.03
207	Leuk. Misc	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	1	0.03
208	Leuk. Uns	1	-	1	1	-	2	-	-	-	-	1	-	-	1	-	-	7	0.22
Total		42	43	41	50	66	78	94	122	105	264	336	474	443	448	242	194	3122	100.00

TABLE 2
Hospital Cancer Registry - Trivandrum : Incident Cancer Cases of 1991 : Age, Site (ICD - 9) and Percentage - Females.

ICD-9 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	%	
140	Lip	-	-	-	-	-	-	2	-	1	1	3	1	3	2	2	15	0.58	
141	Tongue	-	-	-	-	2	-	5	4	4	4	11	8	14	12	5	14	83	3.08
142	Salivary Gl	-	-	-	1	1	2	-	-	1	1	-	3	-	-	1	10	0.37	
143	Gum	-	-	-	-	-	-	1	-	5	5	10	7	7	8	6	54	2.00	
143	Floor of mouth	-	-	-	-	-	-	-	-	1	-	1	1	1	-	-	4	0.15	
145	Other Mouth	-	-	-	-	-	-	5	8	9	13	14	26	30	16	21	142	5.27	
146	Oropharynx	-	-	-	-	1	-	-	2	1	1	1	3	1	-	2	12	0.45	
147	Nasopharynx	-	-	-	1	3	2	2	-	2	1	-	1	-	-	-	12	0.45	
148	Hypopharynx	-	-	-	-	2	-	3	4	1	3	4	2	2	2	-	23	0.85	
149	Pharynx Etc.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	0.04	
150	Oesophagus	-	-	-	-	-	1	-	-	2	6	8	12	8	4	5	47	1.74	
151	Stomach	-	-	-	2	1	-	4	3	1	5	5	7	15	2	-	48	1.71	
152	Small Intes	-	-	-	-	-	-	1	-	1	2	-	-	-	-	-	4	0.15	
153	Colon	-	-	-	-	-	-	-	1	1	4	1	2	2	-	-	11	0.41	
154	Rectum	-	-	-	2	1	1	4	2	7	-	6	6	8	5	3	43	1.99	
155	Liver	1	-	-	2	1	1	4	1	3	1	2	2	4	1	1	24	0.89	
158	Gall Bladder	-	-	-	-	-	-	-	1	-	1	2	1	-	1	2	8	0.30	
157	Pancreas	-	-	-	-	-	1	2	1	2	1	1	1	1	1	1	12	0.45	
158	Retoperit.	1	-	-	1	-	-	-	1	-	-	-	1	2	1	-	7	0.26	
159	Other Dig Sys	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.00	
160	Nasal Cav.	-	1	-	1	-	-	-	2	4	2	1	1	3	1	-	16	0.59	
161	Larynx	-	-	-	-	-	-	-	-	3	2	2	3	1	1	1	15	0.56	
162	Lung	-	-	-	-	2	-	2	1	3	6	6	3	9	4	2	41	1.52	
163	Pleura	-	-	-	-	-	-	1	-	1	-	-	-	-	-	-	3	0.11	
164	Thyroid	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	1	0.04	
170	Bone	-	2	3	9	3	1	1	-	-	-	1	-	1	-	-	22	0.82	
171	Conn. Tiss	1	3	2	2	3	3	3	4	1	3	3	3	2	1	2	33	1.22	

172	Skin Mole	.	.	.	.	.	.	.	1	.	2	2	2	2	1	.	1	11	0.41
173	Skin Other	.	.	.	.	1	1	1	1	.	2	3	4	2	1	2	1	18	0.67
174	Breast	.	.	.	.	87	19	46	72	105	122	88	75	46	36	22	15	632	23.44
179	Uterus Nos.	.	.	.	.	1	.	.	.	2	1	3	1.	1	1	.	.	9	0.33
180	Cervix	.	.	.	.	.	2	9	35	58	72	66	81	76	49	29	18	493	18.29
181	Placenta	.	.	.	.	.	1	2	1	.	.	.	1	.	.	.	.	5	0.19
182	Body Uterus	.	.	.	.	.	.	2	3	3	7	12	10	4	3	3	1	48	1.78
183	Ovary	.	1	8	6	8	8	7	6	18	19	22	15	11	13	7	148	146	5.49
184	Vagina	2	.	.	.	.	.	.	1	4	3	4	3	2	2	3	4	27	1.00
188	Uri. Blad	.	.	.	.	.	.	.	.	.	.	2	.	.	2	.	4	4	0.35
189	Kidney	1	.	.	.	.	.	.	.	1	3	.	.	1	.	1	.	8	0.36
190	Eye	6	3	1	1	1	1	.	1	.	.	.	.	.	.	1	12	12	0.45
191	Brain	1	6	6	5	4	7	3	7	4	5	.	6	5	.	.	.	61	2.25
192	Nervous Sy.	1	1	1	1	1	.	.	1	.	7	6	6	8	6	6	.	3	0.11
193	Thyroid Gl	1	1	1	6	19	33	27	25	17	11	14	13	7	9	6	2	182	0.11
194	Oth. Endo Gl.	.	1	.	1	.	.	.	.	.	.	.	.	.	.	3	.	3	7.12
195	Ill Dat. St.	1	.	1	.	.	.	.	.	.	.	.	1	1	1	1	1	5	9.11
196	Sec. Lymph	.	.	.	.	1	1	1	1	.	3	4	4	4	5	1	3	26	0.19
197	Sec. Res. Et.	.	.	.	.	.	1	1	1	1	1	5	6	7	6	6	4	42	0.55
198	Sec Other	1	.	1	.	.	2	2	2	2	3	2	5	5	2	1	.	31	1.56
199	Prim. Unk	.	.	.	.	.	.	.	.	.	1	.	.	.	.	.	.	1	1.15
200	Lymphosarc	.	.	.	1	2	2	4	2	1	3	3	2	5	5	2	4	32	0.04
201	Hodgkins D.	1	2	1	5	1	3	.	1	1	2	1	1	1	2	.	.	22	1.19
202	Oth. Lympha	9	7	5	5	3	1	1	2	2	1	5	6	6	6	7	8	3	1.36
203	Mult. Myel	.	.	.	.	.	.	.	1	.	1	.	5	8	7	6	1	35	1.26
204	Leuk Lympha	9	7	5	5	3	1	1	2	2	1	3	1	1	1	3	3	34	1.56
205	Leuk Myelo	3	2	3	2	3	6	6	8	7	6	3	2	2	4	2	2	61	2.26
206	Leuk Monoc	.	.	1	.	.	.	.	.	.	.	.	.	.	.	.	1	1	0.04
208	Leuk uns.	1	0.04
Total		30	28	33	48	72	106	127	209	271	305	322	331	288	260	145	121	2696	100.00

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Table 3: 10 leading sites of Cancer in males and females 1992.

Rank	Male		Female	
	Site	No. %	Site	No. %
1	Lung	362 11.6	Breast	632 23.44
2	Mouth	294 9.42	Cervix	493 18.29
3	Pharynx	205 6.57	Thyroid	192 7.12
4	Lymphoma, HD	198 6.34	Ovary	148 5.49
5	Tongue	190 6.09	Mouth	142 5.27
6	Oesophagus	182 5.85	Tongue	83 3.08
7	Stomach	139 4.45	Brain	61 2.26
8	Larynx	129 4.13	Body Uterus	48 1.78
9	Brain	118 3.78	Oesophagus	47 1.74
10.	Oropharynx	101 3.24	Stomach	46 1.71

57

Fig. 1

Age Distribution in Years - 1992
Males - 3122

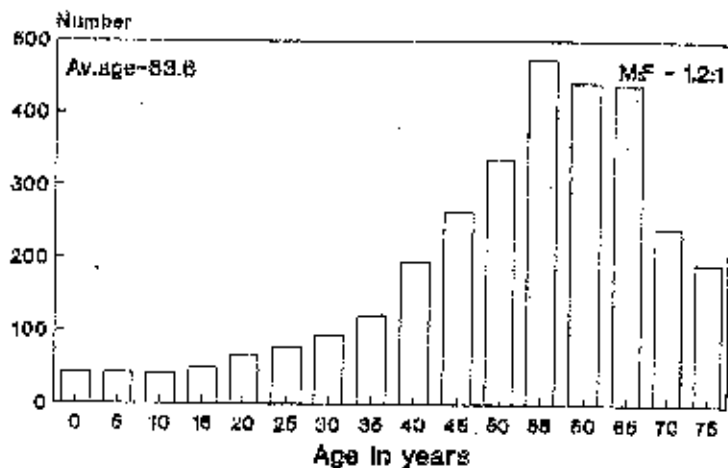


Fig. 2

Age Distribution in Years - 1992
Females - 2696

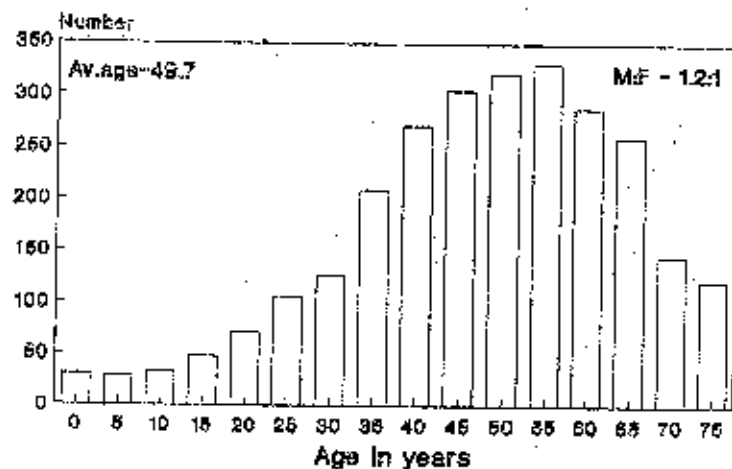
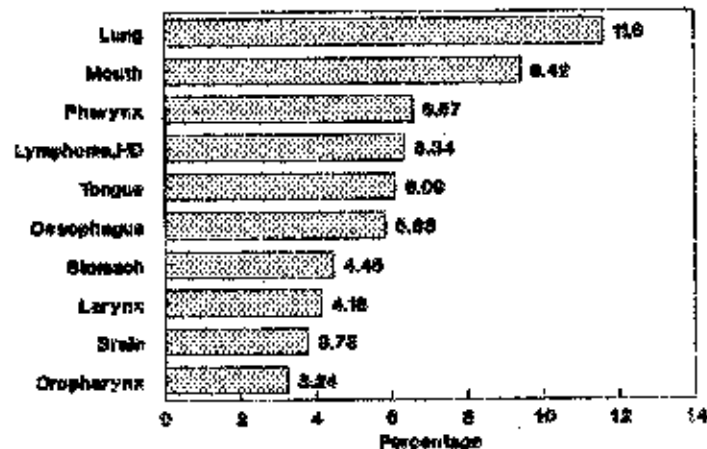


Fig. 3 Ten Leading Sites of Cancer
Males (1992)



Ten Leading Sites of Cancer
Females (1992)

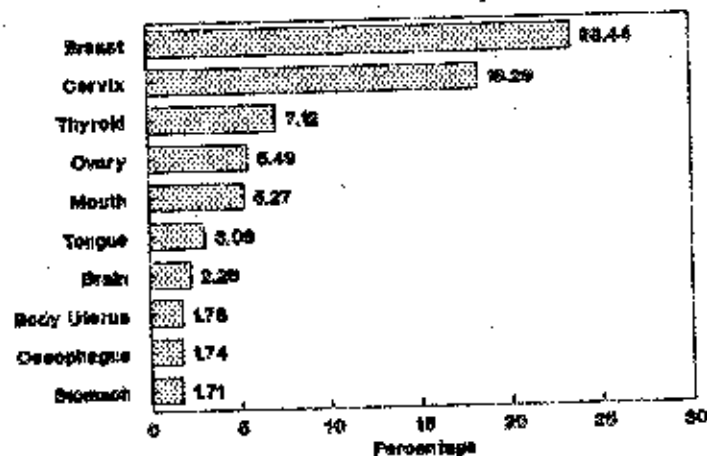
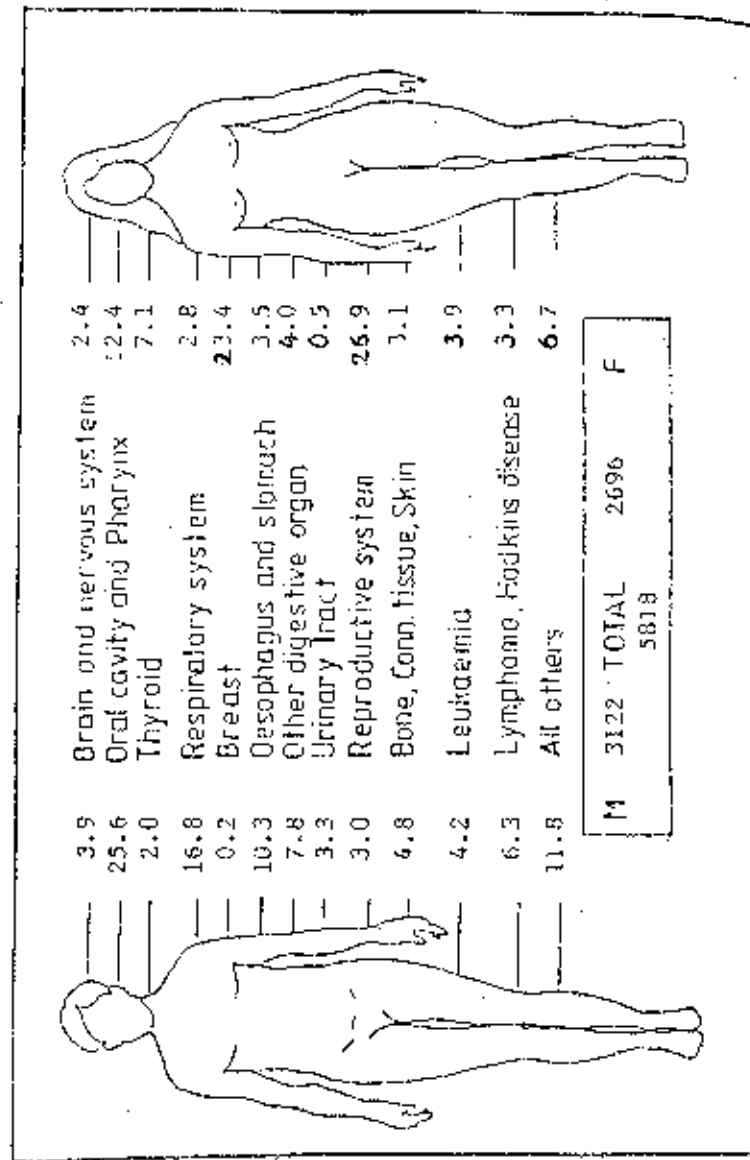


Fig. 4: HOSPITAL CANCER REGISTRY, TRIVANDRUM
System-wise pattern - 1992



DIVISION OF RESEARCH

Dr. Prabha Balaram	Associate Professor
Dr. Ravindran Ankathil	Assistant Professor
Dr. S. Kannan	Assistant Professor
Dr. P. Remani	Lecturer
Mrs. Molykutty John	Lecturer
Sri. Thomas Abraham	Scientific Officer
Mrs. Padmavathy Amma	Technical Officer

The Research division showed considerable stability and improvement in its activities during the period under report thus improving upon the standards of research over the previous years. The activities spanned two aspects, one exploring the basic alterations and mechanisms operating in cancer cells and the other providing service to the cancer patients through special investigations. The division also participated actively in technology transfer by acting as a referral and consultation centre for research to the graduate and postgraduate students from various institutions in Trivandrum and elsewhere, speaking on special topics of interest to scientists from other disciplines, participating as faculty in inservice programmes for postgraduate teachers etc. The staff of the division were also engaged in conducting postgraduate and doctoral examinations of the various universities in Kerala in Cell Biology, Biochemistry and Immunology. The Programmes of the major projects are outlined below. Other than these smaller projects in cancer biology and in disciplines other than cancer biology such as evaluation of immunological alterations by administration of Ayurvedic drugs, corneal transplantations, evaluation of DNA repairing mechanisms in oral cancer patients etc. were also carried out.

Immunology of Gestational Trophoblastic Disease and correlation to Tumour Regression

Funded by the Department of Science & Technology, Govt. of India

Principal Investigator

Dr. Prabha Balaram

Collaborating
Investigators

Mrs. Molykutty John
Dr. T. N. Rajaleskhmy
Dr. V. P. Gangadharan
Dr. Joy Augustine.

Gestational Trophoblastic Disease is a condition affecting females of reproductive age and has a high prevalence in the state of Kerala. Being predominantly an Asian disease very little has been studied about the biology and risk factors involved. This proposal was undertaken with the aim of (a) estimating the prevalence rate of the disease in Kerala and elucidating the major risk factors associated with this disease (b) an experimental analysis of the involvement of various growth factors and maternofetal immunological interactions in this disease as very few reports are available in literature on these aspects. Our results in 360 patients showed Kerala to have one of the highest incidence of GTD in the world reported in a hospital set up. Experimental analysis show a high risk for females with A+ve blood group married to O-ve males, those belonging to low socio-economic group, patients with repeated spontaneous abortions etc. We also observed an association of viral infections such HPV, RSV & HSV in these patients. HIV and syphilitic infections were not increased significantly in this group.

Analysis of epidermal growth factor (EGF), Epidermal growth factor receptor (EGF-R), Transforming growth factor (TGF) alpha and beta, and GMCSF were studied in 120 Gestational Trophoblastic Tumours in comparison with normal placenta of corresponding gestational age. Growth factors were generally increased manifold in GTD tissue giving a growth advantage to these tissues. The increase was noticed both in tissue concentration (RIA) and intensity of staining. The results suggest the presence of truncated form of EGFR which remains constitutively activated in GTD. This has not been reported earlier and is being studied at the RNA level. The erb oncogene and ras oncogene also showed increased expression in GTD especially in slowly regressing tumours. The potential of these markers as indicators of aggressiveness of the tumour is being analyzed. Lectin binding in GTD lesions showed promise in identifying slowly regressing lesions and could be helpful as a marker in therapeutic management.

Evaluation of Circulating Trophoblastic Antigen as a prognostic indicator in Gestational Trophoblastic Disease.

Funded by the State Committee for Science, Technology and Environment, Govt. of Kerala

Principal Investigator
Collaborating Investigators

Dr. Prabha Balaram
Ms. Molykutty John
Mr. Thomas Abraham
Dr. T. N. Rajaleskhmy,
SAT Hospital

This project aims at evaluating the presence of circulating anti-trophoblastic antibodies in patients with GTD and raising polyclonal anti-trophoblastic antibodies which can be used in a serological detection method to detect the presence of persisting diseases. BHCG is the only available marker now. Above normal BHCG levels are not always observed even when there is persisting disease. This is especially so in case of occult diseases. Hence availability of a second marker would be of immense use in identifying this type of disease. Anti-trophoblastic antibodies were observed in 80% of the GTD patients while only 10% of the normal pregnant controls showed positivity (at very low dilution). Follow up analysis is being done to evaluate if positivity of anti-trophoblastic antibody can be used as a marker of persisting disease.

Chromosome sensitivity studies in colon cancer families

Funded by Department of Science, Technology & Environment, Kerala State.

Investigators

Dr. Ravindran Ankathil
Dr. Jayaprakash Madhevan

Colon cancer tends to aggregate in families. Inheritance of susceptibility has been reported to be the basis of this. But information is lacking concerning possible genetic defects or genetic susceptibility risk in close relatives of the familial colon cancer patients. Genetic studies of individuals in such cancer families may shed some light on the possible predisposing factors. So this study

aims to determine (1) the constitutional chromosomal markers (if any) that are present in some members of these families and (2) the genetic instability in colon cancer patients and their first degree relatives employing bleomycin induced chromosome sensitivity assay. It is hoped to identify the high risk family members before they get affected and thus reduce the toll the disease takes.

Cytogenetic studies in Manic depressive psychosis

Funded by Dept. of Science, Technology & Environment, Kerala State

Investigator	Dr. Ravindran Ankathil
Collaborating Investigator	Prof. (Dr.) Neeta V. Kulkarni Dept. of Anatomy Medical College Trivandrum.

The incidence of Manic depressive psychosis is 20 times as high among close relatives of MDP patients. It has been established through family, twins and adoption studies, that genetic factors contribute to the aetiology of MDS. So this project aims to investigate whether there are any chromosomal clues for this. We are investigating the constitutional chromosomal abnormalities and chromosomal fragile sites in these patients.

Prognostic evaluation of Nucleolar organizer region associated proteins in premalignant and malignant oral lesions

Funded by Dept. of Science and Technology, Kerala State.

Principal Investigators	Dr. Ravindran Ankathil Dr. Jayaprakash Madhavan
Collaborating Investigator	Dr. V. T. Beena Dept of Oral Pathology Dental College, Trivandrum

Nucleolar organizer regions are loops of DNA that are responsible for ribosomal RNA transcription. They are visualised in the nuclei of cells as brown/black dots by virtue of the argyrophilia of

NOR associated proteins. This study is aimed to detect the Ag NOR counts in patients with premalignant and malignant oral lesions. The correlation of AgNOR counts with histological grading and prognosis of oral cancer patients is also being determined. Possibilities of utilizing this technique to distinguish borderline premalignant oral lesions which will turn into oral cancer are also being explored.

Reversion of Ph' chromosome positivity in CML patients by Interferon treatment

Funded by	Fulford foundation, India
Investigators	Dr. Ravindran Ankathil Dr. V. P. Gangadharan

A Philadelphia (Ph) chromosome is noted in more than 90% of patients with chronic myeloid leukemia. In most CML patients the Ph chromosome is present even after haematologic remission induced by chemotherapy. Recently, α -interferon has been reported to induce the disappearance of the Ph chromosome. So this study aims to study the cytogenetic response of CML patients treated with Interferon.

Establishment of a cancer family registry

Investigators	Dr. Ravindran Ankathil Ms. Aleyamma Mathow Ms. Latha PT Ms Anitha Nayar
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Some kinds of cancers including the common ones as colon cancer, breast cancer, ovarian cancer etc. and the uncommon ones as retinoblastoma show a tendency to aggregate in families. The family history analysis is an easily acceptable and very predictive methods for identification of familial cancer clusters. The objectives of this study are to (1) investigate the incidence of familial cancers at the Regional Cancer Centre through pedigree analysis (2) to compile the pedigree and estimate the relative cancer risk of the family members and (3) formation of a cancer registry.

Tumour Cell kinetics in Gestational Trophoblastic Diseases as a Predictive Index of Tumour Aggressiveness

Funded by Indian Council of Medical Research

Principal Investigator Ms Molykutty John
Collaborating Dr Prabha Balaram
Investigators Dr. T. N. Rajalekshmy

This proposal aims at identifying tumors of higher aggressive nature using their proliferative index as an indicator as in most tumors a higher proliferative index is associated with higher aggressiveness. Proliferation related markers such as Ki-67 and EGFR were evaluated by immunohistochemistry on cell smears and tissue sections. EGFR showed more than 1000 fold overexpression in terms of both concentration and immunohistochemical staining in GTD in comparison to normal placentae of same gestational age. In normal placentae the EGFR was expressed both in the basal layer and differentiated layers in the early stages of pregnancy while it was restricted to only the syncytiotrophoblast in the later stages suggesting that the expression of EGFR in early stages is related to proliferation and in the later stages to other functions. In GTD both layers expressed EGFR irrespective of the gestational age suggesting its role in maintaining continuous proliferation and other functions. Ki-67 is also overexpressed in GTD. The significance of this is being analyzed.

Lectins as diagnostic and prognostic markers in Haematological malignancies.

Funded by Dept. of Science, Technology and Environment, Govt. of Kerala.

Principal Investigator Dr. P. Remani
Co-Investigators Dr. P. Kusumakumari
Dr. G. Rajasekharan Pital

Lectins are the most specific molecular probes for the histological localization of glycoconjugates such as cell surface membrane or organelles involved in synthesis, storage or turnover of complex carbohydrates. The main objectives of this study are (1) to isolate and

purify those plant lectins which specifically react with leukaemic cells (2) to see whether these selectins can be used for the diagnosis or prognosis of lymphomas and leukaemias and (3) to see whether these lectins can be used for the typing of different types of leukaemias.

Indigenous plant lectins and their use as reagents in immunology and pathology.

Principal Investigator Dr. P. Remani
Co-Investigator Dr. Joy Augustine
Collaborating Investigators Dr. T. Vijayakumar
Dept of Science,
Technology and
Environment

Lectins are a group of proteins found in a wide variety of plants, animals and microorganisms. These sugar binding proteins or glycoproteins of defined specificity, have been extensively used for the study of cell surface characteristics. The main objectives of this study are (1) to isolate and purify new tissue specific plant lectins from the indigenous plants (2) to study the different properties of these lectins, like mutagenicity, cytotoxicity, tissue necrosis and cell surface binding (3) to study the cytochemical and histochemical application of the newly purified lectins.

Development of Multifactorial Index of Radiocurability in oral cancers.

Funded by Dept. of Science, Technology and Environment, Kerala State.

Principal Investigator Dr. V. N. Bhattathiri
Co-Investigators Dr. P. Remani
Dr. Ravindran Ankathil
Dr. B. Chandralekha
Mr. C. A. Davis
Ms. Aleyamma Mathew

The objective of this project is to assess the three predictive assays, namely demonstration of micronuclei (MN) induction in tumor cell following delivery of first four fractions of radiotherapy and studying radiation induced lectin-binding alteration of tumor cell membrane early during a course of radiation. The project proposes to try and integrate these to develop an 'Index of radiosensitivity'. The study will include only well or moderately differentiated squamous cell carcinoma of the oral cavity arising in gingiva, buccal mucosa, tongue or palate of size 3 cm (T2, T3 or T4) but without bone invasion or severe skin ulceration. All of them will be given the same schedule of radical radiotherapy and all the three proposed tests will be done in each patient.

Multimodal assaying for prediction for intrinsic radiosensitivity of oral cancers.

Funded by International Atomic Energy Agency

Principal Investigator	Dr. V. N. Bhattathiri,
Co-Investigators	Dr. P. Remani Dr. Ravindran Ankathil Dr. T. Vijayakumar

This project aims to do (a) tumor tissue glutathione (TRGSH) measurement as a test intrinsic capacity to withstand radiation (b) use of micronuclei assay in exfoliated tumor cells as a real time test of nuclear damage and (c) use of alterations in lectin binding pattern in exfoliated tumor cells as a real time test of cell membrane damage. These tests will help in knowing the particular way a tumor is resistant (if it is so) and what type of modification is advisable.

Histopathological malignancy grading in oral and cervical cancers

Investigators	Thomas Abraham Prabha Balaram J. Stephen Joy Augustine
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Histopathological malignancy grading was carried out in patients with cancer of the oral cavity and that of the uterine cervix. Several histopathological features were seen to correlate with the outcome following treatment when due score was given to individual histopathological features and a cumulative histopathological malignancy score (CHM score) was calculated for each patient, it was found that the CHM score could serve as a reliable index for the treatment outcome. Cumulative Histopathological Malignancy score (CHM score) was found to be highly significant in patients with recurrence compared to patients with no evidence of disease (NED). CHM score was further classified into three grades (CHM Grades I, II and III). All the oral cancer patients with recurrence were seen to have CHM grade III. Even among the cervical cancer patients significantly higher percentage of recurrence were seen in patients with CHM grades II and III compared to CHM grades I. The difference in the survival of the patients on the basis of CHM-grade was also found to be statistically significant in cervical cancer patients.

Tumor markers in oral and cervical cancers

Investigators	Thomas Abraham Prabha Balaram J. Stephen
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Levels of carcinoembryonic antigen (CEA), β_2 - microglobulin (β_2 -M) and circulating immune complexes (CIC) were evaluated in the serum of oral and cervical cancer patients and the levels of these markers were seen to be elevated in both oral and cervical cancer patients compared to controls. Evaluation of the levels of multiple tumor markers showed higher sensitivity when compared to individual markers. The composite score of these tumor markers in oral cancer patients had still higher sensitivity (70%) at 90% specificity. Composite tumor marker scoring was found to have 100% sensitivity in distinguishing cervical cancer patients from controls, suggesting the potentiality of these markers in screening.

Levels of anti-HSV-1 antibodies were found to be significantly elevated in oral cancer patients compared to controls. Among the oral cancer patients anti HSV-1 antibody levels were shown to sig-

nificantly rise with the TNM stage. Levels of the anti HSV-1 antibodies in oral cancer patients were found to be significantly raised in patients with positive lymph nodes, which is known to be an important risk factor in oral cancer.

Int-2 protooncogene alterations in oral cancer

Investigators	Thomas Abraham Prabha Balam J. Sphen
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Investigations on the Int-2 protooncogene alterations in oral cancer revealed rearrangement of the gene in 33% and Int-2 amplification in 10% of the patients studied. Int-2 gene rearrangement was seen to correlate with lymph node status and also with Cumulative Histopathological Malignancy Grade. The rearrangement was seen to have a higher risk for recurrence and / or second primary disease. The results show that Int-2 rearrangement may occur even in early stages of oral cancer whereas Int-2 gene amplification may be a later event. Int-2 gene rearrangement thus appears to have great clinical potential in identifying high risk oral cancers in early stages.

External Collaborations:

1. Dr. H. U. Bernard, HPV Laboratory, Institute of Cellular and Molecular Biology, National University of Singapore, Singapore - HPV in oral Cancer.
2. Dr. Gregory Schultz, Institute of Wound Research, University of Florida, Gainesville, USA - Growth factors in GTD.
3. Dr. M. R. Das, Director Grade Scientist, Centre for Cellular and Molecular Biology, Hyderabad.

Academic Credits

Dr. Prabha Balam attended 16th International Cancer Congress, New Delhi.

Examiner, M.Sc. Biotechnology, Cochin University of Science and Technology, 1994.

Ph.D. Examiner, Mahatma Gandhi University, 1994.

Ms. Molykutty John

UICC ICRETT Fellowship- at Institute of Wound Research, 1995 University of Florida, USA.

Invited Guest Lecture

Dr. Ravindran Ankathil

1. "Genetics and Cancer" at the VIth Annual Conference of the Kerala State Chapter of the Assoc. Rad. Oncologists of India at Trivandrum 4th Dec, 1994.

Workshops attended

Dr. Ravindran Ankathil

1. National workshop on "Recent trends in Immunohistochemistry" at Tata Memorial Hospital, Bombay, June 13-14th 1994.
2. Third National workshop on Prenatal diagnosis and therapy at Bangalore, 19-20th November 1994.

Dr. P. Remani

3. AMBO (Asian Molecular Biology Organisation) International training course on Glycobiology and Glycotechnology from March 12 to 19, 1995 at Tokyo Metropolitan Institute of Medical Science, Japan.
4. One month advanced training in Radiobiology at Osaka Kansai Medical University, Japan from March 20 to April 17, 1995.

Routine Investigations - Research Division

Serum Immunoglobulin estimation - (IgG, IgA & IgM)	150
Cytogenetic evaluation including bone marrow and lymphocyte culture	99
Lymphocyte phenotyping	23

DIVISION OF LABORATORY MEDICINE AND TUMOR BIOLOGY

Dr. M. Radhakrishna Pillai

Associate Professor

Being a comprehensive cancer centre, basic research findings has ultimately to find application in the diagnosis and management of cancer patients. This transition from laboratory investigations into clinical practice requires an important and vital interface of clinical research studies -either involving human patients or involving the use and analysis of human tissue. It is with this objective that the Division of Laboratory Medicine and Tumor Biology was created. Research in the Division involves molecular genetics, immunobiology, cell and molecular biology of tumors such as lymphoma, pediatric leukemia, breast, ovary, cervix, oral cavity, pancreas and colo-rectum. We hope through these studies, to elucidate mechanisms involved in malignant transformation, tumor progression and drug resistance as well as develop newer strategies to improve upon diagnosis and management of those diseases. The Division has a number of extramurally funded research grants, five doctoral candidates, one post doctoral fellow and other research supporting staff. The specific areas of work and their highlights are detailed below.

The Molecular Pathogenesis of Cervical Cancer

- Investigators : Dr. M. Radhakrishna Pillai, Dr. P. G. Jayaprakash, Dr. M. Krishnan Nair.
- Co-Investigators : Dr. Brian Herman, Dept of Cell Biology, University of North Carolina, USA and Dr. T. N. Rajalokshmy, S. A.T. Hospital, Trivandrum.
- Funding Agencies : The Dept. of Science & Technology, Govt. of India and the Dept of Atomic Energy, Govt of India.

This study examines the role of human papillomavirus (HPV) infection and its modulation of tumor associated genes during tumor progression in the uterine cervix. Considerable progress has been attained during the past several months and a total of 324 subjects have so far been evaluated. One of the most promising results

obtained has been the development of an automated fluorescent based imaging system for cervical "PAP" smears. This system developed jointly with the Dept. of Cell Biology, University of North Carolina, Chapel Hill, USA is based on the detection of the HPV genome and the analysis of the transforming protein E6, the tumor suppressor gene p 53 and the anti apoptotic gene bcl 2. Our studies support the hypothesis that only women with persistent and active HPV infection develop cervical cancer. In addition, the amount of high risk HPV (viral load or HPV gene copy number) in cervico-vaginal epithelial cells was also found to be a critical factor for carcinogenesis and tumor progression. The microscopic imaging system developed which when coupled to fluorescent in situ hybridization (FISH) techniques, is capable of detecting one copy of HPV per cell and can genotype and quantitate the amount of HPV present at single cell level in cervical PAP smears. This system known as Automated Fluorescence Image Cytometry (AFIC) is able to automatically identify each individual cell nucleus in a PAP smear and quantitate HPV copy number allowing assessment of cellular cytoarchitecture and HPV status at the single cell level. The sensitivity and specificity of the FISH-AFIC procedure was also evaluated in comparison to the widely used Polymerase Chain Reaction (PCR). Twenty nine percent of the specimens tested were positive for HPV 16 by PCR while 14% were positive for HPV 16 by FISH. When the sensitivity and specificity of FISH procedure was compared to that of PCR in terms of HPV detection and clinical disease status, it was found that the specificity of FISH and PCR with respect to predicting CIN 2 & 3 and carcinoma in situ was 90% and 75% respectively. The sensitivity of FISH and PCR with respect to predicting CIN 2 & 3 and carcinoma in situ was 21% and 36% respectively. Because the FISH procedure preserves cellular morphology, has a higher specificity yet comparable sensitivity to PCR, use of the FISH procedure for detection of high risk HPV may serve as an useful adjunct to cytological screening for detection of high grade cervical disease.

The lack of correlation between HPV infection rates and occurrence of cervical lesions, especially those of a more serious nature, suggests that HPV infection per se is not sufficient for cervical carcinogenesis. This led us to use the developed AFIC to analyze for tumor associated gene expression in addition to HPV

status to determine tumor progression. Our findings indicate that there was a significant inverse association between the presence of p53 and advanced cervical disease. In addition the odds of being diagnosed with advanced cervical disease (\geq CIN 2) was four times higher for women positive for E6 and 62 times higher for women positive for bcl-2 expression compared to those who were negative for the two factors.

These findings are of clinical and diagnostic significance. It is now proposed to subject these findings and hypotheses to a molecular epidemiological study. We have identified three such sites and the study will begin in 1996.

Growth Factors in Human Tissue : Relevance to Tumor Progression

Investigators : Dr. M. Radhakrishna Pillai, Dr. P. G. Jayaprakash, Dr. M. Krishnan Nair.

Co-Investigator : Dr. T. N. Rajalekshmy, SAT Hospital, Trivandrum.

Funding Agency : Council for Scientific & Industrial Research.

The project seeks to define the role of epidermal growth factor (EGF) and transforming growth factors (TGF alpha and beta) in various grades of tumor progression in the uterine cervix. A total of 374 tissue samples have been analyzed so far and includes a spectrum ranging from non malignant cervical tissue, low grade squamous intraepithelial lesions (CIN 1), high grade squamous intraepithelial lesions (CIN 2 & 3) and invasive cancer. When EGF was seen to be expressed in normal epithelium, it was limited to the entire cytoplasm of basal cells and membranes of lower spinal cells. In low grade lesions also, the expression of EGF was similar. In contrast high grade intraepithelial lesions showed the presence of EGF in all layers of the epithelium. Similar findings were also observed for the distribution of the EGF receptor (EGF-R). It was seen to be restricted to only the basal compartment in normal tissue and low grade lesions while it was intensely expressed throughout the tissue in high grade lesions. TGF alpha was also expressed

in normal cervical tissue and low grade lesions in the basal cells. The more advanced lesions (\geq CIN 2) showed high levels of TGF alpha in all cell layers. However the reverse was the observation in case of TGF beta, where higher grade intraepithelial lesions and invasive cancer showed mild or no expression while normal and low grade lesions showed moderate expression. The results suggest a fundamental alteration in the growth regulatory mechanisms governing tissue homeostasis. These findings are now being analysed in relation to the presence of the HPV genome in the tissue. The study has also been extended to premalignant lesions in the oral cavity and breast.

Cytostructural Alterations During Tumor Progression in the Uterine Cervix

Investigators : Dr. M. Radhakrishna Pillai, Dr. P G Jayaprakash, Dr. M. Krishnan Nair

Co-Investigator : Dr. T .N. Rajalekshmy, S.A.T. Hospital, Trivandrum.

The study examines alterations in cytostructural components during tumor progression in the uterine cervix. The specific parameters being studied are various cytokeratins and involucrin as well as the basement membrane constituent proteins--Collagen, fibronectin and laminin. Using data obtained from normal cervical tissue as baseline, a cytokeratin profile during various stages of tumor progression has been created. This allows the modelling of histogenetic pathways during tumor development. Studies on the basement membrane allows cellular interpretation of the processes during tumor invasion. Distinct conformational and compositional changes of the basement membrane proteins were evident during the progression to malignancy. In addition, alterations in the expression of integrins - molecules that serve as "attachment hooks" for basement membrane components, were evident. These studies are now being extended to elaboration of various metalloproteinases in the disruption of the basement membrane.

The Molecular Basis of Tumor Response to Radiation Therapy

Investigators : Dr. Radhakrishna Pillai, Dr. P. G. Jayaprakash and Dr. M. Krishnan Nair.

Funded by : International Atomic Energy Agency and Indian Council of Medical Research.

Resistance of tumors to irradiation remains the primary reason for failure of radiotherapy in cancer management. This research program therefore is aimed at the elucidation of cellular and molecular aspects involved in tumor radio resistance. The investigation includes two major aspects—the role of tumor cell kinetics and the role of tumor associated genes. Pretreatment tissue and exfoliated cell samples from cancer of the uterine cervix are assessed for tumor growth fraction as well as expression of tumor associated genes. We have been able to show significant differences between patients who developed recurrent disease or had residual tumors following radiotherapy and those remaining disease free. While the production and expression of the epidermal growth factor was similar in both groups of patients, the expression of the epidermal growth factor receptor was significantly more intense in the patients with residual/recurrent disease. The expression of the transforming growth factor beta was significantly reduced in patients with recurrent/residual disease as compared to the other group. Perhaps the most provocative results obtained were those of ras and bcl-2 gene expression. Expression of both oncoproteins was associated with poor response to radiotherapy. Work on amplification and mutation of these genes is in progress and preliminary analysis confirms our earlier findings. We have also extended these studies to tumors of the oral cavity, breast and rectum.

The Role of the Multidrug Resistance Gene In High Grade non Hodgkins Lymphoma and Pediatric Acute Lymphoblastic Leukemia

Investigators : Dr. M. Radhakrishna Pillai, Dr. V. P. Gangadharan, Dr. Kusumakumari,
: Dr. M. Krishnan Nair

Funded by : Indian Council of Medical Research

Chemotherapy failure remains a significant problem in the treatment of high grade Non Hodgkin's Lymphoma (NHL) and Pediatric Acute Lymphoblastic Leukemia (ALL). This study investigates the phenomenon of multidrug resistance (MDR) in these tumors. The MDR gene codes for a protein called P-glycoprotein. In tumor cells, P-glycoprotein confers resistance to chemotherapeutic agents by actively pumping out the drug, thereby preventing the latter from accumulating in the cell. P-glycoprotein is unique in the sense that it differs from other membrane transporters in its ability to carry out active transport of an extraordinary variety of unrelated compounds. Our results show the absence of the protein in tumor cells from NHL prior to chemotherapy. This was subsequently confirmed by nucleic acid analysis. However in patients with recurrent disease, significant expression of MDR gene was evident. In pediatric ALL samples, pretreatment expression of MDR was evident in some cases, in both tumor cells obtained from peripheral blood and bone marrow. Analysis is now in progress on these patients through their course of chemotherapy. It is to be seen whether the pretreatment expression of the MDR gene as well as its activity during the course of treatment has significant effects on prognosis of the patient.

The Biology of Pancreatic Cancer.

Investigator : Dr. M. Radhakrishna Pillai

Funded by : The State Committee for Science, Technology and Environment, Govt. of Kerala.

Pancreatic cancer has always been a difficult disease to manage and has the lowest 5 year survival among gastrointestinal malignancies. This study evaluates the biological characteristics of pancreatic malignancy, pancreatitis and apparently normal pancreatic tissue obtained from post mortem cases. In addition, the development of biological markers to use on fine needle aspirates of pancreatic lesions are also being devised so as to facilitate early and better diagnosis. To overcome difficulty in obtaining sufficient tissue and FNAC samples, the study has been made into a multicentre investigation including 12 major hospitals in Kerala, Tamil Nadu and New Delhi.

Doctoral Programme

The Division has one post doctoral fellow and 5 research fellows working in the Doctoral Programme of the University of Kerala, and supported by fellowships from the Council for Scientific and Industrial Research and University Grants Commission.

1. Ms.S. Lakshmi : Biological factors in cervical oncogenesis
2. Ms. S. Asha Nair : Cellular manifestations of tumor progression in the uterine cervix.
3. Mr. G. Srinivas : Programmed cell death, Chemotherapy response and the prognosis of Pediatric Acute lymphoblastic leukemia
4. Ms. Lakshmi Koshari : Molecular analysis of Breast cancer.
5. Mr. D. Ravi : The genetic regulation of programmed cell death in squamous cell carcinoma: effects on tumor progression and response to radiation therapy.
6. Post-doctoral
Ms. T. T. Sreelekha : Gene mutation and tumor response to radiotherapy.

Awards and Fellowships

Dr. M. Radhakrishna Pillai was awarded the Yamagiva-Yoshida Memorial International Study Grant to the University of North Carolina, Chapel Hill, USA: one of ten candidates selected world over.

DIVISION OF ETHNOPHARMACOLOGY AND CELLULAR CHEMOTHERAPY

Dr. J. Stephen

Associate Professor

In continuation with the work done last year, 27 more plant extracts were tested on inbred swiss albino mice to assess their antimitotic property. Mouse bone marrow mitoclasticity assay has been adopted for the assessment of toxicity, mode of action on the dividing cells in the bone marrow, the effect on the mitotic index and the percentage of mitotic abnormalities induced by each one of the drugs in comparison with equivalent concentration of *Vinca rosea* extract. Out of the 27 extracts tested, 10 showed greater mitotic arrest than that caused by *Vinca* extract. Extracts from four medicinal plants caused drastic lowering of the mitotic index (less than 10), whereas in the control bone marrow the mitotic index was 53.72. The extracts were injected I.P. into mice.

Those extracts tested on mouse bone marrow *in vivo* last year and this year are being tested on three human cancer cell lines *in vitro* -HUT 70 (lymphoma), He La (Cancer of the uterine cervix) and MCF7 (breast carcinoma). Plant extracts prepared as 10% aqueous saline extracts (fresh weight/volume) as used in the animal experiment were used for this study also. The extracts sterilised by millipore filtration were added to tumor cell cultures individually in such a way that the final concentration of the above extract was 10ul/ ml in the culture medium.

Forty extracts including that from *Vinca rosea* were added separately on to HUT lymphoma suspension cultures and after 24 hrs. of incubation a few drops of 1% aqueous solution of Trypan blue stain was added to each culture and reincubated for 15 minutes. Then the cell suspension was centrifuged and washed in physiological saline and the pelleted cells were examined under the microscope in a drop of saline for counting the number of living (unstained) cells, dead cells and dead and disrupted cells. In this experiment extracts from 20 plants showed greater tumor cells killing ability than *Vinca rosea* extract at equivalent concentration.

Twenty one samples of extracts were tested on He La cells in cover slip cultures grown on sterile petridish pairs kept in sterile plastic boxes. Of these 18 extracts showed greater cell killing activity than that of *Vinca* extract, as judged by Trypan blue staining.

Nineteen drug extracts were tested on MCF7 cells in cover slip culture as above, of which 15 caused greater percentage of tumor cell death compared to *Vinca* extract, as evidenced from Trypan blue staining.

The other extracts are being tested on these three cell lines. Additional cell lines will soon be available for drug testing. Also, *in vitro* autoradiography using ^3H -thymidine and ^3H -uridine will be resorted to assess accurately the percentage of tumor cell death upon drug treatment.

Now alcoholic extracts from the same plants are being prepared. Upon evaporation of alcohol the crude extracts are left behind which can be fractionated by chromatography.

From the results of the studies done so far at this division the possible development of new anticancer agents from plant products has become a reality.

Mr. Jacob Thomas was awarded Ph.D degree by the University of Kerala for his thesis entitled "Antimitotic and clastogenic properties of Five therapeutic Alkaloids", done under the guidance of Dr. Stephen.

Guest Lectures given

Dr. J. Stephen gave two lectures, one on the phenomenon of differentiation and the other on the cellular and molecular aspects of cancer at the Refresher course on Cytogenetics for college and University teachers conducted by the Academic Staff College, University of Kerala, Kariavattom.

DIVISION OF INFORMATION SYSTEMS

Kurien K. Eapen

Systems Manager

Jayasankar G

Systems Analyst

Jayanthi J. K

Data Entry Operator

Suseela Devi B

Data Entry Operator

The division at present has the following infrastructure.

EISA 80486 DX 25 MHz system, UNIX terminal server, 32 MB RAM, 1.2 GB Hard Disk total storage with UNIX OS & INGRES RDBMS with max. 16 terminals & Ethernet capability.

- + 80386 DX 33 MHz PCAT with 4 MB RAM + 260 MG HDD
- + 80386 SX PCAT with 2 MB RAM + 40 MB HDD
- + 80386 DX 40 MHz Color System
- + HP Deskjet 500 Printer

Legal Software such as,

- | | | |
|-------------------------|---|------------------|
| WINDOWS 3.1 | - | Operating System |
| dBASE IV | - | DBMS software |
| Quatro Pro for Windows | - | Spreadsheet |
| Wordperfect for Windows | - | Word Processing |
| Paradox | - | DBMS |

The following patient management modules are up and running at various sites with full support of the division and all co-operation extended by the users.

- (i) New Registration
- (ii) Appointments & General Patient Information
- (iii) Cytology & Histopathology
- (iv) Pharmacy - Billing & Stock

Apart from these other applications for data management are also being used for administration and other purposes such as -

- (i) Stores
- (ii) Purchase
- (iii) CCL Scheme II

(iv) Besides other miscellaneous project and routine house keeping s/w & data have also been developed & implemented. Currently approximately 100 MB of data are available on line for all the above purposes. Data capture takes place at the respective sites and therefore appropriate data entry techniques are a must for data consistency and integrity.

The above mentioned activities could be considered to form the core of a total information system solution for overall hospital needs. This division in addition furnishes all relevant information to researchers including those from nearby govt. institutions such as the Medical College Hospital, SAT Hospital etc.

The activities of the division are resource intensive in terms of skill, attention and the existence of good support infrastructure and environment.

Project Supported:

- (i) HCR - NCRP (ICMR)
- (ii) HPV
- (iii) NBRR - Karunagappally
- (iv) PBCR - IARC
- (v)

Four batches of MCA students from Govt. Engg. College, Trivandrum and Annamalai University have carried out their final semester project under the guidance and supervision of the division. The areas successfully systemised by them are:-

Batch I - Govt. Engg. College- 1992 - 2 students - Cytology & Histopathology.

Batch II - Annamalai University - 1993 - 1 student - Pharmacy, Store, Billing, Purchase

Batch III - Govt. Engg. College- 1993 - 3 students - RIA Lab Module

Batch IV - Govt. Engg College- 1994 - 2 students - Clinical Laboratory Module

All the above have been successfully implemented

Personnel from the division have attended the following Seminars/Conferences:

Kurien K Eapen

TCS, Bombay - Professional Development Programme - 'Network Interconnectivity & Planning' - Hyderabad, Dec. 1993

Jayasankar G

"Soft-En 93" - IEEE National Seminar on Software Engg Dec. 1993, Trivandrum, 'Current trends in computer s/w.'

COMMUNITY ONCOLOGY DIVISION

Dr. Babu Matthew

Professor

Dr. Ramani S. Wesly

Asst. Professor

During the period under report the Community Oncology Division has completed one decade of activity. The main thrust areas of this division were as follows:

1. Professional Training and Health Education for general public.
2. Generation and distribution of Health Education materials and utilisation of mass communication media for Cancer awareness.
3. Training and utilisation of Non-Governmental agencies for comprehensive cancer Control Programmes in villages
4. Anti-tobacco campaigns with the support of voluntary agencies.
5. Community based Cancer research in the form of Chemoprevention studies, Intervention of Oral Cancer by visual screening and early treatment, utilisation of trained house surgeons for Cancer survey and surveillance.
6. Maintenance of Pre-Cancer Registry and management of an Early Cancer Detection Clinic in the Regional Cancer Centre Trivandrum.

A. Professional Training and Health Education

1. House Surgeons Training Programme

For the last three years the house surgeons passing out from Trivandrum Medical College are given a one day Training on Cancer Control. In this WHO financed programme, four batches of house surgeons were trained during the period under report.

2. Training of General Medical Practitioners.

A week long training Programme in principles of Cancer prevention, control and palliative care was conducted for general Medical Practitioners, in which 42 doctors were trained.

3. Inservice Training to Doctors.

Two batches of Assistant Surgeons working in the Health Services Department were given an orientation training on their role in cancer prevention and control. Seventy two doctors participated in these programmes.

4. Inservice Training to Supervisory ANMS and Health Inspectors.

The ANMS and Health Inspectors who undergo inservice training before they are promoted to supervisory cadre are regularly trained for one day on their role in Cancer awareness to the community. Thirty two ANMS and twenty nine Health Inspectors were given training during the current year.

5. Training of Key trainers of "Saksharatha Programme".

Three training programmes were organised for block level key trainers of Saksharatha programme, the first at Calicut, the second at Cochin and the third at Trivandrum in collaboration with the Regional Cancer Association, in tobacco awareness. Two hundred and forty two key Trainers attended the training.

6. Health Education for the General Public.

Eighty Cancer/tobacco awareness programmes or day long training programmes were held during the period under report, the details of which are shown in Table No. 1.

B. Generation and Distribution of Health Education Materials.

1. New Health Education Materials.

A set of eleven specimens showing cancers of various anatomical sites were collected, and mounted for exhibition purposes. Scale models of radiotherapy machines, C.T. Scanner and Mammography machine were made for display during exhibitions.

Four short video films for public viewing were made on (Oral Cancer, Cervical cancer, Breast cancer on Hazards of tobacco consumption). Thirty five sets of 2 x 2 projection slides, (each set containing 50 slides) were generated for anti-tobacco campaigns and distributed to the district secretaries of Bharat Scouts and Guides organisation. One lakh copies of a pamphlet on hazards of tobacco, one lakh stickers and thirty thousand posters were printed for anti-tobacco campaigns and distributed in the community through scouts and guides. The health education materials generated in previous years were distributed to participants during awareness programmes.

2. Cancer awareness through mass Communication Media.

Two programmes, one on the role of doctors in curtailing tobacco use and other on Oral self Examination for early detection of cancer were telecast through the Trivandrum Doordharsan Kendra on 31-05-94 and 06-12-94.

Three short programmes on oral cancer, economics of Tobacco and cancer control were telecast in the 'pulse' programme of Asianet.

Six programmes were broadcast through the Trivandrum station of All India Radio and two programmes through Kannur station of All India Radio, on cancer related topics by the staff of the Community Oncology Division.

3. Participation in Exhibitions

A special pavilion was opened in the All India Exhibition at Kannur by the RCC in collaboration with Malabar cancer Care Society and about six lakhs of people visited the cancer pavilion. The Community Oncology Division assisted in organising seventeen school exhibitions.

C. Comprehensive Cancer Control Programmes in Villages (VCCCP)

The VCCCP is an innovative project of the Regional Cancer Centre, in which a village is identified and taken for comprehensive cancer control activities. Volunteers were inducted and trained to

conduct cancer awareness in all families of the village and to do a survey of persons with warning signals of cancer. They motivated the suspects to undergo a screening for cancer in the village on a prefixed day. Detected cancer patients were given psycho-social support for early treatment and pre-cancers were kept under treatment and surveillance. Thirtythree such programmes were carried out during 94-95. The details of all Cancer detection activities are shown in table No. II.

D. Anti-tobacco Campaigns

A project called "one lakh tobacco free homes" was planned and carried out during last school year in collaboration with Bharat Scouts and Guides Organisation and the Regional Cancer Association. The financial support (Rs. 4 lakhs) for this project was given by the Govt. of Kerala. Twenty one training camps were held in various parts of Kerala in which about two thousand Scout masters and Guide Captains were trained to conduct tobacco awareness programmes in the school and nearby community. They trained about one lakh Scouts and Guides to do a person to person health education on hazards of tobacco consumption. The trained students educated tobacco habitees if present in their family or in the neighbourhood and motivated the users to quit tobacco. When a person decided to quit the tobacco habit, a declaration form was signed and a sticker stating that the house is tobacco free was placed in the front door. Each student was to motivate at least one person. The programme was inaugurated on 10th October 94 by the Hon. Chief Minister Shri K. Karunakaran, and by February 1995 the target fixed was reached.

Other anti-tobacco activities included, a Workshop on World No-Tobacco Day on Role of Media in curtailing tobacco use. Thirty two public meetings and rallies were conducted by Non-governmental organisations involved in VCCCP's on this occasion.

E. Community Based Cancer Research

1. Analysis of the data on the study "Randomised Clinical Trial to evaluate chemoprevention potential of spirulina algae" was completed and a paper is accepted for publication in Nutrition and Cancer.

2. Analysis of the data on the collaborative project on chemoprevention of Oral cancer with Human Nutrition research Centre, John Hopkins University, Baltimore, U.S.A. is going on.
 3. Data collected by Community volunteers on tobacco and alcohol consumption from various parts of Kerala is being analysed under the Preventive Oncology Scheme of ICMR.
 4. The project sanctioned under Ind Can 006 utilising trained house surgeons for cancer survey and surveillance in the Pangapara Primary Health Centre is going on.
 5. The study on the nutritional and developmental status of pre-school children with and without vitamin supplementation and deworming has been completed. 472 children were investigated and the data is being analysed.
 6. A new project with the financial and technical support of IARC, Lyon, France on intervention of Oral cancer by physical examination of mouth and prompt treatment is sanctioned. The study is expected to start in October 1995.
 7. A large scale chemoprevention study on oral cancer with cancer as end point is sanctioned. This study will be in collaboration with IARC, Lyon, France John Hopkin's University, Baltimore U.S.A. and M/s. Ambadi Pharmaceuticals, Madras. The project is expected to take off in Jan. 1996.
 8. A project on "Cervico scopy" as a screening method for early detection of uterine cancer is to be started soon and will be funded by IARC.
- F. Maintenance of Pre-Cancer Registry and Running of ECDC Clinic

The Community Oncology Division is maintaining a Registry of all pre-cancer lesions detected through community programmes. An Early Cancer Detection Clinic is functioning in R.C.C. where any person can get cancer screening by prior appointment.

One hundred seventy six persons utilised this facility during the period under report.

Conferences Attended and Papers presented

- A. Dr. Babu Matthew attended the UICC workshop on Tobacco control at Indore in Feb. 1995 and presented two papers and acted as resource person.
1. "One lakh Tobacco Free Homes" a campaign through selected school children in Kerala.
 2. Evaluation of tobacco habits in youth exposed to anti-tobacco programmes Vs controls after 5 years, in Kerala.
- B. Dr. Babu Mathew attended XVI International Cancer Congress Oct. & Nov. 1994 and presented two papers. He also chaired two sessions during the conference.
3. Developing anti-tobacco programmes in Kerala.
 4. Early Detection of oral cancer using low cost technology.
- C. Dr. Babu Mathew presented a paper in the National Conference of the International Union for Health Promotion and Education held at Trivandrum in December 1994 and chaired one scientific session.
5. One lakh tobacco free homes -- a project for anti-tobacco campaign using the volunteers of Bharath Scouts and Guides.

TABLE. 1

Details of cancer/Tobacco awareness Programmes

Sl. No.	Date.	Place	Sponsors	Nature of participants	No. attended.
1.	06-04-94	Pangappara	Pangappara PHC	Anganwadi workers and Nursing Students	
2.	06-04-94	R.C.C.	R.C.C. (INDCAN006)	House Surgeons	55
3.	06-04-94	Pangappara	Pangappara PHC (INDCAN006)	Anganwadi Workers, Helpers	152
4.	12-04-94	Thiruvalla, Pushpagiri Hospital	Rotary and Federal bank	Nursing Students	35
5.	22-04-94	Corporation of Trivandrum	RCA	Office Staff	150
6.	30-04-94	Thiruvalla	Vanitha mandiram, Thiruvalla	Church leaders	406
7.	14-05-94	Peravoor (Kannur)	Malabar Cancer Society	Youth Volunteers	283
8.	14-05-94	Kottiyoor (Kannur)	Malabar Cancer Society	Youth volunteers	111
9.	15-05-94	Mambram (Kannur)	Malabar Cancer Society	Youth volunteers	261
10.	29-05-94	R.C.C.	R.C.C. (INDCAN006)	General practitioners	36
11.	31-05-94	R.C.C.	R.C.C.	Lay public	55
12.	01-07-94	Kayamkulam	St. Mary's High School	P.T.A.	600
13.	07-07-94	R.C.C	R.C.C. (INDCAN006)	House Surgeon	52
14.	15-07-94	Fort Cochin	D.C.C.P.	Doctors	14
15.	16-07-94	Fort Cochin	D.C.C.P.	Health workers	42
16.	17-07-94	Kottayam	Travancore cement factory, Kottayam	Union leaders and factory workers	60
17.	22-07-94	North Paravoor	D.C.C.P	Doctors	10
18.	23-07-94	North Paravoor	D.C.C.P.	Health workers	45
19.	27-07-94	Moovattupuzha	D.C.C.P	Doctors	18

Sl. No.	Date.	Place	Sponsors	Nature of participants	No. attended.
20.	28-07-94	Moovattupuzha	D.C.C.P	Health workers	109
21.	04-08-94	Aluva	D.C.C.P.	Health workers	194
22.	06-08-94	Pathanamthitta	Pathanamthitta(PHC)	Youth Volunteers	264
23.	12-08-94	Ernakulam	D.C.C.P. Doctors	53	
24.	13-08-94	Ernakulam	D.C.C.P.	Health Workers	108
25.	14-08-94	Edavarnna (Calicut)	D.C.C.P	Health workers	53
26.	17-08-94	Sherthala	D.C.C.P.	Doctors	108
27.	27-08-94	Payyavoor (Kannur)	Malabar cancer Care Society	Educated Youth Volunteers	478
28.	28.08.94	Koodali (Kannur)	Malabar Cancer Care Society	Educated Youth Volunteers	329
29.	23.09-94	General Hospital Jn.	Fidus Arts Club	Pay Public	230
30.	24-09-94	Pandalam	Thekkekera Panchayath	Saksharatha Workers	128
31.	03-10-94	Edappalli	RCA & Bharath Guides	Scout masters and guide captains	80
32.	04-10-94	Perumbavoor	RCA & Bharath Guides	Scout masters and Guide captains	40
33.	05-10-94	Aluva	RCA & Bharath Guides	Scout masters and Guide captains	52
34.	07-10-94	RCC	RCC (INDCAN006)	House Surgeons	53
35.	10-10-94	Palayam	RCC, RCA & Bharat Scouts & Guides	Scout masters and Guide captains	68
36.	11-10-94	Secretariat	Women's Association	Staff members of secretariat.	205
37.	12-10-94	Kottayam	Bharat Scout & Guides	Scout Masters and Guide captains	101
38.	17-10-94	Kollam	RCA & Bharat Scouts and Guide	Scout masters and Guide captains	101
39.	18-10-94	Pathanamthitta	RCA & Bharat scouts and Guide	Scout masters and Guide captains	60
40.	24-10-94	Tirur	RCA & Bharath Scouts and Guide	Scout masters and Guide captains	38
41.	25-10-94	Badakara	RCA & Bharath Scouts and Guide	Scout masters and Guide captains	80
42.	26-10-94	Kozhikode	RCA & Bharat Scouts and Guide	Scout masters and Guide captains	38
43.	04-11-94	Medical college, TVM	Medical College	MBBS 1st year students	250
44.	05-11-94	Loyola College Sreekariyam	Loyala College	MA MSW students	42

Sl. No.	Date	Place	Sponsors	Nature of participants	No. attended.
45.	08-11-94	Kasaragod	RCA & Bharath Scouts and Guide	Scout masters and Guide captains	110
46.	09-11-94	Kannur	RCA & Bharath Scouts and Guide	Scout masters and Guide captains	71
47.	10-11-94	Tellicherry	RCA & Bharath Scouts and Guide	Scout masters and Guide captains	46
48.	11-11-94	Medical College, Tvm	Medical College	Medical Students	220
49.	14-11-94	Mavelikara	RCA & Bharath Scouts and Guide	Scout masters and Guide captains	52
50.	15-11-94	Alappuzha	RCA & Bharath Scouts and Guides	Scout masters and Guide captains	59
51.	21-11-94	Kattappana	RCA & Bharath Scouts and Guides	Scout masters and Guide captains	26
52.	22-11-94	Devikulam	RCA & Bharath Scouts and Guides	Scout masters and Guide captains	147
53.	28-11-94	Tripisur	RCA & Bharath Scouts and Guides	Scout masters and Guide captains	86
54.	29-11-94	Palakkad	RCA & Bharath Scouts and Guides	Scout masters and Guide captains	61
55.	30-11-94	Kalpatha	RCA & Bharath Scouts and Guides	Scout masters and Guide captains	26
56.	06-12-94	Neyyattinkara	RCA & Bharath Scouts and Guides	Scout masters and Guide captains	62
57.	09-12-94	Ernakulam	Little Way Association	Community Volunteers	138
58.	10-12-94	Manacaud	Rotary Club	Lay public	35
59.	19-12-94	Jawahar Nagar, Tvm.	Senior citizens	Hoscowives	35
61.	24-12-94	Chathancor	Rotary Club	Youth Volunteers	110
62.	26-12-94	Kanyakulangara	Rotary Club	Youth Volunteers	54
63.	05-01-95	R.C.C.	R.C.C.(INDCAN)006	House Surgeons	37
64.	07-01-95	Naduvil	Cancer Society	Youth Volunteers	652
65.	08-01-95	Chalid	Cancer Society	Youth Volunteers	326
66.	19-01-95	RCC	RCC,RCA	Education Officers	67
67.	25-01-95	Ernakulam	B.C.C.P.	Corporation Workers	45
68.	29-01-95	RCC	RCC (INDCAN)	Nurses	23
69.	07-02-95	Chathancor	Central School	Students & Teachers	756

94

Sl. No.	Date	Place	Sponsors	Nature of participants	No. of attended.
70.	10-02-95	Quilon	Deputy Collector, Quilon	Educated females	
71.	18-02-95	Trivandrum	ME:10	Mass Education	823
72.	21-02-95	Calicut	RCA	Saksharatha Workers	63
73.	22-02-95	Ernakulam	FCA & Aids cell	Saksharatha Coordinators	52
74.	23-02-95	RCC	RCA	Saksharatha Co-ordinators	65
75.	27-02-95	Maloor (Kannur)	Malabar cancer Society	Youth Volunteers	175
76.	03-03-95	Mannar	Malabar cancer Society	Youth Volunteers	487
77.	14-03-95	Amboori	Mahila Samsam Amboori	Educated Youths	646
78.	16-03-95	Pennorkada	ESI Hospital	Doctors & Nurses	94
79.	18-03-95	Poonitira	Fidu Arts Club	Educated Women	43
80.	22-03-95	Palimokku	St. Mary's Church	Educated Youths	35
Total					11809

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TABLE . 2

Details of Cancer Detection Campus

Sl. No.	Date	Place	Organised by patients	No. of	Cancers cancers screened	Old cancers	Oral pre cancers	Other pre
1.	09-04-94	Vizhinjam	Fidus Arts Club	20	0	0	2	0
2.	08-04-94	R.C.Colcey, TVM	IMA	102	1	0	9	0
3.	1-04-94	Titanium	IMA	150	0	0	6	0
4.	13-04-94	Kallara	IMA	124	1	0	35	0
5.	16-04-94	Periambalam	CYMA	131	1	2	8	10
6.	24-04-94	Thiruvalla	YMCA (Rotary Club & Federal Bank)	42	5	0	9	6
7.	07-05-94	Edavakkode R	CC (INDCANOC6)	43	2	0	4	0
8.	08-05-94	Edava	SAT Hospital	94	1	05	0	
9.	27-05-94	Paruthukkasery	RCC (INDCANOC6)	72	0	0	12	2
10.	17-08-94	Peravoor	Malabar Cancer Society	350	4	0	45	50
11.	18-08-94	Kottiyoor	Malabar cancer Society	110	3	3	41	10
12.	23-08-94	Vilapilsala	PHC, Vilapil	230	1	1	15	2
13.	09-07-94	Adarshanagar	Residents Association	53	0	0	2	0
14.	10-07-94	Varkala	NSS of Trivandrum MCH	75	0	1	11	1
15.	17-07-94	Mambam	RCC (INDCAN)	41	0	0	21	0
16.	25-09-94	Keraladityapuram	RCC (INDCANOC6)1540	17	14	75	32	32
17.	25-09-94	Payyavoor	Malabar Cancer Society	1540	17	14	75	0
18.	02-10-94	Thodupuzha	Thodupuzha Co-op Bank	218	0	0	6	0
19.	16-10-94	Edavanna	Malabar Cancer Society	454	4	2	44	3

Sl. No.	Date	Place	Organised by patients	No. of	Cancers cancers screened	Old cancers	Oral pre cancers	Other pre
20.	10-11-94	Pozhiyoor	Fidus Arts Club	74	0	0	12	4
21.	02-12-94	Secretariat	Office Association	141	1	0	0	0
22.	17-12-94	Pulyanarcottah	Nursing Students RCC (INDCANOC6)	94	0	0	10	0
23.	21-01-95	Chapparapadava (Kannur)	Malabar cancer Society	996	3	1	42	12
24.	22-01-95	Koodali (Kannur)	Malabar Cancer Society	956	4	1	22	15
25.	10-02-95	Kadappakkada	Sibiram	269	1	02	4	
26.	11-02-95	Cheruvikkal	INDCANOC6	48	0	0	8	0
27.	15-02-95	Perorkada	Co-operative bank	87	1	07	8	
28.	14-02-95	Perorkada(ESI)	ESI INDCANOC6	94	0	0	2	18
29.	25-02-95	Neduvil (Kannur)	Malabar cancer Society	1259	10	3	55	62
30.	26-02-95	Chalod (Kannur)	Malabar Cancer Society	402	3	0	42	7
31.	16-03-95	Pangappara	INDCANOC6	34	0	0	4	0
32.	29-03-95	Perorkada	ESO INDCANOC6 (ESI)	49	1	0	2	4
33.	31-3-95	Ambcozi	Snehasyam	35	0	0	04	3
Total				8447	77	29	608	272

EARLY CANCER DETECTION CENTRE, ERNAKULAM

Dr. B. Syamalakumary

Cytopathologist

During this reporting year (11th year of activity), the work of the Centre and the District Cancer Control Project work are running hand in hand.

Eventhough there is overall increase in the bulk of work conducted here, there is an apparent reduction of work done in the Centre alone and this is due to the fact that Cancer Detection work has got distributed throughout the District. Many of the taluk hospitals here also have started doing Fine Needle Aspiration Cytology and slides are being sent here for reading. This is possibly the effect of updating the Medical Officers on cancer detection.

A retraining programme for the field workers of health service staff was conducted and another training programme for the Corporation health workers during 25/01/95 to 27/01/95. Owing to some staff problems in the Corporation health unit camps assigned to corporation areas could not be conducted. But alternate arrangements were done and camps sponsored by other voluntary agencies were conducted on days fixed for them.

Another project has been recently taken up with the collaboration of International Agency for research on Cancer and this work is on "Evaluation of unaided visual inspection, Cervicoscopy and Pap-smear in screening for cervical cancer". This was started on the 10th February 1995 and so far 192 cases were studied. Findings are yet to be analysed.

Proper assistance is being given in Cancer Detection work as and when required for Regional Cancer Centre which is being declared as WHO Collaborating Centre for Cancer Control. A few visits were made by the WHO authorities to this centre for inspection and also medical authorities from other states to study the pattern of cancer control work done here.

The work done by this institution during these ten years was much appreciated by the delegates of IACR Conference conducted in Bangalore on 26th October, 1994.

We have also placed an order for the purchase of the equipment of Surgical Diathermy by the LEEP procedure which is an ultra modern way of diagnosis as well as curative, for early lesions of cervical cancer. Moreover a pain clinic is going to be started next month in this Centre and these will be a turning point in this ECDC since the institution is taking up treatment procedures also.

The work done during this year is given in detail.

Ernakulam District Cancer Control Programme. Work done during July '93 -March'95.

Total	Number of Clinics	228
Total	Number of Persons Screened	13,510
	Male	2,726
	Female	10,784
Oral	Non-Malignancy	595
	Pre-malignant (Clinical + Cytological)	494
	Malignancy	38
	Total Oral Smears	633
Breast	Non-Malignancy	110
	Malignancy	4
	Suspicious of Malignancy	3
	Miscellaneous	84
	Total Breast Aspirations	201
Cervix	Non-malignancy	7213
	Pre-malignant	495
	Malignancy	20
	Total Cervical Smears	7728
Thyroid	Benign	237
	malignancy	1
	Suspicious	3
	Atypia	4
	Miscellaneous	46

Total Thyroid Aspirations	291
L.N.	
Benign	35
Granulomatous	4
Suspicious	0
Miscellaneous	2
Malignancy	4
Total L.N. Aspiration	45
Other	58
Benign	2
Suspicious	5
Malignancy	87
Miscellaneous	152
Total Other Sites	152
Other Site Malignancy:	Parotid -3
	Eye lid-1
	Chest-1

No. of malignant cases who did not attend for advice even after several reminders during this period. 6

Resume of work done 1994-'95

Sl. No.	Particulars of work done	Centre based	Camp based	Total
1.	Persons Screened	4862	1561	6423
2.	Cervical Smears	3214	572	3786
3.	Oral Smears	269	22	291
4.	Sputum	111	...	111
5.	Fine Needle Aspirations	1484	104	1588
6.	Body Fluids	60	...	60
7.	Nipple Discharge	26	1	27
8.	Histopathology	239	...	239
9.	Colposcopy	138	...	138
10.	Colposcopy directed Biopsy	50	...	50

Cancer Detection Camps 1994-'95

Date	Camp Place	Sponsors
06.04.94	Thevakkal L. P. School	Lions club of Kalamassery
09.04.94	Mary Matha Hospital, Koonammavu	Koonammavu Mary Matha Hospital
30-04-94	Vathican City, Cherthala	Arts & Sports Club, Cherthala
14.06.94	Oorakkadu	St. Thomas Charitable Church, Oorakkadu
18.05.94	Perumani U. P. School	Saksharatha Samithy
25.05.94	Bathsa Hospital, Vengola	Saksharatha Samithy
04.06.94	Koodalappadu	Catholic Youth Movement, Koodalappad
27.08.94	St. Mary's School, Morakkala	Y.M.C.A Pallikkara
22.10.94	S. Marady	St. George Jacobite Syrian Church, S. Marady
12.11.94	Vannappuram	Y.M.C.A. Thodupuzha
07.01.95	TELK, Angamaly	TELK Employees Welfare Society
14.01.95	Govt. School, Poothrikka	Y.M.C.A. Poothrikka
11.02.95	Kandanadu	Rotary Club of Perumbavoor
25.02.95	Holy family church, Mankuzhi	K.C.Y.M. Mankuzhy
25.03.95	Kandakkadavu	K.C.Y.M. Kandakkadavu

Awareness Programmes 1994-95

Sl. No.	Date	Place	Sponsors	No. of particulars
1.	06.05.94	All India Radio, Kochi	Air Kochi	105
2.	07.05.94	Fort Kochi	ICDS, Kochi	
3.	22-05.94	} SRV, School, Ernakulam	Exhibition- Sathya Sai Samithi Training programme conducted for DCCP Field workers of Aluva Taluk-183	
4.	04.08.94				Aluva
5.	12.10.94	Kochi	All India Radio, Kochi	48
6.	25.01.95	IMA Hall, Ernakulam	Training programme conducted by DCCP for health workers of Cochin Corporation.	
7.	27.01.95	IMA Hall, Ernakulam	" All India Radio, Kochi	50
8.	14.02.95	Kochi		

Gynaecological Cytology

Sl. No.	Lesions	centre	Follow up	Camp	Total
1.	Normal	157	53	99	309
2.	Inflammation	1711	688	368	2787
3.	Atypical squamous Metaplasia	1	2	...	3
4.	Trichomonas Infection	102	36	29	167
5.	T.V. with Mild Dysplasia	...	1	...	1
7.	T.V. with Severe Dysplasia	1	1	...	2
8.	Fungal Infection	9	2	...	11
9.	T.V. with fungal Infection	...	...	1	1
10.	Human Papilloma Virus Infection	12	6	1	19
11.	Herpes Simplex Virus Infection	10	2	2	14
12.	T.V. & H.P.V. Infection	...	1	...	1
13.	Viral infection with mild dysplasia	13	2	1	16
14.	Viral Infection with Moderate Dysplasia	5	1	1	7
15.	Viral Infection with Severe Dysplasia	2	...	...	2
16.	Glandular Cell Hyperplasia	...	...	...	...
17.	Atypical glandular cell hyperplasia	33	4	...	37
18.	Reserve Cell Hyperplasia	25	4	3	32
19.	Endometrial cell Hyperplasia	6	...	...	6
20.	Mild Dysplasia	131	55	37	223
21.	Moderate Dysplasia	16	8	3	27
22.	Severe Dysplasia	16	8	3	27
23.	Carcinoma in-situ	3	1	1	5
24.	Invasive squamous Cell Carcinoma	40	1	1	42
25.	Adenocarcinoma	5	...	...	5
26.	Endometrial carcinoma	1	1	...	2
27.	Radiation Changes	2	...	...	2
28.	Miscellaneous	1	1	1	3
Total		2394	879	572	3786

Histopathological Examination 1994-95

Sf. No.	Specimen	Benign	Malignant	Total
1.	Gynaecological	84	19	112
			In-situ 9	
2.	Breast	18	9	27
3.	Oral	7	9	16
4.	Others	66	14	80
5.	Miscellaneous	4	...	4
	Total	179	60-	239

EARLY CANCER DETECTION CENTRE PALAKKAD

Dr. R. Ananda Kamath

Cytopathologist

Activities:

The Centre continued all the activities undertaken in the previous years. These included screening of persons at the centre and in camps organised by voluntary agencies and NGO's in rural places in the northern districts of Kerala, giving suitable guidance to detected cancer cases and affording chemotherapy, palliative care and pain management in treated cases.

Cytology work comprised pap-staining of smears collected at the centre and in the camps. There was an overall increase in the output of work as compared to that of last years. These are tabulated and appended along with.

TABLE 1

Break up of Cytological Smears during 1994-95.

Sl.No.	Specimen	Cancer Cases				Total
		Centre	Camp	Centre	Camp	
1.	Cervical Smears	653	1960	(20)	(6)	2619
2.	Buccal	176	9	(30)	-	185
3.	Breast	71	9	(3)	-	80
4.	Sputum	234	-	(8)	-	234
5.	Pleural Fluid	7	-	-	-	7
6.	Others	67	4	(12)	-	71
	Total	1208	1982	(74)	(6)	3190
		(1014)	(1187)	(31)	(1)	(2201)

(Figures in Brackets refer to last year's).

TABLE II
Analysis of Gynaecological Smears

Cervical Smears	Centre	Camp	Total
Normal	133	762	895
Inflammation	326	826	1152
Inflammation with Squamous Metaplasia	78	157	235
Squamous Metaplasia	-	4	4
T.V. Infection	70	169	239
Reserve Cell Hyperplasia	1	3	4
Mild Dysplasia	3	2	5
Moderate Dysplasia	3	2	5
Severe Dysplasia	1	2	3
Nuclear Atypia	4	5	9
Suspicious	2	-	2
Ca-In-Situ	-	4	4
Squamous Cell Carcinoma	17	2	19
Adeno Carcinoma	1	-	1
Necrotic	2	-	2
N MC	4	3	7
Autolytic Atrophy	-	1	1
Inadequate	9	15	24
Total	653	1960	2613

TABLE II
Non-Gynaecological Smears During
THE YEAR 1994-95

Breast		
Malignant	-	3
Non Malignant	-	68
Total	-	71
Buccal		
Malignant	-	25
Suspicious	-	5
Non Malignant	-	146
Total	-	176
Sputum		
Malignant	-	4
Suspicious	-	4
Non Malignant	-	226
Total	-	234
Pleural Fluid		
Suspicious	-	1
Non-Malignant	-	6
Total	-	7
Miscellaneous		
Malignant	-	8
Suspicious	-	4
Non Malignant	-	55
Total	-	67

Sl.No.	Date	Place	Sponsor
1	18-6-94	Kottiyoor-Kannur Dist	Malabar Cancer Care Society-Kannur, M CCS
2	19-6-94	Peravoor - Kannur Dist	M.C.C.S. Cancer Care Foundation Kozhikode M C C F.
3	10-7-94	Kodencherry-Kozhikode Dist	Malabar Cancer Care Foundation Kozhikode M C C F
4	17-7-94	Mamparam-Kannur Dist	M.C.C.F.
5	24-7-94	Moodadi-Kozhikode Dist	M.C.C.F. Sree Narayana Library Moodadi
6	7-8-94	Unnikulam-Kozhikode Dist	M.C.C.F.
7	28-8-94	Badagara-Kozhikode Dist	M.C.C.F.
8	11-9-94	Chakkittapara-Kozhikode Dist	M.C.C.F. Chakkottapara Village Panchayat Saksharata Samithi
9	25-9-94	Payyavoor-Kannur Dist	M.C.C.S.
10	2-10-94	Thiruvampadi - Kozhikode Dist	M.C.C.F.
11	16-10-94	Edavana-Malappuram Dist	
12	30-10-94	Perambra-Kozhikode Dist	M.C.C.F.
13	4-11-94	Maniyore-Kozhikode Dist	M.C.C.F.
14	18-12-94	Kizhuparambu-Malappuram Dist	M.C.C.F.
15	21-1-95	Chapparatpadavu-Kannur Dist	M.C.C.S.
16	22-1-95	Koodali - Kannur Dist	M.C.C.S.
17	29-1-95	Mangalagiri Palakkad Dist	The Centenary Arts Sports Club Mangalagiri
18	25-2-95	Karuvanchal-Kannur Dist	M.C.C.S.
19	26.2.95	Chellod- Kannur Dist	M.C.C.S.

DIVISION OF LIBRARY & INFORMATION SERVICES

Shri. M. Chandrakumaran Nair, Librarian.

Library and information services have been augmented further during the report year to provide effective support to various diagnostic, clinical, and research programmes of the Centre. It was observed that apart from the RCC community, the library resources are being increasingly used by the users from Medical Colleges, University departments, research institutes and the research organizations. Library working hours have been extended from 9 am to 5 pm on all the O.P working days of the Centre.

Major activities of the library and information division can be identified in two levels. Firstly, steps have been initiated to build up a good collection of library resources on a very selective basis including some of the non book materials, its organization and to automate the library house keeping operations. Secondly, considerable improvements have been achieved in the rendering of the information services.

Collection development

Among the different forms of documents acquired, high priority has been accorded to the subscription to the journals. Out of 98 current periodicals including 15 journals as gratis received, majority of them were foreign in origin. In view of the availability of some of the useful information sources on oncology in audio video form, library has started collecting them. Present collection consists:

Collection	Added during the Period 1994-95	Position as on March 1995
Books, monographs & Back volumes	500	4329
Current periodicals	3	98
Reports & reprints	298	1698
Audio video cassettes	45	45

Computerised information retrieval services

The computerised information search facilities provided in the library using a CD ROM work station and an online connectivity to NICNET were increasingly used by both internal and external users. Library subscribed to a monthly updated CD ROM database, ONCODISC, which contain six databases on oncology. More than 150 searches were done a month using these databases during the period.

Online search facilities are provided on the NICNET connectivity, where the RCC library is functioning as a dial up user. MEDALRS databases like MEDLINE, AIDSLINE, AIDS TRIALS, AIDS DRUGS and the Union catalogue of Biomedical serials are accessible online. Searches were also carried out for the requests received from other users from Medical Colleges, University departments, Tropical Botanical Garden and Research Institute, Little flower Hospital, Angamaly, Amala Cancer Institute, Trichur etc. in addition to the internal requirements. Medline data from 1980 was accessible online, during the period.

Library computerisation

The activities relating to the computerisation of library operations are on the process. The work is in good progress for the creation of the machine readable catalogue of monographs, conference proceedings, thesis and other forms using micro CDS/ISIS ver 3 and the cataloguing work for books is almost completed.

RCC Publications

In the inhouse database of RCC publications, 65 papers contributed by the academic staff were added with abstracts. Now the abstracts of RCC publications from 1981 are accessible for any kind of search. Information related to various conferences and seminars etc. attended to by the staff are also being updated in another database.

Audio visual system

In view of the increasing participation of Centre's staff in various conferences, seminars, teaching programmes, etc. the audio

video facilities have been strengthened by adding a Keltron slide projector AF-1 Model, DR 920 Philip's Stereo Radio and a 14" KBRS BPL colour T.V. Proceedings of the important programmes were recorded and maintained in the library.

Other documentation services:

This division continued to render various documentation and information services systematically. A fortnightly Current Contents Bulletin carrying the contents pages of journals and other documents added to the collection was distributed. On the basis of the users profiles, the SDI service provided by BARC library and information services division using the INIS databases was utilised. Quarterly Press Clippings service on oncology and allied areas covering the popular English dailies in India was also continued. Copies of articles and reprints that are not available in the library were collected on demand from various other centres. Entire professional, official and project photocopying requirements of all the divisions were met by the library.

The inter library loan arrangements with the libraries like British library were also continued. This division has actively interacted with various divisions and substantial information support was given for the preparation and publication of scientific papers.

Training/workshop attended

Mr. M. Chandrakumaran Nair attended a course of study prescribed by NIC on Fundamentals of modlars searching at National Informatics Centre, New Delhi July 18-22, 1994.

Attended the National Convention of Medical Library Association of India at Kidwai Institute of Oncology, Bangalore from 15-17 December, 1994.

CONFERENCES/SEMINARS/TRAINING WORKSHOPS ETC. ATTENDED BY VARIOUS STAFF

Dr. N. Sreedevi Amma Prof. of Cytopathology Dr. Paul Sebastian	21st Annual conference in Cytology and Colposcopy, Bombay, April 1994. Head & Neck surgery workshop, Rajasthan, April, 1994.
Assoc. prof. of cancer Surgery Dr. P. Kusumakumary Assoc. Prof. of Paediatric Oncology	Indian Group meeting of the NCI protocol of Lymphoma and Leukaemia, Madras May, 1994.
Dr. V. P. Gangadharan Assoc. Prof. of Medical Oncology	-do-
Dr. V. N. Bhattachari Assoc. Prof. of Radiotherapy Dr. Ravindran Ankathil Asst. prof. of Cancer Research Mercy K. Varghese Staff Nurse	Brachytherapy training (Radiology and Oncology), UK, May 1994. Modern trends in Immuno Histochimistry TMH, Bombay, June 1994. Annual conference of trained Nurses Association of India, Kerala Branch, Kottayam, June, 1994.
Daisy Mathew Staff Nurse	do
Lissy C. V Staff Nurse	do
Latha M.B. Staff Nurse	do
Sr. Vijaya Nursing Supdt.	Review Board meeting of B.Sc. Nursing distance education programme, Delhi, July, 1994.
Dr. Elizabeth K. Abraham Assoc. Prof. of Ctopathology	Workshop on Lymphomas by IAP J.S.S. Medical College, Mysore, August, 1994.
Dr. V P. Gangadharan Assoc. Prof. of Medical Oncology	Inco-US Workshop & Conferences, Hyderabad, August, 1994.

Dr. Gladys Jeevi
Anaesthetist
Dr. B. Chandralekha

Prof. of Cytopathology
Dr. G. Beryson Edward
Lecturer in cancer Surgery
Dr. Jem Prabhakar
Lecturer in Cancer Surgery
Dr. Cherian Varghese
Asst. Prof. of Clinical Epidemiology and Cancer Research

Kurien K Eapen
Systems manager
S. Jayadevan, Jr.
Research Fellow
Aleyamma Mathew
Lecturer in Computational Statistics

Dr. N. Sreedevi Amma
Supdt. & Prof. of Cytopathology
Dr. B. Syamalakumari
Cytopathologist, ECDC
Dr. Rachel Cherian Koshy
Asst. Prof. of Anaesthesiology

Dr. Gladys Jeevi
Assoc. Prof. of Anaesthesiology
Dr. P. G. Jayaprakash
Assoc. Prof. of Radiotherapy

C.M.E. Programme on Cardiology, Trivandrum, August, 1994.
Non-Hodgkins Lymphoma and Breast pathology TMH, Bombay, October, 1994.
Hands on workshop on staplers M.M.C., Madras, October, 1994.

do
Annual Review Meeting Tumour Registries Madras, Oct. 1994

IACR cancer Registry Congress, Bangalore oct, 1994

UICC Congress, Delhi, Oct, 1994.
International Association of Cancer Registries (IACR), Bangalore, Oct, 1994
Annual meeting of the Association of Cancer Registries, Bangalore, Oct. 1994.
ARM Registries, Madras, Oct. 1994
International Association of Cancer Registries (IACR), Bangalore, Oct. 1994.
UICC Congress, Delhi Oct.- Nov. 1994.
International Association of Cancer Registries (IACR) Bangalore, Oct. 1994
IACR Congress, Bangalore, Oct, 1994

International Congress on Recent Advances in Anaesthesia, Trivandrum Oct. 1994.

do

XVI th UICC Congress, Delhi, Oct., Nov. 1994.

Dr. Rema Jyothirmayi	do
Lecturer in Radiotherapy	
D. Francis V. James	do
Lecturer in Radiotherapy	
Dr. Paul Sebastian	
Assoc. Prof. of Cancer Surgery	do
Dr. V. P. Gangadharan	XIVth UICC Congress, Delhi, Oct- Nov. 1994
Assoc. Prof. of Medical Oncology	
Dr. Narayanan Geetha	do
Lecturer in Medical Oncology	
Dr. T. Gangadevi	do
Assoc. Prof. of Radiotherapy	
Dr. Jayaprakash Madhavan	do
Asst. Prof. of Radiotherapy	
Sr. Vijaya	do
Nursing Supdt.	
Shri. P. Gangadharan	
Emeritus Medical Scientist	do
Molykutty John	do
Lecturer in Cancer Research	
Dr. Prabha Balaram	do
Assoc. Prof. of Cancer Research	
K. Raveendran Pillai	do
Cytotechnologist	
Dr. Rojymon Jacob	do
Lecturer in Radiotherapy	
Sindhu.s.	do
Staff Nurse	
Lisamma Jacob	do
Staff Nurse	
S. Kannan	do
Lecturer in Cancer research	

Jayalekshmy P.	Annual Meeting of the Association of Cancer Registries (IACR), Bangalore Oct. 1994. UICC Cancer Congress, Delhi Oct.- Nov. 1994.
Senior Research Fellow N.B.R.R.	
Dr. P. G. Jayaprakash	ESO (European School of Oncology) Workshop on testicular Tumours, Madras Madras Nov. 1994.
Assoc. Prof. of radiotherapy	
Senior Research Fellow(NBRR)	
Dr. Francis V. James	do
Lecturer in Radiotherapy	
Dr. C. S. Raheeka Beegum	do
Assoc. Prof. of Radiotherapy	
Dr. Jayasree	
Asst. Prof. of Cytopathology	
Dr. N. Balakrishnan Nair	do
Prof. of Radiotherapy	
Dr. S. Parameswaran	do
Assoc. Prof. of Radiotherapy	
Dr. Thomas Kcilparambil	do
Lecturer in Radiotherapy	
Dr. Rema Jyothirmayi	International Gynecological cancer Conference & Workshop of Carcinoma cervix, Kaggpur Nov. 1994.
Lecturer in Radiotherapy	
Dr. Rojymon Jacob	do
Lecturer in Radiotherapy	
Dr. B. Rajan	do
Prof. of Radiotherapy	
Tanayal Singh Elias	Annual conference on medical physics, Gujarat Cancer & Research Institute, Ahmedabad, Nov. 1994
Asst. Prof. of Radiation Physics	
Dr. Alex K. Ittyvirah	International Workshop on imaging and intervention Augimed '94 Coimbatore, Nov. 1994.
Assoc. Prof. of Imageology	
Dr. Ravindran Ankathil	National Workshop on prenatal diagnosis and Therapy, Bangalore Nov. 1994.
Assi. Prof. of Cancer	

Research

Dr. M.S. Subhadra	do
Consultant Professor of Genetics	
Dr. Cherian Varghese	27th Kerala Dental Conference '94 Calicut
Asst. Prof. of Clinical Epidemiology	Nov. 1994.
& Cancer Research.	
Dr. N. Sreedevi Amma	Symposium on recent Advances in Pathology
Supdt & Professor	of Gynaec Cancer, Trivandrum Dec. 1994.
of Cytopathology	
Dr. G. Rajasekharan Pillai	do
Assoc. Prof. of Cytopathology	
Dr. Syamalakumari	do
Cytopathologist, ECDC,	
Emakulam	
M. Chandrakumaran Nair	National convention of Medical Library
Librarian	Association of India, Bangalore Dec, 1994.
Dr. Rachel Cherian Koshy	42nd Annual National Conference of Indian
Asst. Prof. of Anaesthesiology	Society of Anaesthesiologist, Jaipur, Dec-1994.
Dr. Gladys Joewy	do
Assoc. Prof. of Anaesthesiology	
Dr. Ravindran Arkathil	Seminar on Genetic epidemiology and XX
Asst. Prof. of Cancer Research	Annual Conference of Indian Society
	of Human genetics. Huderabad, Dec. 1994.
Rajasekharan Nair	National Conference on Health Information
M.B.O.	and Advanced Management, Trivandrum
	Dec. 1994
Chandrika D	do
Coding Clerk	
Jalajakumari V.	do
Clerk	
Dr. A.S. Krishnakumar	48th Annual Congress of IRIA (AICR'95)
Asst. Prof. of Imageology	Bombay, January, 1995.

Dr. K. Ramachandran	do
Asst. Prof. of Imageology	
Dr. Ananda Kamath. R.	do
Cytopathologist, ECDC, Palghat	
K. J. Zacharias	Medical Services management for Non-
Administrative Officer	Medical Personnel, Bangalore,
	Jan. 1995.
Dr. Syamalakumari.B.	XXIV Annual Conference of Indian
Cytopathologist, ECDC, Ekm,	Academy of Cytologists and workshop on
	colposcopy, Adyar. Cancer Institute,
	Madras, Jan. 1995.
K.S. Jayalal	do
Cytotechnologist, ECDC, Ekm	
Dr. N. Sreedevi Amma	do
Supdt. & Prof. of Cytopathology	do
Dr. B. Chandrasekha	do
Prof. of Cytopathology	
Mercy Joseph	do
Cytotechnologist, ECDC, Ekm.	
Sreekala K.A.	do
Cytotechnologist, ECDC, Ekm.	do
Dr. Ravindran Arkathil	Seventh Kerala Science Congress,
Asst. Prof. of Cancer Research	Palakkad, Jan 1995.
Dr. P. Remani	XXIV Annual Conference Indian Academy
Lecturer in Cancer Research	of Cytologist Madras, Jan, 1995.
Dr. Prabha Balaram	Indian Urological Society Conference,
Assoc. Prof. of Cancer Research	Trivandrum, Jan 1995.
Dr. Ananda Kamath	16th Annual Congress Association of
Cytopathologist, ECDC, Palghat	radiation Oncologist of India, Trivandrum
	Feb. 1995
Dr. M.S. Subhadra	CME - An update on Human - genetics St.
Consult Prof of Genetics	St. John Medical College, Bangalore, Feb.
	1995.
Aleyamma Mathew	39th All India Annual Conference of Indian
Lecturer in Computational	Public Health Association Banaras Hindu
Statistics	University, Varanasi, U. P. Feb. 1995.

Dr. Radhakrishna Pillai Asst. Prof. of Laboratory Medicine & Tumour Biology	Association of Radiation Oncologist of India, Trivandrum Feb. 1995.
Dr. Ravindran Ankathil Asst. Prof. of Cancer Research	CME Programme on update on medical genetics, Bangalore, Feb. 1995.
Dr. Paul Sebastian Assoc. Prof. of Cancer Surgery	Association of surgeons, Kerala Chapter meeting, Calicut, Feb. 1995.
Dr. Elizabeth K. Abraham Assoc. Prof. of Cytopathology	do
Dr. Jem Prabhakar Lecturer in Surgical Oncology	UICC (ICRETT) fellowship London, UK, Feb. 1995.
Sherif, J.S. Radiographer	Radiographer, Kamataka Cancer Therapy and Research Institute Short term course for Radiation Therapy Technologists, Kamataka, Feb. 1995.
Sani Kumar, S. Radiographer	do
Dr. S. Kannan Asst. Prof. of Cancer Research	IACR Research Training Fellowship, Japan Feb. 1995.
Dr. V. N Bhattathiri Assoc. Prof. of Radiotherapy	Training Programme UICC (ICRETT) Cookridge., Hospital, Leeds, U. K., March, 1995.
Dr. V. Padmanabhan Prof. of Radiation Physics	SSNCD Conference, BARC, Bombay, March, 1995.
Sr. Modesty Head Nurse	Management for Nursing Administration, Bangalore, March, 1995.
Dr. Radhakrishna Pillai Asst. Prof. of Cancer Research	14th Group Monitoring workshop for young Scientist Projects in Life Sciences, SCTIMST, Trivandrum March, 1995

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26. Krishnan Nair M, Bhattathiri V.N. Rajan B. ed. Radiotherapy and Oncology 1995: proceedings of the 16th AROI Congress & Reoetgen Centenary Celebrations Feb. 1995.
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ADMINISTRATION

MEMBERS OF THE GOVERNING BODY OF THE REGIONAL CANCER CENTRE SOCIETY

Sri. K. Karunakaran Hon'ble Chief Minister of Kerala Thiruvananthapuram.	Chairman
Sri. A. K. Antony Hon'ble Chief Minister of Kerala, Thiruvananthapuram.	Chairman (from 24.3.95)
Sri. V. M. Sudheeran Hon'ble Minister for Health, Govt. of Kerala, Thiruvananthapuram	Vice Chairman
Sri. Gopal Krishna Pillai, IAS Secretary to Govt. Health & Family Welfare Dept. Secretariat, Thiruvananthapuram.	Aft. Vice Chairman
Sri. K. M. Chandrasekhar, IAS Secretary to Govt. Commissioner & Finance Dept. Secretariat, Thiruvananthapuram	Member
Sri K V, Nambiar, IAS, Secretary to Govt. Planning Dept. Secretariat, Thiruvananthapuram	Member
Dr. M.A. Aleykutty, Director of Medical Education, Thiruvananthapuram	Member
Dr. P. Sivasankara Pillai Principal, Medical College, Thiruvananthapuram.	Member

Dr. S. C. Gupta, 'VIDYA' U. P. 5/241 Pulayanarkotta road, Cheruvkkal, Trivandrum 695 031	Member
Dr. M.S. Vallathan, Vice-Chancellor Manipal Academy of Higher Education University Buildings, Madhava Nagar Manipal 576 119 (South Karnataka)	Member
Dr. P. R. Das Gupta Addl. Secretary, Ministry of Health & Family Welfare, Govt. of India, Nirman Bhavan, New Delhi- 11.	Member
Shri. M. S. Dayal, The Secretary to Govt. Ministry of Health & Family Welfare Govt. of India, Nirman Bhavan, New Delhi 110011.	Member
Dr. A. K. Mukherjee, Director General of Health Services, Govt. of India, Nirman Bhavan, New Delhi 110011.	Member
Dr. P. K. Iyengar, Chairman, Kerala State Science Technology & Environment Dept. General Hospital Road,	

Thiruvananthapuram.	Member
Dr. M. Krishnan Nair, Director, Regional Cancer Centre, Trivandrum.	Convener

**Members of the Executive Committee of the Regional
Cancer Centre Society**

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Sri. K. M. Chandrasekhar, IAS Commr. & Secy to Govt. Finance Dept. Secretariat Thiruvananthapuram.	Member
Sri.K. V. Nambiar, IAS Secretary to Govt. Planning Dept Secretariat, Trivandrum.	Member
Dr. M. A. Aloykutty, Director of Medical Education, Thiruvananthapuram	Member
Dr. P. Sivasankara Pillai Principal, Medical Colloge, Thiruvananthapuram	Member
Dr. M. Krishnan Nair Director, Regional Cancer Centre, Trivandrum-11.	Convener.

Building Committee Members of the R.C.C

- | | |
|--|-----------|
| 1. Sri. N.S. Sudhi,
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Buildings & Local Works.
P.W.D., Thiruvananthapuram. | Chairman |
| 2. Sri P. Asokan,
Chief Engineer,
Buildings & Local Works
P.W.D., Thiruvananthapuram. | -do- |
| 3. Sri. G. Dharaneendra Panicker,
Chief Architect
P.W.D, Thiruvananthapuram. | Member |
| 4. Sri. T. Chandran,
Chief Architect,
P.W.D., Thiruvananthapuram. | -do- |
| 5. Dr. (Mrs.) M.A. Aleykutty,
Director of Medical Education,
Thiruvananthapuram. | -do- |
| 6. Dr. P. Sivasankara Pillai,
Principal
Medical College,
Thiruvananthapuram. | -do- |
| 7. Dr. M. Krishnan Nair
Director,
Regional Cancer Centre,
Thiruvananthapuram. | -do- |
| 8. Sri K. R. Bhaskaran Nair,
Controller of Finance
Regional Cancer Centre,
Thiruvananthapuram | -do- |
| 9. Sri. G. Raveendranathan Nair,
Chief Construction Engineer,
Regional Cancer Centre,
Thiruvananthapuram. | Convener. |

MAJOR DECISIONS OF THE EXECUTIVE COMMITTEE DURING 1994-95.

The Committee resolved to introduce a time bound assessment/grade promotion scheme for the non-academic staff which will be operational at the end of 10 years, 20 years and 25 years with change in designation.

The Committee resolved to permit Dr. Prabha Balaram, Assoc. Prof. of Cancer Research to accept the Commonwealth Fellowship to work in the Institute of Molecular and Cell Biology, Singapore from 30th April, 1994, to 10th Sept. 1994.

It was resolved to reorganise the Research Division of the R.C.C. by organising a Division of Laboratory Medicine and Tumour Biology and to post Dr. Radhakrishna Pillai, Asst. Prof. of Cancer Research as Head of this Division.

The Committee resolved to upgrade temporarily the posts held by Dr. V. N. Bhattathiri and Dr. G. Rajasekharan Pillai, Asst. Professors to that of Assoc. Professors in Radiotherapy and Pathology.

It was resolved to categorise patients reporting to the RCC as 'O' (liable to pay ordinary charges), 'M' (liable to pay minimum charges), 'F' (eligible for free treatment or pay nominal charges) on the basis of their payment capacity determined through interview and direct & indirect enquiries and decided to abolish the earlier system of income assessment.

In view of the fact that the RCC had gone a long way in computerising its administration, Accounts and Clinical Services and in view of the fact that no further financial assistance would be available from the Dept, of electronics it was resolved to create one post of Systems Analyst and 2 posts of Data Entry Operators for the Computer Division and provide uninterrupted computer services in the institution.

The Committee resolved to depute Dr. K. Ratheesan for six months exchange visitorship programme of N.C.I., U.S.A. as an Observer in Paediatric Radiation Oncology in Mallinckrodt's Insti-

tute of Radiology, Washington University Medical Centre with all service benefits except air fare and D.A. from 1st April, 1994.

It was resolved to ratify the action of the Director in granting duty leave to Dr. V. P. Gangadharan, Assoc. Prof. of Medical Oncology for 13 days from 10th to 22nd March, 1994 to attend the XII Congress of the International Society for Human and Animal Mycology at Adelaide, South Australia without any financial commitment to the RCC.

It was resolved to purchase upgraded version software INGRESS RDBMS 6.4 version at a cost of Rs. 4.5 lakhs and UNIX Operating system 4.2 version at a cost of Rs. 1,50,750/- from M/s Mastek Ltd. and P.C.L. respectively in view of the additional need for software and hardware based on the Expert Committee's recommendations.

The Committee resolved to permit Dr. M. Krishnan Nair, Director to attend the China-Japan-India Collaborative Workshop on HBRA sponsored by the Health Research Foundation of Japan held in Tokyo from 17-19th May 1994.

It was also resolved to depute Dr. K. Ramadas, Asst. Prof. of Radiotherapy for a period of 6 months to the Dept. of Radiation Oncology, University of California, except airfare and DA under exchange visitorship programme offered by the N.C.I., USA.

The Committee passed a resolution of condolence on the sad demise of Dr. T. P. Ramachandran, Prof. of Radiation Physics and Sri. L. G. Amaladas, Clerk after observing one minute of silence.

The Committee congratulated Dr. M. Krishnan Nair, Director for receiving 2 prestigious awards during this year.

The Committee resolved to create one post of Asst. Professor of Cancer Research and to appoint Dr. S. Kannan to this post through invitation. It was also resolved to upgrade the present post of Accountant as Accounts Officer in the scale of pay of Rs. 2500-4000 and to post Sri. G. Gnaneswaran as Accounts Officer in that post.

It was resolved to set up a GI Endoscopic service in the R.C.C. and to appoint Dr. Meenu Hariharan, MD, Prof. of Gastroenterology presently on deputation to KHRWS as Consultant on a honorarium of Rs. 300/- P.M.

The Committee resolved to accept the offer of the Indian Council of Medical Research to set up a Centre for Preventive Oncology as a subsidiary unit of the RCC and to identify core staff for the same.

The Committee approved the proposal to avail a term loan on FD for closing the loan taken from Canara Bank - Indian Overseas Bank consortium and close the consortium loan fully.

MAJOR DECISIONS OF THE GOVERNING BODY DURING 1994-95

1. The Governing Body resolved to reconstitute the Scientific Committee and to nominate Dr. P. K. Iyyengar, Chairma, State Committee for Science & Technology of Govt. of Kerala and former Chairman of the Atomic Energy Commission & Secretary, Dept. of Atomic Energy as one of the members of the Governing Body with immediate effect.
2. The Governing Body resolved to approve the Staff Welfare Fund with certain modifications in the objectives of the scheme as approved by the Executive Committee including payment of the interest subsidies for the house loans and loan for purchase of two-wheelers for individual staff use.

ENGINEERING DEPARTMENT

The Civil work for the Main Building is in progress. This is a 8-storeyed building of which the Ground Floor is to house administration, finance and other office areas. The Engineering Department, Central Store, Medical Gas Plant, Mortuary, Hospital Canteen etc. are also located in this floor. The First Floor is mainly for paediatric oncology department with areas for leukaemia patients, I.C.U. areas for terminal patients and for isolation ward etc. Space for mothers room, children play room, a counselling room are also located in this floor. The Radiation Physics Department with its laboratories and class room are also accommodated in this floor. The Second Floor is the continuation of the O.P. Floor of the main entrance floor, which will have 6 O.P. Cubicles, Chemotherapy ward, a minor operation theatre, 4 procedure rooms, lazer therapy room, Pharmacy, in-patient lab, Day care facilities are located in this floor. The Third Floor will have 4 operation theatre suits and supporting facilities and a Central Sterilization Supply Department. The Fourth Floor will accommodate 71 in-patient beds. It is also proposed to set up Bone Marrow Transplant Unit in this floor for 3 to 4 patients. 10 Payward rooms are located in the Fifth Floor and a general ward for 71 patients also provided in this floor. The Palliative Care facility for 20 patients and a model palliative care teaching and demonstration facility is set up in the Sixth Floor. A Library is also proposed in this floor. The Seventh Floor will accommodate cancer research labs with tissue culture facilities and a Conference Complex is also located in this floor.

In spite of financial constraints, it is proposed to occupy the building in early '96. An amount of Rs. 256 lakhs has been spent on Civil Works, Electrical works Rs. 16.5 lakhs, Air-conditioning Rs. 40 lakhs, Fire fighting and Fire protection systems for Rs. 9 lakhs. The Building Committee met 3 times and took timely decisions regarding the Second Phase of Construction Programme.

LIST OF STAFF

Dr. M. Krishnan Nair	Director
Dr. N. Sreedevi Amma	Superintendent
Prof. A. Joseph	Hon. Secretary (Academic)

Radiotherapy

Dr. M. Krishnan Nair	Director & Professor.
Dr. F. Joseph	Professor
Dr. B. Rajan	"
Dr. T. Gangadevi	Addl. Professor
Dr. C.S. Rafeeka Beegum	Assoc. Professor
Dr. D. S. Parameswaran	"
Dr. P. G. Jayaprakash	"
Dr. V. N. Bhattathiri	"
Dr. Jayaprakash Madhavan	"
Dr. Ramadas. K.	Assistant Professor
Dr. Suresh Chandra Dutt	"
Dr. K. Ratheesan	"
Dr. Thomas Koilparambil	Lecturer
Dr. Francis V. James	"
Dr. Rojimon Jacob	"
Dr. Rema Jyothirmayi	"

Dental Wing

Dr. K. R. Nalinakumari	Lecturer
Smt. Sulochana Bai	Dental Hygienist

Imageology

Dr. K. Sasidharan	Professor
Dr. Alex. K. Ittyavirah	Assoc. Prof.
Dr. K. Ramachandran	Asst. Prof.
Dr. A.S. Krishnakumar	"
Dr. Kuruvila Varkey	Lecturer(long leave)
Smt. B. Vimala	Radiographer
Smt. S. I. Sathyalekha	"
Sri. T. Radhakrishnan Nair	"
Sri. J. S. Sherif	"
Sri. S. Pradeep	"

Sri. K. R. Udayakumar	"
Sri. P. P Prasad	"

Nuclear Medicine

Dr. V. M. Pradeep	Assoc. Prof.
Sri. Raghuram Nair. K.	Asst. Prof.
Smt. Sheela	Radiographer
Sri. Joe D' Cruz	"
Smt. B. R. Suja	"
Smt. S.R. Sheeja	"
Smt. K. Miniamma	R. I.A Technician
Smt. B. Bindu	"
Smt. P. Sindu	"

Radiation Physics

Dr. V. Padmanabhan	Professor
Sri. C. A. Davis	Assoc. Prof.
Sri. Thayal Singh Elias	Asst. Prof.
Dr. L. S. Arunkumar	"
Sri. N. Sadasivan Nair	Radiographer
Sri. C. Viswanathan	"
Smt. P. Seetha	"
Smt. P. Geetha	"
Smt. S. Suseelamma	"
Smt. T. G. Radharnony Amma	"
Smt. M. Leela	"
Sri. P. Ramabhadran	"
Smt. C. Anitha	"
Smt. Ambily Govind	"
Smt. Mariamma Jacob	"
Smt. R. Sreekala	"
Smt. T. Prameela Devi	"
Sri. S. Sunilkumar	"
Smt. K. Geethamma	"
Sri. K. N. Shaileshkumar	"
Smt. C. G. Jayasree	"
Smt. P. A. Yiddiullatha	"
Smt. D. R. Sheeba	"
Sri. Santhan. H.	"
Smt. D. Sreekala	Mould Room Technician

Pathology Division

N. Sreedevi Amma	Professor
B. Chandralekha	"
Elizabeth K. Abraham	Assoc. Prof.
Rajasekharan Pillai. G.	"
K. Jayasree	Asst. Prof.
mt. J. Ambika Kumari	Sr. Scientific Officer
K. Raveendran Pillai	Cytotechnologist
K. Sujathan	"
A. Nataraj	Cytotechnician
mt Najeeya	Lab. Technician
mt. T.P. Brinda	"
mt. A Saina	"
mt. S Sulochana	"

Surgical Oncology Division

Dr. Gladys Jeevy	Assoc. Prof.
Dr. Paul Sebastian	"
Dr. Iqbal Ahamed	Asst. Prof.
Dr. K. Chithrathara	"
Dr. Rachel Cherian Koshy	"
Dr. D. K. Vijayakumar (Lecturer)	on leave Lecturer
Dr. Prabhakar. J.	"
Dr. Berylson Edward	Chief Anaesthesia Technician.
Sri. R. Harikumar	Helper
Sri. Thankappan Chettiar	"
Sri. P. S. Suresh	"

Paediatric Oncology

Dr.P. Kusumakumari	Assoc. Prof.
Dr. N. Geetha	Lecturer

Community Oncology

Dr. Babu Mathew	Professor
Dr. Remani S. Wesley	Asst Prof.

Cancer Research

Dr. Prabha Balaram	Associate Professor
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Dr. S. Kannan	Asst. Prof.
✓ Dr. Ravindran Ankathil	"
✓ Sri. Thomas Abraham	Scientific Officer
✓ Dr. P. Remani	Asst. Prof.

Medical Oncology

✓ Dr. V. P. Gangadharan	Assoc. Prof.
-------------------------	--------------

Clinical Laboratory

✓ Smt. B. Padmavathy Amma	Technical Officer
Smt. J. Usha	Lab. Technician
Smt. P. Renuka	"
Sri. S. Hariharan	"
Sri. V. Surendran Nair	"
Sri. K. R. Rajeshkumar	"
Smt. B. Helan	"
Smt. S.Anita	"
Sri. T. James	"
Smt. A. Leela	Animal House Keeper Cum Attender
Sri. Vikraman Nair	"

Blood Bank

Sri. Meera Sahib	Asst. Technical Officer
Smt. C. Gangadevi	Lab. Technician
Sri. D. Sanjai	.. (long leave)
Smt. Renukadevi. V.	Lab Technician

Palliative Care

✓ Dr. Vasudevan Mappat	Anaesthesiologist
------------------------	-------------------

Ethnopharmacology Division

✓ Dr. Stephen	Assoc. Prof.
---------------	--------------

Laboratory Medicine & Tumour Biology Division

✓ Dr. M. Radhakrishna Pillai	Asst. Prof.
✓ Smt. Molykutty John	Lecturer.

Pharmacy

Sri. Sivasankara Pillai	Pharmacist
-------------------------	------------

Hospital cancer Registry & Medical Records

Dr. R. Sankaranarayanan	Assoc. Prof. of cancer Epidemiology & Clinical Research (on leave)
Dr. Cherian Varghese	Asst. Prof. of Cancer Epidemiology & Clinical Research
Sri. Raveendran Nair. R.	Administrative Officer (Clinical Service)
Smt. G. Padmakumari Amma	Medical Statistician
Smt. Aleyamma Mathew	Lecturer in Computational Statistics & Electronic Data Processing
Smt. P. T. Latha	Social Investigator
Smt Anitha Nayar	"
Smt. V. Jalajakumari	Clerk
Smt. Rajasekharan Nair	M.R.O.
Smt. D. Chandrika	Coding Clerk
Smt. B. Sreekumar	"
Smt. P. G. Saraladevi	Cashier
Smt. R. Sheelakumari	"
Sri. C. Mohanachandran Nair	Clinical Records Asst.
Sri. K. Anilkumar	"
Smt. Siju R. Nair	"
Smt. S. Sreelatha	"
Smt. M. A. Mariamma	"
Sri. K. Thankappan Nair	Telephone Operator cum Receptionist
Sri. S. Rajayyan	Helper

Information Systems

Sri. Kurien K. Eapen	Systems Manager
Sri. G. Jayasankar	Systems Analyst
Smt. J. K. Jayanthy	Data Entry Operator
Smt. Suseeladevi, B.	"

Security

Sri. S. Vijayan Nair	Sergeant
Sri. K. Thankappan Nair	Security Guard
Sri. N. Achuthan Nair	"
Sri. G. Sukumaran Nair	"
Sri. R. Somasekharan Nair	"
Sri. K. P. Rajeswaran	"
Sri. Stellas	"
Sri. B. Sahadevan	"
Sri. V. K. Krishnan Nair	"
Sri. Sasikumaran Nair	"

Library

Sri. M. Chandrakumaran Nair	Librarian
Smt. Sreedevikutty	Typist
Sri. G. Surendran	Helper

Director's Office

Sri. N. Ramaswamy Iyer	Secretary & CA to Director
Sri. S. Gopakumar	"
Smt. Savithri Amma	C. A. to Director
Sri, P Antony	Helper

Administrative Office

Sri. K. J. Zacharias	Administrative Officer
Sri. K. R. Bhaskaran Nair	Controller of Finance
Sri. K. J. Raju	Finance Officer
Sri. G. Gnaneswaran	Accountant
Sri. Selvaraj	O.A.
Sri. K. Sreedharan Nair,,	
Sri. S. V. Sasikumar	Office Assistant
Smt. C. K Remila	"
Smt. Lalitha.B	"
Smt. Jumailathu Beevi, K. M.	"
Smt. N. Beena	"
Smt. C. Shylaja	"
Sri. Sasikumar, K.	Cashier

Smt. Usha. V.	Data Entry Operator
Smt. R. Sudevi	Confidential Asst.
Smt. S. Mallikadevi	"
Smt. S. Anitha	"
Sri. X. Johnson	Cashier cum Receptionist
Sri. R. Sasikumaran Nair	Helper cum Watchman
Sri. P. Krishnan Nair	Driver
Sri. P. Sreekumaran Nair	"
Sri. N., Sasidharan Nair	"
Sri. T. P. Krishnadasan	"
Sri. M. Subair	Helper
Sri. Devareja Panicker	"
Sri. R. Anilkumar	"
Sri. C. Hari	"
Sri. K. G. Balachandran	"
Smt. P. S. Seethalekshmi	"
Smt. M. Anrithamma	"
Sri. Santhoshkumar C. S.	"
Sri. John Evidus. P. P	"
Sri A. Krishnankutty	"
Sri. R. Krishnankutty	"
Sri. L. Balachandran	"
Sri. K. Sivankutty	"
Sri. S. Senan	"

Engineering Wing

Sri. Raveendranathan Nair G.	Chief Construction Engineer
Sri. A. Rajan	Maintenance Engineer
Sri. L. Vijayakumar	Assistant Maintenance Engineer
Sri. R. Asokan Nair	First Grade Overseer
Smt. P. Suseela	Confidential Assistant
Sri. A. R. Santhoshkumar	Electrical Supervisor
Sri. N. Sasidharan	"
Sri. A. R. Rajendran	"
Sri. B. Rajeevan.	"

Early Cancer Detection Centre, Ernakulam

Dr. B. Syamalakumari	Cytopathologist
Smt. Mercy Joseph	Cytotechnologist

Sri. K. S. Jayalal	Cytotechnician
Smt. P. V. Ambujam	Staff Nurse
Sri. P. M. Abdul Rahman	Helper
Sri. G. Dass	Helper

Early Cancer Detection Centre, Palakkad

Dr. Anandakamath	Cytopathologist
Smt. C. Radha	Cytotechnologist
Sri. James Thomas	Cytotechnician
Smt. K. C. Nirmala	Staff Nurse
Sri. V. Soman	Helper
Sri. Louis, T.C.	Helper

Nursing Services

Vijaya Sr.	CNO & APN
Aleyamma M Kunnappally	Head Nurse
Aleykutty, P.M.	"
Annamma Jacob	"
Goetha S.	"
Graccamma Joseph	"
Mariamna James	"
Omana.K.	"
Saraswathi Amma.E.	"
Modesly S.D. Sr	"
Sr. Aisha Ben	Staff Nurse.
Ajitha. P. K.	"
Aleyamma Mathew	"
Ambika T. B.	"
Aniamna Joseph	"
Anltha Paulin	"
Anitha. T	"
Anitha T.	"
Beena R.	"
Beena Rani S.	"
Bonsamma Varghese	"
Biji Kunjachan	"
Christeen. V.	"
Cicillamma Mathew	"
Elsamma Joseph	"

Geetha P.T.	Staff Nurse
Geethakumari. B.S.	"
Girija. C.	"
Girija Devi C.S.	"
Gracy George	"
Gracy M.	"
Helen B.R.C.	"
Jaya T.S.	"
Jayakumari K.	"
Jayalakshmi. S.	"
Jayasree. P.	"
Jayasree. S.	"
Jikky. M.	"
Laila, K. P	"
Lalamma V. J.	"
Laly George	"
Latha. M. B.	"
Lekha.S.	"
Leelavathy.S.	"
Lekshmidevi Amma O. B.	"
Lillykutty K. J.	"
Lissy C. V.	"
Lissy R.V.	"
Lizyamma Jacob	"
Margaret Mary. P.R.	"
Meena. V.	"
Mercy K. Varghese	"
Mercy, P. J.	"
Minifal K. M.	"
Minimol V. C.	"
Nirmalakumari. T.	"
Nissa S.	"
Philomina Joseph	"
Prasannakumari. S.	"
Preethalakshmy L.S.	"
Priyamvada V. Attukadavil	"
Pushpalatha. V.K.	"
Rajila Beegum	"
Salma. K.	"

Saly Abraham	Staff Nurse
Santhakumari. P. K.	"
Saraswathi P.	"
Sasikala T. K.	"
Sheeba S. V.	"
Sheela Rodreguez	"
Shema C.	"
Shoba. S.	"
Sindhu G. S	"
Sindhu S,	"
Sisy Das	"
Sivakumari, P.R.	"
Sobhana N.	"
Sree Vidya. A	"
Sreelatha R.	"
Sulekha Beevi P.	"
Suneethi M.S.	"
Sunitha k. G.	"
Sunithakumari R.	"
Susan Albert	"
Swapana M.A.	"
Syamaia S.	"
Vasanthakumari V. M	"
Vijaya A. K.	"
Geetha. N	"
Sasikaia Amma	"
Shamla Beevi A.	"
Anithamony. V. S.	"

ACKNOWLEDGEMENTS

Government of India, Ministry of Health & Family Welfare.
Government of India, Department of Science and Technology
Government of Kerala, Department of Health & Family Welfare
Chief Secretary to Government of Kerala
Indian Council of Medical Research, New Delhi.
World Health Organization, New Delhi.
Dr. Jan Stjernsward, Chief, Cancer Unit, WHO.
International Union Against Cancer (UICC) Geneva, Switzerland
British Council Madras.
American Cancer Society, New York.
National Cancer Institute, Bethesda, Maryland, U.S.A.
Allegheny General Hospital, Pittsburg, U.S.A.
Christie Hospital & Holt Radium Institute, Manchester.
Chester Beatty Research Institute, London.
University of British Columbia-Environmental Carcinogenesis Unit,
Vancouver, Canada
Bhabha Atomic Research Centre, Bombay
Director General of Health Services, Government of India, New
Delhi
Director, Vikram Sarabhai Space Centre, Trivandrum.
Director, Sree Chitra Thirunal Institute of Medical Sciences & Tech-
nology, Trivandrum.
Kerala State Committee on Science, Technology and Environment,
Trivandrum.
Director of Medical Education, Kerala.
Director of Health Services, Government of Kerala, Trivandrum.
Principal, Medical College, Trivandrum.
Superintendent, Medical College, Hospital, Trivandrum.
Superintendent, Sree Avittam Thirunal Hospital for Women and
Children, Trivandrum.
Dean, Dental College, Trivandrum.
Dr. P. K. Iyengar, Chairman, Atomic Energy Commission.
Sri T. K. Das, Joint Secretary to Health & Family Welfare, Govt. of
India.

Dr. Federico Wolsch, National Cancer Institute, Maryland USA.
Dr. Calvin Zippin, Director, Cancer Patient Data Programme,
University of California, San Francisco.
Dr. A. S. Paintal, Director General, Indian Council of Medical Re-
search, New Delhi.
Dr. Usha K. Luthra, Sr. Deputy Director General, Indian Council of
Medical Research, New Delhi.
Dr. V. Shanta, Director, Cancer Institute, Madras.
Dr. P. B., Desai, Director, Tata Memorial Centre, Bombay.
Dr. R. S. Rao, Director, Tata Memorial Centre, Bombay.
Dr. B. D. Gupta Postgraduate Institute, Chandigarh
Controller of Stationeries, Government of Kerala, Trivandrum
Director of Census of Operations, Kerala.
Director, Bureau of Economics and Statistics, Kerala.
Managing Director, Travancore-Cochin Chemicals, Alwaye.
M/s Instrumentation Ltd., Palghat.
Vice-Chancellor, University of Kerala.
Dr. M. V. Pillai, Naval Hospital, Bethesda, USA.
Dr. N. E. Day, Director, MRC Biostatistics Unit, Cambridge.
Mr. Stephen W. Duffy, Scientific Officer, MRC, Biostatistics Unit,
Cambridge.
Board of Directors, Susan Daniel Memorial Cancer Relief Fund,
Irvine, California.
JAICA Team, Government of Japan.
Drugs Controller, Trivandrum.
Director, College of Pharmaceutical Sciences, Trivandrum.
Dr. P. P. Nair, Johns Hopkins University, USA.
Dr. John L Young, California State Health Dept. USA.
International Agency for Research on Cancer (IARC), Lyon, France.
Commonwealth Scholarship Commission, London.
Dr. David Erio Lee, Dr. Linda Reyer, Dr. Tersesa Ulrey, Dr. Sudha
A. Ved, Dr. Karen Colton, Dr. K. Vinayakom, Georgetown Univer-
sity Medical Centre, Washington.
Kerala Transport Development Finance Corporation Limited.
Sir Rattan Tata Trust, Bombay.

ACCOUNTS
REGIONAL CANCER CENTRE
(REG. NO.
BALANCE SHEET

PREVIOUS YEAR	LIABILITIES	CURRENT YEAR	
		Rs.	Ps.
148,729,756.21	Capital Fund	178,462,057.33	
413,905.15	Specific Funds	801,365.90	
2,446,100.45	unutilised Grants	6,604,490.39	
-	Staff Welfare Fund	350,000.00	
22,283,518.10	Cancer Care for Life Fund	25,056,464.10	
	Advance Received for		
3,117,451.05	Research Projects	2,235,343.02	
12,360,644.69	Secured Loans	8,635,325.88	
	Current Liabilities and Provisions:		
	Current Liabilities:		
8,260,179.56	Sundry Creditors	6,552,788.74	
595,300.45	Other Liabilities	3,696,594.95	
45,741,216.27	Provision for Depreciation	55,537,654.53	
243,948,072.23	TOTAL	287,932,090.90	

Place: Trivandrum
Dated: 12.02.1996.

Director
Sd/-

(Dr. M. KRISHNAN NAIR)

1994-'95
SOCIETY, TRIVANDRUM
567/81)
AS ON 31ST MARCH, 1995

PREVIOUS YEAR	ASSETS	CURRENT YEAR	
		Rs.	Ps.
123,983,230.32	Fixed Assets	135,432,053.89	
27,144,482.51	Capital Work in Progress	41,885,459.77	
23,768,866.05	Investments	27,310,367.00	
	Current Assets, Loans and Advances:		
2,855,347.67	Closing stock	2,955,354.44	
640,909.00	Interest accrued on deposits	915,151.00	
1,248,930.07	Advances to projects	1,809,159.72	
9,767,177.56	Advances-Others	12,151,515.82	
356,175.00	Deposits	362,175.00	
4,456,922.05	Balance with banks	1,039,220.65	
19,397.15	Cash in hand	85,909.50	
5,000,000.00	Cash in transit	2,500,000.00	
44,706,634.85	Income and Expenditure Account	61,685,724.11	
243,948,072.23	TOTAL	287,932,090.90	

Auditor's Report
Vide our separate report of even date
For M/s. Vijayakumar & Easwaran

Chartered Accountants
Sd.
(S. VIJAYAKUMAR)

**REGIONAL CANCER CENTRE
(REG. NO.
INCOME AND EXPENDITURE ACCOUNT**

Previous Year		Expenditure	Current Year	
Rs.	Ps.		Rs.	Ps.
4,115,632.05		Opening Stock	2,675,534.25	
8,396,836.07		Purchases	17,339,677.37	
14,847,305.72		Salaries and Allowances	20,972,844.25	
50,400.00		Consultant Service fee	26,850.00	
87,102.30		Uniform and Liveries	132,497.40	
14,459.65		Rent, Rates and Taxes	292,413.00	
499,305.60		Postage, telephone & telegram	458,022.00	
322,883.05		Travelling expenses	505,517.20	
472,641.50		Printing and Stationery	325,547.35	
144,056.00		Advertisement	105,091.00	
1,283,643.85		Electricity & Water Charges	1,022,853.70	
18,000.00		Remuneration to Auditors	25,000.00	
2,060,677.45		Repairs & maintenance	4,768,721.21	
640,583.25		Service contract charges	390,485.70	
2,073,203.00		Interest & Bank charges	1,298,931.00	
23,681.00		Training Expenses	23,376.50	
142,364.00		Conference, Seminar and Workshop	141,782.55	
28,773.20		Computer expenses	166,632.50	
1,760.00		Books & Periodicals	3,017.00	
29,869.50		Landscaping and Gardening	31,100.60	
364,608.95		Proportionate Share of N.T.R.	412,991.90	
-		Project Expenses NCDB	552,777.00	
34,465.65		Miscellaneous expenses	137,094.70	
		Software	602,250.00	
11,583,441.10		Depreciation	9,884,023.66	
47,834,419.89		Total	62,876,031.84	

Place: Trivandrum
Dated: 12.02.1996

Director
Sd/-

(Dr. M. Krishnan Nair)

**SOCIETY, TRIVANDRUM
557/81)
FOR THE YEAR ENDED 31ST MARCH, 1995**

Previous year		Income	Current Year	
Rs.	Ps.		Rs.	Ps.
10,953,723.05		Grant-in-aid	14,320,479.18	
16,350,247.00		Investigation fees	17,786,238.70	
205,410.00		Ward Charges	2,296,605.00	
-		Sale of Medicines	6,389,231.80	
521,596.30		Interest Income	155,857.00	
7,635.00		Training fees	31,359.00	
14,801.00		Donation	23,101.00	
182,122.00		Miscellaneous Income	170,425.06	
2,675,534.42		Closing Stock	2,880,846.24	
		Excess of expenditure		
16,923,350.52		Over Income	13,823,886.86	
47,834,419.89		Total	62,876,031.84	

for M/s. VIJAYAKUMAR & EASWARAN
CHARTERED ACCOUNTANTS

Sd/
(S. VIJAYAKUMAR

**REGIONAL CANCER CENTRE
(REG. NO.
CANCER CARE
INCOME AND EXPENDITURE ACCOUNT**

PREVIOUS YEAR	EXPENDITURE	CURRENT YEAR
Rs. Ps.		Rs. Ps.
49,950.00	Salaries and Allowances	48,500.00
	Advertisement and Publicity	10,100.00
51,854.00	Printing and forwarding of Membership card	
	Printing & Stationery	34,500.00
30,677.00	Postage, Telephone & Telegram	30,000.00
	Repairs & Maintenance-Vehicle:	
13,849.65	-Fuel charges	15,212.00
1,767.00	-Maintenance	21,043.00
5,087.00	-Insurance	
1,095.00	-Spare parts	7,913.00
		44,168.00
	Cost of Medicine & Expenses	
1,336,999.80	Reimbursed to patients	1,123,428.50
4,733.00	Miscellaneous Expenses	27,655.00
822,444.50	Commission to Federal Bank	638,143.00
1,195,400.60	Excess of Income over Expenditure	1,844,797.60
3,512,857.55	Total	3,801,292.10

Director

Sd/

(Dr. M. KRISHNAN NAIR)

Place : Trivandrum
Dated : 12.02.1996

**SOCIETY, TRIVANDRUM
567/81)
FOR LIFE SCHEME
FOR THE YEAR ENDED 31ST MARCH, 1995.**

PREVIOUS YEAR	INCOME	CURRENT YEAR
Rs. Ps.		Rs. Ps.
2,692,271.55	Interest on Fixed deposits and Other Investments	3,108,885.85
830,586.00	CCL Membership fee not invested	692,306.25
3,512,857.55	Total	3,801,292.10

for M/s. Vijayakumar & Easwaran
Chartered Accountants

Sd/-

(S. VIJAYAKUMAR)

**REGIONAL CANCER CENTRE
(REG. NO.
SCHEDULE OF FIXED**

**SOCIETY, TRIVANDRUM
567/81)
ASSETS AS ON 31.3.1995.**

Particulars	Gross Block				Depreciation Block				Net Block	
	Cost as on 1.4.1994	Additions	Sale/ Adjustments	Cost as on 31.3.1995	Upto 31.3.1994	Additions	Sale/ Adjustments	Total upto 31.3.1995	As on 31.3.1995	As on 31.3.1994
Building (OLD)	860,110.25			860,110.25	291,073.25	28,457.70		319,527.95	540,582.30	569,034.00
Building	25,772,250.66	1,63,544.75		26,866,795.41	6,306,568.18	1,067,960.46		6,574,540.54	20,291,249.77	21,265,664.48
Building FT	14,208,440.70	1,945,876.90		16,154,316.70	710,422.00	772,134.69		1,482,516.69	14,671,639.01	13,498,013.70
Boundary Wall	127,118.63			127,118.63	33,673.63	4,672.25		38,345.88	88,772.75	93,445.00
Water Supply (Drainage)	1,175,784.93	85,109.90		1,261,183.93	536,335.93	22,728.70		690,064.63	585,129.30	679,449.00
Furniture & Fixings	4,082,596.76	377,135.90		4,469,731.16	1,075,039.16	339,169.20		1,417,208.36	3,052,522.80	5,014,567.90
Office Equipments	707,270.82	203,422.87		910,703.69	303,069.42	30,215.14		339,314.56	611,388.13	398,201.40
Telephone Equipments	846,586.00	8,298.00		854,884.00	423,566.00	64,697.70		459,263.70	365,620.30	423,020.90
Hospital & Lab Equipments	53,293,517.27	1,283,256.40		54,516,783.67	27,427,302.33	4,054,422.11		31,541,722.06	22,975,068.61	23,746,214.32
Electrical Installation And fittings	8,502,787.90	1,627,802.00		10,390,589.90	3,791,784.90	980,620.75		4,772,605.65	5,657,994.25	4,711,003.00
Fire Detection	612,162.90			612,162.90	160,395.00	69,173.10		220,164.10	391,997.80	461,174.00
Air Conditioning	6,936,703.35	3,968,145.00		10,874,848.35	3,100,361.35	1,166,170.05		4,266,561.40	6,608,236.95	3,836,322.00
Computer (hardware)	635,523.00	792,100.00		1,745,623.00	506,151.00	495,753.80		1,001,939.50	743,693.20	447,372.00
Gas Plant & Cylinders	362,611.15	6,500.00		969,511.15	240,461.15	109,327.50		349,788.65	619,622.50	722,050.00
Vehicles	444,597.66	11,049.00	76,517.35	379,329.60	316,214.95	25,140.01	67,555.40	274,769.56	104,560.04	125,382.00
Library Books	1,800,928.55	322,583.90		2,623,512.45	627,793.40	329,357.85		957,151.25	1,566,361.20	1,273,135.15
Lift/Elevator	1,398,429.00			1,398,429.00	503,240.00	124,828.35		631,068.35	707,360.65	832,189.00
Assets Received as Donations	537,612.00			537,612.00	66,180.00	40,872.30		105,002.30	231,609.70	272,482.00
Total	123,983,230.32	11,526,140.92	78,517.35	135,432,051.89	45,741,216.27	9,884,023.66	87,585.40	55,537,664.53	79,894,339.35	78,242,014.05

NOTES FORMING PART OF ACCOUNTS

1. An amount of Rs. 3,52,844.00 paid during the year in respect of expenses for the financial year 1995-96 has been shown as pre-paid expenses, under Schedule of Advances-Others to Balance Sheet.
2. Out of the Grant received from Government of Kerala during the Financial year 1994-95 amounting to Rs. 375 lakhs, an amount of Rs. 252.86 lakhs have been transferred to capital fund, representing Fixed Assets acquired or constructed during the year and the balance of Rs. 122.14 lakhs have been treated as Revenue Grant and taken to Income and Expenditure Account in the absence of any stipulation as regard the nature of Grant.
3. Investment against Cancer Care for Life Fund Account has been reconciled subject to a difference to Rs. 7,487/- which has been shown as term deposit suspense under investment in the Balance Sheet.
4. An amount of Rs. 3,50,000/- representing unidentified credit in the account with State Bank of Travancore brought forward from previous year has been taken into account by crediting Bank Suspense Account.
5. 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 account since clear documents of title has not been received.
6. 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 the accounts since the clear document of Title has not been received.
7. Claim made by the Executive Engineer, Special Building, P.W.D. amounting to Rs. 3,45,615/- for deposit works carried out for RCC has not been acknowledged as debt and hence treated as contingent liability and not provided for in the accounts.

8. An amount of Rs. 3,66,630/- representing written down value of fixed assets acquired for the project "Development of National Cancer Data Base for Cancer Control Programme in India" have been taken into account as Fixed Assets during the year by credit to Capital Fund and depreciation provided on these assets at the rates applicable.

An amount of Rs. 5,52,777/- being the advance paid by RCC towards the project have been debited to Income and Expenditure Account during the year since the project was completed.

9. Capital commitments pending execution as at 31st March, 1995 works out Rs. 717 lakhs which represents building work phase-II.
10. Stationery is accounted on cash basis and no stock in hand is taken into account as on 31st March, 1995.
11. The balance in party accounts are subject to confirmation.
12. Previous year figures have been re-grouped wherever necessary.

Place: Trivandrum
Dated: 12.02.1996.

for M/s. Vijayakumar & Easwaran
Chartered accountants

Director
(Dr. M. KRISHNAN NAIR)

(S. VIJAYAKUMAR)

VIJAYAKUMAR & EASWARAN
Chartered Accountants

Cheruvilakom
Sasthamangalam
Trivandrum - 10
Phone : (O) 64580
(R) 361769

AUDIT REPORT

We have examined the attached Balance Sheet of the REGIONAL CANCER CENTRESOCIETY, REGN. No. 567/81, THIRUVANANTHAPURAM as on 31.3.1995 and the Income and Expenditure account for the year ended on that date annexed thereto and report that:

1. The said Balance Sheet, Income and Expenditure account and the Schedules thereon are in agreement with books of accounts maintained by the society.
2. We have obtained all the information and explanation which to the best of our knowledge and belief were necessary for the purpose of our audit.
3. In our opinion, proper books of accounts have been maintained by the society.
4. In our opinion and to the best of our information and according to the explanations given to us, and subject to the following:
 - (i) Internal control in respect of fixed assets, stores and engineering items are not commensurate with the size and magnitude of the society.
 - (ii) Accounts relating to various Research Projects were not audited by us.
 - (iii) Allocation of grant of Rs. 375 lakhs received from Government of Kerala between Capital and Revenue at Rs. 252.86 lakhs and Rs. 122.14 lakhs respectively are made on the basis of the addition to fixed assets or construction of building during the year 1994-95 as referred to in Note-2.

- (iv) 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 thereon for which the receipts of Patta has not been received as referred to in Note-5.
- (v) Land at Pulayanarkotta measuring 17 acres in Sy. No. 2122 assigned by the Government of Kerala vide Order No. 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. 6.
- (vi) The difference in the investment made against CCL FUND ACCOUNT amounting to Rs. 7,497/- has been shown as Term Deposit Suspense Account as referred to in Note No. 3 and
 - i. The balance Sheet read with notes thereon gives a true and fair view of the state of affairs of the society as at 31.3.1995, and
 - ii. The Income and Expenditure Account read with notes thereon give a true and fair view of the deficit of the society as at 31.3.1995.

for M/s Vijayakumar & Easwaran
Chartered Accountants

Place: Trivandrum
Dated : 12.02.1996

Sd.
(S.VIJAYAKUMAR)

VIJAYAKUMAR & EASWARAN
Chartered Accountants

Cheruvilakom
Sasthamangalam
Trivandrum - 10
Phone : (O) 64580
(R) 361769

UTILISATION CERTIFICATE

Certified that the grant of Rs. 3,75,00,000/- (Rupees Three crores seventy five lakhs only) received during the Financial year 1994-95 by the REGIONAL CANCER CENTRE SOCIETY, TRIVANDRUM (Regn. No. 567/81) from the HEALTH AND FAMILY WELFARE DEPARTMENT, GOVERNMENT OF KERALA as per the Government Orders:

	Rs in lakhs
G. O. (Rt) 1319/94 Dated 04.05.1994	90.00
G. O. (Rt) 3491/94 Dated 17.08.1994	90.00
G. O.(Rt)4199/ 94 Dated 07.11.1994	90.00
G. O.(Rt)191/95 Dated 20.01.1995	50.00
G. O.(Rt) 664/95 Dated 25.02.1995	55.00
Total	375.00

have been utilised by the Society during the Financial year 1994-95 for the purpose of overall development and maintenance of the institution and other working expenses, implementation of projects, construction of building, functioning of Early Cancer Detection Centre and National Tumour Registry.

for M/s Vijayakumar & Easwaran
Chartered Accountants

Place: Trivandrum
Dated : 12.02.1996

Sd.
(S.VIJAYAKUMAR)

VIJAYAKUMAR & EASWARAN
Chartered Accountants

Cheruvilakom
Sasthamangalam
Trivandrum - 10
Phone : (O) 64580
(R) 361769

UTILISATION CERTIFICATE

Certified that an amount of Rs. 26,67,720. 36 (Rupees twenty six lakhs sixty seven thousand seven hundred and twenty and paise thirty six only) has been utilised out of the following grants:

	Amount (in rupees)
Grant received during the Financial Year 1994-95 vide letter No. V. 22015/2/94-R dated 15.6.1994 & 29.3. 95 from Ministry of Health and Family Welfare, Government of India New Delhi	50,00,000.00
Total	50,00,000.00

by the Regional Cancer Centre Society, Trivandrum during the financial year 1994-95 for acquiring equipments and spare parts of equipments for the development of the society.

It is also certified that an amount of Rs. 23,32,279.64 (Rupees twenty three lakhs thirty two thousand two hundred and seventy nine and paise sixty four only) has been unspent during the financial year 1994-95.

for M/s Vijayakumar & Easwaran
Chartered Accountants

Place: Trivandrum
Dated : 12.02.1996

Sd.
(S.VIJAYAKUMAR)

VIJAYAKUMAR & EASWARAN
Chartered Accountants

Cheruvilakom
Sasthamangalam
Trivandrum - 10
Phone : (O) 64580
(R) 361769

UTILISATION CERTIFICATE

Certified that an amount of Rs. 52,247.00 (Rupees fifty two thousand two hundred and forty seven only) has been utilised out of the following grants:

	Amount (in rupees)
Grant received during the Financial year 1994-95 vide letter No. 5/3/91-G/3346 dated 23.1.1995 from the Department of Atomic Energy Government of India, New Delhi	20,00,000.00
Add: unutilised grant of the Financial year 1993-94	20,00,000.00
Unutilized grant of the financial year 1992-93	1,11,493.40
Less: Unutilized grant carried to financial year 1995-96	<u>41,11,493.40</u>
	<u>40,59,246.40</u>
Total	<u>52,247.00</u>

by the Regional Cancer Centre Society, Trivandrum during the financial year 1994-95 for acquiring equipments for the development of the society.

for M/s Vijayakumar & Easwaran
Chartered Accountants

Place- Trivandrum
Dated 12.02.1996

Sd.
(S.VIJAYAKUMAR)

CANCER CARE FOR LIFE

Modern medical management of cancer is expensive on account of the enormous cost for diagnosis and treatment. As such a number of patients especially of the weaker section do not comply with the stringent requirements of modern treatment. The R.C.C. sought to relieve the problem to a certain extent by offering a welfare scheme called "Cancer Care for Life". It was introduced in June, 1986. Anyone who not a cancer patient could become a member of the scheme making a one-time remittance of Rs. 101/- to a designated bank. No medical examination prior to enrollment in the scheme was prescribed. A membership card is issued to those joining the scheme. The membership in the scheme entitles the applicant to receive cancer diagnostic and treatment facilities free of cost at the R.C.C., Trivandrum in the unfortunate event of getting cancer anytime during his life-time after 2 years from the date of enrollment. In addition during the course of the treatment, reimbursement of expenses for stay as per the Rules of the centre is also made.

In view of the escalation in the cost of medicines, diagnostic procedures and treatment modalities, enrollment in the scheme had to be discontinued in 1991. As there was demand from the public to allow enrollment in the scheme it was reintroduced in August, 1992, with a membership fee of of Rs. 500/- per person and a discount for family membership.

Details of working of the scheme are given below

	upto 31.3.1994	During 1994-95	Upto 31.3.1995
1. No. of persons enrolled in the scheme	196000	15000	211000
2. Investment under the scheme	Rs. 2,37,69,000	35,41,000	2,73,10,000
3. No. of persons to whom benefits have been made available under the scheme	412	132	544
4. Expenditure incurred on granting benefits under the scheme	Rs. 28,66,000	11,23,000	39,89,000